To:	Jerald Schnabel	From:	Paul Kos
	Castle Aggregate		Denver, CO 80202
File:	First Quarter 2025 Monitoring Summary	Date:	April 30, 2025

Reference: First Quarter 2025 Geotechnical Monitoring Summary Pikeview Quarry

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has prepared this First Quarter 2025 Geotechnical Monitoring Summary for the Pikeview Quarry. The Pikeview Quarry is situated along the foothills of the Rocky Mountains, northwest of Colorado Springs, Colorado. Castle Aggregate operated the quarry, which is currently closed and undergoing reclamation. A geotechnical monitoring program was established to monitor the geotechnical performance of the reclaimed slopes during and following reclamation grading. This report presents the geotechnical monitoring results at the site through the First Quarter 2025. Continuous monitoring by the robotic survey system began in 2010 and continued through the First Quarter 2025. Visual inspections of the slopes were performed by Castle Aggregate employees and Stantec engineers.

1.1 PURPOSE

The purpose of this report is to summarize the First Quarter 2025 geotechnical monitoring results and verify the geotechnical performance of the existing and reclaimed slopes with respect to the historical performance record. The goals of the geotechnical instrumentation monitoring program can be described as:

- Meet corporate risk management requirements,
- Provide ongoing slope monitoring and advance warning of any changed conditions that could pose a hazard to workers or to the public,
- Document the geotechnical performance of the slope, and
- Document site activities.

1.2 MONITORING SUMMARY

Major components of the instrumentation monitoring program are listed in Table 1 and shown on Figures 1 (aerial imagery) and 2 (topography).

Table 1 Monitoring Frequency

Monitoring Type	Frequency
Visual inspection	Daily (if work activities that day, Castle Aggregate) and Quarterly (Stantec)
Robotic theodolite/prism	Continuous

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2.0 VISUAL INSPECTIONS

Inspections are completed daily by site staff prior to work activities and quarterly by Stantec engineers to document visual observations of slope conditions, including signs of instability (i.e., cracking, slumping, over-steepened slopes, seeps, perched boulders, rock falls, erosion, and areas undercut by construction or maintenance activities).

On working days, site operators inspect their work areas for signs of instability daily before starting work per site safety rules and regulations. The daily inspection starts by reviewing any prism alerts/alarms, and when appropriate, inspecting those areas before work begins in that area. The daily inspection also includes visual observations of the quarry slopes for any changes.

Stantec conducted visual inspections of the Pikeview Quarry slopes on January 24, 2025 and January 29, 2025 . The engineering inspections were conducted by traversing each area of the mine and observing the uphill slope and the downhill slope for signs of instability, and areas in need of maintenance. Slopes that have been graded and are 2 horizontal (H):1 vertical (V) or shallower are also traversed on foot. Slopes that have been seeded are observed from adjacent areas to avoid disturbing the seed and mulch covering. The findings are listed below, and photographs of notable observations are included on Figure 3.

Visual inspections of the Pikeview Quarry did not reveal any evidence of large-scale instability outside of the landslide areas previously identified. No cracking, bulging, rippling, over-steepening, depressions, slumps, or dry slip-offs were observed in areas that have been graded and/or reclaimed.

3.0 PRISM SURVEY

A Leica robotic total station is used to continuously survey the prisms onsite to document slope movements. The robotic total station records the location of each prism every hour. There were 33 prisms active in the First Quarter 2025; two prisms were control points located outside the slope movement area, 5 prisms were located on the slopes surrounding the slope movement area, and 26 prisms were located in the buttress fill area. Prism P7500-1 was repaired on January 17, and the maintenance resulted in recorded displacements that are not attributed to slope movement. Prism P70R was impacted by wildlife on January 28 and was not replaced. The monitoring system was offline from February 13 to 17, 2025 due to weather and power issues. The prism locations are shown on Figures 1 and 2.

The monitoring software, GeoMos, has been programed to provide automatic alerts if there is a movement recorded that is greater than 0.35 feet, if a prism cannot be located, or if there are communication errors. Following each alert, Castle Aggregate clears the area of concern until the data can be reviewed and the slope can be inspected. Castle Aggregate made sure that there were no workers in the area before inspecting the slope. All alerts for potential movement have been attributed to weather, animal activity, equipment operations, or sun glare, and no alerts have been associated with slope movements. Castle Aggregate will notify CDRMS of any alerts caused by slope movement.

The prism monitoring results for transverse and height displacements, period change, and cumulative change are summarized in Table 2. The transverse displacement measures the change in the horizontal distance from the robotic total station to the prism; positive displacements indicate less distance between the robotic total station and prism (movement towards the robotic total station). The height displacement measures the change in the vertical distance from the robotic total station to the prism; positive displacements indicate upward movement. The period delta is the most recent reading cumulative delta displacement (horizontal, lateral, and vertical) subtracted from the first reading of the quarter. The

cumulative delta values are a total displacement and are not associated with a direction. The transverse, height, and cumulative delta displacements are the total displacement over the life of the monitoring, which was reset when the robotic total station was moved in July 2022 or when each prism was installed. According to Leica documentation, the survey accuracy is +/-4 mm+1.5 ppm for prisms located greater than 500m from the robotic total station; this equates to an accuracy of +/-0.016 ft.

Table 2 First Quarter 2025 Prism Summary

Prism ID	Cumulative Transverse Displacement (ft)	Cumulative Height Displacement (ft)	Period Delta (ft)	Cumulative Delta (ft)	Notes
B7200-1	-0.060	0.013	0.004	0.070	
B7200-2	0.011	-0.036	0.006	0.079	
B7200-3	0.239	-0.093	0.006	0.311	
B7300-0	-0.998	-0.275	0.020	1.227	
B7300-1	-0.212	-0.226	0.032	0.488	
B7300-2	0.009	-0.332	0.014	0.422	
B7300-3	0.201	-0.224	0.020	0.415	
B7300-4	0.256	-0.203	0.011	0.361	
B7400-1	-0.406	-0.955	0.045	1.543	
B7400-2	-0.046	-0.658	0.036	1.242	
B7400-3	0.167	-0.516	0.047	0.688	
B7400-4	0.513	-0.460	0.054	0.798	
B7400-5	0.815	-0.249	-0.004	0.873	
B7500-1R	0.006	-0.011	-0.239	0.049	Replaced on January 17
B7500-2	-0.035	-0.273	0.057	0.325	
B7500-3	0.073	-0.243	0.035	0.280	
B7500-4	0.114	-0.175	0.058	0.300	
B7500-5	0.084	-0.151	0.034	0.178	
B7600-5	0.099	-0.106	0.085	0.207	
B7700-1	0.032	-0.022	0.043	0.079	
B7700-2	-0.045	-0.011	-0.022	0.048	
B7700-3U	-0.031	0.022	0.012	0.039	
B7700-3L	0.001	0.012	-0.026	0.013	
BR4	-0.010	-0.022	0.014	0.035	
CP6	0.000	-0.028	-0.032	0.038	
CP7	0.064	0.008	-0.046	0.067	
NP4	0.031	-0.083	0.023	0.182	
P2	-0.011	-0.013	-0.019	0.017	
P5	-0.004	-0.017	-0.007	0.020	
P25	0.010	0.016	-0.003	0.020	
P32r	-0.040	0.017	-0.008	0.043	
P33	0.063	-0.032	0.014	0.138	
P70R	-1.014	-0.576	0.015	2.158	Removed on January 28

The data show stable conditions with no or very small settlement movements at each of the 33 prisms. Prisms on the buttress slope continued to record slow and decreasing gradual movement as the fill consolidates along the benches. The fill is likely consolidating under its own weight. A small amount of settlement is common for newly placed compacted fill, particularly following rain events, and this is being

recorded by the prisms. Plots of the transverse and height displacements for each prism are included in Appendix A.

4.0 RECLAMATION PROGRESS

Castle Aggregate has completed reclamation grading at the Pikeview Quarry. A phased approach is being used to complete the reclamation process (See milestone schedule below).

Task/Milestone	Estimated Dates
Phase 1 – RFP Evaluation and Recommendation	Completed July 2021
Phase 2 – Constructor Contract Award	Completed August 2023
Phase 3 – Project Kick-off with successful Contractor	Completed August 2023
Phase 4 – Reclamation Grading	Completed February 2022 to July 2024
Phase 4 – Contractor Demobilize from Site	Completed Summer 2024
Phase 4 – Channel Armoring	Completed January 2025
Phase 4 – Reclamation Planting	Completed February 2025
Phase 5 – Final Revegetation	2024 until acceptance

Progress of activities this quarter:

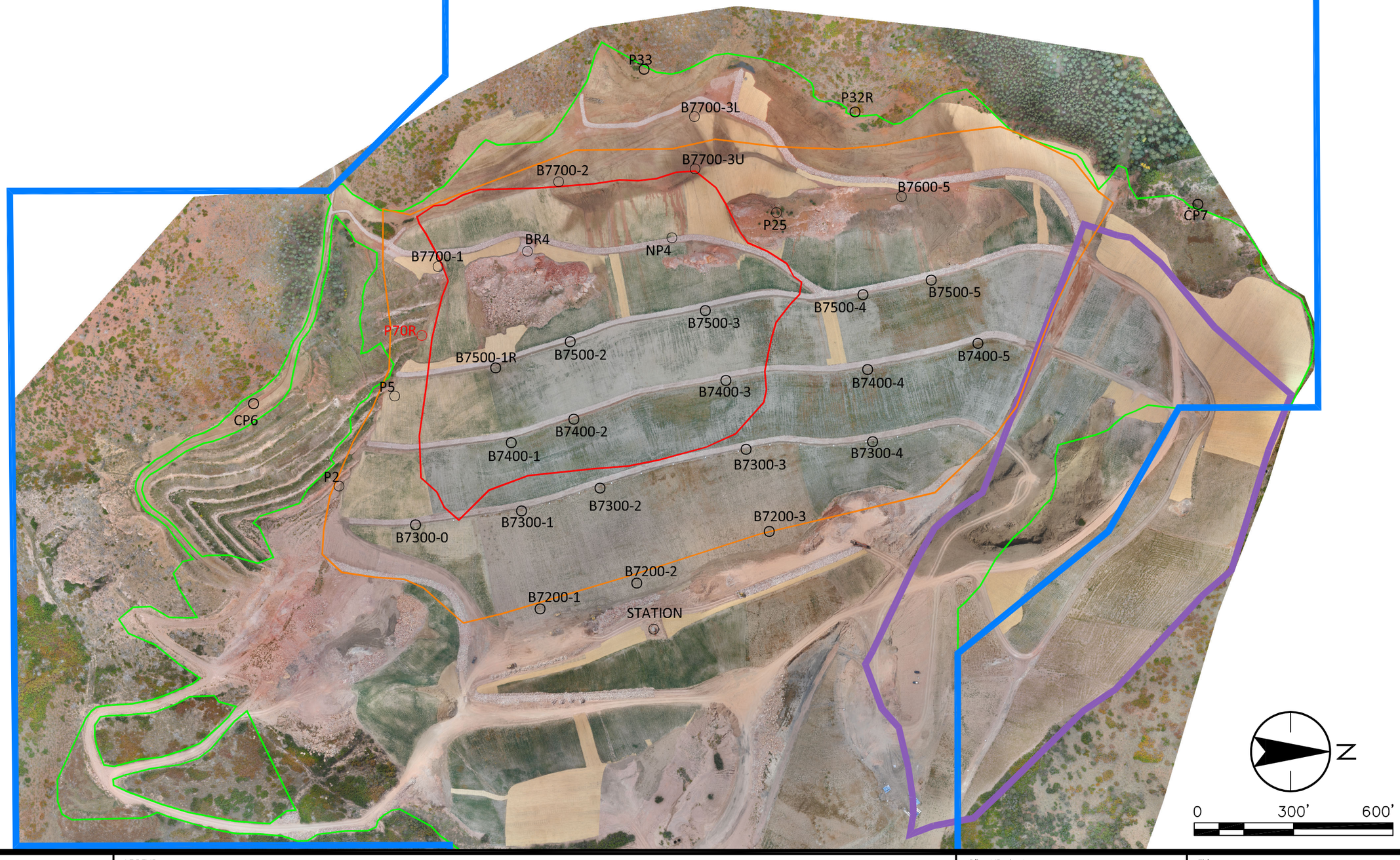
- Completed placing filter gravel and riprap.
- Completed placing topsoil.
- Completed seeding, matting, and mulching operations.
- Completed tree and shrub planting.
- Geotechnical monitoring continued.

Work planned for next quarter is limited to geotechnical monitoring and maintenance operations.

5.0 CONCLUSIONS

The data collected in the First Quarter 2025 demonstrate compliance with the reclamation grading plan, and none of the data indicate evidence of any large-scale movements that increase risk to workers or to the public.

- All monitoring should continue at frequencies specified above.
- All alerts shall continue to be taken seriously even if data errors are suspected.
- CDRMS will be notified of any movement alerts not associated with weather or maintenance.



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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Existing Prism
- Removed Prism

1. AERIAL IMAGERY FROM SEPTEMBER 30, 2024 DRONE SURVEY.

Client/Project
CASTLE AGGREGATE

PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

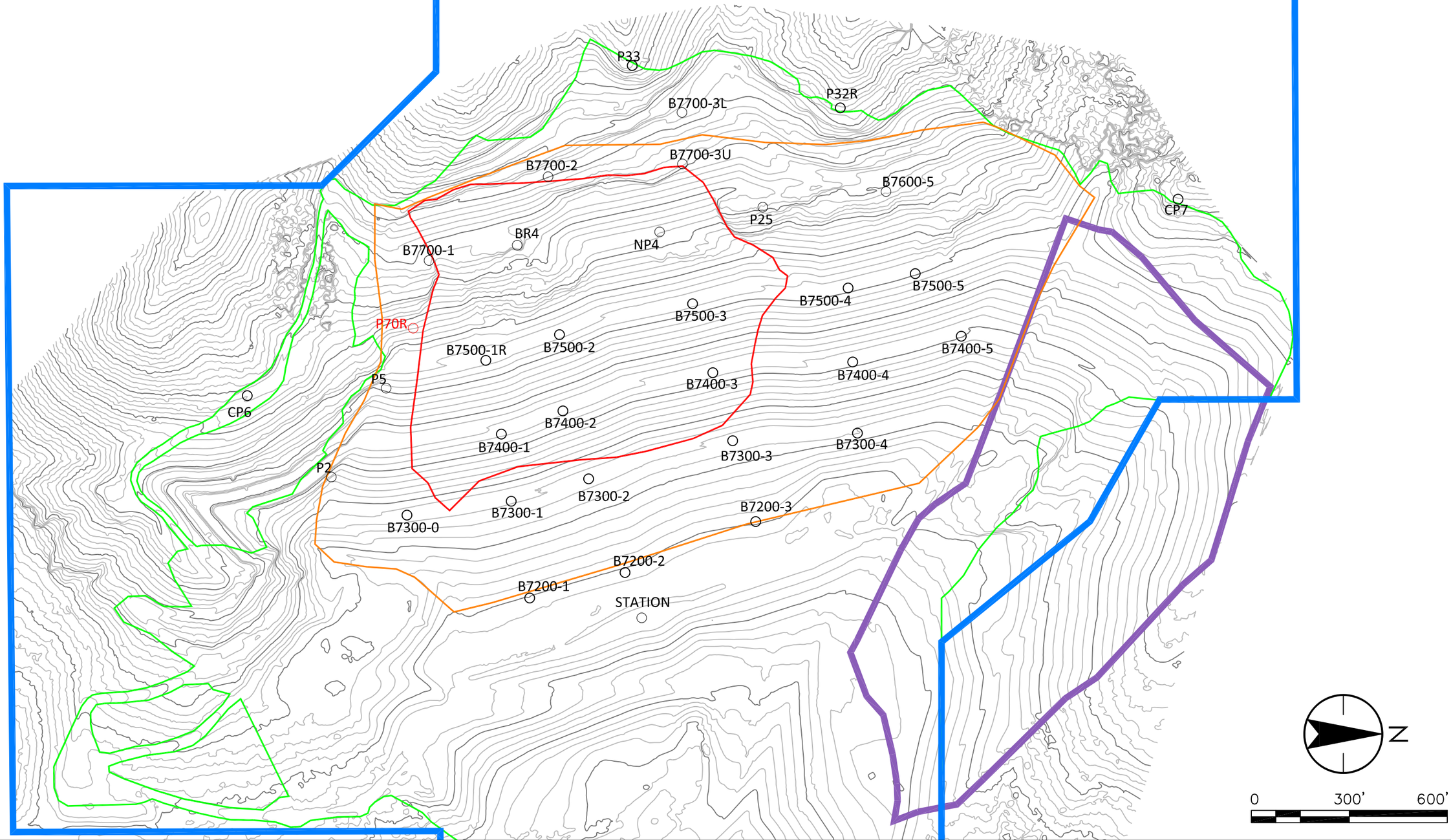
Title
SITE MAP

Revision
#

Date
2025.04.30

Drawn By
PK

Figure No.
1



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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
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- Landslide Extent
- Buttress Fill Extent
- Existing Prism
- Removed Prism

1. TOPOGRAPHY FROM SEPTEMBER 30, 2024 DRONE SURVEY.
2. CONTOUR INTERVAL IS 10 FEET

Client/Project
CASTLE AGGREGATE

PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
EXISTING PRISMS WITH CURRENT SURFACE

Revision	Date
#	2025.04.30
Drawn By	Figure No.
PK	2

6. RECLAIMED AREA ABOVE LEICA BENCH.

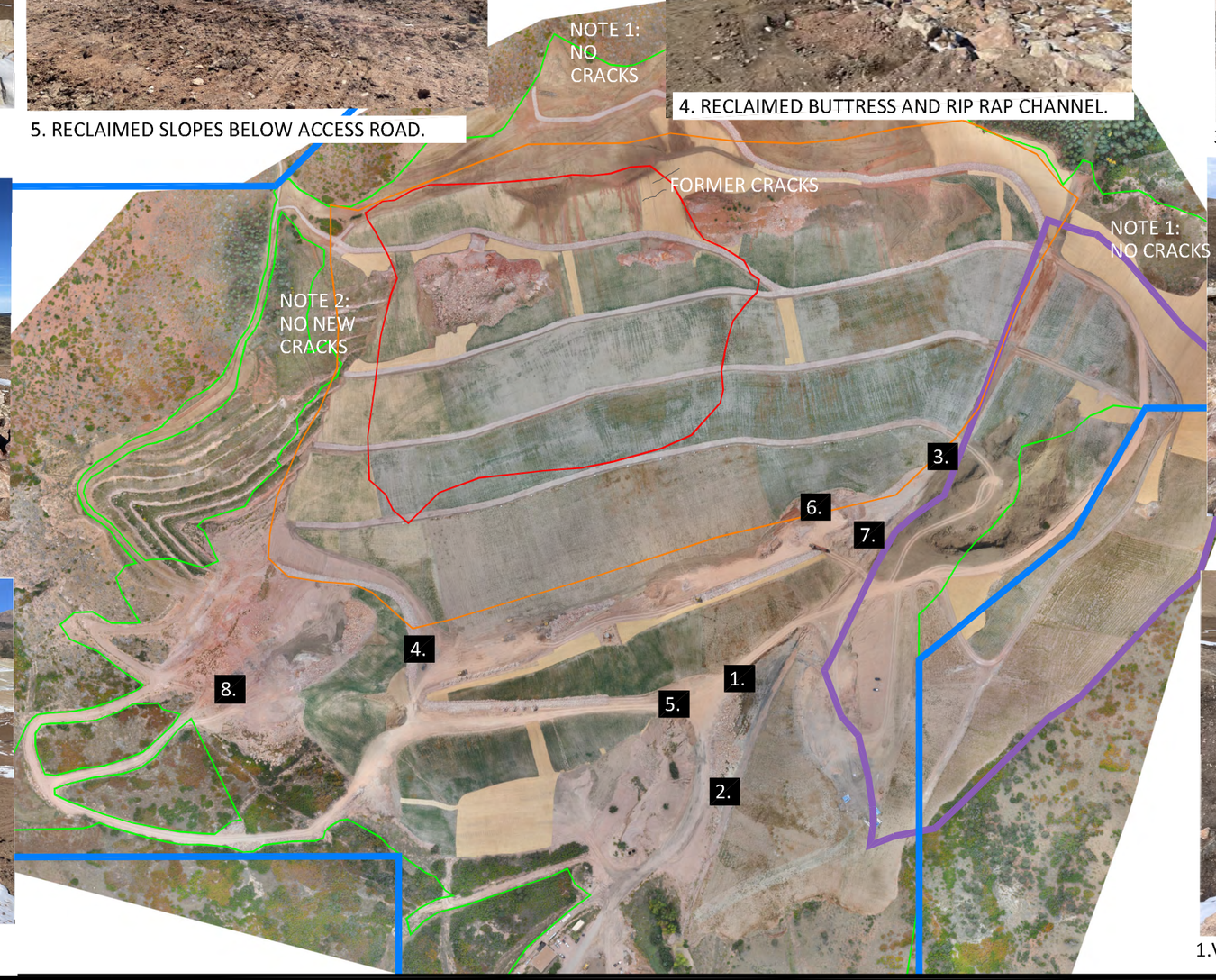
5. RECLAIMED SLOPES BELOW ACCESS ROAD.

4. RECLAIMED BUTTRESS AND RIP RAP CHANNEL.

3. RIP RAP LINED MAIN CHANNEL.

7. CONFLUENCE OF RIP RAP CHANNELS.

8. RECLAIMED RIP RAP BORROW AREA.



2. RIP RAP LINED MAIN CHANNEL.

1.VIEW SOUTH FROM RIP RAP LINED TERRACE CHANNEL .

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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent

NOTES

1. NO CRACKS OBSERVED IN THIS AREA.
2. NO NEW CRACKS OBSERVED IN THIS AREA.
3. PHOTOS TAKEN JANUARY 24 AND 29, 2024.
4. AERIAL IMAGE FROM SEPTEMBER 30, 2024.

N

0 400' 800'

Client/Project
CASTLE AGGREGATE

PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
OBSERVATIONS FROM FIRST QUARTER INSPECTIONS

Revision
#

Date
2025.04.30

Drawn By
PK

Figure No.
3

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Appendix A

First Quarter 2025 Prism Survey

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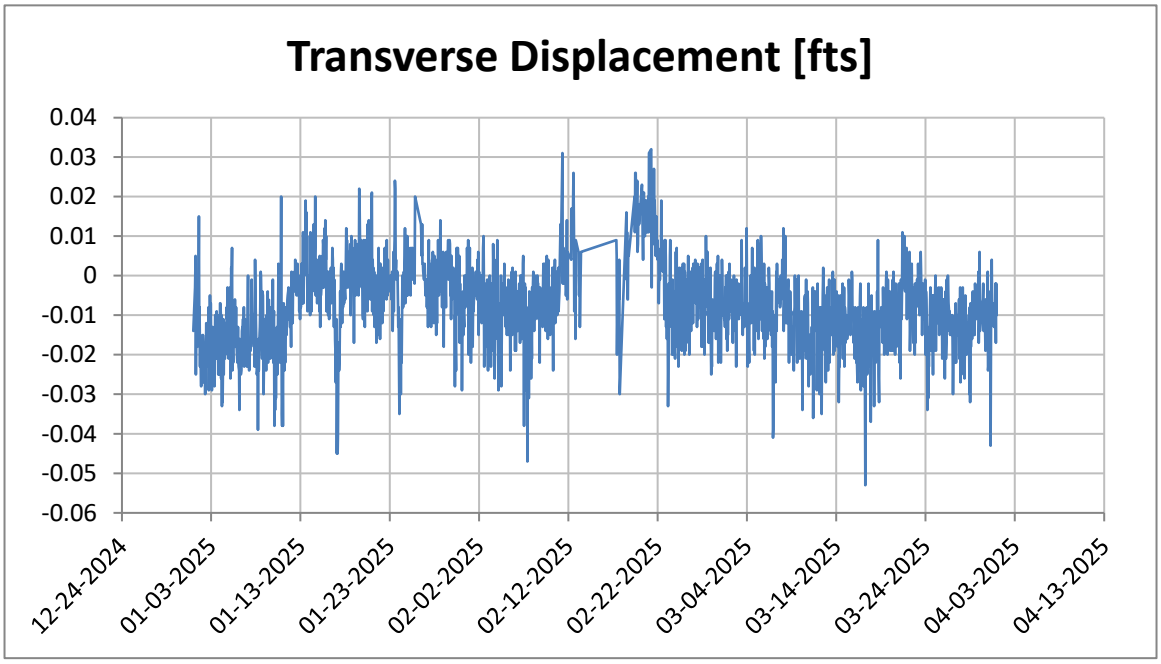
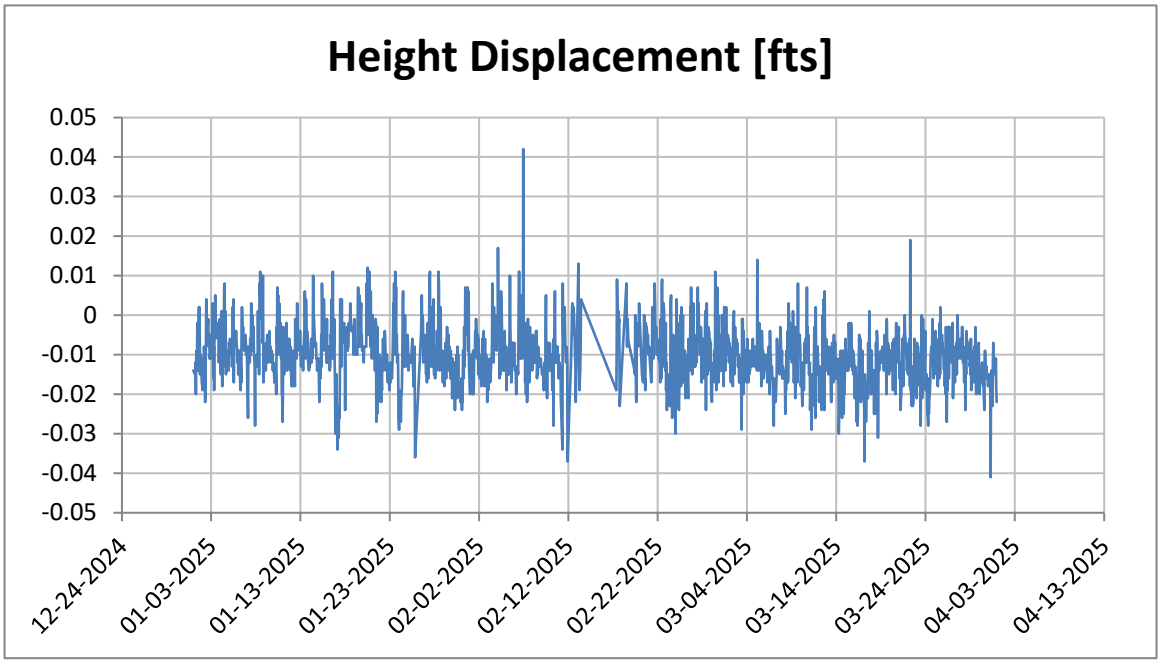
Prism BR4



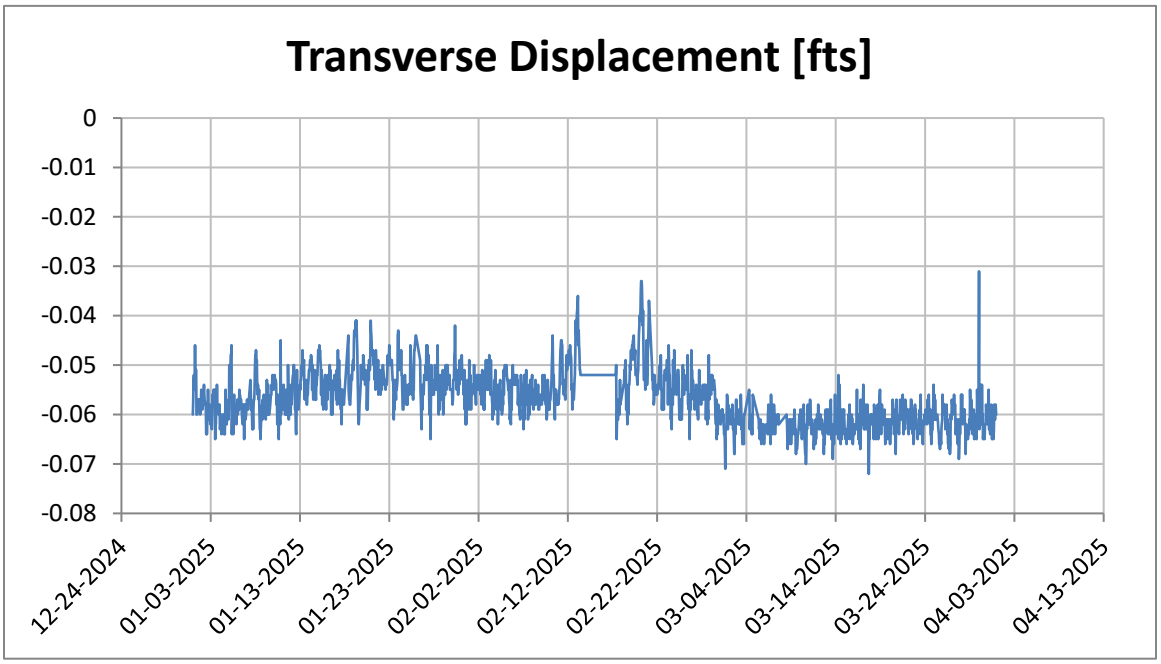


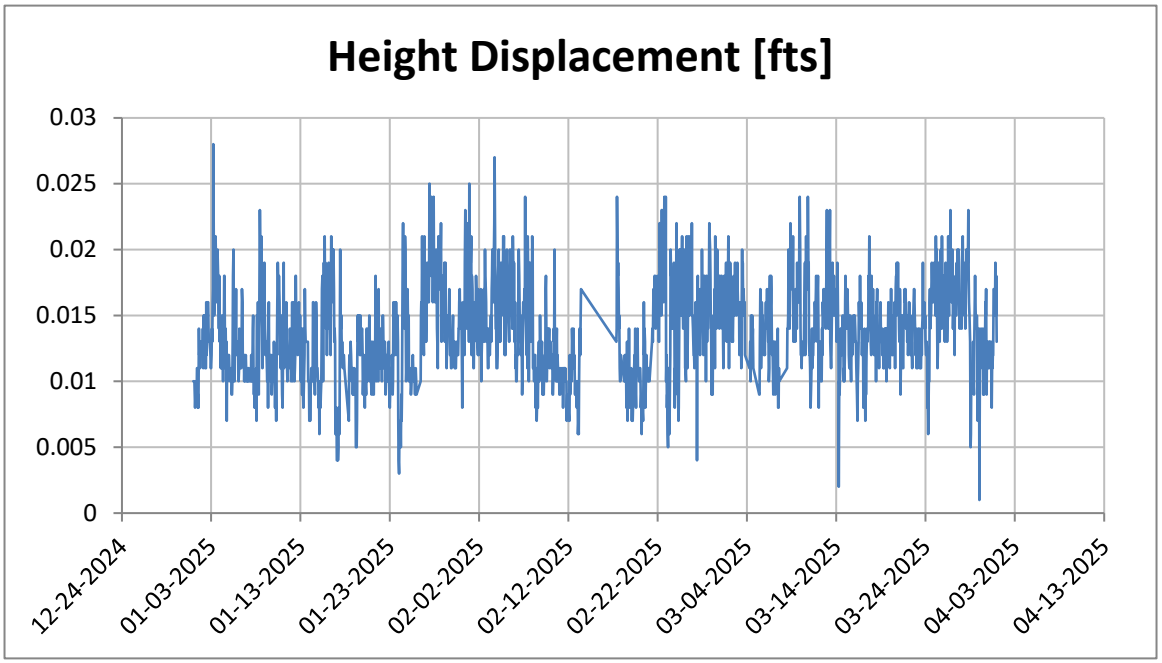
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism B7200-1





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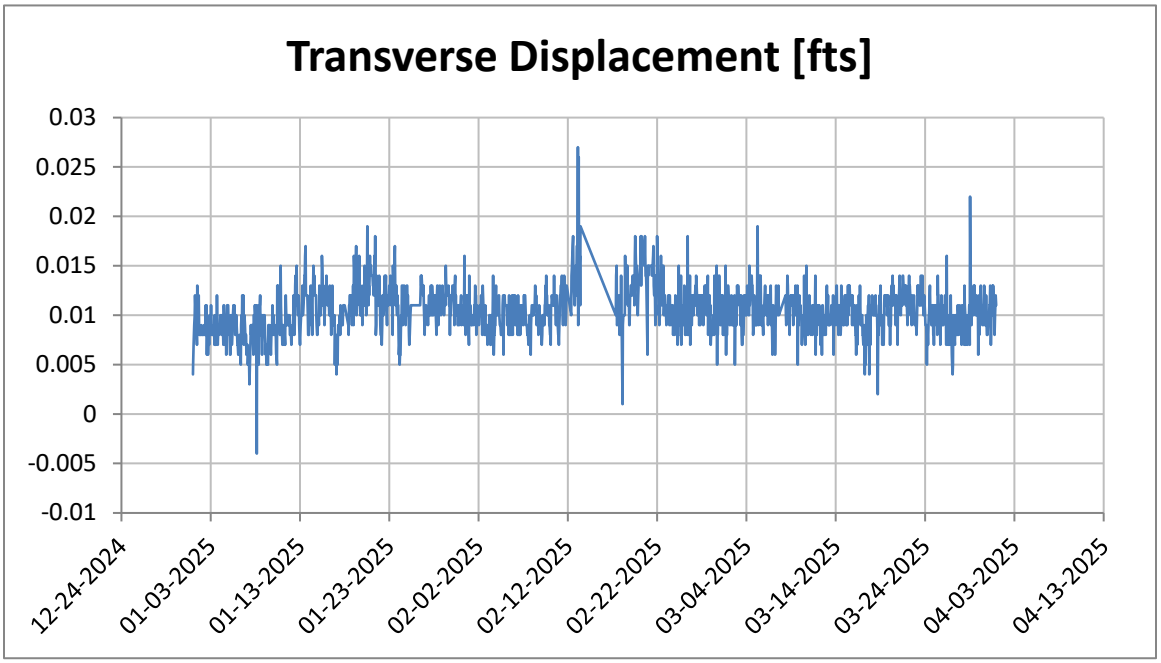
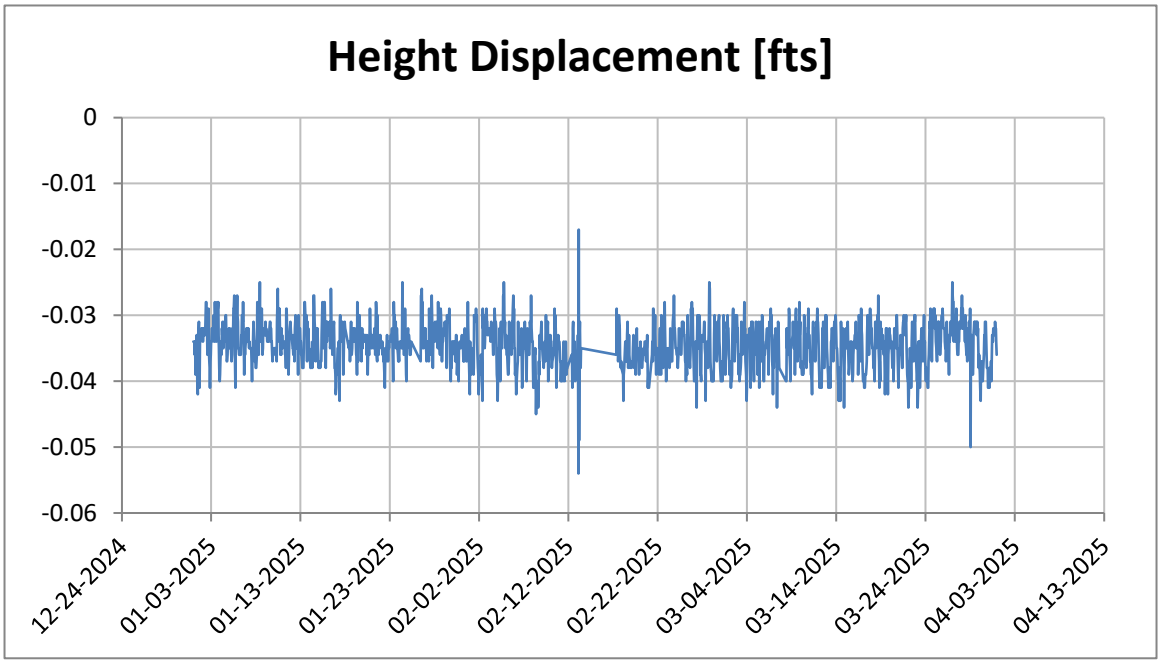
Stantec

Prism B7200-2





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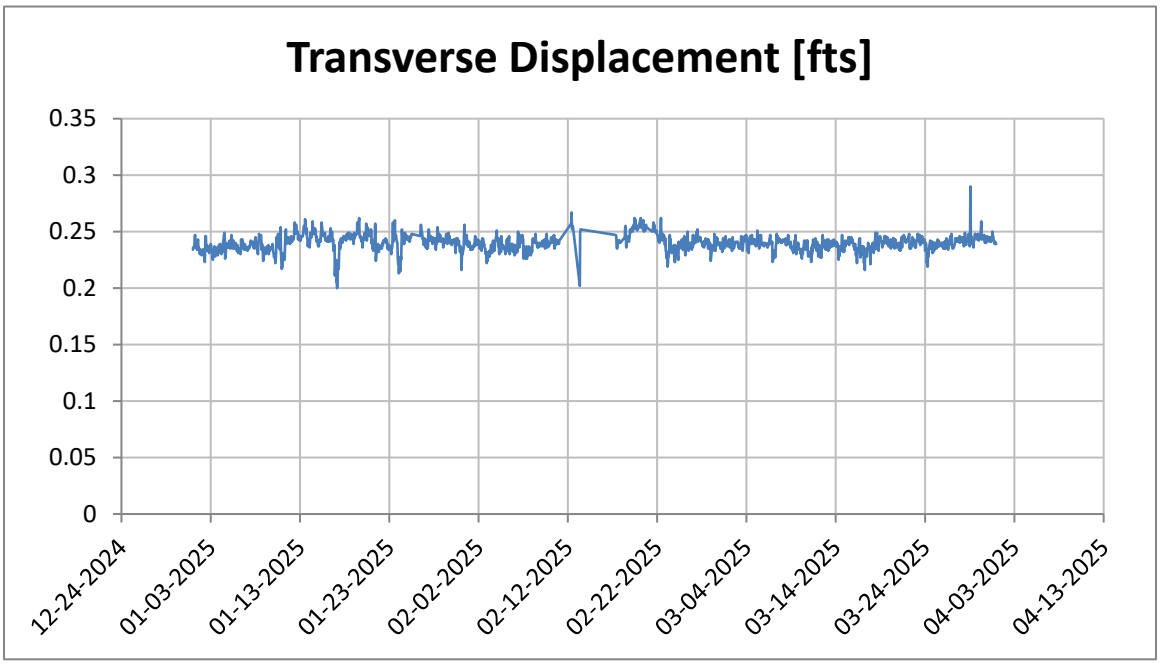
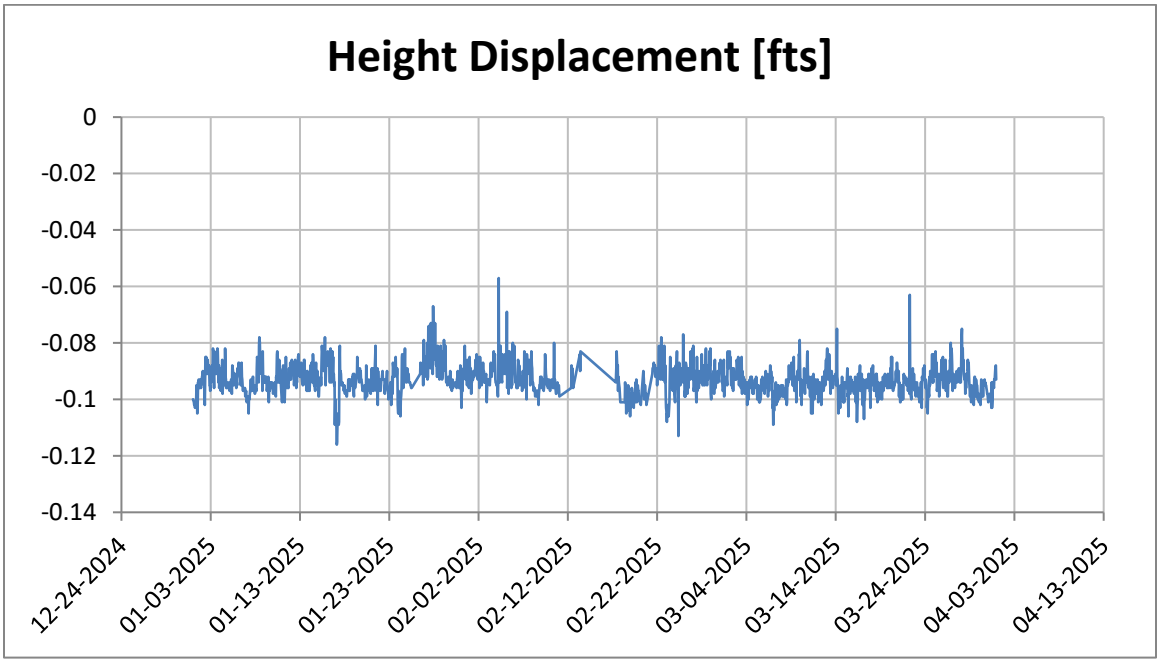
Stantec

Prism B7200-3





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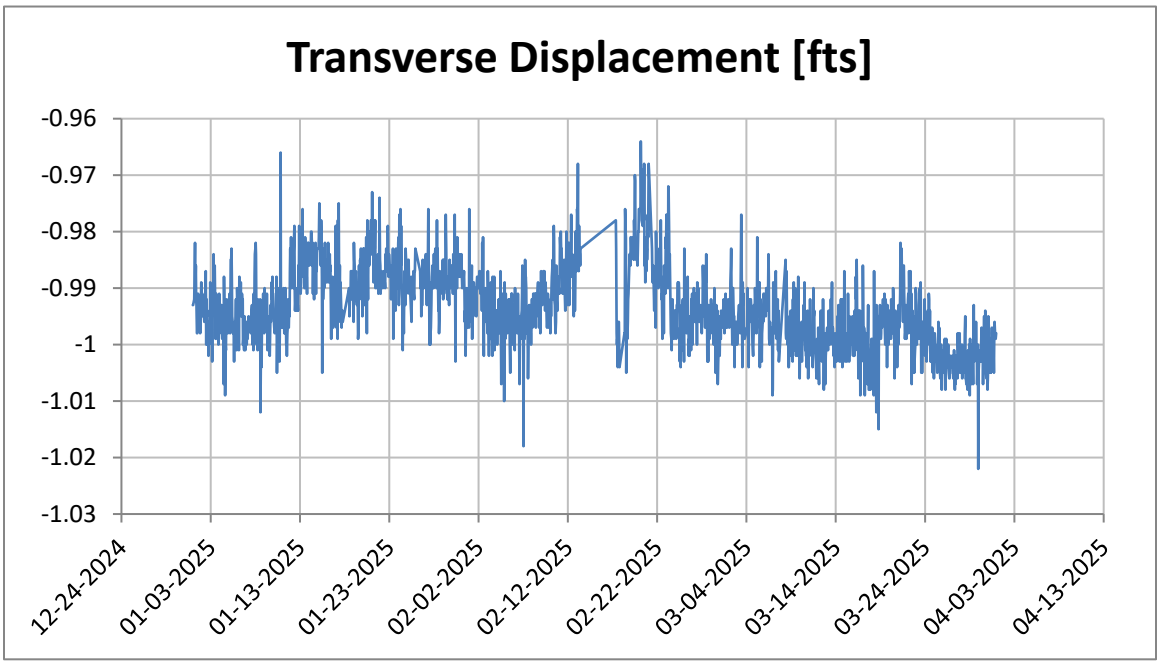
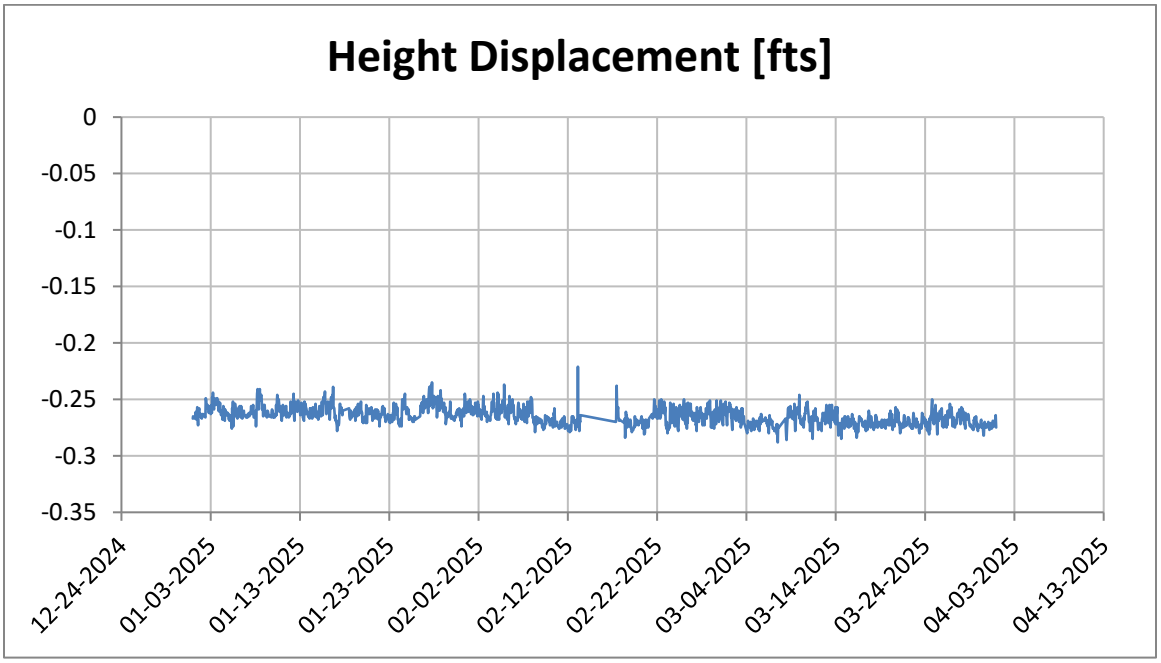
Stantec

Prism B7300-0





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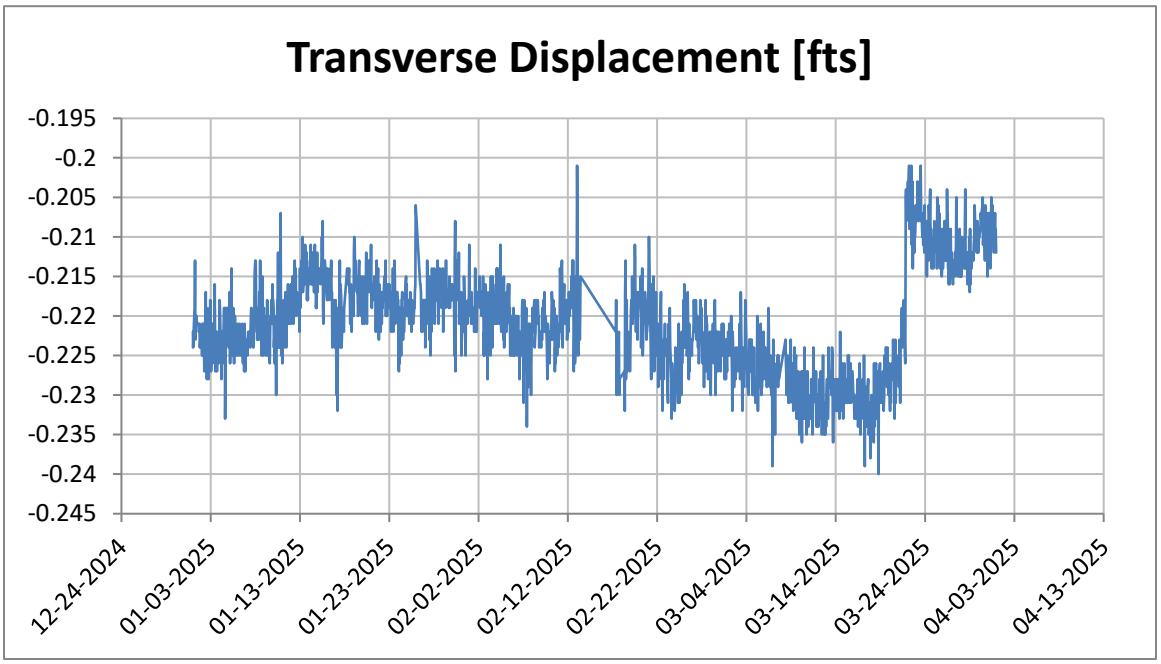
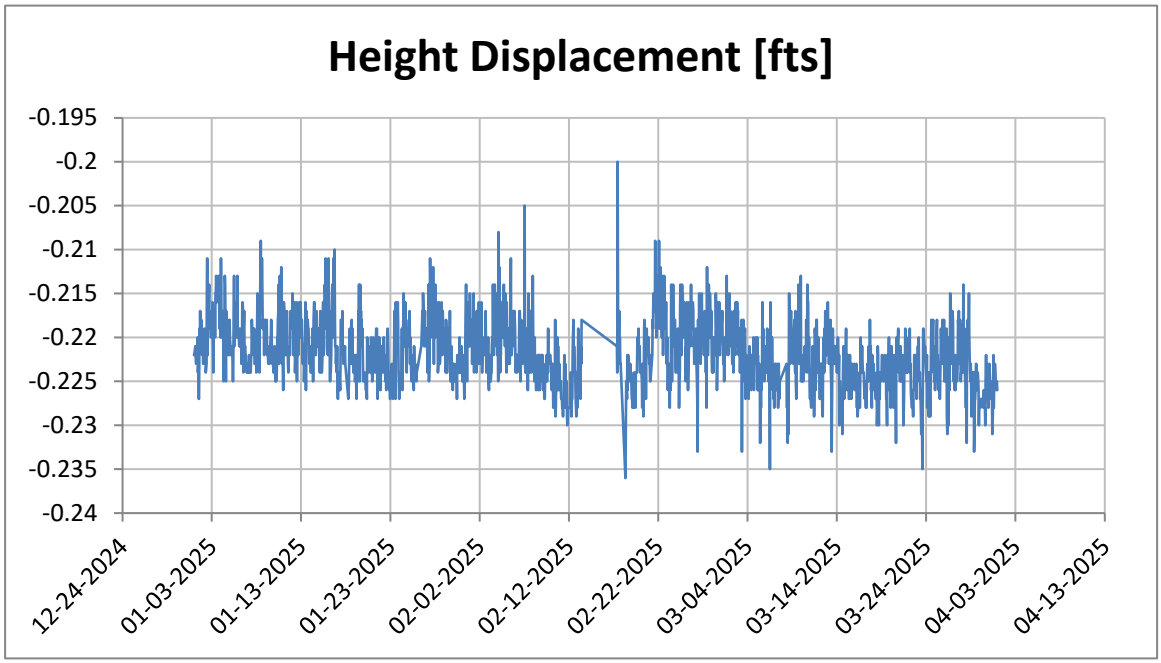
Prism B7300-1





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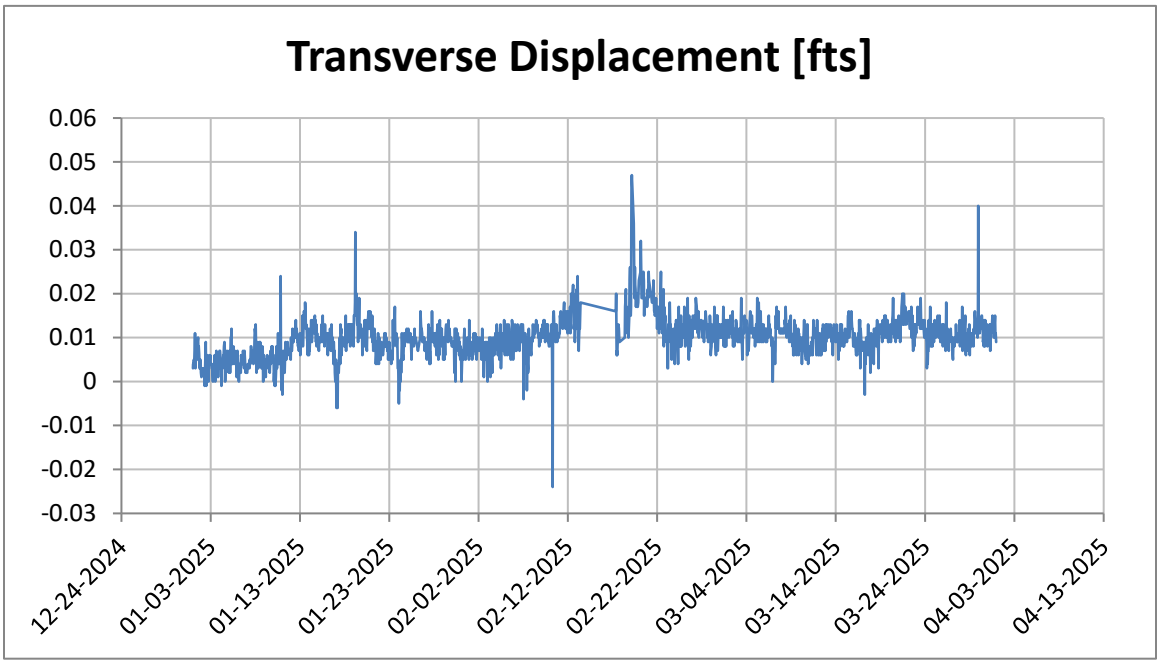
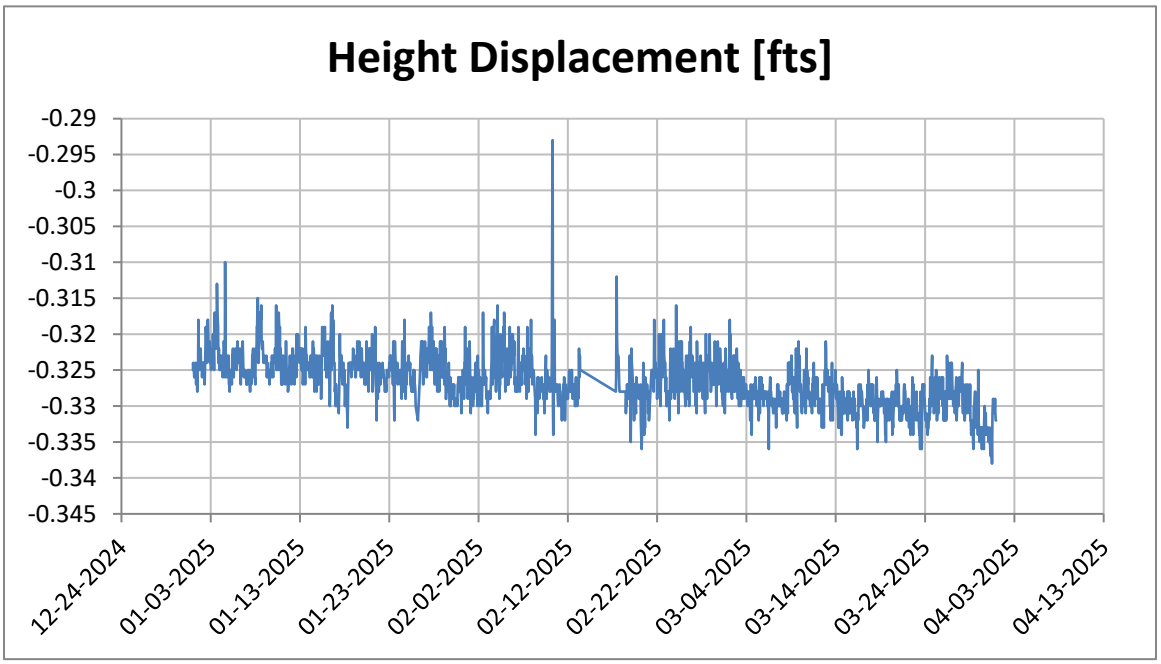
Prism B7300-2





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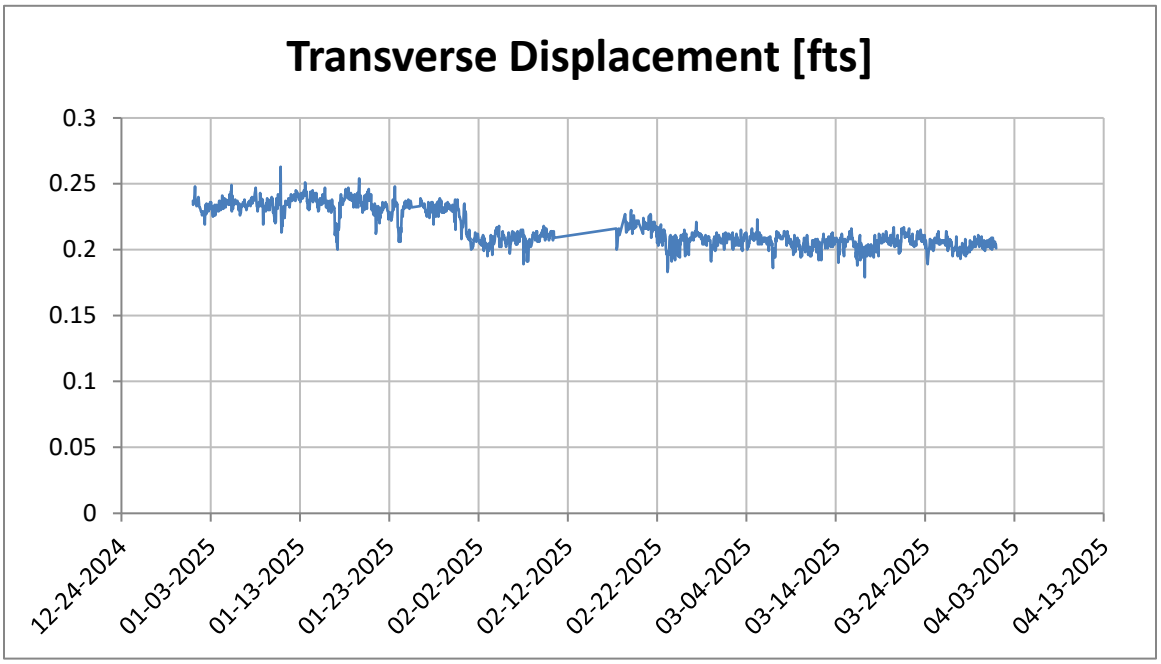
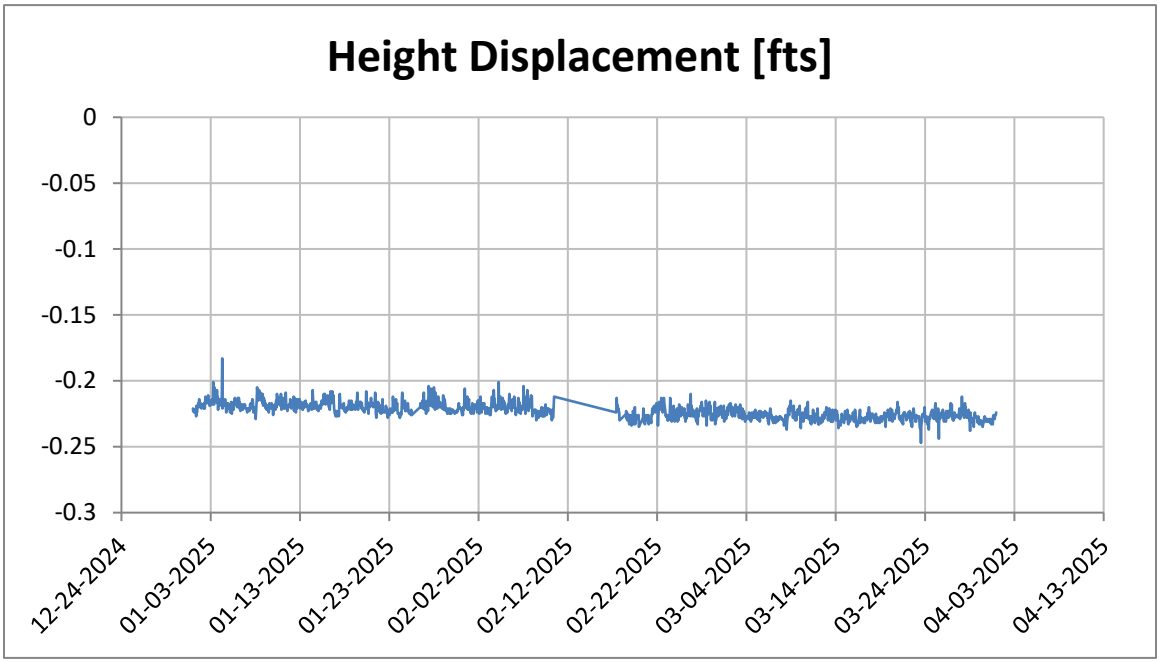
Stantec

Prism B7300-3





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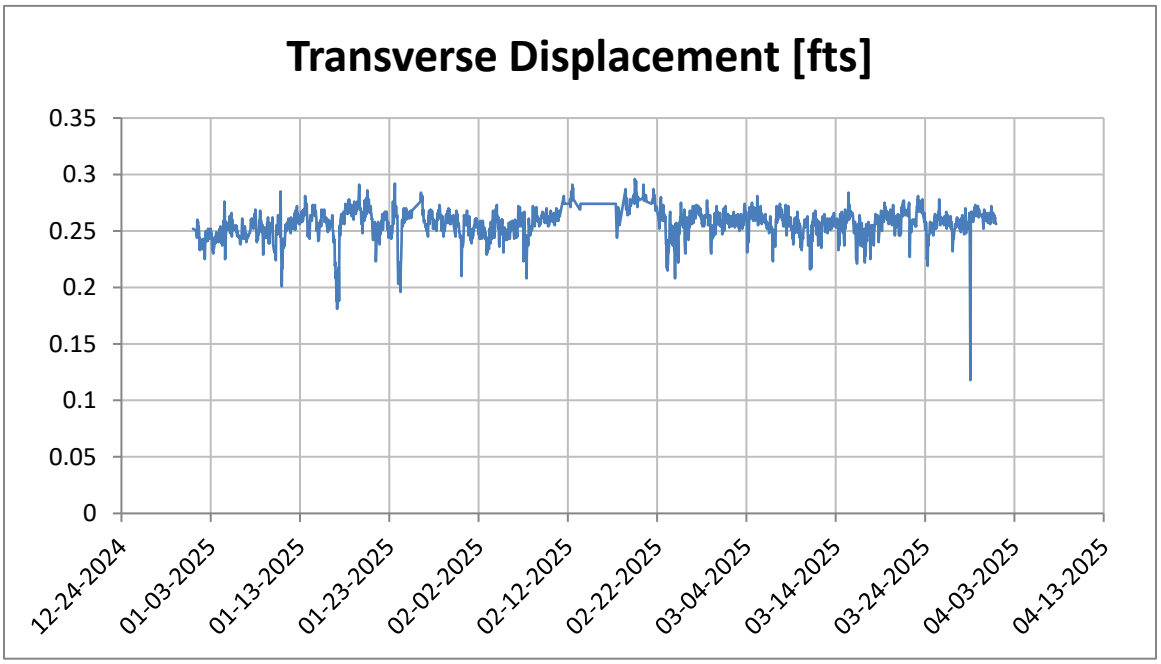
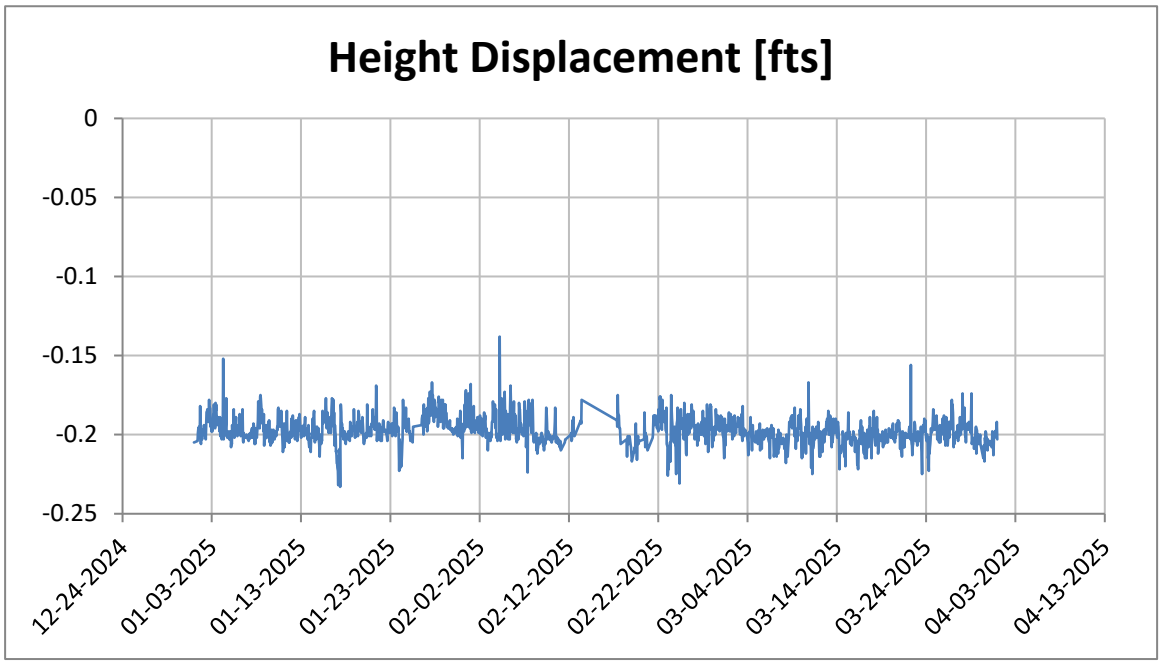
Prism B7300-4





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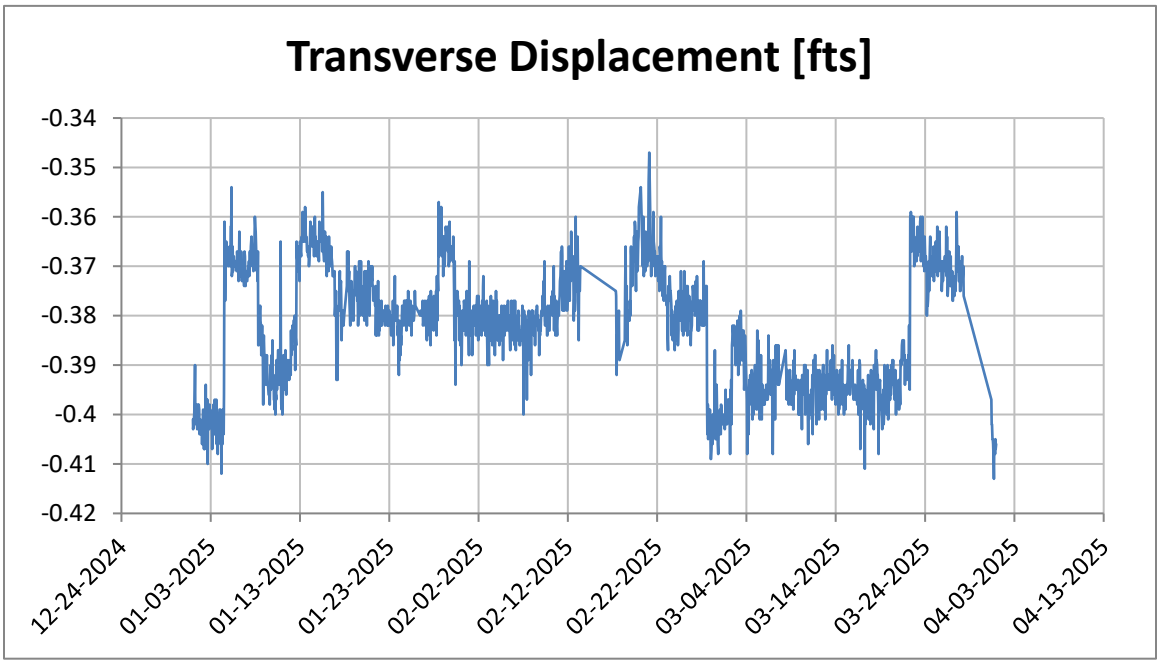
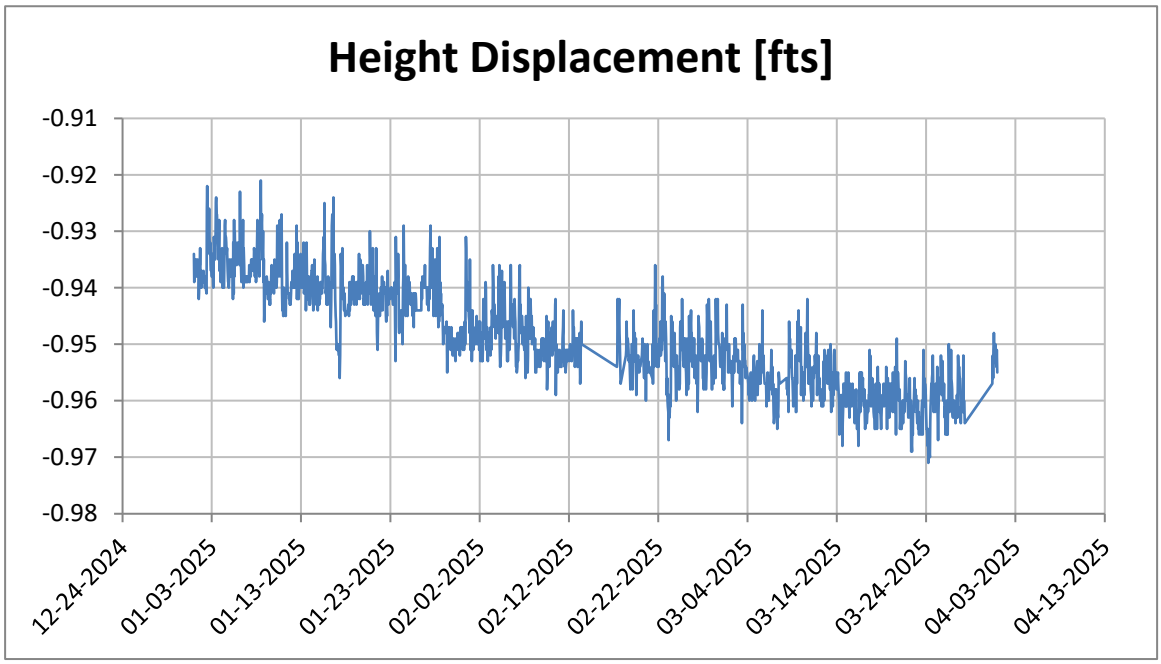
Prism B7400-1





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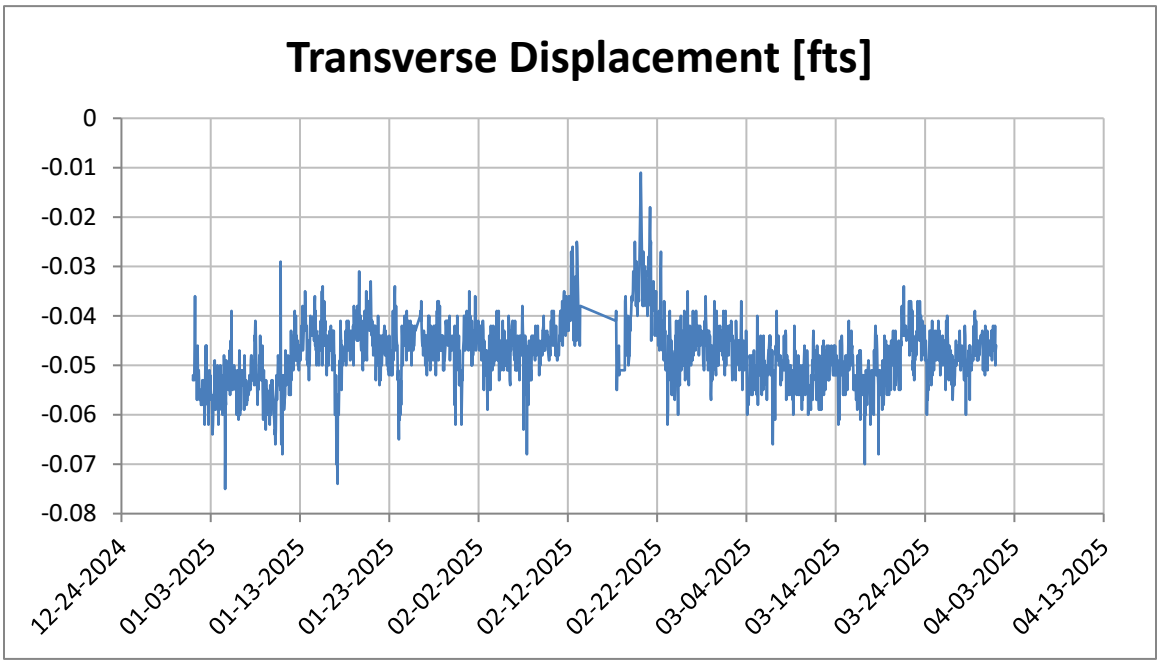
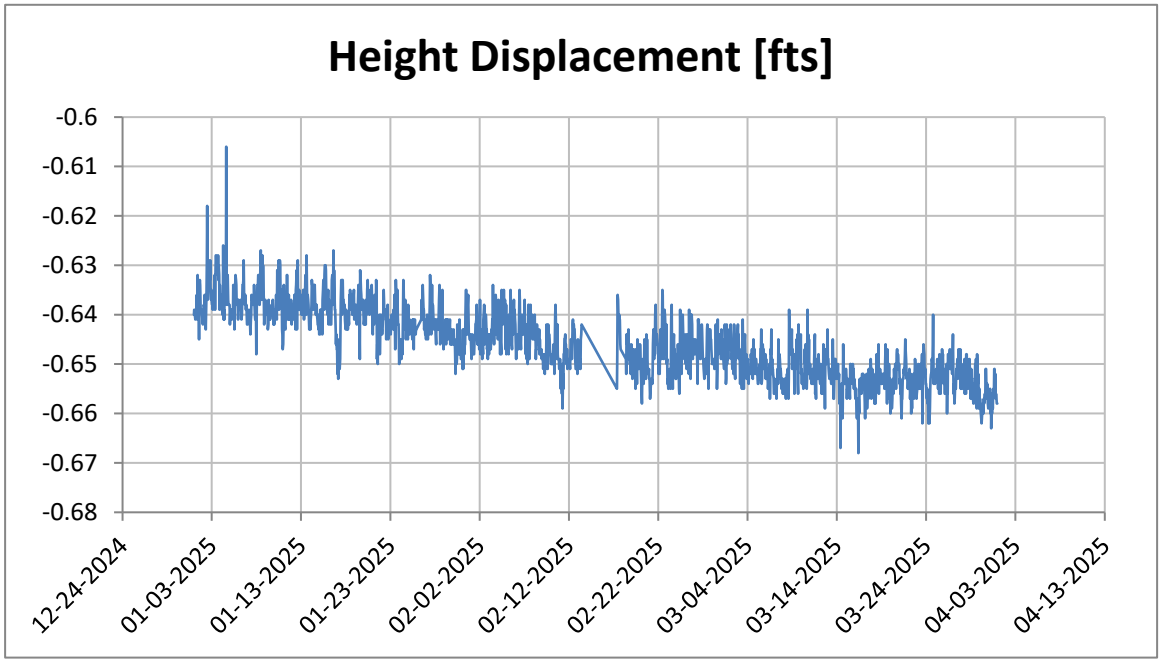
Prism B7400-2





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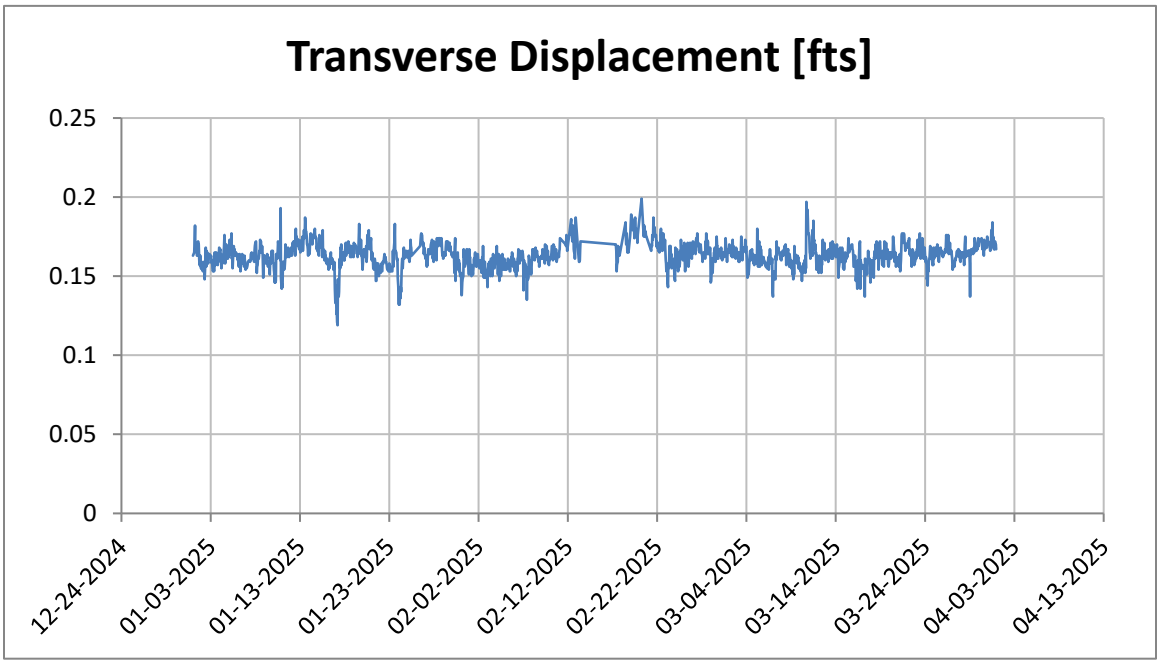
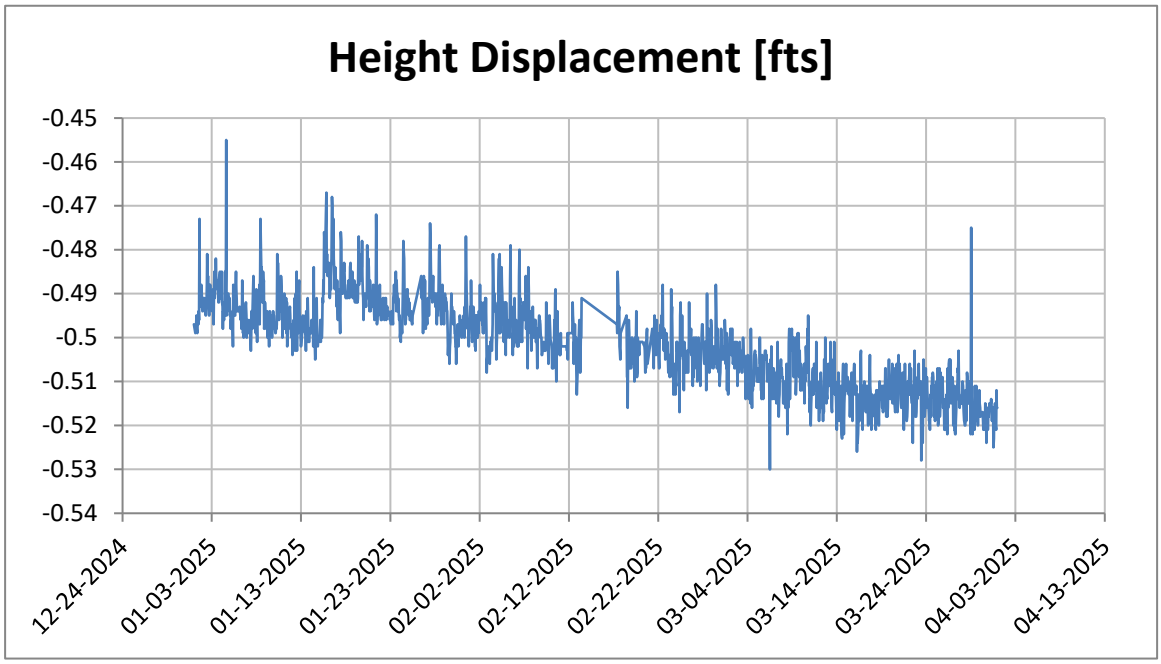
Prism B7400-3





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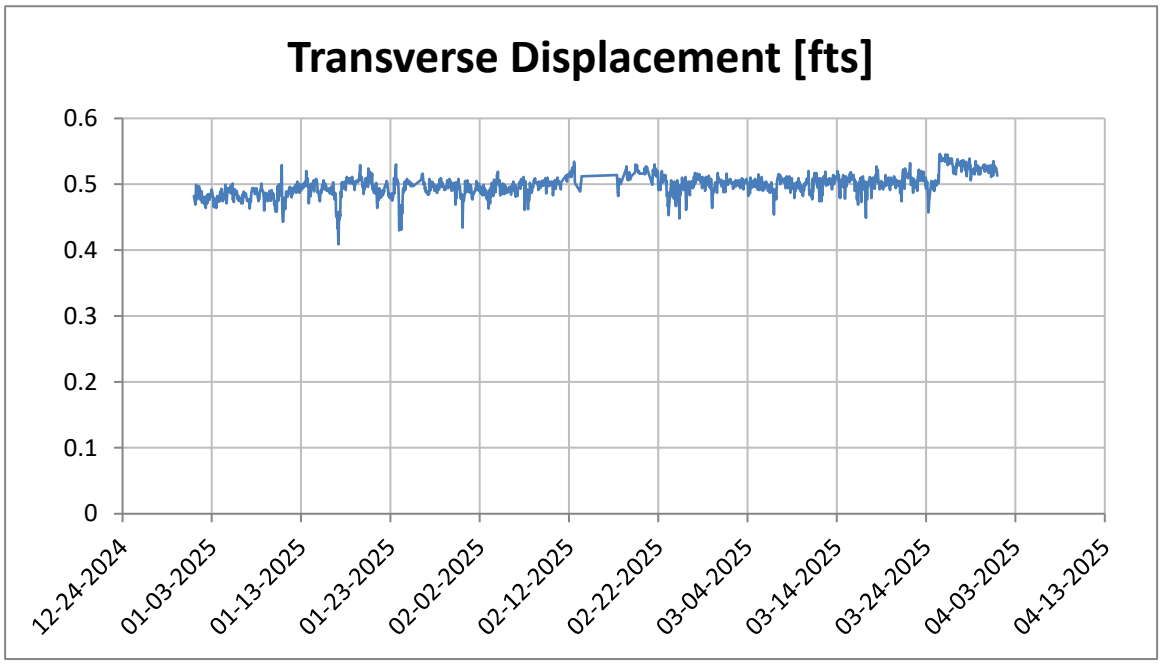
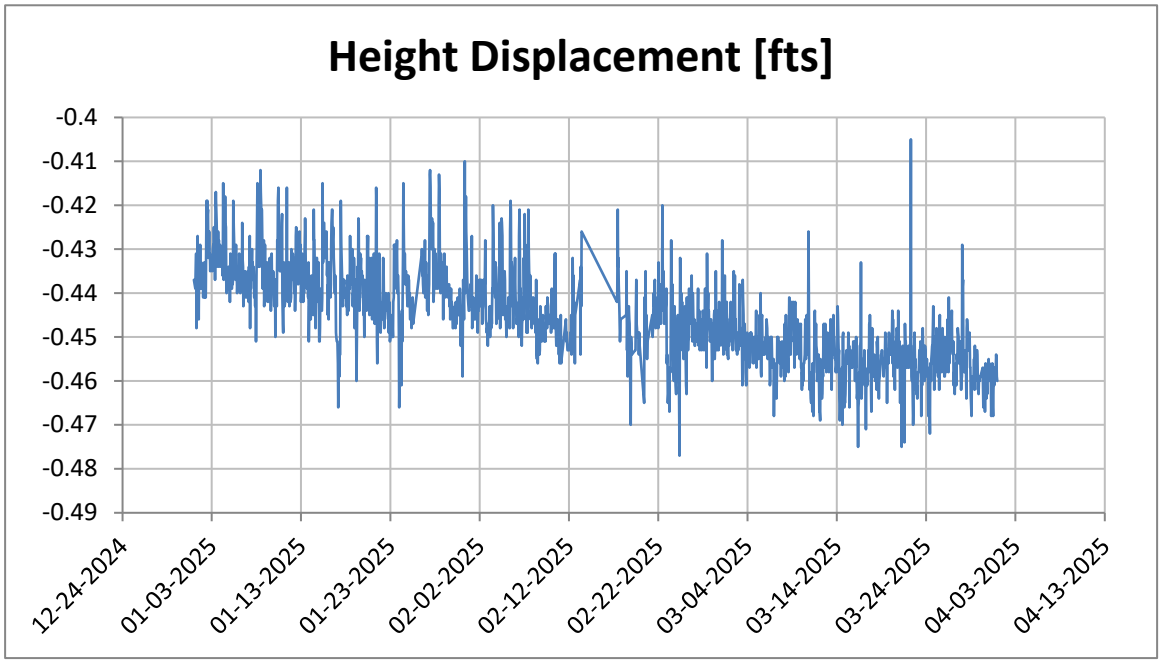
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism B7400-4



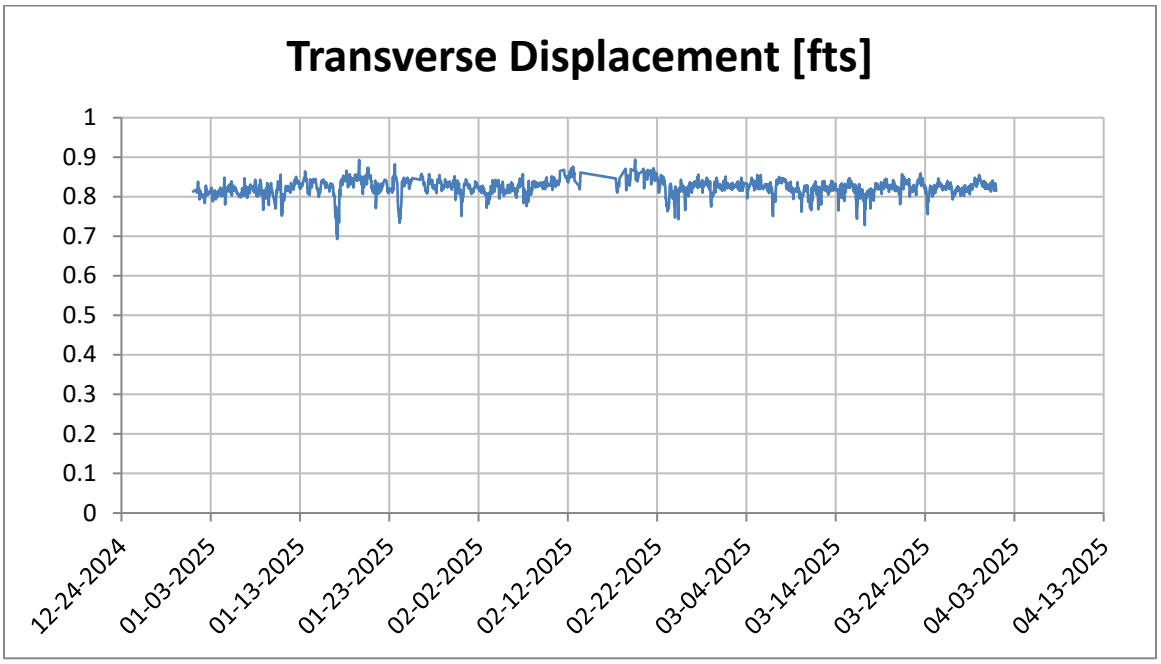


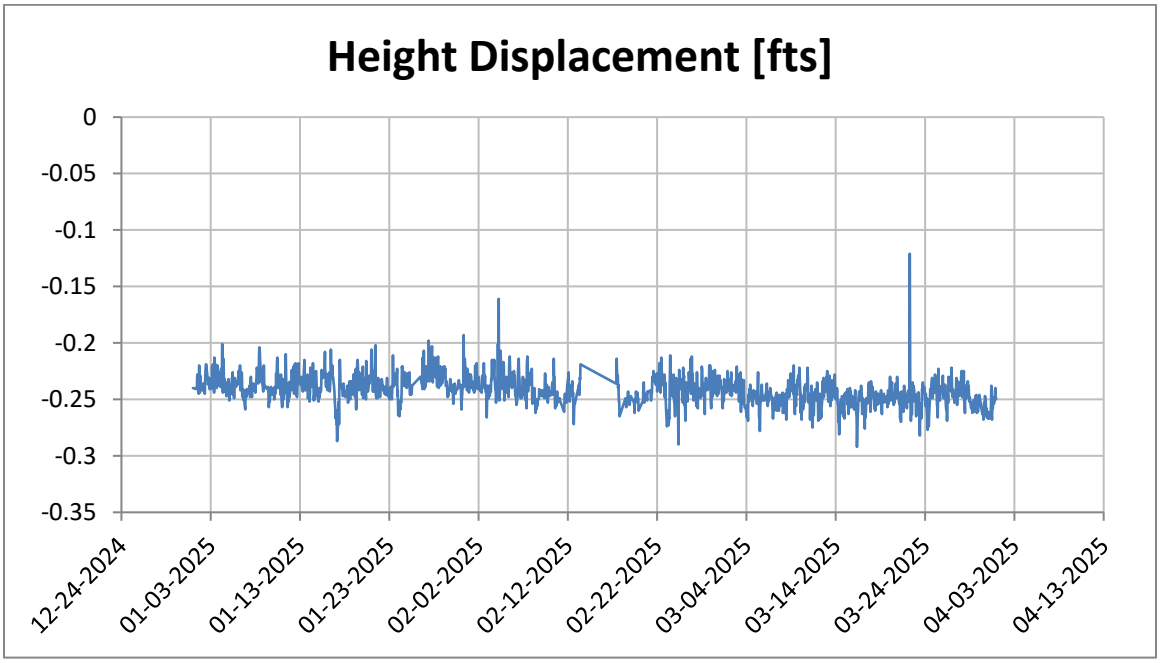
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism B7400-5



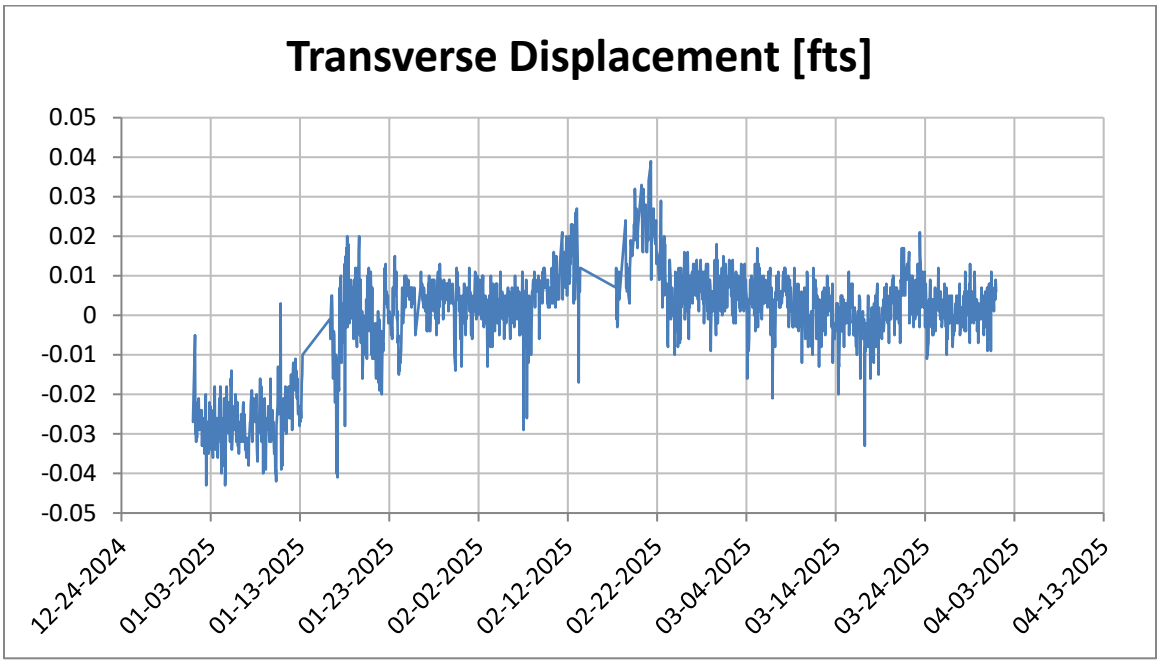


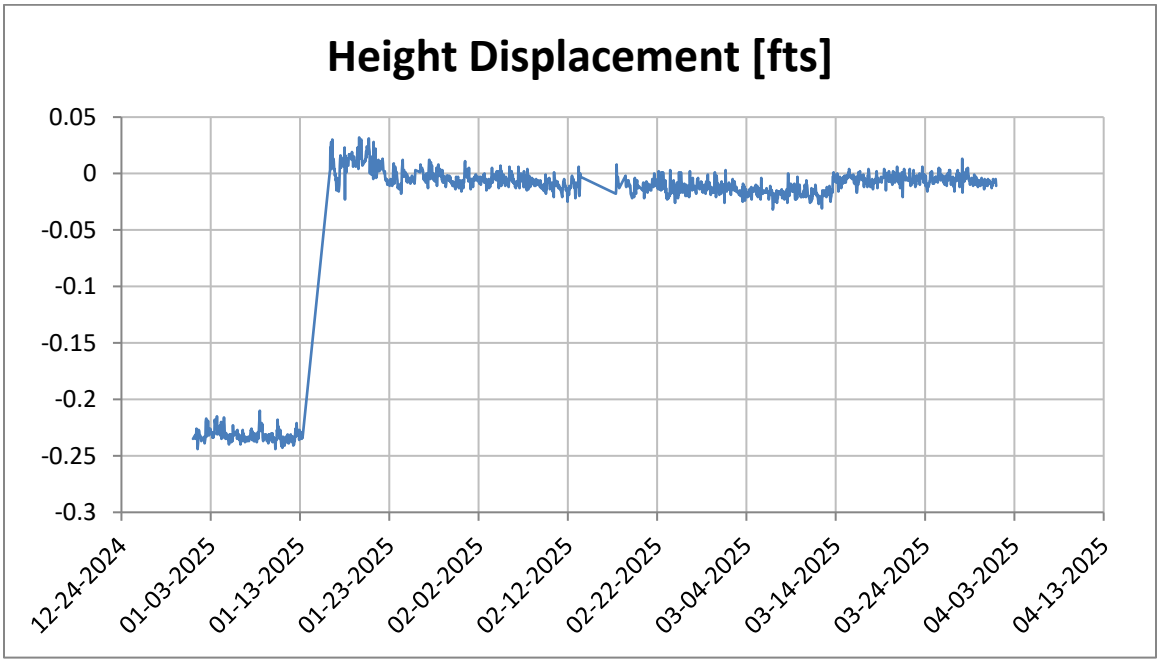
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

B7500-1R





Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism was replaced on January 16, 2025, and renamed as P7500-1R. Displacement recorded that day is from the repairs and not attributed to slope movement.

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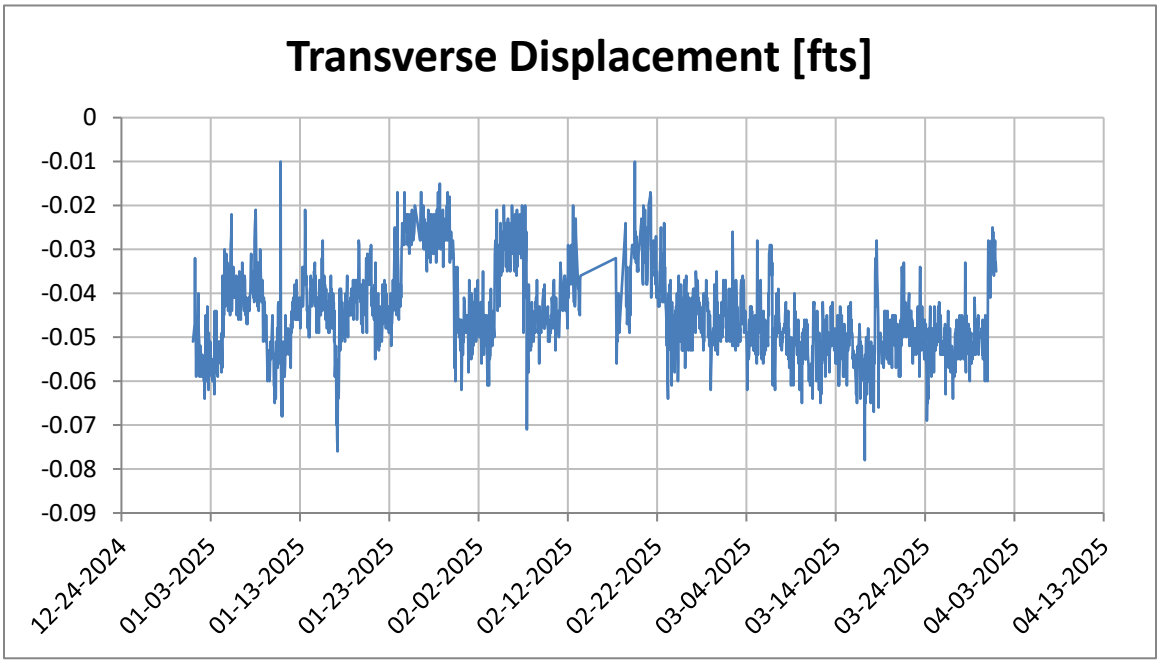
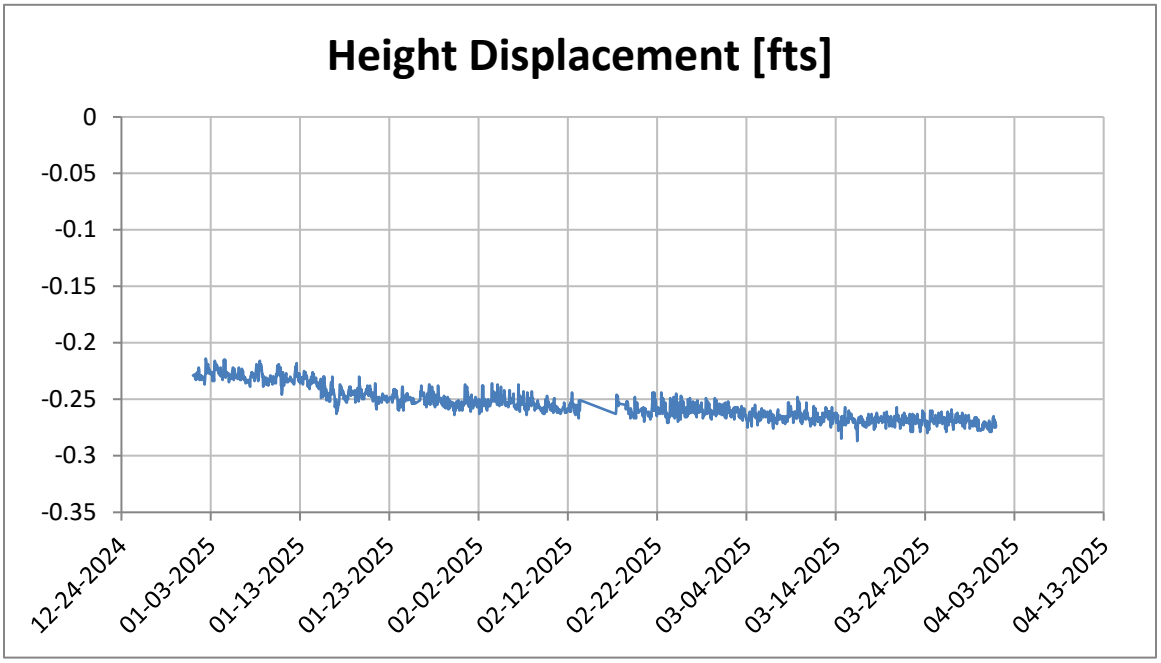
Stantec

B7500-2



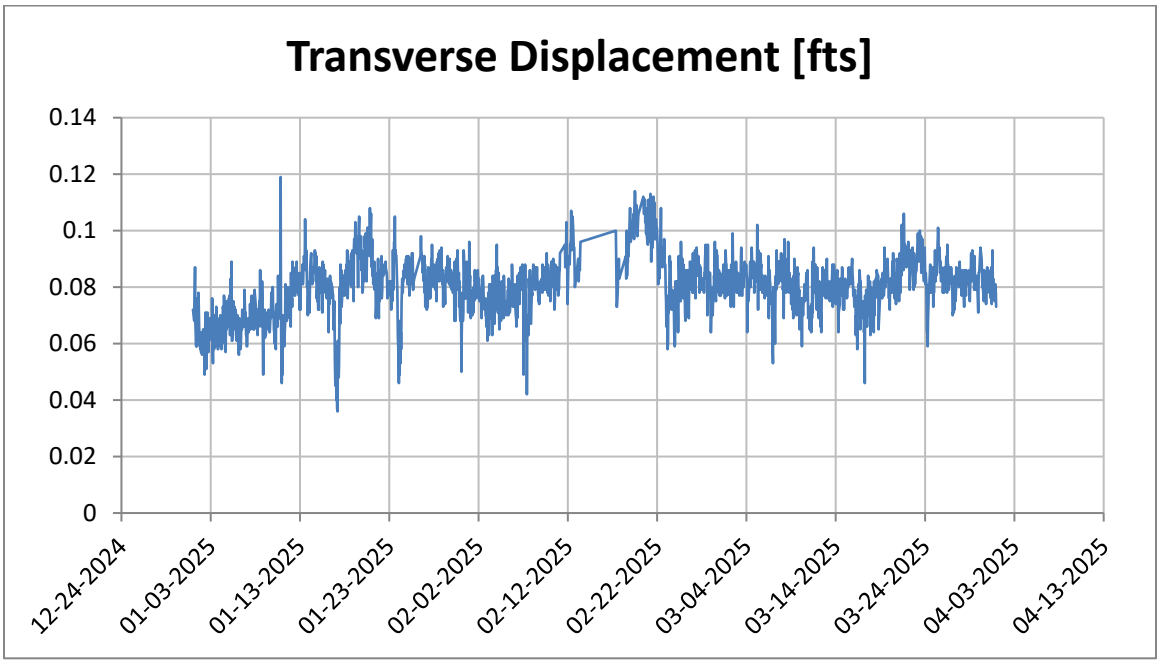


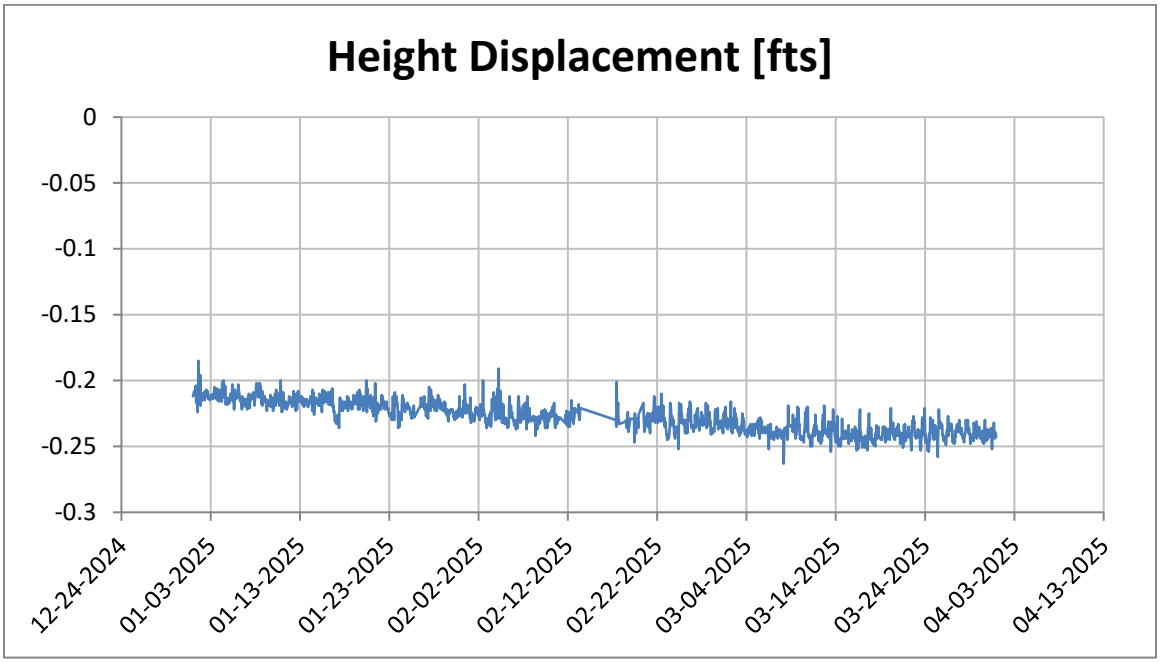
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

B7500-3



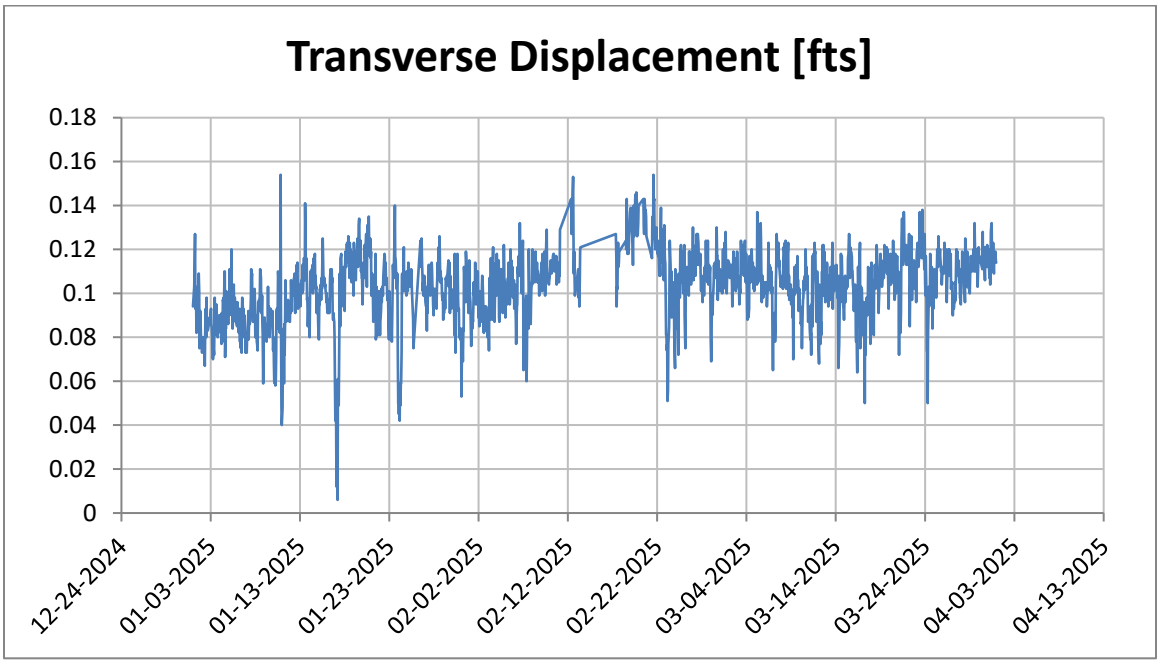


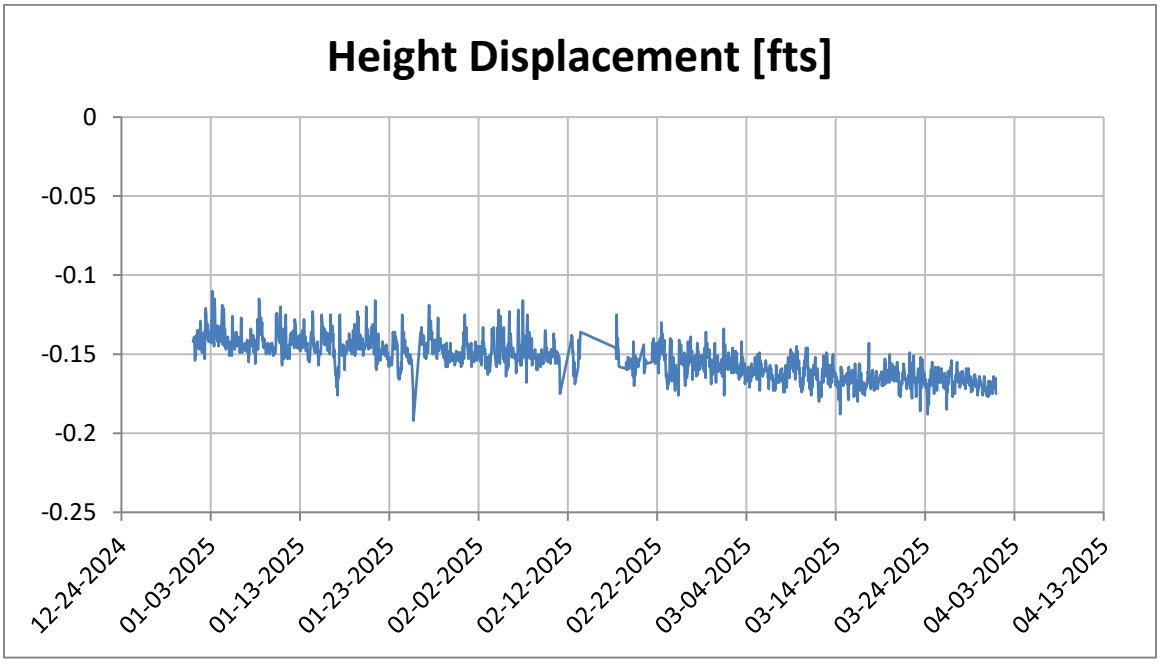
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

B7500-4



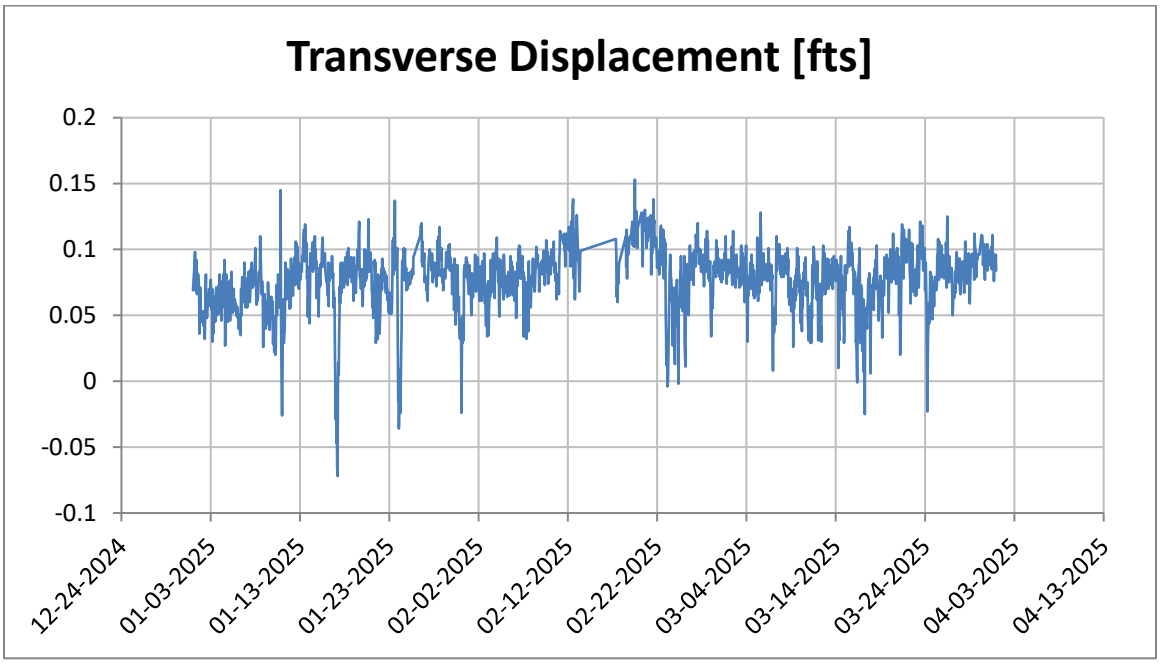


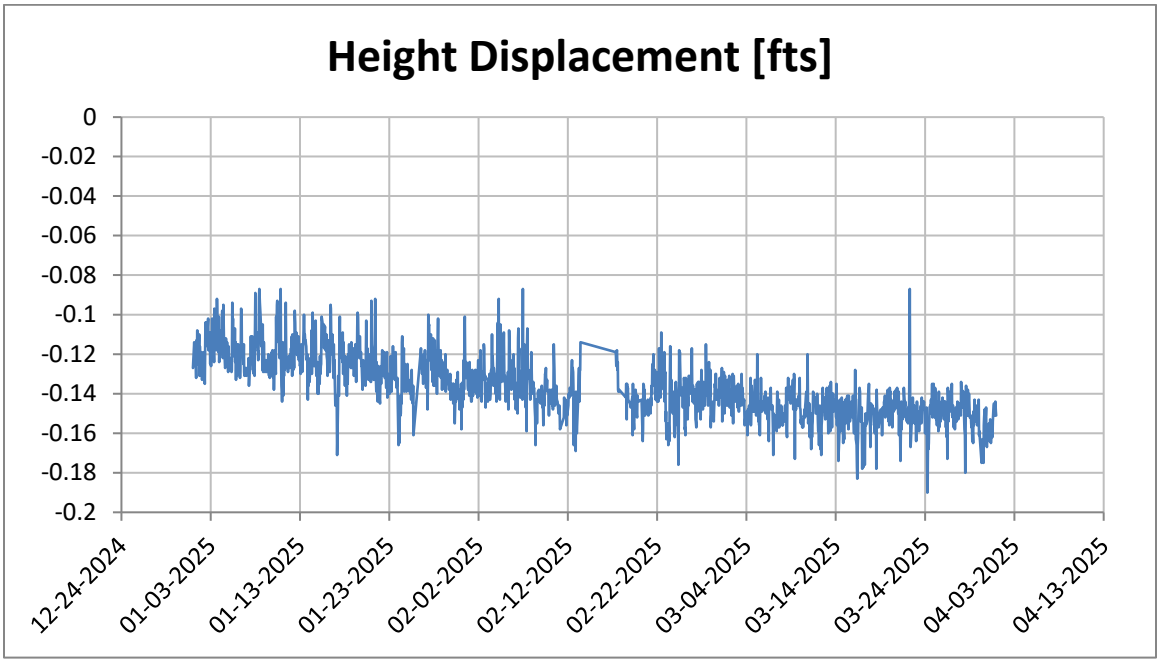
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

B7500-5



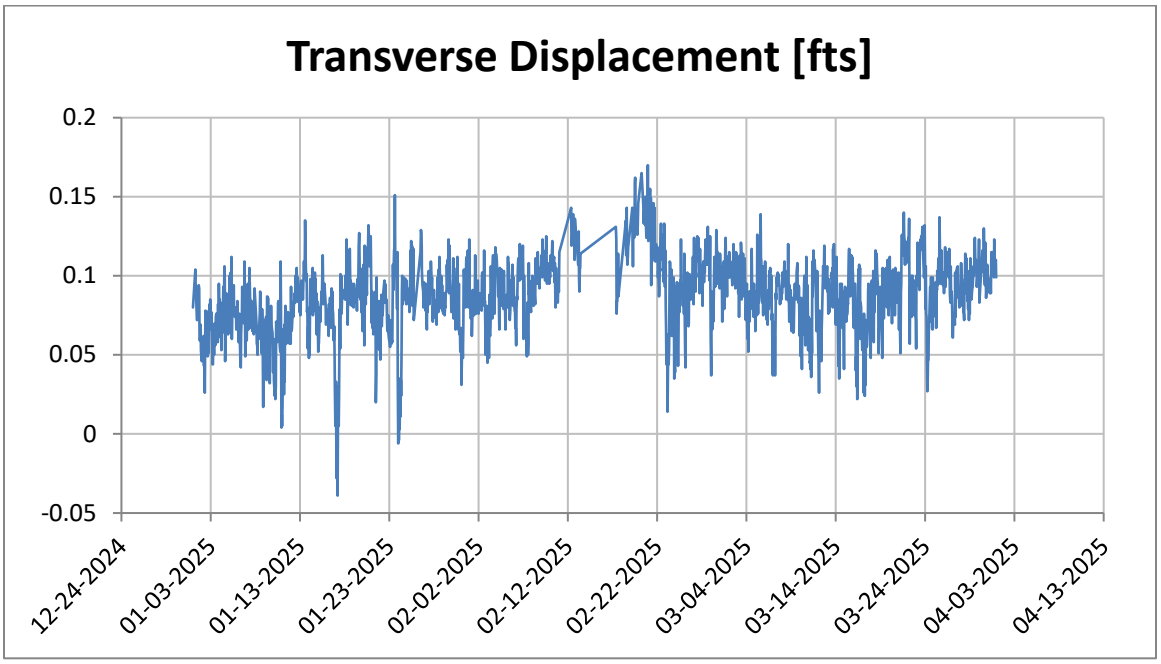


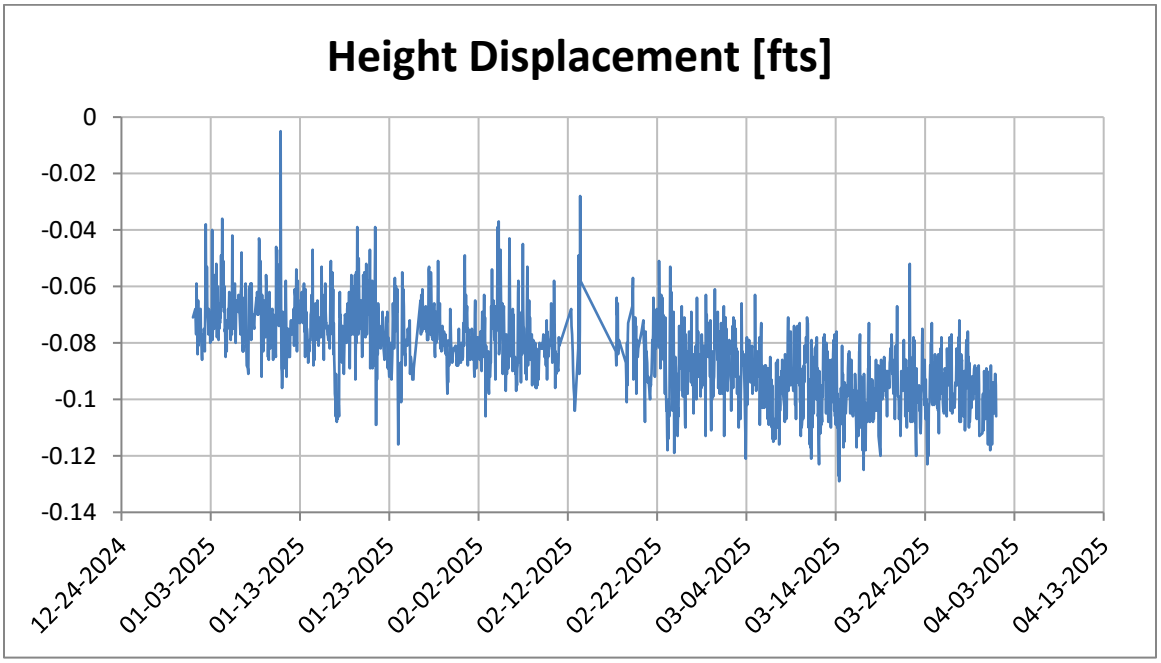
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in

Stantec

Prism B7600-5



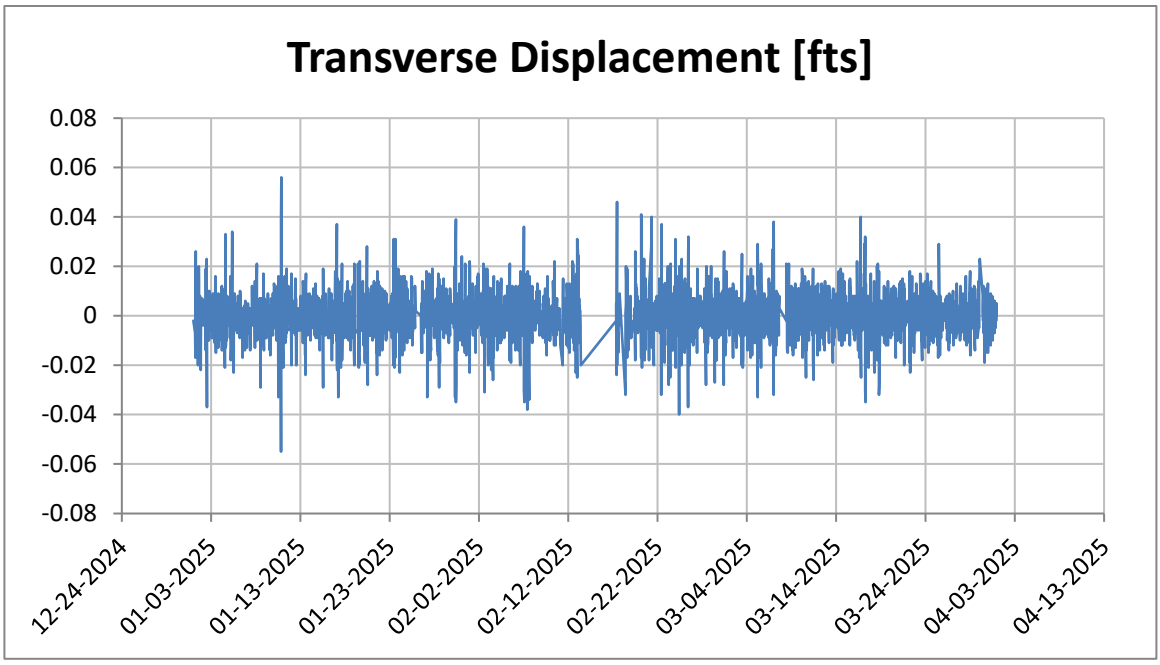


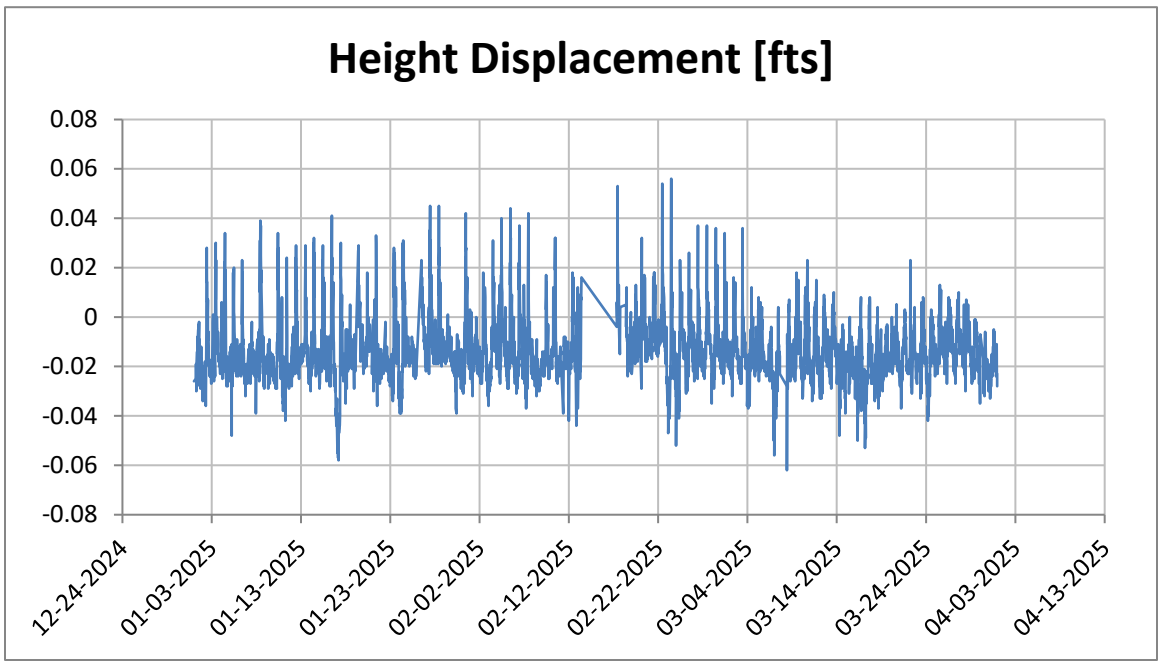
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism CP6



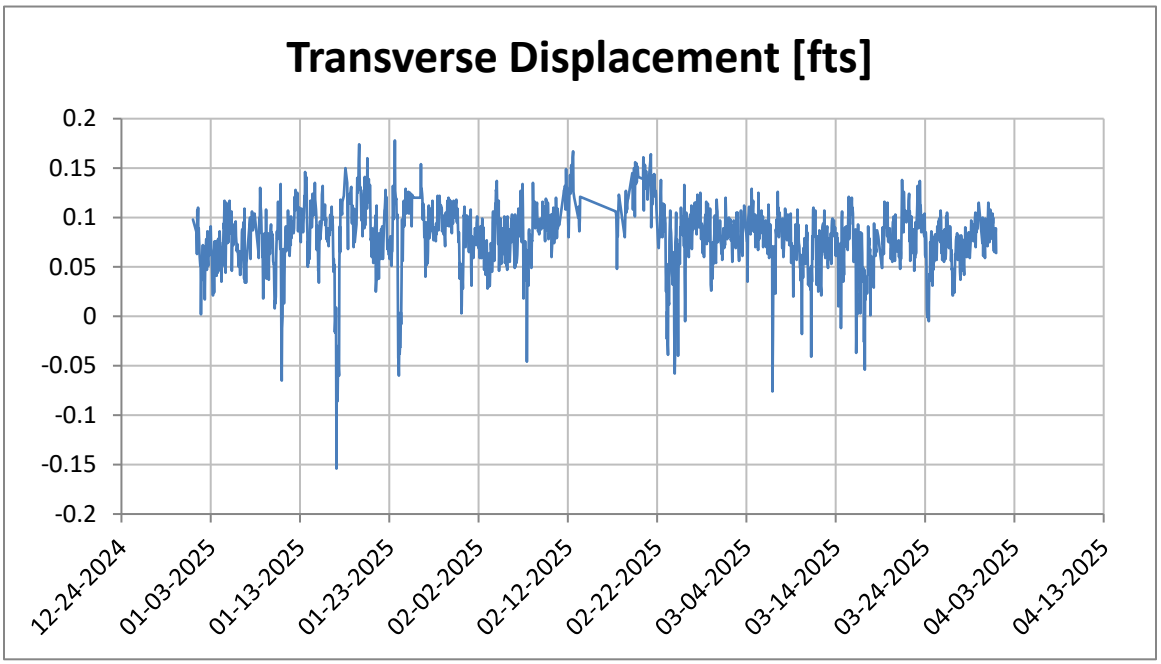


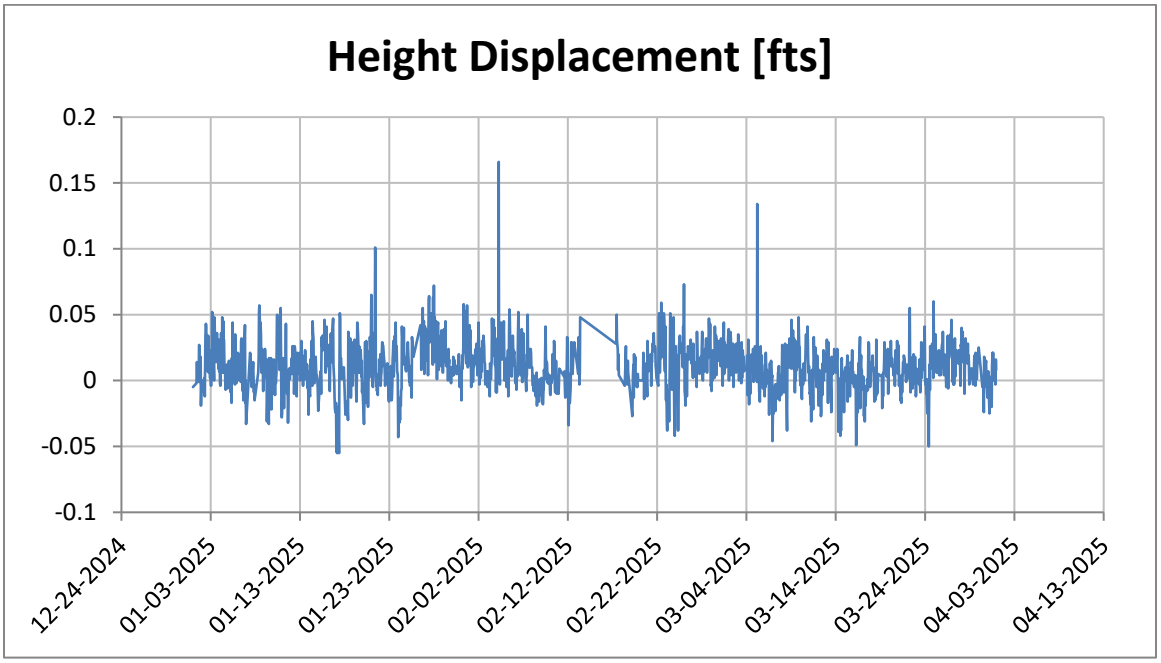
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism CP7



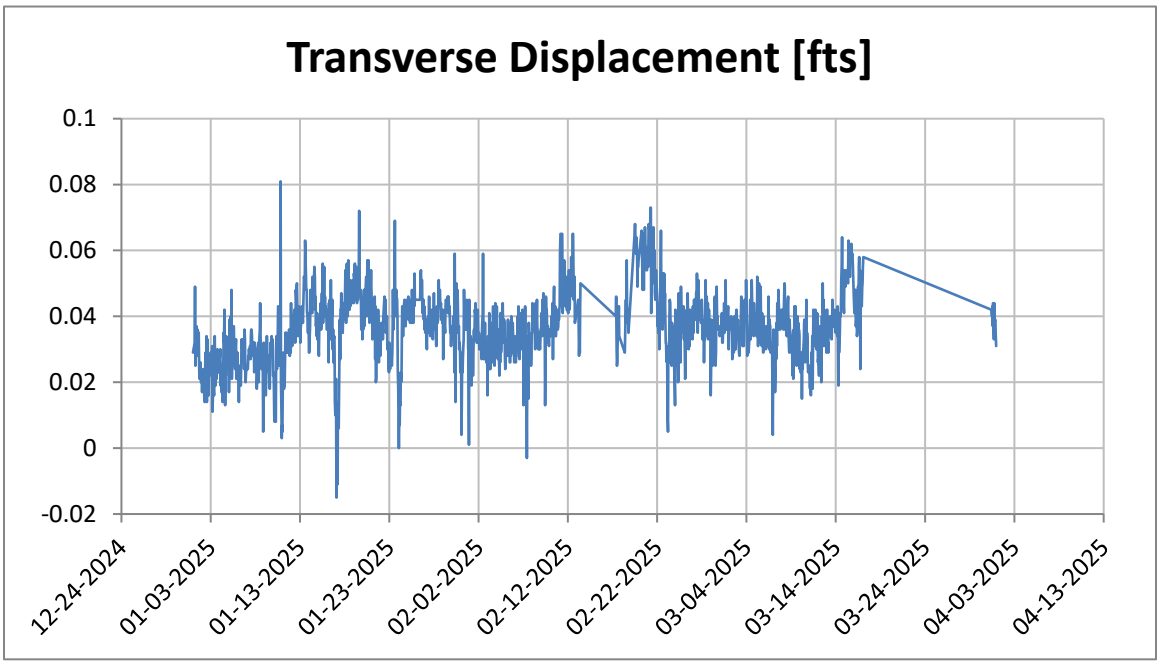


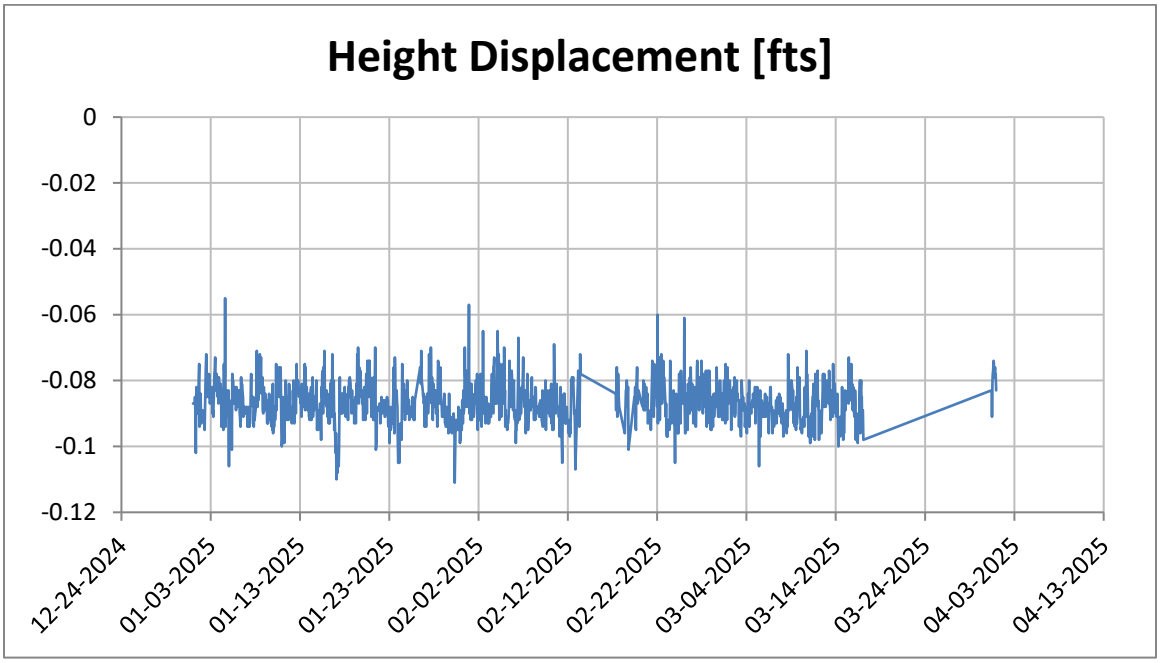
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism NP4





Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism did not record from March 17 to March 31, 2025.

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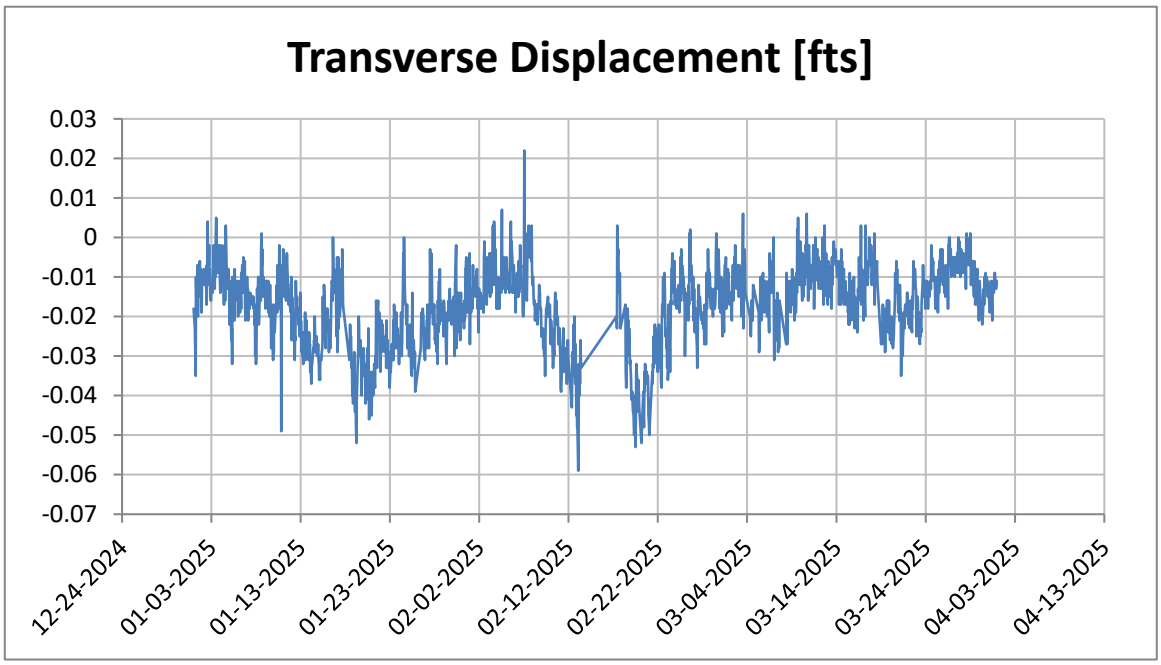
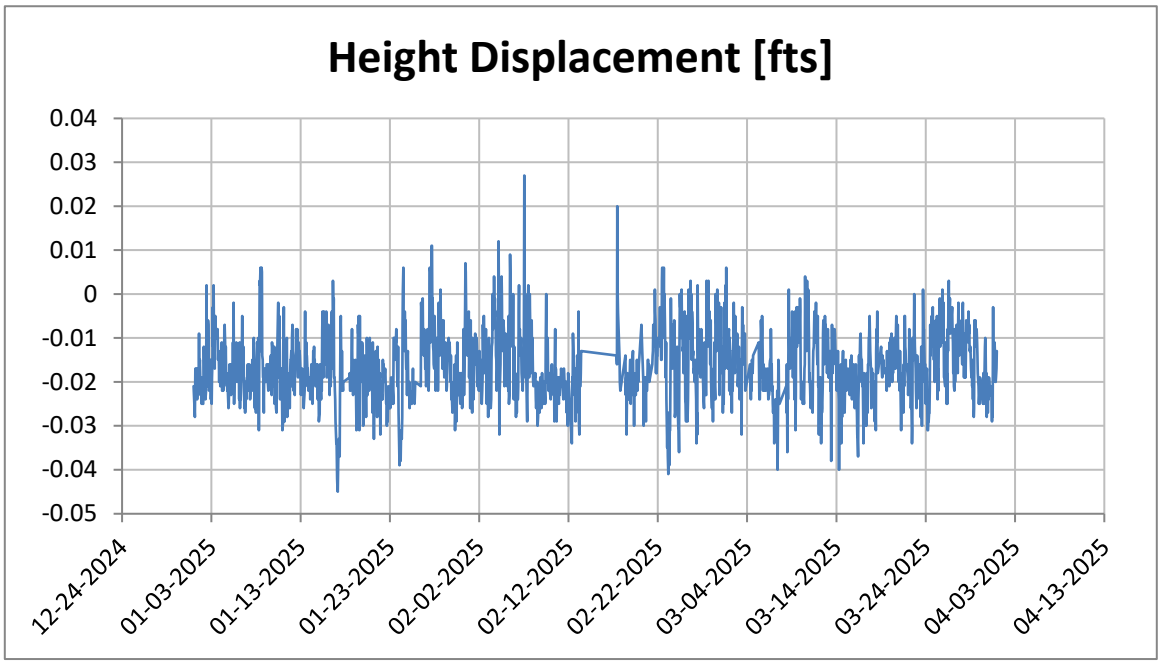
Stantec

Prism P2



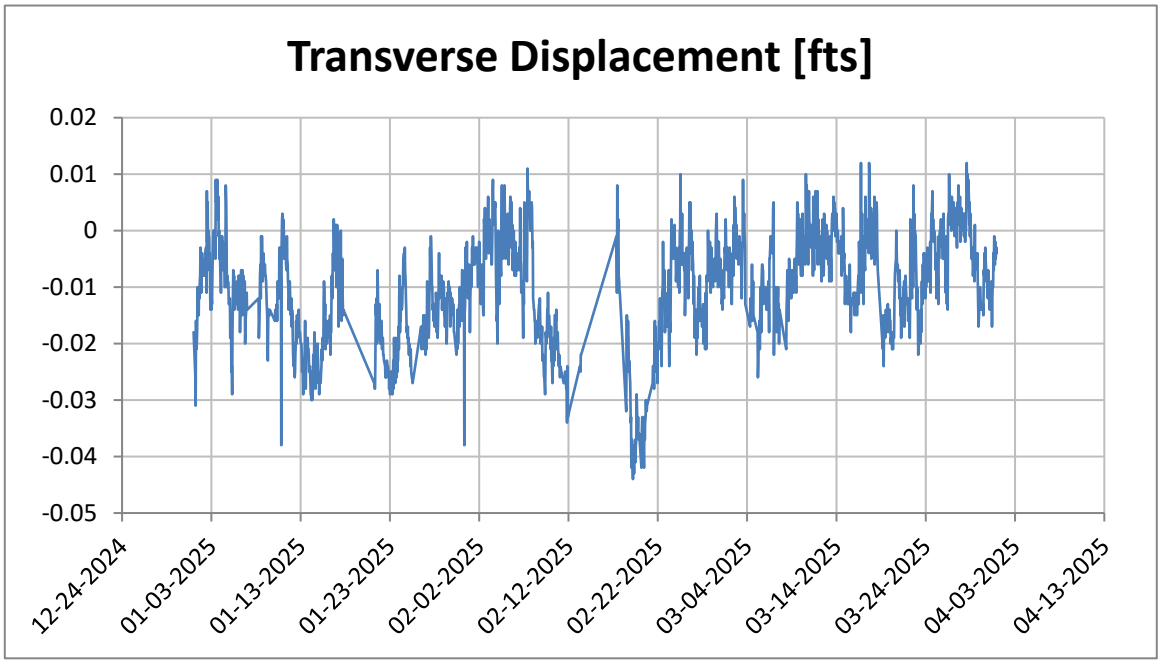


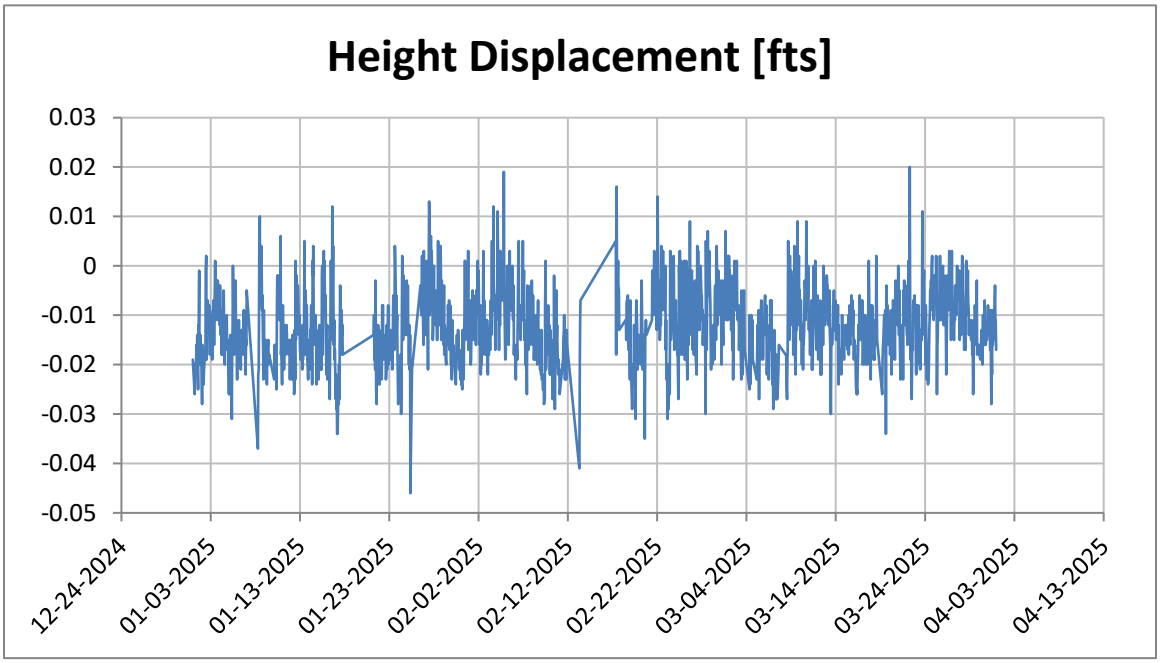
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P5



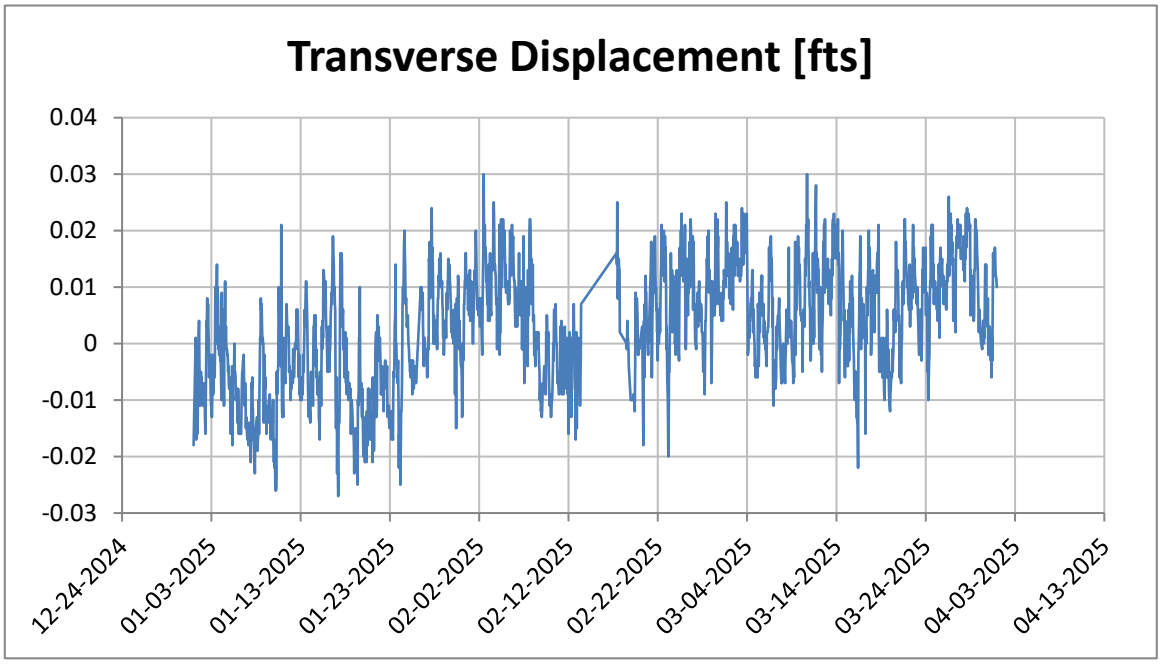


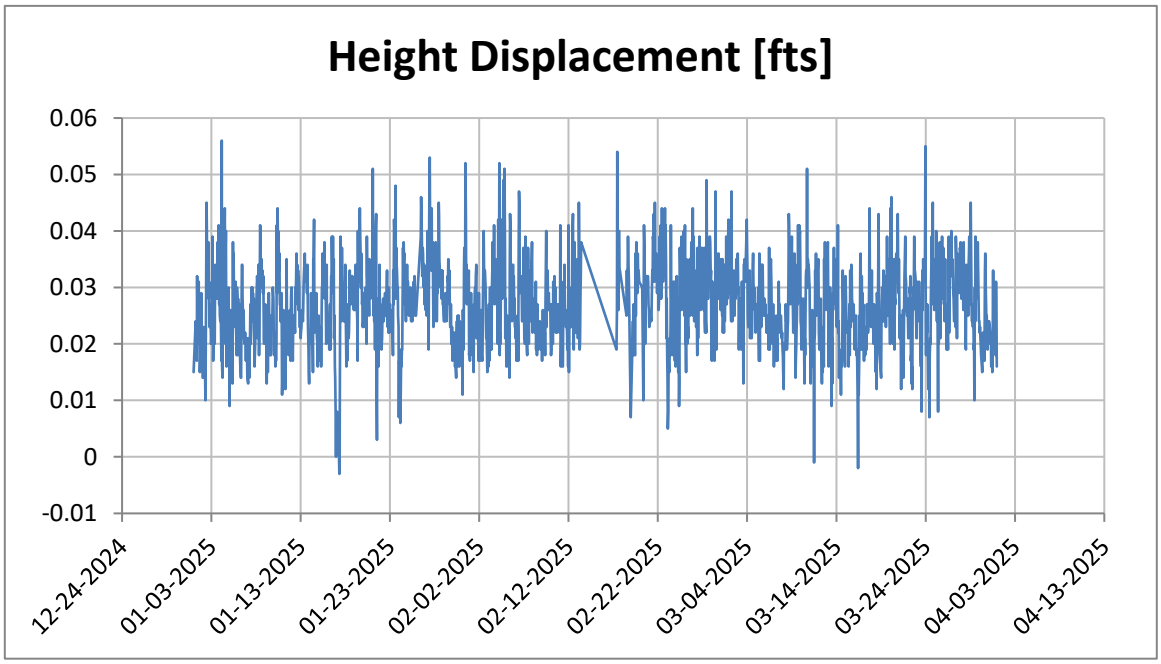
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P25



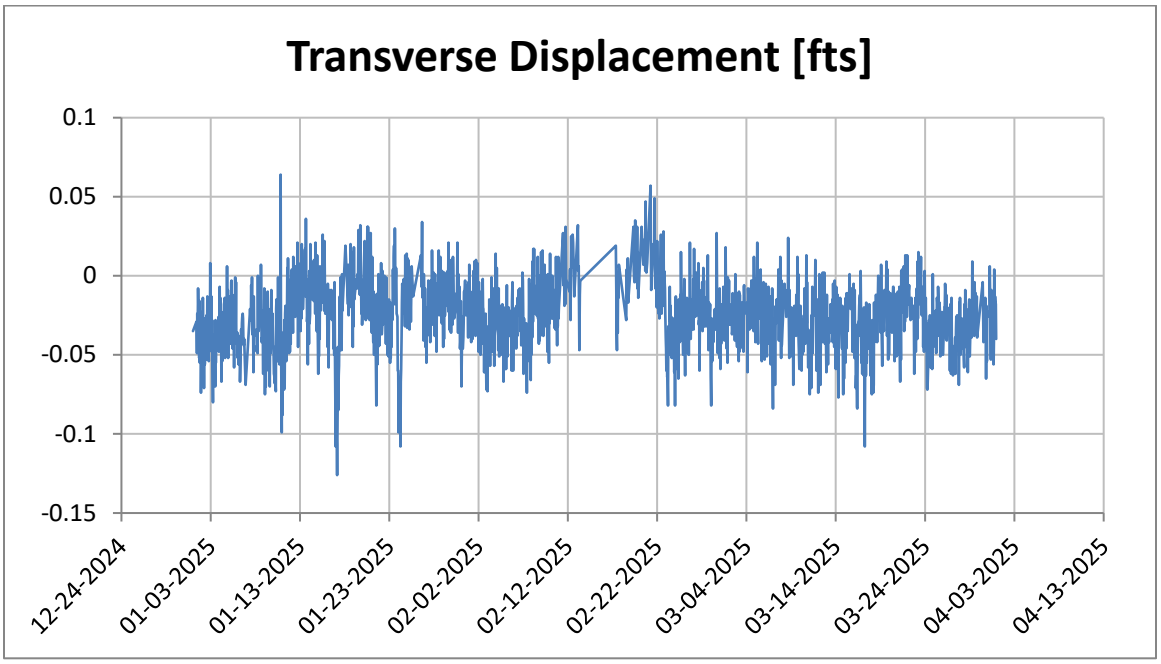


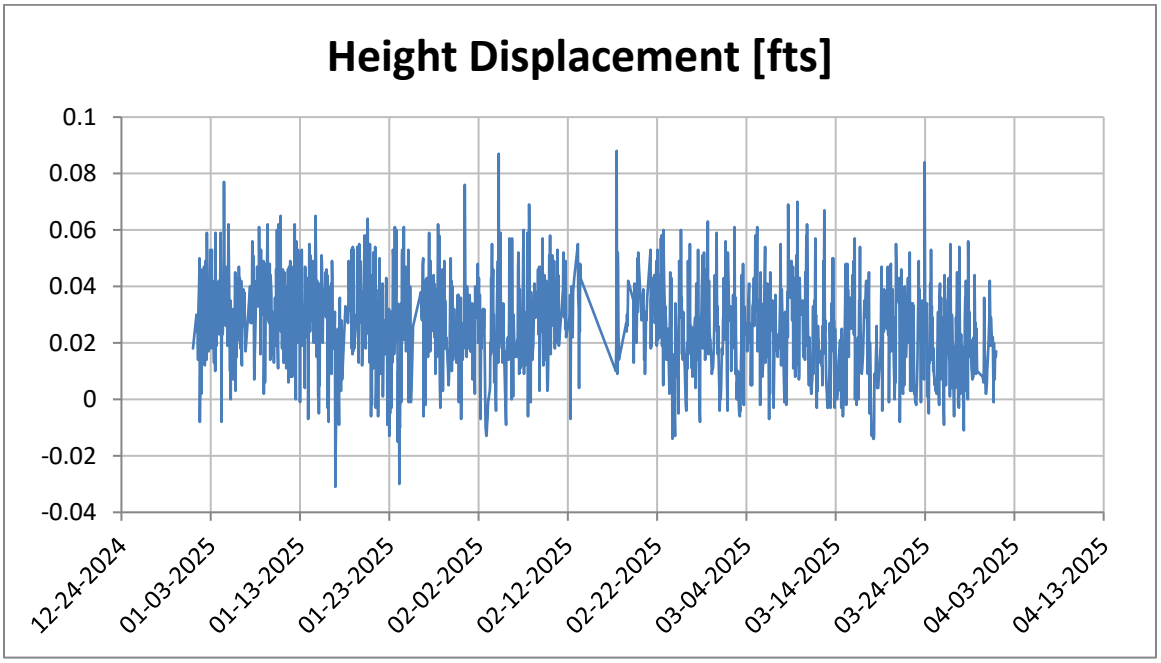
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P32R



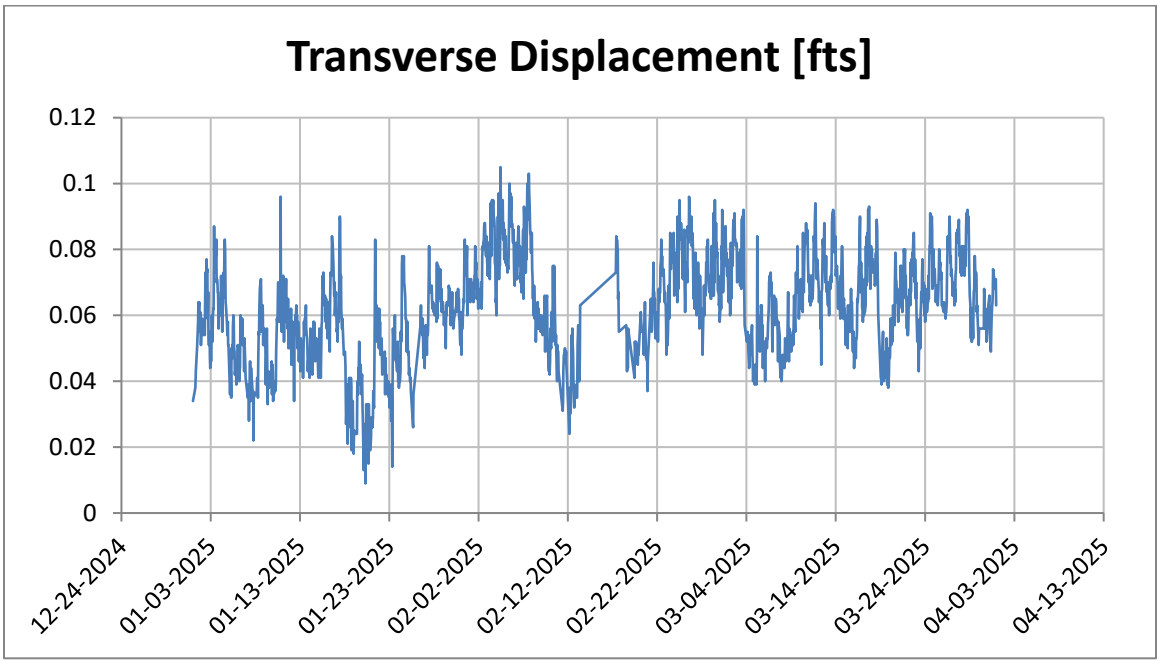


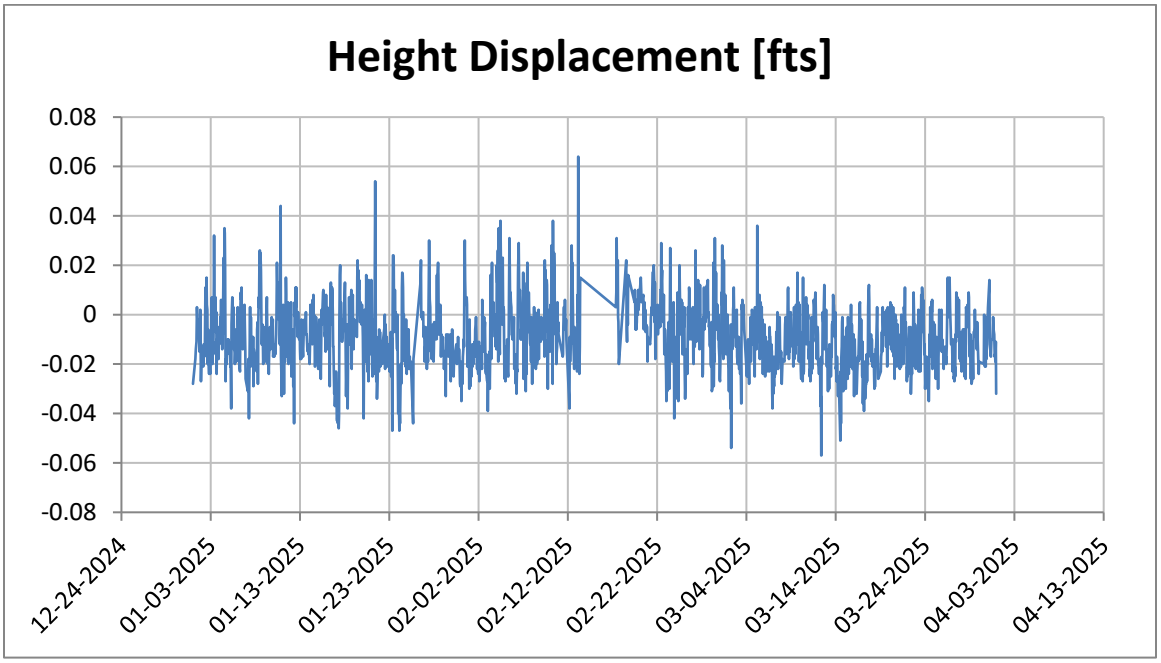
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P33



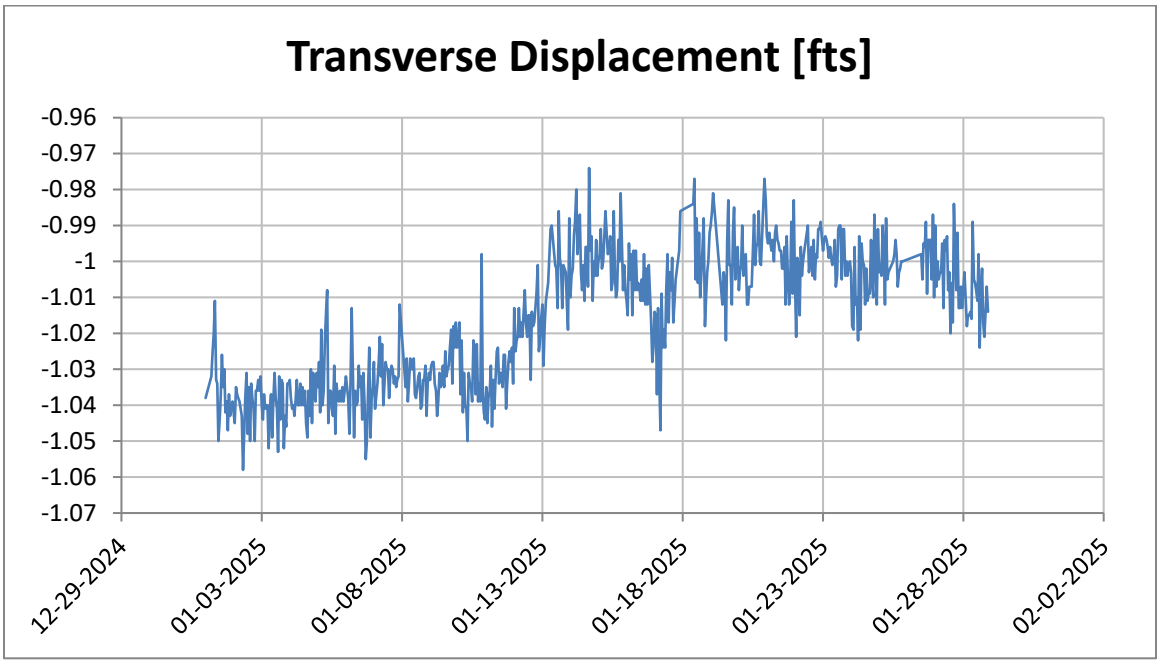


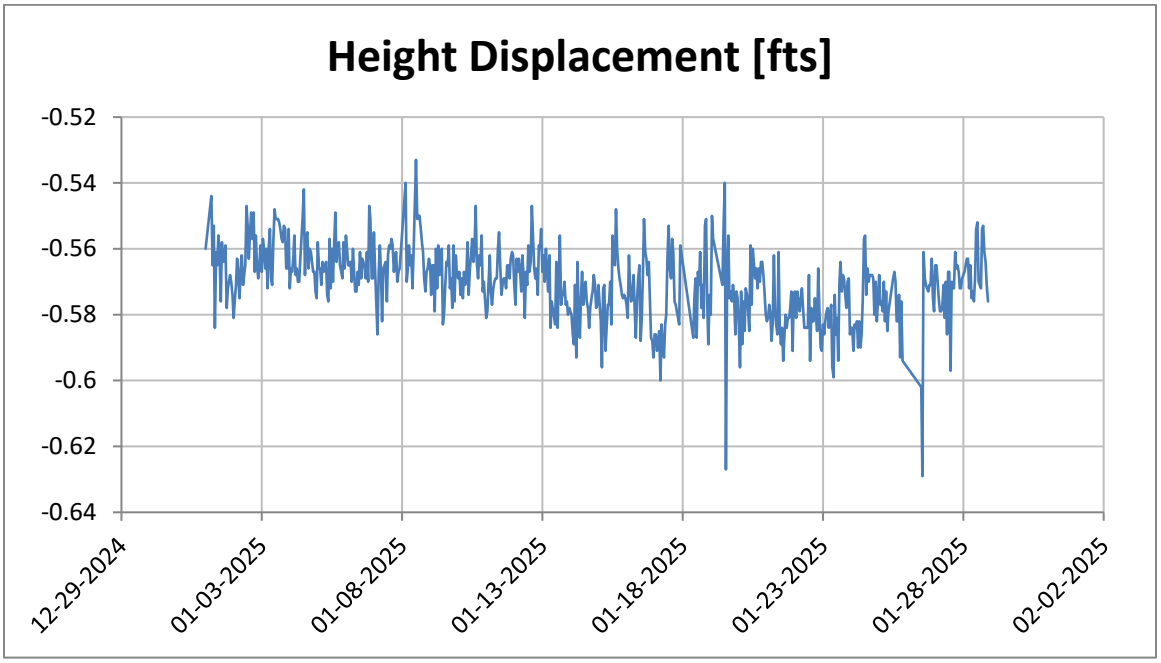
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P70R



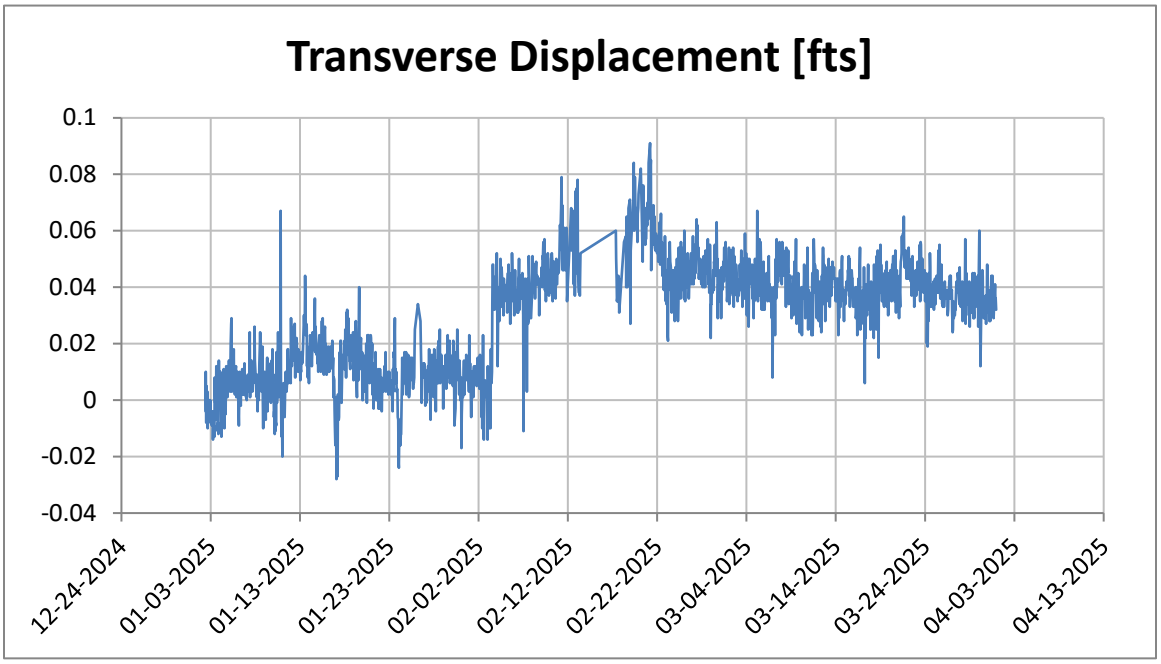


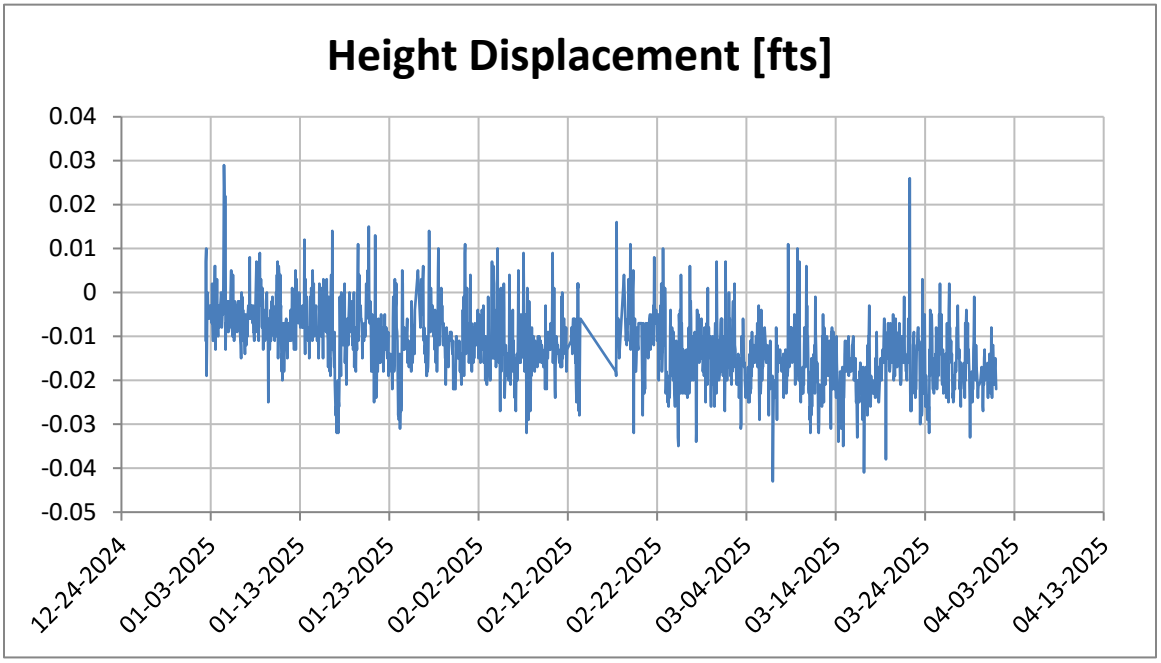
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism removed on January 29, 2025.

Stantec

Prism B7700-1



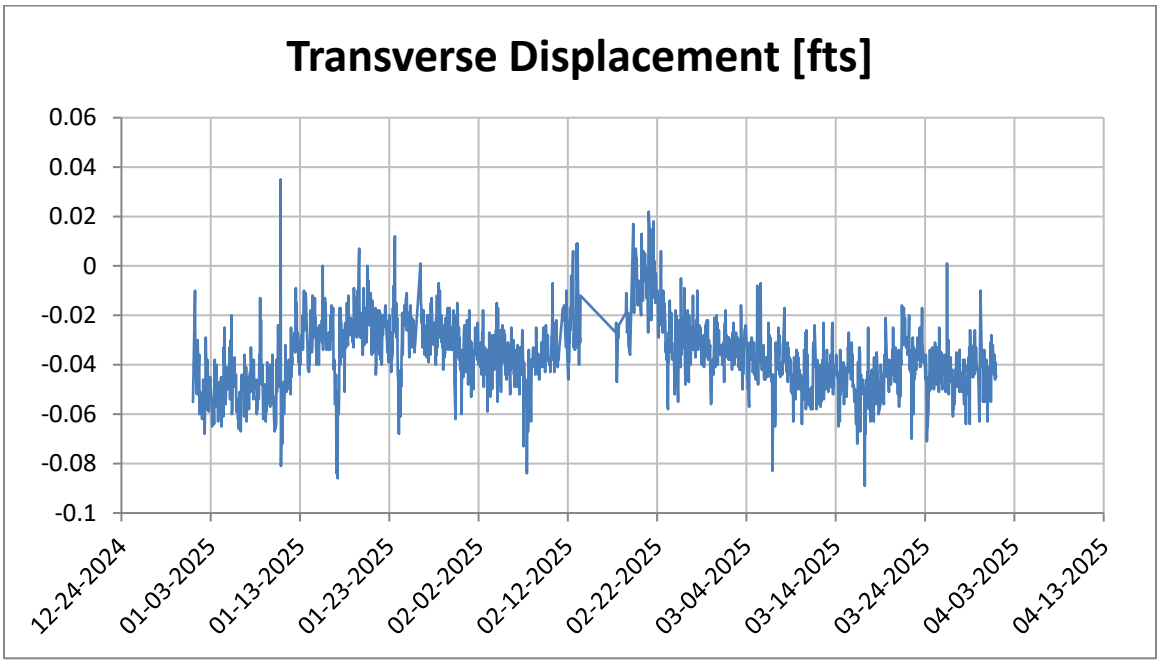


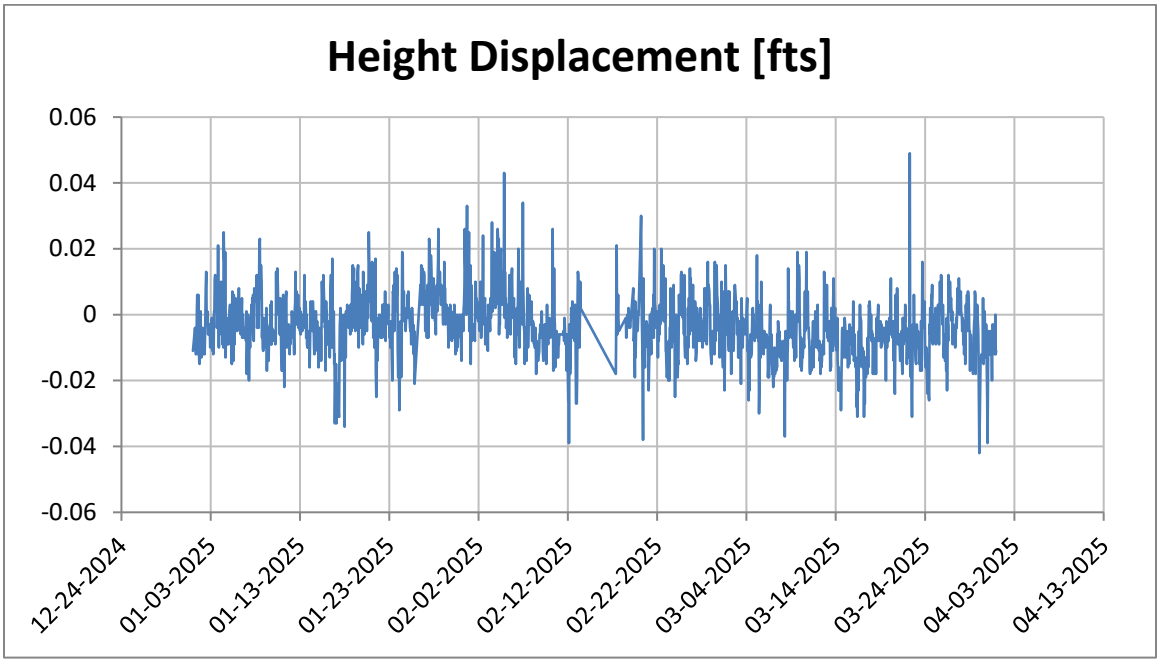
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism B7700-2



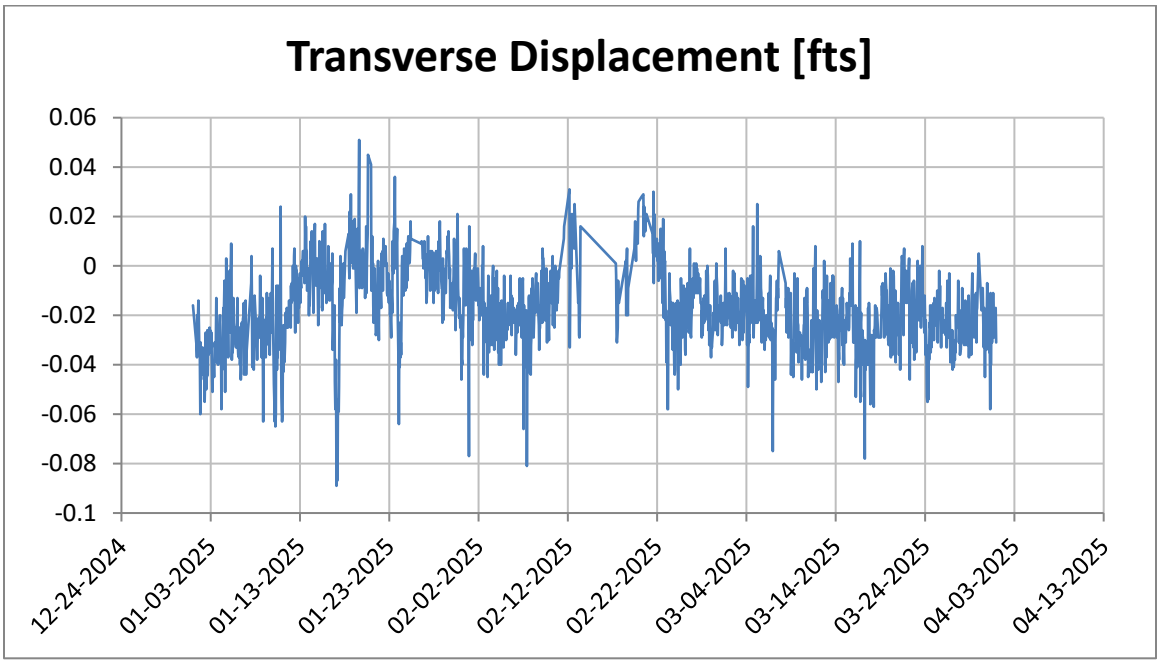


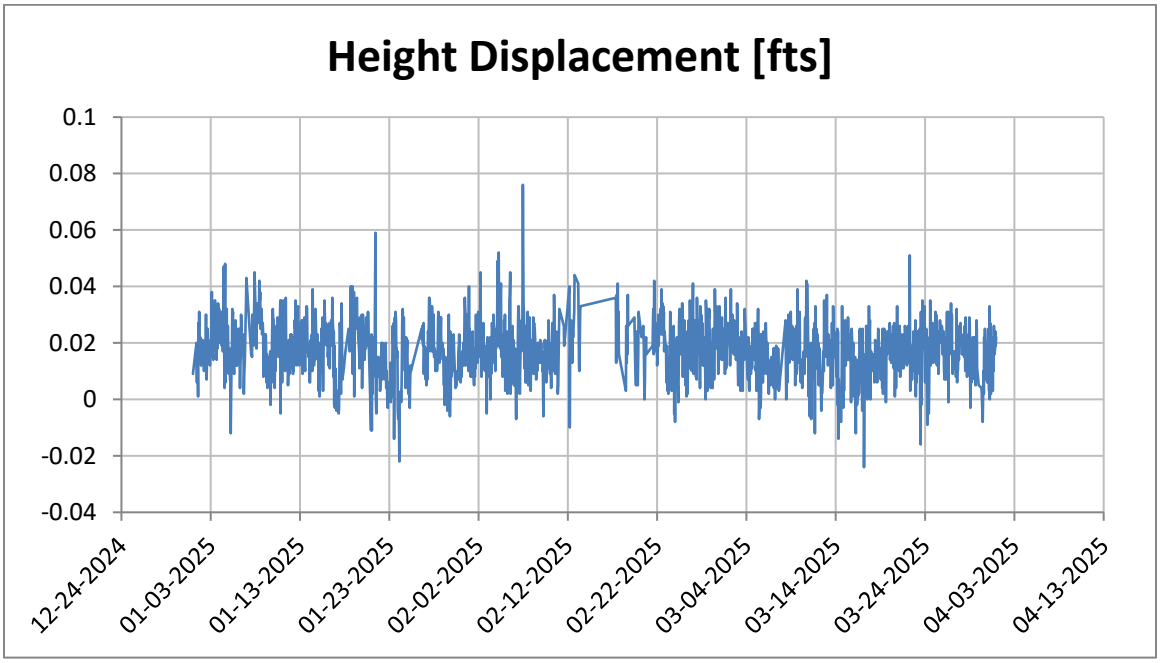
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism B7700-3U



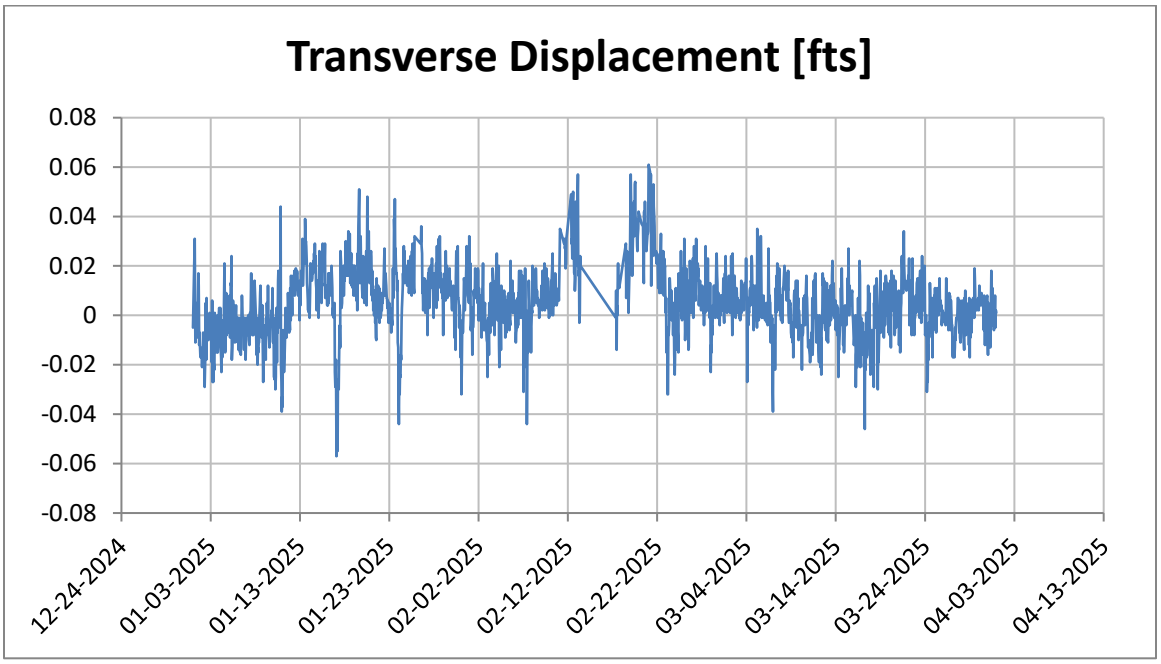


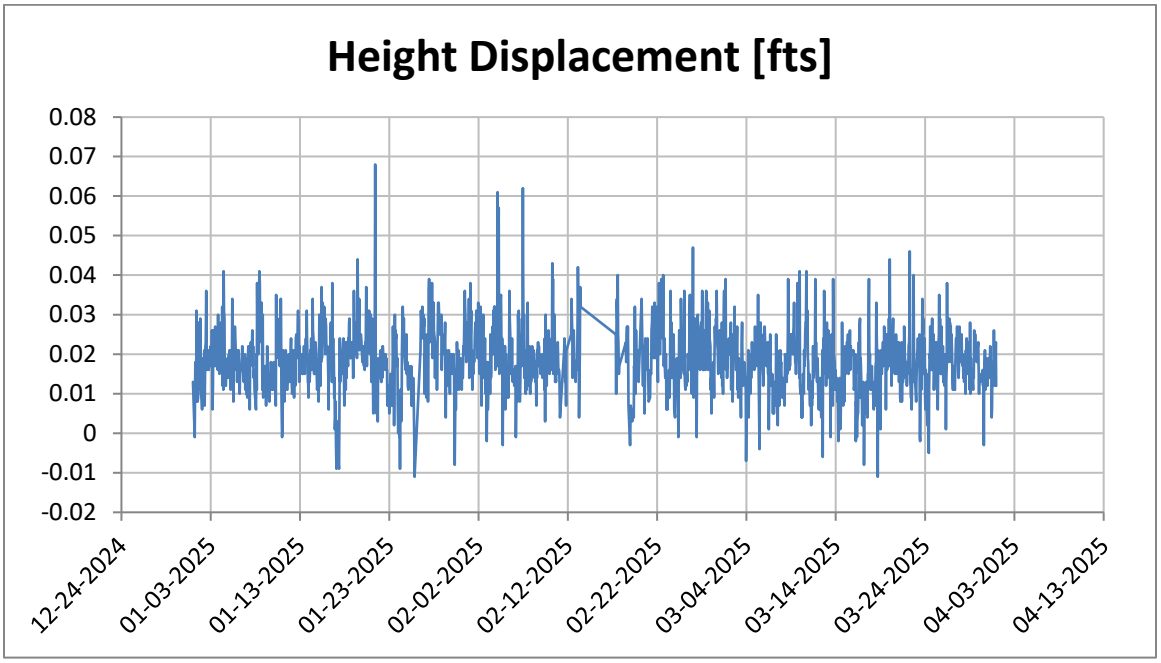
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism B7700-3L





Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alert threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic total station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.