



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](mailto:mgentile@clinellc.com)

October 18, 2018

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

**RE: Notice of Exempt Modification // Site Number: CT1855  
320 Old Stagecoach Road/Aspen Ledges Road, Ridgefield, CT06877 (Site Name:  
CT897 Ridgefield)  
N 41.330308 // W -73.5168194**

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains twelve (12) antennas at the 146-foot level of the existing 150-foot monopole tower at 320 Old Stagecoach Road, Ridgefield, CT 06877. The tower is owned by InSite Towers Development, LLC. The property is also owned by InSite Towers Development, LLC (InSite Towers, LLC). 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 146-foot level of the tower. AT&T also intends to install twelve (12) small RRUS (radios) and three (3) small low-band combiners at the same level.

The current proposal involves an antenna swap only (three for three); zero antennas will be added. AT&T was originally approved for twelve (12) antennas on September 4, 2014.

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

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

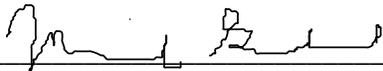
Attached to accommodate this filing are construction drawings dated 10/15/2018 by Hudson Design Group LLC, a structural analysis dated 8/11/2018 by Infinigy Engineering, a Mount

Analysis dated 8/24/2018 by Hudson Design Group LLC and an Emissions Analysis Report dated 10/12/2018 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 Infinigy Engineering, dated 8/11/2018 and the Mount Analysis by Hudson Design Group LLC, dated 8/24/2018

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](mailto:mgentile@centerlincommunications.com)

Attachments

cc: Rudy Marconi, First Selectman, Town of Ridgefield - as elected official  
InSite Towers, LLC - as tower owner  
InSite Towers, LLC - as property owner  
Town of Ridgefield, CT- Building/Zoning/Planning

1 OF 1

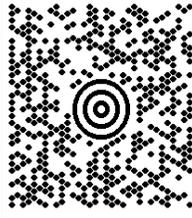
1 LBS

DWT: 12,12,1

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

**SHIP TO:**

MELANIE A. BACHMAN  
CONNECTICUT SITTING COUNCIL  
10 FRANKLIN SQUARE  
**NEW BRITAIN CT 06051**

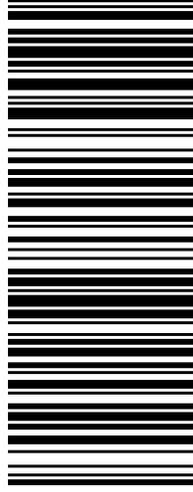


**CT 067 9-06**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 43 1661 7985



BILLING: P/P

Reference # 1: CT1855 - CSC Filing to CSC x3



XOL18.09.09 NY45 06.0A.10/2018

1 OF 1

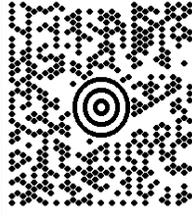
1 LBS

DWT: 12,12,1

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

**SHIP TO:**

ATTN: SITE ACQUISITIONS  
INSITE WIRELESS GROUP  
SUITE 700  
1199 NORTH FAIRFAX STREET  
**ALEXANDRIA VA 22314**

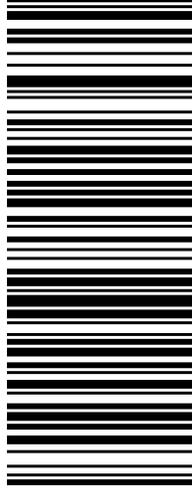


**VA 222 9-30**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 43 0021 6992



BILLING: P/P

Reference # 1: CT1855 - CSC to Tower/Ground Owner

XOL18.09.09 NY45 06.0A.10/2018



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

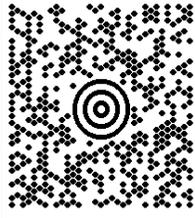
1 LBS

1 OF 1

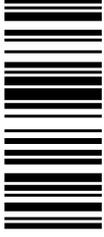
DWT: 12,12,1

**SHIP TO:**

ATTN: FIRST SELECTMAN  
TOWN OF RIDGEFIELD  
TOWN OFFICES  
400 MAIN STREET  
RIDGEFIELD CT 06877

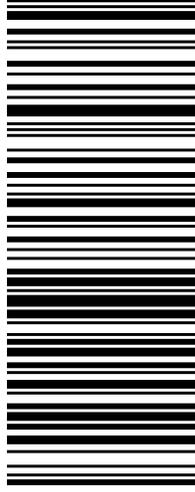


**CT 068 0-02**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 43 0361 8007



BILLING: P/P

Reference # 1: CT1855 - CSC Filing to First Select

XOL18.09.09 NY45 06.0A.10/2018



1 OF 1

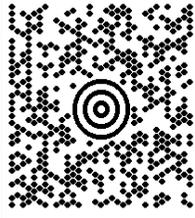
1 LBS

DWT: 12,12,1

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

**SHIP TO:**

ATTN: BUILDING/ZONING  
TOWN OF RIDGEFIELD  
TOWN OFFICES  
400 MAIN STREET  
RIDGEFIELD CT 06877

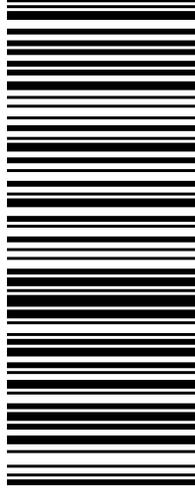


**CT 068 0-02**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 43 0722 1017



BILLING: P/P

Reference # 1: CT1855 - CSC to Building/Zoning



XOL18.09.09 NY45 06.0A.10/2018



# Radio Frequency Emissions Analysis Report

AT&T Existing Facility

**Site ID: CT1855**

FA#: 10128094

Ridgefield  
Ledges Road  
Ridgefield, CT 06877

**October 12, 2018**

**Centerline Communications Project Number: 950012-177**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>9.18 %</b>



October 12, 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: **CT1855 – Ridgefield**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **Ledges Road, Ridgefield, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 700 and 850 MHz Bands are approximately  $467 \mu\text{W}/\text{cm}^2$  and  $567 \mu\text{W}/\text{cm}^2$  respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 **Ledges Road, Ridgefield, 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	700 MHz	4	40
LTE	700 MHz (Band 14)	2	40
LTE	850 MHz	2	40
LTE	2300 MHz (WCS)	2	60
5G	850 MHz	2	40
LTE	1900 MHz (PCS)	4	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, 1900 MHz (PCS) and 2300 MHz (WCS) 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	CCI HPA-65R-BUU-H8	146
A	2	CCI HPA-65R-BUU-H8	146
A	3	CCI HPA-65R-BUU-H8	146
A	4	CCI HPA-65R-BUU-H8	146
B	1	CCI HPA-65R-BUU-H8	146
B	2	CCI HPA-65R-BUU-H8	146
B	3	CCI HPA-65R-BUU-H8	146
B	4	CCI HPA-65R-BUU-H8	146
C	1	CCI HPA-65R-BUU-H8	146
C	2	CCI HPA-65R-BUU-H8	146
C	3	CCI HPA-65R-BUU-H8	146
C	4	CCI HPA-65R-BUU-H8	146

*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	CCI HPA-65R-BUU-H8	850 MHz	14.05	2	60	1,524.58	0.49
Antenna A2	CCI HPA-65R-BUU-H8	700 MHz	13.15	2	80	1,652.30	0.65
Antenna A3	CCI HPA-65R-BUU-H8	700 MHz / 850 MHz / 2300 MHz (WCS)	13.15 / 14.05 / 15.55	10	360	10,024.92	2.75
Antenna A4	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	1.57
Sector A Composite MPE%							<b>5.46</b>
Antenna B1	CCI HPA-65R-BUU-H8	850 MHz	14.05	2	60	1,524.58	0.49
Antenna B2	CCI HPA-65R-BUU-H8	700 MHz	13.15	2	80	1,652.30	0.65
Antenna B3	CCI HPA-65R-BUU-H8	700 MHz / 850 MHz / 2300 MHz (WCS)	13.15 / 14.05 / 15.55	10	360	10,024.92	2.75
Antenna B4	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	1.57
Sector B Composite MPE%							<b>5.46</b>
Antenna C1	CCI HPA-65R-BUU-H8	850 MHz	14.05	2	60	1,524.58	0.49
Antenna C2	CCI HPA-65R-BUU-H8	700 MHz	13.15	2	80	1,652.30	0.65
Antenna C3	CCI HPA-65R-BUU-H8	700 MHz / 850 MHz / 2300 MHz (WCS)	13.15 / 14.05 / 15.55	10	360	10,024.92	2.75
Antenna C4	CCI HPA-65R-BUU-H8	700 MHz / 900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	1.57
Sector C Composite MPE%							<b>5.46</b>

*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, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

<b>Site Composite MPE%</b>	
<b>Carrier</b>	<b>MPE%</b>
AT&T – Max Sector Value	<b>5.46 %</b>
T-Mobile	3.02 %
Police	0.10 %
Fire	0.60 %
Microwave	0.00 %
<b>Site Total MPE %:</b>	<b>9.18 %</b>

*Table 4: All Carrier MPE Contributions*

AT&T Sector A Total:	5.46 %
AT&T Sector B Total:	5.46 %
AT&T Sector C Total:	5.46 %
Site Total:	9.18 %

*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, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
AT&T 850 MHz UMTS (Antenna 1)	2	762.29	146	2.80	850 MHz	567	0.49%
AT&T 700 MHz LTE (Antenna 2)	2	826.15	146	3.03	700 MHz	467	0.65%
AT&T 700 MHz LTE (Band 14) (Antenna 3)	2	826.15	146	3.03	700 MHz	467	0.65%
AT&T 850 MHz LTE (Antenna 3)	2	1,016.39	146	3.73	850 MHz	567	0.66%
AT&T 2300 MHz (WCS) LTE (Antenna 3)	4	1,076.77	146	7.90	2300 MHz (WCS)	1000	0.79%
AT&T 850 MHz 5G (Antenna 3)	2	1,016.39	146	3.73	850 MHz	567	0.66%
AT&T 700 MHz LTE (Antenna 4)	2	826.15	146	3.03	700 MHz	467	0.65%
AT&T 1900 MHz (PCS) LTE (Antenna 4)	4	1,250.43	146	9.17	1900 MHz (PCS)	1000	0.92%
						<b>Total:</b>	<b>5.46%</b>

*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:	5.46 %
Sector B:	5.46 %
Sector C:	5.46 %
AT&T Maximum Total (per sector):	5.46 %
Site Total:	9.18 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **9.18 %** 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.

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is positioned above the contact information.

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

## Structural Analysis Report

August 11, 2018

Site Name	CT897 Ridgefield
Infinigy Job Number	337-000
Client	Insite Wireless
Proposed Carrier	AT&T
Site Location	320 Old Stagecoach Road, Ridgefield, CT 06877 41° 19' 49.1088" N NAD83 73° 31' 0.5478" W NAD83
Structure Type	Monopole
Tower Usage Ratio	<b>60.6%</b>
Foundation Usage Ratio	<b>78.6%</b>
Overall Result	<b>Pass</b>

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.



Aaron Estabrooks  
Structural Engineer II

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August 11, 2018

**Introduction**

Infinigy Engineering has been requested to perform a structural analysis on the existing Valmont Monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 8.0.2.1 tower analysis software.

**Supporting Documentation**

<b>Design Drawings:</b>	Valmont Order # 273806-P1, dated November 25, 2014
<b>Previous SA:</b>	Infinigy Engineering, Job # 337-000, dated July 12, 2016
<b>Proposed Loading:</b>	AT&T, Exhibit A, dated July 31, 2018

**Analysis Code Requirements**

Wind Speed	93 mph (3-Second Gust, $V_{ASD}$ ) / 120 mph (3-Second Gust, $V_{ULT}$ )
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 3/4" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Jurisdictional Code	2016 Connecticut State Building Code
Structure Class	III
Exposure Category	B
Topographic Category	5
Calculated Crest Height	137.6 ft

**Conclusion**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Aaron Estabrooks  
 Structural Engineer II | **INFINIGY**  
 1033 Watervliet Shaker Road, Albany, NY 12205  
 (O) (518) 690-0790 | (M) (518) 944-4097  
[aestabrooks@infinigy.com](mailto:aestabrooks@infinigy.com) | [www.infinigy.com](http://www.infinigy.com)

Structural Analysis Report

August 11, 2018

**Existing and Reserved Loading**

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
150.0	1	RFI BA40-41	Side Arm	(1) 7/8"	Town of Ridgefield
146.0	4	Raycap DC6-48-60-18-8F	Low Profile Platform	(2) 1/2" Fiber (3) 3/8" RET (8) 5/8" DC Power	AT&T
	3	Ericsson RRUS-32			
	3	Ericsson RRUS-E2			
	6	Ericsson A2 Module			
	6	Ericsson RRUS-12			
	9	Ericsson RRUS-11			
136.0	12	CCI HPA-65R-BUU-118	Platform w/ Handrails	(2) 1-5/8" Hybrid	Verizon
	9	Commscope JAHH-1D65B			
	3	Alcatel Lucent RRH_2x40-700U			
	3	Alcatel Lucent RRH_2x60-PCS			
	3	Alcatel Lucent RRH_4x45-AWS			
126.0	2	RFS DB-T1-6Z-8AB-0Z	T-Arm	(1) 1/2" Fiber Trunk	T-Mobile
	3	Commscope LNX-6515DS-AIM			
	3	Ericsson RRUS-11 B12			
	3	Ericsson RRUS-11 B4			
70.0	1	Commscope VHLP3-11W-6GR	Leg	(1) EW90	Town of Ridgefield
66.0	1	Sinclair SD210R-SF2P90LDF	Side Arm	(1) 7/8"	

**To Be Removed Loading**

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
146.0	3	Ericsson RRUS-11	--	--	AT&T
	3	Ericsson RRUS-12			

**Proposed Loading**

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
146.0	3	Ericsson RRUS-4478 B5	--	--	AT&T
	3	Ericsson RRUS-4478 B14			
	3	Kaelus DBC0061F1V51-2			

**Final Configuration**

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
150.0	1	RFI BA40-41	Side Arm	(1) 7/8"	Town of Ridgefield
146.0	4	Raycap DC6-48-60-18-8F	Low Profile Platform	(2) 1/2" Fiber (3) 3/8" RET (8) 5/8" DC Power	New Cingular Wireless
	3	Ericsson RRUS-32			
	3	Ericsson RRUS-E2			
	3	Ericsson RRUS-4478 B5			
	3	Ericsson RRUS-4478 B14			
	3	Kaelus DBC0061F1V51-2			
	6	Ericsson A2 Module			
	3	Ericsson RRUS-12			
	6	Ericsson RRUS-11			
	12	CCI HPA-65R-BUU-118			
136.0	9	Commscope JAHH-1D65B	Platform w/ Handrails	(2) 1-5/8" Hybrid	Verizon
	3	Alcatel Lucent RRH_2x40-700U			
	3	Alcatel Lucent RRH_2x60-PCS			
	3	Alcatel Lucent RRH_4x45-AWS			
	2	RFS DB-T1-6Z-8AB-0Z			
126.0	3	Commscope LNX-6515DS-A1M	T-Arm	(1) 1/2" Fiber Trunk	T-Mobile
	3	Ericsson RRUS-11 B12			
	3	Ericsson RRUS-11 B4			
	3	RFS APXV18-206516S-A20			
70.0	1	Commscope VHLP3-11W-6GR	Leg	(1) EW90	Town of Ridgefield
66.0	1	Sinclair SD210R-SF2P90LDF	Side Arm	(1) 7/8"	

Install proposed coax inside monopole.

**Structure Usages**

Pole (L2)	60.6	Pass
Base Plate	60.4	Pass
<b>RATING =</b>	<b>60.6</b>	<b>Pass</b>

**Foundation Reactions**

Reaction Data	Design Reactions	Analysis Reactions	Result
Moment (kip-ft)	6846.0	3680.3	53.8%
Shear (kip)	59.0	33.9	57.5%
Axial (kip)	57.6	45.3	78.6%

Tower base reactions are acceptable when compared to the original design reactions.

**Deflection, Twist, and Sway**

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
146.0	16.209	0.023	1.108

\*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.

\*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.

\*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.

\*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

**Assumptions and Limitations**

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of “like new” and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure’s condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Section	1	2	3	4	
Length (ft)	32.33	31.75	48.25	52.67	28260.0
Number of Sides	18	18	18	18	
Thickness (in)	0.2190	0.3130	0.4380	0.5000	
Socket Length (ft)	4.33	5.25	6.42	43.3340	
Top Dia (in)	20.5000	27.2563	33.4528	56.8800	
Bot Dia (in)	28.8100	35.4300	45.9600	14108.9	
Grade			A572-65		
Weight (lb)	1868.8	3330.6	8951.7	14108.9	

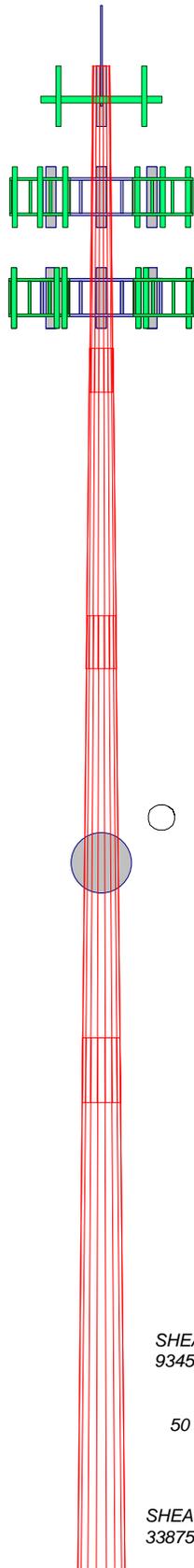
149.0 ft

116.7 ft

89.3 ft

46.3 ft

0.0 ft



### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BA40-41 (Town of Ridgefield)	150	(3) JAHH-1D65B (Verizon)	136
Angle Side Arm (Town of Ridgefield)	150	(3) JAHH-1D65B (Verizon)	136
(4) HPA-65R-BUU-H8 (ATI)	146	(3) JAHH-1D65B (Verizon)	136
(4) HPA-65R-BUU-H8 (ATI)	146	RRH_2x40-700U (Verizon)	136
(4) HPA-65R-BUU-H8 (ATI)	146	RRH_2x40-700U (Verizon)	136
(2) RRUS-11 (ATI)	146	RRH_2x40-700U (Verizon)	136
(2) RRUS-11 (ATI)	146	RRH_2x60-PCS (Verizon)	136
(2) RRUS-11 (ATI)	146	RRH_2x60-PCS (Verizon)	136
(2) A2 Module (ATI)	146	RRH_2x60-PCS (Verizon)	136
(2) A2 Module (ATI)	146	RRH_4x45-AWS (Verizon)	136
(2) A2 Module (ATI)	146	RRH_4x45-AWS (Verizon)	136
RRUS- E2 (ATI)	146	RRH_4x45-AWS (Verizon)	136
RRUS- E2 (ATI)	146	DB-T1-6Z-8AB-OZ (Verizon)	136
RRUS- E2 (ATI)	146	DB-T1-6Z-8AB-OZ (Verizon)	136
RRUS-12 (ATI)	146	RRUS 11 (Band 12) (T-Mobile)	126
RRUS-12 (ATI)	146	RRUS 11 (Band 12) (T-Mobile)	126
RRUS-12 (ATI)	146	RRUS 11 (Band 12) (T-Mobile)	126
RRUS-32 (ATI)	146	Angle T-Arm (T-Mobile)	126
RRUS-32 (ATI)	146	Angle T-Arm (T-Mobile)	126
RRUS-32 (ATI)	146	Angle T-Arm (T-Mobile)	126
(2) DC6-48-60-18-8F (ATI)	146	RRUS 11 (Band 4) (T-Mobile)	126
DC6-48-60-18-8F (ATI)	146	RRUS 11 (Band 4) (T-Mobile)	126
DC6-48-60-18-8F (ATI)	146	RRUS 11 (Band 4) (T-Mobile)	126
Angle Low Profile Platform (ATI)	146	APXV18-206516S-A20 (T-Mobile)	126
RRUS-4478 B5 (ATI)	146	APXV18-206516S-A20 (T-Mobile)	126
RRUS-4478 B5 (ATI)	146	LNX-6515DS-A1M (T-Mobile)	126
RRUS-4478 B5 (ATI)	146	LNX-6515DS-A1M (T-Mobile)	126
RRUS-4478 B14 (ATI)	146	LNX-6515DS-A1M (T-Mobile)	126
RRUS-4478 B14 (ATI)	146	LNX-6515DS-A1M (T-Mobile)	126
RRUS-4478 B14 (ATI)	146	Dish Pipe Mount (Town of Ridgefield)	70
RRUS-4478 B14 (ATI)	146	VHLP3-11W-6GR (Town of Ridgefield)	70
DBC0061F1V51-2 (ATI)	146	Angle Side Arm (Town of Ridgefield)	66
DBC0061F1V51-2 (ATI)	146	SD210R-SF2P90LDF (Town of Ridgefield)	66
DBC0061F1V51-2 (ATI)	146		
Pipe Platform w/ Handrails (Verizon)	136		

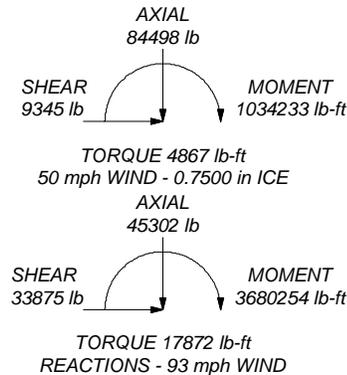
### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

### TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class III.
7. Topographic Category 5 with Crest Height of 137.60 ft
8. TOWER RATING: 60.6%

ALL REACTIONS  
ARE FACTORED



**Infinigy Engineering, PLLC**  
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Albany, NY 12205  
Phone: (518) 690-0790  
FAX: (518) 690-0793

Job: **CT897 Ridgefield**

Project: **337-000**

Client: **Insite**

Code: **TIA-222-G**

Path:

Drawn by: **ATE**

Date: **08/11/18**

Scale: **NTS**

Dwg No. **E-1**

<b>tnxTower</b>  <b>Infinigy Engineering, PLLC</b> 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	<b>Job</b> CT897 Ridgefield	<b>Page</b> 1 of 12
	<b>Project</b> 337-000	<b>Date</b> 14:16:05 08/11/18
	<b>Client</b> Insite	<b>Designed by</b> ATE

## Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 93 mph.

Structure Class III.

Exposure Category B.

Topographic Category 5.

Crest Height 137.60 ft.

SEAW RSM-03 procedures for wind speed-up calculations are used.

Topographic Feature: Continuous Escarpment.

Slope Distance L: 1425.60 ft.

Distance from Crest x: 26.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>√ Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>Sort Capacity Reports By Component</li> <li>√ Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> </ul>	<ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>√ SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>√ Include Angle Block Shear Check</li> <li>Use TIA-222-G Bracing Resist. Exemption</li> <li>Use TIA-222-G Tension Splice Exemption</li> <li style="text-align: center;">Poles</li> <li>√ Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No Appurtenances</li> <li>Outside and Inside Corner Radii Are Known</li> </ul>
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## Tapered Pole Section Geometry

<b>tnxTower</b>  <b>Infinigy Engineering, PLLC</b> 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	<b>Job</b> CT897 Ridgefield	<b>Page</b> 2 of 12
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	<b>Client</b> Insite	<b>Designed by</b> ATE

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	149.00-116.67	32.33	4.33	18	20.5000	28.8100	0.2190	0.8760	A572-65 (65 ksi)
L2	116.67-89.25	31.75	5.25	18	27.2583	35.4300	0.3130	1.2520	A572-65 (65 ksi)
L3	89.25-46.25	48.25	6.42	18	33.4528	45.8600	0.4380	1.7520	A572-65 (65 ksi)
L4	46.25-0.00	52.67		18	43.3340	56.8800	0.5000	2.0000	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	20.7825	14.0974	732.5826	7.1998	10.4140	70.3459	1466.1291	7.0501	3.2226	14.715
L2	29.2207	19.8738	2052.4686	10.1498	14.6355	140.2392	4107.6379	9.9388	4.6851	21.393
	35.9283	34.8874	5435.5179	12.4665	17.9984	301.9994	10878.1881	17.4470	5.6848	18.162
L3	35.2721	45.8975	6320.3829	11.7202	16.9940	371.9183	12649.0823	22.9531	5.1168	11.682
	46.4999	63.1462	16459.5229	16.1248	23.2969	706.5119	32940.7036	31.5791	7.3005	16.668
L4	45.6012	67.9775	15757.2224	15.2061	22.0137	715.7929	31535.1786	33.9952	6.7468	13.494
	57.6803	89.4751	35932.6785	20.0149	28.8950	1243.5587	71912.6381	44.7460	9.1309	18.262

Tower Elevation ft	Gusset Area ft <sup>2</sup> (per face)	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 149.00-116.67				1	1	1			
L2 116.67-89.25				1	1	1			
L3 89.25-46.25				1	1	1			
L4 46.25-0.00				1	1	1			

### Monopole Base Plate Data

#### Base Plate Data

Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615
Anchor bolt size	2.2500 in
Number of bolts	22
Embedment length	54.0000 in
f <sub>c</sub>	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	3.5000 in
Bolt circle diameter	64.2500 in
Outer diameter	70.2500 in
Inner diameter	55.5000 in

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	<b>Project</b> 337-000	<b>Date</b> 14:16:05 08/11/18
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Base Plate Data	
Base plate type	Plain Plate

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		$C_{AA}$ ft <sup>2</sup> /ft	Weight plf
7/8" (Town of Ridgfield)	A	No	Inside Pole	149.00 - 5.00	1	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
1/2" Fiber (AT&T)	A	No	Inside Pole	146.00 - 5.00	2	No Ice	0.00	0.09
						1/2" Ice	0.00	0.09
						1" Ice	0.00	0.09
3/8" RET (AT&T)	A	No	Inside Pole	146.00 - 5.00	3	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
5/8" DC Power (AT&T)	A	No	Inside Pole	146.00 - 5.00	8	No Ice	0.00	0.40
						1/2" Ice	0.00	0.40
						1" Ice	0.00	0.40
7/8" (Town of Ridgfield)	A	No	Inside Pole	66.00 - 5.00	1	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
EW90 (Town of Ridgfield)	A	No	Inside Pole	70.00 - 5.00	1	No Ice	0.00	0.32
						1/2" Ice	0.00	0.32
						1" Ice	0.00	0.32
1/2" Fiber Trunk (T-Mobile)	A	No	Inside Pole	126.00 - 5.00	1	No Ice	0.00	0.57
						1/2" Ice	0.00	0.57
						1" Ice	0.00	0.57
*** 1-5/8" Hybrid (Verizon)	A	No	Inside Pole	136.00 - 5.00	2	No Ice	0.00	1.00
						1/2" Ice	0.00	1.00
						1" Ice	0.00	1.00

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}$ In Face ft <sup>2</sup>	$C_{AA}$ Out Face ft <sup>2</sup>	Weight lb
L1	149.00-116.67	A	0.000	0.000	0.000	0.000	167.40
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	116.67-89.25	A	0.000	0.000	0.000	0.000	184.30
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	89.25-46.25	A	0.000	0.000	0.000	0.000	307.31
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	46.25-0.00	A	0.000	0.000	0.000	0.000	312.76
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

### Feed Line/Linear Appurtenances Section Areas - With Ice

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight lb
L1	149.00-116.67	A	2.290	0.000	0.000	0.000	0.000	167.40
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	116.67-89.25	A	2.247	0.000	0.000	0.000	0.000	184.30
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	89.25-46.25	A	2.172	0.000	0.000	0.000	0.000	307.31
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L4	46.25-0.00	A	1.970	0.000	0.000	0.000	0.000	312.76
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>X</sub> in	CP <sub>Z</sub> in	CP <sub>X</sub> Ice in	CP <sub>Z</sub> Ice in
L1	149.00-116.67	0.0000	0.0000	0.0000	0.0000
L2	116.67-89.25	0.0000	0.0000	0.0000	0.0000
L3	89.25-46.25	0.0000	0.0000	0.0000	0.0000
L4	46.25-0.00	0.0000	0.0000	0.0000	0.0000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
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### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight lb	
BA40-41 (Town of Ridgefield)	A	From Leg	4.00	0.0000	150.00	No Ice	3.85	3.85	31.97
			0.00			1/2" Ice	6.50	6.50	69.13
			0.00			1" Ice	7.20	7.20	113.93
Angle Side Arm (Town of Ridgefield)	A	From Leg	3.00	0.0000	150.00	No Ice	0.82	6.23	150.00
			0.00			1/2" Ice	1.10	8.47	230.00
			0.00			1" Ice	1.40	10.20	310.00
*** (4) HPA-65R-BUU-H8 (AT&T)	A	From Leg	4.00	0.0000	146.00	No Ice	9.66	6.45	51.00
			0.00			1/2" Ice	10.13	6.91	113.99

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	<b>Client</b>	Insite	<b>Designed by</b>	ATE

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb	
(4) HPA-65R-BUU-H8 (AT&T)	B	From Leg	0.00		0.0000	146.00	1" Ice	10.61	7.38	183.38
			4.00				No Ice	9.66	6.45	51.00
			0.00				1/2" Ice	10.13	6.91	113.99
			0.00				1" Ice	10.61	7.38	183.38
(4) HPA-65R-BUU-H8 (AT&T)	C	From Leg	4.00		0.0000	146.00	No Ice	9.66	6.45	51.00
			0.00				1/2" Ice	10.13	6.91	113.99
			0.00				1" Ice	10.61	7.38	183.38
			0.00				1" Ice	10.61	7.38	183.38
(2) RRUS-11 (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	3.79	1.46	55.00
			0.00				1/2" Ice	4.04	1.63	80.77
			0.00				1" Ice	4.29	1.81	109.98
			0.00				1" Ice	4.29	1.81	109.98
(2) RRUS-11 (AT&T)	B	From Leg	4.00		0.0000	146.00	No Ice	3.79	1.46	55.00
			0.00				1/2" Ice	4.04	1.63	80.77
			0.00				1" Ice	4.29	1.81	109.98
			0.00				1" Ice	4.29	1.81	109.98
(2) RRUS-11 (AT&T)	C	From Leg	4.00		0.0000	146.00	No Ice	3.79	1.46	55.00
			0.00				1/2" Ice	4.04	1.63	80.77
			0.00				1" Ice	4.29	1.81	109.98
			0.00				1" Ice	4.29	1.81	109.98
(2) A2 Module (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	1.60	0.38	21.20
			0.00				1/2" Ice	1.76	0.47	31.53
			0.00				1" Ice	1.92	0.57	44.07
			0.00				1" Ice	1.92	0.57	44.07
(2) A2 Module (AT&T)	B	From Leg	4.00		0.0000	146.00	No Ice	1.60	0.38	21.20
			0.00				1/2" Ice	1.76	0.47	31.53
			0.00				1" Ice	1.92	0.57	44.07
			0.00				1" Ice	1.92	0.57	44.07
(2) A2 Module (AT&T)	C	From Leg	4.00		0.0000	146.00	No Ice	1.60	0.38	21.20
			0.00				1/2" Ice	1.76	0.47	31.53
			0.00				1" Ice	1.92	0.57	44.07
			0.00				1" Ice	1.92	0.57	44.07
RRUS- E2 (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	3.40	1.82	76.98
			0.00				1/2" Ice	3.63	2.09	108.45
			0.00				1" Ice	3.86	2.38	144.12
			0.00				1" Ice	3.86	2.38	144.12
RRUS- E2 (AT&T)	B	From Leg	4.00		0.0000	146.00	No Ice	3.40	1.82	76.98
			0.00				1/2" Ice	3.63	2.09	108.45
			0.00				1" Ice	3.86	2.38	144.12
			0.00				1" Ice	3.86	2.38	144.12
RRUS- E2 (AT&T)	C	From Leg	4.00		0.0000	146.00	No Ice	3.40	1.82	76.98
			0.00				1/2" Ice	3.63	2.09	108.45
			0.00				1" Ice	3.86	2.38	144.12
			0.00				1" Ice	3.86	2.38	144.12
RRUS-12 (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	3.15	1.29	50.00
			0.00				1/2" Ice	3.36	1.44	73.22
			0.00				1" Ice	3.59	1.60	99.64
			0.00				1" Ice	3.59	1.60	99.64
RRUS-12 (AT&T)	B	From Leg	4.00		0.0000	146.00	No Ice	3.15	1.29	50.00
			0.00				1/2" Ice	3.36	1.44	73.22
			0.00				1" Ice	3.59	1.60	99.64
			0.00				1" Ice	3.59	1.60	99.64
RRUS-12 (AT&T)	C	From Leg	4.00		0.0000	146.00	No Ice	3.15	1.29	50.00
			0.00				1/2" Ice	3.36	1.44	73.22
			0.00				1" Ice	3.59	1.60	99.64
			0.00				1" Ice	3.59	1.60	99.64
RRUS- 32 (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	2.69	1.92	67.30
			0.00				1/2" Ice	2.91	2.23	93.17
			0.00				1" Ice	3.14	2.56	123.05
			0.00				1" Ice	3.14	2.56	123.05
RRUS- 32 (AT&T)	B	From Leg	4.00		0.0000	146.00	No Ice	2.69	1.92	67.30
			0.00				1/2" Ice	2.91	2.23	93.17
			0.00				1" Ice	3.14	2.56	123.05
			0.00				1" Ice	3.14	2.56	123.05
RRUS- 32 (AT&T)	C	From Leg	4.00		0.0000	146.00	No Ice	2.69	1.92	67.30
			0.00				1/2" Ice	2.91	2.23	93.17
			0.00				1" Ice	3.14	2.56	123.05
			0.00				1" Ice	3.14	2.56	123.05
(2) DC6-48-60-18-8F (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	2.90	2.90	32.80
			0.00				1/2" Ice	3.13	3.13	60.76
			0.00				1" Ice	3.37	3.37	92.36
			0.00				1" Ice	3.37	3.37	92.36
DC6-48-60-18-8F (AT&T)	B	From Leg	4.00		0.0000	146.00	No Ice	2.90	2.90	32.80
			0.00				1/2" Ice	3.13	3.13	60.76

<p style="text-align: center;"><b>tnxTower</b></p> <p><b>Infinigy Engineering, PLLC</b>  1033 Watervliet Shaker Road  Albany, NY 12205  Phone: (518) 690-0790  FAX: (518) 690-0793</p>	<b>Job</b>	CT897 Ridgefield	<b>Page</b>	6 of 12
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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb	
DC6-48-60-18-8F (AT&T)	C	From Leg	0.00		0.0000	146.00	1" Ice	3.37	3.37	92.36
			4.00				No Ice	2.90	2.90	32.80
			0.00				1/2" Ice	3.13	3.13	60.76
			0.00				1" Ice	3.37	3.37	92.36
Angle Low Profile Platform (AT&T)	A	From Leg	3.00		0.0000	146.00	No Ice	26.10	26.10	1500.00
			0.00				1/2" Ice	31.60	31.60	1700.00
			0.00				1" Ice	37.10	37.10	1900.00
			0.00							
***										
Dish Pipe Mount (Town of Ridgefield)	A	From Leg	0.50		0.0000	70.00	No Ice	1.94	1.94	54.66
			0.00				1/2" Ice	2.46	2.46	80.59
			0.00				1" Ice	2.85	2.85	110.49
			0.00							
***										
SD210R-SF2P90LDF (Town of Ridgefield)	A	From Leg	4.00		0.0000	66.00	No Ice	27.00	27.00	37.00
			0.00				1/2" Ice	27.64	27.64	346.98
			0.00				1" Ice	28.28	28.28	668.04
			0.00							
Angle Side Arm (Town of Ridgefield)	A	From Leg	3.00		0.0000	66.00	No Ice	0.82	6.23	150.00
			0.00				1/2" Ice	1.10	8.47	230.00
			0.00				1" Ice	1.40	10.20	310.00
			0.00							
***										
APXV18-206516S-A20 (T-Mobile)	A	From Leg	4.00		0.0000	126.00	No Ice	3.76	2.60	15.00
			0.00				1/2" Ice	4.11	2.94	38.02
			0.00				1" Ice	4.47	3.29	65.52
			0.00							
APXV18-206516S-A20 (T-Mobile)	B	From Leg	4.00		0.0000	126.00	No Ice	3.76	2.60	15.00
			0.00				1/2" Ice	4.11	2.94	38.02
			0.00				1" Ice	4.47	3.29	65.52
			0.00							
APXV18-206516S-A20 (T-Mobile)	C	From Leg	4.00		0.0000	126.00	No Ice	3.76	2.60	15.00
			0.00				1/2" Ice	4.11	2.94	38.02
			0.00				1" Ice	4.47	3.29	65.52
			0.00							
LNX-6515DS-A1M (T-Mobile)	A	From Leg	4.00		0.0000	126.00	No Ice	11.45	7.70	63.00
			0.00				1/2" Ice	12.06	8.29	128.87
			0.00				1" Ice	12.69	8.89	202.41
			0.00							
LNX-6515DS-A1M (T-Mobile)	B	From Leg	4.00		0.0000	126.00	No Ice	11.45	7.70	63.00
			0.00				1/2" Ice	12.06	8.29	128.87
			0.00				1" Ice	12.69	8.89	202.41
			0.00							
LNX-6515DS-A1M (T-Mobile)	C	From Leg	4.00		0.0000	126.00	No Ice	11.45	7.70	63.00
			0.00				1/2" Ice	12.06	8.29	128.87
			0.00				1" Ice	12.69	8.89	202.41
			0.00							
Angle T-Arm (T-Mobile)	A	From Leg	3.00		0.0000	126.00	No Ice	12.90	4.39	250.00
			0.00				1/2" Ice	15.30	6.00	314.00
			0.00				1" Ice	17.70	7.61	378.00
			0.00							
Angle T-Arm (T-Mobile)	B	From Leg	3.00		0.0000	126.00	No Ice	12.90	4.39	250.00
			0.00				1/2" Ice	15.30	6.00	314.00
			0.00				1" Ice	17.70	7.61	378.00
			0.00							
Angle T-Arm (T-Mobile)	C	From Leg	3.00		0.0000	126.00	No Ice	12.90	4.39	250.00
			0.00				1/2" Ice	15.30	6.00	314.00
			0.00				1" Ice	17.70	7.61	378.00
			0.00							
RRUS 11 (Band 4) (T-Mobile)	A	From Leg	4.00		0.0000	126.00	No Ice	2.57	1.07	44.00
			0.00				1/2" Ice	2.76	1.21	63.57
			0.00				1" Ice	2.97	1.36	86.08
			0.00							
RRUS 11 (Band 4) (T-Mobile)	B	From Leg	4.00		0.0000	126.00	No Ice	2.57	1.07	44.00
			0.00				1/2" Ice	2.76	1.21	63.57
			0.00				1" Ice	2.97	1.36	86.08
			0.00							
RRUS 11 (Band 4) (T-Mobile)	C	From Leg	4.00		0.0000	126.00	No Ice	2.57	1.07	44.00
			0.00				1/2" Ice	2.76	1.21	63.57
			0.00				1" Ice	2.97	1.36	86.08
			0.00							
RRUS 11 (Band 12) (T-Mobile)	A	From Leg	4.00		0.0000	126.00	No Ice	2.52	1.07	55.00
			0.00				1/2" Ice	2.72	1.21	74.32

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb	
RRUS 11 (Band 12) (T-Mobile)	B	From Leg	0.00		0.0000	126.00	1" Ice	2.92	1.36	96.56
			4.00				No Ice	2.52	1.07	55.00
			0.00				1/2" Ice	2.72	1.21	74.32
RRUS 11 (Band 12) (T-Mobile)	C	From Leg	0.00		0.0000	126.00	1" Ice	2.92	1.36	96.56
			4.00				No Ice	2.52	1.07	55.00
			0.00				1/2" Ice	2.72	1.21	74.32
			0.00				1" Ice	2.92	1.36	96.56
***										
Pipe Platform w/ Handrails (Verizon)	C	None			0.0000	136.00	No Ice	27.20	27.20	2000.00
							1/2" Ice	34.20	34.20	2400.00
							1" Ice	41.20	41.20	2800.00
(3) JAHH-1D65B (Verizon)	A	From Leg	4.00		0.0000	136.00	No Ice	9.11	5.98	63.00
			0.00				1/2" Ice	9.58	6.44	121.08
			0.00				1" Ice	10.05	6.91	185.45
(3) JAHH-1D65B (Verizon)	B	From Leg	4.00		0.0000	136.00	No Ice	9.11	5.98	63.00
			0.00				1/2" Ice	9.58	6.44	121.08
			0.00				1" Ice	10.05	6.91	185.45
(3) JAHH-1D65B (Verizon)	C	From Leg	4.00		0.0000	136.00	No Ice	9.11	5.98	63.00
			0.00				1/2" Ice	9.58	6.44	121.08
			0.00				1" Ice	10.05	6.91	185.45
RRH_2x40-700U (Verizon)	A	From Leg	4.00		0.0000	136.00	No Ice	1.93	1.05	50.00
			0.00				1/2" Ice	2.10	1.19	66.85
			0.00				1" Ice	2.28	1.33	86.39
RRH_2x40-700U (Verizon)	B	From Leg	4.00		0.0000	136.00	No Ice	1.93	1.05	50.00
			0.00				1/2" Ice	2.10	1.19	66.85
			0.00				1" Ice	2.28	1.33	86.39
RRH_2x40-700U (Verizon)	C	From Leg	4.00		0.0000	136.00	No Ice	1.93	1.05	50.00
			0.00				1/2" Ice	2.10	1.19	66.85
			0.00				1" Ice	2.28	1.33	86.39
RRH_2x60-PCS (Verizon)	A	From Leg	4.00		0.0000	136.00	No Ice	3.50	2.10	50.00
			0.00				1/2" Ice	3.76	2.34	74.31
			0.00				1" Ice	4.03	2.58	102.31
RRH_2x60-PCS (Verizon)	B	From Leg	4.00		0.0000	136.00	No Ice	3.50	2.10	50.00
			0.00				1/2" Ice	3.76	2.34	74.31
			0.00				1" Ice	4.03	2.58	102.31
RRH_2x60-PCS (Verizon)	C	From Leg	4.00		0.0000	136.00	No Ice	3.50	2.10	50.00
			0.00				1/2" Ice	3.76	2.34	74.31
			0.00				1" Ice	4.03	2.58	102.31
RRH_4x45-AWS (Verizon)	A	From Leg	4.00		0.0000	136.00	No Ice	2.38	1.37	64.00
			0.00				1/2" Ice	2.59	1.54	81.77
			0.00				1" Ice	2.81	1.73	102.51
RRH_4x45-AWS (Verizon)	B	From Leg	4.00		0.0000	136.00	No Ice	2.38	1.37	64.00
			0.00				1/2" Ice	2.59	1.54	81.77
			0.00				1" Ice	2.81	1.73	102.51
RRH_4x45-AWS (Verizon)	C	From Leg	4.00		0.0000	136.00	No Ice	2.38	1.37	64.00
			0.00				1/2" Ice	2.59	1.54	81.77
			0.00				1" Ice	2.81	1.73	102.51
DB-T1-6Z-8AB-0Z (Verizon)	A	From Leg	4.00		0.0000	136.00	No Ice	4.80	2.00	45.00
			0.00				1/2" Ice	5.07	2.19	81.13
			0.00				1" Ice	5.35	2.39	121.22
DB-T1-6Z-8AB-0Z (Verizon)	B	From Leg	4.00		0.0000	136.00	No Ice	4.80	2.00	45.00
			0.00				1/2" Ice	5.07	2.19	81.13
			0.00				1" Ice	5.35	2.39	121.22
***										
RRUS-4478 B5 (AT&T)	A	From Leg	4.00		0.0000	146.00	No Ice	1.86	0.87	43.43
			0.00				1/2" Ice	2.03	1.00	57.98
			0.00				1" Ice	2.20	1.14	75.07

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb
RRUS-4478 B5 (AT&T)	B	From Leg	4.00	0.0000	146.00	No Ice	1.86	0.87	43.43
			0.00			1/2" Ice	2.03	1.00	57.98
			0.00			1" Ice	2.20	1.14	75.07
RRUS-4478 B5 (AT&T)	C	From Leg	4.00	0.0000	146.00	No Ice	1.86	0.87	43.43
			0.00			1/2" Ice	2.03	1.00	57.98
			0.00			1" Ice	2.20	1.14	75.07
RRUS-4478 B14 (AT&T)	A	From Leg	4.00	0.0000	146.00	No Ice	1.86	0.87	43.43
			0.00			1/2" Ice	2.03	1.00	57.98
			0.00			1" Ice	2.20	1.14	75.07
RRUS-4478 B14 (AT&T)	B	From Leg	4.00	0.0000	146.00	No Ice	1.86	0.87	43.43
			0.00			1/2" Ice	2.03	1.00	57.98
			0.00			1" Ice	2.20	1.14	75.07
RRUS-4478 B14 (AT&T)	C	From Leg	4.00	0.0000	146.00	No Ice	1.86	0.87	43.43
			0.00			1/2" Ice	2.03	1.00	57.98
			0.00			1" Ice	2.20	1.14	75.07
DBC0061F1V51-2 (AT&T)	A	From Leg	4.00	0.0000	146.00	No Ice	0.41	0.43	18.30
			0.00			1/2" Ice	0.50	0.51	23.58
			0.00			1" Ice	0.59	0.61	30.39
DBC0061F1V51-2 (AT&T)	B	From Leg	4.00	0.0000	146.00	No Ice	0.41	0.43	18.30
			0.00			1/2" Ice	0.50	0.51	23.58
			0.00			1" Ice	0.59	0.61	30.39
DBC0061F1V51-2 (AT&T)	C	From Leg	4.00	0.0000	146.00	No Ice	0.41	0.43	18.30
			0.00			1/2" Ice	0.50	0.51	23.58
			0.00			1" Ice	0.59	0.61	30.39

## Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz Lateral	Vert						
			ft	ft	°	°	ft	ft	ft <sup>2</sup>	lb	
VHLP3-11W-6GR (Town of Ridgefield)	A	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000	70.00	3.00	No Ice	7.07	67.90	
				0.00				1/2" Ice	7.47	106.25	
				0.00				1" Ice	7.86	144.59	

## Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice

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<i>Comb. No.</i>	<i>Description</i>
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Tower Deflections - Service Wind

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
L1	149 - 116.667	16.906	50	1.1264	0.0251
L2	121 - 89.2503	10.711	50	0.9313	0.0109
L3	94.5003 - 46.2503	6.223	49	0.6617	0.0062
L4	52.667 - 0	1.843	49	0.3276	0.0027

### Critical Deflections and Radius of Curvature - Service Wind

<b>tnxTower</b>  <b>Infinigy Engineering, PLLC</b> 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	<b>Job</b> CT897 Ridgefield	<b>Page</b> 10 of 12
	<b>Project</b> 337-000	<b>Date</b> 14:16:05 08/11/18
	<b>Client</b> Insite	<b>Designed by</b> ATE

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	BA40-41	50	16.906	1.1264	0.0251	27539
146.00	(4) HPA-65R-BUU-H8	50	16.209	1.1082	0.0233	27539
136.00	Pipe Platform w/ Handrails	50	13.915	1.0451	0.0177	10591
126.00	APXV18-206516S-A20	50	11.733	0.9731	0.0128	5986
70.00	VHLP3-11W-6GR	49	3.273	0.4499	0.0040	6616
66.00	SD210R-SF2P90LDF	49	2.895	0.4202	0.0037	6615

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 116.667	82.581	22	5.3716	0.1237
L2	121 - 89.2503	52.679	22	4.5552	0.0539
L3	94.5003 - 46.2503	30.687	22	3.2570	0.0305
L4	52.667 - 0	9.098	22	1.6170	0.0135

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	BA40-41	22	82.581	5.3716	0.1237	6223
146.00	(4) HPA-65R-BUU-H8	22	79.226	5.3013	0.1150	6223
136.00	Pipe Platform w/ Handrails	22	68.177	5.0518	0.0871	2392
126.00	APXV18-206516S-A20	22	57.636	4.7445	0.0633	1350
70.00	VHLP3-11W-6GR	22	16.148	2.2187	0.0198	1348
66.00	SD210R-SF2P90LDF	22	14.283	2.0731	0.0182	1347

### Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
3.5000	22	2.2500	121644.71	125761.19	18.630		Bolt T	0.60
			201288.96	334139.67	45.000			
			0.60	0.38	0.41			

### Compression Checks

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### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_u}{\phi P_n}$
L1	149 - 116.667 (1)	TP28.81x20.5x0.219	32.33	149.00	183.3	19.0996	-10296.00	128420.00	0.080
L2	116.667 - 89.2503 (2)	TP35.43x27.2583x0.313	31.75	149.00	149.2	33.5450	-14440.50	340599.00	0.042
L3	89.2503 - 46.2503 (3)	TP45.86x33.4528x0.438	48.25	149.00	115.1	60.8523	-25494.00	1038320.00	0.025
L4	46.2503 - 0 (4)	TP56.88x43.334x0.5	52.67	149.00	89.3	89.4751	-45281.30	2532460.00	0.018

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> lb-ft	φM <sub>ux</sub> lb-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M <sub>uy</sub> lb-ft	φM <sub>uy</sub> lb-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	149 - 116.667 (1)	TP28.81x20.5x0.219	375505.00	750611.67	0.500	0.00	750611.67	0.000
L2	116.667 - 89.2503 (2)	TP35.43x27.2583x0.313	954883.33	1694158.33	0.564	0.00	1694158.33	0.000
L3	89.2503 - 46.2503 (3)	TP45.86x33.4528x0.438	2028691.67	4060708.33	0.500	0.00	4060708.33	0.000
L4	46.2503 - 0 (4)	TP56.88x43.334x0.5	3680250.00	7454024.67	0.494	0.00	7454024.67	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V <sub>u</sub> lb	φV <sub>n</sub> lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T <sub>u</sub> lb-ft	φT <sub>n</sub> lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	149 - 116.667 (1)	TP28.81x20.5x0.219	20729.20	664304.00	0.031	8284.49	1504866.67	0.006
L2	116.667 - 89.2503 (2)	TP35.43x27.2583x0.313	23018.00	1221690.00	0.019	8262.38	3397191.67	0.002
L3	89.2503 - 46.2503 (3)	TP45.86x33.4528x0.438	28827.00	2260510.00	0.013	15620.17	8143600.00	0.002
L4	46.2503 - 0 (4)	TP56.88x43.334x0.5	33869.90	3217940.00	0.011	15605.42	14946249.33	0.001

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio P <sub>u</sub> φP <sub>n</sub>	Ratio M <sub>ux</sub> φM <sub>ux</sub>	Ratio M <sub>uy</sub> φM <sub>uy</sub>	Ratio V <sub>u</sub> φV <sub>n</sub>	Ratio T <sub>u</sub> φT <sub>n</sub>	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149 - 116.667 (1)	0.080	0.500	0.000	0.031	0.006	0.582	1.000	4.8.2 ✓
L2	116.667 - 89.2503 (2)	0.042	0.564	0.000	0.019	0.002	0.606	1.000	4.8.2 ✓

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	<b>Project</b>	337-000	<b>Date</b>	14:16:05 08/11/18
	<b>Client</b>	Insite	<b>Designed by</b>	ATE

Section No.	Elevation ft	Ratio $P_u$	Ratio $M_{ux}$	Ratio $M_{uy}$	Ratio $V_u$	Ratio $T_u$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L3	89.2503 - 46.2503 (3)	0.025	0.500	0.000	0.013	0.002	0.524	1.000	4.8.2 ✓
L4	46.2503 - 0 (4)	0.018	0.494	0.000	0.011	0.001	0.512	1.000	4.8.2 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capacity	Pass Fail	
L1	149 - 116.667	Pole	TP28.81x20.5x0.219	1	-10296.00	128420.00	58.2	Pass	
L2	116.667 - 89.2503	Pole	TP35.43x27.2583x0.313	2	-14440.50	340599.00	60.6	Pass	
L3	89.2503 - 46.2503	Pole	TP45.86x33.4528x0.438	3	-25494.00	1038320.00	52.4	Pass	
L4	46.2503 - 0	Pole	TP56.88x43.334x0.5	4	-45281.30	2532460.00	51.2	Pass	
							Summary		
							Pole (L2)	60.6	Pass
							Base Plate	60.4	Pass
							<b>RATING =</b>	<b>60.6</b>	<b>Pass</b>



August 21, 2018  
**August 24, 2018 (Rev.1)**



Centerline Communications  
95 Ryan Drive  
Raynham, MA 02767

RE:      Site Number:            CT1855 (LTE 3C/4C/5C)  
          FA Number:            10128094  
          PACE Number:         MRCTB031454  
          PTN Number:         2051A0GK0G  
          Site Name:            RIDGEFIELD  
          Site Address:        Ledgers Road  
                                  Ridgefield, CT 06877

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:

- (12) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 73 lbs. /each)
- (6) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each) (Tower Mounted)
- (3) RRUS-12 RRH's (20.4"x18.5"x7.5" – Wt. = 58 lbs. /each)
- (3) RRUS-E2 RRH's (20.4"x18.5"x7.5" – Wt. = 53 lbs. /each)
- (3) A2 Modules (16.4"x15.2"x3.4" – Wt. = 22 lbs. /each)
- (4) Squid Surge Arrestors (24.0"x9.7"  $\emptyset$  – Wt. = 33 lbs. /each)
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)**
- **(3) 4478 B5 RRH's (16.5"x13.4"x7.7" – Wt. = 60 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) DBC0061F1V51-2 Diplexers (8.0"x6.2"x6.5" – Wt. = 26 lbs. /each)**

*\*Proposed Loading Shown in Bold.*

Mount fabrication drawings prepared by Commscope (P/N MTC3607) were available for the existing mount. King Network Services conducted a survey climb and mapping of the existing AT&T antenna mount on January 2, 2017.

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 110 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 120 mph converted to a nominal wind speed of 93 mph was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 3; tower is located at the upper half of a hill.
- The mount has been analyzed with load combinations consisting of 250 lbs. live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- 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:

- **Relocate existing platform reinforcement kit to the apex of the platform. Reference the attached sketch.**
- **Install new 2" std. (2.38" O.D.) steel pipe braces, secured to the existing handrail kit (typ. of 1 per sector, total of 3).**

	<b>Member</b>	<b>Controlling Load Case</b>	<b>Stress Ratio</b>	<b>Pass/Fail</b>
<b>Existing LTE 3C/4C/5C Mount Rating</b>	4	LC10	133%	<b>FAIL</b>
<b>Proposed LTE 3C/4C/5C Mount Rating</b>	12	LC4	96%	<b>PASS</b>

Reference Documents:

- Mount fabrication drawings prepared by Commscope (P/N MTC3607) dated September 24, 2013.
- Mount mapping report prepared by ProVertic LLC dated February 8, 2017.

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:







**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**

Date: 8/24/2018  
 Project Name: RIDGEFIELD  
 Project Number: CT1855  
 Designed By: BD Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

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

z = 146 (ft)  
 z<sub>g</sub> = 1200 (ft)  
 α = 7.0

**K<sub>z</sub> = 1.101**

K<sub>zmin</sub> ≤ K<sub>z</sub> ≤ 2.01

**Table 2-4**

Exposure	Z <sub>g</sub>	α	K <sub>zmin</sub>	K <sub>e</sub>
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 <sub>t</sub>	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

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

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

**K<sub>zt</sub> = 1.364497005**

K<sub>h</sub> = 2.84

K<sub>e</sub> = 0.9 (from Table 2-4)

K<sub>t</sub> = 0.53 (from Table 2-5)

f = 2 (from Table 2-5)

z = 146

H = 280 (Ht. of the crest above surrounding terrain)

K<sub>zt</sub> = 1.36

K<sub>iz</sub> = 1.16 (from Sec. 2.6.8)

*(If Category 1 then K<sub>zt</sub> = 1.0)*

**Category = 3**

**2.6.8 Design Ice Thickness**

Max Ice Thickness =

t<sub>i</sub> = 0.75 in

$$t_{iz} = 2.0 \cdot t_i \cdot K_{iz} \cdot (K_{zt})^{0.35}$$

t<sub>iz</sub> = 1.94 in

Date: 8/24/2018  
 Project Name: RIDGEFIELD  
 Project Number: CT1855  
 Designed By: BD Checked By: MSC



**2.6.7 Gust Effect Factor**

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

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

h= 150 Gh= 0.85

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures

(Cantilevered 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:  $V_{ult} = 120$  mph

Nomial Design Wind Speed,  $V_{asd} = V_{ult} \sqrt{0.6}$   $V_{asd} = 93$  mph

$V_{asd}$  per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.

Per TIA-222-G,  $V_{min} = 90$  mph  $V_{max} = 110$  mph

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

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

$q_z = 31.57$   
 $q_z (ice) = 9.13$   
 $q_z (30) = 3.29$

$K_z = 1.101$   
 $K_{zt} = 1.4$   
 $K_d = 0.95$   
 $V_{asd} = 93$  mph  
 $V_{max (ice)} = 50$  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

**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 = **1.94 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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	410	156	43
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	88	37	9
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	87	38	9
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	1.20	0	0	0
4478 B5 RRH	16.5	13.4	7.7	1.54	1.23	1.20	58	27	6
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	2.14	1.20	33	18	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	64	29	7
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	40	20	4
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.10	1.20	99	41	10
RRUS-12 RRH (Shielded)	20.4	3.7	7.5	0.52	5.51	1.33	22	16	2
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.10	1.20	99	41	10
RRUS-E2 RRH (Shielded)	20.4	3.7	7.5	0.52	5.51	1.33	22	16	2
A2 Module	16.4	15.2	3.4	1.73	1.08	1.20	66	29	7
A2 Module (Shielded)	16.4	0.4	3.4	0.05	41.00	2.53	4	14	0
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	1.29	1.20	13	9	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	36	17	4
2" Pipe	2.4	12.0		0.20	0.20	1.20	8	8	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	9	8	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	11	9	1
L2x2x1/4 Angle	2.0	12.0		0.17	0.17	2.00	11	12	1
L3x3x1/4 Angle	3.0	12.0		0.25	0.25	2.00	16	14	2
C3x2	3.0	12.0	2.0	0.25	0.25	2.00	16	14	2
PL 6x1/2	6.0	12.0	0.5	0.50	0.50	2.00	32	20	3

Date: 8/24/2018

Project Name: RIDGEFIELD

Project Number: CT1855

Designed By: BD Checked By: MSC



**WIND LOADS**

Angle = 30 (deg)      Ice Thickness = 1.94 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	410	237	367
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	88	38	75
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	87	53	78
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	46	53	48
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	58	33	52
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	33	58	40
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	64	39	58
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	40	64	46
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	85
RRUS-12 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	50	41	47
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	85
RRUS-E2 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	50	41	47
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	66	16	53
A2 Module (Shielded)	16.4	7.6	3.4	0.87	0.39	2.16	4.82	1.20	1.30	33	16	29
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	13	14	13

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H8 Antenna	96.3	18.7	11.3	12.49	7.54	5.15	8.53	1.32	1.45	150	100	138
RRUS-11 RRH	23.6	20.9	11.1	3.42	1.81	1.13	2.13	1.20	1.20	37	20	33
RRUS-32 RRH	31.1	16.0	10.9	3.45	2.35	1.94	2.86	1.20	1.22	38	26	35
RRUS-32 RRH (Shielded)	31.1	8.0	10.9	1.72	2.35	3.89	2.86	1.26	1.22	20	26	21
4478 B5 RRH	20.4	17.3	11.6	2.45	1.64	1.18	1.76	1.20	1.20	27	18	25
4478 B5 RRH (Side)	20.4	11.6	17.3	1.64	2.45	1.76	1.18	1.20	1.20	18	27	20
B14 4478 RRH	22.0	17.3	12.1	2.64	1.85	1.27	1.81	1.20	1.20	29	20	27
B14 4478 RRH (Side)	22.0	12.1	17.3	1.85	2.64	1.82	1.27	1.20	1.20	20	29	22
RRUS-12 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	36
RRUS-12 RRH (Shielded)	24.3	11.2	11.4	1.89	1.92	2.17	2.13	1.20	1.20	21	21	21
RRUS-E2 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	36
RRUS-E2 RRH (Shielded)	24.3	11.2	11.4	1.89	1.92	2.17	2.13	1.20	1.20	21	21	21
A2 Module	20.3	19.1	7.3	2.69	1.03	1.06	2.79	1.20	1.21	29	11	25
A2 Module (Shielded)	20.3	9.5	7.3	1.34	1.03	2.13	2.79	1.20	1.21	15	11	14
DBC0061F1V51-2 Diplexer	11.9	10.1	10.4	0.83	0.86	1.18	1.14	1.20	1.20	9	9	9

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	43	25	38
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	9	4	8
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	3	5
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	3	6	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	7	4	6
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	7	5
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	9
RRUS-12 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	5	4	5
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	9
RRUS-E2 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	5	4	5
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	7	2	6
A2 Module (Shielded)	16.4	7.6	3.4	0.87	0.39	2.16	4.82	1.20	1.30	3	2	3
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: 8/24/2018  
 Project Name: RIDGEFIELD  
 Project Number: CT1855  
 Designed By: BD Checked By: MSC



**WIND LOADS**

Angle = 60 (deg)      Ice Thickness = 1.94 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	410	237	280
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	88	38	50
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	87	53	61
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	66	53	56
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	58	33	40
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	33	58	52
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	64	39	45
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	40	64	58
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	55
RRUS-12 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	74	41	49
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	55
RRUS-E2 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	74	41	49
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	66	16	28
A2 Module (Shielded)	16.4	11.4	3.4	1.30	0.39	1.44	4.82	1.20	1.30	49	16	24
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	13	14	14

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H8 Antenna	96.3	18.7	11.3	12.49	7.54	5.15	8.53	1.32	1.45	150	100	113
RRUS-11 RRH	23.6	20.9	11.1	3.42	1.81	1.13	2.13	1.20	1.20	37	20	24
RRUS-32 RRH	31.1	16.0	10.9	3.45	2.35	1.94	2.86	1.20	1.22	38	26	29
RRUS-32 RRH (Shielded)	31.1	12.0	10.9	2.59	2.35	2.59	2.86	1.20	1.22	28	26	27
4478 B5 RRH	20.4	17.3	11.6	2.45	1.64	1.18	1.76	1.20	1.20	27	18	20
4478 B5 RRH (Side)	20.4	11.6	17.3	1.64	2.45	1.76	1.18	1.20	1.20	18	27	25
B14 4478 RRH	22.0	17.3	12.1	2.64	1.85	1.27	1.81	1.20	1.20	29	20	22
B14 4478 RRH (Side)	22.0	12.1	17.3	1.85	2.64	1.82	1.27	1.20	1.20	20	29	27
RRUS-12 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	26
RRUS-12 RRH (Shielded)	24.3	16.8	11.4	2.83	1.92	1.45	2.13	1.20	1.20	31	21	24
RRUS-E2 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	26
RRUS-E2 RRH (Shielded)	24.3	16.8	11.4	2.83	1.92	1.45	2.13	1.20	1.20	31	21	24
A2 Module	20.3	19.1	7.3	2.69	1.03	1.06	2.79	1.20	1.21	29	11	16
A2 Module (Shielded)	20.3	14.3	7.3	2.02	1.03	1.42	2.79	1.20	1.21	22	11	14
DBC0061F1V51-2 Diplexer	11.9	10.1	10.4	0.83	0.86	1.18	1.14	1.20	1.20	9	9	9

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	43	25	29
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	9	4	5
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	7	5	6
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	3	4
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	3	6	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	7	4	5
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	7	6
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	6
RRUS-12 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	8	4	5
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	6
RRUS-E2 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	8	4	5
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	7	2	3
A2 Module (Shielded)	16.4	11.4	3.4	1.30	0.39	1.44	4.82	1.20	1.30	5	2	3
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: 8/24/2018  
 Project Name: RIDGEFIELD  
 Project Number: CT1855  
 Designed By: BD Checked By: MSC



**WIND LOADS**

Angle = 90 (deg)      Ice Thickness = 1.94 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	410	237	237
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	88	38	38
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	87	53	53
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	53	53
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	58	33	33
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	33	58	58
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	64	39	39
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	40	64	64
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	41
RRUS-12 RRH (Shielded)	20.4	3.7	7.5	0.52	1.06	5.51	2.72	1.33	1.21	22	41	41
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	41
RRUS-E2 RRH (Shielded)	20.4	3.7	7.5	0.52	1.06	5.51	2.72	1.33	1.21	22	41	41
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	66	16	16
A2 Module (Shielded)	16.4	0.4	3.4	0.05	0.39	41.00	4.82	2.53	1.30	4	16	16
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	13	14	14

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H8 Antenna	96.3	18.7	11.3	12.49	7.54	5.15	8.53	1.32	1.45	150	100	100
RRUS-11 RRH	23.6	20.9	11.1	3.42	1.81	1.13	2.13	1.20	1.20	37	20	20
RRUS-32 RRH	31.1	16.0	10.9	3.45	2.35	1.94	2.86	1.20	1.22	38	26	26
RRUS-32 RRH (Shielded)	31.1	3.9	10.9	0.84	2.35	8.01	2.86	1.43	1.22	11	26	26
4478 B5 RRH	20.4	17.3	11.6	2.45	1.64	1.18	1.76	1.20	1.20	27	18	18
4478 B5 RRH (Side)	20.4	11.6	17.3	1.64	2.45	1.76	1.18	1.20	1.20	18	27	27
B14 4478 RRH	22.0	17.3	12.1	2.64	1.85	1.27	1.81	1.20	1.20	29	20	20
B14 4478 RRH (Side)	22.0	12.1	17.3	1.85	2.64	1.82	1.27	1.20	1.20	20	29	29
RRUS-12 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	21
RRUS-12 RRH (Shielded)	24.3	7.6	11.4	1.28	1.92	3.20	2.13	1.23	1.20	14	21	21
RRUS-E2 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	21
RRUS-E2 RRH (Shielded)	24.3	7.6	11.4	1.28	1.92	3.20	2.13	1.23	1.20	14	21	21
A2 Module	20.3	19.1	7.3	2.69	1.03	1.06	2.79	1.20	1.21	29	11	11
A2 Module (Shielded)	20.3	4.3	7.3	0.60	1.03	4.74	2.79	1.30	1.21	7	11	11
DBC0061F1V51-2 Diplexer	11.9	10.1	10.4	0.83	0.86	1.18	1.14	1.20	1.20	9	9	9

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	43	25	25
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	9	4	4
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	5
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	5	5
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	3	3
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	3	6	6
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	7	4	4
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	7	7
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	4
RRUS-12 RRH (Shielded)	20.4	3.7	7.5	0.52	1.06	5.51	2.72	1.33	1.21	2	4	4
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	4
RRUS-E2 RRH (Shielded)	20.4	3.7	7.5	0.52	1.06	5.51	2.72	1.33	1.21	2	4	4
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	7	2	2
A2 Module (Shielded)	16.4	0.4	3.4	0.05	0.39	41.00	4.82	2.53	1.30	0	2	2
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: 8/24/2018

Project Name: RIDGEFIELD

Project Number: CT1855

Designed By: BD Checked By: MSC



**WIND LOADS**

Angle = 120 (deg)

Ice Thickness = 1.94 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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	410	237	280
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	88	38	50
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	87	53	61
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	66	53	56
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	58	33	40
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	33	58	52
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	64	39	45
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	40	64	58
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	55
RRUS-12 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	74	41	49
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	55
RRUS-E2 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	74	41	49
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	66	16	28
A2 Module (Shielded)	16.4	11.4	3.4	1.30	0.39	1.44	4.82	1.20	1.30	49	16	24
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	13	14	14

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H8 Antenna	96.3	18.7	11.3	12.49	7.54	5.15	8.53	1.32	1.45	150	100	113
RRUS-11 RRH	23.6	20.9	11.1	3.42	1.81	1.13	2.13	1.20	1.20	37	20	24
RRUS-32 RRH	31.1	16.0	10.9	3.45	2.35	1.94	2.86	1.20	1.22	38	26	29
RRUS-32 RRH (Shielded)	31.1	12.0	10.9	2.59	2.35	2.59	2.86	1.20	1.22	28	26	27
4478 B5 RRH	20.4	17.3	11.6	2.45	1.64	1.18	1.76	1.20	1.20	27	18	20
4478 B5 RRH (Side)	20.4	11.6	17.3	1.64	2.45	1.76	1.18	1.20	1.20	18	27	25
B14 4478 RRH	22.0	17.3	12.1	2.64	1.85	1.27	1.81	1.20	1.20	29	20	22
B14 4478 RRH (Side)	22.0	12.1	17.3	1.85	2.64	1.82	1.27	1.20	1.20	20	29	27
RRUS-12 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	26
RRUS-12 RRH (Shielded)	24.3	16.8	11.4	2.83	1.92	1.45	2.13	1.20	1.20	31	21	24
RRUS-E2 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	26
RRUS-E2 RRH (Shielded)	24.3	16.8	11.4	2.83	1.92	1.45	2.13	1.20	1.20	31	21	24
A2 Module	20.3	19.1	7.3	2.69	1.03	1.06	2.79	1.20	1.21	29	11	16
A2 Module (Shielded)	20.3	14.3	7.3	2.02	1.03	1.42	2.79	1.20	1.21	22	11	14
DBC0061F1V51-2 Diplexer	11.9	10.1	10.4	0.83	0.86	1.18	1.14	1.20	1.20	9	9	9

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	43	25	29
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	9	4	5
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	7	5	6
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	3	4
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	3	6	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	7	4	5
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	7	6
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	6
RRUS-12 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	8	4	5
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	6
RRUS-E2 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	8	4	5
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	7	2	3
A2 Module (Shielded)	16.4	11.4	3.4	1.30	0.39	1.44	4.82	1.20	1.30	5	2	3
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: 8/24/2018

Project Name: RIDGEFIELD

Project Number: CT1855

Designed By: BD Checked By: MSC



**WIND LOADS**

Angle = 150 (deg)      Ice Thickness = 1.94 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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	410	237	367
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	88	38	75
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	87	53	78
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	46	53	48
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	58	33	52
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	33	58	40
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	64	39	58
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	40	64	46
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	85
RRUS-12 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	50	41	47
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	99	41	85
RRUS-E2 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	50	41	47
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	66	16	53
A2 Module (Shielded)	16.4	7.6	3.4	0.87	0.39	2.16	4.82	1.20	1.30	33	16	29
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	13	14	13

**WIND LOADS WITH ICE:**

HPA-65R-BUU-H8 Antenna	96.3	18.7	11.3	12.49	7.54	5.15	8.53	1.32	1.45	150	100	138
RRUS-11 RRH	23.6	20.9	11.1	3.42	1.81	1.13	2.13	1.20	1.20	37	20	33
RRUS-32 RRH	31.1	16.0	10.9	3.45	2.35	1.94	2.86	1.20	1.22	38	26	35
RRUS-32 RRH (Shielded)	31.1	8.0	10.9	1.72	2.35	3.89	2.86	1.26	1.22	20	26	21
4478 B5 RRH	20.4	17.3	11.6	2.45	1.64	1.18	1.76	1.20	1.20	27	18	25
4478 B5 RRH (Side)	20.4	11.6	17.3	1.64	2.45	1.76	1.18	1.20	1.20	18	27	20
B14 4478 RRH	22.0	17.3	12.1	2.64	1.85	1.27	1.81	1.20	1.20	29	20	27
B14 4478 RRH (Side)	22.0	12.1	17.3	1.85	2.64	1.82	1.27	1.20	1.20	20	29	22
RRUS-12 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	36
RRUS-12 RRH (Shielded)	24.3	11.2	11.4	1.89	1.92	2.17	2.13	1.20	1.20	21	21	21
RRUS-E2 RRH	24.3	22.4	11.4	3.77	1.92	1.08	2.13	1.20	1.20	41	21	36
RRUS-E2 RRH (Shielded)	24.3	11.2	11.4	1.89	1.92	2.17	2.13	1.20	1.20	21	21	21
A2 Module	20.3	19.1	7.3	2.69	1.03	1.06	2.79	1.20	1.21	29	11	25
A2 Module (Shielded)	20.3	9.5	7.3	1.34	1.03	2.13	2.79	1.20	1.21	15	11	14
DBC0061F1V51-2 Diplexer	11.9	10.1	10.4	0.83	0.86	1.18	1.14	1.20	1.20	9	9	9

**WIND LOADS AT 30 MPH:**

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	43	25	38
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	9	4	8
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
4478 B5 RRH	16.5	13.4	7.7	1.54	0.88	1.23	2.14	1.20	1.20	6	3	5
4478 B5 RRH (Side)	16.5	7.7	13.4	0.88	1.54	2.14	1.23	1.20	1.20	3	6	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	7	4	6
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	7	5
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	9
RRUS-12 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	5	4	5
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	10	4	9
RRUS-E2 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	5	4	5
A2 Module	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	7	2	6
A2 Module (Shielded)	16.4	7.6	3.4	0.87	0.39	2.16	4.82	1.20	1.30	3	2	3
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: 8/24/2018  
 Project Name: RIDGEFIELD  
 Project Number: CT1855  
 Designed By: BD Checked By: MSC



**ICE WEIGHT CALCULATIONS**

Thickness of ice: 1.94 in.  
 Density of ice: 56 pcf

**HPA-65R-BUU-H8 Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 92.4  
 Width (in): 14.8  
 Depth (in): 7.4  
 Total weight of ice on object: 337 lbs  
 Weight of object: 73 lbs  
**Combined weight of ice and object: 410 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: 79 lbs  
 Weight of object: 51 lbs  
**Combined weight of ice and object: 130 lbs**

**RRUS-12 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 20.4  
 Width (in): 18.5  
 Depth (in): 7.5  
 Total weight of ice on object: 88 lbs  
 Weight of object: 58 lbs  
**Combined weight of ice and object: 146 lbs**

**A2 Module**

Weight of ice based on total radial SF area:  
 Height (in): 16.4  
 Width (in): 15.2  
 Depth (in): 3.4  
 Total weight of ice on object: 57 lbs  
 Weight of object: 22 lbs  
**Combined weight of ice and object: 79 lbs**

**RRUS-32 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 27.2  
 Width (in): 12.1  
 Depth (in): 7.0  
 Total weight of ice on object: 86 lbs  
 Weight of object: 60 lbs  
**Combined weight of ice and object: 146 lbs**

**RRUS-E2 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 20.4  
 Width (in): 18.5  
 Depth (in): 7.5  
 Total weight of ice on object: 88 lbs  
 Weight of object: 53 lbs  
**Combined weight of ice and object: 141 lbs**

**4478 B5 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 16.5  
 Width (in): 13.4  
 Depth (in): 7.7  
 Total weight of ice on object: 57 lbs  
 Weight of object: 60 lbs  
**Combined weight of ice and object: 117 lbs**

**B14 4478 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: 63 lbs  
 Weight of object: 60 lbs  
**Combined weight of ice and object: 123 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: 17 lbs  
 Weight of object: 26 lbs  
**Combined weight of ice and object: 43 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: 55 lbs  
 Weight of object: 33 lbs  
**Combined weight of ice and object: 88 lbs**

**L 2x2x1/4 Angles**

Weight of ice based on total radial SF area:  
 Height (in): 2  
 Width (in): 2  
**Per foot weight of ice on object: 11 pif**

**2" pipe**

Per foot weight of ice:  
 diameter (in): 2.38  
**Per foot weight of ice on object: 10 pif**

**L 3x3x1/4 Angles**

Weight of ice based on total radial SF area:  
 Height (in): 3  
 Width (in): 3  
**Per foot weight of ice on object: 15 pif**

**2-1/2" pipe**

Per foot weight of ice:  
 diameter (in): 2.88  
**Per foot weight of ice on object: 11 pif**

**3" Pipe**

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

**C 3x2**

Weight of ice based on total radial SF area:  
 Height (in): 3  
 Width (in): 2  
**Per foot weight of ice on object: 13 pif**

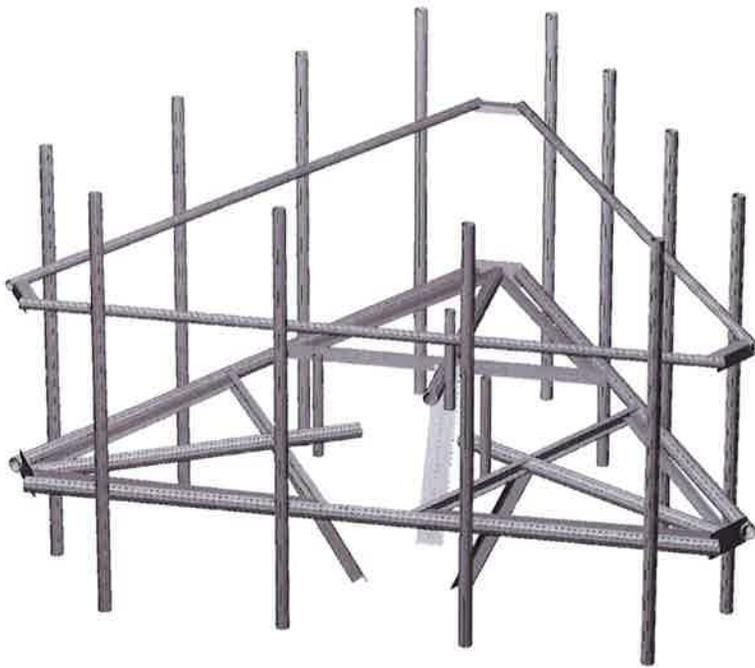
**PL 6x1/2**

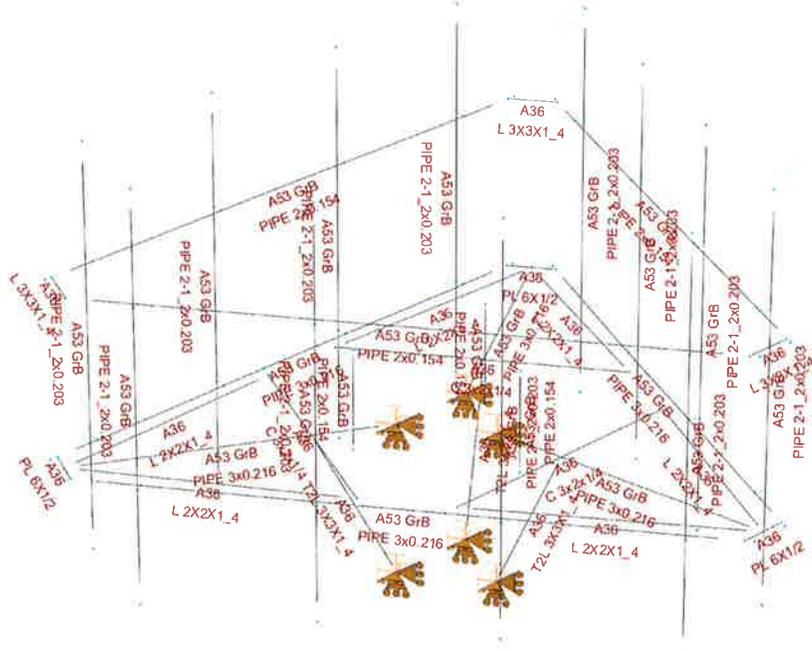
Weight of ice based on total radial SF area:  
 Height (in): 6  
 Width (in): 0.5  
**Per foot weight of ice on object: 19 pif**



**HUDSON**  
Design Group LLC

**Mount Calculations  
(Existing Conditions)**





## Load data

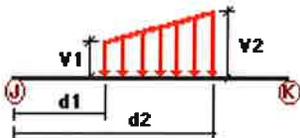
### GLOSSARY

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
LLa4	500 lb Live Load on Antenna 4	No	LL

### Distributed force on members

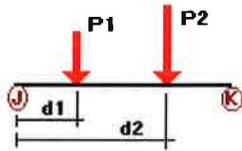


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%	
DL	2	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	3	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	4	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	6	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	7	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	8	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	13	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	14	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	15	Y	-0.01	-0.01	0.00	Yes	100.00	Yes	
	W0	1	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
		4	Z	-0.016	-0.016	0.00	Yes	100.00	Yes
		5	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
		8	Z	-0.016	-0.016	0.00	Yes	100.00	Yes
		9	Z	-0.011	-0.011	0.00	Yes	100.00	Yes

	10	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	11	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	13	Z	-0.016	-0.016	0.00	Yes	100.00	Yes
	16	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	17	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	18	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	28	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	30	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	32	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	34	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	40	Z	-0.032	-0.032	0.00	Yes	100.00	Yes
	41	Z	-0.032	-0.032	0.00	Yes	100.00	Yes
	42	Z	-0.032	-0.032	0.00	Yes	100.00	Yes
	75	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	78	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	81	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	84	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
W30	1	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	4	X	-0.016	-0.016	0.00	Yes	100.00	Yes
	5	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	8	X	-0.016	-0.016	0.00	Yes	100.00	Yes
	10	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	11	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	12	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	16	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	17	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	18	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	30	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	32	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	34	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	40	X	-0.032	-0.032	0.00	Yes	100.00	Yes
	41	X	-0.032	-0.032	0.00	Yes	100.00	Yes
	42	X	-0.032	-0.032	0.00	Yes	100.00	Yes
	75	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	78	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	81	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	84	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	87	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	90	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	93	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	96	X	-0.009	-0.009	0.00	Yes	100.00	Yes
Di	1	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	2	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	3	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	4	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	5	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	6	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	7	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	8	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	9	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	10	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	11	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	12	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	13	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	14	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	15	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	16	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	17	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	18	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	25	Y	-0.019	-0.019	0.00	Yes	100.00	Yes

26	Y	-0.019	-0.019	0.00	Yes	100.00	Yes
27	Y	-0.019	-0.019	0.00	Yes	100.00	Yes
28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
29	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
30	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
31	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
32	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
33	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
34	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
40	Y	-0.03	-0.03	0.00	Yes	100.00	Yes
41	Y	-0.03	-0.03	0.00	Yes	100.00	Yes
42	Y	-0.03	-0.03	0.00	Yes	100.00	Yes
75	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
78	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
81	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
84	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
87	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
90	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
93	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
96	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
100	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
106	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
108	Y	-0.01	-0.01	0.00	Yes	100.00	Yes

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	16	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.08	4.00	No
	17	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.053	4.00	No
	18	y	-0.037	0.15	No
		y	-0.037	7.85	No
	34	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.06	1.50	No
		y	-0.12	4.00	No
	75	y	-0.026	6.50	No
		y	-0.037	0.15	No
	78	y	-0.037	7.85	No
		y	-0.037	0.15	No
		y	-0.037	7.85	No
	81	y	-0.053	4.00	No
		y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.06	1.50	No
		y	-0.12	4.00	No

		y	-0.026	6.50	No
	84	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.08	4.00	No
	87	y	-0.037	0.15	No
		y	-0.037	7.85	No
	90	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.053	4.00	No
	93	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.06	1.50	No
		y	-0.12	4.00	No
		y	-0.026	6.50	No
	96	y	-0.037	0.15	No
		y	-0.037	7.85	No
		y	-0.08	4.00	No
	100	y	-0.033	0.50	No
	106	y	-0.033	0.50	No
	108	y	-0.066	0.50	No
WO	16	z	-0.14	0.15	No
		z	-0.14	7.85	No
		z	-0.049	4.00	No
	17	z	-0.14	0.15	No
		z	-0.14	7.85	No
		z	-0.049	4.00	No
	18	z	-0.14	0.15	No
		z	-0.14	7.85	No
	34	z	-0.14	0.15	No
		z	-0.14	7.85	No
	75	z	-0.14	0.15	No
		z	-0.14	7.85	No
	78	z	-0.14	0.15	No
		z	-0.14	7.85	No
		z	-0.049	4.00	No
	81	z	-0.14	0.15	No
		z	-0.14	7.85	No
	84	z	-0.14	0.15	No
		z	-0.14	7.85	No
		z	-0.049	4.00	No
	87	z	-0.205	0.15	No
		z	-0.205	7.85	No
	90	z	-0.205	0.15	No
		z	-0.205	7.85	No
		z	-0.022	4.00	No
	93	z	-0.205	0.15	No
		z	-0.205	7.85	No
	96	z	-0.205	0.15	No
		z	-0.205	7.85	No
		z	-0.022	4.00	No
	100	z	-0.036	0.50	No
	106	z	-0.036	0.50	No
	108	z	-0.072	0.50	No
W30	16	x	-0.184	0.15	No
		x	-0.184	7.85	No
		x	-0.076	4.00	No
	17	x	-0.184	0.15	No
		x	-0.184	7.85	No
		x	-0.047	4.00	No
	18	x	-0.184	0.15	No

	x	-0.184	7.85	No
34	x	-0.184	0.15	No
	x	-0.184	7.85	No
	x	-0.048	1.50	No
	x	-0.046	4.00	No
	x	-0.013	6.50	No
75	x	-0.184	0.15	No
	x	-0.184	7.85	No
78	x	-0.184	0.15	No
	x	-0.184	7.85	No
	x	-0.047	4.00	No
81	x	-0.184	0.15	No
	x	-0.184	7.85	No
	x	-0.048	1.50	No
	x	-0.046	4.00	No
	x	-0.013	6.50	No
84	x	-0.184	0.15	No
	x	-0.184	7.85	No
	x	-0.076	4.00	No
87	x	-0.119	0.15	No
	x	-0.119	7.85	No
90	x	-0.119	0.15	No
	x	-0.119	7.85	No
	x	-0.041	4.00	No
93	x	-0.119	0.15	No
	x	-0.119	7.85	No
	x	-0.053	1.50	No
	x	-0.064	4.00	No
	x	-0.014	6.50	No
96	x	-0.119	0.15	No
	x	-0.119	7.85	No
	x	-0.057	4.00	No
100	x	-0.036	0.50	No
106	x	-0.036	0.50	No
108	x	-0.072	0.50	No
Di 16	y	-0.169	0.15	No
	y	-0.169	7.85	No
	y	-0.145	4.00	No
17	y	-0.169	0.15	No
	y	-0.169	7.85	No
	y	-0.088	4.00	No
18	y	-0.169	0.15	No
	y	-0.169	7.85	No
34	y	-0.169	0.15	No
	y	-0.169	7.85	No
	y	-0.086	1.50	No
	y	-0.12	4.00	No
	y	-0.017	6.50	No
75	y	-0.169	0.15	No
	y	-0.169	7.85	No
78	y	-0.169	0.15	No
	y	-0.169	7.85	No
	y	-0.088	4.00	No
81	y	-0.169	0.15	No
	y	-0.169	7.85	No
	y	-0.086	1.50	No
	y	-0.12	4.00	No
	y	-0.017	6.50	No
84	y	-0.169	0.15	No
	y	-0.169	7.85	No

		y	-0.145	4.00	No
	87	y	-0.169	0.15	No
		y	-0.169	7.85	No
	90	y	-0.169	0.15	No
		y	-0.169	7.85	No
		y	-0.088	4.00	No
	93	y	-0.169	0.15	No
		y	-0.169	7.85	No
		y	-0.086	1.50	No
		y	-0.12	4.00	No
	96	y	-0.017	6.50	No
		y	-0.169	0.15	No
		y	-0.169	7.85	No
		y	-0.145	4.00	No
	100	y	-0.055	0.50	No
	106	y	-0.055	0.50	No
	108	y	-0.11	0.50	No
Wi0	16	z	-0.057	0.15	No
		z	-0.057	7.85	No
		z	-0.024	4.00	No
	17	z	-0.057	0.15	No
		z	-0.057	7.85	No
		z	-0.024	4.00	No
	18	z	-0.057	0.15	No
		z	-0.057	7.85	No
	34	z	-0.057	0.15	No
		z	-0.057	7.85	No
	75	z	-0.057	0.15	No
		z	-0.057	7.85	No
	78	z	-0.057	0.15	No
		z	-0.057	7.85	No
		z	-0.024	4.00	No
	81	z	-0.057	0.15	No
		z	-0.057	7.85	No
	84	z	-0.057	0.15	No
		z	-0.057	7.85	No
		z	-0.024	4.00	No
	87	z	-0.078	0.15	No
		z	-0.078	7.85	No
	90	z	-0.078	0.15	No
		z	-0.078	7.85	No
		z	-0.016	4.00	No
	93	z	-0.078	0.15	No
		z	-0.078	7.85	No
	96	z	-0.078	0.15	No
		z	-0.078	7.85	No
		z	-0.016	4.00	No
	100	z	-0.017	0.50	No
	106	z	-0.017	0.50	No
	108	z	-0.034	0.50	No
Wi30	16	x	-0.069	0.15	No
		x	-0.069	7.85	No
		x	-0.035	4.00	No
	17	x	-0.069	0.15	No
		x	-0.069	7.85	No
		x	-0.021	4.00	No
	18	x	-0.069	0.15	No
		x	-0.069	7.85	No
	34	x	-0.069	0.15	No
		x	-0.069	7.85	No

	x	-0.021	1.50	No
	x	-0.022	4.00	No
	x	-0.009	6.50	No
75	x	-0.069	0.15	No
	x	-0.069	7.85	No
78	x	-0.069	0.15	No
	x	-0.069	7.85	No
	x	-0.021	4.00	No
81	x	-0.069	0.15	No
	x	-0.069	7.85	No
	x	-0.021	1.50	No
	x	-0.022	4.00	No
	x	-0.009	6.50	No
84	x	-0.069	0.15	No
	x	-0.069	7.85	No
	x	-0.035	4.00	No
87	x	-0.05	0.15	No
	x	-0.05	7.85	No
90	x	-0.05	0.15	No
	x	-0.05	7.85	No
	x	-0.021	4.00	No
93	x	-0.05	0.15	No
	x	-0.05	7.85	No
	x	-0.026	1.50	No
	x	-0.029	4.00	No
	x	-0.009	6.50	No
96	x	-0.05	0.15	No
	x	-0.05	7.85	No
	x	-0.032	4.00	No
100	x	-0.017	0.50	No
106	x	-0.017	0.50	No
108	x	-0.034	0.50	No
WLO 16	z	-0.015	0.15	No
	z	-0.015	7.85	No
	z	-0.005	4.00	No
17	z	-0.015	0.15	No
	z	-0.015	7.85	No
	z	-0.005	4.00	No
18	z	-0.015	0.15	No
	z	-0.015	7.85	No
34	z	-0.015	0.15	No
	z	-0.015	7.85	No
75	z	-0.015	0.15	No
	z	-0.015	7.85	No
78	z	-0.015	0.15	No
	z	-0.015	7.85	No
	z	-0.005	4.00	No
81	z	-0.015	0.15	No
	z	-0.015	7.85	No
84	z	-0.015	0.15	No
	z	-0.015	7.85	No
	z	-0.005	4.00	No
87	z	-0.022	0.15	No
	z	-0.022	7.85	No
90	z	-0.022	0.15	No
	z	-0.022	7.85	No
	z	-0.002	4.00	No
93	z	-0.022	0.15	No
	z	-0.022	7.85	No
96	z	-0.022	0.15	No

		z	-0.022	7.85	No
		z	-0.002	4.00	No
	100	z	-0.004	0.50	No
	106	z	-0.004	0.50	No
	108	z	-0.008	0.50	No
WL30	16	x	-0.019	0.15	No
		x	-0.019	7.85	No
		x	-0.008	4.00	No
	17	x	-0.019	0.15	No
		x	-0.019	7.85	No
		x	-0.005	4.00	No
	18	x	-0.019	0.15	No
		x	-0.019	7.85	No
	34	x	-0.019	0.15	No
		x	-0.019	7.85	No
		x	-0.005	1.50	No
		x	-0.005	4.00	No
		x	-0.001	6.50	No
	75	x	-0.019	0.15	No
		x	-0.019	7.85	No
	78	x	-0.019	0.15	No
		x	-0.019	7.85	No
		x	-0.005	4.00	No
	81	x	-0.019	0.15	No
		x	-0.019	7.85	No
		x	-0.005	1.50	No
		x	-0.005	4.00	No
		x	-0.001	6.50	No
	84	x	-0.019	0.15	No
		x	-0.019	7.85	No
		x	-0.008	4.00	No
	87	x	-0.013	0.15	No
		x	-0.013	7.85	No
	90	x	-0.013	0.15	No
		x	-0.013	7.85	No
		x	-0.004	4.00	No
	93	x	-0.013	0.15	No
		x	-0.013	7.85	No
		x	-0.005	1.50	No
		x	-0.007	4.00	No
		x	-0.001	6.50	No
	96	x	-0.013	0.15	No
		x	-0.013	7.85	No
		x	-0.006	4.00	No
	100	x	-0.004	0.50	No
	106	x	-0.004	0.50	No
	108	x	-0.008	0.50	No
LL1	9	y	-0.25	6.25	No
LL2	9	y	-0.25	0.00	No
LLa1	87	y	-0.25	4.00	No
LLa2	90	y	-0.25	4.00	No
LLa3	93	y	-0.25	4.00	No
LLa4	96	y	-0.25	4.00	No

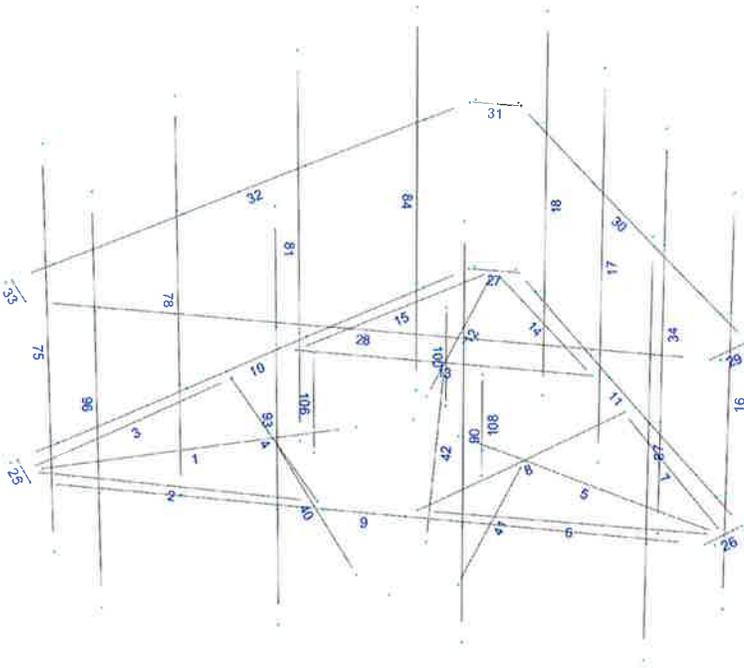
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### Self weight multipliers for load conditions

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
LLa4	500 lb Live Load on Antenna 4	No	0.00	0.00	0.00

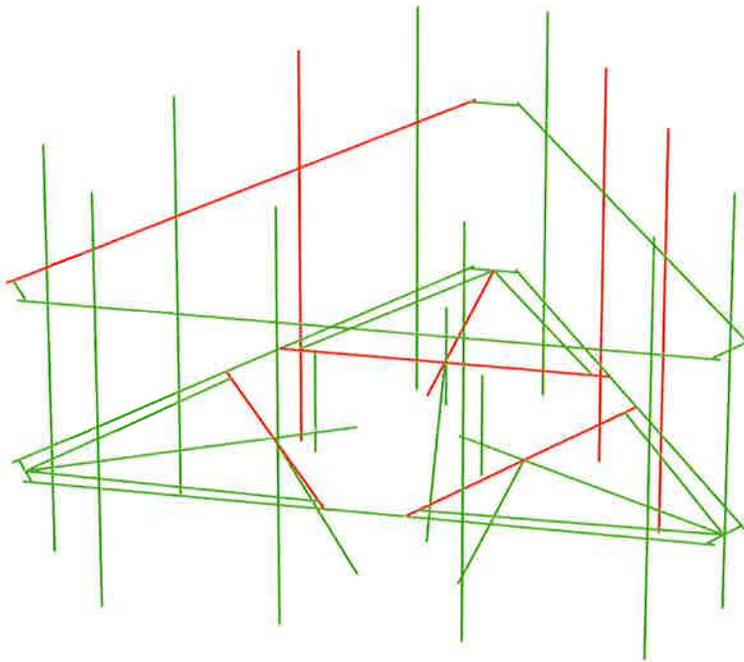
### Earthquake (Dynamic analysis only)

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
LLa4	0.00	0.00	0.00



Design status

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



Current Date: 8/24/2018 12:00 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1855\LTE 3C-4C-5C\Rev1\CT1855 (I 3C-4C-5C) (Rev.1).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  
 LC29=1.2DL+WL0+LLa4  
 LC30=1.2DL+WL30+LLa4  
 LC31=1.2DL-WL0+LLa4  
 LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>C 3x2x1/4</b>	<b>4</b>	LC1 at 100.00%	0.87	OK	Eq. H1-1b
			LC10 at 50.00%	<b>1.33</b>	<b>N.G.</b>	Eq. H1-1b
			LC11 at 50.00%	<b>1.32</b>	<b>N.G.</b>	
			LC12 at 50.00%	<b>1.15</b>	<b>N.G.</b>	
			LC13 at 50.00%	0.43	OK	
			LC14 at 50.00%	0.32	OK	
			LC15 at 50.00%	0.55	OK	
			LC16 at 50.00%	0.56	OK	
			LC17 at 50.00%	0.44	OK	
			LC18 at 50.00%	0.47	OK	

LC19 at 50.00%	0.47	OK
LC2 at 48.44%	1.07	N.G.
LC20 at 50.00%	0.43	OK
LC21 at 50.00%	0.47	OK
LC22 at 50.00%	0.51	OK
LC23 at 50.00%	0.50	OK
LC24 at 50.00%	0.46	OK
LC25 at 50.00%	0.51	OK
LC26 at 50.00%	0.54	OK
LC27 at 50.00%	0.54	OK
LC28 at 50.00%	0.49	OK
LC29 at 50.00%	0.50	OK
LC3 at 50.00%	0.98	OK
LC30 at 50.00%	0.54	OK
LC31 at 50.00%	0.53	OK
LC32 at 50.00%	0.49	OK
LC4 at 0.00%	0.69	OK
LC5 at 100.00%	0.83	OK
LC6 at 48.44%	0.97	OK
LC7 at 50.00%	0.88	OK
LC8 at 0.00%	0.66	OK
LC9 at 50.00%	1.18	N.G.
W180 at 100.00%	0.43	OK
W210 at 48.44%	0.43	OK
Wi180 at 100.00%	0.13	OK
Wi210 at 48.44%	0.13	OK
WL180 at 100.00%	0.04	OK
WL210 at 48.44%	0.03	OK

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LC1 at 100.00%	0.84	OK	Eq. H1-1b
LC10 at 50.00%	1.14	N.G.	
LC11 at 50.00%	1.30	N.G.	Eq. H1-1b
LC12 at 50.00%	1.30	N.G.	Eq. H1-1b
LC13 at 50.00%	0.42	OK	
LC14 at 50.00%	0.31	OK	
LC15 at 50.00%	0.53	OK	
LC16 at 50.00%	0.43	OK	
LC17 at 50.00%	0.49	OK	
LC18 at 50.00%	0.48	OK	
LC19 at 50.00%	0.52	OK	
LC2 at 0.00%	0.76	OK	
LC20 at 50.00%	0.52	OK	
LC21 at 50.00%	0.49	OK	
LC22 at 50.00%	0.48	OK	
LC23 at 50.00%	0.53	OK	
LC24 at 50.00%	0.53	OK	
LC25 at 50.00%	0.46	OK	
LC26 at 50.00%	0.45	OK	
LC27 at 50.00%	0.50	OK	
LC28 at 50.00%	0.50	OK	
LC29 at 50.00%	0.42	OK	
LC3 at 50.00%	0.97	OK	
LC30 at 50.00%	0.42	OK	
LC31 at 50.00%	0.46	OK	
LC32 at 50.00%	0.46	OK	
LC4 at 48.44%	1.09	N.G.	
LC5 at 100.00%	0.80	OK	
LC6 at 0.00%	0.71	OK	
LC7 at 50.00%	0.87	OK	
LC8 at 48.44%	0.99	OK	
LC9 at 48.44%	1.17	N.G.	
W180 at 100.00%	0.43	OK	
W210 at 48.44%	0.43	OK	
Wi180 at 100.00%	0.13	OK	

Wi210 at 48.44%	0.13	OK
WL180 at 100.00%	0.04	OK
WL210 at 48.44%	0.03	OK

13

LC1 at 50.00%	0.99	OK
LC10 at 48.44%	1.23	N.G.
LC11 at 50.00%	1.11	N.G.
LC12 at 50.00%	1.27	N.G.
LC13 at 50.00%	0.42	OK
LC14 at 50.00%	0.31	OK
LC15 at 50.00%	0.39	OK
LC16 at 48.44%	0.41	OK
LC17 at 50.00%	0.44	OK
LC18 at 50.00%	0.41	OK
LC19 at 50.00%	0.39	OK
LC2 at 100.00%	0.96	OK
LC20 at 50.00%	0.43	OK
LC21 at 50.00%	0.43	OK
LC22 at 48.44%	0.41	OK
LC23 at 50.00%	0.38	OK
LC24 at 50.00%	0.42	OK
LC25 at 50.00%	0.43	OK
LC26 at 48.44%	0.41	OK
LC27 at 50.00%	0.37	OK
LC28 at 50.00%	0.42	OK
LC29 at 48.44%	0.43	OK
LC3 at 100.00%	0.38	OK
LC30 at 48.44%	0.42	OK
LC31 at 48.44%	0.38	OK
LC32 at 50.00%	0.41	OK
LC4 at 0.00%	1.02	N.G.
LC5 at 50.00%	0.88	OK
LC6 at 100.00%	0.93	OK
LC7 at 100.00%	0.40	OK
LC8 at 0.00%	0.98	OK
LC9 at 50.00%	1.31	N.G.
W180 at 50.00%	0.37	OK
W210 at 0.00%	0.53	OK
Wi180 at 50.00%	0.11	OK
Wi210 at 0.00%	0.16	OK
WL180 at 50.00%	0.03	OK
WL210 at 0.00%	0.04	OK

Eq. H1-1b

Eq. H1-1b

Eq. H1-1b

L 2X2X1\_4

2

LC1 at 0.00%	0.33	OK
LC10 at 0.00%	0.59	OK
LC11 at 0.00%	0.52	OK
LC12 at 0.00%	0.46	OK
LC13 at 0.00%	0.22	OK
LC14 at 0.00%	0.16	OK
LC15 at 0.00%	0.24	OK
LC16 at 0.00%	0.26	OK
LC17 at 0.00%	0.22	OK
LC18 at 0.00%	0.23	OK
LC19 at 0.00%	0.21	OK
LC2 at 0.00%	0.67	OK
LC20 at 0.00%	0.20	OK
LC21 at 0.00%	0.23	OK
LC22 at 0.00%	0.24	OK
LC23 at 0.00%	0.22	OK
LC24 at 0.00%	0.21	OK
LC25 at 0.00%	0.24	OK
LC26 at 0.00%	0.25	OK
LC27 at 0.00%	0.23	OK
LC28 at 0.00%	0.22	OK

Sec. F1

Eq. H2-1

LC29 at 0.00%	0.24	OK
LC3 at 0.00%	0.49	OK
LC30 at 0.00%	0.25	OK
LC31 at 0.00%	0.24	OK
LC32 at 0.00%	0.22	OK
LC4 at 37.50%	0.23	OK
LC5 at 0.00%	0.28	OK
LC6 at 0.00%	0.62	OK
LC7 at 0.00%	0.44	OK
LC8 at 31.25%	0.24	OK
LC9 at 0.00%	0.53	OK
W180 at 100.00%	0.22	OK
W210 at 0.00%	0.22	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

3

LC1 at 43.75%	0.14	OK
LC10 at 0.00%	0.58	OK
LC11 at 0.00%	0.60	OK
LC12 at 0.00%	0.52	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%	0.31	OK
LC17 at 0.00%	0.22	OK
LC18 at 0.00%	0.24	OK
LC19 at 0.00%	0.24	OK
LC2 at 0.00%	<b>0.73</b>	<b>OK</b>
LC20 at 0.00%	0.23	OK
LC21 at 0.00%	0.22	OK
LC22 at 0.00%	0.24	OK
LC23 at 0.00%	0.25	OK
LC24 at 0.00%	0.23	OK
LC25 at 0.00%	0.23	OK
LC26 at 0.00%	0.25	OK
LC27 at 0.00%	0.26	OK
LC28 at 0.00%	0.24	OK
LC29 at 0.00%	0.25	OK
LC3 at 0.00%	0.50	OK
LC30 at 0.00%	0.28	OK
LC31 at 0.00%	0.28	OK
LC32 at 0.00%	0.26	OK
LC4 at 0.00%	0.21	OK
LC5 at 37.50%	0.14	OK
LC6 at 0.00%	0.68	OK
LC7 at 0.00%	0.44	OK
LC8 at 56.25%	0.20	OK
LC9 at 0.00%	0.49	OK
W180 at 0.00%	0.17	OK
W210 at 0.00%	0.15	OK
Wi180 at 0.00%	0.05	OK
Wi210 at 0.00%	0.05	OK
WL180 at 0.00%	0.01	OK
WL210 at 0.00%	0.01	OK

Sec. F1

Eq. H2-1

6

LC1 at 0.00%	0.35	OK
LC10 at 0.00%	0.48	OK
LC11 at 0.00%	0.54	OK
LC12 at 0.00%	0.61	OK
LC13 at 0.00%	0.23	OK
LC14 at 0.00%	0.17	OK
LC15 at 0.00%	0.25	OK

Sec. F1

LC16 at 0.00%	0.21	OK	
LC17 at 0.00%	0.25	OK	
LC18 at 0.00%	0.23	OK	
LC19 at 0.00%	0.25	OK	
LC2 at 37.50%	0.23	OK	
LC20 at 0.00%	0.27	OK	
LC21 at 0.00%	0.25	OK	
LC22 at 0.00%	0.23	OK	
LC23 at 0.00%	0.24	OK	
LC24 at 0.00%	0.26	OK	
LC25 at 0.00%	0.24	OK	
LC26 at 0.00%	0.22	OK	
LC27 at 0.00%	0.23	OK	
LC28 at 0.00%	0.25	OK	
LC29 at 0.00%	0.23	OK	
LC3 at 0.00%	0.50	OK	
LC30 at 0.00%	0.21	OK	
LC31 at 0.00%	0.22	OK	
LC32 at 0.00%	0.24	OK	
LC4 at 0.00%	<b>0.68</b>	<b>OK</b>	Eq. H2-1
LC5 at 0.00%	0.29	OK	
LC6 at 31.25%	0.23	OK	
LC7 at 0.00%	0.44	OK	
LC8 at 0.00%	0.63	OK	
LC9 at 0.00%	0.55	OK	
W180 at 100.00%	0.23	OK	
W210 at 0.00%	0.30	OK	
Wi180 at 100.00%	0.07	OK	
Wi210 at 0.00%	0.09	OK	
WL180 at 100.00%	0.02	OK	
WL210 at 0.00%	0.02	OK	

<b>7</b>	LC1 at 43.75%	0.14	OK	
	LC10 at 0.00%	0.50	OK	
	LC11 at 0.00%	0.57	OK	Sec. F1
	LC12 at 0.00%	0.56	OK	
	LC13 at 0.00%	0.22	OK	
	LC14 at 0.00%	0.16	OK	
	LC15 at 0.00%	0.24	OK	
	LC16 at 0.00%	0.22	OK	
	LC17 at 0.00%	0.24	OK	
	LC18 at 0.00%	0.25	OK	
	LC19 at 0.00%	0.27	OK	
	LC2 at 56.25%	0.21	OK	Eq. H2-1
	LC20 at 0.00%	0.27	OK	
	LC21 at 0.00%	0.22	OK	
	LC22 at 0.00%	0.23	OK	
	LC23 at 0.00%	0.25	OK	
	LC24 at 0.00%	0.25	OK	
	LC25 at 0.00%	0.21	OK	
	LC26 at 0.00%	0.22	OK	
	LC27 at 0.00%	0.24	OK	
	LC28 at 0.00%	0.23	OK	
	LC29 at 0.00%	0.21	OK	
	LC3 at 0.00%	0.49	OK	
	LC30 at 0.00%	0.22	OK	
	LC31 at 0.00%	0.23	OK	
	LC32 at 0.00%	0.23	OK	
	LC4 at 0.00%	<b>0.73</b>	<b>OK</b>	Eq. H2-1
	LC5 at 37.50%	0.15	OK	
	LC6 at 56.25%	0.20	OK	
	LC7 at 0.00%	0.44	OK	
	LC8 at 0.00%	0.68	OK	
	LC9 at 0.00%	0.47	OK	

	W180 at 0.00%	0.17	OK	
	W210 at 0.00%	0.33	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 0.00%	0.10	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.03	OK	
<hr/>				
<b>14</b>	LC1 at 100.00%	<b>0.75</b>	<b>OK</b>	Eq. H2-1
	LC10 at 100.00%	0.58	OK	
	LC11 at 100.00%	0.50	OK	
	LC12 at 100.00%	0.51	OK	
	LC13 at 100.00%	0.23	OK	
	LC14 at 100.00%	0.17	OK	
	LC15 at 100.00%	0.22	OK	
	LC16 at 100.00%	0.22	OK	
	LC17 at 100.00%	0.23	OK	
	LC18 at 100.00%	0.23	OK	
	LC19 at 100.00%	0.21	OK	
	LC2 at 100.00%	0.47	OK	
	LC20 at 100.00%	0.21	OK	
	LC21 at 100.00%	0.23	OK	
	LC22 at 100.00%	0.23	OK	
	LC23 at 100.00%	0.21	OK	
	LC24 at 100.00%	0.21	OK	
	LC25 at 100.00%	0.23	OK	
	LC26 at 100.00%	0.23	OK	
	LC27 at 100.00%	0.21	OK	
	LC28 at 100.00%	0.21	OK	
	LC29 at 100.00%	0.23	OK	
	LC3 at 50.00%	0.23	OK	Eq. H2-1
	LC30 at 100.00%	0.23	OK	
	LC31 at 100.00%	0.21	OK	
	LC32 at 100.00%	0.21	OK	
	LC4 at 50.00%	0.26	OK	
	LC5 at 100.00%	0.70	OK	
	LC6 at 100.00%	0.41	OK	
	LC7 at 56.25%	0.23	OK	Eq. H2-1
	LC8 at 56.25%	0.27	OK	
	LC9 at 100.00%	0.59	OK	Sec. F1
	W180 at 100.00%	0.20	OK	
	W210 at 100.00%	0.24	OK	
	Wi180 at 100.00%	0.06	OK	
	Wi210 at 100.00%	0.07	OK	
	WL180 at 100.00%	0.02	OK	
	WL210 at 100.00%	0.02	OK	
<hr/>				
<b>15</b>	LC1 at 100.00%	<b>0.74</b>	<b>OK</b>	Eq. H2-1
	LC10 at 100.00%	0.48	OK	
	LC11 at 100.00%	0.48	OK	
	LC12 at 100.00%	0.56	OK	
	LC13 at 100.00%	0.22	OK	
	LC14 at 100.00%	0.16	OK	
	LC15 at 100.00%	0.21	OK	
	LC16 at 100.00%	0.20	OK	
	LC17 at 100.00%	0.22	OK	
	LC18 at 100.00%	0.20	OK	
	LC19 at 100.00%	0.20	OK	
	LC2 at 50.00%	0.28	OK	
	LC20 at 100.00%	0.22	OK	
	LC21 at 100.00%	0.22	OK	
	LC22 at 100.00%	0.20	OK	
	LC23 at 100.00%	0.20	OK	
	LC24 at 100.00%	0.22	OK	
	LC25 at 100.00%	0.22	OK	

LC26 at 100.00%	0.20	OK	
LC27 at 100.00%	0.20	OK	
LC28 at 100.00%	0.22	OK	
LC29 at 100.00%	0.22	OK	
LC3 at 50.00%	0.23	OK	Eq. H2-1
LC30 at 100.00%	0.19	OK	
LC31 at 100.00%	0.20	OK	
LC32 at 100.00%	0.22	OK	
LC4 at 100.00%	0.46	OK	
LC5 at 100.00%	0.69	OK	
LC6 at 56.25%	0.28	OK	
LC7 at 62.50%	0.23	OK	Eq. H2-1
LC8 at 100.00%	0.41	OK	
LC9 at 100.00%	0.57	OK	Sec. F1
W180 at 100.00%	0.20	OK	
W210 at 100.00%	0.16	OK	
Wi180 at 100.00%	0.06	OK	
Wi210 at 100.00%	0.05	OK	
WL180 at 100.00%	0.02	OK	
WL210 at 100.00%	0.01	OK	

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29

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LC1 at 0.00%	0.31	OK	
LC10 at 100.00%	0.33	OK	
LC11 at 100.00%	0.45	OK	
LC12 at 0.00%	0.46	OK	
LC13 at 0.00%	0.12	OK	
LC14 at 0.00%	0.09	OK	
LC15 at 100.00%	0.14	OK	
LC16 at 0.00%	0.14	OK	
LC17 at 0.00%	0.13	OK	
LC18 at 100.00%	0.13	OK	
LC19 at 100.00%	0.16	OK	
LC2 at 0.00%	0.38	OK	
LC20 at 0.00%	0.16	OK	
LC21 at 0.00%	0.13	OK	
LC22 at 100.00%	0.13	OK	
LC23 at 100.00%	0.16	OK	
LC24 at 0.00%	0.15	OK	
LC25 at 0.00%	0.13	OK	
LC26 at 100.00%	0.12	OK	
LC27 at 100.00%	0.16	OK	
LC28 at 0.00%	0.15	OK	
LC29 at 0.00%	0.13	OK	
LC3 at 100.00%	0.52	OK	Eq. H2-1
LC30 at 100.00%	0.12	OK	
LC31 at 100.00%	0.15	OK	
LC32 at 0.00%	0.16	OK	
LC4 at 0.00%	<b>0.62</b>	<b>OK</b>	Eq. H2-1
LC5 at 100.00%	0.31	OK	
LC6 at 0.00%	0.41	OK	
LC7 at 100.00%	0.49	OK	
LC8 at 0.00%	0.59	OK	
LC9 at 0.00%	0.37	OK	
W180 at 100.00%	0.25	OK	
W210 at 0.00%	0.31	OK	
Wi180 at 100.00%	0.09	OK	
Wi210 at 0.00%	0.10	OK	
WL180 at 100.00%	0.03	OK	
WL210 at 0.00%	0.03	OK	

31

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LC1 at 0.00%	0.42	OK	Sec. F1
LC10 at 0.00%	0.43	OK	
LC11 at 43.75%	0.31	OK	
LC12 at 100.00%	0.41	OK	

LC13 at 12.50%	0.12	OK	
LC14 at 12.50%	0.09	OK	
LC15 at 18.75%	0.12	OK	
LC16 at 100.00%	0.13	OK	
LC17 at 0.00%	0.14	OK	
LC18 at 0.00%	0.15	OK	
LC19 at 0.00%	0.11	OK	
LC2 at 0.00%	<b>0.47</b>	<b>OK</b>	Eq. H2-1
LC20 at 100.00%	0.14	OK	
LC21 at 0.00%	0.14	OK	
LC22 at 0.00%	0.14	OK	
LC23 at 0.00%	0.11	OK	
LC24 at 100.00%	0.13	OK	
LC25 at 100.00%	0.14	OK	
LC26 at 0.00%	0.14	OK	
LC27 at 68.75%	0.11	OK	
LC28 at 100.00%	0.13	OK	
LC29 at 100.00%	0.14	OK	
LC3 at 100.00%	0.19	OK	
LC30 at 0.00%	0.14	OK	
LC31 at 100.00%	0.11	OK	
LC32 at 100.00%	0.14	OK	
LC4 at 100.00%	0.38	OK	
LC5 at 0.00%	0.39	OK	
LC6 at 0.00%	0.44	OK	
LC7 at 100.00%	0.22	OK	
LC8 at 100.00%	0.35	OK	
LC9 at 87.50%	0.42	OK	Eq. H2-1
W180 at 100.00%	0.19	OK	
W210 at 0.00%	0.22	OK	
Wi180 at 0.00%	0.06	OK	
Wi210 at 0.00%	0.07	OK	
WL180 at 100.00%	0.02	OK	
WL210 at 0.00%	0.02	OK	

33

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LC1 at 0.00%	0.31	OK	
LC10 at 100.00%	0.45	OK	
LC11 at 0.00%	0.45	OK	
LC12 at 0.00%	0.33	OK	
LC13 at 68.75%	0.12	OK	
LC14 at 68.75%	0.09	OK	
LC15 at 0.00%	0.14	OK	
LC16 at 0.00%	0.15	OK	
LC17 at 100.00%	0.13	OK	
LC18 at 100.00%	0.15	OK	
LC19 at 0.00%	0.16	OK	
LC2 at 100.00%	<b>0.57</b>	<b>OK</b>	Eq. H2-1
LC20 at 0.00%	0.12	OK	
LC21 at 100.00%	0.13	OK	
LC22 at 100.00%	0.15	OK	
LC23 at 0.00%	0.16	OK	
LC24 at 0.00%	0.13	OK	
LC25 at 100.00%	0.13	OK	
LC26 at 100.00%	0.15	OK	
LC27 at 0.00%	0.16	OK	
LC28 at 0.00%	0.13	OK	
LC29 at 100.00%	0.13	OK	
LC3 at 0.00%	0.55	OK	Eq. H2-1
LC30 at 100.00%	0.15	OK	
LC31 at 0.00%	0.16	OK	
LC32 at 0.00%	0.13	OK	
LC4 at 100.00%	0.33	OK	
LC5 at 0.00%	0.34	OK	
LC6 at 100.00%	0.54	OK	

LC7 at 0.00%	0.52	OK
LC8 at 100.00%	0.37	OK
LC9 at 100.00%	0.36	OK
W180 at 0.00%	0.27	OK
W210 at 100.00%	0.29	OK
Wi180 at 0.00%	0.10	OK
Wi210 at 100.00%	0.09	OK
WL180 at 0.00%	0.03	OK
WL210 at 100.00%	0.02	OK

**PIPE 2-1\_2x0.203**

**16**

LC1 at 70.83%	<b>0.61</b>	<b>OK</b>	Eq. H1-1b
LC10 at 70.83%	0.49	OK	
LC11 at 70.83%	0.37	OK	
LC12 at 70.83%	0.30	OK	
LC13 at 70.83%	0.13	OK	
LC14 at 70.83%	0.09	OK	
LC15 at 70.83%	0.14	OK	
LC16 at 70.83%	0.13	OK	
LC17 at 70.83%	0.17	OK	
LC18 at 70.83%	0.18	OK	
LC19 at 70.83%	0.15	OK	
LC2 at 70.83%	0.59	OK	
LC20 at 70.83%	0.13	OK	
LC21 at 70.83%	0.14	OK	
LC22 at 70.83%	0.16	OK	
LC23 at 70.83%	0.13	OK	
LC24 at 70.83%	0.11	OK	
LC25 at 70.83%	0.13	OK	
LC26 at 70.83%	0.16	OK	
LC27 at 70.83%	0.12	OK	
LC28 at 70.83%	0.10	OK	
LC29 at 70.83%	0.13	OK	
LC3 at 70.83%	0.60	OK	
LC30 at 70.83%	0.15	OK	
LC31 at 70.83%	0.12	OK	
LC32 at 70.83%	0.10	OK	
LC4 at 27.08%	0.36	OK	Eq. H1-1b
LC5 at 70.83%	0.61	OK	
LC6 at 70.83%	0.56	OK	
LC7 at 70.83%	0.60	OK	
LC8 at 70.83%	0.38	OK	
LC9 at 70.83%	0.43	OK	
W180 at 70.83%	0.38	OK	
W210 at 70.83%	0.29	OK	
Wi180 at 70.83%	0.12	OK	
Wi210 at 70.83%	0.10	OK	
WL180 at 70.83%	0.03	OK	
WL210 at 70.83%	0.03	OK	

**17**

LC1 at 70.83%	0.56	OK	
LC10 at 70.83%	0.52	OK	
LC11 at 70.83%	0.61	OK	
LC12 at 70.83%	0.42	OK	
LC13 at 70.83%	0.15	OK	
LC14 at 70.83%	0.11	OK	
LC15 at 70.83%	0.16	OK	
LC16 at 70.83%	0.15	OK	
LC17 at 70.83%	0.14	OK	
LC18 at 70.83%	0.19	OK	
LC19 at 70.83%	0.21	OK	
LC2 at 70.83%	1.11	<b>N.G.</b>	Eq. H1-1b
LC20 at 70.83%	0.15	OK	
LC21 at 70.83%	0.13	OK	
LC22 at 70.83%	0.18	OK	

LC23 at 70.83%	0.20	OK
LC24 at 70.83%	0.14	OK
LC25 at 70.83%	0.12	OK
LC26 at 70.83%	0.17	OK
LC27 at 70.83%	0.19	OK
LC28 at 70.83%	0.13	OK
LC29 at 70.83%	0.11	OK
LC3 at 70.83%	0.84	OK
LC30 at 70.83%	0.16	OK
LC31 at 70.83%	0.18	OK
LC32 at 70.83%	0.13	OK
LC4 at 70.83%	1.05	N.G.
LC5 at 70.83%	0.59	OK
LC6 at 70.83%	1.10	N.G.
LC7 at 70.83%	0.80	OK
LC8 at 70.83%	1.05	N.G.
LC9 at 70.83%	0.33	OK
W180 at 70.83%	0.43	OK
W210 at 70.83%	0.67	OK
Wi180 at 70.83%	0.14	OK
Wi210 at 70.83%	0.21	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.06	OK

18

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LC1 at 27.08%	0.28	OK
LC10 at 70.83%	0.39	OK
LC11 at 70.83%	0.46	OK
LC12 at 70.83%	0.38	OK
LC13 at 70.83%	0.13	OK
LC14 at 70.83%	0.09	OK
LC15 at 70.83%	0.13	OK
LC16 at 70.83%	0.13	OK
LC17 at 70.83%	0.12	OK
LC18 at 70.83%	0.15	OK
LC19 at 70.83%	0.16	OK
LC2 at 70.83%	0.59	OK
LC20 at 70.83%	0.14	OK
LC21 at 70.83%	0.11	OK
LC22 at 70.83%	0.14	OK
LC23 at 70.83%	0.15	OK
LC24 at 70.83%	0.13	OK
LC25 at 70.83%	0.11	OK
LC26 at 70.83%	0.13	OK
LC27 at 70.83%	0.15	OK
LC28 at 70.83%	0.13	OK
LC29 at 70.83%	0.11	OK
LC3 at 70.83%	0.50	OK
LC30 at 70.83%	0.13	OK
LC31 at 70.83%	0.15	OK
LC32 at 70.83%	0.12	OK
LC4 at 70.83%	<b>0.65</b>	<b>OK</b>
LC5 at 70.83%	0.28	OK
LC6 at 70.83%	0.60	OK
LC7 at 70.83%	0.47	OK
LC8 at 70.83%	0.64	OK
LC9 at 70.83%	0.32	OK
W180 at 70.83%	0.23	OK
W210 at 70.83%	0.39	OK
Wi180 at 70.83%	0.08	OK
Wi210 at 70.83%	0.13	OK
WL180 at 70.83%	0.02	OK
WL210 at 70.83%	0.03	OK

Eq. H1-1b

34

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LC1 at 70.83%	0.90	OK
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LC10 at 70.83%	0.72	OK
LC11 at 70.83%	0.50	OK
LC12 at 70.83%	0.35	OK
LC13 at 70.83%	0.18	OK
LC14 at 70.83%	0.14	OK
LC15 at 70.83%	0.19	OK
LC16 at 70.83%	0.18	OK
LC17 at 70.83%	0.21	OK
LC18 at 70.83%	0.25	OK
LC19 at 70.83%	0.19	OK
LC2 at 70.83%	1.10	N.G.
LC20 at 70.83%	0.15	OK
LC21 at 70.83%	0.20	OK
LC22 at 70.83%	0.24	OK
LC23 at 70.83%	0.18	OK
LC24 at 70.83%	0.14	OK
LC25 at 70.83%	0.19	OK
LC26 at 70.83%	0.23	OK
LC27 at 70.83%	0.17	OK
LC28 at 70.83%	0.13	OK
LC29 at 70.83%	0.19	OK
LC3 at 70.83%	0.96	OK
LC30 at 70.83%	0.23	OK
LC31 at 70.83%	0.17	OK
LC32 at 70.83%	0.13	OK
LC4 at 70.83%	0.75	OK
LC5 at 70.83%	0.91	OK
LC6 at 70.83%	1.05	N.G.
LC7 at 70.83%	0.96	OK
LC8 at 70.83%	0.79	OK
LC9 at 70.83%	0.57	OK
W180 at 70.83%	0.58	OK
W210 at 70.83%	0.57	OK
Wi180 at 70.83%	0.18	OK
Wi210 at 70.83%	0.18	OK
WL180 at 70.83%	0.05	OK
WL210 at 70.83%	0.05	OK

Eq. H1-1b

75

LC1 at 70.83%	0.59	OK
LC10 at 70.83%	0.31	OK
LC11 at 70.83%	0.36	OK
LC12 at 70.83%	0.47	OK
LC13 at 70.83%	0.13	OK
LC14 at 70.83%	0.10	OK
LC15 at 70.83%	0.13	OK
LC16 at 70.83%	0.20	OK
LC17 at 70.83%	0.13	OK
LC18 at 70.83%	0.10	OK
LC19 at 70.83%	0.12	OK
LC2 at 27.08%	0.36	OK
LC20 at 70.83%	0.15	OK
LC21 at 70.83%	0.14	OK
LC22 at 70.83%	0.11	OK
LC23 at 70.83%	0.12	OK
LC24 at 70.83%	0.15	OK
LC25 at 70.83%	0.14	OK
LC26 at 70.83%	0.11	OK
LC27 at 70.83%	0.13	OK
LC28 at 70.83%	0.16	OK
LC29 at 70.83%	0.16	OK
LC3 at 70.83%	0.53	OK
LC30 at 70.83%	0.13	OK
LC31 at 70.83%	0.15	OK
LC32 at 70.83%	0.18	OK

Eq. H1-1b

LC4 at 70.83%	0.53	OK
LC5 at 70.83%	0.58	OK
LC6 at 27.08%	0.36	OK
LC7 at 70.83%	0.54	OK
LC8 at 70.83%	0.50	OK
LC9 at 70.83%	0.42	OK
W180 at 70.83%	0.35	OK
W210 at 70.83%	0.25	OK
Wi180 at 70.83%	0.11	OK
Wi210 at 70.83%	0.08	OK
WL180 at 70.83%	0.03	OK
WL210 at 70.83%	0.02	OK

78

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LC1 at 70.83%	0.88	OK
LC10 at 70.83%	0.30	OK
LC11 at 70.83%	0.44	OK
LC12 at 70.83%	0.64	OK
LC13 at 70.83%	0.15	OK
LC14 at 70.83%	0.11	OK
LC15 at 70.83%	0.15	OK
LC16 at 70.83%	0.19	OK
LC17 at 70.83%	0.15	OK
LC18 at 70.83%	0.10	OK
LC19 at 70.83%	0.14	OK
LC2 at 70.83%	0.71	OK
LC20 at 70.83%	0.19	OK
LC21 at 70.83%	0.16	OK
LC22 at 70.83%	0.10	OK
LC23 at 70.83%	0.14	OK
LC24 at 70.83%	0.19	OK
LC25 at 70.83%	0.16	OK
LC26 at 70.83%	0.11	OK
LC27 at 70.83%	0.15	OK
LC28 at 70.83%	0.20	OK
LC29 at 70.83%	0.18	OK
LC3 at 70.83%	0.94	OK
LC30 at 70.83%	0.12	OK
LC31 at 70.83%	0.16	OK
LC32 at 70.83%	0.21	OK
LC4 at 70.83%	<b>0.99</b>	<b>OK</b>
LC5 at 70.83%	0.89	OK
LC6 at 70.83%	0.75	OK
LC7 at 70.83%	0.93	OK
LC8 at 70.83%	0.96	OK
LC9 at 70.83%	0.50	OK
W180 at 70.83%	0.57	OK
W210 at 70.83%	0.53	OK
Wi180 at 70.83%	0.18	OK
Wi210 at 70.83%	0.17	OK
WL180 at 70.83%	0.05	OK
WL210 at 70.83%	0.05	OK

Eq. H1-1b

81

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LC1 at 70.83%	0.55	OK
LC10 at 70.83%	0.48	OK
LC11 at 70.83%	0.67	OK
LC12 at 70.83%	0.60	OK
LC13 at 70.83%	0.18	OK
LC14 at 70.83%	0.14	OK
LC15 at 70.83%	0.20	OK
LC16 at 70.83%	0.22	OK
LC17 at 70.83%	0.15	OK
LC18 at 70.83%	0.17	OK
LC19 at 70.83%	0.22	OK
LC2 at 70.83%	1.10	N.G.

LC20 at 70.83%	0.20	OK
LC21 at 70.83%	0.15	OK
LC22 at 70.83%	0.17	OK
LC23 at 70.83%	0.23	OK
LC24 at 70.83%	0.21	OK
LC25 at 70.83%	0.16	OK
LC26 at 70.83%	0.18	OK
LC27 at 70.83%	0.23	OK
LC28 at 70.83%	0.21	OK
LC29 at 70.83%	0.17	OK
LC3 at 70.83%	0.89	OK
LC30 at 70.83%	0.19	OK
LC31 at 70.83%	0.24	OK
LC32 at 70.83%	0.22	OK
LC4 at 70.83%	<b>1.16</b>	<b>N.G.</b>
LC5 at 70.83%	0.59	OK
LC6 at 70.83%	1.11	N.G.
LC7 at 70.83%	0.85	OK
LC8 at 70.83%	1.15	N.G.
LC9 at 70.83%	0.40	OK
W180 at 70.83%	0.45	OK
W210 at 70.83%	0.70	OK
Wi180 at 70.83%	0.14	OK
Wi210 at 70.83%	0.22	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.06	OK

Eq. H1-1b

84

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LC1 at 70.83%	0.29	OK
LC10 at 70.83%	0.38	OK
LC11 at 70.83%	0.48	OK
LC12 at 70.83%	0.41	OK
LC13 at 70.83%	0.13	OK
LC14 at 70.83%	0.09	OK
LC15 at 70.83%	0.14	OK
LC16 at 70.83%	0.16	OK
LC17 at 70.83%	0.11	OK
LC18 at 70.83%	0.12	OK
LC19 at 70.83%	0.15	OK
LC2 at 70.83%	<b>0.68</b>	<b>OK</b>
LC20 at 70.83%	0.13	OK
LC21 at 70.83%	0.11	OK
LC22 at 70.83%	0.12	OK
LC23 at 70.83%	0.15	OK
LC24 at 70.83%	0.13	OK
LC25 at 70.83%	0.11	OK
LC26 at 70.83%	0.13	OK
LC27 at 70.83%	0.16	OK
LC28 at 70.83%	0.14	OK
LC29 at 70.83%	0.12	OK
LC3 at 70.83%	0.53	OK
LC30 at 70.83%	0.14	OK
LC31 at 70.83%	0.17	OK
LC32 at 70.83%	0.15	OK
LC4 at 70.83%	0.67	OK
LC5 at 70.83%	0.32	OK
LC6 at 70.83%	0.68	OK
LC7 at 70.83%	0.50	OK
LC8 at 70.83%	0.67	OK
LC9 at 70.83%	0.32	OK
W180 at 70.83%	0.25	OK
W210 at 70.83%	0.42	OK
Wi180 at 70.83%	0.08	OK
Wi210 at 70.83%	0.14	OK
WL180 at 70.83%	0.02	OK

Eq. H1-1b

	WL210 at 70.83%	0.04	OK	
87	LC1 at 70.83%	0.38	OK	
	LC10 at 70.83%	0.45	OK	Eq. H1-1b
	LC11 at 70.83%	0.34	OK	
	LC12 at 70.83%	0.33	OK	
	LC13 at 70.83%	0.13	OK	
	LC14 at 70.83%	0.09	OK	
	LC15 at 70.83%	0.12	OK	
	LC16 at 70.83%	0.15	OK	
	LC17 at 70.83%	0.18	OK	
	LC18 at 70.83%	0.18	OK	
	LC19 at 70.83%	0.15	OK	
	LC2 at 70.83%	0.43	OK	
	LC20 at 70.83%	0.15	OK	
	LC21 at 70.83%	0.13	OK	
	LC22 at 70.83%	0.13	OK	
	LC23 at 70.83%	0.10	OK	
	LC24 at 70.83%	0.10	OK	
	LC25 at 70.83%	0.14	OK	
	LC26 at 70.83%	0.14	OK	
	LC27 at 70.83%	0.11	OK	
	LC28 at 70.83%	0.11	OK	
	LC29 at 70.83%	0.15	OK	
	LC3 at 29.17%	<b>0.46</b>	<b>OK</b>	Eq. H1-1b
	LC30 at 70.83%	0.15	OK	
	LC31 at 70.83%	0.12	OK	
	LC32 at 70.83%	0.12	OK	
	LC4 at 70.83%	0.38	OK	
	LC5 at 70.83%	0.39	OK	
	LC6 at 70.83%	0.43	OK	
	LC7 at 29.17%	0.45	OK	
	LC8 at 70.83%	0.39	OK	
	LC9 at 70.83%	0.44	OK	
	W180 at 70.83%	0.26	OK	
W210 at 70.83%	0.25	OK		
Wi180 at 29.17%	0.09	OK		
Wi210 at 70.83%	0.09	OK		
WL180 at 29.17%	0.03	OK		
WL210 at 70.83%	0.02	OK		
90	LC1 at 70.83%	<b>0.75</b>	<b>OK</b>	Eq. H1-1b
	LC10 at 70.83%	0.57	OK	
	LC11 at 70.83%	0.34	OK	
	LC12 at 70.83%	0.37	OK	
	LC13 at 70.83%	0.15	OK	
	LC14 at 70.83%	0.11	OK	
	LC15 at 70.83%	0.14	OK	
	LC16 at 70.83%	0.18	OK	
	LC17 at 70.83%	0.22	OK	
	LC18 at 70.83%	0.21	OK	
	LC19 at 70.83%	0.15	OK	
	LC2 at 70.83%	0.66	OK	
	LC20 at 70.83%	0.16	OK	
	LC21 at 70.83%	0.21	OK	
	LC22 at 70.83%	0.20	OK	
	LC23 at 70.83%	0.14	OK	
	LC24 at 70.83%	0.15	OK	
	LC25 at 70.83%	0.18	OK	
	LC26 at 70.83%	0.17	OK	
	LC27 at 70.83%	0.11	OK	
LC28 at 70.83%	0.12	OK		
LC29 at 70.83%	0.19	OK		
LC3 at 70.83%	0.70	OK		

LC30 at 70.83%	0.18	OK
LC31 at 70.83%	0.12	OK
LC32 at 70.83%	0.13	OK
LC4 at 70.83%	0.72	OK
LC5 at 70.83%	0.74	OK
LC6 at 70.83%	0.66	OK
LC7 at 70.83%	0.70	OK
LC8 at 70.83%	0.71	OK
LC9 at 70.83%	0.60	OK
W180 at 70.83%	0.45	OK
W210 at 70.83%	0.43	OK
Wi180 at 70.83%	0.15	OK
Wi210 at 70.83%	0.14	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.04	OK

93

LC1 at 70.83%	<b>0.79</b>	<b>OK</b>
LC10 at 70.83%	0.42	OK
LC11 at 70.83%	0.40	OK
LC12 at 70.83%	0.65	OK
LC13 at 70.83%	0.18	OK
LC14 at 70.83%	0.14	OK
LC15 at 70.83%	0.18	OK
LC16 at 70.83%	0.23	OK
LC17 at 70.83%	0.23	OK
LC18 at 70.83%	0.16	OK
LC19 at 70.83%	0.16	OK
LC2 at 70.83%	0.74	OK
LC20 at 70.83%	0.22	OK
LC21 at 70.83%	0.21	OK
LC22 at 70.83%	0.15	OK
LC23 at 70.83%	0.14	OK
LC24 at 70.83%	0.21	OK
LC25 at 70.83%	0.25	OK
LC26 at 70.83%	0.18	OK
LC27 at 70.83%	0.17	OK
LC28 at 70.83%	0.24	OK
LC29 at 70.83%	0.26	OK
LC3 at 70.83%	0.72	OK
LC30 at 70.83%	0.19	OK
LC31 at 70.83%	0.18	OK
LC32 at 70.83%	0.25	OK
LC4 at 70.83%	0.71	OK
LC5 at 70.83%	0.77	OK
LC6 at 70.83%	0.73	OK
LC7 at 70.83%	0.73	OK
LC8 at 70.83%	0.68	OK
LC9 at 70.83%	0.67	OK
W180 at 70.83%	0.46	OK
W210 at 70.83%	0.44	OK
Wi180 at 70.83%	0.16	OK
Wi210 at 70.83%	0.15	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.04	OK

Eq. H1-1b

96

LC1 at 70.83%	0.43	OK
LC10 at 70.83%	0.33	OK
LC11 at 70.83%	0.33	OK
LC12 at 70.83%	0.46	OK
LC13 at 70.83%	0.13	OK
LC14 at 70.83%	0.09	OK
LC15 at 70.83%	0.12	OK
LC16 at 70.83%	0.22	OK
LC17 at 70.83%	0.16	OK

Eq. H1-1b

LC18 at 70.83%	0.12	OK	
LC19 at 70.83%	0.12	OK	
LC2 at 70.83%	0.44	OK	
LC20 at 70.83%	0.16	OK	
LC21 at 70.83%	0.14	OK	
LC22 at 70.83%	0.11	OK	
LC23 at 70.83%	0.11	OK	
LC24 at 70.83%	0.14	OK	
LC25 at 70.83%	0.13	OK	
LC26 at 70.83%	0.10	OK	
LC27 at 70.83%	0.10	OK	
LC28 at 70.83%	0.13	OK	
LC29 at 70.83%	0.18	OK	
LC3 at 29.17%	<b>0.48</b>	<b>OK</b>	Eq. H1-1b
LC30 at 70.83%	0.14	OK	
LC31 at 70.83%	0.15	OK	
LC32 at 70.83%	0.18	OK	
LC4 at 70.83%	0.45	OK	
LC5 at 70.83%	0.43	OK	
LC6 at 70.83%	0.44	OK	
LC7 at 29.17%	0.47	OK	
LC8 at 70.83%	0.44	OK	
LC9 at 70.83%	0.46	OK	
W180 at 70.83%	0.28	OK	
W210 at 70.83%	0.28	OK	
Wi180 at 29.17%	0.10	OK	
Wi210 at 70.83%	0.10	OK	
WL180 at 29.17%	0.03	OK	
WL210 at 70.83%	0.02	OK	

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LC1 at 11.61%	0.82	OK	Eq. H1-1b
LC10 at 65.18%	0.61	OK	Eq. H1-1b
LC11 at 37.50%	0.63	OK	
LC12 at 37.50%	0.65	OK	Eq. H1-1b
LC13 at 37.50%	0.18	OK	
LC14 at 37.50%	0.14	OK	
LC15 at 37.50%	0.17	OK	
LC16 at 37.50%	0.27	OK	
LC17 at 65.18%	0.20	OK	
LC18 at 65.18%	0.24	OK	
LC19 at 65.18%	0.24	OK	
LC2 at 90.18%	0.82	OK	
LC20 at 37.50%	0.22	OK	
LC21 at 37.50%	0.17	OK	
LC22 at 65.18%	0.19	OK	
LC23 at 37.50%	0.21	OK	
LC24 at 37.50%	0.21	OK	
LC25 at 65.18%	0.16	OK	
LC26 at 65.18%	0.20	OK	
LC27 at 65.18%	0.20	OK	
LC28 at 37.50%	0.20	OK	
LC29 at 37.50%	0.21	OK	
LC3 at 11.61%	0.81	OK	
LC30 at 65.18%	0.21	OK	
LC31 at 37.50%	0.25	OK	
LC32 at 37.50%	0.25	OK	
LC4 at 38.39%	0.80	OK	Eq. H1-1b
LC5 at 11.61%	0.81	OK	
LC6 at 90.18%	<b>0.82</b>	<b>OK</b>	Eq. H1-1b
LC7 at 11.61%	0.82	OK	Eq. H1-1b
LC8 at 38.39%	0.79	OK	
LC9 at 37.50%	0.50	OK	
W180 at 11.61%	0.52	OK	
W210 at 90.18%	0.49	OK	

	Wi180 at 11.61%	0.18	OK	
	Wi210 at 90.18%	0.16	OK	
	WL180 at 11.61%	0.05	OK	
	WL210 at 90.18%	0.04	OK	
<b>30</b>	LC1 at 88.39%	0.83	OK	
	LC10 at 62.50%	0.55	OK	
	LC11 at 34.82%	0.58	OK	
	LC12 at 34.82%	0.65	OK	
	LC13 at 62.50%	0.18	OK	
	LC14 at 62.50%	0.14	OK	
	LC15 at 62.50%	0.20	OK	
	LC16 at 62.50%	0.18	OK	
	LC17 at 62.50%	0.24	OK	
	LC18 at 62.50%	0.22	OK	
	LC19 at 34.82%	0.21	OK	
	LC2 at 8.93%	<b>0.94</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 62.50%	0.23	OK	
	LC21 at 62.50%	0.22	OK	
	LC22 at 62.50%	0.19	OK	
	LC23 at 34.82%	0.20	OK	
	LC24 at 34.82%	0.21	OK	
	LC25 at 62.50%	0.21	OK	
	LC26 at 62.50%	0.18	OK	
	LC27 at 34.82%	0.19	OK	
	LC28 at 34.82%	0.21	OK	
	LC29 at 62.50%	0.21	OK	
	LC3 at 88.39%	0.80	OK	Eq. H1-1b
	LC30 at 62.50%	0.18	OK	
	LC31 at 34.82%	0.19	OK	
	LC32 at 34.82%	0.20	OK	
	LC4 at 8.93%	0.93	OK	
	LC5 at 88.39%	0.83	OK	Eq. H1-1b
	LC6 at 8.93%	0.94	OK	
	LC7 at 88.39%	0.80	OK	
	LC8 at 8.93%	0.94	OK	Eq. H1-1b
	LC9 at 62.50%	0.66	OK	Eq. H1-1b
	W180 at 88.39%	0.50	OK	
	W210 at 8.93%	0.60	OK	
	Wi180 at 88.39%	0.17	OK	
	Wi210 at 8.93%	0.19	OK	
	WL180 at 88.39%	0.05	OK	
	WL210 at 8.93%	0.05	OK	
<b>32</b>	LC1 at 9.82%	0.71	OK	Eq. H1-1b
	LC10 at 62.50%	0.69	OK	
	LC11 at 62.50%	0.62	OK	
	LC12 at 9.82%	0.55	OK	
	LC13 at 62.50%	0.18	OK	
	LC14 at 62.50%	0.14	OK	
	LC15 at 62.50%	0.19	OK	
	LC16 at 34.82%	0.26	OK	
	LC17 at 34.82%	0.20	OK	
	LC18 at 62.50%	0.21	OK	
	LC19 at 62.50%	0.19	OK	
	LC2 at 88.39%	1.09	N.G.	
	LC20 at 9.82%	0.18	OK	
	LC21 at 34.82%	0.20	OK	
	LC22 at 62.50%	0.22	OK	
	LC23 at 62.50%	0.20	OK	
	LC24 at 9.82%	0.18	OK	
	LC25 at 34.82%	0.21	OK	
	LC26 at 62.50%	0.22	OK	
	LC27 at 62.50%	0.20	OK	

	LC28 at 9.82%	0.19	OK	
	LC29 at 34.82%	0.24	OK	
	LC3 at 8.93%	0.71	OK	Eq. H1-1b
	LC30 at 62.50%	0.24	OK	
	LC31 at 62.50%	0.22	OK	
	LC32 at 9.82%	0.21	OK	
	LC4 at 88.39%	1.07	N.G.	Eq. H1-1b
	LC5 at 8.93%	0.71	OK	Eq. H1-1b
	LC6 at 88.39%	1.10	N.G.	Eq. H1-1b
	LC7 at 8.93%	0.71	OK	
	LC8 at 88.39%	1.07	N.G.	
	LC9 at 34.82%	0.63	OK	
	W180 at 8.93%	0.43	OK	
	W210 at 88.39%	0.66	OK	
	Wi180 at 8.93%	0.15	OK	
	Wi210 at 88.39%	0.21	OK	
	WL180 at 8.93%	0.04	OK	
	WL210 at 88.39%	0.06	OK	
<hr/>				
100	LC1 at 71.88%	0.06	OK	Eq. H1-1b
	LC10 at 71.88%	0.02	OK	
	LC11 at 71.88%	0.02	OK	
	LC12 at 71.88%	0.02	OK	
	LC13 at 71.88%	0.00	OK	
	LC14 at 71.88%	0.00	OK	
	LC15 at 71.88%	0.00	OK	
	LC16 at 71.88%	0.00	OK	
	LC17 at 71.88%	0.00	OK	
	LC18 at 71.88%	0.01	OK	
	LC19 at 71.88%	0.00	OK	
	LC2 at 71.88%	0.06	OK	
	LC20 at 71.88%	0.01	OK	
	LC21 at 71.88%	0.00	OK	
	LC22 at 71.88%	0.01	OK	
	LC23 at 71.88%	0.00	OK	
	LC24 at 71.88%	0.01	OK	
	LC25 at 71.88%	0.00	OK	
	LC26 at 71.88%	0.01	OK	
	LC27 at 71.88%	0.00	OK	
	LC28 at 71.88%	0.01	OK	
	LC29 at 71.88%	0.00	OK	
	LC3 at 71.88%	0.06	OK	
	LC30 at 71.88%	0.01	OK	
	LC31 at 71.88%	0.00	OK	
	LC32 at 71.88%	0.01	OK	
	LC4 at 71.88%	0.06	OK	Eq. H1-1b
	LC5 at 71.88%	0.06	OK	
	LC6 at 71.88%	0.06	OK	
	LC7 at 71.88%	0.06	OK	
	LC8 at 71.88%	0.06	OK	
	LC9 at 71.88%	0.02	OK	
	W180 at 71.88%	0.04	OK	
	W210 at 71.88%	0.04	OK	
	Wi180 at 71.88%	0.02	OK	
	Wi210 at 71.88%	0.02	OK	
	WL180 at 71.88%	0.00	OK	
	WL210 at 71.88%	0.00	OK	
<hr/>				
106	LC1 at 71.88%	0.06	OK	
	LC10 at 71.88%	0.02	OK	
	LC11 at 71.88%	0.02	OK	
	LC12 at 71.88%	0.02	OK	
	LC13 at 71.88%	0.00	OK	
	LC14 at 71.88%	0.00	OK	

LC15 at 71.88%	0.00	OK	
LC16 at 71.88%	0.00	OK	
LC17 at 71.88%	0.00	OK	
LC18 at 71.88%	0.01	OK	
LC19 at 71.88%	0.00	OK	
LC2 at 71.88%	<b>0.06</b>	<b>OK</b>	Eq. H1-1b
LC20 at 71.88%	0.01	OK	
LC21 at 71.88%	0.00	OK	
LC22 at 71.88%	0.01	OK	
LC23 at 71.88%	0.00	OK	
LC24 at 71.88%	0.01	OK	
LC25 at 71.88%	0.00	OK	
LC26 at 71.88%	0.01	OK	
LC27 at 71.88%	0.00	OK	
LC28 at 71.88%	0.01	OK	
LC29 at 71.88%	0.00	OK	
LC3 at 71.88%	0.06	OK	
LC30 at 71.88%	0.01	OK	
LC31 at 71.88%	0.00	OK	
LC32 at 71.88%	0.01	OK	
LC4 at 71.88%	0.06	OK	
LC5 at 71.88%	0.06	OK	
LC6 at 71.88%	0.06	OK	
LC7 at 71.88%	0.06	OK	
LC8 at 71.88%	0.06	OK	
LC9 at 71.88%	0.02	OK	
W180 at 71.88%	0.04	OK	
W210 at 71.88%	0.04	OK	
Wi180 at 71.88%	0.02	OK	
Wi210 at 71.88%	0.02	OK	
WL180 at 71.88%	0.00	OK	
WL210 at 71.88%	0.00	OK	

108

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LC1 at 71.88%	0.09	OK	
LC10 at 71.88%	0.03	OK	
LC11 at 71.88%	0.03	OK	
LC12 at 71.88%	0.03	OK	
LC13 at 71.88%	0.00	OK	
LC14 at 71.88%	0.00	OK	
LC15 at 71.88%	0.00	OK	
LC16 at 71.88%	0.00	OK	
LC17 at 71.88%	0.01	OK	
LC18 at 71.88%	0.01	OK	
LC19 at 71.88%	0.01	OK	
LC2 at 71.88%	<b>0.09</b>	<b>OK</b>	Eq. H1-1b
LC20 at 71.88%	0.01	OK	
LC21 at 71.88%	0.01	OK	
LC22 at 71.88%	0.01	OK	
LC23 at 71.88%	0.01	OK	
LC24 at 71.88%	0.01	OK	
LC25 at 71.88%	0.01	OK	
LC26 at 71.88%	0.01	OK	
LC27 at 71.88%	0.01	OK	
LC28 at 71.88%	0.01	OK	
LC29 at 71.88%	0.01	OK	
LC3 at 71.88%	0.09	OK	
LC30 at 71.88%	0.01	OK	
LC31 at 71.88%	0.01	OK	
LC32 at 71.88%	0.01	OK	
LC4 at 71.88%	0.09	OK	
LC5 at 71.88%	0.09	OK	
LC6 at 71.88%	0.09	OK	
LC7 at 71.88%	0.09	OK	
LC8 at 71.88%	0.09	OK	

LC9 at 71.88%	0.03	OK
W180 at 71.88%	0.05	OK
W210 at 71.88%	0.05	OK
Wi180 at 71.88%	0.03	OK
Wi210 at 71.88%	0.03	OK
WL180 at 71.88%	0.01	OK
WL210 at 71.88%	0.01	OK

**PIPE 3x0.216**

**1**

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LC1 at 100.00%	0.53	OK
LC10 at 72.92%	0.90	OK
LC11 at 72.92%	0.84	OK
LC12 at 72.92%	0.65	OK
LC13 at 72.92%	0.26	OK
LC14 at 72.92%	0.19	OK
LC15 at 72.92%	0.29	OK
LC16 at 72.92%	0.45	OK
LC17 at 72.92%	0.24	OK
LC18 at 72.92%	0.29	OK
LC19 at 72.92%	0.27	OK
LC2 at 72.92%	<b>0.99</b>	<b>OK</b>
LC20 at 72.92%	0.22	OK
LC21 at 72.92%	0.26	OK
LC22 at 72.92%	0.31	OK
LC23 at 72.92%	0.29	OK
LC24 at 72.92%	0.24	OK
LC25 at 72.92%	0.28	OK
LC26 at 72.92%	0.33	OK
LC27 at 72.92%	0.31	OK
LC28 at 72.92%	0.27	OK
LC29 at 72.92%	0.34	OK
LC3 at 75.00%	0.76	OK
LC30 at 72.92%	0.39	OK
LC31 at 72.92%	0.37	OK
LC32 at 72.92%	0.32	OK
LC4 at 75.00%	0.50	OK
LC5 at 100.00%	0.54	OK
LC6 at 72.92%	0.92	OK
LC7 at 75.00%	0.71	OK
LC8 at 72.92%	0.55	OK
LC9 at 72.92%	0.72	OK
W180 at 100.00%	0.36	OK
W210 at 72.92%	0.46	OK
Wi180 at 75.00%	0.11	OK
Wi210 at 72.92%	0.14	OK
WL180 at 75.00%	0.03	OK
WL210 at 72.92%	0.04	OK

Eq. H1-1b

Eq. H1-1b

**5**

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LC1 at 100.00%	0.56	OK
LC10 at 72.92%	0.65	OK
LC11 at 72.92%	0.85	OK
LC12 at 72.92%	0.90	OK
LC13 at 72.92%	0.26	OK
LC14 at 72.92%	0.19	OK
LC15 at 72.92%	0.29	OK
LC16 at 72.92%	0.23	OK
LC17 at 72.92%	0.34	OK
LC18 at 72.92%	0.33	OK
LC19 at 72.92%	0.38	OK
LC2 at 75.00%	0.51	OK
LC20 at 72.92%	0.39	OK
LC21 at 72.92%	0.29	OK
LC22 at 72.92%	0.27	OK
LC23 at 72.92%	0.32	OK
LC24 at 72.92%	0.34	OK

Eq. H1-1b

LC25 at 72.92%	0.26	OK
LC26 at 72.92%	0.24	OK
LC27 at 72.92%	0.29	OK
LC28 at 72.92%	0.31	OK
LC29 at 72.92%	0.24	OK
LC3 at 75.00%	0.75	OK
LC30 at 72.92%	0.22	OK
LC31 at 72.92%	0.27	OK
LC32 at 72.92%	0.29	OK
LC4 at 72.92%	<b>1.00</b>	<b>OK</b>
LC5 at 100.00%	0.57	OK
LC6 at 72.92%	0.56	OK
LC7 at 75.00%	0.71	OK
LC8 at 72.92%	0.94	OK
LC9 at 72.92%	0.72	OK
W180 at 100.00%	0.38	OK
W210 at 72.92%	0.46	OK
Wi180 at 100.00%	0.11	OK
Wi210 at 72.92%	0.15	OK
WL180 at 100.00%	0.03	OK
WL210 at 72.92%	0.04	OK

Eq. H1-1b

9

LC1 at 43.75%	0.35	OK
LC10 at 43.75%	0.66	OK
LC11 at 56.25%	0.57	OK
LC12 at 56.25%	<b>0.66</b>	<b>OK</b>
LC13 at 56.25%	0.14	OK
LC14 at 56.25%	0.10	OK
LC15 at 38.19%	0.14	OK
LC16 at 43.75%	0.19	OK
LC17 at 56.25%	0.19	OK
LC18 at 56.25%	0.17	OK
LC19 at 56.25%	0.18	OK
LC2 at 43.75%	0.53	OK
LC20 at 56.25%	0.19	OK
LC21 at 56.25%	0.16	OK
LC22 at 43.75%	0.14	OK
LC23 at 56.25%	0.14	OK
LC24 at 56.25%	0.16	OK
LC25 at 56.25%	0.15	OK
LC26 at 43.75%	0.14	OK
LC27 at 56.25%	0.14	OK
LC28 at 56.25%	0.16	OK
LC29 at 43.75%	0.17	OK
LC3 at 56.25%	0.36	OK
LC30 at 43.75%	0.17	OK
LC31 at 43.75%	0.16	OK
LC32 at 56.25%	0.16	OK
LC4 at 56.25%	0.51	OK
LC5 at 43.75%	0.32	OK
LC6 at 43.75%	0.49	OK
LC7 at 56.25%	0.33	OK
LC8 at 56.25%	0.48	OK
LC9 at 56.25%	0.61	OK
W180 at 55.56%	0.15	OK
W210 at 43.75%	0.27	OK
Wi180 at 11.81%	0.05	OK
Wi210 at 43.75%	0.08	OK
WL180 at 11.81%	0.01	OK
WL210 at 43.75%	0.02	OK

Eq. H3-6

Eq. H3-6

10

LC1 at 56.25%	0.51	OK
LC10 at 43.75%	0.61	OK
LC11 at 43.75%	<b>0.66</b>	<b>OK</b>

Eq. H1-1b

Eq. H3-6

LC12 at 56.25%	0.66	OK	Eq. H3-6
LC13 at 43.75%	0.14	OK	
LC14 at 43.75%	0.10	OK	
LC15 at 43.75%	0.16	OK	
LC16 at 43.75%	0.22	OK	
LC17 at 43.75%	0.13	OK	
LC18 at 43.75%	0.14	OK	
LC19 at 43.75%	0.15	OK	
LC2 at 43.75%	0.47	OK	
LC20 at 43.75%	0.14	OK	
LC21 at 43.75%	0.13	OK	
LC22 at 43.75%	0.15	OK	
LC23 at 43.75%	0.16	OK	
LC24 at 43.75%	0.14	OK	
LC25 at 43.75%	0.15	OK	
LC26 at 43.75%	0.16	OK	
LC27 at 43.75%	0.17	OK	
LC28 at 43.75%	0.16	OK	
LC29 at 43.75%	0.17	OK	
LC3 at 43.75%	0.48	OK	
LC30 at 43.75%	0.18	OK	
LC31 at 43.75%	0.19	OK	
LC32 at 43.75%	0.18	OK	
LC4 at 56.25%	0.58	OK	
LC5 at 56.25%	0.48	OK	
LC6 at 43.75%	0.44	OK	
LC7 at 43.75%	0.43	OK	
LC8 at 56.25%	0.53	OK	
LC9 at 56.25%	0.63	OK	
W180 at 56.25%	0.26	OK	
W210 at 43.75%	0.23	OK	
Wi180 at 56.25%	0.07	OK	
Wi210 at 43.75%	0.07	OK	
WL180 at 56.25%	0.02	OK	
WL210 at 43.75%	0.02	OK	

11	LC1 at 43.75%	0.51	OK	Eq. H1-1b
	LC10 at 43.75%	0.65	OK	Eq. H3-6
	LC11 at 56.25%	<b>0.66</b>	<b>OK</b>	Eq. H3-6
	LC12 at 56.25%	0.59	OK	
	LC13 at 43.75%	0.14	OK	
	LC14 at 43.75%	0.10	OK	
	LC15 at 56.25%	0.14	OK	
	LC16 at 43.75%	0.13	OK	
	LC17 at 56.25%	0.15	OK	
	LC18 at 56.25%	0.16	OK	
	LC19 at 56.25%	0.18	OK	
	LC2 at 43.75%	0.52	OK	
	LC20 at 56.25%	0.17	OK	
	LC21 at 43.75%	0.14	OK	
	LC22 at 43.75%	0.15	OK	
	LC23 at 56.25%	0.16	OK	
	LC24 at 56.25%	0.15	OK	
	LC25 at 43.75%	0.14	OK	
	LC26 at 43.75%	0.15	OK	
	LC27 at 56.25%	0.14	OK	
	LC28 at 56.25%	0.13	OK	
	LC29 at 43.75%	0.14	OK	
	LC3 at 56.25%	0.51	OK	
	LC30 at 43.75%	0.15	OK	
	LC31 at 56.25%	0.14	OK	
	LC32 at 56.25%	0.12	OK	
	LC4 at 56.25%	0.45	OK	Eq. H1-1b
	LC5 at 43.75%	0.49	OK	

LC6 at 43.75%	0.47	OK
LC7 at 56.25%	0.46	OK
LC8 at 56.25%	0.43	OK
LC9 at 43.75%	0.64	OK
W180 at 43.75%	0.26	OK
W210 at 56.25%	0.22	OK
Wi180 at 43.75%	0.07	OK
Wi210 at 56.25%	0.07	OK
WL180 at 43.75%	0.02	OK
WL210 at 56.25%	0.02	OK

12

LC1 at 27.08%	1.02	<b>N.G.</b>	Eq. H1-1b
LC10 at 27.08%	0.79	OK	
LC11 at 27.08%	0.64	OK	Eq. H1-1b
LC12 at 27.08%	0.79	OK	
LC13 at 27.08%	0.26	OK	
LC14 at 27.08%	0.19	OK	
LC15 at 27.08%	0.24	OK	
LC16 at 27.08%	0.22	OK	
LC17 at 27.08%	0.27	OK	
LC18 at 27.08%	0.24	OK	
LC19 at 27.08%	0.20	OK	
LC2 at 0.00%	0.86	OK	Eq. H1-1b
LC20 at 27.08%	0.24	OK	
LC21 at 27.08%	0.28	OK	
LC22 at 27.08%	0.24	OK	
LC23 at 27.08%	0.21	OK	
LC24 at 27.08%	0.25	OK	
LC25 at 27.08%	0.28	OK	
LC26 at 27.08%	0.24	OK	
LC27 at 27.08%	0.21	OK	
LC28 at 27.08%	0.25	OK	
LC29 at 27.08%	0.27	OK	
LC3 at 27.08%	0.52	OK	
LC30 at 27.08%	0.24	OK	
LC31 at 27.08%	0.20	OK	
LC32 at 27.08%	0.24	OK	
LC4 at 0.00%	0.85	OK	
LC5 at 27.08%	0.96	OK	
LC6 at 0.00%	0.84	OK	
LC7 at 27.08%	0.59	OK	
LC8 at 0.00%	0.83	OK	
LC9 at 27.08%	0.90	OK	
W180 at 27.08%	0.49	OK	
W210 at 0.00%	0.50	OK	
Wi180 at 27.08%	0.14	OK	
Wi210 at 0.00%	0.13	OK	
WL180 at 27.08%	0.04	OK	
WL210 at 0.00%	0.04	OK	

PL 6X1/2

25

LC1 at 0.00%	0.27	OK	Eq. H1-1b
LC10 at 50.00%	0.49	OK	Eq. H3-1
LC11 at 0.00%	0.48	OK	Eq. H3-1
LC12 at 0.00%	0.39	OK	
LC13 at 50.00%	0.14	OK	
LC14 at 50.00%	0.10	OK	
LC15 at 50.00%	0.16	OK	
LC16 at 0.00%	0.21	OK	
LC17 at 50.00%	0.13	OK	
LC18 at 50.00%	0.15	OK	
LC19 at 0.00%	0.15	OK	
LC2 at 50.00%	0.65	<b>OK</b>	Eq. H3-6
LC20 at 0.00%	0.13	OK	
LC21 at 50.00%	0.14	OK	

LC22 at 50.00%	0.16	OK
LC23 at 0.00%	0.16	OK
LC24 at 0.00%	0.14	OK
LC25 at 50.00%	0.16	OK
LC26 at 50.00%	0.18	OK
LC27 at 0.00%	0.17	OK
LC28 at 0.00%	0.15	OK
LC29 at 50.00%	0.18	OK
LC3 at 0.00%	0.45	OK
LC30 at 50.00%	0.20	OK
LC31 at 0.00%	0.19	OK
LC32 at 0.00%	0.17	OK
LC4 at 50.00%	0.39	OK
LC5 at 0.00%	0.26	OK
LC6 at 50.00%	0.61	OK
LC7 at 0.00%	0.41	OK
LC8 at 50.00%	0.42	OK
LC9 at 50.00%	0.43	OK
W180 at 0.00%	0.18	OK
W210 at 50.00%	0.28	OK
Wi180 at 0.00%	0.06	OK
Wi210 at 50.00%	0.07	OK
WL180 at 0.00%	0.01	OK
WL210 at 50.00%	0.02	OK

Eq. H3-6

26

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LC1 at 100.00%	0.26	OK
LC10 at 50.00%	0.40	OK
LC11 at 50.00%	0.48	OK
LC12 at 0.00%	0.49	OK
LC13 at 50.00%	0.14	OK
LC14 at 50.00%	0.10	OK
LC15 at 0.00%	0.16	OK
LC16 at 50.00%	0.14	OK
LC17 at 0.00%	0.18	OK
LC18 at 50.00%	0.17	OK
LC19 at 50.00%	0.19	OK
LC2 at 0.00%	0.40	OK
LC20 at 0.00%	0.20	OK
LC21 at 0.00%	0.16	OK
LC22 at 50.00%	0.15	OK
LC23 at 50.00%	0.17	OK
LC24 at 0.00%	0.18	OK
LC25 at 0.00%	0.14	OK
LC26 at 50.00%	0.14	OK
LC27 at 50.00%	0.16	OK
LC28 at 0.00%	0.16	OK
LC29 at 0.00%	0.13	OK
LC3 at 100.00%	0.44	OK
LC30 at 50.00%	0.14	OK
LC31 at 50.00%	0.16	OK
LC32 at 50.00%	0.15	OK
LC4 at 0.00%	<b>0.66</b>	<b>OK</b>
LC5 at 100.00%	0.25	OK
LC6 at 0.00%	0.42	OK
LC7 at 100.00%	0.40	OK
LC8 at 0.00%	0.62	OK
LC9 at 0.00%	0.43	OK
W180 at 50.00%	0.18	OK
W210 at 0.00%	0.29	OK
Wi180 at 50.00%	0.06	OK
Wi210 at 0.00%	0.07	OK
WL180 at 50.00%	0.01	OK
WL210 at 0.00%	0.02	OK

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Eq. H1-1b

Eq. H3-1

Eq. H3-1

Eq. H3-6

Eq. H3-6

<b>27</b>	LC1 at 50.00%	<b>0.57</b>	<b>OK</b>	Eq. H3-6
	LC10 at 0.00%	0.46	OK	
	LC11 at 50.00%	0.37	OK	
	LC12 at 50.00%	0.46	OK	
	LC13 at 50.00%	0.14	OK	
	LC14 at 50.00%	0.10	OK	
	LC15 at 50.00%	0.13	OK	
	LC16 at 0.00%	0.13	OK	
	LC17 at 50.00%	0.15	OK	
	LC18 at 0.00%	0.13	OK	
	LC19 at 50.00%	0.12	OK	
	LC2 at 0.00%	0.36	OK	
	LC20 at 50.00%	0.15	OK	
	LC21 at 50.00%	0.14	OK	
	LC22 at 0.00%	0.14	OK	
	LC23 at 50.00%	0.12	OK	
	LC24 at 50.00%	0.14	OK	
	LC25 at 50.00%	0.14	OK	
	LC26 at 0.00%	0.14	OK	
	LC27 at 50.00%	0.12	OK	
	LC28 at 50.00%	0.14	OK	
	LC29 at 0.00%	0.14	OK	
	LC3 at 50.00%	0.34	OK	
	LC30 at 0.00%	0.14	OK	
	LC31 at 0.00%	0.12	OK	
	LC32 at 50.00%	0.14	OK	
	LC4 at 50.00%	0.36	OK	
	LC5 at 50.00%	0.54	OK	
	LC6 at 0.00%	0.33	OK	
	LC7 at 50.00%	0.35	OK	
	LC8 at 50.00%	0.33	OK	
	LC9 at 50.00%	0.47	OK	
	W180 at 50.00%	0.23	OK	
	W210 at 0.00%	0.14	OK	
Wi180 at 50.00%	0.06	OK		
Wi210 at 0.00%	0.04	OK		
WL180 at 50.00%	0.02	OK		
WL210 at 0.00%	0.01	OK		

Eq. H3-1

T2L 3X3X1\_4

<b>40</b>	LC1 at 100.00%	0.29	OK	Eq. H2-1
	LC10 at 100.00%	0.76	OK	
	LC11 at 100.00%	0.76	OK	
	LC12 at 100.00%	0.59	OK	
	LC13 at 100.00%	0.23	OK	
	LC14 at 100.00%	0.17	OK	
	LC15 at 100.00%	0.31	OK	
	LC16 at 100.00%	0.38	OK	
	LC17 at 100.00%	0.22	OK	
	LC18 at 100.00%	0.26	OK	
	LC19 at 100.00%	0.27	OK	
	LC2 at 100.00%	<b>0.91</b>	<b>OK</b>	
	LC20 at 100.00%	0.23	OK	
	LC21 at 100.00%	0.24	OK	
	LC22 at 100.00%	0.28	OK	
	LC23 at 100.00%	0.29	OK	
	LC24 at 100.00%	0.25	OK	
	LC25 at 100.00%	0.27	OK	
	LC26 at 100.00%	0.31	OK	
	LC27 at 100.00%	0.32	OK	
	LC28 at 100.00%	0.28	OK	
	LC29 at 100.00%	0.29	OK	
	LC3 at 100.00%	0.76	OK	
	LC30 at 100.00%	0.33	OK	
LC31 at 100.00%	0.34	OK		

LC32 at 100.00%	0.30	OK
LC4 at 100.00%	0.38	OK
LC5 at 100.00%	0.33	OK
LC6 at 100.00%	0.85	OK
LC7 at 100.00%	0.71	OK
LC8 at 100.00%	0.42	OK
LC9 at 100.00%	0.63	OK
W180 at 100.00%	0.34	OK
W210 at 100.00%	0.33	OK
Wi180 at 100.00%	0.10	OK
Wi210 at 100.00%	0.10	OK
WL180 at 100.00%	0.03	OK
WL210 at 100.00%	0.03	OK

41

LC1 at 100.00%	0.31	OK
LC10 at 100.00%	0.56	OK
LC11 at 100.00%	0.72	OK
LC12 at 100.00%	0.79	OK
LC13 at 100.00%	0.23	OK
LC14 at 100.00%	0.17	OK
LC15 at 100.00%	0.29	OK
LC16 at 100.00%	0.22	OK
LC17 at 100.00%	0.29	OK
LC18 at 100.00%	0.28	OK
LC19 at 100.00%	0.33	OK
LC2 at 100.00%	0.37	OK
LC20 at 100.00%	0.32	OK
LC21 at 100.00%	0.25	OK
LC22 at 100.00%	0.26	OK
LC23 at 100.00%	0.30	OK
LC24 at 100.00%	0.30	OK
LC25 at 100.00%	0.22	OK
LC26 at 100.00%	0.23	OK
LC27 at 100.00%	0.28	OK
LC28 at 100.00%	0.27	OK
LC29 at 100.00%	0.20	OK
LC3 at 100.00%	0.75	OK
LC30 at 100.00%	0.21	OK
LC31 at 100.00%	0.25	OK
LC32 at 100.00%	0.24	OK
LC4 at 100.00%	<b>0.93</b>	<b>OK</b>
LC5 at 100.00%	0.34	OK
LC6 at 100.00%	0.40	OK
LC7 at 100.00%	0.70	OK
LC8 at 100.00%	0.87	OK
LC9 at 100.00%	0.66	OK
W180 at 100.00%	0.34	OK
W210 at 100.00%	0.44	OK
Wi180 at 100.00%	0.10	OK
Wi210 at 100.00%	0.13	OK
WL180 at 100.00%	0.03	OK
WL210 at 100.00%	0.04	OK

Eq. H2-1

42

LC1 at 100.00%	<b>0.78</b>	<b>OK</b>
LC10 at 100.00%	0.72	OK
LC11 at 100.00%	0.56	OK
LC12 at 100.00%	0.69	OK
LC13 at 100.00%	0.23	OK
LC14 at 100.00%	0.17	OK
LC15 at 100.00%	0.21	OK
LC16 at 100.00%	0.23	OK
LC17 at 100.00%	0.23	OK
LC18 at 100.00%	0.21	OK
LC19 at 100.00%	0.18	OK

Eq. H2-1

LC2 at 100.00%	0.56	OK
LC20 at 100.00%	0.22	OK
LC21 at 100.00%	0.24	OK
LC22 at 100.00%	0.23	OK
LC23 at 100.00%	0.18	OK
LC24 at 100.00%	0.21	OK
LC25 at 100.00%	0.24	OK
LC26 at 100.00%	0.23	OK
LC27 at 100.00%	0.19	OK
LC28 at 100.00%	0.21	OK
LC29 at 100.00%	0.25	OK
LC3 at 100.00%	0.23	OK
LC30 at 100.00%	0.24	OK
LC31 at 100.00%	0.19	OK
LC32 at 100.00%	0.20	OK
LC4 at 100.00%	0.54	OK
LC5 at 100.00%	0.73	OK
LC6 at 100.00%	0.50	OK
LC7 at 100.00%	0.27	OK
LC8 at 100.00%	0.49	OK
LC9 at 100.00%	0.76	OK
W180 at 100.00%	0.23	OK
W210 at 100.00%	0.21	OK
Wi180 at 100.00%	0.07	OK
Wi210 at 100.00%	0.07	OK
WL180 at 100.00%	0.02	OK
WL210 at 100.00%	0.02	OK

---

## Geometry data

### GLOSSARY

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

### Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	-0.7253	0.00	0.00	0
3	-6.0833	0.00	0.00	0
4	-6.25	0.00	0.00	0
5	-6.3333	0.00	-0.433	0
6	-6.5833	0.00	-0.866	0
7	-3.7376	0.00	-5.2176	0
8	-3.9043	0.00	-5.5062	0
9	-0.892	0.00	-0.2887	0
10	-6.6667	0.00	-0.7217	0
11	-3.179	0.00	-6.7625	0
12	-2.8457	0.00	-6.7625	0
13	-0.50	0.00	-11.4027	0
14	-0.4167	0.00	-11.547	0
17	0.7253	0.00	0.00	0
18	6.0833	0.00	0.00	0
19	6.25	0.00	0.00	0
20	6.3333	0.00	-0.433	0
21	6.5833	0.00	-0.866	0
22	3.7376	0.00	-5.2176	0
23	3.9043	0.00	-5.5062	0
24	0.892	0.00	-0.2887	0

25	6.6667	0.00	-0.7217	0
26	3.179	0.00	-6.7625	0
27	2.8457	0.00	-6.7625	0
28	0.50	0.00	-11.4027	0
29	0.4167	0.00	-11.547	0
32	0.00	0.00	-11.4027	0
51	1.1732	5.75	-10.6367	0
52	2.8191	5.75	-7.786	0
53	6.1107	5.75	-2.0847	0
60	2.8191	-2.25	-7.786	0
63	1.1732	-2.25	-10.6367	0
67	6.1107	-2.25	-2.0847	0
69	0.9427	0.00	-3.5453	0
70	0.00	0.00	-5.1781	0
71	-0.9427	0.00	-3.5453	0
72	-6.25	3.50	0.00	0
73	6.25	3.50	0.00	0
74	6.0833	3.50	0.00	0
75	6.5833	3.50	-0.866	0
76	0.4167	3.50	-11.547	0
77	6.6667	3.50	-0.7217	0
78	0.50	3.50	-11.4027	0
79	-0.50	3.50	-11.4027	0
80	-6.6667	3.50	-0.7217	0
81	-0.4167	3.50	-11.547	0
82	-6.5833	3.50	-0.866	0
83	-6.0833	3.50	0.00	0
85	4.4649	5.75	-4.9353	0
86	4.4649	-2.25	-4.9353	0
99	0.9427	-3.00	-3.5453	0
100	0.00	-3.00	-5.1781	0
101	-0.9427	-3.00	-3.5453	0
102	-2.3148	0.00	-2.7531	0
103	2.3148	0.00	-2.7531	0
104	0.00	0.00	-6.7625	0
137	4.2917	3.50	-4.8353	0
138	2.6459	3.50	-7.686	0
211	-1.45E-07	0.00	-4.0896	0
212	5.9375	3.50	-1.9847	0
213	1.00	3.50	-10.5367	0
214	2.6459	0.00	-7.686	0
215	1.00	0.00	-10.5367	0
216	4.2917	0.00	-4.8353	0
217	5.9375	0.00	-1.9847	0
218	2.8191	3.50	-7.786	0
219	1.1732	3.50	-10.6367	0
220	4.4649	3.50	-4.9353	0
221	6.1107	3.50	-2.0847	0
222	2.8191	0.00	-7.786	0
223	1.1732	0.00	-10.6367	0
224	4.4649	0.00	-4.9353	0
225	6.1107	0.00	-2.0847	0
274	-6.2565	5.75	-1.8321	0
275	-6.2565	-2.25	-1.8321	0
276	-6.0833	3.50	-1.7321	0
277	-6.0833	0.00	-1.7321	0
278	-6.2565	3.50	-1.8321	0
279	-6.2565	0.00	-1.8321	0
280	-4.6107	5.75	-4.6828	0
281	-4.6107	-2.25	-4.6828	0

282	-4.4375	3.50	-4.5828	0
283	-4.4375	0.00	-4.5828	0
284	-4.6107	3.50	-4.6828	0
285	-4.6107	0.00	-4.6828	0
286	-2.9649	5.75	-7.5334	0
287	-2.9649	-2.25	-7.5334	0
288	-2.7917	3.50	-7.4334	0
289	-2.7917	0.00	-7.4334	0
290	-2.9649	3.50	-7.5334	0
291	-2.9649	0.00	-7.5334	0
292	-1.319	5.75	-10.3841	0
293	-1.319	-2.25	-10.3841	0
294	-1.1458	3.50	-10.2841	0
295	-1.1458	0.00	-10.2841	0
296	-1.319	3.50	-10.3841	0
297	-1.319	0.00	-10.3841	0
298	5.0833	5.75	0.20	0
299	5.0833	-2.25	0.20	0
300	5.0833	3.50	0.00	0
301	5.0833	0.00	0.00	0
302	5.0833	3.50	0.20	0
303	5.0833	0.00	0.20	0
304	1.7916	5.75	0.20	0
305	1.7916	-2.25	0.20	0
306	1.7916	3.50	0.00	0
307	1.7916	0.00	0.00	0
308	1.7916	3.50	0.20	0
309	1.7916	0.00	0.20	0
310	-1.50	5.75	0.20	0
311	-1.50	-2.25	0.20	0
312	-1.50	3.50	0.00	0
313	-1.50	0.00	0.00	0
314	-1.50	3.50	0.20	0
315	-1.50	0.00	0.20	0
316	-4.7917	5.75	0.20	0
317	-4.7917	-2.25	0.20	0
318	-4.7917	3.50	0.00	0
319	-4.7917	0.00	0.00	0
320	-4.7917	3.50	0.20	0
321	-4.7917	0.00	0.20	0
322	1.73E-05	0.00	-5.9703	0
323	0.2049	0.00	-5.9154	0
324	0.2049	1.50	-5.9154	0
325	0.2049	-0.50	-5.9154	0
334	-1.6288	0.00	-3.1492	0
335	-1.6837	0.00	-3.3541	0
336	-1.6837	1.50	-3.3541	0
337	-1.6837	-0.50	-3.3541	0
338	1.6288	0.00	-3.1492	0
339	1.4788	0.00	-2.9992	0
340	1.4788	1.50	-2.9992	0
341	1.4788	-0.50	-2.9992	0

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## Restraints

Node	TX	TY	TZ	RX	RY	RZ
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1
101	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	5	71		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	5	9		L 2X2X1_4	A36	0.00	0.00	0.00
3	5	7		L 2X2X1_4	A36	0.00	0.00	0.00
4	8	2		C 3x2x1/4	A36	0.00	0.00	0.00
5	20	69		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
6	20	24		L 2X2X1_4	A36	0.00	0.00	0.00
7	20	22		L 2X2X1_4	A36	0.00	0.00	0.00
8	23	17		C 3x2x1/4	A36	0.00	0.00	0.00
9	4	19		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	10	14		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
11	29	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
12	70	32		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
13	11	26		C 3x2x1/4	A36	0.00	0.00	0.00
14	27	32		L 2X2X1_4	A36	0.00	0.00	0.00
15	12	32		L 2X2X1_4	A36	0.00	0.00	0.00
16	53	67		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
17	52	60		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
18	51	63		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
25	6	3		PL 6X1/2	A36	0.00	0.00	0.00
26	18	21		PL 6X1/2	A36	0.00	0.00	0.00
27	28	13		PL 6X1/2	A36	0.00	0.00	0.00
28	72	73		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	74	75		L 3X3X1_4	A36	0.00	0.00	0.00
30	76	77		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
31	78	79		L 3X3X1_4	A36	0.00	0.00	0.00
32	80	81		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
33	82	83		L 3X3X1_4	A36	0.00	0.00	0.00
34	85	86		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
40	101	102		T2L 3X3X1_4	A36	0.00	0.00	0.00
41	99	103		T2L 3X3X1_4	A36	0.00	0.00	0.00
42	100	104		T2L 3X3X1_4	A36	0.00	0.00	0.00
75	274	275		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
78	280	281		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
81	286	287		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
84	292	293		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	298	299		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	304	305		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
93	310	311		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
96	316	317		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
100	324	325		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
106	336	337		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
108	340	341		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

## Orientation of local axes

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Member	Rotation [Deg]	Axes23	NX	NY	NZ
2	270.00	0	0.00	0.00	0.00
7	270.00	0	0.00	0.00	0.00
8	180.00	0	0.00	0.00	0.00
13	180.00	0	0.00	0.00	0.00
14	270.00	0	0.00	0.00	0.00
16	0.00	2	-0.50	0.00	-0.866
17	0.00	2	-0.50	0.00	-0.866
18	0.00	2	-0.50	0.00	-0.866
29	180.00	0	0.00	0.00	0.00
31	180.00	0	0.00	0.00	0.00
33	180.00	0	0.00	0.00	0.00
34	0.00	2	-0.50	0.00	-0.866
75	0.00	2	-0.50	0.00	0.866
78	0.00	2	-0.50	0.00	0.866
81	0.00	2	-0.50	0.00	0.866
84	0.00	2	-0.50	0.00	0.866
100	0.00	2	0.50	0.00	0.866
106	0.00	2	0.50	0.00	-0.866

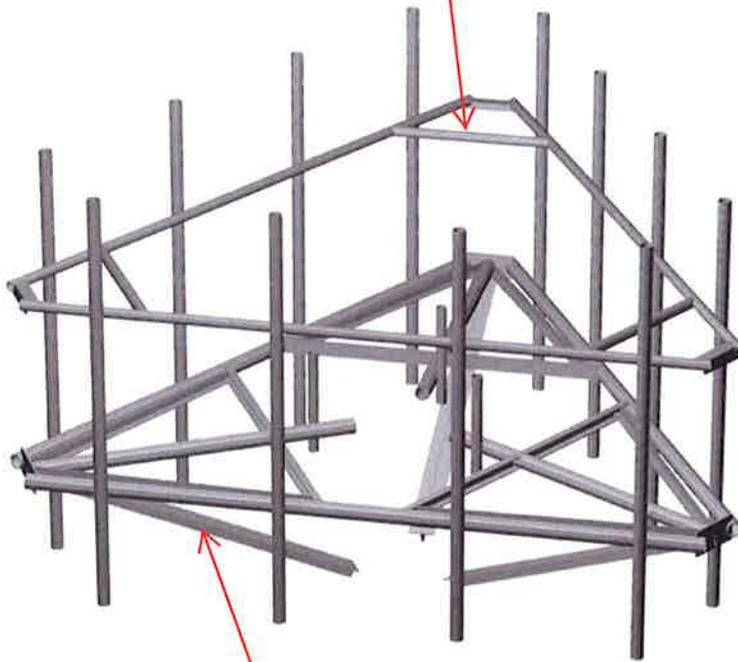
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**HUDSON**  
Design Group LLC

**Mount Calculations  
(Proposed Conditions)**

Install new 2" std. (2.38" O.D.) steel pipe braces, secured to the existing handrail kit (typ. of 1 per sector, total of 3).



Relocate existing platform reinforcement kit to the apex of the platform.

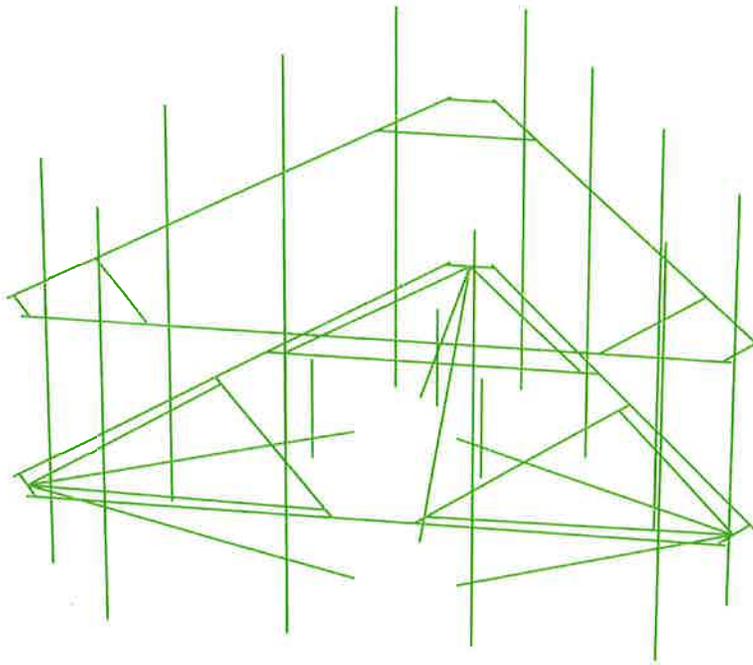






Design status

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



Current Date: 8/24/2018 12:03 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1855\LTE 3C-4C-5C\Rev1\CT1855 (I 3C-4C-5C) (MOD.) (Rev.1).etx

## 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  
 LC29=1.2DL+WL0+LLa4  
 LC30=1.2DL+WL30+LLa4  
 LC31=1.2DL-WL0+LLa4  
 LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>C 3x2x1/4</b>	<b>4</b>	LC1 at 100.00%	0.78	OK	Eq. H1-1b
			LC10 at 50.00%	0.61	OK	
			LC11 at 50.00%	0.65	OK	Eq. H1-1b
			LC12 at 50.00%	0.60	OK	
			LC13 at 50.00%	0.22	OK	
			LC14 at 50.00%	0.16	OK	
			LC15 at 50.00%	0.30	OK	
			LC16 at 50.00%	0.22	OK	
			LC17 at 50.00%	0.22	OK	
			LC18 at 50.00%	0.23	OK	

LC19 at 50.00%	0.24	OK	
LC2 at 0.00%	0.57	OK	
LC20 at 50.00%	0.23	OK	
LC21 at 50.00%	0.24	OK	
LC22 at 50.00%	0.26	OK	
LC23 at 50.00%	0.26	OK	
LC24 at 50.00%	0.25	OK	
LC25 at 50.00%	0.26	OK	
LC26 at 50.00%	0.27	OK	
LC27 at 50.00%	0.28	OK	
LC28 at 50.00%	0.27	OK	
LC29 at 50.00%	0.23	OK	
LC3 at 50.00%	0.49	OK	
LC30 at 50.00%	0.24	OK	
LC31 at 50.00%	0.25	OK	
LC32 at 50.00%	0.24	OK	
LC4 at 0.00%	<b>0.80</b>	<b>OK</b>	Eq. H1-1b
LC5 at 100.00%	0.74	OK	
LC6 at 0.00%	0.60	OK	
LC7 at 100.00%	0.51	OK	
LC8 at 0.00%	0.77	OK	
LC9 at 50.00%	0.58	OK	
W180 at 100.00%	0.39	OK	
W210 at 0.00%	0.42	OK	
Wi180 at 100.00%	0.11	OK	
Wi210 at 0.00%	0.12	OK	
WL180 at 100.00%	0.03	OK	
WL210 at 0.00%	0.03	OK	

<b>8</b>	LC1 at 100.00%	0.75	OK	Eq. H1-1b
	LC10 at 50.00%	0.58	OK	
	LC11 at 50.00%	0.63	OK	Eq. H1-1b
	LC12 at 48.44%	0.61	OK	Eq. H1-1b
	LC13 at 50.00%	0.21	OK	
	LC14 at 50.00%	0.16	OK	
	LC15 at 50.00%	0.29	OK	
	LC16 at 50.00%	0.21	OK	
	LC17 at 48.44%	0.22	OK	
	LC18 at 50.00%	0.23	OK	
	LC19 at 50.00%	0.24	OK	
	LC2 at 0.00%	<b>0.86</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 50.00%	0.23	OK	
	LC21 at 50.00%	0.25	OK	
	LC22 at 50.00%	0.26	OK	
	LC23 at 50.00%	0.27	OK	
	LC24 at 50.00%	0.26	OK	
	LC25 at 50.00%	0.24	OK	
	LC26 at 50.00%	0.25	OK	
	LC27 at 50.00%	0.26	OK	
	LC28 at 50.00%	0.25	OK	
	LC29 at 48.44%	0.21	OK	
	LC3 at 100.00%	0.51	OK	
	LC30 at 50.00%	0.22	OK	
	LC31 at 50.00%	0.23	OK	
	LC32 at 50.00%	0.22	OK	
	LC4 at 0.00%	0.56	OK	
	LC5 at 100.00%	0.72	OK	
	LC6 at 0.00%	0.82	OK	
	LC7 at 100.00%	0.54	OK	
	LC8 at 0.00%	0.59	OK	
	LC9 at 48.44%	0.59	OK	
	W180 at 100.00%	0.40	OK	
	W210 at 0.00%	0.44	OK	
	Wi180 at 100.00%	0.11	OK	

Wi210 at 0.00%	0.13	OK
WL180 at 100.00%	0.03	OK
WL210 at 0.00%	0.03	OK

13

LC1 at 50.00%	0.36	OK	
LC10 at 48.44%	0.61	OK	Eq. H1-1b
LC11 at 50.00%	0.56	OK	
LC12 at 50.00%	0.62	OK	Eq. H1-1b
LC13 at 50.00%	0.21	OK	
LC14 at 50.00%	0.16	OK	
LC15 at 50.00%	0.19	OK	
LC16 at 50.00%	0.21	OK	
LC17 at 50.00%	0.21	OK	
LC18 at 48.44%	0.21	OK	
LC19 at 50.00%	0.20	OK	
LC2 at 100.00%	0.69	OK	Eq. H1-1b
LC20 at 50.00%	0.22	OK	
LC21 at 50.00%	0.21	OK	
LC22 at 48.44%	0.21	OK	
LC23 at 50.00%	0.19	OK	
LC24 at 50.00%	0.21	OK	
LC25 at 50.00%	0.21	OK	
LC26 at 48.44%	0.21	OK	
LC27 at 50.00%	0.19	OK	
LC28 at 50.00%	0.21	OK	
LC29 at 50.00%	0.21	OK	
LC3 at 0.00%	0.51	OK	
LC30 at 48.44%	0.21	OK	
LC31 at 50.00%	0.20	OK	
LC32 at 50.00%	0.22	OK	
LC4 at 0.00%	<b>0.75</b>	<b>OK</b>	Eq. H1-1b
LC5 at 50.00%	0.31	OK	
LC6 at 100.00%	0.66	OK	
LC7 at 0.00%	0.47	OK	
LC8 at 0.00%	0.71	OK	
LC9 at 50.00%	0.61	OK	
W180 at 100.00%	0.24	OK	
W210 at 0.00%	0.38	OK	
Wi180 at 100.00%	0.07	OK	
Wi210 at 0.00%	0.11	OK	
WL180 at 100.00%	0.02	OK	
WL210 at 0.00%	0.03	OK	

L 2X2X1\_4

2

LC1 at 0.00%	0.30	OK
LC10 at 0.00%	0.30	OK
LC11 at 0.00%	0.27	OK
LC12 at 0.00%	0.29	OK
LC13 at 0.00%	0.14	OK
LC14 at 0.00%	0.11	OK
LC15 at 0.00%	0.16	OK
LC16 at 0.00%	0.14	OK
LC17 at 0.00%	0.16	OK
LC18 at 0.00%	0.15	OK
LC19 at 0.00%	0.14	OK
LC2 at 0.00%	0.28	OK
LC20 at 0.00%	0.15	OK
LC21 at 0.00%	0.16	OK
LC22 at 0.00%	0.15	OK
LC23 at 0.00%	0.15	OK
LC24 at 0.00%	0.15	OK
LC25 at 0.00%	0.16	OK
LC26 at 0.00%	0.16	OK
LC27 at 0.00%	0.15	OK
LC28 at 0.00%	0.15	OK

LC29 at 0.00%	0.15	OK	
LC3 at 100.00%	0.43	OK	
LC30 at 0.00%	0.14	OK	
LC31 at 0.00%	0.14	OK	
LC32 at 0.00%	0.14	OK	
LC4 at 56.25%	0.15	OK	
LC5 at 0.00%	0.27	OK	
LC6 at 0.00%	0.26	OK	
LC7 at 100.00%	<b>0.43</b>	<b>OK</b>	Eq. H2-1
LC8 at 56.25%	0.13	OK	
LC9 at 0.00%	0.32	OK	Eq. H2-1
W180 at 100.00%	0.27	OK	
W210 at 0.00%	0.06	OK	
Wi180 at 100.00%	0.08	OK	
Wi210 at 0.00%	0.02	OK	
WL180 at 100.00%	0.02	OK	
WL210 at 0.00%	0.01	OK	

<b>3</b>	LC1 at 56.25%	0.09	OK	
	LC10 at 0.00%	0.26	OK	
	LC11 at 0.00%	0.31	OK	
	LC12 at 0.00%	0.32	OK	Eq. H2-1
	LC13 at 0.00%	0.14	OK	
	LC14 at 0.00%	0.11	OK	
	LC15 at 0.00%	0.15	OK	
	LC16 at 0.00%	0.16	OK	
	LC17 at 0.00%	0.14	OK	
	LC18 at 0.00%	0.14	OK	
	LC19 at 0.00%	0.15	OK	
	LC2 at 100.00%	0.49	OK	
	LC20 at 0.00%	0.15	OK	
	LC21 at 0.00%	0.14	OK	
	LC22 at 0.00%	0.14	OK	
	LC23 at 0.00%	0.15	OK	
	LC24 at 0.00%	0.15	OK	
	LC25 at 0.00%	0.14	OK	
	LC26 at 0.00%	0.14	OK	
	LC27 at 0.00%	0.15	OK	
	LC28 at 0.00%	0.15	OK	
	LC29 at 0.00%	0.15	OK	
	LC3 at 0.00%	0.22	OK	
	LC30 at 0.00%	0.14	OK	
	LC31 at 0.00%	0.16	OK	
	LC32 at 0.00%	0.16	OK	
	LC4 at 0.00%	0.29	OK	
	LC5 at 50.00%	0.07	OK	
	LC6 at 100.00%	<b>0.50</b>	<b>OK</b>	Eq. H2-1
	LC7 at 0.00%	0.19	OK	
	LC8 at 0.00%	0.25	OK	
	LC9 at 0.00%	0.27	OK	
	W180 at 0.00%	0.05	OK	
	W210 at 100.00%	0.13	OK	
	Wi180 at 0.00%	0.02	OK	
	Wi210 at 100.00%	0.04	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 100.00%	0.01	OK	

<b>6</b>	LC1 at 0.00%	0.31	OK	
	LC10 at 0.00%	0.29	OK	
	LC11 at 0.00%	0.26	OK	
	LC12 at 0.00%	0.29	OK	
	LC13 at 0.00%	0.14	OK	
	LC14 at 0.00%	0.11	OK	
	LC15 at 0.00%	0.16	OK	

LC16 at 0.00%	0.15	OK	
LC17 at 0.00%	0.15	OK	
LC18 at 0.00%	0.14	OK	
LC19 at 0.00%	0.13	OK	
LC2 at 56.25%	0.14	OK	
LC20 at 0.00%	0.14	OK	
LC21 at 0.00%	0.16	OK	
LC22 at 0.00%	0.15	OK	
LC23 at 0.00%	0.14	OK	
LC24 at 0.00%	0.15	OK	
LC25 at 0.00%	0.16	OK	
LC26 at 0.00%	0.15	OK	
LC27 at 0.00%	0.14	OK	
LC28 at 0.00%	0.15	OK	
LC29 at 0.00%	0.16	OK	
LC3 at 100.00%	0.43	OK	
LC30 at 0.00%	0.15	OK	
LC31 at 0.00%	0.14	OK	
LC32 at 0.00%	0.15	OK	
LC4 at 0.00%	0.27	OK	
LC5 at 0.00%	0.27	OK	
LC6 at 56.25%	0.12	OK	
LC7 at 100.00%	<b>0.44</b>	<b>OK</b>	Eq. H2-1
LC8 at 0.00%	0.25	OK	
LC9 at 0.00%	0.32	OK	Eq. H2-1
W180 at 100.00%	0.28	OK	
W210 at 0.00%	0.12	OK	
Wi180 at 100.00%	0.08	OK	
Wi210 at 0.00%	0.04	OK	
WL180 at 100.00%	0.02	OK	
WL210 at 0.00%	0.01	OK	

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<b>7</b>	LC1 at 56.25%	0.10	OK	
	LC10 at 0.00%	0.32	OK	Eq. H2-1
	LC11 at 0.00%	0.31	OK	
	LC12 at 0.00%	0.27	OK	
	LC13 at 0.00%	0.14	OK	
	LC14 at 0.00%	0.11	OK	
	LC15 at 0.00%	0.15	OK	
	LC16 at 0.00%	0.15	OK	
	LC17 at 0.00%	0.15	OK	
	LC18 at 0.00%	0.16	OK	
	LC19 at 0.00%	0.16	OK	
	LC2 at 0.00%	0.29	OK	
	LC20 at 0.00%	0.15	OK	
	LC21 at 0.00%	0.14	OK	
	LC22 at 0.00%	0.16	OK	
	LC23 at 0.00%	0.15	OK	
	LC24 at 0.00%	0.14	OK	
	LC25 at 0.00%	0.14	OK	
	LC26 at 0.00%	0.15	OK	
	LC27 at 0.00%	0.15	OK	
	LC28 at 0.00%	0.14	OK	
	LC29 at 0.00%	0.14	OK	
	LC3 at 0.00%	0.23	OK	
	LC30 at 0.00%	0.15	OK	
	LC31 at 0.00%	0.15	OK	
	LC32 at 0.00%	0.14	OK	
	LC4 at 100.00%	0.50	OK	
	LC5 at 50.00%	0.08	OK	
	LC6 at 0.00%	0.25	OK	
	LC7 at 0.00%	0.20	OK	
	LC8 at 100.00%	<b>0.50</b>	<b>OK</b>	Eq. H2-1
	LC9 at 0.00%	0.28	OK	

	W180 at 0.00%	0.05	OK	
	W210 at 100.00%	0.32	OK	
	Wi180 at 0.00%	0.02	OK	
	Wi210 at 100.00%	0.09	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 100.00%	0.02	OK	
<hr/>				
<b>14</b>	LC1 at 100.00%	<b>0.41</b>	<b>OK</b>	Eq. H2-1
	LC10 at 100.00%	0.32	OK	Eq. H2-1
	LC11 at 100.00%	0.30	OK	
	LC12 at 100.00%	0.26	OK	
	LC13 at 100.00%	0.14	OK	
	LC14 at 100.00%	0.11	OK	
	LC15 at 100.00%	0.14	OK	
	LC16 at 100.00%	0.15	OK	
	LC17 at 100.00%	0.14	OK	
	LC18 at 100.00%	0.15	OK	
	LC19 at 100.00%	0.15	OK	
	LC2 at 100.00%	0.31	OK	
	LC20 at 100.00%	0.14	OK	
	LC21 at 100.00%	0.14	OK	
	LC22 at 100.00%	0.15	OK	
	LC23 at 100.00%	0.15	OK	
	LC24 at 100.00%	0.13	OK	
	LC25 at 100.00%	0.14	OK	
	LC26 at 100.00%	0.15	OK	
	LC27 at 100.00%	0.15	OK	
	LC28 at 100.00%	0.13	OK	
	LC29 at 100.00%	0.14	OK	
	LC3 at 100.00%	0.23	OK	
	LC30 at 100.00%	0.15	OK	
	LC31 at 100.00%	0.15	OK	
	LC32 at 100.00%	0.14	OK	
	LC4 at 0.00%	0.31	OK	
	LC5 at 100.00%	0.39	OK	
	LC6 at 100.00%	0.27	OK	
	LC7 at 100.00%	0.19	OK	
	LC8 at 0.00%	0.31	OK	
	LC9 at 100.00%	0.28	OK	
	W180 at 0.00%	0.10	OK	
	W210 at 100.00%	0.20	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 100.00%	0.06	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 100.00%	0.02	OK	
<hr/>				
<b>15</b>	LC1 at 100.00%	<b>0.41</b>	<b>OK</b>	Eq. H2-1
	LC10 at 100.00%	0.26	OK	
	LC11 at 100.00%	0.30	OK	
	LC12 at 100.00%	0.33	OK	Eq. H2-1
	LC13 at 100.00%	0.14	OK	
	LC14 at 100.00%	0.11	OK	
	LC15 at 100.00%	0.14	OK	
	LC16 at 100.00%	0.15	OK	
	LC17 at 100.00%	0.14	OK	
	LC18 at 100.00%	0.14	OK	
	LC19 at 100.00%	0.15	OK	
	LC2 at 0.00%	0.32	OK	
	LC20 at 100.00%	0.15	OK	
	LC21 at 100.00%	0.14	OK	
	LC22 at 100.00%	0.14	OK	
	LC23 at 100.00%	0.15	OK	
	LC24 at 100.00%	0.15	OK	
	LC25 at 100.00%	0.14	OK	

LC26 at 100.00%	0.13	OK
LC27 at 100.00%	0.15	OK
LC28 at 100.00%	0.15	OK
LC29 at 100.00%	0.14	OK
LC3 at 100.00%	0.21	OK
LC30 at 100.00%	0.14	OK
LC31 at 100.00%	0.15	OK
LC32 at 100.00%	0.15	OK
LC4 at 100.00%	0.31	OK
LC5 at 100.00%	0.40	OK
LC6 at 0.00%	0.32	OK
LC7 at 100.00%	0.18	OK
LC8 at 100.00%	0.28	OK
LC9 at 100.00%	0.29	OK
W180 at 0.00%	0.10	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

L 3X3X1\_4

29

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LC1 at 0.00%	0.17	OK
LC10 at 100.00%	0.04	OK
LC11 at 0.00%	0.07	OK
LC12 at 100.00%	0.05	OK
LC13 at 0.00%	0.01	OK
LC14 at 0.00%	0.01	OK
LC15 at 0.00%	0.02	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%	0.02	OK
LC2 at 100.00%	0.13	OK
LC20 at 100.00%	0.01	OK
LC21 at 100.00%	0.01	OK
LC22 at 0.00%	0.02	OK
LC23 at 0.00%	0.03	OK
LC24 at 100.00%	0.02	OK
LC25 at 100.00%	0.02	OK
LC26 at 0.00%	0.02	OK
LC27 at 0.00%	0.03	OK
LC28 at 100.00%	0.02	OK
LC29 at 100.00%	0.02	OK
LC3 at 0.00%	<b>0.20</b>	<b>OK</b>
LC30 at 0.00%	0.01	OK
LC31 at 0.00%	0.02	OK
LC32 at 100.00%	0.02	OK
LC4 at 100.00%	0.15	OK
LC5 at 0.00%	0.17	OK
LC6 at 100.00%	0.13	OK
LC7 at 0.00%	0.19	OK
LC8 at 100.00%	0.14	OK
LC9 at 100.00%	0.05	OK
W180 at 0.00%	0.12	OK
W210 at 100.00%	0.09	OK
Wi180 at 0.00%	0.04	OK
Wi210 at 100.00%	0.03	OK
WL180 at 0.00%	0.01	OK
WL210 at 100.00%	0.01	OK

Eq. H2-1

Eq. H2-1

31

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LC1 at 0.00%	0.09	OK
LC10 at 100.00%	0.06	OK
LC11 at 100.00%	0.03	OK
LC12 at 0.00%	0.07	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 100.00%	0.02	OK	
LC19 at 0.00%	0.01	OK	
LC2 at 0.00%	0.17	OK	
LC20 at 0.00%	0.02	OK	
LC21 at 0.00%	0.02	OK	
LC22 at 100.00%	0.02	OK	
LC23 at 100.00%	0.01	OK	
LC24 at 0.00%	0.02	OK	
LC25 at 0.00%	0.02	OK	
LC26 at 100.00%	0.02	OK	
LC27 at 100.00%	0.01	OK	
LC28 at 0.00%	0.02	OK	
LC29 at 0.00%	0.02	OK	
LC3 at 0.00%	0.07	OK	
LC30 at 100.00%	0.02	OK	
LC31 at 100.00%	0.01	OK	
LC32 at 0.00%	0.02	OK	
LC4 at 0.00%	<b>0.19</b>	<b>OK</b>	Eq. H2-1
LC5 at 0.00%	0.09	OK	
LC6 at 0.00%	0.17	OK	
LC7 at 0.00%	0.07	OK	
LC8 at 0.00%	0.18	OK	
LC9 at 0.00%	0.05	OK	
W180 at 0.00%	0.05	OK	
W210 at 0.00%	0.11	OK	
Wi180 at 0.00%	0.02	OK	
Wi210 at 0.00%	0.04	OK	
WL180 at 0.00%	0.00	OK	
WL210 at 0.00%	0.01	OK	

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LC1 at 100.00%	0.14	OK	
LC10 at 0.00%	0.06	OK	
LC11 at 100.00%	0.06	OK	
LC12 at 100.00%	0.03	OK	
LC13 at 0.00%	0.01	OK	
LC14 at 0.00%	0.01	OK	
LC15 at 0.00%	0.03	OK	
LC16 at 0.00%	0.02	OK	
LC17 at 0.00%	0.02	OK	
LC18 at 0.00%	0.02	OK	
LC19 at 100.00%	0.02	OK	
LC2 at 0.00%	<b>0.16</b>	<b>OK</b>	Eq. H2-1
LC20 at 100.00%	0.01	OK	
LC21 at 0.00%	0.02	OK	
LC22 at 0.00%	0.03	OK	
LC23 at 100.00%	0.02	OK	
LC24 at 100.00%	0.02	OK	
LC25 at 0.00%	0.03	OK	
LC26 at 0.00%	0.03	OK	
LC27 at 100.00%	0.02	OK	
LC28 at 0.00%	0.02	OK	
LC29 at 0.00%	0.03	OK	
LC3 at 100.00%	0.15	OK	Eq. H2-1
LC30 at 0.00%	0.03	OK	
LC31 at 0.00%	0.02	OK	
LC32 at 0.00%	0.02	OK	
LC4 at 0.00%	0.14	OK	
LC5 at 100.00%	0.13	OK	
LC6 at 0.00%	0.16	OK	

LC7 at 100.00%	0.15	OK
LC8 at 0.00%	0.14	OK
LC9 at 0.00%	0.05	OK
W180 at 100.00%	0.09	OK
W210 at 0.00%	0.09	OK
Wi180 at 100.00%	0.03	OK
Wi210 at 0.00%	0.03	OK
WL180 at 100.00%	0.01	OK
WL210 at 0.00%	0.01	OK

PIPE 2-1\_2x0.203

16

LC1 at 70.83%	0.38	OK
LC10 at 70.83%	0.24	OK
LC11 at 70.83%	0.33	OK
LC12 at 70.83%	0.39	OK
LC13 at 70.83%	0.09	OK
LC14 at 70.83%	0.07	OK
LC15 at 70.83%	0.09	OK
LC16 at 70.83%	0.09	OK
LC17 at 70.83%	0.08	OK
LC18 at 70.83%	0.07	OK
LC19 at 70.83%	0.11	OK
LC2 at 70.83%	0.58	OK
LC20 at 70.83%	0.13	OK
LC21 at 70.83%	0.08	OK
LC22 at 70.83%	0.07	OK
LC23 at 70.83%	0.11	OK
LC24 at 70.83%	0.13	OK
LC25 at 70.83%	0.08	OK
LC26 at 70.83%	0.08	OK
LC27 at 70.83%	0.11	OK
LC28 at 70.83%	0.12	OK
LC29 at 70.83%	0.08	OK
LC3 at 70.83%	0.55	OK
LC30 at 70.83%	0.08	OK
LC31 at 70.83%	0.11	OK
LC32 at 70.83%	0.12	OK
LC4 at 70.83%	<b>0.77</b>	<b>OK</b>
LC5 at 70.83%	0.40	OK
LC6 at 70.83%	0.60	OK
LC7 at 70.83%	0.52	OK
LC8 at 70.83%	0.74	OK
LC9 at 70.83%	0.20	OK
W180 at 70.83%	0.29	OK
W210 at 70.83%	0.42	OK
Wi180 at 70.83%	0.09	OK
Wi210 at 70.83%	0.14	OK
WL180 at 70.83%	0.02	OK
WL210 at 70.83%	0.04	OK

Eq. H1-1b

17

LC1 at 70.83%	0.70	OK
LC10 at 70.83%	0.42	OK
LC11 at 70.83%	0.19	OK
LC12 at 29.17%	0.11	OK
LC13 at 70.83%	0.09	OK
LC14 at 70.83%	0.07	OK
LC15 at 70.83%	0.08	OK
LC16 at 70.83%	0.09	OK
LC17 at 70.83%	0.10	OK
LC18 at 70.83%	0.13	OK
LC19 at 70.83%	0.07	OK
LC2 at 70.83%	<b>0.90</b>	<b>OK</b>
LC20 at 70.83%	0.04	OK
LC21 at 70.83%	0.10	OK
LC22 at 70.83%	0.13	OK

Eq. H1-1b

LC23 at 70.83%	0.07	OK
LC24 at 70.83%	0.04	OK
LC25 at 70.83%	0.10	OK
LC26 at 70.83%	0.13	OK
LC27 at 70.83%	0.07	OK
LC28 at 70.83%	0.04	OK
LC29 at 70.83%	0.10	OK
LC3 at 70.83%	0.72	OK
LC30 at 70.83%	0.13	OK
LC31 at 70.83%	0.07	OK
LC32 at 70.83%	0.04	OK
LC4 at 70.83%	0.72	OK
LC5 at 70.83%	0.70	OK
LC6 at 70.83%	0.88	OK
LC7 at 70.83%	0.72	OK
LC8 at 70.83%	0.74	OK
LC9 at 70.83%	0.32	OK
W180 at 70.83%	0.44	OK
W210 at 70.83%	0.51	OK
Wi180 at 70.83%	0.14	OK
Wi210 at 70.83%	0.16	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.04	OK

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LC1 at 70.83%	<b>0.66</b>	<b>OK</b>
LC10 at 70.83%	0.29	OK
LC11 at 29.17%	0.16	OK
LC12 at 70.83%	0.27	OK
LC13 at 70.83%	0.08	OK
LC14 at 70.83%	0.06	OK
LC15 at 70.83%	0.07	OK
LC16 at 70.83%	0.08	OK
LC17 at 70.83%	0.10	OK
LC18 at 70.83%	0.08	OK
LC19 at 29.17%	0.05	OK
LC2 at 70.83%	0.44	OK
LC20 at 70.83%	0.08	OK
LC21 at 70.83%	0.10	OK
LC22 at 70.83%	0.08	OK
LC23 at 29.17%	0.05	OK
LC24 at 70.83%	0.08	OK
LC25 at 70.83%	0.10	OK
LC26 at 70.83%	0.08	OK
LC27 at 29.17%	0.05	OK
LC28 at 70.83%	0.08	OK
LC29 at 70.83%	0.11	OK
LC3 at 70.83%	0.48	OK
LC30 at 70.83%	0.09	OK
LC31 at 70.83%	0.05	OK
LC32 at 70.83%	0.08	OK
LC4 at 27.08%	0.36	OK
LC5 at 70.83%	0.64	OK
LC6 at 70.83%	0.43	OK
LC7 at 70.83%	0.50	OK
LC8 at 27.08%	0.36	OK
LC9 at 70.83%	0.34	OK
W180 at 70.83%	0.35	OK
W210 at 70.83%	0.24	OK
Wi180 at 70.83%	0.11	OK
Wi210 at 27.08%	0.08	OK
WL180 at 70.83%	0.03	OK
WL210 at 72.92%	0.02	OK

Eq. H1-1b

34

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LC1 at 70.83%	0.68	OK
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LC10 at 70.83%	0.32	OK
LC11 at 70.83%	0.37	OK
LC12 at 70.83%	0.20	OK
LC13 at 70.83%	0.08	OK
LC14 at 70.83%	0.06	OK
LC15 at 70.83%	0.09	OK
LC16 at 70.83%	0.08	OK
LC17 at 70.83%	0.06	OK
LC18 at 70.83%	0.10	OK
LC19 at 70.83%	0.12	OK
LC2 at 70.83%	<b>0.93</b>	<b>OK</b>
LC20 at 70.83%	0.07	OK
LC21 at 70.83%	0.06	OK
LC22 at 70.83%	0.10	OK
LC23 at 70.83%	0.13	OK
LC24 at 70.83%	0.08	OK
LC25 at 70.83%	0.06	OK
LC26 at 70.83%	0.10	OK
LC27 at 70.83%	0.13	OK
LC28 at 70.83%	0.07	OK
LC29 at 70.83%	0.06	OK
LC3 at 70.83%	0.82	OK
LC30 at 70.83%	0.10	OK
LC31 at 70.83%	0.12	OK
LC32 at 70.83%	0.07	OK
LC4 at 70.83%	0.83	OK
LC5 at 70.83%	0.70	OK
LC6 at 70.83%	0.92	OK
LC7 at 70.83%	0.80	OK
LC8 at 70.83%	0.84	OK
LC9 at 70.83%	0.18	OK
W180 at 70.83%	0.47	OK
W210 at 70.83%	0.55	OK
Wi180 at 70.83%	0.15	OK
Wi210 at 70.83%	0.18	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.05	OK

Eq. H1-1b

75

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LC1 at 70.83%	0.36	OK
LC10 at 70.83%	0.37	OK
LC11 at 70.83%	0.30	OK
LC12 at 70.83%	0.19	OK
LC13 at 70.83%	0.08	OK
LC14 at 70.83%	0.06	OK
LC15 at 70.83%	0.09	OK
LC16 at 70.83%	0.09	OK
LC17 at 70.83%	0.07	OK
LC18 at 70.83%	0.11	OK
LC19 at 70.83%	0.09	OK
LC2 at 70.83%	<b>0.71</b>	<b>OK</b>
LC20 at 29.17%	0.06	OK
LC21 at 70.83%	0.07	OK
LC22 at 70.83%	0.12	OK
LC23 at 70.83%	0.09	OK
LC24 at 29.17%	0.06	OK
LC25 at 70.83%	0.08	OK
LC26 at 70.83%	0.12	OK
LC27 at 70.83%	0.09	OK
LC28 at 29.17%	0.06	OK
LC29 at 70.83%	0.08	OK
LC3 at 70.83%	0.48	OK
LC30 at 70.83%	0.12	OK
LC31 at 70.83%	0.10	OK
LC32 at 29.17%	0.06	OK

Eq. H1-1b

LC4 at 70.83%	0.53	OK
LC5 at 70.83%	0.37	OK
LC6 at 70.83%	0.69	OK
LC7 at 70.83%	0.47	OK
LC8 at 70.83%	0.56	OK
LC9 at 70.83%	0.19	OK
W180 at 70.83%	0.26	OK
W210 at 70.83%	0.39	OK
Wi180 at 70.83%	0.08	OK
Wi210 at 70.83%	0.12	OK
WL180 at 70.83%	0.02	OK
WL210 at 70.83%	0.03	OK

78

LC1 at 70.83%	0.65	OK
LC10 at 70.83%	0.24	OK
LC11 at 70.83%	0.40	OK
LC12 at 70.83%	0.27	OK
LC13 at 70.83%	0.09	OK
LC14 at 70.83%	0.07	OK
LC15 at 70.83%	0.10	OK
LC16 at 70.83%	0.10	OK
LC17 at 70.83%	0.06	OK
LC18 at 70.83%	0.09	OK
LC19 at 70.83%	0.14	OK
LC2 at 70.83%	0.82	OK
LC20 at 70.83%	0.10	OK
LC21 at 70.83%	0.06	OK
LC22 at 70.83%	0.09	OK
LC23 at 70.83%	0.14	OK
LC24 at 70.83%	0.10	OK
LC25 at 70.83%	0.06	OK
LC26 at 70.83%	0.09	OK
LC27 at 70.83%	0.14	OK
LC28 at 70.83%	0.11	OK
LC29 at 70.83%	0.06	OK
LC3 at 70.83%	0.83	OK
LC30 at 70.83%	0.09	OK
LC31 at 70.83%	0.14	OK
LC32 at 70.83%	0.10	OK
LC4 at 70.83%	<b>0.84</b>	<b>OK</b>
LC5 at 70.83%	0.68	OK
LC6 at 70.83%	0.83	OK
LC7 at 70.83%	0.81	OK
LC8 at 70.83%	0.84	OK
LC9 at 70.83%	0.11	OK
W180 at 70.83%	0.46	OK
W210 at 70.83%	0.52	OK
Wi180 at 70.83%	0.15	OK
Wi210 at 70.83%	0.16	OK
WL180 at 70.83%	0.04	OK
WL210 at 70.83%	0.04	OK

Eq. H1-1b

81

LC1 at 70.83%	0.66	OK
LC10 at 27.08%	0.10	OK
LC11 at 70.83%	0.28	OK
LC12 at 70.83%	0.39	OK
LC13 at 70.83%	0.08	OK
LC14 at 70.83%	0.06	OK
LC15 at 70.83%	0.07	OK
LC16 at 70.83%	0.07	OK
LC17 at 70.83%	0.09	OK
LC18 at 70.83%	0.04	OK
LC19 at 70.83%	0.09	OK
LC2 at 70.83%	0.78	OK

LC20 at 70.83%	0.12	OK	
LC21 at 70.83%	0.09	OK	
LC22 at 70.83%	0.05	OK	
LC23 at 70.83%	0.10	OK	
LC24 at 70.83%	0.12	OK	
LC25 at 70.83%	0.09	OK	
LC26 at 70.83%	0.05	OK	
LC27 at 70.83%	0.10	OK	
LC28 at 70.83%	0.12	OK	
LC29 at 70.83%	0.09	OK	
LC3 at 70.83%	0.76	OK	
LC30 at 70.83%	0.05	OK	
LC31 at 70.83%	0.10	OK	
LC32 at 70.83%	0.12	OK	
LC4 at 70.83%	<b>0.93</b>	<b>OK</b>	Eq. H1-1b
LC5 at 70.83%	0.67	OK	
LC6 at 70.83%	0.79	OK	
LC7 at 70.83%	0.75	OK	
LC8 at 70.83%	0.91	OK	
LC9 at 70.83%	0.28	OK	
W180 at 70.83%	0.44	OK	
W210 at 70.83%	0.53	OK	
Wi180 at 70.83%	0.14	OK	
Wi210 at 70.83%	0.17	OK	
WL180 at 70.83%	0.04	OK	
WL210 at 70.83%	0.05	OK	

84

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LC1 at 70.83%	<b>0.68</b>	<b>OK</b>	Eq. H1-1b
LC10 at 70.83%	0.28	OK	
LC11 at 70.83%	0.18	OK	
LC12 at 70.83%	0.34	OK	
LC13 at 70.83%	0.09	OK	
LC14 at 70.83%	0.07	OK	
LC15 at 70.83%	0.08	OK	
LC16 at 70.83%	0.09	OK	
LC17 at 70.83%	0.11	OK	
LC18 at 70.83%	0.09	OK	
LC19 at 70.83%	0.07	OK	
LC2 at 27.08%	0.36	OK	Eq. H1-1b
LC20 at 70.83%	0.11	OK	
LC21 at 70.83%	0.11	OK	
LC22 at 70.83%	0.09	OK	
LC23 at 70.83%	0.07	OK	
LC24 at 70.83%	0.11	OK	
LC25 at 70.83%	0.11	OK	
LC26 at 70.83%	0.08	OK	
LC27 at 70.83%	0.06	OK	
LC28 at 70.83%	0.10	OK	
LC29 at 70.83%	0.11	OK	
LC3 at 70.83%	0.50	OK	
LC30 at 70.83%	0.09	OK	
LC31 at 70.83%	0.06	OK	
LC32 at 70.83%	0.10	OK	
LC4 at 70.83%	0.51	OK	
LC5 at 70.83%	0.66	OK	
LC6 at 70.83%	0.38	OK	
LC7 at 70.83%	0.52	OK	
LC8 at 70.83%	0.49	OK	
LC9 at 70.83%	0.35	OK	
W180 at 70.83%	0.37	OK	
W210 at 70.83%	0.27	OK	
Wi180 at 70.83%	0.12	OK	
Wi210 at 70.83%	0.09	OK	
WL180 at 70.83%	0.03	OK	

	WL210 at 70.83%	0.02	OK	
<b>87</b>	LC1 at 70.83%	0.31	OK	
	LC10 at 70.83%	0.14	OK	
	LC11 at 70.83%	0.33	OK	
	LC12 at 70.83%	0.32	OK	
	LC13 at 70.83%	0.08	OK	
	LC14 at 70.83%	0.06	OK	
	LC15 at 70.83%	0.12	OK	
	LC16 at 70.83%	0.08	OK	
	LC17 at 70.83%	0.10	OK	
	LC18 at 70.83%	0.08	OK	
	LC19 at 70.83%	0.11	OK	
	LC2 at 70.83%	0.35	OK	
	LC20 at 70.83%	0.12	OK	
	LC21 at 70.83%	0.11	OK	
	LC22 at 70.83%	0.09	OK	
	LC23 at 70.83%	0.13	OK	
	LC24 at 70.83%	0.13	OK	
	LC25 at 70.83%	0.10	OK	
	LC26 at 70.83%	0.08	OK	
	LC27 at 70.83%	0.12	OK	
	LC28 at 70.83%	0.12	OK	
	LC29 at 70.83%	0.08	OK	
	LC3 at 70.83%	0.49	OK	Eq. H1-1b
	LC30 at 70.83%	0.06	OK	
	LC31 at 70.83%	0.11	OK	
	LC32 at 70.83%	0.11	OK	
	LC4 at 70.83%	<b>0.50</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 70.83%	0.33	OK	
	LC6 at 70.83%	0.37	OK	
	LC7 at 70.83%	0.47	OK	
	LC8 at 70.83%	0.48	OK	
	LC9 at 70.83%	0.25	OK	
	W180 at 70.83%	0.25	OK	
	W210 at 70.83%	0.26	OK	
Wi180 at 70.83%	0.09	OK		
Wi210 at 70.83%	0.09	OK		
WL180 at 70.83%	0.02	OK		
WL210 at 70.83%	0.02	OK		
<b>90</b>	LC1 at 70.83%	0.57	OK	
	LC10 at 70.83%	0.16	OK	
	LC11 at 29.17%	0.16	OK	
	LC12 at 70.83%	0.39	OK	
	LC13 at 70.83%	0.09	OK	
	LC14 at 70.83%	0.07	OK	
	LC15 at 70.83%	0.14	OK	
	LC16 at 70.83%	0.10	OK	
	LC17 at 70.83%	0.11	OK	
	LC18 at 70.83%	0.05	OK	
	LC19 at 70.83%	0.06	OK	
	LC2 at 70.83%	0.55	OK	
	LC20 at 70.83%	0.12	OK	
	LC21 at 70.83%	0.15	OK	
	LC22 at 70.83%	0.09	OK	
	LC23 at 70.83%	0.08	OK	
	LC24 at 70.83%	0.15	OK	
	LC25 at 70.83%	0.15	OK	
	LC26 at 70.83%	0.09	OK	
	LC27 at 70.83%	0.10	OK	
LC28 at 70.83%	0.16	OK		
LC29 at 70.83%	0.13	OK		
LC3 at 70.83%	0.55	OK		

	LC30 at 70.83%	0.07	OK	
	LC31 at 70.83%	0.08	OK	
	LC32 at 70.83%	0.14	OK	
	LC4 at 70.83%	<b>0.72</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 70.83%	0.56	OK	
	LC6 at 70.83%	0.57	OK	
	LC7 at 70.83%	0.55	OK	
	LC8 at 70.83%	0.70	OK	
	LC9 at 70.83%	0.36	OK	
	W180 at 70.83%	0.35	OK	
	W210 at 70.83%	0.40	OK	
	Wi180 at 70.83%	0.12	OK	
	Wi210 at 70.83%	0.13	OK	
	WL180 at 70.83%	0.03	OK	
	WL210 at 70.83%	0.03	OK	
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<b>93</b>	LC1 at 70.83%	0.62	OK	
	LC10 at 70.83%	0.35	OK	
	LC11 at 29.17%	0.12	OK	
	LC12 at 70.83%	0.26	OK	
	LC13 at 70.83%	0.08	OK	
	LC14 at 70.83%	0.06	OK	
	LC15 at 70.83%	0.13	OK	
	LC16 at 70.83%	0.08	OK	
	LC17 at 70.83%	0.12	OK	
	LC18 at 70.83%	0.12	OK	
	LC19 at 70.83%	0.06	OK	
	LC2 at 70.83%	<b>0.70</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 70.83%	0.07	OK	
	LC21 at 70.83%	0.14	OK	
	LC22 at 70.83%	0.14	OK	
	LC23 at 70.83%	0.08	OK	
	LC24 at 70.83%	0.08	OK	
	LC25 at 70.83%	0.14	OK	
	LC26 at 70.83%	0.14	OK	
	LC27 at 70.83%	0.08	OK	
	LC28 at 70.83%	0.10	OK	
	LC29 at 70.83%	0.10	OK	
	LC3 at 70.83%	0.52	OK	
	LC30 at 70.83%	0.10	OK	
	LC31 at 70.83%	0.04	OK	
	LC32 at 70.83%	0.10	OK	
	LC4 at 70.83%	0.58	OK	
	LC5 at 70.83%	0.61	OK	
	LC6 at 70.83%	0.68	OK	
	LC7 at 70.83%	0.53	OK	
	LC8 at 70.83%	0.57	OK	Eq. H1-1b
	LC9 at 70.83%	0.33	OK	
	W180 at 70.83%	0.35	OK	
	W210 at 70.83%	0.39	OK	
	Wi180 at 70.83%	0.12	OK	
	Wi210 at 70.83%	0.13	OK	
	WL180 at 70.83%	0.03	OK	
	WL210 at 70.83%	0.03	OK	
<hr/>				
<b>96</b>	LC1 at 70.83%	0.34	OK	
	LC10 at 70.83%	0.35	OK	
	LC11 at 70.83%	0.34	OK	
	LC12 at 70.83%	0.16	OK	
	LC13 at 70.83%	0.09	OK	
	LC14 at 70.83%	0.07	OK	
	LC15 at 70.83%	0.13	OK	
	LC16 at 70.83%	0.10	OK	
	LC17 at 70.83%	0.10	OK	

LC18 at 70.83%	0.12	OK	
LC19 at 70.83%	0.11	OK	
LC2 at 70.83%	<b>0.52</b>	<b>OK</b>	Eq. H1-1b
LC20 at 70.83%	0.07	OK	
LC21 at 70.83%	0.12	OK	
LC22 at 70.83%	0.13	OK	
LC23 at 70.83%	0.12	OK	
LC24 at 70.83%	0.09	OK	
LC25 at 70.83%	0.14	OK	
LC26 at 70.83%	0.15	OK	
LC27 at 70.83%	0.14	OK	
LC28 at 70.83%	0.10	OK	
LC29 at 70.83%	0.13	OK	
LC3 at 70.83%	0.52	OK	Eq. H1-1b
LC30 at 70.83%	0.14	OK	
LC31 at 70.83%	0.12	OK	
LC32 at 70.83%	0.09	OK	
LC4 at 70.83%	0.35	OK	
LC5 at 70.83%	0.36	OK	
LC6 at 70.83%	0.50	OK	
LC7 at 70.83%	0.50	OK	
LC8 at 70.83%	0.37	OK	
LC9 at 70.83%	0.30	OK	
W180 at 70.83%	0.27	OK	
W210 at 70.83%	0.27	OK	
Wi180 at 70.83%	0.09	OK	
Wi210 at 70.83%	0.09	OK	
WL180 at 70.83%	0.02	OK	
WL210 at 70.83%	0.02	OK	

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**28**

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LC1 at 90.97%	0.37	OK	
LC10 at 37.50%	0.45	OK	
LC11 at 37.50%	0.42	OK	
LC12 at 90.28%	0.49	OK	
LC13 at 90.28%	0.12	OK	
LC14 at 90.28%	0.09	OK	
LC15 at 37.50%	0.21	OK	
LC16 at 90.28%	0.12	OK	
LC17 at 37.50%	0.11	OK	
LC18 at 37.50%	0.16	OK	
LC19 at 37.50%	0.16	OK	
LC2 at 18.75%	<b>0.82</b>	<b>OK</b>	Eq. H1-1b
LC20 at 90.28%	0.16	OK	
LC21 at 64.58%	0.15	OK	
LC22 at 37.50%	0.19	OK	
LC23 at 64.58%	0.20	OK	
LC24 at 64.58%	0.21	OK	
LC25 at 37.50%	0.15	OK	
LC26 at 37.50%	0.22	OK	
LC27 at 37.50%	0.21	OK	
LC28 at 90.28%	0.19	OK	
LC29 at 90.28%	0.11	OK	
LC3 at 64.58%	0.53	OK	Eq. H3-6
LC30 at 37.50%	0.15	OK	
LC31 at 37.50%	0.16	OK	
LC32 at 90.28%	0.17	OK	
LC4 at 81.25%	0.82	OK	Eq. H1-1b
LC5 at 90.97%	0.37	OK	
LC6 at 18.75%	0.81	OK	
LC7 at 64.58%	0.51	OK	
LC8 at 81.25%	0.80	OK	
LC9 at 90.28%	0.30	OK	
W180 at 90.97%	0.25	OK	
W210 at 18.75%	0.49	OK	

Wi180 at 90.97%	0.09	OK
Wi210 at 18.75%	0.15	OK
WL180 at 90.97%	0.02	OK
WL210 at 81.25%	0.04	OK

30

LC1 at 9.72%	<b>0.86</b>	<b>OK</b>	Eq. H1-1b
LC10 at 9.72%	0.39	OK	
LC11 at 88.19%	0.41	OK	
LC12 at 62.50%	0.49	OK	
LC13 at 9.72%	0.12	OK	
LC14 at 9.72%	0.09	OK	
LC15 at 88.19%	0.13	OK	
LC16 at 9.72%	0.12	OK	
LC17 at 9.72%	0.16	OK	
LC18 at 9.72%	0.12	OK	
LC19 at 88.19%	0.15	OK	
LC2 at 62.50%	0.59	OK	
LC20 at 62.50%	0.17	OK	
LC21 at 9.72%	0.15	OK	
LC22 at 9.72%	0.12	OK	
LC23 at 88.19%	0.15	OK	
LC24 at 88.19%	0.16	OK	
LC25 at 9.72%	0.15	OK	
LC26 at 9.72%	0.12	OK	
LC27 at 88.19%	0.15	OK	
LC28 at 62.50%	0.16	OK	
LC29 at 9.72%	0.17	OK	
LC3 at 81.25%	0.67	OK	Eq. H1-1b
LC30 at 9.72%	0.12	OK	
LC31 at 88.19%	0.14	OK	
LC32 at 62.50%	0.16	OK	
LC4 at 62.50%	0.85	OK	Eq. H1-1b
LC5 at 9.72%	0.83	OK	
LC6 at 62.50%	0.62	OK	
LC7 at 81.25%	0.66	OK	
LC8 at 62.50%	0.82	OK	
LC9 at 9.72%	0.52	OK	
W180 at 9.72%	0.44	OK	
W210 at 62.50%	0.45	OK	
Wi180 at 9.72%	0.14	OK	
Wi210 at 62.50%	0.15	OK	
WL180 at 9.72%	0.04	OK	
WL210 at 62.50%	0.04	OK	

32

LC1 at 88.19%	<b>0.84</b>	<b>OK</b>	Eq. H1-1b
LC10 at 9.72%	0.51	OK	
LC11 at 9.72%	0.45	OK	
LC12 at 88.19%	0.35	OK	
LC13 at 9.72%	0.12	OK	
LC14 at 9.72%	0.09	OK	
LC15 at 9.72%	0.14	OK	
LC16 at 9.72%	0.13	OK	
LC17 at 62.50%	0.15	OK	
LC18 at 9.72%	0.17	OK	
LC19 at 9.72%	0.16	OK	
LC2 at 9.72%	0.81	OK	Eq. H1-1b
LC20 at 62.50%	0.11	OK	
LC21 at 62.50%	0.14	OK	
LC22 at 9.72%	0.18	OK	
LC23 at 9.72%	0.16	OK	
LC24 at 62.50%	0.11	OK	
LC25 at 62.50%	0.14	OK	
LC26 at 9.72%	0.18	OK	
LC27 at 9.72%	0.16	OK	

	LC28 at 62.50%	0.11	OK	
	LC29 at 62.50%	0.14	OK	
	LC3 at 18.75%	0.66	OK	Eq. H1-1b
	LC30 at 9.72%	0.18	OK	
	LC31 at 9.72%	0.17	OK	
	LC32 at 62.50%	0.11	OK	
	LC4 at 35.42%	0.55	OK	
	LC5 at 88.19%	0.81	OK	
	LC6 at 9.72%	0.78	OK	
	LC7 at 18.75%	0.64	OK	
	LC8 at 35.42%	0.58	OK	
	LC9 at 88.19%	0.47	OK	
	W180 at 88.19%	0.44	OK	
	W210 at 35.42%	0.41	OK	
	Wi180 at 88.19%	0.14	OK	
	Wi210 at 9.72%	0.13	OK	
	WL180 at 88.19%	0.04	OK	
	WL210 at 35.42%	0.04	OK	
<hr/>				
<b>100</b>	LC1 at 71.88%	0.06	OK	Eq. H1-1b
	LC10 at 71.88%	0.02	OK	
	LC11 at 71.88%	0.02	OK	
	LC12 at 71.88%	0.02	OK	
	LC13 at 71.88%	0.00	OK	
	LC14 at 71.88%	0.00	OK	
	LC15 at 71.88%	0.00	OK	
	LC16 at 71.88%	0.00	OK	
	LC17 at 71.88%	0.00	OK	
	LC18 at 71.88%	0.01	OK	
	LC19 at 71.88%	0.00	OK	
	LC2 at 71.88%	<b>0.06</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 71.88%	0.01	OK	
	LC21 at 71.88%	0.00	OK	
	LC22 at 71.88%	0.01	OK	
	LC23 at 71.88%	0.00	OK	
	LC24 at 71.88%	0.01	OK	
	LC25 at 71.88%	0.00	OK	
	LC26 at 71.88%	0.01	OK	
	LC27 at 71.88%	0.00	OK	
	LC28 at 71.88%	0.01	OK	
	LC29 at 71.88%	0.00	OK	
	LC3 at 71.88%	0.06	OK	
	LC30 at 71.88%	0.01	OK	
	LC31 at 71.88%	0.00	OK	
	LC32 at 71.88%	0.01	OK	
	LC4 at 71.88%	0.06	OK	
	LC5 at 71.88%	0.06	OK	
	LC6 at 71.88%	0.06	OK	
	LC7 at 71.88%	0.06	OK	
	LC8 at 71.88%	0.06	OK	
	LC9 at 71.88%	0.02	OK	
	W180 at 71.88%	0.04	OK	
	W210 at 71.88%	0.04	OK	
	Wi180 at 71.88%	0.02	OK	
	Wi210 at 71.88%	0.02	OK	
	WL180 at 71.88%	0.00	OK	
	WL210 at 71.88%	0.00	OK	
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<b>106</b>	LC1 at 71.88%	0.06	OK	
	LC10 at 71.88%	0.02	OK	
	LC11 at 71.88%	0.02	OK	
	LC12 at 71.88%	0.02	OK	
	LC13 at 71.88%	0.00	OK	
	LC14 at 71.88%	0.00	OK	

LC15 at 71.88%	0.00	OK	
LC16 at 71.88%	0.00	OK	
LC17 at 71.88%	0.00	OK	
LC18 at 71.88%	0.01	OK	
LC19 at 71.88%	0.00	OK	
LC2 at 71.88%	0.06	OK	
LC20 at 71.88%	0.01	OK	
LC21 at 71.88%	0.00	OK	
LC22 at 71.88%	0.01	OK	
LC23 at 71.88%	0.00	OK	
LC24 at 71.88%	0.01	OK	
LC25 at 71.88%	0.00	OK	
LC26 at 71.88%	0.01	OK	
LC27 at 71.88%	0.00	OK	
LC28 at 71.88%	0.01	OK	
LC29 at 71.88%	0.00	OK	
LC3 at 71.88%	0.06	OK	Eq. H1-1b
LC30 at 71.88%	0.01	OK	
LC31 at 71.88%	0.00	OK	
LC32 at 71.88%	0.01	OK	
LC4 at 71.88%	<b>0.06</b>	<b>OK</b>	Eq. H1-1b
LC5 at 71.88%	0.06	OK	
LC6 at 71.88%	0.06	OK	
LC7 at 71.88%	0.06	OK	
LC8 at 71.88%	0.06	OK	
LC9 at 71.88%	0.02	OK	
W180 at 71.88%	0.04	OK	
W210 at 71.88%	0.04	OK	
Wi180 at 71.88%	0.02	OK	
Wi210 at 71.88%	0.02	OK	
WL180 at 71.88%	0.00	OK	
WL210 at 71.88%	0.00	OK	

<b>108</b>	LC1 at 71.88%	<b>0.09</b>	<b>OK</b>	Eq. H1-1b
	LC10 at 71.88%	0.03	OK	
	LC11 at 71.88%	0.03	OK	
	LC12 at 71.88%	0.03	OK	
	LC13 at 71.88%	0.00	OK	
	LC14 at 71.88%	0.00	OK	
	LC15 at 71.88%	0.00	OK	
	LC16 at 71.88%	0.00	OK	
	LC17 at 71.88%	0.01	OK	
	LC18 at 71.88%	0.01	OK	
	LC19 at 71.88%	0.01	OK	
	LC2 at 71.88%	0.09	OK	
	LC20 at 71.88%	0.01	OK	
	LC21 at 71.88%	0.01	OK	
	LC22 at 71.88%	0.01	OK	
	LC23 at 71.88%	0.01	OK	
	LC24 at 71.88%	0.01	OK	
	LC25 at 71.88%	0.01	OK	
	LC26 at 71.88%	0.01	OK	
	LC27 at 71.88%	0.01	OK	
	LC28 at 71.88%	0.01	OK	
	LC29 at 71.88%	0.01	OK	
	LC3 at 71.88%	0.09	OK	
	LC30 at 71.88%	0.01	OK	
	LC31 at 71.88%	0.01	OK	
	LC32 at 71.88%	0.01	OK	
	LC4 at 71.88%	0.09	OK	
	LC5 at 71.88%	0.09	OK	
	LC6 at 71.88%	0.09	OK	
	LC7 at 71.88%	0.09	OK	
	LC8 at 71.88%	0.09	OK	

	LC9 at 71.88%	0.03	OK	
	W180 at 71.88%	0.05	OK	
	W210 at 71.88%	0.05	OK	
	Wi180 at 71.88%	0.03	OK	
	Wi210 at 71.88%	0.03	OK	
	WL180 at 71.88%	0.01	OK	
	WL210 at 71.88%	0.01	OK	
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109	LC1 at 0.00%	0.62	OK	
	LC10 at 100.00%	0.21	OK	
	LC11 at 0.00%	0.13	OK	
	LC12 at 100.00%	0.07	OK	
	LC13 at 100.00%	0.05	OK	
	LC14 at 100.00%	0.04	OK	
	LC15 at 100.00%	0.08	OK	
	LC16 at 100.00%	0.06	OK	
	LC17 at 100.00%	0.06	OK	
	LC18 at 100.00%	0.08	OK	
	LC19 at 100.00%	0.05	OK	
	LC2 at 100.00%	0.48	OK	
	LC20 at 100.00%	0.03	OK	
	LC21 at 100.00%	0.06	OK	
	LC22 at 100.00%	0.08	OK	
	LC23 at 100.00%	0.06	OK	
	LC24 at 100.00%	0.04	OK	
	LC25 at 100.00%	0.07	OK	
	LC26 at 100.00%	0.09	OK	
	LC27 at 100.00%	0.07	OK	
	LC28 at 100.00%	0.05	OK	
	LC29 at 100.00%	0.07	OK	
	LC3 at 0.00%	<b>0.62</b>	<b>OK</b>	Eq. H1-1b
	LC30 at 100.00%	0.09	OK	
	LC31 at 100.00%	0.07	OK	
	LC32 at 100.00%	0.05	OK	
	LC4 at 100.00%	0.45	OK	
	LC5 at 0.00%	0.62	OK	Eq. H1-1b
	LC6 at 100.00%	0.47	OK	
	LC7 at 0.00%	0.62	OK	
	LC8 at 100.00%	0.46	OK	
	LC9 at 100.00%	0.14	OK	
	W180 at 0.00%	0.39	OK	
	W210 at 100.00%	0.29	OK	
	Wi180 at 0.00%	0.13	OK	
	Wi210 at 100.00%	0.09	OK	
	WL180 at 0.00%	0.04	OK	
	WL210 at 100.00%	0.02	OK	
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110	LC1 at 0.00%	0.60	OK	
	LC10 at 100.00%	0.10	OK	
	LC11 at 0.00%	0.19	OK	
	LC12 at 0.00%	0.15	OK	
	LC13 at 0.00%	0.05	OK	
	LC14 at 0.00%	0.03	OK	
	LC15 at 100.00%	0.04	OK	
	LC16 at 0.00%	0.05	OK	
	LC17 at 100.00%	0.04	OK	
	LC18 at 100.00%	0.03	OK	
	LC19 at 0.00%	0.05	OK	
	LC2 at 100.00%	0.49	OK	
	LC20 at 100.00%	0.06	OK	
	LC21 at 100.00%	0.04	OK	
	LC22 at 0.00%	0.03	OK	
	LC23 at 0.00%	0.06	OK	
	LC24 at 100.00%	0.06	OK	

LC25 at 100.00%	0.03	OK
LC26 at 0.00%	0.04	OK
LC27 at 0.00%	0.07	OK
LC28 at 0.00%	0.05	OK
LC29 at 100.00%	0.03	OK
LC3 at 0.00%	<b>0.61</b>	<b>OK</b>
LC30 at 0.00%	0.04	OK
LC31 at 0.00%	0.07	OK
LC32 at 0.00%	0.06	OK
LC4 at 100.00%	0.49	OK
LC5 at 0.00%	0.60	OK
LC6 at 100.00%	0.49	OK
LC7 at 0.00%	0.61	OK
LC8 at 100.00%	0.49	OK
LC9 at 100.00%	0.11	OK
W180 at 0.00%	0.38	OK
W210 at 100.00%	0.30	OK
Wi180 at 0.00%	0.13	OK
Wi210 at 100.00%	0.10	OK
WL180 at 0.00%	0.03	OK
WL210 at 100.00%	0.03	OK

Eq. H1-1b

111

LC1 at 100.00%	0.32	OK
LC10 at 0.00%	0.15	OK
LC11 at 100.00%	0.07	OK
LC12 at 100.00%	0.18	OK
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%	0.04	OK
LC17 at 100.00%	0.06	OK
LC18 at 0.00%	0.04	OK
LC19 at 100.00%	0.03	OK
LC2 at 0.00%	<b>0.73</b>	<b>OK</b>
LC20 at 100.00%	0.06	OK
LC21 at 100.00%	0.06	OK
LC22 at 0.00%	0.04	OK
LC23 at 100.00%	0.03	OK
LC24 at 100.00%	0.06	OK
LC25 at 100.00%	0.06	OK
LC26 at 0.00%	0.04	OK
LC27 at 100.00%	0.03	OK
LC28 at 100.00%	0.06	OK
LC29 at 100.00%	0.06	OK
LC3 at 68.75%	0.23	OK
LC30 at 0.00%	0.04	OK
LC31 at 100.00%	0.03	OK
LC32 at 100.00%	0.06	OK
LC4 at 0.00%	0.73	OK
LC5 at 100.00%	0.31	OK
LC6 at 0.00%	0.73	OK
LC7 at 100.00%	0.24	OK
LC8 at 0.00%	0.73	OK
LC9 at 100.00%	0.18	OK
W180 at 100.00%	0.16	OK
W210 at 0.00%	0.46	OK
Wi180 at 100.00%	0.05	OK
Wi210 at 0.00%	0.14	OK
WL180 at 100.00%	0.01	OK
WL210 at 0.00%	0.04	OK

Eq. H1-1b

PIPE 3x0.216

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LC1 at 100.00%	0.63	OK
LC10 at 100.00%	0.62	OK
LC11 at 100.00%	0.67	OK

LC12 at 100.00%	0.57	OK
LC13 at 100.00%	0.21	OK
LC14 at 100.00%	0.16	OK
LC15 at 100.00%	0.26	OK
LC16 at 100.00%	0.23	OK
LC17 at 100.00%	0.23	OK
LC18 at 100.00%	0.22	OK
LC19 at 100.00%	0.24	OK
LC2 at 100.00%	0.45	OK
LC20 at 100.00%	0.22	OK
LC21 at 100.00%	0.24	OK
LC22 at 100.00%	0.24	OK
LC23 at 100.00%	0.26	OK
LC24 at 100.00%	0.23	OK
LC25 at 100.00%	0.25	OK
LC26 at 100.00%	0.25	OK
LC27 at 100.00%	0.27	OK
LC28 at 100.00%	0.24	OK
LC29 at 100.00%	0.24	OK
LC3 at 100.00%	<b>0.74</b>	<b>OK</b>
LC30 at 100.00%	0.24	OK
LC31 at 100.00%	0.26	OK
LC32 at 100.00%	0.23	OK
LC4 at 100.00%	0.29	OK
LC5 at 100.00%	0.58	OK
LC6 at 100.00%	0.40	OK
LC7 at 100.00%	0.68	OK
LC8 at 100.00%	0.25	OK
LC9 at 100.00%	0.63	OK
W180 at 100.00%	0.33	OK
W210 at 100.00%	0.16	OK
Wi180 at 100.00%	0.09	OK
Wi210 at 100.00%	0.06	OK
WL180 at 100.00%	0.02	OK
WL210 at 100.00%	0.01	OK

Eq. H1-1b

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LC1 at 100.00%	0.65	OK
LC10 at 100.00%	0.58	OK
LC11 at 100.00%	0.68	OK
LC12 at 100.00%	0.65	OK
LC13 at 100.00%	0.22	OK
LC14 at 100.00%	0.16	OK
LC15 at 100.00%	0.26	OK
LC16 at 100.00%	0.22	OK
LC17 at 100.00%	0.25	OK
LC18 at 100.00%	0.23	OK
LC19 at 100.00%	0.26	OK
LC2 at 100.00%	0.32	OK
LC20 at 100.00%	0.25	OK
LC21 at 100.00%	0.26	OK
LC22 at 100.00%	0.25	OK
LC23 at 100.00%	0.27	OK
LC24 at 100.00%	0.26	OK
LC25 at 100.00%	0.25	OK
LC26 at 100.00%	0.23	OK
LC27 at 100.00%	0.26	OK
LC28 at 100.00%	0.25	OK
LC29 at 100.00%	0.24	OK
LC3 at 100.00%	<b>0.77</b>	<b>OK</b>
LC30 at 100.00%	0.22	OK
LC31 at 100.00%	0.25	OK
LC32 at 100.00%	0.24	OK
LC4 at 100.00%	0.49	OK
LC5 at 100.00%	0.60	OK

Eq. H1-1b

	LC6 at 100.00%	0.27	OK	
	LC7 at 100.00%	0.71	OK	
	LC8 at 100.00%	0.43	OK	
	LC9 at 100.00%	0.65	OK	
	W180 at 100.00%	0.34	OK	
	W210 at 100.00%	0.17	OK	
	Wi180 at 100.00%	0.10	OK	
	Wi210 at 100.00%	0.06	OK	
	WL180 at 100.00%	0.03	OK	
	WL210 at 100.00%	0.01	OK	
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9	LC1 at 56.25%	0.25	OK	Eq. H1-1b
	LC10 at 11.11%	0.26	OK	
	LC11 at 11.11%	0.27	OK	
	LC12 at 11.11%	0.24	OK	
	LC13 at 11.11%	0.08	OK	
	LC14 at 11.11%	0.06	OK	
	LC15 at 50.00%	0.12	OK	Eq. H1-1b
	LC16 at 11.11%	0.08	OK	
	LC17 at 90.97%	0.09	OK	
	LC18 at 90.97%	0.10	OK	
	LC19 at 90.97%	0.10	OK	
	LC2 at 37.50%	0.28	OK	Eq. H1-1b
	LC20 at 90.97%	0.10	OK	
	LC21 at 64.58%	0.10	OK	
	LC22 at 64.58%	0.10	OK	
	LC23 at 64.58%	0.11	OK	
	LC24 at 64.58%	0.12	OK	
	LC25 at 37.50%	0.11	OK	
	LC26 at 37.50%	0.13	OK	
	LC27 at 37.50%	0.12	OK	
	LC28 at 37.50%	0.12	OK	
	LC29 at 11.11%	0.13	OK	
	LC3 at 11.11%	0.32	OK	Eq. H1-1b
	LC30 at 11.11%	0.14	OK	
	LC31 at 11.11%	0.14	OK	
	LC32 at 11.11%	0.13	OK	
	LC4 at 38.19%	0.28	OK	Eq. H1-1b
	LC5 at 56.25%	0.25	OK	
	LC6 at 37.50%	0.27	OK	
	LC7 at 11.11%	0.30	OK	
	LC8 at 38.19%	0.26	OK	
	LC9 at 11.11%	0.24	OK	
	W180 at 11.11%	0.15	OK	
	W210 at 63.89%	0.14	OK	
	Wi180 at 11.11%	0.05	OK	
	Wi210 at 63.89%	0.04	OK	
	WL180 at 11.11%	0.01	OK	
	WL210 at 63.89%	0.01	OK	
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10	LC1 at 62.50%	0.26	OK	Eq. H1-1b
	LC10 at 88.89%	0.26	OK	
	LC11 at 88.89%	0.24	OK	
	LC12 at 88.89%	0.25	OK	
	LC13 at 88.89%	0.08	OK	
	LC14 at 88.89%	0.06	OK	
	LC15 at 88.89%	0.08	OK	
	LC16 at 88.89%	0.08	OK	
	LC17 at 88.89%	0.09	OK	
	LC18 at 88.89%	0.08	OK	
	LC19 at 88.89%	0.08	OK	
	LC2 at 56.25%	0.31	OK	
	LC20 at 88.89%	0.08	OK	
	LC21 at 88.89%	0.08	OK	

LC22 at 88.89%	0.08	OK	
LC23 at 88.89%	0.08	OK	
LC24 at 88.89%	0.08	OK	
LC25 at 88.89%	0.08	OK	
LC26 at 88.89%	0.08	OK	
LC27 at 88.89%	0.08	OK	
LC28 at 88.89%	0.08	OK	
LC29 at 88.89%	0.08	OK	
LC3 at 61.81%	0.21	OK	
LC30 at 88.89%	0.08	OK	
LC31 at 88.89%	0.08	OK	
LC32 at 88.89%	0.08	OK	
LC4 at 56.25%	<b>0.37</b>	<b>OK</b>	Eq. H3-6
LC5 at 88.89%	0.25	OK	
LC6 at 56.25%	0.31	OK	
LC7 at 61.81%	0.20	OK	
LC8 at 56.25%	0.35	OK	
LC9 at 88.89%	0.26	OK	
W180 at 62.50%	0.12	OK	
W210 at 56.25%	0.20	OK	
Wi180 at 36.11%	0.04	OK	
Wi210 at 56.25%	0.06	OK	
WL180 at 36.11%	0.01	OK	
WL210 at 56.25%	0.02	OK	

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LC1 at 9.03%	0.24	OK	Eq. H1-1b
LC10 at 88.89%	0.24	OK	
LC11 at 88.89%	0.25	OK	
LC12 at 88.89%	0.27	OK	
LC13 at 88.89%	0.08	OK	
LC14 at 88.89%	0.06	OK	
LC15 at 88.89%	0.08	OK	
LC16 at 88.89%	0.08	OK	
LC17 at 88.89%	0.08	OK	
LC18 at 88.89%	0.08	OK	
LC19 at 88.89%	0.08	OK	
LC2 at 43.75%	<b>0.35</b>	<b>OK</b>	Eq. H3-6
LC20 at 88.89%	0.09	OK	
LC21 at 88.89%	0.08	OK	
LC22 at 88.89%	0.08	OK	
LC23 at 88.89%	0.08	OK	
LC24 at 88.89%	0.09	OK	
LC25 at 88.89%	0.08	OK	
LC26 at 88.89%	0.08	OK	
LC27 at 88.89%	0.08	OK	
LC28 at 88.89%	0.09	OK	
LC29 at 88.89%	0.08	OK	
LC3 at 56.25%	0.22	OK	Eq. H3-6
LC30 at 88.89%	0.08	OK	
LC31 at 88.89%	0.08	OK	
LC32 at 88.89%	0.09	OK	
LC4 at 88.89%	0.34	OK	Eq. H1-1b
LC5 at 9.03%	0.22	OK	
LC6 at 43.75%	0.33	OK	
LC7 at 56.25%	0.20	OK	
LC8 at 88.89%	0.32	OK	
LC9 at 88.89%	0.25	OK	
W180 at 56.25%	0.12	OK	
W210 at 43.75%	0.20	OK	
Wi180 at 56.25%	0.04	OK	
Wi210 at 43.75%	0.06	OK	
WL180 at 56.25%	0.01	OK	
WL210 at 43.75%	0.02	OK	

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12	LC1 at 0.00%	0.45	OK	
	LC10 at 0.00%	0.70	OK	
	LC11 at 0.00%	0.54	OK	
	LC12 at 0.00%	0.69	OK	
	LC13 at 0.00%	0.21	OK	
	LC14 at 0.00%	0.16	OK	
	LC15 at 0.00%	0.20	OK	
	LC16 at 0.00%	0.21	OK	
	LC17 at 0.00%	0.22	OK	
	LC18 at 0.00%	0.24	OK	
	LC19 at 0.00%	0.20	OK	
	LC2 at 0.00%	0.95	OK	
	LC20 at 0.00%	0.24	OK	
	LC21 at 0.00%	0.21	OK	
	LC22 at 0.00%	0.24	OK	
	LC23 at 0.00%	0.20	OK	
	LC24 at 0.00%	0.24	OK	
	LC25 at 0.00%	0.22	OK	
	LC26 at 0.00%	0.24	OK	
	LC27 at 0.00%	0.20	OK	
	LC28 at 0.00%	0.24	OK	
	LC29 at 0.00%	0.22	OK	
	LC3 at 0.00%	0.21	OK	Eq. H1-1b
	LC30 at 0.00%	0.25	OK	
	LC31 at 0.00%	0.20	OK	
	LC32 at 0.00%	0.24	OK	
	LC4 at 0.00%	<b>0.96</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 0.00%	0.33	OK	
	LC6 at 0.00%	0.90	OK	
	LC7 at 0.00%	0.19	OK	Sec. E1
	LC8 at 0.00%	0.90	OK	
	LC9 at 0.00%	0.60	OK	
	W180 at 0.00%	0.13	OK	
W210 at 0.00%	0.47	OK		
Wi180 at 0.00%	0.04	OK		
Wi210 at 0.00%	0.13	OK		
WL180 at 0.00%	0.01	OK		
WL210 at 0.00%	0.03	OK		

PL 6X1/2

25	LC1 at 46.88%	0.29	OK	Eq. H1-1b
	LC10 at 50.00%	0.30	OK	
	LC11 at 50.00%	0.35	OK	Eq. H3-6
	LC12 at 50.00%	0.33	OK	
	LC13 at 50.00%	0.09	OK	
	LC14 at 50.00%	0.07	OK	
	LC15 at 50.00%	0.11	OK	
	LC16 at 50.00%	0.12	OK	
	LC17 at 50.00%	0.10	OK	
	LC18 at 50.00%	0.09	OK	
	LC19 at 50.00%	0.10	OK	
	LC2 at 50.00%	<b>0.44</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 50.00%	0.11	OK	
	LC21 at 50.00%	0.10	OK	
	LC22 at 50.00%	0.09	OK	
	LC23 at 50.00%	0.11	OK	
	LC24 at 50.00%	0.12	OK	
	LC25 at 50.00%	0.11	OK	
	LC26 at 50.00%	0.10	OK	
	LC27 at 50.00%	0.11	OK	
	LC28 at 50.00%	0.13	OK	
	LC29 at 50.00%	0.12	OK	
	LC3 at 46.88%	0.25	OK	
LC30 at 50.00%	0.11	OK		
LC31 at 50.00%	0.12	OK		

	LC32 at 50.00%	0.13	OK	
	LC4 at 50.00%	0.41	OK	
	LC5 at 46.88%	0.27	OK	
	LC6 at 50.00%	0.43	OK	
	LC7 at 46.88%	0.25	OK	
	LC8 at 50.00%	0.41	OK	
	LC9 at 50.00%	0.33	OK	
	W180 at 46.88%	0.15	OK	
	W210 at 50.00%	0.26	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 50.00%	0.08	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 50.00%	0.02	OK	
<hr/>				
<b>26</b>	LC1 at 50.00%	0.34	OK	Eq. H1-1b
	LC10 at 50.00%	0.35	OK	Eq. H3-6
	LC11 at 50.00%	0.30	OK	
	LC12 at 50.00%	0.33	OK	
	LC13 at 50.00%	0.09	OK	
	LC14 at 50.00%	0.07	OK	
	LC15 at 46.88%	0.10	OK	
	LC16 at 50.00%	0.10	OK	
	LC17 at 50.00%	0.11	OK	
	LC18 at 46.88%	0.12	OK	
	LC19 at 46.88%	0.11	OK	
	LC2 at 0.00%	0.37	OK	Eq. H1-1b
	LC20 at 46.88%	0.09	OK	
	LC21 at 50.00%	0.10	OK	
	LC22 at 46.88%	0.11	OK	
	LC23 at 46.88%	0.10	OK	
	LC24 at 50.00%	0.09	OK	
	LC25 at 50.00%	0.10	OK	
	LC26 at 46.88%	0.10	OK	
	LC27 at 46.88%	0.09	OK	
	LC28 at 50.00%	0.09	OK	
	LC29 at 50.00%	0.11	OK	
	LC3 at 50.00%	0.27	OK	
	LC30 at 46.88%	0.10	OK	
	LC31 at 46.88%	0.09	OK	
	LC32 at 50.00%	0.09	OK	
	LC4 at 46.88%	<b>0.41</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 50.00%	0.31	OK	
	LC6 at 46.88%	0.37	OK	
	LC7 at 50.00%	0.26	OK	
	LC8 at 46.88%	0.40	OK	
	LC9 at 50.00%	0.32	OK	
	W180 at 50.00%	0.16	OK	
	W210 at 46.88%	0.24	OK	
	Wi180 at 50.00%	0.04	OK	
	Wi210 at 46.88%	0.07	OK	
	WL180 at 50.00%	0.01	OK	
	WL210 at 46.88%	0.02	OK	
<hr/>				
<b>27</b>	LC1 at 50.00%	<b>0.41</b>	<b>OK</b>	Eq. H1-1b
	LC10 at 50.00%	0.37	OK	
	LC11 at 50.00%	0.37	OK	Eq. H3-6
	LC12 at 50.00%	0.31	OK	
	LC13 at 50.00%	0.09	OK	
	LC14 at 50.00%	0.07	OK	
	LC15 at 50.00%	0.09	OK	
	LC16 at 50.00%	0.10	OK	
	LC17 at 50.00%	0.09	OK	
	LC18 at 50.00%	0.11	OK	
	LC19 at 50.00%	0.11	OK	

LC2 at 50.00%	0.26	OK
LC20 at 46.88%	0.09	OK
LC21 at 50.00%	0.09	OK
LC22 at 50.00%	0.10	OK
LC23 at 50.00%	0.10	OK
LC24 at 46.88%	0.09	OK
LC25 at 50.00%	0.08	OK
LC26 at 50.00%	0.10	OK
LC27 at 50.00%	0.10	OK
LC28 at 46.88%	0.09	OK
LC29 at 50.00%	0.08	OK
LC3 at 50.00%	0.38	OK
LC30 at 50.00%	0.10	OK
LC31 at 50.00%	0.10	OK
LC32 at 46.88%	0.09	OK
LC4 at 46.88%	0.22	OK
LC5 at 50.00%	0.41	OK
LC6 at 50.00%	0.23	OK
LC7 at 50.00%	0.38	OK
LC8 at 46.88%	0.20	OK
LC9 at 50.00%	0.31	OK
W180 at 50.00%	0.25	OK
W210 at 50.00%	0.10	OK
Wi180 at 50.00%	0.07	OK
Wi210 at 50.00%	0.03	OK
WL180 at 50.00%	0.02	OK
WL210 at 50.00%	0.01	OK

T2L 3X3X1\_4

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LC1 at 100.00%	0.16	OK
LC10 at 0.00%	<b>0.41</b>	<b>OK</b>
LC11 at 0.00%	0.39	OK
LC12 at 0.00%	0.37	OK
LC13 at 0.00%	0.13	OK
LC14 at 0.00%	0.10	OK
LC15 at 0.00%	0.15	OK
LC16 at 0.00%	0.16	OK
LC17 at 0.00%	0.13	OK
LC18 at 0.00%	0.14	OK
LC19 at 0.00%	0.14	OK
LC2 at 0.00%	0.32	OK
LC20 at 0.00%	0.13	OK
LC21 at 0.00%	0.13	OK
LC22 at 0.00%	0.14	OK
LC23 at 0.00%	0.14	OK
LC24 at 0.00%	0.14	OK
LC25 at 0.00%	0.14	OK
LC26 at 0.00%	0.15	OK
LC27 at 0.00%	0.15	OK
LC28 at 0.00%	0.14	OK
LC29 at 0.00%	0.15	OK
LC3 at 0.00%	0.24	OK
LC30 at 0.00%	0.15	OK
LC31 at 0.00%	0.16	OK
LC32 at 0.00%	0.15	OK
LC4 at 100.00%	0.15	OK
LC5 at 100.00%	0.13	OK
LC6 at 0.00%	0.29	OK
LC7 at 100.00%	0.22	OK
LC8 at 100.00%	0.15	OK
LC9 at 0.00%	0.37	OK
W180 at 100.00%	0.09	OK
W210 at 100.00%	0.09	OK
Wi180 at 100.00%	0.03	OK
Wi210 at 100.00%	0.03	OK

Eq. H2-1

	WL180 at 100.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
<b>41</b>	LC1 at 100.00%	0.17	OK	
	LC10 at 0.00%	0.36	OK	
	LC11 at 0.00%	0.39	OK	
	LC12 at 0.00%	<b>0.41</b>	<b>OK</b>	Eq. H2-1
	LC13 at 0.00%	0.13	OK	
	LC14 at 0.00%	0.10	OK	
	LC15 at 0.00%	0.15	OK	
	LC16 at 0.00%	0.13	OK	
	LC17 at 0.00%	0.15	OK	
	LC18 at 0.00%	0.15	OK	
	LC19 at 0.00%	0.15	OK	
	LC2 at 100.00%	0.14	OK	
	LC20 at 0.00%	0.15	OK	
	LC21 at 0.00%	0.14	OK	
	LC22 at 0.00%	0.14	OK	
	LC23 at 0.00%	0.15	OK	
	LC24 at 0.00%	0.15	OK	
	LC25 at 0.00%	0.13	OK	
	LC26 at 0.00%	0.13	OK	
	LC27 at 0.00%	0.14	OK	
	LC28 at 0.00%	0.14	OK	
	LC29 at 0.00%	0.13	OK	
	LC3 at 0.00%	0.25	OK	
	LC30 at 0.00%	0.13	OK	
	LC31 at 0.00%	0.13	OK	
	LC32 at 0.00%	0.14	OK	
	LC4 at 0.00%	0.32	OK	
	LC5 at 100.00%	0.14	OK	
	LC6 at 100.00%	0.14	OK	
	LC7 at 0.00%	0.22	OK	
	LC8 at 0.00%	0.29	OK	
	LC9 at 0.00%	0.37	OK	
	W180 at 100.00%	0.09	OK	
	W210 at 0.00%	0.12	OK	
	Wi180 at 100.00%	0.03	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 100.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
<b>42</b>	LC1 at 0.00%	0.30	OK	
	LC10 at 0.00%	0.38	OK	
	LC11 at 0.00%	0.36	OK	
	LC12 at 0.00%	0.38	OK	
	LC13 at 0.00%	0.13	OK	
	LC14 at 0.00%	0.10	OK	
	LC15 at 0.00%	0.12	OK	
	LC16 at 0.00%	0.13	OK	
	LC17 at 0.00%	0.13	OK	
	LC18 at 0.00%	0.13	OK	
	LC19 at 0.00%	0.12	OK	
	LC2 at 100.00%	0.22	OK	
	LC20 at 0.00%	0.13	OK	
	LC21 at 0.00%	0.13	OK	
	LC22 at 0.00%	0.13	OK	
	LC23 at 0.00%	0.12	OK	
	LC24 at 0.00%	0.13	OK	
	LC25 at 0.00%	0.13	OK	
	LC26 at 0.00%	0.13	OK	
	LC27 at 0.00%	0.12	OK	
	LC28 at 0.00%	0.13	OK	
	LC29 at 0.00%	0.13	OK	

LC3 at 100.00%	0.07	OK
LC30 at 0.00%	0.13	OK
LC31 at 0.00%	0.12	OK
LC32 at 0.00%	0.13	OK
LC4 at 0.00%	0.21	OK
LC5 at 0.00%	0.27	OK
LC6 at 100.00%	0.20	OK
LC7 at 100.00%	0.06	OK
LC8 at 100.00%	0.19	OK
LC9 at 0.00%	<b>0.40</b>	<b>OK</b>
W180 at 0.00%	0.07	OK
W210 at 100.00%	0.08	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

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Eq. H2-1

Current Date: 8/24/2018 12:03 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1855\LTE 3C-4C-5C\Rev1\CT1855 (1 3C-4C-5C) (MOD.) (Rev.1).etx

## Geometry data

### GLOSSARY

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

### Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	-0.7253	0.00	0.00	0
3	-6.0833	0.00	0.00	0
4	-6.25	0.00	0.00	0
5	-6.3333	0.00	-0.433	0
6	-6.5833	0.00	-0.866	0
7	-3.7376	0.00	-5.2176	0
8	-3.9043	0.00	-5.5062	0
9	-0.892	0.00	-0.2887	0
10	-6.6667	0.00	-0.7217	0
11	-3.179	0.00	-6.7625	0
12	-2.8457	0.00	-6.7625	0
13	-0.50	0.00	-11.4027	0
14	-0.4167	0.00	-11.547	0
17	0.7253	0.00	0.00	0
18	6.0833	0.00	0.00	0
19	6.25	0.00	0.00	0
20	6.3333	0.00	-0.433	0
21	6.5833	0.00	-0.866	0
22	3.7376	0.00	-5.2176	0
23	3.9043	0.00	-5.5062	0
24	0.892	0.00	-0.2887	0

25	6.6667	0.00	-0.7217	0
26	3.179	0.00	-6.7625	0
27	2.8457	0.00	-6.7625	0
28	0.50	0.00	-11.4027	0
29	0.4167	0.00	-11.547	0
32	0.00	0.00	-11.4027	0
51	1.1732	5.75	-10.6367	0
52	2.8191	5.75	-7.786	0
53	6.1107	5.75	-2.0847	0
60	2.8191	-2.25	-7.786	0
63	1.1732	-2.25	-10.6367	0
67	6.1107	-2.25	-2.0847	0
69	0.9427	0.00	-3.5453	0
70	0.00	0.00	-5.1781	0
71	-0.9427	0.00	-3.5453	0
72	-6.25	3.50	0.00	0
73	6.25	3.50	0.00	0
74	6.0833	3.50	0.00	0
75	6.5833	3.50	-0.866	0
76	0.4167	3.50	-11.547	0
77	6.6667	3.50	-0.7217	0
78	0.50	3.50	-11.4027	0
79	-0.50	3.50	-11.4027	0
80	-6.6667	3.50	-0.7217	0
81	-0.4167	3.50	-11.547	0
82	-6.5833	3.50	-0.866	0
83	-6.0833	3.50	0.00	0
85	4.4649	5.75	-4.9353	0
86	4.4649	-2.25	-4.9353	0
99	0.9427	-3.00	-3.5453	0
100	0.00	-3.00	-5.1781	0
101	-0.9427	-3.00	-3.5453	0
102	-2.3148	0.00	-2.7531	0
103	2.3148	0.00	-2.7531	0
104	0.00	0.00	-6.7625	0
137	4.2917	3.50	-4.8353	0
138	2.6459	3.50	-7.686	0
211	-1.45E-07	0.00	-4.0896	0
212	5.9375	3.50	-1.9847	0
213	1.00	3.50	-10.5367	0
214	2.6459	0.00	-7.686	0
215	1.00	0.00	-10.5367	0
216	4.2917	0.00	-4.8353	0
217	5.9375	0.00	-1.9847	0
218	2.8191	3.50	-7.786	0
219	1.1732	3.50	-10.6367	0
220	4.4649	3.50	-4.9353	0
221	6.1107	3.50	-2.0847	0
222	2.8191	0.00	-7.786	0
223	1.1732	0.00	-10.6367	0
224	4.4649	0.00	-4.9353	0
225	6.1107	0.00	-2.0847	0
274	-6.2565	5.75	-1.8321	0
275	-6.2565	-2.25	-1.8321	0
276	-6.0833	3.50	-1.7321	0
277	-6.0833	0.00	-1.7321	0
278	-6.2565	3.50	-1.8321	0
279	-6.2565	0.00	-1.8321	0
280	-4.6107	5.75	-4.6828	0
281	-4.6107	-2.25	-4.6828	0

282	-4.4375	3.50	-4.5828	0
283	-4.4375	0.00	-4.5828	0
284	-4.6107	3.50	-4.6828	0
285	-4.6107	0.00	-4.6828	0
286	-2.9649	5.75	-7.5334	0
287	-2.9649	-2.25	-7.5334	0
288	-2.7917	3.50	-7.4334	0
289	-2.7917	0.00	-7.4334	0
290	-2.9649	3.50	-7.5334	0
291	-2.9649	0.00	-7.5334	0
292	-1.319	5.75	-10.3841	0
293	-1.319	-2.25	-10.3841	0
294	-1.1458	3.50	-10.2841	0
295	-1.1458	0.00	-10.2841	0
296	-1.319	3.50	-10.3841	0
297	-1.319	0.00	-10.3841	0
298	5.0833	5.75	0.20	0
299	5.0833	-2.25	0.20	0
300	5.0833	3.50	0.00	0
301	5.0833	0.00	0.00	0
302	5.0833	3.50	0.20	0
303	5.0833	0.00	0.20	0
304	1.7916	5.75	0.20	0
305	1.7916	-2.25	0.20	0
306	1.7916	3.50	0.00	0
307	1.7916	0.00	0.00	0
308	1.7916	3.50	0.20	0
309	1.7916	0.00	0.20	0
310	-1.50	5.75	0.20	0
311	-1.50	-2.25	0.20	0
312	-1.50	3.50	0.00	0
313	-1.50	0.00	0.00	0
314	-1.50	3.50	0.20	0
315	-1.50	0.00	0.20	0
316	-4.7917	5.75	0.20	0
317	-4.7917	-2.25	0.20	0
318	-4.7917	3.50	0.00	0
319	-4.7917	0.00	0.00	0
320	-4.7917	3.50	0.20	0
321	-4.7917	0.00	0.20	0
322	1.73E-05	0.00	-5.9703	0
323	0.2049	0.00	-5.9154	0
324	0.2049	1.50	-5.9154	0
325	0.2049	-0.50	-5.9154	0
334	-1.6288	0.00	-3.1492	0
335	-1.6837	0.00	-3.3541	0
336	-1.6837	1.50	-3.3541	0
337	-1.6837	-0.50	-3.3541	0
338	1.6288	0.00	-3.1492	0
339	1.4788	0.00	-2.9992	0
340	1.4788	1.50	-2.9992	0
341	1.4788	-0.50	-2.9992	0
342	5.5261	3.50	-2.6973	0
345	1.5573	3.50	-9.5714	0
350	-1.5573	3.50	-9.5715	0
351	-5.5261	3.50	-2.6973	0
352	-3.9688	3.50	0.00	0
353	3.9688	3.50	0.00	0

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1
101	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	5	71		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	5	9		L 2X2X1_4	A36	0.00	0.00	0.00
3	5	7		L 2X2X1_4	A36	0.00	0.00	0.00
4	8	2		C 3x2x1/4	A36	0.00	0.00	0.00
5	20	69		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
6	20	24		L 2X2X1_4	A36	0.00	0.00	0.00
7	20	22		L 2X2X1_4	A36	0.00	0.00	0.00
8	23	17		C 3x2x1/4	A36	0.00	0.00	0.00
9	4	19		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	10	14		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
11	29	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
12	70	32		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
13	11	26		C 3x2x1/4	A36	0.00	0.00	0.00
14	27	32		L 2X2X1_4	A36	0.00	0.00	0.00
15	12	32		L 2X2X1_4	A36	0.00	0.00	0.00
16	53	67		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
17	52	60		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
18	51	63		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
25	6	3		PL 6X1/2	A36	0.00	0.00	0.00
26	18	21		PL 6X1/2	A36	0.00	0.00	0.00
27	28	13		PL 6X1/2	A36	0.00	0.00	0.00
28	72	73		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	74	75		L 3X3X1_4	A36	0.00	0.00	0.00
30	76	77		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
31	78	79		L 3X3X1_4	A36	0.00	0.00	0.00
32	80	81		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
33	82	83		L 3X3X1_4	A36	0.00	0.00	0.00
34	85	86		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
40	101	5		T2L 3X3X1_4	A36	0.00	0.00	0.00
41	99	20		T2L 3X3X1_4	A36	0.00	0.00	0.00
42	100	32		T2L 3X3X1_4	A36	0.00	0.00	0.00
75	274	275		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
78	280	281		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
81	286	287		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
84	292	293		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	298	299		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	304	305		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
93	310	311		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
96	316	317		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
100	324	325		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
106	336	337		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
108	340	341		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
109	352	351		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
110	353	342		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

---

**Orientation of local axes**

---

Member	Rotation [Deg]	Axes23	NX	NY	NZ
2	270.00	0	0.00	0.00	0.00
7	270.00	0	0.00	0.00	0.00
8	180.00	0	0.00	0.00	0.00
13	180.00	0	0.00	0.00	0.00
14	270.00	0	0.00	0.00	0.00
16	0.00	2	-0.50	0.00	-0.866
17	0.00	2	-0.50	0.00	-0.866
18	0.00	2	-0.50	0.00	-0.866
29	180.00	0	0.00	0.00	0.00
31	180.00	0	0.00	0.00	0.00
33	180.00	0	0.00	0.00	0.00
34	0.00	2	-0.50	0.00	-0.866
75	0.00	2	-0.50	0.00	0.866
78	0.00	2	-0.50	0.00	0.866
81	0.00	2	-0.50	0.00	0.866
84	0.00	2	-0.50	0.00	0.866
100	0.00	2	0.50	0.00	0.866
106	0.00	2	0.50	0.00	-0.866

---

**PROJECT INFORMATION**

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE MONOPOLE:

- NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4478 B5 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4426 B66 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- PROPOSED AT&T LOW BAND COMBINERS (DBCT108F1V92-1) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (1) 6630.
- ADD 5216.
- ADD 2ND XMU.

ITEMS TO REMAIN:

- (12) ANTENNAS, (9) RRU'S, (3) A2 MODULES, (8) DC POWER & (2) FIBER.

SITE ADDRESS: LEDGES ROAD  
RIDGEFIELD, CT 06877

LATITUDE: 41.330308 N, 41° 19' 49.11" N

LONGITUDE: 73.516819 W, 73° 31' 00.55" W

TYPE OF SITE: MONOPOLE/ INDOOR EQUIPMENT

STRUCTURE HEIGHT: 150'-0"±

RAD CENTER: 146'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT1855

SITE NAME: RIDGEFIELD

FA CODE: 10128094

PACE ID: MRCTB031116, MRCTB031888, MRCTB031454

PROJECT: LTE 3C\_4C\_5C 2018 UPGRADE

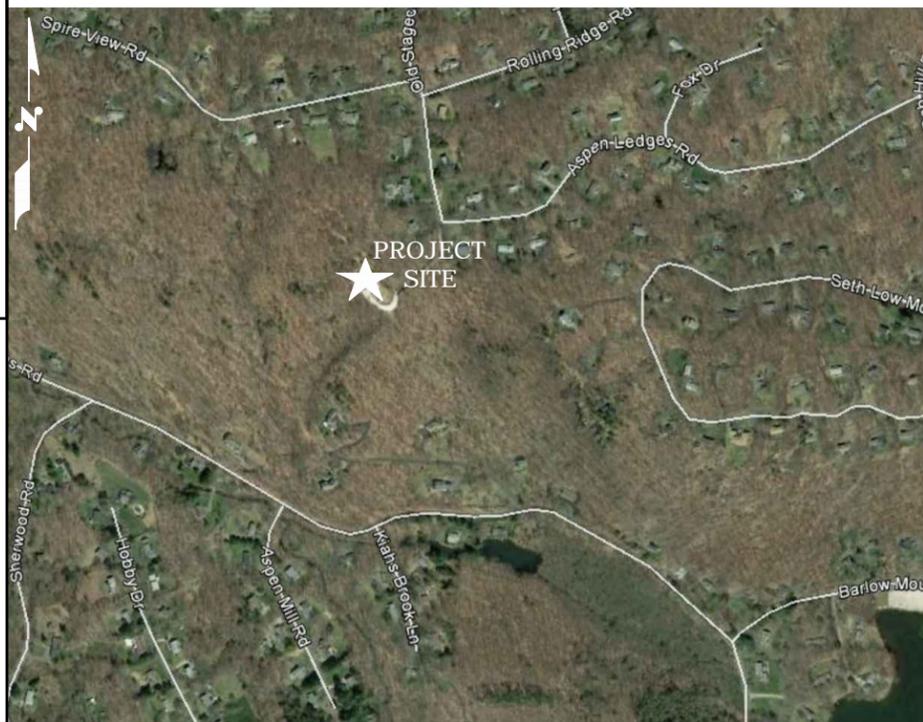
**DRAWING INDEX**

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	COMPOUND & EQUIPMENT PLANS	0
A-2	ANTENNA LAYOUTS & ELEVATION	0
A-3	DETAILS	0
SN-1	STRUCTURAL NOTES	0
S-1	STRUCTURAL DETAILS	0
RF-1	RF PLUMBING DIAGRAM	0
G-1	GROUNDING DETAILS	0

**VICINITY MAP**

**DIRECTIONS TO SITE:**

DEPART ENTERPRISE DR TOWARD CAPITOL BLVD 0.1 MI. TURN LEFT ONTO CAPITOL BLVD 0.2 MI. TURN LEFT ONTO WEST ST 0.3 MI. TAKE RAMP LEFT FOR I-91 S 9.1 MI. AT EXIT 18, TAKE RAMP RIGHT FOR I-691 WEST TOWARD WATERBURY / MERIDEN 8.0 MI. AT EXIT 1, TAKE RAMP LEFT FOR I-84 WEST TOWARD DANBURY / WATERBURY 37.0 MI. BEAR LEFT ONTO US-7 S 3.9 MI. TURN RIGHT ONTO BENNETTS FARM RD 1.5 MI. TURN RIGHT TO STAY ON BENNETTS FARM RD 1.2 MI. TURN LEFT ONTO KNOLLWOOD DR 0.3 MI. TURN RIGHT ONTO BOB HILL RD 0.4 MI. BEAR RIGHT ONTO ASPEN LEDGES RD 0.2 MI. ARRIVE AT ASPEN LEDGES RD



**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**



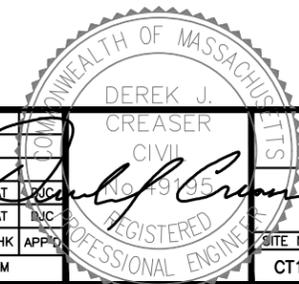
CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455

OR CALL 811

**UNDERGROUND SERVICE ALERT**



**HGD 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: CT1855  
SITE NAME: RIDGEFIELD  
LEDGES ROAD  
RIDGEFIELD, CT 06877  
FAIRFIELD COUNTY

**at&t**  
550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	AM
A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM

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

SHEET NO.	TITLE	DRAWING NUMBER	REV.
T-1	TITLE SHEET (LTE 3C_4C_5C)	T-1	0

**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR - CENTERLINE  
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER - AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:  
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

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

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

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

**ABBREVIATIONS**

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

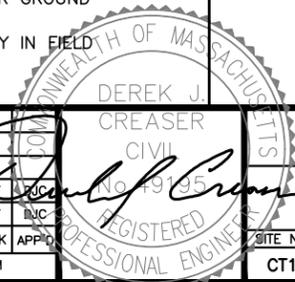
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

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

SITE NUMBER: CT1855  
 SITE NAME: RIDGEFIELD  
 LEDGES ROAD  
 RIDGEFIELD, CT 06877  
 FAIRFIELD COUNTY

550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	HC
A	08/28/18	ISSUED FOR REVIEW	AM	AT	HC
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM		

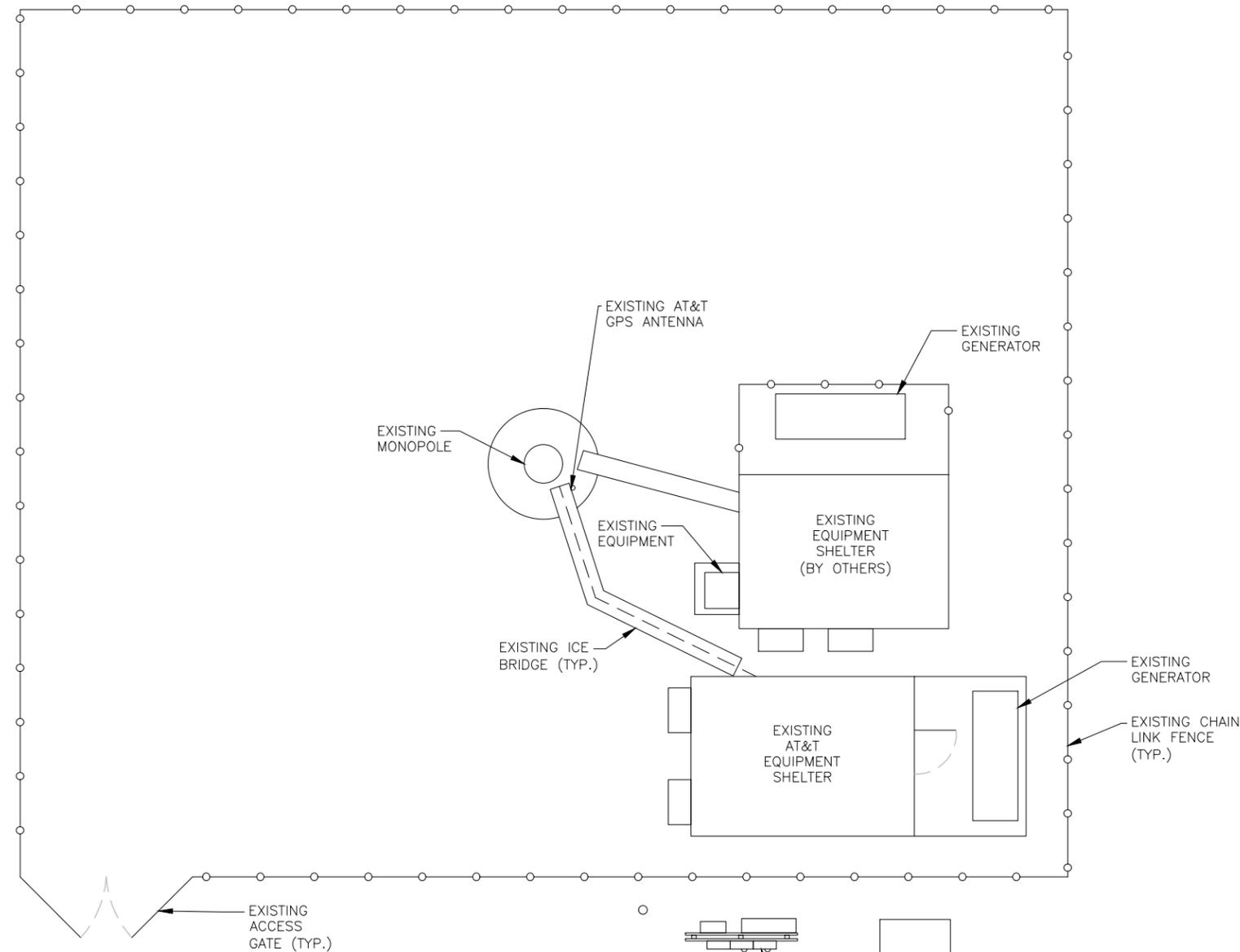


AT&T		
GENERAL NOTES (LTE 3C_4C_5C)		
SITE NUMBER	DRAWING NUMBER	REV
CT1855	GN-1	0

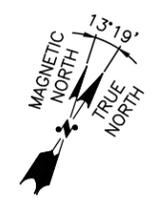
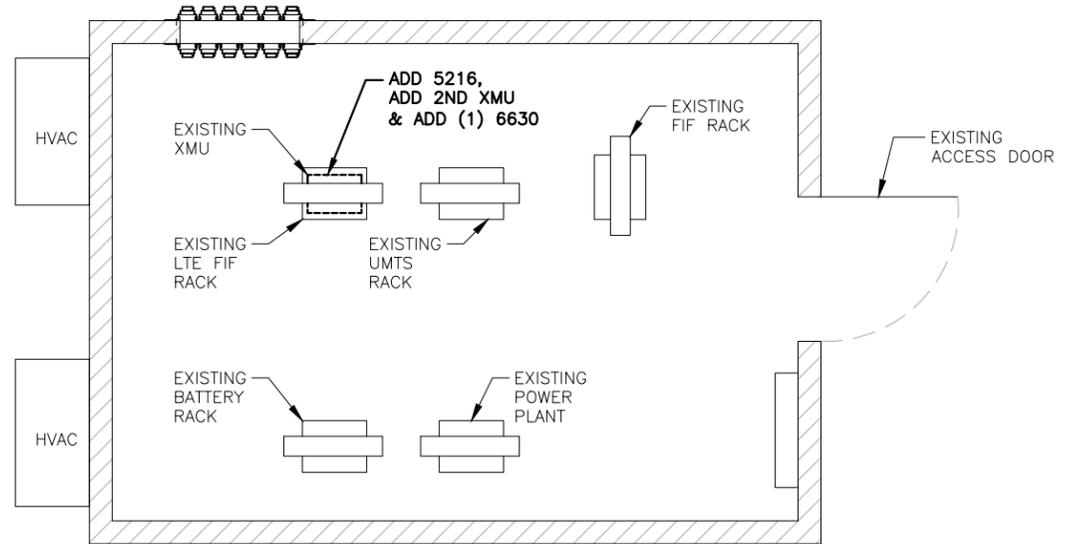
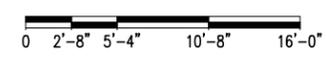
**NOTE:**  
 AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: AUGUST 24, 2018 (REV1)

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

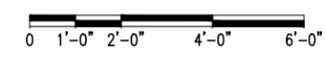
**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



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



**EQUIPMENT PLAN**  
 22x34 SCALE: 1/2"=1'-0"  
 11x17 SCALE: 1/4"=1'-0"  
 2 A-1



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

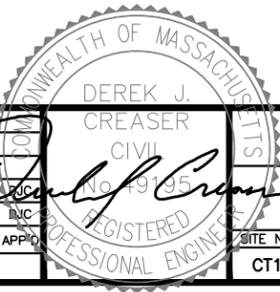
**CENTERLINE COMMUNICATIONS**  
 750 WEST CENTER STREET., SUITE #301  
 WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1855  
 SITE NAME: RIDGEFIELD  
 LEDGES ROAD  
 RIDGEFIELD, CT 06877  
 FAIRFIELD COUNTY

**at&t**  
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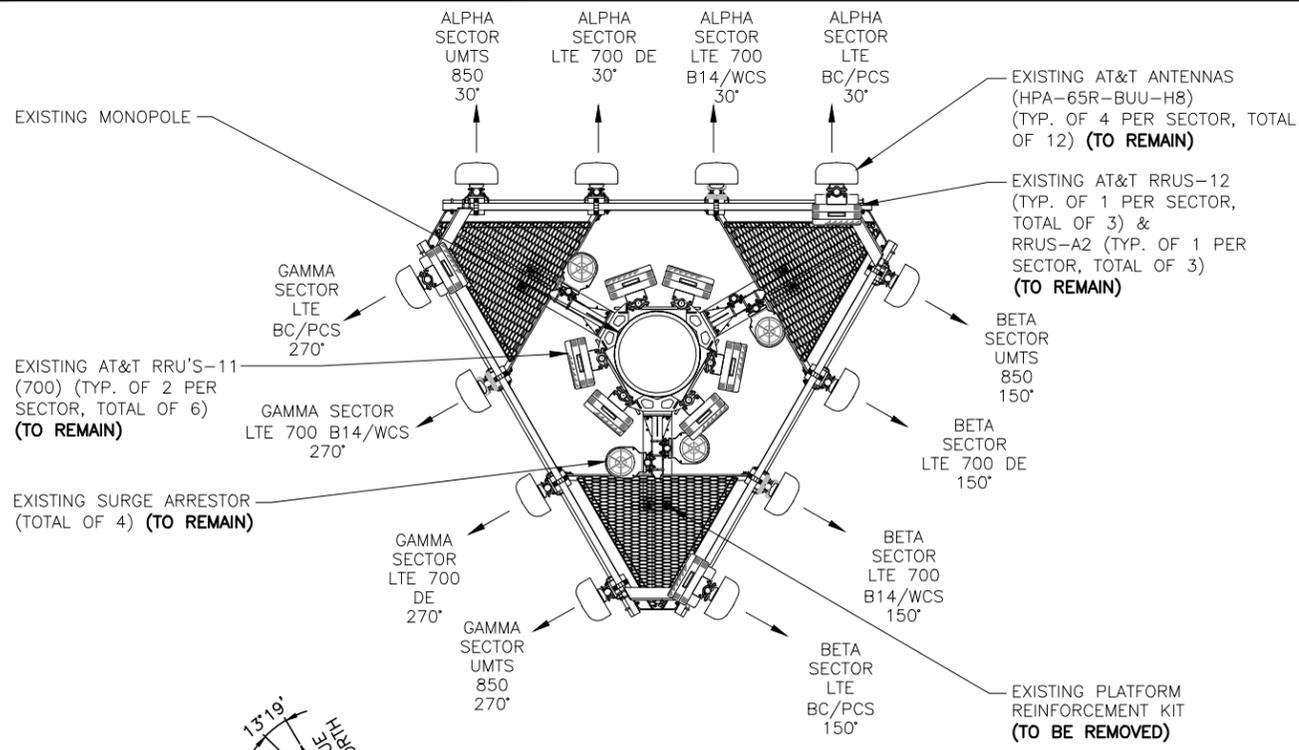
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A	08/28/18	ISSUED FOR REVIEW	AM	AT	

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

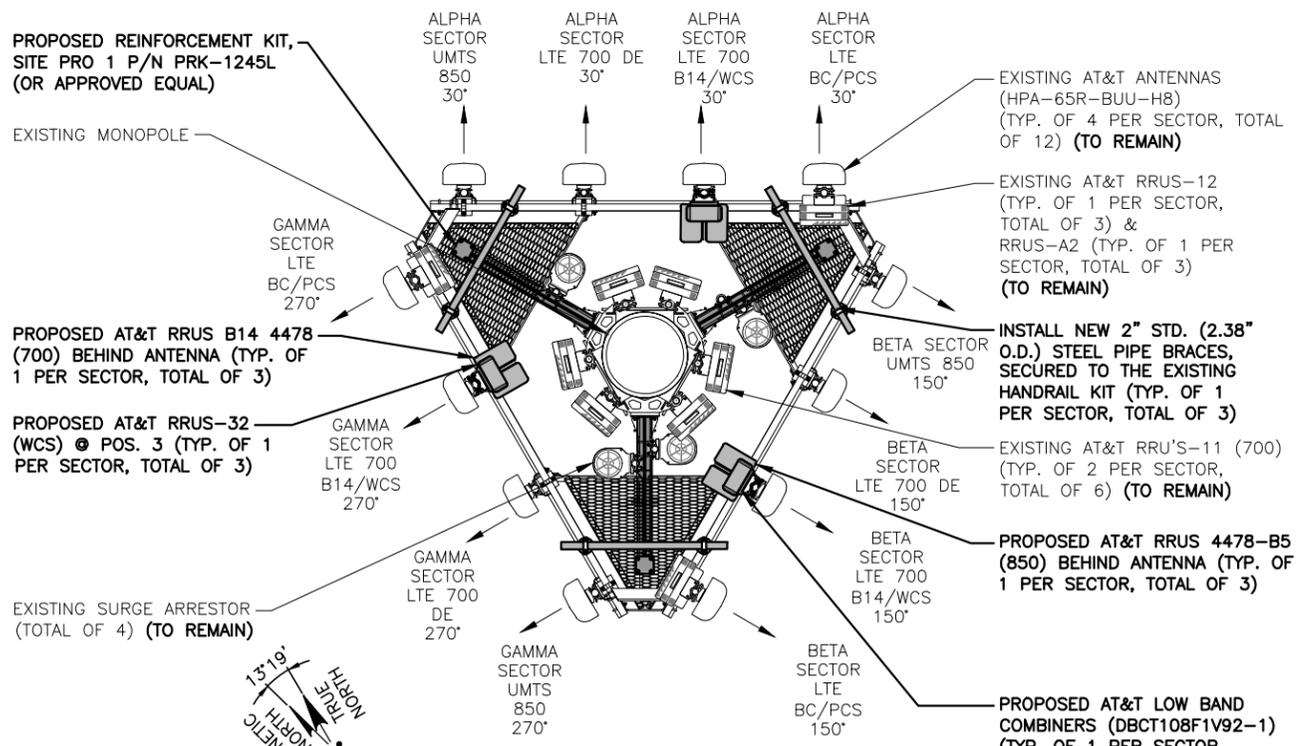


**AT&T**  
 COMPOUND & EQUIPMENT PLAN  
 (LTE 3C\_4C\_5C)  
 SITE NUMBER: CT1855    DRAWING NUMBER: A-1    REV: 0

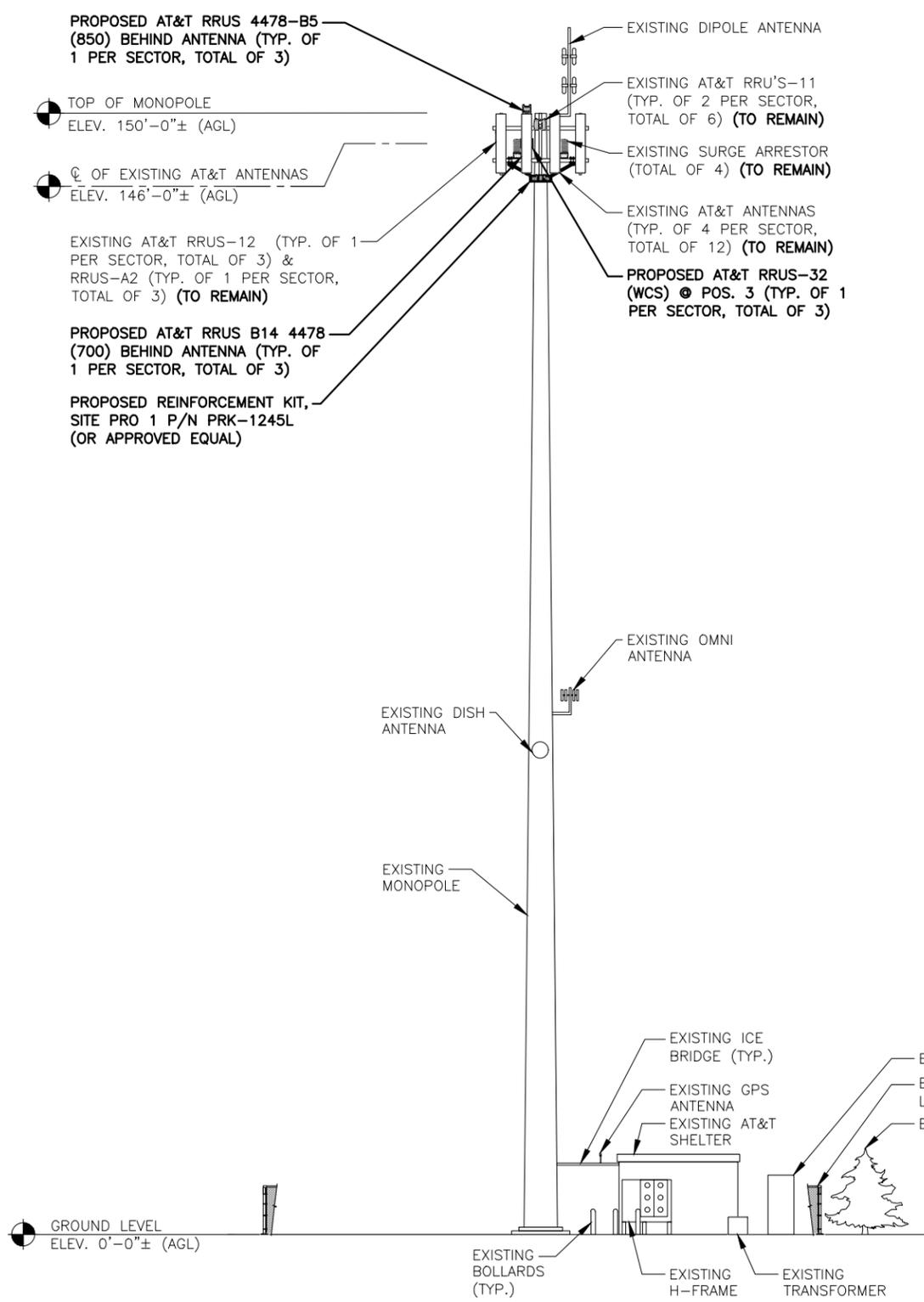
**NOTE:**  
 AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:  
 HUDSON DESIGN GROUP, LLC.  
 DATED: AUGUST 24, 2018 (REV1)



**EXISTING ANTENNA LAYOUT** 1  
 SCALE: N.T.S. A-2



**PROPOSED ANTENNA LAYOUT** 2  
 SCALE: N.T.S. A-2



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

**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.

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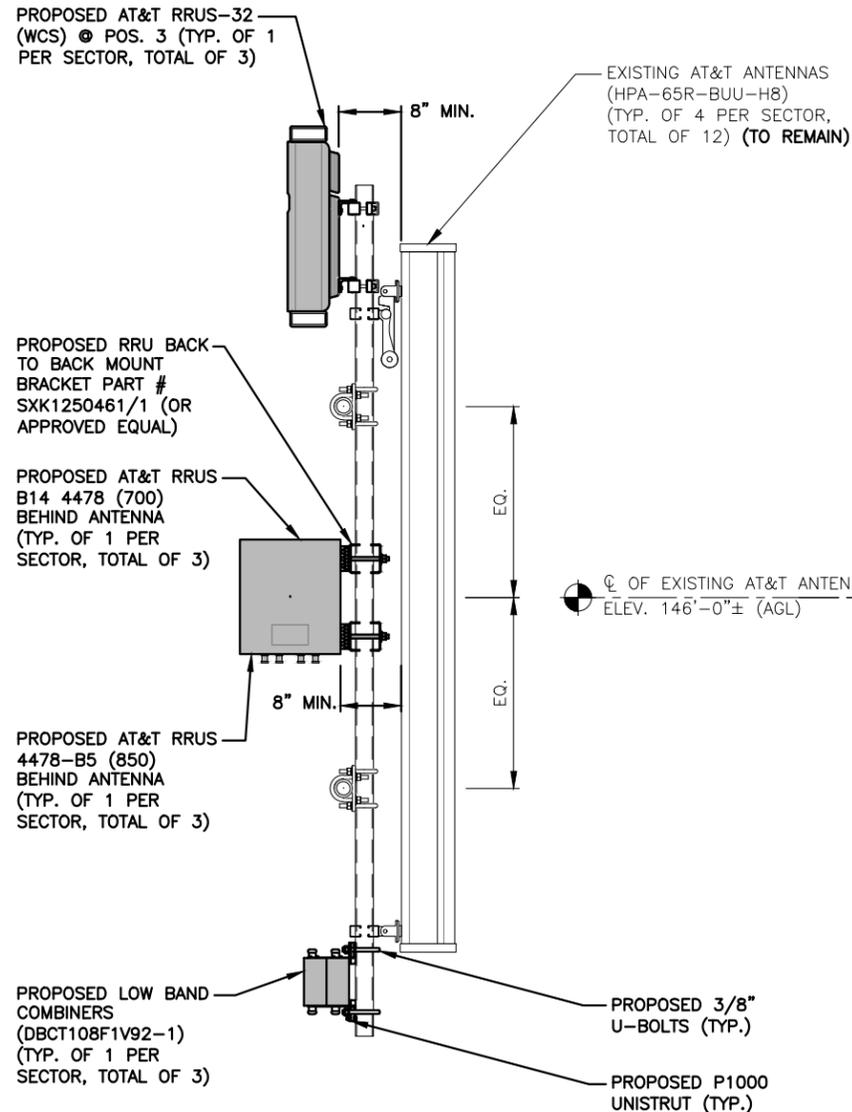
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A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM		

**AT&T**  
 ANTENNA LAYOUT & ELEVATION  
 (LTE 3C\_4C\_5C)  
 SITE NUMBER: CT1855  
 DRAWING NUMBER: A-2  
 REV: 0

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

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

ANTENNA SCHEDULE											
SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Q HEIGHT	AZIMUTH	TMA/DIPLEXER	RRU	SIZE ( INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	30°	-	(E) (1) RRUS-11 (850)	-	-	-
A2	EXISTING	LTE 700 DE	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	30°	-	-	-	-	-
A3	EXISTING	LTE 700 B14/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	30°	(1) DBC0061F1V51-2	(P) B14 4478 (700) (P) 4478 B5 (850) (P) RRUS-32 (WCS)	15x13.2x7.4 15x13.2x7.4 27.2x12.1x7.0	-	(E) (1) RAYCAP DC6-48-60-18-8C
A4	EXISTING	LTE 700 BC/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	30°	-	(E) (1) RRUS-11 (700) (E) RRUS-12 + RRUS A2 (PCS)	-	-	-
B1	EXISTING	UMTS 850	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	150°	-	(E) (1) RRUS-11 (850)	-	-	-
B2	EXISTING	LTE 700 DE	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	150°	-	-	-	-	-
B3	EXISTING	LTE 700 B14/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	150°	(1) DBC0061F1V51-2	(P) B14 4478 (700) (P) 4478 B5 (850) (P) RRUS-32 (WCS)	15x13.2x7.4 15x13.2x7.4 27.2x12.1x7.0	-	(E) (2) RAYCAP DC6-48-60-18-8C
B4	EXISTING	LTE 700 BC/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	150°	-	(E) (1) RRUS-11 (700) (E) RRUS-12 + RRUS A2 (PCS)	-	-	-
C1	EXISTING	UMTS 850	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	270°	-	(E) (1) RRUS-11 (850)	-	-	-
C2	EXISTING	LTE 700 DE	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	270°	-	-	-	-	-
C3	EXISTING	LTE 700 B14/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	270°	(1) DBC0061F1V51-2	(P) B14 4478 (700) (P) 4478 B5 (850) (P) RRUS-32 (WCS)	15x13.2x7.4 15x13.2x7.4 27.2x12.1x7.0	-	(E) (1) RAYCAP DC6-48-60-18-8C
C4	EXISTING	LTE 700 BC/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±146'	270°	-	(E) (1) RRUS-11 (700) (E) RRUS-12 + RRUS A2 (PCS)	-	-	-



PROPOSED RRHS MOUNTING DETAIL

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

1  
A-3



FINAL ANTENNA SCHEDULE

SCALE: N.T.S

3  
A-3

RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11 (700)	19.7"	17.0"	7.2"
3(E)	RRUS-11 (850)	19.7"	17.0"	7.2"
3(E)	RRUS 12 + RRUS A2	20.4" 16.4"	18.5" 15.2"	7.5" 3.4"
3(P)	RRUS-32 (WCS)	27.2"	12.1"	7.0"
3(P)	B14 4478 (700)	15.0"	13.2"	7.4"
3(P)	4478 B5 (850)	15.0"	13.2"	7.4"

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

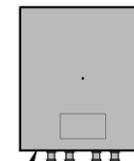
NOTE:  
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

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

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRU DETAIL

SCALE: N.T.S



2  
A-3

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 24, 2018 (REV1)



45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
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750 WEST CENTER STREET., SUITE #301  
WEST BRIDGEWATER, MA 02379

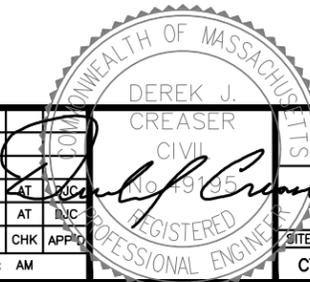
SITE NUMBER: CT1855  
SITE NAME: RIDGEFIELD

LEDGES ROAD  
RIDGEFIELD, CT 06877  
FAIRFIELD COUNTY



550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

REVISIONS				SCALE: AS SHOWN		DESIGNED BY: AT		DRAWN BY: AM		SITE NUMBER: CT1855		DRAWING NUMBER: A-3		REV: 0	
NO.	DATE	REVISIONS	BY	CHK	APP'D										
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	AM										
A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM										



AT&T

DETAILS  
(LTE 3C\_4C\_5C)

**STRUCTURAL NOTES:**

- 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.
- 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.
- 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".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- 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.
- 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.
- 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.
- 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.
- 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 LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- 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 D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

**SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):**

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

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

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

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

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS <sup>1</sup>
N/A	MATERIAL SPECIFICATIONS REPORT <sup>2</sup>
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS <sup>3</sup>
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 <sup>4</sup>
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION <sup>5</sup>
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 <sup>6</sup>
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

**NOTES:**

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- 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.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

**NOTES:**

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4" A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- 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.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
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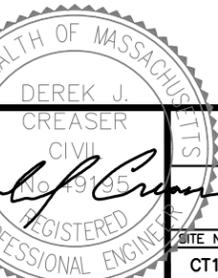
750 WEST CENTER STREET., SUITE #301  
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1855  
SITE NAME: RIDGEFIELD

LEDGES ROAD  
RIDGEFIELD, CT 06877  
FAIRFIELD COUNTY

550 COCHITUATE ROAD  
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	AM
A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM		



AT&T

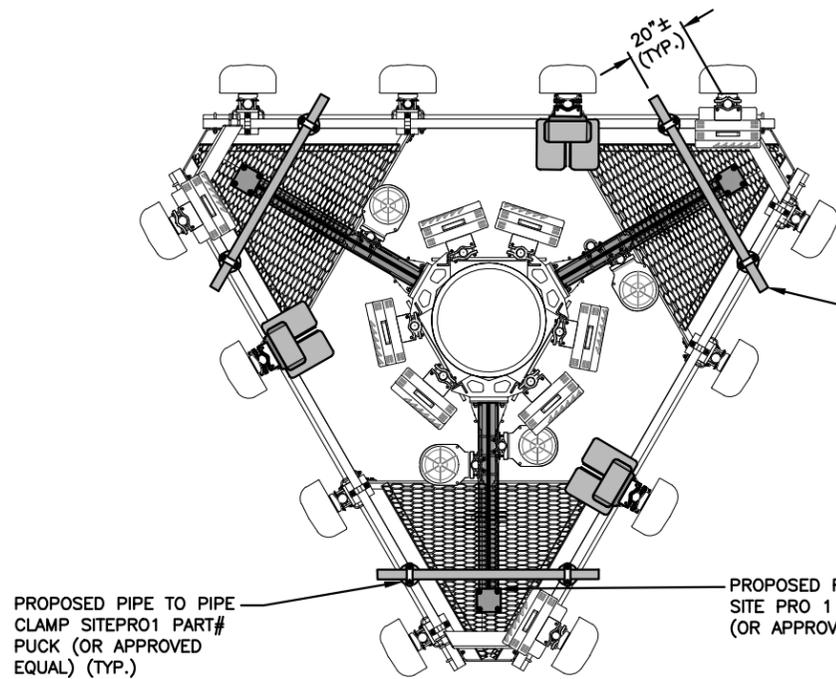
STRUCTURAL NOTES  
(LTE 3C\_4C\_5C)

SITE NUMBER	DRAWING NUMBER	REV
CT1855	SN-1	0

**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 24, 2018 (REV1)

**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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

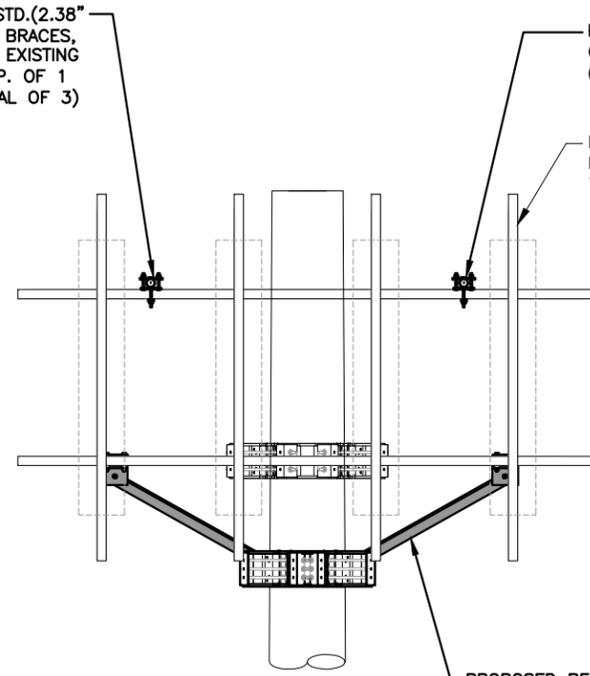


INSTALL NEW 2" STD.(2.38" O.D.) STEEL PIPE BRACES, SECURED TO THE EXISTING HANDRAIL KIT (TYP. OF 1 PER SECTOR, TOTAL OF 3)

INSTALL NEW 2" STD.(2.38" O.D.) STEEL PIPE BRACES, SECURED TO THE EXISTING HANDRAIL KIT (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED REINFORCEMENT KIT, SITE PRO 1 P/N PRK-1245L (OR APPROVED EQUAL)

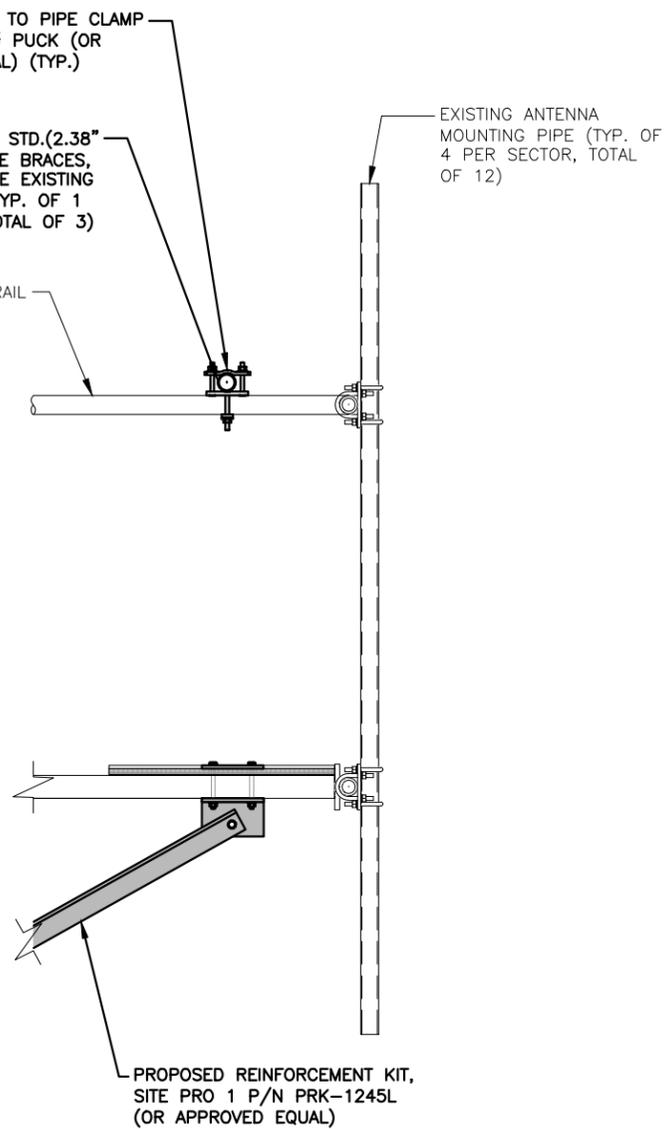
PROPOSED PIPE TO PIPE CLAMP SITEPRO1 PART# PUCK (OR APPROVED EQUAL) (TYP.)



PROPOSED PIPE TO PIPE CLAMP SITEPRO1 PART# PUCK (OR APPROVED EQUAL) (TYP.)

EXISTING ANTENNA MOUNTING PIPE (TYP. OF 4 PER SECTOR, TOTAL OF 12)

PROPOSED REINFORCEMENT KIT, SITE PRO 1 P/N PRK-1245L (OR APPROVED EQUAL)



PROPOSED PIPE TO PIPE CLAMP SITEPRO1 PART# PUCK (OR APPROVED EQUAL) (TYP.)

INSTALL NEW 2" STD.(2.38" O.D.) STEEL PIPE BRACES, SECURED TO THE EXISTING HANDRAIL KIT (TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING HANDRAIL KIT

EXISTING ANTENNA MOUNTING PIPE (TYP. OF 4 PER SECTOR, TOTAL OF 12)

PROPOSED REINFORCEMENT KIT, SITE PRO 1 P/N PRK-1245L (OR APPROVED EQUAL)



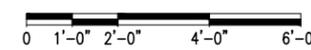
**PROPOSED REINFORCEMENT PLAN**  
 22x34 SCALE: 1/2"=1'-0"  
 11x17 SCALE: 1/4"=1'-0"

1  
S-1



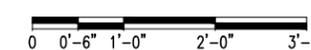
**PROPOSED REINFORCEMENT FACE PLAN**  
 22x34 SCALE: 1/2"=1'-0"  
 11x17 SCALE: 1/4"=1'-0"

2  
S-1



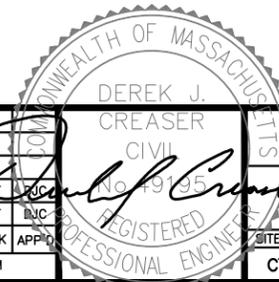
**PROPOSED MOUNT MODIFICATIONS DETAIL**  
 22x34 SCALE: 1"=1'-0"  
 11x17 SCALE: 1/2"=1'-0"

3  
S-1

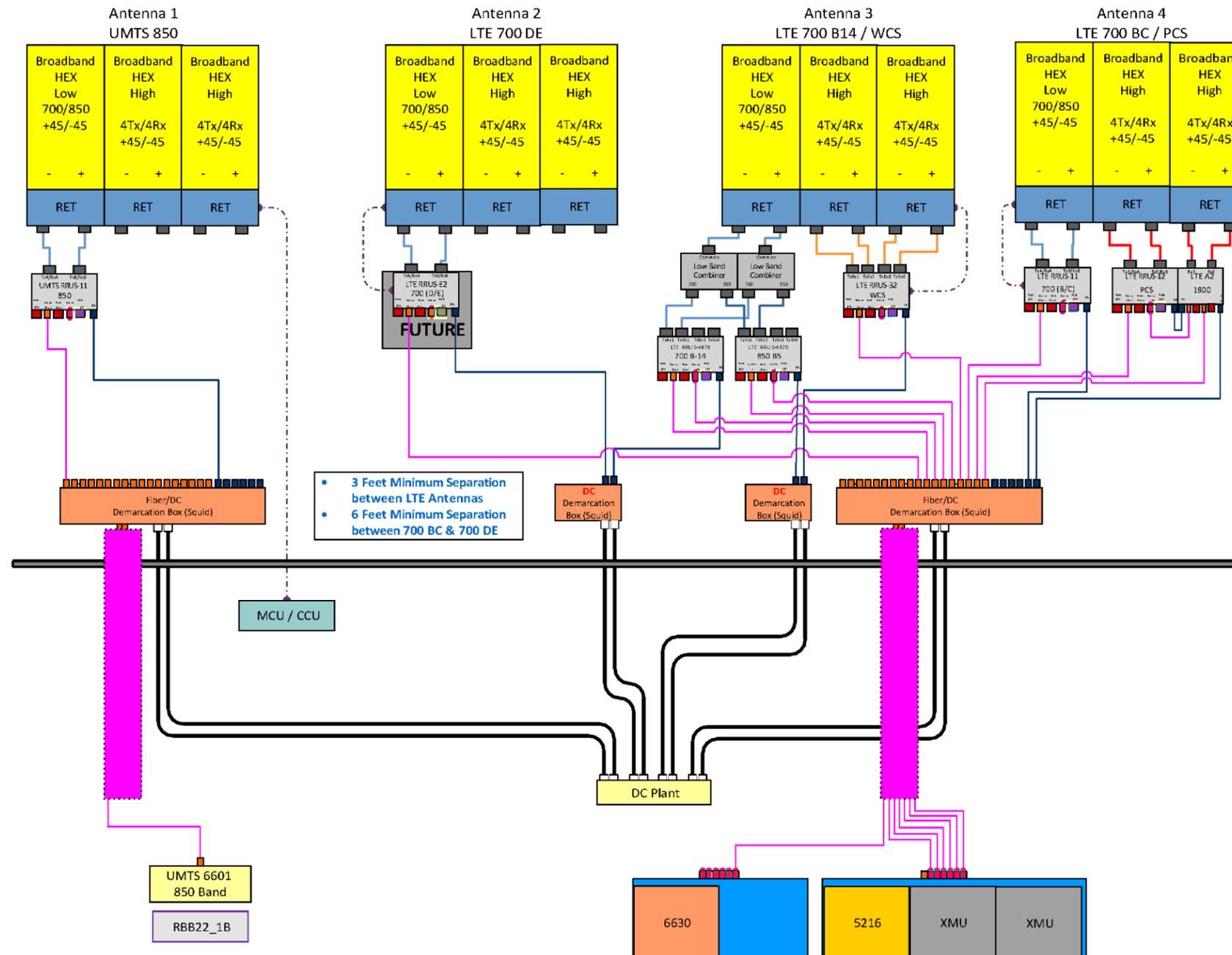


NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	AM
A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM

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



SITE NUMBER	DRAWING NUMBER	REV
CT1855	S-1	0



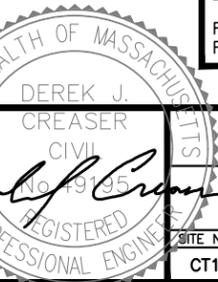
**RF PLUMBING DIAGRAM** 1  
SCALE: N.T.S. RF-1

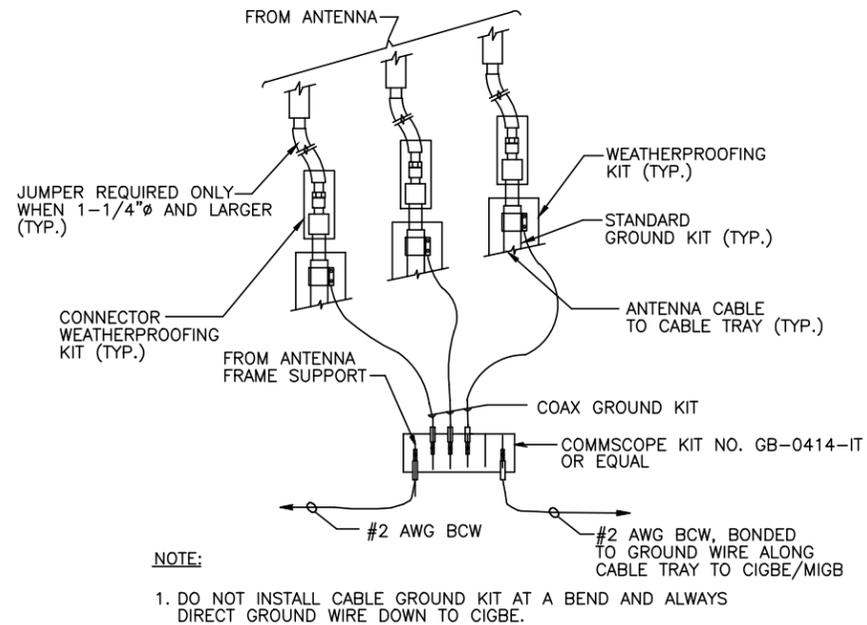
**NOTE:**  
1. CONTRACTOR TO CONFIRM ALL PARTS.  
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

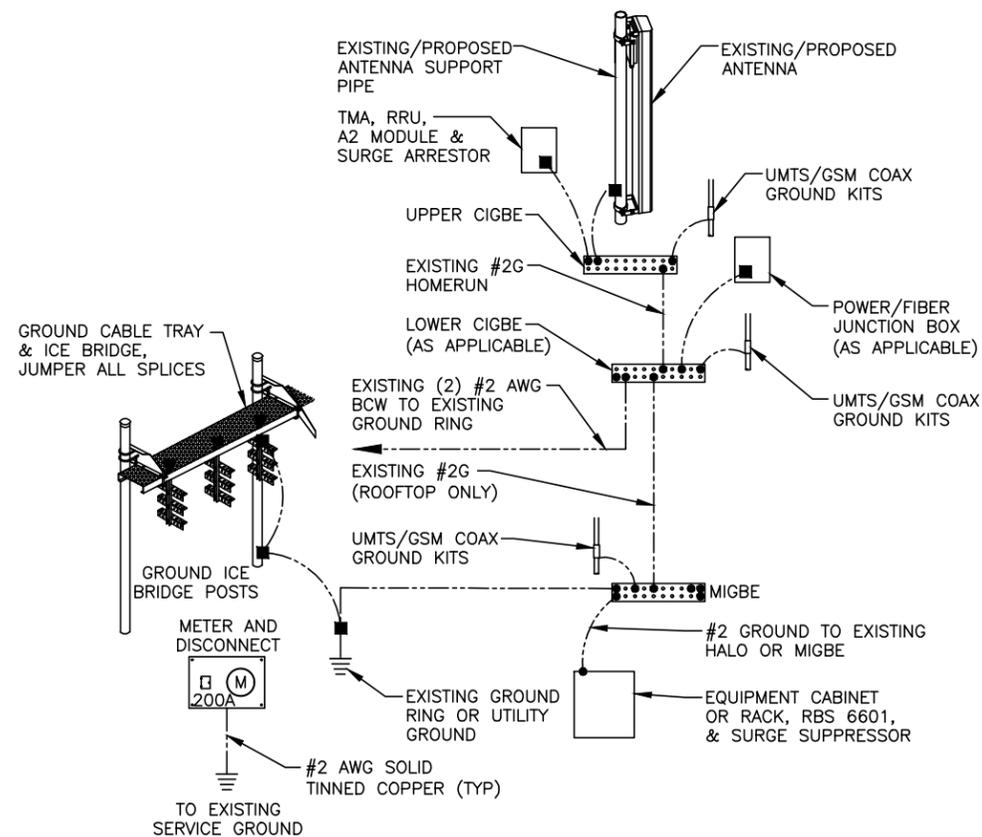
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	AM
A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM

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

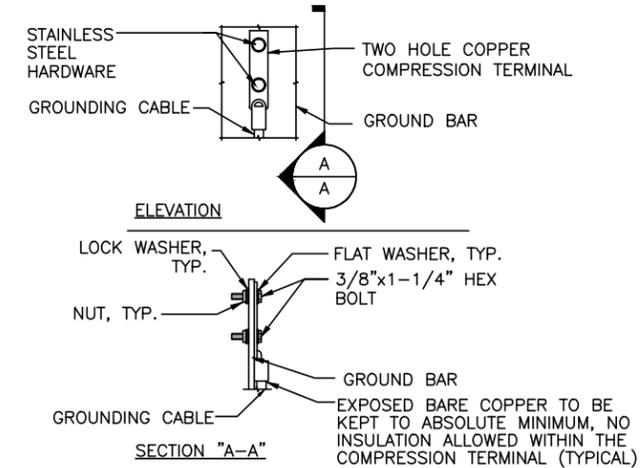




**GROUND WIRE TO GROUND BAR CONNECTION DETAIL** 1  
SCALE: N.T.S. G-1



**GROUNDING RISER DIAGRAM** 2  
SCALE: N.T.S. G-1



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

**TYPICAL GROUND BAR CONNECTION DETAIL** 3  
SCALE: N.T.S. G-1

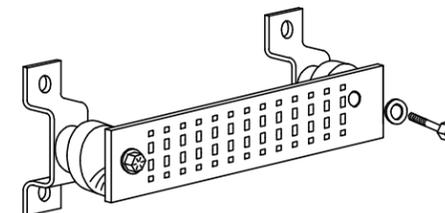
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

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

**SECTION "A" - SURGE ABSORBERS**

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



**GROUND BAR - DETAIL** 4  
SCALE: N.T.S. G-1

				AT&T	
				GROUNDING DETAILS (LTE 3C_4C_5C)	
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	10/15/18	ISSUED FOR PERMITTING	HC	AT	AM
A	08/28/18	ISSUED FOR REVIEW	AM	AT	AM
SCALE: AS SHOWN			DESIGNED BY: AT	DRAWN BY: AM	
SITE NUMBER			DRAWING NUMBER		REV
CT1855			G-1		0

