Michael Gentile, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (508) 844-9813
mgentile@clinellc.com

September 23, 2018

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification // Site Number: CT5540
135 Honey Hill Road, East Haddam, CT 06423 (Site Name: Pawcatuck – Boom Bridge Road)
N 41.4369500 // W -72.3663916

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains nine (9) antennas at the 120-foot level of the existing 150-foot monopole tower at 135 Honey Hill Road, East Haddam, CT 06423. The tower is owned by American Tower Corporation. The property is owned by Donald L & Susan L Porter. AT&T now intends to swap three (3) of its existing antennas for three (3) new models for its LTE upgrade. These antennas would be installed at the same 120-foot level of the tower. AT&T also intends to install three (3) RRUs, replace three (3) RRUS, add one (1) DC6 Raycap, add one (1) Fiber cable and add two (2) DC cables.

The current proposal involves an antenna swap only (three for three); zero antennas will be added. AT&T was originally approved for nine (9) antennas on October 12, 2012.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Emmett J. Lyman, First Selectman for the Town of East Haddam, as well as the tower owner, American Tower Corporation and the ground owner, Donald & Susan Porter. A copy of this filing is also being sent to the respective building, zoning and planning offices in the Town of East Haddam.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

Attached to accommodate this filing are construction drawings dated 9/20/2018 by Hudson Design Group LLC, a structural analysis dated 8/21/2018 by American Tower Corporation, a

Mount Analysis dated 8/22/2018 by Hudson Design Group LLC, Mount Modification Proposal dated 9/20/2018 and an Emissions Analysis Report dated 8/27/2018 by Centerline Communications, LLC.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading as shown in the attached structural analysis by American Tower Corp, dated 8/21/2018, the Mount Analysis by Hudson Design Group LLC, dated 8/22/2018 and the Mount Mod Proposal by Hudson Design Group, dated 9/20/2018.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Michael Gentile, Site Acquisition
New Cingular Wireless, PCS LLC (AT&T)
c/o Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (508) 844-9813
mgentile@centerlincommunications.com

Attachments

cc: Emmett J. Lyman, First Selectman, Town of East Haddam - as elected official
American Tower Corporation - as tower owner
Donald & Susan Porter - as property owner
Town of East Haddam – Building/Zoning/Planning

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Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**East Haddam, CT**
ATC Site Number	:	**302527**
Engineering Number	:	**OAA738059_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Pawcatuck - Boom Bridge Rd**
Carrier Site Number	:	**CT5540**
Site Location	:	**135 Honey Hill Road** **East Haddam, CT 06423-1714** **41.436900,-72.366400**
County	:	**Middlesex**
Date	:	**August 21, 2018**
Max Usage	:	**31%**
Result	:	**Pass**

Prepared By:
Christiana Lancaster
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Aug 22 2018 4:17 PM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Summit, PJF Job #29201-0876, Rev 1, dated September 24, 2001
Foundation Drawing	Summit, PJF Job #29201-0876, dated October 30, 2001
Geotechnical Report	Clarence Welti, dated June 28, 2001

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	101 mph (3-Second Gust, V_{asd})/ 130 mph (3-second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	2
Crest Height:	105 ft
Spectral Response:	Ss = 0.17, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
140.0	141.0	3	RFS APXVTM14-ALU-I20	T-Arms	(6) 1 5/8" Coax (4) 1 1/4" Hybriflex	Sprint Nextel
		3	Commscope NNVV-65B-R4			
	140.0	6	Alcatel-Lucent RRH2x50-08			
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
132.0	132.0	6	RFS FD9R6004/2C-3L	Low Profile Platform	(10) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent B13 RRH4X30-4R w/ Solar Shield (57.2 lbs)			
		3	Alcatel-Lucent B66A RRH4x45-4R w/o Solar Shield			
		6	RFS APL868013-42T0			
		2	Commscope RC3DC-3315-PF-48			
		3	Antel BXA-70063-6CF-EDIN-X			
		6	Commscope SBNHH-1D65B (72.9")			
120.0	120.0	6	Powerwave LGP21401	Low Profile Platform	(2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		1	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS-11 1900MHz			
		3	Powerwave 7770.00			
		1	Andrew DBXNH-6565B-R2M (72.7")			
75.0	75.0	1	GPS	Stand-Off	(1) 1/2" Coax	Sprint Nextel

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	120.0	1	Commscope SBNH-1D4545A	-	(12) 1 1/4" Coax	AT&T Mobility
		3	Powerwave 7770.00			
		1	KMW AM-X-CD-16-65-00T-RET			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	120.0	1	Raycap DC6-48-60-18-8F	Low Profile Platform	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.35" Fiber (1) 2" conduit	AT&T Mobility
		3	Ericsson RRUS 4415 B25			
		3	Ericsson RRUS 4478 B5			
		1	Andrew SBNHH-1D65A (33.5 lbs)			
		1	KMW AM-X-CD-17-65-00T-RET (96" Height)			
		1	KMW EPBQ-654L8H6-L2			
		2	KMW EPBQ-654L8H8-L2			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	29%	Pass
Shaft	27%	Pass
Base Plate	16%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,366.4	27%
Axial (Kips)	74.7	14%
Total Shear (Kips)	36.6	31%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
120.0	Raycap DC6-48-60-18-8F	AT&T Mobility	0.282	0.237
	Ericsson RRUS 4415 B25			
	Ericsson RRUS 4478 B5			
	Andrew SBNHH-1D65A (33.5 lbs)			
	KMW AM-X-CD-17-65-00T-RET (96" Height)			
	KMW EPBQ-654L8H6-L2			
	KMW EPBQ-654L8H8-L2			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

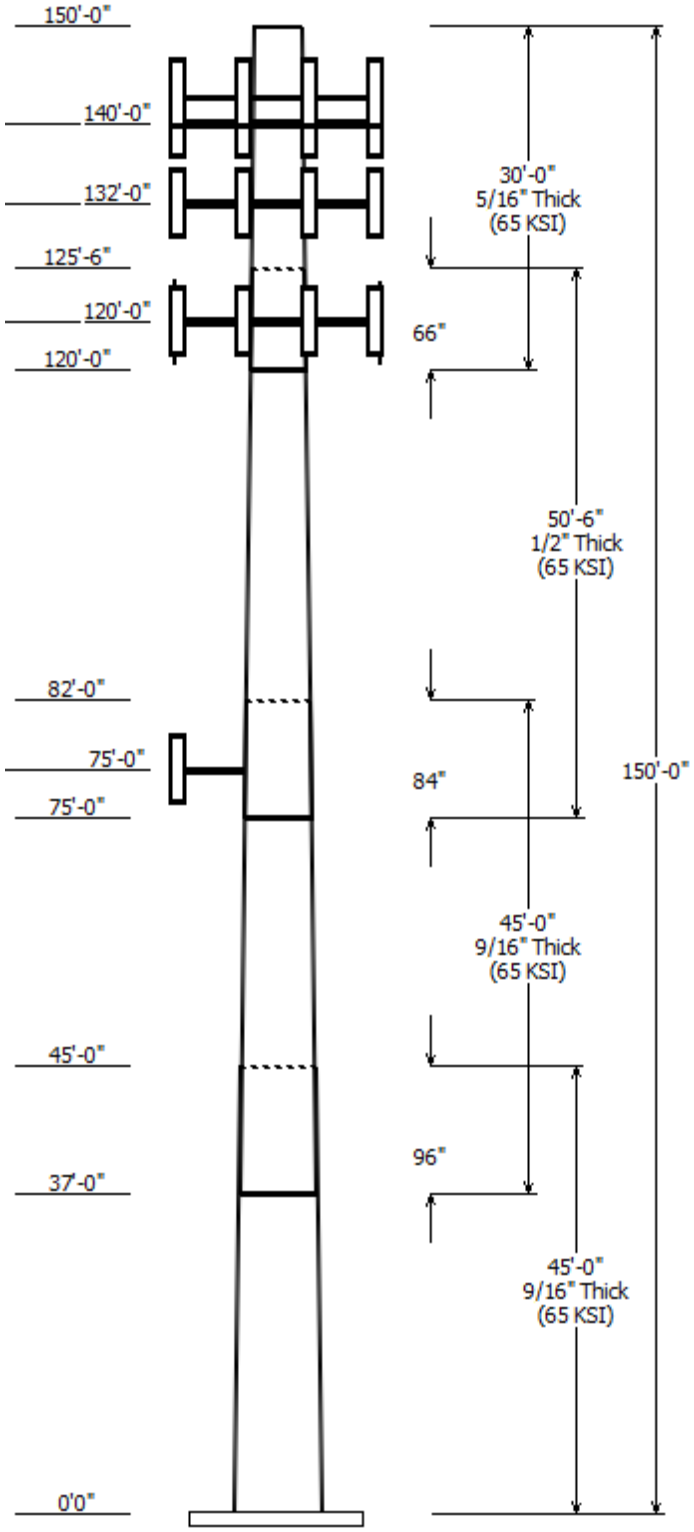
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Job Information

Pole :	302527	Code:	ANSI/TIA-222-G
Location :	East Haddam, CT		
Description :	150' Summit Monopole		
Client :	AT&T MOBILITY	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	2
Base Elev (ft):	0.00		
Taper:	0.253625 (in/ft)		



Sections Properties

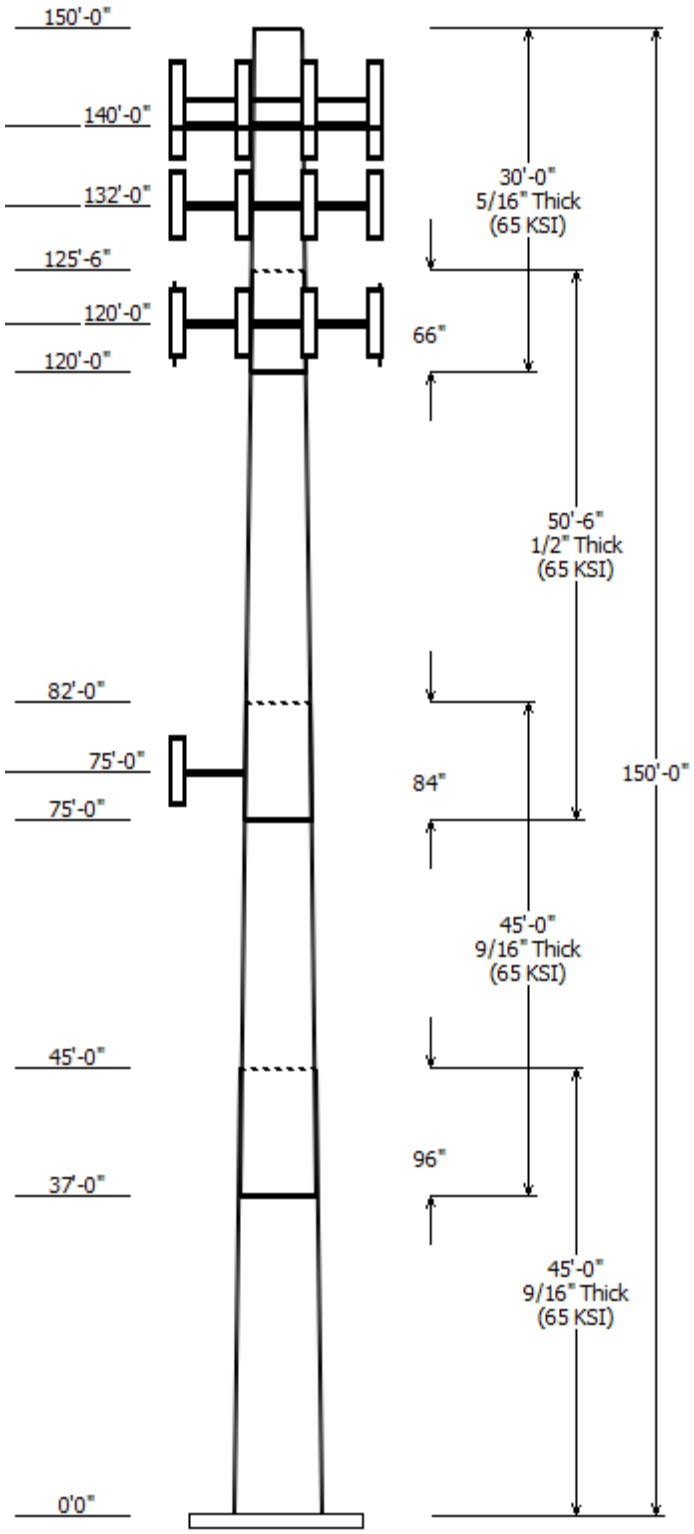
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	45.000	60.78	72.20	0.563		0.000	18 Sides	65
2	45.000	52.52	63.94	0.563	Slip Joint	96.000	18 Sides	65
3	50.500	42.49	55.30	0.500	Slip Joint	84.000	18 Sides	65
4	30.000	36.90	44.51	0.313	Slip Joint	66.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
140.000	141.000	3	Commscope NNVV-65B-R4
140.000	141.000	3	RFS APXVTM14-ALU-I20
140.000	140.000	3	Alcatel-Lucent TD-RRH8x20-25
140.000	140.000	3	Alcatel-Lucent 1900 MHz 4x45
140.000	140.000	6	Alcatel-Lucent RRH2x50-08
140.000	140.000	3	Round T-Arms w/ SitePro1
132.000	132.000	3	Amphenol Antel BXA-70063-
132.000	132.000	1	Flat Low Profile Platform
132.000	132.000	6	Commscope SBNHH-1D65B
132.000	132.000	2	Commscope RC3DC-3315-PF-
132.000	132.000	6	RFS APL868013-42T0
132.000	132.000	3	Alcatel-Lucent B66A RRH4x45-
132.000	132.000	3	Alcatel-Lucent B13 RRH4X30-
132.000	132.000	6	RFS FD9R6004/2C-3L
120.000	120.000	3	Powerwave Allgon 7770.00
120.000	120.000	1	Round Low Profile Platform
120.000	120.000	2	KMW EPBQ-654L8H8-L2
120.000	120.000	1	KMW EPBQ-654L8H6-L2
120.000	120.000	1	KMW AM-X-CD-17-65-00T-RET
120.000	120.000	1	Andrew DBXNH-6565B-R2M
120.000	120.000	1	Andrew SBNHH-1D65A (33.5
120.000	120.000	3	Ericsson RRUS-11 1900 MHz
120.000	120.000	3	Ericsson RRUS 4478 B5
120.000	120.000	3	Ericsson RRUS 4415 B25
120.000	120.000	1	Raycap DC6-48-60-18-8F
120.000	120.000	1	Raycap DC6-48-60-18-8F
120.000	120.000	6	Powerwave Allgon LGP21401
75.000	75.000	1	Stand-Off
75.000	75.000	1	GPS

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
10.000	75.000	1/2" Coax	No
10.000	120.0	0.35" (9mm) Fiber	No
10.000	120.0	0.39" Fiber Trunk	No
10.000	120.0	0.78" 8 AWG 6	No
10.000	120.0	0.78" 8 AWG 6	No
10.000	120.0	1 5/8" Coax	No
10.000	120.0	2" conduit	No
10.000	132.0	1 5/8" Coax	No



10.000	132.0	1 5/8" Hybriflex	No
10.000	140.0	1 1/4" Hybriflex	No
10.000	140.0	1 5/8" Coax	No

Load Cases

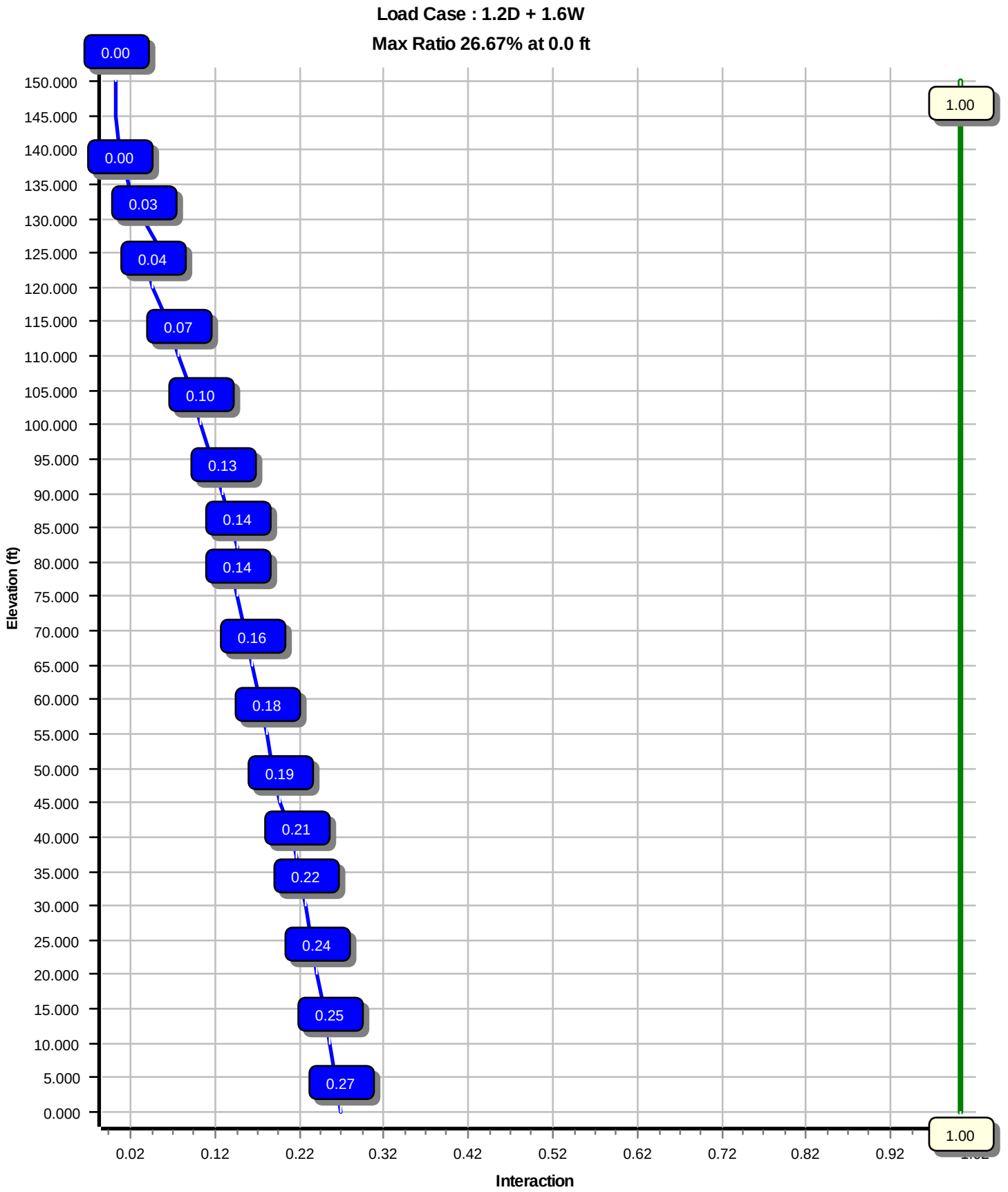
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3366.44	36.64	74.70
0.9D + 1.6W	3354.60	36.63	56.02
1.2D + 1.0Di + 1.0Wi	960.13	10.57	114.49
(1.2 + 0.2Sds) * DL + E ELFM	321.77	3.19	74.31
(1.2 + 0.2Sds) * DL + E EMAM	221.62	2.22	74.31
(0.9 - 0.2Sds) * DL + E ELFM	320.47	3.19	51.92
(0.9 - 0.2Sds) * DL + E EMAM	220.69	2.22	51.92
1.0D + 1.0W	740.74	8.08	62.27

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 26.67% at 0.0 ft
0.00
0.00
0.03
0.04
0.07
0.10
0.13
0.14
0.14
0.16
0.18
0.19
0.21
0.22
0.24
0.25
0.27
1.00
1.00
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**302527**	**Code: ANSI/TIA-222-G**	
Site Name:	**East Haddam, CT**	**Engineering Number:OAA738059_C3_01**	**8/21/2018 6:36:46 PM**
Customer:	**AT&T MOBILITY**		

Analysis Parameters

Location :	**MIDDLESEX County, CT**	**Height (ft) :**	**150**
Code :	**ANSI/TIA-222-G**	**Base Diameter (in) :**	**72.20**
Shape :	**18 Sides**	**Top Diameter (in) :**	**36.91**
Pole Type :	**Taper**	**Taper (in/ft) :**	**0.254**
Pole Manfacturer :	**Summit Manufacturing**	**Rotation (deg) :**	**0.00**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**101 mph**
Exposure Category:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**2**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**105 ft**	**Design Ice Thickness:**	**1.00 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**1.25**				
T_L (sec):	**6**	**p:**	**1**	**C_s:**	**0.051**
S_s:	**0.170**	**S_1:**	**0.060**	**C_s Max:**	**0.051**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.181**	**S_{d1}:**	**0.096**		

Load Cases

1.2D + 1.6W	**101 mph with No Ice**
0.9D + 1.6W	**101 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 1.00 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number: 302527 **Code:** ANSI/TIA-222-G

Site Name: East Haddam, CT **Engineering Number:**OAA738059_C3_01 **8/21/2018 6:36:46 PM**

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	45.000	0.5625	65		0.00	18,024	72.20	0.00	127.89	82924.1	20.87	128.35	60.78	45.00	107.52	49269.2	17.29	108.06	0.253625
2-18	45.000	0.5625	65	Slip	96.00	15,766	63.94	37.00	113.15	57422.5	18.28	113.67	52.52	82.00	92.77	31651.7	14.70	93.38	0.253625
3-18	50.500	0.5000	65	Slip	84.00	13,198	55.30	75.00	86.97	33000.6	17.74	110.61	42.49	125.50	66.64	14849.0	13.22	84.99	0.253625
4-18	30.000	0.3125	65	Slip	66.00	4,090	44.51	120.00	43.84	10822.4	23.35	142.45	36.90	150.00	36.29	6140.5	19.06	118.10	0.253625
				Shaft Weight		51,078													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
140.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
140.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
140.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.67
140.00	Commscope NNVV-65B-R4	3	0.000	1.000	77.40	12.270	0.64
140.00	RFS APXVTM14-ALU-I20	3	0.000	1.000	56.20	6.340	0.66
140.00	Round T-Arms w/ SitePro1	3	0.000	0.000	300.00	14.400	0.67
132.00	Alcatel-Lucent B13 RRH4X30-4R	3	0.000	0.000	57.20	2.160	0.67
132.00	Alcatel-Lucent B66A RRH4x45-4R	3	0.000	0.000	56.80	2.390	0.67
132.00	Amphenol Antel BXA-70063-6CF-	3	0.000	0.000	17.00	7.570	0.66
132.00	Commscope RC3DC-3315-PF-48	2	0.000	0.000	32.00	3.780	0.67
132.00	Commscope SBNHH-1D65B	6	0.000	0.000	40.60	8.200	0.69
132.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
132.00	RFS APL868013-42T0	6	0.000	0.000	6.30	3.610	0.73
132.00	RFS FD9R6004/2C-3L	6	0.000	0.000	2.60	0.370	0.50
120.00	Andrew DBXNH-6565B-R2M	1	0.000	0.000	46.30	8.410	1.00
120.00	Andrew SBNHH-1D65A (33.5 lbs)	1	0.000	0.000	33.50	5.880	0.69
120.00	Ericsson RRUS 4415 B25	3	0.000	0.000	46.00	1.650	0.50
120.00	Ericsson RRUS 4478 B5	3	0.000	0.000	59.90	1.840	0.50
120.00	Ericsson RRUS-11 1900 MHz	3	0.000	0.000	44.00	2.520	0.67
120.00	KMW AM-X-CD-17-65-00T-RET	1	0.000	0.000	59.50	11.310	0.68
120.00	KMW EPBQ-654L8H6-L2	1	0.000	0.000	72.80	13.240	0.61
120.00	KMW EPBQ-654L8H8-L2	2	0.000	0.000	86.00	18.090	0.61
120.00	Powerwave Allgon 7770.00	3	0.000	0.000	35.00	5.510	0.65
120.00	Powerwave Allgon LGP21401	6	0.000	0.000	14.10	1.100	0.50
120.00	Raycap DC6-48-60-18-8F	1	0.000	0.000	20.00	1.110	1.00
120.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	0.000	31.80	1.280	1.00
120.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
75.00	GPS	1	0.000	0.000	10.00	1.000	1.00
75.00	Stand-Off	1	0.000	0.000	100.00	3.000	0.67
Totals	Num Loadings:29	80			6947.40		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
10.00	140.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Sprint Nextel
10.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
10.00	132.00	10	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
10.00	132.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon
10.00	120.00	1	0.35" (9mm) Fiber	0.35	0.05	N	0.00	N	AT&T Mobility
10.00	120.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
10.00	120.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility

10.00	120.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
10.00	120.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
10.00	120.00	1	2" conduit	2.38	3.65	N	0.00	N	AT&T Mobility
10.00	75.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.5625	72.200	127.894	82,924.1	20.87	128.35	76.9	2262.	0.0	0.0
5.00		0.5625	70.931	125.630	78,597.9	20.47	126.10	77.3	2182.	0.0	2,156.7
10.00		0.5625	69.663	123.366	74,424.7	20.07	123.85	77.8	2104.	0.0	2,118.2
15.00		0.5625	68.395	121.103	70,402.0	19.68	121.59	78.3	2027.	0.0	2,079.7
20.00		0.5625	67.127	118.839	66,526.9	19.28	119.34	78.7	1952.	0.0	2,041.2
25.00		0.5625	65.859	116.575	62,796.6	18.88	117.08	79.2	1878.	0.0	2,002.6
30.00		0.5625	64.591	114.311	59,208.5	18.48	114.83	79.7	1805.	0.0	1,964.1
35.00		0.5625	63.323	112.047	55,759.7	18.09	112.57	80.1	1734.	0.0	1,925.6
37.00	Bot - Section 2	0.5625	62.815	111.141	54,418.6	17.93	111.67	80.3	1706.	0.0	759.5
40.00		0.5625	62.055	109.783	52,447.5	17.69	110.32	80.6	1664.	0.0	2,275.8
45.00	Top - Section 1	0.5625	61.911	109.527	52,082.2	17.64	110.06	80.6	1656.	0.0	3,731.3
50.00		0.5625	60.643	107.263	48,918.8	17.25	107.81	81.1	1588.	0.0	1,844.2
55.00		0.5625	59.375	104.999	45,886.1	16.85	105.56	81.6	1522.	0.0	1,805.7
60.00		0.5625	58.107	102.735	42,981.5	16.45	103.30	82.1	1456.	0.0	1,767.2
65.00		0.5625	56.839	100.471	40,202.0	16.05	101.05	82.5	1393.	0.0	1,728.7
70.00		0.5625	55.571	98.207	37,545.1	15.66	98.79	82.6	1330.	0.0	1,690.1
75.00	Bot - Section 3	0.5625	54.303	95.943	35,007.9	15.26	96.54	82.6	1269.	0.0	1,651.6
80.00		0.5625	53.035	93.679	32,587.6	14.86	94.28	82.6	1210.	0.0	3,075.7
82.00	Top - Section 2	0.5000	53.527	84.151	29,896.1	17.11	107.05	81.3	1100.	0.0	1,209.9
85.00		0.5000	52.767	82.944	28,627.6	16.85	105.53	81.6	1068.	0.0	852.9
90.00		0.5000	51.498	80.932	26,594.0	16.40	103.00	82.1	1017.	0.0	1,394.1
95.00		0.5000	50.230	78.919	24,659.1	15.95	100.46	82.6	966.9	0.0	1,359.8
100.0		0.5000	48.962	76.907	22,820.3	15.50	97.92	82.6	918.0	0.0	1,325.6
105.0		0.5000	47.694	74.894	21,075.4	15.06	95.39	82.6	870.3	0.0	1,291.4
110.0		0.5000	46.426	72.882	19,421.7	14.61	92.85	82.6	824.0	0.0	1,257.1
115.0		0.5000	45.158	70.869	17,856.9	14.16	90.32	82.6	778.9	0.0	1,222.9
120.0	Bot - Section 4	0.5000	43.890	68.857	16,378.4	13.71	87.78	82.6	735.0	0.0	1,188.6
125.0		0.5000	42.622	66.844	14,984.0	13.27	85.24	82.6	692.4	0.0	1,889.6
125.5	Top - Section 3	0.3125	43.120	42.458	9,829.8	22.57	137.98	74.9	449.0	0.0	185.9
130.0		0.3125	41.978	41.326	9,064.3	21.92	134.33	75.6	425.3	0.0	641.5
132.0		0.3125	41.471	40.823	8,737.3	21.64	132.71	76.0	415.0	0.0	279.5
135.0		0.3125	40.710	40.068	8,261.6	21.21	130.27	76.5	399.7	0.0	412.9
140.0		0.3125	39.442	38.810	7,507.8	20.49	126.21	77.3	374.9	0.0	671.0
145.0		0.3125	38.174	37.553	6,801.3	19.78	122.16	78.1	350.9	0.0	649.6
150.0		0.3125	36.906	36.295	6,140.5	19.06	118.10	79.0	327.7	0.0	628.2
											51,078.4

Site Number: 302527 | Code: ANSI/TIA-222-G |

Site Name: East Haddam, CT | Engineering Number:OAA738059_C3_01 | 8/21/2018 6:36:47 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W | 101 mph with No Ice | 17 Iterations

Gust Response Factor :1.10 | Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		569.2	0.0					0.0	0.0	569.2	0.0	0.0	0.0
5.00		1,110.7	2,588.1					0.0	0.0	1,110.7	2,588.1	0.0	0.0
10.00		1,057.3	2,541.8					0.0	0.0	1,057.3	2,541.8	0.0	0.0
15.00		1,007.5	2,495.6					0.0	215.0	1,007.5	2,710.6	0.0	0.0
20.00		961.0	2,449.4					0.0	215.0	961.0	2,664.4	0.0	0.0
25.00		917.5	2,403.2					0.0	215.0	917.5	2,618.1	0.0	0.0
30.00		887.0	2,357.0					0.0	215.0	887.0	2,571.9	0.0	0.0
35.00		613.9	2,310.7					0.0	215.0	613.9	2,525.7	0.0	0.0
37.00	Bot - Section 2	441.9	911.3					0.0	86.0	441.9	997.3	0.0	0.0
40.00		708.6	2,730.9					0.0	129.0	708.6	2,859.9	0.0	0.0
45.00	Top - Section 1	878.9	4,477.6					0.0	215.0	878.9	4,692.5	0.0	0.0
50.00		868.5	2,213.1					0.0	215.0	868.5	2,428.0	0.0	0.0
55.00		856.1	2,166.8					0.0	215.0	856.1	2,381.8	0.0	0.0
60.00		842.4	2,120.6					0.0	215.0	842.4	2,335.6	0.0	0.0
65.00		827.7	2,074.4					0.0	215.0	827.7	2,289.4	0.0	0.0
70.00		812.1	2,028.2					0.0	215.0	812.1	2,243.1	0.0	0.0
75.00	Bot - Section 3	803.3	1,981.9	160.4	0.0	0.0	132.0	0.0	215.0	963.8	2,328.9	0.0	0.0
80.00		559.4	3,690.8					0.0	214.1	559.4	3,904.9	0.0	0.0
82.00	Top - Section 2	392.9	1,451.9					0.0	85.6	392.9	1,537.5	0.0	0.0
85.00		619.0	1,023.5					0.0	128.4	619.0	1,151.9	0.0	0.0
90.00		760.1	1,672.9					0.0	214.1	760.1	1,887.0	0.0	0.0
95.00		742.7	1,631.8					0.0	214.1	742.7	1,845.9	0.0	0.0
100.00		725.3	1,590.7					0.0	214.1	725.3	1,804.8	0.0	0.0
105.00		707.7	1,549.6					0.0	214.1	707.7	1,763.7	0.0	0.0
110.00		690.1	1,508.5					0.0	214.1	690.1	1,722.6	0.0	0.0
115.00		672.4	1,467.5					0.0	214.1	672.4	1,681.5	0.0	0.0
120.00	Bot - Section 4	659.4	1,426.4	4,520.2	0.0	0.0	3,090.2	0.0	214.1	5,179.6	4,730.7	0.0	0.0
125.00		359.9	2,267.5					0.0	118.3	359.9	2,385.9	0.0	0.0
125.50	Top - Section 3	318.7	223.1					0.0	11.8	318.7	234.9	0.0	0.0
130.00		411.5	769.8					0.0	106.5	411.5	876.2	0.0	0.0
132.00	Appurtenance(s)	309.8	335.4	4,912.5	0.0	0.0	2,704.8	0.0	47.3	5,222.4	3,087.6	0.0	0.0
135.00		485.8	495.5					0.0	32.1	485.8	527.6	0.0	0.0
140.00	Appurtenance(s)	593.0	805.2	3,544.4	0.0	1,580.0	2,409.8	0.0	53.5	4,137.4	3,268.6	0.0	0.0
145.00		575.2	779.5					0.0	0.0	575.2	779.5	0.0	0.0
150.00		283.1	753.9					0.0	0.0	283.1	753.9	0.0	0.0
								Totals:		37,167.2	74,721.8	0.00	0.00

Load Case: 1.2D + 1.6W — 101 mph with No Ice — 17 Iterations

Gust Response Factor :1.10 — Wind Importance Factor :1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-74.70	-36.64	0.00	-3,366.44	0.00	3,366.44	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.267
5.00	-72.08	-35.59	0.00	-3,183.27	0.00	3,183.27	8,742.64	4,371.32	25,275.7	12,656.6	0.03	-0.06	0.260
10.00	-69.51	-34.60	0.00	-3,005.30	0.00	3,005.30	8,637.00	4,318.50	24,516.7	12,276.6	0.12	-0.11	0.253
15.00	-66.77	-33.65	0.00	-2,832.30	0.00	2,832.30	8,529.45	4,264.73	23,763.6	11,899.4	0.27	-0.17	0.246
20.00	-64.07	-32.74	0.00	-2,664.04	0.00	2,664.04	8,420.00	4,210.00	23,016.4	11,525.3	0.48	-0.22	0.239
25.00	-61.43	-31.87	0.00	-2,500.33	0.00	2,500.33	8,308.65	4,154.32	22,275.7	11,154.4	0.74	-0.28	0.232
30.00	-58.83	-31.03	0.00	-2,340.96	0.00	2,340.96	8,195.38	4,097.69	21,541.7	10,786.8	1.06	-0.33	0.224
35.00	-56.29	-30.44	0.00	-2,185.82	0.00	2,185.82	8,080.21	4,040.11	20,814.7	10,422.8	1.44	-0.39	0.217
37.00	-55.28	-30.01	0.00	-2,124.95	0.00	2,124.95	8,033.62	4,016.81	20,525.9	10,278.2	1.61	-0.41	0.214
40.00	-52.40	-29.32	0.00	-2,034.91	0.00	2,034.91	7,963.14	3,981.57	20,094.9	10,062.4	1.88	-0.44	0.209
45.00	-47.69	-28.45	0.00	-1,888.30	0.00	1,888.30	7,949.81	3,974.91	20,014.2	10,021.9	2.37	-0.50	0.194
50.00	-45.25	-27.60	0.00	-1,746.05	0.00	1,746.05	7,830.62	3,915.31	19,302.9	9,665.81	2.92	-0.55	0.186
55.00	-42.85	-26.76	0.00	-1,608.06	0.00	1,608.06	7,709.52	3,854.76	18,599.5	9,313.61	3.52	-0.60	0.178
60.00	-40.51	-25.92	0.00	-1,474.29	0.00	1,474.29	7,586.52	3,793.26	17,904.4	8,965.53	4.17	-0.64	0.170
65.00	-38.21	-25.10	0.00	-1,344.68	0.00	1,344.68	7,461.61	3,730.80	17,217.8	8,621.71	4.87	-0.69	0.161
70.00	-35.95	-24.29	0.00	-1,219.20	0.00	1,219.20	7,296.29	3,648.15	16,453.2	8,238.84	5.62	-0.74	0.153
75.00	-33.62	-23.32	0.00	-1,097.77	0.00	1,097.77	7,128.09	3,564.04	15,699.6	7,861.47	6.42	-0.78	0.144
80.00	-29.71	-22.72	0.00	-981.20	0.00	981.20	6,959.89	3,479.94	14,963.6	7,492.96	7.26	-0.82	0.135
82.00	-28.17	-22.31	0.00	-935.76	0.00	935.76	6,155.25	3,077.63	13,390.8	6,705.38	7.61	-0.84	0.144
85.00	-27.02	-21.69	0.00	-868.83	0.00	868.83	6,090.49	3,045.24	13,058.0	6,538.74	8.14	-0.86	0.137
90.00	-25.13	-20.92	0.00	-760.37	0.00	760.37	5,981.03	2,990.51	12,509.3	6,263.95	9.07	-0.90	0.126
95.00	-23.28	-20.16	0.00	-655.77	0.00	655.77	5,863.29	2,931.65	11,955.1	5,986.47	10.04	-0.94	0.114
100.00	-21.48	-19.42	0.00	-554.97	0.00	554.97	5,713.78	2,856.89	11,350.2	5,683.57	11.04	-0.98	0.101
105.00	-19.72	-18.69	0.00	-457.87	0.00	457.87	5,564.26	2,782.13	10,761.0	5,388.54	12.09	-1.01	0.089
110.00	-18.00	-17.98	0.00	-364.42	0.00	364.42	5,414.75	2,707.38	10,187.5	5,101.37	13.16	-1.04	0.075
115.00	-16.32	-17.28	0.00	-274.53	0.00	274.53	5,265.24	2,632.62	9,629.81	4,822.06	14.26	-1.06	0.060
120.00	-11.69	-12.02	0.00	-188.12	0.00	188.12	5,115.72	2,557.86	9,087.73	4,550.62	15.38	-1.08	0.044
125.00	-9.31	-11.61	0.00	-128.04	0.00	128.04	4,966.21	2,483.10	8,561.35	4,287.04	16.52	-1.09	0.032
125.50	-9.08	-11.29	0.00	-122.23	0.00	122.23	2,860.48	1,430.24	5,034.26	2,520.87	16.63	-1.09	0.052
130.00	-8.21	-10.86	0.00	-71.42	0.00	71.42	2,812.39	1,406.19	4,816.69	2,411.93	17.67	-1.10	0.033
132.00	-5.22	-5.58	0.00	-49.70	0.00	49.70	2,790.52	1,395.26	4,720.62	2,363.82	18.13	-1.11	0.023
135.00	-4.70	-5.09	0.00	-32.95	0.00	32.95	2,757.14	1,378.57	4,577.28	2,292.04	18.82	-1.11	0.016
140.00	-1.52	-0.89	0.00	-5.93	0.00	5.93	2,699.99	1,349.99	4,340.61	2,173.53	19.99	-1.11	0.003
145.00	-0.75	-0.30	0.00	-1.49	0.00	1.49	2,640.93	1,320.46	4,106.98	2,056.54	21.16	-1.11	0.001
150.00	0.00	-0.28	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	22.32	-1.11	0.000

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 17 Iterations

Gust Response Factor :1.10 — Wind Importance Factor :1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		569.2	0.0					0.0	0.0	569.2	0.0	0.0	0.0
5.00		1,110.7	1,941.1					0.0	0.0	1,110.7	1,941.1	0.0	0.0
10.00		1,057.3	1,906.4					0.0	0.0	1,057.3	1,906.4	0.0	0.0
15.00		1,007.5	1,871.7					0.0	161.2	1,007.5	2,032.9	0.0	0.0
20.00		961.0	1,837.0					0.0	161.2	961.0	1,998.3	0.0	0.0
25.00		917.5	1,802.4					0.0	161.2	917.5	1,963.6	0.0	0.0
30.00		887.0	1,767.7					0.0	161.2	887.0	1,928.9	0.0	0.0
35.00		613.9	1,733.0					0.0	161.2	613.9	1,894.3	0.0	0.0
37.00	Bot - Section 2	441.9	683.5					0.0	64.5	441.9	748.0	0.0	0.0
40.00		708.6	2,048.2					0.0	96.7	708.6	2,144.9	0.0	0.0
45.00	Top - Section 1	878.9	3,358.2					0.0	161.2	878.9	3,519.4	0.0	0.0
50.00		868.5	1,659.8					0.0	161.2	868.5	1,821.0	0.0	0.0
55.00		856.1	1,625.1					0.0	161.2	856.1	1,786.4	0.0	0.0
60.00		842.4	1,590.5					0.0	161.2	842.4	1,751.7	0.0	0.0
65.00		827.7	1,555.8					0.0	161.2	827.7	1,717.0	0.0	0.0
70.00		812.1	1,521.1					0.0	161.2	812.1	1,682.4	0.0	0.0
75.00	Bot - Section 3	803.3	1,486.5	160.4	0.0	0.0	99.0	0.0	161.2	963.8	1,746.7	0.0	0.0
80.00		559.4	2,768.1					0.0	160.6	559.4	2,928.6	0.0	0.0
82.00	Top - Section 2	392.9	1,088.9					0.0	64.2	392.9	1,153.1	0.0	0.0
85.00		619.0	767.6					0.0	96.3	619.0	863.9	0.0	0.0
90.00		760.1	1,254.7					0.0	160.6	760.1	1,415.2	0.0	0.0
95.00		742.7	1,223.9					0.0	160.6	742.7	1,384.4	0.0	0.0
100.00		725.3	1,193.0					0.0	160.6	725.3	1,353.6	0.0	0.0
105.00		707.7	1,162.2					0.0	160.6	707.7	1,322.8	0.0	0.0
110.00		690.1	1,131.4					0.0	160.6	690.1	1,292.0	0.0	0.0
115.00		672.4	1,100.6					0.0	160.6	672.4	1,261.1	0.0	0.0
120.00	Bot - Section 4	659.4	1,069.8	4,520.2	0.0	0.0	2,317.7	0.0	160.6	5,179.6	3,548.0	0.0	0.0
125.00		359.9	1,700.7					0.0	88.7	359.9	1,789.4	0.0	0.0
125.50	Top - Section 3	318.7	167.3					0.0	8.9	318.7	176.2	0.0	0.0
130.00		411.5	577.3					0.0	79.9	411.5	657.2	0.0	0.0
132.00	Appurtenance(s)	309.8	251.6	4,912.5	0.0	0.0	2,028.6	0.0	35.5	5,222.4	2,315.7	0.0	0.0
135.00		485.8	371.6					0.0	24.1	485.8	395.7	0.0	0.0
140.00	Appurtenance(s)	593.0	603.9	3,544.4	0.0	1,580.0	1,807.4	0.0	40.1	4,137.4	2,451.4	0.0	0.0
145.00		575.2	584.7					0.0	0.0	575.2	584.7	0.0	0.0
150.00		283.1	565.4					0.0	0.0	283.1	565.4	0.0	0.0
								Totals:		37,167.2	56,041.3	0.00	0.00

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 17 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.02	-36.63	0.00	-3,354.60	0.00	3,354.60	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.264
5.00	-54.05	-35.57	0.00	-3,171.48	0.00	3,171.48	8,742.64	4,371.32	25,275.7	12,656.6	0.03	-0.06	0.257
10.00	-52.11	-34.56	0.00	-2,993.64	0.00	2,993.64	8,637.00	4,318.50	24,516.7	12,276.6	0.12	-0.11	0.250
15.00	-50.05	-33.59	0.00	-2,820.86	0.00	2,820.86	8,529.45	4,264.73	23,763.6	11,899.4	0.27	-0.17	0.243
20.00	-48.02	-32.67	0.00	-2,652.89	0.00	2,652.89	8,420.00	4,210.00	23,016.4	11,525.3	0.47	-0.22	0.236
25.00	-46.03	-31.79	0.00	-2,489.54	0.00	2,489.54	8,308.65	4,154.32	22,275.7	11,154.4	0.74	-0.28	0.229
30.00	-44.08	-30.93	0.00	-2,330.59	0.00	2,330.59	8,195.38	4,097.69	21,541.7	10,786.8	1.06	-0.33	0.221
35.00	-42.17	-30.34	0.00	-2,175.92	0.00	2,175.92	8,080.21	4,040.11	20,814.7	10,422.8	1.44	-0.39	0.214
37.00	-41.41	-29.91	0.00	-2,115.25	0.00	2,115.25	8,033.62	4,016.81	20,525.9	10,278.2	1.60	-0.41	0.211
40.00	-39.25	-29.21	0.00	-2,025.52	0.00	2,025.52	7,963.14	3,981.57	20,094.9	10,062.4	1.87	-0.44	0.206
45.00	-35.71	-28.34	0.00	-1,879.46	0.00	1,879.46	7,949.81	3,974.91	20,014.2	10,021.9	2.36	-0.49	0.192
50.00	-33.87	-27.48	0.00	-1,737.76	0.00	1,737.76	7,830.62	3,915.31	19,302.9	9,665.81	2.91	-0.55	0.184
55.00	-32.07	-26.64	0.00	-1,600.35	0.00	1,600.35	7,709.52	3,854.76	18,599.5	9,313.61	3.50	-0.59	0.176
60.00	-30.31	-25.80	0.00	-1,467.17	0.00	1,467.17	7,586.52	3,793.26	17,904.4	8,965.53	4.15	-0.64	0.168
65.00	-28.58	-24.98	0.00	-1,338.17	0.00	1,338.17	7,461.61	3,730.80	17,217.8	8,621.71	4.85	-0.69	0.159
70.00	-26.89	-24.16	0.00	-1,213.29	0.00	1,213.29	7,296.29	3,648.15	16,453.2	8,238.84	5.60	-0.73	0.151
75.00	-25.14	-23.20	0.00	-1,092.47	0.00	1,092.47	7,128.09	3,564.04	15,699.6	7,861.47	6.39	-0.78	0.143
80.00	-22.21	-22.61	0.00	-976.50	0.00	976.50	6,959.89	3,479.94	14,963.6	7,492.96	7.23	-0.82	0.134
82.00	-21.05	-22.20	0.00	-931.29	0.00	931.29	6,155.25	3,077.63	13,390.8	6,705.38	7.57	-0.84	0.142
85.00	-20.18	-21.58	0.00	-864.67	0.00	864.67	6,090.49	3,045.24	13,058.0	6,538.74	8.11	-0.86	0.136
90.00	-18.77	-20.82	0.00	-756.75	0.00	756.75	5,981.03	2,990.51	12,509.3	6,263.95	9.03	-0.90	0.124
95.00	-17.38	-20.06	0.00	-652.68	0.00	652.68	5,863.29	2,931.65	11,955.1	5,986.47	9.99	-0.94	0.112
100.00	-16.03	-19.32	0.00	-552.37	0.00	552.37	5,713.78	2,856.89	11,350.2	5,683.57	11.00	-0.97	0.100
105.00	-14.71	-18.60	0.00	-455.75	0.00	455.75	5,564.26	2,782.13	10,761.0	5,388.54	12.03	-1.00	0.087
110.00	-13.42	-17.89	0.00	-362.75	0.00	362.75	5,414.75	2,707.38	10,187.5	5,101.37	13.10	-1.03	0.074
115.00	-12.17	-17.20	0.00	-273.29	0.00	273.29	5,265.24	2,632.62	9,629.81	4,822.06	14.20	-1.06	0.059
120.00	-8.71	-11.96	0.00	-187.28	0.00	187.28	5,115.72	2,557.86	9,087.73	4,550.62	15.31	-1.07	0.043
125.00	-6.93	-11.57	0.00	-127.48	0.00	127.48	4,966.21	2,483.10	8,561.35	4,287.04	16.44	-1.09	0.031
125.50	-6.76	-11.25	0.00	-121.69	0.00	121.69	2,860.48	1,430.24	5,034.26	2,520.87	16.56	-1.09	0.051
130.00	-6.11	-10.82	0.00	-71.09	0.00	71.09	2,812.39	1,406.19	4,816.69	2,411.93	17.59	-1.10	0.032
132.00	-3.89	-5.56	0.00	-49.44	0.00	49.44	2,790.52	1,395.26	4,720.62	2,363.82	18.05	-1.10	0.022
135.00	-3.50	-5.06	0.00	-32.77	0.00	32.77	2,757.14	1,378.57	4,577.28	2,292.04	18.74	-1.10	0.016
140.00	-1.13	-0.88	0.00	-5.87	0.00	5.87	2,699.99	1,349.99	4,340.61	2,173.53	19.90	-1.11	0.003
145.00	-0.56	-0.29	0.00	-1.47	0.00	1.47	2,640.93	1,320.46	4,106.98	2,056.54	21.06	-1.11	0.001
150.00	0.00	-0.28	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	22.22	-1.11	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 17 Iterations

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00
Dead Load Factor : 1.20 | Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		169.5	0.0					0.0	0.0	169.5	0.0	0.0	0.0
5.00		331.8	3,469.7					0.0	0.0	331.8	3,469.7	0.0	0.0
10.00		317.4	3,500.6					0.0	0.0	317.4	3,500.6	0.0	0.0
15.00		303.3	3,477.5					0.0	215.0	303.3	3,692.5	0.0	0.0
20.00		290.0	3,437.2					0.0	215.0	290.0	3,652.2	0.0	0.0
25.00		277.4	3,388.5					0.0	215.0	277.4	3,603.4	0.0	0.0
30.00		268.7	3,334.7					0.0	215.0	268.7	3,549.7	0.0	0.0
35.00		186.2	3,277.7					0.0	215.0	186.2	3,492.7	0.0	0.0
37.00	Bot - Section 2	134.2	1,296.9					0.0	86.0	134.2	1,382.8	0.0	0.0
40.00		215.2	3,314.0					0.0	129.0	215.2	3,442.9	0.0	0.0
45.00	Top - Section 1	267.4	5,433.9					0.0	215.0	267.4	5,648.9	0.0	0.0
50.00		264.6	3,153.8					0.0	215.0	264.6	3,368.8	0.0	0.0
55.00		261.3	3,091.2					0.0	215.0	261.3	3,306.2	0.0	0.0
60.00		257.6	3,028.0					0.0	215.0	257.6	3,243.0	0.0	0.0
65.00		253.5	2,964.3					0.0	215.0	253.5	3,179.3	0.0	0.0
70.00		249.2	2,900.3					0.0	215.0	249.2	3,115.3	0.0	0.0
75.00	Bot - Section 3	246.8	2,836.0	44.4	0.0	0.0	181.7	0.0	215.0	291.2	3,232.7	0.0	0.0
80.00		172.0	4,541.7					0.0	214.1	172.0	4,755.7	0.0	0.0
82.00	Top - Section 2	121.0	1,789.4					0.0	85.6	121.0	1,875.0	0.0	0.0
85.00		190.9	1,523.0					0.0	128.4	190.9	1,651.5	0.0	0.0
90.00		234.8	2,486.8					0.0	214.1	234.8	2,700.9	0.0	0.0
95.00		229.9	2,427.2					0.0	214.1	229.9	2,641.2	0.0	0.0
100.00		225.0	2,367.4					0.0	214.1	225.0	2,581.5	0.0	0.0
105.00		220.1	2,307.6					0.0	214.1	220.1	2,521.7	0.0	0.0
110.00		215.2	2,247.8					0.0	214.1	215.2	2,461.9	0.0	0.0
115.00		210.2	2,188.0					0.0	214.1	210.2	2,402.0	0.0	0.0
120.00	Bot - Section 4	206.6	2,128.1	1,074.1	0.0	0.0	7,901.2	0.0	214.1	1,280.7	10,243.3	0.0	0.0
125.00		112.8	2,960.0					0.0	118.3	112.8	3,078.3	0.0	0.0
125.50	Top - Section 3	100.2	292.2					0.0	11.8	100.2	304.0	0.0	0.0
130.00		129.5	1,376.1					0.0	106.5	129.5	1,482.6	0.0	0.0
132.00	Appurtenance(s)	97.7	602.0	1,275.3	0.0	0.0	7,600.2	0.0	47.3	1,373.0	8,249.4	0.0	0.0
135.00		153.6	888.5					0.0	32.1	153.6	920.6	0.0	0.0
140.00	Appurtenance(s)	188.0	1,441.3	950.0	0.0	289.9	7,501.2	0.0	53.5	1,138.0	8,996.0	0.0	0.0
145.00		183.0	1,396.8					0.0	0.0	183.0	1,396.8	0.0	0.0
150.00		90.3	1,352.3					0.0	0.0	90.3	1,352.3	0.0	0.0
								Totals:		10,718.6	114,495.	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 17 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-114.49	-10.57	0.00	-960.13	0.00	960.13	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.087
5.00	-111.02	-10.26	0.00	-907.30	0.00	907.30	8,742.64	4,371.32	25,275.7	12,656.6	0.01	-0.02	0.084
10.00	-107.52	-9.98	0.00	-855.98	0.00	855.98	8,637.00	4,318.50	24,516.7	12,276.6	0.03	-0.03	0.082
15.00	-103.82	-9.70	0.00	-806.10	0.00	806.10	8,529.45	4,264.73	23,763.6	11,899.4	0.08	-0.05	0.080
20.00	-100.17	-9.43	0.00	-757.62	0.00	757.62	8,420.00	4,210.00	23,016.4	11,525.3	0.14	-0.06	0.078
25.00	-96.56	-9.18	0.00	-710.46	0.00	710.46	8,308.65	4,154.32	22,275.7	11,154.4	0.21	-0.08	0.075
30.00	-93.01	-8.93	0.00	-664.57	0.00	664.57	8,195.38	4,097.69	21,541.7	10,786.8	0.30	-0.09	0.073
35.00	-89.52	-8.75	0.00	-619.94	0.00	619.94	8,080.21	4,040.11	20,814.7	10,422.8	0.41	-0.11	0.071
37.00	-88.13	-8.63	0.00	-602.43	0.00	602.43	8,033.62	4,016.81	20,525.9	10,278.2	0.46	-0.12	0.070
40.00	-84.69	-8.42	0.00	-576.55	0.00	576.55	7,963.14	3,981.57	20,094.9	10,062.4	0.53	-0.13	0.068
45.00	-79.04	-8.16	0.00	-534.44	0.00	534.44	7,949.81	3,974.91	20,014.2	10,021.9	0.67	-0.14	0.063
50.00	-75.67	-7.91	0.00	-493.63	0.00	493.63	7,830.62	3,915.31	19,302.9	9,665.81	0.83	-0.16	0.061
55.00	-72.36	-7.65	0.00	-454.09	0.00	454.09	7,709.52	3,854.76	18,599.5	9,313.61	1.00	-0.17	0.058
60.00	-69.12	-7.40	0.00	-415.82	0.00	415.82	7,586.52	3,793.26	17,904.4	8,965.53	1.19	-0.18	0.055
65.00	-65.94	-7.15	0.00	-378.81	0.00	378.81	7,461.61	3,730.80	17,217.8	8,621.71	1.38	-0.20	0.053
70.00	-62.82	-6.91	0.00	-343.04	0.00	343.04	7,296.29	3,648.15	16,453.2	8,238.84	1.60	-0.21	0.050
75.00	-59.59	-6.62	0.00	-308.50	0.00	308.50	7,128.09	3,564.04	15,699.6	7,861.47	1.82	-0.22	0.048
80.00	-54.83	-6.43	0.00	-275.42	0.00	275.42	6,959.89	3,479.94	14,963.6	7,492.96	2.06	-0.23	0.045
82.00	-52.96	-6.31	0.00	-262.55	0.00	262.55	6,155.25	3,077.63	13,390.8	6,705.38	2.16	-0.24	0.048
85.00	-51.31	-6.12	0.00	-243.62	0.00	243.62	6,090.49	3,045.24	13,058.0	6,538.74	2.31	-0.24	0.046
90.00	-48.61	-5.88	0.00	-213.02	0.00	213.02	5,981.03	2,990.51	12,509.3	6,263.95	2.57	-0.26	0.042
95.00	-45.96	-5.65	0.00	-183.60	0.00	183.60	5,863.29	2,931.65	11,955.1	5,986.47	2.85	-0.27	0.039
100.00	-43.38	-5.42	0.00	-155.36	0.00	155.36	5,713.78	2,856.89	11,350.2	5,683.57	3.13	-0.28	0.035
105.00	-40.86	-5.19	0.00	-128.26	0.00	128.26	5,564.26	2,782.13	10,761.0	5,388.54	3.43	-0.29	0.031
110.00	-38.40	-4.97	0.00	-102.30	0.00	102.30	5,414.75	2,707.38	10,187.5	5,101.37	3.73	-0.29	0.027
115.00	-36.00	-4.75	0.00	-77.45	0.00	77.45	5,265.24	2,632.62	9,629.81	4,822.06	4.04	-0.30	0.023
120.00	-25.76	-3.42	0.00	-53.69	0.00	53.69	5,115.72	2,557.86	9,087.73	4,550.62	4.36	-0.30	0.017
125.00	-22.68	-3.29	0.00	-36.60	0.00	36.60	4,966.21	2,483.10	8,561.35	4,287.04	4.68	-0.31	0.013
125.50	-22.38	-3.19	0.00	-34.95	0.00	34.95	2,860.48	1,430.24	5,034.26	2,520.87	4.71	-0.31	0.022
130.00	-20.90	-3.05	0.00	-20.60	0.00	20.60	2,812.39	1,406.19	4,816.69	2,411.93	5.01	-0.31	0.016
132.00	-12.66	-1.63	0.00	-14.50	0.00	14.50	2,790.52	1,395.26	4,720.62	2,363.82	5.14	-0.31	0.011
135.00	-11.74	-1.48	0.00	-9.60	0.00	9.60	2,757.14	1,378.57	4,577.28	2,292.04	5.33	-0.31	0.008
140.00	-2.75	-0.29	0.00	-1.93	0.00	1.93	2,699.99	1,349.99	4,340.61	2,173.53	5.66	-0.31	0.002
145.00	-1.35	-0.10	0.00	-0.49	0.00	0.49	2,640.93	1,320.46	4,106.98	2,056.54	5.99	-0.31	0.001
150.00	0.00	-0.09	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	6.32	-0.32	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 16 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		125.5	0.0					0.0	0.0	125.5	0.0	0.0	0.0
5.00		245.0	2,156.7					0.0	0.0	245.0	2,156.7	0.0	0.0
10.00		233.2	2,118.2					0.0	0.0	233.2	2,118.2	0.0	0.0
15.00		222.2	2,079.7					0.0	179.1	222.2	2,258.8	0.0	0.0
20.00		212.0	2,041.2					0.0	179.1	212.0	2,220.3	0.0	0.0
25.00		202.4	2,002.6					0.0	179.1	202.4	2,181.8	0.0	0.0
30.00		195.6	1,964.1					0.0	179.1	195.6	2,143.3	0.0	0.0
35.00		135.4	1,925.6					0.0	179.1	135.4	2,104.7	0.0	0.0
37.00	Bot - Section 2	97.5	759.5					0.0	71.7	97.5	831.1	0.0	0.0
40.00		156.3	2,275.8					0.0	107.5	156.3	2,383.2	0.0	0.0
45.00	Top - Section 1	193.9	3,731.3					0.0	179.1	193.9	3,910.5	0.0	0.0
50.00		191.6	1,844.2					0.0	179.1	191.6	2,023.4	0.0	0.0
55.00		188.8	1,805.7					0.0	179.1	188.8	1,984.8	0.0	0.0
60.00		185.8	1,767.2					0.0	179.1	185.8	1,946.3	0.0	0.0
65.00		182.6	1,728.7					0.0	179.1	182.6	1,907.8	0.0	0.0
70.00		179.1	1,690.1					0.0	179.1	179.1	1,869.3	0.0	0.0
75.00	Bot - Section 3	177.2	1,651.6	35.4	0.0	0.0	110.0	0.0	179.1	212.6	1,940.8	0.0	0.0
80.00		123.4	3,075.7					0.0	178.4	123.4	3,254.1	0.0	0.0
82.00	Top - Section 2	86.7	1,209.9					0.0	71.4	86.7	1,281.2	0.0	0.0
85.00		136.5	852.9					0.0	107.0	136.5	959.9	0.0	0.0
90.00		167.6	1,394.1					0.0	178.4	167.6	1,572.5	0.0	0.0
95.00		163.8	1,359.8					0.0	178.4	163.8	1,538.2	0.0	0.0
100.00		160.0	1,325.6					0.0	178.4	160.0	1,504.0	0.0	0.0
105.00		156.1	1,291.4					0.0	178.4	156.1	1,469.8	0.0	0.0
110.00		152.2	1,257.1					0.0	178.4	152.2	1,435.5	0.0	0.0
115.00		148.3	1,222.9					0.0	178.4	148.3	1,401.3	0.0	0.0
120.00	Bot - Section 4	145.4	1,188.6	997.0	0.0	0.0	2,575.2	0.0	178.4	1,142.4	3,942.2	0.0	0.0
125.00		79.4	1,889.6					0.0	98.6	79.4	1,988.2	0.0	0.0
125.50	Top - Section 3	70.3	185.9					0.0	9.9	70.3	195.8	0.0	0.0
130.00		90.8	641.5					0.0	88.7	90.8	730.2	0.0	0.0
132.00	Appurtenance(s)	68.3	279.5	1,083.5	0.0	0.0	2,254.0	0.0	39.4	1,151.9	2,573.0	0.0	0.0
135.00		107.1	412.9					0.0	26.8	107.1	439.6	0.0	0.0
140.00	Appurtenance(s)	130.8	671.0	781.8	0.0	348.5	2,008.2	0.0	44.6	912.6	2,723.8	0.0	0.0
145.00		126.9	649.6					0.0	0.0	126.9	649.6	0.0	0.0
150.00		62.4	628.2					0.0	0.0	62.4	628.2	0.0	0.0
								Totals:		8,197.85	62,268.1	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 16 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-62.27	-8.08	0.00	-740.74	0.00	740.74	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.064
5.00	-60.11	-7.85	0.00	-700.35	0.00	700.35	8,742.64	4,371.32	25,275.7	12,656.6	0.01	-0.01	0.062
10.00	-57.99	-7.62	0.00	-661.12	0.00	661.12	8,637.00	4,318.50	24,516.7	12,276.6	0.03	-0.02	0.061
15.00	-55.73	-7.41	0.00	-622.99	0.00	622.99	8,529.45	4,264.73	23,763.6	11,899.4	0.06	-0.04	0.059
20.00	-53.51	-7.21	0.00	-585.93	0.00	585.93	8,420.00	4,210.00	23,016.4	11,525.3	0.10	-0.05	0.057
25.00	-51.32	-7.02	0.00	-549.87	0.00	549.87	8,308.65	4,154.32	22,275.7	11,154.4	0.16	-0.06	0.055
30.00	-49.18	-6.83	0.00	-514.79	0.00	514.79	8,195.38	4,097.69	21,541.7	10,786.8	0.23	-0.07	0.054
35.00	-47.07	-6.70	0.00	-480.64	0.00	480.64	8,080.21	4,040.11	20,814.7	10,422.8	0.32	-0.09	0.052
37.00	-46.24	-6.60	0.00	-467.25	0.00	467.25	8,033.62	4,016.81	20,525.9	10,278.2	0.35	-0.09	0.051
40.00	-43.86	-6.45	0.00	-447.44	0.00	447.44	7,963.14	3,981.57	20,094.9	10,062.4	0.41	-0.10	0.050
45.00	-39.95	-6.26	0.00	-415.18	0.00	415.18	7,949.81	3,974.91	20,014.2	10,021.9	0.52	-0.11	0.046
50.00	-37.92	-6.07	0.00	-383.89	0.00	383.89	7,830.62	3,915.31	19,302.9	9,665.81	0.64	-0.12	0.045
55.00	-35.94	-5.88	0.00	-353.54	0.00	353.54	7,709.52	3,854.76	18,599.5	9,313.61	0.77	-0.13	0.043
60.00	-33.99	-5.70	0.00	-324.12	0.00	324.12	7,586.52	3,793.26	17,904.4	8,965.53	0.92	-0.14	0.041
65.00	-32.08	-5.52	0.00	-295.63	0.00	295.63	7,461.61	3,730.80	17,217.8	8,621.71	1.07	-0.15	0.039
70.00	-30.21	-5.34	0.00	-268.04	0.00	268.04	7,296.29	3,648.15	16,453.2	8,238.84	1.24	-0.16	0.037
75.00	-28.27	-5.12	0.00	-241.35	0.00	241.35	7,128.09	3,564.04	15,699.6	7,861.47	1.41	-0.17	0.035
80.00	-25.02	-4.99	0.00	-215.73	0.00	215.73	6,959.89	3,479.94	14,963.6	7,492.96	1.60	-0.18	0.032
82.00	-23.74	-4.91	0.00	-205.74	0.00	205.74	6,155.25	3,077.63	13,390.8	6,705.38	1.67	-0.18	0.035
85.00	-22.78	-4.77	0.00	-191.02	0.00	191.02	6,090.49	3,045.24	13,058.0	6,538.74	1.79	-0.19	0.033
90.00	-21.20	-4.60	0.00	-167.18	0.00	167.18	5,981.03	2,990.51	12,509.3	6,263.95	1.99	-0.20	0.030
95.00	-19.66	-4.43	0.00	-144.19	0.00	144.19	5,863.29	2,931.65	11,955.1	5,986.47	2.21	-0.21	0.027
100.00	-18.16	-4.27	0.00	-122.03	0.00	122.03	5,713.78	2,856.89	11,350.2	5,683.57	2.43	-0.21	0.025
105.00	-16.69	-4.11	0.00	-100.68	0.00	100.68	5,564.26	2,782.13	10,761.0	5,388.54	2.66	-0.22	0.022
110.00	-15.26	-3.95	0.00	-80.14	0.00	80.14	5,414.75	2,707.38	10,187.5	5,101.37	2.89	-0.23	0.019
115.00	-13.86	-3.80	0.00	-60.37	0.00	60.37	5,265.24	2,632.62	9,629.81	4,822.06	3.14	-0.23	0.015
120.00	-9.92	-2.64	0.00	-41.37	0.00	41.37	5,115.72	2,557.86	9,087.73	4,550.62	3.38	-0.24	0.011
125.00	-7.93	-2.55	0.00	-28.16	0.00	28.16	4,966.21	2,483.10	8,561.35	4,287.04	3.63	-0.24	0.008
125.50	-7.73	-2.48	0.00	-26.88	0.00	26.88	2,860.48	1,430.24	5,034.26	2,520.87	3.66	-0.24	0.013
130.00	-7.00	-2.39	0.00	-15.70	0.00	15.70	2,812.39	1,406.19	4,816.69	2,411.93	3.89	-0.24	0.009
132.00	-4.44	-1.23	0.00	-10.92	0.00	10.92	2,790.52	1,395.26	4,720.62	2,363.82	3.99	-0.24	0.006
135.00	-4.00	-1.12	0.00	-7.24	0.00	7.24	2,757.14	1,378.57	4,577.28	2,292.04	4.14	-0.24	0.005
140.00	-1.28	-0.19	0.00	-1.30	0.00	1.30	2,699.99	1,349.99	4,340.61	2,173.53	4.40	-0.24	0.001
145.00	-0.63	-0.07	0.00	-0.33	0.00	0.33	2,640.93	1,320.46	4,106.98	2,056.54	4.65	-0.24	0.000
150.00	0.00	-0.06	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	4.91	-0.24	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.17	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.05	
Upper Limit C_s	0.05	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.25	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.38	
Total Unfactored Dead Load:	62.27	k
Seismic Base Shear (E):	3.18	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	147.50	628	605	0.026	81	777
33	142.50	650	597	0.025	80	803
32	137.50	716	626	0.026	84	885
31	133.50	440	369	0.016	50	544
30	131.00	319	261	0.011	35	394
29	127.75	730	577	0.024	78	903
28	125.25	196	151	0.006	20	242
27	122.50	1,988	1,483	0.063	199	2,458
26	117.50	1,367	963	0.041	129	1,690
25	112.50	1,401	930	0.039	125	1,732
24	107.50	1,436	895	0.038	120	1,775
23	102.50	1,470	858	0.036	115	1,817
22	97.50	1,504	820	0.035	110	1,859
21	92.50	1,538	780	0.033	105	1,902
20	87.50	1,572	738	0.031	99	1,944
19	83.50	960	423	0.018	57	1,187
18	81.00	1,281	541	0.023	73	1,584
17	77.50	3,254	1,293	0.055	174	4,023
16	72.50	1,831	664	0.028	89	2,263
15	67.50	1,869	614	0.026	82	2,311
14	62.50	1,908	564	0.024	76	2,359
13	57.50	1,946	513	0.022	69	2,406
12	52.50	1,985	462	0.019	62	2,454

11	47.50	2,023	410	0.017	55	2,501
10	42.50	3,910	680	0.029	91	4,834
9	38.50	2,383	362	0.015	49	2,946
8	36.00	831	115	0.005	15	1,027
7	32.50	2,105	253	0.011	34	2,602
6	27.50	2,143	205	0.009	27	2,650
5	22.50	2,182	158	0.007	21	2,697
4	17.50	2,220	114	0.005	15	2,745
3	12.50	2,259	73	0.003	10	2,793
2	7.50	2,118	34	0.001	5	2,619
1	2.50	2,157	8	0.000	1	2,666
Alcatel-Lucent RRH2x	140.00	317	285	0.012	38	392
Alcatel-Lucent 1900	140.00	180	161	0.007	22	223
Alcatel-Lucent TD-RR	140.00	210	188	0.008	25	260
RFS APXVTM14-ALU-I20	140.00	169	151	0.006	20	208
Commscope NNVV-65B-R	140.00	232	208	0.009	28	287
Round T-Arms w/ Site	140.00	900	807	0.034	108	1,113
RFS FD9R6004/2C-3L	132.00	16	13	0.001	2	19
Alcatel-Lucent B13 R	132.00	172	142	0.006	19	212
Alcatel-Lucent B66A	132.00	170	141	0.006	19	211
RFS APL868013-42T0	132.00	38	31	0.001	4	47
Commscope RC3DC-3315	132.00	64	53	0.002	7	79
Amphenol Antel BXA-7	132.00	51	42	0.002	6	63
Commscope SBNHH-1D65	132.00	244	201	0.008	27	301
Flat Low Profile Pla	132.00	1,500	1,240	0.052	167	1,854
Powerwave Allgon LGP	120.00	85	61	0.003	8	105
Raycap DC6-48-60-18-	120.00	20	15	0.001	2	25
Raycap DC6-48-60-18-	120.00	32	23	0.001	3	39
Ericsson RRUS 4415 B	120.00	138	100	0.004	13	171
Ericsson RRUS 4478 B	120.00	180	130	0.005	18	222
Ericsson RRUS-11 190	120.00	132	96	0.004	13	163
Powerwave Allgon 777	120.00	105	76	0.003	10	130
Andrew SBNHH-1D65A (	120.00	34	24	0.001	3	41
Andrew DBXNH-6565B-R	120.00	46	34	0.001	5	57
KMW AM-X-CD-17-65-00	120.00	60	43	0.002	6	74
KMW EPBQ-654L8H6-L2	120.00	73	53	0.002	7	90
KMW EPBQ-654L8H8-L2	120.00	172	125	0.005	17	213
Round Low Profile Pl	120.00	1,500	1,088	0.046	146	1,854
GPS	75.00	10	4	0.000	1	12
Stand-Off	75.00	100	38	0.002	5	124
		62,268	23,711	1.000	3,184	76,980

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	147.50	628	605	0.026	81	543
33	142.50	650	597	0.025	80	561
32	137.50	716	626	0.026	84	618
31	133.50	440	369	0.016	50	380
30	131.00	319	261	0.011	35	276
29	127.75	730	577	0.024	78	631
28	125.25	196	151	0.006	20	169
27	122.50	1,988	1,483	0.063	199	1,717
26	117.50	1,367	963	0.041	129	1,181
25	112.50	1,401	930	0.039	125	1,210
24	107.50	1,436	895	0.038	120	1,240
23	102.50	1,470	858	0.036	115	1,269
22	97.50	1,504	820	0.035	110	1,299
21	92.50	1,538	780	0.033	105	1,329

20	87.50	1,572	738	0.031	99	1,358
19	83.50	960	423	0.018	57	829
18	81.00	1,281	541	0.023	73	1,107
17	77.50	3,254	1,293	0.055	174	2,811
16	72.50	1,831	664	0.028	89	1,581
15	67.50	1,869	614	0.026	82	1,615
14	62.50	1,908	564	0.024	76	1,648
13	57.50	1,946	513	0.022	69	1,681
12	52.50	1,985	462	0.019	62	1,714
11	47.50	2,023	410	0.017	55	1,748
10	42.50	3,910	680	0.029	91	3,378
9	38.50	2,383	362	0.015	49	2,058
8	36.00	831	115	0.005	15	718
7	32.50	2,105	253	0.011	34	1,818
6	27.50	2,143	205	0.009	27	1,851
5	22.50	2,182	158	0.007	21	1,884
4	17.50	2,220	114	0.005	15	1,918
3	12.50	2,259	73	0.003	10	1,951
2	7.50	2,118	34	0.001	5	1,830
1	2.50	2,157	8	0.000	1	1,863
Alcatel-Lucent RRH2x	140.00	317	285	0.012	38	274
Alcatel-Lucent 1900	140.00	180	161	0.007	22	155
Alcatel-Lucent TD-RR	140.00	210	188	0.008	25	181
RFS APXVTM14-ALU-I20	140.00	169	151	0.006	20	146
Commscope NNVV-65B-R	140.00	232	208	0.009	28	201
Round T-Arms w/ Site	140.00	900	807	0.034	108	777
RFS FD9R6004/2C-3L	132.00	16	13	0.001	2	13
Alcatel-Lucent B13 R	132.00	172	142	0.006	19	148
Alcatel-Lucent B66A	132.00	170	141	0.006	19	147
RFS APL868013-42T0	132.00	38	31	0.001	4	33
Commscope RC3DC-3315	132.00	64	53	0.002	7	55
Amphenol Antel BXA-7	132.00	51	42	0.002	6	44
Commscope SBNHH-1D65	132.00	244	201	0.008	27	210
Flat Low Profile Pla	132.00	1,500	1,240	0.052	167	1,296
Powerwave Allgon LGP	120.00	85	61	0.003	8	73
Raycap DC6-48-60-18-	120.00	20	15	0.001	2	17
Raycap DC6-48-60-18-	120.00	32	23	0.001	3	27
Ericsson RRUS 4415 B	120.00	138	100	0.004	13	119
Ericsson RRUS 4478 B	120.00	180	130	0.005	18	155
Ericsson RRUS-11 190	120.00	132	96	0.004	13	114
Powerwave Allgon 777	120.00	105	76	0.003	10	91
Andrew SBNHH-1D65A (	120.00	34	24	0.001	3	29
Andrew DBXNH-6565B-R	120.00	46	34	0.001	5	40
KMW AM-X-CD-17-65-00	120.00	60	43	0.002	6	51
KMW EPBQ-654L8H6-L2	120.00	73	53	0.002	7	63
KMW EPBQ-654L8H8-L2	120.00	172	125	0.005	17	149
Round Low Profile Pl	120.00	1,500	1,088	0.046	146	1,296
GPS	75.00	10	4	0.000	1	9
Stand-Off	75.00	100	38	0.002	5	86
		62,268	23,711	1.000	3,184	53,783

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-74.31	-3.19	0.00	-321.77	0.00	321.77	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.033
5.00	-71.69	-3.19	0.00	-305.83	0.00	305.83	8,742.64	4,371.32	25,275.7	12,656.6	0.00	-0.01	0.032
10.00	-68.90	-3.18	0.00	-289.89	0.00	289.89	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.032
15.00	-66.16	-3.18	0.00	-273.97	0.00	273.97	8,529.45	4,264.73	23,763.6	11,899.4	0.03	-0.02	0.031
20.00	-63.46	-3.16	0.00	-258.09	0.00	258.09	8,420.00	4,210.00	23,016.4	11,525.3	0.05	-0.02	0.030
25.00	-60.81	-3.14	0.00	-242.30	0.00	242.30	8,308.65	4,154.32	22,275.7	11,154.4	0.07	-0.03	0.029
30.00	-58.21	-3.11	0.00	-226.62	0.00	226.62	8,195.38	4,097.69	21,541.7	10,786.8	0.10	-0.03	0.028
35.00	-57.18	-3.09	0.00	-211.09	0.00	211.09	8,080.21	4,040.11	20,814.7	10,422.8	0.14	-0.04	0.027
37.00	-54.23	-3.05	0.00	-204.90	0.00	204.90	8,033.62	4,016.81	20,525.9	10,278.2	0.16	-0.04	0.027
40.00	-49.40	-2.95	0.00	-195.77	0.00	195.77	7,963.14	3,981.57	20,094.9	10,062.4	0.18	-0.04	0.026
45.00	-46.90	-2.90	0.00	-181.00	0.00	181.00	7,949.81	3,974.91	20,014.2	10,021.9	0.23	-0.05	0.024
50.00	-44.44	-2.84	0.00	-166.49	0.00	166.49	7,830.62	3,915.31	19,302.9	9,665.81	0.28	-0.05	0.023
55.00	-42.04	-2.77	0.00	-152.28	0.00	152.28	7,709.52	3,854.76	18,599.5	9,313.61	0.34	-0.06	0.022
60.00	-39.68	-2.70	0.00	-138.42	0.00	138.42	7,586.52	3,793.26	17,904.4	8,965.53	0.40	-0.06	0.021
65.00	-37.37	-2.62	0.00	-124.93	0.00	124.93	7,461.61	3,730.80	17,217.8	8,621.71	0.47	-0.07	0.019
70.00	-35.10	-2.53	0.00	-111.85	0.00	111.85	7,296.29	3,648.15	16,453.2	8,238.84	0.54	-0.07	0.018
75.00	-30.94	-2.34	0.00	-99.22	0.00	99.22	7,128.09	3,564.04	15,699.6	7,861.47	0.62	-0.07	0.017
80.00	-29.36	-2.27	0.00	-87.50	0.00	87.50	6,959.89	3,479.94	14,963.6	7,492.96	0.70	-0.08	0.016
82.00	-28.17	-2.21	0.00	-82.96	0.00	82.96	6,155.25	3,077.63	13,390.8	6,705.38	0.73	-0.08	0.017
85.00	-26.23	-2.11	0.00	-76.32	0.00	76.32	6,090.49	3,045.24	13,058.0	6,538.74	0.78	-0.08	0.016
90.00	-24.33	-2.01	0.00	-65.76	0.00	65.76	5,981.03	2,990.51	12,509.3	6,263.95	0.87	-0.09	0.015
95.00	-22.47	-1.89	0.00	-55.73	0.00	55.73	5,863.29	2,931.65	11,955.1	5,986.47	0.96	-0.09	0.013
100.00	-20.65	-1.78	0.00	-46.25	0.00	46.25	5,713.78	2,856.89	11,350.2	5,683.57	1.06	-0.09	0.012
105.00	-18.88	-1.66	0.00	-37.37	0.00	37.37	5,564.26	2,782.13	10,761.0	5,388.54	1.15	-0.09	0.010
110.00	-17.15	-1.53	0.00	-29.09	0.00	29.09	5,414.75	2,707.38	10,187.5	5,101.37	1.25	-0.10	0.009
115.00	-15.46	-1.40	0.00	-21.45	0.00	21.45	5,265.24	2,632.62	9,629.81	4,822.06	1.36	-0.10	0.007
120.00	-9.81	-0.94	0.00	-14.47	0.00	14.47	5,115.72	2,557.86	9,087.73	4,550.62	1.46	-0.10	0.005
125.00	-9.57	-0.92	0.00	-9.78	0.00	9.78	4,966.21	2,483.10	8,561.35	4,287.04	1.56	-0.10	0.004
125.50	-8.67	-0.84	0.00	-9.32	0.00	9.32	2,860.48	1,430.24	5,034.26	2,520.87	1.57	-0.10	0.007
130.00	-8.28	-0.80	0.00	-5.56	0.00	5.56	2,812.39	1,406.19	4,816.69	2,411.93	1.67	-0.10	0.005
132.00	-4.95	-0.50	0.00	-3.95	0.00	3.95	2,790.52	1,395.26	4,720.62	2,363.82	1.71	-0.10	0.003
135.00	-4.06	-0.41	0.00	-2.46	0.00	2.46	2,757.14	1,378.57	4,577.28	2,292.04	1.78	-0.10	0.003
140.00	-0.78	-0.08	0.00	-0.41	0.00	0.41	2,699.99	1,349.99	4,340.61	2,173.53	1.88	-0.10	0.000
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.99	-0.10	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	2.10	-0.10	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.92	-3.19	0.00	-320.47	0.00	320.47	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.030
5.00	-50.09	-3.19	0.00	-304.54	0.00	304.54	8,742.64	4,371.32	25,275.7	12,656.6	0.00	-0.01	0.030
10.00	-48.14	-3.18	0.00	-288.62	0.00	288.62	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.029
15.00	-46.22	-3.17	0.00	-272.72	0.00	272.72	8,529.45	4,264.73	23,763.6	11,899.4	0.03	-0.02	0.028
20.00	-44.34	-3.15	0.00	-256.88	0.00	256.88	8,420.00	4,210.00	23,016.4	11,525.3	0.05	-0.02	0.028
25.00	-42.48	-3.13	0.00	-241.12	0.00	241.12	8,308.65	4,154.32	22,275.7	11,154.4	0.07	-0.03	0.027
30.00	-40.67	-3.10	0.00	-225.49	0.00	225.49	8,195.38	4,097.69	21,541.7	10,786.8	0.10	-0.03	0.026
35.00	-39.95	-3.08	0.00	-210.02	0.00	210.02	8,080.21	4,040.11	20,814.7	10,422.8	0.14	-0.04	0.025
37.00	-37.89	-3.03	0.00	-203.85	0.00	203.85	8,033.62	4,016.81	20,525.9	10,278.2	0.15	-0.04	0.025
40.00	-34.51	-2.94	0.00	-194.75	0.00	194.75	7,963.14	3,981.57	20,094.9	10,062.4	0.18	-0.04	0.024
45.00	-32.76	-2.89	0.00	-180.04	0.00	180.04	7,949.81	3,974.91	20,014.2	10,021.9	0.23	-0.05	0.022
50.00	-31.05	-2.83	0.00	-165.60	0.00	165.60	7,830.62	3,915.31	19,302.9	9,665.81	0.28	-0.05	0.021
55.00	-29.37	-2.76	0.00	-151.46	0.00	151.46	7,709.52	3,854.76	18,599.5	9,313.61	0.34	-0.06	0.020
60.00	-27.72	-2.68	0.00	-137.66	0.00	137.66	7,586.52	3,793.26	17,904.4	8,965.53	0.40	-0.06	0.019
65.00	-26.11	-2.60	0.00	-124.24	0.00	124.24	7,461.61	3,730.80	17,217.8	8,621.71	0.47	-0.07	0.018
70.00	-24.52	-2.51	0.00	-111.23	0.00	111.23	7,296.29	3,648.15	16,453.2	8,238.84	0.54	-0.07	0.017
75.00	-21.62	-2.33	0.00	-98.66	0.00	98.66	7,128.09	3,564.04	15,699.6	7,861.47	0.61	-0.07	0.016
80.00	-20.51	-2.26	0.00	-87.01	0.00	87.01	6,959.89	3,479.94	14,963.6	7,492.96	0.69	-0.08	0.015
82.00	-19.68	-2.20	0.00	-82.49	0.00	82.49	6,155.25	3,077.63	13,390.8	6,705.38	0.73	-0.08	0.016
85.00	-18.32	-2.10	0.00	-75.89	0.00	75.89	6,090.49	3,045.24	13,058.0	6,538.74	0.78	-0.08	0.015
90.00	-17.00	-2.00	0.00	-65.38	0.00	65.38	5,981.03	2,990.51	12,509.3	6,263.95	0.87	-0.09	0.013
95.00	-15.70	-1.88	0.00	-55.41	0.00	55.41	5,863.29	2,931.65	11,955.1	5,986.47	0.96	-0.09	0.012
100.00	-14.43	-1.77	0.00	-45.99	0.00	45.99	5,713.78	2,856.89	11,350.2	5,683.57	1.05	-0.09	0.011
105.00	-13.19	-1.65	0.00	-37.15	0.00	37.15	5,564.26	2,782.13	10,761.0	5,388.54	1.15	-0.09	0.009
110.00	-11.98	-1.52	0.00	-28.92	0.00	28.92	5,414.75	2,707.38	10,187.5	5,101.37	1.25	-0.10	0.008
115.00	-10.80	-1.39	0.00	-21.33	0.00	21.33	5,265.24	2,632.62	9,629.81	4,822.06	1.35	-0.10	0.006
120.00	-6.86	-0.93	0.00	-14.39	0.00	14.39	5,115.72	2,557.86	9,087.73	4,550.62	1.45	-0.10	0.005
125.00	-6.69	-0.91	0.00	-9.73	0.00	9.73	4,966.21	2,483.10	8,561.35	4,287.04	1.56	-0.10	0.004
125.50	-6.06	-0.83	0.00	-9.27	0.00	9.27	2,860.48	1,430.24	5,034.26	2,520.87	1.57	-0.10	0.006
130.00	-5.78	-0.80	0.00	-5.53	0.00	5.53	2,812.39	1,406.19	4,816.69	2,411.93	1.66	-0.10	0.004
132.00	-3.46	-0.49	0.00	-3.93	0.00	3.93	2,790.52	1,395.26	4,720.62	2,363.82	1.70	-0.10	0.003
135.00	-2.84	-0.41	0.00	-2.45	0.00	2.45	2,757.14	1,378.57	4,577.28	2,292.04	1.77	-0.10	0.002
140.00	-0.54	-0.08	0.00	-0.41	0.00	0.41	2,699.99	1,349.99	4,340.61	2,173.53	1.87	-0.10	0.000
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.98	-0.10	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	2.09	-0.10	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.25
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	147.50	628	1.828	1.667	1.025	0.329	138	777
33	142.50	650	1.706	1.144	0.823	0.263	114	803
32	137.50	716	1.588	0.742	0.654	0.204	97	885
31	133.50	440	1.497	0.494	0.539	0.163	48	544
30	131.00	319	1.442	0.367	0.476	0.140	30	394
29	127.75	730	1.371	0.231	0.402	0.113	55	903
28	125.25	196	1.318	0.146	0.352	0.095	12	242
27	122.50	1,988	1.261	0.069	0.302	0.077	102	2,458
26	117.50	1,367	1.160	-0.030	0.226	0.051	46	1,690
25	112.50	1,401	1.063	-0.088	0.165	0.031	29	1,732
24	107.50	1,436	0.971	-0.116	0.117	0.019	18	1,775
23	102.50	1,470	0.883	-0.121	0.081	0.013	13	1,817
22	97.50	1,504	0.799	-0.112	0.053	0.012	12	1,859
21	92.50	1,538	0.719	-0.092	0.034	0.014	15	1,902
20	87.50	1,572	0.643	-0.068	0.020	0.019	20	1,944
19	83.50	960	0.586	-0.048	0.013	0.024	15	1,187
18	81.00	1,281	0.551	-0.035	0.010	0.027	23	1,584
17	77.50	3,254	0.505	-0.018	0.007	0.030	66	4,023
16	72.50	1,831	0.442	0.005	0.006	0.035	43	2,263
15	67.50	1,869	0.383	0.023	0.007	0.039	48	2,311
14	62.50	1,908	0.328	0.039	0.010	0.041	52	2,359
13	57.50	1,946	0.278	0.050	0.014	0.041	53	2,406
12	52.50	1,985	0.232	0.058	0.019	0.041	54	2,454
11	47.50	2,023	0.190	0.064	0.025	0.039	53	2,501
10	42.50	3,910	0.152	0.068	0.030	0.038	98	4,834
9	38.50	2,383	0.125	0.070	0.034	0.036	57	2,946
8	36.00	831	0.109	0.071	0.036	0.035	20	1,027
7	32.50	2,105	0.089	0.071	0.039	0.034	48	2,602
6	27.50	2,143	0.064	0.072	0.041	0.032	46	2,650
5	22.50	2,182	0.043	0.070	0.042	0.030	44	2,697
4	17.50	2,220	0.026	0.067	0.040	0.028	41	2,745
3	12.50	2,259	0.013	0.059	0.034	0.024	36	2,793
2	7.50	2,118	0.005	0.044	0.025	0.018	25	2,619
1	2.50	2,157	0.001	0.018	0.010	0.008	11	2,666

Alcatel-Lucent RRH2x	140.00	317	1.646	0.929	0.735	0.232	49	392
Alcatel-Lucent 1900	140.00	180	1.646	0.929	0.735	0.232	28	223
Alcatel-Lucent TD-RR	140.00	210	1.646	0.929	0.735	0.232	33	260
RFS APXVTM14-ALU-I20	140.00	169	1.646	0.929	0.735	0.232	26	208
Commscope NNVV-	140.00	232	1.646	0.929	0.735	0.232	36	287
Round T-Arms w/ Site	140.00	900	1.646	0.929	0.735	0.232	139	1,113
RFS FD9R6004/2C-3L	132.00	16	1.464	0.415	0.501	0.149	2	19
Alcatel-Lucent B13 R	132.00	172	1.464	0.415	0.501	0.149	17	212
Alcatel-Lucent B66A	132.00	170	1.464	0.415	0.501	0.149	17	211
RFS APL868013-42T0	132.00	38	1.464	0.415	0.501	0.149	4	47
Commscope RC3DC-	132.00	64	1.464	0.415	0.501	0.149	6	79
Amphenol Antel BXA-7	132.00	51	1.464	0.415	0.501	0.149	5	63
Commscope SBNHH-	132.00	244	1.464	0.415	0.501	0.149	24	301
Flat Low Profile Pla	132.00	1,500	1.464	0.415	0.501	0.149	149	1,854
Powerwave Allgon LGP	120.00	85	1.210	0.014	0.262	0.063	4	105
Raycap DC6-48-60-18-	120.00	20	1.210	0.014	0.262	0.063	1	25
Raycap DC6-48-60-18-	120.00	32	1.210	0.014	0.262	0.063	1	39
Ericsson RRUS 4415 B	120.00	138	1.210	0.014	0.262	0.063	6	171
Ericsson RRUS 4478 B	120.00	180	1.210	0.014	0.262	0.063	8	222
Ericsson RRUS-11 190	120.00	132	1.210	0.014	0.262	0.063	6	163
Powerwave Allgon 777	120.00	105	1.210	0.014	0.262	0.063	4	130
Andrew SBNHH-1D65A (	120.00	34	1.210	0.014	0.262	0.063	1	41
Andrew DBXNH-6565B-R	120.00	46	1.210	0.014	0.262	0.063	2	57
KMW AM-X-CD-17-65-00	120.00	60	1.210	0.014	0.262	0.063	2	74
KMW EPBQ-654L8H6-L2	120.00	73	1.210	0.014	0.262	0.063	3	90
KMW EPBQ-654L8H8-L2	120.00	172	1.210	0.014	0.262	0.063	7	213
Round Low Profile Pl	120.00	1,500	1.210	0.014	0.262	0.063	63	1,854
GPS	75.00	10	0.472	-0.006	0.006	0.033	0	12
Stand-Off	75.00	100	0.472	-0.006	0.006	0.033	2	124
		62,268	60.619	14.048	17.544	5.611	2,227	76,980

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	147.50	628	1.828	1.667	1.025	0.329	138	543
33	142.50	650	1.706	1.144	0.823	0.263	114	561
32	137.50	716	1.588	0.742	0.654	0.204	97	618
31	133.50	440	1.497	0.494	0.539	0.163	48	380
30	131.00	319	1.442	0.367	0.476	0.140	30	276
29	127.75	730	1.371	0.231	0.402	0.113	55	631
28	125.25	196	1.318	0.146	0.352	0.095	12	169
27	122.50	1,988	1.261	0.069	0.302	0.077	102	1,717
26	117.50	1,367	1.160	-0.030	0.226	0.051	46	1,181
25	112.50	1,401	1.063	-0.088	0.165	0.031	29	1,210
24	107.50	1,436	0.971	-0.116	0.117	0.019	18	1,240
23	102.50	1,470	0.883	-0.121	0.081	0.013	13	1,269
22	97.50	1,504	0.799	-0.112	0.053	0.012	12	1,299
21	92.50	1,538	0.719	-0.092	0.034	0.014	15	1,329
20	87.50	1,572	0.643	-0.068	0.020	0.019	20	1,358
19	83.50	960	0.586	-0.048	0.013	0.024	15	829
18	81.00	1,281	0.551	-0.035	0.010	0.027	23	1,107
17	77.50	3,254	0.505	-0.018	0.007	0.030	66	2,811
16	72.50	1,831	0.442	0.005	0.006	0.035	43	1,581
15	67.50	1,869	0.383	0.023	0.007	0.039	48	1,615
14	62.50	1,908	0.328	0.039	0.010	0.041	52	1,648
13	57.50	1,946	0.278	0.050	0.014	0.041	53	1,681
12	52.50	1,985	0.232	0.058	0.019	0.041	54	1,714
11	47.50	2,023	0.190	0.064	0.025	0.039	53	1,748

10	42.50	3,910	0.152	0.068	0.030	0.038	98	3,378
9	38.50	2,383	0.125	0.070	0.034	0.036	57	2,058
8	36.00	831	0.109	0.071	0.036	0.035	20	718
7	32.50	2,105	0.089	0.071	0.039	0.034	48	1,818
6	27.50	2,143	0.064	0.072	0.041	0.032	46	1,851
5	22.50	2,182	0.043	0.070	0.042	0.030	44	1,884
4	17.50	2,220	0.026	0.067	0.040	0.028	41	1,918
3	12.50	2,259	0.013	0.059	0.034	0.024	36	1,951
2	7.50	2,118	0.005	0.044	0.025	0.018	25	1,830
1	2.50	2,157	0.001	0.018	0.010	0.008	11	1,863
Alcatel-Lucent RRH2x	140.00	317	1.646	0.929	0.735	0.232	49	274
Alcatel-Lucent 1900	140.00	180	1.646	0.929	0.735	0.232	28	155
Alcatel-Lucent TD-RR	140.00	210	1.646	0.929	0.735	0.232	33	181
RFS APXVTM14-ALU-I20	140.00	169	1.646	0.929	0.735	0.232	26	146
Commscope NNVV-	140.00	232	1.646	0.929	0.735	0.232	36	201
Round T-Arms w/ Site	140.00	900	1.646	0.929	0.735	0.232	139	777
RFS FD9R6004/2C-3L	132.00	16	1.464	0.415	0.501	0.149	2	13
Alcatel-Lucent B13 R	132.00	172	1.464	0.415	0.501	0.149	17	148
Alcatel-Lucent B66A	132.00	170	1.464	0.415	0.501	0.149	17	147
RFS APL868013-42T0	132.00	38	1.464	0.415	0.501	0.149	4	33
Commscope RC3DC-	132.00	64	1.464	0.415	0.501	0.149	6	55
Amphenol Antel BXA-7	132.00	51	1.464	0.415	0.501	0.149	5	44
Commscope SBNHH-	132.00	244	1.464	0.415	0.501	0.149	24	210
Flat Low Profile Pla	132.00	1,500	1.464	0.415	0.501	0.149	149	1,296
Powerwave Allgon LGP	120.00	85	1.210	0.014	0.262	0.063	4	73
Raycap DC6-48-60-18-	120.00	20	1.210	0.014	0.262	0.063	1	17
Raycap DC6-48-60-18-	120.00	32	1.210	0.014	0.262	0.063	1	27
Ericsson RRUS 4415 B	120.00	138	1.210	0.014	0.262	0.063	6	119
Ericsson RRUS 4478 B	120.00	180	1.210	0.014	0.262	0.063	8	155
Ericsson RRUS-11 190	120.00	132	1.210	0.014	0.262	0.063	6	114
Powerwave Allgon 777	120.00	105	1.210	0.014	0.262	0.063	4	91
Andrew SBNHH-1D65A (	120.00	34	1.210	0.014	0.262	0.063	1	29
Andrew DBXNH-6565B-R	120.00	46	1.210	0.014	0.262	0.063	2	40
KMW AM-X-CD-17-65-00	120.00	60	1.210	0.014	0.262	0.063	2	51
KMW EPBQ-654L8H6-L2	120.00	73	1.210	0.014	0.262	0.063	3	63
KMW EPBQ-654L8H8-L2	120.00	172	1.210	0.014	0.262	0.063	7	149
Round Low Profile Pl	120.00	1,500	1.210	0.014	0.262	0.063	63	1,296
GPS	75.00	10	0.472	-0.006	0.006	0.033	0	9
Stand-Off	75.00	100	0.472	-0.006	0.006	0.033	2	86
		62,268	60.619	14.048	17.544	5.611	2,227	53,783

Load Case **(1.2 + 0.2Sds) * DL + E EMAM** **Seismic Equivalent Modal Analysis Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-74.31	-2.22	0.00	-221.62	0.00	221.62	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.025
5.00	-71.69	-2.20	0.00	-210.53	0.00	210.53	8,742.64	4,371.32	25,275.7	12,656.6	0.00	0.00	0.025
10.00	-68.90	-2.17	0.00	-199.54	0.00	199.54	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.024
15.00	-66.16	-2.13	0.00	-188.71	0.00	188.71	8,529.45	4,264.73	23,763.6	11,899.4	0.02	-0.01	0.024
20.00	-63.46	-2.09	0.00	-178.07	0.00	178.07	8,420.00	4,210.00	23,016.4	11,525.3	0.03	-0.01	0.023
25.00	-60.81	-2.05	0.00	-167.63	0.00	167.63	8,308.65	4,154.32	22,275.7	11,154.4	0.05	-0.02	0.022
30.00	-58.21	-2.00	0.00	-157.40	0.00	157.40	8,195.38	4,097.69	21,541.7	10,786.8	0.07	-0.02	0.022
35.00	-57.18	-1.98	0.00	-147.39	0.00	147.39	8,080.21	4,040.11	20,814.7	10,422.8	0.10	-0.03	0.021
37.00	-54.23	-1.93	0.00	-143.43	0.00	143.43	8,033.62	4,016.81	20,525.9	10,278.2	0.11	-0.03	0.021
40.00	-49.40	-1.83	0.00	-137.65	0.00	137.65	7,963.14	3,981.57	20,094.9	10,062.4	0.12	-0.03	0.020
45.00	-46.90	-1.78	0.00	-128.51	0.00	128.51	7,949.81	3,974.91	20,014.2	10,021.9	0.16	-0.03	0.019
50.00	-44.44	-1.72	0.00	-119.63	0.00	119.63	7,830.62	3,915.31	19,302.9	9,665.81	0.19	-0.04	0.018
55.00	-42.04	-1.67	0.00	-111.01	0.00	111.01	7,709.52	3,854.76	18,599.5	9,313.61	0.23	-0.04	0.017
60.00	-39.68	-1.62	0.00	-102.65	0.00	102.65	7,586.52	3,793.26	17,904.4	8,965.53	0.28	-0.04	0.017
65.00	-37.37	-1.57	0.00	-94.55	0.00	94.55	7,461.61	3,730.80	17,217.8	8,621.71	0.33	-0.05	0.016
70.00	-35.11	-1.53	0.00	-86.68	0.00	86.68	7,296.29	3,648.15	16,453.2	8,238.84	0.38	-0.05	0.015
75.00	-30.95	-1.46	0.00	-79.04	0.00	79.04	7,128.09	3,564.04	15,699.6	7,861.47	0.43	-0.05	0.014
80.00	-29.36	-1.44	0.00	-71.74	0.00	71.74	6,959.89	3,479.94	14,963.6	7,492.96	0.49	-0.06	0.014
82.00	-28.18	-1.42	0.00	-68.87	0.00	68.87	6,155.25	3,077.63	13,390.8	6,705.38	0.51	-0.06	0.015
85.00	-26.23	-1.40	0.00	-64.61	0.00	64.61	6,090.49	3,045.24	13,058.0	6,538.74	0.55	-0.06	0.014
90.00	-24.33	-1.38	0.00	-57.61	0.00	57.61	5,981.03	2,990.51	12,509.3	6,263.95	0.61	-0.06	0.013
95.00	-22.47	-1.37	0.00	-50.69	0.00	50.69	5,863.29	2,931.65	11,955.1	5,986.47	0.68	-0.07	0.012
100.00	-20.65	-1.36	0.00	-43.83	0.00	43.83	5,713.78	2,856.89	11,350.2	5,683.57	0.75	-0.07	0.011
105.00	-18.88	-1.34	0.00	-37.04	0.00	37.04	5,564.26	2,782.13	10,761.0	5,388.54	0.82	-0.07	0.010
110.00	-17.15	-1.31	0.00	-30.35	0.00	30.35	5,414.75	2,707.38	10,187.5	5,101.37	0.90	-0.07	0.009
115.00	-15.46	-1.26	0.00	-23.82	0.00	23.82	5,265.24	2,632.62	9,629.81	4,822.06	0.97	-0.07	0.008
120.00	-9.81	-1.04	0.00	-17.52	0.00	17.52	5,115.72	2,557.86	9,087.73	4,550.62	1.05	-0.08	0.006
125.00	-9.57	-1.03	0.00	-12.31	0.00	12.31	4,966.21	2,483.10	8,561.35	4,287.04	1.13	-0.08	0.005
125.50	-8.67	-0.97	0.00	-11.80	0.00	11.80	2,860.48	1,430.24	5,034.26	2,520.87	1.14	-0.08	0.008
130.00	-8.28	-0.94	0.00	-7.42	0.00	7.42	2,812.39	1,406.19	4,816.69	2,411.93	1.21	-0.08	0.006
132.00	-4.95	-0.67	0.00	-5.53	0.00	5.53	2,790.52	1,395.26	4,720.62	2,363.82	1.25	-0.08	0.004
135.00	-4.06	-0.57	0.00	-3.54	0.00	3.54	2,757.14	1,378.57	4,577.28	2,292.04	1.30	-0.08	0.003
140.00	-0.78	-0.14	0.00	-0.69	0.00	0.69	2,699.99	1,349.99	4,340.61	2,173.53	1.38	-0.08	0.001
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.46	-0.08	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	1.55	-0.08	0.000

Load Case **(0.9 - 0.2Sds) * DL + E EMAM** **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Calculated Forces

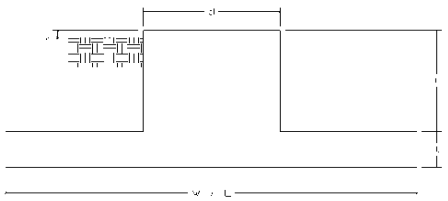
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.92	-2.22	0.00	-220.69	0.00	220.69	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.023
5.00	-50.09	-2.20	0.00	-209.60	0.00	209.60	8,742.64	4,371.32	25,275.7	12,656.6	0.00	0.00	0.022
10.00	-48.14	-2.16	0.00	-198.63	0.00	198.63	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.022
15.00	-46.22	-2.12	0.00	-187.81	0.00	187.81	8,529.45	4,264.73	23,763.6	11,899.4	0.02	-0.01	0.021
20.00	-44.34	-2.08	0.00	-177.19	0.00	177.19	8,420.00	4,210.00	23,016.4	11,525.3	0.03	-0.01	0.021
25.00	-42.49	-2.04	0.00	-166.78	0.00	166.78	8,308.65	4,154.32	22,275.7	11,154.4	0.05	-0.02	0.020
30.00	-40.67	-1.99	0.00	-156.59	0.00	156.59	8,195.38	4,097.69	21,541.7	10,786.8	0.07	-0.02	0.019
35.00	-39.95	-1.98	0.00	-146.62	0.00	146.62	8,080.21	4,040.11	20,814.7	10,422.8	0.10	-0.03	0.019
37.00	-37.89	-1.92	0.00	-142.67	0.00	142.67	8,033.62	4,016.81	20,525.9	10,278.2	0.11	-0.03	0.019
40.00	-34.51	-1.82	0.00	-136.92	0.00	136.92	7,963.14	3,981.57	20,094.9	10,062.4	0.12	-0.03	0.018
45.00	-32.77	-1.77	0.00	-127.82	0.00	127.82	7,949.81	3,974.91	20,014.2	10,021.9	0.16	-0.03	0.017
50.00	-31.05	-1.71	0.00	-118.98	0.00	118.98	7,830.62	3,915.31	19,302.9	9,665.81	0.19	-0.04	0.016
55.00	-29.37	-1.66	0.00	-110.40	0.00	110.40	7,709.52	3,854.76	18,599.5	9,313.61	0.23	-0.04	0.016
60.00	-27.72	-1.61	0.00	-102.09	0.00	102.09	7,586.52	3,793.26	17,904.4	8,965.53	0.28	-0.04	0.015
65.00	-26.11	-1.56	0.00	-94.04	0.00	94.04	7,461.61	3,730.80	17,217.8	8,621.71	0.32	-0.05	0.014
70.00	-24.53	-1.52	0.00	-86.22	0.00	86.22	7,296.29	3,648.15	16,453.2	8,238.84	0.37	-0.05	0.014
75.00	-21.62	-1.45	0.00	-78.62	0.00	78.62	7,128.09	3,564.04	15,699.6	7,861.47	0.43	-0.05	0.013
80.00	-20.51	-1.43	0.00	-71.37	0.00	71.37	6,959.89	3,479.94	14,963.6	7,492.96	0.49	-0.06	0.012
82.00	-19.68	-1.41	0.00	-68.52	0.00	68.52	6,155.25	3,077.63	13,390.8	6,705.38	0.51	-0.06	0.013
85.00	-18.33	-1.39	0.00	-64.28	0.00	64.28	6,090.49	3,045.24	13,058.0	6,538.74	0.55	-0.06	0.013
90.00	-17.00	-1.38	0.00	-57.33	0.00	57.33	5,981.03	2,990.51	12,509.3	6,263.95	0.61	-0.06	0.012
95.00	-15.70	-1.36	0.00	-50.45	0.00	50.45	5,863.29	2,931.65	11,955.1	5,986.47	0.68	-0.06	0.011
100.00	-14.43	-1.35	0.00	-43.63	0.00	43.63	5,713.78	2,856.89	11,350.2	5,683.57	0.74	-0.07	0.010
105.00	-13.19	-1.33	0.00	-36.88	0.00	36.88	5,564.26	2,782.13	10,761.0	5,388.54	0.82	-0.07	0.009
110.00	-11.98	-1.30	0.00	-30.23	0.00	30.23	5,414.75	2,707.38	10,187.5	5,101.37	0.89	-0.07	0.008
115.00	-10.80	-1.25	0.00	-23.72	0.00	23.72	5,265.24	2,632.62	9,629.81	4,822.06	0.97	-0.07	0.007
120.00	-6.86	-1.04	0.00	-17.46	0.00	17.46	5,115.72	2,557.86	9,087.73	4,550.62	1.05	-0.08	0.005
125.00	-6.69	-1.03	0.00	-12.27	0.00	12.27	4,966.21	2,483.10	8,561.35	4,287.04	1.13	-0.08	0.004
125.50	-6.06	-0.97	0.00	-11.76	0.00	11.76	2,860.48	1,430.24	5,034.26	2,520.87	1.13	-0.08	0.007
130.00	-5.78	-0.94	0.00	-7.40	0.00	7.40	2,812.39	1,406.19	4,816.69	2,411.93	1.21	-0.08	0.005
132.00	-3.46	-0.66	0.00	-5.52	0.00	5.52	2,790.52	1,395.26	4,720.62	2,363.82	1.24	-0.08	0.004
135.00	-2.84	-0.57	0.00	-3.52	0.00	3.52	2,757.14	1,378.57	4,577.28	2,292.04	1.29	-0.08	0.003
140.00	-0.54	-0.14	0.00	-0.69	0.00	0.69	2,699.99	1,349.99	4,340.61	2,173.53	1.37	-0.08	0.001
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.46	-0.08	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	1.54	-0.08	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	36.64	0.00	74.70	0.00	0.00	3366.44	0.00	0.27
0.9D + 1.6W	36.63	0.00	56.02	0.00	0.00	3354.60	0.00	0.26
1.2D + 1.0Di + 1.0Wi	10.57	0.00	114.49	0.00	0.00	960.13	0.00	0.09
(1.2 + 0.2Sds) * DL + E ELFM	3.19	0.00	74.31	0.00	0.00	321.77	0.00	0.03
(1.2 + 0.2Sds) * DL + E EMAM	2.22	0.00	74.31	0.00	0.00	221.62	0.00	0.03
(0.9 - 0.2Sds) * DL + E ELFM	3.19	0.00	51.92	0.00	0.00	320.47	0.00	0.03
(0.9 - 0.2Sds) * DL + E EMAM	2.22	0.00	51.92	0.00	0.00	220.69	0.00	0.02
1.0D + 1.0W	8.08	0.00	62.27	0.00	0.00	740.74	0.00	0.06

Site Name:	East Haddam, CT
Site Number:	302527
Engineering Number:	OAA738059
Engineer:	Christiana.Lancaster
Date:	08/21/18
Tower Type:	MP

Program Last Updated: *5/13/2014*



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	74.7	k	Concrete Strength (f'_c):	3000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	44.00	in
Total Shear:	36.6	k	ϕ_{Shear}:	0.75	
Moment:	3366.4	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	74.7	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	4.00	ft	β:	0.85	
Diameter of Pier (d):	6.75	ft	Bottom Pad Rebar Size #:	10	
Height of Pier above Ground (h):	0.00		# of Bottom Pad Rebar:	47	
Width of Pad (W):	35.00	ft	Pad Bottom Steel Area:	59.69	in^2
Length of Pad (L):	35.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	4.00	ft	Top Pad Rebar Size #:	10	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	47	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	59.69	in^2
Tower Center from Mat Center:	0.00	ft			
Depth Below Ground Surface to Water Table:	4.00	ft			
Unit Weight of Concrete:	150.0	pcf			
Unit Weight of Soil Above Water Table:	125.0	pcf			
Unit Weight of Water:	62.4	pcf			
Unit Weight of Soil Below Water Table:	62.6	pcf			
Friction Angle of Uplift:	15.0	Degrees			
Ultimate Coefficient of Shear Friction:	0.20				
Ultimate Compressive Bearing Pressure:	12000.0	psf			
Ultimate Passive Pressure on Pad Face:	0.0	psf			
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9				
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	3513.0	k-ft
OTM Resistance:	12855.1	k-ft
Design OTM / OTM Resistance:	0.27	Result: OK

Soil Bearing Pressure Usage

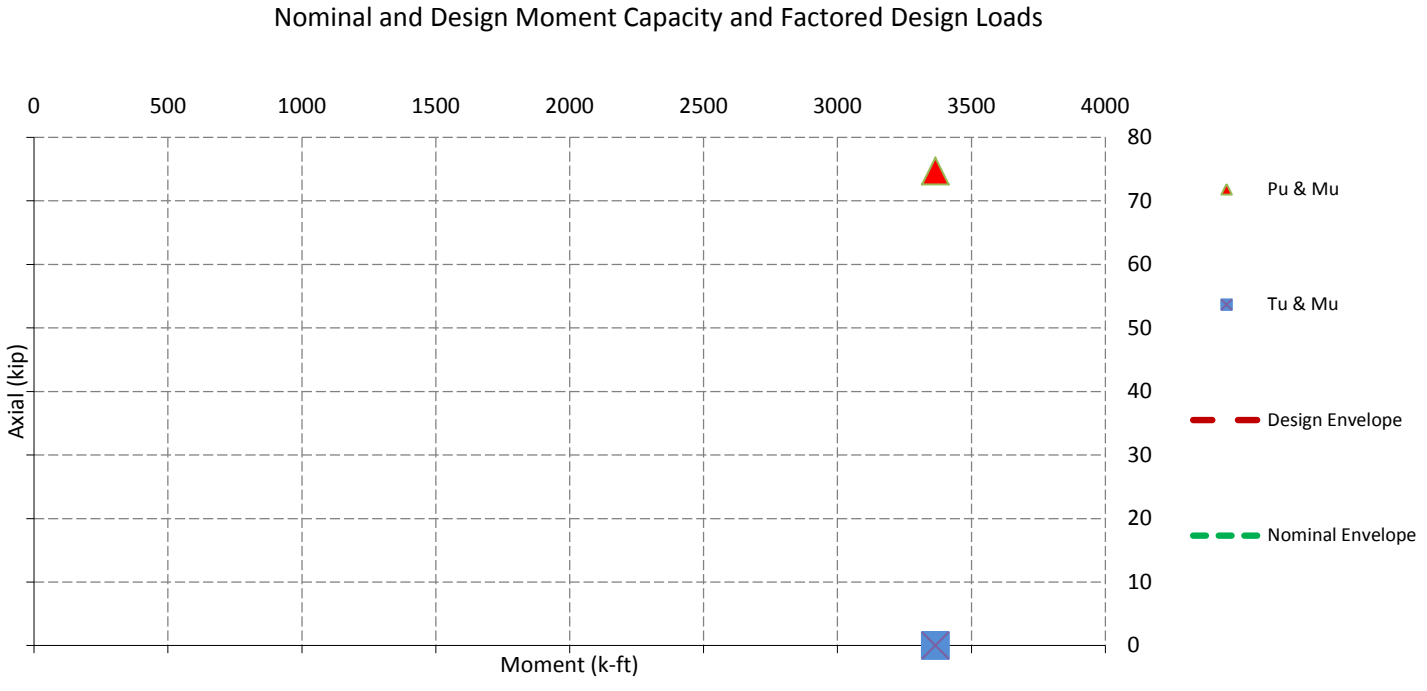
Net Bearing Pressure:	929	psf
Factored Nominal Bearing Pressure:	9000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.10	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety

Total Factored Sliding Resistance:	119.6	k
Sliding Design / Sliding Resistance:	0.31	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	208.6	k
One Way Shear Capacity (ϕV_c):	1518.3	k - ACI11.3.1.1
V_u / ϕV_c:	0.14	Result: OK
Load Direction Controling Shear Capacity:	Parallel to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	2038.4	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	11436.9	k-ft - ACI10.3
M_u / ϕM_n:	0.18	Result: OK
Load Direction Controling Flexural Capacity:	Parallel to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	912.0	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	11436.9	k-ft
M_u / ϕM_n:	0.08	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0032	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0032	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	9	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	9	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	38.1	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	2839.2	k - ACI11.12.2.1
V_u / ϕV_c:	0.01	Result: OK



Base Plate & Anchor Rod Analysis

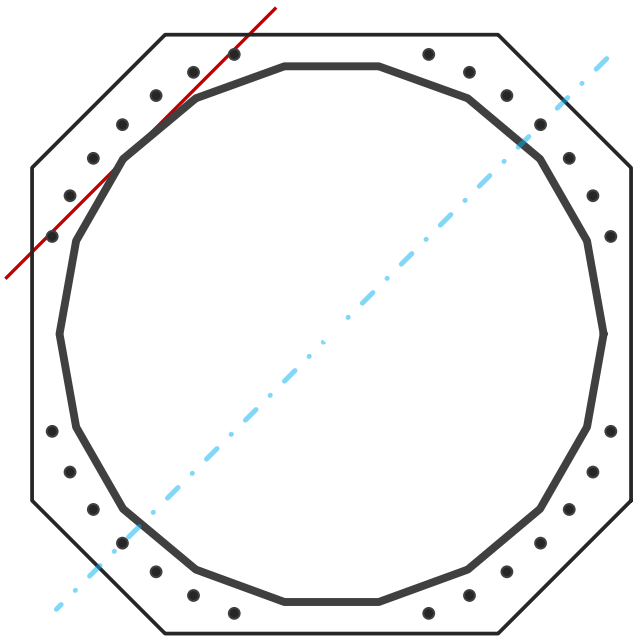
Pole Dimensions		
Number of Sides	18	-
Diameter	72.2	in
Thickness	0.5625	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	3366.4	k-ft
Axial, Pu	74.7	k
Shear, Vu	36.6	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	16%	Pass
Anchor Rods	29%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	81	in
Thickness	3 1/2	in
Grade	Other	-
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Clip	18	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1058.9	k
Bending Stress, ϕMn	6533.9	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	28	-
Diameter, ø	2 1/4	in
Bolt Circle	80	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	74.8	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	36.6	3366.4	1.00
Anchor Rod Forces	36.6	3366.4	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	125.9522	6.9973	0.7409		80810.58
Bolt	3.9761	3.2477	0.8393	4.5	72771.75
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	81	in
Thickness, t	3.5	in
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Base Plate Chord	36.717	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	28	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	80	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	74.8	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.288	OK
Interaction Capacity	0.288	OK

External Base Plate		
Chord Length AA	42.101	in
Additional AA	1.000	in
Section Modulus, Z	131.998	in^3
Applied Moment, Mu	1058.9	k-ft
Bending Capacity, ϕMn	6533.9	k-ft
Capacity, Mu/ϕMn	0.162	OK
Chord Length AB	40.984	in
Additional AB	1.000	in
Section Modulus, Z	128.575	in^3
Applied Moment, Mu	854.5	k-ft
Bending Capacity, ϕMn	6364.5	k-ft
Capacity, Mu/ϕMn	0.134	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

August 22, 2018

CENTERLINE COMMUNICATIONS at&t

Centerline Communications
95 Ryan Drive
Raynham, MA 02767

RE:		
	Site Number:	CT5540 (LTE 2C/3C)
	FA Number:	10071007
	PACE Number:	MRCTB031539
	PTN Number:	2051A0GJZP
	Site Name:	EAST HADDAM SOUTH
	Site Address:	135 Honey Hill Road East Haddam, CT 06423

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Centerline Communications to perform a mount analysis on the existing AT&T antenna mount to determine its capability of supporting the following equipment loading:

- (1) AM-X-CD-17-65-00T-RET Antenna (96.0"x11.8"x6.0" – Wt. = 60 lbs.)
- (1) DBXNH-6565B-R2M Antenna (73.4"x11.9"x7.1" – Wt. = 54 lbs.)
- (3) 7770 Antennas (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (3) LGP 21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" ø – Wt. = 33 lbs.)
- **(1) SBNHH-1D65A Antenna (55.6"x11.9"x7.1" – Wt. = 34 lbs.)**
- **(1) EPBQ-654L8H6-L2 Antenna (73.0"x21.0"x6.3" – Wt. = 84 lbs.)**
- **(2) EPBQ-654L8H8-L2 Antennas (96.0"x21.0"x6.3" – Wt. = 86 lbs. /each)**
- **(3) 4415 B25 RRH's (15.0"x13.2"x5.4" – Wt. = 44 lbs. /each)**
- **(3) 4478 B5 RRH's (16.5"x13.4"x7.7" – Wt. = 60 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" ø – Wt. = 33 lbs.)**

**Proposed Loading Shown in Bold.*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's sub-consultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on August 15, 2018.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2012 with 2005 Connecticut Supplement with 2016 Amendments, and AT&T Mount Technical Directive – R9.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G Annex B, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 130 mph converted to a nominal wind speed of 101 mph was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 3; tower is located at the upper half of a hill.
- The mount has been analyzed with load combinations consisting of 250 lbs. live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 2.
- The mount has been analyzed with load combinations consisting of a 250 lbs. live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our analysis, we have determined that the existing antenna mount **IS NOT CAPABLE** of supporting the proposed antenna installation. HDG recommends the following modifications:

- **Install new handrail kit, SitePro1 P/N HRK12 (or approved equal).**
- **Replace existing pipe masts with new 3" x-strong (3.5" O.D.) steel pipe masts, secured to the existing mount (typ. of 1 per sector, total of 3).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Existing LTE 2C/3C Mount Rating	123	LC4	365%	**FAIL**
Proposed LTE 2C/3C Mount Rating	145	LC1	92%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated August 17, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Dr., N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Dr., N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD **Checked By**: MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	122 (ft)
z_g=	1200 (ft)
α=	7.0

K_z= 1.046

$K_{zmin} \le K_z \le 2.01$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_e K_t/K_h)]^2$ $\quad K_h = e^{(f*z/H)}$

K_{zt}= 1.53152736

K_h=	2.01
K_e=	0.9 (from Table 2-4)
K_t=	0.53 (from Table 2-5)
f=	2 (from Table 2-5)
z=	122
H=	350 (Ht. of the crest above surrounding terrain)
K_{zt}=	1.53
K_{iz} =	1.14 (from Sec. 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **3**

2.6.8 Design Ice Thickness

Max Ice Thickness = t_i = 0.75 in

$t_{iz} = 2.0*t_i*I*K_{iz}*(Kzt)^{0.35}$ $\quad t_{iz}$ = 1.98 in

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h= 150 Gh= 0.85

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh= 1.35 **Gh= 1.00**

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed: V_{ult} = 130 mph

Nomial Design Wind Speed, $V_{asd} = V_{ult} \sqrt{(0.6)}$ V_{asd} = 101 mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.
Per TIA-222-G, V_{min} = 100 mph V_{max} = 120 mph

$F = q_z * Gh * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$

		K_z=	1.046
		K_{zt}=	1.5
q_z=	**39.51**	K_d=	0.95
$q_{z\,(ice)}$=	**9.74**	V_{asd}=	101 mph
$q_{z\,(30)}$=	**3.51**	$V_{max\,(ice)}$=	50 mph
		V_{30}=	30 mph
		I=	1.0

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.98 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	8.14	1.44	447	153	40
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	6.17	1.36	327	113	29
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	218	78	19
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	235	83	21
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.48	1.24	523	162	46
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.57	1.29	715	218	63
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	110	40	10
RRUS-11 RRH (Shielded)	19.7	5.1	7.2	0.70	3.86	1.26	35	18	3
4415 B25 RRH	15.0	13.2	5.4	1.38	1.14	1.20	65	26	6
4415 B25 RRH (Shielded)	15.0	0.0	5.4	0.00	0.00	1.20	0	0	0
4478 B5 RRH	16.5	13.4	7.7	1.54	1.23	1.20	73	29	6
4478 B5 RRH (Shielded)	16.5	0.0	7.7	0.00	0.00	1.20	0	0	0
LGP 21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	43	19	4
Squid Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	45	18	4
2" Pipe	2.4	12.0		0.20	0.20	1.20	9	8	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	11	9	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	14	10	1
L2x2x3/16 Angle	2.0	12.0		0.17	0.17	2.00	13	13	1
HSS 4x4	4.0	12.0		0.33	0.33	2.00	26	17	2
PL 6x1/2	6.0	12.0	0.5	0.50	0.50	2.00	40	22	4

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 30 (deg) | Ice Thickness = 1.98 in. | Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	447	269	402
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	327	216	299
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	218	116	192
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	235	155	215
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	523	196	441
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	715	278	605
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	110	47	94
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	55	47	53
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	65	27	56
4415 B25 RRH (Shielded)	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	33	27	31
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	73	42	65
4478 B5 RRH (Shielded)	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	36	42	38
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	43	14	36

WIND LOADS WITH ICE:

AM-X-CD-17-65-00T-RET Antenna	100.0	15.8	10.0	10.95	6.92	6.34	10.03	1.37	1.50	146	101	135
DBXNH-6565B-R2M Antenna	77.4	15.9	11.1	8.53	5.95	4.88	6.99	1.31	1.40	108	81	102
7770 Antenna	59.0	15.0	9.0	6.13	3.67	3.94	6.57	1.26	1.38	75	49	69
SBNHH-1D65A Antenna	59.6	15.9	11.1	6.56	4.58	3.75	5.38	1.26	1.33	80	59	75
EPBQ-654L8H6-L2 Antenna	77.0	25.0	10.3	13.35	5.49	3.08	7.50	1.23	1.42	159	76	138
EPBQ-654L8H8-L2 Antenna	100.0	25.0	10.3	17.33	7.13	4.00	9.73	1.27	1.49	214	104	186
RRUS-11 RRH	23.7	21.0	11.2	3.45	1.84	1.13	2.12	1.20	1.20	40	21	36
RRUS-11 RRH (Shielded)	23.7	10.5	11.2	1.72	1.84	2.26	2.12	1.20	1.20	20	21	20
4415 B25 RRH	19.0	17.2	9.4	2.26	1.23	1.10	2.02	1.20	1.20	26	14	23
4415 B25 RRH (Shielded)	19.0	8.6	9.4	1.13	1.23	2.21	2.02	1.20	1.20	13	14	14
4478 B5 RRH	20.5	17.4	11.7	2.47	1.66	1.18	1.75	1.20	1.20	29	19	26
4478 B5 RRH (Shielded)	20.5	8.7	11.7	1.23	1.66	2.36	1.75	1.20	1.20	14	19	16
LGP 21401 TMA	18.4	13.0	6.7	1.65	0.85	1.42	2.75	1.20	1.21	19	10	17

WIND LOADS AT 30 MPH:

AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	40	24	36
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	29	19	27
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	19	10	17
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	21	14	19
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	46	17	39
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	63	25	54
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	10	4	8
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	5	4	5
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	6	2	5
4415 B25 RRH (Shielded)	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	3	2	3
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	4	6
4478 B5 RRH (Shielded)	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	3	4	3
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	4	1	3

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.98 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	447	269	313
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	327	216	244
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	218	116	141
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	235	155	175
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	523	196	278
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	715	278	387
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	110	47	63
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	83	47	56
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	65	27	37
4415 B25 RRH (Shielded)	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	49	27	32
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	73	42	50
4478 B5 RRH (Shielded)	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	55	42	45
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	43	14	21

WIND LOADS WITH ICE:

AM-X-CD-17-65-00T-RET Antenna	100.0	15.8	10.0	10.95	6.92	6.34	10.03	1.37	1.50	146	101	112
DBXNH-6565B-R2M Antenna	77.4	15.9	11.1	8.53	5.95	4.88	6.99	1.31	1.40	108	81	88
7770 Antenna	59.0	15.0	9.0	6.13	3.67	3.94	6.57	1.26	1.38	75	49	56
SBNHH-1D65A Antenna	59.6	15.9	11.1	6.56	4.58	3.75	5.38	1.26	1.33	80	59	64
EPBQ-654L8H6-L2 Antenna	77.0	25.0	10.3	13.35	5.49	3.08	7.50	1.23	1.42	159	76	97
EPBQ-654L8H8-L2 Antenna	100.0	25.0	10.3	17.33	7.13	4.00	9.73	1.27	1.49	214	104	131
RRUS-11 RRH	23.7	21.0	11.2	3.45	1.84	1.13	2.12	1.20	1.20	40	21	26
RRUS-11 RRH (Shielded)	23.7	15.7	11.2	2.59	1.84	1.51	2.12	1.20	1.20	30	21	24
4415 B25 RRH	19.0	17.2	9.4	2.26	1.23	1.10	2.02	1.20	1.20	26	14	17
4415 B25 RRH (Shielded)	19.0	12.9	9.4	1.70	1.23	1.47	2.02	1.20	1.20	20	14	16
4478 B5 RRH	20.5	17.4	11.7	2.47	1.66	1.18	1.75	1.20	1.20	29	19	22
4478 B5 RRH (Shielded)	20.5	13.0	11.7	1.85	1.66	1.57	1.75	1.20	1.20	22	19	20
LGP 21401 TMA	18.4	13.0	6.7	1.65	0.85	1.42	2.75	1.20	1.21	19	10	12

WIND LOADS AT 30 MPH:

AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	40	24	28
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	29	19	22
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	19	10	13
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	21	14	16
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	46	17	25
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	63	25	34
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	10	4	6
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	7	4	5
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	6	2	3
4415 B25 RRH (Shielded)	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	4	2	3
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	4	4
4478 B5 RRH (Shielded)	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	5	4	4
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	4	1	2

Date: 8/22/2018

Project Name: EAST HADDAM SOUTH

Project Number: CT5540

Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.98	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	447	269	269
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	327	216	216
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	218	116	116
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	235	155	155
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	523	196	196
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	715	278	278
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	110	47	47
RRUS-11 RRH (Shielded)	19.7	5.1	7.2	0.70	0.99	3.86	2.74	1.26	1.21	35	47	47
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	65	27	27
4415 B25 RRH (Shielded)	15.0	0.0	5.4	0.00	0.56	0.00	2.78	1.20	1.21	0	27	27
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	73	42	42
4478 B5 RRH (Shielded)	16.5	0.0	7.7	0.00	0.88	0.00	2.14	1.20	1.20	0	42	42
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	43	14	14

WIND LOADS WITH ICE:

AM-X-CD-17-65-00T-RET Antenna	100.0	15.8	10.0	10.95	6.92	6.34	10.03	1.37	1.50	146	101	101
DBXNH-6565B-R2M Antenna	77.4	15.9	11.1	8.53	5.95	4.88	6.99	1.31	1.40	108	81	81
7770 Antenna	59.0	15.0	9.0	6.13	3.67	3.94	6.57	1.26	1.38	75	49	49
SBNHH-1D65A Antenna	59.6	15.9	11.1	6.56	4.58	3.75	5.38	1.26	1.33	80	59	59
EPBQ-654L8H6-L2 Antenna	77.0	25.0	10.3	13.35	5.49	3.08	7.50	1.23	1.42	159	76	76
EPBQ-654L8H8-L2 Antenna	100.0	25.0	10.3	17.33	7.13	4.00	9.73	1.27	1.49	214	104	104
RRUS-11 RRH	23.7	21.0	11.2	3.45	1.84	1.13	2.12	1.20	1.20	40	21	21
RRUS-11 RRH (Shielded)	23.7	9.1	11.2	1.49	1.84	2.61	2.12	1.20	1.20	17	21	21
4415 B25 RRH	19.0	17.2	9.4	2.26	1.23	1.10	2.02	1.20	1.20	26	14	14
4415 B25 RRH (Shielded)	19.0	4.0	9.4	0.52	1.23	4.78	2.02	1.30	1.20	7	14	14
4478 B5 RRH	20.5	17.4	11.7	2.47	1.66	1.18	1.75	1.20	1.20	29	19	19
4478 B5 RRH (Shielded)	20.5	4.0	11.7	0.56	1.66	5.16	1.75	1.32	1.20	7	19	19
LGP 21401 TMA	18.4	13.0	6.7	1.65	0.85	1.42	2.75	1.20	1.21	19	10	10

WIND LOADS AT 30 MPH:

AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	40	24	24
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	29	19	19
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	19	10	10
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	21	14	14
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	46	17	17
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	63	25	25
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	10	4	4
RRUS-11 RRH (Shielded)	19.7	5.1	7.2	0.70	0.99	3.86	2.74	1.26	1.21	3	4	4
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	6	2	2
4415 B25 RRH (Shielded)	15.0	0.0	5.4	0.00	0.56	0.00	2.78	1.20	1.21	0	2	2
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	4	4
4478 B5 RRH (Shielded)	16.5	0.0	7.7	0.00	0.88	0.00	2.14	1.20	1.20	0	4	4
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	4	1	1

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.98 in. | Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	447	269	313
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	327	216	244
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	218	116	141
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	235	155	175
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	523	196	278
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	715	278	387
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	110	47	63
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	83	47	56
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	65	27	37
4415 B25 RRH (Shielded)	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	49	27	32
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	73	42	50
4478 B5 RRH (Shielded)	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	55	42	45
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	43	14	21

WIND LOADS WITH ICE:

AM-X-CD-17-65-00T-RET Antenna	100.0	15.8	10.0	10.95	6.92	6.34	10.03	1.37	1.50	146	101	112
DBXNH-6565B-R2M Antenna	77.4	15.9	11.1	8.53	5.95	4.88	6.99	1.31	1.40	108	81	88
7770 Antenna	59.0	15.0	9.0	6.13	3.67	3.94	6.57	1.26	1.38	75	49	56
SBNHH-1D65A Antenna	59.6	15.9	11.1	6.56	4.58	3.75	5.38	1.26	1.33	80	59	64
EPBQ-654L8H6-L2 Antenna	77.0	25.0	10.3	13.35	5.49	3.08	7.50	1.23	1.42	159	76	97
EPBQ-654L8H8-L2 Antenna	100.0	25.0	10.3	17.33	7.13	4.00	9.73	1.27	1.49	214	104	131
RRUS-11 RRH	23.7	21.0	11.2	3.45	1.84	1.13	2.12	1.20	1.20	40	21	26
RRUS-11 RRH (Shielded)	23.7	15.7	11.2	2.59	1.84	1.51	2.12	1.20	1.20	30	21	24
4415 B25 RRH	19.0	17.2	9.4	2.26	1.23	1.10	2.02	1.20	1.20	26	14	17
4415 B25 RRH (Shielded)	19.0	12.9	9.4	1.70	1.23	1.47	2.02	1.20	1.20	20	14	16
4478 B5 RRH	20.5	17.4	11.7	2.47	1.66	1.18	1.75	1.20	1.20	29	19	22
4478 B5 RRH (Shielded)	20.5	13.0	11.7	1.85	1.66	1.57	1.75	1.20	1.20	22	19	20
LGP 21401 TMA	18.4	13.0	6.7	1.65	0.85	1.42	2.75	1.20	1.21	19	10	12

WIND LOADS AT 30 MPH:

AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	40	24	28
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	29	19	22
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	19	10	13
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	21	14	16
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	46	17	25
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	63	25	34
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	10	4	6
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	7	4	5
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	6	2	3
4415 B25 RRH (Shielded)	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	4	2	3
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	4	4
4478 B5 RRH (Shielded)	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	5	4	4
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	4	1	2

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg)

Ice Thickness = 1.98 in.

Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	447	269	402
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	327	216	299
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	218	116	192
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	235	155	215
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	523	196	441
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	715	278	605
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	110	47	94
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	55	47	53
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	65	27	56
4415 B25 RRH (Shielded)	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	33	27	31
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	73	42	65
4478 B5 RRH (Shielded)	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	36	42	38
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	43	14	36

WIND LOADS WITH ICE:

AM-X-CD-17-65-00T-RET Antenna	100.0	15.8	10.0	10.95	6.92	6.34	10.03	1.37	1.50	146	101	135
DBXNH-6565B-R2M Antenna	77.4	15.9	11.1	8.53	5.95	4.88	6.99	1.31	1.40	108	81	102
7770 Antenna	59.0	15.0	9.0	6.13	3.67	3.94	6.57	1.26	1.38	75	49	69
SBNHH-1D65A Antenna	59.6	15.9	11.1	6.56	4.58	3.75	5.38	1.26	1.33	80	59	75
EPBQ-654L8H6-L2 Antenna	77.0	25.0	10.3	13.35	5.49	3.08	7.50	1.23	1.42	159	76	138
EPBQ-654L8H8-L2 Antenna	100.0	25.0	10.3	17.33	7.13	4.00	9.73	1.27	1.49	214	104	186
RRUS-11 RRH	23.7	21.0	11.2	3.45	1.84	1.13	2.12	1.20	1.20	40	21	36
RRUS-11 RRH (Shielded)	23.7	10.5	11.2	1.72	1.84	2.26	2.12	1.20	1.20	20	21	20
4415 B25 RRH	19.0	17.2	9.4	2.26	1.23	1.10	2.02	1.20	1.20	26	14	23
4415 B25 RRH (Shielded)	19.0	8.6	9.4	1.13	1.23	2.21	2.02	1.20	1.20	13	14	14
4478 B5 RRH	20.5	17.4	11.7	2.47	1.66	1.18	1.75	1.20	1.20	29	19	26
4478 B5 RRH (Shielded)	20.5	8.7	11.7	1.23	1.66	2.36	1.75	1.20	1.20	14	19	16
LGP 21401 TMA	18.4	13.0	6.7	1.65	0.85	1.42	2.75	1.20	1.21	19	10	17

WIND LOADS AT 30 MPH:

AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	4.00	8.14	16.00	1.44	1.70	40	24	36
DBXNH-6565B-R2M Antenna	73.4	11.9	7.1	6.07	3.62	6.17	10.34	1.36	1.51	29	19	27
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	19	10	17
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	21	14	19
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	46	17	39
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	63	25	54
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	10	4	8
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	5	4	5
4415 B25 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	6	2	5
4415 B25 RRH (Shielded)	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	3	2	3
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	4	6
4478 B5 RRH (Shielded)	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	3	4	3
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	4	1	3

Date: 8/22/2018
Project Name: EAST HADDAM SOUTH
Project Number: CT5540
Designed By: BD **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.98 in.
Density of ice: 56 pcf

AM-X-CD-17-65-00T-RET Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	11.8	
Depth (in):	6.0	
Total weight of ice on object:		294 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		354 lbs

DBXNH-6565B-R2M Antenna

Weight of ice based on total radial SF area:

Height (in):	73.4	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		234 lbs
Weight of object:	54 lbs	
Combined weight of ice and object:		288 lbs

7770 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		156 lbs
Weight of object:	35 lbs	
Combined weight of ice and object:		191 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:

Height (in):	55.6	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		178 lbs
Weight of object:	34 lbs	
Combined weight of ice and object:		212 lbs

EPBQ-654L8H6-L2 Antenna

Weight of ice based on total radial SF area:

Height (in):	73.0	
Width (in):	21.0	
Depth (in):	6.3	
Total weight of ice on object:		352 lbs
Weight of object:	84 lbs	
Combined weight of ice and object:		436 lbs

EPBQ-654L8H8-L2 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	21.0	
Depth (in):	6.3	
Total weight of ice on object:		463 lbs
Weight of object:	86 lbs	
Combined weight of ice and object:		549 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		81 lbs
Weight of object:	51 lbs	
Combined weight of ice and object:		132 lbs

4415 B25 RRH

Weight of ice based on total radial SF area:

Height (in):	15.0	
Width (in):	13.2	
Depth (in):	5.4	
Total weight of ice on object:		49 lbs
Weight of object:	44 lbs	
Combined weight of ice and object:		93 lbs

4478 B5 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	7.7	
Total weight of ice on object:		58 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		118 lbs

LGP 21401 TMA

Weight of ice based on total radial SF area:

Height (in):	14.4	
Width (in):	9.0	
Depth (in):	2.7	
Total weight of ice on object:		33 lbs
Weight of object:	19 lbs	
Combined weight of ice and object:		52 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		57 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		90 lbs

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		11 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		12 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		13 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		18 plf

L 2x2x3/16 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		12 plf

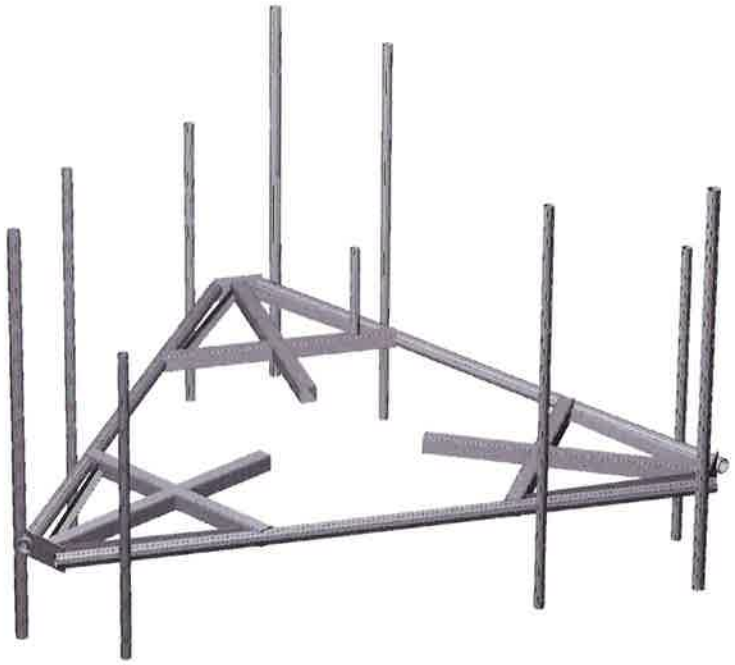
PL 6x1/2

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.5	
Per foot weight of ice on object:		19 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)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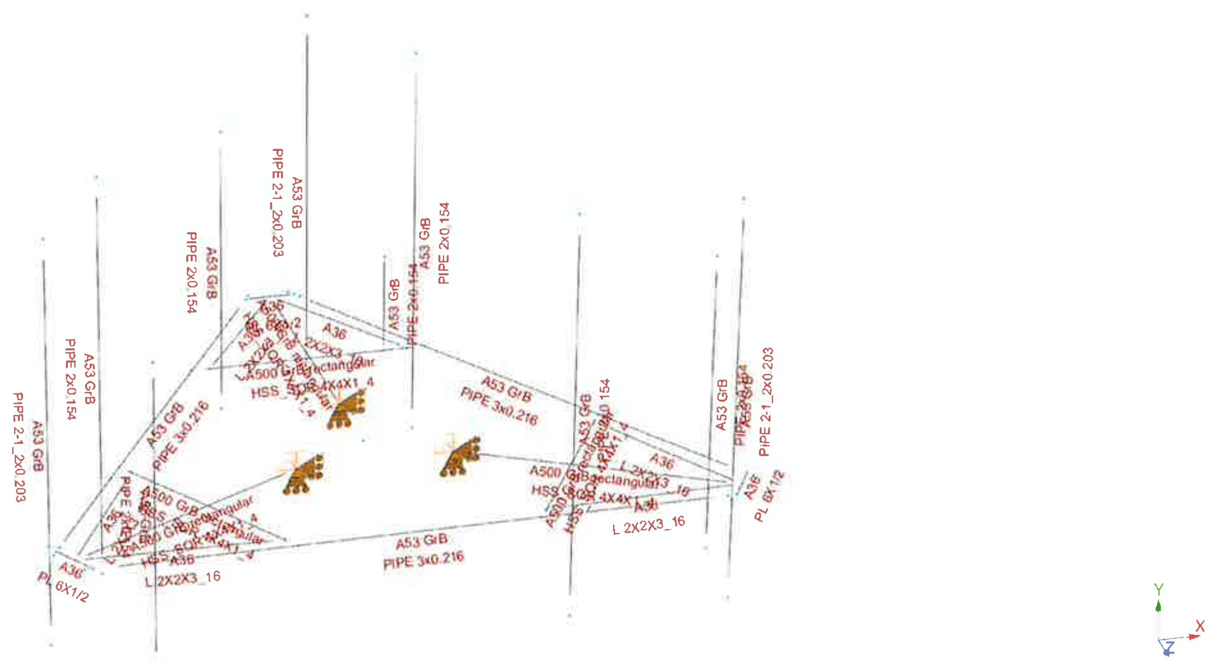

Bentley

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Load data

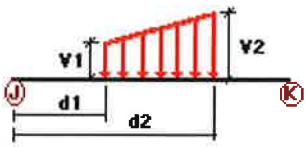
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	500 lb Live Load on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL

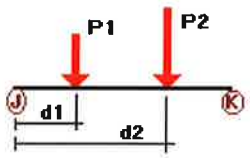
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	99	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	100	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	101	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	102	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	103	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	104	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	105	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	106	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	107	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	9	Z	-0.014	-0.014	0.00	Yes	100.00	Yes
	10	Z	-0.014	-0.014	0.00	Yes	100.00	Yes
	11	Z	-0.014	-0.014	0.00	Yes	100.00	Yes
	87	z	-0.011	-0.011	0.00	Yes	100.00	Yes
	90	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	96	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	99	Z	-0.026	-0.026	0.00	Yes	100.00	Yes

	100	Z	-0.026	-0.026	0.00	Yes	100.00	Yes
	101	Z	-0.026	-0.026	0.00	Yes	100.00	Yes
	109	Z	-0.026	-0.026	0.00	Yes	100.00	Yes
	110	Z	-0.026	-0.026	0.00	Yes	100.00	Yes
	123	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	125	z	-0.011	-0.011	0.00	Yes	100.00	Yes
	127	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
W30	10	X	-0.014	-0.014	0.00	Yes	100.00	Yes
	11	X	-0.014	-0.014	0.00	Yes	100.00	Yes
	87	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	90	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	96	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	99	X	-0.026	-0.026	0.00	Yes	100.00	Yes
	100	X	-0.026	-0.026	0.00	Yes	100.00	Yes
	108	X	-0.026	-0.026	0.00	Yes	100.00	Yes
	109	X	-0.026	-0.026	0.00	Yes	100.00	Yes
	110	X	-0.026	-0.026	0.00	Yes	100.00	Yes
	123	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	125	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	127	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	129	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	131	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	133	X	-0.009	-0.009	0.00	Yes	100.00	Yes
Di	9	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	10	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	11	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	87	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	90	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	96	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	99	Y	-0.018	-0.018	0.00	Yes	100.00	Yes
	100	Y	-0.018	-0.018	0.00	Yes	100.00	Yes
	101	Y	-0.018	-0.018	0.00	Yes	100.00	Yes
	102	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	103	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	104	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	105	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	106	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	107	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	108	Y	-0.018	-0.018	0.00	Yes	100.00	Yes
	109	Y	-0.018	-0.018	0.00	Yes	100.00	Yes
	110	Y	-0.018	-0.018	0.00	Yes	100.00	Yes
	123	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	125	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	127	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	129	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	131	Y	-0.012	-0.012	0.00	Yes	100.00	Yes
	133	Y	-0.011	-0.011	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	87	y	-0.017	2.00	No
		y	-0.017	6.63	No
		y	-0.051	4.00	No
	90	y	-0.042	0.00	No
		y	-0.042	8.00	No
		y	-0.06	1.50	No
		y	-0.044	5.00	No
	96	y	-0.018	0.50	No
		y	-0.018	5.08	No
		y	-0.019	3.00	No
	123	y	-0.043	0.00	No
		y	-0.043	8.00	No
		y	-0.06	1.50	No
		y	-0.044	5.00	No
	125	y	-0.027	0.94	No
		y	-0.027	7.06	No
		y	-0.051	4.00	No
	127	y	-0.018	0.50	No
		y	-0.018	5.08	No
		y	-0.019	3.00	No
	129	y	-0.043	0.00	No
		y	-0.043	8.00	No
		y	-0.06	1.50	No
		y	-0.044	5.00	No
	131	y	-0.03	0.00	No
		y	-0.03	8.00	No
		y	-0.051	4.00	No
	133	y	-0.018	0.50	No
		y	-0.018	5.08	No
		y	-0.019	3.00	No
	135	y	-0.066	1.00	No
W0	87	z	-0.088	2.00	No
		z	-0.088	6.63	No
		z	-0.056	4.00	No
	90	z	-0.139	0.00	No
		z	-0.139	8.00	No
	96	z	-0.071	0.50	No
		z	-0.071	5.08	No
	123	z	-0.194	0.00	No
		z	-0.194	8.00	No
	125	z	-0.122	0.94	No
		z	-0.122	7.06	No
		z	-0.056	4.00	No
	127	z	-0.071	0.50	No
		z	-0.071	5.08	No
	129	z	-0.358	0.00	No
		z	-0.358	8.00	No
	131	z	-0.224	0.00	No
		z	-0.224	8.00	No
		z	-0.035	4.00	No
	133	z	-0.109	0.50	No
		z	-0.109	5.08	No
	135	z	-0.09	1.00	No
W30	87	x	-0.108	2.00	No
		x	-0.108	6.63	No
		x	-0.053	4.00	No
	90	x	-0.221	0.00	No
		x	-0.221	8.00	No
		x	-0.038	1.50	No
		x	-0.031	5.00	No

	96	x	-0.096	0.50	No
		x	-0.096	5.08	No
		x	-0.036	3.00	No
	123	x	-0.303	0.00	No
		x	-0.303	8.00	No
		x	-0.038	1.50	No
		x	-0.031	5.00	No
	125	x	-0.15	0.94	No
		x	-0.15	7.06	No
		x	-0.053	4.00	No
	127	x	-0.096	0.50	No
		x	-0.096	5.08	No
		x	-0.036	3.00	No
	129	x	-0.139	0.00	No
		x	-0.139	8.00	No
		x	-0.042	1.50	No
		x	-0.027	5.00	No
	131	x	-0.135	0.00	No
		x	-0.135	8.00	No
		x	-0.047	4.00	No
	133	x	-0.058	0.50	No
		x	-0.058	5.08	No
		x	-0.014	3.00	No
	135	x	-0.09	1.00	No
Di	87	y	-0.089	2.00	No
		y	-0.089	6.63	No
		y	-0.081	4.00	No
	90	y	-0.176	0.00	No
		y	-0.176	8.00	No
		y	-0.058	1.50	No
		y	-0.049	5.00	No
	96	y	-0.078	0.50	No
		y	-0.078	5.08	No
		y	-0.033	3.00	No
	123	y	-0.232	0.00	No
		y	-0.232	8.00	No
		y	-0.058	1.50	No
		y	-0.049	5.00	No
	125	y	-0.117	0.94	No
		y	-0.117	7.06	No
		y	-0.081	4.00	No
	127	y	-0.078	0.50	No
		y	-0.078	5.08	No
		y	-0.033	3.00	No
	129	y	-0.232	0.00	No
		y	-0.232	8.00	No
		y	-0.058	1.50	No
		y	-0.049	5.00	No
	131	y	-0.147	0.00	No
		y	-0.147	8.00	No
		y	-0.081	4.00	No
	133	y	-0.078	0.50	No
		y	-0.078	5.08	No
		y	-0.033	3.00	No
	135	y	-0.114	1.00	No
Wi0	87	z	-0.032	2.00	No
		z	-0.032	6.63	No
		z	-0.024	4.00	No
	90	z	-0.049	0.00	No
		z	-0.049	8.00	No

	96	z	-0.028	0.50	No
		z	-0.028	5.08	No
	123	z	-0.066	0.00	No
		z	-0.066	8.00	No
	125	z	-0.044	0.94	No
		z	-0.044	7.06	No
		z	-0.024	4.00	No
	127	z	-0.028	0.50	No
		z	-0.028	5.08	No
	129	z	-0.109	0.00	No
		z	-0.109	8.00	No
	131	z	-0.077	0.00	No
		z	-0.077	8.00	No
		z	-0.018	4.00	No
	133	z	-0.039	0.50	No
		z	-0.039	5.08	No
	135	z	-0.036	1.00	No
Wi30	87	x	-0.038	2.00	No
		x	-0.038	6.63	No
		x	-0.02	4.00	No
	90	x	-0.069	0.00	No
		x	-0.069	8.00	No
		x	-0.016	1.50	No
		x	-0.014	5.00	No
	96	x	-0.035	0.50	No
		x	-0.035	5.08	No
		x	-0.017	3.00	No
	123	x	-0.093	0.00	No
		x	-0.093	8.00	No
		x	-0.016	1.50	No
		x	-0.014	5.00	No
	125	x	-0.051	0.94	No
		x	-0.051	7.06	No
		x	-0.02	4.00	No
	127	x	-0.035	0.50	No
		x	-0.035	5.08	No
		x	-0.017	3.00	No
	129	x	-0.052	0.00	No
		x	-0.052	8.00	No
		x	-0.019	1.50	No
		x	-0.014	5.00	No
	131	x	-0.051	0.00	No
		x	-0.051	8.00	No
		x	-0.021	4.00	No
	133	x	-0.025	0.50	No
		x	-0.025	5.08	No
		x	-0.01	3.00	No
	135	x	-0.036	1.00	No
WL0	87	z	-0.008	2.00	No
		z	-0.008	6.63	No
		z	-0.005	4.00	No
	90	z	-0.013	0.00	No
		z	-0.013	8.00	No
	96	z	-0.007	0.50	No
		z	-0.007	5.08	No
	123	z	-0.017	0.00	No
		z	-0.017	8.00	No
	125	z	-0.011	0.94	No
		z	-0.011	7.06	No
		z	-0.005	4.00	No

	127	z	-0.007	0.50	No
		z	-0.007	5.08	No
	129	z	-0.032	0.00	No
		z	-0.032	8.00	No
	131	z	-0.02	0.00	No
		z	-0.02	8.00	No
		z	-0.003	4.00	No
	133	z	-0.01	0.50	No
		z	-0.01	5.08	No
	135	z	-0.008	1.00	No
WL30	87	x	-0.01	2.00	No
		x	-0.01	6.63	No
		x	-0.005	4.00	No
	90	x	-0.02	0.00	No
		x	-0.02	8.00	No
		x	-0.003	1.50	No
		x	-0.003	5.00	No
	96	x	-0.009	0.50	No
		x	-0.009	5.08	No
		x	-0.003	3.00	No
	123	x	-0.027	0.00	No
		x	-0.027	8.00	No
		x	-0.003	1.50	No
		x	-0.003	5.00	No
	125	x	-0.014	0.94	No
		x	-0.014	7.06	No
		x	-0.005	4.00	No
	127	x	-0.009	0.50	No
		x	-0.009	5.08	No
		x	-0.003	3.00	No
	129	x	-0.013	0.00	No
		x	-0.013	8.00	No
		x	-0.004	1.50	No
		x	-0.002	5.00	No
	131	x	-0.012	0.00	No
		x	-0.012	8.00	No
		x	-0.004	4.00	No
	133	x	-0.005	0.50	No
		x	-0.005	5.08	No
		x	-0.001	3.00	No
	135	x	-0.008	1.00	No
LL1	9	y	-0.25	6.25	No
LL2	9	y	-0.25	0.00	No
LLa1	131	y	-0.50	4.00	No
LLa2	129	y	-0.50	4.00	No
LLa3	133	y	-0.50	3.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

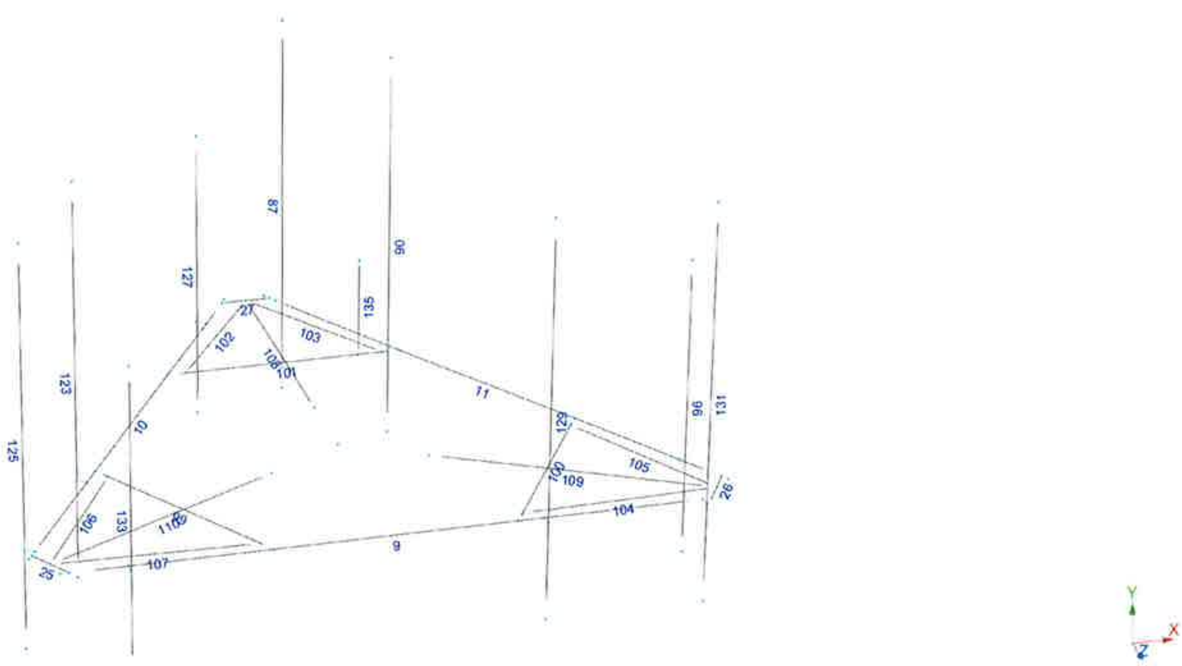
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

Bentley

Current Date: 8/22/2018 12:05 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5540\CT5540 (LTE 2C-3C).etz\



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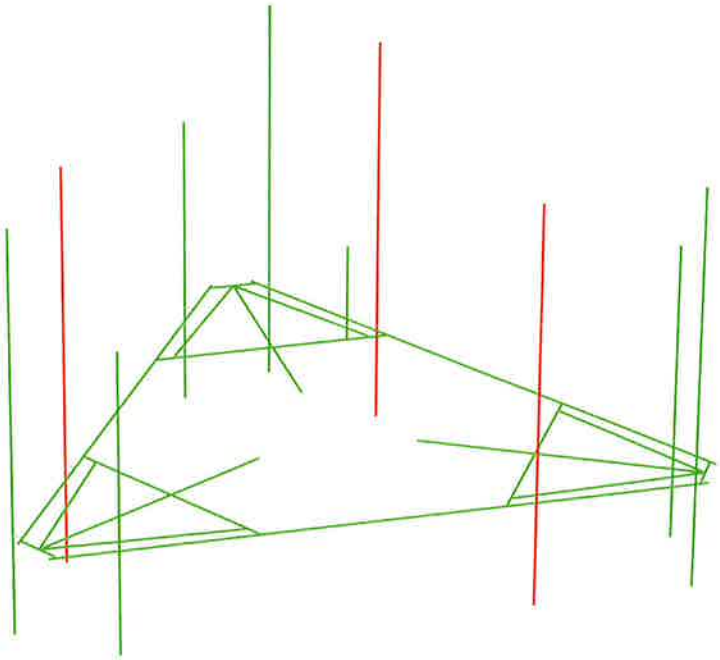
Current Date: 8/22/2018 12:05 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5540\CT5540 (LTE 2C-3C).etz\

Design status

- Not designed
- Error on design
- Design O.K.
- With warnings



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Current Date: 8/22/2018 12:05 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5540\CT5540 (LTE 2C-3C).etz\

Steel Code Check

Report: Summary - For all selected load conditions

Load conditions to be included in design :

W180=-W0
W210=-W30
Wi180=-Wi0
Wi210=-Wi30
WL180=-WL0
WL210=-WL30
LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC5=0.9DL+1.6W0
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**99**	LC1 at 50.00%	0.10	OK	
			LC10 at 50.00%	0.25	OK	
			LC11 at 50.00%	0.22	OK	
			LC12 at 50.00%	0.21	OK	
			LC13 at 50.00%	0.07	OK	
			LC14 at 50.00%	0.05	OK	
			LC15 at 48.44%	0.11	OK	
			LC16 at 50.00%	0.10	OK	
			LC17 at 50.00%	0.07	OK	
			LC18 at 50.00%	0.08	OK	
			LC19 at 48.44%	0.08	OK	
			LC2 at 50.00%	**0.29**	**OK**	Eq. H1-1b
			LC20 at 50.00%	0.07	OK	
			LC21 at 48.44%	0.09	OK	
			LC22 at 48.44%	0.10	OK	

	LC23 at 48.44%	0.10	OK	
	LC24 at 48.44%	0.09	OK	
	LC25 at 48.44%	0.10	OK	
	LC26 at 50.00%	0.11	OK	
	LC27 at 48.44%	0.11	OK	
	LC28 at 50.00%	0.10	OK	
	LC3 at 48.44%	0.19	OK	
	LC4 at 100.00%	0.26	OK	Eq. H1-1b
	LC5 at 50.00%	0.08	OK	
	LC6 at 50.00%	0.27	OK	
	LC7 at 48.44%	0.17	OK	
	LC8 at 100.00%	0.26	OK	
	LC9 at 50.00%	0.22	OK	
	W180 at 48.44%	0.08	OK	
	W210 at 100.00%	0.16	OK	
	Wi180 at 48.44%	0.02	OK	
	Wi210 at 100.00%	0.05	OK	
	WL180 at 48.44%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
100	LC1 at 0.00%	0.26	OK	Eq. H1-1b
	LC10 at 48.44%	0.21	OK	
	LC11 at 48.44%	0.25	OK	
	LC12 at 50.00%	0.23	OK	
	LC13 at 50.00%	0.07	OK	
	LC14 at 50.00%	0.05	OK	
	LC15 at 48.44%	0.12	OK	
	LC16 at 48.44%	0.07	OK	
	LC17 at 50.00%	0.10	OK	
	LC18 at 50.00%	0.10	OK	
	LC19 at 48.44%	0.11	OK	
	LC2 at 50.00%	0.09	OK	
	LC20 at 50.00%	0.11	OK	
	LC21 at 48.44%	0.13	OK	
	LC22 at 48.44%	0.13	OK	
	LC23 at 48.44%	0.14	OK	
	LC24 at 48.44%	0.14	OK	
	LC25 at 48.44%	0.08	OK	
	LC26 at 48.44%	0.08	OK	
	LC27 at 48.44%	0.09	OK	
	LC28 at 48.44%	0.09	OK	
	LC3 at 48.44%	**0.28**	**OK**	Eq. H1-1b
	LC4 at 50.00%	0.24	OK	Eq. H1-1b
	LC5 at 0.00%	0.26	OK	
	LC6 at 50.00%	0.11	OK	
	LC7 at 48.44%	0.26	OK	
	LC8 at 50.00%	0.22	OK	
	LC9 at 48.44%	0.20	OK	
	W180 at 0.00%	0.16	OK	
	W210 at 50.00%	0.10	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 50.00%	0.03	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 50.00%	0.01	OK	
101	LC1 at 48.75%	0.23	OK	
	LC10 at 48.75%	0.20	OK	
	LC11 at 48.75%	0.20	OK	
	LC12 at 48.75%	0.23	OK	
	LC13 at 48.75%	0.08	OK	
	LC14 at 48.75%	0.06	OK	
	LC15 at 48.75%	0.06	OK	
	LC16 at 48.75%	0.07	OK	
	LC17 at 48.75%	0.07	OK	

	LC18 at 48.75%	0.07	OK	
	LC19 at 48.75%	0.06	OK	
	LC2 at 0.00%	0.17	OK	Eq. H1-1b
	LC20 at 48.75%	0.07	OK	
	LC21 at 48.75%	0.06	OK	
	LC22 at 50.00%	0.06	OK	
	LC23 at 48.75%	0.05	OK	
	LC24 at 48.75%	0.06	OK	
	LC25 at 48.75%	0.08	OK	
	LC26 at 48.75%	0.07	OK	
	LC27 at 48.75%	0.07	OK	
	LC28 at 48.75%	0.07	OK	
	LC3 at 0.00%	0.11	OK	
	LC4 at 48.75%	0.22	OK	
	LC5 at 48.75%	0.21	OK	
	LC6 at 0.00%	0.17	OK	
	LC7 at 0.00%	0.11	OK	
	LC8 at 48.75%	0.20	OK	
	LC9 at 48.75%	**0.23**	**OK**	Eq. H1-1b
	W180 at 50.00%	0.09	OK	
	W210 at 0.00%	0.11	OK	
	Wi180 at 48.75%	0.03	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 48.75%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
108	LC1 at 100.00%	0.57	OK	
	LC10 at 100.00%	0.74	OK	
	LC11 at 100.00%	0.67	OK	
	LC12 at 100.00%	0.74	OK	
	LC13 at 100.00%	0.26	OK	
	LC14 at 100.00%	0.20	OK	
	LC15 at 100.00%	0.25	OK	
	LC16 at 100.00%	0.25	OK	
	LC17 at 100.00%	0.26	OK	
	LC18 at 100.00%	0.25	OK	
	LC19 at 100.00%	0.23	OK	
	LC2 at 100.00%	0.46	OK	
	LC20 at 100.00%	0.25	OK	
	LC21 at 100.00%	0.26	OK	
	LC22 at 100.00%	0.25	OK	
	LC23 at 100.00%	0.23	OK	
	LC24 at 100.00%	0.25	OK	
	LC25 at 100.00%	0.26	OK	
	LC26 at 100.00%	0.25	OK	
	LC27 at 100.00%	0.23	OK	
	LC28 at 100.00%	0.25	OK	
	LC3 at 56.25%	0.06	OK	
	LC4 at 100.00%	0.46	OK	
	LC5 at 100.00%	0.51	OK	
	LC6 at 100.00%	0.39	OK	
	LC7 at 100.00%	0.10	OK	
	LC8 at 100.00%	0.39	OK	
	LC9 at 100.00%	**0.77**	**OK**	Eq. H1-1b
	W180 at 100.00%	0.18	OK	
	W210 at 100.00%	0.12	OK	
	Wi180 at 100.00%	0.05	OK	
	Wi210 at 59.38%	0.03	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 59.38%	0.01	OK	
109	LC1 at 100.00%	0.27	OK	
	LC10 at 100.00%	0.72	OK	
	LC11 at 100.00%	**0.84**	**OK**	Eq. H1-1b

	LC12 at 100.00%	0.83	OK	
	LC13 at 100.00%	0.26	OK	
	LC14 at 100.00%	0.20	OK	
	LC15 at 100.00%	0.29	OK	
	LC16 at 100.00%	0.25	OK	
	LC17 at 100.00%	0.47	OK	
	LC18 at 100.00%	0.46	OK	
	LC19 at 100.00%	0.49	OK	
	LC2 at 59.38%	0.10	OK	
	LC20 at 100.00%	0.49	OK	
	LC21 at 100.00%	0.37	OK	
	LC22 at 100.00%	0.36	OK	
	LC23 at 100.00%	0.39	OK	
	LC24 at 100.00%	0.39	OK	
	LC25 at 100.00%	0.26	OK	
	LC26 at 100.00%	0.24	OK	
	LC27 at 100.00%	0.28	OK	
	LC28 at 100.00%	0.27	OK	
	LC3 at 100.00%	0.64	OK	
	LC4 at 100.00%	0.57	OK	
	LC5 at 59.38%	0.21	OK	
	LC6 at 100.00%	0.11	OK	
	LC7 at 100.00%	0.57	OK	
	LC8 at 100.00%	0.50	OK	
	LC9 at 100.00%	0.76	OK	
	W180 at 100.00%	0.24	OK	
	W210 at 100.00%	0.19	OK	
	Wi180 at 100.00%	0.07	OK	
	Wi210 at 100.00%	0.06	OK	
	WL180 at 100.00%	0.02	OK	
	WL210 at 100.00%	0.02	OK	
110	LC1 at 0.00%	0.20	OK	
	LC10 at 0.00%	**0.82**	**OK**	Eq. H1-1b
	LC11 at 0.00%	0.78	OK	
	LC12 at 0.00%	0.69	OK	
	LC13 at 0.00%	0.26	OK	
	LC14 at 0.00%	0.19	OK	
	LC15 at 0.00%	0.29	OK	
	LC16 at 0.00%	0.43	OK	
	LC17 at 0.00%	0.24	OK	
	LC18 at 0.00%	0.27	OK	
	LC19 at 0.00%	0.26	OK	
	LC2 at 0.00%	0.69	OK	
	LC20 at 0.00%	0.23	OK	
	LC21 at 0.00%	0.26	OK	
	LC22 at 0.00%	0.28	OK	
	LC23 at 0.00%	0.27	OK	
	LC24 at 0.00%	0.25	OK	
	LC25 at 0.00%	0.43	OK	
	LC26 at 0.00%	0.46	OK	
	LC27 at 0.00%	0.45	OK	
	LC28 at 0.00%	0.43	OK	
	LC3 at 0.00%	0.51	OK	
	LC4 at 40.63%	0.23	OK	
	LC5 at 0.00%	0.16	OK	
	LC6 at 0.00%	0.63	OK	
	LC7 at 0.00%	0.45	OK	
	LC8 at 0.00%	0.25	OK	
	LC9 at 0.00%	0.72	OK	
	W180 at 0.00%	0.16	OK	
	W210 at 0.00%	0.28	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 0.00%	0.08	OK	

		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.02	OK	
L 2X2X3_16	**102**	LC1 at 100.00%	**0.38**	**OK**	Eq. H2-1
		LC10 at 100.00%	0.28	OK	
		LC11 at 100.00%	0.26	OK	
		LC12 at 100.00%	0.29	OK	
		LC13 at 100.00%	0.12	OK	
		LC14 at 100.00%	0.09	OK	
		LC15 at 100.00%	0.11	OK	
		LC16 at 100.00%	0.12	OK	
		LC17 at 100.00%	0.12	OK	
		LC18 at 100.00%	0.11	OK	
		LC19 at 100.00%	0.11	OK	
		LC2 at 100.00%	0.17	OK	
		LC20 at 100.00%	0.11	OK	
		LC21 at 100.00%	0.12	OK	
		LC22 at 100.00%	0.11	OK	
		LC23 at 100.00%	0.10	OK	
		LC24 at 100.00%	0.11	OK	
		LC25 at 100.00%	0.12	OK	
		LC26 at 100.00%	0.11	OK	
		LC27 at 100.00%	0.11	OK	
		LC28 at 100.00%	0.12	OK	
		LC3 at 50.00%	0.15	OK	
		LC4 at 0.00%	0.23	OK	Eq. H2-1
		LC5 at 100.00%	0.35	OK	
		LC6 at 18.75%	0.18	OK	
		LC7 at 50.00%	0.15	OK	Eq. H2-1
		LC8 at 0.00%	0.22	OK	
		LC9 at 100.00%	0.31	OK	
		W180 at 100.00%	0.12	OK	
		W210 at 0.00%	0.11	OK	
		Wi180 at 100.00%	0.03	OK	
		Wi210 at 0.00%	0.03	OK	
		WL180 at 100.00%	0.01	OK	
		WL210 at 0.00%	0.01	OK	
	103	LC1 at 0.00%	**0.36**	**OK**	Eq. H2-1
		LC10 at 0.00%	0.20	OK	
		LC11 at 0.00%	0.18	OK	
		LC12 at 0.00%	0.20	OK	
		LC13 at 0.00%	0.08	OK	
		LC14 at 0.00%	0.06	OK	
		LC15 at 0.00%	0.08	OK	
		LC16 at 0.00%	0.08	OK	
		LC17 at 0.00%	0.09	OK	
		LC18 at 0.00%	0.09	OK	
		LC19 at 0.00%	0.08	OK	
		LC2 at 100.00%	0.21	OK	Eq. H2-1
		LC20 at 0.00%	0.08	OK	
		LC21 at 0.00%	0.09	OK	
		LC22 at 0.00%	0.08	OK	
		LC23 at 0.00%	0.08	OK	
		LC24 at 0.00%	0.08	OK	
		LC25 at 0.00%	0.09	OK	
		LC26 at 0.00%	0.08	OK	
		LC27 at 0.00%	0.08	OK	
		LC28 at 0.00%	0.08	OK	
		LC3 at 100.00%	0.17	OK	
		LC4 at 62.50%	0.19	OK	
		LC5 at 0.00%	0.34	OK	
		LC6 at 100.00%	0.19	OK	
		LC7 at 100.00%	0.16	OK	

	LC8 at 68.75%	0.19	OK	
	LC9 at 0.00%	0.23	OK	
	W180 at 0.00%	0.11	OK	
	W210 at 100.00%	0.13	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 100.00%	0.04	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
104	LC1 at 100.00%	0.29	OK	Eq. H2-1
	LC10 at 0.00%	0.19	OK	
	LC11 at 0.00%	0.25	OK	
	LC12 at 0.00%	0.24	OK	
	LC13 at 0.00%	0.09	OK	
	LC14 at 0.00%	0.07	OK	
	LC15 at 0.00%	0.10	OK	
	LC16 at 0.00%	0.09	OK	
	LC17 at 0.00%	0.16	OK	
	LC18 at 0.00%	0.16	OK	
	LC19 at 0.00%	0.16	OK	
	LC2 at 37.50%	0.13	OK	
	LC20 at 0.00%	0.17	OK	
	LC21 at 100.00%	0.08	OK	
	LC22 at 100.00%	0.07	OK	
	LC23 at 0.00%	0.08	OK	
	LC24 at 0.00%	0.08	OK	
	LC25 at 0.00%	0.10	OK	
	LC26 at 0.00%	0.09	OK	
	LC27 at 0.00%	0.11	OK	
	LC28 at 0.00%	0.10	OK	
	LC3 at 0.00%	**0.33**	**OK**	Eq. H2-1
	LC4 at 0.00%	0.31	OK	
	LC5 at 100.00%	0.28	OK	
	LC6 at 31.25%	0.13	OK	
	LC7 at 93.75%	0.32	OK	Eq. H2-1
	LC8 at 0.00%	0.29	OK	
	LC9 at 0.00%	0.21	OK	
	W180 at 100.00%	0.22	OK	
	W210 at 0.00%	0.14	OK	
	Wi180 at 100.00%	0.07	OK	
	Wi210 at 0.00%	0.04	OK	
	WL180 at 100.00%	0.02	OK	
	WL210 at 0.00%	0.01	OK	
105	LC1 at 18.75%	0.17	OK	
	LC10 at 100.00%	0.28	OK	
	LC11 at 100.00%	0.32	OK	
	LC12 at 100.00%	0.34	OK	
	LC13 at 100.00%	0.12	OK	
	LC14 at 100.00%	0.09	OK	
	LC15 at 100.00%	0.13	OK	
	LC16 at 100.00%	0.12	OK	
	LC17 at 100.00%	0.18	OK	
	LC18 at 100.00%	0.18	OK	
	LC19 at 100.00%	0.19	OK	
	LC2 at 0.00%	0.16	OK	
	LC20 at 100.00%	0.19	OK	
	LC21 at 100.00%	0.15	OK	
	LC22 at 100.00%	0.15	OK	
	LC23 at 100.00%	0.16	OK	
	LC24 at 100.00%	0.16	OK	
	LC25 at 100.00%	0.12	OK	
	LC26 at 100.00%	0.11	OK	
	LC27 at 100.00%	0.13	OK	

	LC28 at 100.00%	0.13	OK	
	LC3 at 0.00%	0.27	OK	Sec. F1
	LC4 at 100.00%	**0.42**	**OK**	Eq. H2-1
	LC5 at 12.50%	0.17	OK	
	LC6 at 0.00%	0.15	OK	
	LC7 at 0.00%	0.26	OK	
	LC8 at 100.00%	0.39	OK	
	LC9 at 100.00%	0.28	OK	
	W180 at 0.00%	0.14	OK	
	W210 at 100.00%	0.19	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 100.00%	0.05	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
106	LC1 at 56.25%	0.09	OK	
	LC10 at 0.00%	0.25	OK	
	LC11 at 0.00%	0.22	OK	Sec. F1
	LC12 at 0.00%	0.20	OK	
	LC13 at 0.00%	0.09	OK	
	LC14 at 0.00%	0.07	OK	
	LC15 at 0.00%	0.10	OK	
	LC16 at 0.00%	0.14	OK	
	LC17 at 0.00%	0.08	OK	
	LC18 at 0.00%	0.10	OK	
	LC19 at 0.00%	0.09	OK	
	LC2 at 0.00%	**0.41**	**OK**	Eq. H2-1
	LC20 at 0.00%	0.09	OK	
	LC21 at 0.00%	0.09	OK	
	LC22 at 0.00%	0.11	OK	
	LC23 at 0.00%	0.10	OK	
	LC24 at 0.00%	0.09	OK	
	LC25 at 0.00%	0.14	OK	
	LC26 at 0.00%	0.15	OK	
	LC27 at 0.00%	0.15	OK	
	LC28 at 0.00%	0.14	OK	
	LC3 at 0.00%	0.18	OK	
	LC4 at 100.00%	0.28	OK	Eq. H2-1
	LC5 at 56.25%	0.09	OK	Sec. F1
	LC6 at 0.00%	0.39	OK	
	LC7 at 0.00%	0.16	OK	
	LC8 at 100.00%	0.26	OK	
	LC9 at 0.00%	0.18	OK	
	W180 at 0.00%	0.06	OK	
	W210 at 100.00%	0.14	OK	
	Wi180 at 0.00%	0.02	OK	
	Wi210 at 100.00%	0.04	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 100.00%	0.01	OK	
107	LC1 at 100.00%	0.21	OK	
	LC10 at 0.00%	0.32	OK	Sec. F1
	LC11 at 0.00%	0.31	OK	
	LC12 at 0.00%	0.27	OK	
	LC13 at 0.00%	0.11	OK	
	LC14 at 0.00%	0.09	OK	
	LC15 at 0.00%	0.13	OK	
	LC16 at 0.00%	0.18	OK	
	LC17 at 0.00%	0.12	OK	
	LC18 at 0.00%	0.13	OK	
	LC19 at 0.00%	0.12	OK	
	LC2 at 0.00%	**0.34**	**OK**	Eq. H2-1
	LC20 at 0.00%	0.11	OK	
	LC21 at 0.00%	0.12	OK	

		LC22 at 0.00%	0.13	OK	
		LC23 at 0.00%	0.13	OK	
		LC24 at 0.00%	0.12	OK	
		LC25 at 0.00%	0.14	OK	
		LC26 at 0.00%	0.15	OK	
		LC27 at 0.00%	0.15	OK	
		LC28 at 0.00%	0.14	OK	
		LC3 at 0.00%	0.32	OK	
		LC4 at 62.50%	0.19	OK	
		LC5 at 100.00%	0.20	OK	
		LC6 at 100.00%	0.31	OK	
		LC7 at 0.00%	0.29	OK	
		LC8 at 68.75%	0.20	OK	Eq. H2-1
		LC9 at 0.00%	0.28	OK	
		W180 at 100.00%	0.15	OK	
		W210 at 100.00%	0.14	OK	
		Wi180 at 100.00%	0.04	OK	
		Wi210 at 100.00%	0.04	OK	
		WL180 at 100.00%	0.01	OK	
		WL210 at 100.00%	0.01	OK	
PIPE 2-1_2x0.203	**87**	LC1 at 71.88%	0.56	OK	
		LC10 at 71.88%	0.11	OK	
		LC11 at 71.88%	0.09	OK	
		LC12 at 71.88%	0.11	OK	
		LC13 at 71.88%	0.01	OK	
		LC14 at 71.88%	0.00	OK	
		LC15 at 71.88%	0.01	OK	
		LC16 at 71.88%	0.01	OK	
		LC17 at 71.88%	0.02	OK	
		LC18 at 71.88%	0.03	OK	
		LC19 at 71.88%	0.02	OK	
		LC2 at 71.88%	**0.62**	**OK**	Eq. H1-1b
		LC20 at 71.88%	0.03	OK	
		LC21 at 71.88%	0.02	OK	
		LC22 at 71.88%	0.03	OK	
		LC23 at 71.88%	0.02	OK	
		LC24 at 71.88%	0.03	OK	
		LC25 at 71.88%	0.02	OK	
		LC26 at 71.88%	0.03	OK	
		LC27 at 71.88%	0.02	OK	
		LC28 at 71.88%	0.03	OK	
		LC3 at 71.88%	0.56	OK	
		LC4 at 71.88%	0.62	OK	
		LC5 at 71.88%	0.56	OK	
		LC6 at 71.88%	0.62	OK	
		LC7 at 71.88%	0.56	OK	
		LC8 at 71.88%	0.62	OK	
		LC9 at 71.88%	0.09	OK	
		W180 at 71.88%	0.35	OK	
		W210 at 71.88%	0.39	OK	
		Wi180 at 71.88%	0.09	OK	
		Wi210 at 71.88%	0.10	OK	
		WL180 at 71.88%	0.02	OK	
		WL210 at 71.88%	0.03	OK	
	125	LC1 at 71.88%	0.79	OK	
		LC10 at 71.88%	0.17	OK	
		LC11 at 71.88%	0.15	OK	
		LC12 at 71.88%	0.17	OK	
		LC13 at 71.88%	0.01	OK	
		LC14 at 71.88%	0.00	OK	
		LC15 at 71.88%	0.01	OK	
		LC16 at 71.88%	0.01	OK	

		LC17 at 71.88%	0.04	OK	
		LC18 at 71.88%	0.05	OK	
		LC19 at 71.88%	0.04	OK	
		LC2 at 71.88%	**0.91**	**OK**	Eq. H1-1b
		LC20 at 71.88%	0.05	OK	
		LC21 at 71.88%	0.04	OK	
		LC22 at 71.88%	0.05	OK	
		LC23 at 71.88%	0.04	OK	
		LC24 at 71.88%	0.05	OK	
		LC25 at 71.88%	0.04	OK	
		LC26 at 71.88%	0.05	OK	
		LC27 at 71.88%	0.04	OK	
		LC28 at 71.88%	0.05	OK	
		LC3 at 71.88%	0.79	OK	
		LC4 at 71.88%	0.91	OK	
		LC5 at 71.88%	0.79	OK	
		LC6 at 71.88%	0.91	OK	
		LC7 at 71.88%	0.79	OK	
		LC8 at 71.88%	0.91	OK	
		LC9 at 71.88%	0.15	OK	
		W180 at 71.88%	0.49	OK	
		W210 at 71.88%	0.57	OK	
		Wi180 at 71.88%	0.14	OK	
		Wi210 at 71.88%	0.16	OK	
		WL180 at 71.88%	0.04	OK	
		WL210 at 71.88%	0.04	OK	
	131	LC1 at 71.88%	**0.91**	**OK**	Eq. H1-1b
		LC10 at 71.88%	0.15	OK	
		LC11 at 71.88%	0.21	OK	
		LC12 at 71.88%	0.15	OK	
		LC13 at 71.88%	0.01	OK	
		LC14 at 71.88%	0.01	OK	
		LC15 at 71.88%	0.01	OK	
		LC16 at 71.88%	0.01	OK	
		LC17 at 71.88%	0.07	OK	
		LC18 at 71.88%	0.05	OK	
		LC19 at 71.88%	0.07	OK	
		LC2 at 71.88%	0.70	OK	
		LC20 at 71.88%	0.05	OK	
		LC21 at 71.88%	0.05	OK	
		LC22 at 71.88%	0.04	OK	
		LC23 at 71.88%	0.05	OK	
		LC24 at 71.88%	0.04	OK	
		LC25 at 71.88%	0.05	OK	
		LC26 at 71.88%	0.04	OK	
		LC27 at 71.88%	0.05	OK	
		LC28 at 71.88%	0.04	OK	
		LC3 at 71.88%	0.91	OK	
		LC4 at 71.88%	0.70	OK	
		LC5 at 71.88%	0.90	OK	
		LC6 at 71.88%	0.70	OK	
		LC7 at 71.88%	0.90	OK	
		LC8 at 71.88%	0.70	OK	
		LC9 at 71.88%	0.21	OK	
		W180 at 71.88%	0.56	OK	
		W210 at 71.88%	0.43	OK	
		Wi180 at 71.88%	0.20	OK	
		Wi210 at 71.88%	0.14	OK	
		WL180 at 71.88%	0.05	OK	
		WL210 at 71.88%	0.03	OK	
PIPE 2x0.154	**90**	LC1 at 71.88%	1.67	N.G.	
		LC10 at 71.88%	0.55	OK	

	LC11 at 71.88%	0.34	OK	
	LC12 at 71.88%	0.55	OK	
	LC13 at 71.88%	0.02	OK	
	LC14 at 71.88%	0.02	OK	
	LC15 at 71.88%	0.02	OK	
	LC16 at 71.88%	0.02	OK	
	LC17 at 71.88%	0.08	OK	
	LC18 at 71.88%	0.15	OK	
	LC19 at 71.88%	0.08	OK	
	LC2 at 71.88%	**2.83**	**N.G.**	Eq. H1-1b
	LC20 at 71.88%	0.15	OK	
	LC21 at 71.88%	0.08	OK	
	LC22 at 71.88%	0.15	OK	
	LC23 at 71.88%	0.08	OK	
	LC24 at 71.88%	0.15	OK	
	LC25 at 71.88%	0.08	OK	
	LC26 at 71.88%	0.15	OK	
	LC27 at 71.88%	0.08	OK	
	LC28 at 71.88%	0.15	OK	
	LC3 at 71.88%	1.67	N.G.	
	LC4 at 71.88%	2.83	N.G.	
	LC5 at 71.88%	1.67	N.G.	
	LC6 at 71.88%	2.82	N.G.	
	LC7 at 71.88%	1.67	N.G.	
	LC8 at 71.88%	2.82	N.G.	
	LC9 at 71.88%	0.34	OK	
	W180 at 71.88%	1.04	N.G.	
	W210 at 71.88%	1.76	N.G.	
	Wi180 at 71.88%	0.31	OK	
	Wi210 at 71.88%	0.52	OK	
	WL180 at 71.88%	0.08	OK	
	WL210 at 71.88%	0.14	OK	
96	LC1 at 65.63%	0.55	OK	
	LC10 at 65.63%	0.16	OK	
	LC11 at 65.63%	0.11	OK	
	LC12 at 65.63%	0.16	OK	
	LC13 at 65.63%	0.00	OK	
	LC14 at 65.63%	0.00	OK	
	LC15 at 65.63%	0.00	OK	
	LC16 at 65.63%	0.00	OK	
	LC17 at 65.63%	0.03	OK	
	LC18 at 65.63%	0.04	OK	
	LC19 at 65.63%	0.03	OK	
	LC2 at 65.63%	0.76	OK	
	LC20 at 65.63%	0.04	OK	
	LC21 at 65.63%	0.03	OK	
	LC22 at 65.63%	0.04	OK	
	LC23 at 65.63%	0.03	OK	
	LC24 at 65.63%	0.04	OK	
	LC25 at 65.63%	0.03	OK	
	LC26 at 65.63%	0.04	OK	
	LC27 at 65.63%	0.03	OK	
	LC28 at 65.63%	0.04	OK	
	LC3 at 65.63%	0.55	OK	
	LC4 at 65.63%	**0.76**	**OK**	Eq. H1-1b
	LC5 at 65.63%	0.55	OK	
	LC6 at 65.63%	0.76	OK	
	LC7 at 65.63%	0.55	OK	
	LC8 at 65.63%	0.76	OK	
	LC9 at 65.63%	0.11	OK	
	W180 at 65.63%	0.34	OK	
	W210 at 65.63%	0.48	OK	
	Wi180 at 65.63%	0.11	OK	

	Wi210 at 65.63%	0.15	OK	
	WL180 at 65.63%	0.03	OK	
	WL210 at 65.63%	0.04	OK	
123	LC1 at 71.88%	2.23	N.G.	
	LC10 at 71.88%	0.70	OK	
	LC11 at 71.88%	0.45	OK	
	LC12 at 71.88%	0.70	OK	
	LC13 at 71.88%	0.02	OK	
	LC14 at 71.88%	0.02	OK	
	LC15 at 71.88%	0.02	OK	
	LC16 at 71.88%	0.02	OK	
	LC17 at 71.88%	0.11	OK	
	LC18 at 71.88%	0.20	OK	
	LC19 at 71.88%	0.11	OK	
	LC2 at 71.88%	3.65	N.G.	
	LC20 at 71.88%	0.20	OK	
	LC21 at 71.88%	0.11	OK	
	LC22 at 71.88%	0.20	OK	
	LC23 at 71.88%	0.11	OK	
	LC24 at 71.88%	0.20	OK	
	LC25 at 71.88%	0.11	OK	
	LC26 at 71.88%	0.20	OK	
	LC27 at 71.88%	0.11	OK	
	LC28 at 71.88%	0.20	OK	
	LC3 at 71.88%	2.23	N.G.	
	LC4 at 71.88%	**3.65**	**N.G.**	Eq. H1-1b
	LC5 at 71.88%	2.23	N.G.	
	LC6 at 71.88%	3.65	N.G.	
	LC7 at 71.88%	2.23	N.G.	
	LC8 at 71.88%	3.65	N.G.	
	LC9 at 71.88%	0.45	OK	
	W180 at 71.88%	1.39	N.G.	
	W210 at 71.88%	2.28	N.G.	
	Wi180 at 71.88%	0.42	OK	
	Wi210 at 71.88%	0.67	OK	
	WL180 at 71.88%	0.11	OK	
	WL210 at 71.88%	0.19	OK	
127	LC1 at 65.63%	0.55	OK	
	LC10 at 65.63%	0.16	OK	
	LC11 at 65.63%	0.11	OK	
	LC12 at 65.63%	0.16	OK	
	LC13 at 65.63%	0.00	OK	
	LC14 at 65.63%	0.00	OK	
	LC15 at 65.63%	0.00	OK	
	LC16 at 65.63%	0.00	OK	
	LC17 at 65.63%	0.03	OK	
	LC18 at 65.63%	0.04	OK	
	LC19 at 65.63%	0.03	OK	
	LC2 at 65.63%	0.76	OK	
	LC20 at 65.63%	0.04	OK	
	LC21 at 65.63%	0.03	OK	
	LC22 at 65.63%	0.04	OK	
	LC23 at 65.63%	0.03	OK	
	LC24 at 65.63%	0.04	OK	
	LC25 at 65.63%	0.03	OK	
	LC26 at 65.63%	0.04	OK	
	LC27 at 65.63%	0.03	OK	
	LC28 at 65.63%	0.04	OK	
	LC3 at 65.63%	0.55	OK	
	LC4 at 65.63%	**0.76**	**OK**	Eq. H1-1b
	LC5 at 65.63%	0.55	OK	
	LC6 at 65.63%	0.76	OK	

	LC7 at 65.63%	0.55	OK	
	LC8 at 65.63%	0.76	OK	
	LC9 at 65.63%	0.11	OK	
	W180 at 65.63%	0.34	OK	
	W210 at 65.63%	0.48	OK	
	Wi180 at 65.63%	0.11	OK	
	Wi210 at 65.63%	0.15	OK	
	WL180 at 65.63%	0.03	OK	
	WL210 at 65.63%	0.04	OK	
129	LC1 at 71.88%	**2.66**	**N.G.**	Eq. H1-1b
	LC10 at 71.88%	0.34	OK	
	LC11 at 71.88%	0.53	OK	
	LC12 at 71.88%	0.34	OK	
	LC13 at 71.88%	0.02	OK	
	LC14 at 71.88%	0.02	OK	
	LC15 at 71.88%	0.02	OK	
	LC16 at 71.88%	0.02	OK	
	LC17 at 71.88%	0.16	OK	
	LC18 at 71.88%	0.08	OK	
	LC19 at 71.88%	0.16	OK	
	LC2 at 71.88%	1.48	N.G.	
	LC20 at 71.88%	0.08	OK	
	LC21 at 71.88%	0.18	OK	
	LC22 at 71.88%	0.11	OK	
	LC23 at 71.88%	0.18	OK	
	LC24 at 71.88%	0.11	OK	
	LC25 at 71.88%	0.16	OK	
	LC26 at 71.88%	0.08	OK	
	LC27 at 71.88%	0.16	OK	
	LC28 at 71.88%	0.08	OK	
	LC3 at 71.88%	2.66	N.G.	
	LC4 at 71.88%	1.48	N.G.	
	LC5 at 71.88%	2.65	N.G.	
	LC6 at 71.88%	1.48	N.G.	
	LC7 at 71.88%	2.65	N.G.	
	LC8 at 71.88%	1.48	N.G.	
	LC9 at 71.88%	0.53	OK	
	W180 at 71.88%	1.65	N.G.	
	W210 at 71.88%	0.92	OK	
	Wi180 at 71.88%	0.50	OK	
	Wi210 at 71.88%	0.31	OK	
	WL180 at 71.88%	0.15	OK	
	WL210 at 71.88%	0.07	OK	
133	LC1 at 65.63%	**0.48**	**OK**	Eq. H1-1b
	LC10 at 65.63%	0.08	OK	
	LC11 at 65.63%	0.12	OK	
	LC12 at 65.63%	0.08	OK	
	LC13 at 65.63%	0.00	OK	
	LC14 at 65.63%	0.00	OK	
	LC15 at 65.63%	0.00	OK	
	LC16 at 65.63%	0.00	OK	
	LC17 at 65.63%	0.03	OK	
	LC18 at 65.63%	0.02	OK	
	LC19 at 65.63%	0.03	OK	
	LC2 at 65.63%	0.36	OK	
	LC20 at 65.63%	0.02	OK	
	LC21 at 65.63%	0.03	OK	
	LC22 at 65.63%	0.02	OK	
	LC23 at 65.63%	0.03	OK	
	LC24 at 65.63%	0.02	OK	
	LC25 at 65.63%	0.05	OK	
	LC26 at 65.63%	0.04	OK	

		LC27 at 65.63%	0.05	OK	
		LC28 at 65.63%	0.04	OK	
		LC3 at 65.63%	0.48	OK	
		LC4 at 65.63%	0.36	OK	
		LC5 at 65.63%	0.48	OK	
		LC6 at 65.63%	0.36	OK	
		LC7 at 65.63%	0.48	OK	
		LC8 at 65.63%	0.36	OK	
		LC9 at 65.63%	0.12	OK	
		W180 at 65.63%	0.30	OK	
		W210 at 65.63%	0.23	OK	
		Wi180 at 65.63%	0.11	OK	
		Wi210 at 65.63%	0.08	OK	
		WL180 at 65.63%	0.03	OK	
		WL210 at 65.63%	0.01	OK	
	135	LC1 at 100.00%	**0.12**	**OK**	Eq. H1-1b
		LC10 at 100.00%	0.03	OK	
		LC11 at 100.00%	0.03	OK	
		LC12 at 100.00%	0.03	OK	
		LC13 at 100.00%	0.00	OK	
		LC14 at 100.00%	0.00	OK	
		LC15 at 100.00%	0.00	OK	
		LC16 at 100.00%	0.00	OK	
		LC17 at 100.00%	0.01	OK	
		LC18 at 100.00%	0.01	OK	
		LC19 at 100.00%	0.01	OK	
		LC2 at 100.00%	0.12	OK	
		LC20 at 100.00%	0.01	OK	
		LC21 at 100.00%	0.01	OK	
		LC22 at 100.00%	0.01	OK	
		LC23 at 100.00%	0.01	OK	
		LC24 at 100.00%	0.01	OK	
		LC25 at 100.00%	0.01	OK	
		LC26 at 100.00%	0.01	OK	
		LC27 at 100.00%	0.01	OK	
		LC28 at 100.00%	0.01	OK	
		LC3 at 100.00%	0.12	OK	
		LC4 at 100.00%	0.12	OK	
		LC5 at 100.00%	0.12	OK	
		LC6 at 100.00%	0.12	OK	
		LC7 at 100.00%	0.12	OK	
		LC8 at 100.00%	0.12	OK	
		LC9 at 100.00%	0.03	OK	
		W180 at 100.00%	0.07	OK	
		W210 at 100.00%	0.07	OK	
		Wi180 at 100.00%	0.03	OK	
		Wi210 at 100.00%	0.03	OK	
		WL180 at 100.00%	0.01	OK	
		WL210 at 100.00%	0.01	OK	
PIPE 3x0.216	**9**	LC1 at 68.75%	**0.84**	**OK**	Eq. H3-6
		LC10 at 32.03%	0.52	OK	
		LC11 at 32.03%	0.47	OK	
		LC12 at 32.03%	0.40	OK	
		LC13 at 32.03%	0.15	OK	
		LC14 at 32.03%	0.11	OK	
		LC15 at 32.03%	0.17	OK	
		LC16 at 32.03%	0.22	OK	
		LC17 at 68.75%	0.18	OK	
		LC18 at 32.03%	0.19	OK	
		LC19 at 32.03%	0.18	OK	
		LC2 at 32.03%	0.54	OK	Eq. H1-1b
		LC20 at 68.75%	0.18	OK	

	LC21 at 32.03%	0.18	OK	
	LC22 at 32.03%	0.20	OK	
	LC23 at 32.03%	0.19	OK	
	LC24 at 32.03%	0.17	OK	
	LC25 at 32.03%	0.19	OK	
	LC26 at 32.03%	0.21	OK	
	LC27 at 32.03%	0.20	OK	
	LC28 at 32.03%	0.18	OK	
	LC3 at 68.75%	0.79	OK	
	LC4 at 67.97%	0.48	OK	Eq. H1-1b
	LC5 at 68.75%	0.83	OK	
	LC6 at 32.03%	0.51	OK	
	LC7 at 68.75%	0.79	OK	
	LC8 at 67.97%	0.46	OK	
	LC9 at 32.03%	0.45	OK	
	W180 at 68.75%	0.42	OK	
	W210 at 67.97%	0.25	OK	
	Wi180 at 68.75%	0.13	OK	
	Wi210 at 67.97%	0.07	OK	
	WL180 at 68.75%	0.04	OK	
	WL210 at 67.97%	0.02	OK	
10	LC1 at 67.97%	0.43	OK	
	LC10 at 67.97%	0.42	OK	
	LC11 at 67.97%	0.40	OK	
	LC12 at 67.97%	0.46	OK	
	LC13 at 67.97%	0.15	OK	
	LC14 at 67.97%	0.11	OK	
	LC15 at 67.97%	0.13	OK	
	LC16 at 67.97%	0.16	OK	
	LC17 at 67.97%	0.15	OK	
	LC18 at 67.97%	0.14	OK	
	LC19 at 67.97%	0.13	OK	
	LC2 at 31.25%	**0.81**	**OK**	Eq. H3-6
	LC20 at 67.97%	0.15	OK	
	LC21 at 67.97%	0.14	OK	
	LC22 at 67.97%	0.13	OK	
	LC23 at 67.97%	0.12	OK	
	LC24 at 67.97%	0.14	OK	
	LC25 at 67.97%	0.17	OK	
	LC26 at 32.03%	0.19	OK	
	LC27 at 32.03%	0.19	OK	
	LC28 at 32.03%	0.17	OK	
	LC3 at 32.03%	0.41	OK	Eq. H1-1b
	LC4 at 31.25%	0.73	OK	
	LC5 at 67.97%	0.39	OK	
	LC6 at 31.25%	0.79	OK	
	LC7 at 28.13%	0.39	OK	
	LC8 at 31.25%	0.74	OK	
	LC9 at 67.97%	0.48	OK	Eq. H1-1b
	W180 at 32.03%	0.21	OK	
	W210 at 28.13%	0.39	OK	
	Wi180 at 32.03%	0.06	OK	
	Wi210 at 28.13%	0.11	OK	
	WL180 at 32.03%	0.02	OK	
	WL210 at 28.13%	0.03	OK	
11	LC1 at 32.03%	0.38	OK	Eq. H1-1b
	LC10 at 67.97%	0.43	OK	
	LC11 at 67.97%	0.53	OK	Eq. H1-1b
	LC12 at 67.97%	0.50	OK	Eq. H1-1b
	LC13 at 67.97%	0.15	OK	
	LC14 at 67.97%	0.11	OK	
	LC15 at 67.97%	0.19	OK	

		LC16 at 67.97%	0.15	OK	
		LC17 at 67.97%	0.25	OK	
		LC18 at 67.97%	0.25	OK	
		LC19 at 67.97%	0.28	OK	
		LC2 at 31.25%	**0.63**	**OK**	Eq. H3-6
		LC20 at 67.97%	0.27	OK	
		LC21 at 67.97%	0.22	OK	
		LC22 at 67.97%	0.23	OK	
		LC23 at 67.97%	0.25	OK	
		LC24 at 67.97%	0.25	OK	
		LC25 at 67.97%	0.15	OK	
		LC26 at 67.97%	0.16	OK	
		LC27 at 67.97%	0.18	OK	
		LC28 at 67.97%	0.17	OK	
		LC3 at 67.97%	0.45	OK	
		LC4 at 31.25%	0.55	OK	
		LC5 at 32.03%	0.36	OK	
		LC6 at 31.25%	0.62	OK	
		LC7 at 67.97%	0.41	OK	
		LC8 at 31.25%	0.56	OK	
		LC9 at 67.97%	0.41	OK	
		W180 at 32.03%	0.19	OK	
		W210 at 31.25%	0.30	OK	
		Wi180 at 67.97%	0.06	OK	
		Wi210 at 28.13%	0.09	OK	
		WL180 at 67.97%	0.02	OK	
		WL210 at 28.13%	0.02	OK	
PL 6X1/2	**25**	LC1 at 0.00%	0.12	OK	
		LC10 at 46.88%	0.11	OK	
		LC11 at 50.00%	0.05	OK	
		LC12 at 0.00%	0.07	OK	
		LC13 at 50.00%	0.02	OK	
		LC14 at 50.00%	0.01	OK	
		LC15 at 50.00%	0.02	OK	
		LC16 at 0.00%	0.03	OK	
		LC17 at 50.00%	0.02	OK	
		LC18 at 46.88%	0.03	OK	
		LC19 at 50.00%	0.02	OK	
		LC2 at 46.88%	**0.44**	**OK**	Eq. H3-6
		LC20 at 0.00%	0.02	OK	
		LC21 at 50.00%	0.02	OK	
		LC22 at 46.88%	0.03	OK	
		LC23 at 50.00%	0.02	OK	
		LC24 at 0.00%	0.02	OK	
		LC25 at 50.00%	0.04	OK	
		LC26 at 50.00%	0.05	OK	
		LC27 at 50.00%	0.04	OK	
		LC28 at 0.00%	0.04	OK	
		LC3 at 50.00%	0.13	OK	
		LC4 at 46.88%	0.41	OK	
		LC5 at 0.00%	0.12	OK	
		LC6 at 46.88%	0.43	OK	
		LC7 at 50.00%	0.13	OK	
		LC8 at 46.88%	0.42	OK	
		LC9 at 50.00%	0.08	OK	
		W180 at 50.00%	0.08	OK	
		W210 at 46.88%	0.22	OK	
		Wi180 at 50.00%	0.02	OK	
		Wi210 at 46.88%	0.06	OK	
		WL180 at 50.00%	0.01	OK	
		WL210 at 46.88%	0.02	OK	
	26	LC1 at 46.88%	0.41	OK	

	LC10 at 50.00%	0.07	OK	
	LC11 at 46.88%	0.12	OK	
	LC12 at 46.88%	0.07	OK	
	LC13 at 50.00%	0.02	OK	
	LC14 at 50.00%	0.01	OK	
	LC15 at 46.88%	0.02	OK	
	LC16 at 50.00%	0.02	OK	
	LC17 at 50.00%	0.04	OK	
	LC18 at 50.00%	0.05	OK	
	LC19 at 46.88%	0.05	OK	
	LC2 at 50.00%	0.17	OK	
	LC20 at 50.00%	0.04	OK	
	LC21 at 0.00%	0.04	OK	
	LC22 at 46.88%	0.03	OK	
	LC23 at 46.88%	0.05	OK	
	LC24 at 46.88%	0.03	OK	
	LC25 at 0.00%	0.02	OK	
	LC26 at 46.88%	0.02	OK	
	LC27 at 46.88%	0.04	OK	
	LC28 at 46.88%	0.02	OK	
	LC3 at 46.88%	**0.44**	**OK**	Eq. H3-6
	LC4 at 50.00%	0.19	OK	Eq. H1-1b
	LC5 at 46.88%	0.42	OK	
	LC6 at 50.00%	0.18	OK	
	LC7 at 46.88%	0.43	OK	
	LC8 at 50.00%	0.19	OK	
	LC9 at 0.00%	0.08	OK	
	W180 at 46.88%	0.22	OK	
	W210 at 50.00%	0.11	OK	
	Wi180 at 46.88%	0.07	OK	
	Wi210 at 50.00%	0.03	OK	
	WL180 at 46.88%	0.02	OK	
	WL210 at 50.00%	0.01	OK	
27	LC1 at 46.88%	**0.24**	**OK**	Eq. H1-1b
	LC10 at 0.00%	0.05	OK	
	LC11 at 46.88%	0.06	OK	
	LC12 at 46.88%	0.08	OK	
	LC13 at 50.00%	0.02	OK	
	LC14 at 50.00%	0.01	OK	
	LC15 at 50.00%	0.02	OK	
	LC16 at 50.00%	0.02	OK	
	LC17 at 46.88%	0.02	OK	
	LC18 at 0.00%	0.02	OK	
	LC19 at 46.88%	0.02	OK	
	LC2 at 0.00%	0.19	OK	
	LC20 at 50.00%	0.02	OK	
	LC21 at 46.88%	0.02	OK	
	LC22 at 0.00%	0.02	OK	
	LC23 at 50.00%	0.02	OK	
	LC24 at 50.00%	0.02	OK	
	LC25 at 46.88%	0.02	OK	
	LC26 at 0.00%	0.02	OK	
	LC27 at 46.88%	0.02	OK	
	LC28 at 46.88%	0.02	OK	
	LC3 at 46.88%	0.20	OK	
	LC4 at 46.88%	0.20	OK	
	LC5 at 46.88%	0.23	OK	
	LC6 at 0.00%	0.19	OK	
	LC7 at 46.88%	0.21	OK	
	LC8 at 0.00%	0.20	OK	
	LC9 at 46.88%	0.08	OK	
	W180 at 46.88%	0.14	OK	
	W210 at 0.00%	0.12	OK	

Wi180 at 46.88%	0.03	OK
Wi210 at 0.00%	0.03	OK
WL180 at 46.88%	0.01	OK
WL210 at 0.00%	0.01	OK

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
3	-6.0833	0.00	0.00	0
4	-6.25	0.00	0.00	0
5	-6.3333	0.00	-0.433	0
6	-6.5833	0.00	-0.866	0
10	-6.6667	0.00	-0.7217	0
13	-0.50	0.00	-11.4027	0
14	-0.4167	0.00	-11.547	0
18	6.0833	0.00	0.00	0
19	6.25	0.00	0.00	0
20	6.3333	0.00	-0.433	0
21	6.5833	0.00	-0.866	0
25	6.6667	0.00	-0.7217	0
28	0.50	0.00	-11.4027	0
29	0.4167	0.00	-11.547	0
32	0.00	0.00	-11.4027	0
211	-1.45E-07	0.00	-4.0896	0
298	0.7564	6.00	-11.3587	0
299	0.7564	-2.00	-11.3587	0
301	0.5832	0.00	-11.2587	0
303	0.7564	0.00	-11.3587	0
304	2.2999	6.00	-8.6852	0
305	2.2999	-2.00	-8.6852	0

307	2.1267	0.00	-8.5852	0
309	2.2999	0.00	-8.6852	0
316	6.2149	4.00	-1.9043	0
317	6.2149	-2.00	-1.9043	0
319	6.0417	0.00	-1.8043	0
321	6.2149	0.00	-1.9043	0
322	2.3767	0.00	-8.1522	0
323	4.7067	0.00	-4.1165	0
329	-4.7067	0.00	-4.1165	0
330	-2.3767	0.00	-8.1522	0
331	2.33	0.00	0.00	0
332	-2.33	0.00	0.00	0
337	-2.0289	0.00	-8.1522	0
372	2.0289	0.00	-8.1522	0
375	4.5328	0.00	-3.8153	0
410	2.5039	0.00	-0.3012	0
413	-2.5039	0.00	-0.3012	0
448	-4.5328	0.00	-3.8153	0
450	-1.45E-07	0.00	-5.8796	0
466	-1.5502	0.00	-3.1946	0
525	1.5502	0.00	-3.1946	0
550	-5.1299	6.00	-3.7835	0
551	-5.1299	-2.00	-3.7835	0
552	-4.9567	0.00	-3.6835	0
553	-5.1299	0.00	-3.7835	0
554	-6.6734	6.00	-1.1101	0
555	-6.6734	-2.00	-1.1101	0
556	-6.5002	0.00	-1.0101	0
557	-6.6734	0.00	-1.1101	0
558	-1.2149	4.00	-10.5645	0
559	-1.2149	-2.00	-10.5645	0
560	-1.0417	0.00	-10.4645	0
561	-1.2149	0.00	-10.5645	0
562	2.83	6.00	0.20	0
563	2.83	-2.00	0.20	0
564	2.83	0.00	0.00	0
565	2.83	0.00	0.20	0
566	5.917	6.00	0.20	0
567	5.917	-2.00	0.20	0
568	5.917	0.00	0.00	0
569	5.917	0.00	0.20	0
570	-5.00	4.00	0.20	0
571	-5.00	-2.00	0.20	0
572	-5.00	0.00	0.00	0
573	-5.00	0.00	0.20	0
574	1.5289	0.00	-8.1522	0
575	1.5289	2.00	-8.1522	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
450	1	1	1	1	1	1
466	1	1	1	1	1	1
525	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
9	4	19		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	10	14		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
11	29	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
25	6	3		PL 6X1/2	A36	0.00	0.00	0.00
26	18	21		PL 6X1/2	A36	0.00	0.00	0.00
27	28	13		PL 6X1/2	A36	0.00	0.00	0.00
87	298	299		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	304	305		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
96	316	317		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
99	332	329		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
100	331	323		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
101	322	330		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
102	32	337		L 2X2X3_16	A36	0.00	0.00	0.00
103	372	32		L 2X2X3_16	A36	0.00	0.00	0.00
104	410	20		L 2X2X3_16	A36	0.00	0.00	0.00
105	20	375		L 2X2X3_16	A36	0.00	0.00	0.00
106	448	5		L 2X2X3_16	A36	0.00	0.00	0.00
107	413	5		L 2X2X3_16	A36	0.00	0.00	0.00
108	32	450		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
109	20	525		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
110	466	5		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
123	550	551		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
125	554	555		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
127	558	559		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
129	562	563		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
131	566	567		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
133	570	571		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	575	574		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
87	0.00	2	-0.50	0.00	-0.866
90	0.00	2	-0.50	0.00	-0.866
96	0.00	2	-0.50	0.00	-0.866
102	270.00	0	0.00	0.00	0.00
103	270.00	0	0.00	0.00	0.00
104	270.00	0	0.00	0.00	0.00
105	270.00	0	0.00	0.00	0.00
106	270.00	0	0.00	0.00	0.00
123	0.00	2	-0.50	0.00	0.866
125	0.00	2	-0.50	0.00	0.866
127	0.00	2	-0.50	0.00	0.866

HUDSON
Design Group LLC

Mount Calculations
(Proposed Conditions)

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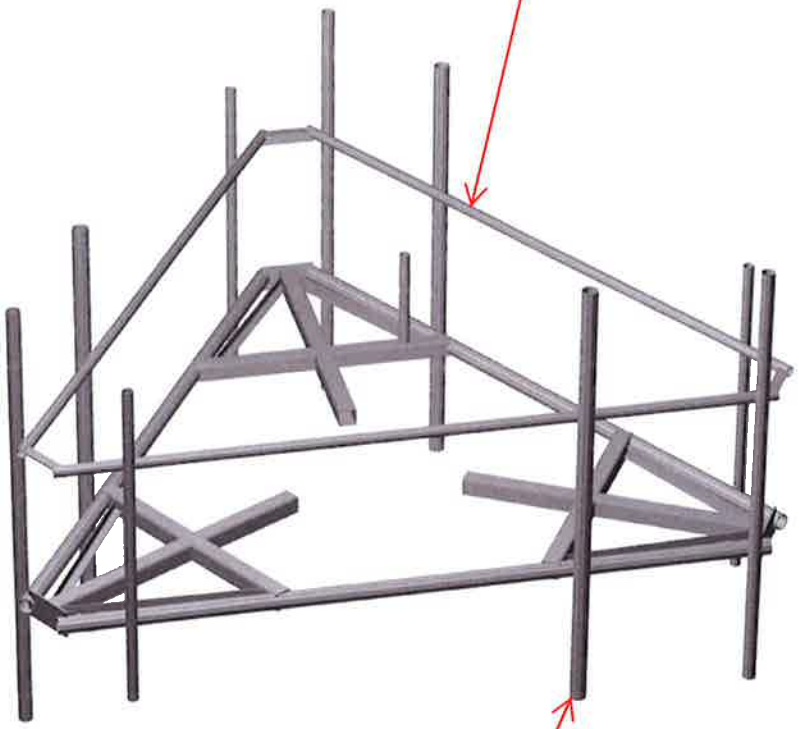

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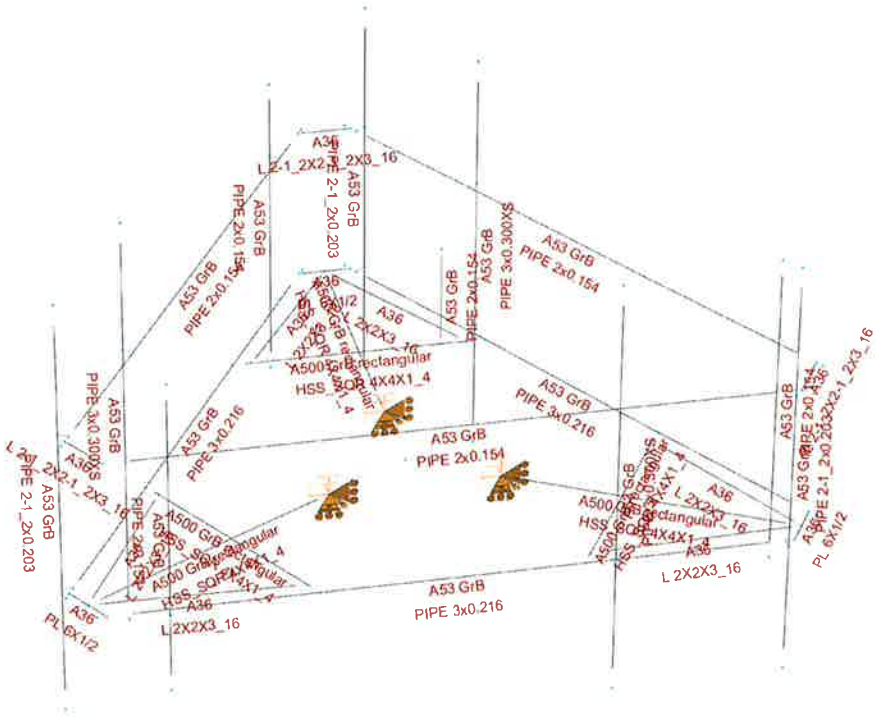

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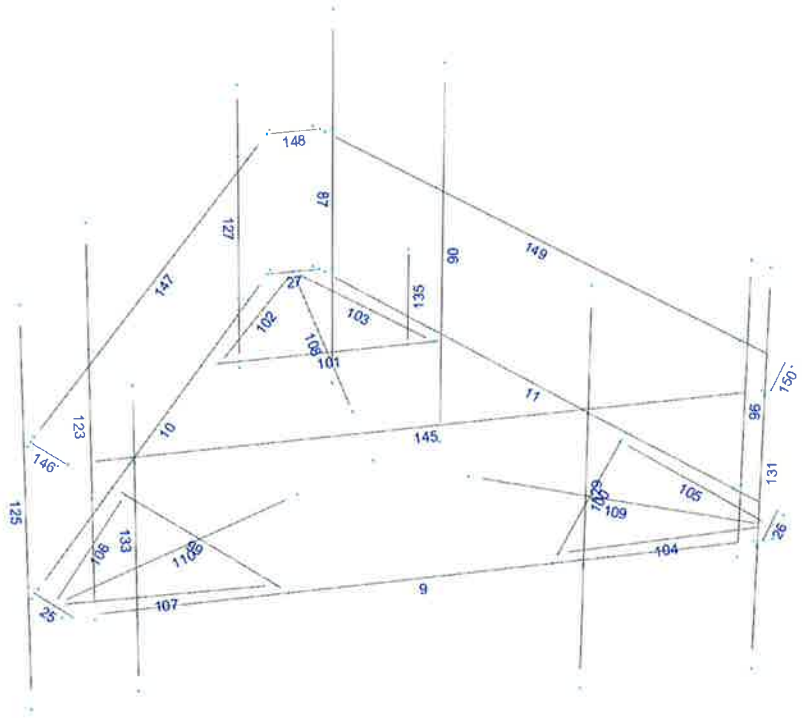

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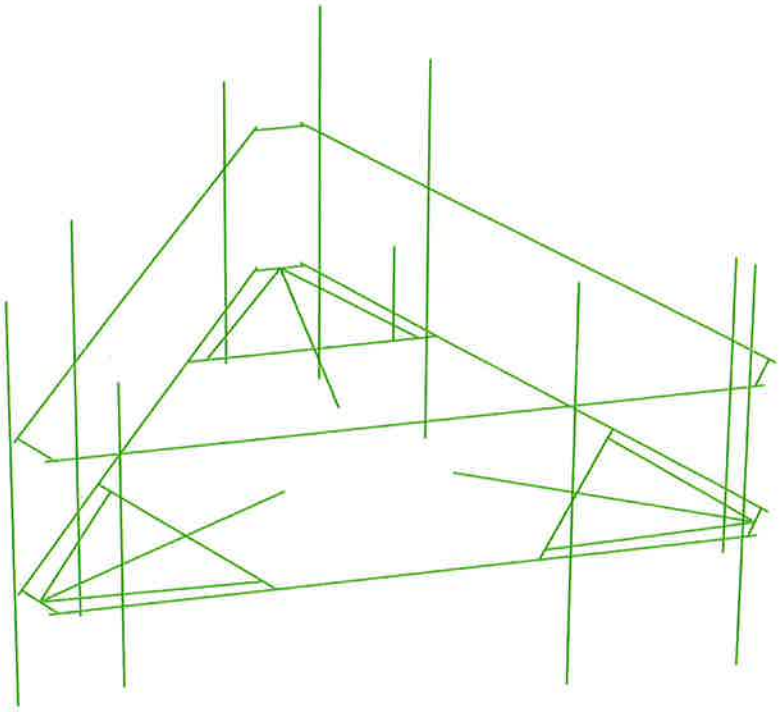
Design status

- Not designed
- Error on design
- Design O.K.
- With warnings



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Current Date: 8/23/2018 2:40 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5540\CT5540 (LTE 2C-3C) (MOD.).e

Steel Code Check

Report: Summary - For all selected load conditions

Load conditions to be included in design :

W180=-W0
W210=-W30
Wi180=-Wi0
Wi210=-Wi30
WL180=-WL0
WL210=-WL30
LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC5=0.9DL+1.6W0
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**99**	LC1 at 50.00%	0.14	OK	
			LC10 at 50.00%	0.31	OK	
			LC11 at 50.00%	0.29	OK	
			LC12 at 50.00%	0.28	OK	
			LC13 at 50.00%	0.10	OK	
			LC14 at 50.00%	0.08	OK	
			LC15 at 48.44%	0.15	OK	
			LC16 at 50.00%	0.17	OK	
			LC17 at 50.00%	0.10	OK	
			LC18 at 50.00%	0.10	OK	
			LC19 at 50.00%	0.10	OK	
			LC2 at 50.00%	**0.31**	**OK**	Eq. H1-1b
			LC20 at 50.00%	0.10	OK	
			LC21 at 50.00%	0.11	OK	
			LC22 at 50.00%	0.11	OK	

	LC23 at 50.00%	0.11	OK	
	LC24 at 50.00%	0.11	OK	
	LC25 at 50.00%	0.14	OK	
	LC26 at 50.00%	0.14	OK	
	LC27 at 50.00%	0.14	OK	
	LC28 at 50.00%	0.14	OK	
	LC3 at 48.44%	0.19	OK	
	LC4 at 100.00%	0.22	OK	Eq. H1-1b
	LC5 at 50.00%	0.12	OK	
	LC6 at 50.00%	0.28	OK	
	LC7 at 48.44%	0.17	OK	
	LC8 at 100.00%	0.21	OK	
	LC9 at 50.00%	0.29	OK	
	W180 at 48.44%	0.07	OK	
	W210 at 50.00%	0.13	OK	
	Wi180 at 48.44%	0.02	OK	
	Wi210 at 50.00%	0.03	OK	
	WL180 at 48.44%	0.00	OK	
	WL210 at 50.00%	0.01	OK	
100	LC1 at 0.00%	0.20	OK	Eq. H1-1b
	LC10 at 48.44%	0.28	OK	
	LC11 at 48.44%	**0.30**	**OK**	Eq. H1-1b
	LC12 at 48.44%	0.29	OK	
	LC13 at 48.44%	0.10	OK	
	LC14 at 48.44%	0.07	OK	
	LC15 at 48.44%	0.18	OK	
	LC16 at 48.44%	0.11	OK	
	LC17 at 48.44%	0.14	OK	
	LC18 at 48.44%	0.14	OK	
	LC19 at 48.44%	0.15	OK	
	LC2 at 48.44%	0.07	OK	
	LC20 at 48.44%	0.15	OK	
	LC21 at 48.44%	0.16	OK	
	LC22 at 48.44%	0.16	OK	
	LC23 at 48.44%	0.16	OK	
	LC24 at 48.44%	0.16	OK	
	LC25 at 48.44%	0.11	OK	
	LC26 at 48.44%	0.11	OK	
	LC27 at 48.44%	0.11	OK	
	LC28 at 48.44%	0.11	OK	
	LC3 at 48.44%	0.30	OK	
	LC4 at 50.00%	0.24	OK	
	LC5 at 0.00%	0.20	OK	
	LC6 at 50.00%	0.09	OK	
	LC7 at 48.44%	0.27	OK	
	LC8 at 50.00%	0.22	OK	
	LC9 at 48.44%	0.28	OK	
	W180 at 48.44%	0.13	OK	
	W210 at 50.00%	0.10	OK	
	Wi180 at 48.44%	0.03	OK	
	Wi210 at 50.00%	0.02	OK	
	WL180 at 48.44%	0.01	OK	
	WL210 at 50.00%	0.01	OK	
101	LC1 at 48.75%	0.23	OK	
	LC10 at 48.75%	0.27	OK	
	LC11 at 48.75%	0.27	OK	
	LC12 at 48.75%	**0.28**	**OK**	Eq. H1-1b
	LC13 at 48.75%	0.10	OK	
	LC14 at 48.75%	0.08	OK	
	LC15 at 48.75%	0.08	OK	
	LC16 at 48.75%	0.09	OK	
	LC17 at 48.75%	0.10	OK	

	LC18 at 48.75%	0.10	OK	
	LC19 at 48.75%	0.10	OK	
	LC2 at 0.00%	0.16	OK	Eq. H1-1b
	LC20 at 48.75%	0.10	OK	
	LC21 at 48.75%	0.09	OK	
	LC22 at 48.75%	0.09	OK	
	LC23 at 48.75%	0.09	OK	
	LC24 at 48.75%	0.09	OK	
	LC25 at 48.75%	0.09	OK	
	LC26 at 48.75%	0.09	OK	
	LC27 at 48.75%	0.09	OK	
	LC28 at 48.75%	0.09	OK	
	LC3 at 0.00%	0.12	OK	
	LC4 at 48.75%	0.25	OK	
	LC5 at 48.75%	0.21	OK	
	LC6 at 0.00%	0.15	OK	
	LC7 at 0.00%	0.11	OK	
	LC8 at 48.75%	0.22	OK	
	LC9 at 48.75%	0.28	OK	
	W180 at 50.00%	0.09	OK	
	W210 at 48.75%	0.09	OK	
	Wi180 at 50.00%	0.02	OK	
	Wi210 at 48.75%	0.02	OK	
	WL180 at 50.00%	0.01	OK	
	WL210 at 48.75%	0.01	OK	
108	LC1 at 100.00%	0.58	OK	
	LC10 at 100.00%	0.62	OK	
	LC11 at 100.00%	0.55	OK	
	LC12 at 100.00%	0.62	OK	
	LC13 at 100.00%	0.23	OK	
	LC14 at 100.00%	0.17	OK	
	LC15 at 100.00%	0.19	OK	
	LC16 at 100.00%	0.18	OK	
	LC17 at 100.00%	0.21	OK	
	LC18 at 100.00%	0.20	OK	
	LC19 at 100.00%	0.18	OK	
	LC2 at 100.00%	0.45	OK	
	LC20 at 100.00%	0.20	OK	
	LC21 at 100.00%	0.21	OK	
	LC22 at 100.00%	0.20	OK	
	LC23 at 100.00%	0.19	OK	
	LC24 at 100.00%	0.21	OK	
	LC25 at 100.00%	0.21	OK	
	LC26 at 100.00%	0.21	OK	
	LC27 at 100.00%	0.19	OK	
	LC28 at 100.00%	0.21	OK	
	LC3 at 59.38%	0.15	OK	
	LC4 at 100.00%	0.43	OK	
	LC5 at 100.00%	0.52	OK	
	LC6 at 100.00%	0.40	OK	
	LC7 at 100.00%	0.17	OK	
	LC8 at 100.00%	0.38	OK	
	LC9 at 100.00%	**0.65**	**OK**	Eq. H1-1b
	W180 at 100.00%	0.21	OK	
	W210 at 100.00%	0.14	OK	
	Wi180 at 100.00%	0.05	OK	
	Wi210 at 100.00%	0.03	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
109	LC1 at 100.00%	0.28	OK	
	LC10 at 100.00%	0.60	OK	
	LC11 at 100.00%	**0.70**	**OK**	Eq. H1-1b

	LC12 at 100.00%	0.70	OK	
	LC13 at 100.00%	0.23	OK	
	LC14 at 100.00%	0.17	OK	
	LC15 at 100.00%	0.31	OK	
	LC16 at 100.00%	0.20	OK	
	LC17 at 100.00%	0.40	OK	
	LC18 at 100.00%	0.39	OK	
	LC19 at 100.00%	0.41	OK	
	LC2 at 59.38%	0.12	OK	
	LC20 at 100.00%	0.41	OK	
	LC21 at 100.00%	0.33	OK	
	LC22 at 100.00%	0.32	OK	
	LC23 at 100.00%	0.34	OK	
	LC24 at 100.00%	0.34	OK	
	LC25 at 100.00%	0.22	OK	
	LC26 at 100.00%	0.21	OK	
	LC27 at 100.00%	0.24	OK	
	LC28 at 100.00%	0.23	OK	
	LC3 at 100.00%	0.57	OK	
	LC4 at 100.00%	0.54	OK	
	LC5 at 100.00%	0.22	OK	
	LC6 at 100.00%	0.14	OK	
	LC7 at 100.00%	0.52	OK	
	LC8 at 100.00%	0.49	OK	
	LC9 at 100.00%	0.65	OK	
	W180 at 100.00%	0.22	OK	
	W210 at 100.00%	0.20	OK	
	Wi180 at 100.00%	0.05	OK	
	Wi210 at 100.00%	0.05	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
110	LC1 at 0.00%	0.16	OK	
	LC10 at 0.00%	**0.69**	**OK**	Eq. H1-1b
	LC11 at 0.00%	0.65	OK	
	LC12 at 0.00%	0.58	OK	
	LC13 at 0.00%	0.22	OK	
	LC14 at 0.00%	0.16	OK	
	LC15 at 0.00%	0.31	OK	
	LC16 at 0.00%	0.51	OK	
	LC17 at 0.00%	0.20	OK	
	LC18 at 0.00%	0.22	OK	
	LC19 at 0.00%	0.21	OK	
	LC2 at 0.00%	0.61	OK	
	LC20 at 0.00%	0.19	OK	
	LC21 at 0.00%	0.23	OK	
	LC22 at 0.00%	0.25	OK	
	LC23 at 0.00%	0.24	OK	
	LC24 at 0.00%	0.22	OK	
	LC25 at 0.00%	0.37	OK	
	LC26 at 0.00%	0.39	OK	
	LC27 at 0.00%	0.38	OK	
	LC28 at 0.00%	0.37	OK	
	LC3 at 0.00%	0.49	OK	
	LC4 at 40.63%	0.24	OK	Eq. H1-1b
	LC5 at 40.63%	0.15	OK	
	LC6 at 0.00%	0.55	OK	
	LC7 at 0.00%	0.44	OK	
	LC8 at 40.63%	0.24	OK	
	LC9 at 0.00%	0.60	OK	
	W180 at 0.00%	0.17	OK	
	W210 at 0.00%	0.24	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 0.00%	0.06	OK	

		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.02	OK	
L 2-1_2X2-1_2X3_16	**146**	LC1 at 0.00%	0.37	OK	
		LC10 at 100.00%	0.50	OK	Eq. H2-1
		LC11 at 0.00%	0.48	OK	
		LC12 at 0.00%	0.51	OK	Eq. H2-1
		LC13 at 100.00%	0.15	OK	
		LC14 at 100.00%	0.12	OK	
		LC15 at 100.00%	0.18	OK	
		LC16 at 100.00%	0.22	OK	Sec. F1
		LC17 at 100.00%	0.21	OK	
		LC18 at 100.00%	0.23	OK	
		LC19 at 100.00%	0.22	OK	
		LC2 at 100.00%	0.48	OK	
		LC20 at 0.00%	0.23	OK	
		LC21 at 100.00%	0.16	OK	
		LC22 at 100.00%	0.18	OK	
		LC23 at 100.00%	0.18	OK	
		LC24 at 0.00%	0.16	OK	
		LC25 at 100.00%	0.17	OK	
		LC26 at 100.00%	0.19	OK	
		LC27 at 100.00%	0.18	OK	
		LC28 at 0.00%	0.17	OK	
		LC3 at 0.00%	0.47	OK	
		LC4 at 0.00%	**0.51**	**OK**	Sec. F1
		LC5 at 0.00%	0.37	OK	
		LC6 at 100.00%	0.44	OK	
		LC7 at 0.00%	0.43	OK	
		LC8 at 0.00%	0.48	OK	
		LC9 at 100.00%	0.43	OK	
		W180 at 0.00%	0.24	OK	
		W210 at 0.00%	0.23	OK	
		Wi180 at 0.00%	0.07	OK	
		Wi210 at 0.00%	0.07	OK	
		WL180 at 0.00%	0.02	OK	
		WL210 at 0.00%	0.02	OK	
	148	LC1 at 100.00%	0.31	OK	
		LC10 at 0.00%	0.46	OK	
		LC11 at 0.00%	0.42	OK	
		LC12 at 100.00%	0.42	OK	
		LC13 at 100.00%	0.15	OK	
		LC14 at 100.00%	0.12	OK	
		LC15 at 0.00%	0.17	OK	
		LC16 at 0.00%	0.27	OK	
		LC17 at 100.00%	0.14	OK	
		LC18 at 100.00%	0.13	OK	
		LC19 at 100.00%	0.13	OK	
		LC2 at 0.00%	**0.56**	**OK**	Sec. F1
		LC20 at 100.00%	0.13	OK	
		LC21 at 100.00%	0.15	OK	
		LC22 at 0.00%	0.15	OK	
		LC23 at 0.00%	0.14	OK	
		LC24 at 100.00%	0.14	OK	
		LC25 at 100.00%	0.22	OK	
		LC26 at 0.00%	0.23	OK	
		LC27 at 0.00%	0.22	OK	
		LC28 at 100.00%	0.21	OK	
		LC3 at 0.00%	0.30	OK	
		LC4 at 0.00%	0.30	OK	
		LC5 at 100.00%	0.27	OK	
		LC6 at 0.00%	0.52	OK	
		LC7 at 0.00%	0.26	OK	

		LC8 at 0.00%	0.31	OK	
		LC9 at 100.00%	0.45	OK	Eq. H2-1
		W180 at 0.00%	0.10	OK	
		W210 at 0.00%	0.26	OK	
		Wi180 at 0.00%	0.03	OK	
		Wi210 at 0.00%	0.07	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.02	OK	
	150	LC1 at 0.00%	**0.88**	**OK**	Sec. F1
		LC10 at 0.00%	0.41	OK	
		LC11 at 100.00%	0.50	OK	Eq. H2-1
		LC12 at 100.00%	0.47	OK	
		LC13 at 100.00%	0.15	OK	
		LC14 at 100.00%	0.11	OK	
		LC15 at 100.00%	0.20	OK	
		LC16 at 100.00%	0.13	OK	
		LC17 at 0.00%	0.31	OK	
		LC18 at 0.00%	0.27	OK	
		LC19 at 100.00%	0.25	OK	
		LC2 at 0.00%	0.29	OK	
		LC20 at 0.00%	0.28	OK	
		LC21 at 0.00%	0.24	OK	
		LC22 at 0.00%	0.21	OK	
		LC23 at 100.00%	0.24	OK	
		LC24 at 100.00%	0.22	OK	
		LC25 at 0.00%	0.16	OK	
		LC26 at 100.00%	0.13	OK	
		LC27 at 100.00%	0.16	OK	
		LC28 at 100.00%	0.15	OK	
		LC3 at 0.00%	0.60	OK	
		LC4 at 100.00%	0.34	OK	
		LC5 at 0.00%	0.85	OK	
		LC6 at 0.00%	0.29	OK	
		LC7 at 0.00%	0.64	OK	
		LC8 at 0.00%	0.32	OK	
		LC9 at 0.00%	0.56	OK	
		W180 at 0.00%	0.46	OK	
		W210 at 0.00%	0.19	OK	
		Wi180 at 0.00%	0.14	OK	
		Wi210 at 0.00%	0.04	OK	
		WL180 at 0.00%	0.04	OK	
		WL210 at 0.00%	0.01	OK	
L 2X2X3_16	**102**	LC1 at 100.00%	**0.38**	**OK**	Eq. H2-1
		LC10 at 100.00%	0.20	OK	
		LC11 at 100.00%	0.17	OK	
		LC12 at 100.00%	0.20	OK	
		LC13 at 100.00%	0.09	OK	
		LC14 at 100.00%	0.07	OK	
		LC15 at 100.00%	0.07	OK	
		LC16 at 100.00%	0.08	OK	
		LC17 at 100.00%	0.09	OK	
		LC18 at 100.00%	0.08	OK	
		LC19 at 100.00%	0.08	OK	
		LC2 at 37.50%	0.16	OK	
		LC20 at 100.00%	0.08	OK	
		LC21 at 100.00%	0.09	OK	
		LC22 at 100.00%	0.08	OK	
		LC23 at 100.00%	0.07	OK	
		LC24 at 100.00%	0.08	OK	
		LC25 at 100.00%	0.09	OK	
		LC26 at 100.00%	0.08	OK	
		LC27 at 100.00%	0.07	OK	

	LC28 at 100.00%	0.08	OK	
	LC3 at 56.25%	0.17	OK	Eq. H2-1
	LC4 at 100.00%	0.16	OK	
	LC5 at 100.00%	0.36	OK	
	LC6 at 31.25%	0.15	OK	
	LC7 at 56.25%	0.17	OK	
	LC8 at 0.00%	0.14	OK	
	LC9 at 100.00%	0.24	OK	
	W180 at 100.00%	0.12	OK	
	W210 at 0.00%	0.07	OK	
	Wi180 at 100.00%	0.03	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 0.00%	0.00	OK	
103	LC1 at 0.00%	**0.33**	**OK**	Eq. H2-1
	LC10 at 100.00%	0.20	OK	Eq. H2-1
	LC11 at 100.00%	0.20	OK	
	LC12 at 100.00%	0.17	OK	
	LC13 at 100.00%	0.08	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 100.00%	0.09	OK	
	LC16 at 100.00%	0.11	OK	
	LC17 at 100.00%	0.08	OK	
	LC18 at 100.00%	0.08	OK	
	LC19 at 100.00%	0.08	OK	
	LC2 at 100.00%	0.19	OK	
	LC20 at 100.00%	0.08	OK	
	LC21 at 100.00%	0.08	OK	
	LC22 at 100.00%	0.09	OK	
	LC23 at 100.00%	0.09	OK	
	LC24 at 100.00%	0.08	OK	
	LC25 at 100.00%	0.09	OK	
	LC26 at 100.00%	0.10	OK	
	LC27 at 100.00%	0.10	OK	
	LC28 at 100.00%	0.09	OK	
	LC3 at 100.00%	0.19	OK	
	LC4 at 50.00%	0.16	OK	
	LC5 at 0.00%	0.32	OK	
	LC6 at 100.00%	0.17	OK	
	LC7 at 100.00%	0.17	OK	
	LC8 at 50.00%	0.16	OK	
	LC9 at 100.00%	0.18	OK	
	W180 at 0.00%	0.11	OK	
	W210 at 100.00%	0.10	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 100.00%	0.03	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
104	LC1 at 100.00%	0.22	OK	Eq. H2-1
	LC10 at 100.00%	0.20	OK	
	LC11 at 100.00%	0.17	OK	
	LC12 at 100.00%	0.18	OK	
	LC13 at 100.00%	0.08	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 100.00%	0.10	OK	
	LC16 at 100.00%	0.08	OK	
	LC17 at 0.00%	0.10	OK	
	LC18 at 0.00%	0.10	OK	
	LC19 at 0.00%	0.10	OK	
	LC2 at 31.25%	0.13	OK	Eq. H2-1
	LC20 at 0.00%	0.10	OK	
	LC21 at 100.00%	0.11	OK	

	LC22 at 100.00%	0.11	OK	
	LC23 at 100.00%	0.10	OK	
	LC24 at 100.00%	0.10	OK	
	LC25 at 100.00%	0.09	OK	
	LC26 at 100.00%	0.08	OK	
	LC27 at 100.00%	0.07	OK	
	LC28 at 100.00%	0.08	OK	
	LC3 at 0.00%	0.24	OK	
	LC4 at 0.00%	**0.25**	**OK**	Eq. H2-1
	LC5 at 100.00%	0.20	OK	
	LC6 at 25.00%	0.13	OK	Eq. H2-1
	LC7 at 0.00%	0.23	OK	
	LC8 at 0.00%	0.24	OK	
	LC9 at 100.00%	0.21	OK	
	W180 at 100.00%	0.15	OK	
	W210 at 0.00%	0.13	OK	
	Wi180 at 100.00%	0.04	OK	
	Wi210 at 0.00%	0.04	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
105	LC1 at 50.00%	0.11	OK	
	LC10 at 100.00%	0.19	OK	
	LC11 at 100.00%	0.23	OK	
	LC12 at 100.00%	0.26	OK	
	LC13 at 100.00%	0.09	OK	
	LC14 at 100.00%	0.07	OK	
	LC15 at 100.00%	0.11	OK	
	LC16 at 100.00%	0.08	OK	
	LC17 at 100.00%	0.13	OK	
	LC18 at 100.00%	0.13	OK	
	LC19 at 100.00%	0.14	OK	
	LC2 at 56.25%	0.14	OK	Eq. H2-1
	LC20 at 100.00%	0.15	OK	
	LC21 at 100.00%	0.11	OK	
	LC22 at 100.00%	0.11	OK	
	LC23 at 100.00%	0.12	OK	
	LC24 at 100.00%	0.13	OK	
	LC25 at 100.00%	0.08	OK	
	LC26 at 100.00%	0.09	OK	
	LC27 at 100.00%	0.10	OK	
	LC28 at 100.00%	0.10	OK	
	LC3 at 100.00%	0.23	OK	
	LC4 at 100.00%	**0.37**	**OK**	Eq. H2-1
	LC5 at 50.00%	0.11	OK	
	LC6 at 62.50%	0.14	OK	Eq. H2-1
	LC7 at 100.00%	0.20	OK	
	LC8 at 100.00%	0.35	OK	
	LC9 at 100.00%	0.19	OK	
	W180 at 100.00%	0.09	OK	
	W210 at 100.00%	0.18	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 100.00%	0.04	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
106	LC1 at 37.50%	0.08	OK	
	LC10 at 100.00%	0.17	OK	
	LC11 at 100.00%	0.20	OK	
	LC12 at 100.00%	0.22	OK	
	LC13 at 100.00%	0.08	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 100.00%	0.09	OK	
	LC16 at 0.00%	0.12	OK	

		LC17 at 100.00%	0.09	OK	
		LC18 at 100.00%	0.09	OK	
		LC19 at 100.00%	0.10	OK	
		LC2 at 0.00%	**0.34**	**OK**	Eq. H2-1
		LC20 at 100.00%	0.10	OK	
		LC21 at 100.00%	0.08	OK	
		LC22 at 100.00%	0.08	OK	
		LC23 at 100.00%	0.09	OK	
		LC24 at 100.00%	0.09	OK	
		LC25 at 100.00%	0.11	OK	
		LC26 at 100.00%	0.10	OK	
		LC27 at 100.00%	0.11	OK	
		LC28 at 100.00%	0.11	OK	
		LC3 at 0.00%	0.14	OK	Sec. F1
		LC4 at 100.00%	0.24	OK	Eq. H2-1
		LC5 at 37.50%	0.08	OK	
		LC6 at 0.00%	0.33	OK	
		LC7 at 0.00%	0.12	OK	
		LC8 at 100.00%	0.22	OK	
		LC9 at 100.00%	0.19	OK	
		W180 at 0.00%	0.06	OK	
		W210 at 0.00%	0.11	OK	
		Wi180 at 0.00%	0.01	OK	
		Wi210 at 0.00%	0.03	OK	
		WL180 at 0.00%	0.00	OK	
		WL210 at 0.00%	0.01	OK	
	107	LC1 at 100.00%	0.15	OK	Eq. H2-1
		LC10 at 0.00%	0.25	OK	
		LC11 at 0.00%	0.23	OK	
		LC12 at 0.00%	0.17	OK	
		LC13 at 0.00%	0.09	OK	
		LC14 at 0.00%	0.07	OK	
		LC15 at 0.00%	0.11	OK	
		LC16 at 0.00%	0.15	OK	
		LC17 at 0.00%	0.08	OK	
		LC18 at 0.00%	0.10	OK	
		LC19 at 0.00%	0.10	OK	
		LC2 at 0.00%	**0.34**	**OK**	Eq. H2-1
		LC20 at 0.00%	0.08	OK	
		LC21 at 0.00%	0.09	OK	
		LC22 at 0.00%	0.11	OK	
		LC23 at 0.00%	0.11	OK	
		LC24 at 0.00%	0.09	OK	
		LC25 at 0.00%	0.10	OK	
		LC26 at 0.00%	0.11	OK	
		LC27 at 0.00%	0.11	OK	
		LC28 at 0.00%	0.09	OK	
		LC3 at 0.00%	0.26	OK	
		LC4 at 50.00%	0.17	OK	Eq. H2-1
		LC5 at 100.00%	0.14	OK	
		LC6 at 0.00%	0.32	OK	
		LC7 at 0.00%	0.24	OK	
		LC8 at 43.75%	0.17	OK	
		LC9 at 0.00%	0.19	OK	
		W180 at 100.00%	0.12	OK	
		W210 at 0.00%	0.12	OK	
		Wi180 at 100.00%	0.03	OK	
		Wi210 at 0.00%	0.03	OK	
		WL180 at 100.00%	0.01	OK	
		WL210 at 0.00%	0.01	OK	
PIPE 2-1_2x0.203	**87**	LC1 at 66.67%	0.16	OK	
		LC10 at 66.67%	0.30	OK	

	LC11 at 66.67%	0.33	OK	
	LC12 at 66.67%	0.27	OK	
	LC13 at 66.67%	0.10	OK	
	LC14 at 66.67%	0.07	OK	
	LC15 at 66.67%	0.12	OK	
	LC16 at 66.67%	0.14	OK	
	LC17 at 66.67%	0.10	OK	
	LC18 at 66.67%	0.12	OK	
	LC19 at 66.67%	0.12	OK	
	LC2 at 66.67%	0.38	OK	
	LC20 at 66.67%	0.11	OK	
	LC21 at 66.67%	0.10	OK	
	LC22 at 66.67%	0.11	OK	
	LC23 at 66.67%	0.12	OK	
	LC24 at 66.67%	0.11	OK	
	LC25 at 66.67%	0.11	OK	
	LC26 at 66.67%	0.12	OK	
	LC27 at 66.67%	0.13	OK	
	LC28 at 66.67%	0.12	OK	
	LC3 at 66.67%	0.36	OK	
	LC4 at 66.67%	**0.39**	**OK**	Eq. H1-1b
	LC5 at 66.67%	0.19	OK	
	LC6 at 66.67%	0.38	OK	
	LC7 at 66.67%	0.34	OK	
	LC8 at 66.67%	0.39	OK	
	LC9 at 66.67%	0.24	OK	
	W180 at 66.67%	0.17	OK	
	W210 at 66.67%	0.24	OK	
	Wi180 at 66.67%	0.04	OK	
	Wi210 at 66.67%	0.06	OK	
	WL180 at 66.67%	0.01	OK	
	WL210 at 66.67%	0.02	OK	
125	LC1 at 66.67%	0.39	OK	
	LC10 at 31.25%	0.27	OK	
	LC11 at 66.67%	0.30	OK	
	LC12 at 66.67%	0.38	OK	
	LC13 at 66.67%	0.11	OK	
	LC14 at 66.67%	0.08	OK	
	LC15 at 66.67%	0.10	OK	
	LC16 at 66.67%	0.23	OK	
	LC17 at 66.67%	0.13	OK	
	LC18 at 66.67%	0.11	OK	
	LC19 at 66.67%	0.12	OK	
	LC2 at 68.75%	0.25	OK	Eq. H1-1b
	LC20 at 66.67%	0.14	OK	
	LC21 at 66.67%	0.11	OK	
	LC22 at 66.67%	0.09	OK	
	LC23 at 66.67%	0.10	OK	
	LC24 at 66.67%	0.12	OK	
	LC25 at 66.67%	0.16	OK	
	LC26 at 66.67%	0.14	OK	
	LC27 at 66.67%	0.16	OK	
	LC28 at 66.67%	0.18	OK	
	LC3 at 66.67%	0.38	OK	
	LC4 at 66.67%	**0.44**	**OK**	Eq. H1-1b
	LC5 at 66.67%	0.39	OK	
	LC6 at 66.67%	0.25	OK	
	LC7 at 66.67%	0.38	OK	
	LC8 at 66.67%	0.42	OK	
	LC9 at 66.67%	0.34	OK	
	W180 at 66.67%	0.24	OK	
	W210 at 66.67%	0.21	OK	
	Wi180 at 66.67%	0.06	OK	

		Wi210 at 66.67%	0.06	OK	
		WL180 at 66.67%	0.02	OK	
		WL210 at 66.67%	0.02	OK	
	131	LC1 at 66.67%	**0.42**	**OK**	Eq. H1-1b
		LC10 at 66.67%	0.39	OK	
		LC11 at 31.25%	0.33	OK	
		LC12 at 66.67%	0.28	OK	
		LC13 at 66.67%	0.11	OK	
		LC14 at 66.67%	0.08	OK	
		LC15 at 66.67%	0.12	OK	
		LC16 at 66.67%	0.13	OK	
		LC17 at 66.67%	0.23	OK	
		LC18 at 66.67%	0.23	OK	
		LC19 at 66.67%	0.20	OK	
		LC2 at 66.67%	0.40	OK	
		LC20 at 66.67%	0.20	OK	
		LC21 at 66.67%	0.14	OK	
		LC22 at 66.67%	0.14	OK	
		LC23 at 31.25%	0.12	OK	
		LC24 at 66.67%	0.11	OK	
		LC25 at 66.67%	0.13	OK	
		LC26 at 66.67%	0.13	OK	
		LC27 at 31.25%	0.12	OK	
		LC28 at 66.67%	0.10	OK	
		LC3 at 31.25%	0.41	OK	Eq. H1-1b
		LC4 at 66.67%	0.32	OK	
		LC5 at 66.67%	0.40	OK	
		LC6 at 66.67%	0.37	OK	
		LC7 at 31.25%	0.39	OK	
		LC8 at 66.67%	0.33	OK	
		LC9 at 66.67%	0.40	OK	
		W180 at 68.75%	0.23	OK	
		W210 at 66.67%	0.21	OK	
		Wi180 at 68.75%	0.08	OK	
		Wi210 at 66.67%	0.06	OK	
		WL180 at 68.75%	0.02	OK	
		WL210 at 66.67%	0.02	OK	
PIPE 2x0.154	**96**	LC1 at 72.92%	**0.67**	**OK**	Eq. H1-1b
		LC10 at 72.92%	0.64	OK	
		LC11 at 72.92%	0.55	OK	
		LC12 at 72.92%	0.51	OK	
		LC13 at 72.92%	0.19	OK	
		LC14 at 72.92%	0.14	OK	
		LC15 at 72.92%	0.24	OK	
		LC16 at 72.92%	0.18	OK	
		LC17 at 72.92%	0.32	OK	
		LC18 at 72.92%	0.33	OK	
		LC19 at 72.92%	0.31	OK	
		LC2 at 72.92%	0.59	OK	
		LC20 at 72.92%	0.30	OK	
		LC21 at 72.92%	0.26	OK	
		LC22 at 72.92%	0.27	OK	
		LC23 at 72.92%	0.25	OK	
		LC24 at 72.92%	0.24	OK	
		LC25 at 72.92%	0.19	OK	
		LC26 at 72.92%	0.20	OK	
		LC27 at 72.92%	0.18	OK	
		LC28 at 72.92%	0.17	OK	
		LC3 at 72.92%	0.54	OK	
		LC4 at 72.92%	0.23	OK	
		LC5 at 72.92%	0.65	OK	
		LC6 at 72.92%	0.55	OK	

	LC7 at 72.92%	0.55	OK	
	LC8 at 72.92%	0.28	OK	
	LC9 at 72.92%	0.60	OK	
	W180 at 72.92%	0.38	OK	
	W210 at 72.92%	0.26	OK	
	Wi180 at 72.92%	0.10	OK	
	Wi210 at 72.92%	0.07	OK	
	WL180 at 72.92%	0.03	OK	
	WL210 at 72.92%	0.02	OK	
127	LC1 at 72.92%	0.19	OK	
	LC10 at 72.92%	0.56	OK	
	LC11 at 72.92%	0.62	OK	
	LC12 at 72.92%	0.57	OK	
	LC13 at 72.92%	0.20	OK	
	LC14 at 72.92%	0.15	OK	
	LC15 at 72.92%	0.24	OK	
	LC16 at 72.92%	0.32	OK	
	LC17 at 72.92%	0.18	OK	
	LC18 at 72.92%	0.19	OK	
	LC19 at 72.92%	0.21	OK	
	LC2 at 72.92%	**0.67**	**OK**	Eq. H1-1b
	LC20 at 72.92%	0.20	OK	
	LC21 at 72.92%	0.19	OK	
	LC22 at 72.92%	0.21	OK	
	LC23 at 72.92%	0.22	OK	
	LC24 at 72.92%	0.21	OK	
	LC25 at 72.92%	0.26	OK	
	LC26 at 72.92%	0.27	OK	
	LC27 at 72.92%	0.28	OK	
	LC28 at 72.92%	0.27	OK	
	LC3 at 72.92%	0.58	OK	
	LC4 at 72.92%	0.52	OK	
	LC5 at 72.92%	0.24	OK	
	LC6 at 72.92%	0.65	OK	
	LC7 at 72.92%	0.53	OK	
	LC8 at 72.92%	0.53	OK	
	LC9 at 72.92%	0.51	OK	
	W180 at 72.92%	0.24	OK	
	W210 at 72.92%	0.37	OK	
	Wi180 at 72.92%	0.06	OK	
	Wi210 at 72.92%	0.10	OK	
	WL180 at 72.92%	0.01	OK	
	WL210 at 72.92%	0.02	OK	
133	LC1 at 72.92%	0.42	OK	
	LC10 at 72.92%	0.52	OK	
	LC11 at 72.92%	0.54	OK	
	LC12 at 72.92%	**0.63**	**OK**	Eq. H1-1b
	LC13 at 72.92%	0.20	OK	
	LC14 at 72.92%	0.14	OK	
	LC15 at 72.92%	0.15	OK	
	LC16 at 72.92%	0.43	OK	
	LC17 at 72.92%	0.26	OK	
	LC18 at 72.92%	0.24	OK	
	LC19 at 72.92%	0.24	OK	
	LC2 at 72.92%	0.35	OK	
	LC20 at 72.92%	0.26	OK	
	LC21 at 72.92%	0.19	OK	
	LC22 at 72.92%	0.17	OK	
	LC23 at 72.92%	0.17	OK	
	LC24 at 72.92%	0.20	OK	
	LC25 at 72.92%	0.33	OK	
	LC26 at 72.92%	0.30	OK	

	LC27 at 72.92%	0.31	OK	
	LC28 at 72.92%	0.33	OK	
	LC3 at 72.92%	0.42	OK	
	LC4 at 72.92%	0.49	OK	Eq. H1-1b
	LC5 at 72.92%	0.38	OK	
	LC6 at 72.92%	0.36	OK	
	LC7 at 72.92%	0.40	OK	
	LC8 at 72.92%	0.46	OK	
	LC9 at 72.92%	0.61	OK	
	W180 at 72.92%	0.22	OK	
	W210 at 72.92%	0.26	OK	
	Wi180 at 72.92%	0.06	OK	
	Wi210 at 72.92%	0.08	OK	
	WL180 at 72.92%	0.01	OK	
	WL210 at 72.92%	0.02	OK	
135	LC1 at 100.00%	0.12	OK	
	LC10 at 100.00%	0.03	OK	
	LC11 at 100.00%	0.03	OK	
	LC12 at 100.00%	0.03	OK	
	LC13 at 100.00%	0.00	OK	
	LC14 at 100.00%	0.00	OK	
	LC15 at 100.00%	0.00	OK	
	LC16 at 100.00%	0.00	OK	
	LC17 at 100.00%	0.01	OK	
	LC18 at 100.00%	0.01	OK	
	LC19 at 100.00%	0.01	OK	
	LC2 at 100.00%	**0.12**	**OK**	Eq. H1-1b
	LC20 at 100.00%	0.01	OK	
	LC21 at 100.00%	0.01	OK	
	LC22 at 100.00%	0.01	OK	
	LC23 at 100.00%	0.01	OK	
	LC24 at 100.00%	0.01	OK	
	LC25 at 100.00%	0.01	OK	
	LC26 at 100.00%	0.01	OK	
	LC27 at 100.00%	0.01	OK	
	LC28 at 100.00%	0.01	OK	
	LC3 at 100.00%	0.12	OK	
	LC4 at 100.00%	0.12	OK	
	LC5 at 100.00%	0.12	OK	
	LC6 at 100.00%	0.12	OK	
	LC7 at 100.00%	0.12	OK	
	LC8 at 100.00%	0.12	OK	
	LC9 at 100.00%	0.03	OK	
	W180 at 100.00%	0.07	OK	
	W210 at 100.00%	0.07	OK	
	Wi180 at 100.00%	0.03	OK	
	Wi210 at 100.00%	0.03	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
145	LC1 at 97.92%	0.60	OK	Eq. H3-6
	LC10 at 72.92%	0.66	OK	
	LC11 at 72.92%	0.60	OK	
	LC12 at 72.92%	0.47	OK	
	LC13 at 72.92%	0.19	OK	
	LC14 at 72.92%	0.14	OK	
	LC15 at 71.88%	0.41	OK	Eq. H1-1b
	LC16 at 9.38%	0.31	OK	
	LC17 at 72.92%	0.29	OK	
	LC18 at 72.92%	0.32	OK	
	LC19 at 72.92%	0.31	OK	
	LC2 at 96.88%	**0.69**	**OK**	Eq. H1-1b
	LC20 at 72.92%	0.28	OK	

	LC21 at 72.92%	0.21	OK	
	LC22 at 72.92%	0.24	OK	
	LC23 at 72.92%	0.23	OK	
	LC24 at 72.92%	0.20	OK	
	LC25 at 72.92%	0.20	OK	
	LC26 at 72.92%	0.23	OK	
	LC27 at 72.92%	0.22	OK	
	LC28 at 72.92%	0.19	OK	
	LC3 at 97.92%	0.46	OK	
	LC4 at 96.88%	0.50	OK	
	LC5 at 97.92%	0.57	OK	
	LC6 at 96.88%	0.67	OK	
	LC7 at 97.92%	0.48	OK	
	LC8 at 96.88%	0.52	OK	
	LC9 at 72.92%	0.53	OK	
	W180 at 97.92%	0.29	OK	
	W210 at 96.88%	0.37	OK	
	Wi180 at 97.92%	0.08	OK	
	Wi210 at 96.88%	0.11	OK	
	WL180 at 97.92%	0.02	OK	
	WL210 at 96.88%	0.03	OK	
147	LC1 at 27.08%	**0.66**	**OK**	Eq. H1-1b
	LC10 at 27.08%	0.53	OK	
	LC11 at 27.08%	0.47	OK	
	LC12 at 27.08%	0.57	OK	
	LC13 at 27.08%	0.19	OK	
	LC14 at 27.08%	0.14	OK	
	LC15 at 27.08%	0.21	OK	
	LC16 at 27.08%	0.36	OK	
	LC17 at 27.08%	0.22	OK	
	LC18 at 27.08%	0.20	OK	
	LC19 at 27.08%	0.18	OK	
	LC2 at 90.63%	0.45	OK	Eq. H1-1b
	LC20 at 27.08%	0.21	OK	
	LC21 at 27.08%	0.21	OK	
	LC22 at 27.08%	0.19	OK	
	LC23 at 27.08%	0.17	OK	
	LC24 at 27.08%	0.20	OK	
	LC25 at 27.08%	0.30	OK	
	LC26 at 27.08%	0.27	OK	
	LC27 at 27.08%	0.26	OK	
	LC28 at 27.08%	0.28	OK	
	LC3 at 28.13%	0.40	OK	Eq. H1-1b
	LC4 at 27.08%	0.56	OK	
	LC5 at 27.08%	0.61	OK	
	LC6 at 90.63%	0.45	OK	
	LC7 at 3.13%	0.39	OK	
	LC8 at 27.08%	0.54	OK	
	LC9 at 27.08%	0.63	OK	
	W180 at 27.08%	0.28	OK	
	W210 at 27.08%	0.30	OK	
	Wi180 at 27.08%	0.08	OK	
	Wi210 at 27.08%	0.08	OK	
	WL180 at 27.08%	0.02	OK	
	WL210 at 27.08%	0.02	OK	
149	LC1 at 90.63%	0.55	OK	Eq. H1-1b
	LC10 at 27.08%	0.48	OK	
	LC11 at 27.08%	0.60	OK	
	LC12 at 27.08%	**0.62**	**OK**	Eq. H1-1b
	LC13 at 27.08%	0.19	OK	
	LC14 at 27.08%	0.14	OK	
	LC15 at 27.08%	0.22	OK	

		LC16 at 27.08%	0.23	OK	
		LC17 at 27.08%	0.21	OK	
		LC18 at 27.08%	0.21	OK	
		LC19 at 27.08%	0.24	OK	
		LC2 at 2.08%	0.37	OK	Eq. H3-6
		LC20 at 27.08%	0.25	OK	
		LC21 at 27.08%	0.20	OK	
		LC22 at 27.08%	0.20	OK	
		LC23 at 27.08%	0.23	OK	
		LC24 at 27.08%	0.23	OK	
		LC25 at 27.08%	0.19	OK	
		LC26 at 27.08%	0.19	OK	
		LC27 at 27.08%	0.22	OK	
		LC28 at 27.08%	0.23	OK	
		LC3 at 27.08%	0.53	OK	
		LC4 at 27.08%	0.57	OK	
		LC5 at 90.63%	0.55	OK	
		LC6 at 2.08%	0.34	OK	
		LC7 at 90.63%	0.48	OK	
		LC8 at 27.08%	0.52	OK	
		LC9 at 27.08%	0.49	OK	
		W180 at 90.63%	0.31	OK	
		W210 at 27.08%	0.24	OK	
		Wi180 at 90.63%	0.10	OK	
		Wi210 at 27.08%	0.07	OK	
		WL180 at 90.63%	0.03	OK	
		WL210 at 27.08%	0.02	OK	
PIPE 3x0.216	**9**	LC1 at 68.75%	**0.48**	**OK**	Eq. H3-6
		LC10 at 32.03%	0.40	OK	Eq. H1-1b
		LC11 at 32.03%	0.36	OK	
		LC12 at 32.03%	0.31	OK	
		LC13 at 32.03%	0.12	OK	
		LC14 at 32.03%	0.09	OK	
		LC15 at 32.03%	0.18	OK	
		LC16 at 32.03%	0.23	OK	
		LC17 at 32.03%	0.12	OK	
		LC18 at 32.03%	0.14	OK	
		LC19 at 32.03%	0.13	OK	
		LC2 at 32.03%	0.44	OK	Eq. H1-1b
		LC20 at 32.03%	0.11	OK	
		LC21 at 32.03%	0.15	OK	
		LC22 at 32.03%	0.16	OK	
		LC23 at 32.03%	0.16	OK	
		LC24 at 32.03%	0.14	OK	
		LC25 at 31.25%	0.16	OK	
		LC26 at 32.03%	0.17	OK	
		LC27 at 32.03%	0.16	OK	
		LC28 at 31.25%	0.16	OK	
		LC3 at 68.75%	0.38	OK	
		LC4 at 67.97%	0.40	OK	Eq. H1-1b
		LC5 at 68.75%	0.46	OK	
		LC6 at 32.03%	0.41	OK	
		LC7 at 68.75%	0.38	OK	
		LC8 at 67.97%	0.40	OK	
		LC9 at 32.03%	0.35	OK	
		W180 at 68.75%	0.24	OK	
		W210 at 67.97%	0.24	OK	
		Wi180 at 68.75%	0.06	OK	
		Wi210 at 67.97%	0.06	OK	
		WL180 at 68.75%	0.02	OK	
		WL210 at 67.97%	0.02	OK	
	10	LC1 at 67.97%	0.38	OK	Eq. H1-1b

	LC10 at 67.97%	0.32	OK	
	LC11 at 67.97%	0.31	OK	
	LC12 at 67.97%	0.37	OK	
	LC13 at 67.97%	0.12	OK	
	LC14 at 67.97%	0.09	OK	
	LC15 at 67.97%	0.09	OK	
	LC16 at 27.34%	0.15	OK	Eq. H1-1b
	LC17 at 67.97%	0.12	OK	
	LC18 at 67.97%	0.11	OK	
	LC19 at 67.97%	0.11	OK	
	LC2 at 31.25%	0.35	OK	
	LC20 at 67.97%	0.12	OK	
	LC21 at 67.97%	0.11	OK	
	LC22 at 67.97%	0.10	OK	
	LC23 at 67.97%	0.10	OK	
	LC24 at 67.97%	0.11	OK	
	LC25 at 67.97%	0.12	OK	
	LC26 at 67.97%	0.11	OK	
	LC27 at 27.34%	0.10	OK	
	LC28 at 67.97%	0.12	OK	
	LC3 at 31.25%	0.37	OK	
	LC4 at 28.13%	**0.50**	**OK**	Eq. H3-6
	LC5 at 67.97%	0.35	OK	
	LC6 at 31.25%	0.36	OK	
	LC7 at 31.25%	0.35	OK	
	LC8 at 31.25%	0.47	OK	
	LC9 at 67.97%	0.38	OK	Eq. H1-1b
	W180 at 31.25%	0.19	OK	
	W210 at 28.13%	0.22	OK	
	Wi180 at 31.25%	0.05	OK	
	Wi210 at 28.13%	0.06	OK	
	WL180 at 32.03%	0.01	OK	
	WL210 at 28.13%	0.02	OK	
11	LC1 at 32.03%	0.36	OK	Eq. H1-1b
	LC10 at 67.97%	0.34	OK	
	LC11 at 67.97%	0.41	OK	Eq. H1-1b
	LC12 at 67.97%	0.40	OK	
	LC13 at 67.97%	0.13	OK	
	LC14 at 67.97%	0.10	OK	
	LC15 at 67.97%	0.20	OK	
	LC16 at 67.97%	0.12	OK	
	LC17 at 67.97%	0.20	OK	
	LC18 at 67.97%	0.20	OK	
	LC19 at 67.97%	0.22	OK	
	LC2 at 31.25%	**0.48**	**OK**	Eq. H3-6
	LC20 at 67.97%	0.22	OK	
	LC21 at 67.97%	0.18	OK	
	LC22 at 67.97%	0.19	OK	
	LC23 at 67.97%	0.21	OK	
	LC24 at 67.97%	0.20	OK	
	LC25 at 67.97%	0.12	OK	
	LC26 at 67.97%	0.12	OK	
	LC27 at 67.97%	0.14	OK	
	LC28 at 67.97%	0.14	OK	
	LC3 at 67.97%	0.35	OK	
	LC4 at 28.13%	0.43	OK	Eq. H3-6
	LC5 at 32.03%	0.36	OK	
	LC6 at 31.25%	0.46	OK	
	LC7 at 32.03%	0.34	OK	
	LC8 at 28.13%	0.42	OK	
	LC9 at 67.97%	0.33	OK	
	W180 at 32.03%	0.22	OK	
	W210 at 31.25%	0.24	OK	

		Wi180 at 32.03%	0.06	OK	
		Wi210 at 28.13%	0.05	OK	
		WL180 at 32.03%	0.02	OK	
		WL210 at 28.13%	0.01	OK	
PIPE 3x0.300XS	**90**	LC1 at 66.67%	0.34	OK	
		LC10 at 66.67%	0.31	OK	
		LC11 at 66.67%	0.36	OK	
		LC12 at 66.67%	0.24	OK	
		LC13 at 66.67%	0.10	OK	
		LC14 at 66.67%	0.07	OK	
		LC15 at 66.67%	0.12	OK	
		LC16 at 66.67%	0.11	OK	
		LC17 at 66.67%	0.11	OK	
		LC18 at 66.67%	0.14	OK	
		LC19 at 66.67%	0.15	OK	
		LC2 at 66.67%	0.58	OK	
		LC20 at 66.67%	0.12	OK	
		LC21 at 66.67%	0.10	OK	
		LC22 at 66.67%	0.13	OK	
		LC23 at 66.67%	0.14	OK	
		LC24 at 66.67%	0.11	OK	
		LC25 at 66.67%	0.09	OK	
		LC26 at 66.67%	0.12	OK	
		LC27 at 66.67%	0.12	OK	
		LC28 at 66.67%	0.10	OK	
		LC3 at 66.67%	0.54	OK	
		LC4 at 66.67%	**0.64**	**OK**	Eq. H1-1b
		LC5 at 66.67%	0.37	OK	
		LC6 at 66.67%	0.59	OK	
		LC7 at 66.67%	0.52	OK	
		LC8 at 66.67%	0.63	OK	
		LC9 at 66.67%	0.21	OK	
		W180 at 66.67%	0.28	OK	
		W210 at 66.67%	0.38	OK	
		Wi180 at 66.67%	0.07	OK	
		Wi210 at 66.67%	0.10	OK	
		WL180 at 66.67%	0.02	OK	
		WL210 at 66.67%	0.03	OK	
	123	LC1 at 66.67%	0.55	OK	
		LC10 at 66.67%	0.16	OK	
		LC11 at 66.67%	0.27	OK	
		LC12 at 66.67%	0.41	OK	
		LC13 at 66.67%	0.10	OK	
		LC14 at 66.67%	0.07	OK	
		LC15 at 66.67%	0.09	OK	
		LC16 at 66.67%	0.16	OK	
		LC17 at 66.67%	0.11	OK	
		LC18 at 66.67%	0.07	OK	
		LC19 at 66.67%	0.10	OK	
		LC2 at 66.67%	0.59	OK	
		LC20 at 66.67%	0.14	OK	
		LC21 at 66.67%	0.10	OK	
		LC22 at 66.67%	0.06	OK	
		LC23 at 66.67%	0.09	OK	
		LC24 at 66.67%	0.13	OK	
		LC25 at 66.67%	0.13	OK	
		LC26 at 66.67%	0.09	OK	
		LC27 at 66.67%	0.12	OK	
		LC28 at 66.67%	0.16	OK	
		LC3 at 66.67%	0.49	OK	
		LC4 at 66.67%	**0.79**	**OK**	Eq. H1-1b
		LC5 at 66.67%	0.54	OK	

		LC6 at 66.67%	0.61	OK	
		LC7 at 66.67%	0.50	OK	
		LC8 at 66.67%	0.76	OK	
		LC9 at 66.67%	0.31	OK	
		W180 at 66.67%	0.32	OK	
		W210 at 66.67%	0.43	OK	
		Wi180 at 66.67%	0.09	OK	
		Wi210 at 66.67%	0.12	OK	
		WL180 at 66.67%	0.02	OK	
		WL210 at 66.67%	0.03	OK	
	129	LC1 at 66.67%	**0.64**	**OK**	Eq. H1-1b
		LC10 at 66.67%	0.35	OK	
		LC11 at 66.67%	0.20	OK	
		LC12 at 66.67%	0.22	OK	
		LC13 at 66.67%	0.09	OK	
		LC14 at 66.67%	0.07	OK	
		LC15 at 66.67%	0.12	OK	
		LC16 at 66.67%	0.12	OK	
		LC17 at 66.67%	0.16	OK	
		LC18 at 66.67%	0.14	OK	
		LC19 at 66.67%	0.10	OK	
		LC2 at 66.67%	0.43	OK	
		LC20 at 66.67%	0.11	OK	
		LC21 at 66.67%	0.16	OK	
		LC22 at 66.67%	0.15	OK	
		LC23 at 66.67%	0.09	OK	
		LC24 at 66.67%	0.12	OK	
		LC25 at 66.67%	0.13	OK	
		LC26 at 66.67%	0.11	OK	
		LC27 at 66.67%	0.07	OK	
		LC28 at 66.67%	0.08	OK	
		LC3 at 66.67%	0.62	OK	
		LC4 at 66.67%	0.30	OK	
		LC5 at 66.67%	0.61	OK	
		LC6 at 66.67%	0.40	OK	
		LC7 at 66.67%	0.61	OK	
		LC8 at 66.67%	0.31	OK	
		LC9 at 66.67%	0.38	OK	
		W180 at 66.67%	0.37	OK	
		W210 at 66.67%	0.21	OK	
		Wi180 at 66.67%	0.11	OK	
		Wi210 at 66.67%	0.06	OK	
		WL180 at 66.67%	0.03	OK	
		WL210 at 66.67%	0.02	OK	
PL 6X1/2	**25**	LC1 at 50.00%	0.12	OK	
		LC10 at 0.00%	0.13	OK	
		LC11 at 0.00%	0.15	OK	
		LC12 at 0.00%	0.15	OK	Eq. H3-1
		LC13 at 0.00%	0.05	OK	
		LC14 at 0.00%	0.03	OK	
		LC15 at 0.00%	0.05	OK	
		LC16 at 0.00%	0.10	OK	
		LC17 at 0.00%	0.05	OK	
		LC18 at 0.00%	0.05	OK	
		LC19 at 0.00%	0.06	OK	
		LC2 at 46.88%	0.20	OK	
		LC20 at 0.00%	0.06	OK	
		LC21 at 0.00%	0.05	OK	
		LC22 at 0.00%	0.05	OK	
		LC23 at 0.00%	0.05	OK	
		LC24 at 0.00%	0.05	OK	
		LC25 at 0.00%	0.08	OK	

	LC26 at 0.00%	0.08	OK	
	LC27 at 0.00%	0.08	OK	
	LC28 at 0.00%	0.08	OK	
	LC3 at 50.00%	0.14	OK	
	LC4 at 46.88%	**0.24**	**OK**	Eq. H1-1b
	LC5 at 50.00%	0.13	OK	
	LC6 at 46.88%	0.21	OK	
	LC7 at 50.00%	0.14	OK	
	LC8 at 46.88%	0.23	OK	
	LC9 at 0.00%	0.13	OK	
	W180 at 50.00%	0.08	OK	
	W210 at 46.88%	0.14	OK	
	Wi180 at 50.00%	0.02	OK	
	Wi210 at 46.88%	0.04	OK	
	WL180 at 50.00%	0.00	OK	
	WL210 at 46.88%	0.01	OK	
26	LC1 at 46.88%	0.18	OK	Eq. H1-1b
	LC10 at 0.00%	0.14	OK	
	LC11 at 0.00%	0.14	OK	
	LC12 at 0.00%	0.15	OK	Eq. H3-1
	LC13 at 0.00%	0.05	OK	
	LC14 at 0.00%	0.04	OK	
	LC15 at 0.00%	0.07	OK	
	LC16 at 0.00%	0.04	OK	
	LC17 at 0.00%	0.07	OK	
	LC18 at 0.00%	0.07	OK	
	LC19 at 0.00%	0.07	OK	
	LC2 at 50.00%	0.18	OK	
	LC20 at 0.00%	0.07	OK	
	LC21 at 0.00%	0.07	OK	
	LC22 at 0.00%	0.06	OK	
	LC23 at 0.00%	0.06	OK	
	LC24 at 0.00%	0.07	OK	
	LC25 at 0.00%	0.05	OK	
	LC26 at 0.00%	0.04	OK	
	LC27 at 0.00%	0.04	OK	
	LC28 at 0.00%	0.05	OK	
	LC3 at 46.88%	0.14	OK	
	LC4 at 50.00%	**0.19**	**OK**	Eq. H1-1b
	LC5 at 46.88%	0.17	OK	
	LC6 at 50.00%	0.18	OK	
	LC7 at 46.88%	0.15	OK	
	LC8 at 50.00%	0.19	OK	
	LC9 at 0.00%	0.15	OK	
	W180 at 46.88%	0.10	OK	
	W210 at 50.00%	0.12	OK	
	Wi180 at 46.88%	0.02	OK	
	Wi210 at 50.00%	0.03	OK	
	WL180 at 46.88%	0.01	OK	
	WL210 at 50.00%	0.01	OK	
27	LC1 at 50.00%	0.20	OK	Eq. H1-1b
	LC10 at 0.00%	0.14	OK	Eq. H3-1
	LC11 at 0.00%	0.13	OK	
	LC12 at 0.00%	0.11	OK	
	LC13 at 0.00%	0.04	OK	
	LC14 at 0.00%	0.03	OK	
	LC15 at 0.00%	0.05	OK	
	LC16 at 0.00%	0.06	OK	
	LC17 at 0.00%	0.04	OK	
	LC18 at 0.00%	0.04	OK	
	LC19 at 0.00%	0.04	OK	
	LC2 at 46.88%	0.14	OK	

LC20 at 0.00%	0.04	OK	
LC21 at 0.00%	0.04	OK	
LC22 at 0.00%	0.05	OK	
LC23 at 0.00%	0.04	OK	
LC24 at 0.00%	0.04	OK	
LC25 at 0.00%	0.05	OK	
LC26 at 0.00%	0.06	OK	
LC27 at 0.00%	0.05	OK	
LC28 at 0.00%	0.05	OK	
LC3 at 46.88%	**0.22**	**OK**	Eq. H1-1b
LC4 at 46.88%	0.10	OK	
LC5 at 50.00%	0.20	OK	
LC6 at 46.88%	0.13	OK	
LC7 at 46.88%	0.22	OK	
LC8 at 46.88%	0.11	OK	
LC9 at 0.00%	0.12	OK	
W180 at 46.88%	0.13	OK	
W210 at 46.88%	0.07	OK	
Wi180 at 46.88%	0.03	OK	
Wi210 at 46.88%	0.02	OK	
WL180 at 46.88%	0.01	OK	
WL210 at 46.88%	0.00	OK	

Bentley

Current Date: 8/23/2018 2:40 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5540\CT5540 (LTE 2C-3C) (MOD.).e

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
3	-6.0833	0.00	0.00	0
4	-6.25	0.00	0.00	0
5	-6.3333	0.00	-0.433	0
6	-6.5833	0.00	-0.866	0
10	-6.6667	0.00	-0.7217	0
13	-0.50	0.00	-11.4027	0
14	-0.4167	0.00	-11.547	0
18	6.0833	0.00	0.00	0
19	6.25	0.00	0.00	0
20	6.3333	0.00	-0.433	0
21	6.5833	0.00	-0.866	0
25	6.6667	0.00	-0.7217	0
28	0.50	0.00	-11.4027	0
29	0.4167	0.00	-11.547	0
32	0.00	0.00	-11.4027	0
211	-1.45E-07	0.00	-4.0896	0
298	0.7564	5.50	-11.3587	0
299	0.7564	-2.50	-11.3587	0
301	0.5832	0.00	-11.2587	0
303	0.7564	0.00	-11.3587	0
304	2.2999	5.50	-8.6852	0
305	2.2999	-2.50	-8.6852	0

307	2.1267	0.00	-8.5852	0
309	2.2999	0.00	-8.6852	0
316	6.2149	4.50	-1.9043	0
317	6.2149	-1.50	-1.9043	0
319	6.0417	0.00	-1.8043	0
321	6.2149	0.00	-1.9043	0
322	2.3767	0.00	-8.1522	0
323	4.7067	0.00	-4.1165	0
329	-4.7067	0.00	-4.1165	0
330	-2.3767	0.00	-8.1522	0
331	2.33	0.00	0.00	0
332	-2.33	0.00	0.00	0
337	-2.0289	0.00	-8.1522	0
372	2.0289	0.00	-8.1522	0
375	4.5328	0.00	-3.8153	0
410	2.5039	0.00	-0.3012	0
413	-2.5039	0.00	-0.3012	0
448	-4.5328	0.00	-3.8153	0
450	-1.45E-07	0.00	-5.8796	0
466	-1.5502	0.00	-3.1946	0
525	1.5502	0.00	-3.1946	0
550	-5.1299	5.50	-3.7835	0
551	-5.1299	-2.50	-3.7835	0
552	-4.9567	0.00	-3.6835	0
553	-5.1299	0.00	-3.7835	0
554	-6.6734	5.50	-1.1101	0
555	-6.6734	-2.50	-1.1101	0
556	-6.5002	0.00	-1.0101	0
557	-6.6734	0.00	-1.1101	0
558	-1.2149	4.50	-10.5645	0
559	-1.2149	-1.50	-10.5645	0
560	-1.0417	0.00	-10.4645	0
561	-1.2149	0.00	-10.5645	0
562	2.83	5.50	0.20	0
563	2.83	-2.50	0.20	0
564	2.83	0.00	0.00	0
565	2.83	0.00	0.20	0
566	5.917	5.50	0.20	0
567	5.917	-2.50	0.20	0
568	5.917	0.00	0.00	0
569	5.917	0.00	0.20	0
570	-5.00	4.50	0.20	0
571	-5.00	-1.50	0.20	0
572	-5.00	0.00	0.00	0
573	-5.00	0.00	0.20	0
574	1.5289	0.00	-8.1522	0
575	1.5289	2.00	-8.1522	0
576	2.83	3.00	0.00	0
577	2.83	3.00	0.20	0
578	5.917	3.00	0.00	0
579	5.917	3.00	0.20	0
580	-5.00	3.00	0.00	0
581	-5.00	3.00	0.20	0
582	-6.5002	3.00	-1.0101	0
583	-6.6734	3.00	-1.1101	0
584	-4.9567	3.00	-3.6835	0
585	-5.1299	3.00	-3.7835	0
586	-1.0417	3.00	-10.4645	0
587	-1.2149	3.00	-10.5645	0
588	0.5832	3.00	-11.2587	0

589	0.7564	3.00	-11.3587	0
590	2.1267	3.00	-8.5852	0
591	2.2999	3.00	-8.6852	0
592	6.0417	3.00	-1.8043	0
593	6.2149	3.00	-1.9043	0
594	-6.25	3.00	0.00	0
595	6.25	3.00	0.00	0
596	-6.5833	3.00	-0.866	0
597	-6.0833	3.00	0.00	0
598	-6.6667	3.00	-0.7217	0
599	-0.4167	3.00	-11.547	0
600	0.50	3.00	-11.4027	0
601	-0.50	3.00	-11.4027	0
602	0.4167	3.00	-11.547	0
603	6.6667	3.00	-0.7217	0
604	6.0833	3.00	0.00	0
605	6.5833	3.00	-0.866	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
450	1	1	1	1	1	1
466	1	1	1	1	1	1
525	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
9	4	19		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	10	14		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
11	29	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
25	6	3		PL 6X1/2	A36	0.00	0.00	0.00
26	18	21		PL 6X1/2	A36	0.00	0.00	0.00
27	28	13		PL 6X1/2	A36	0.00	0.00	0.00
87	298	299		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	304	305		PIPE 3x0.300XS	A53 GrB	0.00	0.00	0.00
96	316	317		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
99	332	329		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
100	331	323		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
101	322	330		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
102	32	337		L 2X2X3_16	A36	0.00	0.00	0.00
103	372	32		L 2X2X3_16	A36	0.00	0.00	0.00
104	410	20		L 2X2X3_16	A36	0.00	0.00	0.00
105	20	375		L 2X2X3_16	A36	0.00	0.00	0.00
106	448	5		L 2X2X3_16	A36	0.00	0.00	0.00
107	413	5		L 2X2X3_16	A36	0.00	0.00	0.00
108	32	450		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
109	20	525		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
110	466	5		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
123	550	551		PIPE 3x0.300XS	A53 GrB	0.00	0.00	0.00

125	554	555	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
127	558	559	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
129	562	563	PIPE 3x0.300XS	A53 GrB	0.00	0.00	0.00
131	566	567	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
133	570	571	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	575	574	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
145	594	595	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
146	596	597	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
147	598	599	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
148	600	601	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
149	602	603	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
150	604	605	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
87	0.00	2	-0.50	0.00	-0.866
90	0.00	2	-0.50	0.00	-0.866
96	0.00	2	-0.50	0.00	-0.866
102	270.00	0	0.00	0.00	0.00
103	270.00	0	0.00	0.00	0.00
104	270.00	0	0.00	0.00	0.00
105	270.00	0	0.00	0.00	0.00
106	270.00	0	0.00	0.00	0.00
123	0.00	2	-0.50	0.00	0.866
125	0.00	2	-0.50	0.00	0.866
127	0.00	2	-0.50	0.00	0.866
146	90.00	0	0.00	0.00	0.00
148	90.00	0	0.00	0.00	0.00
150	90.00	0	0.00	0.00	0.00

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5540
SITE NAME: EAST HADDAM SOUTH
AMERICAN TOWER SITE # 302527

135 HONEY HILL ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

STRUCTURAL NOTES
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	SN-1	A

NOTE:

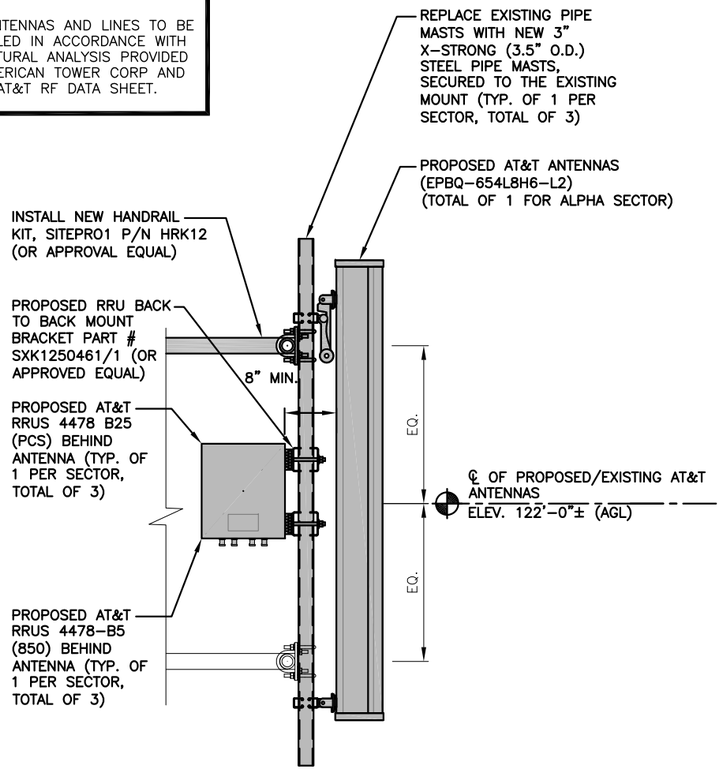
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: AUGUST 22, 2018

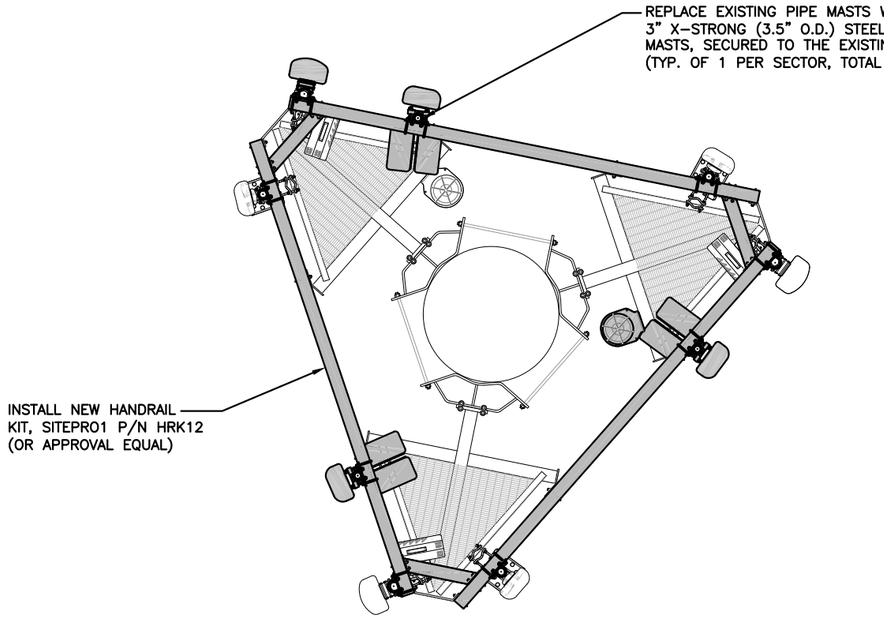
NOTE:

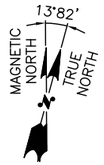
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER CORP AND FINAL AT&T RF DATA SHEET.



PROPOSED MOUNT MODIFICATION DETAIL (1 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

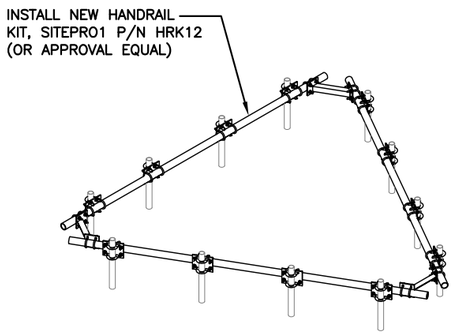
0 0'-6" 1'-0" 2'-0" 3'-0"





PLATFORM REINFORCEMENT PLAN (2 / S-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED HANDRAIL KIT (3 / S-1)
SCALE: N.T.S

HUDSON Design Group LLC
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NO.	DATE	REVISIONS	BY	CHK	APP'D
A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

STRUCTURAL DETAILS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	S-1	A

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5540

FA#: 10071007

East Haddam South
135 Honey Hill Road
East Haddam, CT 06423

August 27, 2018

Centerline Communications Project Number: 950012-157

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**12.57 %**

August 27, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5540 – East Haddam South**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **135 Honey Hill Road, East Haddam, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **135 Honey Hill Road, East Haddam, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	700 MHz	2	40
LTE	850 MHz	2	40
5G	850 MHz	2	40
LTE	1900 MHz (PCS)	4	40
UMTS	850 MHz	2	30

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Commscope SBNHH-1D65A	120
A	2	KMW EPBQ-654L8H6-L2	120
A	3	Powerwave 7770	120
B	1	KMW AM-X-CD-17-65-00T-RET	120
B	2	KMW EPBQ-654L8H8-L2	120
B	3	Powerwave 7770	120
C	1	Commscope DBXNH-6565B-R2M	120
C	2	KMW EPBQ-654L8H8-L2	120
C	3	Powerwave 7770	120

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Commscope SBNHH-1D65A	700 MHz	10.85	2	80	972.95	0.58
Antenna A2	KMW EPBQ-654L8H6-L2	850 MHz / 1900 MHz (PCS)	12.45 / 15.05	8	320	7,930.91	2.79
Antenna A3	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.40
						Sector A Composite MPE%	**3.77**
Antenna B1	KMW AM-X-CD-17-65-00T-RET	700 MHz	14.65	2	80	2,333.94	1.38
Antenna B2	KMW EPBQ-654L8H8-L2	850 MHz / 1900 MHz (PCS)	14.05 / 15.45	8	320	9,677.59	3.54
Antenna B3	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.40
						Sector B Composite MPE%	**5.32**
Antenna C1	Commscope DBXNH-6565B-R2M	700 MHz	13.05	2	80	1,614.69	0.96
Antenna C2	KMW EPBQ-654L8H8-L2	850 MHz / 1900 MHz (PCS)	14.05 / 15.45	8	320	9,677.59	3.54
Antenna C3	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.40
						Sector C Composite MPE%	**4.90**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, the sector with the largest calculated MPE% is Sector B. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Value (Sector B)	**5.32 %**
Nextel	0.73 %
Sprint	3.07 %
Verizon Wireless	3.45 %
Site Total MPE %:	**12.57 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	3.77 %
AT&T Sector B Total:	5.32 %
AT&T Sector C Total:	4.90 %
Site Total:	12.57 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, the sector with the largest calculated MPE% is Sector B.

AT&T _ Frequency Band / Technology Max Power Values (Sector B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 700 MHz LTE	2	1,166.97	120	6.46	700 MHz	467	1.38%
AT&T 850 MHz LTE	2	1,016.39	120	5.62	850 MHz	567	0.99%
AT&T 850 MHz 5G	2	1,016.39	120	5.62	850 MHz	567	0.99%
AT&T 1900 MHz (PCS) LTE	4	1,403.01	120	15.52	1900 MHz (PCS)	1000	1.55%
AT&T 850 MHz GSM	2	414.12	120	2.29	850 MHz	567	0.40%
						Total:	**5.32%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.77 %
Sector B:	5.32 %
Sector C:	4.90 %
AT&T Maximum Total (Sector B):	5.32 %
Site Total:	12.57 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.57 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE MONOPOLE:
******BIRD NEST SITE******
- INSTALL NEW HANDRAIL KIT, SITEPRO1 P/N HRK12 (OR APPROVAL EQUAL).
- REPLACE EXISTING PIPE MASTS WITH NEW 3" X-STRONG (3.5" O.D.) STEEL PIPE MASTS, SECURED TO THE EXISTING MOUNT (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: (SBNHH-1D65A) @ POS. 1 (TOTAL OF 1 FOR ALPHA SECTOR).
- NEW AT&T ANTENNAS: (EPBQ-654L8H6-L2) @ POS. 2 (TYP. OF 1 PER ALPHA SECTOR, TOTAL OF 1).
- NEW AT&T ANTENNAS: (EPBQ-654L8H8-L2) @ POS. 2 (TYP. OF 1 PER BETA & GAMMA SECTORS, TOTAL OF 2).
- NEW AT&T RRUS: 4478 B25 (PCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4478 B5 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW SURGE ARRESTOR (DC-48-60-18-8C) (TOTAL OF 1) WITH (2) DC POWER, (1) FIBER RUN & (1) ALARM CABLE IN 2" CONDUIT (TO FOLLOW EXISTING).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD (1) 6630.
- SWAP DUS WITH 5216.
- ADD (1) XMU.

ITEMS TO REMAIN:
- (5) ANTENNAS, (3) RRU'S, (6) TMA'S, (12) 1-1/4" COAX, (2) DC POWER & (1) FIBER.

SQUID ALARMING (NOT TO BE DAISY CHAINED).
- THE 1ST SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED RRH/RRU ON THE ALPHA SECTOR, IN THE EVENT THE ALARM CABLE CANNOT BE CONNECTED TO ALPHA IT WILL BE ACCEPTABLE TO ALARM TO THE CLOSEST PHYSICAL SECTOR ON AN EXCEPTION BASIS.
- 2ND SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE BETA SECTOR.
- 3RD SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE GAMMA SECTOR.

SITE ADDRESS:	135 HONEY HILL ROAD EAST HADDAM, CT 06423
LATITUDE:	41.436891 N, 41° 26' 12.81" N
LONGITUDE:	72.366098 W, 72° 21' 57.95" W
TYPE OF SITE:	MONOPOLE/ OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	150'-0"±
RAD CENTER:	122'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	A
GN-1	GENERAL NOTES	A
A-1	COMPOUND & EQUIPMENT PLANS	A
A-2	ANTENNA LAYOUTS & ELEVATION	A
A-3	DETAILS	A
SN-1	STRUCTURAL NOTES	A
S-1	STRUCTURAL DETAILS	A
RF-1	RF PLUMBING DIAGRAM	A
G-1	GROUNDING DETAILS	A

AMERICAN TOWER SITE #: 302527
AMERICAN TOWER SITE NAME: EAST HADDAM

SITE NUMBER: CT5540

SITE NAME: EAST HADDAM SOUTH

FA CODE:10071007

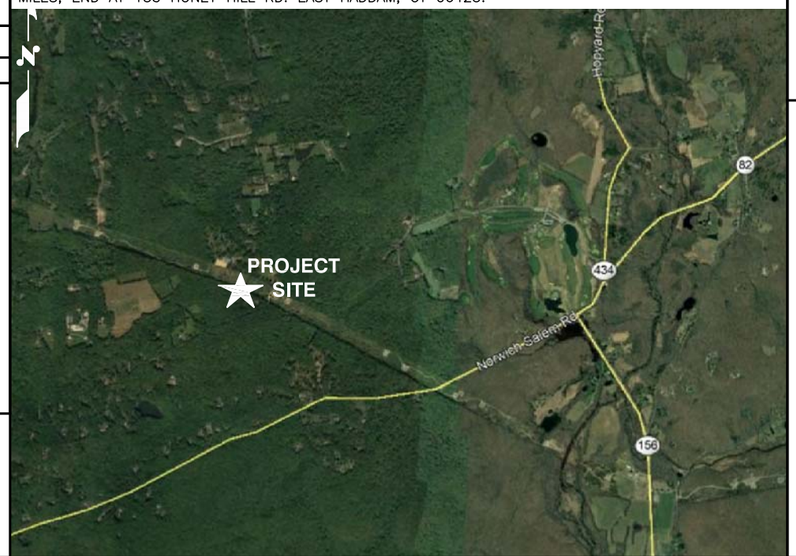
PACE ID: MRCTB030837, MRCTB031539

PROJECT: LTE 2C_3C 2018 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MILES, TURN LEFT ONTO CAPITOL BLVD. 0.3 MILES, TURN LEFT ONTO WEST ST. 0.3 MILES, MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN 1.4 MILES, MERGE ONTO CT-9 VIA EXIT 22S ON THE LEFT TOWARD MIDDLETOWN/OLD SAYBROOK 19.2 MILES, MERGE ONTO CT-82 VIA EXIT 7 TOWARD EAST HADDAM/MOODUS 2.8 MILES, TURN LEFT ONTO SAYBROOK RD/CT-154/CT-82 0.4 MILES, TURN RIGHT ONTO BRIDGE RD/CT-82 CONTINUE TO FOLLOW CT-82 0.8 MILES, KEEP LEFT AT THE FORK TO GO ON CT-82/NORWICH RD. 0.4 MILES, TURN SHARP RIGHT ONTO RAY HILL RD. 1.2 MILES, TURN RIGHT ONTO TOWN ST/CT-82 3.4 MILES, TURN SLIGHT LEFT ONTO NORWICH SALEM RD/CT-82 0.6 MILES, TURN SLIGHT LEFT ONTO HONEY HILL RD. 1.0 MILES, TURN LEFT TO STAY ON HONEY HILL RD. 0.4 MILES, END AT 135 HONEY HILL RD. EAST HADDAM, CT 06423.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

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OR CALL 811

UNDERGROUND SERVICE ALERT

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

TITLE SHEET
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	T-1	A

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – CENTERLINE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2012 WITH 2016 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5540
SITE NAME: EAST HADDAM SOUTH
AMERICAN TOWER SITE # 302527

135 HONEY HILL ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

GENERAL NOTES
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	GN-1	A

NOTE:

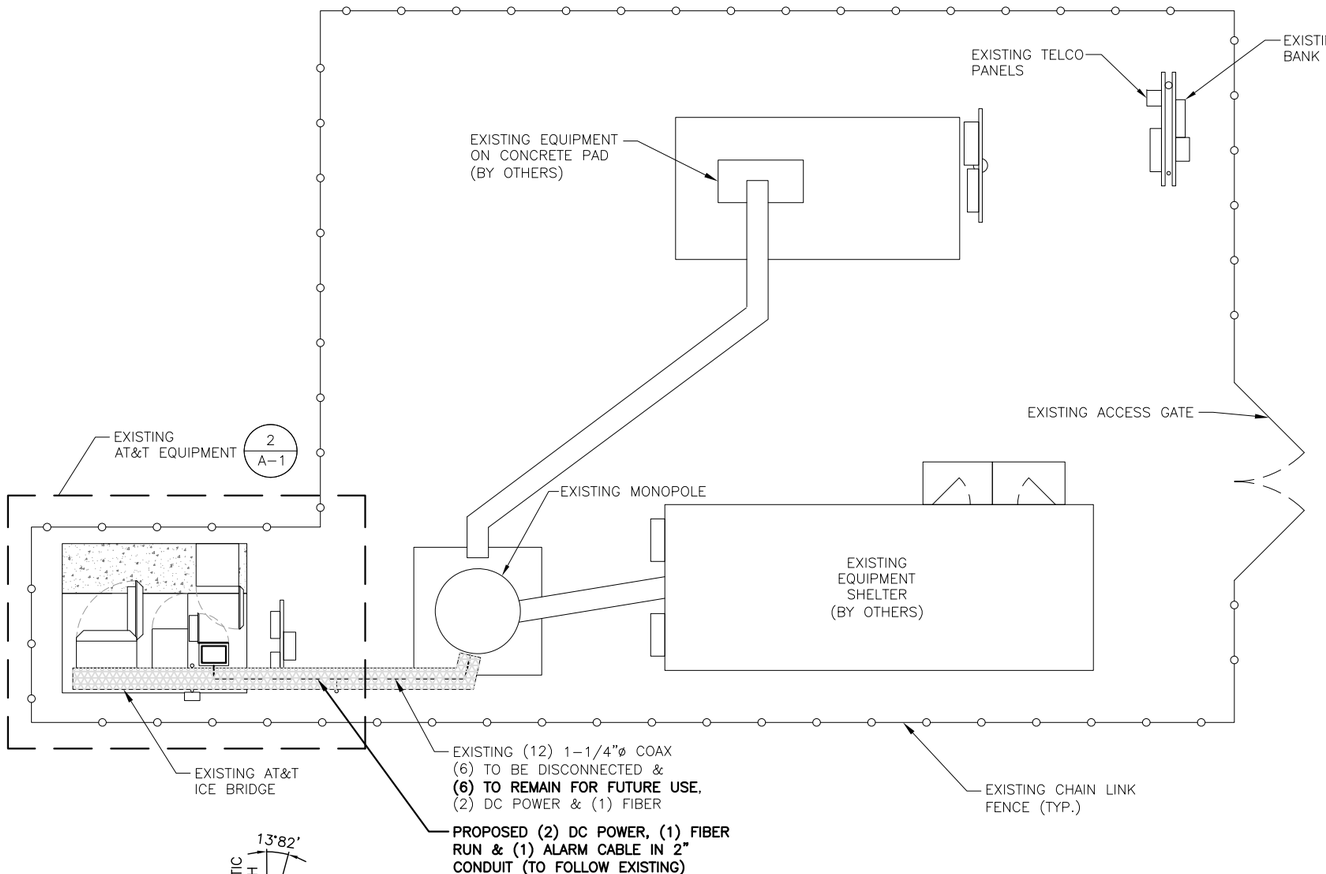
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: AUGUST 22, 2018

NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER CORP AND FINAL AT&T RF DATA SHEET.

NOTE:

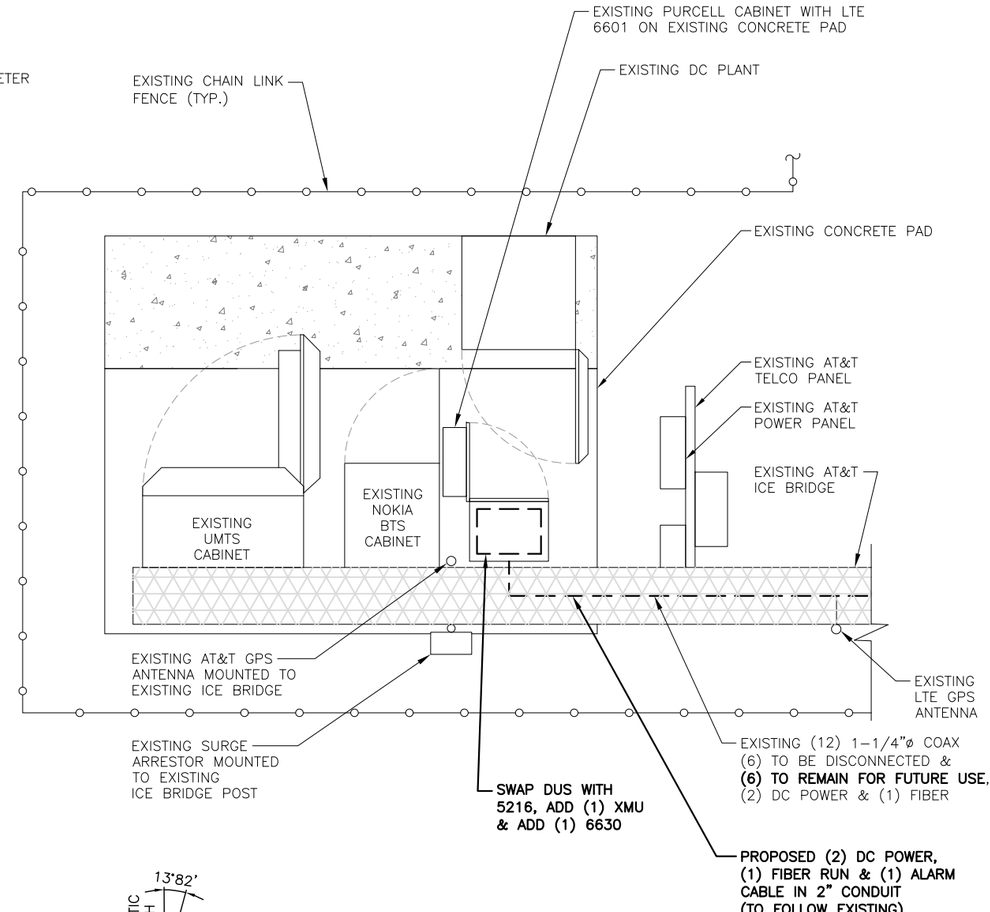
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



COMPOUND PLAN 1 A-1

22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"



EQUIPMENT PLAN 2 A-1

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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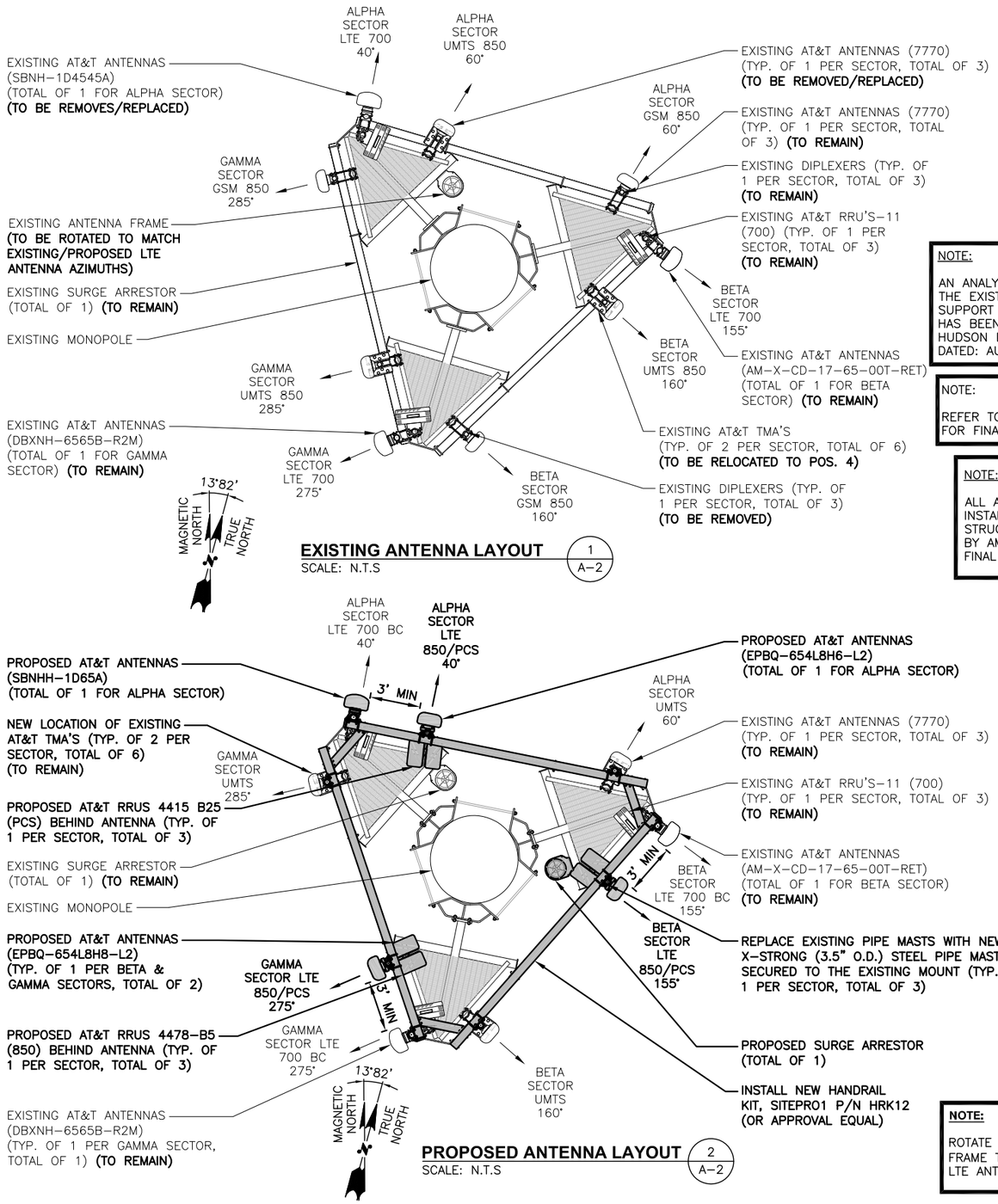
COMPOUND & EQUIPMENT PLAN
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	A-1	A



EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S

PROPOSED ANTENNA LAYOUT (2 / A-2)
SCALE: N.T.S

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: AUGUST 22, 2018

NOTE:

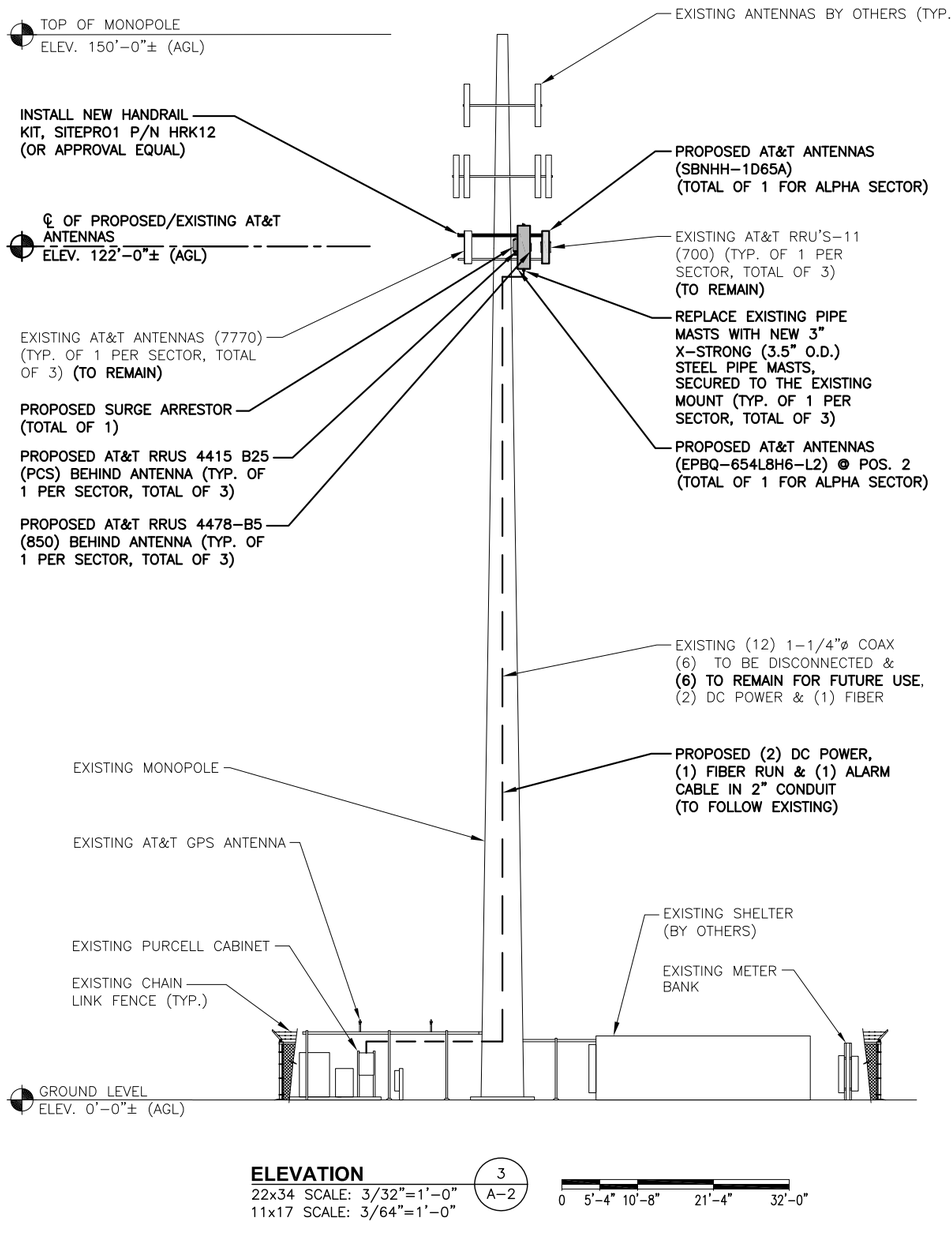
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER CORP AND FINAL AT&T RF DATA SHEET.

NOTE:

ROTATE EXISTING ANTENNA FRAME TO EXISTING/PROPOSED LTE ANTENNA AZIMUTHS



ELEVATION (3 / A-2)
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

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AT&T

ANTENNA LAYOUT & ELEVATION (LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	A-2	A

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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DATED: AUGUST 22, 2018

NOTE:

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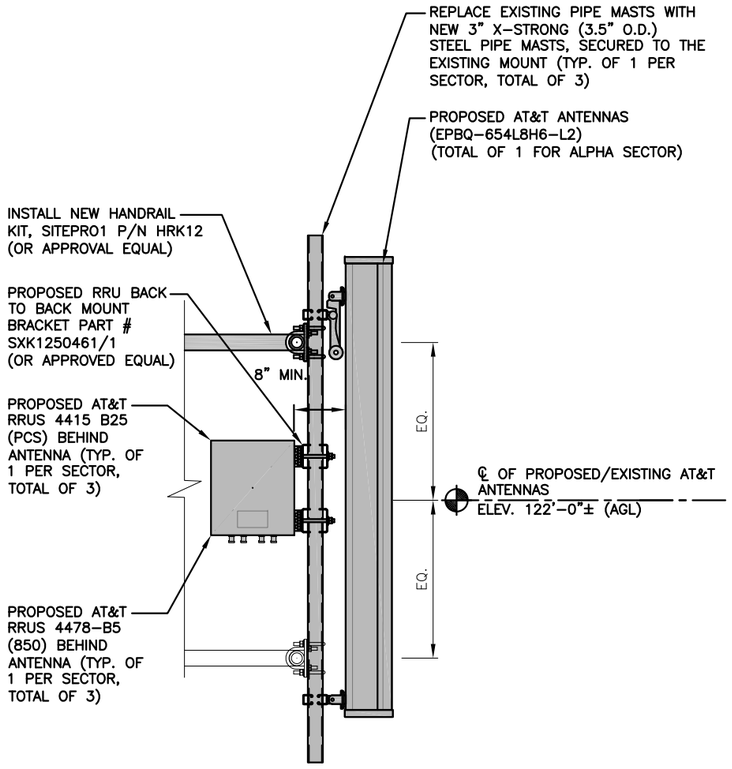


PROPOSED LTE ANTENNA & RRHS MOUNTING DETAIL (2 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	PROPOSED	LTE 700 BC	SBNHH-1D65A	55X11.9X7.1	±122'	40°	–	(E) (1) RRUS-11 (700)	–	–	--
A2	PROPOSED	LTE 850/PCS	EPBQ-654L8H6-L2	73X21X6.3	±122'	40°	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8C
A3	–	–	–	–	–	–	–	(P) 4415 B25 (PCS) (P) 4478 B5 (850)	15x13.2x7.4 15x13.2x7.4	(2) 1-5/8 COAX LENGTH = 165'± (TO BE CAPPED)	
A4	EXISTING	UMTS	7770	55X11X5	±122'	60°	(2) (E) (G) LGP21901 (2) (E) LGP21401	–	–	(2) 1-5/8 COAX LENGTH =165'±	
B1	EXISTING	LTE 700 BC	AM-X-CD-17-65-00T-RET	96X11.8X5.9	±122'	155°	–	(E) (1) RRUS-11 (700)	–	–	--
B2	PROPOSED	LTE 850/PCS	EPBQ-654L8H8-L2	92X21X6.3	±122'	155°	–	–	–	–	(P) (1) RAYCAP DC6-48-60-18-8C
B3	–	–	–	–	–	–	–	(P) 4415 B25 (PCS) (P) 4478 B5 (850)	15x13.2x7.4 15x13.2x7.4	(2) 1-5/8 COAX LENGTH = 165'± (TO BE CAPPED)	
B4	EXISTING	UMTS	7770	55X11X5	±122'	160°	(2) (E) (G) LGP21901 (2) (E) LGP21401	–	–	(2) 1-5/8 COAX LENGTH =165'±	
C1	EXISTING	LTE 700 BC	DBXNH-6565B-R2M	73.4X11.9X7.1	±122'	275°	–	(E) (1) RRUS-11 (700)	–	–	--
C2	PROPOSED	LTE 850/PCS	EPBQ-654L8H8-L2	92X21X6.3	±122'	275°	–	–	–	–	SHARED
C3	–	–	–	–	–	–	–	(P) 4415 B25 (PCS) (P) 4478 B5 (850)	15x13.2x7.4 15x13.2x7.4	(2) 1-5/8 COAX LENGTH = 165'± (TO BE CAPPED)	
C4	EXISTING	UMTS	7770	55X11X5	±122'	285°	(2) (E) (G) LGP21901 (2) (E) LGP21401	–	–	(2) 1-5/8 COAX LENGTH =165'±	

FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S

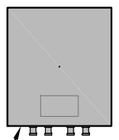
RRU CHART

QUANTITY	MODEL	L	W	D
3(E)	RRUS-11 (700)	19.7"	17.0"	7.2"
3(P)	4415 B25 (PCS)	15.0"	13.2"	7.4"
3(P)	4478 B5 (850)	15.0"	13.2"	7.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

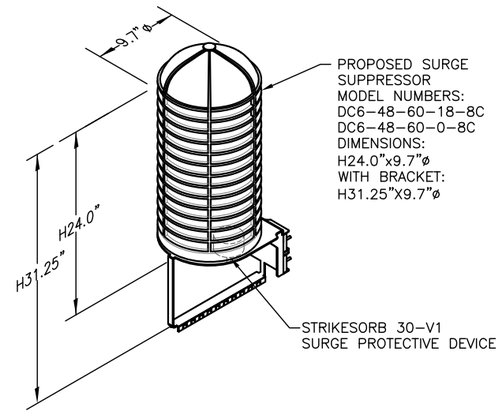
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

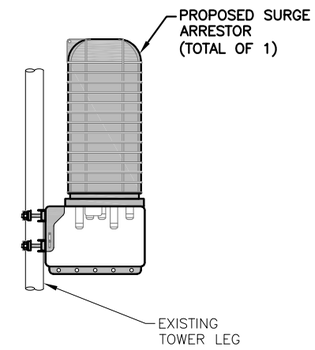
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-3)
SCALE: N.T.S



SURGE SUPPRESSOR MOUNTING DETAIL (5 / A-3)
SCALE: N.T.S

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CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5540
SITE NAME: EAST HADDAM SOUTH
AMERICAN TOWER SITE # 302527

135 HONEY HILL ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

DETAILS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	A-3	A

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5540
SITE NAME: EAST HADDAM SOUTH
AMERICAN TOWER SITE # 302527

135 HONEY HILL ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

STRUCTURAL NOTES
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	SN-1	A

NOTE:

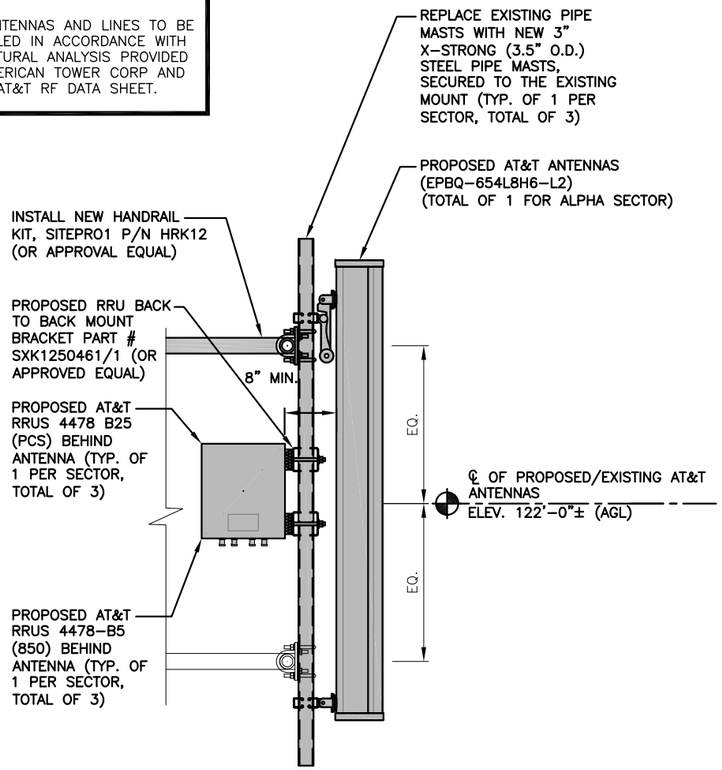
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: AUGUST 22, 2018

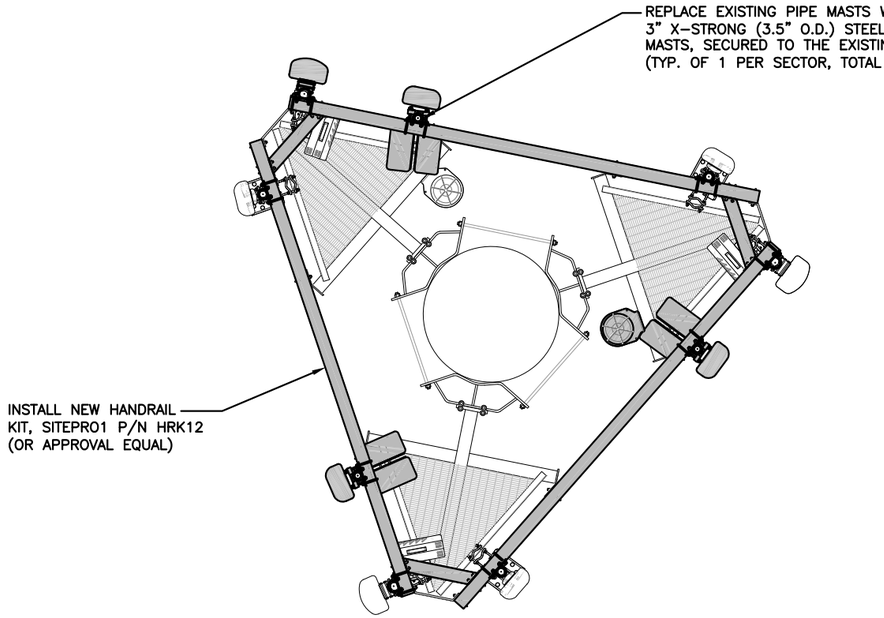
NOTE:

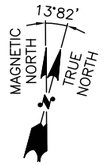
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER CORP AND FINAL AT&T RF DATA SHEET.



PROPOSED MOUNT MODIFICATION DETAIL (1 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

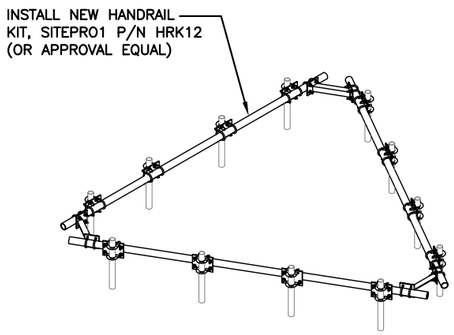
0 0'-6" 1'-0" 2'-0" 3'-0"





PLATFORM REINFORCEMENT PLAN (2 / S-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED HANDRAIL KIT (3 / S-1)
SCALE: N.T.S

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A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

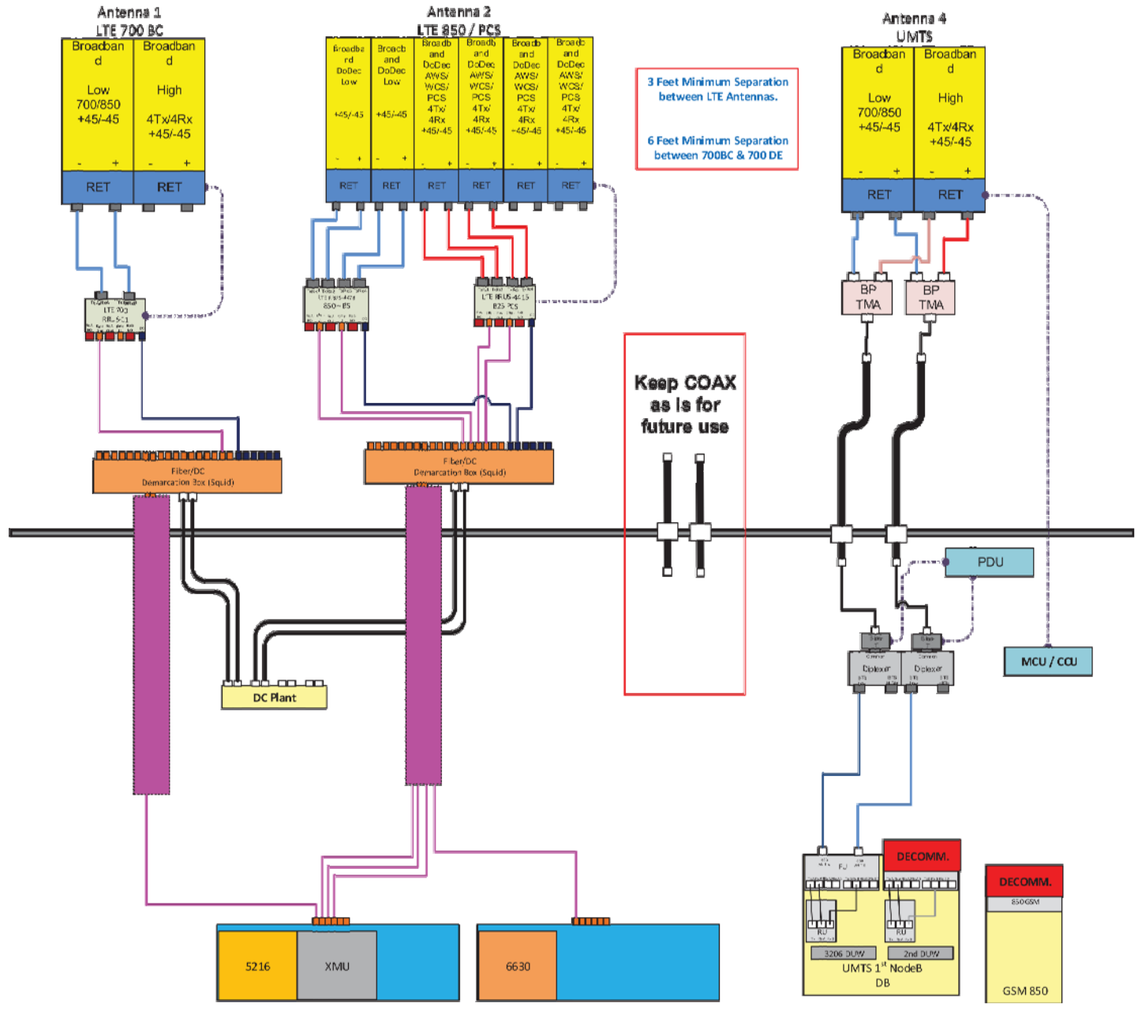
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

STRUCTURAL DETAILS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	S-1	A

ALL SECTORS



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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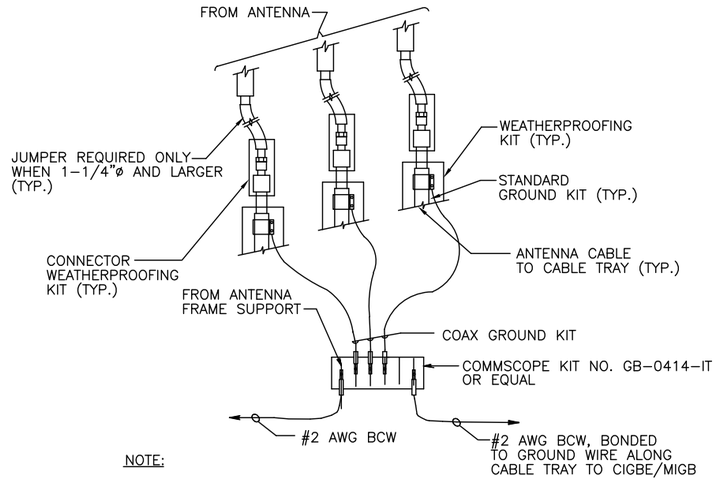
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

RF PLUMBING DIAGRAM
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	RF–1	A



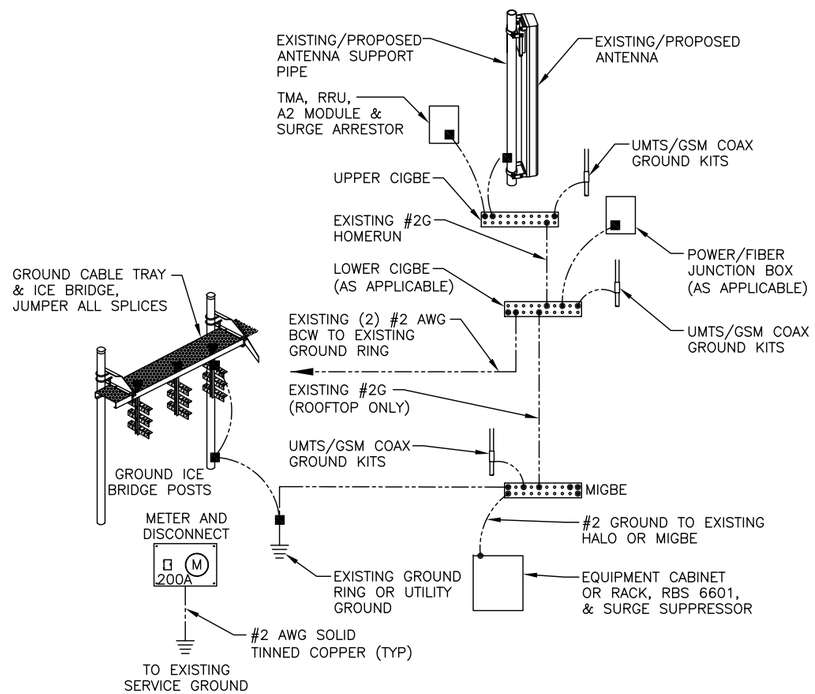
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

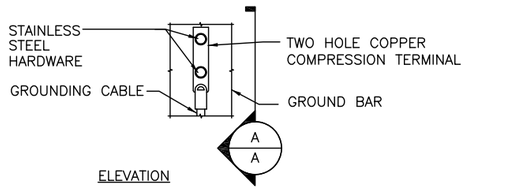
1 / G–1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G–1



NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G–1

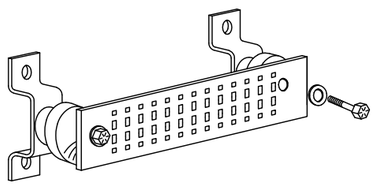
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
–48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)



GROUND BAR - DETAIL

SCALE: N.T.S

4 / G–1

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT5540
SITE NAME: EAST HADDAM SOUTH
AMERICAN TOWER SITE # 302527

135 HONEY HILL ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
A	09/20/18	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

AT&T

GROUNDING DETAILS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT5540	G–1	A

135 HONEY HILL RD

Location	135 HONEY HILL RD	**Mblu**	M13/ / L004/ /
Acct#	00036900	**Owner**	PORTER DONALD L & SUSAN L
Assessment	$198,530	**Appraisal**	$388,590
PID	404	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$169,400	$219,190	$388,590
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$118,580	$79,950	$198,530

Owner of Record

Owner	PORTER DONALD L & SUSAN L	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	135 HONEY HILL RD EAST HADDAM, CT 06423	**Book & Page**	801/ 111
		Sale Date	02/26/2008
		Instrument	29

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
PORTER DONALD L & SUSAN L	$0		801/ 111	29	02/26/2008
SOBIECH ZIGFRED R & PORTER DONALD L & SL	$0		202/ 76		09/11/1985

Building Information

Building 1 : Section 1

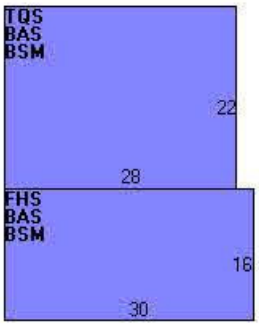
Year Built:	1987
Living Area:	1,767
Replacement Cost:	$210,576
Building Percent Good:	72
Replacement Cost Less Depreciation:	$151,600

Building Attributes	
Field	**Description**
Style	Cape
Model	Residential
Grade:	C+
Stories	1.50
Occupancy	1
Exterior Wall 1	Clapboard
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type	Hot Water
AC Type	None
Bedrooms	3 Bedrooms
Full Baths	2
Half Baths	0
Extra Fixtures	0
Total Rooms	6
Bath Style	Average
Kitchen Style	Average
Fireplace(s)	1
Extra Openings	0
Gas Fireplace(s)	0
Bsmt Garage(s)	0
Foundation	Poured Conc
Fin Bsmnt	0
Int Vs Ext	Same

Building Photo

(http://images.vgsi.com/photos/EastHaddamCTPhotos//\00\00\4

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,096	1,096
TQS	Three Quarter Story	616	431
FHS	Finished Half Story	480	240
BSM	Basement	1,096	0
		3,288	1,767

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	101	**Size (Acres)**	34
Description	Res Dwelling	**Frontage**	
Zone	R2	**Depth**	
Neighborhood		**Assessed Value**	$79,950
Alt Land Appr	No	**Appraised Value**	$219,190
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD1	Shed			192 S.F.	$1,200	1
BRN3	1S Barn W/Loft			1512 S.F.	$16,600	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$146,400	$233,680	$380,080
2015	$146,400	$233,680	$380,080
2014	$146,400	$233,680	$380,080

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$102,480	$90,090	$192,570
2015	$102,480	$90,090	$192,570
2014	$102,480	$90,090	$192,570