



January 9, 2017

Sutro Tower, Inc.  
1 La Avanzada Street  
San Francisco, CA 94131-1124

Attention: Mr. Eric Dausman

Re: Review of Annual Maintenance  
977-ft Self-Support Tower  
San Francisco, California  
TCI Project Number 16.082.001

Dear Mr. Dausman,

Tower Consultants Incorporated (TCI) performed a field evaluation of the structural repair and maintenance work performed on the 977-ft self-support tower located in San Francisco, California. Yevgeny Kabatski & Jeff Altmyer, P.E. performed the site observation from July 2016, through August 2016 as part of Sutro Tower's annual inspection.

The purpose of the field observation was to monitor recommended maintenance and repairs as directed by Simpson Gumpertz & Heger Inc. and Sutro Tower Inc.

The maintenance work consisted of the following (note that photos referred to below are representative and do not document all locations where maintenance was performed):

1. Address all issues found during the 2016 annual inspection at level 6 and stack C. All loose radome bolts for the side mounted TV antenna on stack C were properly tightened (Photo Nos. 3 and 4). A top skin support horizontal member on leg A was replaced with new stronger member (Photo Nos. 5 and 6).
2. Properly secure all loose skin panels to the tower members throughout the tower height. More than one thousand new connection bolts and self-tapping screws were installed on the tower at various locations to secure the existing skin panels to the tower legs and tower faces during the maintenance project (Photo Nos. 11 - 17). A typical panel was secured to the tower by placing bolts or screws at each corrugation on the top and bottom sides and by adding screws or bolts on the sides of the panel at 30" intervals.
3. Install new frames around the openings in skin to provide stable skin connections to the tower. New steel frames were installed around the openings in skin at level 2 and level 3 during the maintenance project (Photo Nos. 7 - 10).

The maintenance work as inspected appeared to be in compliance with recommendations and in keeping with good industry practice. The inspections and tower work have been performed in accordance

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with the requirements of the ANSI/TIA-222-G standard and all applicable codes. All work was coordinated with Structural Engineer, Ron Hamburger.

We appreciate the opportunity to be of service to Sutro Tower, Inc and we will be available to answer any questions in regards to this letter.

Sincerely,

Yevgeny Kabatski  
Tower Engineer  
Tower Consultants Incorporated

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## Photo Log

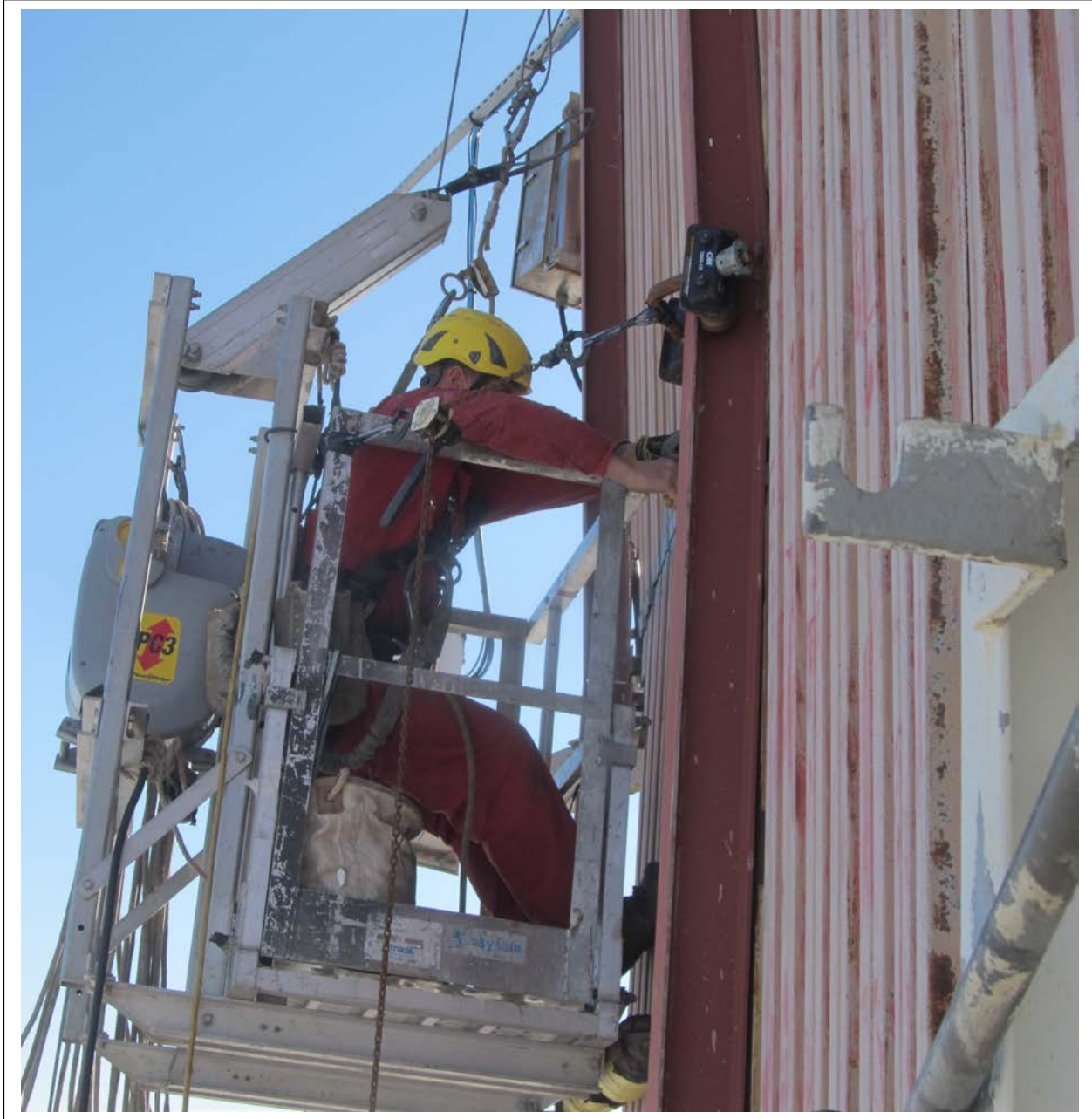


**Photo No. 1**

Photo No. 1 is an overall view of the 977-ft self-supporting tower.

*East Coast: 15 Surrey Court, Columbia, South Carolina 29212 Phone: (803) 407-8489 Fax: (803) 407-8691  
West Coast: 19711 64<sup>th</sup> Avenue W., Suite A, Lynnwood, Washington 98036 Phone: (425) 778-5169 Fax: (803) 407-8691*

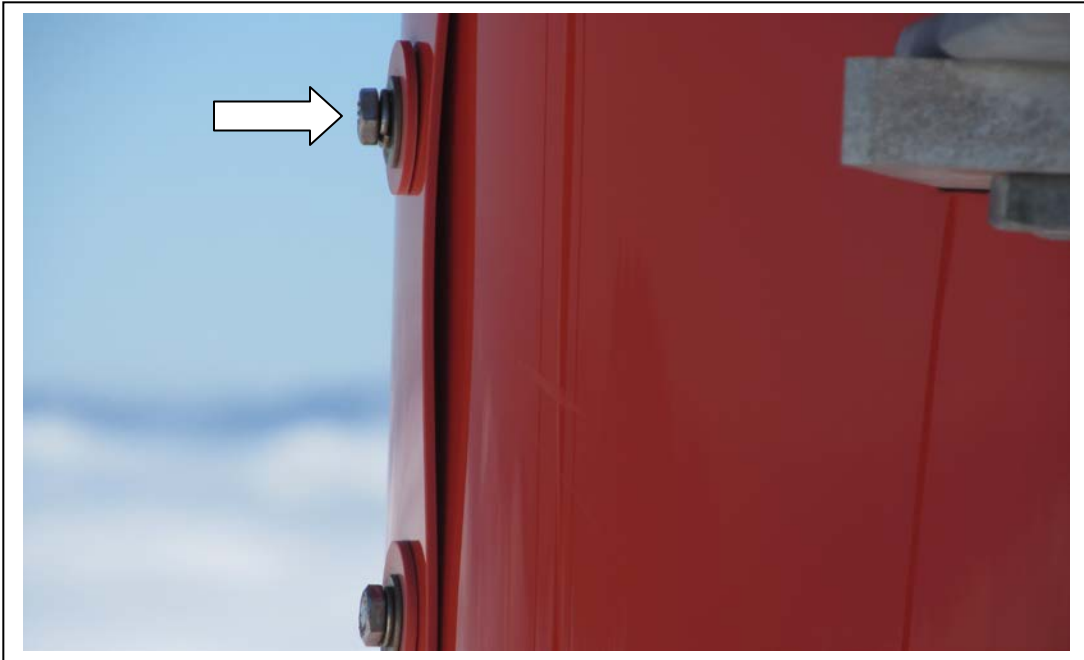
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**Photo No. 2**

Photo No. 2 shows maintenance work performed on leg C.

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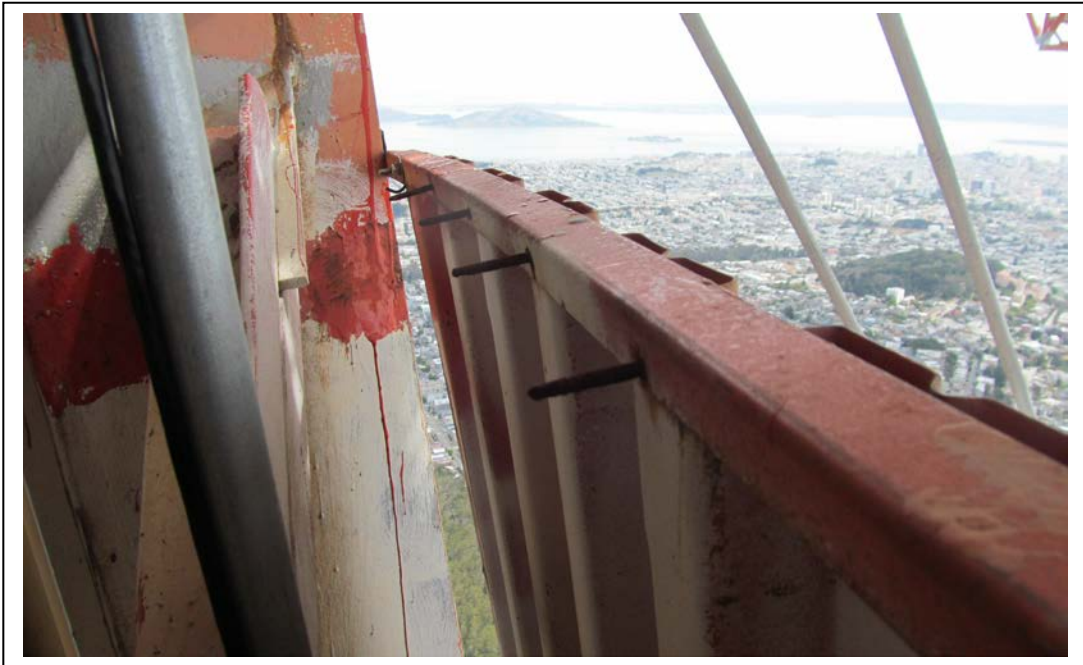
**Photo No. 3 (Before)**



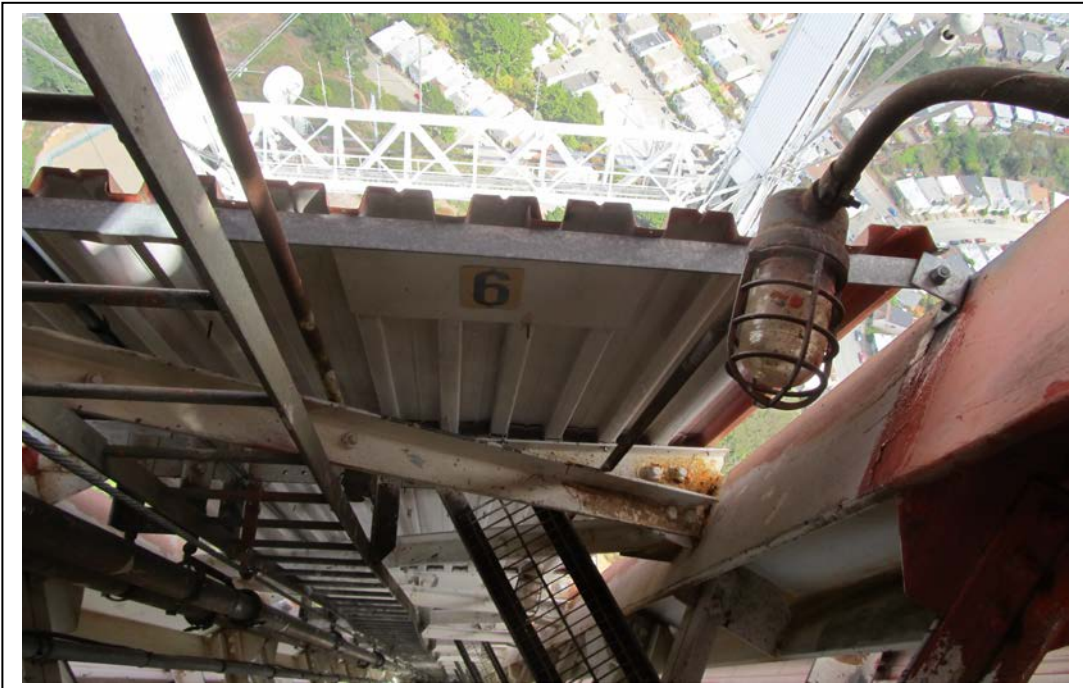
**Photo No. 4 (After)**

Photo Nos. 3 and 4 show the side mounted TV antenna on stack C before and after radome bolt tightening.

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**Photo No. 5 (Before)**



**Photo No. 6 (After)**

Photo Nos. 5 and 6 show the new skin support horizontal just below level 6 on leg A before and after angle replacement.

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**Photo No. 7 (Before)**



**Photo No. 8 (After)**

Photo Nos. 7 and 8 show the skin panel reinforcing at level 2 before and after frame installation.

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**Photo No. 9 (Before)**



**Photo No. 10 (After)**

Photo Nos. 9 and 10 show skin panel reinforcing at level 3 before and after frame installation.



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**Photo No. 11 (Before)**



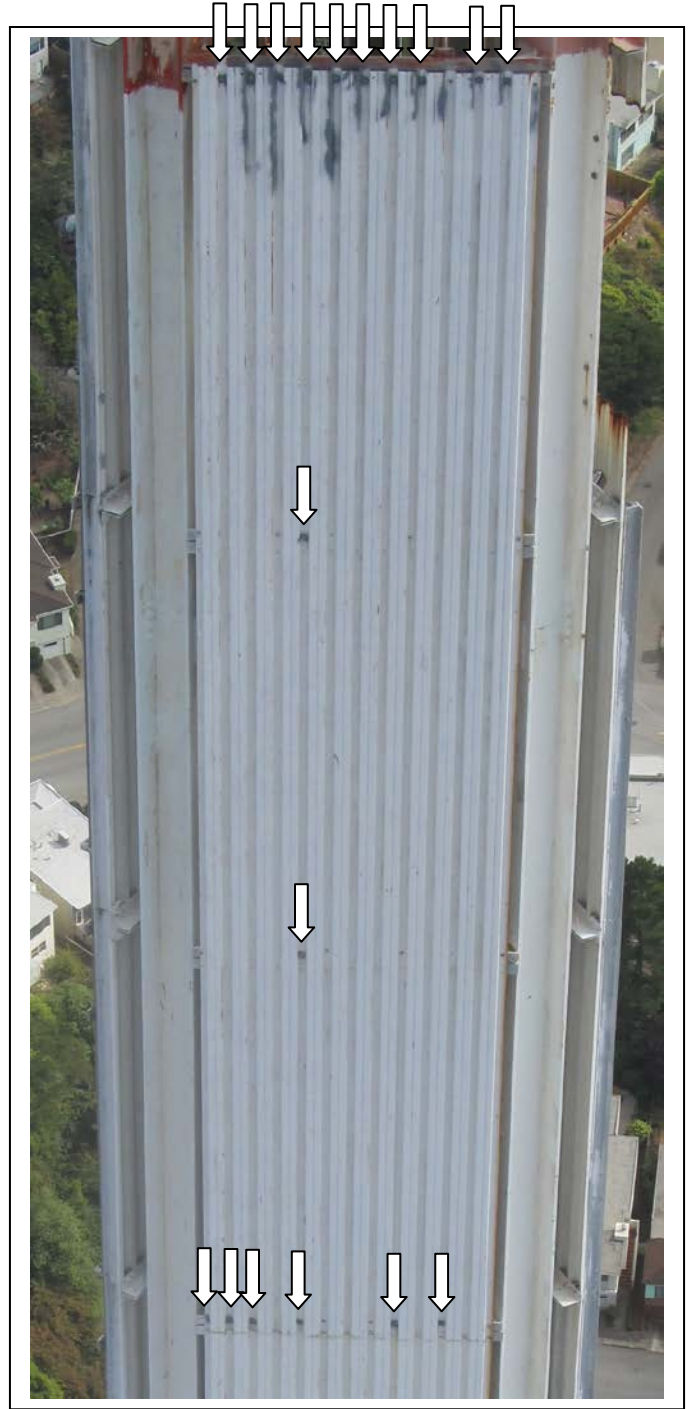
**Photo No. 12 (After)**

Photo Nos. 11 and 12 show the skin panel on face BC at level 2 before and after panel reinforcing.

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**Photo No. 13 (Before)**



**Photo No. 14 (After)**

Photo Nos. 13 and 14 show the skin panels before and after panel reinforcing by adding more connection bolts. The arrows show the locations of the new connection bolts.

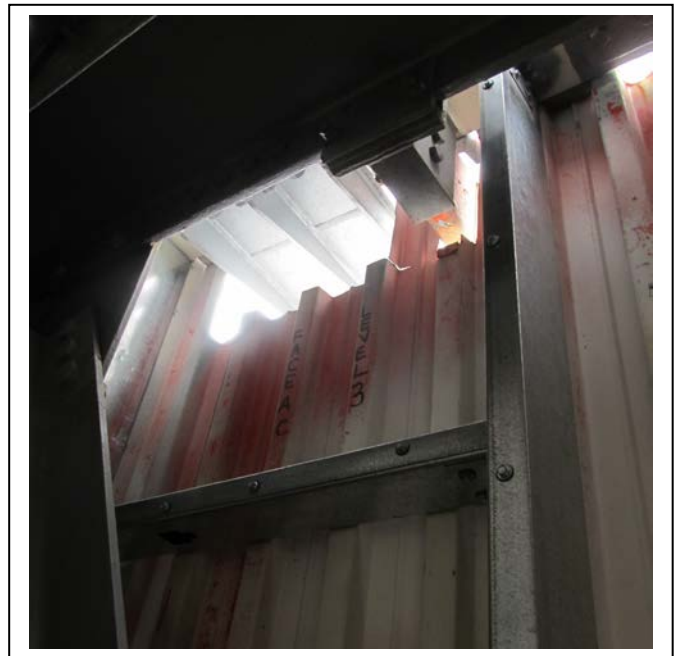
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**Photo No. 15 (After)**



**Photo No. 16 (After)**



**Photo No. 17 (After)**

Photo Nos. 15 - 17 show the skin panel reinforcing at various levels after the recent repair work.

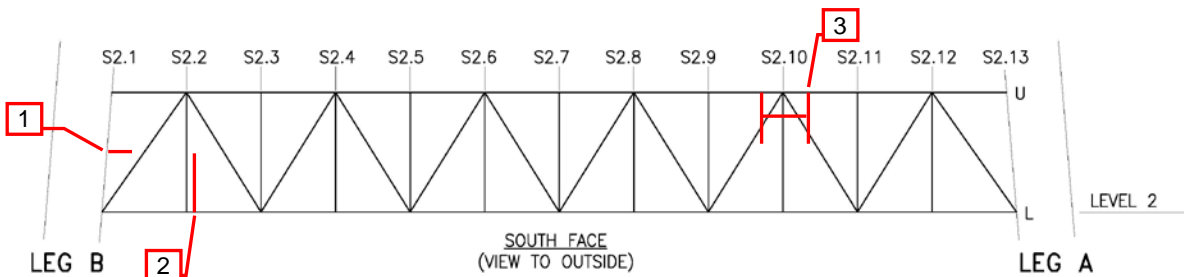
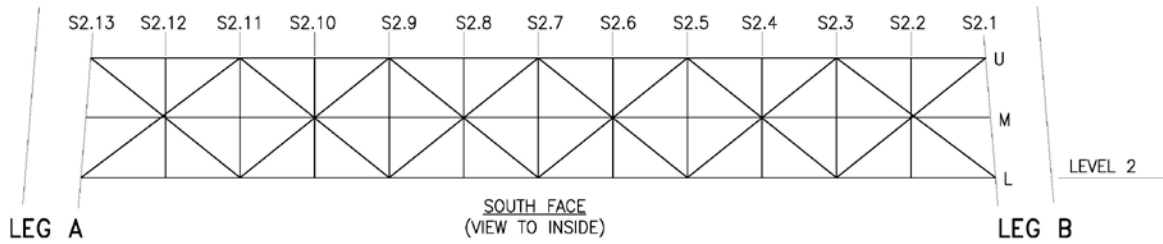
**APPENDIX A**  
**SKIN REINFORCEMENT FRAMING LOCATIONS**

## Inspection Data Sheet: South Truss (Level 2)

Observ. No.	Location/Identification			Photo No.	Observation Comments
	Chord <sup>1</sup>	Horiz. Location	Item <sup>2</sup>		
1	M	2.1	O	1	SKIN REINFORCEMENT FRAME INSTALLED
2	L	2.2	O	2	SKIN REINFORCEMENT INSTALLED
3	U	2.10	O	3	SKIN REINFORCEMENT FRAME INSTALLED
<i>Sutro Tower</i>				Signature: _____	Page: <u>  1  </u> of <u>  3  </u>
<i>San Francisco, CA</i>				File: _____	Date: 1-9-17

<sup>1</sup> Chord member designation: U = upper, M = middle, and L = lower

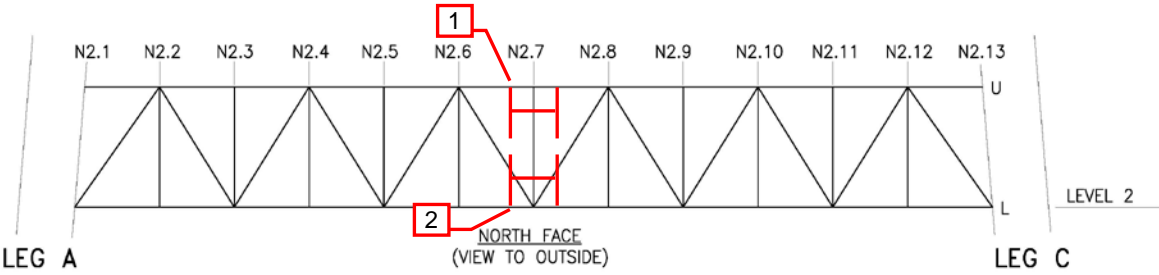
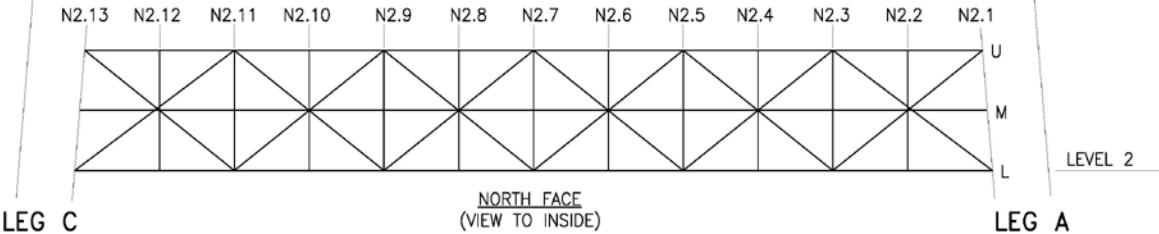
<sup>2</sup> Item designation: L=leg member, D=diagonal, H=horizontal, C=connection, O=others



## Inspection Data Sheet: North Truss (Level 2)

Observ. No.	Location/Identification			Photo No.	Observation Comments
	Chord <sup>1</sup>	Horiz. Location	Item <sup>2</sup>		
1	U	2.7	O	1	SKIN REINFORCEMENT FRAME INSTALLED
2	L	2.7	O	2	SKIN REINFORCEMENT FRAME INSTALLED
<i>Sutro Tower</i>				Signature: _____	Page: <u>  2  </u> of <u>  3  </u>
<i>San Francisco, CA</i>				File: _____	Date: 1-9-17

<sup>1</sup> Chord member designation: U = upper, M = middle, and L = lower  
<sup>2</sup> Item designation: L=leg member, D=diagonal, H=horizontal, C=connection, O=others



## Inspection Data Sheet: North Truss (Level 3)

Observ. No.	Location/Identification			Photo No.	Observation Comments
	Chord <sup>1</sup>	Horiz. Location	Item <sup>2</sup>		
1	L	3.75	O	1	SKIN REINFORCEMENT FRAME INSTALLED
2	U	3.75	O	2	SKIN REINFORCEMENT FRAME INSTALLED
<b>Sutro Tower</b>				Signature:	Page: <u>  3  </u> of <u>  3  </u>
<b>San Francisco, CA</b>				File:	Date: 1-9-17

<sup>1</sup> Chord member designation: U = upper, M = middle, and L = lower

<sup>2</sup> Item designation: L=leg member, D=diagonal, H=horizontal, C=connection, O=others

