

To: Jerald Schnabel From: Paul Kos
Continental Materials Corp. Denver, CO 80222
File: May 2022 Monitoring Summary Date: June 30, 2022

Reference: May 2022 Geotechnical Monitoring Summary Pikeview Quarry

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has prepared this May 2022 Geotechnical Monitoring Summary for the Pikeview Quarry. The Pikeview Quarry is situated along the foothills of the Rocky Mountains, northwest of Colorado Springs, Colorado. Continental Materials Corp. (CMC) operates the quarry, which is currently closed, pending reclamation. A geotechnical monitoring program was established to monitor reclamation activities which will affect the geotechnical performance of the existing and reclaimed slopes during and following reclamation grading. This report presents the geotechnical monitoring results for the slope reclamation activities at the site through the month of May 2022. Continuous monitoring by the robotic survey system began in 2010 and has continued through the month May 2022 uninterrupted. Visual inspections of the slopes were performed by CMC employees and Stantec engineers.

1.1 PURPOSE

The purpose of this report is to summarize the May 2022 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 monthly site grading activities and construction quality assurance.

1.2 MONITORING SUMMARY

Major components of the instrumentation monitoring program are listed in Table 1 and shown on Figure 1.

Table 1 Monitoring Frequency

Monitoring Type	Frequency
Visual inspection	Daily (CMC) and Monthly (Stantec)
Robotic theodolite/prism	Continuous
Drone inspection	Monthly
Compaction testing	Every 5,000 yd ³ (min.)



2.0 VISUAL INSPECTIONS

Inspections are completed daily by site personnel and monthly by Stantec personnel to document visual observations of slope conditions, including conditions of instability (i.e., cracking, slumping, over-steepened slopes, seeps, perched boulders, rock falls, erosion, and areas undercut by construction or maintenance activities). Certain areas of the landslide have been designated as safety exclusion zones, and these areas are inspected from adjacent locations.

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 inspecting those areas before work begins in that area. The daily inspection also includes visual observations of the quarry walls and floor for any changes. No changes to the quarry conditions were identified during daily inspections in May 2022. The notes from the daily inspections are included in Table A-1 in Appendix A.

Stantec conducted visual inspections of the Pikeview Quarry slopes on May 16, 2022. 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. The findings are listed below, and photographs of notable observations are included on Figure 2 in Appendix A.

- Reclamation grading began in February 2022 and continued throughout May.
- Operators are moving material from the North Borrow Area to the pit floor for compaction in one-foot lifts. Note that the North Borrow Area is a separate project associated with the City's plans for the property; this grading was permitted by El Paso County. (Photos 1, 2 and 7)
- Offsite fill was placed near the reclamation benches. The material was spread by dozers and compacted in one-foot lifts in accordance with the project specifications. (Photo 5 and 6)
- A safety buffer zone is being kept between the active work areas and the toe of the slide to stop any rocks that might come loose during grading operations. Compacted fill is placed in the buffer zone as the buttress fill is placed.
- Riprap has been produced and stockpiled at several locations on site.
- No cracking was observed on the native granite slopes above the extents of the disturbed area.
- Known cracks were monitored for changes. Currently the cracks are not growing in any of the areas on the slopes of the site. The hummocky field in the area immediately above the southern extent of the slide shows evidence of cracking but they are not fresh or active. No new or open cracks were found immediately inside or next to the slide area.
- The culvert remains cleared but mostly blocked inside. CMC has partially cleared the debris, but access limitations and supports within the culvert inhibit clearing all the debris. CMC has procured a pump and will begin pumping operations if any water collects behind the culvert. CMC inspects the culvert for ponded water following rain events, and should any water be observed, it will be removed using pumps. To date, no ponding has been observed. (Photo 3)
- Visual inspections of the Pikeview Quarry did not reveal any evidence of large-scale instability outside of the landslide areas previously identified. No 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 station is used to continuously survey the prisms onsite to document slope movements. The station records the location of each prism every hour. There are currently 23 active prisms; 3 prisms are control points located outside the slope movement area, 17 prisms are located on the slopes surrounding the landslide area, and 3 prisms are located at the toe of the landslide. As the slope is backfilled and graded, the existing prisms will be removed, and additional prisms will be installed. A log of prism removals and installations is included in Appendix B. No prisms were added or removed in May. The prism locations are shown on the current topography in Figure 3, and the proposed prism locations are shown on the reclamation topography in Figure 4. Both figures are included in Appendix B.

The monitoring software, GeoMos, has been programed to provide automatic alarms if there is a movement recorded that is greater than 0.35 feet or if a prism cannot be located. The alarm notes and actions taken are logged, and the alarms are summarized in Table 2. Following each alarm, CMC clears the area of concern until the data can be reviewed and the slope can be inspected. CMC made sure that there were no workers in the area before inspecting the slope. During May 2022, movement alarms were received from prisms NP2, P1, P25, P32, and P33; however, when the prisms were inspected, there were no signs of slope movements. In each case, the subsequent readings returned to normal, and the alarm is assumed to be a data error related to weather conditions. All other alarms were determined to be caused by weather or equipment operations blocking the prism.

Table 2 Alarm Summary

Date(s)	Alarm	Cause/Actions taken	Issue Resolved
05/03/2022	Several prisms could not be found on multiple scans	Fog. Site visually inspected and no signs of movement	05/03/2022
05/04/2022	Several prisms could not be found on multiple scans	Fog and rain. Site visually inspected and no signs of movement	05/04/2022
05/04/2022	NP2 Regression limit level 1 exceeded	Data error during fog and rain. No sign of movement after inspection. Readings of -0.468' and +0.366'	05/04/2022
05/04/2022	P33 Regression limit level 2 exceeded	Data error during fog and rain. No sign of movement after inspection. Reading of -1.289'	05/04/2022
05/04/2022	P25 Regression limit level 1 exceeded	Data error during fog and rain. Readings of +0.564', +0.428', and +0.358'. No sign of movement after inspection. No work was being performed below prism.	05/04/2022
05/04/2022	P32 Regression limit level 1 exceeded	Data error during fog and rain. No sign of movement after inspection. Reading of -0.355'	05/04/2022
05/05/2022	NP2 not found	After hours. Single event	05/05/2022
05/07/2022	P32 not found	Weekend. Single event	05/07/2022
05/18/2022	P1 Regression limit level 1 exceeded.	Data error during rain. No sign of movement after inspection. Reading of +0.434'	05/18/2022
05/18/2022	P33 Regression limit level 1 exceeded	Data error during rain. No sign of movement after inspection. Reading of -0.466'	05/18/2022
05/18/2022	P25 Regression limit level 1 exceeded	Data error during rain. No sign of movement after inspection. Reading of -0.418'	05/18/2022



05/18/2022	P32 Regression limit level 1 exceeded	Data error during rain. No sign of movement after inspection. Reading of -0.429'	05/18/2022
05/18/2022-05/19/2022	No communication with sensors	Rain and lightning caused GFI to trip. No work due to afternoon thunderstorm.	05/19/2022
05/20/2022	Points not found	Fog, rain, snow, work halted for day (Fri, Mon, Tues)	05/20/22
05/20/2022-05/21/2022	No communication with sensors	GFI tripped due to weather over weekend. Reset on Monday	05/21/2022
05/23/2022-05/24/2022	Points not found	Fog, rain, snow, work halted for day (Mon, Tues)	05/24/2022
05/31/2022	Points not found	Fog and rain	05/31/2022

The prism monitoring results for transverse and height displacements, monthly change, and cumulative change are summarized in Table 3 below. The transverse displacement measures the change in the horizontal distance from the robotic station to the prism; positive displacements indicate less distance between the station and prism (movement towards the total station). The height displacement measures the change in the vertical distance from the robotic station to the prism; positive displacements indicate upward movement. The values for the last reading in the month are included in Table 3. The monthly delta is the most recent reading cumulative delta displacement (horizontal, lateral, and vertical) subtracted from the last reading from the previous month. 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 has been several years for all the prisms except P69. Prism P69 was moved on June 20, 2020, and the displacements included in Table 3 are the displacements since that date. According to Leica documentation, the survey accuracy is $\pm 4 \text{ mm} + 1.5 \text{ ppm}$ for prisms located greater than 500m from the station; these equates to an accuracy of $\pm 0.016 \text{ ft}$.

The data show stable conditions with no movement for 16 of 23 prisms with recorded displacements limited to data scatter and not actual movements. Prisms P63, TOE4, and TOE5 are located at the toe of the landslide, and these locations showed slope creep movements at slow velocities. Prisms BR1, BR2, NP66, and TS1 are located above the landslide, and these prisms also recorded slope creep movements at slow velocity. This settlement is likely related to the landslide material consolidating under its own weight. New prisms are placed in areas where slope creep movements are likely to be recorded; therefore, slope creep movements being recorded at more locations is expected to occur. Prism BR2 also recorded a downwards movement of approximately 0.06' on May 12; this did not meet the threshold for an alarm. Plots of the transverse and height displacements for each prism are included in Appendix B.



Table 3 Prism Summary

Prism ID	Cumulative Transverse Displacement (ft)	Cumulative Height Displacement (ft)	Monthly Delta (ft)	Cumulative Delta (ft)	Notes / Recommendations
BR1	-0.033	-0.074	0.0508	0.1051	Slope creep movements.
BR2	-0.035	-0.166	0.4300	0.5489	Slope creep movements.
CP1	-0.008	-0.046	0.0135	0.0469	
CP4	-0.020	-0.031	0.0078	0.0385	
CP5	-0.011	-0.062	0.0124	0.0658	
NP2	0.102	-0.109	0.0045	0.2060	
NP3	0.022	-0.040	0.0219	0.0648	Slope creep movements.
NP66	0.624	-0.855	0.0151	1.2757	
P1	0.364	-0.076	0.0168	0.3722	
P2	0.157	-0.045	-0.0048	0.2204	
P25	-0.020	0.019	0.0065	0.1594	
P32	-0.076	-0.094	0.0039	0.3013	
P33	-0.101	-0.048	-0.0255	0.2068	
P35	0.045	-0.192	-0.0281	0.4255	
P4	0.380	-0.146	-0.0039	0.4946	
P5	0.408	-0.176	-0.0078	0.6310	
P63	15.865	-6.507	0.0103	17.1478	Slope creep movements.
P69	0.001	-0.076	-0.0007	2.0484	
P70	0.377	-0.321	0.0053	0.6284	
TOE4	-0.061	0.013	0.0483	0.0787	Slope creep movements.
TOE5	-0.077	-0.028	0.0292	0.0899	Slope creep movements.
TOE6	-0.004	0.009	0.0032	0.0196	
TS1	-0.010	-0.062	0.0493	0.1181	Slope creep movements.

4.0 DRONE SURVEY

The site was flown for aerial imagery using an unmanned aircraft system (UAS or 'drone') on, May 31, 2022. The imagery was inspected for signs of instability and used to supplement the onsite visual inspections. Features noted in the aerial imagery review were inspected during Stantec's engineering inspection and are summarized in Section 2 above. The imagery was also used to create site topography.

The May topography was also compared to the April topography to identify changes in the site topography. Comparison of the two surveys showed the placement of the fill material at the toe of the landslide. Fill material is excavated from the Lower and South Borrow Areas or imported from offsite projects, including the North Borrow Area. No slope movements or other changes in topography were identified. The current imagery



and topography are included in Figures 1 and 3, and the comparison surface is included as Figure 5 in Appendix C.

As previously reported in the September 2020 monitoring report, there are limitations with the method of comparing drone surveys from different months. The drone data indicate changes in the slopes along each of the reclamation benches, buildings, and areas with trees or shrubs. These areas are stable, and the changes are the result of survey limitations on or near vertical slopes.

5.0 COMPACTION TESTING

Fill placement started on February 25, 2022 and continued throughout May. Fill was excavated from the North Borrow Area and placed in the buttress and buffer zones. Importing fill also continued. Fill was placed in one-foot lifts, moisture conditioned as necessary, and compacted. Compaction testing began March 2022 and occurs at the rate of at least one test per 5,000 yd³ placed. During May, approximately 200,000 yd³ had been placed and compacted. This includes approximately 8,000 yd³ of imported fill. Approximately 170,000 yd³ was placed in the buttress fill area, and approximately 30,000 yd³ was placed in the buffer zone immediately adjacent to the landslide (within 35 ft). No compaction testing is performed in the buffer zone for safety purposes. This volume placed in the buttress zone (and not the buffer zone) required at least 34 compaction tests. There were 29 compaction tests associated with the May fill. The drone survey flights do not typically occur on the last day of the month, and compaction tests may be associated with fill placed at the end or start of the adjacent month. As of May 31, 2022, a total 701,000 yd³ had been placed and compacted. This requires 141 compaction tests (not considering the buffer zone volume), and 142 tests have been taken. Overall, the compaction testing requirement is being met, and Stantec plans to expand the testing frequency to exceed the testing requirement. All tests met or exceeded the minimum compaction requirement of 90% of the optimal density as measured by a Standard Proctor Test. The compaction testing results are summarized in Appendix D, and the testing locations are shown on Figure 6.

6.0 RECLAMATION PROGRESS

CMC has initiated reclamation grading at the Pikeview Quarry and has contracted with Stantec to provide EPCM services through completion. As an updated feature of our monthly report, we will provide progress of activities, anticipated milestone schedule and a one month look ahead to better communicate project objectives. A phased or 'gated' approach will be used to complete the reclamation process going forward (See milestone schedule below)

Phase 1 - Value Engineering and issue RFP to qualified Contractors

Phase 2 - Commercial negotiations with successful contractor

Phase 3 - Execution planning and Contractor readiness review

Phase 4 - Site Construction execution

Phase 5 - Final revegetation (season 2)



Task/Milestone	Estimated Dates
Phase 1 – Issue RFP to Bidders	Completed June 2021
Phase 1 – RFP Evaluation & Recommendation	Completed July 2021
Phase 2 – Constructor Contract Award	Completed January 2022
Phase 3 – Project Kick-off with successful Contractor	Completed February 4, 2022
Phase 4 – Contractor Mobilization to Site	Completed February 2022
Phase 4 – Reclamation Grading	February 2022 to present
Phase 4 – Contractor Demobilize from Site	Fall 2023
Phase 5 – Final Revegetation season 2 Begins	2023 until acceptance

Progress of activities this month:

- Contractor continued earth moving activities
- Quality assurance testing continued
- Importing fill material continued
- Geotechnical monitoring continued

Work planned for next month includes:

- Continue reclamation grading
- Continue importing fill material
- Continue geotechnical monitoring
- Continue and expand quality assurance testing
- Continue removing and replacing prisms on an as-needed basis

7.0 CONCLUSIONS

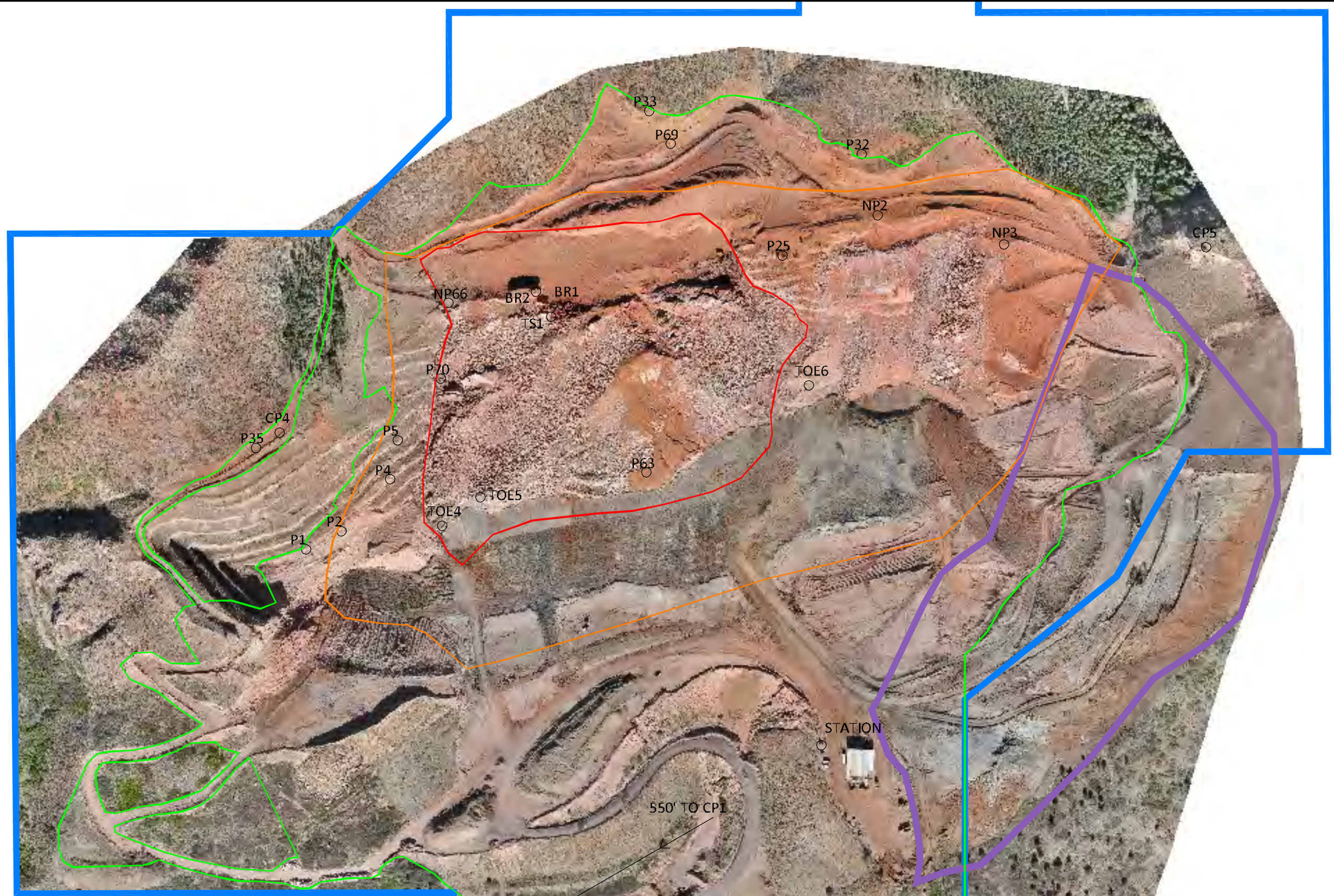
The data collected in May 2022 demonstrate compliance with the reclamation grading plan. The buttress fill is being placed as intended and specified; this includes one-foot-thick compacted lifts.

None of the data collected in May 2022 indicate evidence of any large-scale movements that increase risk to workers or to the public. The landslide area continues to show slope creep movements with slow velocities. Shallow surface erosion continues to occur requiring ongoing maintenance and cleanup.

- Restricted access to the ungraded landslide slopes should continue.
- All monitoring should continue at current frequencies.
- All alarms shall continue to be taken seriously even if data errors are suspected.



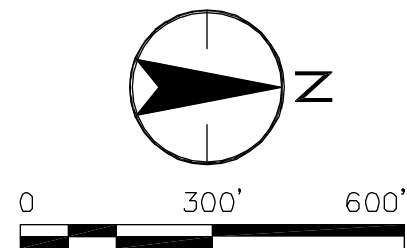
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LEGEND

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



Client/Project

CONTINENTAL MATERIALS
CORP.
PIKEVIEW QUARRY SLOPE
MONITORING

Project No.
2057288200

Title

SITE MAP

Revision
#

Drawn By
PK

Date
2022.06.30

Figure No.
1

Appendix A

Visual Inspections



Table A-1 Summary of Daily Inspections

Date	Notes	Inspection By
1-May-22	No work.	Not applicable
2-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
3-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
4-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
5-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
6-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
7-May-22	No work.	Not applicable
8-May-22	No work.	Not applicable
9-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
10-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
11-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
12-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
13-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
14-May-22	No work.	Not applicable
15-May-22	No work.	Not applicable
16-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
17-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
18-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
19-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
20-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
21-May-22	No work.	Not applicable
22-May-22	No work.	Not applicable
23-May-22	No work due to wet conditions.	Not applicable
24-May-22	No work due to wet conditions.	Jerald Schnabel
25-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
26-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
27-May-22	No Movement observed. Good to proceed.	Jerald Schnabel
28-May-22	No work.	Not applicable
29-May-22	No work.	Not applicable
30-May-22	No work.	Not applicable
31-May-22	No Movement observed. Good to proceed.	Jerald Schnabel



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6. Compacted area in the pit looking north.



5. Dozers spreading material placed in the pit area.

NOTE 1:
NO CRACKS

NOTE 1:
NO CRACKS



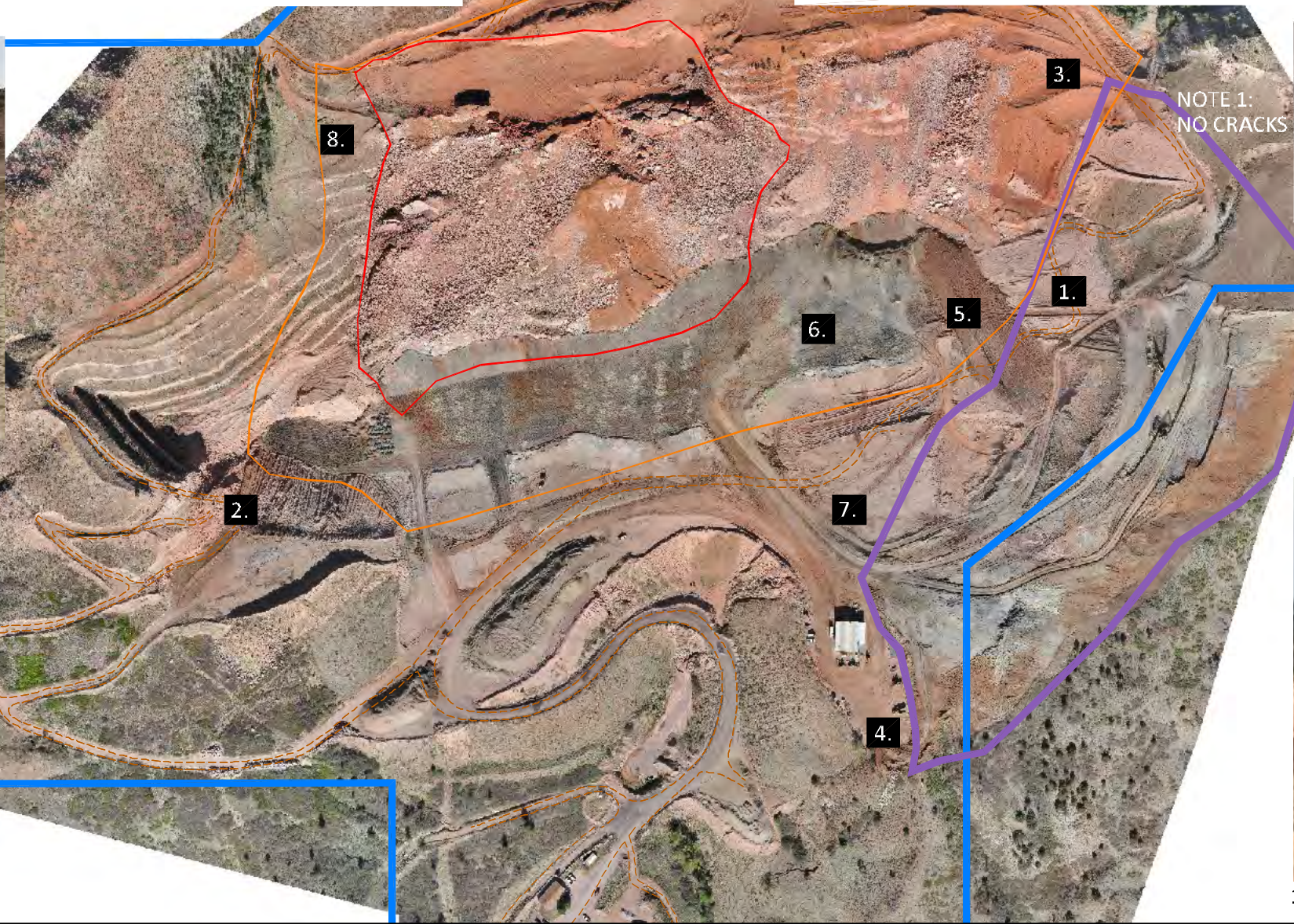
4. Excavator and haul truck used on site.



3. Outlet of culvert on north-end of the site.



7. Haul trucks moving material in the pit.



2. View to the north of the pit area.



8. Erosion gully on the south end of the site.



1. View to the south of the pit area.



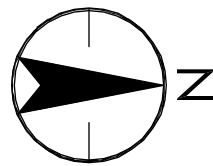
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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Butress Fill Extent
- Observed Crack

NOTES

- NO CRACKS OBSERVED IN THIS AREA.
- ALL PHOTOS TAKEN MAY 16, 2021.



0 400' 800'

Client/Project

CONTINENTAL MATERIALS
CORP.
PIKEVIEW QUARRY SLOPE
MONITORING

Project No.

2057288200

Title

OBSERVATIONS FROM
JUNE INSPECTION

Revision
#

Drawn By
PK

Date

2022.06.30

Figure No.

2

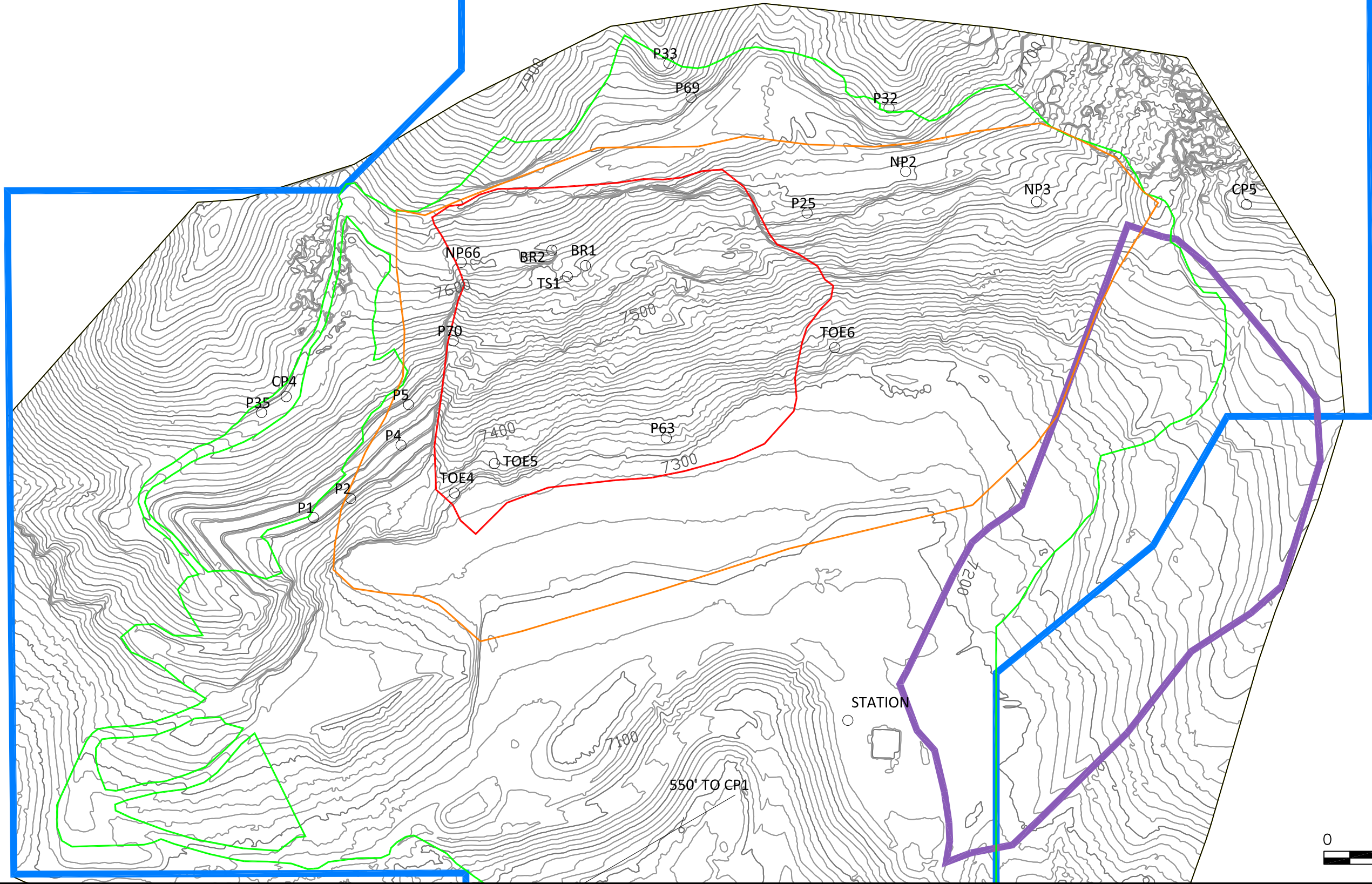
Appendix B

Prism Survey



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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. GRADING AND MOVEMENT OF STATION WILL BE EXTENDED AS LONG AS POSSIBLE.
2. PRISMS WILL BE INSTALLED AS EACH BENCH IS FINISHED.
3. ALL PRISMS WILL BE RETAINED AS LONG AS POSSIBLE.
4. TOPOGRAPHY FROM MAY 31, 2022 DRONE SURVEY.
5. CONTOUR INTERVAL IS 10 FEET

Client/Project

CONTINENTAL MATERIALS
CORP.
PIKEVIEW QUARRY SLOPE
MONITORING

Project No.
2057288200

Title

EXISTING PRISMS WITH
CURRENT SURFACE

Revision
#

Drawn By
PK

Date
2022.06.30

Figure No.
3

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LEGEND

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

NOTES

1. GRADING AND MOVEMENT OF STATION WILL BE EXTENDED AS LONG AS POSSIBLE.
2. PRISMS WILL BE INSTALLED AS EACH BENCH IS FINISHED.
3. ALL PRISMS WILL BE RETAINED AS LONG AS POSSIBLE.

Client/Project

CONTINENTAL MATERIALS
CORP.
PIKEVIEW QUARRY SLOPE
MONITORING

Project No.
2057288200

Title

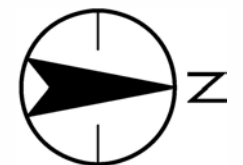
PROPOSED PRISMS WITH
RECLAMATION SURFACE

Revision
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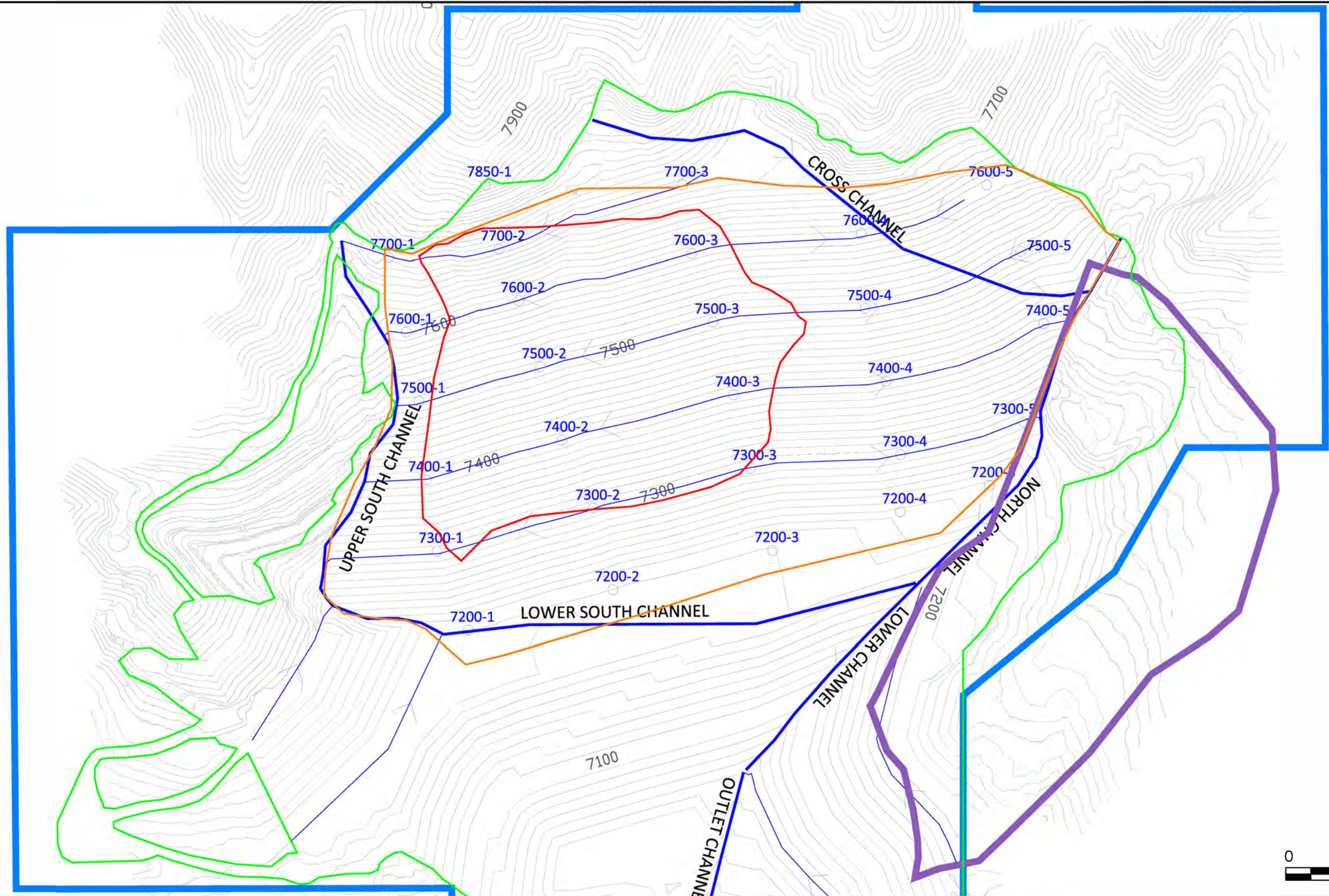
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PK

Date
2022.06.30

Figure No.
4



0 300' 600'



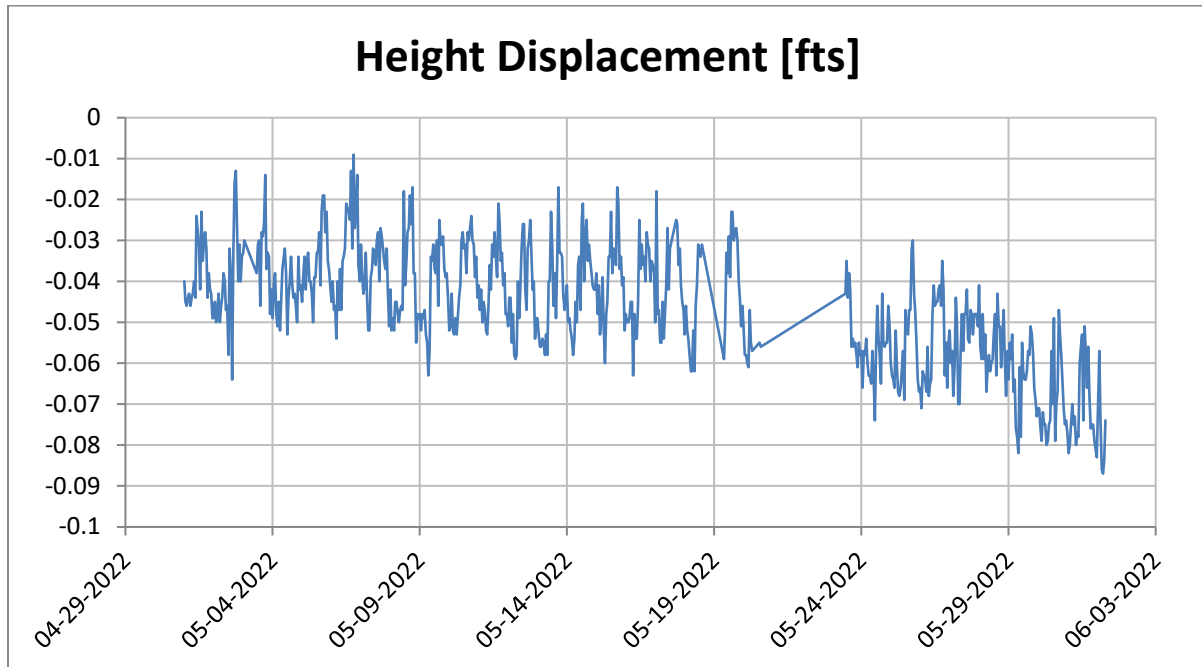
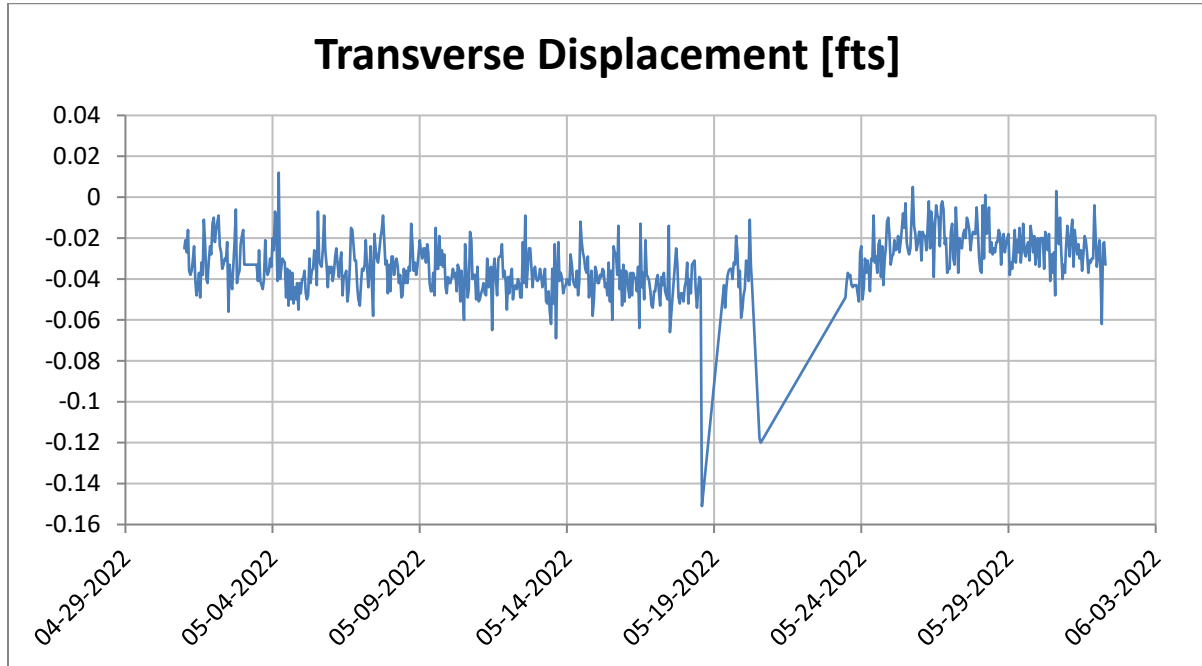
Prism Log

Prism	Date	Action	Comment
CP2	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
CP3	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
NP1	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
TOE2	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
CP4	11-Mar-22	Prism Added	Control Point Replacement
CP5	11-Mar-22	Prism Added	Control Point Replacement
TS1	12-Mar-22	Prism Added	New Prism Added
TOE3	30-Mar-22	Prism Removed	Reclamation grading to affect buffer filling activities
TOE4	8-Apr-22	Prism Added	New Prism Added
TOE5	8-Apr-22	Prism Added	New Prism Added
BR1	8-Apr-22	Prism Added	New Prism Added
BR2	8-Apr-22	Prism Added	New Prism Added
NP3	22-Apr-22	Prism Added	Originally NP1. Prism re-set in same spot and is now NP3
TOE6	22-Apr-22	Prism Added	Originally TOE3. Prism moved to a higher elevation and is now TOE6
TOE1	22-Apr-22	Prism Removed	Reclamation grading to affect buffer filling activities

Note that no prisms were added or removed in May.



Prism BR1

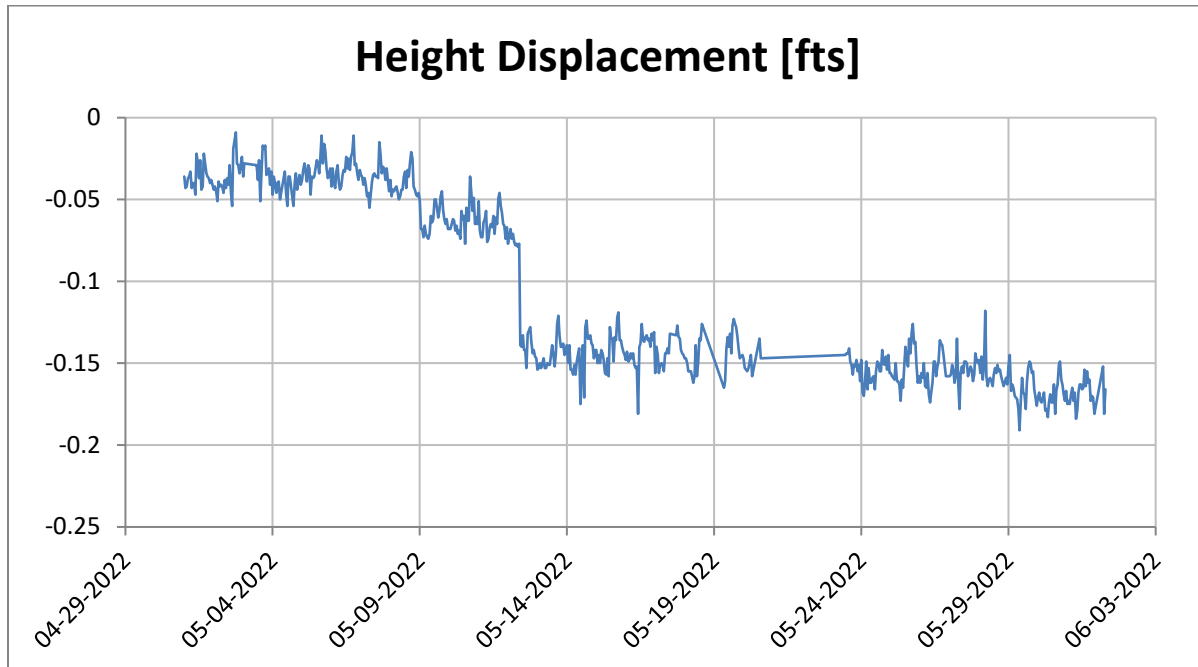
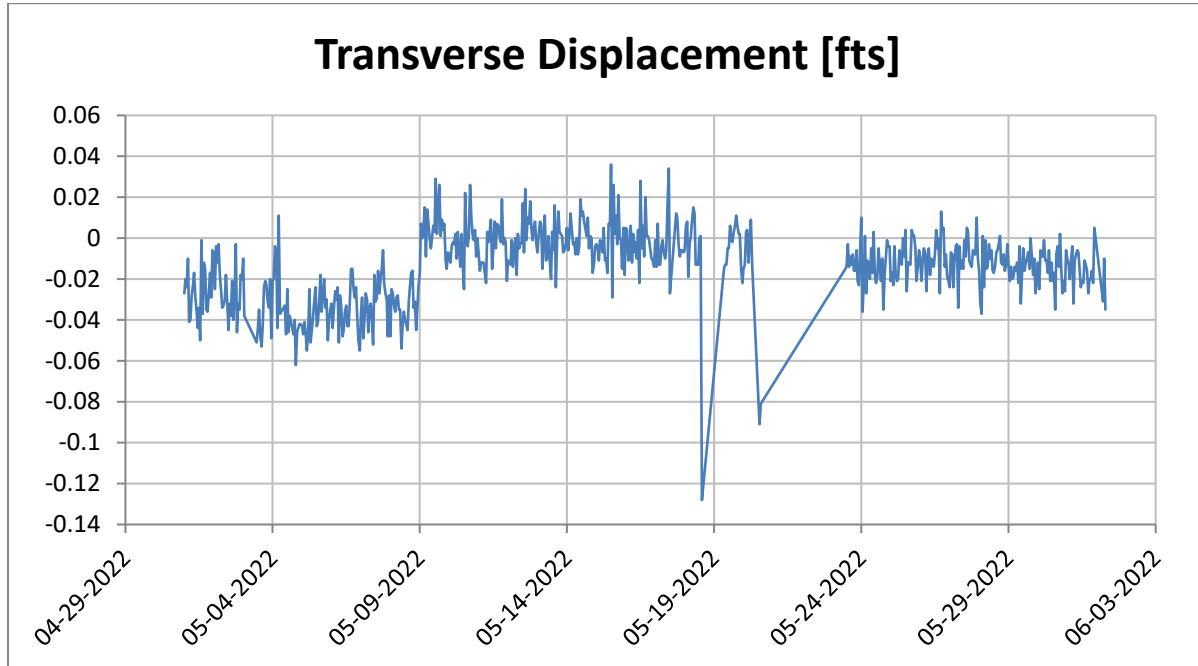


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



Prism BR2

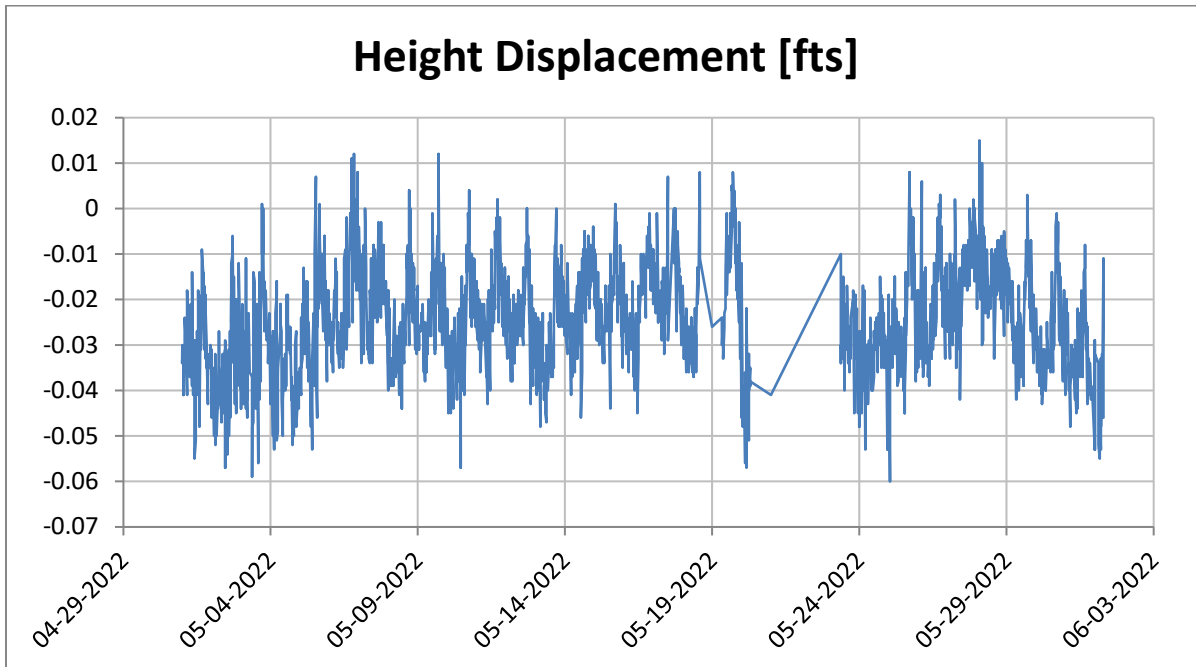
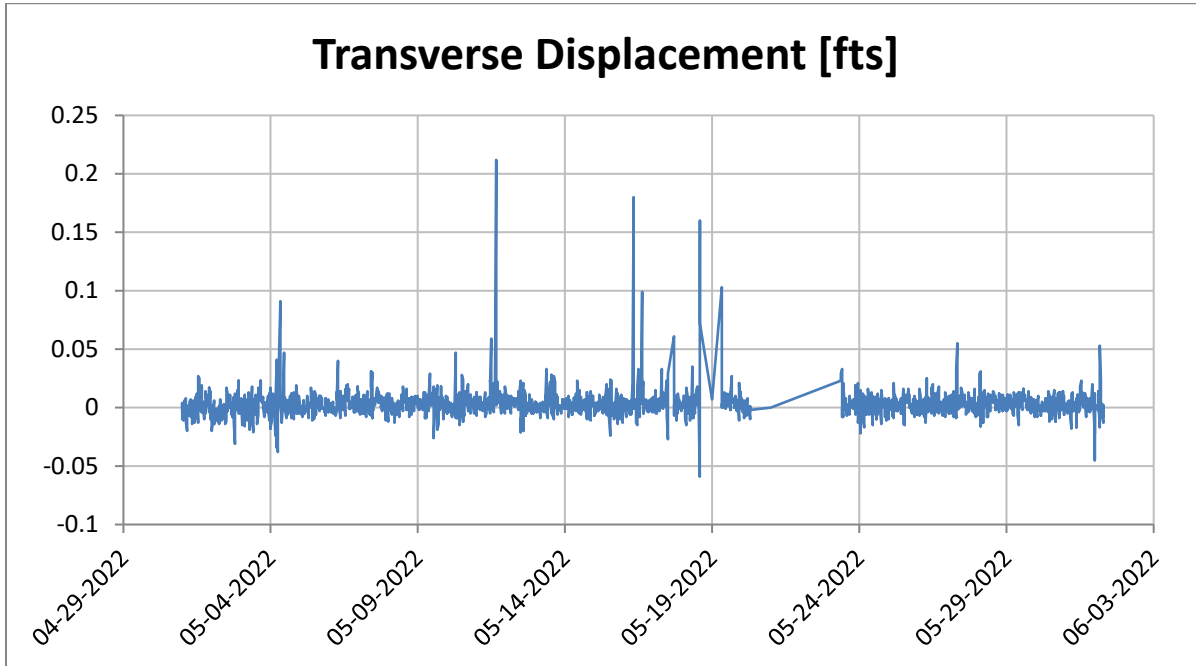


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism is located in an area where ongoing movements are expected. The prism records slope creep movements with slow velocity. The prism shifted downwards approximately 0.06' on May 12.



Prism CP1

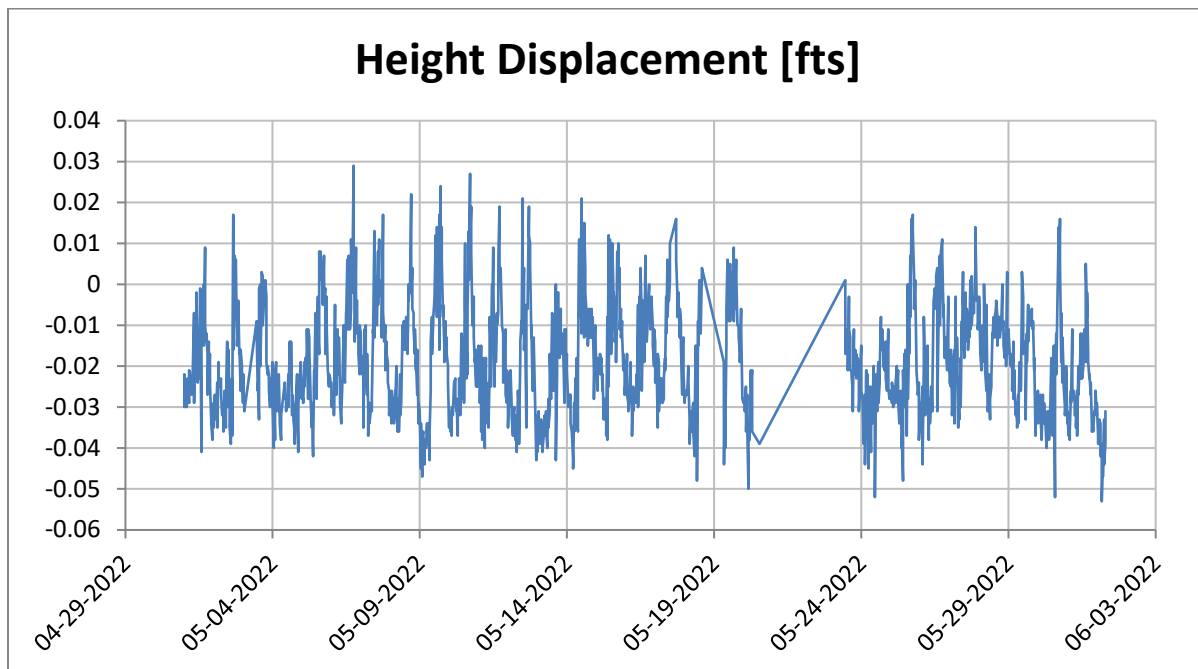
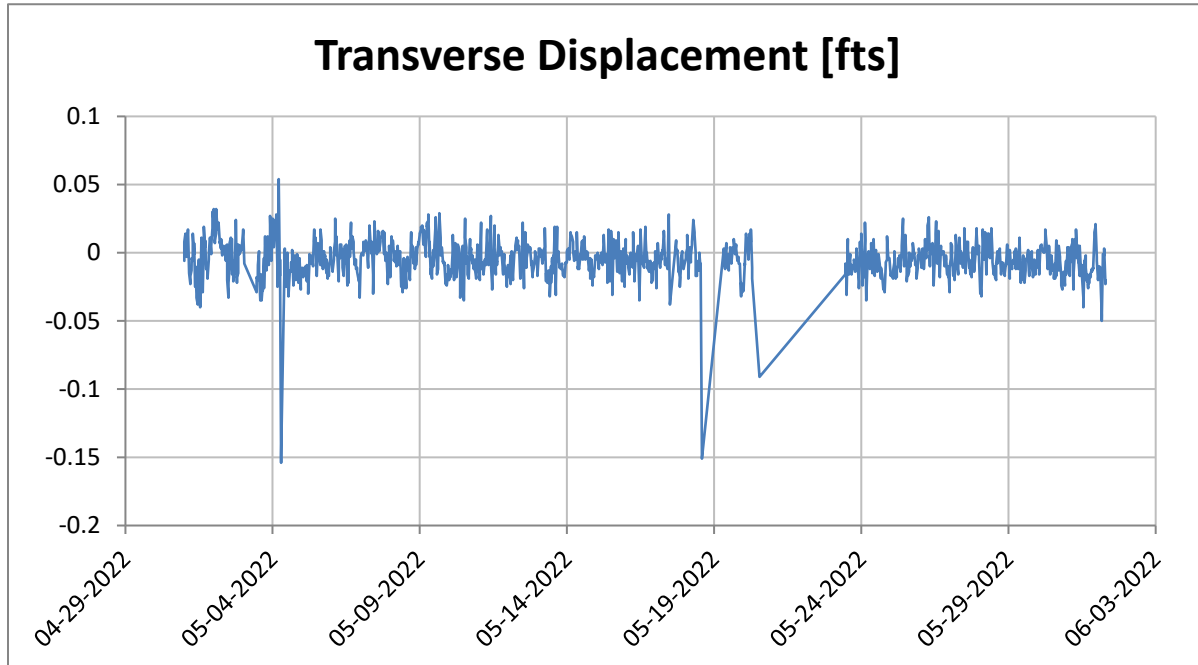


Notes:

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



Prism CP4

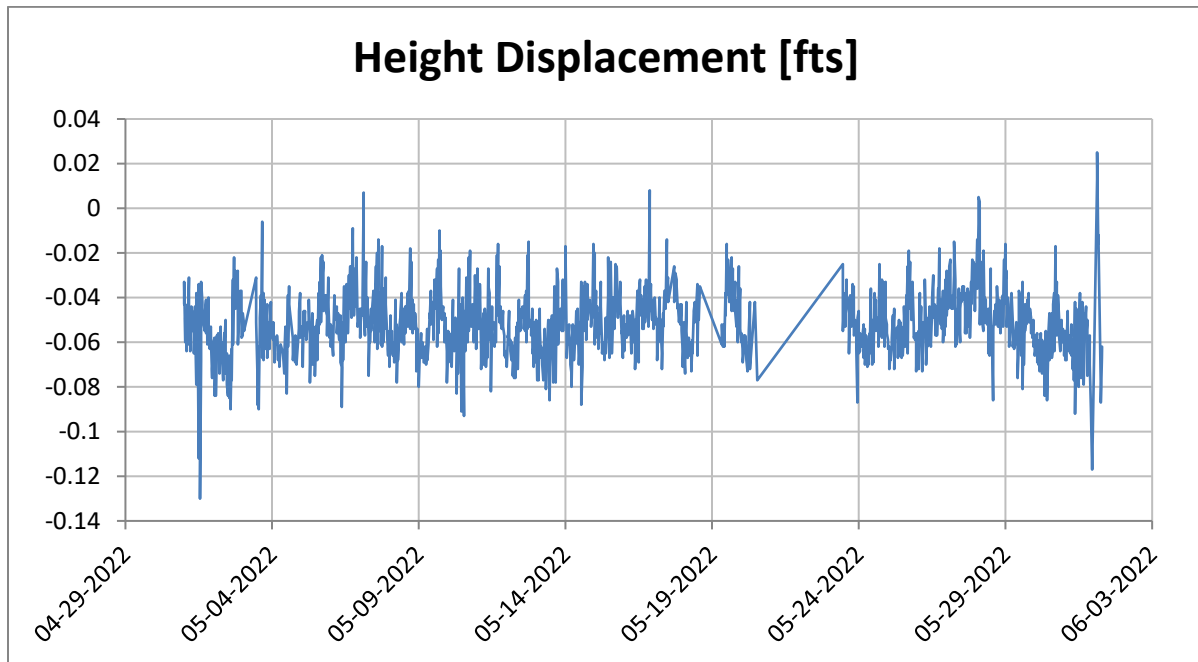
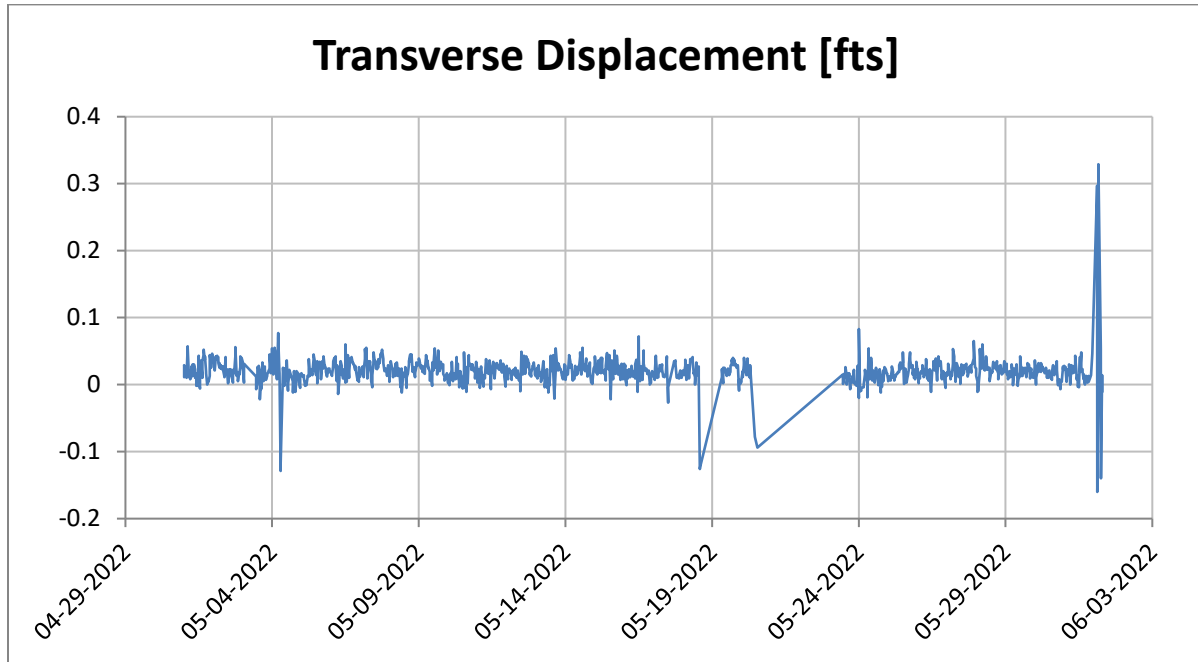


Notes:

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



Prism CP5

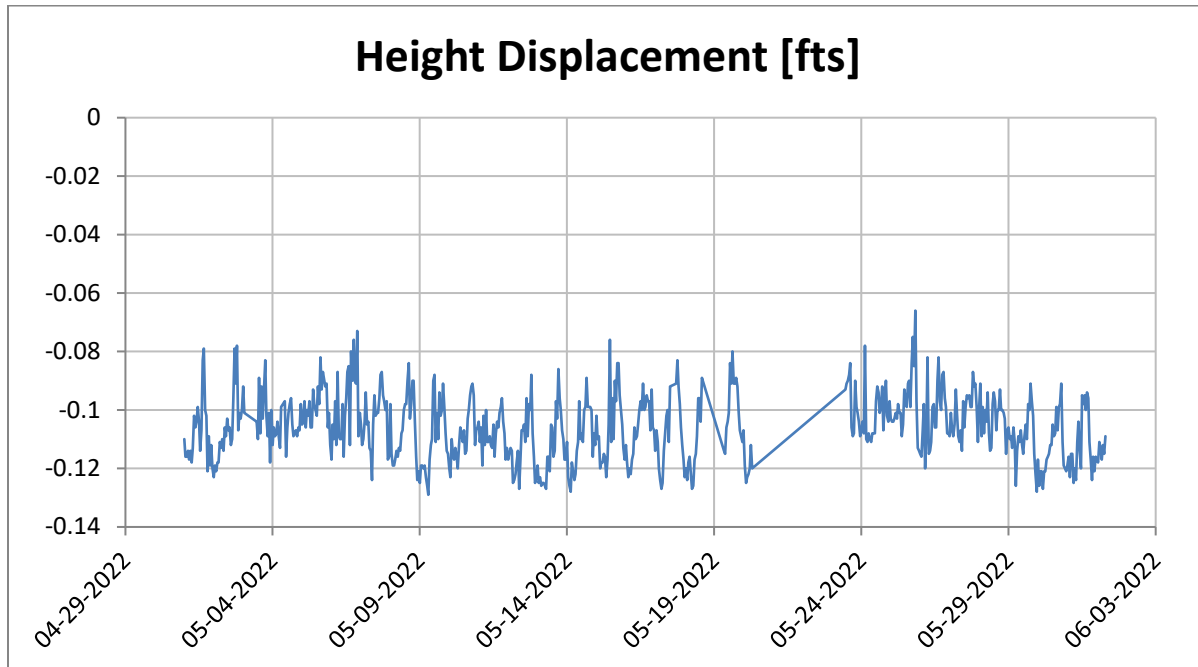
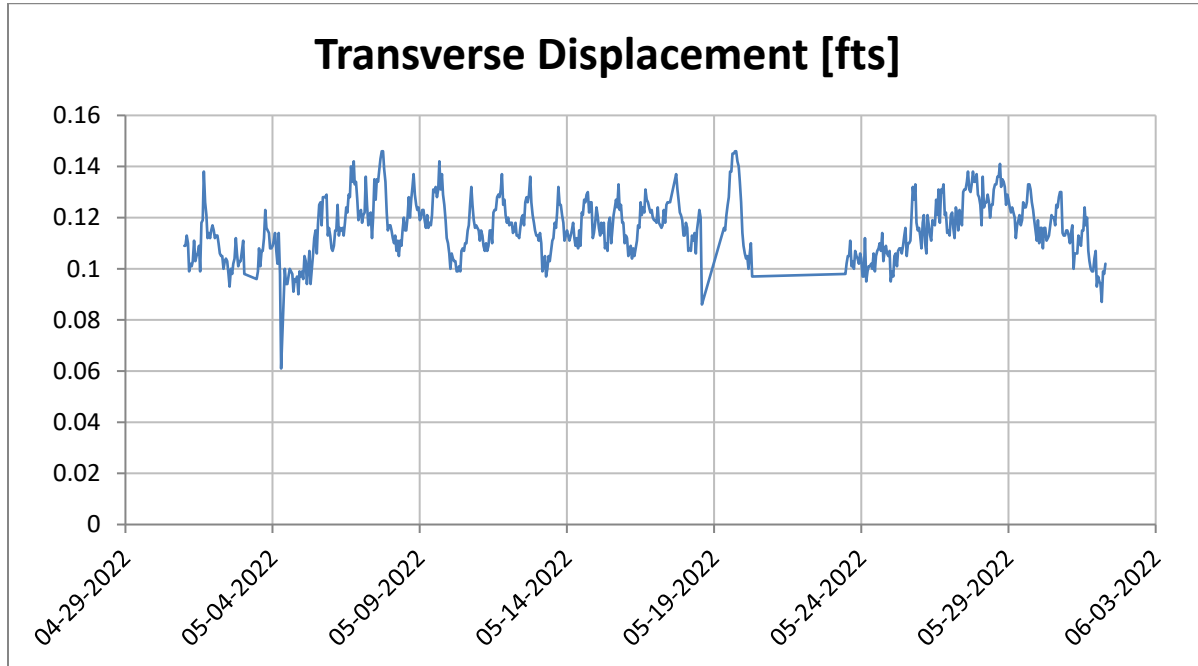


Notes:

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



Prism NP2

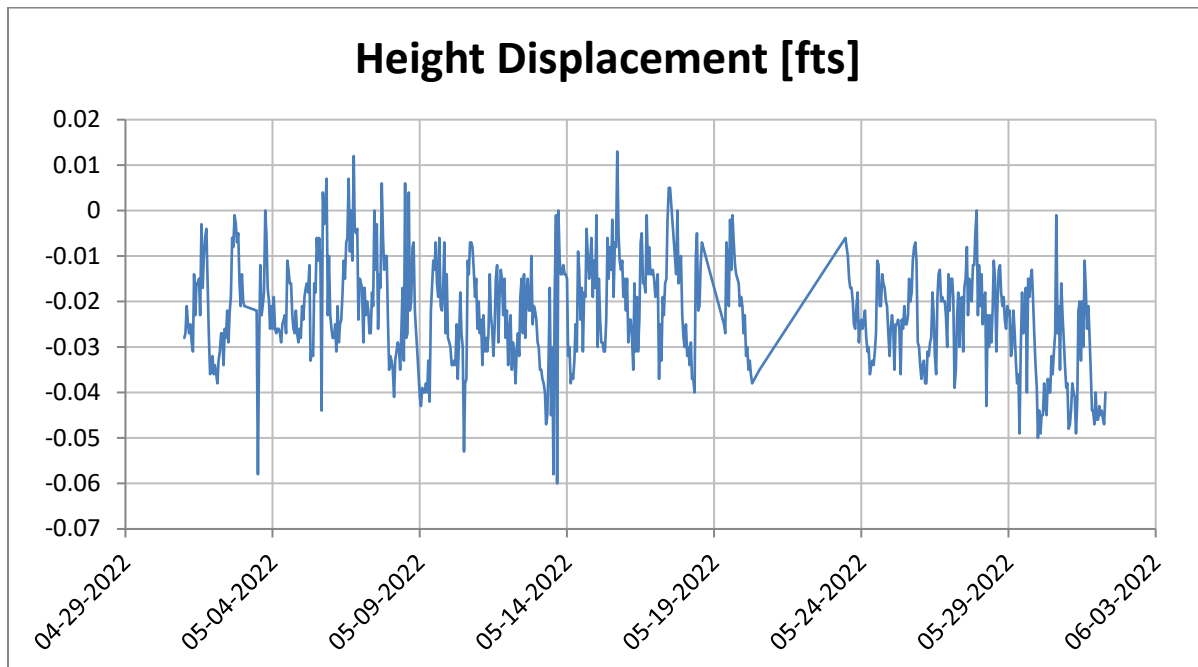
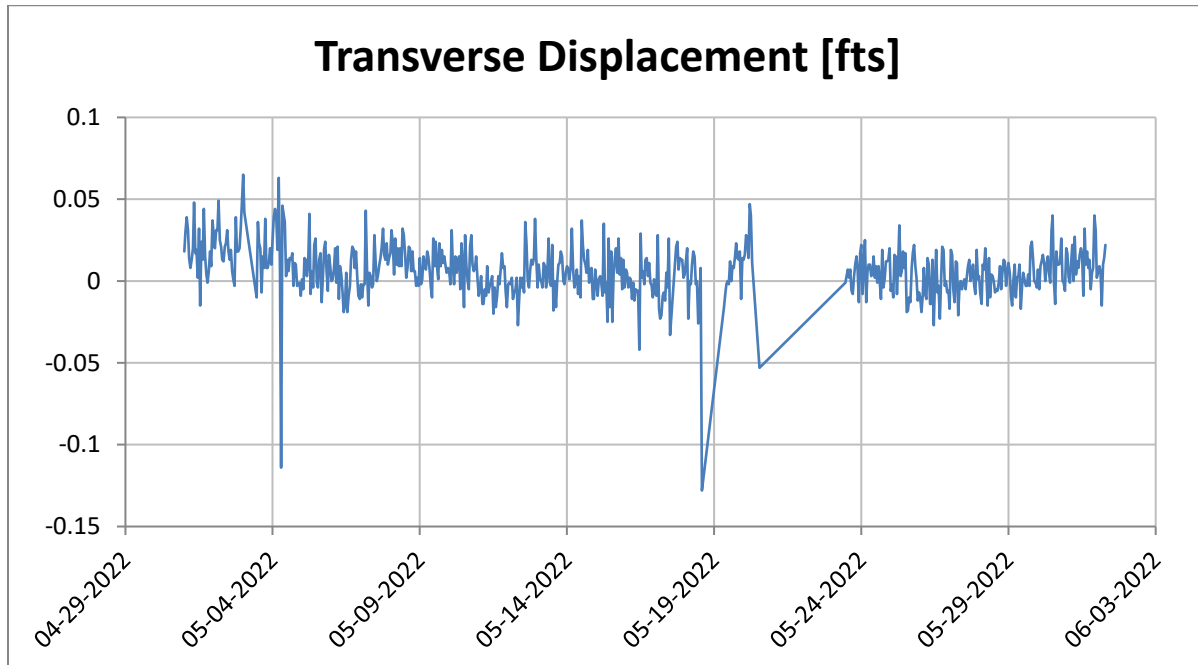


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Regression limit alarms were received on May 4. One was in positive direction and the other was in the negative direction.



Prism NP3

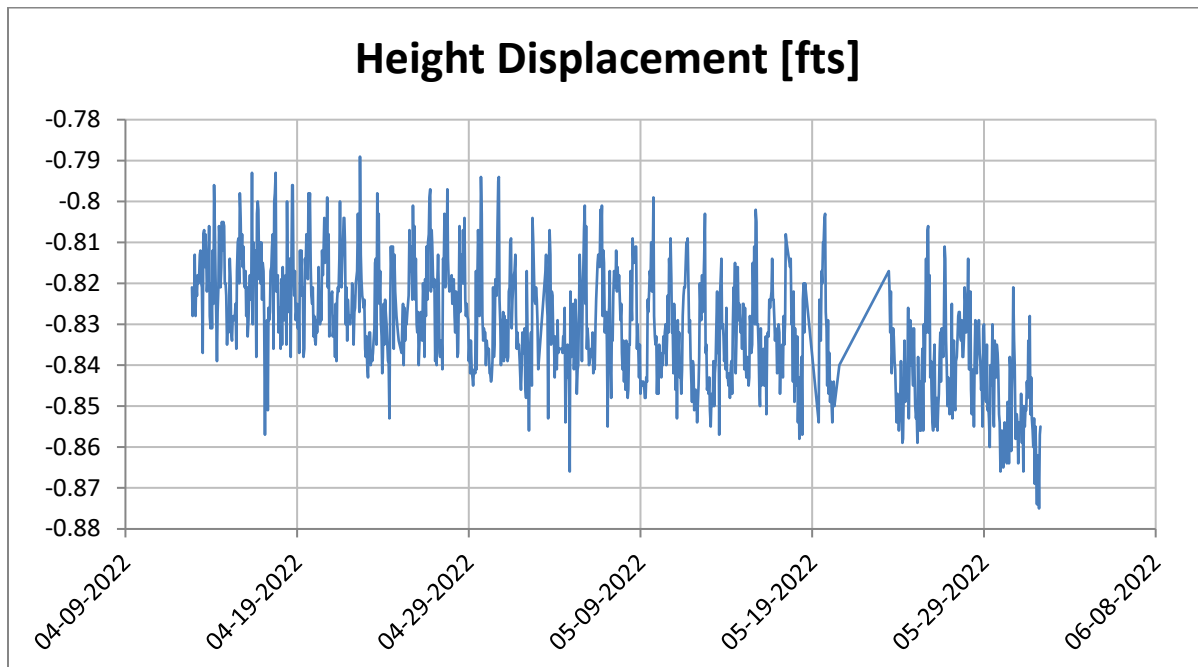
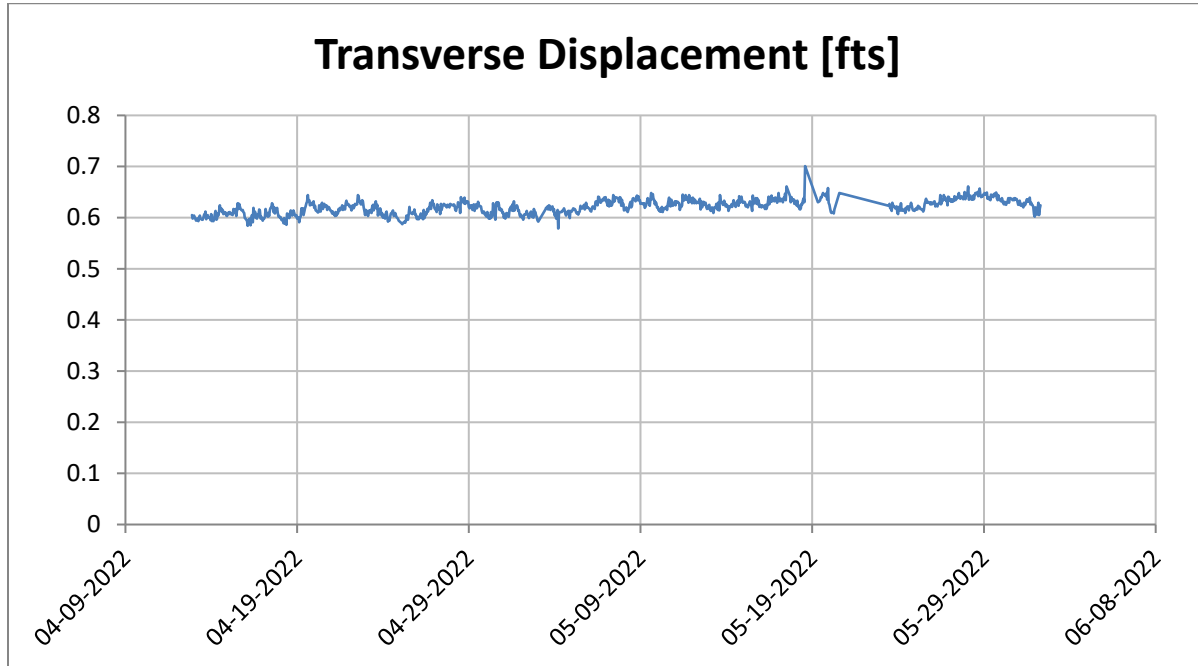


Notes:

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



Prism NP66

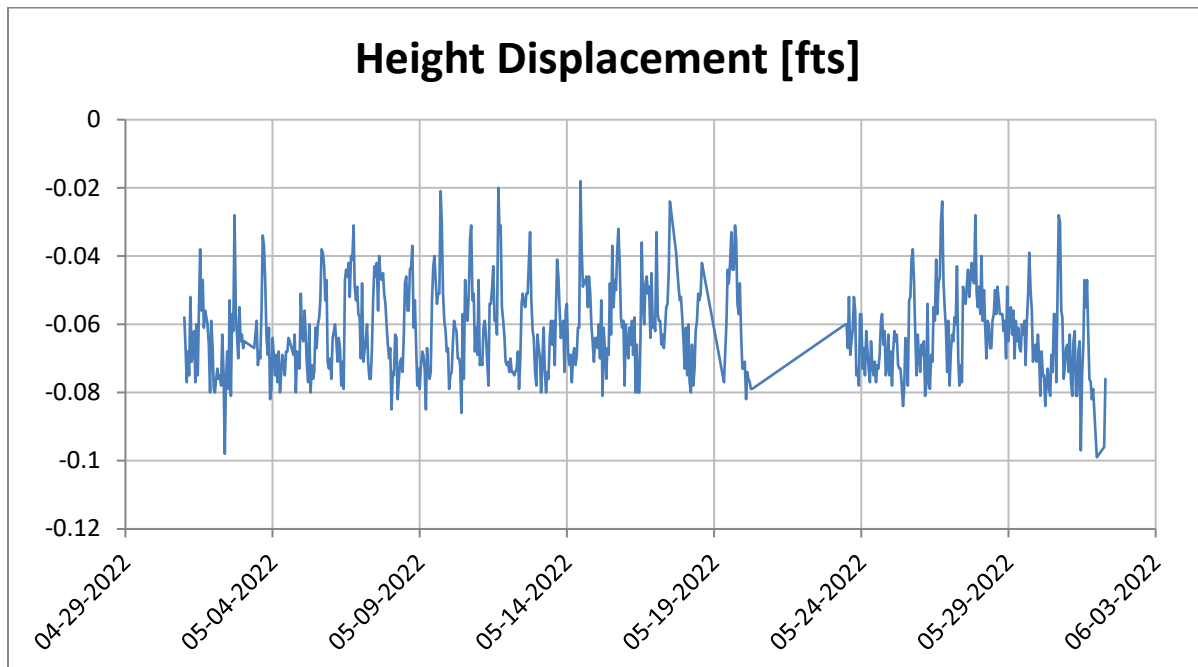
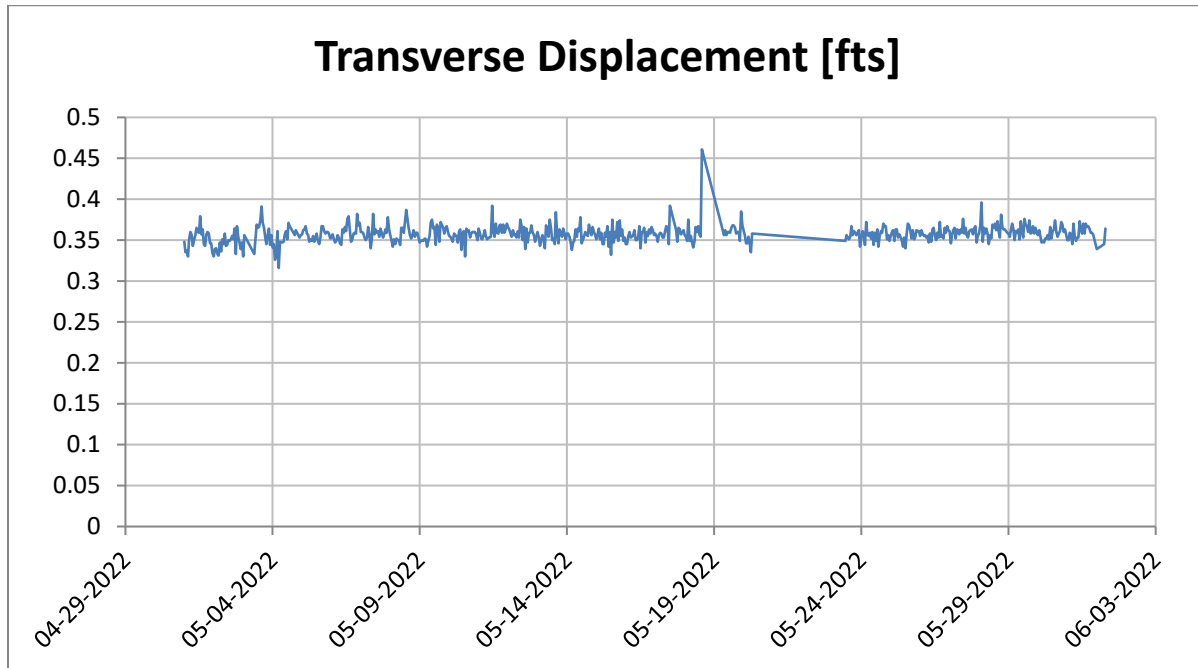


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



Prism P1

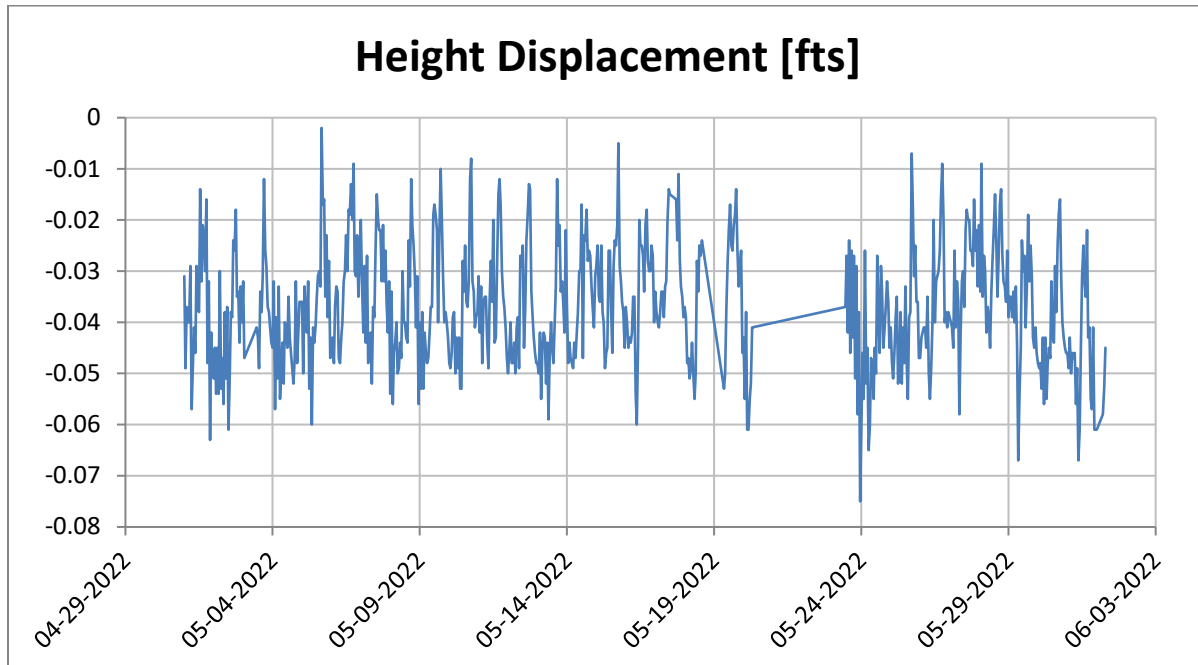
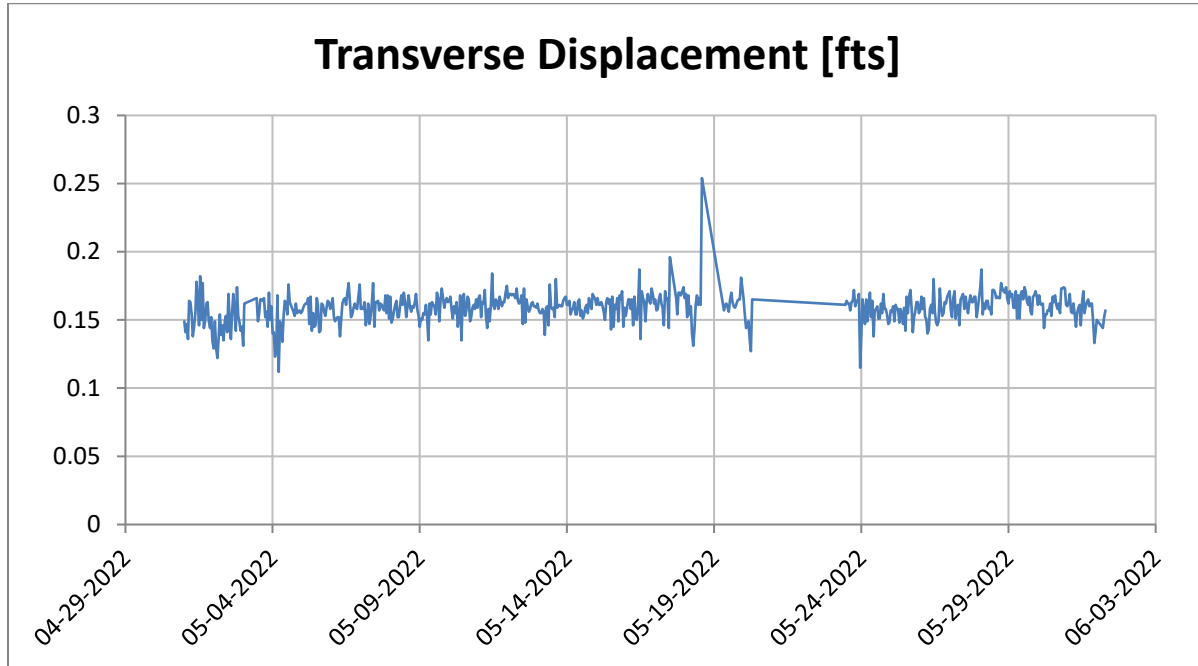


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Regression limit alarm was received on May 18.



Prism P2

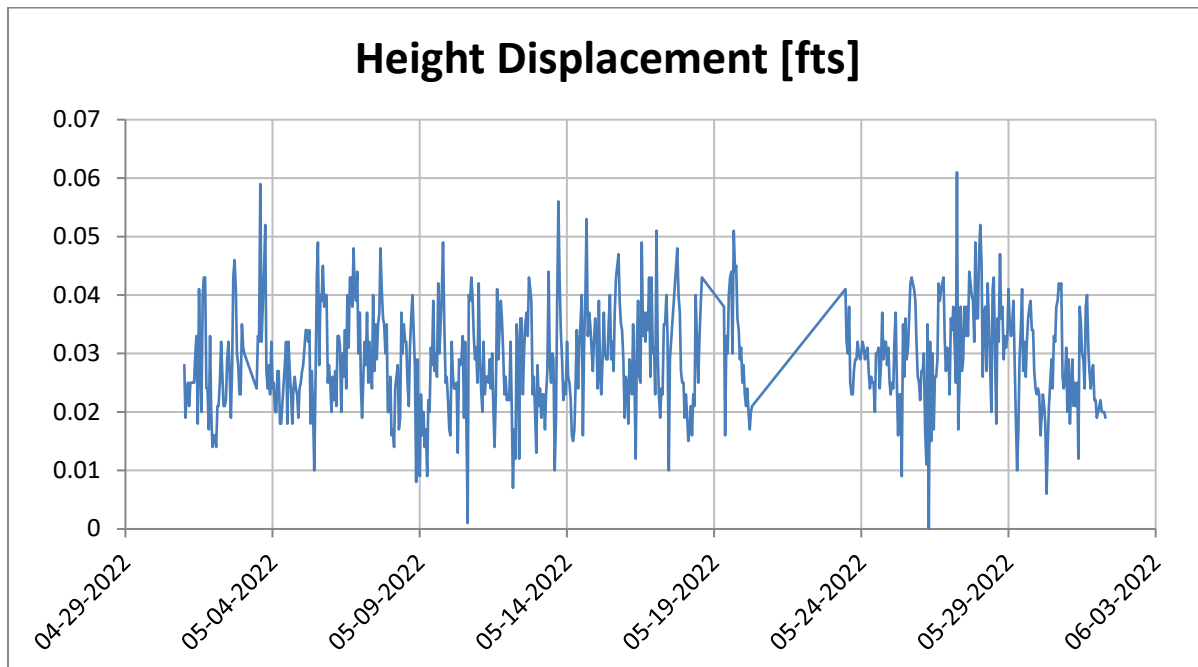
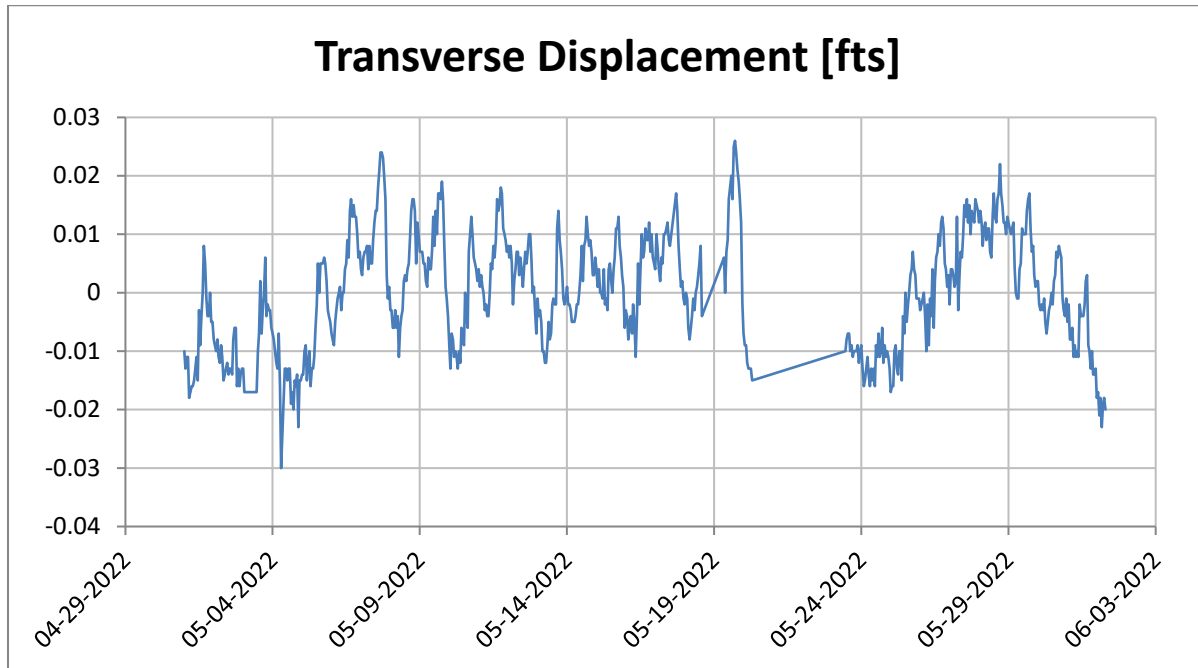


Notes:

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



Prism P25

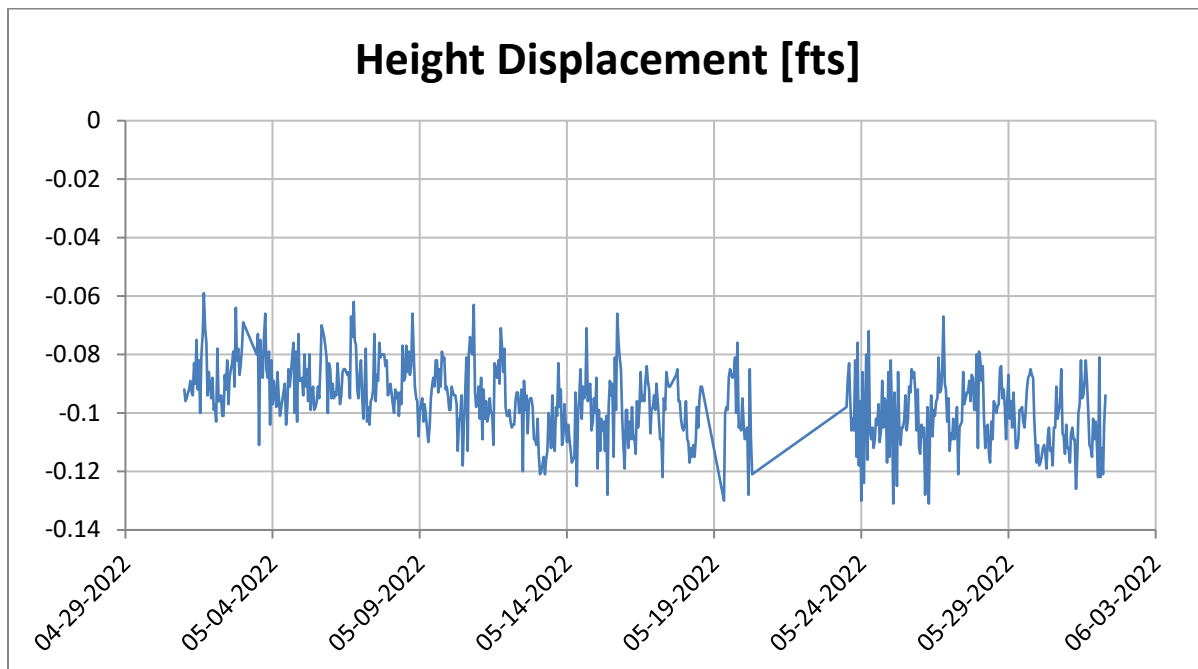
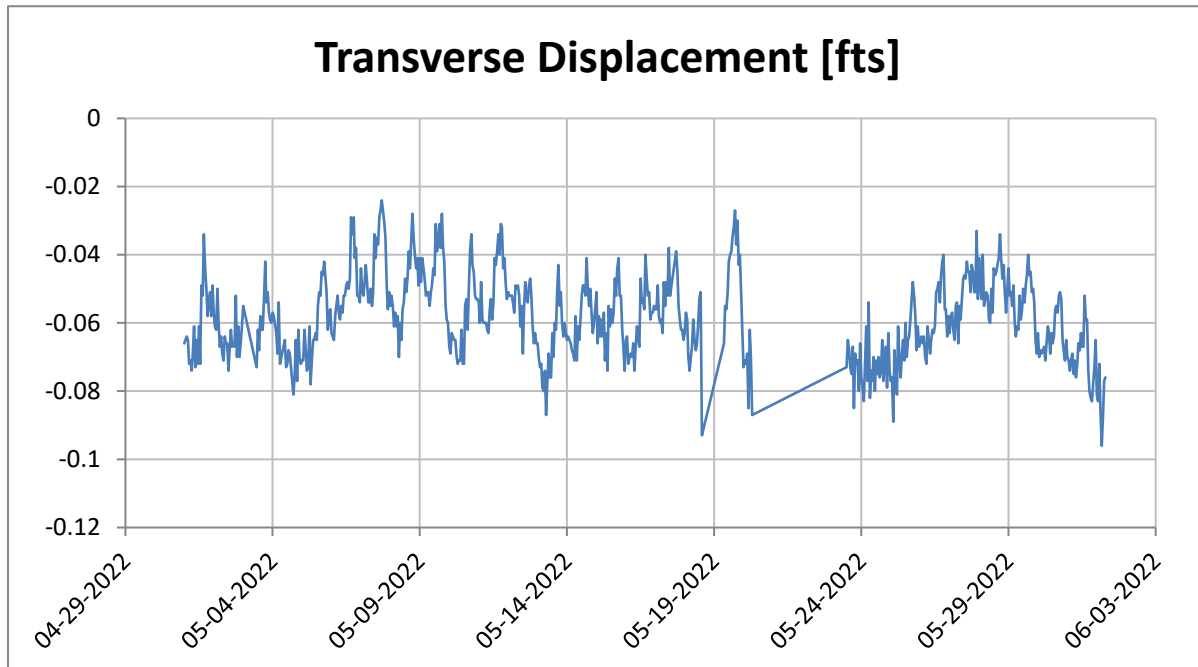


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Regression limit alarms were received on May 4 and 18.



Prism P32

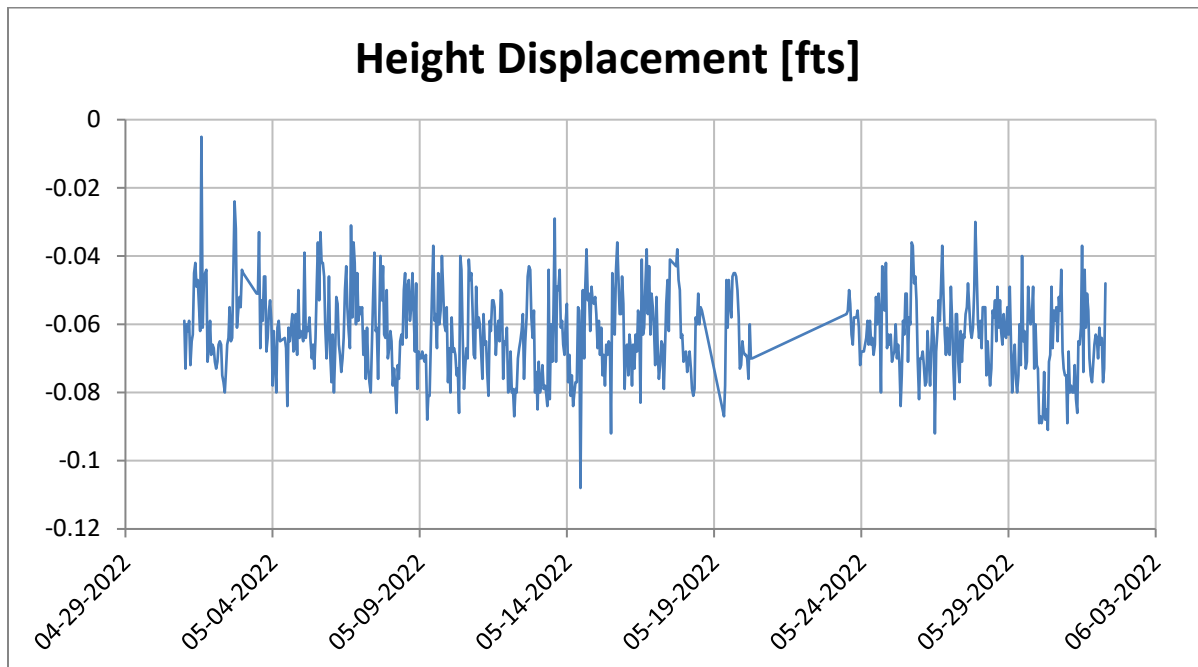
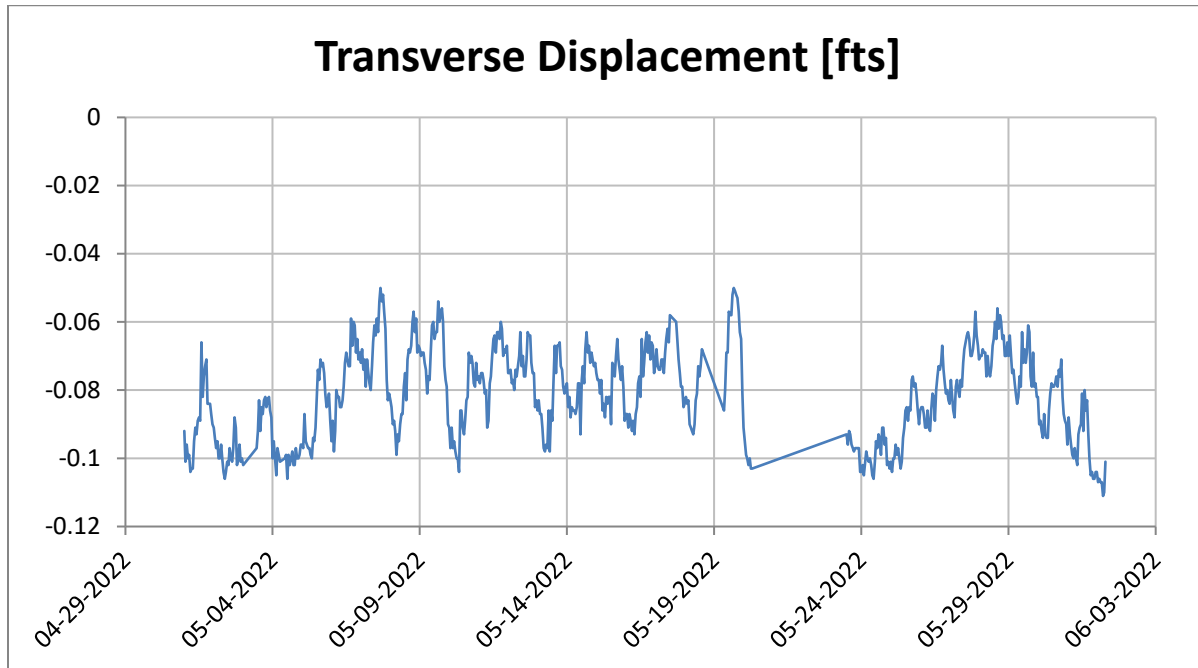


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Regression limit alarms were received on May 4 and 18.



Prism P33

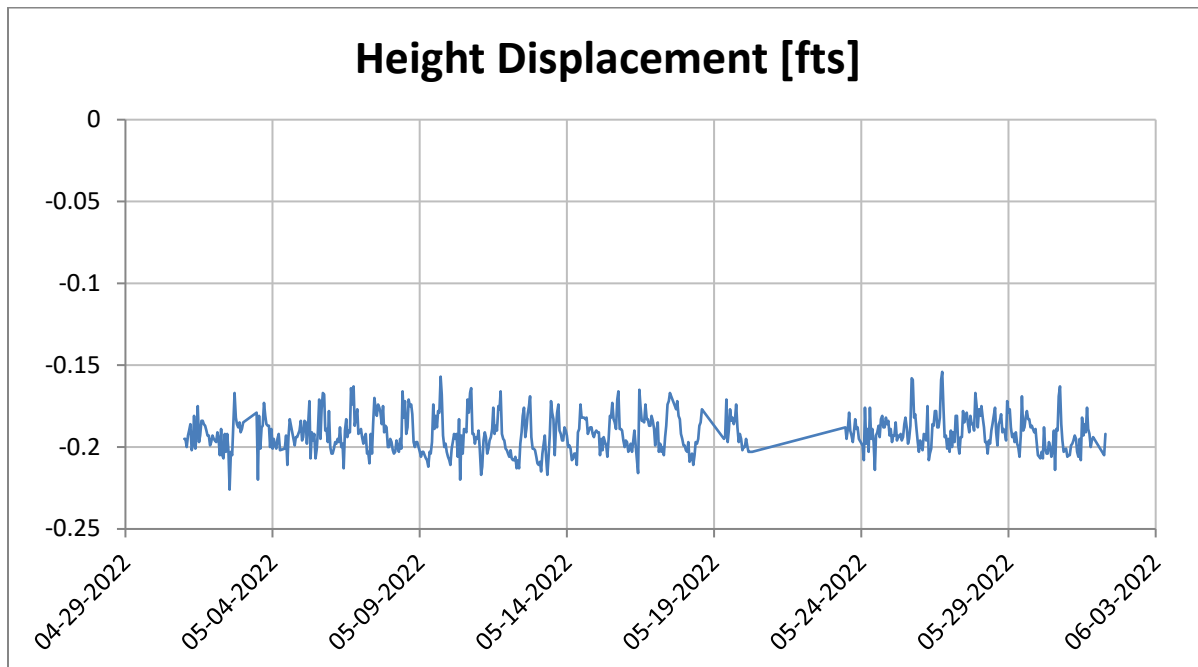
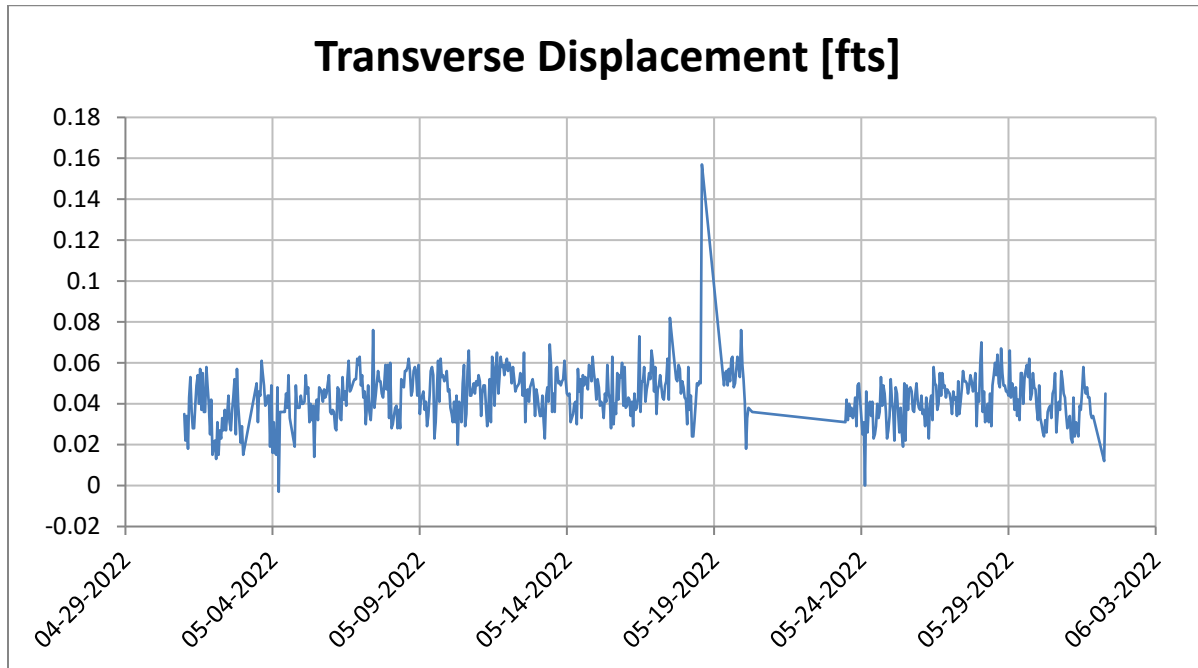


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Regression limit alarms were received on May 4 and 18.



Prism P35

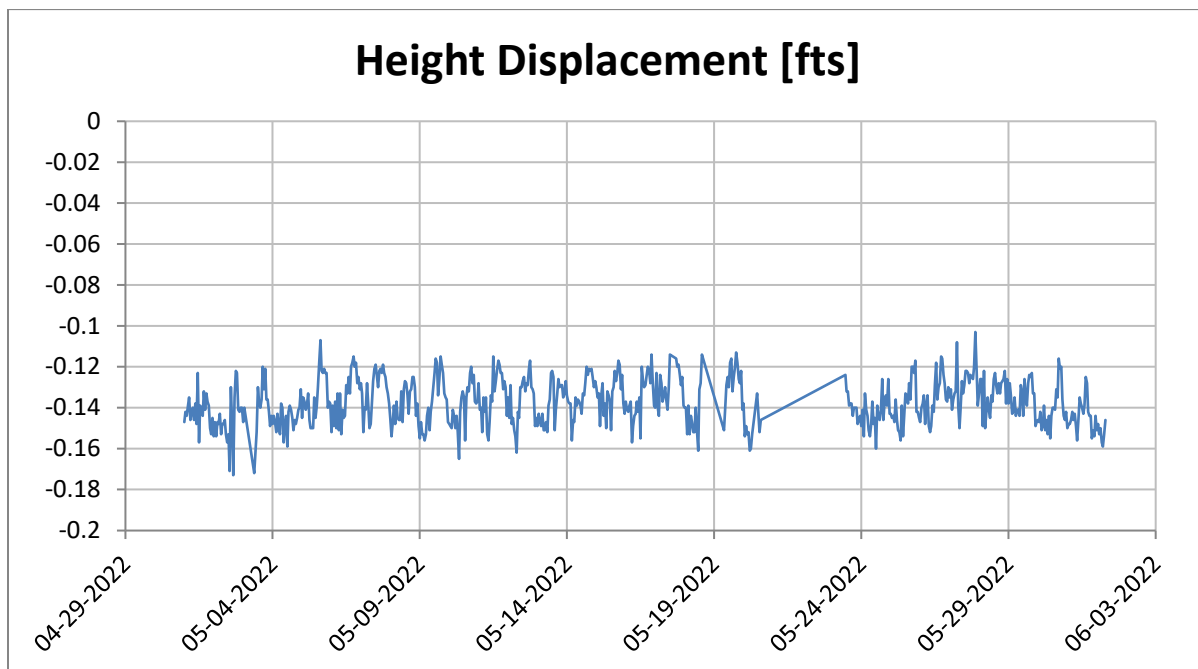
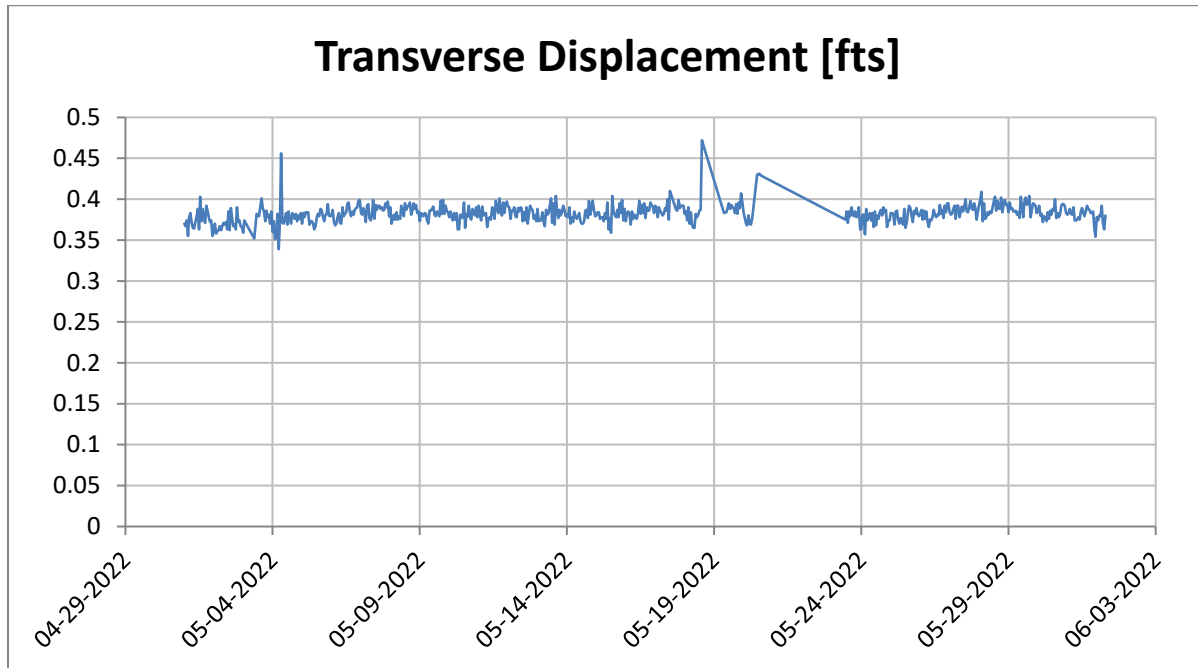


Notes:

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



Prism P4

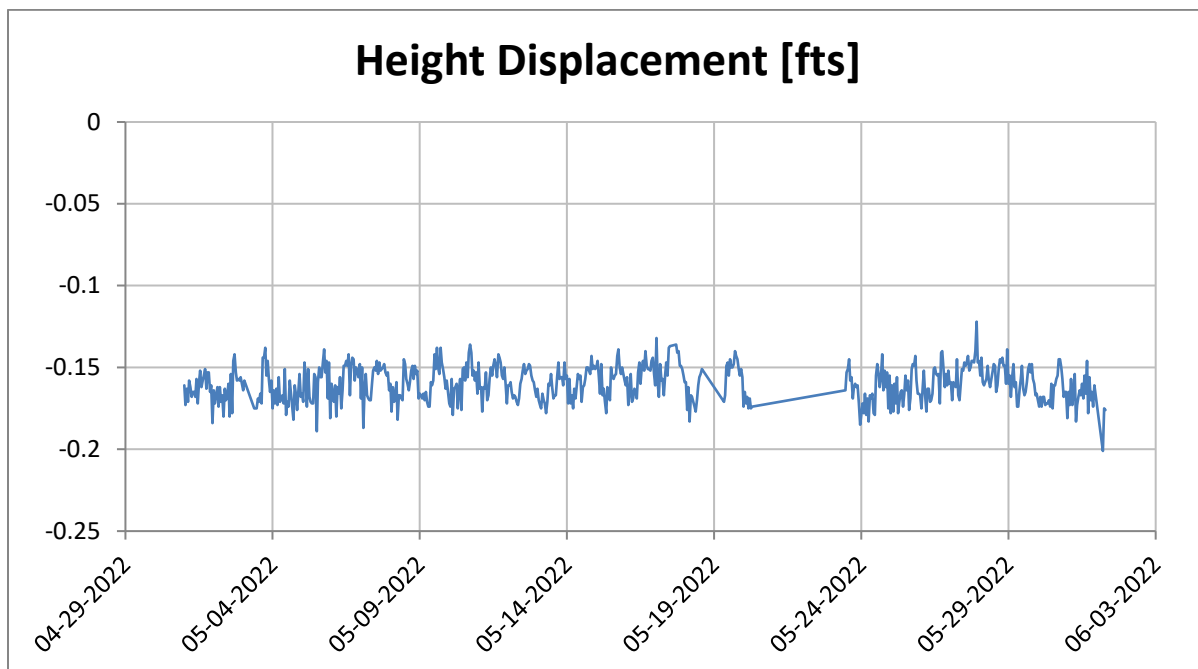
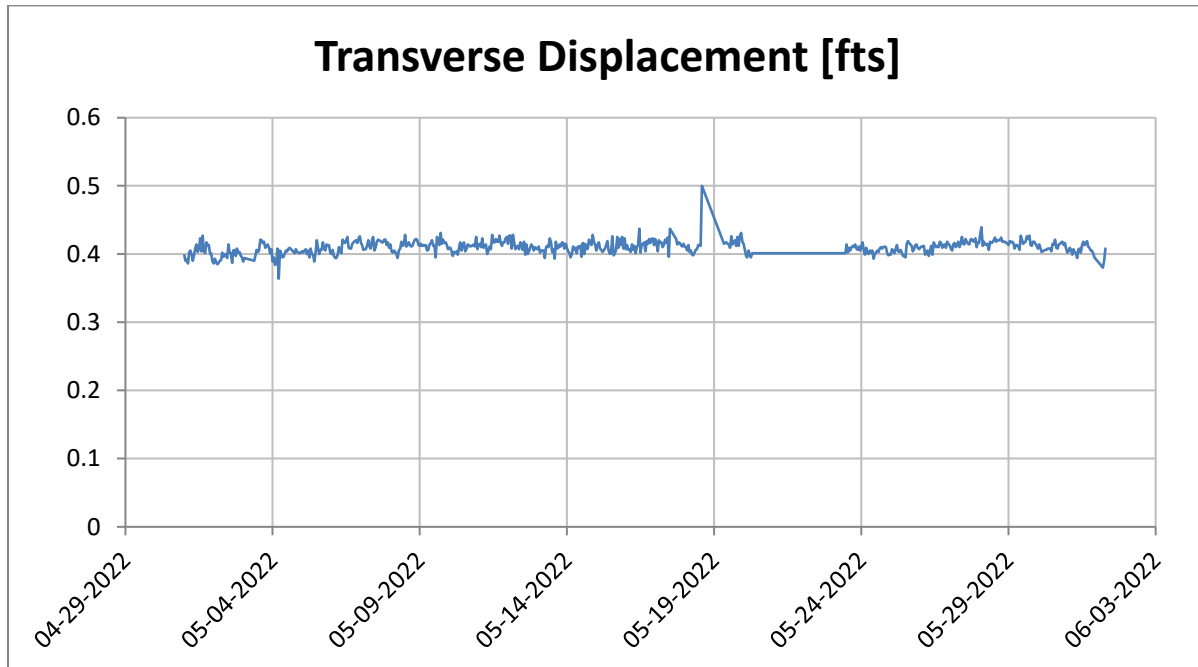


Notes:

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



Prism P5

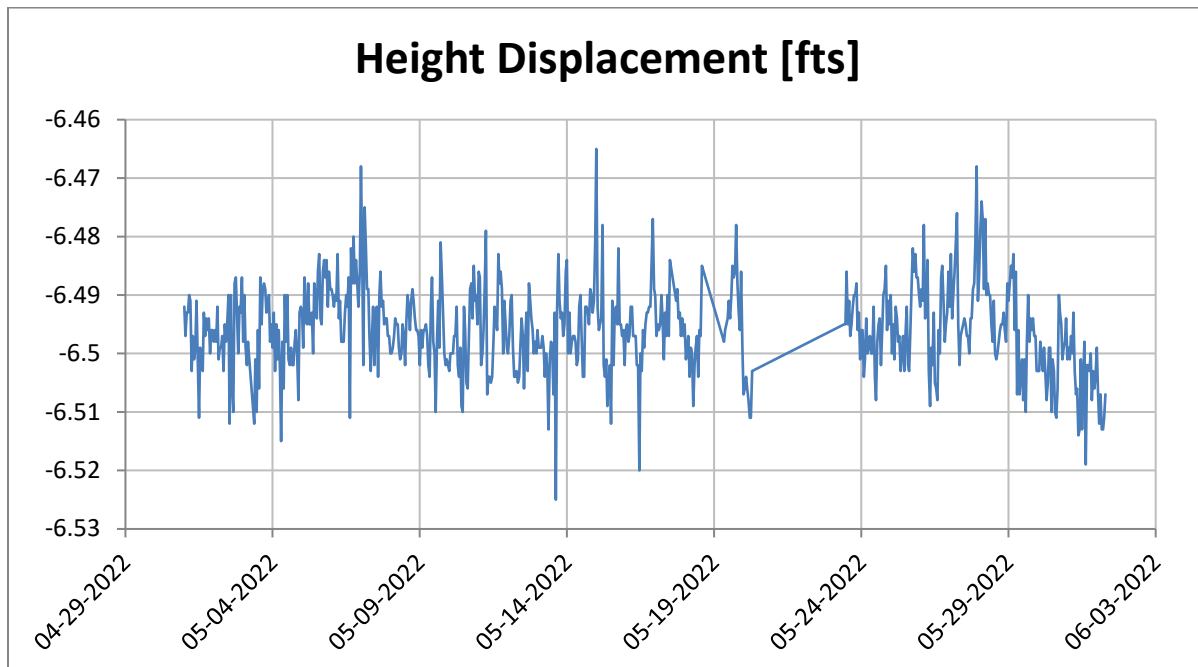
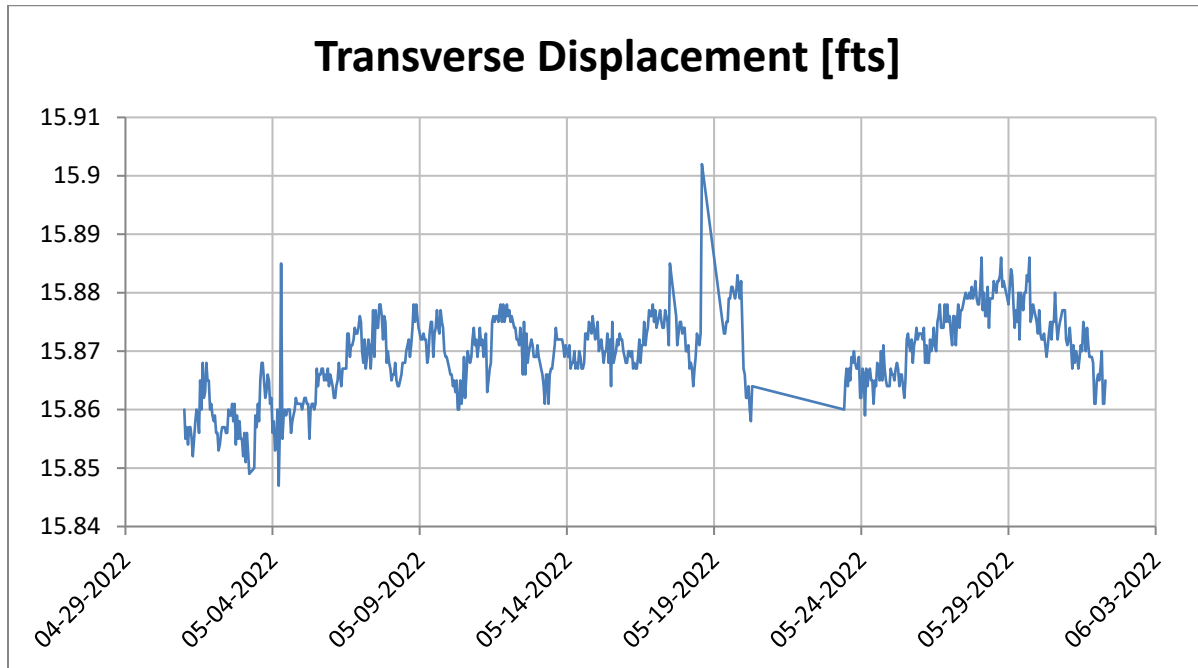


Notes:

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



Prism P63

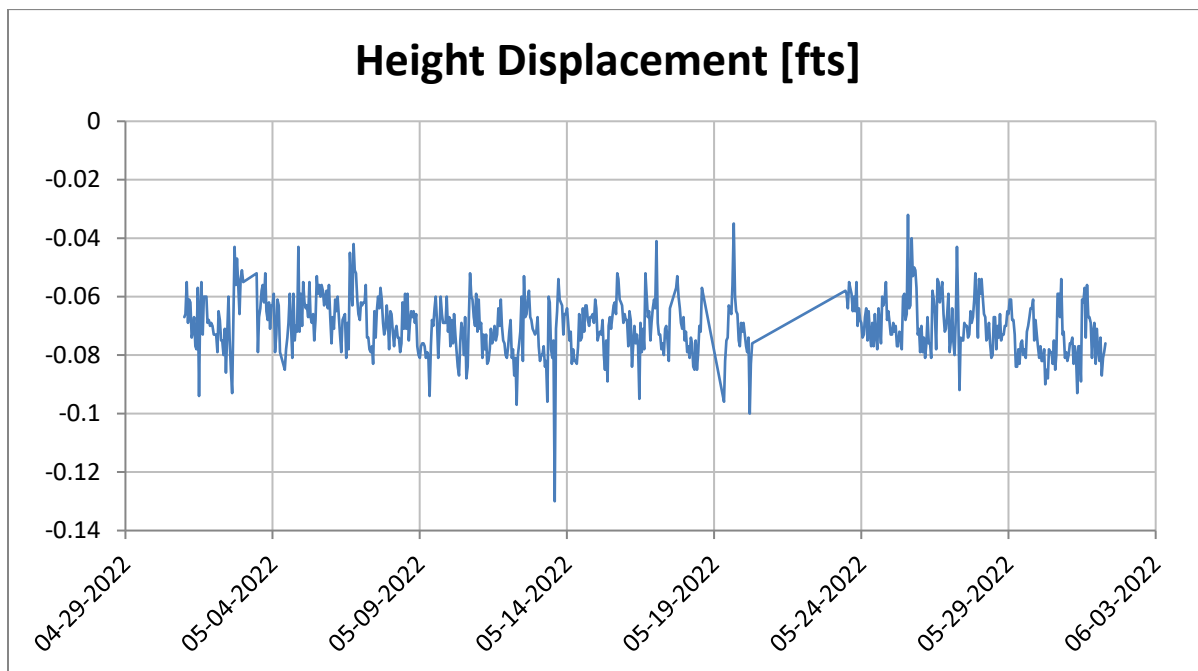
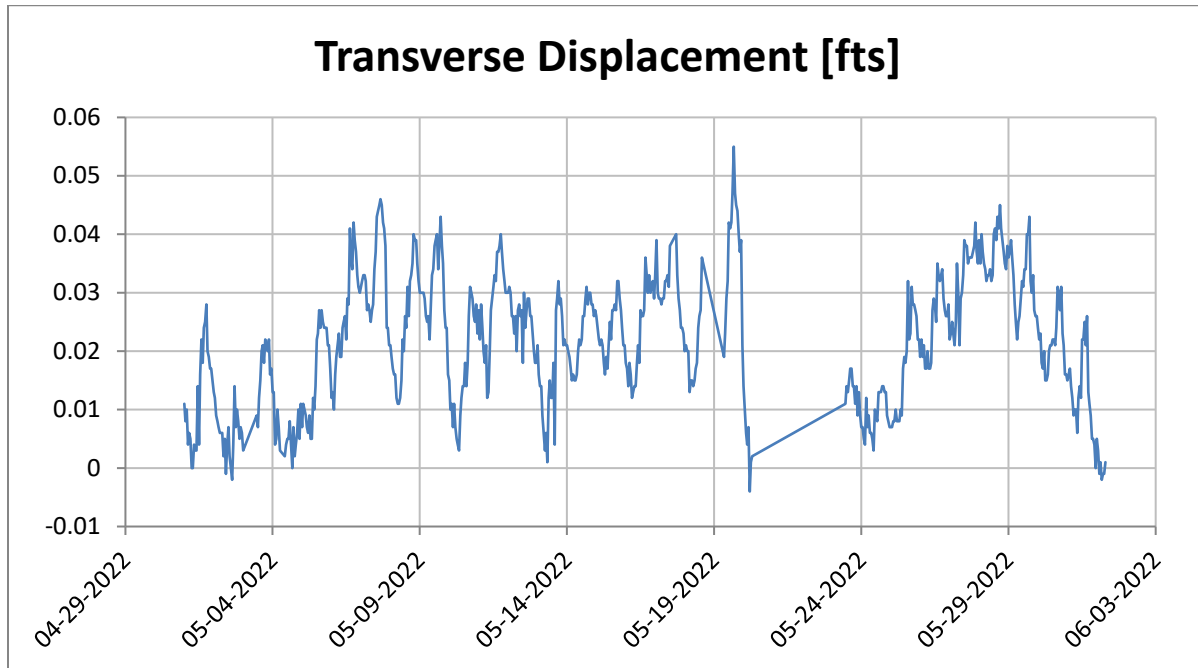


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



Prism P69

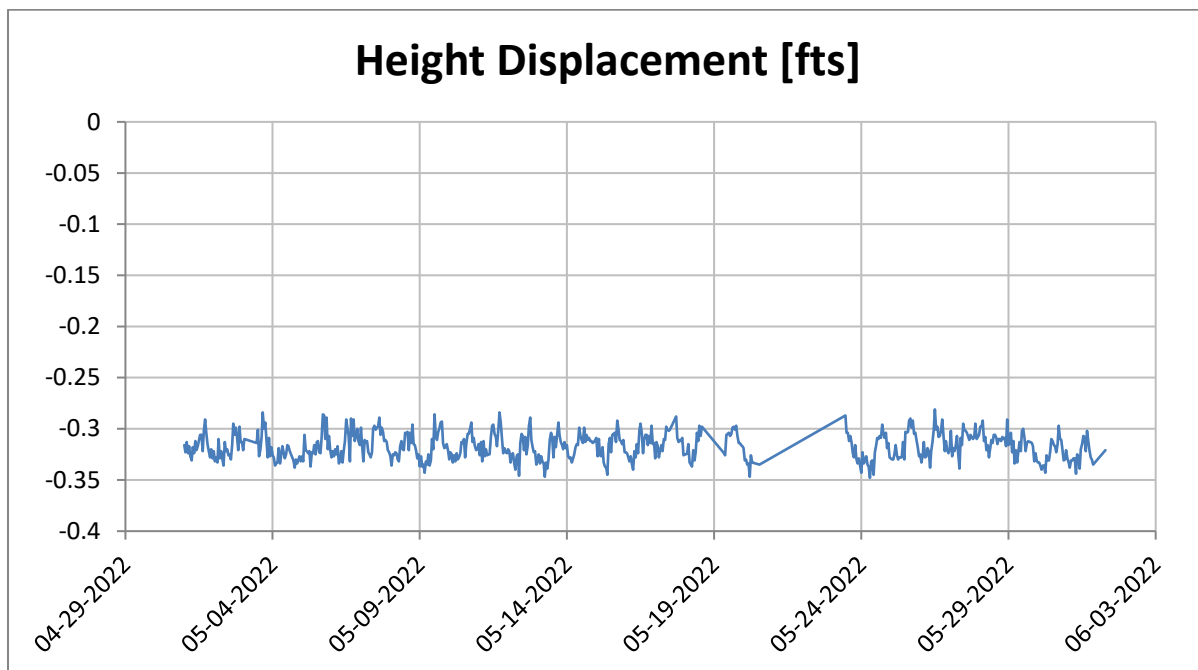
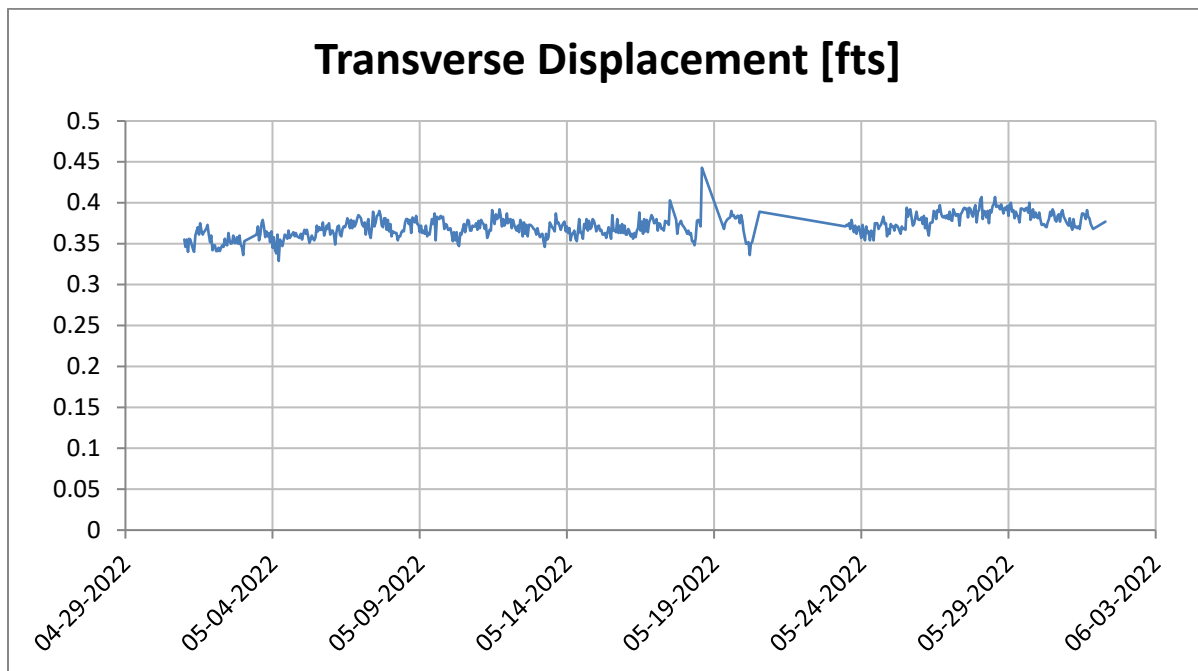


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



Prism P70

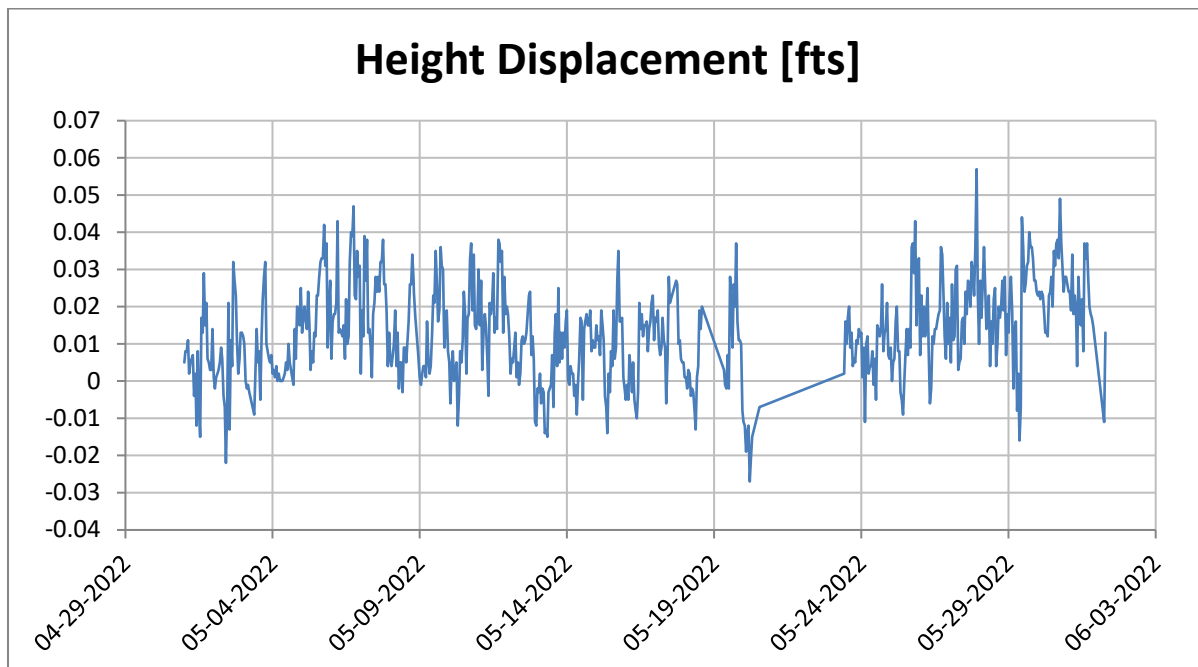
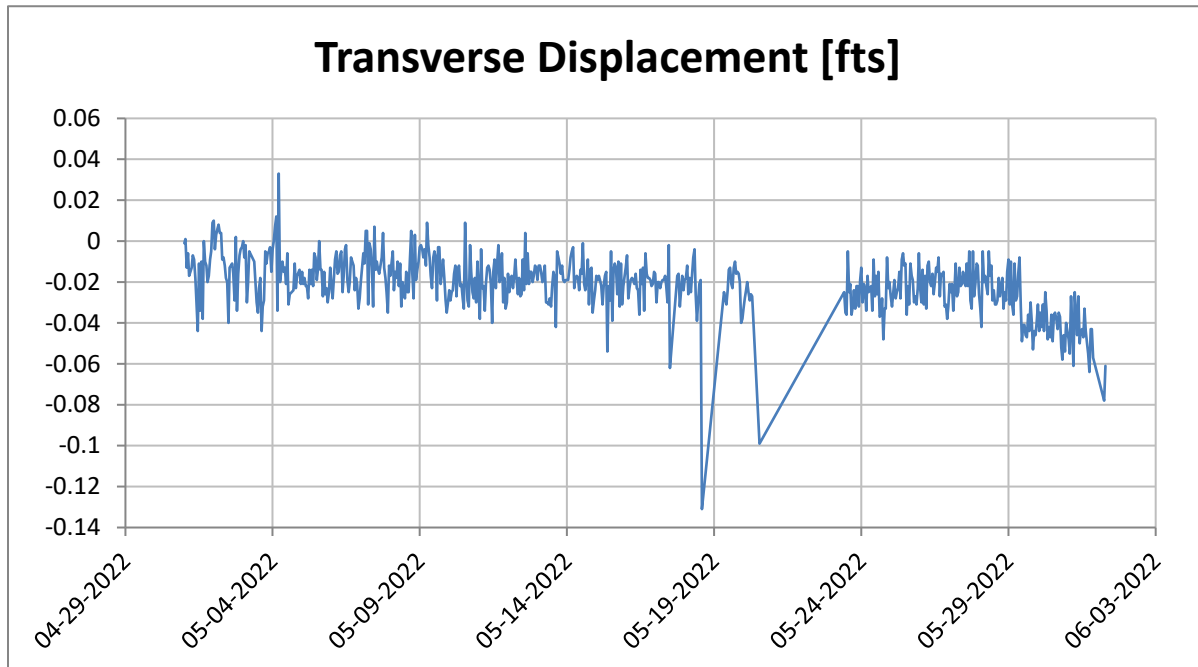


Notes:

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



Prism TOE4

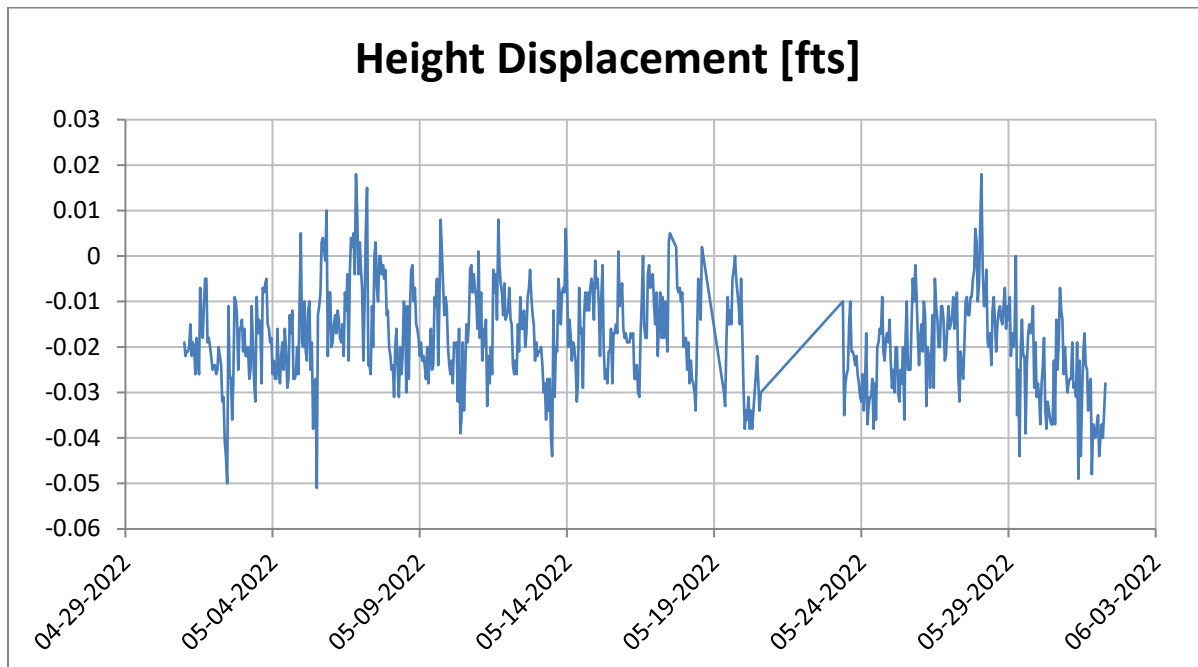
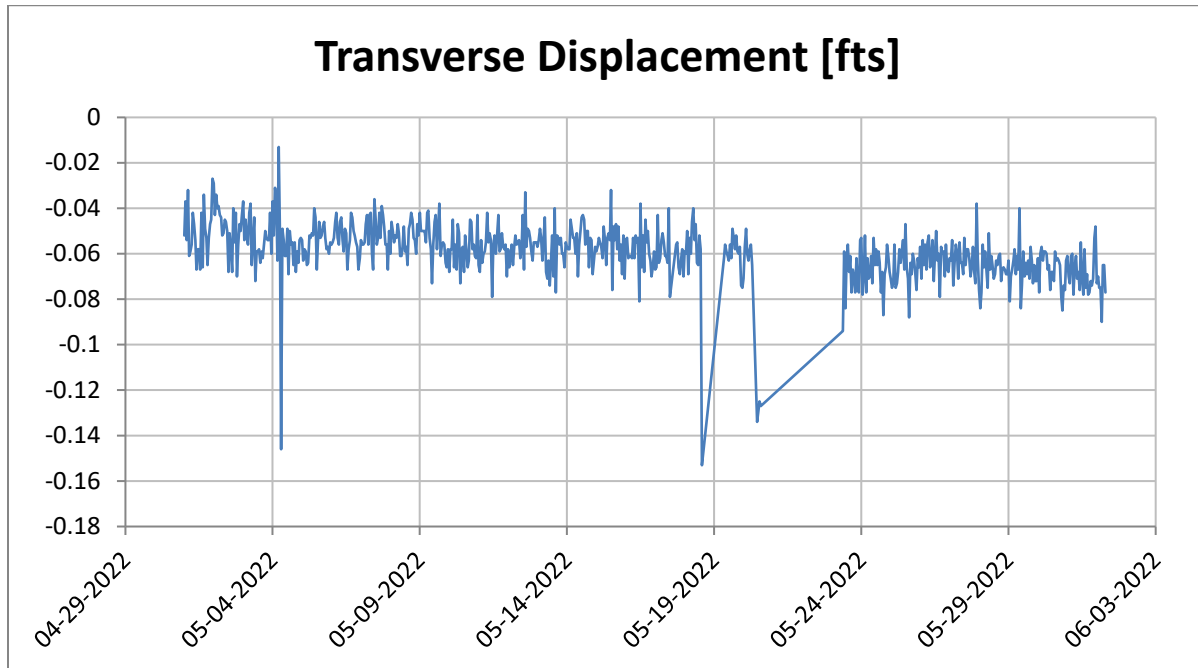


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



Prism TOE5

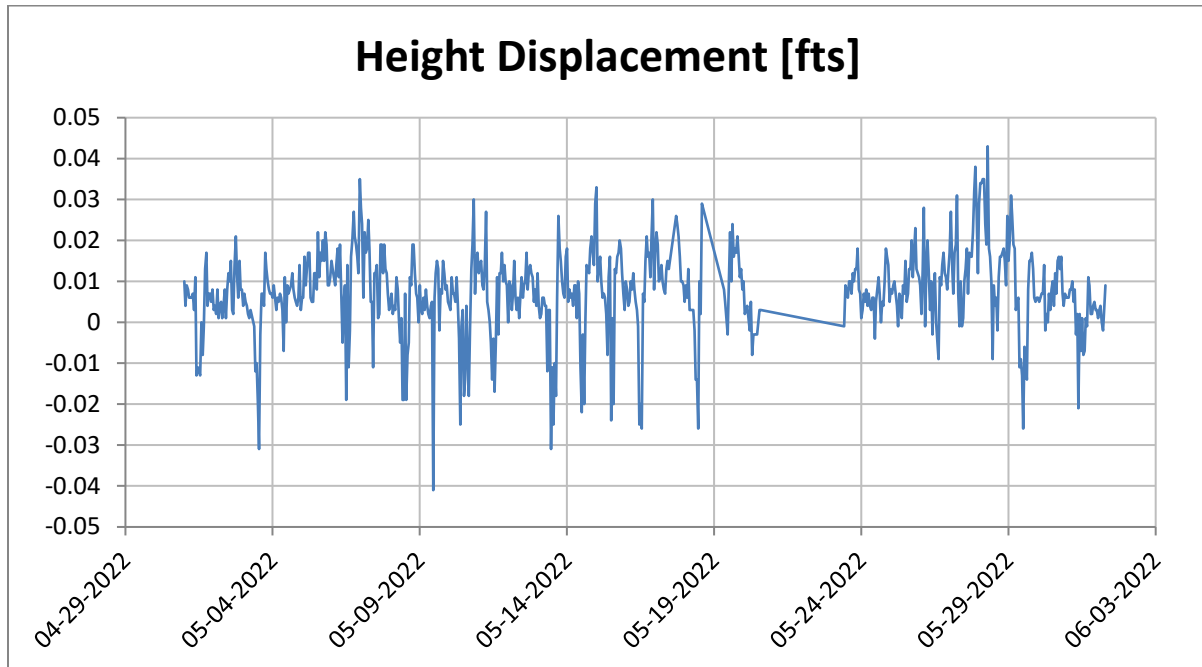
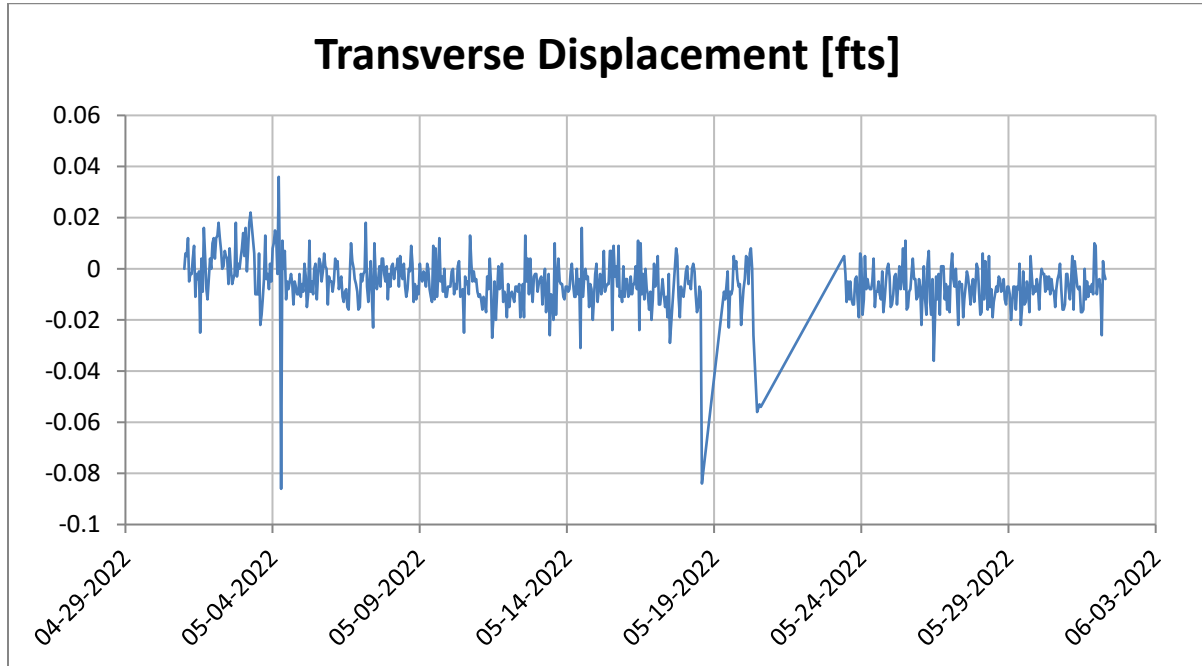


Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



Prism TOE6

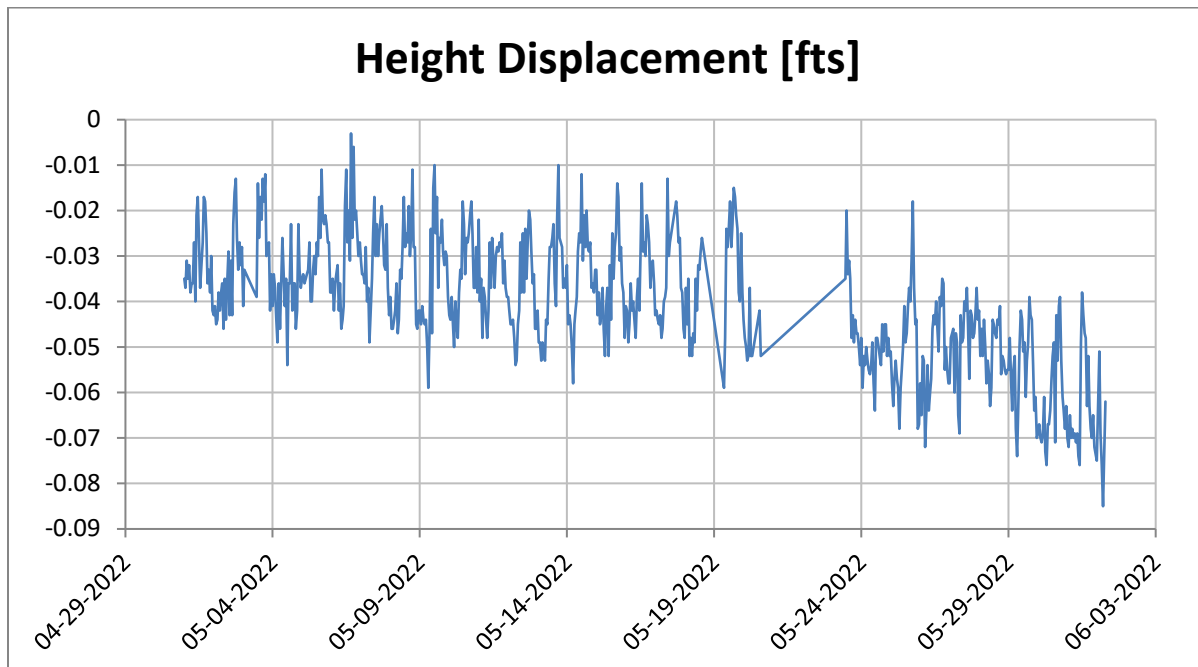
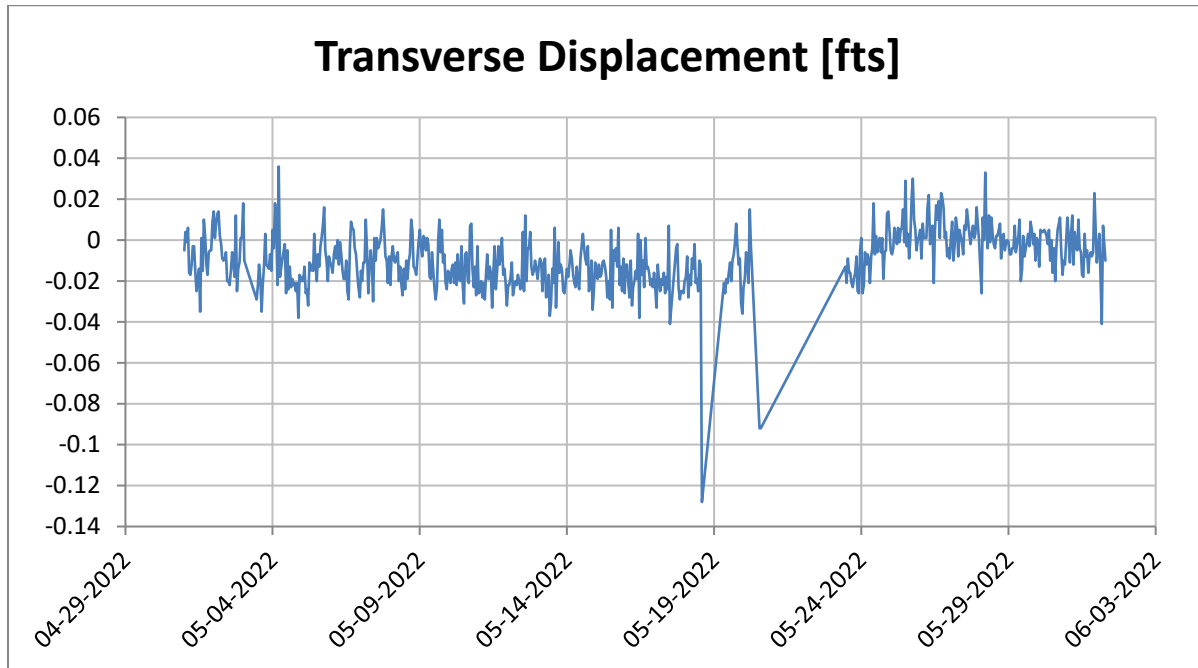


Notes:

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



Prism TS1



Notes:

1. Survey accuracy is ± 0.016 feet.
2. Alarm threshold is ± 0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.



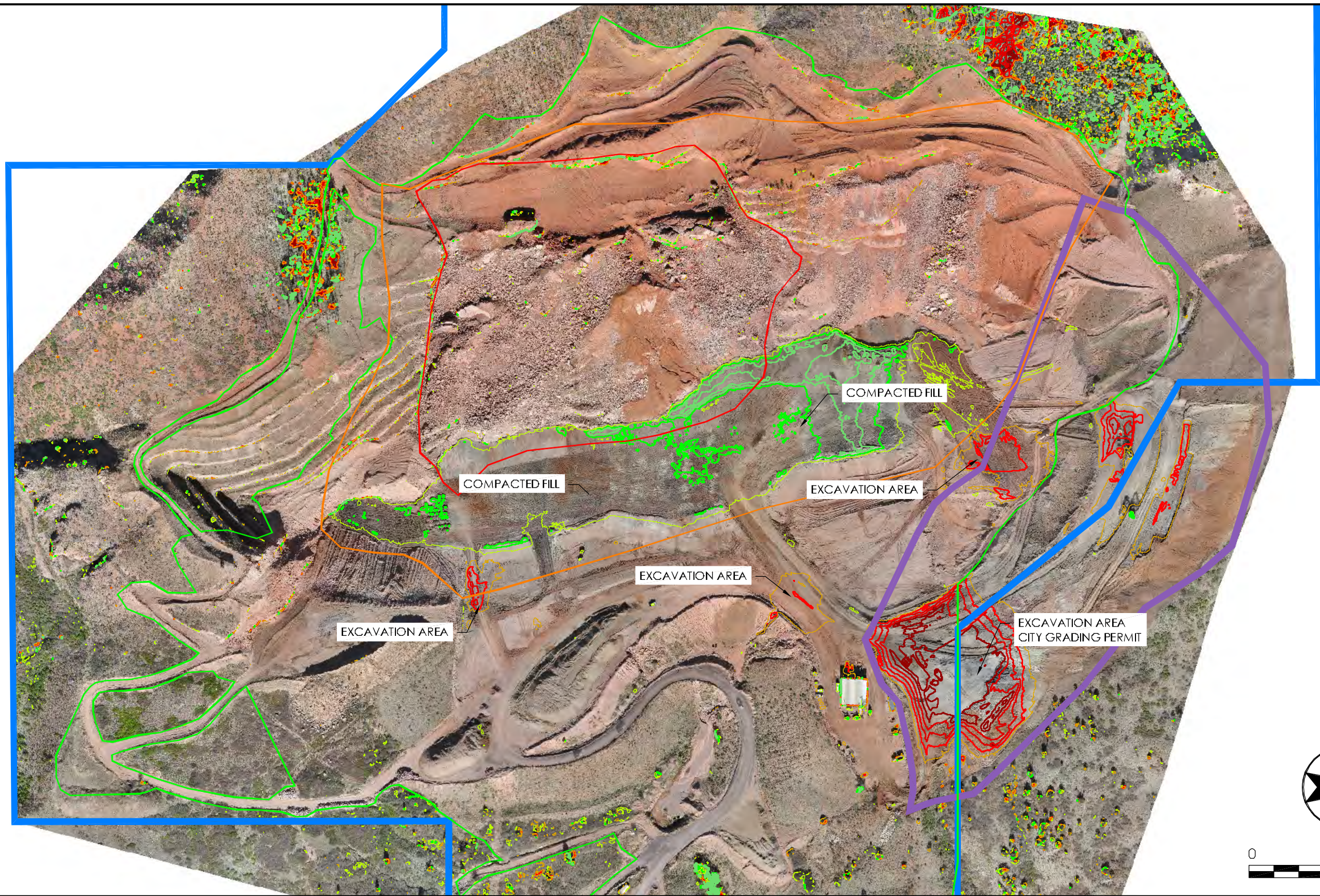
Appendix C

Drone Survey



v:\2027\active\2027\19041\disc\monitoring\2022\2022-05\dwg\p\review\p\figs_C6292022

2022.06.29 5:37:59 PM



Stantec Consulting Services Inc.
2000 South Colorado Boulevard Suite 2-300
Denver CO 80222-7933
Tel: (303) 758-4058
www.stantec.com

LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Comparison Contour. Increase in elevation. (CI=5')
- Comparison Contour. Decrease in elevation. (CI=5')

1. COMPARISON OF DRONE FLIGHTS FROM 04/28/2022 and 05/31/2022.

Client/Project

CONTINENTAL MATERIALS
CORP.
PIKEVIEW QUARRY SLOPE
MONITORING

Project No.
2057288200

Title

EXISTING PRISMS WITH
CURRENT SURFACE

Revision
#

Drawn By
PK

Date
2022.06.30

Figure No.
5

Appendix D

Compaction Testing Results



v:\2027\active\2027\9041\disc\monitoring\2022\2022-05\dwg\p\review\plans_C6292022

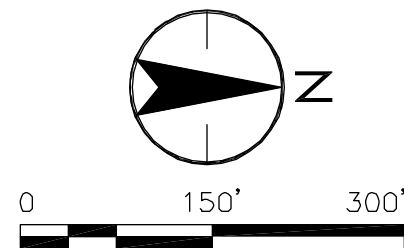
2022.06.29 5:53:21 PM



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LEGEND

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



Client/Project

CONTINENTAL MATERIALS
CORP.
PIKEVIEW QUARRY SLOPE
MONITORING

Project No.

2057288200

Title

COMPACTION TEST
LOCATIONS

Revision
#

Drawn By
PK

Date

2022.06.30

Figure No.

6

Compaction Testing Log

BCC Test	Test No.	Date	Elevation (ft)	Northing (ft)	Easting (ft)	Wet Density (pcf)	Moisture Content (%)	Dry Density (pcf)	Compaction (%)
Test N7	#114	28-Apr	7221	1402382	3173200	123.5	4.5	118.2	96
Test N8	#115	28-Apr	7232	1402518	3173174	123.9	3.5	119.9	97
Test O1	#116	3-May	7217	1400941	3173541	124.8	3.9	120.1	97
Test O2	#117	3-May	7215	1401041	3173596	127.3	5.3	120.9	97
Test O3	#118	3-May	7212	1401139	3173575	121.4	4	116.7	95
Test O4	#119	3-May	7212	1401163	3173572	113.4	1.2	112.1	91
Test O5	#120	3-May	7215	1401748	3173368	116.5	3.6	112.5	91
Test O6	#121	3-May	7212	1401907	3173411	127.2	5.2	120.9	98
Test P1	#122	9-May	7211	1401173	3173609	121.1	3.3	117.2	95
Test P2	#123	9-May	7219	1401467	3173398	120.6	3	117	95
Test P3	#124	9-May	7211	1401408	3173529	115.2	2.1	112.9	91
Test P4	#125	11-May	7231	1402033	3173175	113.3	2	111	90
Test P5	#126	11-May	7231	1402286	3173168	118	3.1	114.5	93
Test Q1	#127	13-May	7222	1400912	3173533	118.9	3	115.1	93
Test Q2	#128	13-May	7221	1401192	3173481	114.2	1.3	112.7	91
Test Q3	#129	13-May	7222	1401491	3173379	113.8	2.5	111	90
Test Q4	#130	13-May	7221	1401588	3173387	117.7	1.2	116.3	94
Test Q5	#131	17-May	7225	1401920	3173363	120.5	2.2	117.8	95
Test Q6	#132	17-May	7227	1402159	3173267	122.7	5.5	116.3	94
Test Q7	#133	3-Jun	7229	1401098	3173424	124.4	10.9	112.1	90
Test Q8	#134	3-Jun	7226	1401173	3173414	131.7	7.7	122.3	92
Test Q9	#135	3-Jun	7226	1401210	3173404	133.2	11.2	119.8	90
Test Q10	#136	3-Jun	7226	1401258	3173384	122.6	5.7	116	94
Test Q11	#137	3-Jun	7226	1401345	3173377	134.9	10.2	122.4	90
Test Q12	#138	3-Jun	7224	1401459	3173358	122.1	3.4	118.1	96
Test Q13	#139	3-Jun	7226	1401697	3173319	123.3	7.6	114.6	92
Test Q14	#140	3-Jun	7230	1401864	3173264	128.2	8	118.7	92
Test Q15	#141	3-Jun	7229	1402021	3173229	129.3	8.4	119.3	92
Test Q16	#142	3-Jun	7235	1402147	3173156	138.8	7.4	129.2	93

Notes:

1. No work was performed June 1 or 2 due to weather conditions. Compaction tests from June 3, 2022, were taken in fill placed in May.
2. As of May 31, 2022, a total 701,000 yd³ had been placed and compacted. This requires 141 compaction tests, and 142 tests have been taken.

