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Date: August 13, 2021

Project Number: 19-009

Subject: 301 Mission Retrofit Monitoring Report 009: Results as of August 13, 2021

CONTEXT

This memorandum summarizes results from the monitoring plan implemented at the 301 Mission property. Instrumentation to monitor the structure prior to, during and after the retrofit was installed in January 2021, including piezometers and extensometers. Settlement markers installed in April 2009 and January 2017, survey prisms mounted on the exterior of the structure in December 2016, and crack gauges installed in April 2009 have also been monitored.

INTERPRETATION

Figure 01 presents the instrument locations as referenced in later figures.

Figure 02 presents the historical settlement data interpreted from settlement markers installed on the B-1 Level of 301 Mission Tower. In addition, data from surveys performed during the retrofit are included. Figure 03 presents differential settlement data since the start of production pile installation (May 12, 2021; baseline readings on May 10, 2021) through August 9, 2021. Figure 04 presents current differential settlement contours (in inches) on August 9, 2021.

Figure 05 presents historical lateral roof deflections in the project north-south and project east-west directions interpreted from survey prisms mounted on the exterior of the Tower, from InSAR data, and from a planar fit of the settlement marker data. In addition, data from survey performed during the retrofit are included. Figure 06 presents differential lateral roof deflection data from a planar fit of the settlement marker data and from survey prisms mounted on the exterior of the Tower since the start of production pile installation (May 12, 2021; baseline readings on May 10 and 13, 2021, respectively) through August 12, 2021.

CLOSING

Please contact us if you have any comments or questions, or if you would like to discuss the results presented in this memorandum.

FIGURES

- Figure 01A – Instrument Location Map: Settlement Markers, Piezometers, Extensometers
- Figure 01B – Tower Survey Prism Location Schematic
- Figure 02 – Historical Settlement Marker Data
- Figure 03 – Differential Settlement Marker Data since 05/10/2021 through 08/09/2021



Figure 04 – Differential Settlement Contours since 05/10/2021 through 08/09/2021

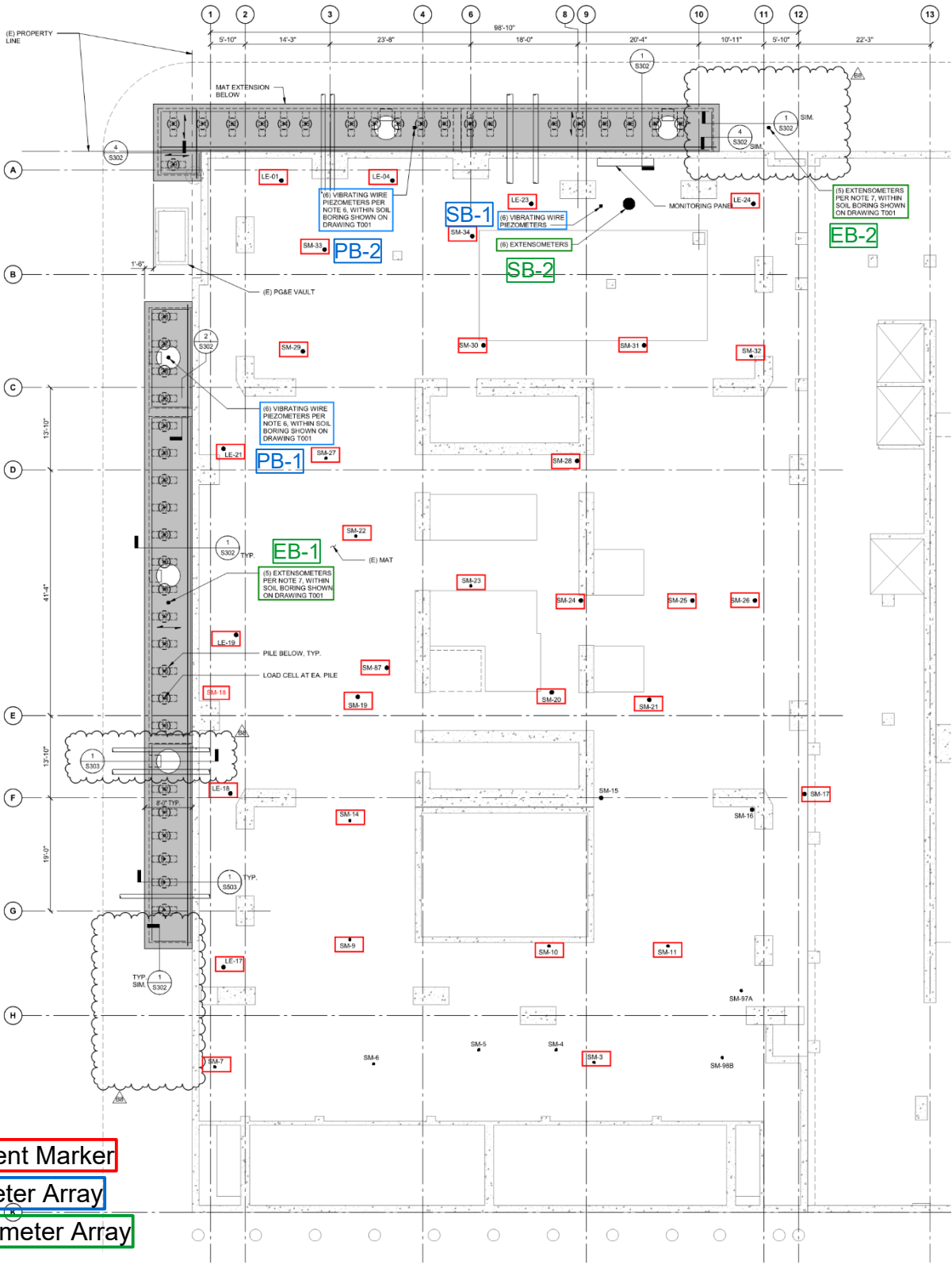
Figure 05 – Historical Lateral Roof Deflection Data

Figure 06 – Differential Lateral Roof Deflection Data since 05/10/2021 through 08/12/2021

301 Mission Retrofit Monitoring: Results as of August 13, 2021
Project No. 19-009
August 13, 2021



Filepath: S:\StateDrive - Documents\Projects_2019\19-009.00_Millennium Tower Retrofit\10_Construction\01_Monitoring Reports\TowerSoilWater\00_Figures\Fig_015-01A_Instrument_Map.grf

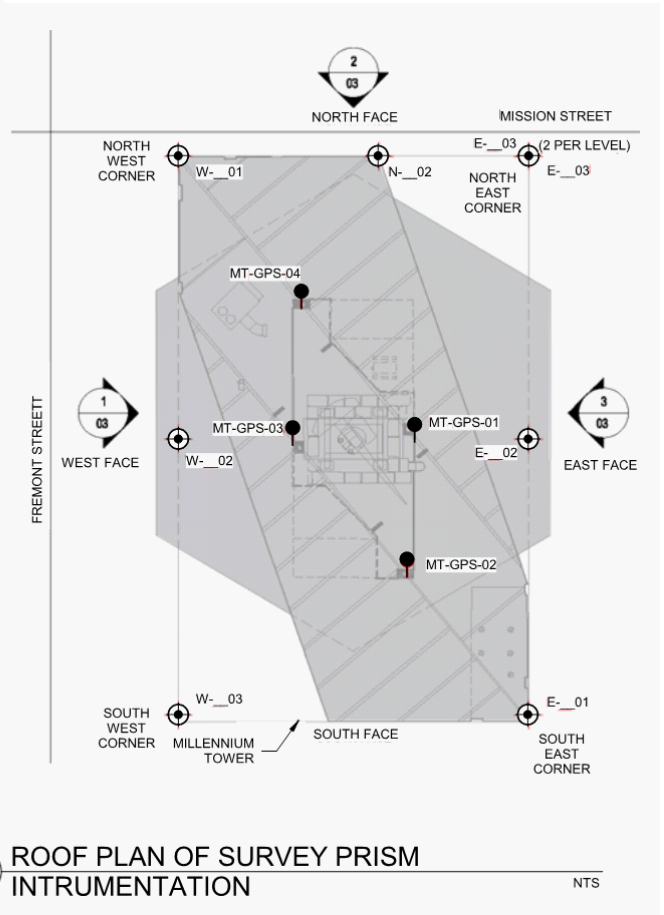
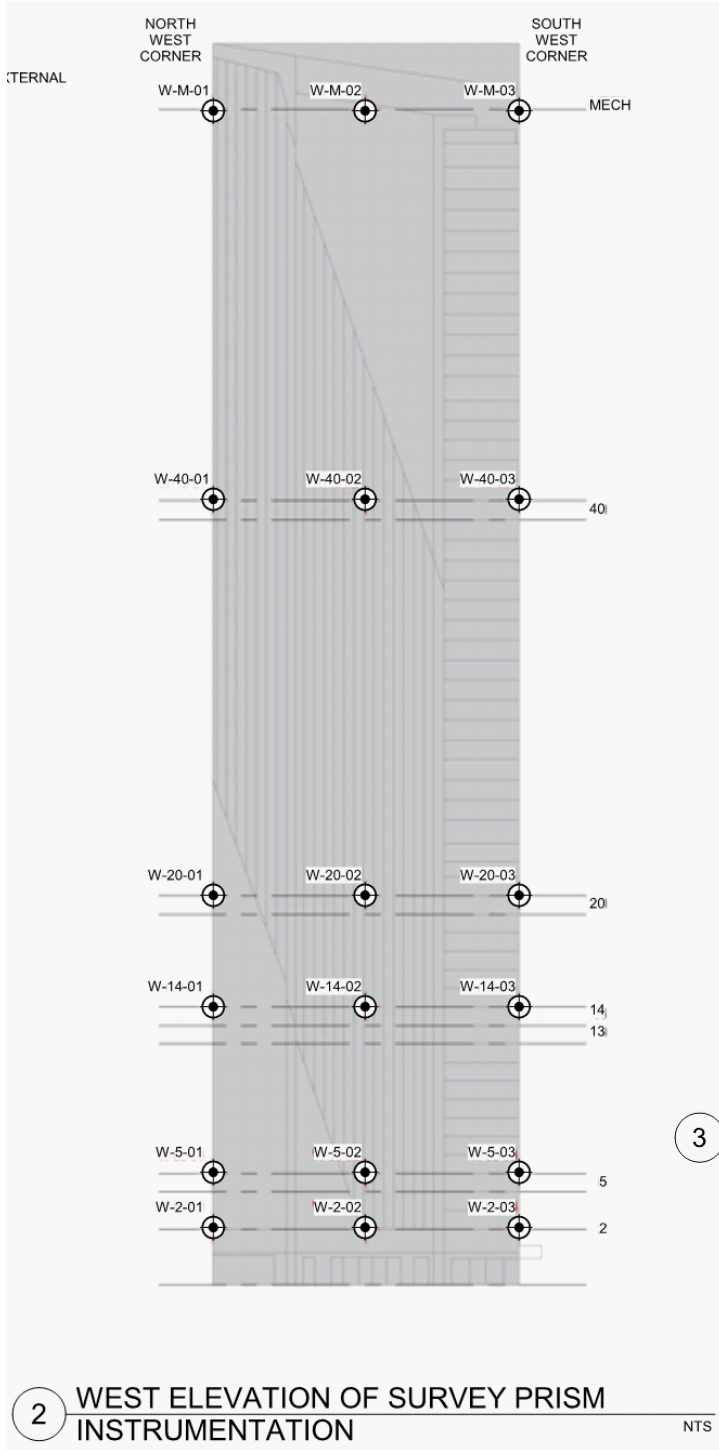


From 301 Mission Perimeter Pile Upgrade Bulletin 8 Set S 207 2021-06-15

Project No: 19-009.00	Date: 7/26/2021	Created By: NBW	Checked By: DGM	Figure No: 015-01A
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INSTRUMENT LOCATION MAP
SETTLEMENT MARKERS, PIEZOMETERS, EXTENSOMETERS
Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
City and County of San Francisco, California



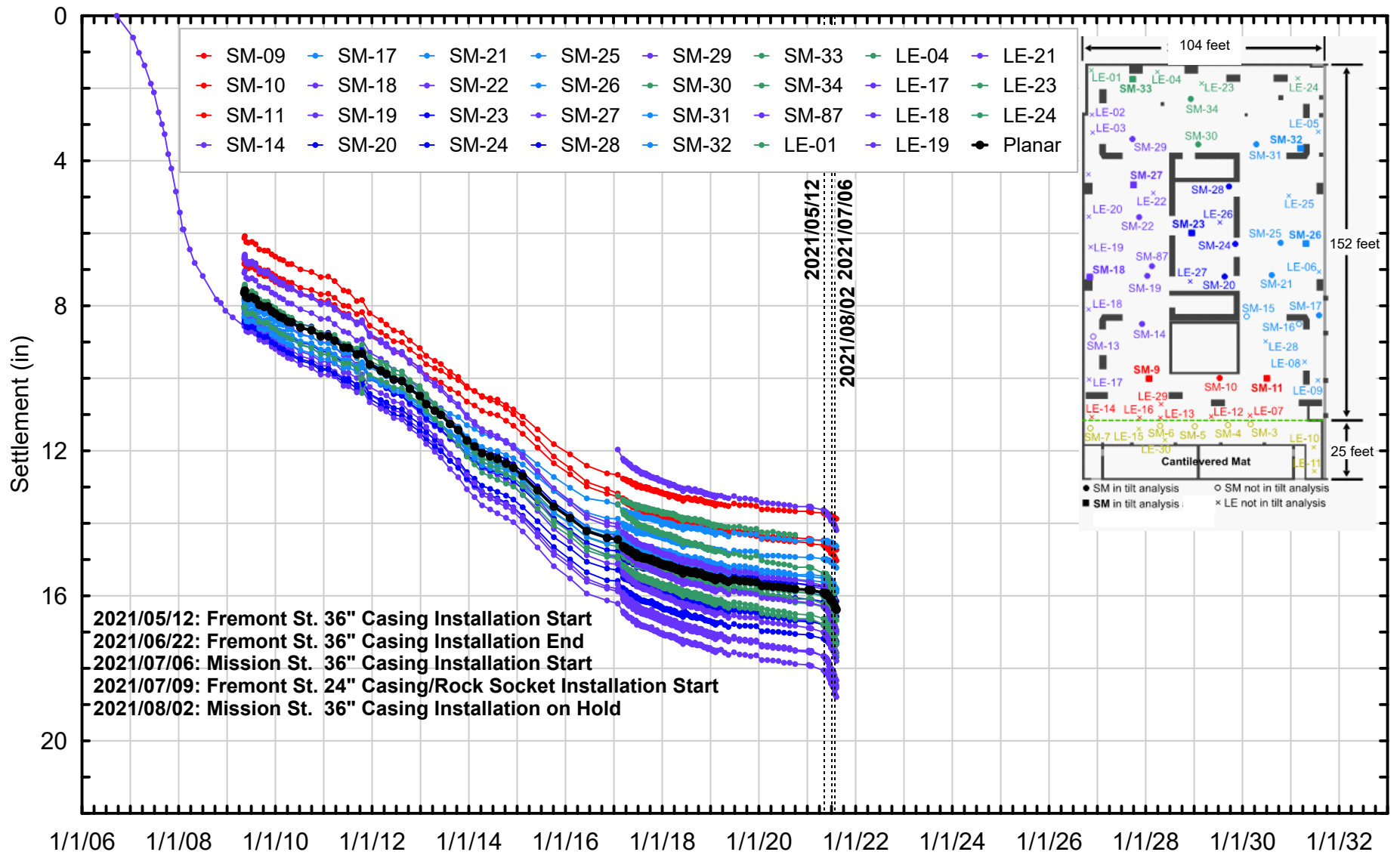
From 301 Mission Perimeter Pile Upgrade Bulletin 8 Set S 207 2021-06-15

Project No: 19-009.00	Date: 7/26/2021	Created By: NBW	Checked By: DGM	Figure No: 015-01B
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TOWER SURVEY PRISM LOCATION SCHEMATIC

Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
City and County of San Francisco, California

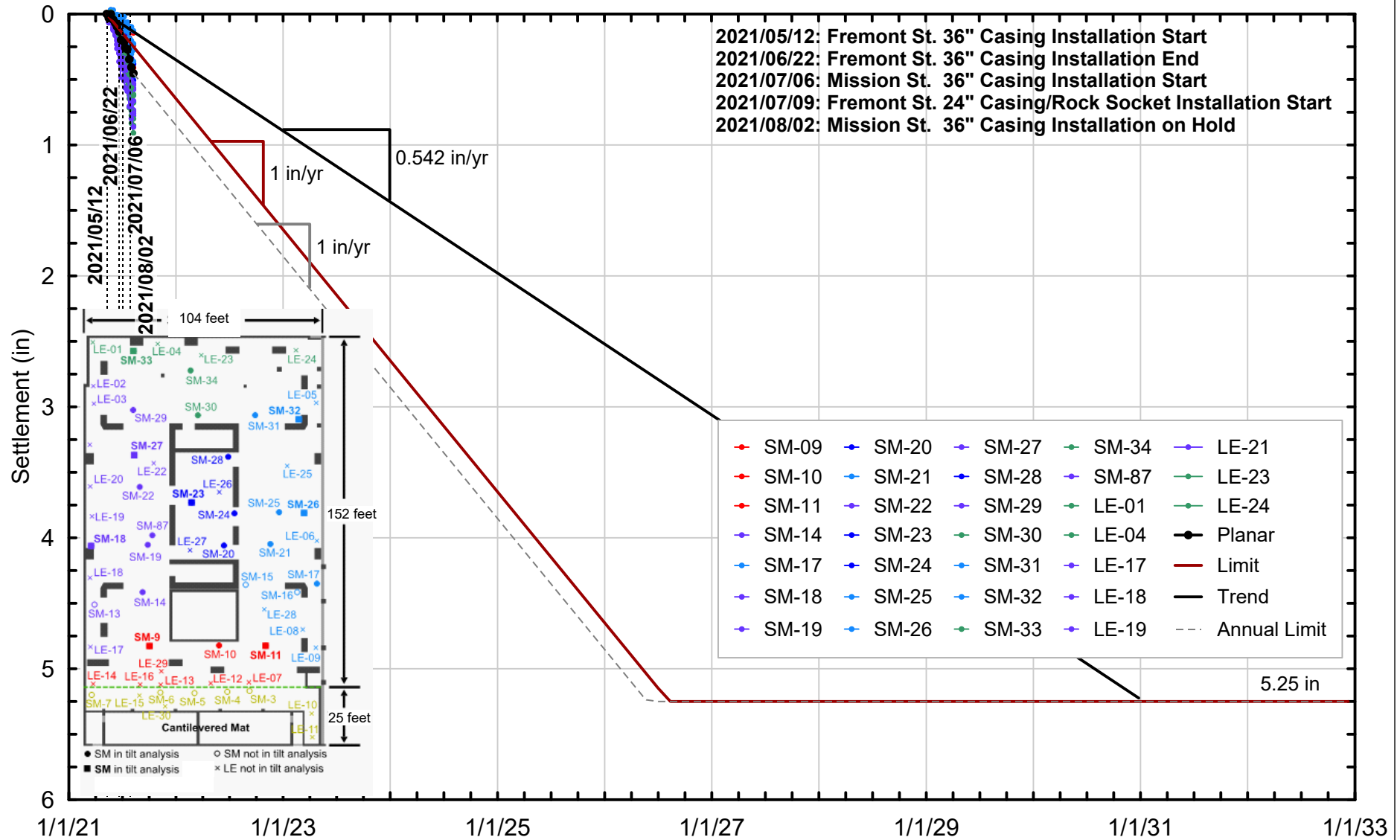


Project No: 19-009.00	Date: 8/13/2021	Created By: NBW	Checked By: DGM	Figure No: 015-02
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HISTORICAL SETTLEMENT MARKER DATA

Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
 City and County of San Francisco, California

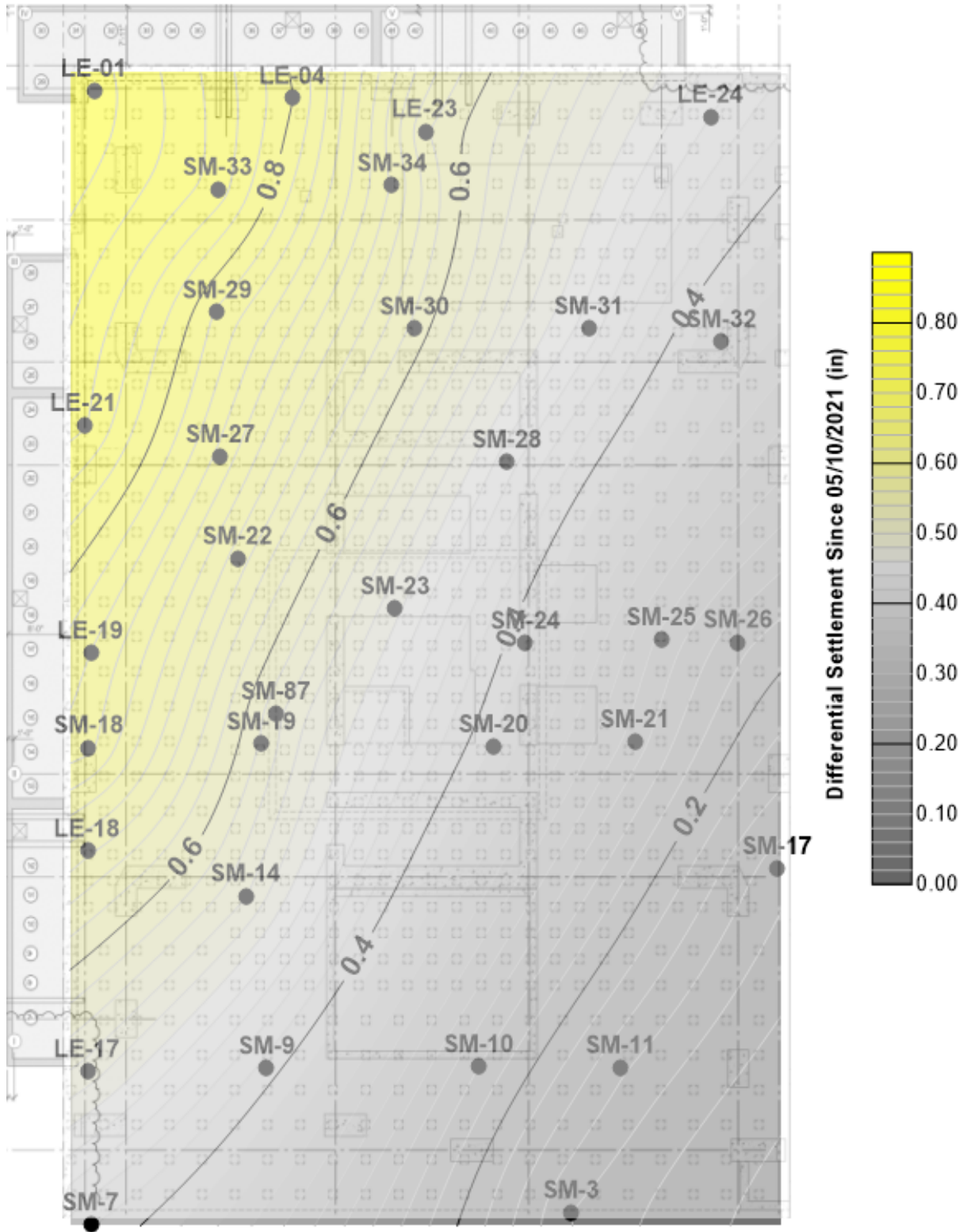


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DIFFERENTIAL SETTLEMENT MARKER DATA
 SINCE 05/10/2021 THROUGH 08/09/2021

Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
 City and County of San Francisco, California



Project No: 19-009.00

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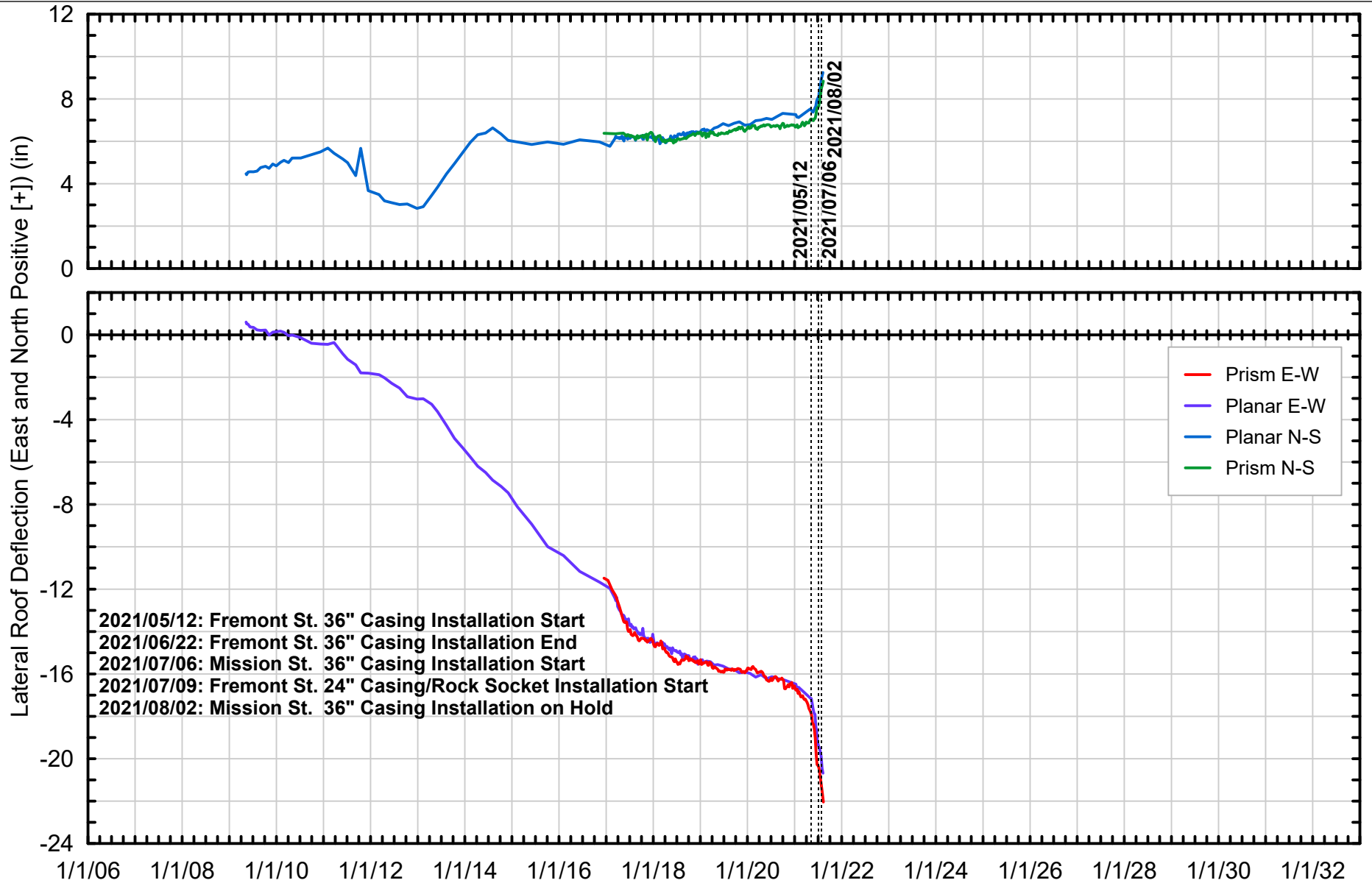
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Figure No: **015-04**



DIFFERENTIAL SETTLEMENT CONTOURS
SINCE 05/10/2021 THROUGH 08/09/2021

Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
City and County of San Francisco, California

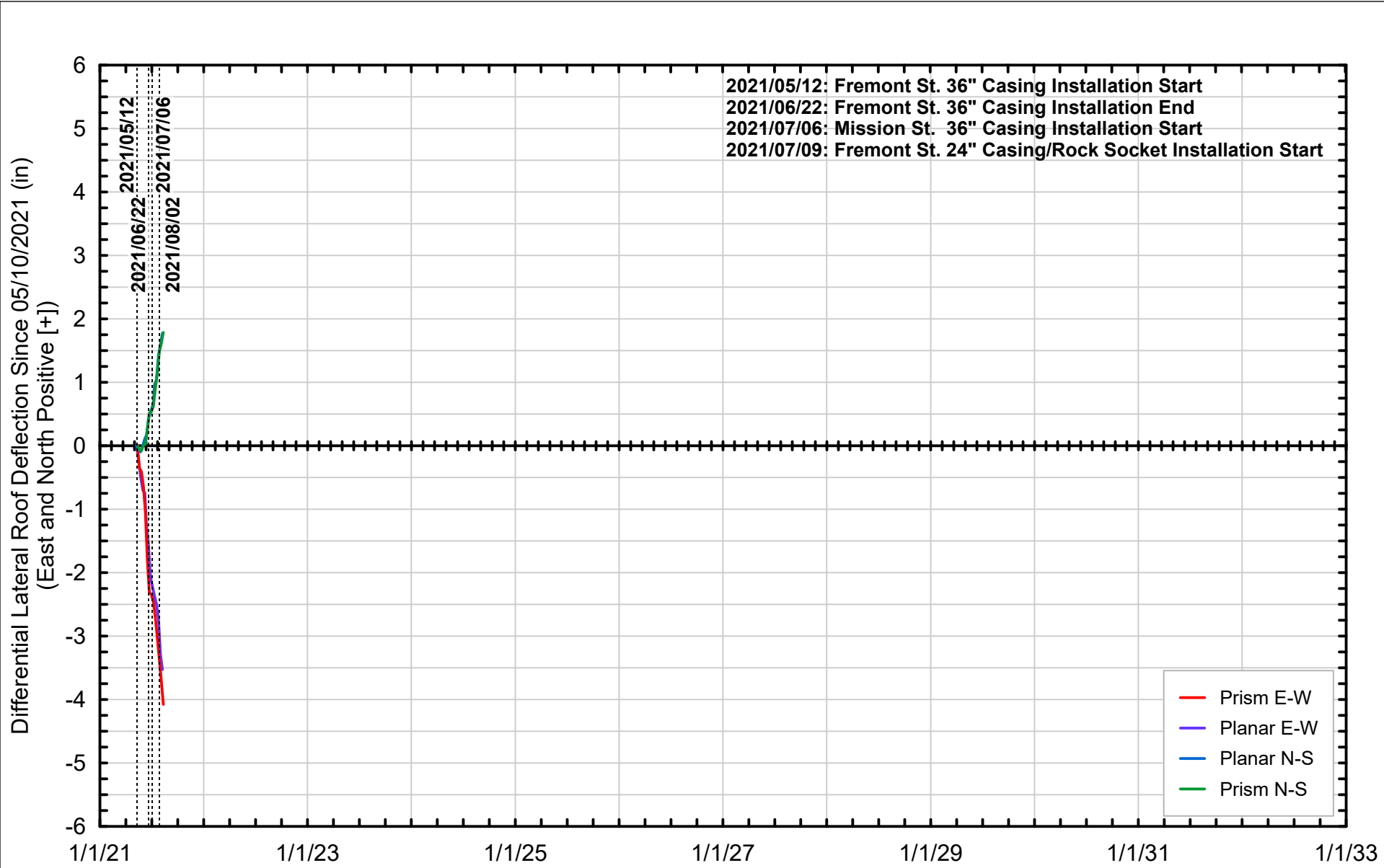


Project No: 19-009.00	Date: 8/13/2021	Created By: NBW	Checked By: DGM	Figure No: 015-05
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HISTORICAL LATERAL ROOF DEFLECTION DATA

Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
 City and County of San Francisco, California



Project No: 19-009.00	Date: 8/13/2021	Created By: NBW	Checked By: DGM	Figure No: 015-06
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DIFFERENTIAL LATERAL ROOF DEFLECTION DATA
SINCE 05/10/2021 THROUGH 08/12/2021
 Millennium Tower Perimeter Pile Upgrade: Instrumentation Monitoring Data
 City and County of San Francisco, California