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

December 5, 2018

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

RE: Notice of Exempt Modification // Site Number: CT2271
39 Nichols Road (a/k/a 169 Trowbridge), East Haddam, CT 06469 (Site Name: EAST HADDAM – NICHOLS RD)
N 41.52100 // W -72.423235

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains nine (9) antennas at the 167-foot level of the existing 175-foot monopole tower at 135 Honey Hill Road, East Haddam, CT 06423. The tower is owned by SBA Communications, LLC. The property is owned by The Town of East Haddam. 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 167-foot level of the tower. AT&T also intends to install three (3) RRUs, replace three (3) RRUS and add three (3) Low Band Combiners.

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 November 23, 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, SBA Communications and the ground owner, First Selectman for the Town of East Haddam. 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 12/04/2018 by Hudson Design Group LLC, a structural analysis dated 11/16/2018 by Tower Engineering Solutions, a

Mount Analysis dated 8/28/2018 by Hudson Design Group LLC, Mount Modification Proposal dated 9/20/2018 and an Emissions Analysis Report dated 12/03/2018 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.

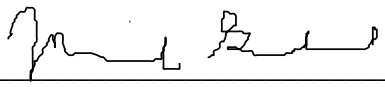
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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 Tower Engineering Solutions, dated 11/162018 and a Mount Analysis by Hudson Design Group LLC, dated 8/28/2018.

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
SBA Communications, LLC - as tower owner
Town of East Haddam, Attn: First Selectman - as property owner
Town of East Haddam – Building/Zoning/Planning

39 NICHOLS RD

Location	39 NICHOLS RD	**Mblu**	M75/ / L021/ /
Acct#	00416200	**Owner**	EAST HADDAM TOWN OF
Assessment	$598,310	**Appraisal**	$854,720
PID	4621	**Building Count**	3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$191,700	$663,020	$854,720
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$134,190	$464,120	$598,310

Owner of Record

Owner	EAST HADDAM TOWN OF	**Sale Price**	$0
Co-Owner	TRANSFER STATION-KENNEL	**Certificate**	
Address	*	**Book & Page**	91/ 80
	*	**Sale Date**	05/09/1969
	MOODUS, CT 06469		

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
EAST HADDAM TOWN OF	$0		91/ 80	05/09/1969

Building Information

Building 1 : Section 1

Year Built:	1982
Living Area:	798
Replacement Cost:	$44,903
Building Percent Good:	76
Replacement Cost Less Depreciation:	$34,100

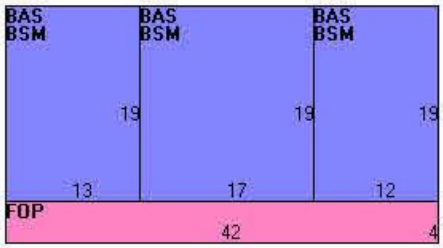
Building Attributes	
Field	**Description**

STYLE	Light Industrial
MODEL	Ind/Comm
Grade	C
Stories:	2
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Percent	0
Foundation	N/A
Bldg Use	Exempt Ind
Total Rooms	0
Total Bedrms	0
Total Fixtures	6
% Sprinklers	0
Bsmt Area	0
1st Floor Use:	
Heat/AC	Typical
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	None / N/A
Wall Height	8
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/EastHaddamCTPhotos//\00\00\6

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	798	798
BSM	Basement	798	0
FOP	Open Porch	168	0
		1,764	798

Building 2 : Section 1

Year Built: 2010
Living Area: 1,920
Replacement Cost: $69,696
Building Percent Good: 93
Replacement Cost Less Depreciation: $64,800

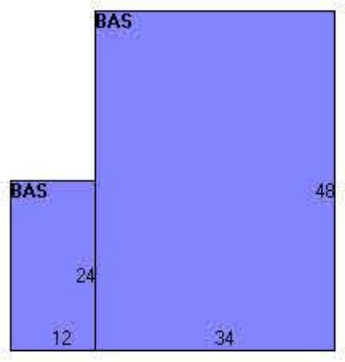
Building Attributes : Bldg 2 of 3	
Field	**Description**

STYLE	Pre-Eng Warehs
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-Finsh Metl
Exterior Wall 2	
Roof Structure	Shed
Roof Cover	Metal
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Percent	0
Foundation	Slab
Bldg Use	Industrial
Total Rooms	
Total Bedrms	
Total Fixtures	
% Sprinklers	0
Bsmt Area	
1st Floor Use:	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	14
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/EastHaddamCTPhotos//\00\00\6

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,920	1,920
		1,920	1,920

Building 3 : Section 1

Year Built:	2012
Living Area:	336
Replacement Cost:	$24,157
Building Percent Good:	95
Replacement Cost Less Depreciation:	$22,900

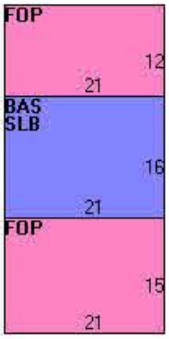
Building Attributes : Bldg 3 of 3	
Field	**Description**

STYLE	Kennel
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Vinyl Siding
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	Propane
Heating Type	Space Heat
AC Percent	1
Foundation	
Bldg Use	Industrial
Total Rooms	
Total Bedrms	
Total Fixtures	
% Sprinklers	
Bsmt Area	
1st Floor Use:	
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	None / N/A
Wall Height	7
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/EastHaddamCTPhotos//default.jp

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	336	336
FOP	Open Porch	567	0
SLB	Slab	336	0
		1,239	336

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	301E	**Size (Acres)**	120.86
Description	Exempt Ind	**Frontage**	
Zone	R2	**Depth**	
Neighborhood		**Assessed Value**	$464,120
Alt Land Appr	No	**Appraised Value**	$663,020
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving			31080 S.F.	$46,600	2
SHD1	Shed			200 S.F.	$1,800	1
SHD1	Shed			80 S.F.	$700	3
CNP	Canopy			200 S.F.	$2,000	3
LNT	Lean To			210 S.F.	$500	1
PAV1	Paving			8500 S.F.	$7,700	2
SHD1	Shed			160 S.F.	$1,500	1
SHD1	Shed			120 S.F.	$800	1
SHP1	WorkShop Heated			200 S.F.	$3,000	1
GAZ	Gazebo			250 S.F.	$5,300	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$125,400	$668,010	$793,410
2015	$125,400	$668,010	$793,410
2014	$125,400	$668,010	$793,410

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$87,780	$467,610	$555,390
2015	$87,780	$467,610	$555,390
2014	$87,780	$467,610	$555,390

JOSEPH SERBIN
6073430588
CENTERLINE COMMUNICATIONS
1471 COUNTY ROAD 32
GREENE NY 13778

1 LBS

1 OF 1

DWT: 12,12,1

SHIP TO:
ATTN: EMMETT J. LYMAN
TOWN OF EAST HADDAM
FIRST SELECTMAN'S OFFICE
1 PLAINS ROAD
MOODUS CT 06469

CT 063 0-01

UPS GROUND
TRACKING #: 1Z 9Y4 503 43 3288 5307

BILLING: P/P

Reference #1: CT2271 / CSC TO F. SELECT AND OWNER

XOL 18.11.08 NV45 06.0A 10/2018

JOSEPH SERBIN
6073430588
CENTERLINE COMMUNICATIONS
1471 COUNTY ROAD 32
GREENE NY 13778

1 LBS

1 OF 1

DWT: 12,12,1

SHIP TO:
ATTN: BUILDING/ZONING
TOWN OF EAST HADDAM
1 PLAINS ROAD
MOODUS CT 06469

CT 063 0-01

UPS GROUND
TRACKING #: 1Z 9Y4 503 43 1374 0383

BILLING: P/P

Reference #1: CT2271 - CSC to Building / Zoning

XOL 18.11.08 NV45 06.0A 10/2018

JOSEPH SERBIN
6073430588
CENTERLINE COMMUNICATIONS
1471 COUNTY ROAD 32
GREENE NY 13778

1 LBS

1 OF 1

DWT: 12,10,1

SHIP TO:
MELANIE A. BACHMAN
CONNECTICUT SITING COUNCIL
10 FRANKILIN SQ
NEW BRITAIN CT 06051

CT 067 9-06

UPS GROUND

TRACKING #: 1Z 9Y4 503 03 3356 8698

BILLING: P/P

UIS 20.6.13. WNINV50 06.0A 10/2018

CECILIA AKINS
5088449030
CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

1 LBS

1 OF 1

DWT: 12,12,1

SHIP TO:
CARLA SHORTER
SBA COMMUNICATIONS CORPORATION
8051 CONGRESS AVENUE
BOCA RATON FL 33487

FL 332 6-07

UPS GROUND
TRACKING #: 1Z 9Y4 503 43 1741 5138

BILLING: P/P

Reference #1: CT5178 - CSC Filing to Tower owner

XOL 18.11.08 NV45 06.0A 10/2018

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2271

FA#: 10105797

East Haddam - Nichols Rd
169 Nichols Road
East Haddam, CT 06423

December 3, 2018

Centerline Communications Project Number: 950012-191

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**5.10 %**

December 3, 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: **CT2271 – East Haddam - Nichols Rd**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **169 Nichols 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 **169 Nichols 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)
UMTS	850 MHz	2	30
LTE	850 MHz	2	40
5G	850 MHz	2	25
LTE	1900 MHz (PCS)	4	40
LTE	700 MHz	2	40

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	Powerwave 7770	167
A	2	Quintel QS46512-2	167
A	3	Commscope SBNH-1D4545C	167
B	1	Powerwave 7770	167
B	2	CCI TPA-65R-LCUUUU-H8	167
B	3	KMW AM-X-CD-17-65-00T-RET	167
C	1	Powerwave 7770	167
C	2	CCI TPA-65R-LCUUUU-H8	167
C	3	KMW AM-X-CD-17-65-00T-RET	167

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	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.20
Antenna A2	Quintel QS46512-2	850 MHz / 1900 MHz (PCS)	10.35 / 13.15	8	250	3,887.56	0.69
Antenna A3	Commscope SBNH-1D4545C	700 MHz	13.35	2	80	1,730.17	0.51
						Sector A Composite MPE%	**1.40**
Antenna B1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.20
Antenna B2	CCI TPA-65R-LCUUUU-H8	850 MHz / 1900 MHz (PCS)	13.45 / 13.75	8	250	5,722.67	1.10
Antenna B3	KMW AM-X-CD-17-65-00T-RET	700 MHz	14.65	2	80	2,333.94	0.69
						Sector B Composite MPE%	**1.99**
Antenna C1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.20
Antenna C2	CCI TPA-65R-LCUUUU-H8	850 MHz / 1900 MHz (PCS)	13.45 / 13.75	8	250	5,722.67	1.10
Antenna C3	KMW AM-X-CD-17-65-00T-RET	700 MHz	14.65	2	80	2,333.94	0.69
						Sector C Composite MPE%	**1.99**

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 sectors with the largest calculated MPE% are Sectors B&C. *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 (Sectors B&C)	**1.99 %**
T-Mobile	3.11 %
Site Total MPE %:	**5.10 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	1.40 %
AT&T Sector B Total:	1.99 %
AT&T Sector C Total:	1.99 %
Site Total:	5.10 %

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 sectors with the largest calculated MPE% are Sectors B&C.

AT&T _ Frequency Band / Technology Max Power Values (Sectors B&C)	# 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 850 MHz UMTS – Antenna 1	2	414.12	167	1.15	850 MHz	567	0.20%
AT&T 850 MHz LTE– Antenna 2	2	885.24	167	2.46	850 MHz	567	0.43%
AT&T 850 MHz 5G– Antenna 2	2	553.27	167	1.53	850 MHz	567	0.27%
AT&T 1900 MHz (PCS) LTE– Antenna 2	4	711.41	167	3.95	1900 MHz (PCS)	1000	0.39%
AT&T 700 MHz LTE– Antenna 3	2	1,166.97	167	3.24	700 MHz	467	0.69%
						Total:	**1.99%**

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:	1.40 %
Sector B:	1.99 %
Sector C:	1.99 %
AT&T Maximum Total (Sectors B&C):	1.99 %
Site Total:	5.10 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.10 %** 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

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 175 ft PIROD Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT22076-A

Customer Site Name: East Haddam (Trowbridge)

Carrier Name: AT&T

Carrier Site ID / Name: CT2271 (10105797) / East Haddam (Trowbridge)

Site Location: 3 Nichols Rd

East Haddam, Connecticut

MIDDLESEX County

Latitude: 41.521000

Longitude: -72.423200

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED PROFESSIONAL ENGINEER

11/16/18

Analysis Result:

Max Structural Usage: 83.0% [Pass]

Max Foundation Usage: 50.0% [Pass]

Additional Usage Caused by Mount Modification: +2.8%

Report Prepared By : Dipika Dhungana

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 175 ft PIROD Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT22076-A

Customer Site Name: East Haddam (Trowbridge)

Carrier Name: AT&T

Carrier Site ID / Name: CT2271 (10105797) / East Haddam (Trowbridge)

Site Location: 3 Nichols Rd

East Haddam, Connecticut

MIDDLESEX County

Latitude: 41.521000

Longitude: -72.423200

Analysis Result:

Max Structural Usage: 83.0% [Pass]

Max Foundation Usage: 50.0% [Pass]

Additional Usage Caused by Mount Modification: +2.8%

Report Prepared By : Dipika Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 175 ft PIROD Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Pyrod Inc. Drawing no. 1776649 dated 06/21/2005
Foundation Drawing	Pyrod Inc. Drawing no. 177649 dated 06/21/2005
Geotechnical Report	BL Companies Project# C-3109 dated 02/13/2003
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed Vult = 130 mph (3-Sec. Gust)/ Nominal Design Wind Speed Vasd = 101.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.174, S_1 = 0.061

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	170.0	6	Powerwave 7770.00 P1A1 Panel	Low Profile Platform	(12) 1 5/8" (2) 3/4" DC* (1) 3/8" Fiber*	AT&T
-		1	Andrew SBNH-1D4545A Panel			
-		2	KMW AM-X-CD-17-65-00T RET Panel			
-		6	Powerwave LGP21401 TMA			
-		3	Ericsson KRC 161 241/1 RRU			
-		1	Raycap DC6-48-60-18-8F DC Surge			
12	150.0	4	Ericsson Air 32 KRD901146-1_B66A_B2A Panel	Four-Sided Platform w/ Handrail (SitePro F4P-10W+ F4P-HRK10)	(4) 1 5/8" Fiber (3) 1/2" Coax	T-Mobile
13		4	RFS APXVAA24_43-U-A20 Panel			
14		4	RFS APX16DWV-16DWVS-E-A20 Panel			
15		2	Radio Waves SP2-5.2 Dish			
16		8	Microdata Telecom MI-554nn Diplexer			
17		4	Ericsson RRU 4478 RRU			
18		4	Ericsson S11B12 RRU			
19		4	Ericsson S11B4 RRU			
20		1	Panasonic VIC100 GPS Reciever			

*(2) 3/4" DC and (1) 3/8" Fiber runs inside (1) 3" Innerduct

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	175.0	6	LGP21901 Diplexer	Low Profile Platform (1)SitePro 1 PN HRK14	(12) 1 1/4" (2) 3/8" DC Power (1) 3/8"Fiber	AT&T
2	167.0	3	Powerwave 7770			
3		2	KMW AM-X-CD-17-65-00T-RET			
4		1	Commscope SBNH-1D4545A			
5		1	Quintel QS46512-2			
6		2	Cci TPA-65R-LCUUUU-H8			
7		6	Powerwave LGP21401 TMA			
8		3	Ericsson RRUS-11			
9		3	Ericsson RRUS 4415 B25			
10		3	Kaelus DBC0061F1V51-2			
11		1	Raycap DC6-48-60-18-8F			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**82.4%**	**71.0%**	**83.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	5810.7	50.5	88.4

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.1646 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

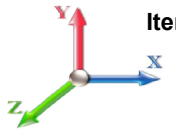
Usage Diagram - Max Ratio 82.44% at 0.0ft

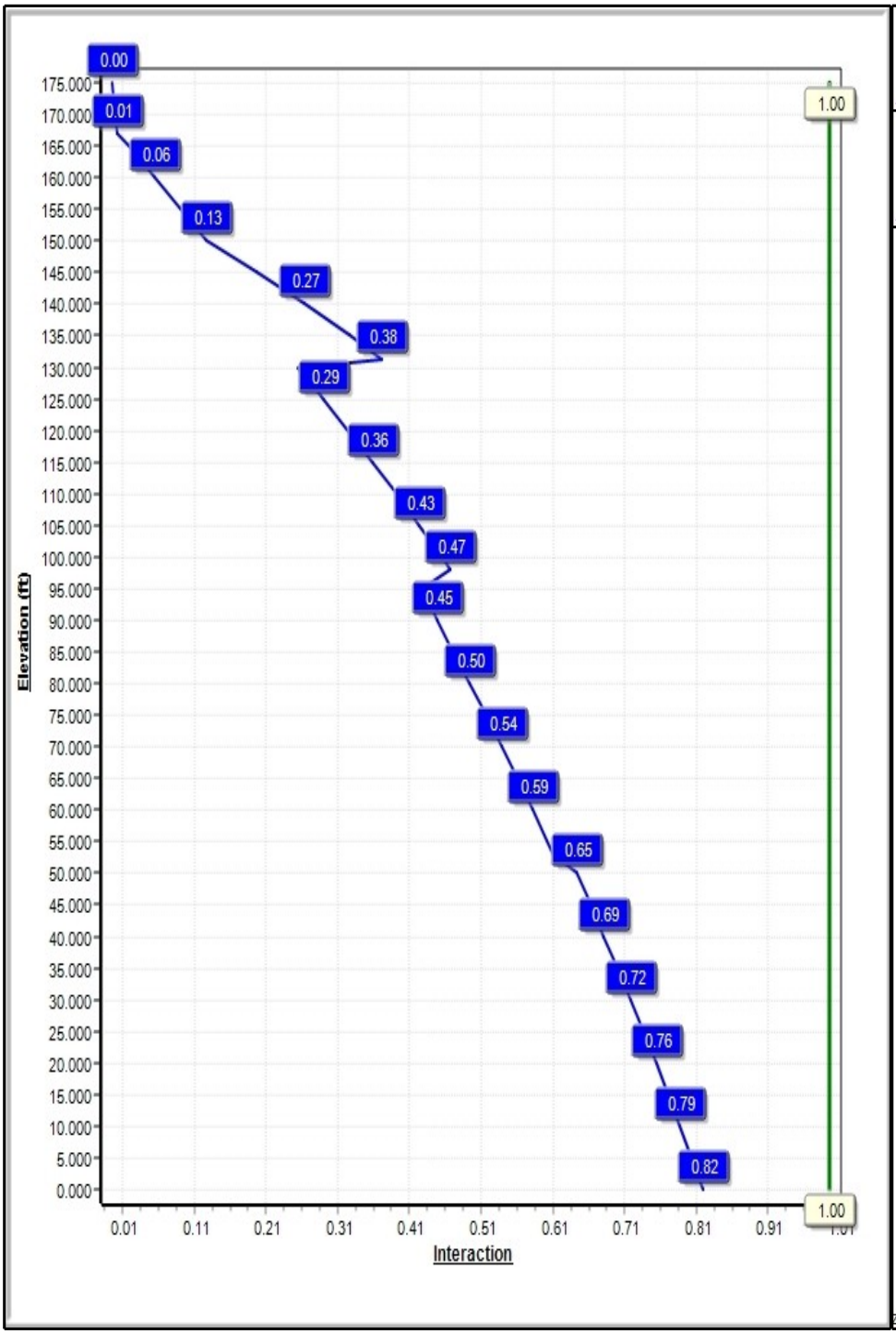
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C	
Height:	175.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

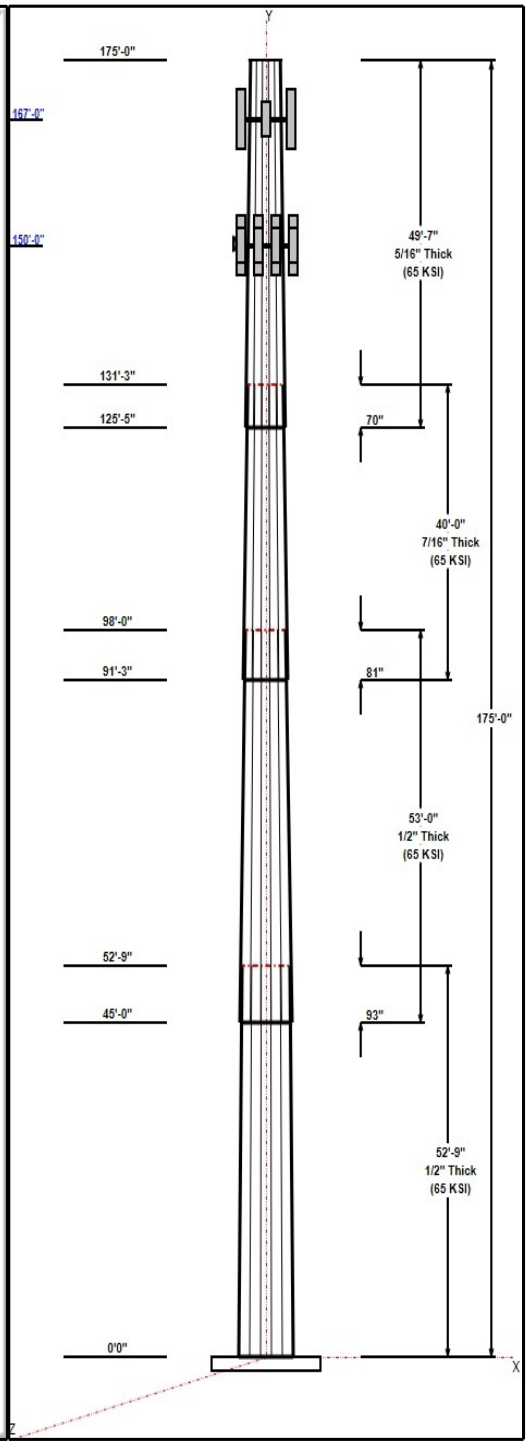
Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	24
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 101 mph Wind







Structure: CT22076-A-SBA

Type: Tapered
Site Name: East Haddam (Trowbridge)
Height: 175.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.18286

11/16/2018

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.75	48.35	58.00	0.500		0.18286	65
2	53.00	41.08	50.77	0.500	Slip	0.18286	65
3	40.00	35.88	43.19	0.438	Slip	0.18286	65
4	49.58	28.50	37.57	0.313	Slip	0.18286	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
175.00	175.00	1	Lightning rod	
167.00	167.00	3	7770.00A	AT&T
167.00	167.00	1	SBNH-1D4545A	AT&T
167.00	167.00	2	AM-X-CD-17-65-00T-RET	AT&T
167.00	167.00	6	LGP21401	AT&T
167.00	167.00	1	DC6-48-60-18-8F	AT&T
167.00	167.00	3	RRUS-11	AT&T
167.00	167.00	1	Low Profile	AT&T
167.00	167.00	1	QS46512-2	AT&T
167.00	167.00	2	TPA-65R-LCUUUU-H8	AT&T
167.00	167.00	6	LGP21901 Diplexer	AT&T
167.00	167.00	3	RRUS 4415 B25	AT&T
167.00	167.00	3	DBC0061F1V51-2	AT&T
167.00	167.00	3	RRUS 4415 B25	AT&T
167.00	167.00	3	DBC0061F1V51-2	AT&T
167.00	167.00	1	HRK14	AT&T
167.00	167.00	1	PRK-1245 (kicker kit)	AT&T
150.00	150.00	4	KRD 9011461-B66A-B2A	T-Mobile
150.00	150.00	4	APXVAA24_43-U-A20	T-Mobile
150.00	150.00	4	APX16DWV-16DWVS-C	T-Mobile
150.00	150.00	2	SP2-5.2	T-Mobile
150.00	150.00	8	MI-554nn	T-Mobile
150.00	150.00	4	RRUS 4478 B14	T-Mobile
150.00	150.00	4	S11B12	T-Mobile
150.00	150.00	4	S11B4	T-Mobile
150.00	150.00	1	VIC100	T-Mobile
150.00	150.00	1	F4P-10W	T-Mobile
150.00	150.00	1	F4P-HRK10	T-Mobile

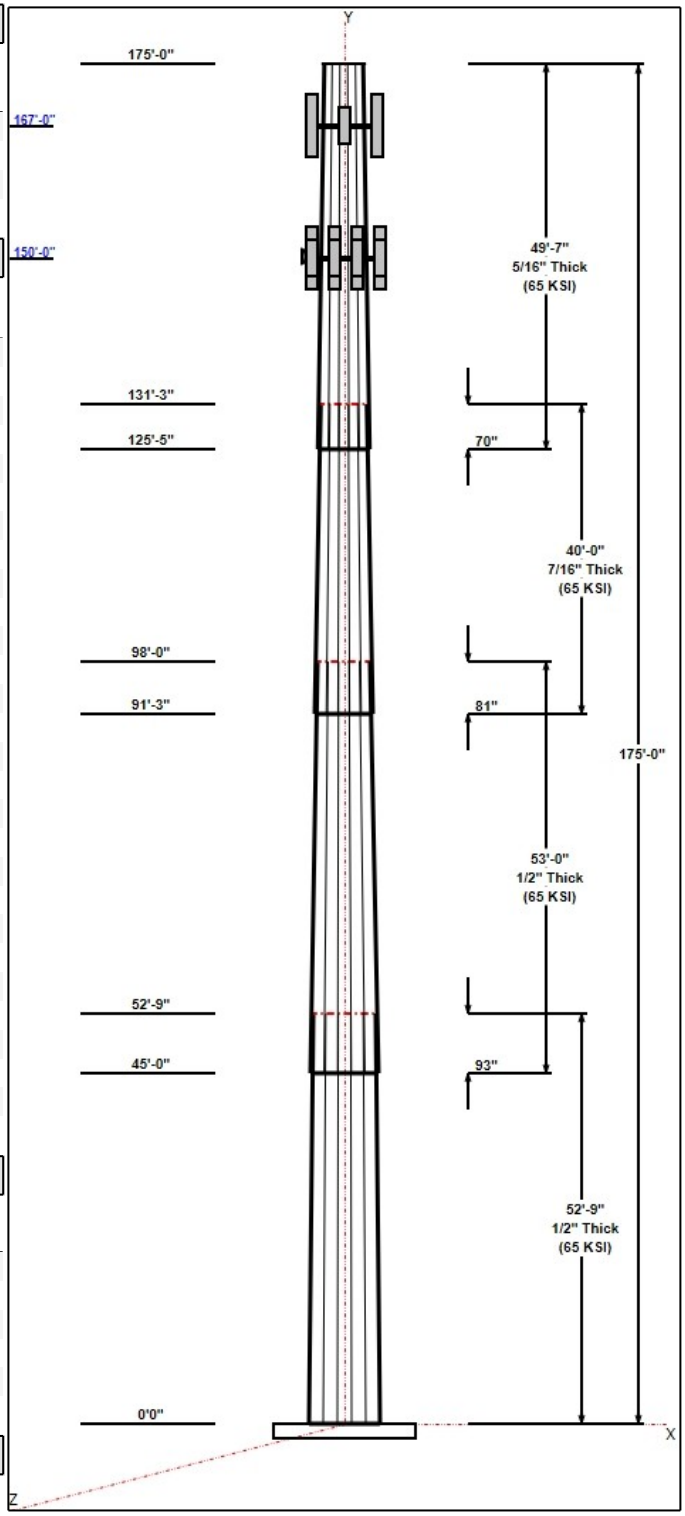
Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	170.00	Inside	1 1/4" Coax	AT&T
0.00	170.00	Inside	3/8" Fiber	AT&T
0.00	170.00	Inside	3/8" Fiber	AT&T
0.00	150.00	Inside	1 5/8" Fiber	T-Mobile
0.00	150.00	Inside	1/2" Coax	T-Mobile
0.00	150.00	Inside	1/2" Coax	T-Mobile

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Radial

Base Plate



Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.2500	81.8	50.0	Polygon

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	5810.8	50.5	62.0
0.9D + 1.6W 101 mph Wind	5754.0	50.4	46.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1322.7	10.8	88.4
1.2D + 1.0E	252.7	2.1	62.1
0.9D + 1.0E	250.1	2.1	46.6
1.0D + 1.0W 60 mph Wind	1274.9	11.1	51.8

Structure: CT22076-A-SBA - Coax Line Placement

Type: Monopole
Site Name: East Haddam (Trowbridge)
Height: 175.00 (ft)

11/16/2018

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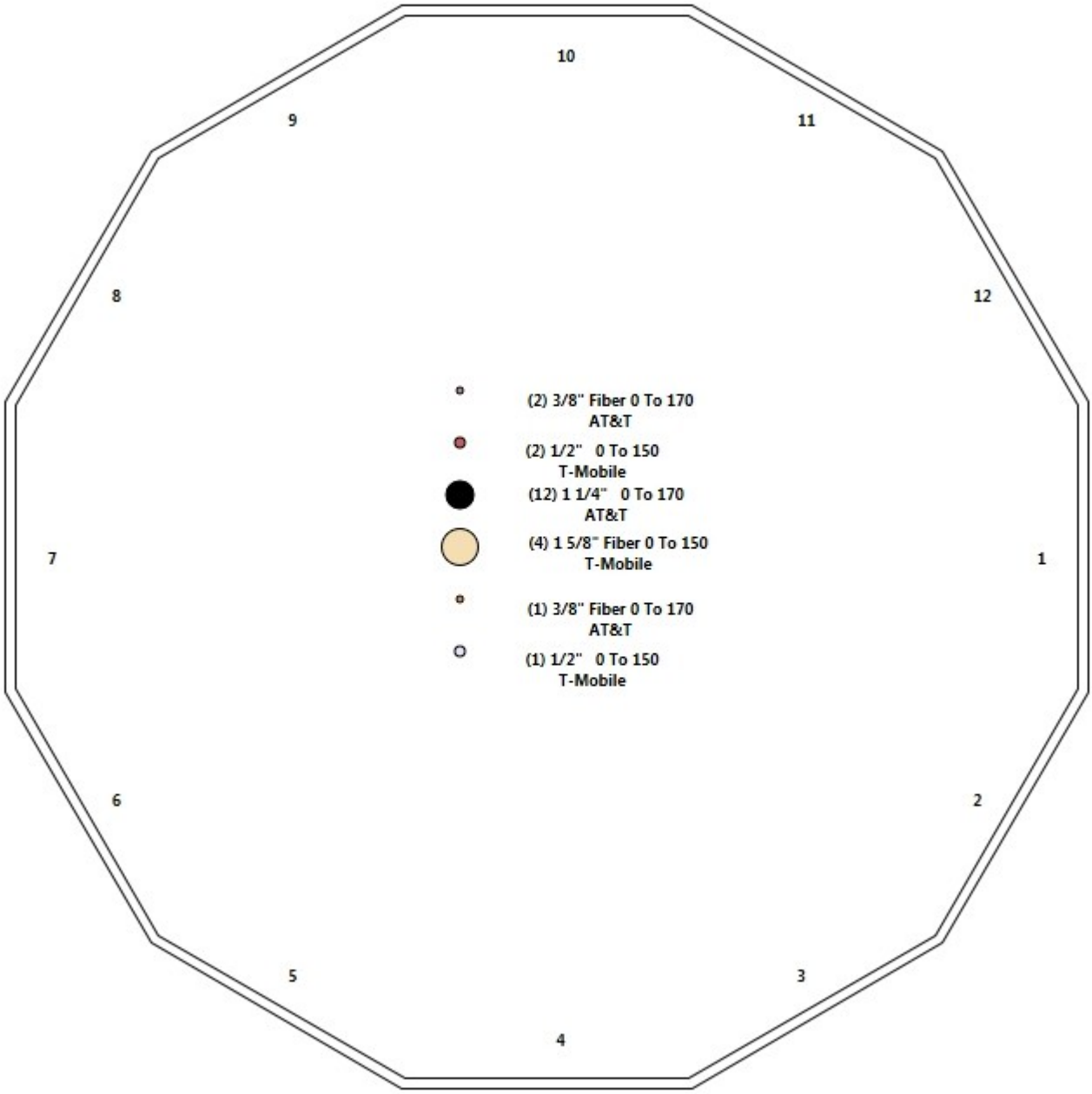


Shaft Properties

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	52.750	0.5000	65		0.00	15,223
2	12	53.000	0.5000	65	Slip	93.00	13,190
3	12	40.000	0.4375	65	Slip	81.00	7,496
4	12	49.583	0.3125	65	Slip	70.00	5,555
					Total Shaft Weight:		**41,464**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	58.00	0.00	92.58	39067.48	28.94	116.00	48.35	52.75	77.05	22520.3	23.77	96.71	0.182857
2	50.77	45.00	80.94	26108.11	25.06	101.54	41.08	98.00	65.33	13732.4	19.87	82.16	0.182857
3	43.19	91.25	60.23	14050.20	24.31	98.72	35.88	131.25	49.92	8002.19	19.83	82.00	0.182857
4	37.57	125.4	37.49	6640.74	30.07	120.21	28.50	175.00	28.36	2876.48	22.29	91.20	0.182857

Load Summary

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	175.00	Lightning rod	1	12.00	1.25	1.00	37.52	5.681	1.00	0.00	0.00
2	167.00	7770.00A	3	27.00	5.54	0.76	142.53	7.698	0.79	0.00	0.00
3	167.00	SBNH-1D4545A	1	36.40	9.10	0.67	220.48	11.277	0.70	0.00	0.00
4	167.00	AM-X-CD-17-65-00T-RET (48")	2	30.80	5.00	0.79	144.01	6.895	0.81	0.00	0.00
5	167.00	LGP21401	6	14.10	1.29	0.66	39.37	2.135	0.72	0.00	0.00
6	167.00	DC6-48-60-18-8F	1	31.80	0.92	1.00	94.29	1.363	1.00	0.00	0.00
7	167.00	RRUS-11	3	50.00	2.57	0.71	115.62	3.223	0.74	0.00	0.00
8	167.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2823.04	39.852	1.00	0.00	0.00
9	167.00	QS46512-2	1	75.00	5.55	0.00	237.20	6.580	0.00	0.00	0.00
10	167.00	TPA-65R-LCUUUU-H8	2	75.00	13.30	0.00	391.04	14.965	0.00	0.00	0.00
11	167.00	LGP21901 Diplexer	6	5.50	0.23	0.00	13.27	0.602	0.00	0.00	0.00
12	167.00	RRUS 4415 B25	3	46.00	1.64	0.00	87.55	2.161	0.00	0.00	0.00
13	167.00	DBC0061F1V51-2	3	25.40	0.43	0.00	40.10	0.718	0.00	0.00	0.00
14	167.00	RRUS 4415 B25	3	46.00	1.64	0.00	87.55	2.161	0.00	0.00	0.00
15	167.00	DBC0061F1V51-2	3	25.40	0.43	0.00	40.10	0.718	0.00	0.00	0.00
16	167.00	HRK14	1	302.36	8.13	1.00	665.06	16.161	1.00	0.00	0.00
17	167.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	792.96	19.555	1.00	0.00	0.00
18	150.00	KRD 9011461-B66A-B2A	4	132.20	6.51	0.86	315.44	7.632	0.88	0.00	0.00
19	150.00	APXVAA24_43-U-A20	4	99.00	20.24	0.72	526.70	22.140	0.73	0.00	0.00
20	150.00	APX16DWV-16DWVS-C	4	40.70	6.46	0.67	155.71	8.629	0.70	0.00	0.00
21	150.00	SP2-5.2	2	22.00	3.96	1.00	105.29	5.135	1.00	0.00	0.00
22	150.00	MI-554nn	8	15.90	0.63	0.50	46.93	0.993	0.67	0.00	0.00
23	150.00	RRUS 4478 B14	4	59.40	1.65	0.67	100.87	2.168	0.75	0.00	0.00
24	150.00	S11B12	4	51.00	2.83	0.67	120.60	3.502	0.75	0.00	0.00
25	150.00	S11B4	4	51.00	2.83	0.67	120.60	3.502	0.75	0.00	0.00
26	150.00	VIC100	1	0.40	0.10	0.67	5.72	0.287	0.75	0.00	0.00
27	150.00	F4P-10W	1	2396.00	58.98	1.00	4737.66	28.974	1.00	0.00	0.00
28	150.00	F4P-HRK10	1	478.27	9.00	1.00	945.69	19.681	1.00	0.00	0.00
		Totals:	**78**	**8,190.14**			**19,431.62**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	170.00	(12) 1 1/4" Coax	0.00	Inside
0.00	170.00	(1) 3/8" Fiber	0.00	Inside
0.00	170.00	(2) 3/8" Fiber	0.00	Inside
0.00	150.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	150.00	(2) 1/2" Coax	0.00	Inside
0.00	150.00	(1) 1/2" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.5000	58.000	92.575	39067.5	28.94	116.00	73.2	1301.	0.0
5.00		0.5000	57.086	91.103	37233.4	28.45	114.17	73.7	1260.	1562.5
10.00		0.5000	56.171	89.631	35457.6	27.96	112.34	74.2	1219.	1537.5
15.00		0.5000	55.257	88.159	33739.2	27.47	110.51	74.8	1179.	1512.4
20.00		0.5000	54.343	86.687	32077.2	26.98	108.69	75.3	1140.	1487.4
25.00		0.5000	53.429	85.215	30470.7	26.49	106.86	75.8	1101.	1462.4
30.00		0.5000	52.514	83.743	28918.8	26.00	105.03	76.4	1063.	1437.3
35.00		0.5000	51.600	82.271	27420.4	25.51	103.20	76.9	1026.	1412.3
40.00		0.5000	50.686	80.799	25974.8	25.02	101.37	77.4	990.0	1387.2
45.00	Bot - Section 2	0.5000	49.771	79.327	24580.9	24.53	99.54	78.0	954.1	1362.2
50.00		0.5000	48.857	77.855	23237.7	24.04	97.71	78.5	918.8	2701.7
52.75	Top - Section 1	0.5000	49.354	78.655	23961.8	24.31	98.71	0.0	0.0	1464.6
55.00		0.5000	48.943	77.993	23361.5	24.08	97.89	78.4	922.1	599.7
60.00		0.5000	48.029	76.521	22063.6	23.59	96.06	79.0	887.5	1314.4
65.00		0.5000	47.114	75.049	20814.6	23.10	94.23	79.5	853.5	1289.4
70.00		0.5000	46.200	73.577	19613.7	22.61	92.40	80.0	820.1	1264.4
75.00		0.5000	45.286	72.105	18459.9	22.12	90.57	80.6	787.5	1239.3
80.00		0.5000	44.371	70.633	17352.3	21.63	88.74	81.1	755.5	1214.3
85.00		0.5000	43.457	69.161	16289.9	21.15	86.91	81.7	724.2	1189.2
90.00		0.5000	42.543	67.689	15271.7	20.66	85.09	81.9	693.5	1164.2
91.25	Bot - Section 3	0.5000	42.314	67.321	15024.0	20.53	84.63	81.9	685.9	287.1
95.00		0.5000	41.629	66.217	14296.9	20.17	83.26	81.9	663.5	1614.4
98.00	Top - Section 2	0.4375	41.955	58.488	12868.1	23.55	95.90	0.0	0.0	1272.5
100.00		0.4375	41.589	57.973	12531.0	23.33	95.06	79.3	582.1	396.3
105.00		0.4375	40.675	56.685	11714.2	22.77	92.97	79.9	556.4	975.4
110.00		0.4375	39.761	55.397	10933.7	22.21	90.88	80.5	531.2	953.5
115.00		0.4375	38.846	54.109	10188.6	21.65	88.79	81.1	506.7	931.6
120.00		0.4375	37.932	52.821	9478.2	21.09	86.70	81.7	482.7	909.6
125.00		0.4375	37.018	51.533	8801.6	20.53	84.61	81.9	459.3	887.7
125.42	Bot - Section 4	0.4375	36.942	51.425	8746.8	20.48	84.44	81.9	457.4	73.0
130.00		0.4375	36.104	50.245	8158.0	19.97	82.52	81.9	436.5	1370.9
131.25	Top - Section 3	0.3125	36.500	36.414	6086.5	29.15	116.80	0.0	0.0	368.4
135.00		0.3125	35.814	35.724	5747.0	28.56	114.61	73.6	310.0	460.3
140.00		0.3125	34.900	34.804	5314.3	27.78	111.68	74.4	294.2	600.0
145.00		0.3125	33.986	33.884	4903.9	27.00	108.75	75.3	278.8	584.3
150.00		0.3125	33.071	32.964	4515.2	26.21	105.83	76.1	263.8	568.7
155.00		0.3125	32.157	32.044	4147.6	25.43	102.90	77.0	249.2	553.0
160.00		0.3125	31.243	31.124	3800.6	24.65	99.98	77.8	235.0	537.4
165.00		0.3125	30.329	30.204	3473.4	23.86	97.05	78.7	221.2	521.7
167.00		0.3125	29.963	29.836	3348.0	23.55	95.88	79.0	215.9	204.3
170.00		0.3125	29.414	29.284	3165.6	23.08	94.13	79.5	207.9	301.8
175.00		0.3125	28.500	28.364	2876.5	22.29	91.20	80.4	195.0	490.4
										41464.4

Wind Loading - Shaft

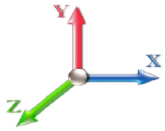
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	465.94	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	458.60	1.000	0.000	5.00	24.822	24.82	921.2	0.0	1875.0
10.00		1.00	0.85	21.088	23.20	451.25	1.000	0.000	5.00	24.428	24.43	906.6	0.0	1845.0
15.00		1.00	0.85	21.088	23.20	443.91	1.000	0.000	5.00	24.033	24.03	892.0	0.0	1814.9
20.00		1.00	0.90	22.375	24.61	449.69	1.000	0.000	5.00	23.639	23.64	930.9	0.0	1784.9
25.00		1.00	0.95	23.451	25.80	452.63	1.000	0.000	5.00	23.244	23.24	959.4	0.0	1754.8
30.00		1.00	0.98	24.369	26.81	453.51	1.000	0.000	5.00	22.850	22.85	980.0	0.0	1724.8
35.00		1.00	1.01	25.172	27.69	452.90	1.000	0.000	5.00	22.456	22.46	994.9	0.0	1694.7
40.00		1.00	1.04	25.890	28.48	451.17	1.000	0.000	5.00	22.061	22.06	1005.3	0.0	1664.7
45.00	Bot - Section 2	1.00	1.07	26.540	29.19	448.56	1.000	0.000	5.00	21.667	21.67	1012.1	0.0	1634.6
50.00		1.00	1.09	27.135	29.85	445.23	1.000	0.000	5.00	21.704	21.70	1036.5	0.0	3242.0
52.75	Top - Section 1	1.00	1.11	27.443	30.19	443.14	1.000	0.000	2.75	11.769	11.77	568.4	0.0	1757.5
55.00		1.00	1.12	27.685	30.45	450.51	1.000	0.000	2.25	9.540	9.54	464.9	0.0	719.6
60.00		1.00	1.14	28.197	31.02	446.16	1.000	0.000	5.00	20.915	20.92	1037.9	0.0	1577.3
65.00		1.00	1.16	28.676	31.54	441.37	1.000	0.000	5.00	20.521	20.52	1035.7	0.0	1547.3
70.00		1.00	1.17	29.127	32.04	436.20	1.000	0.000	5.00	20.126	20.13	1031.7	0.0	1517.2
75.00		1.00	1.19	29.553	32.51	430.68	1.000	0.000	5.00	19.732	19.73	1026.3	0.0	1487.2
80.00		1.00	1.21	29.958	32.95	424.86	1.000	0.000	5.00	19.337	19.34	1019.6	0.0	1457.1
85.00		1.00	1.22	30.342	33.38	418.77	1.000	0.000	5.00	18.943	18.94	1011.6	0.0	1427.1
90.00		1.00	1.24	30.710	33.78	412.44	1.000	0.000	5.00	18.549	18.55	1002.5	0.0	1397.0
91.25	Bot - Section 3	1.00	1.24	30.799	33.88	410.82	1.000	0.000	1.25	4.576	4.58	248.0	0.0	344.6
95.00		1.00	1.25	31.061	34.17	405.88	1.000	0.000	3.75	13.862	13.86	757.8	0.0	1937.2
98.00	Top - Section 2	1.00	1.26	31.265	34.39	401.84	1.000	0.000	3.00	10.930	10.93	601.4	0.0	1527.0
100.00		1.00	1.27	31.399	34.54	407.69	1.000	0.000	2.00	7.208	7.21	398.3	0.0	475.5
105.00		1.00	1.28	31.723	34.89	400.78	1.000	0.000	5.00	17.743	17.74	990.6	0.0	1170.5
110.00		1.00	1.29	32.035	35.24	393.69	1.000	0.000	5.00	17.349	17.35	978.1	0.0	1144.2
115.00		1.00	1.30	32.336	35.57	386.45	1.000	0.000	5.00	16.954	16.95	964.9	0.0	1117.9
120.00		1.00	1.32	32.627	35.89	379.04	1.000	0.000	5.00	16.560	16.56	950.9	0.0	1091.6
125.00		1.00	1.33	32.909	36.20	371.50	1.000	0.000	5.00	16.165	16.17	936.3	0.0	1065.3
125.42	Bot - Section 4	1.00	1.33	32.932	36.22	370.87	1.000	0.000	0.42	1.329	1.33	77.0	0.0	87.6
130.00		1.00	1.34	33.182	36.50	363.82	1.000	0.000	4.58	14.689	14.69	857.8	0.0	1645.1
131.25	Top - Section 3	1.00	1.34	33.249	36.57	361.89	1.000	0.000	1.25	3.949	3.95	231.1	0.0	442.1
135.00		1.00	1.35	33.446	36.79	362.35	1.000	0.000	3.75	11.698	11.70	688.6	0.0	552.3
140.00		1.00	1.36	33.703	37.07	354.45	1.000	0.000	5.00	15.252	15.25	904.7	0.0	720.0
145.00		1.00	1.37	33.953	37.35	346.44	1.000	0.000	5.00	14.857	14.86	887.8	0.0	701.2
150.00	Appurtenance(s)	1.00	1.38	34.196	37.62	338.33	1.000	0.000	5.00	14.463	14.46	870.5	0.0	682.4
155.00		1.00	1.39	34.433	37.88	330.11	1.000	0.000	5.00	14.069	14.07	852.6	0.0	663.6
160.00		1.00	1.40	34.664	38.13	321.80	1.000	0.000	5.00	13.674	13.67	834.3	0.0	644.8
165.00		1.00	1.41	34.890	38.38	313.40	1.000	0.000	5.00	13.280	13.28	815.5	0.0	626.0
167.00	Appurtenance(s)	1.00	1.41	34.978	38.48	310.01	1.000	0.000	2.00	5.202	5.20	320.2	0.0	245.2
170.00		1.00	1.42	35.110	38.62	304.90	1.000	0.000	3.00	7.684	7.68	474.8	0.0	362.1
175.00	Appurtenance(s)	1.00	1.42	35.324	38.86	296.33	1.000	0.000	5.00	12.491	12.49	776.6	0.0	588.5
								Totals:	**175.00**			**33,255.4**		**49,757.2**

Discrete Appurtenance Forces

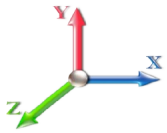
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Lightning rod	1	35.324	38.857	1.00	1.00	1.25	14.40	0.000	0.000	77.71	0.00	0.00
2	167.00	TPA-65R-LCUUUU-H8	2	34.978	38.476	0.00	1.00	26.60	180.00	0.000	0.000	1637.54	0.00	0.00
3	167.00	LGP21401	6	34.978	38.476	0.53	0.80	4.09	101.52	0.000	0.000	251.58	0.00	0.00
4	167.00	DC6-48-60-18-8F	1	34.978	38.476	0.80	0.80	0.74	38.16	0.000	0.000	45.31	0.00	0.00
5	167.00	RRUS-11	3	34.978	38.476	0.57	0.80	4.37	180.00	0.000	0.000	268.84	0.00	0.00
6	167.00	Low Profile	1	34.978	38.476	1.00	1.00	22.00	1800.00	0.000	0.000	1354.35	0.00	0.00
7	167.00	QS46512-2	1	34.978	38.476	0.00	1.00	5.55	90.00	0.000	0.000	341.67	0.00	0.00
8	167.00	RRUS 4415 B25	3	34.978	38.476	0.00	1.00	4.92	165.60	0.000	0.000	302.88	0.00	0.00
9	167.00	LGP21901 Diplexer	6	34.978	38.476	0.00	1.00	1.38	39.60	0.000	0.000	84.95	0.00	0.00
10	167.00	DBC0061F1V51-2	3	34.978	38.476	0.00	1.00	1.29	91.44	0.000	0.000	79.41	0.00	0.00
11	167.00	RRUS 4415 B25	3	34.978	38.476	0.00	1.00	4.92	165.60	0.000	0.000	302.88	0.00	0.00
12	167.00	DBC0061F1V51-2	3	34.978	38.476	0.00	1.00	1.29	91.44	0.000	0.000	79.41	0.00	0.00
13	167.00	HRK14	1	34.978	38.476	1.00	1.00	8.13	362.83	0.000	0.000	500.50	0.00	0.00
14	167.00	PRK-1245 (kicker kit)	1	34.978	38.476	1.00	1.00	9.50	557.89	0.000	0.000	584.83	0.00	0.00
15	167.00	AM-X-CD-17-65-00T-RET	2	34.978	38.476	0.63	0.80	6.32	73.92	0.000	0.000	389.07	0.00	0.00
16	167.00	7770.00A	3	34.978	38.476	0.61	0.80	10.10	97.20	0.000	0.000	622.08	0.00	0.00
17	167.00	SBNH-1D4545A	1	34.978	38.476	0.54	0.80	4.88	43.68	0.000	0.000	300.27	0.00	0.00
18	150.00	MI-554nn	8	34.196	37.616	0.38	0.75	1.89	152.64	0.000	0.000	113.75	0.00	0.00
19	150.00	KRD 9011461-B66A-B2A	4	34.196	37.616	0.65	0.75	16.80	634.56	0.000	0.000	1010.87	0.00	0.00
20	150.00	APXVAA24_43-U-A20	4	34.196	37.616	0.54	0.75	43.72	475.20	0.000	0.000	2631.23	0.00	0.00
21	150.00	APX16DWV-16DWVS-C	4	34.196	37.616	0.50	0.75	12.98	195.36	0.000	0.000	781.49	0.00	0.00
22	150.00	SP2-5.2	2	34.196	37.616	0.75	0.75	5.94	52.80	0.000	0.000	357.50	0.00	0.00
23	150.00	S11B12	4	34.196	37.616	0.50	0.75	5.69	244.80	0.000	0.000	342.35	0.00	0.00
24	150.00	RRUS 4478 B14	4	34.196	37.616	0.50	0.75	3.32	285.12	0.000	0.000	199.61	0.00	0.00
25	150.00	S11B4	4	34.196	37.616	0.50	0.75	5.69	244.80	0.000	0.000	342.35	0.00	0.00
26	150.00	VIC100	1	34.196	37.616	0.50	0.75	0.05	0.48	0.000	0.000	3.02	0.00	0.00
27	150.00	F4P-10W	1	34.196	37.616	1.00	1.00	58.98	2875.20	0.000	0.000	3549.76	0.00	0.00
28	150.00	F4P-HRK10	1	34.196	37.616	1.00	1.00	9.00	573.92	0.000	0.000	541.67	0.00	0.00
							Totals:		**9,828.17**			**17,096.90**		

Total Applied Force Summary

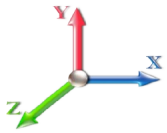
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		921.24	1952.93	0.00	0.00
10.00		906.61	1922.87	0.00	0.00
15.00		891.97	1892.82	0.00	0.00
20.00		930.88	1862.77	0.00	0.00
25.00		959.38	1832.71	0.00	0.00
30.00		980.01	1802.66	0.00	0.00
35.00		994.86	1772.61	0.00	0.00
40.00		1005.25	1742.55	0.00	0.00
45.00		1012.07	1712.50	0.00	0.00
50.00		1036.53	3319.88	0.00	0.00
52.75		568.44	1800.32	0.00	0.00
55.00		464.87	754.65	0.00	0.00
60.00		1037.95	1655.21	0.00	0.00
65.00		1035.68	1625.16	0.00	0.00
70.00		1031.75	1595.10	0.00	0.00
75.00		1026.33	1565.05	0.00	0.00
80.00		1019.58	1535.00	0.00	0.00
85.00		1011.61	1504.94	0.00	0.00
90.00		1002.54	1474.89	0.00	0.00
91.25		248.02	364.03	0.00	0.00
95.00		757.80	1995.63	0.00	0.00
98.00		601.43	1573.69	0.00	0.00
100.00		398.30	506.70	0.00	0.00
105.00		990.62	1248.34	0.00	0.00
110.00		978.14	1222.04	0.00	0.00
115.00		964.89	1195.75	0.00	0.00
120.00		950.93	1169.45	0.00	0.00
125.00		936.29	1143.15	0.00	0.00
125.42		77.05	94.08	0.00	0.00
130.00		857.82	1716.47	0.00	0.00
131.25		231.06	461.55	0.00	0.00
135.00		688.59	610.71	0.00	0.00
140.00		904.71	797.85	0.00	0.00
145.00		887.85	779.06	0.00	0.00
150.00	(37) attachments	10744.07	6495.16	0.00	0.00
155.00		852.60	712.22	0.00	0.00
160.00		834.25	693.43	0.00	0.00
165.00		815.46	674.65	0.00	0.00
167.00	(40) attachments	7465.80	4343.48	0.00	0.00
170.00		474.81	391.27	0.00	0.00
175.00	(1) attachments	854.30	602.88	0.00	0.00
	Totals:	**50,352.33**	**62,116.20**	**0.00**	**0.00**

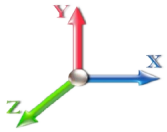
Calculated Forces

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-62.02	-50.47	0.00	-5810.7	0.00	5810.77	6094.92	3047.46	14456.0	7139.28	0.00	0.000	0.000	0.824
5.00	-59.89	-49.76	0.00	-5558.4	0.00	5558.44	6041.82	3020.91	14100.2	6963.58	0.11	-0.207	0.000	0.808
10.00	-57.80	-49.05	0.00	-5309.6	0.00	5309.65	5987.31	2993.65	13745.2	6788.27	0.44	-0.415	0.000	0.792
15.00	-55.74	-48.35	0.00	-5064.3	0.00	5064.39	5931.38	2965.69	13391.2	6613.44	0.99	-0.623	0.000	0.775
20.00	-53.71	-47.59	0.00	-4822.6	0.00	4822.67	5874.03	2937.02	13038.3	6439.15	1.75	-0.831	0.000	0.758
25.00	-51.73	-46.79	0.00	-4584.7	0.00	4584.73	5815.27	2907.64	12686.7	6265.50	2.73	-1.040	0.000	0.741
30.00	-49.78	-45.95	0.00	-4350.8	0.00	4350.81	5755.10	2877.55	12336.5	6092.55	3.93	-1.248	0.000	0.723
35.00	-47.86	-45.09	0.00	-4121.0	0.00	4121.05	5693.50	2846.75	11987.9	5920.39	5.35	-1.457	0.000	0.705
40.00	-45.99	-44.20	0.00	-3895.6	0.00	3895.60	5630.49	2815.25	11641.0	5749.10	6.99	-1.665	0.000	0.686
45.00	-44.15	-43.30	0.00	-3674.5	0.00	3674.59	5566.07	2783.04	11296.1	5578.76	8.85	-1.872	0.000	0.667
50.00	-40.75	-42.26	0.00	-3458.0	0.00	3458.09	5500.23	2750.11	10953.3	5409.44	10.92	-2.078	0.000	0.647
52.75	-38.90	-41.70	0.00	-3341.8	0.00	3341.87	5536.21	2768.10	11139.4	5501.37	12.15	-2.193	0.000	0.615
55.00	-38.06	-41.30	0.00	-3248.0	0.00	3248.05	5506.46	2753.23	10985.3	5425.27	13.20	-2.286	0.000	0.606
60.00	-36.32	-40.31	0.00	-3041.5	0.00	3041.56	5439.34	2719.67	10644.5	5256.96	15.70	-2.478	0.000	0.585
65.00	-34.61	-39.32	0.00	-2839.9	0.00	2839.98	5370.80	2685.40	10306.1	5089.82	18.40	-2.668	0.000	0.565
70.00	-32.94	-38.32	0.00	-2643.3	0.00	2643.38	5300.84	2650.42	9970.29	4923.95	21.29	-2.855	0.000	0.543
75.00	-31.31	-37.32	0.00	-2451.7	0.00	2451.78	5229.47	2614.74	9637.14	4759.42	24.38	-3.040	0.000	0.521
80.00	-29.72	-36.31	0.00	-2265.2	0.00	2265.20	5156.68	2578.34	9306.86	4596.31	27.66	-3.221	0.000	0.499
85.00	-28.17	-35.30	0.00	-2083.6	0.00	2083.67	5082.48	2541.24	8979.62	4434.70	31.13	-3.400	0.000	0.476
90.00	-26.69	-34.26	0.00	-1907.1	0.00	1907.19	4989.36	2494.68	8625.31	4259.72	34.78	-3.574	0.000	0.453
91.25	-26.30	-34.03	0.00	-1864.3	0.00	1864.37	4962.23	2481.12	8531.23	4213.26	35.72	-3.618	0.000	0.448
95.00	-24.29	-33.19	0.00	-1736.7	0.00	1736.77	4880.86	2440.43	8252.09	4075.40	38.61	-3.746	0.000	0.431
98.00	-22.71	-32.52	0.00	-1637.2	0.00	1637.20	4159.95	2079.97	7111.13	3511.92	41.00	-3.846	0.000	0.472
100.00	-22.16	-32.13	0.00	-1572.1	0.00	1572.16	4136.05	2068.02	7007.35	3460.67	42.62	-3.913	0.000	0.460
105.00	-20.90	-31.12	0.00	-1411.4	0.00	1411.49	4075.31	2037.66	6749.44	3333.30	46.81	-4.082	0.000	0.429
110.00	-19.67	-30.11	0.00	-1255.9	0.00	1255.90	4013.16	2006.58	6493.86	3207.07	51.17	-4.244	0.000	0.397
115.00	-18.47	-29.10	0.00	-1105.3	0.00	1105.36	3949.59	1974.80	6240.77	3082.08	55.69	-4.398	0.000	0.364
120.00	-17.31	-28.11	0.00	-959.84	0.00	959.84	3884.61	1942.31	5990.33	2958.40	60.37	-4.542	0.000	0.329
125.00	-16.21	-27.10	0.00	-819.30	0.00	819.30	3798.47	1899.23	5713.02	2821.44	65.20	-4.675	0.000	0.295
125.42	-16.10	-27.04	0.00	-808.01	0.00	808.01	3790.55	1895.28	5689.10	2809.63	65.61	-4.686	0.000	0.292
130.00	-14.43	-26.06	0.00	-684.09	0.00	684.09	3703.53	1851.76	5429.36	2681.36	70.16	-4.798	0.000	0.259
131.25	-13.96	-25.80	0.00	-651.53	0.00	651.53	2389.73	1194.86	3567.35	1761.78	71.42	-4.827	0.000	0.376
135.00	-13.37	-25.09	0.00	-554.77	0.00	554.77	2365.06	1182.53	3463.05	1710.27	75.24	-4.907	0.000	0.330
140.00	-12.60	-24.14	0.00	-429.34	0.00	429.34	2330.94	1165.47	3324.42	1641.81	80.44	-5.029	0.000	0.267
145.00	-11.87	-23.21	0.00	-308.64	0.00	308.64	2295.39	1147.70	3186.42	1573.65	85.76	-5.128	0.000	0.202
150.00	-6.36	-11.93	0.00	-192.62	0.00	192.62	2258.44	1129.22	3049.21	1505.89	91.16	-5.200	0.000	0.131
155.00	-5.72	-11.02	0.00	-132.99	0.00	132.99	2220.06	1110.03	2912.95	1438.60	96.63	-5.252	0.000	0.095
160.00	-5.10	-10.12	0.00	-77.90	0.00	77.90	2180.27	1090.14	2777.81	1371.86	102.14	-5.288	0.000	0.059
165.00	-4.50	-9.25	0.00	-27.28	0.00	27.28	2139.07	1069.53	2643.95	1305.75	107.69	-5.308	0.000	0.023
167.00	-0.87	-1.42	0.00	-8.78	0.00	8.78	2122.19	1061.09	2590.80	1279.50	109.91	-5.311	0.000	0.007
170.00	-0.52	-0.91	0.00	-4.53	0.00	4.53	2096.45	1048.22	2511.52	1240.35	113.24	-5.312	0.000	0.004
175.00	0.00	-0.85	0.00	0.00	0.00	0.00	2052.41	1026.20	2380.70	1175.74	118.80	-5.313	0.000	0.000

Wind Loading - Shaft

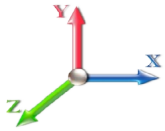
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	465.94	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	458.60	1.000	0.000	5.00	24.822	24.82	921.2	0.0	1406.3
10.00		1.00	0.85	21.088	23.20	451.25	1.000	0.000	5.00	24.428	24.43	906.6	0.0	1383.7
15.00		1.00	0.85	21.088	23.20	443.91	1.000	0.000	5.00	24.033	24.03	892.0	0.0	1361.2
20.00		1.00	0.90	22.375	24.61	449.69	1.000	0.000	5.00	23.639	23.64	930.9	0.0	1338.7
25.00		1.00	0.95	23.451	25.80	452.63	1.000	0.000	5.00	23.244	23.24	959.4	0.0	1316.1
30.00		1.00	0.98	24.369	26.81	453.51	1.000	0.000	5.00	22.850	22.85	980.0	0.0	1293.6
35.00		1.00	1.01	25.172	27.69	452.90	1.000	0.000	5.00	22.456	22.46	994.9	0.0	1271.0
40.00		1.00	1.04	25.890	28.48	451.17	1.000	0.000	5.00	22.061	22.06	1005.3	0.0	1248.5
45.00	Bot - Section 2	1.00	1.07	26.540	29.19	448.56	1.000	0.000	5.00	21.667	21.67	1012.1	0.0	1226.0
50.00		1.00	1.09	27.135	29.85	445.23	1.000	0.000	5.00	21.704	21.70	1036.5	0.0	2431.5
52.75	Top - Section 1	1.00	1.11	27.443	30.19	443.14	1.000	0.000	2.75	11.769	11.77	568.4	0.0	1318.1
55.00		1.00	1.12	27.685	30.45	450.51	1.000	0.000	2.25	9.540	9.54	464.9	0.0	539.7
60.00		1.00	1.14	28.197	31.02	446.16	1.000	0.000	5.00	20.915	20.92	1037.9	0.0	1183.0
65.00		1.00	1.16	28.676	31.54	441.37	1.000	0.000	5.00	20.521	20.52	1035.7	0.0	1160.5
70.00		1.00	1.17	29.127	32.04	436.20	1.000	0.000	5.00	20.126	20.13	1031.7	0.0	1137.9
75.00		1.00	1.19	29.553	32.51	430.68	1.000	0.000	5.00	19.732	19.73	1026.3	0.0	1115.4
80.00		1.00	1.21	29.958	32.95	424.86	1.000	0.000	5.00	19.337	19.34	1019.6	0.0	1092.8
85.00		1.00	1.22	30.342	33.38	418.77	1.000	0.000	5.00	18.943	18.94	1011.6	0.0	1070.3
90.00		1.00	1.24	30.710	33.78	412.44	1.000	0.000	5.00	18.549	18.55	1002.5	0.0	1047.8
91.25	Bot - Section 3	1.00	1.24	30.799	33.88	410.82	1.000	0.000	1.25	4.576	4.58	248.0	0.0	258.4
95.00		1.00	1.25	31.061	34.17	405.88	1.000	0.000	3.75	13.862	13.86	757.8	0.0	1452.9
98.00	Top - Section 2	1.00	1.26	31.265	34.39	401.84	1.000	0.000	3.00	10.930	10.93	601.4	0.0	1145.2
100.00		1.00	1.27	31.399	34.54	407.69	1.000	0.000	2.00	7.208	7.21	398.3	0.0	356.7
105.00		1.00	1.28	31.723	34.89	400.78	1.000	0.000	5.00	17.743	17.74	990.6	0.0	877.8
110.00		1.00	1.29	32.035	35.24	393.69	1.000	0.000	5.00	17.349	17.35	978.1	0.0	858.1
115.00		1.00	1.30	32.336	35.57	386.45	1.000	0.000	5.00	16.954	16.95	964.9	0.0	838.4
120.00		1.00	1.32	32.627	35.89	379.04	1.000	0.000	5.00	16.560	16.56	950.9	0.0	818.7
125.00		1.00	1.33	32.909	36.20	371.50	1.000	0.000	5.00	16.165	16.17	936.3	0.0	799.0
125.42	Bot - Section 4	1.00	1.33	32.932	36.22	370.87	1.000	0.000	0.42	1.329	1.33	77.0	0.0	65.7
130.00		1.00	1.34	33.182	36.50	363.82	1.000	0.000	4.58	14.689	14.69	857.8	0.0	1233.8
131.25	Top - Section 3	1.00	1.34	33.249	36.57	361.89	1.000	0.000	1.25	3.949	3.95	231.1	0.0	331.6
135.00		1.00	1.35	33.446	36.79	362.35	1.000	0.000	3.75	11.698	11.70	688.6	0.0	414.2
140.00		1.00	1.36	33.703	37.07	354.45	1.000	0.000	5.00	15.252	15.25	904.7	0.0	540.0
145.00		1.00	1.37	33.953	37.35	346.44	1.000	0.000	5.00	14.857	14.86	887.8	0.0	525.9
150.00	Appurtenance(s)	1.00	1.38	34.196	37.62	338.33	1.000	0.000	5.00	14.463	14.46	870.5	0.0	511.8
155.00		1.00	1.39	34.433	37.88	330.11	1.000	0.000	5.00	14.069	14.07	852.6	0.0	497.7
160.00		1.00	1.40	34.664	38.13	321.80	1.000	0.000	5.00	13.674	13.67	834.3	0.0	483.6
165.00		1.00	1.41	34.890	38.38	313.40	1.000	0.000	5.00	13.280	13.28	815.5	0.0	469.5
167.00	Appurtenance(s)	1.00	1.41	34.978	38.48	310.01	1.000	0.000	2.00	5.202	5.20	320.2	0.0	183.9
170.00		1.00	1.42	35.110	38.62	304.90	1.000	0.000	3.00	7.684	7.68	474.8	0.0	271.6
175.00	Appurtenance(s)	1.00	1.42	35.324	38.86	296.33	1.000	0.000	5.00	12.491	12.49	776.6	0.0	441.4
								Totals:	**175.00**			**33,255.4**		**37,317.9**

Discrete Appurtenance Forces

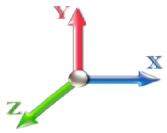
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Lightning rod	1	35.324	38.857	1.00	1.00	1.25	10.80	0.000	0.000	77.71	0.00	0.00
2	167.00	TPA-65R-LCUUUU-H8	2	34.978	38.476	0.00	1.00	26.60	135.00	0.000	0.000	1637.54	0.00	0.00
3	167.00	LGP21401	6	34.978	38.476	0.53	0.80	4.09	76.14	0.000	0.000	251.58	0.00	0.00
4	167.00	DC6-48-60-18-8F	1	34.978	38.476	0.80	0.80	0.74	28.62	0.000	0.000	45.31	0.00	0.00
5	167.00	RRUS-11	3	34.978	38.476	0.57	0.80	4.37	135.00	0.000	0.000	268.84	0.00	0.00
6	167.00	Low Profile	1	34.978	38.476	1.00	1.00	22.00	1350.00	0.000	0.000	1354.35	0.00	0.00
7	167.00	QS46512-2	1	34.978	38.476	0.00	1.00	5.55	67.50	0.000	0.000	341.67	0.00	0.00
8	167.00	RRUS 4415 B25	3	34.978	38.476	0.00	1.00	4.92	124.20	0.000	0.000	302.88	0.00	0.00
9	167.00	LGP21901 Diplexer	6	34.978	38.476	0.00	1.00	1.38	29.70	0.000	0.000	84.95	0.00	0.00
10	167.00	DBC0061F1V51-2	3	34.978	38.476	0.00	1.00	1.29	68.58	0.000	0.000	79.41	0.00	0.00
11	167.00	RRUS 4415 B25	3	34.978	38.476	0.00	1.00	4.92	124.20	0.000	0.000	302.88	0.00	0.00
12	167.00	DBC0061F1V51-2	3	34.978	38.476	0.00	1.00	1.29	68.58	0.000	0.000	79.41	0.00	0.00
13	167.00	HRK14	1	34.978	38.476	1.00	1.00	8.13	272.12	0.000	0.000	500.50	0.00	0.00
14	167.00	PRK-1245 (kicker kit)	1	34.978	38.476	1.00	1.00	9.50	418.42	0.000	0.000	584.83	0.00	0.00
15	167.00	AM-X-CD-17-65-00T-RET	2	34.978	38.476	0.63	0.80	6.32	55.44	0.000	0.000	389.07	0.00	0.00
16	167.00	7770.00A	3	34.978	38.476	0.61	0.80	10.10	72.90	0.000	0.000	622.08	0.00	0.00
17	167.00	SBNH-1D4545A	1	34.978	38.476	0.54	0.80	4.88	32.76	0.000	0.000	300.27	0.00	0.00
18	150.00	MI-554nn	8	34.196	37.616	0.38	0.75	1.89	114.48	0.000	0.000	113.75	0.00	0.00
19	150.00	KRD 9011461-B66A-B2A	4	34.196	37.616	0.65	0.75	16.80	475.92	0.000	0.000	1010.87	0.00	0.00
20	150.00	APXVAA24_43-U-A20	4	34.196	37.616	0.54	0.75	43.72	356.40	0.000	0.000	2631.23	0.00	0.00
21	150.00	APX16DWV-16DWVS-C	4	34.196	37.616	0.50	0.75	12.98	146.52	0.000	0.000	781.49	0.00	0.00
22	150.00	SP2-5.2	2	34.196	37.616	0.75	0.75	5.94	39.60	0.000	0.000	357.50	0.00	0.00
23	150.00	S11B12	4	34.196	37.616	0.50	0.75	5.69	183.60	0.000	0.000	342.35	0.00	0.00
24	150.00	RRUS 4478 B14	4	34.196	37.616	0.50	0.75	3.32	213.84	0.000	0.000	199.61	0.00	0.00
25	150.00	S11B4	4	34.196	37.616	0.50	0.75	5.69	183.60	0.000	0.000	342.35	0.00	0.00
26	150.00	VIC100	1	34.196	37.616	0.50	0.75	0.05	0.36	0.000	0.000	3.02	0.00	0.00
27	150.00	F4P-10W	1	34.196	37.616	1.00	1.00	58.98	2156.40	0.000	0.000	3549.76	0.00	0.00
28	150.00	F4P-HRK10	1	34.196	37.616	1.00	1.00	9.00	430.44	0.000	0.000	541.67	0.00	0.00
							Totals:		**7,371.13**			**17,096.90**		

Total Applied Force Summary

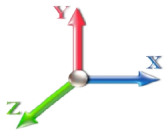
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		921.24	1464.69	0.00	0.00
10.00		906.61	1442.15	0.00	0.00
15.00		891.97	1419.61	0.00	0.00
20.00		930.88	1397.07	0.00	0.00
25.00		959.38	1374.53	0.00	0.00
30.00		980.01	1351.99	0.00	0.00
35.00		994.86	1329.45	0.00	0.00
40.00		1005.25	1306.91	0.00	0.00
45.00		1012.07	1284.37	0.00	0.00
50.00		1036.53	2489.91	0.00	0.00
52.75		568.44	1350.24	0.00	0.00
55.00		464.87	565.99	0.00	0.00
60.00		1037.95	1241.41	0.00	0.00
65.00		1035.68	1218.87	0.00	0.00
70.00		1031.75	1196.33	0.00	0.00
75.00		1026.33	1173.79	0.00	0.00
80.00		1019.58	1151.25	0.00	0.00
85.00		1011.61	1128.71	0.00	0.00
90.00		1002.54	1106.17	0.00	0.00
91.25		248.02	273.02	0.00	0.00
95.00		757.80	1496.73	0.00	0.00
98.00		601.43	1180.26	0.00	0.00
100.00		398.30	380.02	0.00	0.00
105.00		990.62	936.25	0.00	0.00
110.00		978.14	916.53	0.00	0.00
115.00		964.89	896.81	0.00	0.00
120.00		950.93	877.09	0.00	0.00
125.00		936.29	857.36	0.00	0.00
125.42		77.05	70.56	0.00	0.00
130.00		857.82	1287.35	0.00	0.00
131.25		231.06	346.17	0.00	0.00
135.00		688.59	458.03	0.00	0.00
140.00		904.71	598.38	0.00	0.00
145.00		887.85	584.30	0.00	0.00
150.00	(37) attachments	10744.07	4871.37	0.00	0.00
155.00		852.60	534.16	0.00	0.00
160.00		834.25	520.07	0.00	0.00
165.00		815.46	505.99	0.00	0.00
167.00	(40) attachments	7465.80	3257.61	0.00	0.00
170.00		474.81	293.45	0.00	0.00
175.00	(1) attachments	854.30	452.16	0.00	0.00
	Totals:	**50,352.33**	**46,587.15**	**0.00**	**0.00**

Calculated Forces

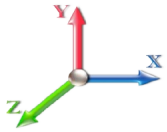
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-46.49	-50.44	0.00	-5753.9	0.00	5753.95	6094.92	3047.46	14456.0	7139.28	0.00	0.000	0.000	0.814
5.00	-44.85	-49.67	0.00	-5501.7	0.00	5501.77	6041.82	3020.91	14100.2	6963.58	0.11	-0.205	0.000	0.798
10.00	-43.24	-48.91	0.00	-5253.4	0.00	5253.41	5987.31	2993.65	13745.2	6788.27	0.44	-0.410	0.000	0.781
15.00	-41.66	-48.16	0.00	-5008.8	0.00	5008.84	5931.38	2965.69	13391.2	6613.44	0.98	-0.616	0.000	0.765
20.00	-40.10	-47.36	0.00	-4768.0	0.00	4768.05	5874.03	2937.02	13038.3	6439.15	1.73	-0.822	0.000	0.748
25.00	-38.58	-46.51	0.00	-4531.2	0.00	4531.27	5815.27	2907.64	12686.7	6265.50	2.70	-1.029	0.000	0.730
30.00	-37.08	-45.64	0.00	-4298.7	0.00	4298.70	5755.10	2877.55	12336.5	6092.55	3.89	-1.235	0.000	0.712
35.00	-35.61	-44.74	0.00	-4070.5	0.00	4070.50	5693.50	2846.75	11987.9	5920.39	5.30	-1.440	0.000	0.694
40.00	-34.18	-43.83	0.00	-3846.7	0.00	3846.79	5630.49	2815.25	11641.0	5749.10	6.92	-1.646	0.000	0.675
45.00	-32.77	-42.89	0.00	-3627.6	0.00	3627.67	5566.07	2783.04	11296.1	5578.76	8.75	-1.851	0.000	0.656
50.00	-30.20	-41.85	0.00	-3413.2	0.00	3413.21	5500.23	2750.11	10953.3	5409.44	10.80	-2.054	0.000	0.637
52.75	-28.80	-41.29	0.00	-3298.1	0.00	3298.11	5536.21	2768.10	11139.4	5501.37	12.01	-2.167	0.000	0.605
55.00	-28.15	-40.87	0.00	-3205.2	0.00	3205.22	5506.46	2753.23	10985.3	5425.27	13.06	-2.260	0.000	0.596
60.00	-26.82	-39.87	0.00	-3000.8	0.00	3000.86	5439.34	2719.67	10644.5	5256.96	15.53	-2.449	0.000	0.576
65.00	-25.53	-38.87	0.00	-2801.5	0.00	2801.51	5370.80	2685.40	10306.1	5089.82	18.19	-2.636	0.000	0.555
70.00	-24.26	-37.86	0.00	-2607.1	0.00	2607.18	5300.84	2650.42	9970.29	4923.95	21.05	-2.820	0.000	0.534
75.00	-23.02	-36.84	0.00	-2417.9	0.00	2417.90	5229.47	2614.74	9637.14	4759.42	24.10	-3.003	0.000	0.513
80.00	-21.82	-35.83	0.00	-2233.6	0.00	2233.69	5156.68	2578.34	9306.86	4596.31	27.34	-3.182	0.000	0.490
85.00	-20.64	-34.82	0.00	-2054.5	0.00	2054.53	5082.48	2541.24	8979.62	4434.70	30.77	-3.358	0.000	0.468
90.00	-19.54	-33.79	0.00	-1880.4	0.00	1880.43	4989.36	2494.68	8625.31	4259.72	34.37	-3.530	0.000	0.446
91.25	-19.23	-33.55	0.00	-1838.1	0.00	1838.19	4962.23	2481.12	8531.23	4213.26	35.30	-3.573	0.000	0.440
95.00	-17.72	-32.74	0.00	-1712.3	0.00	1712.37	4880.86	2440.43	8252.09	4075.40	38.16	-3.699	0.000	0.424
98.00	-16.54	-32.08	0.00	-1614.1	0.00	1614.16	4159.95	2079.97	7111.13	3511.92	40.51	-3.798	0.000	0.464
100.00	-16.12	-31.69	0.00	-1549.9	0.00	1549.99	4136.05	2068.02	7007.35	3460.67	42.12	-3.864	0.000	0.452
105.00	-15.17	-30.68	0.00	-1391.5	0.00	1391.53	4075.31	2037.66	6749.44	3333.30	46.25	-4.031	0.000	0.421
110.00	-14.24	-29.68	0.00	-1238.1	0.00	1238.10	4013.16	2006.58	6493.86	3207.07	50.56	-4.190	0.000	0.390
115.00	-13.34	-28.69	0.00	-1089.7	0.00	1089.70	3949.59	1974.80	6240.77	3082.08	55.02	-4.342	0.000	0.357
120.00	-12.48	-27.70	0.00	-946.26	0.00	946.26	3884.61	1942.31	5990.33	2958.40	59.64	-4.484	0.000	0.323
125.00	-11.66	-26.71	0.00	-807.75	0.00	807.75	3798.47	1899.23	5713.02	2821.44	64.41	-4.616	0.000	0.290
125.42	-11.57	-26.64	0.00	-796.62	0.00	796.62	3790.55	1895.28	5689.10	2809.63	64.81	-4.626	0.000	0.287
130.00	-10.33	-25.70	0.00	-674.50	0.00	674.50	3703.53	1851.76	5429.36	2681.36	69.30	-4.736	0.000	0.255
131.25	-9.98	-25.45	0.00	-642.38	0.00	642.38	2389.73	1194.86	3567.35	1761.78	70.55	-4.765	0.000	0.369
135.00	-9.54	-24.74	0.00	-546.95	0.00	546.95	2365.06	1182.53	3463.05	1710.27	74.32	-4.844	0.000	0.324
140.00	-8.97	-23.80	0.00	-423.26	0.00	423.26	2330.94	1165.47	3324.42	1641.81	79.45	-4.964	0.000	0.262
145.00	-8.43	-22.88	0.00	-304.24	0.00	304.24	2295.39	1147.70	3186.42	1573.65	84.70	-5.061	0.000	0.197
150.00	-4.52	-11.75	0.00	-189.83	0.00	189.83	2258.44	1129.22	3049.21	1505.89	90.04	-5.133	0.000	0.128
155.00	-4.06	-10.86	0.00	-131.07	0.00	131.07	2220.06	1110.03	2912.95	1438.60	95.43	-5.184	0.000	0.093
160.00	-3.61	-9.98	0.00	-76.79	0.00	76.79	2180.27	1090.14	2777.81	1371.86	100.88	-5.219	0.000	0.058
165.00	-3.18	-9.12	0.00	-26.88	0.00	26.88	2139.07	1069.53	2643.95	1305.75	106.35	-5.239	0.000	0.022
167.00	-0.62	-1.39	0.00	-8.63	0.00	8.63	2122.19	1061.09	2590.80	1279.50	108.54	-5.242	0.000	0.007
170.00	-0.37	-0.89	0.00	-4.46	0.00	4.46	2096.45	1048.22	2511.52	1240.35	111.83	-5.243	0.000	0.004
175.00	0.00	-0.85	0.00	0.00	0.00	0.00	2052.41	1026.20	2380.70	1175.74	117.31	-5.244	0.000	0.000

Wind Loading - Shaft

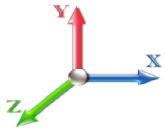
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	25.857	31.03	176.4	469.3	2344.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	25.537	30.64	174.2	495.8	2340.8
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	25.188	30.23	171.8	508.6	2323.5
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	24.828	29.79	179.7	515.3	2300.2
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	24.460	29.35	185.6	518.6	2273.4
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	24.088	28.91	189.9	519.6	2244.4
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	23.713	28.46	193.1	518.9	2213.6
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	23.336	28.00	195.4	517.0	2181.7
45.00	Bot - Section 2	1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	22.956	27.55	197.1	514.2	2148.8
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	23.007	27.61	202.0	520.6	3762.6
52.75	Top - Section 1	1.00	1.11	6.726	7.40	0.00	1.200	1.572	2.75	12.490	14.99	110.9	285.1	2042.6
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	2.25	10.132	12.16	90.7	232.4	952.0
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	22.242	26.69	202.9	511.6	2089.0
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.858	26.23	202.8	506.4	2053.6
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.474	25.77	202.3	500.7	2017.9
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	21.089	25.31	201.6	494.6	1981.8
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	20.703	24.84	200.6	488.2	1945.3
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	20.317	24.38	199.4	481.5	1908.5
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	19.931	23.92	198.0	474.5	1871.5
91.25	Bot - Section 3	1.00	1.24	7.548	8.30	0.00	1.200	1.661	1.25	4.922	5.91	49.0	118.2	462.7
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	3.75	14.904	17.88	149.8	357.6	2294.8
98.00	Top - Section 2	1.00	1.26	7.662	8.43	0.00	1.200	1.672	3.00	11.766	14.12	119.0	283.4	1810.4
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	2.00	7.766	9.32	78.9	187.7	663.3
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	19.146	22.98	196.5	461.8	1632.2
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	18.759	22.51	194.4	454.0	1598.1
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	18.370	22.04	192.2	446.0	1563.9
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	17.982	21.58	189.8	437.9	1529.4
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	17.593	21.11	187.3	429.6	1494.9
125.42	Bot - Section 4	1.00	1.33	8.071	8.88	0.00	1.200	1.714	0.42	1.448	1.74	15.4	35.7	123.3
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	4.58	16.003	19.20	171.8	392.4	2037.5
131.25	Top - Section 3	1.00	1.34	8.148	8.96	0.00	1.200	1.722	1.25	4.307	5.17	46.3	106.5	548.6
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	3.75	12.777	15.33	138.2	314.7	867.0
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	5.00	16.696	20.04	182.0	410.9	1130.9
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	16.307	19.57	179.1	402.1	1103.3
150.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	15.917	19.10	176.1	393.2	1075.6
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	5.00	15.528	18.63	173.0	384.2	1047.8
160.00		1.00	1.40	8.495	9.34	0.00	1.200	1.757	5.00	15.138	18.17	169.8	375.0	1019.9
165.00		1.00	1.41	8.551	9.41	0.00	1.200	1.762	5.00	14.748	17.70	166.5	365.8	991.9
167.00	Appurtenance(s)	1.00	1.41	8.572	9.43	0.00	1.200	1.764	2.00	5.790	6.95	65.5	144.8	390.0
170.00		1.00	1.42	8.604	9.46	0.00	1.200	1.767	3.00	8.568	10.28	97.3	213.9	576.0
175.00	Appurtenance(s)	1.00	1.42	8.657	9.52	0.00	1.200	1.772	5.00	13.968	16.76	159.6	347.1	935.6
								Totals:	**175.00**			**6,572.0**		**65,892.5**

Discrete Appurtenance Forces

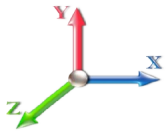
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Lightning rod	1	8.657	9.523	1.00	1.00	5.68	25.92	0.000	0.000	54.10	0.00	0.00
2	167.00	TPA-65R-LCUUUU-H8	2	8.572	9.429	0.00	1.00	29.93	812.08	0.000	0.000	282.23	0.00	0.00
3	167.00	LGP21401	6	8.572	9.429	0.58	0.80	7.38	210.55	0.000	0.000	69.57	0.00	0.00
4	167.00	DC6-48-60-18-8F	1	8.572	9.429	0.80	0.80	1.09	82.95	0.000	0.000	10.28	0.00	0.00
5	167.00	RRUS-11	3	8.572	9.429	0.59	0.80	5.72	333.37	0.000	0.000	53.97	0.00	0.00
6	167.00	Low Profile	1	8.572	9.429	1.00	1.00	39.85	2823.04	0.000	0.000	375.78	0.00	0.00
7	167.00	QS46512-2	1	8.572	9.429	0.00	1.00	6.58	212.40	0.000	0.000	62.05	0.00	0.00
8	167.00	RRUS 4415 B25	3	8.572	9.429	0.00	1.00	6.48	262.04	0.000	0.000	61.12	0.00	0.00
9	167.00	LGP21901 Diplexer	6	8.572	9.429	0.00	1.00	3.61	73.04	0.000	0.000	34.06	0.00	0.00
10	167.00	DBC0061F1V51-2	3	8.572	9.429	0.00	1.00	2.15	125.03	0.000	0.000	20.32	0.00	0.00
11	167.00	RRUS 4415 B25	3	8.572	9.429	0.00	1.00	6.48	262.04	0.000	0.000	61.12	0.00	0.00
12	167.00	DBC0061F1V51-2	3	8.572	9.429	0.00	1.00	2.15	125.03	0.000	0.000	20.32	0.00	0.00
13	167.00	HRK14	1	8.572	9.429	1.00	1.00	16.16	1027.89	0.000	0.000	152.39	0.00	0.00
14	167.00	PRK-1245 (kicker kit)	1	8.572	9.429	1.00	1.00	19.56	790.85	0.000	0.000	184.39	0.00	0.00
15	167.00	AM-X-CD-17-65-00T-RET	2	8.572	9.429	0.65	0.80	8.94	235.94	0.000	0.000	84.26	0.00	0.00
16	167.00	7770.00A	3	8.572	9.429	0.63	0.80	14.60	345.69	0.000	0.000	137.62	0.00	0.00
17	167.00	SBNH-1D4545A	1	8.572	9.429	0.56	0.80	6.31	175.56	0.000	0.000	59.55	0.00	0.00
18	150.00	MI-554nn	8	8.381	9.219	0.50	0.75	3.99	400.87	0.000	0.000	36.79	0.00	0.00
19	150.00	KRD 9011461-B66A-B2A	4	8.381	9.219	0.66	0.75	20.15	1367.52	0.000	0.000	185.73	0.00	0.00
20	150.00	APXVAA24_43-U-A20	4	8.381	9.219	0.55	0.75	48.49	2186.01	0.000	0.000	446.99	0.00	0.00
21	150.00	APX16DWV-16DWVS-C	4	8.381	9.219	0.52	0.75	18.12	523.81	0.000	0.000	167.05	0.00	0.00
22	150.00	SP2-5.2	2	8.381	9.219	0.75	0.75	7.70	171.77	0.000	0.000	71.01	0.00	0.00
23	150.00	S11B12	4	8.381	9.219	0.56	0.75	7.88	458.81	0.000	0.000	72.63	0.00	0.00
24	150.00	RRUS 4478 B14	4	8.381	9.219	0.56	0.75	4.88	413.39	0.000	0.000	44.98	0.00	0.00
25	150.00	S11B4	4	8.381	9.219	0.56	0.75	7.88	458.81	0.000	0.000	72.63	0.00	0.00
26	150.00	VIC100	1	8.381	9.219	0.56	0.75	0.16	4.20	0.000	0.000	1.49	0.00	0.00
27	150.00	F4P-10W	1	8.381	9.219	1.00	1.00	128.97	4525.86	0.000	0.000	1188.98	0.00	0.00
28	150.00	F4P-HRK10	1	8.381	9.219	1.00	1.00	19.68	1519.62	0.000	0.000	181.43	0.00	0.00
							Totals:		**19,954.09**			**4,192.84**		

Total Applied Force Summary

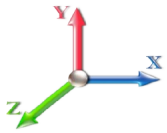
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		176.39	2422.18	0.00	0.00
10.00		174.21	2418.66	0.00	0.00
15.00		171.83	2401.38	0.00	0.00
20.00		179.71	2378.08	0.00	0.00
25.00		185.56	2351.30	0.00	0.00
30.00		189.89	2322.23	0.00	0.00
35.00		193.10	2291.53	0.00	0.00
40.00		195.44	2259.58	0.00	0.00
45.00		197.09	2226.66	0.00	0.00
50.00		201.96	3840.52	0.00	0.00
52.75		110.88	2085.43	0.00	0.00
55.00		90.75	987.04	0.00	0.00
60.00		202.89	2166.84	0.00	0.00
65.00		202.77	2131.51	0.00	0.00
70.00		202.34	2095.76	0.00	0.00
75.00		201.62	2059.64	0.00	0.00
80.00		200.64	2023.18	0.00	0.00
85.00		199.43	1986.43	0.00	0.00
90.00		198.00	1949.41	0.00	0.00
91.25		49.04	482.21	0.00	0.00
95.00		149.76	2353.20	0.00	0.00
98.00		119.00	1857.09	0.00	0.00
100.00		78.88	694.45	0.00	0.00
105.00		196.48	1710.11	0.00	0.00
110.00		194.40	1676.02	0.00	0.00
115.00		192.17	1641.75	0.00	0.00
120.00		189.80	1607.32	0.00	0.00
125.00		187.30	1572.74	0.00	0.00
125.42		15.43	129.82	0.00	0.00
130.00		171.78	2108.91	0.00	0.00
131.25		46.33	568.05	0.00	0.00
135.00		138.24	925.39	0.00	0.00
140.00		182.04	1208.75	0.00	0.00
145.00		179.11	1181.16	0.00	0.00
150.00	(37) attachments	2645.80	13184.13	0.00	0.00
155.00		172.97	1096.38	0.00	0.00
160.00		169.75	1068.47	0.00	0.00
165.00		166.46	1040.46	0.00	0.00
167.00	(40) attachments	1734.54	8306.95	0.00	0.00
170.00		97.31	605.16	0.00	0.00
175.00	(1) attachments	213.72	961.49	0.00	0.00
	Totals:	**10,764.80**	**88,377.34**	**0.00**	**0.00**

Calculated Forces

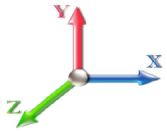
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-88.37	-10.80	0.00	-1322.6	0.00	1322.65	6094.92	3047.46	14456.0	7139.28	0.00	0.000	0.000	0.200
5.00	-85.94	-10.70	0.00	-1268.6	0.00	1268.65	6041.82	3020.91	14100.2	6963.58	0.03	-0.047	0.000	0.196
10.00	-83.51	-10.59	0.00	-1215.1	0.00	1215.17	5987.31	2993.65	13745.2	6788.27	0.10	-0.095	0.000	0.193
15.00	-81.10	-10.48	0.00	-1162.2	0.00	1162.24	5931.38	2965.69	13391.2	6613.44	0.22	-0.142	0.000	0.189
20.00	-78.72	-10.36	0.00	-1109.8	0.00	1109.85	5874.03	2937.02	13038.3	6439.15	0.40	-0.190	0.000	0.186
25.00	-76.36	-10.23	0.00	-1058.0	0.00	1058.06	5815.27	2907.64	12686.7	6265.50	0.62	-0.238	0.000	0.182
30.00	-74.03	-10.09	0.00	-1006.9	0.00	1006.93	5755.10	2877.55	12336.5	6092.55	0.90	-0.286	0.000	0.178
35.00	-71.73	-9.94	0.00	-956.48	0.00	956.48	5693.50	2846.75	11987.9	5920.39	1.23	-0.335	0.000	0.174
40.00	-69.46	-9.79	0.00	-906.76	0.00	906.76	5630.49	2815.25	11641.0	5749.10	1.60	-0.383	0.000	0.170
45.00	-67.23	-9.64	0.00	-857.80	0.00	857.80	5566.07	2783.04	11296.1	5578.76	2.03	-0.431	0.000	0.166
50.00	-63.39	-9.45	0.00	-809.62	0.00	809.62	5500.23	2750.11	10953.3	5409.44	2.51	-0.480	0.000	0.161
52.75	-61.30	-9.34	0.00	-783.64	0.00	783.64	5536.21	2768.10	11139.4	5501.37	2.79	-0.506	0.000	0.154
55.00	-60.31	-9.28	0.00	-762.62	0.00	762.62	5506.46	2753.23	10985.3	5425.27	3.04	-0.528	0.000	0.152
60.00	-58.13	-9.10	0.00	-716.23	0.00	716.23	5439.34	2719.67	10644.5	5256.96	3.61	-0.573	0.000	0.147
65.00	-56.00	-8.92	0.00	-670.73	0.00	670.73	5370.80	2685.40	10306.1	5089.82	4.24	-0.618	0.000	0.142
70.00	-53.90	-8.73	0.00	-626.13	0.00	626.13	5300.84	2650.42	9970.29	4923.95	4.91	-0.663	0.000	0.137
75.00	-51.83	-8.55	0.00	-582.46	0.00	582.46	5229.47	2614.74	9637.14	4759.42	5.63	-0.706	0.000	0.132
80.00	-49.81	-8.36	0.00	-539.72	0.00	539.72	5156.68	2578.34	9306.86	4596.31	6.39	-0.750	0.000	0.127
85.00	-47.82	-8.17	0.00	-497.93	0.00	497.93	5082.48	2541.24	8979.62	4434.70	7.20	-0.792	0.000	0.122
90.00	-45.87	-7.96	0.00	-457.09	0.00	457.09	4989.36	2494.68	8625.31	4259.72	8.05	-0.834	0.000	0.117
91.25	-45.38	-7.92	0.00	-447.14	0.00	447.14	4962.23	2481.12	8531.23	4213.26	8.27	-0.844	0.000	0.115
95.00	-43.03	-7.76	0.00	-417.43	0.00	417.43	4880.86	2440.43	8252.09	4075.40	8.95	-0.875	0.000	0.111
98.00	-41.17	-7.63	0.00	-394.15	0.00	394.15	4159.95	2079.97	7111.13	3511.92	9.50	-0.899	0.000	0.122
100.00	-40.47	-7.56	0.00	-378.90	0.00	378.90	4136.05	2068.02	7007.35	3460.67	9.88	-0.915	0.000	0.119
105.00	-38.76	-7.36	0.00	-341.12	0.00	341.12	4075.31	2037.66	6749.44	3333.30	10.86	-0.956	0.000	0.112
110.00	-37.09	-7.16	0.00	-304.33	0.00	304.33	4013.16	2006.58	6493.86	3207.07	11.89	-0.995	0.000	0.104
115.00	-35.44	-6.96	0.00	-268.53	0.00	268.53	3949.59	1974.80	6240.77	3082.08	12.95	-1.033	0.000	0.096
120.00	-33.84	-6.76	0.00	-233.72	0.00	233.72	3884.61	1942.31	5990.33	2958.40	14.05	-1.068	0.000	0.088
125.00	-32.27	-6.56	0.00	-199.91	0.00	199.91	3798.47	1899.23	5713.02	2821.44	15.19	-1.100	0.000	0.079
125.42	-32.13	-6.55	0.00	-197.18	0.00	197.18	3790.55	1895.28	5689.10	2809.63	15.28	-1.103	0.000	0.079
130.00	-30.03	-6.34	0.00	-167.18	0.00	167.18	3703.53	1851.76	5429.36	2681.36	16.36	-1.130	0.000	0.070
131.25	-29.46	-6.29	0.00	-159.25	0.00	159.25	2389.73	1194.86	3567.35	1761.78	16.65	-1.137	0.000	0.103
135.00	-28.53	-6.15	0.00	-135.66	0.00	135.66	2365.06	1182.53	3463.05	1710.27	17.55	-1.157	0.000	0.091
140.00	-27.33	-5.95	0.00	-104.93	0.00	104.93	2330.94	1165.47	3324.42	1641.81	18.78	-1.187	0.000	0.076
145.00	-26.15	-5.76	0.00	-75.16	0.00	75.16	2295.39	1147.70	3186.42	1573.65	20.04	-1.211	0.000	0.059
150.00	-13.02	-2.84	0.00	-46.37	0.00	46.37	2258.44	1129.22	3049.21	1505.89	21.32	-1.228	0.000	0.037
155.00	-11.93	-2.64	0.00	-32.19	0.00	32.19	2220.06	1110.03	2912.95	1438.60	22.61	-1.241	0.000	0.028
160.00	-10.86	-2.45	0.00	-18.98	0.00	18.98	2180.27	1090.14	2777.81	1371.86	23.91	-1.249	0.000	0.019
165.00	-9.83	-2.26	0.00	-6.73	0.00	6.73	2139.07	1069.53	2643.95	1305.75	25.23	-1.254	0.000	0.010
167.00	-1.56	-0.35	0.00	-2.21	0.00	2.21	2122.19	1061.09	2590.80	1279.50	25.75	-1.255	0.000	0.002
170.00	-0.96	-0.23	0.00	-1.17	0.00	1.17	2096.45	1048.22	2511.52	1240.35	26.54	-1.255	0.000	0.001
175.00	0.00	-0.21	0.00	0.00	0.00	0.00	2052.41	1026.20	2380.70	1175.74	27.86	-1.256	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	21
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1562.5	0.00	0.03	0.02	26.22	
10.00		1537.4	0.01	0.05	0.03	38.29	
15.00		1512.4	0.01	0.06	0.03	44.21	
20.00		1487.4	0.02	0.07	0.04	47.03	
25.00		1462.3	0.04	0.07	0.04	48.26	
30.00		1437.3	0.06	0.07	0.04	48.75	
35.00		1412.2	0.08	0.07	0.04	48.96	
40.00		1387.2	0.10	0.07	0.04	49.09	
45.00	Bot - Section 2	1362.1	0.12	0.07	0.03	49.18	
50.00		2701.6	0.15	0.07	0.03	99.22	
52.75	Top - Section 1	1464.5	0.17	0.07	0.03	54.13	
55.00		599.67	0.19	0.06	0.02	22.22	
60.00		1314.4	0.22	0.06	0.02	48.31	
65.00		1289.4	0.26	0.05	0.02	45.69	
70.00		1264.3	0.30	0.04	0.01	41.20	
75.00		1239.3	0.35	0.03	0.01	34.32	
80.00		1214.2	0.39	0.02	0.01	24.74	
85.00		1189.2	0.45	0.00	0.01	12.64	
90.00		1164.1	0.50	-0.02	0.01	-1.02	
91.25	Bot - Section 3	287.13	0.51	-0.02	0.01	-1.12	
95.00		1614.3	0.56	-0.04	0.01	-20.71	
98.00	Top - Section 2	1272.4	0.59	-0.05	0.01	-24.85	
100.00		396.29	0.62	-0.06	0.02	-9.35	
105.00		975.38	0.68	-0.08	0.03	-31.04	
110.00		953.47	0.75	-0.10	0.04	-34.96	
115.00		931.55	0.82	-0.11	0.06	-35.21	
120.00		909.64	0.89	-0.12	0.08	-32.01	
125.00		887.73	0.96	-0.12	0.11	-25.66	
125.42	Bot - Section 4	72.99	0.97	-0.12	0.12	-2.06	
130.00		1370.9	1.04	-0.10	0.15	-26.08	
131.25	Top - Section 3	368.40	1.06	-0.09	0.17	-5.89	
135.00		460.25	1.12	-0.05	0.20	-2.57	
140.00		599.97	1.21	0.01	0.26	6.82	
145.00		584.32	1.30	0.12	0.33	18.63	
150.00	Appurtenance(s)	5347.7	1.39	0.26	0.42	299.52	
155.00		553.01	1.48	0.46	0.52	46.33	
160.00		537.36	1.58	0.72	0.64	61.95	
165.00		521.71	1.68	1.05	0.78	78.57	
167.00	Appurtenance(s)	3603.3	1.72	1.20	0.85	597.43	
170.00		301.75	1.78	1.46	0.95	57.27	
175.00	Appurtenance(s)	502.40	1.89	1.98	1.14	117.02	
	Totals:	**49,654.5**				**1,813.5**	**Total Wind:** **50,352.3**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	21
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.17
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03	**Seismic Importance Factor**			1.00

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-62.12	-2.07	0.00	-252.73	0.00	252.73	6094.92	3047.46	14456.0	7139.28		0.00	0.00	0.046
5.00	-60.16	-2.05	0.00	-242.38	0.00	242.38	6041.82	3020.91	14100.2	6963.58		0.00	-0.01	0.045
10.00	-58.24	-2.02	0.00	-232.12	0.00	232.12	5987.31	2993.65	13745.2	6788.27		0.02	-0.02	0.044
15.00	-56.35	-1.99	0.00	-222.00	0.00	222.00	5931.38	2965.69	13391.2	6613.44		0.04	-0.03	0.043
20.00	-54.48	-1.95	0.00	-212.06	0.00	212.06	5874.03	2937.02	13038.3	6439.15		0.08	-0.04	0.042
25.00	-52.65	-1.91	0.00	-202.32	0.00	202.32	5815.27	2907.64	12686.7	6265.50		0.12	-0.05	0.041
30.00	-50.85	-1.87	0.00	-192.78	0.00	192.78	5755.10	2877.55	12336.5	6092.55		0.17	-0.05	0.040
35.00	-49.07	-1.82	0.00	-183.46	0.00	183.46	5693.50	2846.75	11987.9	5920.39		0.23	-0.06	0.040
40.00	-47.33	-1.78	0.00	-174.34	0.00	174.34	5630.49	2815.25	11641.0	5749.10		0.31	-0.07	0.039
45.00	-45.62	-1.73	0.00	-165.45	0.00	165.45	5566.07	2783.04	11296.1	5578.76		0.39	-0.08	0.038
50.00	-42.30	-1.64	0.00	-156.78	0.00	156.78	5500.23	2750.11	10953.3	5409.44		0.48	-0.09	0.037
52.75	-40.50	-1.58	0.00	-152.28	0.00	152.28	5536.21	2768.10	11139.4	5501.37		0.53	-0.10	0.035
55.00	-39.74	-1.56	0.00	-148.72	0.00	148.72	5506.46	2753.23	10985.3	5425.27		0.58	-0.10	0.035
60.00	-38.09	-1.52	0.00	-140.90	0.00	140.90	5439.34	2719.67	10644.5	5256.96		0.69	-0.11	0.034
65.00	-36.46	-1.47	0.00	-133.32	0.00	133.32	5370.80	2685.40	10306.1	5089.82		0.81	-0.12	0.033
70.00	-34.87	-1.44	0.00	-125.94	0.00	125.94	5300.84	2650.42	9970.29	4923.95		0.94	-0.13	0.032
75.00	-33.30	-1.40	0.00	-118.77	0.00	118.77	5229.47	2614.74	9637.14	4759.42		1.08	-0.14	0.031
80.00	-31.77	-1.38	0.00	-111.76	0.00	111.76	5156.68	2578.34	9306.86	4596.31		1.23	-0.15	0.030
85.00	-30.26	-1.37	0.00	-104.87	0.00	104.87	5082.48	2541.24	8979.62	4434.70		1.39	-0.15	0.030
90.00	-28.79	-1.37	0.00	-98.03	0.00	98.03	4989.36	2494.68	8625.31	4259.72		1.55	-0.16	0.029
91.25	-28.42	-1.37	0.00	-96.32	0.00	96.32	4962.23	2481.12	8531.23	4213.26		1.60	-0.17	0.029
95.00	-26.43	-1.36	0.00	-91.20	0.00	91.20	4880.86	2440.43	8252.09	4075.40		1.73	-0.17	0.028
98.00	-24.85	-1.36	0.00	-87.11	0.00	87.11	4159.95	2079.97	7111.13	3511.92		1.84	-0.18	0.031
100.00	-24.35	-1.36	0.00	-84.39	0.00	84.39	4136.05	2068.02	7007.35	3460.67		1.91	-0.18	0.030
105.00	-23.10	-1.36	0.00	-77.58	0.00	77.58	4075.31	2037.66	6749.44	3333.30		2.11	-0.19	0.029
110.00	-21.88	-1.36	0.00	-70.77	0.00	70.77	4013.16	2006.58	6493.86	3207.07		2.31	-0.20	0.028
115.00	-20.68	-1.36	0.00	-63.97	0.00	63.97	3949.59	1974.80	6240.77	3082.08		2.53	-0.21	0.026
120.00	-19.51	-1.36	0.00	-57.17	0.00	57.17	3884.61	1942.31	5990.33	2958.40		2.75	-0.22	0.024
125.00	-18.37	-1.36	0.00	-50.38	0.00	50.38	3798.47	1899.23	5713.02	2821.44		2.98	-0.22	0.023
125.42	-18.27	-1.36	0.00	-49.81	0.00	49.81	3790.55	1895.28	5689.10	2809.63		3.00	-0.23	0.023
130.00	-16.56	-1.35	0.00	-43.60	0.00	43.60	3703.53	1851.76	5429.36	2681.36		3.22	-0.23	0.021
131.25	-16.10	-1.35	0.00	-41.91	0.00	41.91	2389.73	1194.86	3567.35	1761.78		3.28	-0.23	0.031
135.00	-15.48	-1.35	0.00	-36.85	0.00	36.85	2365.06	1182.53	3463.05	1710.27		3.47	-0.24	0.028
140.00	-14.69	-1.34	0.00	-30.10	0.00	30.10	2330.94	1165.47	3324.42	1641.81		3.72	-0.25	0.025
145.00	-13.91	-1.32	0.00	-23.40	0.00	23.40	2295.39	1147.70	3186.42	1573.65		3.99	-0.25	0.021
150.00	-7.41	-0.99	0.00	-16.80	0.00	16.80	2258.44	1129.22	3049.21	1505.89		4.26	-0.26	0.014
155.00	-6.70	-0.94	0.00	-11.84	0.00	11.84	2220.06	1110.03	2912.95	1438.60		4.53	-0.27	0.011
160.00	-6.01	-0.88	0.00	-7.12	0.00	7.12	2180.27	1090.14	2777.81	1371.86		4.81	-0.27	0.008
165.00	-5.33	-0.80	0.00	-2.73	0.00	2.73	2139.07	1069.53	2643.95	1305.75		5.09	-0.27	0.005
167.00	-0.99	-0.18	0.00	-1.14	0.00	1.14	2122.19	1061.09	2590.80	1279.50		5.21	-0.27	0.001
170.00	-0.60	-0.12	0.00	-0.60	0.00	0.60	2096.45	1048.22	2511.52	1240.35		5.38	-0.27	0.001
175.00	0.00	-0.12	0.00	0.00	0.00	0.00	2052.41	1026.20	2380.70	1175.74		5.66	-0.27	0.000

Seismic Segment Forces (Factored)

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	21
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.17
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1562.5	0.00	0.03	0.02	26.22	
10.00		1537.4	0.01	0.05	0.03	38.29	
15.00		1512.4	0.01	0.06	0.03	44.21	
20.00		1487.4	0.02	0.07	0.04	47.03	
25.00		1462.3	0.04	0.07	0.04	48.26	
30.00		1437.3	0.06	0.07	0.04	48.75	
35.00		1412.2	0.08	0.07	0.04	48.96	
40.00		1387.2	0.10	0.07	0.04	49.09	
45.00	Bot - Section 2	1362.1	0.12	0.07	0.03	49.18	
50.00		2701.6	0.15	0.07	0.03	99.22	
52.75	Top - Section 1	1464.5	0.17	0.07	0.03	54.13	
55.00		599.67	0.19	0.06	0.02	22.22	
60.00		1314.4	0.22	0.06	0.02	48.31	
65.00		1289.4	0.26	0.05	0.02	45.69	
70.00		1264.3	0.30	0.04	0.01	41.20	
75.00		1239.3	0.35	0.03	0.01	34.32	
80.00		1214.2	0.39	0.02	0.01	24.74	
85.00		1189.2	0.45	0.00	0.01	12.64	
90.00		1164.1	0.50	-0.02	0.01	-1.02	
91.25	Bot - Section 3	287.13	0.51	-0.02	0.01	-1.12	
95.00		1614.3	0.56	-0.04	0.01	-20.71	
98.00	Top - Section 2	1272.4	0.59	-0.05	0.01	-24.85	
100.00		396.29	0.62	-0.06	0.02	-9.35	
105.00		975.38	0.68	-0.08	0.03	-31.04	
110.00		953.47	0.75	-0.10	0.04	-34.96	
115.00		931.55	0.82	-0.11	0.06	-35.21	
120.00		909.64	0.89	-0.12	0.08	-32.01	
125.00		887.73	0.96	-0.12	0.11	-25.66	
125.42	Bot - Section 4	72.99	0.97	-0.12	0.12	-2.06	
130.00		1370.9	1.04	-0.10	0.15	-26.08	
131.25	Top - Section 3	368.40	1.06	-0.09	0.17	-5.89	
135.00		460.25	1.12	-0.05	0.20	-2.57	
140.00		599.97	1.21	0.01	0.26	6.82	
145.00		584.32	1.30	0.12	0.33	18.63	
150.00	Appurtenance(s)	5347.7	1.39	0.26	0.42	299.52	
155.00		553.01	1.48	0.46	0.52	46.33	
160.00		537.36	1.58	0.72	0.64	61.95	
165.00		521.71	1.68	1.05	0.78	78.57	
167.00	Appurtenance(s)	3603.3	1.72	1.20	0.85	597.43	
170.00		301.75	1.78	1.46	0.95	57.27	
175.00	Appurtenance(s)	502.40	1.89	1.98	1.14	117.02	
	Totals:	**49,654.5**				**1,813.5**	**Total Wind:** **50,352.3**

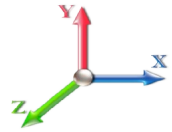
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	21		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.17		
Wind Load Factor	0.00	**Structure Frequency**	0.33	**SA**	0.03	**S1**	0.06	**Seismic Importance Factor**	1.00

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-46.59	-2.07	0.00	-250.11	0.00	250.11	6094.92	3047.46	14456.0	7139.28		0.00	0.00	0.043
5.00	-45.12	-2.05	0.00	-239.77	0.00	239.77	6041.82	3020.91	14100.2	6963.58		0.00	-0.01	0.042
10.00	-43.68	-2.02	0.00	-229.52	0.00	229.52	5987.31	2993.65	13745.2	6788.27		0.02	-0.02	0.041
15.00	-42.26	-1.98	0.00	-219.43	0.00	219.43	5931.38	2965.69	13391.2	6613.44		0.04	-0.03	0.040
20.00	-40.86	-1.94	0.00	-209.53	0.00	209.53	5874.03	2937.02	13038.3	6439.15		0.08	-0.04	0.039
25.00	-39.49	-1.90	0.00	-199.84	0.00	199.84	5815.27	2907.64	12686.7	6265.50		0.12	-0.05	0.039
30.00	-38.14	-1.85	0.00	-190.37	0.00	190.37	5755.10	2877.55	12336.5	6092.55		0.17	-0.05	0.038
35.00	-36.81	-1.81	0.00	-181.11	0.00	181.11	5693.50	2846.75	11987.9	5920.39		0.23	-0.06	0.037
40.00	-35.50	-1.76	0.00	-172.07	0.00	172.07	5630.49	2815.25	11641.0	5749.10		0.30	-0.07	0.036
45.00	-34.21	-1.72	0.00	-163.26	0.00	163.26	5566.07	2783.04	11296.1	5578.76		0.38	-0.08	0.035
50.00	-31.72	-1.62	0.00	-154.68	0.00	154.68	5500.23	2750.11	10953.3	5409.44		0.47	-0.09	0.034
52.75	-30.37	-1.56	0.00	-150.23	0.00	150.23	5536.21	2768.10	11139.4	5501.37		0.53	-0.10	0.033
55.00	-29.81	-1.54	0.00	-146.71	0.00	146.71	5506.46	2753.23	10985.3	5425.27		0.57	-0.10	0.032
60.00	-28.57	-1.50	0.00	-138.99	0.00	138.99	5439.34	2719.67	10644.5	5256.96		0.68	-0.11	0.032
65.00	-27.35	-1.45	0.00	-131.50	0.00	131.50	5370.80	2685.40	10306.1	5089.82		0.80	-0.12	0.031
70.00	-26.15	-1.41	0.00	-124.23	0.00	124.23	5300.84	2650.42	9970.29	4923.95		0.93	-0.13	0.030
75.00	-24.98	-1.38	0.00	-117.16	0.00	117.16	5229.47	2614.74	9637.14	4759.42		1.07	-0.14	0.029
80.00	-23.83	-1.36	0.00	-110.26	0.00	110.26	5156.68	2578.34	9306.86	4596.31		1.21	-0.14	0.029
85.00	-22.70	-1.35	0.00	-103.47	0.00	103.47	5082.48	2541.24	8979.62	4434.70		1.37	-0.15	0.028
90.00	-21.59	-1.34	0.00	-96.75	0.00	96.75	4989.36	2494.68	8625.31	4259.72		1.53	-0.16	0.027
91.25	-21.32	-1.34	0.00	-95.07	0.00	95.07	4962.23	2481.12	8531.23	4213.26		1.58	-0.16	0.027
95.00	-19.82	-1.34	0.00	-90.02	0.00	90.02	4880.86	2440.43	8252.09	4075.40		1.71	-0.17	0.026
98.00	-18.64	-1.34	0.00	-85.99	0.00	85.99	4159.95	2079.97	7111.13	3511.92		1.82	-0.18	0.029
100.00	-18.26	-1.34	0.00	-83.31	0.00	83.31	4136.05	2068.02	7007.35	3460.67		1.89	-0.18	0.028
105.00	-17.32	-1.34	0.00	-76.61	0.00	76.61	4075.31	2037.66	6749.44	3333.30		2.08	-0.19	0.027
110.00	-16.41	-1.34	0.00	-69.90	0.00	69.90	4013.16	2006.58	6493.86	3207.07		2.28	-0.20	0.026
115.00	-15.51	-1.34	0.00	-63.20	0.00	63.20	3949.59	1974.80	6240.77	3082.08		2.49	-0.21	0.024
120.00	-14.63	-1.34	0.00	-56.50	0.00	56.50	3884.61	1942.31	5990.33	2958.40		2.71	-0.21	0.023
125.00	-13.77	-1.34	0.00	-49.81	0.00	49.81	3798.47	1899.23	5713.02	2821.44		2.94	-0.22	0.021
125.42	-13.70	-1.34	0.00	-49.25	0.00	49.25	3790.55	1895.28	5689.10	2809.63		2.96	-0.22	0.021
130.00	-12.42	-1.33	0.00	-43.12	0.00	43.12	3703.53	1851.76	5429.36	2681.36		3.18	-0.23	0.019
131.25	-12.07	-1.33	0.00	-41.45	0.00	41.45	2389.73	1194.86	3567.35	1761.78		3.24	-0.23	0.029
135.00	-11.61	-1.33	0.00	-36.46	0.00	36.46	2365.06	1182.53	3463.05	1710.27		3.42	-0.24	0.026
140.00	-11.01	-1.32	0.00	-29.80	0.00	29.80	2330.94	1165.47	3324.42	1641.81		3.68	-0.24	0.023
145.00	-10.43	-1.30	0.00	-23.18	0.00	23.18	2295.39	1147.70	3186.42	1573.65		3.94	-0.25	0.019
150.00	-5.56	-0.98	0.00	-16.66	0.00	16.66	2258.44	1129.22	3049.21	1505.89		4.20	-0.26	0.014
155.00	-5.03	-0.94	0.00	-11.74	0.00	11.74	2220.06	1110.03	2912.95	1438.60		4.47	-0.26	0.010
160.00	-4.51	-0.87	0.00	-7.06	0.00	7.06	2180.27	1090.14	2777.81	1371.86		4.75	-0.27	0.007
165.00	-4.00	-0.79	0.00	-2.71	0.00	2.71	2139.07	1069.53	2643.95	1305.75		5.03	-0.27	0.004
167.00	-0.74	-0.18	0.00	-1.13	0.00	1.13	2122.19	1061.09	2590.80	1279.50		5.14	-0.27	0.001
170.00	-0.45	-0.12	0.00	-0.60	0.00	0.60	2096.45	1048.22	2511.52	1240.35		5.31	-0.27	0.001
175.00	0.00	-0.12	0.00	0.00	0.00	0.00	2052.41	1026.20	2380.70	1175.74		5.59	-0.27	0.000

Wind Loading - Shaft

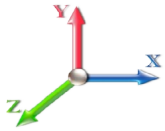
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	276.80	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	272.44	1.000	0.000	5.00	24.822	24.82	203.2	0.0	1562.5
10.00		1.00	0.85	7.442	8.19	268.07	1.000	0.000	5.00	24.428	24.43	200.0	0.0	1537.5
15.00		1.00	0.85	7.442	8.19	263.71	1.000	0.000	5.00	24.033	24.03	196.7	0.0	1512.4
20.00		1.00	0.90	7.896	8.69	267.14	1.000	0.000	5.00	23.639	23.64	205.3	0.0	1487.4
25.00		1.00	0.95	8.276	9.10	268.89	1.000	0.000	5.00	23.244	23.24	211.6	0.0	1462.4
30.00		1.00	0.98	8.600	9.46	269.41	1.000	0.000	5.00	22.850	22.85	216.2	0.0	1437.3
35.00		1.00	1.01	8.883	9.77	269.05	1.000	0.000	5.00	22.456	22.46	219.4	0.0	1412.3
40.00		1.00	1.04	9.137	10.05	268.02	1.000	0.000	5.00	22.061	22.06	221.7	0.0	1387.2
45.00	Bot - Section 2	1.00	1.07	9.366	10.30	266.47	1.000	0.000	5.00	21.667	21.67	223.2	0.0	1362.2
50.00		1.00	1.09	9.576	10.53	264.50	1.000	0.000	5.00	21.704	21.70	228.6	0.0	2701.7
52.75	Top - Section 1	1.00	1.11	9.685	10.65	263.25	1.000	0.000	2.75	11.769	11.77	125.4	0.0	1464.6
55.00		1.00	1.12	9.770	10.75	267.63	1.000	0.000	2.25	9.540	9.54	102.5	0.0	599.7
60.00		1.00	1.14	9.951	10.95	265.05	1.000	0.000	5.00	20.915	20.92	228.9	0.0	1314.4
65.00		1.00	1.16	10.120	11.13	262.20	1.000	0.000	5.00	20.521	20.52	228.4	0.0	1289.4
70.00		1.00	1.17	10.279	11.31	259.13	1.000	0.000	5.00	20.126	20.13	227.6	0.0	1264.4
75.00		1.00	1.19	10.430	11.47	255.85	1.000	0.000	5.00	19.732	19.73	226.4	0.0	1239.3
80.00		1.00	1.21	10.572	11.63	252.39	1.000	0.000	5.00	19.337	19.34	224.9	0.0	1214.3
85.00		1.00	1.22	10.708	11.78	248.78	1.000	0.000	5.00	18.943	18.94	223.1	0.0	1189.2
90.00		1.00	1.24	10.838	11.92	245.01	1.000	0.000	5.00	18.549	18.55	221.1	0.0	1164.2
91.25	Bot - Section 3	1.00	1.24	10.869	11.96	244.05	1.000	0.000	1.25	4.576	4.58	54.7	0.0	287.1
95.00		1.00	1.25	10.962	12.06	241.12	1.000	0.000	3.75	13.862	13.86	167.1	0.0	1614.4
98.00	Top - Section 2	1.00	1.26	11.034	12.14	238.72	1.000	0.000	3.00	10.930	10.93	132.7	0.0	1272.5
100.00		1.00	1.27	11.081	12.19	242.19	1.000	0.000	2.00	7.208	7.21	87.9	0.0	396.3
105.00		1.00	1.28	11.195	12.31	238.09	1.000	0.000	5.00	17.743	17.74	218.5	0.0	975.4
110.00		1.00	1.29	11.305	12.44	233.88	1.000	0.000	5.00	17.349	17.35	215.7	0.0	953.5
115.00		1.00	1.30	11.412	12.55	229.57	1.000	0.000	5.00	16.954	16.95	212.8	0.0	931.6
120.00		1.00	1.32	11.514	12.67	225.17	1.000	0.000	5.00	16.560	16.56	209.7	0.0	909.6
125.00		1.00	1.33	11.614	12.78	220.69	1.000	0.000	5.00	16.165	16.17	206.5	0.0	887.7
125.42	Bot - Section 4	1.00	1.33	11.622	12.78	220.32	1.000	0.000	0.42	1.329	1.33	17.0	0.0	73.0
130.00		1.00	1.34	11.710	12.88	216.13	1.000	0.000	4.58	14.689	14.69	189.2	0.0	1370.9
131.25	Top - Section 3	1.00	1.34	11.734	12.91	214.98	1.000	0.000	1.25	3.949	3.95	51.0	0.0	368.4
135.00		1.00	1.35	11.803	12.98	215.26	1.000	0.000	3.75	11.698	11.70	151.9	0.0	460.3
140.00		1.00	1.36	11.894	13.08	210.56	1.000	0.000	5.00	15.252	15.25	199.5	0.0	600.0
145.00		1.00	1.37	11.982	13.18	205.81	1.000	0.000	5.00	14.857	14.86	195.8	0.0	584.3
150.00	Appurtenance(s)	1.00	1.38	12.068	13.27	200.99	1.000	0.000	5.00	14.463	14.46	192.0	0.0	568.7
155.00		1.00	1.39	12.152	13.37	196.11	1.000	0.000	5.00	14.069	14.07	188.1	0.0	553.0
160.00		1.00	1.40	12.233	13.46	191.17	1.000	0.000	5.00	13.674	13.67	184.0	0.0	537.4
165.00		1.00	1.41	12.313	13.54	186.18	1.000	0.000	5.00	13.280	13.28	179.9	0.0	521.7
167.00	Appurtenance(s)	1.00	1.41	12.344	13.58	184.16	1.000	0.000	2.00	5.202	5.20	70.6	0.0	204.3
170.00		1.00	1.42	12.390	13.63	181.13	1.000	0.000	3.00	7.684	7.68	104.7	0.0	301.8
175.00	Appurtenance(s)	1.00	1.42	12.466	13.71	176.04	1.000	0.000	5.00	12.491	12.49	171.3	0.0	490.4
								Totals:	**175.00**			**7,335.0**		**41,464.4**

Discrete Appurtenance Forces

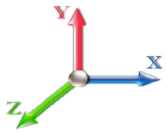
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	175.00	Lightning rod	1	12.466	13.713	1.00	1.00	1.25	12.00	0.000	0.000	17.14	0.00	0.00
2	167.00	TPA-65R-LCUUUU-H8	2	12.344	13.578	0.00	1.00	26.60	150.00	0.000	0.000	361.19	0.00	0.00
3	167.00	LGP21401	6	12.344	13.578	0.53	0.80	4.09	84.60	0.000	0.000	55.49	0.00	0.00
4	167.00	DC6-48-60-18-8F	1	12.344	13.578	0.80	0.80	0.74	31.80	0.000	0.000	9.99	0.00	0.00
5	167.00	RRUS-11	3	12.344	13.578	0.57	0.80	4.37	150.00	0.000	0.000	59.30	0.00	0.00
6	167.00	Low Profile	1	12.344	13.578	1.00	1.00	22.00	1500.00	0.000	0.000	298.73	0.00	0.00
7	167.00	QS46512-2	1	12.344	13.578	0.00	1.00	5.55	75.00	0.000	0.000	75.36	0.00	0.00
8	167.00	RRUS 4415 B25	3	12.344	13.578	0.00	1.00	4.92	138.00	0.000	0.000	66.81	0.00	0.00
9	167.00	LGP21901 Diplexer	6	12.344	13.578	0.00	1.00	1.38	33.00	0.000	0.000	18.74	0.00	0.00
10	167.00	DBC0061F1V51-2	3	12.344	13.578	0.00	1.00	1.29	76.20	0.000	0.000	17.52	0.00	0.00
11	167.00	RRUS 4415 B25	3	12.344	13.578	0.00	1.00	4.92	138.00	0.000	0.000	66.81	0.00	0.00
12	167.00	DBC0061F1V51-2	3	12.344	13.578	0.00	1.00	1.29	76.20	0.000	0.000	17.52	0.00	0.00
13	167.00	HRK14	1	12.344	13.578	1.00	1.00	8.13	302.36	0.000	0.000	110.39	0.00	0.00
14	167.00	PRK-1245 (kicker kit)	1	12.344	13.578	1.00	1.00	9.50	464.91	0.000	0.000	129.00	0.00	0.00
15	167.00	AM-X-CD-17-65-00T-RET	2	12.344	13.578	0.63	0.80	6.32	61.60	0.000	0.000	85.82	0.00	0.00
16	167.00	7770.00A	3	12.344	13.578	0.61	0.80	10.10	81.00	0.000	0.000	137.21	0.00	0.00
17	167.00	SBNH-1D4545A	1	12.344	13.578	0.54	0.80	4.88	36.40	0.000	0.000	66.23	0.00	0.00
18	150.00	MI-554nn	8	12.068	13.275	0.38	0.75	1.89	127.20	0.000	0.000	25.09	0.00	0.00
19	150.00	KRD 9011461-B66A-B2A	4	12.068	13.275	0.65	0.75	16.80	528.80	0.000	0.000	222.96	0.00	0.00
20	150.00	APXVAA24_43-U-A20	4	12.068	13.275	0.54	0.75	43.72	396.00	0.000	0.000	580.36	0.00	0.00
21	150.00	APX16DWV-16DWVS-C	4	12.068	13.275	0.50	0.75	12.98	162.80	0.000	0.000	172.37	0.00	0.00
22	150.00	SP2-5.2	2	12.068	13.275	0.75	0.75	5.94	44.00	0.000	0.000	78.85	0.00	0.00
23	150.00	S11B12	4	12.068	13.275	0.50	0.75	5.69	204.00	0.000	0.000	75.51	0.00	0.00
24	150.00	RRUS 4478 B14	4	12.068	13.275	0.50	0.75	3.32	237.60	0.000	0.000	44.03	0.00	0.00
25	150.00	S11B4	4	12.068	13.275	0.50	0.75	5.69	204.00	0.000	0.000	75.51	0.00	0.00
26	150.00	VIC100	1	12.068	13.275	0.50	0.75	0.05	0.40	0.000	0.000	0.67	0.00	0.00
27	150.00	F4P-10W	1	12.068	13.275	1.00	1.00	58.98	2396.00	0.000	0.000	782.96	0.00	0.00
28	150.00	F4P-HRK10	1	12.068	13.275	1.00	1.00	9.00	478.27	0.000	0.000	119.47	0.00	0.00
							Totals:		**8,190.14**			**3,771.01**		

Total Applied Force Summary

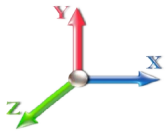
Structure:	CT22076-A-SBA		**Code:**	EIA/TIA-222-G	11/16/2018
Site Name:	East Haddam (Trowbridge)		**Exposure:**	C	
Height:	175.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		203.20	1627.44	0.00	0.00
10.00		199.97	1602.39	0.00	0.00
15.00		196.74	1577.35	0.00	0.00
20.00		205.32	1552.31	0.00	0.00
25.00		211.61	1527.26	0.00	0.00
30.00		216.16	1502.22	0.00	0.00
35.00		219.43	1477.17	0.00	0.00
40.00		221.73	1452.13	0.00	0.00
45.00		223.23	1427.08	0.00	0.00
50.00		228.62	2766.57	0.00	0.00
52.75		125.38	1500.26	0.00	0.00
55.00		102.53	628.87	0.00	0.00
60.00		228.94	1379.34	0.00	0.00
65.00		228.44	1354.30	0.00	0.00
70.00		227.57	1329.25	0.00	0.00
75.00		226.37	1304.21	0.00	0.00
80.00		224.88	1279.16	0.00	0.00
85.00		223.13	1254.12	0.00	0.00
90.00		221.13	1229.08	0.00	0.00
91.25		54.71	303.36	0.00	0.00
95.00		167.14	1663.03	0.00	0.00
98.00		132.66	1311.40	0.00	0.00
100.00		87.85	422.25	0.00	0.00
105.00		218.50	1040.28	0.00	0.00
110.00		215.74	1018.37	0.00	0.00
115.00		212.82	996.45	0.00	0.00
120.00		209.74	974.54	0.00	0.00
125.00		206.51	952.63	0.00	0.00
125.42		16.99	78.40	0.00	0.00
130.00		189.21	1430.39	0.00	0.00
131.25		50.96	384.63	0.00	0.00
135.00		151.88	508.93	0.00	0.00
140.00		199.55	664.87	0.00	0.00
145.00		195.83	649.22	0.00	0.00
150.00	(37) attachments	2369.78	5412.64	0.00	0.00
155.00		188.05	593.51	0.00	0.00
160.00		184.01	577.86	0.00	0.00
165.00		179.86	562.21	0.00	0.00
167.00	(40) attachments	1646.71	3619.57	0.00	0.00
170.00		104.73	326.05	0.00	0.00
175.00	(1) attachments	188.43	502.40	0.00	0.00
	Totals:	**11,106.04**	**51,763.50**	**0.00**	**0.00**

Calculated Forces

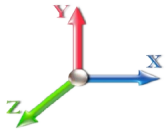
Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-51.76	-11.13	0.00	-1274.9	0.00	1274.90	6094.92	3047.46	14456.0	7139.28	0.00	0.000	0.000	0.187
5.00	-50.12	-10.96	0.00	-1219.2	0.00	1219.28	6041.82	3020.91	14100.2	6963.58	0.02	-0.045	0.000	0.183
10.00	-48.51	-10.80	0.00	-1164.4	0.00	1164.47	5987.31	2993.65	13745.2	6788.27	0.10	-0.091	0.000	0.180
15.00	-46.93	-10.64	0.00	-1110.4	0.00	1110.48	5931.38	2965.69	13391.2	6613.44	0.22	-0.137	0.000	0.176
20.00	-45.37	-10.46	0.00	-1057.3	0.00	1057.30	5874.03	2937.02	13038.3	6439.15	0.38	-0.182	0.000	0.172
25.00	-43.83	-10.28	0.00	-1004.9	0.00	1004.98	5815.27	2907.64	12686.7	6265.50	0.60	-0.228	0.000	0.168
30.00	-42.32	-10.09	0.00	-953.58	0.00	953.58	5755.10	2877.55	12336.5	6092.55	0.86	-0.274	0.000	0.164
35.00	-40.84	-9.90	0.00	-903.12	0.00	903.12	5693.50	2846.75	11987.9	5920.39	1.17	-0.319	0.000	0.160
40.00	-39.38	-9.70	0.00	-853.64	0.00	853.64	5630.49	2815.25	11641.0	5749.10	1.53	-0.365	0.000	0.155
45.00	-37.95	-9.50	0.00	-805.15	0.00	805.15	5566.07	2783.04	11296.1	5578.76	1.94	-0.410	0.000	0.151
50.00	-35.18	-9.27	0.00	-757.68	0.00	757.68	5500.23	2750.11	10953.3	5409.44	2.39	-0.456	0.000	0.146
52.75	-33.67	-9.14	0.00	-732.19	0.00	732.19	5536.21	2768.10	11139.4	5501.37	2.66	-0.481	0.000	0.139
55.00	-33.04	-9.05	0.00	-711.62	0.00	711.62	5506.46	2753.23	10985.3	5425.27	2.90	-0.501	0.000	0.137
60.00	-31.66	-8.83	0.00	-666.36	0.00	666.36	5439.34	2719.67	10644.5	5256.96	3.44	-0.543	0.000	0.133
65.00	-30.30	-8.61	0.00	-622.19	0.00	622.19	5370.80	2685.40	10306.1	5089.82	4.03	-0.585	0.000	0.128
70.00	-28.97	-8.39	0.00	-579.12	0.00	579.12	5300.84	2650.42	9970.29	4923.95	4.67	-0.626	0.000	0.123
75.00	-27.66	-8.17	0.00	-537.15	0.00	537.15	5229.47	2614.74	9637.14	4759.42	5.35	-0.666	0.000	0.118
80.00	-26.38	-7.95	0.00	-496.29	0.00	496.29	5156.68	2578.34	9306.86	4596.31	6.07	-0.706	0.000	0.113
85.00	-25.12	-7.73	0.00	-456.54	0.00	456.54	5082.48	2541.24	8979.62	4434.70	6.83	-0.745	0.000	0.108
90.00	-23.89	-7.50	0.00	-417.90	0.00	417.90	4989.36	2494.68	8625.31	4259.72	7.63	-0.783	0.000	0.103
91.25	-23.59	-7.45	0.00	-408.53	0.00	408.53	4962.23	2481.12	8531.23	4213.26	7.83	-0.793	0.000	0.102
95.00	-21.92	-7.27	0.00	-380.59	0.00	380.59	4880.86	2440.43	8252.09	4075.40	8.47	-0.821	0.000	0.098
98.00	-20.61	-7.12	0.00	-358.79	0.00	358.79	4159.95	2079.97	7111.13	3511.92	8.99	-0.843	0.000	0.107
100.00	-20.19	-7.04	0.00	-344.54	0.00	344.54	4136.05	2068.02	7007.35	3460.67	9.35	-0.858	0.000	0.104
105.00	-19.15	-6.82	0.00	-309.35	0.00	309.35	4075.31	2037.66	6749.44	3333.30	10.27	-0.895	0.000	0.098
110.00	-18.13	-6.59	0.00	-275.28	0.00	275.28	4013.16	2006.58	6493.86	3207.07	11.22	-0.930	0.000	0.090
115.00	-17.13	-6.38	0.00	-242.30	0.00	242.30	3949.59	1974.80	6240.77	3082.08	12.21	-0.964	0.000	0.083
120.00	-16.16	-6.16	0.00	-210.42	0.00	210.42	3884.61	1942.31	5990.33	2958.40	13.24	-0.995	0.000	0.075
125.00	-15.21	-5.94	0.00	-179.64	0.00	179.64	3798.47	1899.23	5713.02	2821.44	14.30	-1.025	0.000	0.068
125.42	-15.13	-5.92	0.00	-177.16	0.00	177.16	3790.55	1895.28	5689.10	2809.63	14.39	-1.027	0.000	0.067
130.00	-13.70	-5.71	0.00	-150.01	0.00	150.01	3703.53	1851.76	5429.36	2681.36	15.39	-1.052	0.000	0.060
131.25	-13.31	-5.66	0.00	-142.87	0.00	142.87	2389.73	1194.86	3567.35	1761.78	15.66	-1.058	0.000	0.087
135.00	-12.81	-5.50	0.00	-121.66	0.00	121.66	2365.06	1182.53	3463.05	1710.27	16.50	-1.076	0.000	0.077
140.00	-12.14	-5.29	0.00	-94.15	0.00	94.15	2330.94	1165.47	3324.42	1641.81	17.64	-1.102	0.000	0.063
145.00	-11.50	-5.09	0.00	-67.68	0.00	67.68	2295.39	1147.70	3186.42	1573.65	18.81	-1.124	0.000	0.048
150.00	-6.13	-2.61	0.00	-42.23	0.00	42.23	2258.44	1129.22	3049.21	1505.89	20.00	-1.140	0.000	0.031
155.00	-5.54	-2.42	0.00	-29.16	0.00	29.16	2220.06	1110.03	2912.95	1438.60	21.20	-1.151	0.000	0.023
160.00	-4.97	-2.22	0.00	-17.08	0.00	17.08	2180.27	1090.14	2777.81	1371.86	22.41	-1.159	0.000	0.015
165.00	-4.41	-2.03	0.00	-5.98	0.00	5.98	2139.07	1069.53	2643.95	1305.75	23.62	-1.163	0.000	0.007
167.00	-0.82	-0.31	0.00	-1.92	0.00	1.92	2122.19	1061.09	2590.80	1279.50	24.11	-1.164	0.000	0.002
170.00	-0.50	-0.20	0.00	-0.99	0.00	0.99	2096.45	1048.22	2511.52	1240.35	24.84	-1.164	0.000	0.001
175.00	0.00	-0.19	0.00	0.00	0.00	0.00	2052.41	1026.20	2380.70	1175.74	26.06	-1.165	0.000	0.000

Final Analysis Summary

Structure:	CT22076-A-SBA	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	50.5	0.00	62.02	0.00	0.00	5810.77
0.9D + 1.6W 101 mph Wind	50.4	0.00	46.49	0.00	0.00	5753.95
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.8	0.00	88.37	0.00	0.00	1322.65
1.2D + 1.0E	2.1	0.00	62.12	0.00	0.00	252.73
0.9D + 1.0E	2.1	0.00	46.59	0.00	0.00	250.11
1.0D + 1.0W 60 mph Wind	11.1	0.00	51.76	0.00	0.00	1274.90

Max Stresses

Load Case	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)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-62.02	-50.47	0.00	-5810.7	0.00	-5810.7	6094.92	3047.4	14456.0	7139.28	0.00	0.824
0.9D + 1.6W 101 mph Wind	-46.49	-50.44	0.00	-5753.9	0.00	-5753.9	6094.92	3047.4	14456.0	7139.28	0.00	0.814
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-88.37	-10.80	0.00	-1322.6	0.00	-1322.6	6094.92	3047.4	14456.0	7139.28	0.00	0.200
1.2D + 1.0E	-62.12	-2.07	0.00	-252.73	0.00	-252.73	6094.92	3047.4	14456.0	7139.28	0.00	0.046
0.9D + 1.0E	-46.59	-2.07	0.00	-250.11	0.00	-250.11	6094.92	3047.4	14456.0	7139.28	0.00	0.043
1.0D + 1.0W 60 mph Wind	-51.76	-11.13	0.00	-1274.9	0.00	-1274.9	6094.92	3047.4	14456.0	7139.28	0.00	0.187

Base Plate Summary

Structure:	CT22076-A-SB	**Code:**	EIA/TIA-222-G	11/16/2018	
Site Name:	East Haddam (Trowbridge)	**Exposure:**	C		
Height:	175.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	7478.92
Axial (kip):	77.65
Shear (kip):	54.08

Analysis

Moment (kip-ft):	5810.77
Axial (kip):	88.37
Shear (kip):	50.47
Moment Design %:	77.70

Base Plate

Yield (ksi):	50.00
Width (in):	81.83
Style:	Polygon
Polygon Sides:	12.00
Clip Length (in):	0.00
Effective Len (in):	17.08
Moment (kip-in):	1678.94
Allow Stress (ksi):	67.50
Applied Stress (ksi):	0.00
Stress Ratio:	0.83

Anchor Bolts

Bolt Circle:	75.83
Number Bolts:	20.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	188.33
Allowable (kip):	260.00
Ratio:	0.74

Tension

Force (kip):	179.49
Allowable (kip):	260.00
Ratio:	0.71

Monopole Mat Foundation Design

			Date: 11/16/2018
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	175
Site Number:	CT22076-A-SBA	**Engineer Name:**	J. Chen
Engr. Number:	64990	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

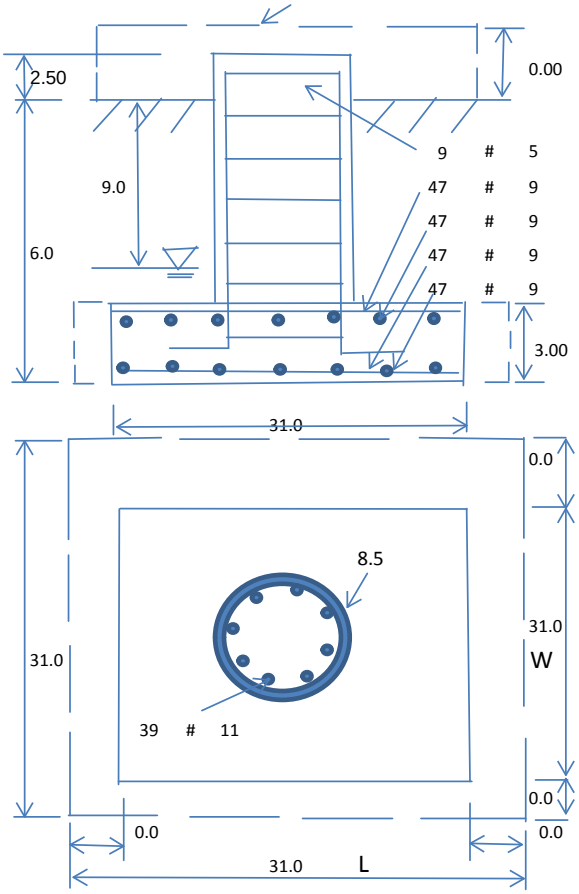
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	62.0	Shear Force (Kips):	50.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5810.8
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.5	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	2.50	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	31	Width of Pad (ft.):	31
Final Length of pad (ft)	31.0	Final width of pad (ft):	31.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	39	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	47	Qty. of Rebar in Pad (W):	47

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	47	Qty. of Rebar in Pad (W):	47
Apply 1.35 factor for e/w Per G:	1.35		

Soil Design Parameters:

Soil Unit Weight (pcf):	140.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	9.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	14000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	2712.76	Total Dry Soil Weight (Kips):	379.79
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	379.79	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3195.10	Total Dry Concrete Weight (Kips):	479.26
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	479.26	Total Vertical Load on Base (Kips):	921.07

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2188	<	Allowable Factored Soil Bearing (psf): 10500	0.21	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	12945.1	>	Design Factored Momont (kips-ft): 6240	0.48	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.07	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00		

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	12178.8	>	Design Factored Moment (Mu, Kips-F	6088.6	0.50	OK!
Calculated Shear Capacity (Kips):	1028.2	>	Design Factored Shear (Kips):	50.5	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	3285.4	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	14339.3	>	Design Factored Axial Load (Pu Kips):	62.0	0.00	OK!
Moment & Axial Strength Combination:	0.50	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI				

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1144.8	>	One-Way Factored Shear (L-D. Kips):	326.8	0.29	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1144.8	>	One-Way Factored Shear (W-D., Kips)	326.8	0.29	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1105.4	>	One-Way Factored Shear (C-C, Kips):	312.7	0.28	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0039	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0039		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6624.8	>	Moment at Bottom (L-Dir. K-Ft):	2132.9	0.32	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6624.8	>	Moment at Bottom (W-Dir. K-Ft):	2132.9	0.32	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	9288.6	>	Moment at Bottom (C-C Dir. K-Ft):	3016.4	0.32	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0039	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0039		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	6624.8	>	Moment at the top (L-Dir K-Ft):	987.2	0.15	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	6624.8	>	Moment at the top (W-Dir K-Ft):	987.2	0.15	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	9288.6	>	Moment at the top (C-C Dir. K-Ft):	925.5	0.10	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	2324.3	k-ft.	Max. factored shear stress v_{u_CD}:	3.7	Psi
Max. factored shear stress v_{u_AB}:	11.0	Psi	Factored shear Strength ϕv_n:	189.7	Psi
Max. factored shear stress v_u:	11.0	Psi	Check Usage of Punching Shear Capacity:	0.06	OK!

August 28, 2018

CENTERLINE COMMUNICATIONS at&t

Centerline Communications
95 Ryan Drive
Raynham, MA 02767

RE:	Site Number:	CT2271 (LTE 2C/3C)
	FA Number:	10105797
	PACE Number:	MRCTB031966
	PTN Number:	2051A0GJYR
	Site Name:	EAST HADDAM – NICHOLS ROAD
	Site Address:	169 Nichols 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:

- (3) 7770 Antennas (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (2) AM-X-CD-17-65-00T-RET Antenna (96.0"x11.8"x6.0" – Wt. = 60 lbs.)
- (1) SBNH-1D4545A Antennas (56.7"x16.2"x7.1" – Wt. = 40 lbs. / each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (6) LGP 21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (6) LGP 13519 Diplexers (12.0"x4.0"x4.0" – Wt. = 5 lbs. / each)
- (1) Squid Surge Arrestor (24.0"x9.0" Φ – Wt. = 33 lbs.) (tower mounted)
- **(1) QS46512-2 Antenna (52.0"x12.0"x10.8" – Wt. = 75 lbs/each)**
- **(2) TPA-65R-LCUUUU-H8 Antennas (96.0"x14.4"x8.6" – Wt. = 75 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)**
- **(6) DBC0061F1V51-2 Diplexers (8.0"x6.2"x6.5" – Wt. = 26 lbs/each)**

**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 1; tower is located on flat terrain or at the bottom of a hill or ridge.
- 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 4.
- 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 HRK14 (or approved equal).**
- **Replace existing pipe masts with new 2-1/2" STD. (2.88" O.D.) steel pipe masts, secured to the existing mount (typ. of 2 per sector, total of 6).**
- **Install new platform reinforcement kit, SitePro1 P/N PRK-1245 (or approved equal).**
- **Reinforce existing L1-1/2x2-1/2x1/4 steel angle with new L1-1/2x2-1/2x1/4 steel angle secured to the existing mount (typ. of 2 per sector, total of 6).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Existing LTE 2C/3C Mount Rating	61	LC10	373%	**FAIL**
Proposed LTE 2C/3C Mount Rating	20	LC10	74%	**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: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

		z=	172 (ft)
		z_g=	1200 (ft)
K_z=	**1.154**	α=	7.0

Kzmin ≤ Kz ≤ 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

$K_{zt} = [1+(K_e K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= **#DIV/0!**

K_h=	#DIV/0!	
K_e=	0.9	(from Table 2-4)
K_t=		(from Table 2-5)
f=		(from Table 2-5)
z=	172	
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	
K_{iz} =	1.18	(from Sec. 2.6.8)

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

Category=	1

2.6.8 Design Ice Thickness

Max Ice Thickness = t_i = 0.75 in

$t_{iz} = 2.0*t_i*I*K_{iz}*(Kzt)^{0.35}$ t_{iz} = 1.77 in

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP 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=	175	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=	1.154
		K_{zt}=	1.0
q_z=	**28.45**	K_d=	0.95
$q_{z\,(ice)}$=	**7.02**	V_{asd}=	101 mph
$q_{z\,(30)}$=	**2.53**	$V_{max\,(ice)}$=	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: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP 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 = 1.77 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)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	157	54	14
QS46512-2 Antenna	52.0	12.0	10.8	4.33	4.33	1.28	158	54	14
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	3.50	1.24	226	72	20
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	6.67	1.39	378	120	34
AM-X-CD-17-65-00T-RET Antenna	96.0	11.8	6.0	7.87	8.14	1.44	322	107	29
4478 B5 RRH	15.0	13.2	5.4	1.38	1.14	1.20	47	18	4
4478 B5 RRH - shielded	15.0	0.0	5.4	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4415 B25 RRH	16.5	13.4	7.7	1.54	1.23	1.20	52	20	5
4415 B25 RRH - shielded	16.5	0.0	7.7	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	79	28	7
RRUS-11 RRH - shielded	19.7	5.2	7.2	0.71	3.79	1.26	25	12	2
LGP 21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	31	13	3
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	3.00	1.22	12	7	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	1.29	1.20	12	7	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	32	12	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	7	5	1
2" Pipe	2.9	12.0		0.24	0.24	1.20	8	6	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	10	6	1
3x3 HSS	3.0	12.0		0.25	0.25	2.00	14	10	1
1-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	12	9	1
3x3 Angle	3.0	12.0		0.25	0.25	2.00	14	10	1

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 30 (deg) | Ice Thickness = 1.77 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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	157	83	138
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	158	145	155
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	226	114	198
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	378	251	347
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	322	193	290
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	47	19	40
4478 B5 RRH - shielded	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	23	19	22
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	52	30	47
4415 B25 RRH - shielded	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	26	30	27
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	79	34	68
RRUS-11 RRH - shielded	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	40	34	38
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	31	10	26
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	12	12	12
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	12	12	12

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.91	3.47	4.03	6.86	1.27	1.39	53	34	48
QS46512-2 Antenna	55.5	15.5	14.3	5.99	5.53	3.57	3.87	1.25	1.26	52	49	52
SBNH-1D4545A Antenna	60.2	19.7	10.6	8.26	4.45	3.05	5.66	1.22	1.34	71	42	64
TPA-65R-LCUUUU-H8 Antenna	99.5	17.9	12.1	12.40	8.39	5.55	8.20	1.34	1.44	116	85	108
AM-X-CD-17-65-00T-RET Antenna	99.5	15.3	9.5	10.60	6.59	6.49	10.44	1.38	1.51	102	70	94
4478 B5 RRH	18.5	16.7	8.9	2.15	1.15	1.11	2.07	1.20	1.20	18	10	16
4478 B5 RRH - shielded	18.5	8.4	8.9	1.08	1.15	2.22	2.07	1.20	1.20	9	10	9
4415 B25 RRH	20.0	16.9	11.2	2.36	1.56	1.18	1.78	1.20	1.20	20	13	18
4415 B25 RRH - shielded	20.0	8.5	11.2	1.18	1.56	2.37	1.78	1.20	1.20	10	13	11
RRUS-11 RRH	23.2	20.5	10.7	3.31	1.73	1.13	2.16	1.20	1.20	28	15	25
RRUS-11 RRH - shielded	23.2	10.3	10.7	1.66	1.73	2.26	2.16	1.20	1.20	14	15	14
LGP 21401 TMA	17.9	12.5	6.2	1.56	0.78	1.43	2.88	1.20	1.22	13	7	12
LGP 13519 Diplexer	15.5	7.5	7.5	0.81	0.81	2.06	2.06	1.20	1.20	7	7	7
DBC0061F1V51-2 Diplexer	11.5	9.7	10.0	0.78	0.80	1.18	1.15	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	12
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	14	13	14
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	20	10	18
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	34	22	31
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	29	17	26
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	4	2	4
4478 B5 RRH - shielded	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	2	2	2
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	5	3	4
4415 B25 RRH - shielded	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	2	3	2
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	7	3	6
RRUS-11 RRH - shielded	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	4	3	3
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	1	1	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.77 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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	157	83	102
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	158	145	148
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	226	114	142
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	378	251	283
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	322	193	226
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	47	19	26
4478 B5 RRH - shielded	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	35	19	23
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	52	30	36
4415 B25 RRH - shielded	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	39	30	32
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	79	34	45
RRUS-11 RRH - shielded	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	60	34	40
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	31	10	15
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	12	12	12
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	12	12	12

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.91	3.47	4.03	6.86	1.27	1.39	53	34	39
QS46512-2 Antenna	55.5	15.5	14.3	5.99	5.53	3.57	3.87	1.25	1.26	52	49	50
SBNH-1D4545A Antenna	60.2	19.7	10.6	8.26	4.45	3.05	5.66	1.22	1.34	71	42	49
TPA-65R-LCUUUU-H8 Antenna	99.5	17.9	12.1	12.40	8.39	5.55	8.20	1.34	1.44	116	85	93
AM-X-CD-17-65-00T-RET Antenna	99.5	15.3	9.5	10.60	6.59	6.49	10.44	1.38	1.51	102	70	78
4478 B5 RRH	18.5	16.7	8.9	2.15	1.15	1.11	2.07	1.20	1.20	18	10	12
4478 B5 RRH - shielded	18.5	12.6	8.9	1.62	1.15	1.48	2.07	1.20	1.20	14	10	11
4415 B25 RRH	20.0	16.9	11.2	2.36	1.56	1.18	1.78	1.20	1.20	20	13	15
4415 B25 RRH - shielded	20.0	12.7	11.2	1.77	1.56	1.58	1.78	1.20	1.20	15	13	14
RRUS-11 RRH	23.2	20.5	10.7	3.31	1.73	1.13	2.16	1.20	1.20	28	15	18
RRUS-11 RRH - shielded	23.2	15.4	10.7	2.49	1.73	1.51	2.16	1.20	1.20	21	15	16
LGP 21401 TMA	17.9	12.5	6.2	1.56	0.78	1.43	2.88	1.20	1.22	13	7	8
LGP 13519 Diplexer	15.5	7.5	7.5	0.81	0.81	2.06	2.06	1.20	1.20	7	7	7
DBC0061F1V51-2 Diplexer	11.5	9.7	10.0	0.78	0.80	1.18	1.15	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	9
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	14	13	13
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	20	10	13
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	34	22	25
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	29	17	20
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	4	2	2
4478 B5 RRH - shielded	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	3	2	2
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	5	3	3
4415 B25 RRH - shielded	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	3	3	3
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	7	3	4
RRUS-11 RRH - shielded	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	4
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	1	1	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.77	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	157	83	83
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	158	145	145
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	226	114	114
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	378	251	251
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	322	193	193
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	47	19	19
4478 B5 RRH - shielded	15.0	0.0	5.4	0.00	0.56	#DIV/0!	2.78	#DIV/0!	1.21	#DIV/0!	19	#DIV/0!
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	52	30	30
4415 B25 RRH - shielded	16.5	0.0	7.7	0.00	0.88	#DIV/0!	2.14	#DIV/0!	1.20	#DIV/0!	30	#DIV/0!
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	79	34	34
RRUS-11 RRH - shielded	19.7	5.2	7.2	0.71	0.99	3.79	2.74	1.26	1.21	25	34	34
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	31	10	10
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	12	12	12
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	12	12	12

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.91	3.47	4.03	6.86	1.27	1.39	53	34	34
QS46512-2 Antenna	55.5	15.5	14.3	5.99	5.53	3.57	3.87	1.25	1.26	52	49	49
SBNH-1D4545A Antenna	60.2	19.7	10.6	8.26	4.45	3.05	5.66	1.22	1.34	71	42	42
TPA-65R-LCUUUU-H8 Antenna	99.5	17.9	12.1	12.40	8.39	5.55	8.20	1.34	1.44	116	85	85
AM-X-CD-17-65-00T-RET Antenna	99.5	15.3	9.5	10.60	6.59	6.49	10.44	1.38	1.51	102	70	70
4478 B5 RRH	18.5	16.7	8.9	2.15	1.15	1.11	2.07	1.20	1.20	18	10	10
4478 B5 RRH - shielded	18.5	3.5	8.9	0.46	1.15	5.24	2.07	1.32	1.20	4	10	10
4415 B25 RRH	20.0	16.9	11.2	2.36	1.56	1.18	1.78	1.20	1.20	20	13	13
4415 B25 RRH - shielded	20.0	3.5	11.2	0.49	1.56	5.66	1.78	1.34	1.20	5	13	13
RRUS-11 RRH	23.2	20.5	10.7	3.31	1.73	1.13	2.16	1.20	1.20	28	15	15
RRUS-11 RRH - shielded	23.2	8.7	10.7	1.41	1.73	2.66	2.16	1.21	1.20	12	15	15
LGP 21401 TMA	17.9	12.5	6.2	1.56	0.78	1.43	2.88	1.20	1.22	13	7	7
LGP 13519 Diplexer	15.5	7.5	7.5	0.81	0.81	2.06	2.06	1.20	1.20	7	7	7
DBC0061F1V51-2 Diplexer	11.5	9.7	10.0	0.78	0.80	1.18	1.15	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	7
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	14	13	13
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	20	10	10
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	34	22	22
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	29	17	17
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	4	2	2
4478 B5 RRH - shielded	15.0	0.0	5.4	0.00	0.56	#DIV/0!	2.78	#DIV/0!	1.21	#DIV/0!	2	#DIV/0!
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	5	3	3
4415 B25 RRH - shielded	16.5	0.0	7.7	0.00	0.88	#DIV/0!	2.14	#DIV/0!	1.20	#DIV/0!	3	#DIV/0!
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	7	3	3
RRUS-11 RRH - shielded	19.7	5.2	7.2	0.71	0.99	3.79	2.74	1.26	1.21	2	3	3
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	1	1	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.77	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	157	83	102
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	158	145	148
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	226	114	142
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	378	251	283
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	322	193	226
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	47	19	26
4478 B5 RRH - shielded	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	35	19	23
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	52	30	36
4415 B25 RRH - shielded	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	39	30	32
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	79	34	45
RRUS-11 RRH - shielded	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	60	34	40
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	31	10	15
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	12	12	12
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	12	12	12

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.91	3.47	4.03	6.86	1.27	1.39	53	34	39
QS46512-2 Antenna	55.5	15.5	14.3	5.99	5.53	3.57	3.87	1.25	1.26	52	49	50
SBNH-1D4545A Antenna	60.2	19.7	10.6	8.26	4.45	3.05	5.66	1.22	1.34	71	42	49
TPA-65R-LCUUUU-H8 Antenna	99.5	17.9	12.1	12.40	8.39	5.55	8.20	1.34	1.44	116	85	93
AM-X-CD-17-65-00T-RET Antenna	99.5	15.3	9.5	10.60	6.59	6.49	10.44	1.38	1.51	102	70	78
4478 B5 RRH	18.5	16.7	8.9	2.15	1.15	1.11	2.07	1.20	1.20	18	10	12
4478 B5 RRH - shielded	18.5	12.6	8.9	1.62	1.15	1.48	2.07	1.20	1.20	14	10	11
4415 B25 RRH	20.0	16.9	11.2	2.36	1.56	1.18	1.78	1.20	1.20	20	13	15
4415 B25 RRH - shielded	20.0	12.7	11.2	1.77	1.56	1.58	1.78	1.20	1.20	15	13	14
RRUS-11 RRH	23.2	20.5	10.7	3.31	1.73	1.13	2.16	1.20	1.20	28	15	18
RRUS-11 RRH - shielded	23.2	15.4	10.7	2.49	1.73	1.51	2.16	1.20	1.20	21	15	16
LGP 21401 TMA	17.9	12.5	6.2	1.56	0.78	1.43	2.88	1.20	1.22	13	7	8
LGP 13519 Diplexer	15.5	7.5	7.5	0.81	0.81	2.06	2.06	1.20	1.20	7	7	7
DBC0061F1V51-2 Diplexer	11.5	9.7	10.0	0.78	0.80	1.18	1.15	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	9
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	14	13	13
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	20	10	13
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	34	22	25
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	29	17	20
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	4	2	2
4478 B5 RRH - shielded	15.0	9.9	5.4	1.03	0.56	1.52	2.78	1.20	1.21	3	2	2
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	5	3	3
4415 B25 RRH - shielded	16.5	10.1	7.7	1.15	0.88	1.64	2.14	1.20	1.20	3	3	3
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	7	3	4
RRUS-11 RRH - shielded	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	4
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	1	1	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.77	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	157	83	138
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	158	145	155
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	226	114	198
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	378	251	347
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	322	193	290
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	47	19	40
4478 B5 RRH - shielded	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	23	19	22
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	52	30	47
4415 B25 RRH - shielded	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	26	30	27
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	79	34	68
RRUS-11 RRH - shielded	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	40	34	38
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	31	10	26
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	12	12	12
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	12	12	12

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.91	3.47	4.03	6.86	1.27	1.39	53	34	48
QS46512-2 Antenna	55.5	15.5	14.3	5.99	5.53	3.57	3.87	1.25	1.26	52	49	52
SBNH-1D4545A Antenna	60.2	19.7	10.6	8.26	4.45	3.05	5.66	1.22	1.34	71	42	64
TPA-65R-LCUUUU-H8 Antenna	99.5	17.9	12.1	12.40	8.39	5.55	8.20	1.34	1.44	116	85	108
AM-X-CD-17-65-00T-RET Antenna	99.5	15.3	9.5	10.60	6.59	6.49	10.44	1.38	1.51	102	70	94
4478 B5 RRH	18.5	16.7	8.9	2.15	1.15	1.11	2.07	1.20	1.20	18	10	16
4478 B5 RRH - shielded	18.5	8.4	8.9	1.08	1.15	2.22	2.07	1.20	1.20	9	10	9
4415 B25 RRH	20.0	16.9	11.2	2.36	1.56	1.18	1.78	1.20	1.20	20	13	18
4415 B25 RRH - shielded	20.0	8.5	11.2	1.18	1.56	2.37	1.78	1.20	1.20	10	13	11
RRUS-11 RRH	23.2	20.5	10.7	3.31	1.73	1.13	2.16	1.20	1.20	28	15	25
RRUS-11 RRH - shielded	23.2	10.3	10.7	1.66	1.73	2.26	2.16	1.20	1.20	14	15	14
LGP 21401 TMA	17.9	12.5	6.2	1.56	0.78	1.43	2.88	1.20	1.22	13	7	12
LGP 13519 Diplexer	15.5	7.5	7.5	0.81	0.81	2.06	2.06	1.20	1.20	7	7	7
DBC0061F1V51-2 Diplexer	11.5	9.7	10.0	0.78	0.80	1.18	1.15	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	14	7	12
QS46512-2 Antenna	52.0	12.0	10.8	4.33	3.90	4.33	4.81	1.28	1.30	14	13	14
SBNH-1D4545A Antenna	56.7	16.2	7.1	6.38	2.80	3.50	7.99	1.24	1.43	20	10	18
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	34	22	31
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	29	17	26
4478 B5 RRH	15.0	13.2	5.4	1.38	0.56	1.14	2.78	1.20	1.21	4	2	4
4478 B5 RRH - shielded	15.0	6.6	5.4	0.69	0.56	2.27	2.78	1.20	1.21	2	2	2
4415 B25 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	5	3	4
4415 B25 RRH - shielded	16.5	6.7	7.7	0.77	0.88	2.46	2.14	1.20	1.20	2	3	2
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	7	3	6
RRUS-11 RRH - shielded	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	4	3	3
LGP 21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2
LGP 13519 Diplexer	12.0	4.0	4.0	0.33	0.33	3.00	3.00	1.22	1.22	1	1	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.77 in.
Density of ice: 56 pcf

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:		137 lbs
Weight of object:	35 lbs	
Combined weight of ice and object:		172 lbs

QS46512-2 Antenna

Weight of ice based on total radial SF area:

Height (in):	52.0	
Width (in):	12.0	
Depth (in):	10.8	
Total weight of ice on object:		168 lbs
Weight of object:	75 lbs	
Combined weight of ice and object:		243 lbs

SBNH-1D4545A Antenna

Weight of ice based on total radial SF area:

Height (in):	56.7	
Width (in):	16.2	
Depth (in):	7.1	
Total weight of ice on object:		199 lbs
Weight of object:	40 lbs	
Combined weight of ice and object:		239 lbs

TPA-65R-LCUUUU-H8 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	14.4	
Depth (in):	8.6	
Total weight of ice on object:		321 lbs
Weight of object:	75 lbs	
Combined weight of ice and object:		396 lbs

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:		260 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		320 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:		43 lbs
Weight of object:	44 lbs	
Combined weight of ice and object:		87 lbs

4478 B5 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		57 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		117 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:		72 lbs
Weight of object:	51 lbs	
Combined weight of ice and object:		123 lbs

LGP21401 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:		29 lbs
Weight of object:	19 lbs	
Combined weight of ice and object:		48 lbs

LGP 13519 Diplexer

Weight of ice based on total radial SF area:

Height (in):	12.0	
Width (in):	4.0	
Depth (in):	4.0	
Total weight of ice on object:		16 lbs
Weight of object:	5 lbs	
Combined weight of ice and object:		21 lbs

DBC0061F1V51-2 Diplexer

Weight of ice based on total radial SF area:

Height (in):	8.0	
Width (in):	6.2	
Depth (in):	6.5	
Total weight of ice on object:		16 lbs
Weight of object:	26 lbs	
Combined weight of ice and object:		42 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:		50 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		83 lbs

Date: 8/28/2018
Project Name: EAST HADDAM - NICHOLS ROAD
Project Number: CT2271
Designed By: DP **Checked By**: MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

2" pipe

Per foot weight of ice:

diameter (in):	2.38
Per foot weight of ice on object:	9 plf

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.875
Per foot weight of ice on object:	10 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5
Per foot weight of ice on object:	11 plf

L 1-1/2x2-1/2x1/4

Weight of ice based on total radial SF area:

Height (in):	1.5
Width (in):	2.5
Per foot weight of ice on object:	10 plf

L 2-1/2x2-1/2x3/16

Weight of ice based on total radial SF area:

Height (in):	2.5
Width (in):	2.5
Per foot weight of ice on object:	11 plf

L 3x3x1/4

Weight of ice based on total radial SF area:

Height (in):	3
Width (in):	3
Per foot weight of ice on object:	13 plf

PL 6x5/8

Weight of ice based on total radial SF area:

Height (in):	6
Width (in):	0.625
Per foot weight of ice on object:	17 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:	17 plf

HSS 3x3

Weight of ice based on total radial SF area:

Height (in):	3
Width (in):	3
Per foot weight of ice on object:	13 plf

HUDSON
Design Group LLC

2C/3C Mount Calculations
(Existing Conditions)

Bentley

Current Date: 8/28/2018 3:15 PM
Units system: English
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Bentley

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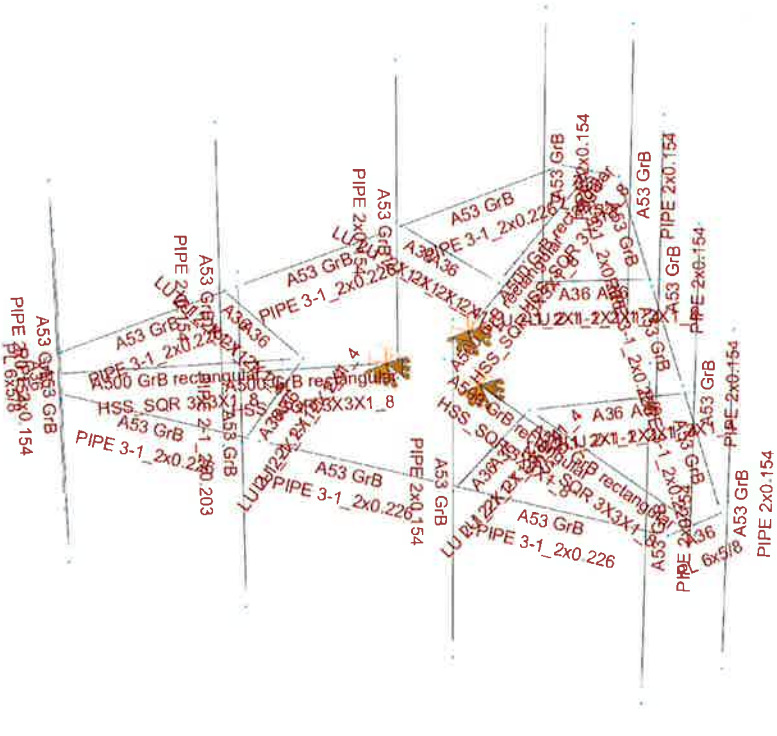

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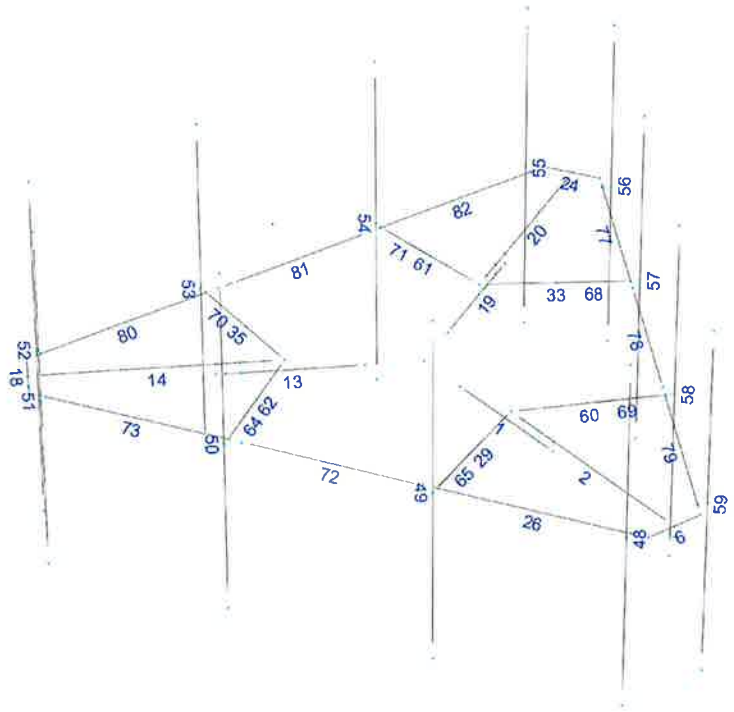

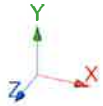

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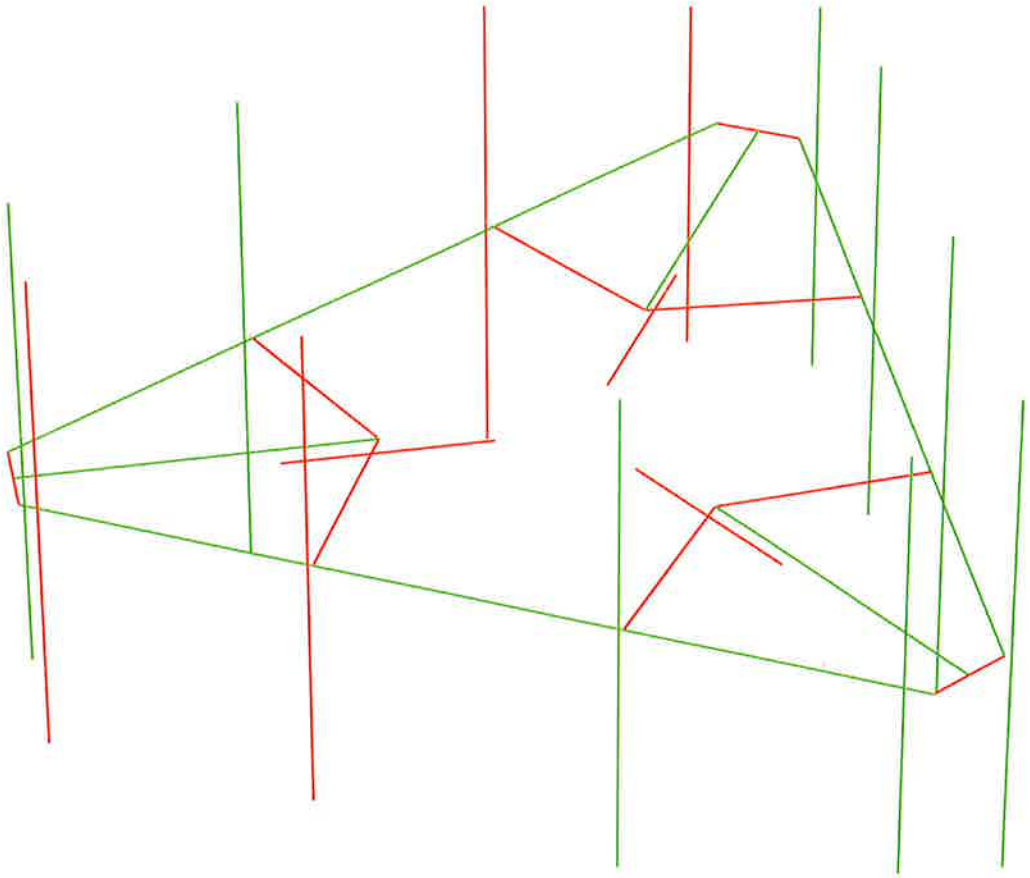
Design status

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



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Load data

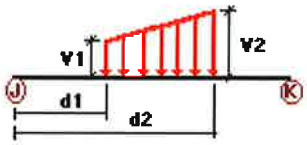
GLOSSARY

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

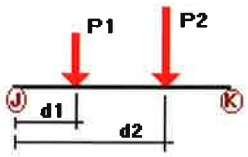


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	2	y	-0.01	0.00	0.00	No	0.00	No
	14	y	-0.01	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	26	y	-0.01	0.00	0.00	No	0.00	No
	29	y	-0.01	-0.01	50.00	Yes	100.00	Yes
	33	y	-0.01	-0.01	50.00	Yes	100.00	Yes
	35	y	-0.01	-0.01	50.00	Yes	100.00	Yes
	60	y	-0.01	-0.01	0.00	Yes	50.00	Yes
	61	y	-0.01	-0.01	0.00	Yes	50.00	Yes
	62	y	-0.01	-0.01	0.00	Yes	50.00	Yes
	64	y	-0.01	0.00	0.00	No	0.00	No
	65	y	-0.01	0.00	0.00	No	0.00	No
	68	y	-0.01	0.00	0.00	No	0.00	No
	69	y	-0.01	0.00	0.00	No	0.00	No
	70	y	-0.01	0.00	0.00	No	0.00	No
	71	y	-0.01	0.00	0.00	No	0.00	No

	72	y	-0.01	0.00	0.00	No	0.00	No
	73	y	-0.01	0.00	0.00	No	0.00	No
	77	y	-0.01	0.00	0.00	No	0.00	No
	78	y	-0.01	0.00	0.00	No	0.00	No
	79	y	-0.01	0.00	0.00	No	0.00	No
	80	y	-0.01	0.00	0.00	No	0.00	No
	81	y	-0.01	0.00	0.00	No	0.00	No
	82	y	-0.01	0.00	0.00	No	0.00	No
W0	26	z	-0.01	0.00	0.00	No	0.00	No
	48	z	-0.004	0.00	0.00	No	0.00	No
	49	z	-0.007	0.00	0.00	No	0.00	No
	50	z	-0.004	0.00	0.00	No	0.00	No
	51	z	-0.004	0.00	0.00	No	0.00	No
	53	z	-0.007	0.00	0.00	No	0.00	No
	56	z	-0.004	0.00	0.00	No	0.00	No
	57	z	-0.007	0.00	0.00	No	0.00	No
	58	z	-0.004	0.00	0.00	No	0.00	No
	59	z	-0.004	0.00	0.00	No	0.00	No
	72	z	-0.01	0.00	0.00	No	0.00	No
	73	z	-0.01	0.00	0.00	No	0.00	No
	77	z	-0.01	0.00	0.00	No	0.00	No
	78	z	-0.01	0.00	0.00	No	0.00	No
	79	z	-0.01	0.00	0.00	No	0.00	No
	80	z	-0.01	0.00	0.00	No	0.00	No
	81	z	-0.01	0.00	0.00	No	0.00	No
	82	z	-0.01	0.00	0.00	No	0.00	No
W30	48	x	-0.004	0.00	0.00	No	0.00	No
	49	x	-0.007	0.00	0.00	No	0.00	No
	50	x	-0.004	0.00	0.00	No	0.00	No
	51	x	-0.004	0.00	0.00	No	0.00	No
	52	x	-0.004	0.00	0.00	No	0.00	No
	53	x	-0.007	0.00	0.00	No	0.00	No
	54	x	-0.004	0.00	0.00	No	0.00	No
	55	x	-0.004	0.00	0.00	No	0.00	No
	56	x	-0.004	0.00	0.00	No	0.00	No
	57	x	-0.007	0.00	0.00	No	0.00	No
	58	x	-0.004	0.00	0.00	No	0.00	No
	59	x	-0.004	0.00	0.00	No	0.00	No
	77	x	-0.01	0.00	0.00	No	0.00	No
	78	x	-0.01	0.00	0.00	No	0.00	No
	79	x	-0.01	0.00	0.00	No	0.00	No
	80	x	-0.01	0.00	0.00	No	0.00	No
	81	x	-0.01	0.00	0.00	No	0.00	No
	82	x	-0.01	0.00	0.00	No	0.00	No
Di	1	y	-0.013	0.00	0.00	No	0.00	No
	2	y	-0.013	0.00	0.00	No	0.00	No
	6	y	-0.017	0.00	0.00	No	0.00	No
	13	y	-0.013	0.00	0.00	No	0.00	No
	14	y	-0.013	0.00	0.00	No	0.00	No
	18	y	-0.017	0.00	0.00	No	0.00	No
	19	y	-0.013	0.00	0.00	No	0.00	No
	20	y	-0.013	0.00	0.00	No	0.00	No
	24	y	-0.017	0.00	0.00	No	0.00	No
	26	y	-0.011	0.00	0.00	No	0.00	No
	29	y	-0.01	0.00	0.00	No	0.00	No
	33	y	-0.01	0.00	0.00	No	0.00	No
	35	y	-0.01	0.00	0.00	No	0.00	No
	48	y	-0.009	0.00	0.00	No	0.00	No
	49	y	-0.009	0.00	0.00	No	0.00	No
	50	y	-0.009	0.00	0.00	No	0.00	No

51	y	-0.009	0.00	0.00	No	0.00	No
52	y	-0.009	0.00	0.00	No	0.00	No
53	y	-0.009	0.00	0.00	No	0.00	No
54	y	-0.009	0.00	0.00	No	0.00	No
55	y	-0.009	0.00	0.00	No	0.00	No
56	y	-0.009	0.00	0.00	No	0.00	No
57	y	-0.009	0.00	0.00	No	0.00	No
58	y	-0.009	0.00	0.00	No	0.00	No
59	y	-0.009	0.00	0.00	No	0.00	No
60	y	-0.01	0.00	0.00	No	0.00	No
61	y	-0.01	0.00	0.00	No	0.00	No
62	y	-0.01	0.00	0.00	No	0.00	No
64	y	-0.01	0.00	0.00	No	0.00	No
65	y	-0.01	0.00	0.00	No	0.00	No
68	y	-0.01	0.00	0.00	No	0.00	No
69	y	-0.01	0.00	0.00	No	0.00	No
70	y	-0.01	0.00	0.00	No	0.00	No
71	y	-0.01	0.00	0.00	No	0.00	No
72	y	-0.011	0.00	0.00	No	0.00	No
73	y	-0.011	0.00	0.00	No	0.00	No
77	y	-0.011	0.00	0.00	No	0.00	No
78	y	-0.011	0.00	0.00	No	0.00	No
79	y	-0.011	0.00	0.00	No	0.00	No
80	y	-0.011	0.00	0.00	No	0.00	No
81	y	-0.011	0.00	0.00	No	0.00	No
82	y	-0.011	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	48	y	-0.018	0.00	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
		y	-0.01	4.50	No
	50	y	-0.038	0.00	No
		y	-0.038	4.50	No
		y	-0.052	1.50	No
		y	-0.06	3.00	No
		y	-0.044	6.00	No
	51	y	-0.03	0.00	No
		y	-0.03	4.50	No
		y	-0.051	2.00	No
	52	y	-0.018	0.00	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
		y	-0.01	4.50	No
	54	y	-0.038	0.00	No
		y	-0.038	8.00	No
		y	-0.052	1.50	No

		y	-0.06	3.00	No
		y	-0.044	6.50	No
	55	y	-0.03	0.00	No
		y	-0.03	4.50	No
		y	-0.051	2.00	No
	56	y	-0.018	0.00	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
		y	-0.01	4.50	No
	58	y	-0.038	0.00	No
		y	-0.038	8.00	No
		y	-0.052	1.50	No
		y	-0.06	3.00	No
		y	-0.044	6.50	No
	59	y	-0.02	0.00	No
		y	-0.02	4.50	No
		y	-0.051	2.00	No
W0	48	z	-0.051	0.00	No
		z	-0.051	4.50	No
		z	-0.062	3.00	No
		z	-0.024	4.50	No
	50	z	-0.08	0.00	No
		z	-0.08	4.50	No
		z	-0.024	1.50	No
		z	-0.023	3.00	No
		z	-0.032	6.00	No
	51	z	-0.071	0.00	No
		z	-0.071	4.50	No
		z	-0.04	2.00	No
	52	z	-0.079	0.00	No
		z	-0.079	4.50	No
		z	-0.03	3.00	No
		z	-0.024	4.50	No
	54	z	-0.19	0.00	No
		z	-0.19	8.00	No
		z	-0.024	1.50	No
		z	-0.006	3.00	No
		z	-0.007	6.00	No
	55	z	-0.161	0.00	No
		z	-0.161	8.00	No
		z	-0.025	2.00	No
	56	z	-0.051	0.00	No
		z	-0.051	4.50	No
		z	-0.03	3.00	No
		z	-0.024	4.50	No
	58	z	-0.142	0.00	No
		z	-0.142	8.00	No
		z	-0.024	1.50	No
		z	-0.023	3.00	No
		z	-0.032	6.00	No
	59	z	-0.113	0.00	No
		z	-0.113	8.00	No
		z	-0.04	2.00	No
W30	48	X	-0.07	0.00	No
		X	-0.07	4.50	No
		X	-0.052	3.00	No
		x	-0.024	4.50	No
	50	x	-0.078	0.00	No
		x	-0.078	4.50	No
		x	-0.024	1.50	No

		x	-0.022	3.00	No
		x	-0.027	6.00	No
	51	x	-0.099	0.00	No
		x	-0.099	4.50	No
		x	-0.038	2.00	No
	52	X	-0.042	0.00	No
		X	-0.042	4.50	No
		X	-0.02	3.00	No
		X	-0.024	4.50	No
	54	x	-0.126	0.00	No
		x	-0.126	8.00	No
		X	-0.024	1.50	No
		X	-0.019	3.00	No
		X	-0.03	6.00	No
	55	x	-0.097	0.00	No
		x	-0.097	8.00	No
		x	-0.03	6.00	No
	56	X	-0.07	0.00	No
		X	-0.07	4.50	No
		X	-0.052	3.00	No
		X	-0.024	4.50	No
	58	X	-0.174	0.00	No
		X	-0.174	8.00	No
		X	-0.024	1.50	No
		X	-0.022	3.00	No
		X	-0.027	6.00	No
	59	X	-0.145	0.00	No
		X	-0.145	8.00	No
		X	-0.038	2.00	No
Di	48	y	-0.069	0.00	No
		y	-0.069	4.50	No
		y	-0.058	3.00	No
		y	-0.032	4.50	No
	50	y	-0.084	0.00	No
		y	-0.084	4.50	No
		y	-0.032	1.50	No
		y	-0.057	3.00	No
		y	-0.043	6.00	No
	51	y	-0.10	0.00	No
		y	-0.10	4.50	No
		y	-0.072	2.00	No
	52	y	-0.069	0.00	No
		y	-0.069	4.50	No
		y	-0.058	3.00	No
		y	-0.032	4.50	No
	54	y	-0.161	0.00	No
		y	-0.161	8.00	No
		y	-0.032	1.50	No
		y	-0.057	3.00	No
		y	-0.043	6.50	No
	55	y	-0.13	0.00	No
		y	-0.13	8.00	No
		y	-0.072	2.00	No
	56	y	-0.069	0.00	No
		y	-0.069	4.50	No
		y	-0.058	3.00	No
		y	-0.032	4.50	No
	58	y	-0.161	0.00	No
		y	-0.161	8.00	No
		y	-0.032	1.50	No

		y	-0.057	3.00	No
		y	-0.043	6.50	No
	59	y	-0.13	0.00	No
		y	-0.13	8.00	No
		y	-0.072	2.00	No
Wi0	48	z	-0.02	0.00	No
		z	-0.02	4.50	No
		z	-0.016	3.00	No
		z	-0.014	4.50	No
	50	z	-0.027	0.00	No
		z	-0.027	4.50	No
		z	-0.014	1.50	No
		z	-0.011	3.00	No
		z	-0.014	6.00	No
	51	z	-0.037	0.00	No
		z	-0.037	4.50	No
		z	-0.016	2.00	No
	52	Z	-0.028	0.00	No
		Z	-0.028	4.50	No
		Z	-0.026	3.00	No
		Z	-0.014	4.50	No
	54	z	-0.027	0.00	No
		z	-0.027	4.50	No
		Z	-0.014	1.50	No
		Z	-0.007	3.00	No
		Z	-0.008	6.00	No
	55	z	-0.054	0.00	No
		z	-0.054	8.00	No
		Z	-0.012	2.00	No
	56	Z	-0.02	0.00	No
		Z	-0.02	4.50	No
		Z	-0.016	3.00	No
		Z	-0.014	4.50	No
	58	Z	-0.047	0.00	No
		Z	-0.047	8.00	No
		Z	-0.007	1.50	No
		Z	-0.011	3.00	No
		Z	-0.014	6.00	No
	59	Z	-0.04	0.00	No
		Z	-0.04	8.00	No
		Z	-0.016	2.00	No
Wi30	48	x	-0.024	0.00	No
		x	-0.024	4.50	No
		x	-0.024	3.00	No
		x	-0.014	4.50	No
	50	x	-0.025	0.00	No
		x	-0.025	4.50	No
		x	-0.014	1.50	No
		x	-0.009	3.00	No
		x	-0.011	6.00	No
	51	x	-0.032	0.00	No
		x	-0.032	4.50	No
		x	-0.014	2.00	No
	52	x	-0.017	0.00	No
		x	-0.017	4.50	No
		x	-0.014	3.00	No
		x	-0.014	4.50	No
	54	x	-0.043	0.00	No
		x	-0.043	8.00	No
		x	-0.014	1.50	No

		x	-0.01	3.00	No
		x	-0.013	6.00	No
	55	x	-0.036	0.00	No
		x	-0.036	8.00	No
		x	-0.015	2.00	No
	56	x	-0.024	0.00	No
		x	-0.024	4.50	No
		x	-0.024	3.00	No
		x	-0.014	4.50	No
	58	x	-0.055	0.00	No
		x	-0.055	8.00	No
		x	-0.014	1.50	No
		x	-0.009	3.00	No
		x	-0.011	6.00	No
	59	x	-0.048	0.00	No
		x	-0.048	8.00	No
		x	-0.014	2.00	No
WL0	48	z	-0.005	0.00	No
		z	-0.005	4.50	No
		z	-0.004	3.00	No
		z	-0.004	4.50	No
	50	z	-0.007	0.00	No
		z	-0.007	4.50	No
		z	-0.004	1.50	No
		z	-0.003	3.00	No
		z	-0.003	6.00	No
	51	z	-0.007	0.00	No
		z	-0.007	4.50	No
		z	-0.004	2.00	No
	52	z	-0.007	0.00	No
		z	-0.007	4.50	No
		z	-0.006	3.00	No
		z	-0.004	4.50	No
	54	z	-0.017	0.00	No
		z	-0.017	8.00	No
		z	-0.004	1.50	No
		z	-0.001	3.00	No
		z	-0.001	6.00	No
	55	z	-0.015	0.00	No
		z	-0.015	8.00	No
		z	-0.003	2.00	No
	56	z	-0.005	0.00	No
		z	-0.005	4.50	No
		z	-0.004	3.00	No
		z	-0.004	4.50	No
	58	z	-0.013	0.00	No
		z	-0.013	8.00	No
		z	-0.004	1.50	No
		z	-0.003	3.00	No
		z	-0.003	6.00	No
	59	z	-0.011	0.00	No
		z	-0.011	8.00	No
		z	-0.004	2.00	No
WL30	48	x	-0.007	0.00	No
		x	-0.007	4.50	No
		x	-0.006	3.00	No
		x	-0.004	4.50	No
	50	x	-0.007	0.00	No
		x	-0.007	4.50	No
		x	-0.004	1.50	No

		x	-0.002	3.00	No
		x	-0.003	6.00	No
	51	x	-0.009	0.00	No
		x	-0.009	4.50	No
		x	-0.004	2.00	No
	52	x	-0.004	0.00	No
		x	-0.004	4.50	No
		x	-0.002	3.00	No
		x	-0.004	4.50	No
	54	x	-0.006	0.00	No
		x	-0.006	4.50	No
		x	-0.004	1.50	No
		x	-0.002	3.00	No
		x	-0.003	6.00	No
	55	x	-0.009	0.00	No
		x	-0.009	8.00	No
		x	-0.004	2.00	No
	56	x	-0.007	0.00	No
		x	-0.007	4.50	No
		x	-0.006	3.00	No
		x	-0.004	4.50	No
	58	x	-0.016	0.00	No
		x	-0.016	8.00	No
		x	-0.004	1.50	No
		x	-0.002	3.00	No
		x	-0.003	6.00	No
	59	x	-0.013	0.00	No
		x	-0.013	8.00	No
		x	-0.004	2.00	No
LL1	72	y	-0.25	50.00	Yes
LL2	26	y	-0.25	0.00	Yes
LLa1	48	y	-0.25	50.00	Yes
LLa2	50	y	-0.25	50.00	Yes
LLa3	51	y	-0.25	50.00	Yes

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: 8/29/2018 1:36 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2271\CT2271 (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 3X3X1_8	**1**	LC1 at 0.00%	1.50	N.G.	
			LC10 at 0.00%	2.14	N.G.	
			LC11 at 0.00%	1.96	N.G.	
			LC12 at 0.00%	2.12	N.G.	
			LC13 at 0.00%	0.99	OK	
			LC14 at 0.00%	0.74	OK	
			LC15 at 0.00%	1.21	N.G.	
			LC16 at 0.00%	1.61	N.G.	
			LC17 at 0.00%	1.39	N.G.	
			LC18 at 0.00%	1.39	N.G.	
			LC19 at 0.00%	1.34	N.G.	
			LC2 at 0.00%	1.49	N.G.	
			LC20 at 0.00%	1.39	N.G.	
			LC21 at 0.00%	1.10	N.G.	
			LC22 at 0.00%	1.09	N.G.	

	LC23 at 0.00%	1.04	N.G.	
	LC24 at 0.00%	1.10	N.G.	
	LC25 at 0.00%	0.98	OK	
	LC26 at 0.00%	0.95	OK	
	LC27 at 0.00%	0.93	OK	
	LC28 at 0.00%	0.95	OK	
	LC3 at 0.00%	0.52	OK	
	LC4 at 0.00%	1.49	N.G.	
	LC5 at 0.00%	1.25	N.G.	
	LC6 at 0.00%	1.24	N.G.	
	LC7 at 67.19%	0.28	OK	
	LC8 at 0.00%	1.24	N.G.	
	LC9 at 0.00%	**2.19**	**N.G.**	Eq. H1-1b
	W180 at 0.00%	0.34	OK	
	W210 at 0.00%	0.31	OK	
	Wi180 at 0.00%	0.14	OK	
	Wi210 at 0.00%	0.08	OK	
	WL180 at 0.00%	0.03	OK	
	WL210 at 0.00%	0.03	OK	
2	LC1 at 27.50%	0.38	OK	
	LC10 at 27.50%	0.80	OK	
	LC11 at 27.50%	0.79	OK	
	LC12 at 27.50%	0.80	OK	
	LC13 at 27.50%	0.32	OK	
	LC14 at 27.50%	0.24	OK	
	LC15 at 27.50%	0.38	OK	
	LC16 at 27.50%	0.56	OK	
	LC17 at 27.50%	0.47	OK	
	LC18 at 27.50%	0.46	OK	
	LC19 at 27.50%	0.46	OK	
	LC2 at 27.50%	0.37	OK	
	LC20 at 27.50%	0.47	OK	
	LC21 at 27.50%	0.34	OK	
	LC22 at 27.50%	0.34	OK	
	LC23 at 27.50%	0.34	OK	
	LC24 at 27.50%	0.34	OK	
	LC25 at 27.50%	0.32	OK	
	LC26 at 27.50%	0.32	OK	
	LC27 at 27.50%	0.31	OK	
	LC28 at 27.50%	0.32	OK	
	LC3 at 27.50%	0.27	OK	
	LC4 at 27.50%	0.39	OK	Eq. H1-1b
	LC5 at 27.50%	0.30	OK	
	LC6 at 27.50%	0.29	OK	
	LC7 at 27.50%	0.19	OK	
	LC8 at 27.50%	0.31	OK	
	LC9 at 27.50%	**0.81**	**OK**	Eq. H1-1a
	W180 at 27.50%	0.08	OK	
	W210 at 7.50%	0.11	OK	
	Wi180 at 27.50%	0.03	OK	
	Wi210 at 7.50%	0.03	OK	
	WL180 at 27.50%	0.01	OK	
	WL210 at 7.50%	0.01	OK	
13	LC1 at 0.00%	0.87	OK	
	LC10 at 0.00%	1.85	N.G.	
	LC11 at 0.00%	2.01	N.G.	
	LC12 at 0.00%	**2.02**	**N.G.**	Eq. H1-1b
	LC13 at 0.00%	1.04	N.G.	
	LC14 at 0.00%	0.78	OK	
	LC15 at 0.00%	1.26	N.G.	
	LC16 at 0.00%	0.96	OK	
	LC17 at 0.00%	0.98	OK	Eq. H1-1b

	LC18 at 0.00%	0.97	OK	
	LC19 at 0.00%	1.03	N.G.	
	LC2 at 0.00%	0.61	OK	
	LC20 at 0.00%	1.04	N.G.	
	LC21 at 0.00%	1.24	N.G.	
	LC22 at 0.00%	1.23	N.G.	
	LC23 at 0.00%	1.27	N.G.	
	LC24 at 0.00%	1.29	N.G.	
	LC25 at 0.00%	1.39	N.G.	
	LC26 at 0.00%	1.38	N.G.	
	LC27 at 0.00%	1.43	N.G.	
	LC28 at 0.00%	1.44	N.G.	
	LC3 at 0.00%	1.37	N.G.	
	LC4 at 0.00%	1.48	N.G.	
	LC5 at 0.00%	0.61	OK	
	LC6 at 0.00%	0.35	OK	
	LC7 at 0.00%	1.11	N.G.	
	LC8 at 0.00%	1.22	N.G.	
	LC9 at 0.00%	1.89	N.G.	
	W180 at 0.00%	0.23	OK	
	W210 at 0.00%	0.31	OK	
	Wi180 at 0.00%	0.10	OK	
	Wi210 at 0.00%	0.12	OK	
	WL180 at 0.00%	0.02	OK	
	WL210 at 0.00%	0.03	OK	
14	LC1 at 100.00%	0.34	OK	
	LC10 at 27.50%	0.74	OK	
	LC11 at 27.50%	0.77	OK	
	LC12 at 27.50%	**0.77**	**OK**	Eq. H1-1a
	LC13 at 27.50%	0.34	OK	
	LC14 at 27.50%	0.25	OK	
	LC15 at 27.50%	0.39	OK	
	LC16 at 27.50%	0.33	OK	
	LC17 at 27.50%	0.33	OK	
	LC18 at 27.50%	0.33	OK	
	LC19 at 27.50%	0.34	OK	
	LC2 at 100.00%	0.32	OK	
	LC20 at 27.50%	0.34	OK	
	LC21 at 27.50%	0.40	OK	
	LC22 at 27.50%	0.40	OK	
	LC23 at 27.50%	0.41	OK	
	LC24 at 27.50%	0.41	OK	
	LC25 at 27.50%	0.48	OK	
	LC26 at 27.50%	0.47	OK	
	LC27 at 27.50%	0.48	OK	
	LC28 at 27.50%	0.49	OK	
	LC3 at 27.50%	0.41	OK	
	LC4 at 27.50%	0.46	OK	Eq. H1-1b
	LC5 at 100.00%	0.27	OK	
	LC6 at 100.00%	0.25	OK	
	LC7 at 27.50%	0.33	OK	
	LC8 at 27.50%	0.37	OK	
	LC9 at 27.50%	0.74	OK	
	W180 at 63.75%	0.08	OK	
	W210 at 27.50%	0.10	OK	
	Wi180 at 63.75%	0.04	OK	
	Wi210 at 27.50%	0.04	OK	
	WL180 at 27.50%	0.01	OK	
	WL210 at 27.50%	0.01	OK	
19	LC1 at 0.00%	1.26	N.G.	
	LC10 at 0.00%	2.30	N.G.	
	LC11 at 0.00%	**2.32**	**N.G.**	Eq. H1-1b

	LC12 at 0.00%	2.12	N.G.	
	LC13 at 0.00%	1.03	N.G.	
	LC14 at 0.00%	0.77	OK	
	LC15 at 0.00%	0.90	OK	
	LC16 at 0.00%	0.90	OK	
	LC17 at 0.00%	0.93	OK	
	LC18 at 0.00%	0.97	OK	
	LC19 at 0.00%	0.96	OK	
	LC2 at 0.00%	1.46	N.G.	
	LC20 at 0.00%	0.92	OK	
	LC21 at 0.00%	0.93	OK	
	LC22 at 0.00%	0.97	OK	
	LC23 at 0.00%	0.96	OK	
	LC24 at 0.00%	0.92	OK	
	LC25 at 0.00%	0.93	OK	
	LC26 at 0.00%	0.97	OK	
	LC27 at 0.00%	0.96	OK	
	LC28 at 0.00%	0.92	OK	
	LC3 at 0.00%	1.73	N.G.	
	LC4 at 0.00%	0.65	OK	
	LC5 at 0.00%	1.00	N.G.	
	LC6 at 0.00%	1.20	N.G.	
	LC7 at 0.00%	1.47	N.G.	
	LC8 at 0.00%	0.39	OK	
	LC9 at 0.00%	2.19	N.G.	
	W180 at 0.00%	0.46	OK	
	W210 at 0.00%	0.29	OK	
	Wi180 at 0.00%	0.13	OK	
	Wi210 at 0.00%	0.10	OK	
	WL180 at 0.00%	0.04	OK	
	WL210 at 0.00%	0.04	OK	
20	LC1 at 27.50%	0.37	OK	
	LC10 at 27.50%	0.84	OK	
	LC11 at 27.50%	**0.85**	**OK**	Eq. H1-1a
	LC12 at 27.50%	0.83	OK	
	LC13 at 27.50%	0.34	OK	
	LC14 at 27.50%	0.25	OK	
	LC15 at 27.50%	0.30	OK	
	LC16 at 27.50%	0.31	OK	
	LC17 at 27.50%	0.31	OK	
	LC18 at 27.50%	0.32	OK	
	LC19 at 27.50%	0.32	OK	
	LC2 at 27.50%	0.38	OK	
	LC20 at 27.50%	0.31	OK	
	LC21 at 27.50%	0.31	OK	
	LC22 at 27.50%	0.32	OK	
	LC23 at 27.50%	0.32	OK	
	LC24 at 27.50%	0.31	OK	
	LC25 at 27.50%	0.31	OK	
	LC26 at 27.50%	0.32	OK	
	LC27 at 27.50%	0.32	OK	
	LC28 at 27.50%	0.31	OK	
	LC3 at 27.50%	0.42	OK	Eq. H1-1b
	LC4 at 100.00%	0.31	OK	
	LC5 at 27.50%	0.28	OK	
	LC6 at 27.50%	0.30	OK	
	LC7 at 27.50%	0.34	OK	
	LC8 at 100.00%	0.25	OK	
	LC9 at 27.50%	0.83	OK	
	W180 at 7.50%	0.10	OK	
	W210 at 27.50%	0.06	OK	
	Wi180 at 27.50%	0.03	OK	
	Wi210 at 27.50%	0.03	OK	

		WL180 at 7.50%	0.01	OK	
		WL210 at 27.50%	0.01	OK	
LU 2-1_2X1-1_2X1_4	**29**	LC1 at 0.00%	2.04	N.G.	
		LC10 at 0.00%	3.41	N.G.	
		LC11 at 0.00%	3.29	N.G.	
		LC12 at 0.00%	3.37	N.G.	
		LC13 at 0.00%	1.66	N.G.	
		LC14 at 0.00%	1.24	N.G.	
		LC15 at 0.00%	2.21	N.G.	
		LC16 at 0.00%	2.22	N.G.	
		LC17 at 0.00%	2.04	N.G.	
		LC18 at 0.00%	2.02	N.G.	
		LC19 at 0.00%	1.99	N.G.	
		LC2 at 0.00%	1.79	N.G.	
		LC20 at 0.00%	2.01	N.G.	
		LC21 at 0.00%	1.94	N.G.	
		LC22 at 0.00%	1.92	N.G.	
		LC23 at 0.00%	1.89	N.G.	
		LC24 at 0.00%	1.91	N.G.	
		LC25 at 0.00%	1.76	N.G.	
		LC26 at 0.00%	1.74	N.G.	
		LC27 at 0.00%	1.71	N.G.	
		LC28 at 0.00%	1.73	N.G.	
		LC3 at 0.00%	1.32	N.G.	
		LC4 at 0.00%	1.55	N.G.	
		LC5 at 0.00%	1.63	N.G.	
		LC6 at 0.00%	1.37	N.G.	
		LC7 at 0.00%	0.90	OK	
		LC8 at 0.00%	1.15	N.G.	
		LC9 at 0.00%	**3.49**	**N.G.**	Eq. H2-1
		W180 at 0.00%	0.28	OK	
		W210 at 100.00%	0.24	OK	
		Wi180 at 0.00%	0.11	OK	
		Wi210 at 100.00%	0.08	OK	
		WL180 at 0.00%	0.03	OK	
		WL210 at 100.00%	0.02	OK	
	33	LC1 at 0.00%	1.46	N.G.	
		LC10 at 0.00%	**3.73**	**N.G.**	Eq. H2-1
		LC11 at 0.00%	3.71	N.G.	
		LC12 at 0.00%	3.59	N.G.	
		LC13 at 0.00%	1.68	N.G.	
		LC14 at 0.00%	1.26	N.G.	
		LC15 at 0.00%	1.59	N.G.	
		LC16 at 0.00%	1.72	N.G.	
		LC17 at 0.00%	1.68	N.G.	
		LC18 at 0.00%	1.72	N.G.	
		LC19 at 0.00%	1.71	N.G.	
		LC2 at 0.00%	1.97	N.G.	
		LC20 at 0.00%	1.67	N.G.	
		LC21 at 0.00%	1.59	N.G.	
		LC22 at 0.00%	1.63	N.G.	
		LC23 at 0.00%	1.62	N.G.	
		LC24 at 0.00%	1.58	N.G.	
		LC25 at 0.00%	1.57	N.G.	
		LC26 at 0.00%	1.61	N.G.	
		LC27 at 0.00%	1.60	N.G.	
		LC28 at 0.00%	1.56	N.G.	
		LC3 at 0.00%	1.90	N.G.	
		LC4 at 0.00%	1.41	N.G.	
		LC5 at 0.00%	1.05	N.G.	
		LC6 at 0.00%	1.56	N.G.	
		LC7 at 0.00%	1.48	N.G.	

	LC8 at 0.00%	0.99	OK	
	LC9 at 0.00%	3.61	N.G.	
	W180 at 100.00%	0.17	OK	
	W210 at 0.00%	0.21	OK	
	Wi180 at 100.00%	0.07	OK	
	Wi210 at 0.00%	0.08	OK	
	WL180 at 100.00%	0.02	OK	
	WL210 at 0.00%	0.02	OK	
35	LC1 at 0.00%	1.55	N.G.	
	LC10 at 0.00%	3.31	N.G.	
	LC11 at 0.00%	3.43	N.G.	
	LC12 at 0.00%	**3.47**	**N.G.**	Eq. H2-1
	LC13 at 0.00%	1.70	N.G.	
	LC14 at 0.00%	1.27	N.G.	
	LC15 at 0.00%	1.92	N.G.	
	LC16 at 0.00%	1.61	N.G.	
	LC17 at 0.00%	1.64	N.G.	
	LC18 at 0.00%	1.63	N.G.	
	LC19 at 0.00%	1.66	N.G.	
	LC2 at 0.00%	1.39	N.G.	
	LC20 at 0.00%	1.68	N.G.	
	LC21 at 0.00%	1.90	N.G.	
	LC22 at 0.00%	1.89	N.G.	
	LC23 at 0.00%	1.92	N.G.	
	LC24 at 0.00%	1.94	N.G.	
	LC25 at 0.00%	2.05	N.G.	
	LC26 at 0.00%	2.03	N.G.	
	LC27 at 0.00%	2.07	N.G.	
	LC28 at 0.00%	2.08	N.G.	
	LC3 at 0.00%	1.87	N.G.	
	LC4 at 0.00%	2.03	N.G.	
	LC5 at 0.00%	1.12	N.G.	
	LC6 at 0.00%	0.97	OK	
	LC7 at 0.00%	1.45	N.G.	
	LC8 at 0.00%	1.61	N.G.	
	LC9 at 0.00%	3.35	N.G.	
	W180 at 46.88%	0.14	OK	
	W210 at 100.00%	0.23	OK	
	Wi180 at 46.88%	0.07	OK	
	Wi210 at 100.00%	0.09	OK	
	WL180 at 46.88%	0.01	OK	
	WL210 at 0.00%	0.03	OK	
60	LC1 at 100.00%	2.11	N.G.	
	LC10 at 100.00%	3.57	N.G.	
	LC11 at 100.00%	3.50	N.G.	
	LC12 at 100.00%	3.63	N.G.	
	LC13 at 100.00%	1.68	N.G.	
	LC14 at 100.00%	1.26	N.G.	
	LC15 at 100.00%	1.90	N.G.	
	LC16 at 100.00%	2.27	N.G.	
	LC17 at 100.00%	2.06	N.G.	
	LC18 at 100.00%	2.03	N.G.	
	LC19 at 100.00%	2.02	N.G.	
	LC2 at 100.00%	1.62	N.G.	
	LC20 at 100.00%	2.05	N.G.	
	LC21 at 100.00%	1.77	N.G.	
	LC22 at 100.00%	1.74	N.G.	
	LC23 at 100.00%	1.73	N.G.	
	LC24 at 100.00%	1.76	N.G.	
	LC25 at 100.00%	1.66	N.G.	
	LC26 at 100.00%	1.63	N.G.	
	LC27 at 100.00%	1.62	N.G.	

	LC28 at 100.00%	1.65	N.G.	
	LC3 at 100.00%	1.31	N.G.	
	LC4 at 100.00%	1.88	N.G.	
	LC5 at 100.00%	1.69	N.G.	
	LC6 at 100.00%	1.20	N.G.	
	LC7 at 100.00%	0.89	OK	
	LC8 at 100.00%	1.46	N.G.	
	LC9 at 100.00%	**3.70**	**N.G.**	Eq. H2-1
	W180 at 100.00%	0.30	OK	
	W210 at 0.00%	0.25	OK	
	Wi180 at 100.00%	0.12	OK	
	Wi210 at 0.00%	0.09	OK	
	WL180 at 100.00%	0.03	OK	
	WL210 at 0.00%	0.02	OK	
61	LC1 at 100.00%	1.66	N.G.	
	LC10 at 100.00%	**3.76**	**N.G.**	Eq. H2-1
	LC11 at 100.00%	3.72	N.G.	
	LC12 at 100.00%	3.62	N.G.	
	LC13 at 100.00%	1.72	N.G.	
	LC14 at 100.00%	1.29	N.G.	
	LC15 at 100.00%	1.63	N.G.	
	LC16 at 100.00%	1.58	N.G.	
	LC17 at 100.00%	1.62	N.G.	
	LC18 at 100.00%	1.64	N.G.	
	LC19 at 100.00%	1.63	N.G.	
	LC2 at 100.00%	2.05	N.G.	
	LC20 at 100.00%	1.61	N.G.	
	LC21 at 100.00%	1.68	N.G.	
	LC22 at 100.00%	1.70	N.G.	
	LC23 at 100.00%	1.68	N.G.	
	LC24 at 100.00%	1.66	N.G.	
	LC25 at 100.00%	1.73	N.G.	
	LC26 at 100.00%	1.75	N.G.	
	LC27 at 100.00%	1.74	N.G.	
	LC28 at 100.00%	1.71	N.G.	
	LC3 at 100.00%	1.93	N.G.	
	LC4 at 100.00%	1.42	N.G.	
	LC5 at 100.00%	1.23	N.G.	
	LC6 at 100.00%	1.62	N.G.	
	LC7 at 100.00%	1.51	N.G.	
	LC8 at 100.00%	0.99	OK	
	LC9 at 100.00%	3.67	N.G.	
	W180 at 100.00%	0.15	OK	
	W210 at 100.00%	0.24	OK	
	Wi180 at 50.00%	0.08	OK	
	Wi210 at 100.00%	0.08	OK	
	WL180 at 50.00%	0.01	OK	
	WL210 at 100.00%	0.02	OK	
62	LC1 at 100.00%	1.53	N.G.	
	LC10 at 100.00%	3.30	N.G.	
	LC11 at 100.00%	**3.39**	**N.G.**	Eq. H2-1
	LC12 at 100.00%	3.37	N.G.	
	LC13 at 100.00%	1.72	N.G.	
	LC14 at 100.00%	1.29	N.G.	
	LC15 at 100.00%	2.27	N.G.	
	LC16 at 100.00%	1.82	N.G.	
	LC17 at 100.00%	1.79	N.G.	
	LC18 at 100.00%	1.78	N.G.	
	LC19 at 100.00%	1.81	N.G.	
	LC2 at 100.00%	1.58	N.G.	
	LC20 at 100.00%	1.81	N.G.	
	LC21 at 100.00%	2.10	N.G.	

	LC22 at 100.00%	2.10	N.G.	
	LC23 at 100.00%	2.12	N.G.	
	LC24 at 100.00%	2.12	N.G.	
	LC25 at 100.00%	2.06	N.G.	
	LC26 at 100.00%	2.06	N.G.	
	LC27 at 100.00%	2.08	N.G.	
	LC28 at 100.00%	2.09	N.G.	
	LC3 at 100.00%	1.91	N.G.	
	LC4 at 100.00%	1.89	N.G.	
	LC5 at 100.00%	1.10	N.G.	
	LC6 at 0.00%	1.16	N.G.	
	LC7 at 100.00%	1.48	N.G.	
	LC8 at 100.00%	1.47	N.G.	
	LC9 at 100.00%	3.28	N.G.	
	W180 at 0.00%	0.27	OK	
	W210 at 50.00%	0.20	OK	
	Wi180 at 0.00%	0.11	OK	
	Wi210 at 50.00%	0.06	OK	
	WL180 at 0.00%	0.03	OK	
	WL210 at 50.00%	0.02	OK	
64	LC1 at 100.00%	0.62	OK	
	LC10 at 100.00%	1.98	N.G.	
	LC11 at 100.00%	**2.04**	**N.G.**	Eq. H2-1
	LC12 at 100.00%	1.91	N.G.	
	LC13 at 100.00%	0.99	OK	
	LC14 at 100.00%	0.74	OK	
	LC15 at 100.00%	1.27	N.G.	
	LC16 at 100.00%	0.95	OK	
	LC17 at 100.00%	0.95	OK	
	LC18 at 100.00%	0.98	OK	
	LC19 at 100.00%	0.99	OK	
	LC2 at 100.00%	1.17	N.G.	
	LC20 at 100.00%	0.96	OK	
	LC21 at 100.00%	1.17	N.G.	
	LC22 at 100.00%	1.20	N.G.	
	LC23 at 100.00%	1.21	N.G.	
	LC24 at 100.00%	1.18	N.G.	
	LC25 at 100.00%	1.15	N.G.	
	LC26 at 100.00%	1.19	N.G.	
	LC27 at 100.00%	1.20	N.G.	
	LC28 at 100.00%	1.17	N.G.	
	LC3 at 100.00%	1.36	N.G.	
	LC4 at 100.00%	0.83	OK	
	LC5 at 100.00%	0.37	OK	
	LC6 at 100.00%	0.92	OK	
	LC7 at 100.00%	1.11	N.G.	
	LC8 at 100.00%	0.60	OK	
	LC9 at 100.00%	1.85	N.G.	
	W180 at 100.00%	0.23	OK	
	W210 at 100.00%	0.13	OK	
	Wi180 at 100.00%	0.09	OK	
	Wi210 at 100.00%	0.04	OK	
	WL180 at 100.00%	0.02	OK	
	WL210 at 0.00%	0.01	OK	
65	LC1 at 0.00%	1.10	N.G.	
	LC10 at 0.00%	**2.06**	**N.G.**	Eq. H2-1
	LC11 at 0.00%	1.95	N.G.	
	LC12 at 0.00%	1.91	N.G.	
	LC13 at 0.00%	0.95	OK	
	LC14 at 0.00%	0.71	OK	
	LC15 at 0.00%	1.23	N.G.	
	LC16 at 0.00%	1.26	N.G.	

	LC17 at 0.00%	1.14	N.G.	
	LC18 at 0.00%	1.15	N.G.	
	LC19 at 0.00%	1.12	N.G.	
	LC2 at 0.00%	1.27	N.G.	
	LC20 at 0.00%	1.12	N.G.	
	LC21 at 0.00%	1.06	N.G.	
	LC22 at 0.00%	1.07	N.G.	
	LC23 at 0.00%	1.04	N.G.	
	LC24 at 0.00%	1.03	N.G.	
	LC25 at 0.00%	0.94	OK	
	LC26 at 0.00%	0.95	OK	
	LC27 at 0.00%	0.92	OK	
	LC28 at 0.00%	0.91	OK	
	LC3 at 0.00%	0.79	OK	
	LC4 at 0.00%	0.62	OK	
	LC5 at 0.00%	0.86	OK	
	LC6 at 0.00%	1.04	N.G.	
	LC7 at 0.00%	0.56	OK	
	LC8 at 0.00%	0.39	OK	
	LC9 at 0.00%	2.02	N.G.	
	W180 at 0.00%	0.10	OK	
	W210 at 0.00%	0.20	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 0.00%	0.07	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.02	OK	
68	LC1 at 0.00%	0.74	OK	
	LC10 at 0.00%	2.10	N.G.	
	LC11 at 0.00%	**2.16**	**N.G.**	Eq. H2-1
	LC12 at 0.00%	2.09	N.G.	
	LC13 at 0.00%	0.97	OK	
	LC14 at 0.00%	0.73	OK	
	LC15 at 0.00%	0.93	OK	
	LC16 at 0.00%	0.93	OK	
	LC17 at 0.00%	0.93	OK	
	LC18 at 0.00%	0.95	OK	
	LC19 at 0.00%	0.96	OK	
	LC2 at 0.00%	0.99	OK	
	LC20 at 0.00%	0.95	OK	
	LC21 at 0.00%	0.93	OK	
	LC22 at 0.00%	0.95	OK	
	LC23 at 0.00%	0.96	OK	
	LC24 at 0.00%	0.94	OK	
	LC25 at 0.00%	0.94	OK	
	LC26 at 0.00%	0.96	OK	
	LC27 at 0.00%	0.97	OK	
	LC28 at 0.00%	0.95	OK	
	LC3 at 0.00%	1.20	N.G.	
	LC4 at 0.00%	0.97	OK	
	LC5 at 0.00%	0.50	OK	
	LC6 at 0.00%	0.77	OK	
	LC7 at 0.00%	0.96	OK	
	LC8 at 0.00%	0.73	OK	
	LC9 at 0.00%	2.03	N.G.	
	W180 at 0.00%	0.15	OK	
	W210 at 0.00%	0.10	OK	
	Wi180 at 0.00%	0.07	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 0.00%	0.02	OK	
	WL210 at 0.00%	0.01	OK	
69	LC1 at 100.00%	1.20	N.G.	
	LC10 at 100.00%	1.98	N.G.	

	LC11 at 100.00%	1.98	N.G.	
	LC12 at 100.00%	**2.10**	**N.G.**	Eq. H2-1
	LC13 at 100.00%	0.97	OK	
	LC14 at 100.00%	0.73	OK	
	LC15 at 100.00%	1.14	N.G.	
	LC16 at 100.00%	1.34	N.G.	
	LC17 at 100.00%	1.22	N.G.	
	LC18 at 100.00%	1.19	N.G.	
	LC19 at 100.00%	1.19	N.G.	
	LC2 at 100.00%	0.71	OK	
	LC20 at 100.00%	1.22	N.G.	
	LC21 at 100.00%	1.06	N.G.	
	LC22 at 100.00%	1.03	N.G.	
	LC23 at 100.00%	1.03	N.G.	
	LC24 at 100.00%	1.06	N.G.	
	LC25 at 100.00%	1.00	N.G.	
	LC26 at 100.00%	0.97	OK	
	LC27 at 100.00%	0.98	OK	
	LC28 at 100.00%	1.00	N.G.	
	LC3 at 100.00%	0.74	OK	
	LC4 at 100.00%	1.23	N.G.	
	LC5 at 100.00%	0.98	OK	
	LC6 at 100.00%	0.47	OK	
	LC7 at 100.00%	0.50	OK	
	LC8 at 100.00%	0.98	OK	
	LC9 at 100.00%	2.10	N.G.	
	W180 at 100.00%	0.18	OK	
	W210 at 100.00%	0.16	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	
70	LC1 at 0.00%	1.11	N.G.	
	LC10 at 0.00%	1.84	N.G.	
	LC11 at 0.00%	1.87	N.G.	
	LC12 at 0.00%	**1.99**	**N.G.**	Eq. H2-1
	LC13 at 0.00%	0.97	OK	
	LC14 at 0.00%	0.73	OK	
	LC15 at 0.00%	1.15	N.G.	
	LC16 at 0.00%	0.99	OK	
	LC17 at 0.00%	1.00	N.G.	
	LC18 at 0.00%	0.97	OK	
	LC19 at 0.00%	0.98	OK	
	LC2 at 0.00%	0.64	OK	
	LC20 at 0.00%	1.02	N.G.	
	LC21 at 0.00%	1.14	N.G.	
	LC22 at 0.00%	1.11	N.G.	
	LC23 at 0.00%	1.12	N.G.	
	LC24 at 0.00%	1.15	N.G.	
	LC25 at 0.00%	1.22	N.G.	
	LC26 at 0.00%	1.18	N.G.	
	LC27 at 0.00%	1.20	N.G.	
	LC28 at 0.00%	1.23	N.G.	
	LC3 at 0.00%	0.84	OK	
	LC4 at 0.00%	1.31	N.G.	
	LC5 at 0.00%	0.86	OK	
	LC6 at 0.00%	0.39	OK	
	LC7 at 0.00%	0.61	OK	
	LC8 at 0.00%	1.06	N.G.	
	LC9 at 0.00%	1.96	N.G.	
	W180 at 0.00%	0.09	OK	
	W210 at 0.00%	0.21	OK	
	Wi180 at 0.00%	0.05	OK	

		Wi210 at 0.00%	0.08	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.02	OK	
	71	LC1 at 100.00%	1.08	N.G.	
		LC10 at 100.00%	**2.19**	**N.G.**	Eq. H2-1
		LC11 at 100.00%	2.08	N.G.	
		LC12 at 100.00%	2.07	N.G.	
		LC13 at 100.00%	0.98	OK	
		LC14 at 100.00%	0.74	OK	
		LC15 at 100.00%	0.95	OK	
		LC16 at 100.00%	0.96	OK	
		LC17 at 100.00%	0.97	OK	
		LC18 at 100.00%	0.98	OK	
		LC19 at 100.00%	0.96	OK	
		LC2 at 100.00%	1.26	N.G.	
		LC20 at 100.00%	0.95	OK	
		LC21 at 100.00%	0.97	OK	
		LC22 at 100.00%	0.98	OK	
		LC23 at 100.00%	0.95	OK	
		LC24 at 100.00%	0.95	OK	
		LC25 at 100.00%	0.97	OK	
		LC26 at 100.00%	0.98	OK	
		LC27 at 100.00%	0.96	OK	
		LC28 at 100.00%	0.95	OK	
		LC3 at 100.00%	0.89	OK	
		LC4 at 100.00%	0.71	OK	
		LC5 at 100.00%	0.84	OK	
		LC6 at 100.00%	1.02	N.G.	
		LC7 at 100.00%	0.64	OK	
		LC8 at 100.00%	0.46	OK	
		LC9 at 100.00%	2.18	N.G.	
		W180 at 0.00%	0.07	OK	
		W210 at 100.00%	0.18	OK	
		Wi180 at 100.00%	0.05	OK	
		Wi210 at 100.00%	0.06	OK	
		WL180 at 100.00%	0.01	OK	
		WL210 at 100.00%	0.02	OK	
PIPE 2x0.154	**48**	LC1 at 46.88%	0.47	OK	
		LC10 at 46.88%	0.13	OK	
		LC11 at 46.88%	0.10	OK	
		LC12 at 46.88%	0.13	OK	
		LC13 at 46.88%	0.01	OK	
		LC14 at 46.88%	0.01	OK	
		LC15 at 46.88%	0.01	OK	
		LC16 at 46.88%	0.01	OK	
		LC17 at 46.88%	0.02	OK	
		LC18 at 46.88%	0.04	OK	
		LC19 at 46.88%	0.02	OK	
		LC2 at 46.88%	**0.58**	**OK**	Eq. H1-1b
		LC20 at 46.88%	0.04	OK	
		LC21 at 46.88%	0.02	OK	
		LC22 at 46.88%	0.04	OK	
		LC23 at 46.88%	0.02	OK	
		LC24 at 46.88%	0.04	OK	
		LC25 at 46.88%	0.02	OK	
		LC26 at 46.88%	0.04	OK	
		LC27 at 46.88%	0.02	OK	
		LC28 at 46.88%	0.04	OK	
		LC3 at 46.88%	0.47	OK	
		LC4 at 46.88%	0.58	OK	
		LC5 at 46.88%	0.47	OK	
		LC6 at 46.88%	0.58	OK	

	LC7 at 46.88%	0.47	OK	
	LC8 at 46.88%	0.58	OK	
	LC9 at 46.88%	0.10	OK	
	W180 at 46.88%	0.29	OK	
	W210 at 46.88%	0.36	OK	
	Wi180 at 46.88%	0.10	OK	
	Wi210 at 46.88%	0.12	OK	
	WL180 at 46.88%	0.02	OK	
	WL210 at 46.88%	0.03	OK	
49	LC1 at 50.00%	0.10	OK	
	LC10 at 46.88%	0.00	OK	
	LC11 at 46.88%	0.00	OK	
	LC12 at 46.88%	0.00	OK	
	LC13 at 46.88%	0.00	OK	
	LC14 at 46.88%	0.00	OK	
	LC15 at 46.88%	0.00	OK	
	LC16 at 46.88%	0.00	OK	
	LC17 at 46.88%	0.00	OK	
	LC18 at 46.88%	0.00	OK	
	LC19 at 46.88%	0.00	OK	
	LC2 at 50.00%	0.10	OK	
	LC20 at 46.88%	0.00	OK	
	LC21 at 46.88%	0.00	OK	
	LC22 at 46.88%	0.00	OK	
	LC23 at 46.88%	0.00	OK	
	LC24 at 46.88%	0.00	OK	
	LC25 at 46.88%	0.00	OK	
	LC26 at 46.88%	0.00	OK	
	LC27 at 46.88%	0.00	OK	
	LC28 at 46.88%	0.00	OK	
	LC3 at 50.00%	**0.10**	**OK**	Eq. H1-1b
	LC4 at 50.00%	0.10	OK	
	LC5 at 50.00%	0.10	OK	
	LC6 at 50.00%	0.10	OK	
	LC7 at 50.00%	0.10	OK	
	LC8 at 50.00%	0.10	OK	
	LC9 at 46.88%	0.00	OK	
	W180 at 50.00%	0.06	OK	
	W210 at 50.00%	0.06	OK	
	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.00	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
50	LC1 at 46.88%	**0.71**	**OK**	Eq. H1-1b
	LC10 at 46.88%	0.16	OK	
	LC11 at 46.88%	0.17	OK	
	LC12 at 46.88%	0.16	OK	
	LC13 at 46.88%	0.02	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.02	OK	
	LC16 at 46.88%	0.02	OK	
	LC17 at 46.88%	0.04	OK	
	LC18 at 46.88%	0.05	OK	
	LC19 at 46.88%	0.04	OK	
	LC2 at 46.88%	0.70	OK	
	LC20 at 46.88%	0.05	OK	
	LC21 at 46.88%	0.04	OK	
	LC22 at 46.88%	0.05	OK	
	LC23 at 46.88%	0.04	OK	
	LC24 at 46.88%	0.05	OK	
	LC25 at 46.88%	0.04	OK	
	LC26 at 46.88%	0.05	OK	

	LC27 at 46.88%	0.04	OK	
	LC28 at 46.88%	0.05	OK	
	LC3 at 46.88%	0.71	OK	
	LC4 at 46.88%	0.70	OK	
	LC5 at 46.88%	0.71	OK	
	LC6 at 46.88%	0.69	OK	
	LC7 at 46.88%	0.71	OK	
	LC8 at 46.88%	0.69	OK	
	LC9 at 46.88%	0.17	OK	
	W180 at 46.88%	0.44	OK	
	W210 at 46.88%	0.43	OK	
	Wi180 at 46.88%	0.15	OK	
	Wi210 at 46.88%	0.14	OK	
	WL180 at 46.88%	0.04	OK	
	WL210 at 46.88%	0.04	OK	
51	LC1 at 46.88%	0.65	OK	
	LC10 at 46.88%	0.17	OK	
	LC11 at 46.88%	0.20	OK	
	LC12 at 46.88%	0.17	OK	
	LC13 at 46.88%	0.01	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.01	OK	
	LC16 at 46.88%	0.01	OK	
	LC17 at 46.88%	0.04	OK	
	LC18 at 46.88%	0.05	OK	
	LC19 at 46.88%	0.04	OK	
	LC2 at 46.88%	0.82	OK	
	LC20 at 46.88%	0.05	OK	
	LC21 at 46.88%	0.04	OK	
	LC22 at 46.88%	0.05	OK	
	LC23 at 46.88%	0.04	OK	
	LC24 at 46.88%	0.05	OK	
	LC25 at 46.88%	0.04	OK	
	LC26 at 46.88%	0.05	OK	
	LC27 at 46.88%	0.04	OK	
	LC28 at 46.88%	0.05	OK	
	LC3 at 46.88%	0.65	OK	
	LC4 at 46.88%	**0.82**	**OK**	Eq. H1-1b
	LC5 at 46.88%	0.64	OK	
	LC6 at 46.88%	0.82	OK	
	LC7 at 46.88%	0.64	OK	
	LC8 at 46.88%	0.82	OK	
	LC9 at 46.88%	0.20	OK	
	W180 at 46.88%	0.40	OK	
	W210 at 46.88%	0.51	OK	
	Wi180 at 46.88%	0.18	OK	
	Wi210 at 46.88%	0.16	OK	
	WL180 at 46.88%	0.04	OK	
	WL210 at 46.88%	0.04	OK	
52	LC1 at 46.88%	0.56	OK	
	LC10 at 46.88%	0.09	OK	
	LC11 at 46.88%	0.14	OK	
	LC12 at 46.88%	0.09	OK	
	LC13 at 46.88%	0.01	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.01	OK	
	LC16 at 46.88%	0.01	OK	
	LC17 at 46.88%	0.03	OK	
	LC18 at 46.88%	0.02	OK	
	LC19 at 46.88%	0.03	OK	
	LC2 at 46.88%	0.36	OK	
	LC20 at 46.88%	0.02	OK	

	LC21 at 46.88%	0.03	OK	
	LC22 at 46.88%	0.02	OK	
	LC23 at 46.88%	0.03	OK	
	LC24 at 46.88%	0.02	OK	
	LC25 at 46.88%	0.03	OK	
	LC26 at 46.88%	0.02	OK	
	LC27 at 46.88%	0.03	OK	
	LC28 at 46.88%	0.02	OK	
	LC3 at 46.88%	**0.56**	**OK**	Eq. H1-1b
	LC4 at 46.88%	0.36	OK	
	LC5 at 46.88%	0.56	OK	
	LC6 at 46.88%	0.36	OK	
	LC7 at 46.88%	0.56	OK	
	LC8 at 46.88%	0.36	OK	
	LC9 at 46.88%	0.14	OK	
	W180 at 46.88%	0.35	OK	
	W210 at 46.88%	0.22	OK	
	Wi180 at 46.88%	0.14	OK	
	Wi210 at 46.88%	0.08	OK	
	WL180 at 46.88%	0.03	OK	
	WL210 at 46.88%	0.02	OK	
53	LC1 at 50.00%	0.10	OK	
	LC10 at 46.88%	0.00	OK	
	LC11 at 46.88%	0.00	OK	
	LC12 at 46.88%	0.00	OK	
	LC13 at 46.88%	0.00	OK	
	LC14 at 46.88%	0.00	OK	
	LC15 at 46.88%	0.00	OK	
	LC16 at 46.88%	0.00	OK	
	LC17 at 46.88%	0.00	OK	
	LC18 at 46.88%	0.00	OK	
	LC19 at 46.88%	0.00	OK	
	LC2 at 50.00%	0.10	OK	
	LC20 at 46.88%	0.00	OK	
	LC21 at 46.88%	0.00	OK	
	LC22 at 46.88%	0.00	OK	
	LC23 at 46.88%	0.00	OK	
	LC24 at 46.88%	0.00	OK	
	LC25 at 46.88%	0.00	OK	
	LC26 at 46.88%	0.00	OK	
	LC27 at 46.88%	0.00	OK	
	LC28 at 46.88%	0.00	OK	
	LC3 at 50.00%	0.10	OK	
	LC4 at 50.00%	**0.10**	**OK**	Eq. H1-1b
	LC5 at 50.00%	0.10	OK	
	LC6 at 50.00%	0.10	OK	
	LC7 at 50.00%	0.10	OK	
	LC8 at 50.00%	0.10	OK	
	LC9 at 46.88%	0.00	OK	
	W180 at 50.00%	0.06	OK	
	W210 at 50.00%	0.06	OK	
	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.00	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
54	LC1 at 46.88%	1.36	N.G.	
	LC10 at 46.88%	0.24	OK	
	LC11 at 46.88%	0.17	OK	
	LC12 at 46.88%	0.24	OK	
	LC13 at 46.88%	0.02	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.02	OK	

	LC16 at 46.88%	0.02	OK	
	LC17 at 46.88%	0.08	OK	
	LC18 at 46.88%	0.05	OK	
	LC19 at 46.88%	0.08	OK	
	LC2 at 50.00%	1.05	N.G.	
	LC20 at 46.88%	0.05	OK	
	LC21 at 46.88%	0.08	OK	
	LC22 at 46.88%	0.05	OK	
	LC23 at 46.88%	0.08	OK	
	LC24 at 46.88%	0.05	OK	
	LC25 at 46.88%	0.08	OK	
	LC26 at 46.88%	0.05	OK	
	LC27 at 46.88%	0.08	OK	
	LC28 at 46.88%	0.05	OK	
	LC3 at 46.88%	**1.36**	**N.G.**	Eq. H1-1b
	LC4 at 50.00%	1.05	N.G.	
	LC5 at 46.88%	1.36	N.G.	
	LC6 at 50.00%	1.05	N.G.	
	LC7 at 46.88%	1.36	N.G.	
	LC8 at 50.00%	1.05	N.G.	
	LC9 at 46.88%	0.17	OK	
	W180 at 50.00%	0.85	OK	
	W210 at 50.00%	0.65	OK	
	Wi180 at 46.88%	0.15	OK	
	Wi210 at 46.88%	0.22	OK	
	WL180 at 46.88%	0.08	OK	
	WL210 at 46.88%	0.04	OK	
55	LC1 at 46.88%	1.14	N.G.	
	LC10 at 46.88%	0.19	OK	
	LC11 at 46.88%	0.26	OK	
	LC12 at 46.88%	0.19	OK	
	LC13 at 46.88%	0.01	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.01	OK	
	LC16 at 46.88%	0.01	OK	
	LC17 at 46.88%	0.07	OK	
	LC18 at 46.88%	0.05	OK	
	LC19 at 46.88%	0.07	OK	
	LC2 at 50.00%	0.84	OK	
	LC20 at 46.88%	0.05	OK	
	LC21 at 46.88%	0.07	OK	
	LC22 at 46.88%	0.05	OK	
	LC23 at 46.88%	0.07	OK	
	LC24 at 46.88%	0.05	OK	
	LC25 at 46.88%	0.07	OK	
	LC26 at 46.88%	0.05	OK	
	LC27 at 46.88%	0.07	OK	
	LC28 at 46.88%	0.05	OK	
	LC3 at 46.88%	**1.14**	**N.G.**	Eq. H1-1b
	LC4 at 50.00%	0.84	OK	
	LC5 at 46.88%	1.14	N.G.	
	LC6 at 50.00%	0.84	OK	
	LC7 at 46.88%	1.14	N.G.	
	LC8 at 50.00%	0.84	OK	
	LC9 at 46.88%	0.26	OK	
	W180 at 46.88%	0.71	OK	
	W210 at 50.00%	0.53	OK	
	Wi180 at 46.88%	0.25	OK	
	Wi210 at 46.88%	0.18	OK	
	WL180 at 46.88%	0.07	OK	
	WL210 at 46.88%	0.04	OK	
56	LC1 at 46.88%	0.43	OK	

	LC10 at 46.88%	0.13	OK	
	LC11 at 46.88%	0.10	OK	
	LC12 at 46.88%	0.13	OK	
	LC13 at 46.88%	0.01	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.01	OK	
	LC16 at 46.88%	0.01	OK	
	LC17 at 46.88%	0.02	OK	
	LC18 at 46.88%	0.04	OK	
	LC19 at 46.88%	0.02	OK	
	LC2 at 46.88%	**0.58**	**OK**	Eq. H1-1b
	LC20 at 46.88%	0.04	OK	
	LC21 at 46.88%	0.02	OK	
	LC22 at 46.88%	0.04	OK	
	LC23 at 46.88%	0.02	OK	
	LC24 at 46.88%	0.04	OK	
	LC25 at 46.88%	0.02	OK	
	LC26 at 46.88%	0.04	OK	
	LC27 at 46.88%	0.02	OK	
	LC28 at 46.88%	0.04	OK	
	LC3 at 46.88%	0.43	OK	
	LC4 at 46.88%	0.58	OK	
	LC5 at 46.88%	0.43	OK	
	LC6 at 46.88%	0.58	OK	
	LC7 at 46.88%	0.43	OK	
	LC8 at 46.88%	0.58	OK	
	LC9 at 46.88%	0.10	OK	
	W180 at 46.88%	0.27	OK	
	W210 at 46.88%	0.36	OK	
	Wi180 at 46.88%	0.10	OK	
	Wi210 at 46.88%	0.12	OK	
	WL180 at 46.88%	0.02	OK	
	WL210 at 46.88%	0.03	OK	
57	LC1 at 50.00%	**0.10**	**OK**	Eq. H1-1b
	LC10 at 46.88%	0.00	OK	
	LC11 at 46.88%	0.00	OK	
	LC12 at 46.88%	0.00	OK	
	LC13 at 46.88%	0.00	OK	
	LC14 at 46.88%	0.00	OK	
	LC15 at 46.88%	0.00	OK	
	LC16 at 46.88%	0.00	OK	
	LC17 at 46.88%	0.00	OK	
	LC18 at 46.88%	0.00	OK	
	LC19 at 46.88%	0.00	OK	
	LC2 at 50.00%	0.10	OK	
	LC20 at 46.88%	0.00	OK	
	LC21 at 46.88%	0.00	OK	
	LC22 at 46.88%	0.00	OK	
	LC23 at 46.88%	0.00	OK	
	LC24 at 46.88%	0.00	OK	
	LC25 at 46.88%	0.00	OK	
	LC26 at 46.88%	0.00	OK	
	LC27 at 46.88%	0.00	OK	
	LC28 at 46.88%	0.00	OK	
	LC3 at 50.00%	0.10	OK	
	LC4 at 50.00%	0.10	OK	
	LC5 at 50.00%	0.10	OK	
	LC6 at 50.00%	0.10	OK	
	LC7 at 50.00%	0.10	OK	
	LC8 at 50.00%	0.10	OK	
	LC9 at 46.88%	0.00	OK	
	W180 at 50.00%	0.06	OK	
	W210 at 50.00%	0.06	OK	

	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.00	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
58	LC1 at 50.00%	1.17	N.G.	
	LC10 at 46.88%	0.29	OK	
	LC11 at 50.00%	0.24	OK	
	LC12 at 46.88%	0.29	OK	
	LC13 at 46.88%	0.02	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.02	OK	
	LC16 at 46.88%	0.02	OK	
	LC17 at 50.00%	0.07	OK	
	LC18 at 46.88%	0.09	OK	
	LC19 at 50.00%	0.07	OK	
	LC2 at 50.00%	1.38	N.G.	
	LC20 at 46.88%	0.09	OK	
	LC21 at 50.00%	0.07	OK	
	LC22 at 46.88%	0.09	OK	
	LC23 at 50.00%	0.07	OK	
	LC24 at 46.88%	0.09	OK	
	LC25 at 50.00%	0.07	OK	
	LC26 at 46.88%	0.09	OK	
	LC27 at 50.00%	0.07	OK	
	LC28 at 46.88%	0.09	OK	
	LC3 at 50.00%	1.17	N.G.	
	LC4 at 50.00%	**1.38**	**N.G.**	Eq. H1-1b
	LC5 at 50.00%	1.17	N.G.	
	LC6 at 50.00%	1.37	N.G.	
	LC7 at 50.00%	1.17	N.G.	
	LC8 at 50.00%	1.37	N.G.	
	LC9 at 50.00%	0.24	OK	
	W180 at 50.00%	0.73	OK	
	W210 at 50.00%	0.86	OK	
	Wi180 at 50.00%	0.24	OK	
	Wi210 at 46.88%	0.27	OK	
	WL180 at 46.88%	0.07	OK	
	WL210 at 46.88%	0.08	OK	
59	LC1 at 46.88%	0.92	OK	
	LC10 at 46.88%	0.24	OK	
	LC11 at 46.88%	0.21	OK	
	LC12 at 46.88%	0.24	OK	
	LC13 at 46.88%	0.01	OK	
	LC14 at 46.88%	0.01	OK	
	LC15 at 46.88%	0.01	OK	
	LC16 at 46.88%	0.01	OK	
	LC17 at 46.88%	0.05	OK	
	LC18 at 46.88%	0.07	OK	
	LC19 at 46.88%	0.05	OK	
	LC2 at 46.88%	**1.13**	**N.G.**	Eq. H1-1b
	LC20 at 46.88%	0.07	OK	
	LC21 at 46.88%	0.05	OK	
	LC22 at 46.88%	0.07	OK	
	LC23 at 46.88%	0.05	OK	
	LC24 at 46.88%	0.07	OK	
	LC25 at 46.88%	0.05	OK	
	LC26 at 46.88%	0.07	OK	
	LC27 at 46.88%	0.05	OK	
	LC28 at 46.88%	0.07	OK	
	LC3 at 46.88%	0.92	OK	
	LC4 at 46.88%	1.13	N.G.	
	LC5 at 46.88%	0.92	OK	

		LC6 at 46.88%	1.12	N.G.	
		LC7 at 46.88%	0.92	OK	
		LC8 at 46.88%	1.12	N.G.	
		LC9 at 46.88%	0.21	OK	
		W180 at 46.88%	0.57	OK	
		W210 at 46.88%	0.70	OK	
		Wi180 at 46.88%	0.20	OK	
		Wi210 at 46.88%	0.22	OK	
		WL180 at 46.88%	0.05	OK	
		WL210 at 46.88%	0.06	OK	
PIPE 3-1_2x0.226	**26**	LC1 at 93.75%	0.29	OK	
		LC10 at 91.67%	0.65	OK	
		LC11 at 91.67%	0.63	OK	
		LC12 at 91.67%	0.64	OK	
		LC13 at 0.00%	0.27	OK	
		LC14 at 0.00%	0.20	OK	
		LC15 at 0.00%	0.32	OK	
		LC16 at 91.67%	0.35	OK	
		LC17 at 91.67%	0.30	OK	
		LC18 at 91.67%	0.31	OK	
		LC19 at 91.67%	0.31	OK	
		LC2 at 8.33%	0.32	OK	
		LC20 at 91.67%	0.30	OK	
		LC21 at 0.00%	0.30	OK	
		LC22 at 0.00%	0.30	OK	
		LC23 at 0.00%	0.30	OK	
		LC24 at 0.00%	0.30	OK	
		LC25 at 0.00%	0.29	OK	
		LC26 at 0.00%	0.29	OK	
		LC27 at 0.00%	0.29	OK	
		LC28 at 0.00%	0.29	OK	
		LC3 at 91.67%	0.31	OK	
		LC4 at 0.00%	0.27	OK	
		LC5 at 93.75%	0.25	OK	
		LC6 at 8.33%	0.26	OK	
		LC7 at 91.67%	0.25	OK	
		LC8 at 0.00%	0.20	OK	
		LC9 at 91.67%	**0.65**	**OK**	Eq. H3-6
		W180 at 8.33%	0.11	OK	
		W210 at 0.00%	0.06	OK	
		Wi180 at 8.33%	0.04	OK	
		Wi210 at 0.00%	0.02	OK	
		WL180 at 8.33%	0.01	OK	
		WL210 at 0.00%	0.01	OK	
	72	LC1 at 0.00%	0.26	OK	
		LC10 at 0.00%	**0.54**	**OK**	Eq. H1-1b
		LC11 at 0.00%	0.53	OK	
		LC12 at 0.00%	0.52	OK	
		LC13 at 0.00%	0.21	OK	
		LC14 at 0.00%	0.16	OK	
		LC15 at 0.00%	0.17	OK	
		LC16 at 0.00%	0.31	OK	
		LC17 at 0.00%	0.27	OK	
		LC18 at 0.00%	0.27	OK	
		LC19 at 0.00%	0.27	OK	
		LC2 at 0.00%	0.27	OK	
		LC20 at 0.00%	0.26	OK	
		LC21 at 0.00%	0.21	OK	
		LC22 at 0.00%	0.21	OK	
		LC23 at 0.00%	0.21	OK	
		LC24 at 0.00%	0.20	OK	
		LC25 at 0.00%	0.23	OK	

	LC26 at 0.00%	0.24	OK	
	LC27 at 0.00%	0.24	OK	
	LC28 at 0.00%	0.23	OK	
	LC3 at 0.00%	0.28	OK	
	LC4 at 100.00%	0.24	OK	
	LC5 at 0.00%	0.22	OK	
	LC6 at 0.00%	0.22	OK	
	LC7 at 100.00%	0.23	OK	
	LC8 at 100.00%	0.20	OK	
	LC9 at 0.00%	0.52	OK	
	W180 at 100.00%	0.09	OK	
	W210 at 100.00%	0.06	OK	
	Wi180 at 100.00%	0.03	OK	
	Wi210 at 100.00%	0.02	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
73	LC1 at 100.00%	0.25	OK	
	LC10 at 100.00%	0.55	OK	
	LC11 at 100.00%	**0.56**	**OK**	Eq. H1-1b
	LC12 at 100.00%	0.55	OK	Eq. H3-6
	LC13 at 100.00%	0.27	OK	
	LC14 at 100.00%	0.20	OK	
	LC15 at 100.00%	0.32	OK	
	LC16 at 100.00%	0.30	OK	
	LC17 at 100.00%	0.29	OK	
	LC18 at 100.00%	0.29	OK	
	LC19 at 100.00%	0.29	OK	
	LC2 at 100.00%	0.29	OK	
	LC20 at 100.00%	0.29	OK	
	LC21 at 100.00%	0.30	OK	
	LC22 at 100.00%	0.30	OK	
	LC23 at 100.00%	0.30	OK	
	LC24 at 100.00%	0.30	OK	
	LC25 at 100.00%	0.29	OK	
	LC26 at 100.00%	0.30	OK	
	LC27 at 100.00%	0.30	OK	
	LC28 at 100.00%	0.30	OK	
	LC3 at 91.67%	0.34	OK	
	LC4 at 100.00%	0.30	OK	
	LC5 at 100.00%	0.18	OK	
	LC6 at 93.75%	0.23	OK	
	LC7 at 91.67%	0.28	OK	
	LC8 at 100.00%	0.24	OK	
	LC9 at 100.00%	0.54	OK	
	W180 at 4.17%	0.10	OK	
	W210 at 91.67%	0.13	OK	
	Wi180 at 4.17%	0.03	OK	
	Wi210 at 91.67%	0.04	OK	
	WL180 at 4.17%	0.01	OK	
	WL210 at 91.67%	0.01	OK	
77	LC1 at 0.00%	0.23	OK	
	LC10 at 91.67%	0.68	OK	
	LC11 at 91.67%	**0.70**	**OK**	Eq. H3-6
	LC12 at 91.67%	0.67	OK	
	LC13 at 0.00%	0.27	OK	
	LC14 at 0.00%	0.20	OK	
	LC15 at 0.00%	0.27	OK	
	LC16 at 91.67%	0.30	OK	
	LC17 at 0.00%	0.28	OK	
	LC18 at 91.67%	0.28	OK	
	LC19 at 0.00%	0.28	OK	
	LC2 at 0.00%	0.29	OK	

	LC20 at 0.00%	0.28	OK	
	LC21 at 0.00%	0.27	OK	
	LC22 at 0.00%	0.27	OK	
	LC23 at 0.00%	0.27	OK	
	LC24 at 0.00%	0.27	OK	
	LC25 at 0.00%	0.27	OK	
	LC26 at 0.00%	0.27	OK	
	LC27 at 0.00%	0.28	OK	
	LC28 at 0.00%	0.28	OK	
	LC3 at 8.33%	0.33	OK	
	LC4 at 0.00%	0.31	OK	
	LC5 at 0.00%	0.17	OK	
	LC6 at 8.33%	0.23	OK	
	LC7 at 8.33%	0.27	OK	
	LC8 at 6.25%	0.24	OK	
	LC9 at 91.67%	0.65	OK	
	W180 at 8.33%	0.05	OK	
	W210 at 8.33%	0.12	OK	
	Wi180 at 8.33%	0.03	OK	
	Wi210 at 8.33%	0.04	OK	
	WL180 at 8.33%	0.01	OK	
	WL210 at 8.33%	0.01	OK	
78	LC1 at 100.00%	0.22	OK	
	LC10 at 0.00%	0.54	OK	
	LC11 at 0.00%	**0.55**	**OK**	Eq. H1-1b
	LC12 at 0.00%	0.53	OK	
	LC13 at 0.00%	0.22	OK	
	LC14 at 0.00%	0.16	OK	
	LC15 at 0.00%	0.23	OK	
	LC16 at 100.00%	0.26	OK	
	LC17 at 0.00%	0.24	OK	
	LC18 at 0.00%	0.25	OK	
	LC19 at 0.00%	0.25	OK	
	LC2 at 0.00%	0.25	OK	
	LC20 at 0.00%	0.24	OK	
	LC21 at 0.00%	0.22	OK	
	LC22 at 0.00%	0.22	OK	
	LC23 at 0.00%	0.22	OK	
	LC24 at 0.00%	0.22	OK	
	LC25 at 0.00%	0.21	OK	
	LC26 at 0.00%	0.22	OK	
	LC27 at 0.00%	0.22	OK	
	LC28 at 0.00%	0.21	OK	
	LC3 at 0.00%	0.28	OK	
	LC4 at 100.00%	0.22	OK	
	LC5 at 100.00%	0.18	OK	
	LC6 at 0.00%	0.20	OK	
	LC7 at 0.00%	0.22	OK	
	LC8 at 100.00%	0.18	OK	
	LC9 at 0.00%	0.52	OK	
	W180 at 100.00%	0.05	OK	
	W210 at 100.00%	0.05	OK	
	Wi180 at 0.00%	0.02	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 0.00%	0.00	OK	
79	LC1 at 100.00%	0.25	OK	
	LC10 at 100.00%	0.54	OK	
	LC11 at 100.00%	0.56	OK	
	LC12 at 100.00%	**0.58**	**OK**	Eq. H1-1b
	LC13 at 100.00%	0.27	OK	
	LC14 at 100.00%	0.20	OK	

	LC15 at 100.00%	0.31	OK	
	LC16 at 100.00%	0.33	OK	
	LC17 at 100.00%	0.31	OK	
	LC18 at 100.00%	0.31	OK	
	LC19 at 100.00%	0.31	OK	
	LC2 at 100.00%	0.18	OK	
	LC20 at 100.00%	0.31	OK	
	LC21 at 100.00%	0.29	OK	
	LC22 at 100.00%	0.29	OK	
	LC23 at 100.00%	0.29	OK	
	LC24 at 100.00%	0.29	OK	
	LC25 at 100.00%	0.28	OK	
	LC26 at 100.00%	0.28	OK	
	LC27 at 100.00%	0.28	OK	
	LC28 at 100.00%	0.29	OK	
	LC3 at 100.00%	0.28	OK	
	LC4 at 100.00%	0.35	OK	
	LC5 at 91.67%	0.20	OK	
	LC6 at 100.00%	0.11	OK	
	LC7 at 100.00%	0.22	OK	
	LC8 at 91.67%	0.29	OK	
	LC9 at 100.00%	0.56	OK	
	W180 at 91.67%	0.11	OK	
	W210 at 91.67%	0.07	OK	
	Wi180 at 91.67%	0.04	OK	
	Wi210 at 91.67%	0.02	OK	
	WL180 at 91.67%	0.01	OK	
	WL210 at 91.67%	0.01	OK	
80	LC1 at 0.00%	0.33	OK	
	LC10 at 91.67%	0.59	OK	
	LC11 at 91.67%	0.61	OK	
	LC12 at 91.67%	**0.64**	**OK**	Eq. H3-6
	LC13 at 0.00%	0.27	OK	
	LC14 at 0.00%	0.20	OK	
	LC15 at 0.00%	0.32	OK	
	LC16 at 0.00%	0.30	OK	
	LC17 at 0.00%	0.29	OK	
	LC18 at 0.00%	0.29	OK	
	LC19 at 0.00%	0.29	OK	
	LC2 at 91.67%	0.22	OK	
	LC20 at 0.00%	0.29	OK	
	LC21 at 0.00%	0.31	OK	
	LC22 at 0.00%	0.30	OK	
	LC23 at 0.00%	0.30	OK	
	LC24 at 0.00%	0.31	OK	
	LC25 at 91.67%	0.33	OK	
	LC26 at 91.67%	0.33	OK	
	LC27 at 91.67%	0.33	OK	
	LC28 at 91.67%	0.33	OK	
	LC3 at 93.75%	0.23	OK	
	LC4 at 91.67%	0.37	OK	
	LC5 at 6.25%	0.26	OK	
	LC6 at 91.67%	0.16	OK	
	LC7 at 93.75%	0.17	OK	
	LC8 at 93.75%	0.31	OK	
	LC9 at 91.67%	0.62	OK	
	W180 at 8.33%	0.06	OK	
	W210 at 93.75%	0.10	OK	
	Wi180 at 8.33%	0.02	OK	
	Wi210 at 8.33%	0.03	OK	
	WL180 at 8.33%	0.01	OK	
	WL210 at 8.33%	0.01	OK	

81	LC1 at 0.00%	0.22	OK	
	LC10 at 0.00%	0.48	OK	
	LC11 at 0.00%	0.49	OK	
	LC12 at 0.00%	**0.50**	**OK**	Eq. H1-1b
	LC13 at 0.00%	0.22	OK	
	LC14 at 0.00%	0.17	OK	
	LC15 at 0.00%	0.27	OK	
	LC16 at 0.00%	0.23	OK	
	LC17 at 0.00%	0.23	OK	
	LC18 at 0.00%	0.23	OK	
	LC19 at 0.00%	0.23	OK	
	LC2 at 0.00%	0.20	OK	
	LC20 at 0.00%	0.23	OK	
	LC21 at 0.00%	0.27	OK	
	LC22 at 0.00%	0.27	OK	
	LC23 at 0.00%	0.27	OK	
	LC24 at 0.00%	0.27	OK	
	LC25 at 0.00%	0.30	OK	
	LC26 at 0.00%	0.30	OK	
	LC27 at 0.00%	0.30	OK	
	LC28 at 0.00%	0.30	OK	
	LC3 at 0.00%	0.22	OK	
	LC4 at 0.00%	0.33	OK	
	LC5 at 0.00%	0.17	OK	
	LC6 at 100.00%	0.15	OK	
	LC7 at 0.00%	0.17	OK	
	LC8 at 0.00%	0.28	OK	
	LC9 at 0.00%	0.49	OK	
	W180 at 100.00%	0.05	OK	
	W210 at 0.00%	0.09	OK	
	Wi180 at 100.00%	0.01	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 100.00%	0.01	OK	
82	LC1 at 100.00%	0.32	OK	
	LC10 at 100.00%	0.58	OK	Eq. H1-1b
	LC11 at 100.00%	**0.59**	**OK**	Eq. H3-6
	LC12 at 100.00%	0.57	OK	
	LC13 at 100.00%	0.27	OK	
	LC14 at 100.00%	0.20	OK	
	LC15 at 100.00%	0.26	OK	
	LC16 at 100.00%	0.28	OK	
	LC17 at 100.00%	0.27	OK	
	LC18 at 100.00%	0.27	OK	
	LC19 at 100.00%	0.27	OK	
	LC2 at 100.00%	0.29	OK	
	LC20 at 100.00%	0.27	OK	
	LC21 at 100.00%	0.27	OK	
	LC22 at 100.00%	0.27	OK	
	LC23 at 100.00%	0.26	OK	
	LC24 at 100.00%	0.26	OK	
	LC25 at 100.00%	0.28	OK	
	LC26 at 100.00%	0.28	OK	
	LC27 at 100.00%	0.27	OK	
	LC28 at 100.00%	0.27	OK	
	LC3 at 100.00%	0.22	OK	
	LC4 at 6.25%	0.25	OK	
	LC5 at 93.75%	0.25	OK	
	LC6 at 100.00%	0.23	OK	
	LC7 at 93.75%	0.16	OK	
	LC8 at 6.25%	0.20	OK	
	LC9 at 100.00%	0.58	OK	
	W180 at 91.67%	0.08	OK	

		W210 at 100.00%	0.07	OK	
		Wi180 at 91.67%	0.03	OK	
		Wi210 at 91.67%	0.03	OK	
		WL180 at 91.67%	0.01	OK	
		WL210 at 4.17%	0.01	OK	
PL 6x5/8	**6**	LC1 at 50.00%	0.71	OK	
		LC10 at 0.00%	2.39	N.G.	Eq. H3-6
		LC11 at 50.00%	2.41	N.G.	
		LC12 at 50.00%	**2.53**	**N.G.**	Eq. H3-6
		LC13 at 50.00%	0.90	OK	
		LC14 at 50.00%	0.63	OK	
		LC15 at 50.00%	1.07	N.G.	
		LC16 at 50.00%	1.25	N.G.	
		LC17 at 50.00%	1.11	N.G.	
		LC18 at 50.00%	1.09	N.G.	
		LC19 at 50.00%	1.12	N.G.	
		LC2 at 0.00%	1.22	N.G.	
		LC20 at 50.00%	1.13	N.G.	
		LC21 at 50.00%	0.98	OK	
		LC22 at 50.00%	0.97	OK	
		LC23 at 50.00%	1.00	OK	
		LC24 at 50.00%	1.01	N.G.	
		LC25 at 50.00%	0.96	OK	
		LC26 at 50.00%	0.95	OK	
		LC27 at 50.00%	0.98	OK	
		LC28 at 50.00%	0.99	OK	
		LC3 at 50.00%	1.11	N.G.	
		LC4 at 100.00%	1.30	N.G.	
		LC5 at 50.00%	0.46	OK	
		LC6 at 0.00%	0.93	OK	
		LC7 at 50.00%	0.82	OK	
		LC8 at 100.00%	1.01	N.G.	
		LC9 at 50.00%	2.42	N.G.	
		W180 at 50.00%	0.25	OK	
		W210 at 0.00%	0.17	OK	
		Wi180 at 50.00%	0.08	OK	
		Wi210 at 0.00%	0.05	OK	
		WL180 at 50.00%	0.02	OK	
		WL210 at 0.00%	0.01	OK	
	18	LC1 at 0.00%	1.29	N.G.	
		LC10 at 50.00%	2.43	N.G.	
		LC11 at 50.00%	**2.45**	**N.G.**	Eq. H3-6
		LC12 at 0.00%	2.26	N.G.	
		LC13 at 50.00%	0.91	OK	
		LC14 at 50.00%	0.64	OK	
		LC15 at 50.00%	1.12	N.G.	
		LC16 at 50.00%	0.98	OK	
		LC17 at 0.00%	0.95	OK	
		LC18 at 50.00%	0.98	OK	
		LC19 at 50.00%	0.97	OK	
		LC2 at 50.00%	1.32	N.G.	
		LC20 at 50.00%	0.94	OK	
		LC21 at 50.00%	1.06	N.G.	
		LC22 at 50.00%	1.09	N.G.	
		LC23 at 50.00%	1.09	N.G.	
		LC24 at 50.00%	1.05	N.G.	
		LC25 at 0.00%	1.09	N.G.	
		LC26 at 50.00%	1.10	N.G.	
		LC27 at 50.00%	1.10	N.G.	
		LC28 at 0.00%	1.08	N.G.	
		LC3 at 100.00%	1.11	N.G.	
		LC4 at 0.00%	1.04	N.G.	

		LC5 at 0.00%	1.00	N.G.	
		LC6 at 50.00%	1.02	N.G.	
		LC7 at 100.00%	0.81	OK	
		LC8 at 0.00%	0.74	OK	
		LC9 at 0.00%	2.31	N.G.	Eq. H3-6
		W180 at 0.00%	0.20	OK	
		W210 at 100.00%	0.27	OK	
		Wi180 at 0.00%	0.07	OK	
		Wi210 at 100.00%	0.08	OK	
		WL180 at 0.00%	0.02	OK	
		WL210 at 100.00%	0.02	OK	
	24	LC1 at 100.00%	1.23	N.G.	
		LC10 at 50.00%	2.60	N.G.	
		LC11 at 0.00%	2.51	N.G.	Eq. H3-6
		LC12 at 50.00%	2.51	N.G.	
		LC13 at 50.00%	0.90	OK	
		LC14 at 50.00%	0.64	OK	
		LC15 at 50.00%	0.91	OK	
		LC16 at 50.00%	0.98	OK	
		LC17 at 50.00%	0.96	OK	
		LC18 at 50.00%	0.95	OK	
		LC19 at 50.00%	0.93	OK	
		LC2 at 50.00%	0.93	OK	
		LC20 at 50.00%	0.94	OK	
		LC21 at 50.00%	0.93	OK	
		LC22 at 50.00%	0.91	OK	
		LC23 at 50.00%	0.89	OK	
		LC24 at 50.00%	0.91	OK	
		LC25 at 50.00%	0.95	OK	
		LC26 at 50.00%	0.93	OK	
		LC27 at 50.00%	0.91	OK	
		LC28 at 50.00%	0.93	OK	
		LC3 at 0.00%	1.06	N.G.	
		LC4 at 0.00%	1.25	N.G.	
		LC5 at 100.00%	0.96	OK	
		LC6 at 100.00%	0.63	OK	
		LC7 at 0.00%	0.77	OK	
		LC8 at 0.00%	0.98	OK	
		LC9 at 50.00%	**2.64**	**N.G.**	Eq. H3-6
		W180 at 100.00%	0.24	OK	
		W210 at 0.00%	0.28	OK	
		Wi180 at 100.00%	0.08	OK	
		Wi210 at 0.00%	0.09	OK	
		WL180 at 100.00%	0.02	OK	
		WL210 at 0.00%	0.02	OK	
RndBar 2	**3**	LC1 at 0.00%	**0.32**	**OK**	Eq. H1-1b
		LC10 at 0.00%	0.25	OK	
		LC11 at 100.00%	0.22	OK	Eq. H1-1b
		LC12 at 100.00%	0.21	OK	
		LC13 at 100.00%	0.09	OK	
		LC14 at 100.00%	0.06	OK	
		LC15 at 0.00%	0.15	OK	
		LC16 at 0.00%	0.25	OK	
		LC17 at 0.00%	0.19	OK	
		LC18 at 0.00%	0.17	OK	
		LC19 at 0.00%	0.16	OK	
		LC2 at 0.00%	0.24	OK	
		LC20 at 0.00%	0.19	OK	
		LC21 at 100.00%	0.11	OK	
		LC22 at 100.00%	0.11	OK	
		LC23 at 100.00%	0.11	OK	
		LC24 at 100.00%	0.11	OK	

	LC25 at 100.00%	0.11	OK	
	LC26 at 100.00%	0.11	OK	
	LC27 at 100.00%	0.11	OK	
	LC28 at 100.00%	0.11	OK	
	LC3 at 0.00%	0.22	OK	
	LC4 at 0.00%	0.22	OK	
	LC5 at 0.00%	0.30	OK	
	LC6 at 0.00%	0.22	OK	
	LC7 at 0.00%	0.23	OK	
	LC8 at 0.00%	0.21	OK	
	LC9 at 0.00%	0.27	OK	
	W180 at 0.00%	0.17	OK	
	W210 at 0.00%	0.11	OK	
	Wi180 at 0.00%	0.06	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
4	LC1 at 100.00%	0.04	OK	
	LC10 at 100.00%	**0.13**	**OK**	Eq. H1-1b
	LC11 at 100.00%	0.12	OK	
	LC12 at 100.00%	0.11	OK	
	LC13 at 100.00%	0.05	OK	
	LC14 at 100.00%	0.04	OK	
	LC15 at 100.00%	0.07	OK	
	LC16 at 100.00%	0.07	OK	
	LC17 at 100.00%	0.06	OK	
	LC18 at 100.00%	0.06	OK	
	LC19 at 100.00%	0.06	OK	
	LC2 at 100.00%	0.09	OK	
	LC20 at 100.00%	0.07	OK	
	LC21 at 100.00%	0.06	OK	
	LC22 at 100.00%	0.06	OK	
	LC23 at 100.00%	0.06	OK	
	LC24 at 100.00%	0.06	OK	
	LC25 at 100.00%	0.06	OK	
	LC26 at 100.00%	0.06	OK	
	LC27 at 100.00%	0.06	OK	
	LC28 at 100.00%	0.06	OK	
	LC3 at 0.00%	0.07	OK	
	LC4 at 100.00%	0.10	OK	
	LC5 at 100.00%	0.03	OK	
	LC6 at 100.00%	0.08	OK	
	LC7 at 0.00%	0.06	OK	
	LC8 at 100.00%	0.09	OK	
	LC9 at 100.00%	0.12	OK	
	W180 at 0.00%	0.02	OK	
	W210 at 100.00%	0.03	OK	
	Wi180 at 0.00%	0.01	OK	
	Wi210 at 100.00%	0.01	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 100.00%	0.00	OK	
5	LC1 at 100.00%	0.31	OK	
	LC10 at 100.00%	**0.61**	**OK**	Eq. H1-1b
	LC11 at 100.00%	0.58	OK	
	LC12 at 100.00%	0.58	OK	
	LC13 at 100.00%	0.25	OK	
	LC14 at 100.00%	0.19	OK	
	LC15 at 100.00%	0.31	OK	
	LC16 at 100.00%	0.44	OK	
	LC17 at 100.00%	0.37	OK	
	LC18 at 100.00%	0.36	OK	
	LC19 at 100.00%	0.36	OK	

	LC2 at 100.00%	0.32	OK	
	LC20 at 100.00%	0.37	OK	
	LC21 at 100.00%	0.28	OK	
	LC22 at 100.00%	0.27	OK	
	LC23 at 100.00%	0.27	OK	
	LC24 at 100.00%	0.28	OK	
	LC25 at 100.00%	0.27	OK	
	LC26 at 100.00%	0.26	OK	
	LC27 at 100.00%	0.26	OK	
	LC28 at 100.00%	0.27	OK	
	LC3 at 100.00%	0.21	OK	
	LC4 at 100.00%	0.33	OK	
	LC5 at 100.00%	0.25	OK	
	LC6 at 100.00%	0.26	OK	
	LC7 at 100.00%	0.15	OK	
	LC8 at 100.00%	0.27	OK	
	LC9 at 100.00%	0.61	OK	
	W180 at 100.00%	0.04	OK	
	W210 at 100.00%	0.05	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 100.00%	0.02	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 100.00%	0.01	OK	
15	LC1 at 0.00%	0.17	OK	
	LC10 at 100.00%	0.19	OK	
	LC11 at 0.00%	0.19	OK	
	LC12 at 0.00%	0.18	OK	
	LC13 at 100.00%	0.09	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 0.00%	0.17	OK	
	LC16 at 100.00%	0.13	OK	
	LC17 at 100.00%	0.12	OK	
	LC18 at 100.00%	0.11	OK	
	LC19 at 100.00%	0.11	OK	
	LC2 at 0.00%	0.24	OK	
	LC20 at 100.00%	0.11	OK	
	LC21 at 0.00%	0.16	OK	
	LC22 at 0.00%	0.14	OK	
	LC23 at 0.00%	0.16	OK	
	LC24 at 0.00%	0.18	OK	
	LC25 at 0.00%	0.20	OK	
	LC26 at 0.00%	0.18	OK	
	LC27 at 0.00%	0.20	OK	
	LC28 at 0.00%	0.22	OK	
	LC3 at 0.00%	0.31	OK	
	LC4 at 0.00%	**0.38**	**OK**	Eq. H1-1b
	LC5 at 0.00%	0.18	OK	
	LC6 at 0.00%	0.25	OK	
	LC7 at 0.00%	0.29	OK	
	LC8 at 0.00%	0.36	OK	
	LC9 at 100.00%	0.18	OK	
	W180 at 0.00%	0.15	OK	
	W210 at 0.00%	0.19	OK	
	Wi180 at 0.00%	0.06	OK	
	Wi210 at 0.00%	0.07	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.02	OK	
16	LC1 at 100.00%	0.09	OK	
	LC10 at 100.00%	0.11	OK	
	LC11 at 100.00%	**0.12**	**OK**	Eq. H1-1b
	LC12 at 100.00%	0.11	OK	
	LC13 at 100.00%	0.05	OK	

	LC14 at 100.00%	0.04	OK	
	LC15 at 100.00%	0.07	OK	
	LC16 at 100.00%	0.07	OK	
	LC17 at 100.00%	0.07	OK	
	LC18 at 100.00%	0.06	OK	
	LC19 at 100.00%	0.06	OK	
	LC2 at 100.00%	0.08	OK	
	LC20 at 100.00%	0.06	OK	
	LC21 at 100.00%	0.07	OK	
	LC22 at 100.00%	0.07	OK	
	LC23 at 100.00%	0.07	OK	
	LC24 at 100.00%	0.07	OK	
	LC25 at 100.00%	0.07	OK	
	LC26 at 100.00%	0.07	OK	
	LC27 at 100.00%	0.06	OK	
	LC28 at 100.00%	0.07	OK	
	LC3 at 100.00%	0.08	OK	
	LC4 at 100.00%	0.07	OK	
	LC5 at 100.00%	0.08	OK	
	LC6 at 100.00%	0.07	OK	
	LC7 at 100.00%	0.07	OK	
	LC8 at 100.00%	0.06	OK	
	LC9 at 100.00%	0.11	OK	
	W180 at 100.00%	0.03	OK	
	W210 at 100.00%	0.02	OK	
	Wi180 at 100.00%	0.01	OK	
	Wi210 at 100.00%	0.01	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
17	LC1 at 100.00%	0.30	OK	
	LC10 at 100.00%	0.53	OK	
	LC11 at 100.00%	**0.57**	**OK**	Eq. H1-1b
	LC12 at 100.00%	0.56	OK	
	LC13 at 100.00%	0.26	OK	
	LC14 at 100.00%	0.20	OK	
	LC15 at 100.00%	0.33	OK	
	LC16 at 100.00%	0.28	OK	
	LC17 at 100.00%	0.28	OK	
	LC18 at 100.00%	0.27	OK	
	LC19 at 100.00%	0.28	OK	
	LC2 at 100.00%	0.24	OK	
	LC20 at 100.00%	0.29	OK	
	LC21 at 100.00%	0.33	OK	
	LC22 at 100.00%	0.32	OK	
	LC23 at 100.00%	0.33	OK	
	LC24 at 100.00%	0.34	OK	
	LC25 at 100.00%	0.39	OK	
	LC26 at 100.00%	0.37	OK	
	LC27 at 100.00%	0.38	OK	
	LC28 at 100.00%	0.39	OK	
	LC3 at 100.00%	0.38	OK	
	LC4 at 100.00%	0.40	OK	
	LC5 at 100.00%	0.23	OK	
	LC6 at 100.00%	0.17	OK	
	LC7 at 100.00%	0.31	OK	
	LC8 at 100.00%	0.34	OK	
	LC9 at 100.00%	0.53	OK	
	W180 at 100.00%	0.07	OK	
	W210 at 100.00%	0.09	OK	
	Wi180 at 100.00%	0.04	OK	
	Wi210 at 100.00%	0.03	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	

21	LC1 at 0.00%	0.22	OK	
	LC10 at 0.00%	0.26	OK	
	LC11 at 0.00%	0.28	OK	
	LC12 at 100.00%	0.20	OK	Eq. H1-1b
	LC13 at 100.00%	0.09	OK	
	LC14 at 100.00%	0.07	OK	
	LC15 at 100.00%	0.09	OK	
	LC16 at 100.00%	0.11	OK	
	LC17 at 100.00%	0.10	OK	
	LC18 at 100.00%	0.10	OK	
	LC19 at 100.00%	0.10	OK	
	LC2 at 0.00%	0.31	OK	
	LC20 at 100.00%	0.09	OK	
	LC21 at 100.00%	0.10	OK	
	LC22 at 100.00%	0.09	OK	
	LC23 at 100.00%	0.09	OK	
	LC24 at 100.00%	0.10	OK	
	LC25 at 100.00%	0.11	OK	
	LC26 at 100.00%	0.11	OK	
	LC27 at 100.00%	0.11	OK	
	LC28 at 100.00%	0.11	OK	
	LC3 at 0.00%	**0.38**	**OK**	Eq. H1-1b
	LC4 at 0.00%	0.19	OK	
	LC5 at 0.00%	0.24	OK	
	LC6 at 0.00%	0.29	OK	
	LC7 at 0.00%	0.36	OK	
	LC8 at 0.00%	0.20	OK	
	LC9 at 0.00%	0.20	OK	
	W180 at 0.00%	0.18	OK	
	W210 at 0.00%	0.15	OK	
	Wi180 at 0.00%	0.06	OK	
	Wi210 at 0.00%	0.06	OK	
	WL180 at 0.00%	0.02	OK	
	WL210 at 0.00%	0.02	OK	
22	LC1 at 100.00%	0.10	OK	
	LC10 at 100.00%	0.11	OK	
	LC11 at 100.00%	**0.12**	**OK**	Eq. H1-1b
	LC12 at 100.00%	0.12	OK	
	LC13 at 100.00%	0.05	OK	
	LC14 at 100.00%	0.04	OK	
	LC15 at 100.00%	0.05	OK	
	LC16 at 100.00%	0.06	OK	
	LC17 at 100.00%	0.06	OK	
	LC18 at 100.00%	0.06	OK	
	LC19 at 100.00%	0.05	OK	
	LC2 at 100.00%	0.05	OK	
	LC20 at 100.00%	0.06	OK	
	LC21 at 100.00%	0.05	OK	
	LC22 at 100.00%	0.05	OK	
	LC23 at 100.00%	0.06	OK	
	LC24 at 100.00%	0.06	OK	
	LC25 at 100.00%	0.06	OK	
	LC26 at 100.00%	0.06	OK	
	LC27 at 100.00%	0.06	OK	
	LC28 at 100.00%	0.06	OK	
	LC3 at 100.00%	0.09	OK	
	LC4 at 100.00%	0.08	OK	
	LC5 at 100.00%	0.09	OK	
	LC6 at 100.00%	0.04	OK	
	LC7 at 100.00%	0.07	OK	
	LC8 at 100.00%	0.07	OK	
	LC9 at 100.00%	0.12	OK	

	W180 at 100.00%	0.03	OK	
	W210 at 100.00%	0.02	OK	
	Wi180 at 100.00%	0.01	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
23	LC1 at 100.00%	0.29	OK	
	LC10 at 100.00%	0.62	OK	
	LC11 at 100.00%	**0.64**	**OK**	Eq. H1-1b
	LC12 at 100.00%	0.60	OK	
	LC13 at 100.00%	0.27	OK	
	LC14 at 100.00%	0.20	OK	
	LC15 at 100.00%	0.24	OK	
	LC16 at 100.00%	0.25	OK	
	LC17 at 100.00%	0.25	OK	
	LC18 at 100.00%	0.26	OK	
	LC19 at 100.00%	0.25	OK	
	LC2 at 100.00%	0.32	OK	
	LC20 at 100.00%	0.24	OK	
	LC21 at 100.00%	0.25	OK	
	LC22 at 100.00%	0.25	OK	
	LC23 at 100.00%	0.26	OK	
	LC24 at 100.00%	0.25	OK	
	LC25 at 100.00%	0.26	OK	
	LC26 at 100.00%	0.26	OK	
	LC27 at 100.00%	0.27	OK	
	LC28 at 100.00%	0.26	OK	
	LC3 at 100.00%	0.34	OK	
	LC4 at 100.00%	0.26	OK	
	LC5 at 100.00%	0.22	OK	
	LC6 at 100.00%	0.26	OK	
	LC7 at 100.00%	0.28	OK	
	LC8 at 100.00%	0.20	OK	
	LC9 at 100.00%	0.60	OK	
	W180 at 100.00%	0.05	OK	
	W210 at 100.00%	0.04	OK	
	Wi180 at 100.00%	0.03	OK	
	Wi210 at 100.00%	0.02	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
36	LC1 at 0.00%	0.18	OK	Eq. H3-1
	LC10 at 100.00%	0.04	OK	
	LC11 at 0.00%	0.04	OK	
	LC12 at 0.00%	0.08	OK	
	LC13 at 0.00%	0.01	OK	
	LC14 at 0.00%	0.01	OK	
	LC15 at 0.00%	0.01	OK	
	LC16 at 0.00%	0.01	OK	
	LC17 at 0.00%	0.04	OK	
	LC18 at 0.00%	0.02	OK	
	LC19 at 0.00%	0.03	OK	
	LC2 at 0.00%	0.18	OK	
	LC20 at 0.00%	0.05	OK	
	LC21 at 0.00%	0.02	OK	
	LC22 at 100.00%	0.01	OK	
	LC23 at 0.00%	0.01	OK	
	LC24 at 0.00%	0.02	OK	
	LC25 at 0.00%	0.02	OK	
	LC26 at 100.00%	0.01	OK	
	LC27 at 0.00%	0.01	OK	
	LC28 at 0.00%	0.02	OK	
	LC3 at 0.00%	0.18	OK	

	LC4 at 0.00%	**0.21**	**OK**	Eq. H1-1b
	LC5 at 0.00%	0.18	OK	
	LC6 at 0.00%	0.19	OK	
	LC7 at 0.00%	0.18	OK	
	LC8 at 0.00%	0.21	OK	
	LC9 at 0.00%	0.06	OK	
	W180 at 0.00%	0.11	OK	
	W210 at 0.00%	0.12	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 0.00%	0.04	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
37	LC1 at 0.00%	0.01	OK	Eq. H1-1b
	LC10 at 0.00%	0.00	OK	
	LC11 at 0.00%	0.00	OK	
	LC12 at 0.00%	0.00	OK	
	LC13 at 0.00%	0.00	OK	
	LC14 at 0.00%	0.00	OK	
	LC15 at 0.00%	0.00	OK	
	LC16 at 0.00%	0.00	OK	
	LC17 at 0.00%	0.00	OK	
	LC18 at 0.00%	0.00	OK	
	LC19 at 0.00%	0.00	OK	
	LC2 at 0.00%	0.01	OK	
	LC20 at 0.00%	0.00	OK	
	LC21 at 0.00%	0.00	OK	
	LC22 at 0.00%	0.00	OK	
	LC23 at 0.00%	0.00	OK	
	LC24 at 0.00%	0.00	OK	
	LC25 at 0.00%	0.00	OK	
	LC26 at 0.00%	0.00	OK	
	LC27 at 0.00%	0.00	OK	
	LC28 at 0.00%	0.00	OK	
	LC3 at 0.00%	**0.01**	**OK**	Eq. H1-1b
	LC4 at 0.00%	0.01	OK	
	LC5 at 0.00%	0.01	OK	
	LC6 at 0.00%	0.01	OK	
	LC7 at 0.00%	0.01	OK	
	LC8 at 0.00%	0.01	OK	
	LC9 at 0.00%	0.00	OK	
	W180 at 0.00%	0.00	OK	
	W210 at 0.00%	0.00	OK	
	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.00	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
38	LC1 at 0.00%	0.24	OK	Eq. H3-6
	LC10 at 100.00%	0.04	OK	
	LC11 at 0.00%	0.06	OK	
	LC12 at 0.00%	0.10	OK	
	LC13 at 0.00%	0.03	OK	
	LC14 at 0.00%	0.02	OK	
	LC15 at 0.00%	0.03	OK	
	LC16 at 0.00%	0.03	OK	
	LC17 at 0.00%	0.04	OK	
	LC18 at 0.00%	0.02	OK	
	LC19 at 0.00%	0.02	OK	
	LC2 at 100.00%	0.19	OK	
	LC20 at 0.00%	0.04	OK	
	LC21 at 0.00%	0.06	OK	
	LC22 at 0.00%	0.04	OK	
	LC23 at 0.00%	0.05	OK	

	LC24 at 0.00%	0.06	OK	
	LC25 at 0.00%	0.04	OK	
	LC26 at 0.00%	0.02	OK	
	LC27 at 0.00%	0.02	OK	
	LC28 at 0.00%	0.04	OK	
	LC3 at 0.00%	0.24	OK	Eq. H3-1
	LC4 at 0.00%	**0.24**	**OK**	Eq. H1-1b
	LC5 at 0.00%	0.24	OK	
	LC6 at 100.00%	0.19	OK	Eq. H1-1b
	LC7 at 0.00%	0.24	OK	
	LC8 at 0.00%	0.23	OK	
	LC9 at 0.00%	0.09	OK	
	W180 at 0.00%	0.15	OK	
	W210 at 0.00%	0.13	OK	
	Wi180 at 0.00%	0.06	OK	
	Wi210 at 0.00%	0.05	OK	
	WL180 at 0.00%	0.02	OK	
	WL210 at 0.00%	0.01	OK	
39	LC1 at 0.00%	0.26	OK	
	LC10 at 100.00%	0.06	OK	
	LC11 at 0.00%	0.08	OK	
	LC12 at 0.00%	0.10	OK	
	LC13 at 0.00%	0.02	OK	
	LC14 at 0.00%	0.01	OK	
	LC15 at 0.00%	0.02	OK	
	LC16 at 0.00%	0.02	OK	
	LC17 at 0.00%	0.02	OK	
	LC18 at 100.00%	0.02	OK	
	LC19 at 0.00%	0.02	OK	
	LC2 at 0.00%	0.27	OK	
	LC20 at 0.00%	0.03	OK	
	LC21 at 0.00%	0.02	OK	
	LC22 at 100.00%	0.02	OK	
	LC23 at 0.00%	0.02	OK	
	LC24 at 0.00%	0.03	OK	
	LC25 at 0.00%	0.05	OK	
	LC26 at 0.00%	0.02	OK	
	LC27 at 0.00%	0.03	OK	
	LC28 at 0.00%	0.05	OK	
	LC3 at 0.00%	0.26	OK	Eq. H3-1
	LC4 at 0.00%	**0.30**	**OK**	Eq. H1-1b
	LC5 at 0.00%	0.26	OK	
	LC6 at 0.00%	0.27	OK	
	LC7 at 0.00%	0.26	OK	
	LC8 at 0.00%	0.30	OK	
	LC9 at 0.00%	0.08	OK	
	W180 at 0.00%	0.16	OK	
	W210 at 0.00%	0.18	OK	
	Wi180 at 0.00%	0.08	OK	
	Wi210 at 0.00%	0.06	OK	
	WL180 at 0.00%	0.02	OK	
	WL210 at 0.00%	0.02	OK	
40	LC1 at 100.00%	0.22	OK	
	LC10 at 0.00%	0.04	OK	
	LC11 at 0.00%	0.09	OK	
	LC12 at 0.00%	0.04	OK	
	LC13 at 0.00%	0.01	OK	
	LC14 at 0.00%	0.01	OK	
	LC15 at 0.00%	0.01	OK	
	LC16 at 0.00%	0.01	OK	
	LC17 at 100.00%	0.01	OK	
	LC18 at 0.00%	0.01	OK	

	LC19 at 0.00%	0.03	OK	
	LC2 at 0.00%	0.14	OK	
	LC20 at 0.00%	0.01	OK	
	LC21 at 100.00%	0.01	OK	
	LC22 at 0.00%	0.01	OK	
	LC23 at 0.00%	0.03	OK	
	LC24 at 0.00%	0.01	OK	
	LC25 at 100.00%	0.01	OK	
	LC26 at 0.00%	0.01	OK	
	LC27 at 0.00%	0.03	OK	
	LC28 at 0.00%	0.01	OK	
	LC3 at 0.00%	**0.23**	**OK**	Eq. H1-1b
	LC4 at 0.00%	0.14	OK	Eq. H3-1
	LC5 at 100.00%	0.22	OK	Eq. H1-1b
	LC6 at 0.00%	0.14	OK	
	LC7 at 0.00%	0.23	OK	
	LC8 at 0.00%	0.14	OK	
	LC9 at 100.00%	0.05	OK	
	W180 at 0.00%	0.14	OK	
	W210 at 0.00%	0.09	OK	
	Wi180 at 100.00%	0.05	OK	
	Wi210 at 0.00%	0.04	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
41	LC1 at 0.00%	0.00	OK	
	LC10 at 0.00%	0.00	OK	
	LC11 at 0.00%	0.00	OK	
	LC12 at 0.00%	0.00	OK	
	LC13 at 0.00%	0.00	OK	
	LC14 at 0.00%	0.00	OK	
	LC15 at 0.00%	0.00	OK	
	LC16 at 0.00%	0.00	OK	
	LC17 at 0.00%	0.00	OK	
	LC18 at 0.00%	0.00	OK	
	LC19 at 0.00%	0.00	OK	
	LC2 at 0.00%	**0.01**	**OK**	Eq. H1-1b
	LC20 at 0.00%	0.00	OK	
	LC21 at 0.00%	0.00	OK	
	LC22 at 0.00%	0.00	OK	
	LC23 at 0.00%	0.00	OK	
	LC24 at 0.00%	0.00	OK	
	LC25 at 0.00%	0.00	OK	
	LC26 at 0.00%	0.00	OK	
	LC27 at 0.00%	0.00	OK	
	LC28 at 0.00%	0.00	OK	
	LC3 at 0.00%	0.00	OK	
	LC4 at 0.00%	0.01	OK	
	LC5 at 0.00%	0.00	OK	
	LC6 at 0.00%	0.01	OK	
	LC7 at 0.00%	0.00	OK	
	LC8 at 0.00%	0.01	OK	
	LC9 at 0.00%	0.00	OK	
	W180 at 0.00%	0.00	OK	
	W210 at 0.00%	0.01	OK	
	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.00	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
42	LC1 at 100.00%	0.04	OK	
	LC10 at 0.00%	0.08	OK	
	LC11 at 0.00%	**0.12**	**OK**	Eq. H1-1b
	LC12 at 0.00%	0.08	OK	

	LC13 at 0.00%	0.03	OK	
	LC14 at 0.00%	0.02	OK	
	LC15 at 0.00%	0.03	OK	
	LC16 at 0.00%	0.03	OK	
	LC17 at 0.00%	0.02	OK	
	LC18 at 0.00%	0.03	OK	
	LC19 at 0.00%	0.03	OK	
	LC2 at 0.00%	0.08	OK	
	LC20 at 0.00%	0.03	OK	
	LC21 at 0.00%	0.02	OK	
	LC22 at 0.00%	0.03	OK	
	LC23 at 0.00%	0.03	OK	
	LC24 at 0.00%	0.03	OK	
	LC25 at 0.00%	0.02	OK	
	LC26 at 0.00%	0.03	OK	
	LC27 at 0.00%	0.03	OK	
	LC28 at 0.00%	0.03	OK	
	LC3 at 0.00%	0.07	OK	
	LC4 at 0.00%	0.08	OK	
	LC5 at 100.00%	0.04	OK	
	LC6 at 0.00%	0.07	OK	
	LC7 at 0.00%	0.06	OK	
	LC8 at 0.00%	0.07	OK	
	LC9 at 100.00%	0.06	OK	Eq. H1-1b
	W180 at 100.00%	0.03	OK	
	W210 at 0.00%	0.03	OK	
	Wi180 at 0.00%	0.06	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.02	OK	
43	LC1 at 100.00%	0.04	OK	
	LC10 at 0.00%	0.05	OK	
	LC11 at 0.00%	**0.06**	**OK**	Eq. H1-1b
	LC12 at 0.00%	0.05	OK	
	LC13 at 0.00%	0.02	OK	
	LC14 at 0.00%	0.01	OK	
	LC15 at 0.00%	0.02	OK	
	LC16 at 0.00%	0.02	OK	
	LC17 at 0.00%	0.01	OK	
	LC18 at 0.00%	0.02	OK	
	LC19 at 0.00%	0.02	OK	
	LC2 at 0.00%	0.05	OK	
	LC20 at 0.00%	0.02	OK	
	LC21 at 0.00%	0.01	OK	
	LC22 at 0.00%	0.02	OK	
	LC23 at 0.00%	0.02	OK	
	LC24 at 0.00%	0.02	OK	
	LC25 at 0.00%	0.01	OK	
	LC26 at 0.00%	0.02	OK	
	LC27 at 0.00%	0.02	OK	
	LC28 at 0.00%	0.02	OK	
	LC3 at 0.00%	0.06	OK	
	LC4 at 0.00%	0.05	OK	Eq. H3-1
	LC5 at 100.00%	0.04	OK	Eq. H1-1b
	LC6 at 0.00%	0.05	OK	
	LC7 at 0.00%	0.05	OK	
	LC8 at 0.00%	0.05	OK	
	LC9 at 0.00%	0.04	OK	
	W180 at 100.00%	0.03	OK	
	W210 at 0.00%	0.03	OK	
	Wi180 at 100.00%	0.01	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 0.00%	0.00	OK	

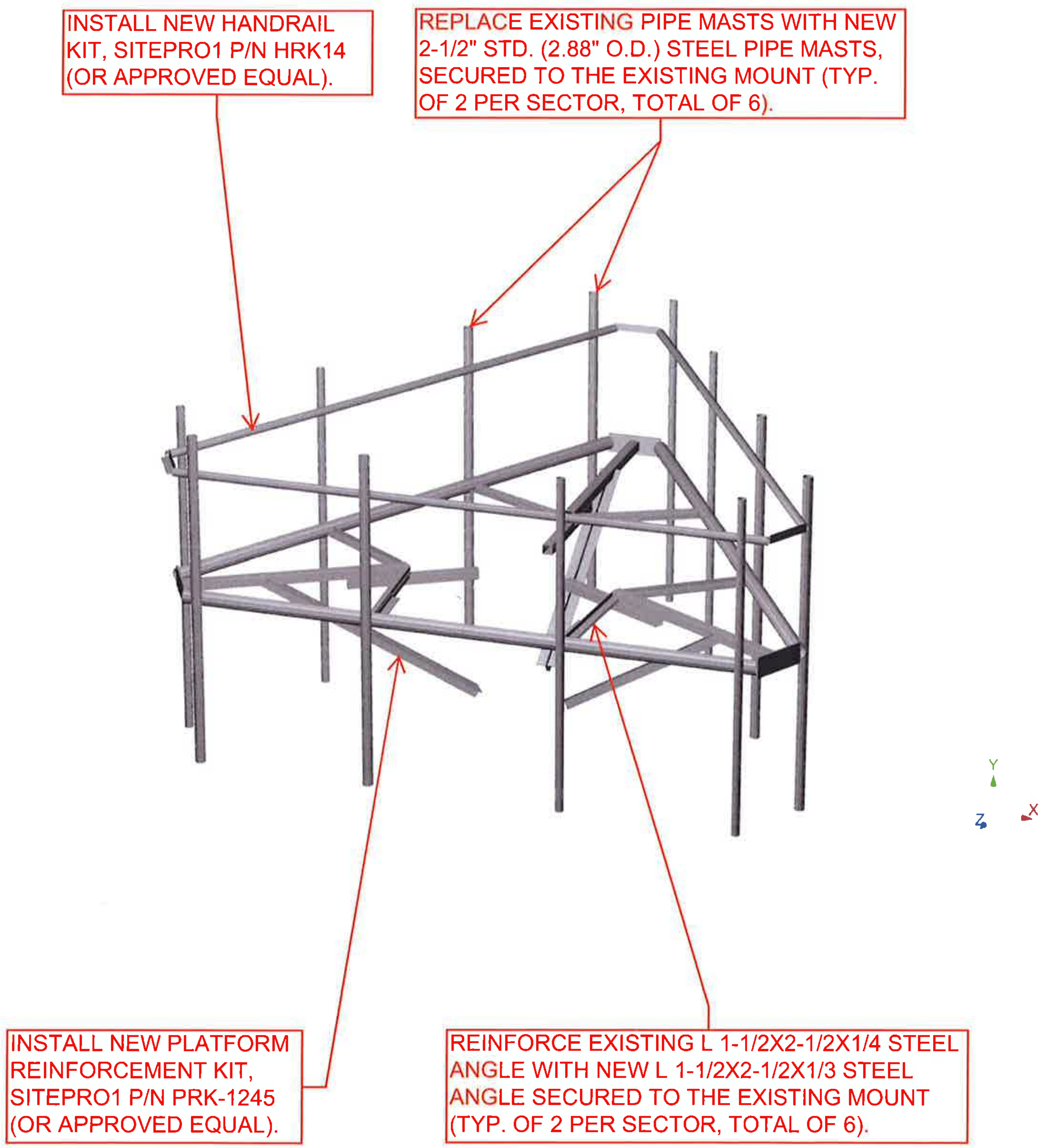
	WL210 at 0.00%	0.00	OK	
44	LC1 at 0.00%	0.16	OK	Eq. H3-1
	LC10 at 0.00%	0.08	OK	
	LC11 at 0.00%	0.04	OK	
	LC12 at 100.00%	0.04	OK	
	LC13 at 0.00%	0.01	OK	
	LC14 at 0.00%	0.01	OK	
	LC15 at 0.00%	0.01	OK	
	LC16 at 0.00%	0.01	OK	
	LC17 at 0.00%	0.02	OK	
	LC18 at 0.00%	0.02	OK	
	LC19 at 0.00%	0.01	OK	
	LC2 at 0.00%	**0.21**	**OK**	Eq. H1-1b
	LC20 at 100.00%	0.01	OK	
	LC21 at 0.00%	0.02	OK	
	LC22 at 0.00%	0.02	OK	
	LC23 at 0.00%	0.01	OK	
	LC24 at 100.00%	0.01	OK	
	LC25 at 0.00%	0.02	OK	
	LC26 at 0.00%	0.02	OK	
	LC27 at 0.00%	0.01	OK	
	LC28 at 100.00%	0.01	OK	
	LC3 at 0.00%	0.16	OK	
	LC4 at 0.00%	0.18	OK	
	LC5 at 0.00%	0.16	OK	
	LC6 at 0.00%	0.21	OK	
	LC7 at 0.00%	0.16	OK	
	LC8 at 0.00%	0.19	OK	
	LC9 at 0.00%	0.06	OK	
	W180 at 0.00%	0.10	OK	
	W210 at 0.00%	0.12	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 0.00%	0.04	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
45	LC1 at 100.00%	0.01	OK	Eq. H1-1b
	LC10 at 100.00%	0.00	OK	
	LC11 at 100.00%	0.00	OK	
	LC12 at 100.00%	0.00	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%	0.00	OK	
	LC18 at 100.00%	0.00	OK	
	LC19 at 100.00%	0.00	OK	
	LC2 at 100.00%	0.01	OK	
	LC20 at 100.00%	0.00	OK	
	LC21 at 100.00%	0.00	OK	
	LC22 at 100.00%	0.00	OK	
	LC23 at 100.00%	0.00	OK	
	LC24 at 100.00%	0.00	OK	
	LC25 at 100.00%	0.00	OK	
	LC26 at 100.00%	0.00	OK	
	LC27 at 100.00%	0.00	OK	
	LC28 at 100.00%	0.00	OK	
	LC3 at 100.00%	**0.01**	**OK**	Eq. H1-1b
	LC4 at 100.00%	0.01	OK	
	LC5 at 100.00%	0.01	OK	
	LC6 at 100.00%	0.01	OK	
	LC7 at 100.00%	0.01	OK	
	LC8 at 100.00%	0.01	OK	

	LC9 at 100.00%	0.00	OK	
	W180 at 100.00%	0.00	OK	
	W210 at 100.00%	0.00	OK	
	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.00	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
46	LC1 at 0.00%	**0.09**	**OK**	Eq. H1-1b
	LC10 at 0.00%	0.09	OK	
	LC11 at 0.00%	0.08	OK	
	LC12 at 0.00%	0.07	OK	
	LC13 at 0.00%	0.03	OK	
	LC14 at 0.00%	0.02	OK	
	LC15 at 0.00%	0.03	OK	
	LC16 at 0.00%	0.03	OK	
	LC17 at 0.00%	0.03	OK	
	LC18 at 0.00%	0.03	OK	
	LC19 at 0.00%	0.03	OK	
	LC2 at 0.00%	0.08	OK	
	LC20 at 0.00%	0.03	OK	
	LC21 at 0.00%	0.03	OK	
	LC22 at 0.00%	0.03	OK	
	LC23 at 0.00%	0.03	OK	
	LC24 at 0.00%	0.03	OK	
	LC25 at 0.00%	0.03	OK	
	LC26 at 0.00%	0.03	OK	
	LC27 at 0.00%	0.03	OK	
	LC28 at 0.00%	0.03	OK	
	LC3 at 0.00%	0.07	OK	
	LC4 at 0.00%	0.05	OK	
	LC5 at 0.00%	0.08	OK	
	LC6 at 0.00%	0.08	OK	
	LC7 at 0.00%	0.07	OK	
	LC8 at 0.00%	0.04	OK	
	LC9 at 0.00%	0.08	OK	
	W180 at 0.00%	0.04	OK	
	W210 at 0.00%	0.03	OK	
	Wi180 at 0.00%	0.01	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
47	LC1 at 0.00%	0.08	OK	
	LC10 at 0.00%	0.06	OK	
	LC11 at 0.00%	0.04	OK	
	LC12 at 0.00%	0.04	OK	
	LC13 at 0.00%	0.01	OK	
	LC14 at 0.00%	0.01	OK	
	LC15 at 0.00%	0.01	OK	
	LC16 at 0.00%	0.01	OK	
	LC17 at 0.00%	0.02	OK	
	LC18 at 0.00%	0.02	OK	
	LC19 at 0.00%	0.01	OK	
	LC2 at 0.00%	**0.09**	**OK**	Eq. H1-1b
	LC20 at 0.00%	0.01	OK	
	LC21 at 0.00%	0.02	OK	
	LC22 at 0.00%	0.02	OK	
	LC23 at 0.00%	0.01	OK	
	LC24 at 0.00%	0.01	OK	
	LC25 at 0.00%	0.02	OK	
	LC26 at 0.00%	0.02	OK	
	LC27 at 0.00%	0.01	OK	
	LC28 at 0.00%	0.01	OK	

LC3 at 0.00%	0.06	OK
LC4 at 0.00%	0.06	OK
LC5 at 0.00%	0.08	OK
LC6 at 0.00%	0.09	OK
LC7 at 0.00%	0.06	OK
LC8 at 0.00%	0.06	OK
LC9 at 0.00%	0.06	OK
W180 at 0.00%	0.04	OK
W210 at 0.00%	0.05	OK
Wi180 at 0.00%	0.02	OK
Wi210 at 0.00%	0.02	OK
WL180 at 0.00%	0.00	OK
WL210 at 0.00%	0.00	OK

HUDSON
Design Group LLC

2C/3C Mount Calculations
(Proposed Conditions)


INSTALL NEW HANDRAIL KIT, SITEPRO1 P/N HRK14 (OR APPROVED EQUAL).
REPLACE EXISTING PIPE MASTS WITH NEW 2-1/2" STD. (2.88" O.D.) STEEL PIPE MASTS, SECURED TO THE EXISTING MOUNT (TYP. OF 2 PER SECTOR, TOTAL OF 6).
INSTALL NEW PLATFORM REINFORCEMENT KIT, SITEPRO1 P/N PRK-1245 (OR APPROVED EQUAL).
REINFORCE EXISTING L 1-1/2X2-1/2X1/4 STEEL ANGLE WITH NEW L 1-1/2X2-1/2X1/3 STEEL ANGLE SECURED TO THE EXISTING MOUNT (TYP. OF 2 PER SECTOR, TOTAL OF 6).
Y
Z
X

Bentley

Current Date: 8/29/2018 1:12 PM
Units system: English
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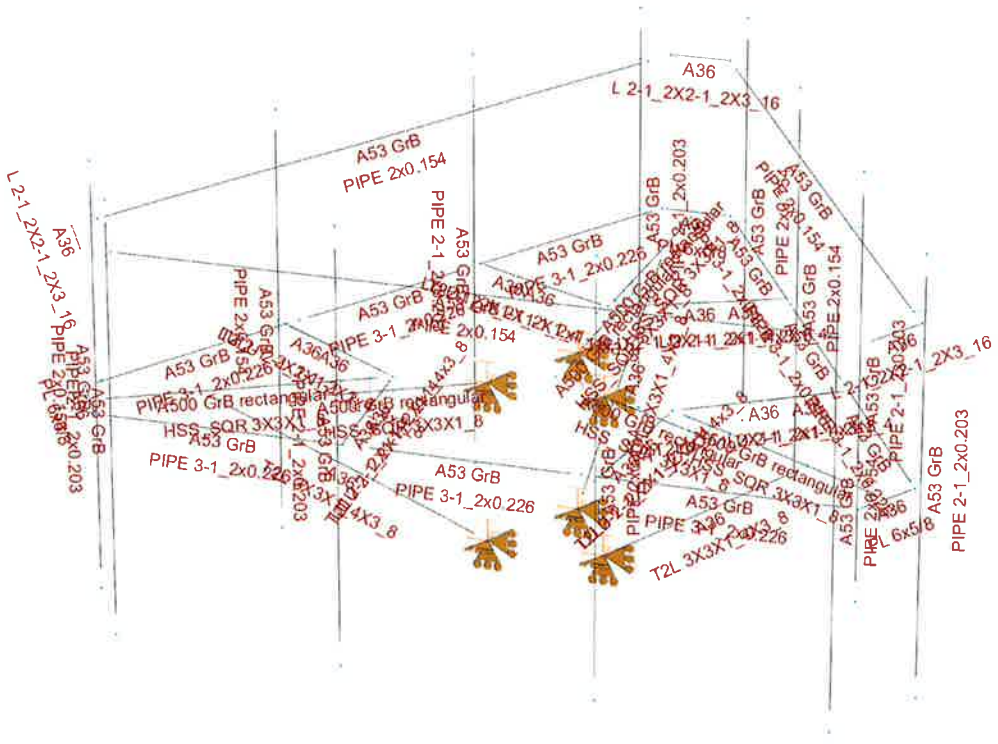

Bentley

Current Date: 8/29/2018 1:12 PM
Units system: English
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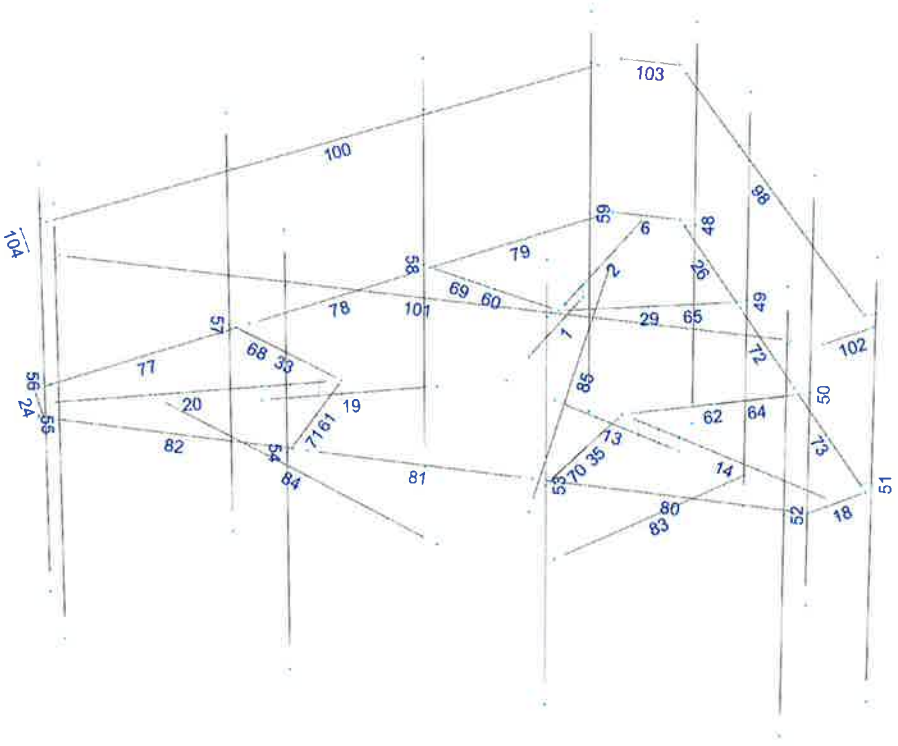
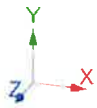


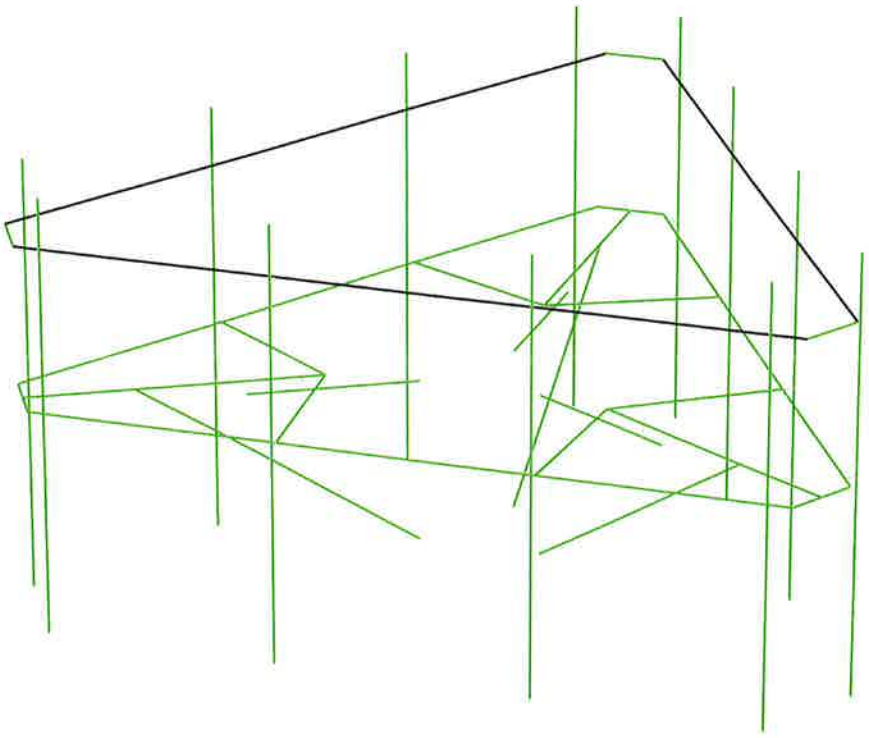


Bentley

Current Date: 8/29/2018 1:12 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2271\CT2271 (LTE 2C-3C) (mod).etz\

Design status

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



Bentley

Current Date: 8/29/2018 1:43 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2271\CT2271 (LTE 2C-3C) (mod).etz

Load data

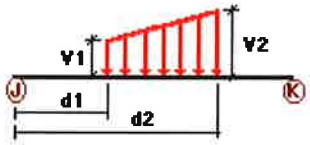
GLOSSARY

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

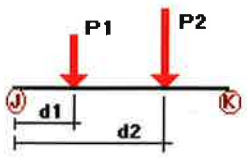


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	2	y	-0.01	0.00	0.00	No	0.00	No
	14	y	-0.01	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	26	y	-0.01	0.00	0.00	No	0.00	No
	29	y	-0.01	-0.01	50.00	Yes	100.00	Yes
	33	y	-0.01	-0.01	50.00	Yes	100.00	Yes
	35	y	-0.01	-0.01	50.00	Yes	100.00	Yes
	60	y	-0.01	-0.01	0.00	Yes	50.00	Yes
	61	y	-0.01	-0.01	0.00	Yes	50.00	Yes
	62	y	-0.01	-0.01	0.00	Yes	50.00	Yes
	64	y	-0.01	0.00	0.00	No	0.00	No
	65	y	-0.01	0.00	0.00	No	0.00	No
	68	y	-0.01	0.00	0.00	No	0.00	No
	69	y	-0.01	0.00	0.00	No	0.00	No
	70	y	-0.01	0.00	0.00	No	0.00	No
	71	y	-0.01	0.00	0.00	No	0.00	No

	72	y	-0.01	0.00	0.00	No	0.00	No
	73	y	-0.01	0.00	0.00	No	0.00	No
	77	y	-0.01	0.00	0.00	No	0.00	No
	78	y	-0.01	0.00	0.00	No	0.00	No
	79	y	-0.01	0.00	0.00	No	0.00	No
	80	y	-0.01	0.00	0.00	No	0.00	No
	81	y	-0.01	0.00	0.00	No	0.00	No
	82	y	-0.01	0.00	0.00	No	0.00	No
	83	y	-0.013	0.00	0.00	No	0.00	No
	84	y	-0.013	0.00	0.00	No	0.00	No
	85	y	-0.013	0.00	0.00	No	0.00	No
W0	26	z	-0.01	0.00	0.00	No	0.00	No
	48	z	-0.004	0.00	0.00	No	0.00	No
	49	z	-0.007	0.00	0.00	No	0.00	No
	50	z	-0.004	0.00	0.00	No	0.00	No
	51	z	-0.004	0.00	0.00	No	0.00	No
	53	z	-0.007	0.00	0.00	No	0.00	No
	56	z	-0.004	0.00	0.00	No	0.00	No
	57	z	-0.007	0.00	0.00	No	0.00	No
	58	z	-0.004	0.00	0.00	No	0.00	No
	59	z	-0.004	0.00	0.00	No	0.00	No
	72	z	-0.01	0.00	0.00	No	0.00	No
	73	z	-0.01	0.00	0.00	No	0.00	No
	77	z	-0.01	0.00	0.00	No	0.00	No
	78	z	-0.01	0.00	0.00	No	0.00	No
	79	z	-0.01	0.00	0.00	No	0.00	No
	80	z	-0.01	0.00	0.00	No	0.00	No
	81	z	-0.01	0.00	0.00	No	0.00	No
	82	z	-0.01	0.00	0.00	No	0.00	No
	83	z	-0.014	0.00	0.00	No	0.00	No
	84	z	-0.014	0.00	0.00	No	0.00	No
	85	z	-0.014	0.00	0.00	No	0.00	No
	98	z	-0.007	0.00	0.00	No	0.00	No
	100	z	-0.007	0.00	0.00	No	0.00	No
	101	z	-0.007	0.00	0.00	No	0.00	No
W30	48	x	-0.004	0.00	0.00	No	0.00	No
	49	x	-0.007	0.00	0.00	No	0.00	No
	50	x	-0.004	0.00	0.00	No	0.00	No
	51	x	-0.004	0.00	0.00	No	0.00	No
	52	x	-0.004	0.00	0.00	No	0.00	No
	53	x	-0.007	0.00	0.00	No	0.00	No
	54	x	-0.004	0.00	0.00	No	0.00	No
	55	x	-0.004	0.00	0.00	No	0.00	No
	56	x	-0.004	0.00	0.00	No	0.00	No
	57	x	-0.007	0.00	0.00	No	0.00	No
	58	x	-0.004	0.00	0.00	No	0.00	No
	59	x	-0.004	0.00	0.00	No	0.00	No
	77	x	-0.01	0.00	0.00	No	0.00	No
	78	x	-0.01	0.00	0.00	No	0.00	No
	79	x	-0.01	0.00	0.00	No	0.00	No
	80	x	-0.01	0.00	0.00	No	0.00	No
	81	x	-0.01	0.00	0.00	No	0.00	No
	82	x	-0.01	0.00	0.00	No	0.00	No
	83	x	-0.014	0.00	0.00	No	0.00	No
	84	x	-0.014	0.00	0.00	No	0.00	No
	85	x	-0.014	0.00	0.00	No	0.00	No
	98	x	-0.007	0.00	0.00	No	0.00	No
	100	x	-0.007	0.00	0.00	No	0.00	No
	101	x	-0.007	0.00	0.00	No	0.00	No
Di	1	y	-0.013	0.00	0.00	No	0.00	No

2	y	-0.013	0.00	0.00	No	0.00	No
6	y	-0.017	0.00	0.00	No	0.00	No
13	y	-0.013	0.00	0.00	No	0.00	No
14	y	-0.013	0.00	0.00	No	0.00	No
18	y	-0.017	0.00	0.00	No	0.00	No
19	y	-0.013	0.00	0.00	No	0.00	No
20	y	-0.013	0.00	0.00	No	0.00	No
24	y	-0.017	0.00	0.00	No	0.00	No
26	y	-0.011	0.00	0.00	No	0.00	No
29	y	-0.01	0.00	0.00	No	0.00	No
33	y	-0.01	0.00	0.00	No	0.00	No
35	y	-0.01	0.00	0.00	No	0.00	No
48	y	-0.009	0.00	0.00	No	0.00	No
49	y	-0.009	0.00	0.00	No	0.00	No
50	y	-0.01	0.00	0.00	No	0.00	No
51	y	-0.01	0.00	0.00	No	0.00	No
52	y	-0.009	0.00	0.00	No	0.00	No
53	y	-0.009	0.00	0.00	No	0.00	No
54	y	-0.01	0.00	0.00	No	0.00	No
55	y	-0.01	0.00	0.00	No	0.00	No
56	y	-0.009	0.00	0.00	No	0.00	No
57	y	-0.009	0.00	0.00	No	0.00	No
58	y	-0.01	0.00	0.00	No	0.00	No
59	y	-0.01	0.00	0.00	No	0.00	No
60	y	-0.01	0.00	0.00	No	0.00	No
61	y	-0.01	0.00	0.00	No	0.00	No
62	y	-0.01	0.00	0.00	No	0.00	No
64	y	-0.01	0.00	0.00	No	0.00	No
65	y	-0.01	0.00	0.00	No	0.00	No
68	y	-0.01	0.00	0.00	No	0.00	No
69	y	-0.01	0.00	0.00	No	0.00	No
70	y	-0.01	0.00	0.00	No	0.00	No
71	y	-0.01	0.00	0.00	No	0.00	No
72	y	-0.011	0.00	0.00	No	0.00	No
73	y	-0.011	0.00	0.00	No	0.00	No
77	y	-0.011	0.00	0.00	No	0.00	No
78	y	-0.011	0.00	0.00	No	0.00	No
79	y	-0.011	0.00	0.00	No	0.00	No
80	y	-0.011	0.00	0.00	No	0.00	No
81	y	-0.011	0.00	0.00	No	0.00	No
82	y	-0.011	0.00	0.00	No	0.00	No
83	y	-0.026	0.00	0.00	No	0.00	No
84	y	-0.026	0.00	0.00	No	0.00	No
85	y	-0.026	0.00	0.00	No	0.00	No
98	y	-0.009	0.00	0.00	No	0.00	No
100	y	-0.009	0.00	0.00	No	0.00	No
101	y	-0.009	0.00	0.00	No	0.00	No
102	y	-0.011	0.00	0.00	No	0.00	No
103	y	-0.011	0.00	0.00	No	0.00	No
104	y	-0.011	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	48	y	-0.018	0.00	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
		y	-0.01	4.50	No
	50	y	-0.038	0.00	No
		y	-0.038	4.50	No
		y	-0.052	1.50	No
		y	-0.06	3.00	No
		y	-0.044	6.00	No
	51	y	-0.03	0.00	No
		y	-0.03	4.50	No
		y	-0.051	2.00	No
	52	y	-0.018	0.00	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
		y	-0.01	4.50	No
	54	y	-0.038	0.00	No
		y	-0.038	8.00	No
		y	-0.052	1.50	No
		y	-0.06	3.00	No
		y	-0.044	6.50	No
	55	y	-0.03	0.00	No
		y	-0.03	4.50	No
		y	-0.051	2.00	No
	56	y	-0.018	0.00	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
		y	-0.01	4.50	No
	58	y	-0.038	0.00	No
		y	-0.038	8.00	No
		y	-0.052	1.50	No
		y	-0.06	3.00	No
		y	-0.044	6.50	No
	59	y	-0.02	0.00	No
		y	-0.02	4.50	No
		y	-0.051	2.00	No
W0	48	z	-0.051	0.00	No
		z	-0.051	4.50	No
		z	-0.062	3.00	No
		z	-0.024	4.50	No
	50	z	-0.08	0.00	No
		z	-0.08	4.50	No
		z	-0.024	1.50	No
		z	-0.023	3.00	No
		z	-0.032	6.00	No
	51	z	-0.071	0.00	No
		z	-0.071	4.50	No
		z	-0.04	2.00	No
	52	z	-0.079	0.00	No
		z	-0.079	4.50	No
		z	-0.03	3.00	No
		z	-0.024	4.50	No
	54	z	-0.19	0.00	No
		z	-0.19	8.00	No

		z	-0.024	1.50	No
		z	-0.006	3.00	No
		z	-0.007	6.00	No
	55	z	-0.161	0.00	No
		z	-0.161	8.00	No
		z	-0.025	2.00	No
	56	z	-0.051	0.00	No
		z	-0.051	4.50	No
		z	-0.03	3.00	No
		z	-0.024	4.50	No
	58	z	-0.142	0.00	No
		z	-0.142	8.00	No
		z	-0.024	1.50	No
		z	-0.023	3.00	No
		z	-0.032	6.00	No
	59	z	-0.113	0.00	No
		z	-0.113	8.00	No
		z	-0.04	2.00	No
W30	48	X	-0.07	0.00	No
		X	-0.07	4.50	No
		X	-0.052	3.00	No
		x	-0.024	4.50	No
	50	x	-0.078	0.00	No
		x	-0.078	4.50	No
		x	-0.024	1.50	No
		x	-0.022	3.00	No
		x	-0.027	6.00	No
	51	x	-0.099	0.00	No
		x	-0.099	4.50	No
		x	-0.038	2.00	No
	52	X	-0.042	0.00	No
		X	-0.042	4.50	No
		X	-0.02	3.00	No
		X	-0.024	4.50	No
	54	x	-0.126	0.00	No
		x	-0.126	8.00	No
		X	-0.024	1.50	No
		X	-0.019	3.00	No
		X	-0.03	6.00	No
	55	x	-0.097	0.00	No
		x	-0.097	8.00	No
		x	-0.03	6.00	No
	56	X	-0.07	0.00	No
		X	-0.07	4.50	No
		X	-0.052	3.00	No
		X	-0.024	4.50	No
	58	X	-0.174	0.00	No
		X	-0.174	8.00	No
		X	-0.024	1.50	No
		X	-0.022	3.00	No
		X	-0.027	6.00	No
	59	X	-0.145	0.00	No
		X	-0.145	8.00	No
		X	-0.038	2.00	No
Di	48	y	-0.069	0.00	No
		y	-0.069	4.50	No
		y	-0.058	3.00	No
		y	-0.032	4.50	No
	50	y	-0.084	0.00	No
		y	-0.084	4.50	No

		y	-0.032	1.50	No
		y	-0.057	3.00	No
		y	-0.043	6.00	No
	51	y	-0.10	0.00	No
		y	-0.10	4.50	No
		y	-0.072	2.00	No
	52	y	-0.069	0.00	No
		y	-0.069	4.50	No
		y	-0.058	3.00	No
		y	-0.032	4.50	No
	54	y	-0.161	0.00	No
		y	-0.161	8.00	No
		y	-0.032	1.50	No
		y	-0.057	3.00	No
		y	-0.043	6.50	No
	55	y	-0.13	0.00	No
		y	-0.13	8.00	No
		y	-0.072	2.00	No
	56	y	-0.069	0.00	No
		y	-0.069	4.50	No
		y	-0.058	3.00	No
		y	-0.032	4.50	No
	58	y	-0.161	0.00	No
		y	-0.161	8.00	No
		y	-0.032	1.50	No
		y	-0.057	3.00	No
		y	-0.043	6.50	No
	59	y	-0.13	0.00	No
		y	-0.13	8.00	No
		y	-0.072	2.00	No
Wi0	48	z	-0.02	0.00	No
		z	-0.02	4.50	No
		z	-0.016	3.00	No
		z	-0.014	4.50	No
	50	z	-0.027	0.00	No
		z	-0.027	4.50	No
		z	-0.014	1.50	No
		z	-0.011	3.00	No
		z	-0.014	6.00	No
	51	z	-0.037	0.00	No
		z	-0.037	4.50	No
		z	-0.016	2.00	No
	52	Z	-0.028	0.00	No
		Z	-0.028	4.50	No
		Z	-0.026	3.00	No
		Z	-0.014	4.50	No
	54	z	-0.027	0.00	No
		z	-0.027	4.50	No
		Z	-0.014	1.50	No
		Z	-0.007	3.00	No
		Z	-0.008	6.00	No
	55	z	-0.054	0.00	No
		z	-0.054	8.00	No
		Z	-0.012	2.00	No
	56	Z	-0.02	0.00	No
		Z	-0.02	4.50	No
		Z	-0.016	3.00	No
		Z	-0.014	4.50	No
	58	Z	-0.047	0.00	No
		Z	-0.047	8.00	No

		Z	-0.007	1.50	No
		Z	-0.011	3.00	No
		Z	-0.014	6.00	No
	59	Z	-0.04	0.00	No
		Z	-0.04	8.00	No
		Z	-0.016	2.00	No
Wi30	48	x	-0.024	0.00	No
		x	-0.024	4.50	No
		x	-0.024	3.00	No
		x	-0.014	4.50	No
	50	x	-0.025	0.00	No
		x	-0.025	4.50	No
		x	-0.014	1.50	No
		x	-0.009	3.00	No
		x	-0.011	6.00	No
	51	x	-0.032	0.00	No
		x	-0.032	4.50	No
		x	-0.014	2.00	No
	52	x	-0.017	0.00	No
		x	-0.017	4.50	No
		x	-0.014	3.00	No
		x	-0.014	4.50	No
	54	x	-0.043	0.00	No
		x	-0.043	8.00	No
		x	-0.014	1.50	No
		x	-0.01	3.00	No
		x	-0.013	6.00	No
	55	x	-0.036	0.00	No
		x	-0.036	8.00	No
		x	-0.015	2.00	No
	56	x	-0.024	0.00	No
		x	-0.024	4.50	No
		x	-0.024	3.00	No
		x	-0.014	4.50	No
	58	x	-0.055	0.00	No
		x	-0.055	8.00	No
		x	-0.014	1.50	No
		x	-0.009	3.00	No
		x	-0.011	6.00	No
	59	x	-0.048	0.00	No
		x	-0.048	8.00	No
		x	-0.014	2.00	No
WL0	48	z	-0.005	0.00	No
		z	-0.005	4.50	No
		z	-0.004	3.00	No
		z	-0.004	4.50	No
	50	z	-0.007	0.00	No
		z	-0.007	4.50	No
		z	-0.004	1.50	No
		z	-0.003	3.00	No
		z	-0.003	6.00	No
	51	z	-0.007	0.00	No
		z	-0.007	4.50	No
		z	-0.004	2.00	No
	52	z	-0.007	0.00	No
		z	-0.007	4.50	No
		z	-0.006	3.00	No
		z	-0.004	4.50	No
	54	z	-0.017	0.00	No
		z	-0.017	8.00	No

		z	-0.004	1.50	No
		z	-0.001	3.00	No
		z	-0.001	6.00	No
	55	z	-0.015	0.00	No
		z	-0.015	8.00	No
		z	-0.003	2.00	No
	56	z	-0.005	0.00	No
		z	-0.005	4.50	No
		z	-0.004	3.00	No
		z	-0.004	4.50	No
	58	z	-0.013	0.00	No
		z	-0.013	8.00	No
		z	-0.004	1.50	No
		z	-0.003	3.00	No
		z	-0.003	6.00	No
	59	z	-0.011	0.00	No
		z	-0.011	8.00	No
		z	-0.004	2.00	No
WL30	48	x	-0.007	0.00	No
		x	-0.007	4.50	No
		x	-0.006	3.00	No
		x	-0.004	4.50	No
	50	x	-0.007	0.00	No
		x	-0.007	4.50	No
		x	-0.004	1.50	No
		x	-0.002	3.00	No
		x	-0.003	6.00	No
	51	x	-0.009	0.00	No
		x	-0.009	4.50	No
		x	-0.004	2.00	No
	52	x	-0.004	0.00	No
		x	-0.004	4.50	No
		x	-0.002	3.00	No
		x	-0.004	4.50	No
	54	x	-0.006	0.00	No
		x	-0.006	4.50	No
		x	-0.004	1.50	No
		x	-0.002	3.00	No
		x	-0.003	6.00	No
	55	x	-0.009	0.00	No
		x	-0.009	8.00	No
		x	-0.004	2.00	No
	56	x	-0.007	0.00	No
		x	-0.007	4.50	No
		x	-0.006	3.00	No
		x	-0.004	4.50	No
	58	x	-0.016	0.00	No
		x	-0.016	8.00	No
		x	-0.004	1.50	No
		x	-0.002	3.00	No
		x	-0.003	6.00	No
	59	x	-0.013	0.00	No
		x	-0.013	8.00	No
		x	-0.004	2.00	No
LL1	72	y	-0.25	50.00	Yes
LL2	26	y	-0.25	0.00	Yes
LLa1	48	y	-0.25	50.00	Yes
LLa2	50	y	-0.25	50.00	Yes
LLa3	51	y	-0.25	50.00	Yes

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: 8/29/2018 1:43 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2271\CT2271 (LTE 2C-3C) (mod).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 3X3X1_8	**1**	LC1 at 67.19%	0.17	OK	
			LC10 at 0.00%	0.21	OK	
			LC11 at 0.00%	0.14	OK	
			LC12 at 0.00%	0.19	OK	
			LC13 at 0.00%	0.08	OK	
			LC14 at 0.00%	0.06	OK	
			LC15 at 0.00%	0.10	OK	
			LC16 at 0.00%	0.07	OK	
			LC17 at 0.00%	0.07	OK	
			LC18 at 0.00%	0.09	OK	
			LC19 at 0.00%	0.07	OK	
			LC2 at 0.00%	**0.52**	**OK**	Eq. H1-1b
			LC20 at 0.00%	0.09	OK	
			LC21 at 0.00%	0.08	OK	
			LC22 at 0.00%	0.10	OK	

	LC23 at 0.00%	0.08	OK	
	LC24 at 0.00%	0.10	OK	
	LC25 at 0.00%	0.08	OK	
	LC26 at 0.00%	0.10	OK	
	LC27 at 0.00%	0.08	OK	
	LC28 at 0.00%	0.10	OK	
	LC3 at 67.19%	0.16	OK	
	LC4 at 0.00%	0.49	OK	
	LC5 at 67.19%	0.17	OK	
	LC6 at 0.00%	0.50	OK	
	LC7 at 67.19%	0.16	OK	
	LC8 at 0.00%	0.47	OK	
	LC9 at 0.00%	0.16	OK	
	W180 at 67.19%	0.10	OK	
	W210 at 0.00%	0.27	OK	
	Wi180 at 67.19%	0.03	OK	
	Wi210 at 0.00%	0.06	OK	
	WL180 at 67.19%	0.01	OK	
	WL210 at 0.00%	0.02	OK	
2	LC1 at 63.75%	0.47	OK	
	LC10 at 63.75%	0.70	OK	
	LC11 at 63.75%	0.68	OK	
	LC12 at 63.75%	0.71	OK	
	LC13 at 63.75%	0.31	OK	
	LC14 at 63.75%	0.24	OK	
	LC15 at 63.75%	0.36	OK	
	LC16 at 63.75%	0.48	OK	
	LC17 at 63.75%	0.42	OK	
	LC18 at 63.75%	0.41	OK	
	LC19 at 63.75%	0.41	OK	
	LC2 at 63.75%	0.34	OK	
	LC20 at 63.75%	0.42	OK	
	LC21 at 63.75%	0.34	OK	
	LC22 at 63.75%	0.33	OK	
	LC23 at 63.75%	0.33	OK	
	LC24 at 63.75%	0.33	OK	
	LC25 at 63.75%	0.32	OK	
	LC26 at 63.75%	0.31	OK	
	LC27 at 63.75%	0.31	OK	
	LC28 at 63.75%	0.32	OK	
	LC3 at 63.75%	0.22	OK	
	LC4 at 63.75%	0.37	OK	
	LC5 at 63.75%	0.40	OK	
	LC6 at 63.75%	0.26	OK	
	LC7 at 63.75%	0.15	OK	
	LC8 at 63.75%	0.29	OK	
	LC9 at 63.75%	**0.72**	**OK**	Eq. H1-1b
	W180 at 63.75%	0.10	OK	
	W210 at 7.50%	0.12	OK	
	Wi180 at 63.75%	0.03	OK	
	Wi210 at 7.50%	0.03	OK	
	WL180 at 63.75%	0.01	OK	
	WL210 at 7.50%	0.01	OK	
13	LC1 at 0.00%	0.20	OK	Eq. H1-1b
	LC10 at 0.00%	0.15	OK	
	LC11 at 0.00%	0.16	OK	
	LC12 at 0.00%	0.15	OK	
	LC13 at 0.00%	0.08	OK	
	LC14 at 0.00%	0.06	OK	
	LC15 at 0.00%	0.10	OK	
	LC16 at 0.00%	0.08	OK	
	LC17 at 0.00%	0.08	OK	

	LC18 at 0.00%	0.08	OK	
	LC19 at 0.00%	0.08	OK	
	LC2 at 67.19%	**0.22**	**OK**	Eq. H1-1b
	LC20 at 0.00%	0.08	OK	
	LC21 at 0.00%	0.09	OK	
	LC22 at 0.00%	0.09	OK	
	LC23 at 0.00%	0.09	OK	
	LC24 at 0.00%	0.09	OK	
	LC25 at 0.00%	0.08	OK	
	LC26 at 0.00%	0.08	OK	
	LC27 at 0.00%	0.07	OK	
	LC28 at 0.00%	0.07	OK	
	LC3 at 0.00%	0.19	OK	
	LC4 at 67.19%	0.21	OK	
	LC5 at 0.00%	0.19	OK	
	LC6 at 67.19%	0.22	OK	
	LC7 at 67.19%	0.17	OK	
	LC8 at 67.19%	0.21	OK	Eq. H1-1b
	LC9 at 0.00%	0.17	OK	
	W180 at 67.19%	0.11	OK	
	W210 at 67.19%	0.13	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 67.19%	0.04	OK	
	WL180 at 67.19%	0.01	OK	
	WL210 at 67.19%	0.01	OK	
14	LC1 at 63.75%	0.29	OK	
	LC10 at 63.75%	0.65	OK	
	LC11 at 63.75%	0.68	OK	
	LC12 at 63.75%	**0.69**	**OK**	Eq. H1-1b
	LC13 at 63.75%	0.33	OK	
	LC14 at 63.75%	0.24	OK	
	LC15 at 63.75%	0.37	OK	
	LC16 at 63.75%	0.32	OK	
	LC17 at 63.75%	0.32	OK	
	LC18 at 63.75%	0.32	OK	
	LC19 at 63.75%	0.33	OK	
	LC2 at 63.75%	0.25	OK	
	LC20 at 63.75%	0.33	OK	
	LC21 at 63.75%	0.37	OK	
	LC22 at 63.75%	0.37	OK	
	LC23 at 63.75%	0.38	OK	
	LC24 at 63.75%	0.38	OK	
	LC25 at 63.75%	0.42	OK	
	LC26 at 63.75%	0.42	OK	
	LC27 at 63.75%	0.43	OK	
	LC28 at 63.75%	0.43	OK	
	LC3 at 63.75%	0.44	OK	
	LC4 at 63.75%	0.49	OK	
	LC5 at 63.75%	0.21	OK	
	LC6 at 0.00%	0.17	OK	
	LC7 at 63.75%	0.36	OK	
	LC8 at 63.75%	0.41	OK	
	LC9 at 63.75%	0.66	OK	
	W180 at 62.50%	0.08	OK	
	W210 at 63.75%	0.11	OK	
	Wi180 at 62.50%	0.02	OK	
	Wi210 at 63.75%	0.03	OK	
	WL180 at 62.50%	0.01	OK	
	WL210 at 63.75%	0.01	OK	
19	LC1 at 0.00%	0.44	OK	Eq. H1-1b
	LC10 at 0.00%	0.15	OK	
	LC11 at 0.00%	0.19	OK	

	LC12 at 0.00%	0.15	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%	0.08	OK	
	LC19 at 0.00%	0.09	OK	
	LC2 at 67.19%	0.15	OK	
	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%	0.10	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%	0.10	OK	
	LC28 at 0.00%	0.08	OK	
	LC3 at 0.00%	**0.45**	**OK**	Eq. H1-1b
	LC4 at 67.19%	0.14	OK	
	LC5 at 0.00%	0.44	OK	
	LC6 at 67.19%	0.15	OK	
	LC7 at 0.00%	0.44	OK	
	LC8 at 67.19%	0.14	OK	
	LC9 at 0.00%	0.18	OK	
	W180 at 0.00%	0.26	OK	
	W210 at 67.19%	0.08	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 67.19%	0.02	OK	
	WL180 at 0.00%	0.02	OK	
	WL210 at 67.19%	0.01	OK	
20	LC1 at 63.75%	0.33	OK	
	LC10 at 63.75%	**0.75**	**OK**	Eq. H1-1b
	LC11 at 63.75%	0.74	OK	
	LC12 at 63.75%	0.72	OK	
	LC13 at 63.75%	0.32	OK	
	LC14 at 63.75%	0.24	OK	
	LC15 at 63.75%	0.30	OK	
	LC16 at 63.75%	0.31	OK	
	LC17 at 63.75%	0.31	OK	
	LC18 at 63.75%	0.32	OK	
	LC19 at 63.75%	0.31	OK	
	LC2 at 63.75%	0.47	OK	
	LC20 at 63.75%	0.31	OK	
	LC21 at 63.75%	0.31	OK	
	LC22 at 63.75%	0.32	OK	
	LC23 at 63.75%	0.31	OK	
	LC24 at 63.75%	0.31	OK	
	LC25 at 63.75%	0.31	OK	
	LC26 at 63.75%	0.32	OK	
	LC27 at 63.75%	0.31	OK	
	LC28 at 63.75%	0.31	OK	
	LC3 at 63.75%	0.42	OK	
	LC4 at 63.75%	0.28	OK	
	LC5 at 63.75%	0.25	OK	
	LC6 at 63.75%	0.39	OK	
	LC7 at 63.75%	0.34	OK	
	LC8 at 63.75%	0.20	OK	
	LC9 at 63.75%	0.72	OK	
	W180 at 7.50%	0.11	OK	
	W210 at 63.75%	0.08	OK	
	Wi180 at 7.50%	0.02	OK	
	Wi210 at 63.75%	0.02	OK	

		WL180 at 7.50%	0.01	OK	
		WL210 at 63.75%	0.01	OK	
L 2-1_2X2-1_2X3_16	**102**	LC1 at 0.00%	0.31	OK	Eq. H3-8
		LC10 at 0.00%	0.16	OK	
		LC11 at 0.00%	0.18	OK	
		LC12 at 100.00%	0.22	OK	
		LC13 at 100.00%	0.09	OK	
		LC14 at 100.00%	0.07	OK	
		LC15 at 100.00%	0.15	OK	
		LC16 at 100.00%	0.10	OK	
		LC17 at 100.00%	0.11	OK	
		LC18 at 100.00%	0.09	OK	
		LC19 at 100.00%	0.10	OK	
		LC2 at 100.00%	0.26	OK	
		LC20 at 100.00%	0.11	OK	
		LC21 at 100.00%	0.14	OK	
		LC22 at 100.00%	0.12	OK	
		LC23 at 100.00%	0.13	OK	
		LC24 at 100.00%	0.15	OK	
		LC25 at 100.00%	0.14	OK	
		LC26 at 100.00%	0.12	OK	
		LC27 at 100.00%	0.13	OK	
		LC28 at 100.00%	0.15	OK	
		LC3 at 0.00%	0.28	OK	Sec. F1
		LC4 at 100.00%	**0.37**	**OK**	Eq. H2-1
		LC5 at 0.00%	0.31	OK	
		LC6 at 100.00%	0.26	OK	
		LC7 at 100.00%	0.28	OK	
		LC8 at 100.00%	0.34	OK	
		LC9 at 100.00%	0.21	OK	
		W180 at 0.00%	0.18	OK	
		W210 at 0.00%	0.17	OK	
		Wi180 at 0.00%	0.06	OK	
		Wi210 at 0.00%	0.05	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.01	OK	
	103	LC1 at 100.00%	0.18	OK	
		LC10 at 0.00%	0.24	OK	
		LC11 at 0.00%	0.19	OK	
		LC12 at 0.00%	0.17	OK	
		LC13 at 0.00%	0.09	OK	
		LC14 at 0.00%	0.07	OK	
		LC15 at 100.00%	0.12	OK	
		LC16 at 100.00%	0.11	OK	
		LC17 at 100.00%	0.11	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%	0.11	OK	
		LC21 at 100.00%	0.10	OK	
		LC22 at 0.00%	0.09	OK	
		LC23 at 100.00%	0.09	OK	
		LC24 at 100.00%	0.10	OK	
		LC25 at 0.00%	0.10	OK	
		LC26 at 0.00%	0.10	OK	
		LC27 at 0.00%	0.09	OK	
		LC28 at 0.00%	0.08	OK	
		LC3 at 100.00%	0.09	OK	
		LC4 at 100.00%	0.31	OK	
		LC5 at 100.00%	0.17	OK	
		LC6 at 0.00%	0.32	OK	
		LC7 at 100.00%	0.10	OK	

		LC8 at 100.00%	0.31	OK	
		LC9 at 0.00%	0.22	OK	
		W180 at 100.00%	0.07	OK	
		W210 at 100.00%	0.20	OK	
		Wi180 at 100.00%	0.02	OK	
		Wi210 at 100.00%	0.06	OK	
		WL180 at 100.00%	0.01	OK	
		WL210 at 100.00%	0.02	OK	
	104	LC1 at 100.00%	0.32	OK	
		LC10 at 0.00%	0.21	OK	
		LC11 at 0.00%	0.26	OK	
		LC12 at 0.00%	0.21	OK	
		LC13 at 0.00%	0.09	OK	
		LC14 at 0.00%	0.07	OK	
		LC15 at 0.00%	0.09	OK	
		LC16 at 0.00%	0.10	OK	
		LC17 at 0.00%	0.09	OK	
		LC18 at 0.00%	0.10	OK	
		LC19 at 0.00%	0.11	OK	
		LC2 at 100.00%	0.26	OK	
		LC20 at 0.00%	0.10	OK	
		LC21 at 0.00%	0.07	OK	
		LC22 at 0.00%	0.09	OK	
		LC23 at 0.00%	0.10	OK	
		LC24 at 0.00%	0.09	OK	
		LC25 at 0.00%	0.07	OK	
		LC26 at 0.00%	0.09	OK	
		LC27 at 0.00%	0.10	OK	
		LC28 at 0.00%	0.09	OK	
		LC3 at 0.00%	**0.37**	**OK**	Eq. H2-1
		LC4 at 0.00%	0.18	OK	
		LC5 at 100.00%	0.32	OK	Eq. H2-1
		LC6 at 100.00%	0.24	OK	
		LC7 at 0.00%	0.35	OK	
		LC8 at 0.00%	0.17	OK	
		LC9 at 0.00%	0.16	OK	
		W180 at 100.00%	0.20	OK	
		W210 at 100.00%	0.13	OK	
		Wi180 at 100.00%	0.06	OK	
		Wi210 at 0.00%	0.03	OK	
		WL180 at 100.00%	0.02	OK	
		WL210 at 100.00%	0.01	OK	
LU 2-1_2X1-1_2X1_4	**64**	LC1 at 0.00%	0.08	OK	
		LC10 at 100.00%	0.21	OK	
		LC11 at 100.00%	0.21	OK	
		LC12 at 100.00%	0.17	OK	
		LC13 at 100.00%	0.10	OK	
		LC14 at 100.00%	0.07	OK	
		LC15 at 100.00%	0.14	OK	
		LC16 at 100.00%	0.09	OK	
		LC17 at 100.00%	0.09	OK	
		LC18 at 100.00%	0.10	OK	
		LC19 at 100.00%	0.10	OK	
		LC2 at 100.00%	**0.23**	**OK**	Eq. H2-1
		LC20 at 100.00%	0.09	OK	
		LC21 at 100.00%	0.12	OK	
		LC22 at 100.00%	0.13	OK	
		LC23 at 100.00%	0.13	OK	
		LC24 at 100.00%	0.11	OK	
		LC25 at 100.00%	0.10	OK	
		LC26 at 100.00%	0.11	OK	
		LC27 at 100.00%	0.11	OK	

	LC28 at 100.00%	0.10	OK	
	LC3 at 100.00%	0.19	OK	
	LC4 at 0.00%	0.13	OK	Eq. H2-1
	LC5 at 0.00%	0.08	OK	
	LC6 at 100.00%	0.20	OK	
	LC7 at 100.00%	0.17	OK	
	LC8 at 0.00%	0.13	OK	
	LC9 at 100.00%	0.17	OK	
	W180 at 100.00%	0.06	OK	
	W210 at 100.00%	0.10	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 100.00%	0.03	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 100.00%	0.01	OK	
65	LC1 at 0.00%	0.07	OK	
	LC10 at 0.00%	**0.19**	**OK**	Eq. H2-1
	LC11 at 0.00%	0.17	OK	
	LC12 at 0.00%	0.15	OK	
	LC13 at 0.00%	0.08	OK	
	LC14 at 0.00%	0.06	OK	
	LC15 at 0.00%	0.12	OK	
	LC16 at 0.00%	0.09	OK	
	LC17 at 0.00%	0.09	OK	
	LC18 at 0.00%	0.09	OK	
	LC19 at 0.00%	0.09	OK	
	LC2 at 0.00%	0.18	OK	
	LC20 at 0.00%	0.08	OK	
	LC21 at 0.00%	0.09	OK	
	LC22 at 0.00%	0.10	OK	
	LC23 at 0.00%	0.09	OK	
	LC24 at 0.00%	0.09	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%	0.07	OK	
	LC3 at 0.00%	0.09	OK	
	LC4 at 100.00%	0.07	OK	Eq. H2-1
	LC5 at 0.00%	0.05	OK	
	LC6 at 0.00%	0.16	OK	
	LC7 at 0.00%	0.07	OK	
	LC8 at 100.00%	0.07	OK	
	LC9 at 0.00%	0.16	OK	
	W180 at 100.00%	0.02	OK	
	W210 at 0.00%	0.06	OK	
	Wi180 at 100.00%	0.01	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
68	LC1 at 6.25%	0.04	OK	
	LC10 at 0.00%	0.17	OK	
	LC11 at 0.00%	0.19	OK	
	LC12 at 0.00%	**0.19**	**OK**	Eq. H2-1
	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%	0.08	OK	
	LC18 at 0.00%	0.08	OK	
	LC19 at 0.00%	0.08	OK	
	LC2 at 0.00%	0.14	OK	
	LC20 at 0.00%	0.08	OK	
	LC21 at 0.00%	0.08	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%	0.08	OK	
	LC26 at 0.00%	0.08	OK	
	LC27 at 0.00%	0.09	OK	
	LC28 at 0.00%	0.09	OK	
	LC3 at 0.00%	0.13	OK	
	LC4 at 0.00%	0.17	OK	
	LC5 at 100.00%	0.03	OK	
	LC6 at 0.00%	0.13	OK	
	LC7 at 0.00%	0.11	OK	
	LC8 at 0.00%	0.15	OK	
	LC9 at 0.00%	0.17	OK	
	W180 at 0.00%	0.03	OK	
	W210 at 0.00%	0.05	OK	
	Wi180 at 0.00%	0.01	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
69	LC1 at 100.00%	0.17	OK	
	LC10 at 100.00%	0.19	OK	
	LC11 at 100.00%	0.20	OK	
	LC12 at 100.00%	**0.21**	**OK**	Eq. H2-1
	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%	0.12	OK	
	LC17 at 100.00%	0.11	OK	
	LC18 at 100.00%	0.11	OK	
	LC19 at 100.00%	0.11	OK	
	LC2 at 100.00%	0.05	OK	
	LC20 at 100.00%	0.11	OK	
	LC21 at 100.00%	0.10	OK	
	LC22 at 100.00%	0.10	OK	
	LC23 at 100.00%	0.10	OK	
	LC24 at 100.00%	0.11	OK	
	LC25 at 100.00%	0.10	OK	
	LC26 at 100.00%	0.10	OK	
	LC27 at 100.00%	0.10	OK	
	LC28 at 100.00%	0.10	OK	
	LC3 at 100.00%	0.10	OK	
	LC4 at 100.00%	0.15	OK	
	LC5 at 100.00%	0.15	OK	
	LC6 at 100.00%	0.04	OK	
	LC7 at 100.00%	0.08	OK	
	LC8 at 100.00%	0.13	OK	
	LC9 at 100.00%	0.20	OK	
	W180 at 100.00%	0.06	OK	
	W210 at 100.00%	0.04	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 100.00%	0.01	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.00	OK	
70	LC1 at 0.00%	**0.18**	**OK**	Eq. H2-1
	LC10 at 0.00%	0.16	OK	
	LC11 at 0.00%	0.14	OK	
	LC12 at 0.00%	0.17	OK	
	LC13 at 0.00%	0.08	OK	
	LC14 at 0.00%	0.06	OK	
	LC15 at 0.00%	0.10	OK	
	LC16 at 0.00%	0.09	OK	

		LC17 at 0.00%	0.09	OK	
		LC18 at 0.00%	0.08	OK	
		LC19 at 0.00%	0.08	OK	
		LC2 at 0.00%	0.06	OK	
		LC20 at 0.00%	0.09	OK	
		LC21 at 0.00%	0.10	OK	
		LC22 at 0.00%	0.10	OK	
		LC23 at 0.00%	0.09	OK	
		LC24 at 0.00%	0.10	OK	
		LC25 at 0.00%	0.10	OK	
		LC26 at 0.00%	0.10	OK	
		LC27 at 0.00%	0.10	OK	
		LC28 at 0.00%	0.10	OK	
		LC3 at 100.00%	0.10	OK	Eq. H2-1
		LC4 at 0.00%	0.13	OK	
		LC5 at 0.00%	0.16	OK	
		LC6 at 100.00%	0.05	OK	
		LC7 at 100.00%	0.10	OK	
		LC8 at 0.00%	0.11	OK	
		LC9 at 0.00%	0.18	OK	
		W180 at 0.00%	0.07	OK	
		W210 at 0.00%	0.03	OK	
		Wi180 at 0.00%	0.02	OK	
		Wi210 at 0.00%	0.01	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.00	OK	
	71	LC1 at 100.00%	0.15	OK	
		LC10 at 100.00%	0.21	OK	
		LC11 at 100.00%	0.19	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%	0.09	OK	
		LC16 at 100.00%	0.10	OK	
		LC17 at 100.00%	0.10	OK	
		LC18 at 100.00%	0.10	OK	
		LC19 at 100.00%	0.09	OK	
		LC2 at 100.00%	0.14	OK	
		LC20 at 100.00%	0.09	OK	
		LC21 at 100.00%	0.09	OK	
		LC22 at 100.00%	0.09	OK	
		LC23 at 100.00%	0.09	OK	
		LC24 at 100.00%	0.09	OK	
		LC25 at 100.00%	0.09	OK	
		LC26 at 100.00%	0.10	OK	
		LC27 at 100.00%	0.09	OK	
		LC28 at 100.00%	0.09	OK	
		LC3 at 100.00%	0.12	OK	
		LC4 at 100.00%	0.08	OK	
		LC5 at 100.00%	0.13	OK	
		LC6 at 100.00%	0.12	OK	
		LC7 at 100.00%	0.11	OK	
		LC8 at 93.75%	0.06	OK	
		LC9 at 100.00%	**0.23**	**OK**	Eq. H2-1
		W180 at 100.00%	0.05	OK	
		W210 at 100.00%	0.04	OK	
		Wi180 at 100.00%	0.02	OK	
		Wi210 at 100.00%	0.01	OK	
		WL180 at 100.00%	0.00	OK	
		WL210 at 100.00%	0.00	OK	
PIPE 2-1_2x0.203	**50**	LC1 at 47.92%	0.25	OK	
		LC10 at 47.92%	0.18	OK	

	LC11 at 47.92%	0.15	OK	
	LC12 at 47.92%	0.08	OK	
	LC13 at 47.92%	0.06	OK	
	LC14 at 47.92%	0.04	OK	
	LC15 at 47.92%	0.12	OK	
	LC16 at 47.92%	0.05	OK	
	LC17 at 47.92%	0.05	OK	
	LC18 at 47.92%	0.06	OK	
	LC19 at 47.92%	0.07	OK	
	LC2 at 47.92%	**0.39**	**OK**	Eq. H1-1b
	LC20 at 47.92%	0.05	OK	
	LC21 at 47.92%	0.06	OK	
	LC22 at 47.92%	0.08	OK	
	LC23 at 47.92%	0.09	OK	
	LC24 at 47.92%	0.07	OK	
	LC25 at 47.92%	0.06	OK	
	LC26 at 47.92%	0.08	OK	
	LC27 at 47.92%	0.07	OK	
	LC28 at 47.92%	0.05	OK	
	LC3 at 47.92%	0.36	OK	
	LC4 at 47.92%	0.31	OK	
	LC5 at 47.92%	0.26	OK	
	LC6 at 47.92%	0.38	OK	
	LC7 at 47.92%	0.34	OK	
	LC8 at 47.92%	0.32	OK	
	LC9 at 47.92%	0.14	OK	
	W180 at 47.92%	0.19	OK	
	W210 at 47.92%	0.22	OK	
	Wi180 at 47.92%	0.06	OK	
	Wi210 at 47.92%	0.06	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.02	OK	
51	LC1 at 47.92%	0.09	OK	
	LC10 at 47.92%	0.07	OK	
	LC11 at 47.92%	0.09	OK	
	LC12 at 47.92%	0.07	OK	
	LC13 at 47.92%	0.04	OK	
	LC14 at 47.92%	0.03	OK	
	LC15 at 47.92%	0.10	OK	
	LC16 at 47.92%	0.05	OK	
	LC17 at 47.92%	0.04	OK	
	LC18 at 47.92%	0.05	OK	
	LC19 at 47.92%	0.05	OK	
	LC2 at 47.92%	0.16	OK	
	LC20 at 47.92%	0.05	OK	
	LC21 at 47.92%	0.08	OK	
	LC22 at 47.92%	0.09	OK	
	LC23 at 47.92%	0.10	OK	
	LC24 at 47.92%	0.09	OK	
	LC25 at 47.92%	0.06	OK	
	LC26 at 47.92%	0.07	OK	
	LC27 at 47.92%	0.07	OK	
	LC28 at 47.92%	0.07	OK	
	LC3 at 47.92%	**0.18**	**OK**	Eq. H1-1b
	LC4 at 47.92%	0.17	OK	
	LC5 at 47.92%	0.10	OK	
	LC6 at 47.92%	0.16	OK	
	LC7 at 47.92%	0.16	OK	
	LC8 at 47.92%	0.17	OK	
	LC9 at 47.92%	0.06	OK	
	W180 at 47.92%	0.08	OK	
	W210 at 47.92%	0.10	OK	
	Wi180 at 47.92%	0.02	OK	

	Wi210 at 47.92%	0.03	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.01	OK	
54	LC1 at 47.92%	**0.73**	**OK**	Eq. H1-1b
	LC10 at 47.92%	0.14	OK	
	LC11 at 47.92%	0.08	OK	
	LC12 at 47.92%	0.18	OK	
	LC13 at 47.92%	0.06	OK	
	LC14 at 47.92%	0.05	OK	
	LC15 at 47.92%	0.08	OK	
	LC16 at 47.92%	0.07	OK	
	LC17 at 47.92%	0.10	OK	
	LC18 at 47.92%	0.06	OK	
	LC19 at 50.00%	0.04	OK	
	LC2 at 50.00%	0.55	OK	
	LC20 at 47.92%	0.07	OK	
	LC21 at 47.92%	0.11	OK	
	LC22 at 47.92%	0.07	OK	
	LC23 at 50.00%	0.04	OK	
	LC24 at 47.92%	0.08	OK	
	LC25 at 47.92%	0.11	OK	
	LC26 at 47.92%	0.07	OK	
	LC27 at 50.00%	0.04	OK	
	LC28 at 47.92%	0.08	OK	
	LC3 at 50.00%	0.71	OK	
	LC4 at 50.00%	0.55	OK	
	LC5 at 47.92%	0.72	OK	
	LC6 at 50.00%	0.55	OK	
	LC7 at 50.00%	0.71	OK	
	LC8 at 50.00%	0.55	OK	
	LC9 at 47.92%	0.22	OK	
	W180 at 50.00%	0.44	OK	
	W210 at 50.00%	0.34	OK	
	Wi180 at 47.92%	0.06	OK	
	Wi210 at 50.00%	0.11	OK	
	WL180 at 50.00%	0.04	OK	
	WL210 at 47.92%	0.01	OK	
55	LC1 at 50.00%	0.59	OK	
	LC10 at 47.92%	0.15	OK	
	LC11 at 50.00%	0.13	OK	
	LC12 at 47.92%	0.09	OK	
	LC13 at 47.92%	0.04	OK	
	LC14 at 47.92%	0.03	OK	
	LC15 at 47.92%	0.03	OK	
	LC16 at 47.92%	0.04	OK	
	LC17 at 47.92%	0.05	OK	
	LC18 at 47.92%	0.05	OK	
	LC19 at 50.00%	0.04	OK	
	LC2 at 50.00%	0.44	OK	
	LC20 at 47.92%	0.03	OK	
	LC21 at 47.92%	0.04	OK	
	LC22 at 47.92%	0.04	OK	
	LC23 at 50.00%	0.04	OK	
	LC24 at 47.92%	0.03	OK	
	LC25 at 47.92%	0.04	OK	
	LC26 at 47.92%	0.04	OK	
	LC27 at 50.00%	0.04	OK	
	LC28 at 47.92%	0.03	OK	
	LC3 at 50.00%	**0.59**	**OK**	Eq. H1-1b
	LC4 at 50.00%	0.44	OK	
	LC5 at 50.00%	0.59	OK	
	LC6 at 50.00%	0.44	OK	

	LC7 at 50.00%	0.59	OK	
	LC8 at 50.00%	0.44	OK	
	LC9 at 47.92%	0.13	OK	
	W180 at 50.00%	0.37	OK	
	W210 at 50.00%	0.27	OK	
	Wi180 at 50.00%	0.12	OK	
	Wi210 at 50.00%	0.08	OK	
	WL180 at 50.00%	0.03	OK	
	WL210 at 50.00%	0.02	OK	
58	LC1 at 50.00%	0.61	OK	
	LC10 at 50.00%	0.14	OK	
	LC11 at 47.92%	0.17	OK	Eq. H1-1b
	LC12 at 47.92%	0.26	OK	
	LC13 at 47.92%	0.07	OK	
	LC14 at 47.92%	0.05	OK	
	LC15 at 47.92%	0.08	OK	
	LC16 at 47.92%	0.08	OK	
	LC17 at 47.92%	0.08	OK	
	LC18 at 47.92%	0.05	OK	
	LC19 at 47.92%	0.09	OK	
	LC2 at 50.00%	**0.72**	**OK**	Eq. H1-1b
	LC20 at 47.92%	0.12	OK	
	LC21 at 47.92%	0.07	OK	
	LC22 at 50.00%	0.04	OK	
	LC23 at 47.92%	0.08	OK	
	LC24 at 47.92%	0.11	OK	
	LC25 at 47.92%	0.07	OK	
	LC26 at 50.00%	0.04	OK	
	LC27 at 47.92%	0.08	OK	
	LC28 at 47.92%	0.11	OK	
	LC3 at 50.00%	0.61	OK	
	LC4 at 50.00%	0.72	OK	
	LC5 at 50.00%	0.61	OK	
	LC6 at 50.00%	0.72	OK	
	LC7 at 50.00%	0.61	OK	
	LC8 at 50.00%	0.72	OK	
	LC9 at 50.00%	0.13	OK	
	W180 at 50.00%	0.38	OK	
	W210 at 50.00%	0.45	OK	
	Wi180 at 50.00%	0.12	OK	
	Wi210 at 50.00%	0.14	OK	
	WL180 at 50.00%	0.03	OK	
	WL210 at 50.00%	0.04	OK	
59	LC1 at 50.00%	0.44	OK	
	LC10 at 50.00%	0.11	OK	
	LC11 at 47.92%	0.11	OK	
	LC12 at 47.92%	0.16	OK	
	LC13 at 47.92%	0.03	OK	
	LC14 at 47.92%	0.03	OK	
	LC15 at 12.50%	0.02	OK	Eq. H1-1b
	LC16 at 47.92%	0.02	OK	
	LC17 at 50.00%	0.03	OK	
	LC18 at 50.00%	0.03	OK	
	LC19 at 50.00%	0.03	OK	
	LC2 at 50.00%	**0.56**	**OK**	Eq. H1-1b
	LC20 at 47.92%	0.04	OK	
	LC21 at 47.92%	0.04	OK	
	LC22 at 50.00%	0.03	OK	
	LC23 at 50.00%	0.03	OK	
	LC24 at 47.92%	0.04	OK	
	LC25 at 47.92%	0.05	OK	
	LC26 at 50.00%	0.03	OK	

		LC27 at 47.92%	0.04	OK	
		LC28 at 47.92%	0.05	OK	
		LC3 at 50.00%	0.44	OK	
		LC4 at 50.00%	0.56	OK	
		LC5 at 50.00%	0.44	OK	
		LC6 at 50.00%	0.56	OK	
		LC7 at 50.00%	0.44	OK	
		LC8 at 50.00%	0.56	OK	
		LC9 at 47.92%	0.11	OK	
		W180 at 50.00%	0.28	OK	
		W210 at 50.00%	0.35	OK	
		Wi180 at 50.00%	0.09	OK	
		Wi210 at 50.00%	0.11	OK	
		WL180 at 50.00%	0.03	OK	
		WL210 at 50.00%	0.03	OK	
PIPE 2x0.154	**48**	LC1 at 47.92%	0.25	OK	
		LC10 at 47.92%	0.10	OK	
		LC11 at 47.92%	0.15	OK	
		LC12 at 47.92%	0.08	OK	
		LC13 at 47.92%	0.04	OK	
		LC14 at 47.92%	0.03	OK	
		LC15 at 47.92%	0.12	OK	
		LC16 at 47.92%	0.08	OK	
		LC17 at 47.92%	0.07	OK	
		LC18 at 47.92%	0.07	OK	
		LC19 at 47.92%	0.06	OK	
		LC2 at 47.92%	0.24	OK	
		LC20 at 47.92%	0.05	OK	
		LC21 at 47.92%	0.08	OK	
		LC22 at 47.92%	0.08	OK	
		LC23 at 47.92%	0.06	OK	
		LC24 at 47.92%	0.06	OK	
		LC25 at 47.92%	0.04	OK	
		LC26 at 47.92%	0.05	OK	
		LC27 at 47.92%	0.03	OK	
		LC28 at 47.92%	0.03	OK	
		LC3 at 47.92%	**0.27**	**OK**	Eq. H1-1b
		LC4 at 47.92%	0.19	OK	
		LC5 at 47.92%	0.25	OK	
		LC6 at 47.92%	0.23	OK	
		LC7 at 47.92%	0.27	OK	
		LC8 at 47.92%	0.20	OK	
		LC9 at 37.50%	0.06	OK	
		W180 at 47.92%	0.16	OK	
		W210 at 47.92%	0.13	OK	
		Wi180 at 47.92%	0.05	OK	
		Wi210 at 47.92%	0.04	OK	
		WL180 at 47.92%	0.01	OK	
		WL210 at 47.92%	0.01	OK	
	49	LC1 at 47.92%	0.36	OK	
		LC10 at 47.92%	0.26	OK	
		LC11 at 47.92%	0.18	OK	
		LC12 at 47.92%	0.17	OK	
		LC13 at 47.92%	0.12	OK	
		LC14 at 47.92%	0.09	OK	
		LC15 at 47.92%	0.21	OK	
		LC16 at 47.92%	0.11	OK	
		LC17 at 47.92%	0.12	OK	
		LC18 at 47.92%	0.12	OK	
		LC19 at 47.92%	0.10	OK	
		LC2 at 47.92%	**0.46**	**OK**	Eq. H1-1b
		LC20 at 47.92%	0.10	OK	

	LC21 at 47.92%	0.18	OK	
	LC22 at 47.92%	0.18	OK	
	LC23 at 47.92%	0.16	OK	
	LC24 at 47.92%	0.15	OK	
	LC25 at 47.92%	0.12	OK	
	LC26 at 47.92%	0.13	OK	
	LC27 at 47.92%	0.11	OK	
	LC28 at 47.92%	0.10	OK	
	LC3 at 47.92%	0.34	OK	
	LC4 at 47.92%	0.22	OK	
	LC5 at 47.92%	0.36	OK	
	LC6 at 47.92%	0.43	OK	
	LC7 at 47.92%	0.34	OK	
	LC8 at 47.92%	0.25	OK	
	LC9 at 47.92%	0.25	OK	
	W180 at 47.92%	0.22	OK	
	W210 at 47.92%	0.21	OK	
	Wi180 at 47.92%	0.06	OK	
	Wi210 at 47.92%	0.04	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.01	OK	
52	LC1 at 47.92%	0.14	OK	
	LC10 at 47.92%	0.09	OK	
	LC11 at 47.92%	0.09	OK	
	LC12 at 47.92%	0.12	OK	
	LC13 at 47.92%	0.04	OK	
	LC14 at 47.92%	0.03	OK	
	LC15 at 47.92%	0.02	OK	
	LC16 at 47.92%	0.05	OK	
	LC17 at 47.92%	0.05	OK	
	LC18 at 47.92%	0.04	OK	
	LC19 at 47.92%	0.04	OK	
	LC2 at 47.92%	0.18	OK	
	LC20 at 47.92%	0.05	OK	
	LC21 at 47.92%	0.03	OK	
	LC22 at 47.92%	0.03	OK	
	LC23 at 37.50%	0.02	OK	
	LC24 at 47.92%	0.02	OK	
	LC25 at 47.92%	0.04	OK	
	LC26 at 47.92%	0.04	OK	
	LC27 at 47.92%	0.03	OK	
	LC28 at 47.92%	0.03	OK	
	LC3 at 10.42%	0.12	OK	
	LC4 at 47.92%	**0.20**	**OK**	Eq. H1-1b
	LC5 at 47.92%	0.14	OK	
	LC6 at 47.92%	0.18	OK	
	LC7 at 10.42%	0.12	OK	
	LC8 at 47.92%	0.19	OK	
	LC9 at 47.92%	0.12	OK	
	W180 at 10.42%	0.07	OK	Eq. H1-1b
	W210 at 47.92%	0.11	OK	
	Wi180 at 10.42%	0.03	OK	
	Wi210 at 47.92%	0.04	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.01	OK	
53	LC1 at 47.92%	**0.47**	**OK**	Eq. H1-1b
	LC10 at 47.92%	0.17	OK	
	LC11 at 12.50%	0.16	OK	
	LC12 at 47.92%	0.21	OK	
	LC13 at 47.92%	0.10	OK	
	LC14 at 47.92%	0.07	OK	
	LC15 at 47.92%	0.11	OK	

	LC16 at 47.92%	0.10	OK	
	LC17 at 47.92%	0.11	OK	
	LC18 at 47.92%	0.09	OK	
	LC19 at 47.92%	0.09	OK	
	LC2 at 47.92%	0.22	OK	
	LC20 at 47.92%	0.11	OK	
	LC21 at 47.92%	0.12	OK	
	LC22 at 47.92%	0.10	OK	
	LC23 at 47.92%	0.10	OK	
	LC24 at 47.92%	0.12	OK	
	LC25 at 47.92%	0.13	OK	
	LC26 at 47.92%	0.11	OK	
	LC27 at 47.92%	0.10	OK	
	LC28 at 47.92%	0.12	OK	
	LC3 at 47.92%	0.27	OK	
	LC4 at 47.92%	0.36	OK	
	LC5 at 47.92%	0.44	OK	
	LC6 at 47.92%	0.24	OK	
	LC7 at 47.92%	0.30	OK	
	LC8 at 47.92%	0.34	OK	
	LC9 at 47.92%	0.23	OK	
	W180 at 47.92%	0.23	OK	
	W210 at 47.92%	0.18	OK	
	Wi180 at 47.92%	0.04	OK	
	Wi210 at 12.50%	0.06	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.01	OK	
56	LC1 at 47.92%	0.23	OK	
	LC10 at 37.50%	0.05	OK	
	LC11 at 47.92%	0.08	OK	
	LC12 at 47.92%	0.12	OK	
	LC13 at 47.92%	0.03	OK	
	LC14 at 47.92%	0.02	OK	
	LC15 at 47.92%	0.04	OK	
	LC16 at 47.92%	0.04	OK	
	LC17 at 47.92%	0.04	OK	
	LC18 at 47.92%	0.03	OK	
	LC19 at 47.92%	0.03	OK	
	LC2 at 47.92%	0.18	OK	
	LC20 at 47.92%	0.05	OK	
	LC21 at 47.92%	0.04	OK	
	LC22 at 47.92%	0.02	OK	
	LC23 at 47.92%	0.03	OK	
	LC24 at 47.92%	0.04	OK	
	LC25 at 47.92%	0.03	OK	
	LC26 at 47.92%	0.03	OK	
	LC27 at 47.92%	0.04	OK	
	LC28 at 47.92%	0.04	OK	
	LC3 at 47.92%	**0.25**	**OK**	Eq. H1-1b
	LC4 at 47.92%	0.21	OK	
	LC5 at 47.92%	0.23	OK	
	LC6 at 47.92%	0.18	OK	
	LC7 at 47.92%	0.25	OK	
	LC8 at 47.92%	0.21	OK	
	LC9 at 47.92%	0.08	OK	
	W180 at 47.92%	0.15	OK	
	W210 at 47.92%	0.12	OK	
	Wi180 at 47.92%	0.04	OK	
	Wi210 at 47.92%	0.03	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.01	OK	
57	LC1 at 47.92%	0.23	OK	

	LC10 at 47.92%	0.26	OK	
	LC11 at 47.92%	0.29	OK	
	LC12 at 47.92%	0.21	OK	
	LC13 at 47.92%	0.11	OK	
	LC14 at 47.92%	0.08	OK	
	LC15 at 47.92%	0.07	OK	
	LC16 at 47.92%	0.06	OK	
	LC17 at 47.92%	0.06	OK	
	LC18 at 47.92%	0.08	OK	
	LC19 at 47.92%	0.09	OK	
	LC2 at 47.92%	0.29	OK	
	LC20 at 47.92%	0.07	OK	
	LC21 at 47.92%	0.07	OK	
	LC22 at 47.92%	0.09	OK	
	LC23 at 47.92%	0.10	OK	
	LC24 at 47.92%	0.08	OK	
	LC25 at 47.92%	0.09	OK	
	LC26 at 47.92%	0.11	OK	
	LC27 at 47.92%	0.12	OK	
	LC28 at 47.92%	0.09	OK	
	LC3 at 47.92%	**0.44**	**OK**	Eq. H1-1b
	LC4 at 47.92%	0.39	OK	
	LC5 at 47.92%	0.25	OK	
	LC6 at 47.92%	0.30	OK	
	LC7 at 47.92%	0.42	OK	
	LC8 at 47.92%	0.38	OK	
	LC9 at 47.92%	0.18	OK	
	W180 at 47.92%	0.21	OK	
	W210 at 47.92%	0.21	OK	
	Wi180 at 47.92%	0.05	OK	
	Wi210 at 47.92%	0.04	OK	
	WL180 at 47.92%	0.01	OK	
	WL210 at 47.92%	0.01	OK	
98	LC1 at 34.38%	**0.29**	**With warnings**	Eq. H1-1b
	LC10 at 95.83%	0.15	With warnings	
	LC11 at 4.17%	0.16	With warnings	
	LC12 at 33.33%	0.16	With warnings	
	LC13 at 33.33%	0.09	With warnings	
	LC14 at 33.33%	0.07	With warnings	
	LC15 at 33.33%	0.19	With warnings	
	LC16 at 33.33%	0.09	With warnings	
	LC17 at 33.33%	0.09	With warnings	
	LC18 at 33.33%	0.08	With warnings	
	LC19 at 33.33%	0.09	With warnings	
	LC2 at 96.88%	0.27	With warnings	Eq. H1-1b
	LC20 at 33.33%	0.10	With warnings	
	LC21 at 33.33%	0.16	With warnings	
	LC22 at 33.33%	0.15	With warnings	
	LC23 at 33.33%	0.16	With warnings	
	LC24 at 33.33%	0.17	With warnings	
	LC25 at 34.38%	0.09	With warnings	
	LC26 at 95.83%	0.08	With warnings	
	LC27 at 33.33%	0.09	With warnings	
	LC28 at 33.33%	0.09	With warnings	
	LC3 at 4.17%	0.26	With warnings	Eq. H1-1b
	LC4 at 33.33%	0.28	With warnings	Eq. H1-1b
	LC5 at 34.38%	0.27	With warnings	
	LC6 at 96.88%	0.26	With warnings	
	LC7 at 4.17%	0.24	With warnings	
	LC8 at 33.33%	0.25	With warnings	
	LC9 at 95.83%	0.16	With warnings	
	W180 at 3.13%	0.13	With warnings	
	W210 at 96.88%	0.17	With warnings	

	Wi180 at 3.13%	0.04	With warnings	
	Wi210 at 96.88%	0.04	With warnings	
	WL180 at 34.38%	0.01	With warnings	
	WL210 at 96.88%	0.01	With warnings	
100	LC1 at 5.00%	**0.34**	**With warnings**	Eq. H1-1b
	LC10 at 33.75%	0.20	With warnings	
	LC11 at 33.75%	0.19	With warnings	
	LC12 at 32.50%	0.16	With warnings	
	LC13 at 32.50%	0.09	With warnings	
	LC14 at 32.50%	0.06	With warnings	
	LC15 at 5.00%	0.10	With warnings	
	LC16 at 5.00%	0.08	With warnings	
	LC17 at 5.00%	0.10	With warnings	
	LC18 at 5.00%	0.08	With warnings	
	LC19 at 5.00%	0.07	With warnings	
	LC2 at 3.75%	0.30	With warnings	
	LC20 at 5.00%	0.09	With warnings	
	LC21 at 5.00%	0.10	With warnings	
	LC22 at 5.00%	0.09	With warnings	
	LC23 at 5.00%	0.08	With warnings	
	LC24 at 5.00%	0.10	With warnings	
	LC25 at 32.50%	0.10	With warnings	
	LC26 at 32.50%	0.09	With warnings	
	LC27 at 32.50%	0.08	With warnings	
	LC28 at 5.00%	0.09	With warnings	
	LC3 at 96.25%	0.25	With warnings	Eq. H1-1b
	LC4 at 3.75%	0.30	With warnings	Eq. H1-1b
	LC5 at 5.00%	0.32	With warnings	
	LC6 at 3.75%	0.30	With warnings	Eq. H1-1b
	LC7 at 96.25%	0.25	With warnings	
	LC8 at 3.75%	0.30	With warnings	
	LC9 at 32.50%	0.20	With warnings	
	W180 at 5.00%	0.17	With warnings	
	W210 at 3.75%	0.18	With warnings	
	Wi180 at 5.00%	0.05	With warnings	
	Wi210 at 3.75%	0.05	With warnings	
	WL180 at 5.00%	0.01	With warnings	
	WL210 at 3.75%	0.01	With warnings	
101	LC1 at 3.75%	0.26	With warnings	Eq. H1-1b
	LC10 at 32.50%	0.21	With warnings	
	LC11 at 32.50%	0.20	With warnings	
	LC12 at 33.75%	0.19	With warnings	
	LC13 at 32.50%	0.09	With warnings	
	LC14 at 32.50%	0.06	With warnings	
	LC15 at 95.00%	0.09	With warnings	
	LC16 at 32.50%	0.09	With warnings	
	LC17 at 32.50%	0.08	With warnings	
	LC18 at 32.50%	0.09	With warnings	
	LC19 at 32.50%	0.09	With warnings	
	LC2 at 5.00%	**0.36**	**With warnings**	Eq. H1-1b
	LC20 at 33.75%	0.08	With warnings	
	LC21 at 95.00%	0.09	With warnings	
	LC22 at 32.50%	0.08	With warnings	
	LC23 at 33.75%	0.08	With warnings	
	LC24 at 95.00%	0.09	With warnings	
	LC25 at 95.00%	0.08	With warnings	
	LC26 at 32.50%	0.08	With warnings	
	LC27 at 33.75%	0.08	With warnings	
	LC28 at 95.00%	0.09	With warnings	
	LC3 at 3.75%	0.24	With warnings	
	LC4 at 95.00%	0.27	With warnings	Eq. H1-1b
	LC5 at 3.75%	0.25	With warnings	

		LC6 at 5.00%	0.34	With warnings	
		LC7 at 3.75%	0.25	With warnings	
		LC8 at 33.75%	0.25	With warnings	
		LC9 at 32.50%	0.14	With warnings	
		W180 at 3.75%	0.16	With warnings	
		W210 at 5.00%	0.18	With warnings	
		Wi180 at 96.25%	0.05	With warnings	
		Wi210 at 5.00%	0.05	With warnings	
		WL180 at 3.75%	0.01	With warnings	
		WL210 at 5.00%	0.01	With warnings	
PIPE 3-1_2x0.226	**26**	LC1 at 8.33%	0.16	OK	Eq. H1-1b
		LC10 at 0.00%	0.16	OK	
		LC11 at 0.00%	**0.16**	**OK**	Eq. H1-1b
		LC12 at 0.00%	0.15	OK	
		LC13 at 0.00%	0.07	OK	
		LC14 at 0.00%	0.06	OK	
		LC15 at 0.00%	0.09	OK	
		LC16 at 0.00%	0.08	OK	
		LC17 at 0.00%	0.08	OK	
		LC18 at 0.00%	0.08	OK	
		LC19 at 0.00%	0.09	OK	
		LC2 at 8.33%	0.12	OK	
		LC20 at 0.00%	0.08	OK	
		LC21 at 0.00%	0.08	OK	
		LC22 at 0.00%	0.09	OK	
		LC23 at 0.00%	0.09	OK	
		LC24 at 0.00%	0.08	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 91.67%	0.13	OK	Eq. H1-1b
		LC4 at 0.00%	0.09	OK	
		LC5 at 8.33%	0.15	OK	
		LC6 at 8.33%	0.11	OK	
		LC7 at 91.67%	0.12	OK	
		LC8 at 0.00%	0.08	OK	
		LC9 at 0.00%	0.15	OK	
		W180 at 8.33%	0.07	OK	
		W210 at 93.75%	0.04	OK	
		Wi180 at 8.33%	0.02	OK	
		Wi210 at 8.33%	0.01	OK	
		WL180 at 93.75%	0.01	OK	
		WL210 at 93.75%	0.00	OK	
	72	LC1 at 100.00%	**0.16**	**OK**	Eq. H1-1b
		LC10 at 100.00%	0.09	OK	
		LC11 at 100.00%	0.08	OK	
		LC12 at 100.00%	0.08	OK	
		LC13 at 100.00%	0.05	OK	
		LC14 at 100.00%	0.04	OK	
		LC15 at 50.00%	0.13	OK	Eq. H1-1b
		LC16 at 100.00%	0.05	OK	
		LC17 at 100.00%	0.05	OK	
		LC18 at 100.00%	0.05	OK	
		LC19 at 100.00%	0.05	OK	
		LC2 at 100.00%	0.10	OK	
		LC20 at 100.00%	0.05	OK	
		LC21 at 100.00%	0.10	OK	
		LC22 at 100.00%	0.09	OK	
		LC23 at 100.00%	0.09	OK	
		LC24 at 100.00%	0.09	OK	
		LC25 at 100.00%	0.05	OK	

	LC26 at 100.00%	0.05	OK	
	LC27 at 100.00%	0.05	OK	
	LC28 at 100.00%	0.05	OK	
	LC3 at 0.00%	0.09	OK	
	LC4 at 100.00%	0.06	OK	
	LC5 at 100.00%	0.15	OK	
	LC6 at 100.00%	0.09	OK	
	LC7 at 0.00%	0.09	OK	
	LC8 at 100.00%	0.05	OK	
	LC9 at 100.00%	0.10	OK	
	W180 at 100.00%	0.07	OK	
	W210 at 0.00%	0.03	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 0.00%	0.00	OK	
73	LC1 at 4.17%	0.17	OK	Eq. H1-1b
	LC10 at 100.00%	0.16	OK	Eq. H1-1b
	LC11 at 100.00%	0.15	OK	
	LC12 at 100.00%	0.14	OK	
	LC13 at 100.00%	0.07	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 100.00%	0.09	OK	
	LC16 at 100.00%	0.08	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%	0.12	OK	
	LC20 at 100.00%	0.07	OK	
	LC21 at 6.25%	0.10	OK	
	LC22 at 6.25%	0.10	OK	
	LC23 at 6.25%	0.10	OK	
	LC24 at 6.25%	0.10	OK	
	LC25 at 100.00%	0.08	OK	
	LC26 at 100.00%	0.08	OK	
	LC27 at 100.00%	0.08	OK	
	LC28 at 100.00%	0.08	OK	
	LC3 at 91.67%	0.10	OK	
	LC4 at 91.67%	**0.18**	**OK**	Eq. H1-1b
	LC5 at 4.17%	0.16	OK	
	LC6 at 91.67%	0.12	OK	
	LC7 at 4.17%	0.09	OK	
	LC8 at 91.67%	0.17	OK	
	LC9 at 100.00%	0.15	OK	
	W180 at 4.17%	0.08	OK	
	W210 at 91.67%	0.09	OK	
	Wi180 at 4.17%	0.02	OK	
	Wi210 at 91.67%	0.02	OK	
	WL180 at 4.17%	0.01	OK	
	WL210 at 91.67%	0.01	OK	
77	LC1 at 0.00%	0.08	OK	
	LC10 at 0.00%	0.15	OK	
	LC11 at 0.00%	0.16	OK	
	LC12 at 0.00%	**0.18**	**OK**	Eq. H1-1b
	LC13 at 0.00%	0.08	OK	
	LC14 at 0.00%	0.06	OK	
	LC15 at 0.00%	0.07	OK	
	LC16 at 0.00%	0.07	OK	
	LC17 at 0.00%	0.07	OK	
	LC18 at 0.00%	0.07	OK	
	LC19 at 0.00%	0.07	OK	
	LC2 at 8.33%	0.16	OK	Eq. H1-1b

	LC20 at 0.00%	0.08	OK	
	LC21 at 0.00%	0.07	OK	
	LC22 at 0.00%	0.07	OK	
	LC23 at 0.00%	0.07	OK	
	LC24 at 0.00%	0.08	OK	
	LC25 at 0.00%	0.08	OK	
	LC26 at 0.00%	0.07	OK	
	LC27 at 0.00%	0.07	OK	
	LC28 at 0.00%	0.08	OK	
	LC3 at 8.33%	0.09	OK	
	LC4 at 0.00%	0.14	OK	
	LC5 at 0.00%	0.06	OK	
	LC6 at 8.33%	0.15	OK	
	LC7 at 8.33%	0.08	OK	
	LC8 at 6.25%	0.12	OK	
	LC9 at 0.00%	0.16	OK	
	W180 at 93.75%	0.03	OK	
	W210 at 8.33%	0.08	OK	
	Wi180 at 93.75%	0.01	OK	
	Wi210 at 8.33%	0.02	OK	
	WL180 at 93.75%	0.00	OK	
	WL210 at 8.33%	0.01	OK	
78	LC1 at 75.00%	0.05	OK	
	LC10 at 100.00%	0.12	OK	
	LC11 at 100.00%	0.12	OK	
	LC12 at 100.00%	**0.12**	**OK**	Eq. H1-1b
	LC13 at 100.00%	0.05	OK	
	LC14 at 100.00%	0.04	OK	
	LC15 at 100.00%	0.04	OK	
	LC16 at 100.00%	0.03	OK	
	LC17 at 100.00%	0.04	OK	
	LC18 at 100.00%	0.04	OK	
	LC19 at 100.00%	0.04	OK	
	LC2 at 100.00%	0.08	OK	
	LC20 at 100.00%	0.04	OK	
	LC21 at 100.00%	0.04	OK	
	LC22 at 100.00%	0.05	OK	
	LC23 at 100.00%	0.05	OK	
	LC24 at 100.00%	0.04	OK	
	LC25 at 100.00%	0.05	OK	
	LC26 at 100.00%	0.05	OK	
	LC27 at 100.00%	0.05	OK	
	LC28 at 100.00%	0.05	OK	
	LC3 at 100.00%	0.07	OK	
	LC4 at 100.00%	0.07	OK	
	LC5 at 56.25%	0.04	OK	
	LC6 at 100.00%	0.07	OK	
	LC7 at 0.00%	0.06	OK	
	LC8 at 100.00%	0.06	OK	
	LC9 at 100.00%	0.12	OK	
	W180 at 0.00%	0.03	OK	
	W210 at 100.00%	0.03	OK	
	Wi180 at 0.00%	0.01	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
79	LC1 at 100.00%	0.15	OK	
	LC10 at 100.00%	0.14	OK	
	LC11 at 100.00%	0.16	OK	
	LC12 at 100.00%	0.17	OK	Eq. H1-1b
	LC13 at 100.00%	0.07	OK	
	LC14 at 100.00%	0.06	OK	

	LC15 at 100.00%	0.09	OK	
	LC16 at 100.00%	0.10	OK	
	LC17 at 100.00%	0.09	OK	
	LC18 at 100.00%	0.09	OK	
	LC19 at 100.00%	0.09	OK	
	LC2 at 6.25%	0.12	OK	
	LC20 at 100.00%	0.09	OK	
	LC21 at 100.00%	0.08	OK	
	LC22 at 100.00%	0.08	OK	
	LC23 at 100.00%	0.08	OK	
	LC24 at 100.00%	0.08	OK	
	LC25 at 100.00%	0.07	OK	
	LC26 at 100.00%	0.07	OK	
	LC27 at 100.00%	0.08	OK	
	LC28 at 100.00%	0.08	OK	
	LC3 at 6.25%	**0.17**	**OK**	Eq. H1-1b
	LC4 at 93.75%	0.15	OK	Eq. H1-1b
	LC5 at 100.00%	0.14	OK	
	LC6 at 6.25%	0.11	OK	
	LC7 at 6.25%	0.16	OK	
	LC8 at 93.75%	0.14	OK	
	LC9 at 100.00%	0.14	OK	
	W180 at 6.25%	0.08	OK	
	W210 at 93.75%	0.06	OK	
	Wi180 at 6.25%	0.02	OK	
	Wi210 at 93.75%	0.02	OK	
	WL180 at 6.25%	0.01	OK	
	WL210 at 93.75%	0.01	OK	
80	LC1 at 8.33%	0.14	OK	Eq. H1-1b
	LC10 at 0.00%	0.16	OK	
	LC11 at 0.00%	0.14	OK	
	LC12 at 0.00%	0.15	OK	
	LC13 at 0.00%	0.08	OK	
	LC14 at 0.00%	0.06	OK	
	LC15 at 0.00%	0.09	OK	
	LC16 at 0.00%	0.08	OK	
	LC17 at 0.00%	0.08	OK	
	LC18 at 0.00%	0.08	OK	
	LC19 at 0.00%	0.07	OK	
	LC2 at 93.75%	0.11	OK	
	LC20 at 0.00%	0.08	OK	
	LC21 at 0.00%	0.09	OK	
	LC22 at 0.00%	0.09	OK	
	LC23 at 0.00%	0.08	OK	
	LC24 at 0.00%	0.09	OK	
	LC25 at 0.00%	0.09	OK	
	LC26 at 0.00%	0.09	OK	
	LC27 at 0.00%	0.09	OK	
	LC28 at 0.00%	0.09	OK	
	LC3 at 0.00%	0.11	OK	
	LC4 at 93.75%	0.15	OK	Eq. H1-1b
	LC5 at 8.33%	0.12	OK	
	LC6 at 93.75%	0.12	OK	
	LC7 at 8.33%	0.10	OK	
	LC8 at 93.75%	0.14	OK	
	LC9 at 0.00%	**0.16**	**OK**	Eq. H1-1b
	W180 at 8.33%	0.05	OK	
	W210 at 93.75%	0.08	OK	
	Wi180 at 8.33%	0.02	OK	
	Wi210 at 93.75%	0.02	OK	
	WL180 at 8.33%	0.00	OK	
	WL210 at 93.75%	0.01	OK	

81	LC1 at 100.00%	0.07	OK	
	LC10 at 100.00%	0.11	OK	
	LC11 at 100.00%	0.11	OK	
	LC12 at 100.00%	0.12	OK	
	LC13 at 100.00%	0.05	OK	
	LC14 at 100.00%	0.04	OK	
	LC15 at 100.00%	0.06	OK	
	LC16 at 100.00%	0.05	OK	
	LC17 at 100.00%	0.05	OK	
	LC18 at 100.00%	0.05	OK	
	LC19 at 100.00%	0.05	OK	
	LC2 at 0.00%	0.11	OK	
	LC20 at 100.00%	0.06	OK	
	LC21 at 100.00%	0.06	OK	
	LC22 at 100.00%	0.05	OK	
	LC23 at 100.00%	0.05	OK	
	LC24 at 100.00%	0.06	OK	
	LC25 at 100.00%	0.05	OK	
	LC26 at 100.00%	0.05	OK	
	LC27 at 100.00%	0.05	OK	
	LC28 at 100.00%	0.06	OK	
	LC3 at 100.00%	0.06	OK	
	LC4 at 0.00%	**0.13**	**OK**	Eq. H1-1b
	LC5 at 100.00%	0.06	OK	
	LC6 at 0.00%	0.11	OK	
	LC7 at 100.00%	0.05	OK	
	LC8 at 0.00%	0.12	OK	
	LC9 at 100.00%	0.11	OK	
	W180 at 100.00%	0.02	OK	
	W210 at 0.00%	0.07	OK	
	Wi180 at 0.00%	0.00	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.01	OK	
82	LC1 at 91.67%	**0.18**	**OK**	Eq. H1-1b
	LC10 at 100.00%	0.16	OK	
	LC11 at 100.00%	0.15	OK	
	LC12 at 100.00%	0.16	OK	
	LC13 at 100.00%	0.07	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 100.00%	0.07	OK	
	LC16 at 100.00%	0.07	OK	
	LC17 at 100.00%	0.08	OK	
	LC18 at 100.00%	0.07	OK	
	LC19 at 100.00%	0.07	OK	
	LC2 at 100.00%	0.12	OK	
	LC20 at 100.00%	0.07	OK	
	LC21 at 100.00%	0.08	OK	
	LC22 at 100.00%	0.07	OK	
	LC23 at 100.00%	0.07	OK	
	LC24 at 100.00%	0.07	OK	
	LC25 at 100.00%	0.08	OK	
	LC26 at 100.00%	0.07	OK	
	LC27 at 100.00%	0.07	OK	
	LC28 at 100.00%	0.07	OK	
	LC3 at 6.25%	0.14	OK	
	LC4 at 6.25%	0.17	OK	Eq. H1-1b
	LC5 at 91.67%	0.16	OK	
	LC6 at 100.00%	0.11	OK	
	LC7 at 6.25%	0.13	OK	
	LC8 at 6.25%	0.16	OK	
	LC9 at 100.00%	0.17	OK	Eq. H1-1b
	W180 at 91.67%	0.08	OK	

		W210 at 6.25%	0.07	OK	
		Wi180 at 91.67%	0.02	OK	
		Wi210 at 6.25%	0.02	OK	
		WL180 at 91.67%	0.01	OK	
		WL210 at 4.17%	0.01	OK	
PL 6x5/8	**6**	LC1 at 50.00%	0.48	OK	
		LC10 at 50.00%	0.46	OK	
		LC11 at 50.00%	**0.54**	**OK**	Eq. H3-6
		LC12 at 50.00%	0.52	OK	
		LC13 at 50.00%	0.20	OK	
		LC14 at 50.00%	0.15	OK	
		LC15 at 0.00%	0.23	OK	
		LC16 at 50.00%	0.29	OK	
		LC17 at 50.00%	0.26	OK	
		LC18 at 50.00%	0.26	OK	
		LC19 at 50.00%	0.25	OK	
		LC2 at 0.00%	0.30	OK	
		LC20 at 50.00%	0.26	OK	
		LC21 at 50.00%	0.22	OK	
		LC22 at 50.00%	0.21	OK	
		LC23 at 50.00%	0.21	OK	
		LC24 at 50.00%	0.21	OK	
		LC25 at 50.00%	0.21	OK	
		LC26 at 50.00%	0.20	OK	
		LC27 at 50.00%	0.20	OK	
		LC28 at 50.00%	0.21	OK	
		LC3 at 50.00%	0.46	OK	Eq. H1-1b
		LC4 at 100.00%	0.33	OK	
		LC5 at 50.00%	0.46	OK	
		LC6 at 0.00%	0.22	OK	
		LC7 at 50.00%	0.43	OK	
		LC8 at 100.00%	0.24	OK	
		LC9 at 50.00%	0.46	OK	Eq. H3-1
		W180 at 50.00%	0.24	OK	
		W210 at 0.00%	0.11	OK	
		Wi180 at 50.00%	0.07	OK	
		Wi210 at 0.00%	0.03	OK	
		WL180 at 50.00%	0.02	OK	
		WL210 at 0.00%	0.01	OK	
	18	LC1 at 0.00%	0.39	OK	
		LC10 at 50.00%	**0.50**	**OK**	Eq. H3-6
		LC11 at 50.00%	0.45	OK	
		LC12 at 50.00%	0.42	OK	
		LC13 at 50.00%	0.21	OK	
		LC14 at 50.00%	0.15	OK	
		LC15 at 50.00%	0.24	OK	
		LC16 at 50.00%	0.20	OK	
		LC17 at 50.00%	0.20	OK	
		LC18 at 50.00%	0.20	OK	
		LC19 at 50.00%	0.21	OK	
		LC2 at 50.00%	0.40	OK	Eq. H1-1b
		LC20 at 50.00%	0.21	OK	
		LC21 at 50.00%	0.24	OK	
		LC22 at 50.00%	0.24	OK	
		LC23 at 50.00%	0.25	OK	
		LC24 at 50.00%	0.25	OK	
		LC25 at 0.00%	0.25	OK	
		LC26 at 50.00%	0.25	OK	
		LC27 at 50.00%	0.25	OK	
		LC28 at 0.00%	0.26	OK	
		LC3 at 50.00%	0.27	OK	
		LC4 at 50.00%	0.41	OK	

		LC5 at 0.00%	0.31	OK	
		LC6 at 50.00%	0.37	OK	
		LC7 at 0.00%	0.24	OK	
		LC8 at 50.00%	0.34	OK	
		LC9 at 50.00%	0.45	OK	
		W180 at 0.00%	0.15	OK	
		W210 at 50.00%	0.22	OK	
		Wi180 at 0.00%	0.05	OK	
		Wi210 at 50.00%	0.06	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 50.00%	0.02	OK	
	24	LC1 at 100.00%	0.42	OK	Eq. H1-1b
		LC10 at 50.00%	0.48	OK	
		LC11 at 50.00%	0.47	OK	
		LC12 at 50.00%	0.54	OK	
		LC13 at 50.00%	0.20	OK	
		LC14 at 50.00%	0.15	OK	
		LC15 at 50.00%	0.20	OK	
		LC16 at 50.00%	0.20	OK	
		LC17 at 50.00%	0.20	OK	
		LC18 at 50.00%	0.21	OK	
		LC19 at 50.00%	0.20	OK	
		LC2 at 0.00%	0.42	OK	
		LC20 at 50.00%	0.20	OK	
		LC21 at 50.00%	0.20	OK	
		LC22 at 50.00%	0.20	OK	
		LC23 at 50.00%	0.20	OK	
		LC24 at 50.00%	0.19	OK	
		LC25 at 50.00%	0.20	OK	
		LC26 at 50.00%	0.20	OK	
		LC27 at 50.00%	0.20	OK	
		LC28 at 50.00%	0.19	OK	
		LC3 at 50.00%	0.33	OK	
		LC4 at 0.00%	0.43	OK	Eq. H1-1b
		LC5 at 100.00%	0.40	OK	
		LC6 at 0.00%	0.36	OK	
		LC7 at 50.00%	0.26	OK	
		LC8 at 0.00%	0.41	OK	
		LC9 at 50.00%	**0.55**	**OK**	Eq. H3-6
		W180 at 100.00%	0.20	OK	
		W210 at 0.00%	0.23	OK	
		Wi180 at 100.00%	0.06	OK	
		Wi210 at 0.00%	0.07	OK	
		WL180 at 100.00%	0.02	OK	
		WL210 at 0.00%	0.02	OK	
T2L 3X3X1_4X3_8	**83**	LC1 at 0.00%	0.20	OK	
		LC10 at 0.00%	0.47	OK	
		LC11 at 0.00%	0.50	OK	
		LC12 at 0.00%	**0.51**	**OK**	Eq. H2-1
		LC13 at 0.00%	0.24	OK	
		LC14 at 0.00%	0.18	OK	
		LC15 at 0.00%	0.28	OK	
		LC16 at 0.00%	0.24	OK	
		LC17 at 0.00%	0.24	OK	
		LC18 at 0.00%	0.23	OK	
		LC19 at 0.00%	0.24	OK	
		LC2 at 0.00%	0.14	OK	
		LC20 at 0.00%	0.25	OK	
		LC21 at 0.00%	0.28	OK	
		LC22 at 0.00%	0.27	OK	
		LC23 at 0.00%	0.28	OK	
		LC24 at 0.00%	0.28	OK	

	LC25 at 0.00%	0.32	OK	
	LC26 at 0.00%	0.32	OK	
	LC27 at 0.00%	0.33	OK	
	LC28 at 0.00%	0.33	OK	
	LC3 at 0.00%	0.30	OK	
	LC4 at 0.00%	0.35	OK	
	LC5 at 0.00%	0.14	OK	
	LC6 at 0.00%	0.08	OK	
	LC7 at 0.00%	0.24	OK	
	LC8 at 0.00%	0.30	OK	
	LC9 at 0.00%	0.48	OK	
	W180 at 0.00%	0.05	OK	
	W210 at 0.00%	0.07	OK	
	Wi180 at 0.00%	0.02	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.01	OK	
84	LC1 at 0.00%	0.23	OK	
	LC10 at 0.00%	**0.55**	**OK**	Eq. H2-1
	LC11 at 0.00%	0.55	OK	
	LC12 at 0.00%	0.53	OK	
	LC13 at 0.00%	0.24	OK	
	LC14 at 0.00%	0.18	OK	
	LC15 at 0.00%	0.22	OK	
	LC16 at 0.00%	0.22	OK	
	LC17 at 0.00%	0.23	OK	
	LC18 at 0.00%	0.23	OK	
	LC19 at 0.00%	0.22	OK	
	LC2 at 0.00%	0.30	OK	
	LC20 at 0.00%	0.22	OK	
	LC21 at 0.00%	0.23	OK	
	LC22 at 0.00%	0.23	OK	
	LC23 at 0.00%	0.23	OK	
	LC24 at 0.00%	0.22	OK	
	LC25 at 0.00%	0.23	OK	
	LC26 at 0.00%	0.23	OK	
	LC27 at 0.00%	0.23	OK	
	LC28 at 0.00%	0.22	OK	
	LC3 at 0.00%	0.28	OK	
	LC4 at 0.00%	0.18	OK	
	LC5 at 100.00%	0.19	OK	
	LC6 at 0.00%	0.24	OK	
	LC7 at 0.00%	0.22	OK	
	LC8 at 0.00%	0.12	OK	
	LC9 at 0.00%	0.53	OK	
	W180 at 100.00%	0.11	OK	
	W210 at 100.00%	0.03	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.00	OK	
85	LC1 at 0.00%	0.30	OK	
	LC10 at 0.00%	0.52	OK	
	LC11 at 0.00%	0.51	OK	
	LC12 at 0.00%	0.53	OK	
	LC13 at 0.00%	0.23	OK	
	LC14 at 0.00%	0.17	OK	
	LC15 at 0.00%	0.25	OK	
	LC16 at 0.00%	0.36	OK	
	LC17 at 0.00%	0.31	OK	
	LC18 at 0.00%	0.30	OK	
	LC19 at 0.00%	0.30	OK	

		LC2 at 100.00%	0.24	OK	
		LC20 at 0.00%	0.30	OK	
		LC21 at 0.00%	0.24	OK	
		LC22 at 0.00%	0.23	OK	
		LC23 at 0.00%	0.23	OK	
		LC24 at 0.00%	0.23	OK	
		LC25 at 0.00%	0.23	OK	
		LC26 at 0.00%	0.22	OK	
		LC27 at 0.00%	0.22	OK	
		LC28 at 0.00%	0.23	OK	
		LC3 at 0.00%	0.16	OK	
		LC4 at 0.00%	0.26	OK	
		LC5 at 0.00%	0.25	OK	
		LC6 at 100.00%	0.22	OK	
		LC7 at 0.00%	0.10	OK	
		LC8 at 100.00%	0.23	OK	
		LC9 at 0.00%	**0.54**	**OK**	Eq. H2-1
		W180 at 0.00%	0.03	OK	
		W210 at 100.00%	0.11	OK	
		Wi180 at 0.00%	0.01	OK	
		Wi210 at 100.00%	0.02	OK	
		WL180 at 100.00%	0.00	OK	
		WL210 at 100.00%	0.01	OK	
T2LU 2-1_2X1-1_2x1_4x3_8	**29**	LC1 at 0.00%	0.46	OK	
		LC10 at 0.00%	**0.65**	**OK**	Eq. H1-1b
		LC11 at 0.00%	0.64	OK	
		LC12 at 0.00%	0.63	OK	
		LC13 at 0.00%	0.32	OK	
		LC14 at 0.00%	0.24	OK	
		LC15 at 0.00%	0.42	OK	
		LC16 at 0.00%	0.38	OK	
		LC17 at 0.00%	0.36	OK	
		LC18 at 0.00%	0.36	OK	
		LC19 at 0.00%	0.36	OK	
		LC2 at 0.00%	0.39	OK	
		LC20 at 0.00%	0.36	OK	
		LC21 at 0.00%	0.36	OK	
		LC22 at 0.00%	0.36	OK	
		LC23 at 0.00%	0.36	OK	
		LC24 at 0.00%	0.36	OK	
		LC25 at 0.00%	0.33	OK	
		LC26 at 0.00%	0.33	OK	
		LC27 at 0.00%	0.32	OK	
		LC28 at 0.00%	0.32	OK	
		LC3 at 0.00%	0.31	OK	
		LC4 at 0.00%	0.32	OK	
		LC5 at 0.00%	0.39	OK	
		LC6 at 100.00%	0.35	OK	
		LC7 at 0.00%	0.23	OK	
		LC8 at 0.00%	0.24	OK	
		LC9 at 0.00%	0.64	OK	
		W180 at 0.00%	0.08	OK	
		W210 at 100.00%	0.11	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	
	33	LC1 at 0.00%	0.27	OK	
		LC10 at 0.00%	0.67	OK	
		LC11 at 0.00%	0.68	OK	
		LC12 at 0.00%	**0.69**	**OK**	Eq. H1-1b
		LC13 at 0.00%	0.32	OK	

	LC14 at 0.00%	0.24	OK	
	LC15 at 0.00%	0.30	OK	
	LC16 at 0.00%	0.32	OK	
	LC17 at 0.00%	0.31	OK	
	LC18 at 0.00%	0.31	OK	
	LC19 at 0.00%	0.32	OK	
	LC2 at 0.00%	0.52	OK	
	LC20 at 0.00%	0.32	OK	
	LC21 at 0.00%	0.31	OK	
	LC22 at 0.00%	0.31	OK	
	LC23 at 0.00%	0.31	OK	
	LC24 at 0.00%	0.31	OK	
	LC25 at 0.00%	0.31	OK	
	LC26 at 0.00%	0.31	OK	
	LC27 at 0.00%	0.32	OK	
	LC28 at 0.00%	0.32	OK	
	LC3 at 0.00%	0.38	OK	
	LC4 at 100.00%	0.44	OK	Eq. H2-1
	LC5 at 0.00%	0.19	OK	
	LC6 at 0.00%	0.44	OK	
	LC7 at 0.00%	0.31	OK	
	LC8 at 100.00%	0.40	OK	
	LC9 at 0.00%	0.67	OK	
	W180 at 0.00%	0.05	OK	
	W210 at 100.00%	0.16	OK	
	Wi180 at 100.00%	0.02	OK	
	Wi210 at 100.00%	0.04	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 100.00%	0.01	OK	
35	LC1 at 100.00%	0.44	OK	Eq. H2-1
	LC10 at 0.00%	0.63	OK	
	LC11 at 0.00%	0.62	OK	
	LC12 at 0.00%	0.63	OK	
	LC13 at 0.00%	0.32	OK	
	LC14 at 0.00%	0.24	OK	
	LC15 at 0.00%	0.38	OK	
	LC16 at 0.00%	0.33	OK	
	LC17 at 0.00%	0.33	OK	
	LC18 at 0.00%	0.33	OK	
	LC19 at 0.00%	0.32	OK	
	LC2 at 0.00%	0.30	OK	
	LC20 at 0.00%	0.33	OK	
	LC21 at 0.00%	0.37	OK	
	LC22 at 0.00%	0.37	OK	
	LC23 at 0.00%	0.37	OK	
	LC24 at 0.00%	0.37	OK	
	LC25 at 0.00%	0.37	OK	
	LC26 at 0.00%	0.36	OK	
	LC27 at 0.00%	0.36	OK	
	LC28 at 0.00%	0.37	OK	
	LC3 at 0.00%	0.44	OK	
	LC4 at 0.00%	0.37	OK	
	LC5 at 100.00%	0.40	OK	
	LC6 at 0.00%	0.22	OK	
	LC7 at 0.00%	0.37	OK	
	LC8 at 0.00%	0.29	OK	
	LC9 at 0.00%	**0.64**	**OK**	Eq. H1-1b
	W180 at 100.00%	0.12	OK	
	W210 at 100.00%	0.05	OK	
	Wi180 at 100.00%	0.04	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.00	OK	

60	LC1 at 100.00%	0.55	OK	
	LC10 at 100.00%	0.67	OK	
	LC11 at 100.00%	0.69	OK	
	LC12 at 100.00%	**0.70**	**OK**	Eq. H1-1b
	LC13 at 100.00%	0.33	OK	
	LC14 at 100.00%	0.25	OK	
	LC15 at 100.00%	0.39	OK	
	LC16 at 100.00%	0.40	OK	
	LC17 at 100.00%	0.37	OK	
	LC18 at 100.00%	0.37	OK	
	LC19 at 100.00%	0.37	OK	
	LC2 at 100.00%	0.35	OK	
	LC20 at 100.00%	0.38	OK	
	LC21 at 100.00%	0.35	OK	
	LC22 at 100.00%	0.35	OK	
	LC23 at 100.00%	0.36	OK	
	LC24 at 100.00%	0.36	OK	
	LC25 at 100.00%	0.33	OK	
	LC26 at 100.00%	0.33	OK	
	LC27 at 100.00%	0.34	OK	
	LC28 at 100.00%	0.34	OK	
	LC3 at 100.00%	0.36	OK	
	LC4 at 100.00%	0.42	OK	
	LC5 at 100.00%	0.47	OK	
	LC6 at 100.00%	0.27	OK	
	LC7 at 0.00%	0.29	OK	
	LC8 at 100.00%	0.34	OK	
	LC9 at 100.00%	0.68	OK	
	W180 at 0.00%	0.14	OK	
	W210 at 0.00%	0.11	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
61	LC1 at 0.00%	0.43	OK	
	LC10 at 100.00%	0.71	OK	
	LC11 at 100.00%	0.70	OK	
	LC12 at 100.00%	0.71	OK	
	LC13 at 100.00%	0.33	OK	
	LC14 at 100.00%	0.25	OK	
	LC15 at 100.00%	0.32	OK	
	LC16 at 100.00%	0.33	OK	
	LC17 at 100.00%	0.33	OK	
	LC18 at 100.00%	0.33	OK	
	LC19 at 100.00%	0.33	OK	
	LC2 at 100.00%	0.40	OK	
	LC20 at 100.00%	0.33	OK	
	LC21 at 100.00%	0.33	OK	
	LC22 at 100.00%	0.32	OK	
	LC23 at 100.00%	0.32	OK	
	LC24 at 100.00%	0.32	OK	
	LC25 at 100.00%	0.33	OK	
	LC26 at 100.00%	0.33	OK	
	LC27 at 100.00%	0.33	OK	
	LC28 at 100.00%	0.33	OK	
	LC3 at 100.00%	0.48	OK	
	LC4 at 100.00%	0.31	OK	
	LC5 at 0.00%	0.38	OK	
	LC6 at 100.00%	0.32	OK	
	LC7 at 100.00%	0.40	OK	
	LC8 at 100.00%	0.22	OK	
	LC9 at 100.00%	**0.73**	**OK**	Eq. H1-1b

	W180 at 100.00%	0.10	OK	
	W210 at 100.00%	0.04	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 100.00%	0.02	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.00	OK	
62	LC1 at 100.00%	0.33	OK	
	LC10 at 100.00%	**0.66**	**OK**	Eq. H1-1b
	LC11 at 100.00%	0.66	OK	
	LC12 at 100.00%	0.63	OK	
	LC13 at 100.00%	0.33	OK	
	LC14 at 100.00%	0.25	OK	
	LC15 at 100.00%	0.44	OK	
	LC16 at 100.00%	0.34	OK	
	LC17 at 100.00%	0.34	OK	
	LC18 at 100.00%	0.35	OK	
	LC19 at 100.00%	0.34	OK	
	LC2 at 0.00%	0.57	OK	Eq. H2-1
	LC20 at 100.00%	0.34	OK	
	LC21 at 100.00%	0.41	OK	
	LC22 at 100.00%	0.41	OK	
	LC23 at 100.00%	0.41	OK	
	LC24 at 100.00%	0.40	OK	
	LC25 at 100.00%	0.38	OK	
	LC26 at 100.00%	0.38	OK	
	LC27 at 100.00%	0.38	OK	
	LC28 at 100.00%	0.38	OK	
	LC3 at 0.00%	0.42	OK	
	LC4 at 100.00%	0.53	OK	
	LC5 at 100.00%	0.25	OK	
	LC6 at 0.00%	0.52	OK	
	LC7 at 0.00%	0.37	OK	
	LC8 at 100.00%	0.45	OK	
	LC9 at 100.00%	0.64	OK	
	W180 at 0.00%	0.13	OK	
	W210 at 0.00%	0.16	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 0.00%	0.04	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • NEW AT&T ANTENNAS (QS46512-2) @ POS. 3 (TOTAL OF 1 FOR ALPHA SECTOR). • NEW AT&T ANTENNAS (TPA-65R-LCUUUU-H8) (TYP. OF 1 PER BETA & GAMMA SECTOR, TOTAL OF 2). • NEW AT&T RRUS 4415 B25 (PCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T LOW BAND COMBINER (DBC0061F1V51-2) (TYP. OF 1 PER SECTOR, TOTAL OF 3). ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • SWAP BB WITH 5216. • ADD XMU. • ADD 6630. • PROPOSED RRUS 4478 B5 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • INSTALL (12) SURGE ARRESTORS (TSXDC-4310FM) (TYP. OF 4 PER RRH). • NEW AT&T LOW BAND COMBINER (DBC0061F1V51-2) (TOTAL OF 3). ITEMS TO REMAIN: • (6) ANTENNAS, (3) RRU'S, (6) TMA'S, (1) SURGE ARRESTOR, (12) COAX CABLES, (2) DC POWER & (1) FIBER RUN.
SITE ADDRESS:	169 NICHOLS ROAD EAST HADDAM, CT 06469
LATITUDE:	41.52099 N, 41° 31' 15.57" N
LONGITUDE:	72.42325 W, 72° 25' 23.70" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	175'±
RAD CENTER:	165'±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT2271

SITE NAME: EAST HADDAM - NICHOLS ROAD

FA CODE: 10105797

PACE ID: MRCTB030838, MRCTB031966

PROJECT: LTE 2C/3C 2018 UPGRADE

DRAWING INDEX

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

VICINITY MAP

DIRECTIONS TO SITE:

START GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD 0.3 MI. TURN LEFT ONTO CAPITAL BLVD 0.3 MI. TURN LEFT ONTO WEST ST 0.2 MI. TURN LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD 4.5 MI. TAKE EXIT 25 TO MERGE ONTO CT-3 N TOWARD GLASTONBURY 2.3 MI. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR CT-2 E/NORWICH AND MERGE ONTO CT-2 E 15.8 MI. TAKE EXIT 16 FOR CT-149 TOWARD WESTCHESTER/MOODUS 0.3 MI. TURN RIGHT ONTO CT-149 S/WESTCHESTER RD MI. TURN RIGHT ONTO NICHOLS RD DESTINATION WILL BE ON THE LEFT.

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

CALL BEFORE YOU DIG

CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

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: CT2271
SITE NAME: EAST HADDAM - NICHOLS ROAD

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500 ENTERPRISE DRIVE, SUITE 3A
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

STATE OF CONNECTICUT — DEREK J. CREASER — LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	T-1	1

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 2015 WITH 2018 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		

HUDSON Design Group LLC
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FAX: (978) 336-5586

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

SITE NUMBER: CT2271
SITE NAME: EAST HADDAM - NICHOLS ROAD

169 NICHOLS ROAD
EAST HADDAM, CT 06469
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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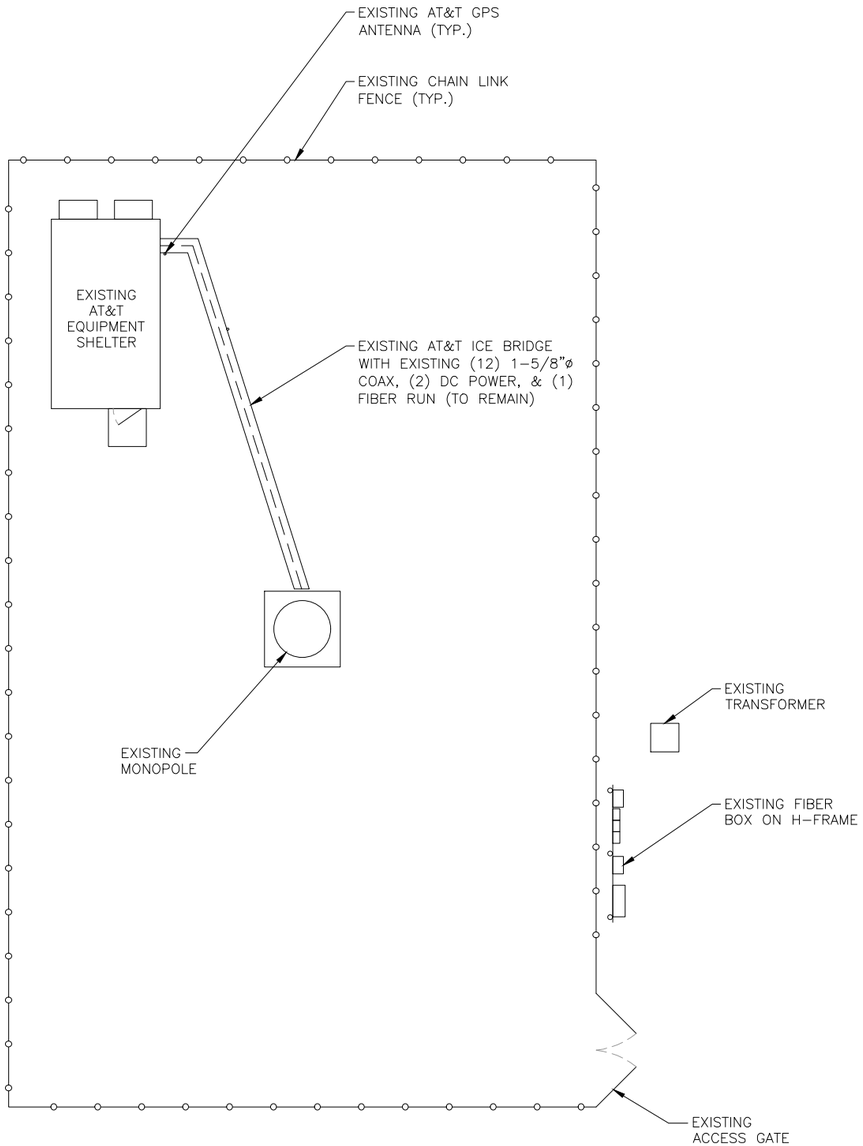
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25... · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 2C/3C)

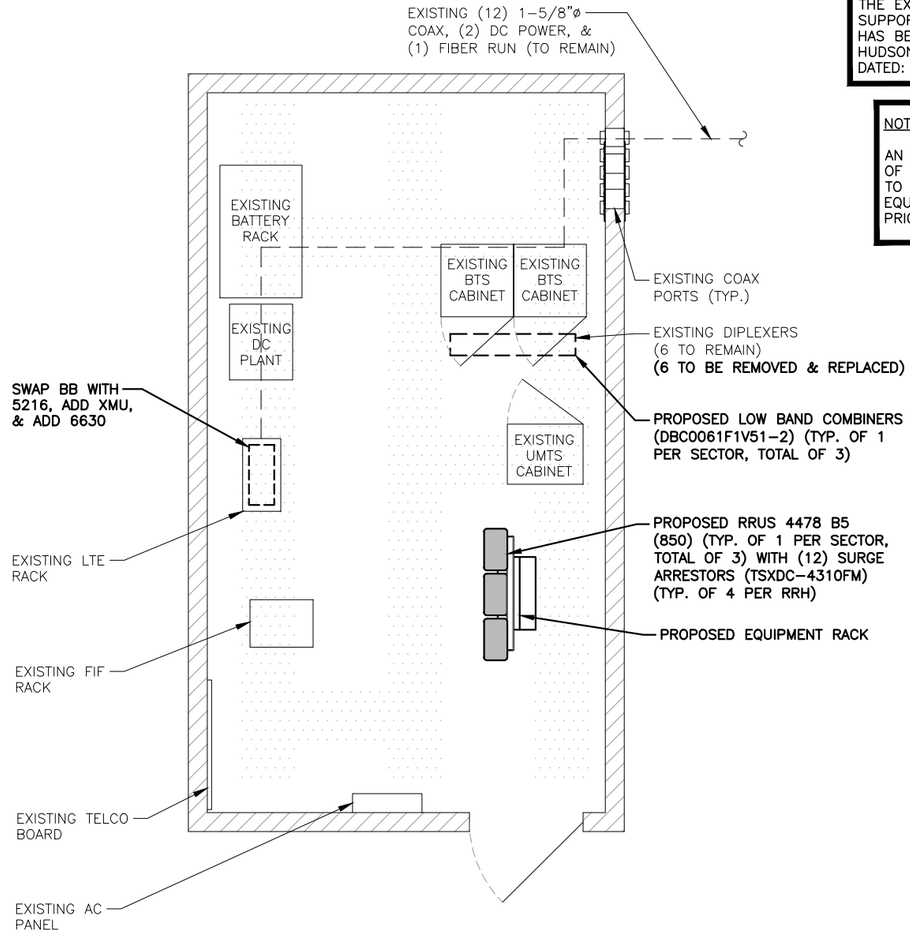
SITE NUMBER	DRAWING NUMBER	REV
CT2271	GN-1	1



MAGNETIC NORTH 14°54' TRUE NORTH

COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"



MAGNETIC NORTH 14°54' TRUE NORTH

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"

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 28, 2018

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

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

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25... · LICENSED PROFESSIONAL ENGINEER

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~~COMPOUND~~ & EQUIPMENT PLANS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
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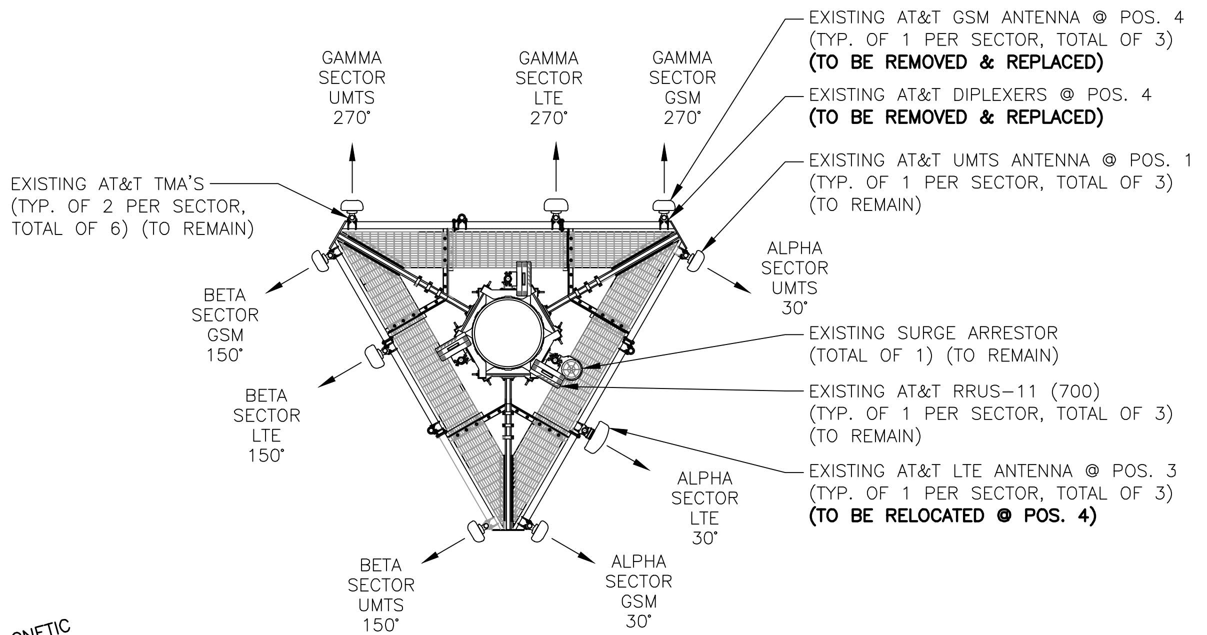

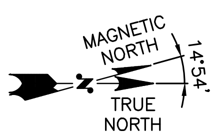

EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S

NOTE:

EXISTING & PROPOSED ANTENNAS TO BE VERTICALLY CENTERED ON MOUNT.

NOTE:

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

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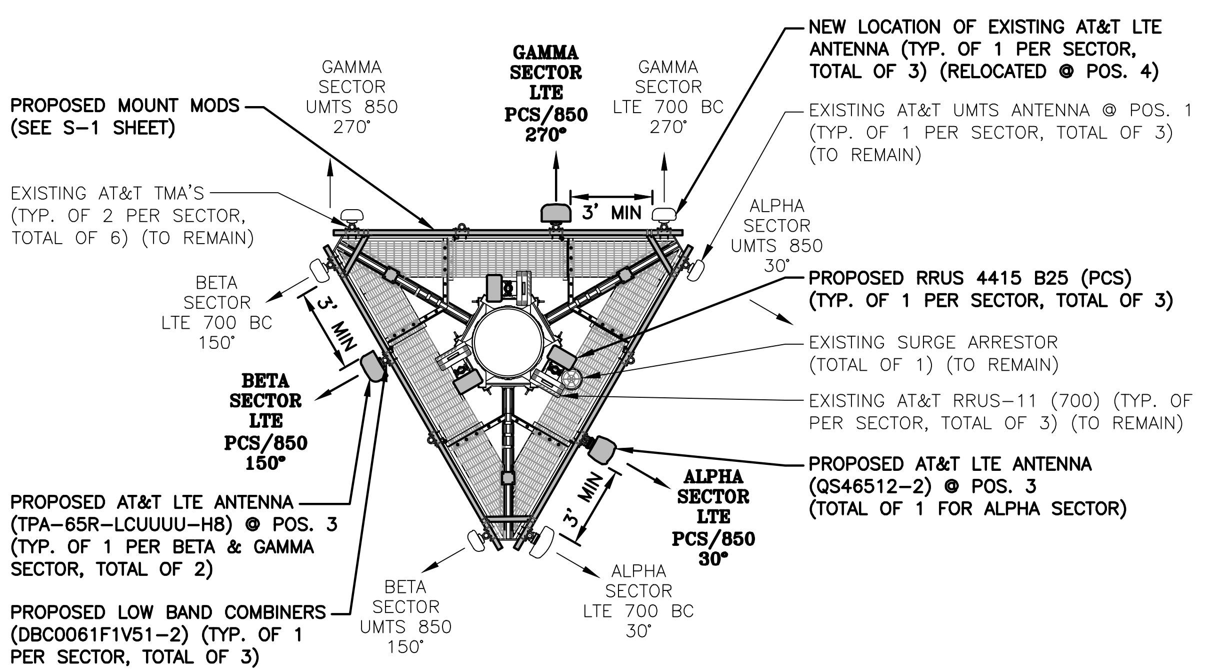
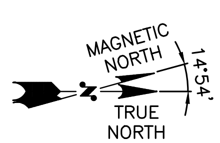
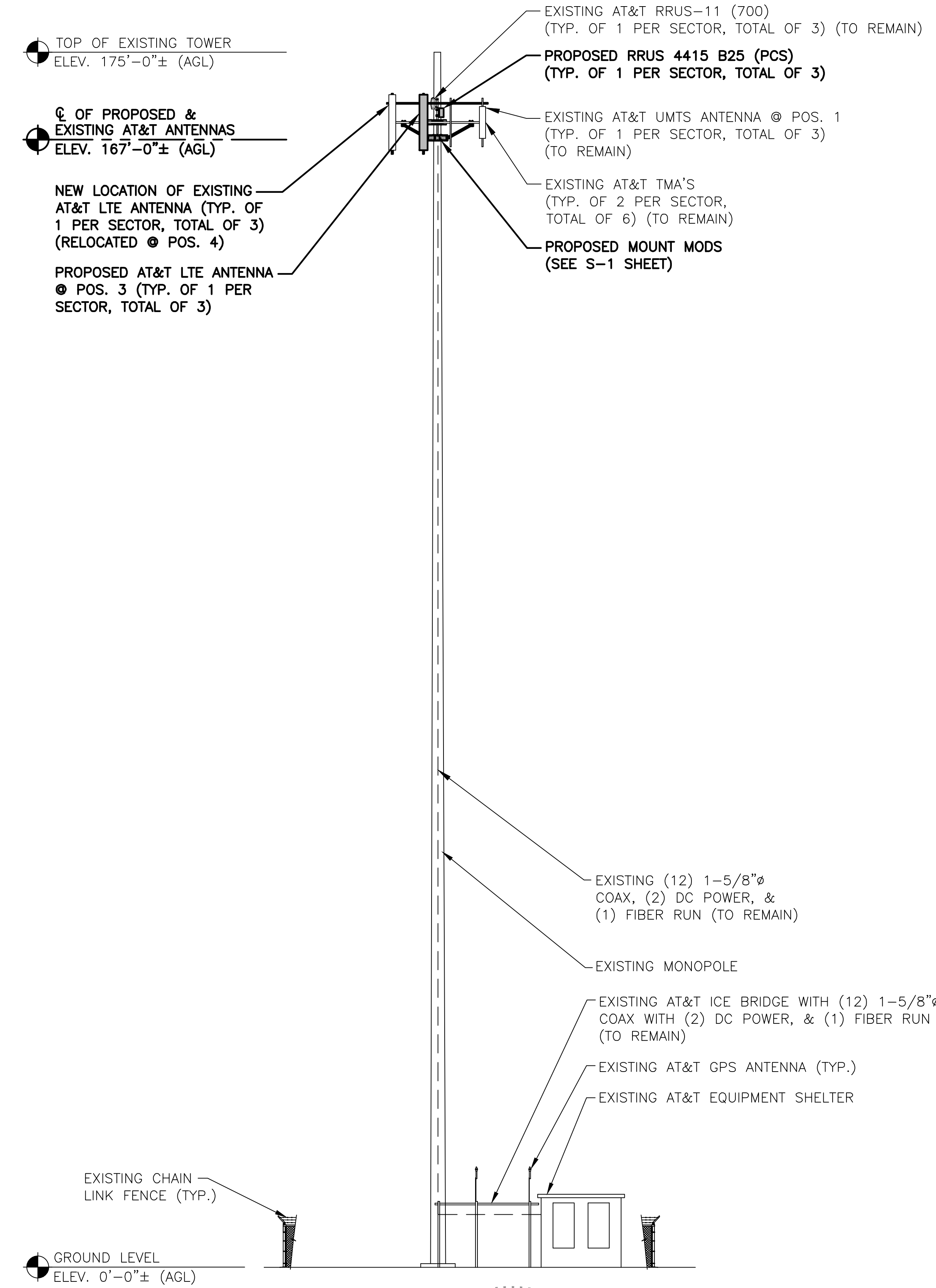




PROPOSED ANTENNA LAYOUT (2 / A-2)
SCALE: N.T.S



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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STATE OF CONNECTICUT DEREK J. CREASER LICENSED PROFESSIONAL ENGINEER

AT&T
ANTENNA LAYOUTS & ELEVATION
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	A-2	1

NOTE:

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

NOTE:

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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 28, 2018

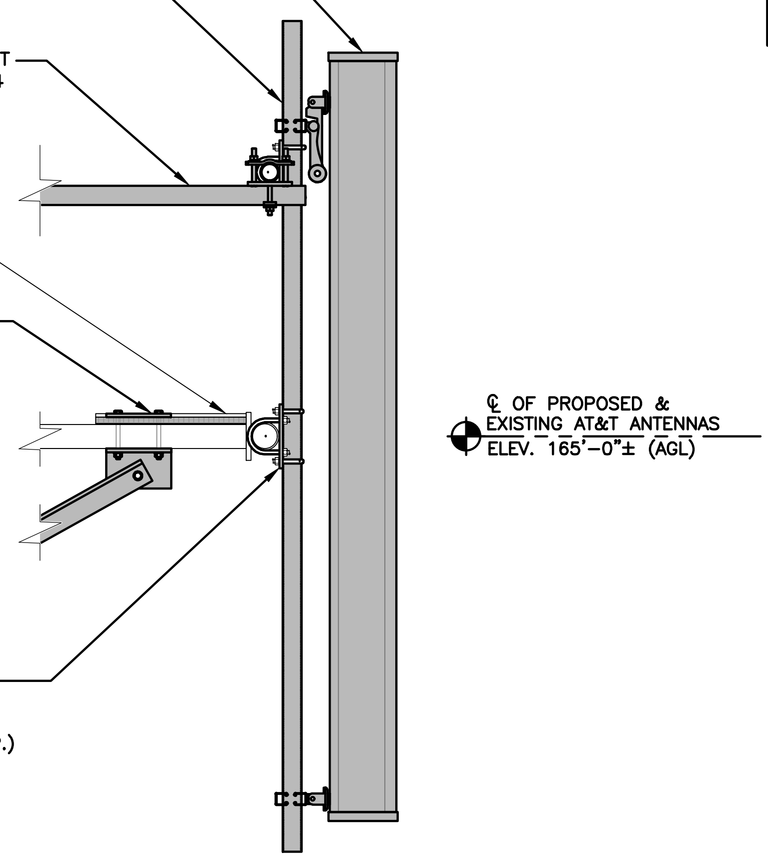
NOTE:

EXISTING & PROPOSED ANTENNAS TO BE VERTICALLY CENTERED ON MOUNT.

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	EXISTING	UMTS 850	7770	55X11X5	165'±	30°	(E)(2) POWERWAVE LGP21401 (E)(G)(2) POWERWAVE LGP13519	–	–	(2) 1-5/8 COAX (LENGTH 245' ±)	(E) (1) RAYCAP DC6-48-60-18-8C
A2	–	–	–	–	–	–	–	–	–	–	
A3	**PROPOSED**	**LTE PCS/850**	**QS46512-2**	**52X12X10.8**	**165'±**	**30°**	**(P)(1) KAELUS DBC0061F1V51-2 (P)(G)(1) KAELUS DBC0061F1V51-2**	**(P)(G)(1) RRUS 4478 B14 (700) (P)(1) RRUS 4415 B25 (850)**	**15x13.2x7.4 15X13.2X5.4**	(2) 1-5/8 COAX (LENGTH 245' ±)	
A4	EXISTING	LTE 700 BC	SBNH-1D4545A	56.7X16.2X7.1	165'±	30°	–	(E) (1) RRUS-11 (700)	–	–	
B1	EXISTING	UMTS 850	7770	55X11X5	165'±	150°	(E)(2) POWERWAVE LGP21401 (E)(G)(2) POWERWAVE LGP13519	–	–	(2) 1-5/8 COAX (LENGTH 245' ±)	–
B2	–	–	–	–	–	–	–	–	–	–	
B3	**PROPOSED**	**LTE PCS/850**	**TPA-65R-LCUUUU-H8**	**96X14.4X8.6**	**165'±**	**150°**	**(P)(1) KAELUS DBC0061F1V51-2 (P)(G)(1) KAELUS DBC0061F1V51-2**	**(P)(G)(1) RRUS 4478 B14 (700) (P)(1) RRUS 4415 B25 (850)**	**15x13.2x7.4 15X13.2X5.4**	(2) 1-5/8 COAX (LENGTH 245' ±)	
B4	EXISTING	LTE 700 BC	AM-X-CD-17-65-00T-RET	96X11.8X6	165'±	150°	–	(E) (1) RRUS-11 (700)	–	–	
C1	EXISTING	UMTS 850	7770	55X11X5	165'±	270°	(E)(2) POWERWAVE LGP21401 (E)(G)(2) POWERWAVE LGP13519	–	–	(2) 1-5/8 COAX (LENGTH 245' ±)	–
C2	–	–	–	–	–	–	–	–	–	–	
C3	**PROPOSED**	**LTE PCS/850**	**TPA-65R-LCUUUU-H8**	**96X14.4X8.6**	**165'±**	**270°**	**(P)(1) KAELUS DBC0061F1V51-2 (P)(G)(1) KAELUS DBC0061F1V51-2**	**(P)(G)(1) RRUS 4478 B14 (700) (P)(1) RRUS 4415 B25 (850)**	**15x13.2x7.4 15X13.2X5.4**	(2) 1-5/8 COAX (LENGTH 245' ±)	
C4	EXISTING	LTE 700 BC	AM-X-CD-17-65-00T-RET	96X11.8X6	165'±	270°	–	(E) (1) RRUS-11 (700)	–	–	

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



PROPOSED LTE ANTENNA 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"

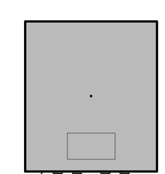
RRU CHART

QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(P)	4415	15.0"	13.2"	5.4"
3(P)(G)	4478	15.0"	13.2"	7.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

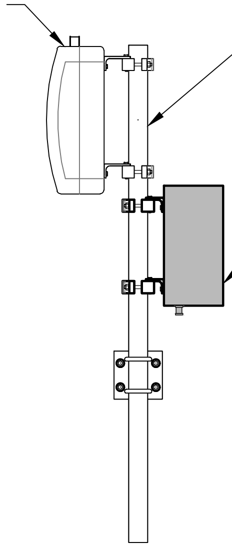
NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

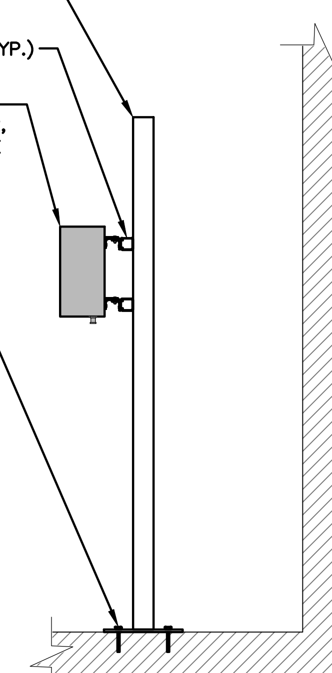


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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



PROPOSED RRU MOUNTING DETAIL (TOP) (4 / A-3)
SCALE: N.T.S



PROPOSED RRU MOUNTING DETAIL (BOTTOM) (5 / A-3)
SCALE: N.T.S

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

SITE NUMBER: CT2271
SITE NAME: EAST HADDAM - NICHOLS ROAD

169 NICHOLS ROAD
EAST HADDAM, CT 06469
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	09/26/18	ISSUED FOR REVIEW	ET	AT	DJC

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

STATE OF CONNECTICUT DEREK J. CREASER No. 28351 LICENSED PROFESSIONAL ENGINEER

AT&T
DETAILS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	A-3	1

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 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:	

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.

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.

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.

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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2271
SITE NAME: EAST HADDAM - NICHOLS ROAD

169 NICHOLS ROAD
EAST HADDAM, CT 06469
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/04/18	ISSUED FOR CONSTRUCTION	ET	AT	DJC
A	09/26/18	ISSUED FOR REVIEW	ET	AT	DJC

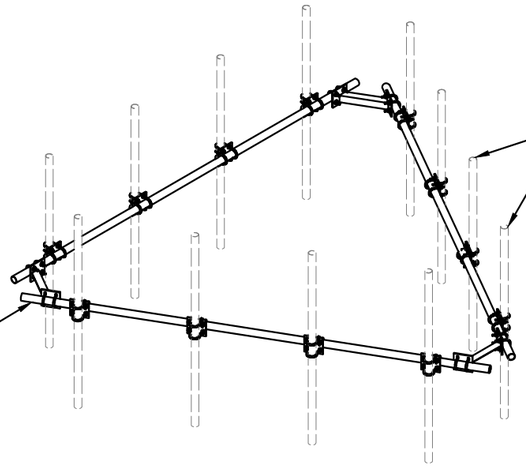
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28551 · LICENSED PROFESSIONAL ENGINEER

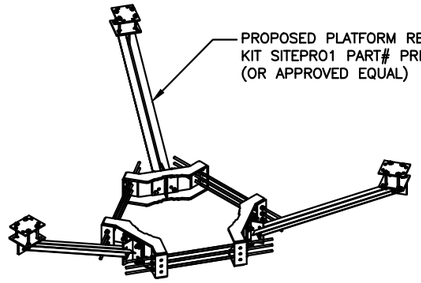
AT&T

STRUCTURAL NOTES (LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	SN-1	1



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



NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:

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

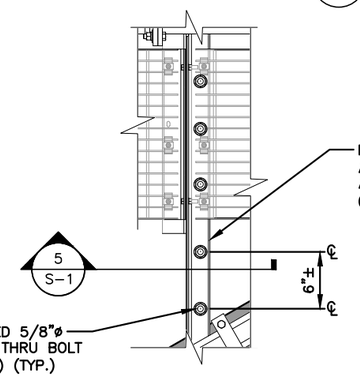
NOTE:

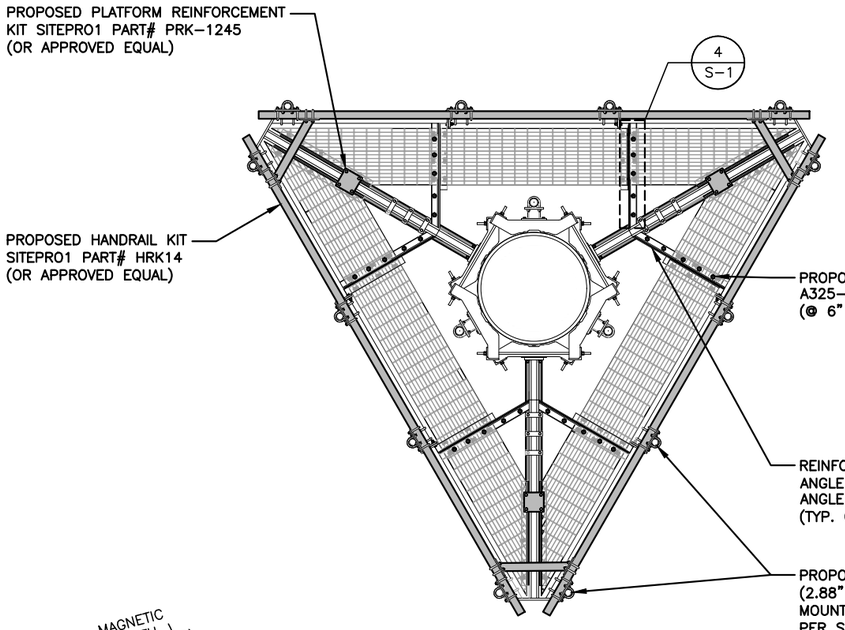
EXISTING & PROPOSED ANTENNAS TO BE VERTICALLY CENTERED ON MOUNT.

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 28, 2018

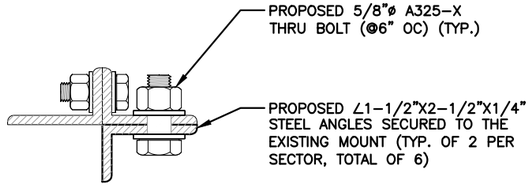
REINFORCEMENT KIT DETAIL (2 / S-1)
SCALE: N.T.S

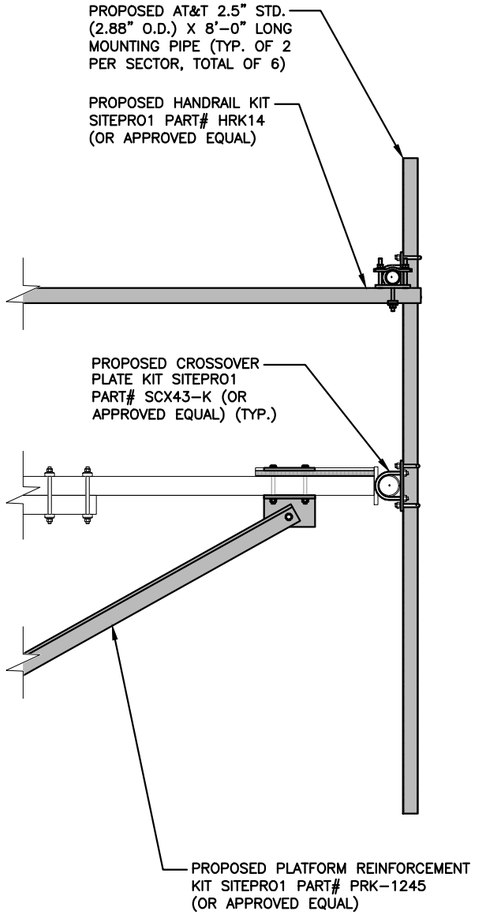


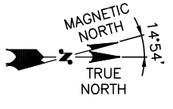


ENLARGED DETAIL (4 / S-1)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

0 0'-4" 0'-8" 1'-4" 2'-0"







PROPOSED REINFORCEMENTS PLAN (3 / S-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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

CONNECTION DETAIL (5 / S-1)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

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

PROPOSED MOUNT REINFORCEMENT DETAILS (6 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

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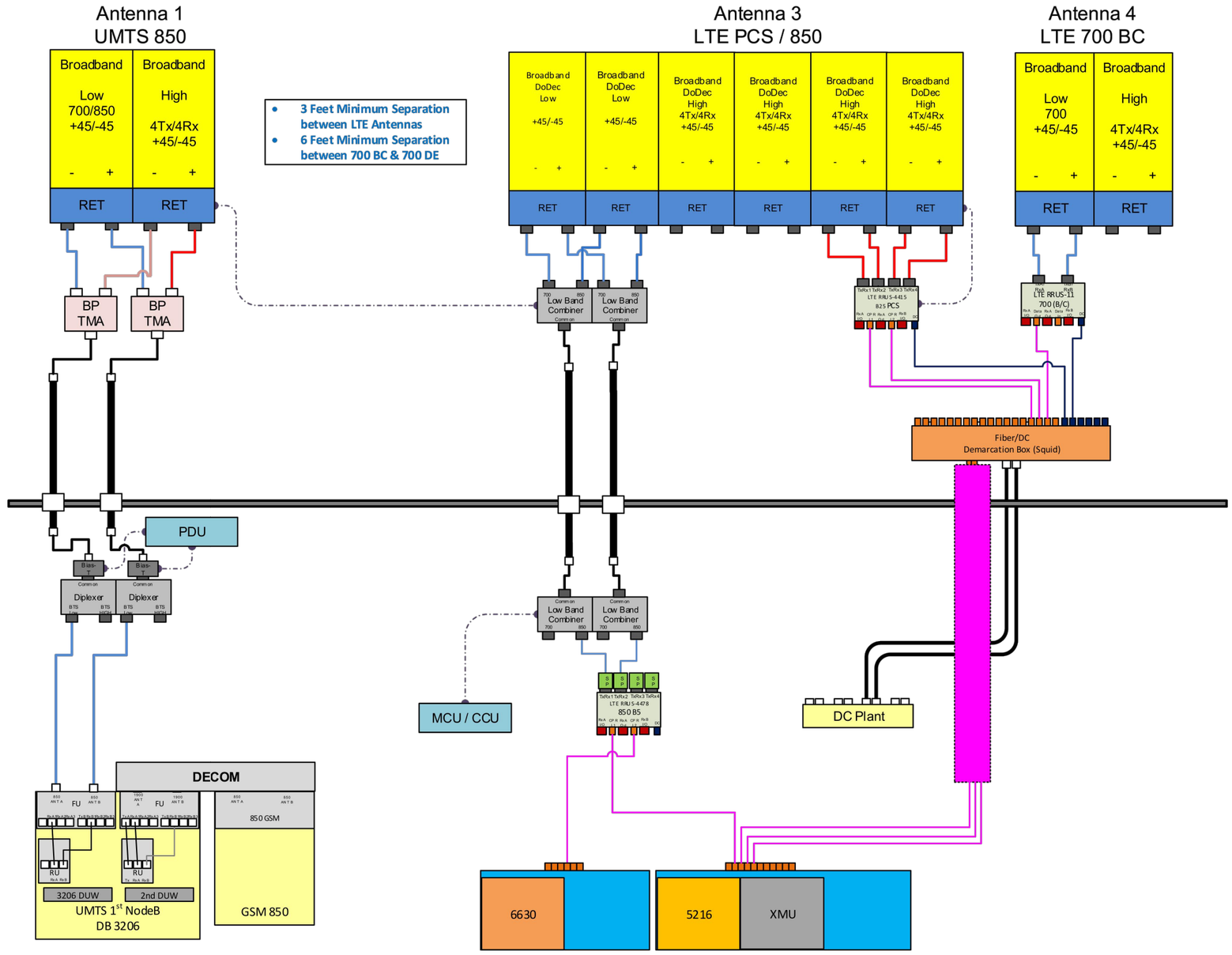
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: ET

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 23858 · LICENSED PROFESSIONAL ENGINEER

AT&T

MOUNT MODIFICATION DESIGN
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	S-1	1



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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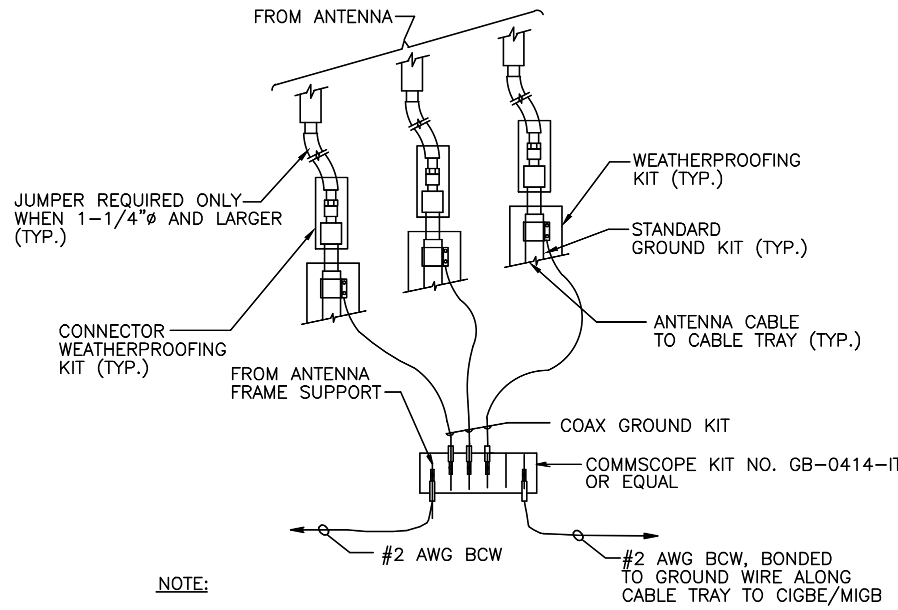
RF PLUMBING DIAGRAM
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	RF–1	1

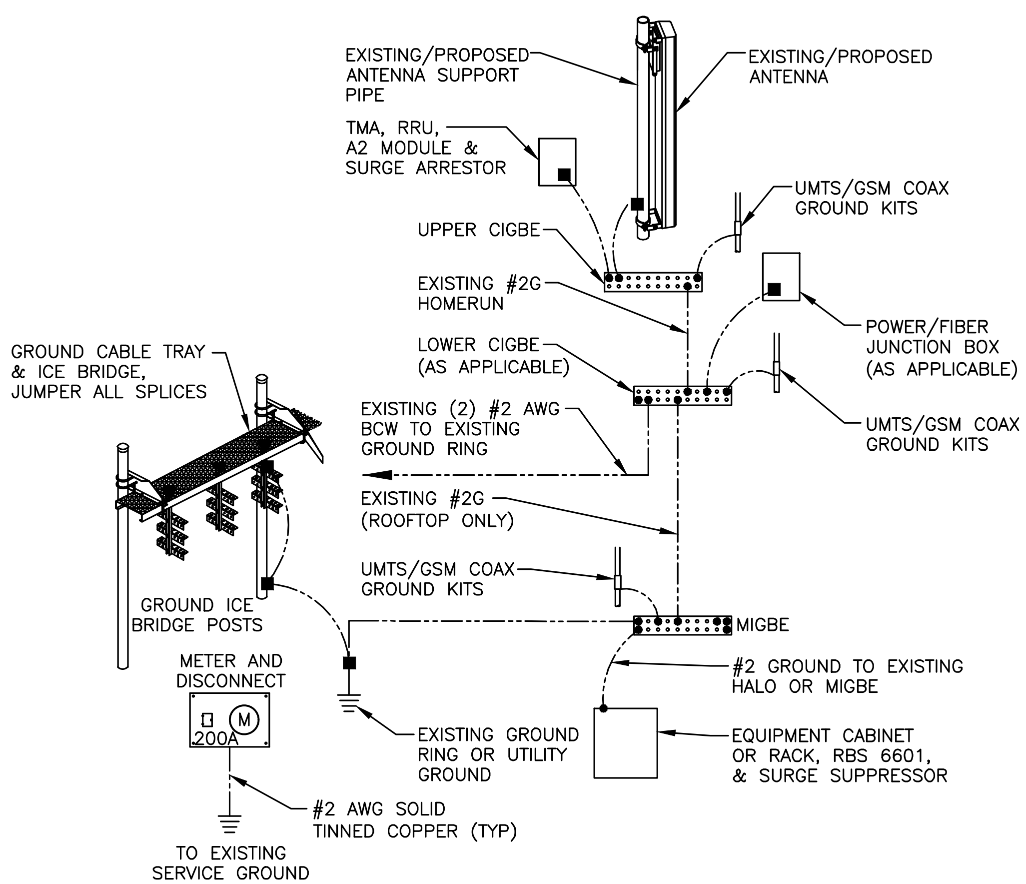


NOTE:

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

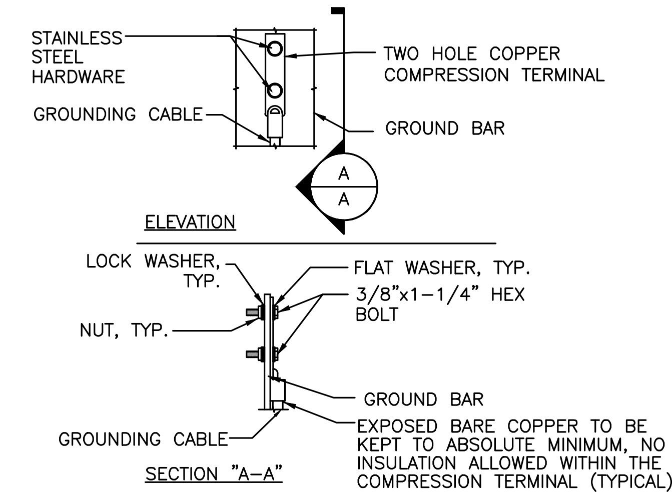
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



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 (3 / G-1)

SCALE: N.T.S

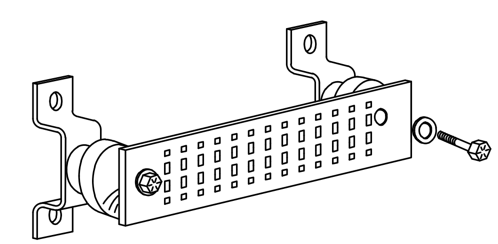
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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 (4 / G-1)

SCALE: N.T.S

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TEL: (978) 557-5553 FAX: (978) 336-5586

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

SITE NUMBER: CT2271
SITE NAME: EAST HADDAM - NICHOLS ROAD

169 NICHOLS ROAD
EAST HADDAM, CT 06469
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/04/18	ISSUED FOR CONSTRUCTION	ET	AT	DJC
A	09/26/18	ISSUED FOR REVIEW	ET	AT	DJC

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

AT&T
GROUNDING DETAILS
(LTE 2C/3C)

SITE NUMBER	DRAWING NUMBER	REV
CT2271	G-1	1