May 15, 2017

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

Re:	**Notice of Exempt Modification – Antenna Swap**
Property Address:	**324 Montevideo Rd Avon, CT 06001 (the "Property")**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 70-feet on an existing 59 - foot lattice tower, owned by the Talcott Mountain Science Center for Student Involvement Inc. at 324 Montevideo Rd Avon, CT 06001 and the tower is located on the Bloomfield, CT town line. AT&T now intends to replace (3) SBNH-1D6565C panel antennas with three (3) TPA66R-LUUUU-H8 panel antennas on the existing mounts on position four, all sectors. The other six (6) will remain as is (for a total of (9) panel antennas), at the 60-foot level. AT&T also intends to install (3) RRUS-32 B2's on the existing antenna masts mounted on unistrut.

This facility was approved by the Connecticut Siting Council in Docket# 107 on July 6, 1989 for a certificate of Environmental Compatibility and Public Need for the construction, maintenance, And operation of telecommunications antennas, associated equipment, and building to provide Domestic Public Cellular radio Telecommunication service in the Hartford, Connecticut New England Metropolitan area. This approval included the following original conditions, including the total facility height or mounting restrictions. This modification complies with the aforementioned conditions.

1. The cellular antennas shall be located on the existing tower no higher than necessary to provide the proposed service, and in no event shall they be higher than the 59-foot level.
2. The facility shall be constructed in accordance with the State of Connecticut Basic Building Code.

3. The certificate holder shall prepare a Development and Management Plan (D &M) for this site in compliance with Sections 16-50j-75 of the Regulations of State Agencies. The D&M plan shall include detailed plans for evocation of the proposed building within the leased portion of the parcel to reduce the amount of existing vegetation to be removed, erosion and sediment control, and landscaping at the proposed site. The eastern red cedars shall not be removed without consultation with the Talcott Mountain Science Center for Student Involvement, Inc.
4. The certificate holder shall erect a fence, if requested to do so, by the Talcott Mountain Science Center for Student Involvement, Inc. and construct a crushed stone access way to the building.
5. The certificate holder shall comply with any future radio frequency (RF) standard, promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.
6. Unless otherwise approved by the Council, this decision and Order shall b void if all construction authorized herein is not completed within three years of the issuance of this decision and Order, or within three years after this Decision and Order, or within three years after the completion of any appeal to this Decision and Order.

The following is a list of subsequent decisions:

TS-CING-004-130627– New Cingular Wireless PCS, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 324 Montevideo Road, Avon, Connecticut.

EM-AT&T-004-160128 - AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 324 Montevideo Road, Avon, Connecticut. Incomplete Letter. Extension for Incomplete Information. Revised Structural and Drawings. Decision.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5l0j-72(b)(2). In accordance with R.C.S.A., a copy of this letter is being sent to Brandon Johnson, Town Manager of Avon and John McCahill, CZEO, Town of Avon, 60 West Main St, Avon, CT 06001. A copy of this letter is also being sent to Talcott Mountain Science Center for Student Involvement Inc. at 324 Montevideo Rd Avon, CT 06001.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 70-foot level of the 59-foot lattice tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

David Barbagallo

Enclosures
CC w/enclosures:
Brandon Johnson, Town Manager Town of Avon
John McCahill, CZEO Town of Avon
Tower & Property Owner -Talcott Mountain Science Center for Student Involvement Inc.

An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for cellular telephone antennas and associated equipment in the Town of Bloomfield, Connecticut.	:	Docket No. 107 Connecticut Siting Council 6 July 1989

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular telephone facility at the proposed Bloomfield site, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS Hartford, Inc., for the construction, operation, and maintenance of a cellular telephone site and associated equipment at the proposed Bloomfield site in Bloomfield, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The cellular antennas shall be located on the existing tower no higher than necessary to provide the proposed service, and in no event shall they be attached higher than the 59-foot level of the tower.

2. The facility shall be constructed in accordance with the State of Connecticut Basic Building Code.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall include detailed plans for relocation of the proposed building within the leased portion of the parcel to reduce the amount of existing vegetation to be removed, erosion and sediment control, and landscaping at the proposed site. The eastern red cedars shall not be removed without consultation with the Talcott Mountain Science Center for Student Involvement, Inc.

4. The Certificate Holder shall erect a fence, if requested to do so by the Talcott Mountain Science Center for Student Involvement, Inc., and construct a crushed stone accessway to the building.

5. The Certificate Holder shall comply with any future radio frequency (RF) standard, promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

6. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years after the completion of any appeal to this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below. A notice of issuance shall be published in the Hartford Courant.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with section 16-50j-17 of the Regulations of State Agencies.

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 107 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 6th day of July, 1989.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Absent
Commissioner Peter Boucher Designee: Robert A. Pulito	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Mortimer A. Gelston	Yes
Harry E. Covey	Yes
Daniel P. Lynch, Jr.	Yes
Paulann H. Sheets	Yes
William H. Smith	Absent
Colin C. Tait	Yes

324 Montevideo

Search Results

Parcel Details

324 MONTEVIDEO ROAD

NO IMAGE AVAILABLE

TALCOTT MTN SCIENCE CTR FOR

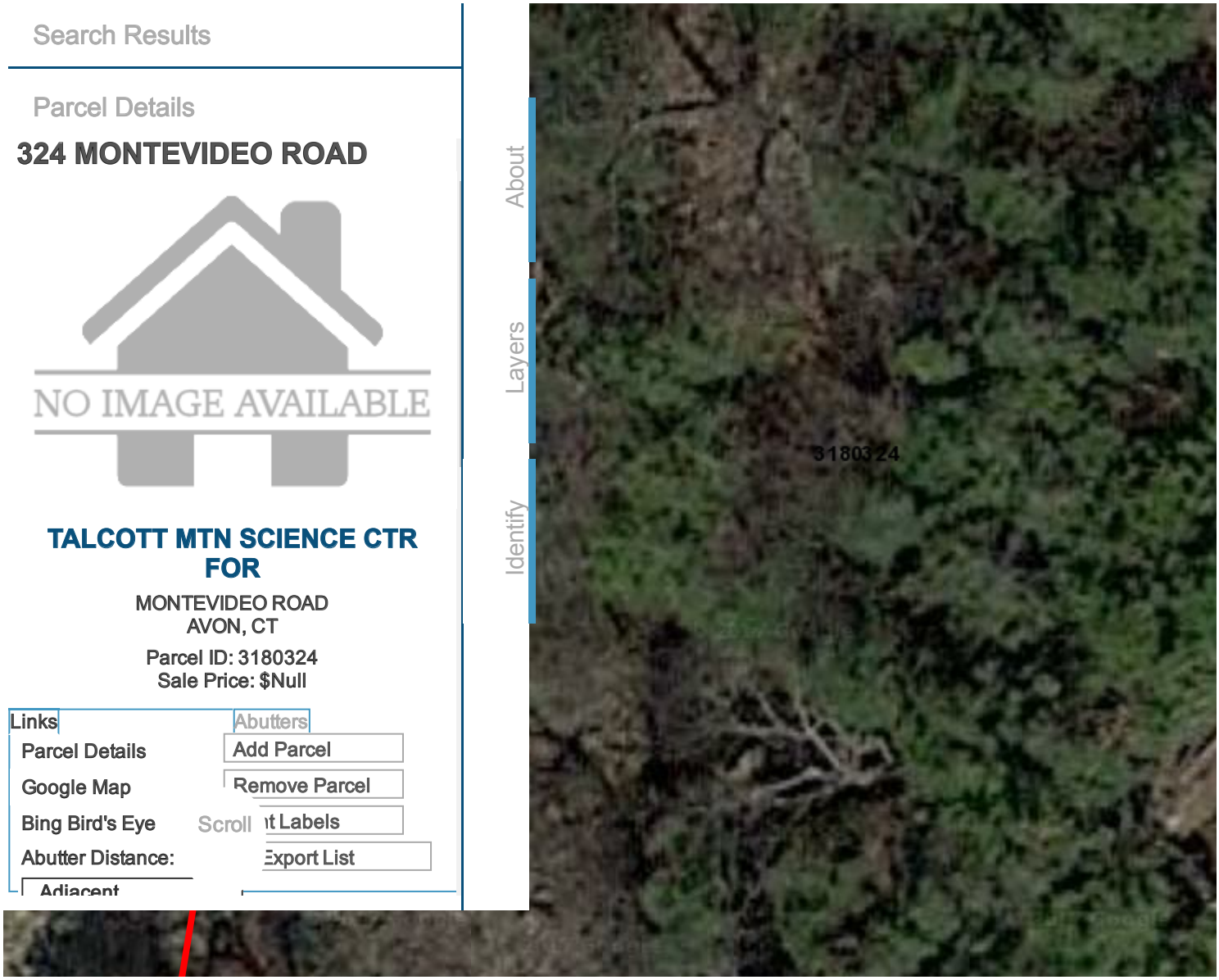
MONTEVIDEO ROAD
AVON, CT

Parcel ID: 3180324
Sale Price: $Null

Links
Parcel Details
Google Map
Bing Bird's Eye
Abutter Distance:
Adjacent

Abutters
Add Parcel
Remove Parcel
Scroll t Labels
Export List

About
Layers
Identify



Email Map Link

Copy ar aste the following string into an email to link to the current map view:

6m
20ft

Close

Print Map

Size:

Scale: 1" = ft. Title:

Close Print

Tighe&Bond

lat:41.8118, long:-72.7990

SITESAFE
RF COMPLIANCE EXPERTS
A BUSINESS OF FDH VELOCITEL

200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Smartlink LLC on behalf of AT&T Mobility, LLC
Site FA – 10141394
Site ID – CTL01330 (Retro)
USID – 139386
Site Name – Avon Montevideo Road
Site Compliance Report

324 Montevideo Road
Avon, CT 06001

Latitude: N41-48-42.44
Longitude: W72-47-55.54
Structure Type: Self-Support

Report generated date: January 4, 2017
Report by: Sam Cosgrove
Customer Contact: David Barbagallo

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

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Table of Contents

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1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	Yes
RF Sign(s) @ access point(s)	None
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	None
Max cumulative simulated RFE level on the Stealth Structure	7.8% General Public Limit at AT&T Mobility, LLC Gamma Sector Antenna #8
FCC & AT&T Compliant?	Will Be Compliant

The following documents were provided by the client and were utilized to create this report:

RFDS: NEW-ENGLAND_CONNECTICUT_CTL01330_2016-LTE-Extended-Carrier_RRH-Add_om636a_2051A048Z7_10141394_139386_01-11-2016_Preliminary-Approved_v4.00

CD's: 10141394_AE201_161214_CTL01330_Rev 0_CD

RF Powers Used: AT&T Engineering Defaults

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2 Scale Maps of Site

The following diagrams are included:

- Site Scale Map
- RF Exposure Diagram
- Elevation View
- Detail View

Scale Map Key		
 Existing Sign	Proposed Barrier	GPS Reading
 PROPOSED Proposed Sign	Existing Barrier	Anchor Point

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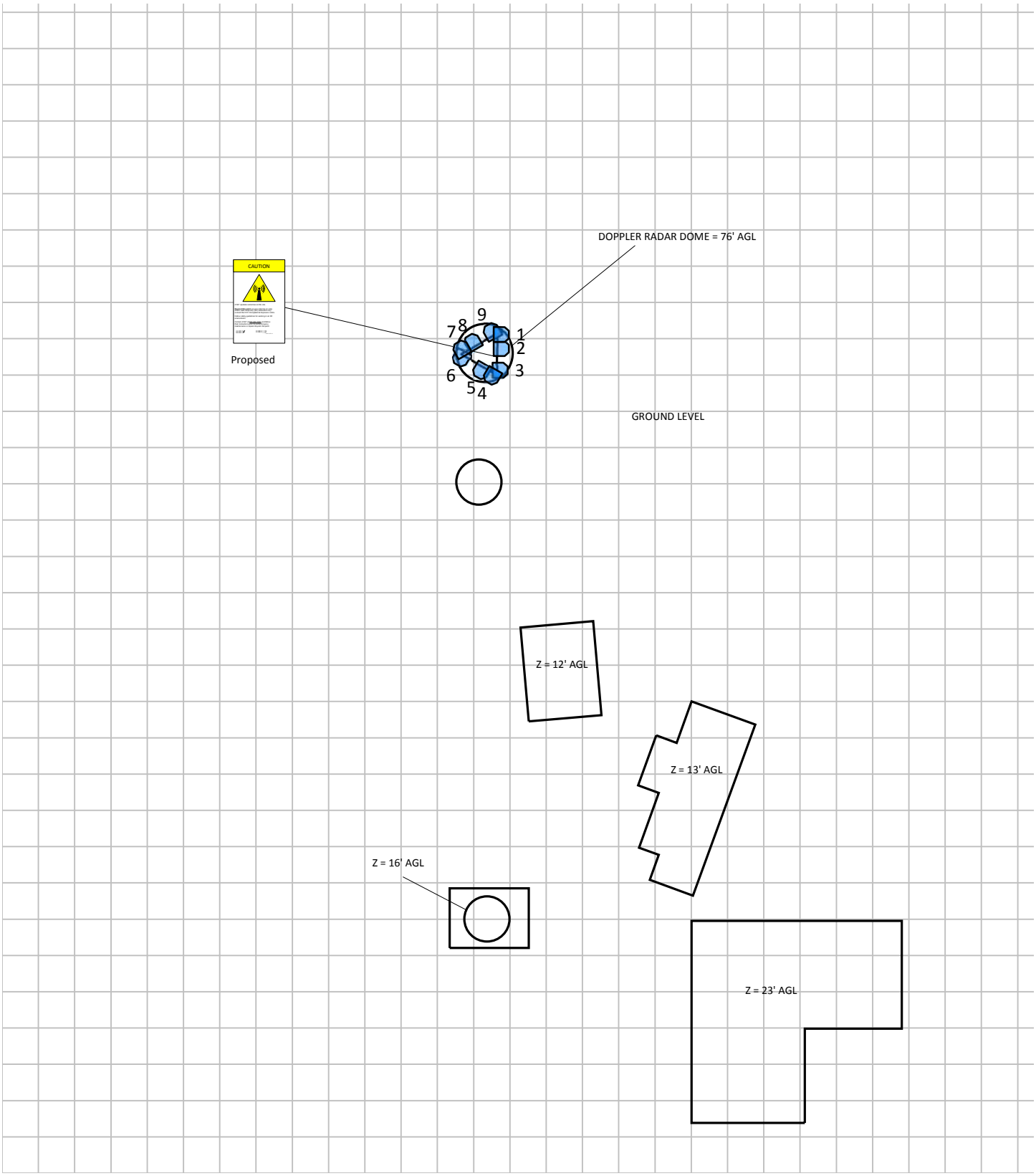
Site Scale Map For: Avon Montevideo Road



% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)

0 21.3 42.7

www.sitesafe.com
Site Name:Avon Montevideo Road
1/4/2017 9:49:20 AM

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

3 Antenna Inventory

The following antenna inventory on this and the following page, were obtained by the customer and were utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z (AGL)
1	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	90	67	8	13.868	0	2	0	1949.4	208.5'	370.7'	66'
1	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	1900	90	57	8	15.504	0	2	0	2841.1	208.5'	370.7'	66'
2	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	90	63.7	7.7	14.66	0	0	1	1754.5	208.5'	366.4'	66.1'
3	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	737	90	61.9	8	13.56	0	0	1	1361.9	208.1'	359.7'	66'
3	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	90	68.2	8	13.86	0	0	1	1459.3	208.1'	359.7'	66'
4	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	210	67	8	13.868	0	2	0	1949.4	205.6'	357.8'	66'
4	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	1900	210	57	8	15.504	0	2	0	2841.1	205.6'	357.8'	66'
5	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	210	63.7	7.7	14.66	0	0	1	1754.5	202.3'	359.4'	66.1'
6	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	737	210	61.9	8	13.56	0	0	1	1361.9	196'	363.4'	66'
6	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	210	68.2	8	13.86	0	0	1	1459.3	196'	363.4'	66'
7	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	850	330	67	8	13.868	0	2	0	1949.4	196.1'	366.3'	66'
7	AT&T MOBILITY LLC	Andrew SBNH-1D6565C	Panel	1900	330	57	8	15.504	0	2	0	2841.1	196.1'	366.3'	66'
8	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	330	63.7	7.7	14.66	0	0	1	1754.5	199.6'	368.3'	66.1'
9	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	737	330	61.9	8	13.56	0	0	1	1361.9	205.5'	371.7'	66'
9	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	330	68.2	8	13.86	0	0	1	1459.3	205.5'	371.7'	66'

NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

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4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas.

The Antenna Inventory heights are referenced to the same level.

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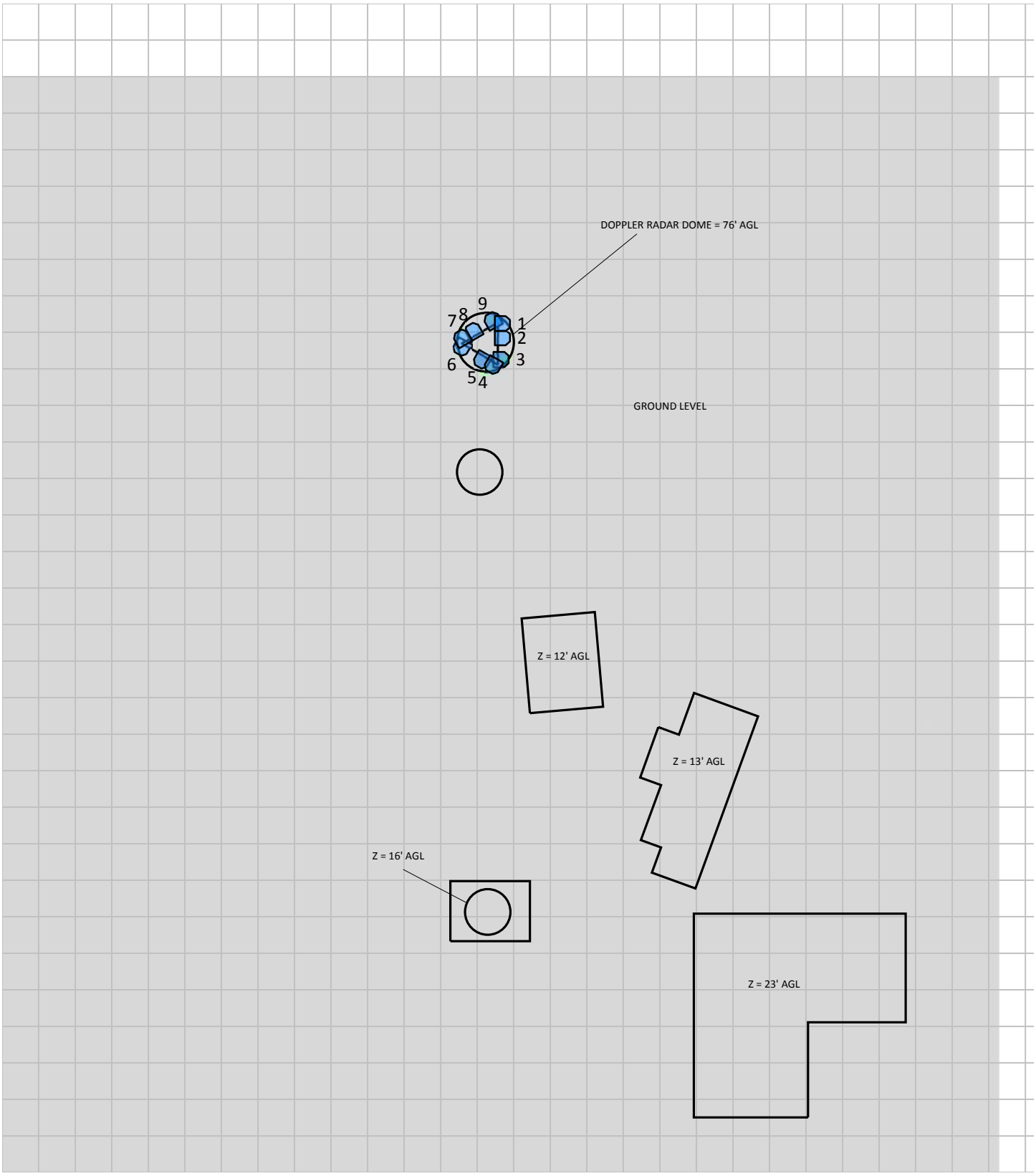
RF Exposure Simulation For: Avon Montevideo Road



% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)

0 21.2 42.4

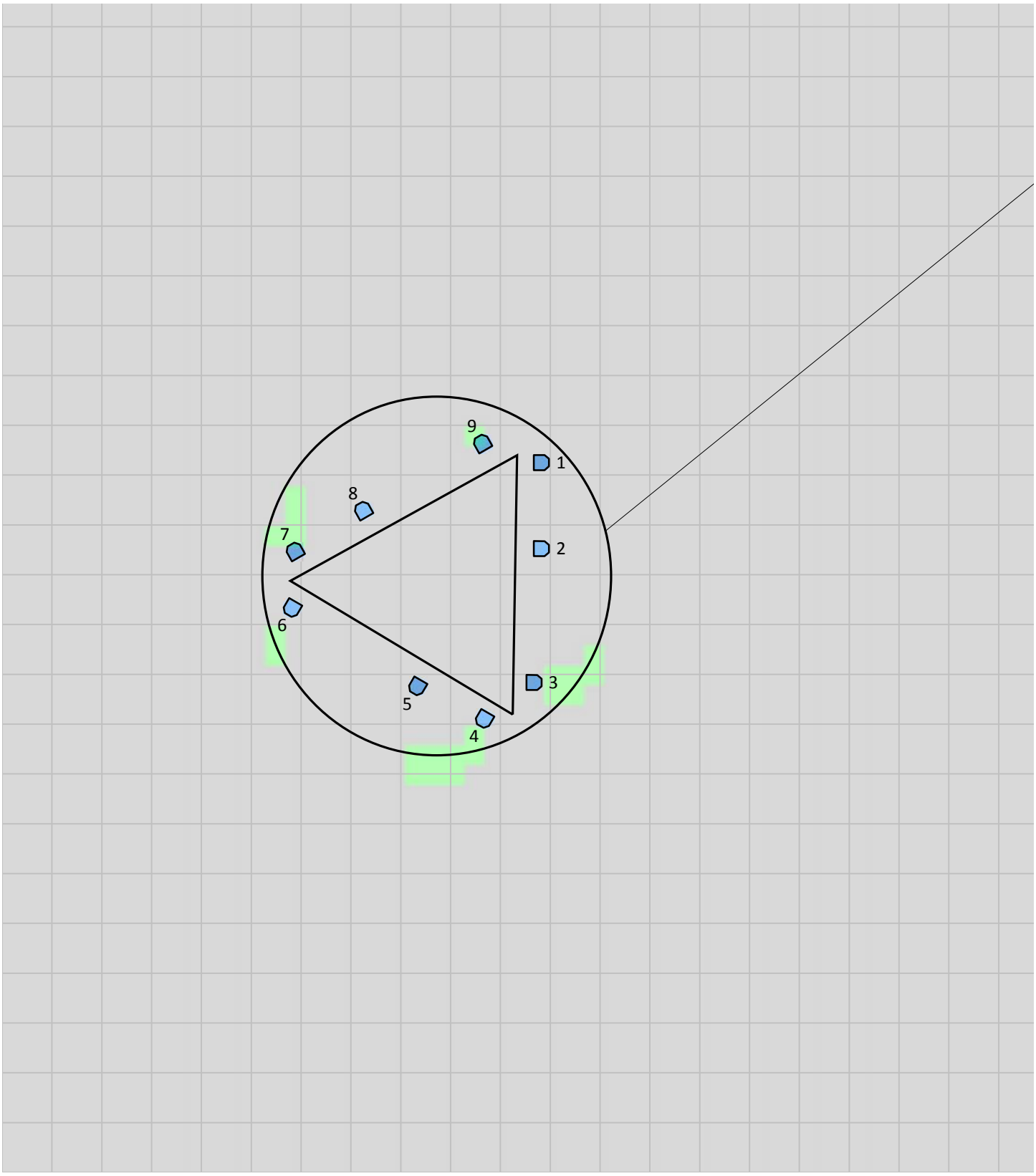
www.sitesafe.com
Site Name:Avon Montevideo Road
1/4/2017 9:45:32 AM

>= 5000	>= 500	>= 100	>= 5	< 5

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

SitesafeTC Version:1.0.0.0 - 0.0.0.249
Sitesafe OET-65 Model
Near Field Boundary: 1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: Avon Montevideo Road
Detail View



% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)

0 3.5 6.9

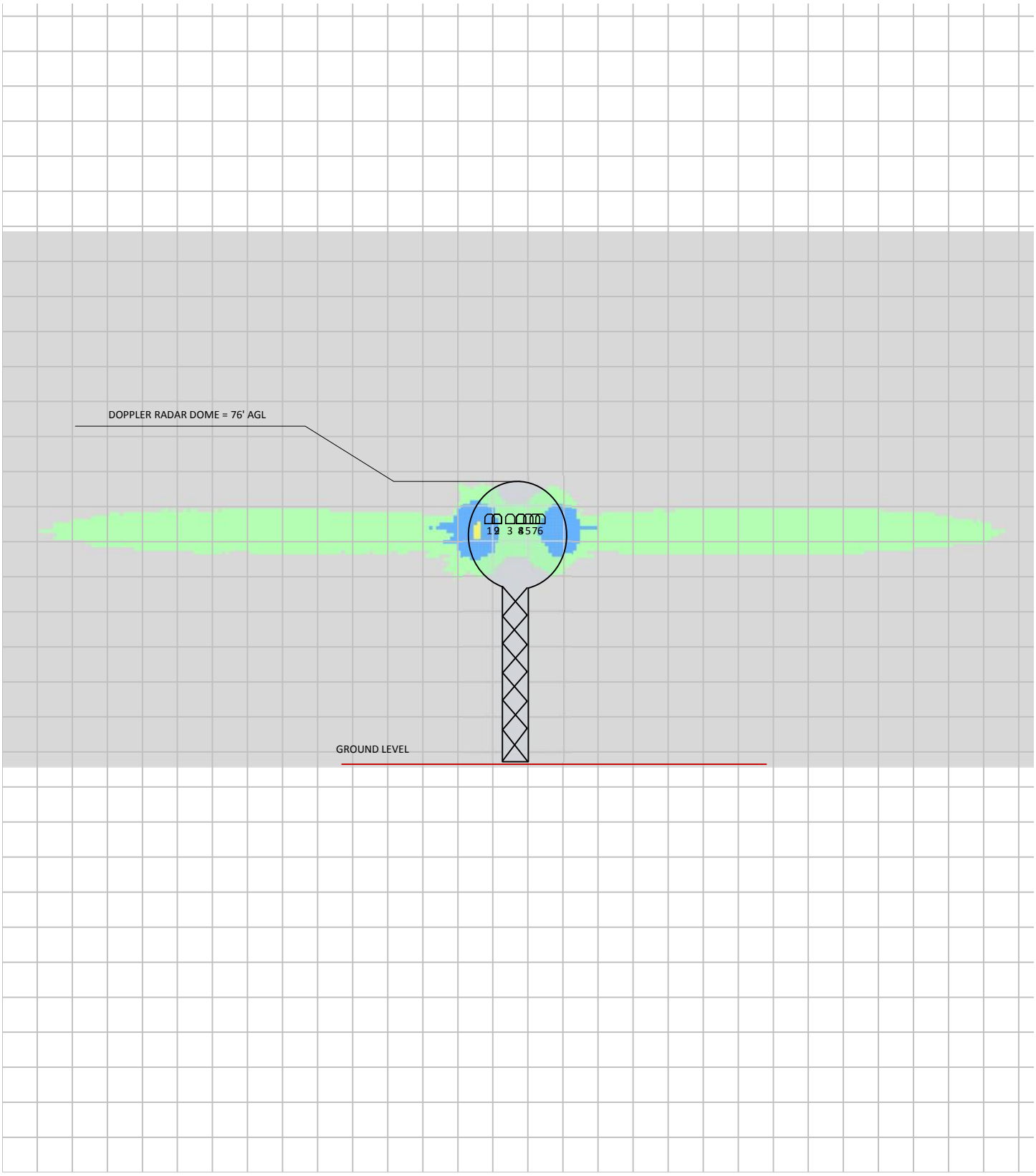
www.sitesafe.com
Site Name:Avon Montevideo Road
1/4/2017 9:46:49 AM

>= 5000	>= 500	>= 100	>= 5	< 5

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

SitesafeTC Version:1.0.0.0 - 0.0.0.249
Sitesafe OET-65 Model
Near Field Boundary: 1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: Avon Montevideo Road
Elevation View



% of FCC Public Exposure Limit
Spatial average 0' - 6'

(Feet)
0 19.6 39.2

>= 5000 >= 500 >= 100 >= 5 < 5

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE	SPRINT

www.sitesafe.com
Site Name:Avon Montevideo Road
1/4/2017 9:48:29 AM

SitesafeTC Version:1.0.0.0 - 0.0.0.249
Sitesafe OET-65 Model
Near Field Boundary: 1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

Yellow caution 2 sign required.

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6 Reviewer Certification

The Reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Sam Cosgrove.

January 4, 2017

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Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

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Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

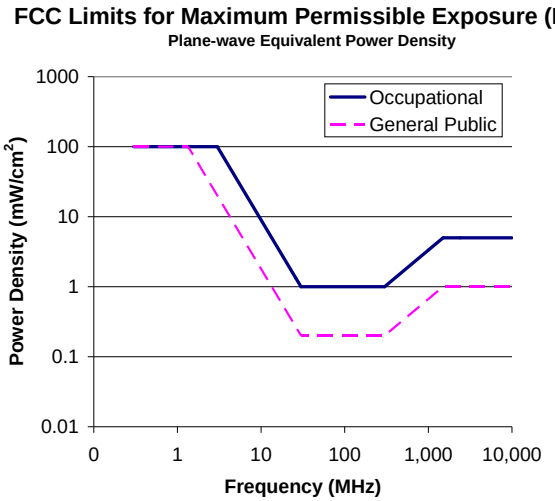
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



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Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

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Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

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Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Areas indicated as Gray are predicted to be below 5% of the MPE limits. **Gray represents areas more than 20 times below the most conservative exposure limit**.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone**.
- Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers**.
- Yellow represents areas predicted to exceed Occupational MPE limits. **Yellow areas should be accessible only to RF trained workers able to assess current exposure levels**.
- Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

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Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

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Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the

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potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

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Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, Inc.
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-ionising Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

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April 10, 2017

Mr. Mark Donnelly
Smartlink LLC
85 Rangeway Road, Building 3, Suite 101
North Billerica, MA 01862-2105

RE: Self Support Tower Modification for Multi-Carrier MRCTB017054 / Retrofit MRCTB019405
AT&T Site Number: CTL01330
AT&T FA Number: 10141394
Maser Consulting Connecticut Project # 16946029A
324 Montevideo Road
Avon, CT 06001

Dear Mr. Donnelly,

In accordance with your request, Maser Consulting Connecticut prepared a modification design of the existing self-support tower structure at the above referenced address.

Maser Consulting Connecticut has previously analyzed the existing self-support tower structure, Project Number 16946029A, dated February 07, 2017 and found the existing structure to be inadequate. Limited field observations were performed by Maser personnel on April 16, 2016 to verify the existing condition of the structure and to locate and quantify the existing wireless appurtenances, from ground level. Maser Consulting Connecticut has included all non-AT&T loading mentioned in the previous structural analysis report prepared by Centek Engineering. No tower and appurtenance mapping has been conducted to confirm the loading presented in the previous structural analysis report. This structural modification design is only valid for the appurtenances previously analyzed.

PROPOSED MODIFICATIONS

ELEVATION (ft.)	FAILING ORIGINAL MEMBER	PROPOSED MEMBER	MEMBER QUANTITY	PROPOSED END BOLTS	BOLT QUANTITY
DIAGONAL					
52.83' - 39.5'	-	-	-	**Change to Welded Connection**	-
39.5' - 19.5'	-	-	-	**Change to Welded Connection**	-
19.5' – 6.3’	Pipe 2.0 STD	PIPE 2.5 STD	6	-	-
6.3’-0’	-	-	-	**Change to Welded Connection**	-

LEG

39.5' - 0'	LEG 3.5 STD	HSS 4.5X0.237 HALF PIPE ATOP EXISTING LEG PIPE 3.5 STD	-		

HORIZONTAL

26.1’	L2.5x2.5x1/4”	L3x3x3/8”	3	**A325N 3/4”** Ø Bolts (2) bolts per member	**8**
32.7’	L2.5x2.5x1/4”	L3x3x3/8”	3	**A325N 3/4”** Ø Bolts (2) bolts per member	**8**
39.5’	L2.5x2.5x1/4”	L3x3x3/8”	3	**A325N 3/4”** Ø Bolts (2) bolts per member	**8**

Please refer to the modification details prepared by Maser Consulting Connecticut for further details. Maser Consulting Connecticut understands the final **AT&T** loading on the tower to be as follows:

AT&T APPURTENANCES			
APPURTENANCE	**ELEVATION**	**MOUNT**	**FEEDLINE SIZE**
(3) Andrew SBNH-1D6565C Antennas (Existing)	70'-0" (CL)	Platform Mount	(12) Existing Coaxial Cables (1) Fiber Line (2) DC Cables
(3) CCI OPA-65R-LCUU-H8 Antennas (Existing)			
(3) CCI TPA-65R-LCUUUU-H8 Antennas (Proposed)			
(9) RRUS-11 (Existing)			
(3) RRUS-32 (Existing)			
(3) RRUS-32 B2 (Proposed)			
(3) DC-6 (Existing)			

Please refer to the Material Take-Off sheet in Appendix A for additional discrete and linear appurtenances.

The following assumptions were considered during this analysis:

- No physical deterioration has occurred in any of the structural components of the tower and all the tower members have the same capacity as the day they were erected.
- The tower has been installed plumb.
- The information obtained in the referenced structural analysis prepared by Centek Engineering Services is true and accurate of the current condition of the structure.

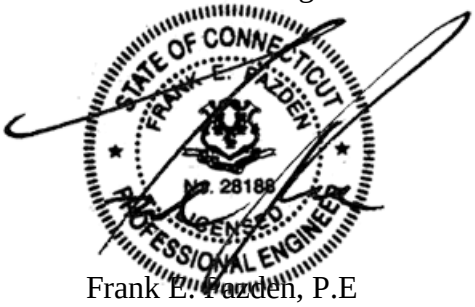
See the construction drawing prepared by Maser Consulting Connecticut for further details.

Maser Consulting Connecticut has determined that the existing self-support tower, with the proposed modifications, has **ADEQUATE** structural capacity to support the existing and proposed installation. After the aforementioned modifications have been installed, the existing tower has been determined to be stressed to a maximum of **99.4%** of its structural capacity. The existing mat foundation has been determined to be **ADEQUATE** to support the tower against overturning with the proposed foundation modifications. Therefore, the proposed **AT&T** installation **CAN** be installed as intended. The calculations are found in Appendix A of this report.

Maser Consulting Connecticut reserves the right to amend this report if additional information about the self-support tower and foundation is provided. The conclusions reached by Maser Consulting Connecticut in this report are only valid for the discrete and linear appurtenances listed in this report. Any change to the installation will require a revision to this structural analysis.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.

Sincerely,
Maser Consulting Connecticut



Frank E. Pazden, P.E
Geographic Discipline Leader

Lauren Luzier
Engineer

\\maserconsulting.com\luj\Projects\2016\16946000A\16946029A\Structural\Tower Modification\Word\10141394.DE113.CTL01330.Tower Modification.Rev 0.doc

APPENDIX A

Structural analysis of existing tower foundation for supporting the existing and proposed AT&T discrete and linear appurenances, together with existing loading.

Standards:

- 2016 CT State Building Code and All Subsequent Amendments, Incorporating IBC 2012
- ANSI/TIA-222-G Code

Design Parameters:

Axial Load on Base Footing:	$P_{app} := 19 \cdot kip$	
Shear Load on Base Footing:	$V_{app} := 32kip$	
Moment Load on Base Footing:	$M_{app} := 1399kip \cdot ft$	
Depth to Top of Footing:	$D_f := 0 \cdot ft$	
Width of Pier:	$W_{pier} := 0 \cdot ft$	**No Piers**
Area of Mat:	$A_{mat} := 310ft^2$	**Obtained from previous structural report**
Area of Proposed Mat:	$A_{mat.1} := 215.9ft^2$	
Thickness of Proposed Mat:	$D_1 := 2 \cdot ft$	
Width of Mat:	$W_{mat} := 17.6 \cdot ft$	**Width of a square mat of equivalent area**
Depth of Mat:	$D_{mat} := 17.6 \cdot ft$	**Depth of a square mat of equivalent area**
Thickness of Exisiting Mat:	$D_2 := 3.5 \cdot ft$	**Obtained from previous structural report**
Height of Pier Above Grade:	$D_{up} := 0.0 \cdot ft$	

Concrete Volumes:

Square Pier Volume: $V_{pier} := \frac{W_{pier}^{2} \cdot \pi}{4} \cdot \left(D_f + D_{up}\right)$ $V_{pier} = 0 \cdot ft^3$

Mat Volume: $V_{mat} := \left(A_{mat} \cdot D_2\right) + \left(A_{mat.1} \cdot D_1\right)$ $V_{mat} = 1516.8 \cdot ft^3$

Total Volume: $V_{conc} := 3 \cdot V_{pier} + V_{mat}$ $V_{conc} = 1516.8 \cdot ft^3$

Soil Volume:

Total Volume of Soil $V_{soil} := A_{mat} \cdot D_f - 3 \cdot V_{pier}$ $V_{soil} = 0 \cdot ft^3$

Concrete and Soil Weights:

Unit Weight of Soil: $\gamma_{soil} := 125pcf$

Unit Weight of Concrete: $\gamma_{conc} := 150pcf$ **Assume Normal weight concrete**

Total Concrete Weight: $W_{conc} := V_{conc} \cdot \gamma_{conc}$ $W_{conc} = 227.5 \cdot kip$

Total Soil Weight: $W_{soil} := V_{soil} \cdot \gamma_{soil}$ $W_{soil} = 0 \cdot kip$

Overturning Moment Check:

Total Applied Moment: $M_a := M_{app} + V_{app} \cdot \left(D_f + D_2\right)$ $M_a = 1511 \cdot kip \cdot ft$

Strength Reduction Factor: $\phi := 0.75$

Resisting Moment: $M_R := (8.38ft) \cdot \left(P_{app} + W_{conc} + W_{soil}\right)$ $M_R = 2065.8 \cdot kip \cdot ft$

8.38 ft. :- Distance of centroid of the mat foundation to the edge of the foundation

Overturning Check: $Test := \begin{cases} \text{"GOOD"} & \text{if } M_a \le \phi \cdot M_R \\ \text{"No Good"} & \text{otherwise} \end{cases}$ $Test = \text{"GOOD"}$

Usage: $Usage := \frac{M_a}{\left(\phi \cdot M_R\right)}$ $Usage = 97.5 \cdot \%$

Bearing Capacity Check:

Total Applied Moment: $P_a := P_{app} + W_{conc} + W_{soil}$ $P_a = 246.5 \cdot kip$

Bearing Area: $A_b := A_{mat}$ $A_b = 310 \cdot ft^2$

Moment of Inertia: $I_{mat} := 8110 ft^4$

Section Modulus: $S_{mat} := \frac{(I_{mat})}{11.25 ft}$ $S_{mat} = 720.9 \cdot ft^3$

Bearing Pressure: $\sigma_1 := \frac{P_a}{A_b} + \frac{M_a}{S_{mat}}$ $\sigma_1 = 2.891 \cdot ksf$

$\sigma_2 := \frac{P_a}{A_b} - \frac{M_a}{S_{mat}}$ $\sigma_2 = -1.301 \cdot ksf$

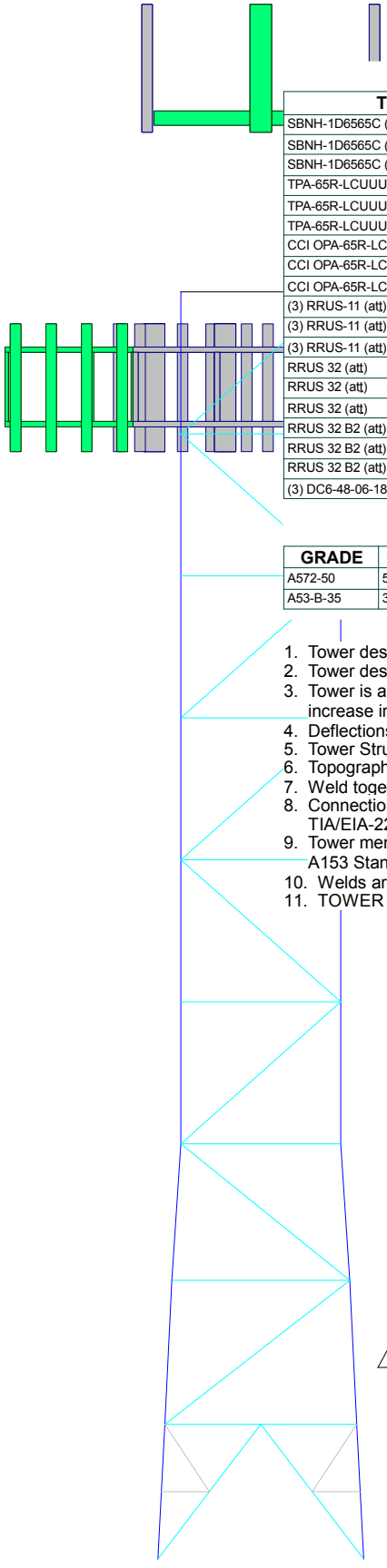
Ultimate Bearing Pressure: $\sigma_{ult} := 79.05 \cdot ksf$ (Per Geotechnical Investigation Report)

Factor of Safety: $FOS := 3$ (Minimum recommended FOS per Geotechnical Investigation Report is 2, 3 considered for consevative analysis)

Allowable Bearing Pressure: $\sigma_a := \frac{\sigma_{ult}}{FOS} = 26.35 \cdot ksf$ (Per Geotechnical Investigation Report)

Bearing Check: $Test := \begin{cases} \text{"GOOD"} & \text{if } \max(\sigma_1, \sigma_2) \le \sigma_a \\ \text{"No Good"} & \text{otherwise} \end{cases}$ $Test = \text{"GOOD"}$

Usage: $Usage := \frac{\max(\sigma_1, \sigma_2)}{\sigma_a}$ $Usage = 11 \cdot \%$



Section	T1	T2	T3											
Legs	3.5 STD with 4.5x0.237 HSS Half Pipe													
Leg Grade	A572-50													
Diagonals	ROHN 2.5 STD		L3x3x3/16	P2.5x.203										
Diagonal Grade			A36	A53-B-35										
Top Girts	N.A.													
Horizontals	L3x3x1/4		2L2x2x3/16	L3x3x3/8										
Red. Horizontals	N.A.		L2x2x3/16	N.A.										
Red. Diagonals	N.A.		L2x2x3/16	N.A.										
Face Width (ft)	7.58333		9.02179	8.28077										
# Panels @ (ft)	1 @ 6.4		1 @ 6.3	1 @ 6.8										
Weight (K)	0.6	1.9	0.7	0.6	5.2									

	L1	L2	
	Rohn 3.5 STD		
	L3x5x1/4		
	L2 1/2x2 1/2x1/4		
	7.58333		
	6 @ 6.66667		
	1.4		

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SBNH-1D6565C (att)	70	18-ft doppler	68.5
SBNH-1D6565C (att)	70	Andrew 10' Platform	68
SBNH-1D6565C (att)	70	APX75-866514 (verizon)	55
TPA-65R-LCUUUU-H8 (att)	70	BXA-70063-6CF-EDIN-X (verizon)	55
TPA-65R-LCUUUU-H8 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
TPA-65R-LCUUUU-H8 (att)	70	Verizon Sector Frame (verizon)	55
CCI OPA-65R-LCUU-H8 (att)	70	Verizon Sector Frame (verizon)	55
CCI OPA-65R-LCUU-H8 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
CCI OPA-65R-LCUU-H8 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
(3) RRUS-11 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
(3) RRUS-11 (att)	70	SBNHH-1D65B (verizon)	55
(3) RRUS-11 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 (att)	70	(3) RRH 2x60 (verizon)	55
RRUS 32 (att)	70	(3) RRH 2x60 (verizon)	55
RRUS 32 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 B2 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 B2 (att)	70	RHSDC-3315-PF-48 (verizon)	51
RRUS 32 B2 (att)	70	RHSDC-3315-PF-48 (verizon)	51
(3) DC6-48-06-18-8F (att)	70		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi
A53-B-35	35 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 98 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 4 with Crest Height of 742.00 ft
7. Weld together tower sections have flange connections.
8. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
9. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
10. Welds are fabricated with ER-70S-6 electrodes.
11. TOWER RATING: 99.4%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 162 K
SHEAR: 18 K

UPLIFT: -149 K
SHEAR: 16 K

AXIAL 73 K
SHEAR 5 K
MOMENT 214 kip-ft

TORQUE 1 kip-ft
40 mph WIND - 1.0000 in ICE

AXIAL 16 K
SHEAR 30 K
MOMENT 1321 kip-ft

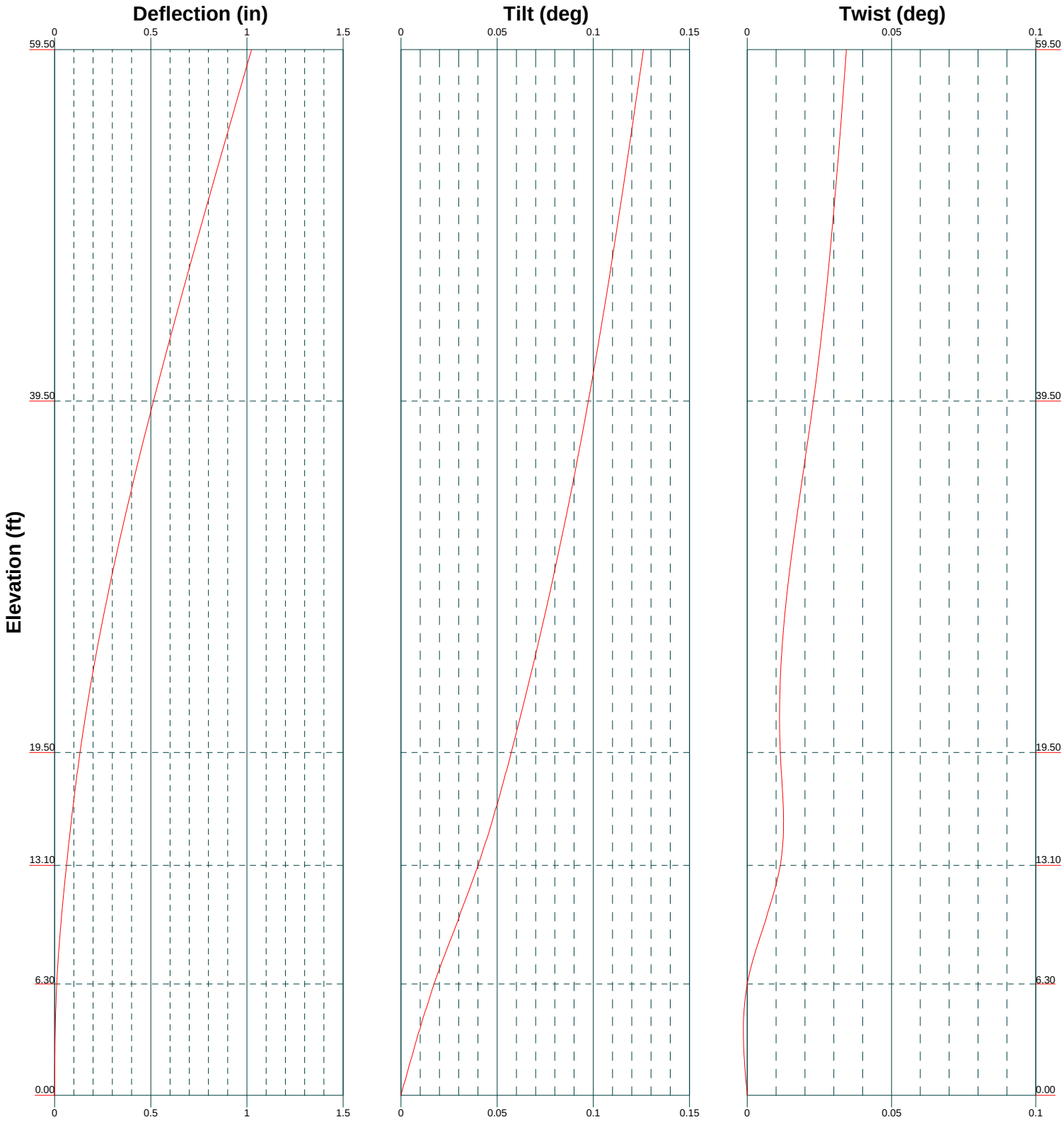
TORQUE 10 kip-ft
REACTIONS - 98 mph WIND

Maser Consulting
2000 Midlantic Drive, Suite 100
Mt. Laurel, NJ
Phone: 856 797-0412
FAX: 856 722-1120

Job: ***CTL01330 Avon - Montevideo Road***			
Project: ***16946029A***			
Client: AT&T	Drawn by:	App'd:	
Code: TIA-222-G	Date: 04/10/17	Scale: NTS	
Path: \\maserconsulting.com\ju\Projects\2016\16946000A\16946029A\Structural\Tower Modification\TNX\Self Support Model.eri		Dwg No. E-1	

TIA-222-G - Service - 60 mph

Maximum Values

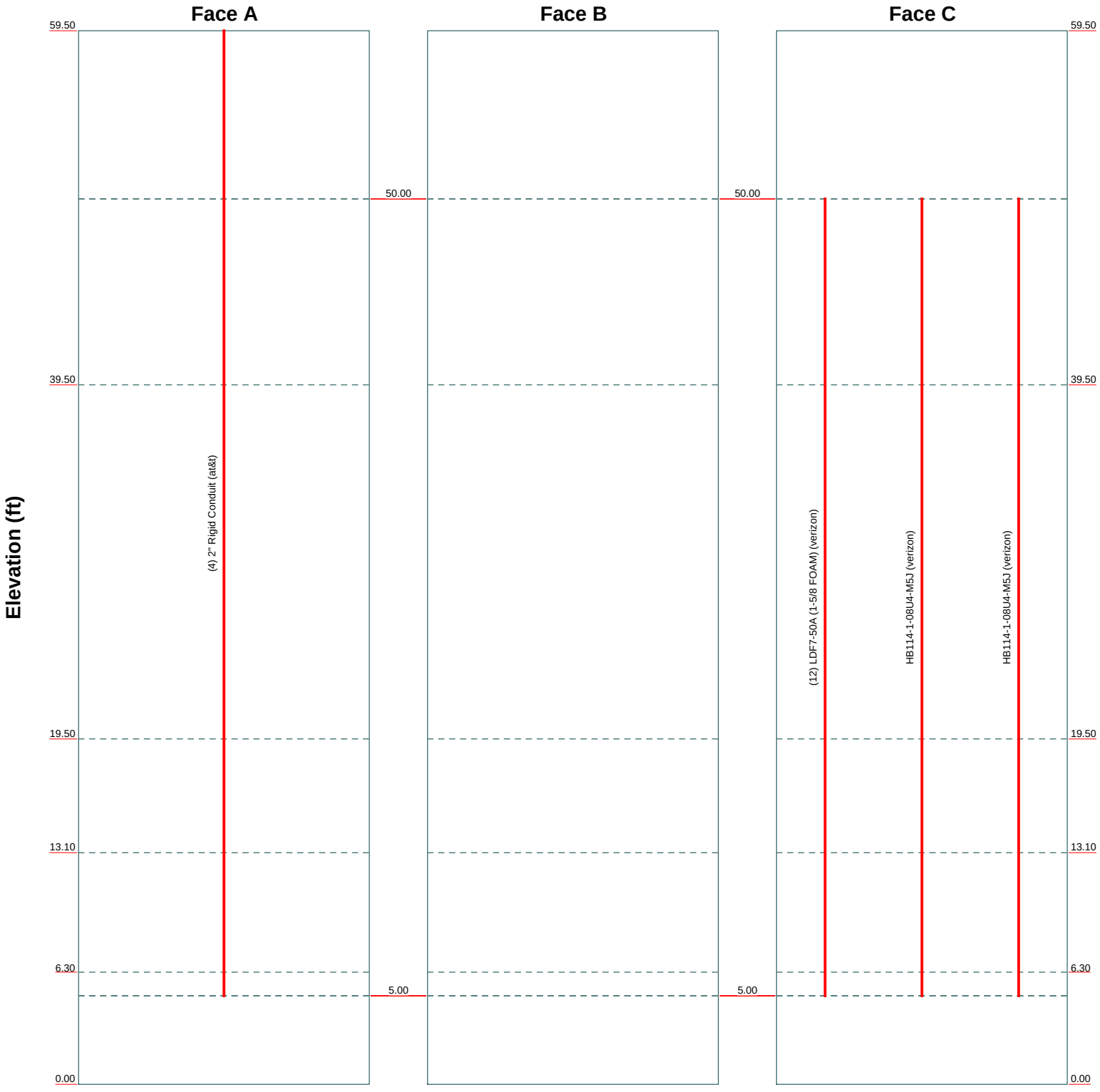


Maser Consulting
2000 Midlantic Drive, Suite 100
Mt. Laurel, NJ
Phone: 856 797-0412
FAX: 856 722-1120

Job: ***CTL01330 Avon - Montevideo Road***		
Project: ***16946029A***		
Client: AT&T	Drawn by:	App'd:
Code: TIA-222-G	Date: 04/10/17	Scale: NTS
Path: \\maserconsulting.com\ju\Projects\2016\16946000A\16946029A\Structural\Tower Modification\TNX\Self Support Models\		Dwg No. E-5

Feed Line Distribution Chart
0' - 59'6"

Round | Flat | App In Face | App Out Face | Truss Leg



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Job: ***CTL01330 Avon - Montevideo Road***		
Project: ***16946029A***		
Client: AT&T	Drawn by:	App'd:
Code: TIA-222-G	Date: 04/10/17	Scale: NTS
Path: \\maserconsulting.com\ju\Projects\2016\16946000A\16946029A\Structural\Tower Modification\TNX\Self Support Mod.eri		Dwg No. E-7

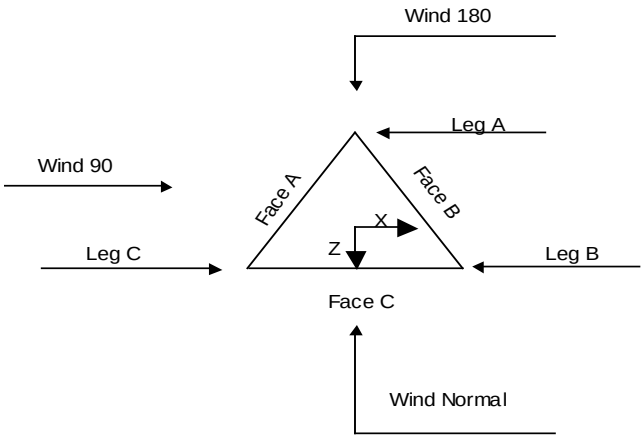
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 59.50 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 7.58 ft at the top and 9.71 ft at the base.
There is a 3 sided latticed pole with a face width of 7.58 ft.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

- Basic wind speed of 98 mph.
- Structure Class II.
- Exposure Category B.
- Topographic Category 4.
- Crest Height 742.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 40 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- Weld together tower sections have flange connections..
- Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
- Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
- Welds are fabricated with ER-70S-6 electrodes..
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in latticed pole member design is 1.
- Stress ratio used in tower member design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Triangular Tower

3 Sided Latticed Pole Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
L1	59.50-39.50			7.58	1	20.00
L2	39.50-19.50			7.58	1	20.00

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
L1	59.50-39.50	6.67	K Brace Left	No	Yes	0.0000	0.0000
L2	39.50-19.50	6.67	K Brace Left	No	Yes	0.0000	0.0000

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
L1 59.50-39.50	Pipe	Rohn 3.5 STD	A572-50 (50 ksi)	Pipe	P2.5x.203	A53-B-35 (35 ksi)
L2 39.50-19.50	Arbitrary Shape	3.5 STD with 4.5x0.237 HSS Half Pipe	A572-50 (50 ksi)	Pipe	P2.5x.203	A53-B-35 (35 ksi)

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
L1 59.50-39.50	Single Angle	L3x5x1/4	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
L1 59.50-39.50	None	Flat Bar		A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
L2 39.50-19.50	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 59.50-39.50	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
L2 39.50-19.50	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

3 Sided Latticed Pole Section Geometry *(cont'd)*

K Factors[1]

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
L1	Yes	Yes	1	1	1	1	1	1	1	1
59.50-39.50				1	1	1	1	1	1	1
L2	Yes	Yes	1	1	1	1	1	1	1	1
39.50-19.50				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
L1 59.50-39.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
L2 39.50-19.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
L1 59.50-39.50	Flange	0.8750 A325N	4	0.7500 A325N	0	0.6250 A325N	2	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	1	0.6250 A325N	0
L2 39.50-19.50	Flange	0.8750 A325N	4	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325N	1	0.6250 A325N	0

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	19.50-13.10			7.58	1	6.40
T2	13.10-6.30			8.28	1	6.80
T3	6.30-0.00			9.02	1	6.30

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	19.50-13.10	6.40	K Brace Right	No	Yes	0.0000	0.0000
T2	13.10-6.30	6.80	K Brace Left	No	Yes	0.0000	0.0000
T3	6.30-0.00	6.30	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 19.50-13.10	Arbitrary Shape	3.5 STD with 4.5x0.237 HSS Half Pipe	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A53-B-35 (35 ksi)
T2 13.10-6.30	Arbitrary Shape	3.5 STD with 4.5x0.237 HSS Half Pipe	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A53-B-35 (35 ksi)
T3 6.30-0.00	Arbitrary Shape	3.5 STD with 4.5x0.237 HSS Half Pipe	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 19.50-13.10	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T2 13.10-6.30	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T3 6.30-0.00	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L2x2x3/16	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T3 6.30-0.00	A36 (36 ksi)	Horizontal (1)	Equal Angle	L2x2x3/16	1
		Diagonal (1)	Equal Angle	L2x2x3/16	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 19.50-13.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 13.10-6.30	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 6.30-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
19.50-13.10				1	1	1	1	1	1	1
T2 13.10-6.30	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 6.30-0.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 19.50-13.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 13.10-6.30	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 6.30-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 19.50-13.10	Flange	0.7500 A325N	0	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	1	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T2 13.10-6.30	Flange	0.7500 A325N	0	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	1	0.6250 A325N	0
T3 6.30-0.00	Flange	0.7500 A325N	0	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.5000 A325N	1	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM) (verizon)	C	No	Ar (CaAa)	50.00 - 5.00	1.0000	-0.38	12	6	1.0000 1.9800	1.9800		0.82
2" Rigid Conduit (at&t)	A	No	Ar (CaAa)	59.50 - 5.00	0.0000	-0.41	4	4	1.0000 2.0000	2.0000		2.80
HB114-1-08U 4-M5J (verizon)	C	No	Ar (CaAa)	50.00 - 5.00	1.0000	-0.41	1	1	1.9800	2.0000		1.61
HB114-1-08U 4-M5J (verizon)	C	No	Ar (CaAa)	50.00 - 5.00	3.0000	-0.24	1	1	1.9800	2.0000		1.61

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	59.50-39.50	A	0.000	0.000	16.000	0.000	0.22
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	29.148	0.000	0.14
L2	39.50-19.50	A	0.000	0.000	16.000	0.000	0.22
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	55.520	0.000	0.26
T1	19.50-13.10	A	0.000	0.000	5.120	0.000	0.07
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	17.766	0.000	0.08
T2	13.10-6.30	A	0.000	0.000	5.440	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	18.877	0.000	0.09
T3	6.30-0.00	A	0.000	0.000	1.040	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.609	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	59.50-39.50	A	2.877	0.000	0.000	46.152	0.000	1.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	49.720	0.000	1.37
L2	39.50-19.50	A	2.761	0.000	0.000	45.383	0.000	1.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	92.995	0.000	2.52
T1	19.50-13.10	A	2.620	0.000	0.000	14.225	0.000	0.31
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	29.097	0.000	0.77
T2	13.10-6.30	A	2.497	0.000	0.000	14.838	0.000	0.31
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	30.298	0.000	0.78
T3	6.30-0.00	A	2.239	0.000	0.000	2.727	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	5.546	0.000	0.14

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	59.50-39.50	0.7978	3.7366	0.3278	2.1488
L2	39.50-19.50	2.6176	4.5457	1.5341	2.9756
T1	19.50-13.10	2.7191	4.6981	1.5843	3.0984
T2	13.10-6.30	2.9568	5.0620	1.7159	3.3662
T3	6.30-0.00	1.0834	1.8456	0.4949	0.9919

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	LDF7-50A (1-5/8 FOAM)	39.50 - 50.00	0.6000	0.5915
L1	2	2" Rigid Conduit	39.50 - 59.50	0.6000	0.5915
L1	3	HB114-1-08U4-M5J	39.50 - 50.00	0.6000	0.5915
L1	4	HB114-1-08U4-M5J	39.50 - 50.00	0.6000	0.5915
L2	1	LDF7-50A (1-5/8 FOAM)	19.50 - 39.50	0.6000	0.6000
L2	2	2" Rigid Conduit	19.50 - 39.50	0.6000	0.6000
L2	3	HB114-1-08U4-M5J	19.50 - 39.50	0.6000	0.6000
L2	4	HB114-1-08U4-M5J	19.50 - 39.50	0.6000	0.6000
T1	1	LDF7-50A (1-5/8 FOAM)	13.10 - 19.50	0.6000	0.6000
T1	2	2" Rigid Conduit	13.10 - 19.50	0.6000	0.6000
T1	3	HB114-1-08U4-M5J	13.10 - 19.50	0.6000	0.6000
T1	4	HB114-1-08U4-M5J	13.10 - 19.50	0.6000	0.6000
T2	1	LDF7-50A (1-5/8 FOAM)	6.30 - 13.10	0.6000	0.6000
T2	2	2" Rigid Conduit	6.30 - 13.10	0.6000	0.6000
T2	3	HB114-1-08U4-M5J	6.30 - 13.10	0.6000	0.6000
T2	4	HB114-1-08U4-M5J	6.30 - 13.10	0.6000	0.6000
T3	1	LDF7-50A (1-5/8 FOAM)	5.00 - 6.30	0.6000	0.5593
T3	2	2" Rigid Conduit	5.00 - 6.30	0.6000	0.5593
T3	3	HB114-1-08U4-M5J	5.00 - 6.30	0.6000	0.5593
T3	4	HB114-1-08U4-M5J	5.00 - 6.30	0.6000	0.5593

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Verizon Sector Frame	B	From Face	0.50	0.0000	55.00	No Ice	6.20	3.80	0.15
(verizon)			0.00			1/2" Ice	8.80	5.40	0.30
			0.00			1" Ice	11.40	7.00	0.45
Verizon Sector Frame	A	From Face	0.50	0.0000	55.00	No Ice	6.20	3.80	0.15
(verizon)			0.00			1/2" Ice	8.80	5.40	0.30
			0.00			1" Ice	11.40	7.00	0.45
LPA-80063-6CF-EDIN-5	B	From Face	0.50	0.0000	55.00	No Ice	9.57	8.55	0.03
(verizon)			6.00			1/2" Ice	10.03	9.01	0.10
			0.00			1" Ice	10.50	9.47	0.18
LPA-80063-6CF-EDIN-5	B	From Face	0.50	0.0000	55.00	No Ice	9.57	8.55	0.03
(verizon)			-6.00			1/2" Ice	10.03	9.01	0.10
			0.00			1" Ice	10.50	9.47	0.18
LPA-80063-6CF-EDIN-5	A	From Face	0.50	0.0000	55.00	No Ice	9.57	8.55	0.03
(verizon)			-8.75			1/2" Ice	10.03	9.01	0.10
			0.00			1" Ice	10.50	9.47	0.18
SBNHH-1D65B	B	From Face	0.50	0.0000	55.00	No Ice	8.08	5.34	0.05
(verizon)			4.00			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
SBNHH-1D65B	B	From Face	0.50	0.0000	55.00	No Ice	8.08	5.34	0.05
(verizon)			-4.00			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
SBNHH-1D65B	A	From Face	0.50	0.0000	55.00	No Ice	8.08	5.34	0.05
(verizon)			-6.75			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
SBNHH-1D65B	A	From Face	0.50	0.0000	55.00	No Ice	8.08	5.34	0.05
(verizon)			1.25			1/2" Ice	8.53	5.79	0.10
			0.00			1" Ice	9.00	6.26	0.16
APX75-866514	A	From Face	0.50	0.0000	55.00	No Ice	9.67	4.71	0.04
(verizon)			0.00			1/2" Ice	10.18	5.21	0.09
			0.00			1" Ice	10.70	5.71	0.15
BXA-70063-6CF-EDIN-X	A	From Face	0.50	0.0000	55.00	No Ice	14.41	5.72	0.04
(verizon)			-2.75			1/2" Ice	14.92	6.17	0.12
			0.00			1" Ice	15.44	6.63	0.21
LPA-80063-6CF-EDIN-5	B	From Face	0.50	0.0000	55.00	No Ice	9.57	8.55	0.03
(verizon)			3.25			1/2" Ice	10.03	9.01	0.10
			0.00			1" Ice	10.50	9.47	0.18
SBNH-1D6565C	A	From Face	4.00	0.0000	70.00	No Ice	11.45	7.70	0.07
(at&t)			0.00			1/2" Ice	12.06	8.29	0.13
			0.00			1" Ice	12.69	8.89	0.21
SBNH-1D6565C	B	From Face	4.00	0.0000	70.00	No Ice	11.45	7.70	0.07
(at&t)			0.00			1/2" Ice	12.06	8.29	0.13
			0.00			1" Ice	12.69	8.89	0.21
SBNH-1D6565C	C	From Face	4.00	0.0000	70.00	No Ice	11.45	7.70	0.07
(at&t)			0.00			1/2" Ice	12.06	8.29	0.13
			0.00			1" Ice	12.69	8.89	0.21
TPA-65R-LCUUUU-H8	A	From Face	4.00	0.0000	70.00	No Ice	13.30	8.82	0.08
(at&t)			0.00			1/2" Ice	13.90	9.42	0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	14.50	10.03	0.24
TPA-65R-LCUUUU-H8	B	From Face	4.00	0.0000	70.00	No Ice	13.30	8.82	0.08
(at&t)			0.00			1/2" Ice	13.90	9.42	0.15
			0.00			1" Ice	14.50	10.03	0.24
TPA-65R-LCUUUU-H8	C	From Face	4.00	0.0000	70.00	No Ice	13.30	8.82	0.08
(at&t)			0.00			1/2" Ice	13.90	9.42	0.15
			0.00			1" Ice	14.50	10.03	0.24
CCI OPA-65R-LCUU-H8	A	From Face	4.00	0.0000	70.00	No Ice	12.76	7.48	0.06
(at&t)			0.00			1/2" Ice	13.34	8.06	0.14
			0.00			1" Ice	13.93	8.64	0.22
CCI OPA-65R-LCUU-H8	B	From Face	4.00	0.0000	70.00	No Ice	12.76	7.48	0.06
(at&t)			0.00			1/2" Ice	13.34	8.06	0.14
			0.00			1" Ice	13.93	8.64	0.22
CCI OPA-65R-LCUU-H8	C	From Face	4.00	0.0000	70.00	No Ice	12.76	7.48	0.06
(at&t)			0.00			1/2" Ice	13.34	8.06	0.14
			0.00			1" Ice	13.93	8.64	0.22
(3) RRUS-11	A	From Face	4.00	0.0000	70.00	No Ice	2.52	1.02	0.06
(at&t)			0.00			1/2" Ice	2.72	1.16	0.07
			0.00			1" Ice	2.92	1.30	0.10
(3) RRUS-11	B	From Face	4.00	0.0000	70.00	No Ice	2.52	1.02	0.06
(at&t)			0.00			1/2" Ice	2.72	1.16	0.07
			0.00			1" Ice	2.92	1.30	0.10
(3) RRUS-11	C	From Face	4.00	0.0000	70.00	No Ice	2.52	1.02	0.06
(at&t)			0.00			1/2" Ice	2.72	1.16	0.07
			0.00			1" Ice	2.92	1.30	0.10
RRUS 32	A	From Face	4.00	0.0000	70.00	No Ice	3.31	2.42	0.09
(at&t)			0.00			1/2" Ice	3.56	2.64	0.12
			0.00			1" Ice	3.81	2.86	0.15
RRUS 32	B	From Face	4.00	0.0000	70.00	No Ice	3.31	2.42	0.09
(at&t)			0.00			1/2" Ice	3.56	2.64	0.12
			0.00			1" Ice	3.81	2.86	0.15
RRUS 32	C	From Face	4.00	0.0000	70.00	No Ice	3.31	2.42	0.09
(at&t)			0.00			1/2" Ice	3.56	2.64	0.12
			0.00			1" Ice	3.81	2.86	0.15
RRUS 32 B2	A	From Face	4.00	0.0000	70.00	No Ice	3.31	2.42	0.07
(at&t)			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.13
RRUS 32 B2	B	From Face	4.00	0.0000	70.00	No Ice	3.31	2.42	0.07
(at&t)			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.13
RRUS 32 B2	C	From Face	4.00	0.0000	70.00	No Ice	3.31	2.42	0.07
(at&t)			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.13
(3) DC6-48-06-18-8F	A	From Face	4.00	0.0000	70.00	No Ice	1.20	1.20	0.03
(at&t)			0.00			1/2" Ice	1.88	1.88	0.05
			0.00			1" Ice	2.09	2.09	0.08
(3) RRH 2x60	A	From Face	1.00	0.0000	55.00	No Ice	0.90	1.42	0.06
(verizon)			-4.00			1/2" Ice	0.95	1.58	0.08
			0.00			1" Ice	1.05	1.74	0.10
(3) RRH 2x60	C	From Face	1.00	0.0000	55.00	No Ice	0.90	1.42	0.06
(verizon)			-4.00			1/2" Ice	0.95	1.58	0.08
			0.00			1" Ice	1.05	1.74	0.10
RHSDC-3315-PF-48	A	From Face	0.00	0.0000	51.00	No Ice	4.33	2.56	0.03
(verizon)			0.00			1/2" Ice	4.61	2.79	0.06
			0.00			1" Ice	4.89	3.02	0.09
RHSDC-3315-PF-48	C	From Face	0.00	0.0000	51.00	No Ice	4.33	2.56	0.03
(verizon)			0.00			1/2" Ice	4.61	2.79	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	4.89	3.02	0.09
18-ft doppler	C	None		0.0000	68.50	No Ice	127.00	127.00	2.00
						1/2" Ice	127.80	127.80	4.00
						1" Ice	128.40	128.40	6.00
Andrew 10' Platform	C	None		0.0000	68.00	No Ice	54.00	54.00	2.20
						1/2" Ice	72.00	72.00	3.30
						1" Ice	90.00	90.00	4.40

Tower Pressures - No Ice

G_H = 0.850 (base tower), 0.850 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 59.50-39.50	49.50	0.808	43	158.333	A	4.833	20.272	13.333	53.11	16.000	0.000
					B	4.833	20.272		53.11	0.000	0.000
					C	4.833	20.272		53.11	29.148	0.000
L2 39.50-19.50	29.50	0.7	38	158.750	A	20.417	6.905	15.000	54.90	16.000	0.000
					B	20.417	6.905		54.90	0.000	0.000
					C	20.417	6.905		54.90	55.520	0.000
T1 19.50-13.10	16.30	0.7	39	53.035	A	6.612	2.327	4.809	53.81	5.120	0.000
					B	6.612	2.327		53.81	0.000	0.000
					C	6.612	2.327		53.81	17.766	0.000
T2 13.10-6.30	9.70	0.7	39	61.241	A	7.087	2.523	5.110	53.18	5.440	0.000
					B	7.087	2.523		53.18	0.000	0.000
					C	7.087	2.523		53.18	18.877	0.000
T3 6.30-0.00	3.15	0.7	40	61.234	A	11.835	0.000	4.734	40.00	1.040	0.000
					B	11.835	0.000		40.00	0.000	0.000
					C	11.835	0.000		40.00	3.609	0.000

Tower Pressure - With Ice

G_H = 0.850 (base tower), 0.850 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 59.50-39.50	49.50	0.808	7	2.8768	167.923	A	4.833	63.764	32.512	47.40	46.152	0.000
						B	4.833	63.764		47.40	0.000	0.000
						C	4.833	63.764		47.40	49.720	0.000
L2 39.50-19.50	29.50	0.7	6	2.7608	167.953	A	32.687	30.136	27.270	43.41	45.383	0.000
						B	32.687	30.136		43.41	0.000	0.000
						C	32.687	30.136		43.41	92.995	0.000
T1 19.50-13.10	16.30	0.7	6	2.6204	55.834	A	10.346	9.717	8.544	42.59	14.225	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						B	10.346	9.717		42.59	0.000	0.000
						C	10.346	9.717		42.59	29.097	0.000
T2 13.10-6.30	9.70	0.7	7	2.4969	64.075	A	10.867	10.194	8.891	42.21	14.838	0.000
						B	10.867	10.194		42.21	0.000	0.000
						C	10.867	10.194		42.21	30.298	0.000
T3 6.30-0.00	3.15	0.7	7	2.2393	63.589	A	14.977	13.047	7.876	28.10	2.727	0.000
						B	14.977	13.047		28.10	0.000	0.000
						C	14.977	13.047		28.10	5.546	0.000

Tower Pressure - Service

G_H = 0.850 (base tower), 0.850 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 59.50-39.50	49.50	0.808	16	158.333	A	4.833	20.272	13.333	53.11	16.000	0.000
					B	4.833	20.272		53.11	0.000	0.000
					C	4.833	20.272		53.11	29.148	0.000
L2 39.50-19.50	29.50	0.7	14	158.750	A	20.417	6.905	15.000	54.90	16.000	0.000
					B	20.417	6.905		54.90	0.000	0.000
					C	20.417	6.905		54.90	55.520	0.000
T1 19.50-13.10	16.30	0.7	15	53.035	A	6.612	2.327	4.809	53.81	5.120	0.000
					B	6.612	2.327		53.81	0.000	0.000
					C	6.612	2.327		53.81	17.766	0.000
T2 13.10-6.30	9.70	0.7	15	61.241	A	7.087	2.523	5.110	53.18	5.440	0.000
					B	7.087	2.523		53.18	0.000	0.000
					C	7.087	2.523		53.18	18.877	0.000
T3 6.30-0.00	3.15	0.7	15	61.234	A	11.835	0.000	4.734	40.00	1.040	0.000
					B	11.835	0.000		40.00	0.000	0.000
					C	11.835	0.000		40.00	3.609	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.36	1.41	A	0.159	2.74	43	1	1	15.427	2.51	125.31	C
59.50-39.50			B	0.159	2.74		1	1	15.427			
			C	0.159	2.74		1	1	15.427			
L2	0.49	1.90	A	0.172	2.692	38	1	1	24.354	3.50	174.91	C
39.50-19.50			B	0.172	2.692		1	1	24.354			
			C	0.172	2.692		1	1	24.354			
T1	0.16	0.57	A	0.169	2.704	39	1	1	7.937	1.16	181.02	C
19.50-13.10			B	0.169	2.704		1	1	7.937			
			C	0.169	2.704		1	1	7.937			
T2 13.10-6.30	0.16	0.62	A	0.157	2.746	39	1	1	8.519	1.26	185.77	C
			B	0.157	2.746		1	1	8.519			
			C	0.157	2.746		1	1	8.519			
T3 6.30-0.00	0.03	0.68	A	0.193	2.619	40	1	1	11.835	1.14	180.18	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			B	0.193	2.619		1	1	11.835			
			C	0.193	2.619		1	1	11.835			
Sum Weight:	1.20	5.18						OTM	261.97 kip-ft	9.56		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.36	1.41	A	0.159	2.74	43	0.8	1	14.460	2.41	120.53	C
59.50-39.50			B	0.159	2.74		0.8	1	14.460			
			C	0.159	2.74		0.8	1	14.460			
L2	0.49	1.90	A	0.172	2.692	38	0.8	1	20.270	3.14	157.18	C
39.50-19.50			B	0.172	2.692		0.8	1	20.270			
			C	0.172	2.692		0.8	1	20.270			
T1	0.16	0.57	A	0.169	2.704	39	0.8	1	6.615	1.04	162.63	C
19.50-13.10			B	0.169	2.704		0.8	1	6.615			
			C	0.169	2.704		0.8	1	6.615			
T2 13.10-6.30	0.16	0.62	A	0.157	2.746	39	0.8	1	7.101	1.13	166.74	C
			B	0.157	2.746		0.8	1	7.101			
			C	0.157	2.746		0.8	1	7.101			
T3 6.30-0.00	0.03	0.68	A	0.193	2.619	40	0.8	1	9.468	0.93	147.12	C
			B	0.193	2.619		0.8	1	9.468			
			C	0.193	2.619		0.8	1	9.468			
Sum Weight:	1.20	5.18						OTM	242.94 kip-ft	8.66		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.36	1.41	A	0.159	2.74	43	0.85	1	14.702	2.43	121.72	C
59.50-39.50			B	0.159	2.74		0.85	1	14.702			
			C	0.159	2.74		0.85	1	14.702			
L2	0.49	1.90	A	0.172	2.692	38	0.85	1	21.291	3.23	161.62	C
39.50-19.50			B	0.172	2.692		0.85	1	21.291			
			C	0.172	2.692		0.85	1	21.291			
T1	0.16	0.57	A	0.169	2.704	39	0.85	1	6.945	1.07	167.23	C
19.50-13.10			B	0.169	2.704		0.85	1	6.945			
			C	0.169	2.704		0.85	1	6.945			
T2 13.10-6.30	0.16	0.62	A	0.157	2.746	39	0.85	1	7.456	1.17	171.49	C
			B	0.157	2.746		0.85	1	7.456			
			C	0.157	2.746		0.85	1	7.456			
T3 6.30-0.00	0.03	0.68	A	0.193	2.619	40	0.85	1	10.060	0.98	155.38	C
			B	0.193	2.619		0.85	1	10.060			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.193	2.619		0.85	1	10.060			
Sum Weight:	1.20	5.18						OTM	247.70 kip-ft	8.88		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	2.41	6.42	A	0.409	2.047	7	1	1	45.640	0.90	45.19	C
59.50-39.50			B	0.409	2.047		1	1	45.640			
			C	0.409	2.047		1	1	45.640			
L2	3.52	6.85	A	0.374	2.118	6	1	1	51.534	1.03	51.62	C
39.50-19.50			B	0.374	2.118		1	1	51.534			
			C	0.374	2.118		1	1	51.534			
T1	1.07	2.10	A	0.359	2.15	6	1	1	16.366	0.34	52.42	C
19.50-13.10			B	0.359	2.15		1	1	16.366			
			C	0.359	2.15		1	1	16.366			
T2 13.10-6.30	1.09	2.16	A	0.329	2.222	7	1	1	17.069	0.36	52.97	C
			B	0.329	2.222		1	1	17.069			
			C	0.329	2.222		1	1	17.069			
T3 6.30-0.00	0.19	2.90	A	0.441	1.989	7	1	1	23.519	0.29	45.68	C
			B	0.441	1.989		1	1	23.519			
			C	0.441	1.989		1	1	23.519			
Sum Weight:	8.29	20.44						OTM	85.07 kip-ft	2.92		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	2.41	6.42	A	0.409	2.047	7	0.8	1	44.673	0.89	44.60	C
59.50-39.50			B	0.409	2.047		0.8	1	44.673			
			C	0.409	2.047		0.8	1	44.673			
L2	3.52	6.85	A	0.374	2.118	6	0.8	1	44.996	0.96	47.90	C
39.50-19.50			B	0.374	2.118		0.8	1	44.996			
			C	0.374	2.118		0.8	1	44.996			
T1	1.07	2.10	A	0.359	2.15	6	0.8	1	14.297	0.31	48.61	C
19.50-13.10			B	0.359	2.15		0.8	1	14.297			
			C	0.359	2.15		0.8	1	14.297			
T2 13.10-6.30	1.09	2.16	A	0.329	2.222	7	0.8	1	14.895	0.33	49.04	C
			B	0.329	2.222		0.8	1	14.895			
			C	0.329	2.222		0.8	1	14.895			
T3 6.30-0.00	0.19	2.90	A	0.441	1.989	7	0.8	1	20.524	0.25	40.39	C
			B	0.441	1.989		0.8	1	20.524			
			C	0.441	1.989		0.8	1	20.524			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
Sum Weight:	8.29	20.44						OTM	81.52 kip-ft	2.75		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	2.41	6.42	A	0.409	2.047	7	0.85	1	44.915	0.89	44.75	C
59.50-39.50			B	0.409	2.047		0.85	1	44.915			
			C	0.409	2.047		0.85	1	44.915			
L2	3.52	6.85	A	0.374	2.118	6	0.85	1	46.631	0.98	48.83	C
39.50-19.50			B	0.374	2.118		0.85	1	46.631			
			C	0.374	2.118		0.85	1	46.631			
T1	1.07	2.10	A	0.359	2.15	6	0.85	1	14.814	0.32	49.56	C
19.50-13.10			B	0.359	2.15		0.85	1	14.814			
			C	0.359	2.15		0.85	1	14.814			
T2 13.10-6.30	1.09	2.16	A	0.329	2.222	7	0.85	1	15.439	0.34	50.02	C
			B	0.329	2.222		0.85	1	15.439			
			C	0.329	2.222		0.85	1	15.439			
T3 6.30-0.00	0.19	2.90	A	0.441	1.989	7	0.85	1	21.273	0.26	41.71	C
			B	0.441	1.989		0.85	1	21.273			
			C	0.441	1.989		0.85	1	21.273			
Sum Weight:	8.29	20.44						OTM	82.41 kip-ft	2.79		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.36	1.41	A	0.159	2.74	16	1	1	15.427	0.94	46.97	C
59.50-39.50			B	0.159	2.74		1	1	15.427			
			C	0.159	2.74		1	1	15.427			
L2	0.49	1.90	A	0.172	2.692	14	1	1	24.354	1.31	65.56	C
39.50-19.50			B	0.172	2.692		1	1	24.354			
			C	0.172	2.692		1	1	24.354			
T1	0.16	0.57	A	0.169	2.704	15	1	1	7.937	0.43	67.86	C
19.50-13.10			B	0.169	2.704		1	1	7.937			
			C	0.169	2.704		1	1	7.937			
T2 13.10-6.30	0.16	0.62	A	0.157	2.746	15	1	1	8.519	0.47	69.64	C
			B	0.157	2.746		1	1	8.519			
			C	0.157	2.746		1	1	8.519			
T3 6.30-0.00	0.03	0.68	A	0.193	2.619	15	1	1	11.835	0.43	67.54	C
			B	0.193	2.619		1	1	11.835			
			C	0.193	2.619		1	1	11.835			
Sum Weight:	1.20	5.18						OTM	98.20	3.58		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
									kip-ft			

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.36	1.41	A	0.159	2.74	16	0.8	1	14.460	0.90	45.18	C
59.50-39.50			B	0.159	2.74		0.8	1	14.460			
			C	0.159	2.74		0.8	1	14.460			
L2	0.49	1.90	A	0.172	2.692	14	0.8	1	20.270	1.18	58.92	C
39.50-19.50			B	0.172	2.692		0.8	1	20.270			
			C	0.172	2.692		0.8	1	20.270			
T1	0.16	0.57	A	0.169	2.704	15	0.8	1	6.615	0.39	60.96	C
19.50-13.10			B	0.169	2.704		0.8	1	6.615			
			C	0.169	2.704		0.8	1	6.615			
T2 13.10-6.30	0.16	0.62	A	0.157	2.746	15	0.8	1	7.101	0.42	62.50	C
			B	0.157	2.746		0.8	1	7.101			
			C	0.157	2.746		0.8	1	7.101			
T3 6.30-0.00	0.03	0.68	A	0.193	2.619	15	0.8	1	9.468	0.35	55.15	C
			B	0.193	2.619		0.8	1	9.468			
			C	0.193	2.619		0.8	1	9.468			
Sum Weight:	1.20	5.18						OTM	91.07 kip-ft	3.24		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
L1	0.36	1.41	A	0.159	2.74	16	0.85	1	14.702	0.91	45.63	C
59.50-39.50			B	0.159	2.74		0.85	1	14.702			
			C	0.159	2.74		0.85	1	14.702			
L2	0.49	1.90	A	0.172	2.692	14	0.85	1	21.291	1.21	60.58	C
39.50-19.50			B	0.172	2.692		0.85	1	21.291			
			C	0.172	2.692		0.85	1	21.291			
T1	0.16	0.57	A	0.169	2.704	15	0.85	1	6.945	0.40	62.68	C
19.50-13.10			B	0.169	2.704		0.85	1	6.945			
			C	0.169	2.704		0.85	1	6.945			
T2 13.10-6.30	0.16	0.62	A	0.157	2.746	15	0.85	1	7.456	0.44	64.28	C
			B	0.157	2.746		0.85	1	7.456			
			C	0.157	2.746		0.85	1	7.456			
T3 6.30-0.00	0.03	0.68	A	0.193	2.619	15	0.85	1	10.060	0.37	58.24	C
			B	0.193	2.619		0.85	1	10.060			
			C	0.193	2.619		0.85	1	10.060			
Sum Weight:	1.20	5.18						OTM	92.85 kip-ft	3.33		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	2.30					
Bracing Weight	2.88					
Total Member Self-Weight	5.18			2.86	1.52	
Total Weight	13.44			2.86	1.52	
Wind 0 deg - No Ice		-0.19	-17.99	-787.94	11.80	-0.75
Wind 30 deg - No Ice		8.80	-14.90	-664.49	-394.80	2.47
Wind 60 deg - No Ice		15.24	-8.38	-374.13	-691.08	5.06
Wind 90 deg - No Ice		17.93	0.19	13.14	-808.92	6.45
Wind 120 deg - No Ice		16.21	9.16	407.16	-717.83	6.15
Wind 150 deg - No Ice		9.13	15.09	680.49	-412.60	3.98
Wind 180 deg - No Ice		0.19	17.09	774.63	-8.76	0.92
Wind 210 deg - No Ice		-8.80	14.90	670.21	397.83	-2.47
Wind 240 deg - No Ice		-16.02	8.83	389.35	710.59	-5.40
Wind 270 deg - No Ice		-17.93	-0.19	-7.42	811.95	-6.45
Wind 300 deg - No Ice		-15.43	-8.71	-391.93	704.39	-5.98
Wind 330 deg - No Ice		-9.13	-15.09	-674.77	415.64	-3.98
Member Ice	15.26					
Total Weight Ice	70.44			19.94	1.68	
Wind 0 deg - Ice		-0.03	-4.70	-174.03	3.27	-0.30
Wind 30 deg - Ice		2.33	-3.94	-144.95	-96.58	0.31
Wind 60 deg - Ice		4.03	-2.24	-73.90	-169.33	0.84
Wind 90 deg - Ice		4.71	0.03	21.53	-197.59	1.17
Wind 120 deg - Ice		4.21	2.37	118.30	-173.99	1.18
Wind 150 deg - Ice		2.38	3.97	186.41	-99.33	0.86
Wind 180 deg - Ice		0.03	4.53	210.36	0.09	0.32
Wind 210 deg - Ice		-2.33	3.94	184.82	99.94	-0.31
Wind 240 deg - Ice		-4.18	2.32	115.55	175.76	-0.88
Wind 270 deg - Ice		-4.71	-0.03	18.35	200.95	-1.17
Wind 300 deg - Ice		-4.06	-2.29	-76.65	174.28	-1.16
Wind 330 deg - Ice		-2.38	-3.97	-146.54	102.69	-0.86
Total Weight	13.44			2.86	1.52	
Wind 0 deg - Service		-0.07	-6.74	-296.06	4.85	-0.28
Wind 30 deg - Service		3.30	-5.59	-249.78	-147.56	0.92
Wind 60 deg - Service		5.71	-3.14	-140.94	-258.62	1.90
Wind 90 deg - Service		6.72	0.07	4.22	-302.79	2.42
Wind 120 deg - Service		6.08	3.43	151.92	-268.65	2.31
Wind 150 deg - Service		3.42	5.66	254.37	-154.23	1.49
Wind 180 deg - Service		0.07	6.41	289.66	-2.85	0.34
Wind 210 deg - Service		-3.30	5.59	250.52	149.55	-0.92
Wind 240 deg - Service		-6.01	3.31	145.24	266.79	-2.02
Wind 270 deg - Service		-6.72	-0.07	-3.48	304.78	-2.42
Wind 300 deg - Service		-5.78	-3.26	-147.61	264.47	-2.24
Wind 330 deg - Service		-3.42	-5.66	-253.64	156.23	-1.49

Load Combinations

Comb. No.	Description

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
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	59.5 - 39.5	Latticed Pole Leg	Max Tension	23	45.64	-0.24	0.11
			Max. Compression	10	-51.59	-0.38	-0.02
			Max. Mx	20	12.48	-2.37	-0.21

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	7.22	0.22	-2.05
			Max. Vy	20	3.29	-0.00	-0.00
			Max. Vx	2	3.17	0.00	-0.00
		Latticed Pole Diagonal	Max Tension	8	16.93	0.00	0.00
			Max. Compression	20	-16.90	0.00	0.00
			Max. Mx	34	1.13	0.26	0.00
			Max. My	10	0.32	0.00	-0.00
			Max. Vy	34	-0.10	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Latticed Pole Horizontal	Max Tension	6	2.85	0.00	0.00
			Max. Compression	19	-2.84	0.00	0.00
			Max. Mx	35	0.12	-0.20	0.00
			Max. My	8	2.81	0.00	-0.00
			Max. Vy	35	0.10	0.00	0.00
			Max. Vx	8	0.00	0.00	0.00
		Latticed Pole Top Girt	Max Tension	22	3.99	0.00	0.00
			Max. Compression	10	-3.87	0.00	0.00
			Max. Mx	35	0.26	-0.28	0.00
			Max. My	8	-3.33	0.00	-0.00
			Max. Vy	35	0.15	0.00	0.00
			Max. Vx	8	-0.00	0.00	0.00
L2	39.5 - 19.5	Latticed Pole Leg	Max Tension	23	106.06	-0.27	-0.40
			Max. Compression	10	-114.92	0.65	-0.78
			Max. Mx	8	83.80	-0.80	0.05
			Max. My	8	-103.30	0.32	-1.03
			Max. Vy	10	0.20	-0.76	-0.41
			Max. Vx	8	0.27	0.32	-1.03
		Latticed Pole Diagonal	Max Tension	8	21.74	0.00	0.00
			Max. Compression	20	-21.75	0.00	0.00
			Max. Mx	34	2.62	0.25	0.00
			Max. My	10	1.46	0.00	-0.00
			Max. Vy	34	-0.10	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Latticed Pole Horizontal	Max Tension	20	13.24	0.00	0.00
			Max. Compression	8	-13.30	0.00	0.00
			Max. Mx	26	0.11	-0.23	0.00
			Max. My	8	-13.30	0.00	-0.00
			Max. Vy	26	0.12	0.00	0.00
			Max. Vx	8	0.00	0.00	0.00
T1	19.5 - 13.1	Leg	Max Tension	23	121.00	-0.62	0.58
			Max. Compression	10	-131.02	0.48	0.80
			Max. Mx	8	106.05	-0.80	0.05
			Max. My	8	-111.77	0.32	-1.02
			Max. Vy	10	-0.20	-0.76	-0.41
			Max. Vx	8	-0.32	0.32	-1.02
		Diagonal	Max Tension	21	12.62	0.00	0.00
			Max. Compression	8	-12.63	0.00	0.00
			Max. Mx	32	1.38	0.25	0.00
			Max. My	18	1.50	0.00	0.00
			Max. Vy	32	-0.10	0.00	0.00
			Max. Vx	18	-0.00	0.00	0.00
		Horizontal	Max Tension	7	3.27	0.00	0.00
			Max. Compression	18	-3.99	0.00	0.00
			Max. Mx	26	-0.49	-0.20	0.00
			Max. My	36	-1.16	0.00	0.01
			Max. Vy	26	0.11	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	36	-0.00	0.00	0.00
T2	13.1 - 6.3	Leg	Max Tension	23	134.54	-0.44	-0.59
			Max. Compression	10	-145.96	-0.18	-0.69
			Max. Mx	11	67.16	-0.65	-0.07
			Max. My	6	-78.82	-0.37	-1.40
			Max. Vy	24	0.22	0.63	0.54
			Max. Vx	6	0.35	-0.37	-1.40
		Diagonal	Max Tension	9	12.83	0.00	0.00
			Max. Compression	20	-12.72	0.00	0.00
			Max. Mx	34	1.53	0.28	0.00
			Max. My	10	1.83	0.00	-0.00
			Max. Vy	34	-0.10	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Horizontal	Max Tension	18	0.63	0.00	0.00
			Max. Compression	9	-0.95	0.00	0.00
			Max. Mx	35	0.14	-0.23	0.00
			Max. My	32	0.26	0.00	0.01
			Max. Vy	35	0.11	0.00	0.00
			Max. Vx	32	-0.00	0.00	0.00
T3	6.3 - 0	Leg	Max Tension	23	137.82	0.07	0.54
			Max. Compression	10	-150.43	-0.00	0.00
			Max. Mx	10	-150.37	2.29	0.19
			Max. My	6	-77.78	-0.37	-1.40
			Max. Vy	10	-0.84	2.29	0.19
			Max. Vx	6	-0.66	-0.37	-1.40
		Diagonal	Max Tension	9	9.29	0.12	0.00
			Max. Compression	20	-9.25	0.00	0.00
			Max. Mx	18	-6.02	-0.20	-0.00
			Max. My	36	-1.55	-0.03	0.01
			Max. Vy	18	-0.06	0.00	0.00
			Max. Vx	36	0.00	0.00	0.00
		Horizontal	Max Tension	21	9.75	-0.01	-0.01
			Max. Compression	8	-10.34	-0.02	-0.01
			Max. Mx	22	0.76	-0.07	-0.01
			Max. My	30	-1.76	-0.06	-0.02
			Max. Vy	33	-0.07	-0.07	-0.02
			Max. Vx	30	0.01	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	8	1.21	0.00	0.00
			Max. Compression	21	-1.46	0.00	0.00
			Max. Mx	28	0.30	-0.01	0.00
			Max. My	35	0.40	0.00	0.00
			Max. Vy	28	0.02	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	21	1.33	0.00	0.00
			Max. Compression	8	-1.08	0.00	0.00
			Max. Mx	35	-0.24	-0.02	0.00
			Max. My	31	0.18	0.00	0.00
			Max. Vy	35	-0.02	0.00	0.00
			Max. Vx	31	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	159.41	15.25	-8.13
	Max. H_x	18	159.41	15.25	-8.13
	Max. H_z	5	-124.44	-11.46	7.68
	Min. Vert	7	-145.66	-14.14	7.50
	Min. H_x	7	-145.66	-14.14	7.50
	Min. H_z	18	159.41	15.25	-8.13
Leg B	Max. Vert	10	162.43	-15.50	-8.32
	Max. H_x	23	-149.34	14.41	7.69
	Max. H_z	25	-128.64	11.85	7.83
	Min. Vert	23	-149.34	14.41	7.69
	Min. H_x	10	162.43	-15.50	-8.32
	Min. H_z	10	162.43	-15.50	-8.32
Leg A	Max. Vert	2	155.46	-0.10	16.97
	Max. H_x	21	5.69	1.79	0.45
	Max. H_z	2	155.46	-0.10	16.97
	Min. Vert	15	-143.11	0.12	-15.71
	Min. H_x	9	1.78	-1.81	0.18
	Min. H_z	15	-143.11	0.12	-15.71

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	13.44	0.00	-0.00	2.87	1.52	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	16.12	-0.30	-28.79	-1261.82	18.32	-1.23
0.9 Dead+1.6 Wind 0 deg - No Ice	12.09	-0.30	-28.79	-1261.77	17.84	-1.22
1.2 Dead+1.6 Wind 30 deg - No Ice	16.12	14.08	-23.84	-1064.70	-632.51	3.92
0.9 Dead+1.6 Wind 30 deg - No Ice	12.09	14.08	-23.84	-1064.78	-632.51	3.92
1.2 Dead+1.6 Wind 60 deg - No Ice	16.12	24.38	-13.41	-600.07	-1106.91	8.08
0.9 Dead+1.6 Wind 60 deg - No Ice	12.09	24.38	-13.41	-600.48	-1106.56	8.08
1.2 Dead+1.6 Wind 90 deg - No Ice	16.12	28.68	0.30	19.81	-1295.45	10.32
0.9 Dead+1.6 Wind 90 deg - No Ice	12.09	28.68	0.30	18.94	-1294.96	10.31
1.2 Dead+1.6 Wind 120 deg - No Ice	16.12	25.93	14.66	650.26	-1149.34	9.86
0.9 Dead+1.6 Wind 120 deg - No Ice	12.09	25.93	14.66	648.93	-1148.97	9.85
1.2 Dead+1.6 Wind 150 deg - No Ice	16.12	14.60	24.14	1088.01	-661.18	6.39
0.9 Dead+1.6 Wind 150 deg - No Ice	12.09	14.60	24.14	1086.36	-661.15	6.38
1.2 Dead+1.6 Wind 180 deg - No Ice	16.12	0.30	27.34	1238.86	-14.74	1.47
0.9 Dead+1.6 Wind 180 deg - No Ice	12.09	0.30	27.34	1237.10	-15.18	1.47
1.2 Dead+1.6 Wind 210 deg - No Ice	16.12	-14.08	23.84	1071.56	636.16	-3.96
0.9 Dead+1.6 Wind 210 deg - No Ice	12.09	-14.08	23.84	1069.92	635.24	-3.96

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.6 Wind 240 deg - No Ice	16.12	-25.63	14.13	621.76	1136.48	-8.67
0.9 Dead+1.6 Wind 240 deg - No Ice	12.09	-25.63	14.13	620.44	1135.20	-8.67
1.2 Dead+1.6 Wind 270 deg - No Ice	16.12	-28.68	-0.30	-13.12	1299.13	-10.35
0.9 Dead+1.6 Wind 270 deg - No Ice	12.09	-28.68	-0.30	-13.97	1297.73	-10.35
1.2 Dead+1.6 Wind 300 deg - No Ice	16.12	-24.68	-13.93	-628.60	1127.09	-9.59
0.9 Dead+1.6 Wind 300 deg - No Ice	12.09	-24.68	-13.93	-629.00	1125.81	-9.58
1.2 Dead+1.6 Wind 330 deg - No Ice	16.12	-14.60	-24.14	-1081.17	664.74	-6.39
0.9 Dead+1.6 Wind 330 deg - No Ice	12.09	-14.60	-24.14	-1081.25	663.79	-6.38
1.2 Dead+1.0 Ice+1.0 Temp	73.13	0.00	-0.00	20.81	2.08	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	73.13	-0.03	-4.70	-175.06	3.70	-0.30
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	73.13	2.33	-3.94	-145.74	-97.18	0.32
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	73.13	4.03	-2.24	-73.99	-170.70	0.85
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	73.13	4.71	0.03	22.41	-199.24	1.18
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	73.13	4.21	2.37	120.13	-175.35	1.20
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	73.13	2.38	3.97	188.97	-99.98	0.87
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	73.13	0.03	4.52	213.18	0.46	0.32
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	73.13	-2.33	3.94	187.36	101.34	-0.32
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	73.13	-4.18	2.32	117.35	177.89	-0.90
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	73.13	-4.71	-0.03	19.20	203.40	-1.18
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	73.13	-4.06	-2.29	-76.77	176.48	-1.18
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	73.13	-2.38	-3.97	-147.35	104.14	-0.87
Dead+Wind 0 deg - Service	13.44	-0.07	-6.74	-293.42	5.39	-0.29
Dead+Wind 30 deg - Service	13.44	3.30	-5.58	-247.25	-147.02	0.92
Dead+Wind 60 deg - Service	13.44	5.71	-3.14	-138.44	-258.11	1.90
Dead+Wind 90 deg - Service	13.44	6.72	0.07	6.72	-302.26	2.42
Dead+Wind 120 deg - Service	13.44	6.08	3.43	154.35	-268.04	2.31
Dead+Wind 150 deg - Service	13.44	3.42	5.66	256.84	-153.72	1.50
Dead+Wind 180 deg - Service	13.44	0.07	6.40	292.16	-2.34	0.35
Dead+Wind 210 deg - Service	13.44	-3.30	5.58	252.99	150.07	-0.92
Dead+Wind 240 deg - Service	13.44	-6.00	3.31	147.66	267.22	-2.03
Dead+Wind 270 deg - Service	13.44	-6.72	-0.07	-1.00	305.31	-2.42
Dead+Wind 300 deg - Service	13.44	-5.78	-3.26	-145.13	265.03	-2.24
Dead+Wind 330 deg - Service	13.44	-3.42	-5.66	-251.11	156.76	-1.50

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-13.44	0.00	-0.00	13.44	0.00	0.000%
2	-0.30	-16.12	-28.79	0.30	16.12	28.79	0.009%
3	-0.30	-12.09	-28.79	0.30	12.09	28.79	0.008%
4	14.08	-16.12	-23.84	-14.08	16.12	23.84	0.009%
5	14.08	-12.09	-23.84	-14.08	12.09	23.84	0.007%
6	24.38	-16.12	-13.41	-24.38	16.12	13.41	0.009%
7	24.38	-12.09	-13.41	-24.38	12.09	13.41	0.007%
8	28.69	-16.12	0.30	-28.68	16.12	-0.30	0.009%
9	28.69	-12.09	0.30	-28.68	12.09	-0.30	0.008%
10	25.94	-16.12	14.66	-25.93	16.12	-14.66	0.010%
11	25.94	-12.09	14.66	-25.93	12.09	-14.66	0.008%
12	14.60	-16.12	24.14	-14.60	16.12	-24.14	0.009%
13	14.60	-12.09	24.14	-14.60	12.09	-24.14	0.007%
14	0.30	-16.12	27.34	-0.30	16.12	-27.34	0.008%
15	0.30	-12.09	27.34	-0.30	12.09	-27.34	0.006%
16	-14.08	-16.12	23.84	14.08	16.12	-23.84	0.009%
17	-14.08	-12.09	23.84	14.08	12.09	-23.84	0.007%
18	-25.63	-16.12	14.13	25.63	16.12	-14.13	0.010%
19	-25.63	-12.09	14.13	25.63	12.09	-14.13	0.008%
20	-28.69	-16.12	-0.30	28.68	16.12	0.30	0.009%
21	-28.69	-12.09	-0.30	28.68	12.09	0.30	0.007%
22	-24.68	-16.12	-13.93	24.68	16.12	13.93	0.008%
23	-24.68	-12.09	-13.93	24.68	12.09	13.93	0.006%
24	-14.60	-16.12	-24.14	14.60	16.12	24.14	0.009%
25	-14.60	-12.09	-24.14	14.60	12.09	24.14	0.007%
26	0.00	-73.13	0.00	-0.00	73.13	0.00	0.000%
27	-0.03	-73.13	-4.70	0.03	73.13	4.70	0.003%
28	2.33	-73.13	-3.94	-2.33	73.13	3.94	0.003%
29	4.03	-73.13	-2.24	-4.03	73.13	2.24	0.003%
30	4.71	-73.13	0.03	-4.71	73.13	-0.03	0.003%
31	4.21	-73.13	2.37	-4.21	73.13	-2.37	0.003%
32	2.38	-73.13	3.97	-2.38	73.13	-3.97	0.003%
33	0.03	-73.13	4.53	-0.03	73.13	-4.52	0.003%
34	-2.33	-73.13	3.94	2.33	73.13	-3.94	0.003%
35	-4.18	-73.13	2.32	4.18	73.13	-2.32	0.003%
36	-4.71	-73.13	-0.03	4.71	73.13	0.03	0.003%
37	-4.06	-73.13	-2.29	4.06	73.13	2.29	0.003%
38	-2.38	-73.13	-3.97	2.38	73.13	3.97	0.003%
39	-0.07	-13.44	-6.74	0.07	13.44	6.74	0.004%
40	3.30	-13.44	-5.59	-3.30	13.44	5.58	0.004%
41	5.71	-13.44	-3.14	-5.71	13.44	3.14	0.004%
42	6.72	-13.44	0.07	-6.72	13.44	-0.07	0.004%
43	6.08	-13.44	3.43	-6.08	13.44	-3.43	0.004%
44	3.42	-13.44	5.66	-3.42	13.44	-5.66	0.004%
45	0.07	-13.44	6.41	-0.07	13.44	-6.40	0.004%
46	-3.30	-13.44	5.59	3.30	13.44	-5.58	0.004%
47	-6.01	-13.44	3.31	6.00	13.44	-3.31	0.004%
48	-6.72	-13.44	-0.07	6.72	13.44	0.07	0.004%
49	-5.78	-13.44	-3.26	5.78	13.44	3.26	0.004%
50	-3.42	-13.44	-5.66	3.42	13.44	5.66	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001

2	Yes	4	0.00000001	0.00026657
3	Yes	4	0.00000001	0.00020530
4	Yes	4	0.00000001	0.00023459
5	Yes	4	0.00000001	0.00017398
6	Yes	4	0.00000001	0.00022150
7	Yes	4	0.00000001	0.00016060
8	Yes	4	0.00000001	0.00025665
9	Yes	4	0.00000001	0.00019544
10	Yes	4	0.00000001	0.00027099
11	Yes	4	0.00000001	0.00020976
12	Yes	4	0.00000001	0.00023913
13	Yes	4	0.00000001	0.00017873
14	Yes	4	0.00000001	0.00022001
15	Yes	4	0.00000001	0.00015916
16	Yes	4	0.00000001	0.00025412
17	Yes	4	0.00000001	0.00019327
18	Yes	4	0.00000001	0.00026546
19	Yes	4	0.00000001	0.00020409
20	Yes	4	0.00000001	0.00023196
21	Yes	4	0.00000001	0.00017091
22	Yes	4	0.00000001	0.00021774
23	Yes	4	0.00000001	0.00015707
24	Yes	4	0.00000001	0.00025155
25	Yes	4	0.00000001	0.00019098
26	Yes	4	0.00000001	0.00008676
27	Yes	4	0.00000001	0.00052547
28	Yes	4	0.00000001	0.00051750
29	Yes	4	0.00000001	0.00054374
30	Yes	4	0.00000001	0.00058428
31	Yes	4	0.00000001	0.00061546
32	Yes	4	0.00000001	0.00062411
33	Yes	4	0.00000001	0.00062938
34	Yes	4	0.00000001	0.00063744
35	Yes	4	0.00000001	0.00064078
36	Yes	4	0.00000001	0.00062183
37	Yes	4	0.00000001	0.00058936
38	Yes	4	0.00000001	0.00055240
39	Yes	4	0.00000001	0.00020231
40	Yes	4	0.00000001	0.00019493
41	Yes	4	0.00000001	0.00019258
42	Yes	4	0.00000001	0.00020077
43	Yes	4	0.00000001	0.00020371
44	Yes	4	0.00000001	0.00019619
45	Yes	4	0.00000001	0.00019224
46	Yes	4	0.00000001	0.00019979
47	Yes	4	0.00000001	0.00020263
48	Yes	4	0.00000001	0.00019545
49	Yes	4	0.00000001	0.00019216
50	Yes	4	0.00000001	0.00019913

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	59.5 - 39.5	1.024	43	0.1235	0.0340
L2	39.5 - 19.5	0.514	43	0.0987	0.0222
T1	19.5 - 13.1	0.132	43	0.0564	0.0087
T2	13.1 - 6.3	0.062	43	0.0378	0.0095
T3	6.3 - 0	0.011	43	0.0181	0.0026

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
70.00	SBNH-1D6565C	43	1.024	0.1235	0.0340	160547
68.50	18-ft doppler	43	1.024	0.1235	0.0340	160547
68.00	Andrew 10' Platform	43	1.024	0.1235	0.0340	160547
55.00	Verizon Sector Frame	43	0.905	0.1186	0.0320	160547
51.00	RHSDC-3315-PF-48	43	0.800	0.1141	0.0300	94440

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	59.5 - 39.5	4.379	10	0.5258	0.1187
L2	39.5 - 19.5	2.196	10	0.4223	0.0825
T1	19.5 - 13.1	0.563	10	0.2410	0.0369
T2	13.1 - 6.3	0.264	10	0.1617	0.0296
T3	6.3 - 0	0.048	11	0.0774	0.0113

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
70.00	SBNH-1D6565C	10	4.379	0.5258	0.1187	38203
68.50	18-ft doppler	10	4.379	0.5258	0.1187	38203
68.00	Andrew 10' Platform	10	4.379	0.5258	0.1187	38203
55.00	Verizon Sector Frame	10	3.870	0.5056	0.1120	38203
51.00	RHSDC-3315-PF-48	10	3.423	0.4868	0.1057	22472

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
L1	59.5	Latticed Pole Leg	A325N	0.8750	4	11.41	40.59	0.281 ✔	1	Bolt Tension
		Latticed Pole Horizontal	A325N	0.5000	1	2.85	7.95	0.359 ✔	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Latticed Pole Top Girt	A325N	0.6250	2	2.00	12.43	0.161 ✔	1	Bolt Shear
L2	39.5	Latticed Pole Leg	A325N	0.8750	4	26.51	40.59	0.653 ✔	1	Bolt Tension
		Latticed Pole Horizontal	A325N	0.7500	1	13.30	17.89	0.743 ✔	1	Bolt Shear
T1	19.5	Diagonal	A325N	0.7500	1	12.63	17.89	0.706 ✔	1	Bolt Shear
		Horizontal	A325N	0.5000	1	3.99	7.95	0.502 ✔	1	Bolt Shear
T2	13.1	Diagonal	A325N	0.7500	1	12.83	17.89	0.717 ✔	1	Bolt Shear
		Horizontal	A325N	0.5000	1	0.95	7.95	0.119 ✔	1	Bolt Shear
T3	6.3	Horizontal	A325N	0.5000	1	9.75	13.89	0.702 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	Rohn 3.5 STD	20.00	6.67	59.8 K=1.00	2.6795	1.00	-51.59	92.80	0.556 [1] ✔
L2	39.5 - 19.5	3.5 STD with 4.5x0.237 HSS Half Pipe	20.00	6.67	61.4 K=1.00	4.3485	1.00	-114.92	148.60	0.773 [1] ✔
T1	19.5 - 13.1	3.5 STD with 4.5x0.237 HSS Half Pipe	6.41	6.41	59.0 K=1.00	4.3485	1.00	-131.02	151.69	0.864 [1] ✔
T2	13.1 - 6.3	3.5 STD with 4.5x0.237 HSS Half Pipe	6.81	6.81	62.7 K=1.00	4.3485	1.00	-145.96	146.79	0.994 [1] ✔
T3	6.3 - 0	3.5 STD with 4.5x0.237 HSS Half Pipe	6.31	3.16	29.0 K=1.00	4.3485	1.00	-150.43	183.98	0.818 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	P2.5x.203	10.10	9.65	122.3 K=1.00	1.7040	-16.90	24.97	0.677 [1] ✔
L2	39.5 - 19.5	P2.5x.203	10.10	9.60	121.6	1.7040	-21.75	25.19	0.863 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	19.5 - 13.1	ROHN 2.5 STD	10.19	9.71	123.0 K=1.00	1.7040	-12.63	24.74	0.511 [1] ✔
T2	13.1 - 6.3	ROHN 2.5 STD	11.01	10.53	133.4 K=1.00	1.7040	-12.72	21.60	0.589 [1] ✔
T3	6.3 - 0	L3x3x3/16	7.96	7.65	108.9 K=1.11	1.0900	-9.25	18.67	0.496 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	L2 1/2x2 1/2x1/4	7.58	7.04	172.1 K=1.00	1.1900	-2.84	9.08	0.313 [1] ✔
L2	39.5 - 19.5	L3x3x3/8	7.58	6.98	142.7 K=1.00	2.1100	-13.30	23.42	0.568 [1] ✔
T1	19.5 - 13.1	L3x3x1/4	7.58	7.00	141.9 K=1.00	1.4400	-3.99	16.16	0.247 [1] ✔
T2	13.1 - 6.3	L3x3x1/4	8.28	7.70	156.0 K=1.00	1.4400	-0.95	13.36	0.071 [1] ✔
T3	6.3 - 0	2L2x2x3/16	9.02	6.38	91.2 K=1.00	1.4300	-10.34	35.05	0.295 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	L3x5x1/4	7.58	6.85	122.5 K=0.99	1.9400	-3.87	26.25	0.147 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	6.3 - 0	L2x2x3/16	2.26	2.07	91.5 K=1.45	0.7150	-1.46	14.91	0.098 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	6.3 - 0	L2x2x3/16	3.78	3.44	112.4 K=1.07	0.7150	-1.08	11.92	0.091 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	Rohn 3.5 STD	20.00	6.67	59.8	2.6795	45.64	120.58	0.379 [1] ✔
L2	39.5 - 19.5	3.5 STD with 4.5x0.237 HSS Half Pipe	20.00	6.67	61.4	4.3485	106.06	195.68	0.542 [1] ✔
T1	19.5 - 13.1	3.5 STD with 4.5x0.237 HSS Half Pipe	6.41	6.41	59.0	4.3485	121.00	195.68	0.618 [1] ✔
T2	13.1 - 6.3	3.5 STD with 4.5x0.237 HSS Half Pipe	6.81	6.81	62.7	4.3485	134.54	195.68	0.688 [1] ✔
T3	6.3 - 0	3.5 STD with 4.5x0.237 HSS Half Pipe	6.31	3.16	29.0	4.3485	137.82	195.68	0.704 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	P2.5x.203	10.10	9.65	122.3	1.7040	16.93	53.68	0.315 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L2	39.5 - 19.5	P2.5x.203	10.10	9.60	121.6	1.7040	21.74	53.68	0.405 [1] ✔
T1	19.5 - 13.1	ROHN 2.5 STD	10.19	9.71	123.0	1.7040	12.62	53.68	0.235 [1] ✔
T2	13.1 - 6.3	ROHN 2.5 STD	11.01	10.53	133.4	1.7040	12.83	53.68	0.239 [1] ✔
T3	6.3 - 0	L3x3x3/16	7.96	7.65	97.7	1.0900	9.29	35.32	0.263 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	L2 1/2x2 1/2x1/4	7.58	7.04	113.1	0.7753	2.85	33.73	0.085 [1] ✔
L2	39.5 - 19.5	L3x3x3/8	7.58	6.98	95.3	1.3364	13.24	58.13	0.228 [1] ✔
T1	19.5 - 13.1	L3x3x1/4	7.58	7.00	93.0	0.9628	3.27	46.94	0.070 [1] ✔
T2	13.1 - 6.3	L3x3x1/4	8.28	7.70	102.0	0.9628	0.63	46.94	0.013 [1] ✔
T3	6.3 - 0	2L2x2x3/16	9.02	6.38	92.6	0.8967	9.75	43.72	0.223 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	59.5 - 39.5	L3x5x1/4	7.58	6.85	101.0	1.3144	3.99	57.18	0.070 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	6.3 - 0	L2x2x3/16	2.26	2.07	40.2	0.7150	1.21	23.17	0.052 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	6.3 - 0	L2x2x3/16	3.78	3.44	66.9	0.7150	1.33	23.17	0.058 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	59.5 - 39.5	Latticed Pole Leg	Rohn 3.5 STD	2	-51.59	92.80	55.6	Pass
L2	39.5 - 19.5	Latticed Pole Leg	3.5 STD with 4.5x0.237 HSS Half Pipe	23	-114.92	148.60	77.3	Pass
L1	59.5 - 39.5	Latticed Pole Diagonal	P2.5x.203	7	-16.90	24.97	67.7	Pass
L2	39.5 - 19.5	Latticed Pole Diagonal	P2.5x.203	28	-21.75	25.19	86.3	Pass
L1	59.5 - 39.5	Latticed Pole Horizontal	L2 1/2x2 1/2x1/4	16	-2.84	9.08	31.3	Pass
L2	39.5 - 19.5	Latticed Pole Horizontal	L3x3x3/8	25	-13.30	23.42	56.8	Pass
L1	59.5 - 39.5	Latticed Pole Top Girt	L3x5x1/4	4	-3.87	26.25	14.7	Pass
T1	19.5 - 13.1	Leg	3.5 STD with 4.5x0.237 HSS Half Pipe	44	-131.02	151.69	86.4	Pass
T2	13.1 - 6.3	Leg	3.5 STD with 4.5x0.237 HSS Half Pipe	53	-145.96	146.79	99.4	Pass
T3	6.3 - 0	Leg	3.5 STD with 4.5x0.237 HSS Half Pipe	62	-150.43	183.98	81.8	Pass
T1	19.5 - 13.1	Diagonal	ROHN 2.5 STD	49	-12.63	24.74	51.1	Pass
T2	13.1 - 6.3	Diagonal	ROHN 2.5 STD	58	-12.72	21.60	58.9	Pass
T3	6.3 - 0	Diagonal	L3x3x3/16	65	-9.25	18.67	49.6	Pass
T1	19.5 - 13.1	Horizontal	L3x3x1/4	48	-3.99	16.16	24.7	Pass
T2	13.1 - 6.3	Horizontal	L3x3x1/4	55	-0.95	13.36	7.1	Pass
T3	6.3 - 0	Horizontal	2L2x2x3/16	64	-10.34	35.05	29.5	Pass
T3	6.3 - 0	Redund Horz 1 Bracing	L2x2x3/16	73	-1.46	14.91	9.8	Pass
T3	6.3 - 0	Redund Diag 1 Bracing	L2x2x3/16	74	-1.08	11.92	9.1	Pass
							Summary	
						Latticed Pole Leg	77.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						(L2)		
						Latticed Pole Diagonal (L2)	86.3	Pass
						Latticed Pole Horizontal (L2)	56.8	Pass
						Latticed Pole Top Girt (L1)	14.7	Pass
						Leg (T2)	99.4	Pass
						Diagonal (T2)	58.9	Pass
						Horizontal (T3)	29.5	Pass
						Redund Horz 1 Bracing (T3)	9.8	Pass
						Redund Diag 1 Bracing (T3)	9.1	Pass
						Bolt Checks	74.3	Pass
						RATING =	**99.4**	**Pass**

SITE NAME: AVON - MONTEVIDEO ROAD
FA NUMBER: 10141394
SITE NUMBER: CTL01330
MULTI-CARRIER - MRCTB017054
RETROFIT - MRCTB019405
324 MONTEVIDEO ROAD
AVON, CT 06001
HARTFORD COUNTY

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 02862-2105
CONTACT: TODD OLIVER
PHONE: (774) 369-3618
E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

SITE ACQUISITION

COMPANY: SMARTLINK, LLC
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
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CONTACT: TODD OLIVER
PHONE: (774) 369-3618
E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

ENGINEER

COMPANY: MASER CONSULTING CONNECTICUT
ADDRESS: 331 NEWMAN SPRINGS RD, SUITE 203
CITY, STATE, ZIP: RED BANK, NJ 07701-5699
CONTACT: FRANK PAZDEN
PHONE: (973) 398-3110 x4505
E-MAIL: FPAZDEN@MASERCONSULTING.COM

RF ENGINEER

COMPANY: NEW CINGULAR WIRELESS PCS, LLC
ADDRESS: 550 COCHITUATE RD.
CITY, STATE, ZIP: FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
E-MAIL: CS6970@ATT.COM

CONSTRUCTION MANAGER

COMPANY: SMARTLINK, LLC.
ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, SUITE 102
CITY, STATE, ZIP: NORTH BILLERICA, MA 02862-2105
CONTACT: MARK DONNELLY
PHONE: (617) 515-2080
E-MAIL: MARK.DONNELLY@SMARTLINKLLC.COM

SITE INFORMATION

APPLICANT/LESSEE

at&t

NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE RD.
FRAMINGHAM, MA 01701

PROPERTY/TOWER OWNER:

NAME:	THE TALCOTT MOUNTAIN SCIENCE CENTER FOR STUDENT INVOLVEMENT, INC.
ADDRESS:	324 MONTEVIDEO ROAD
CITY, STATE, ZIP:	AVON, CT 06001
LATITUDE:	41.811797° N
LONGITUDE:	72.798767° W
LAT./LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING EQUIPMENT SHELTER AND LATTICE TOWER WITH DOPPLER RADAR DOME
ZONING/JURISDICTION:	TOWN OF AVON
CURRENT USE/PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE:	IIB
USE GROUP:	U

VICINITY MAP

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

1. 2016 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2012 IBC
2. 2014 NATIONAL ELECTRICAL CODE-NFPA 70
3. 2015 NFPA 1
4. LIGHTNING PROTECTION CODE 201
5. AMERICAN CONCRETE INSTITUTE 318
6. AMERICAN INSTITUTE OF STEEL CONSTRICTION 360-10
7. EIA/TIA-222 REVISION G
8. TIA 607 FOR GROUNDING
9. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
10. IEEE C2 LATEST EDITION
11. TELCORDIA GR-1275 12. ANSI T1.311

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

PROJECT DESCRIPTION/SCOPE OF WORK

THIS PROJECT WILL BE COMPRISED OF:

- (3) PROPOSED ANTENNAS TO REPLACE (3) EXISTING ANTENNAS, (1) PER SECTOR
- (3) PROPOSED RRUS TO REPLACE (3) EXISTING RRUS, (1) PER SECTOR
- ADD DUS AND 1DL2 TO LTE CABINET

PROPOSED PROJECT SCOPE BASED OFF RFDS ID# 1017786, VERSION 5.0, LAST UPDATED 10/31/16
MULTI-CARRIER - MRCTB017054
RETROFIT - MRCTB019405

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NEW CINGULAR WIRELESS PCS, LLC
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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	16946029A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
2	04/10/17	REVISED W/ TOWER MODS	RA	FEP
1	12/27/16	FOR CONSTRUCTION	RA	FEP
0	12/14/16	ISSUED FOR REVIEW	AJC	FEP

STATE OF CONNECTICUT
FRANK E. PAZDEN
12
PROFESSIONAL ENGINEER
LICENSED
FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.28

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:
AVON - MONTEVIDEO ROAD
FA# 10141394
SITE # CTL01330
324 MONTEVIDEO ROAD
AVON, CT 06001
HARTFORD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING 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 GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. 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.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" 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.

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

   CONTRACTOR - SMARTLINK
   SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)

2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
3. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
4. 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.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
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. 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.
10. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
11. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
12. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
13. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
14. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
15. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
16. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
18. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
19. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
20. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
21. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
22. 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.
23. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
24. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
25. 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.
26. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
27. 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.
28. 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.
29. 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 ALERT OF DANGEROUS EXPOSURE LEVELS.

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SCALE :	JOB NUMBER :
AS SHOWN	16946029A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
2	04/10/17	REVISED W/ TOWER MODS	RA	FEP
1	12/27/16	FOR CONSTRUCTION	RA	FEP
0	12/14/16	ISSUED FOR REVIEW	AJC	FEP

STATE OF CONNECTICUT — FRANK E. PAZDEN — 20981 — LICENSED PROFESSIONAL ENGINEER

FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.20981

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FA# 10141394
SITE # CTL01330

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HARTFORD COUNTY

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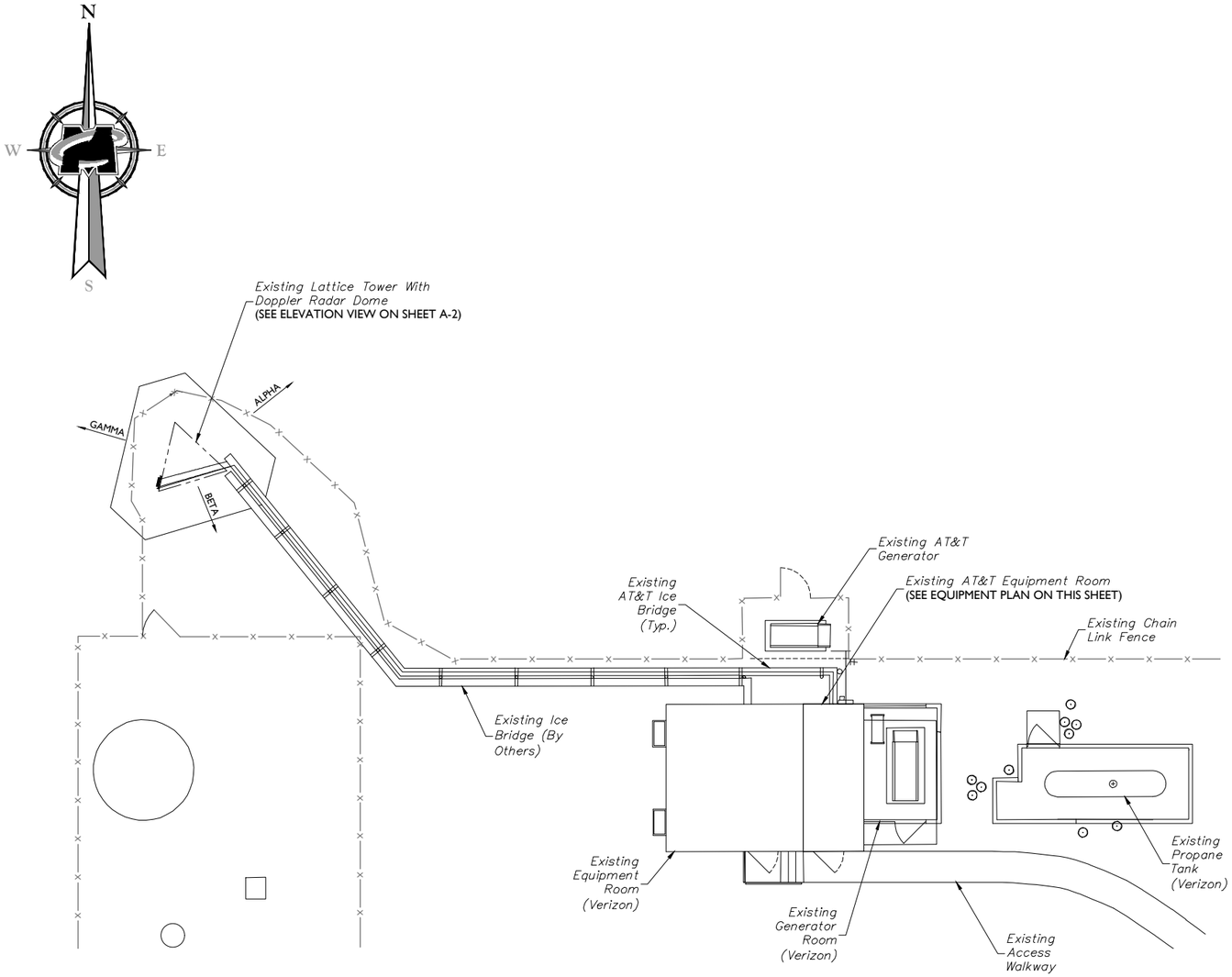
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE :
GENERAL NOTES

SHEET NUMBER :
GN-1

NOTES:

1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
2. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
3. SUBCONTRACTOR SHALL PROVIDE ALL CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. ALL NEW CABLING TO BE ROUTED ON EXISTING CABLE RACKS.
5. ALL INSTALLED GROUND LUGS MUST BE INSPECTION HOLE LUGS.
6. INSTALLED GROUND LEADS MUST TERMINATE AT MGB, NOT HALO.
7. NO OVERLAPPING GROUND HARDWARE.



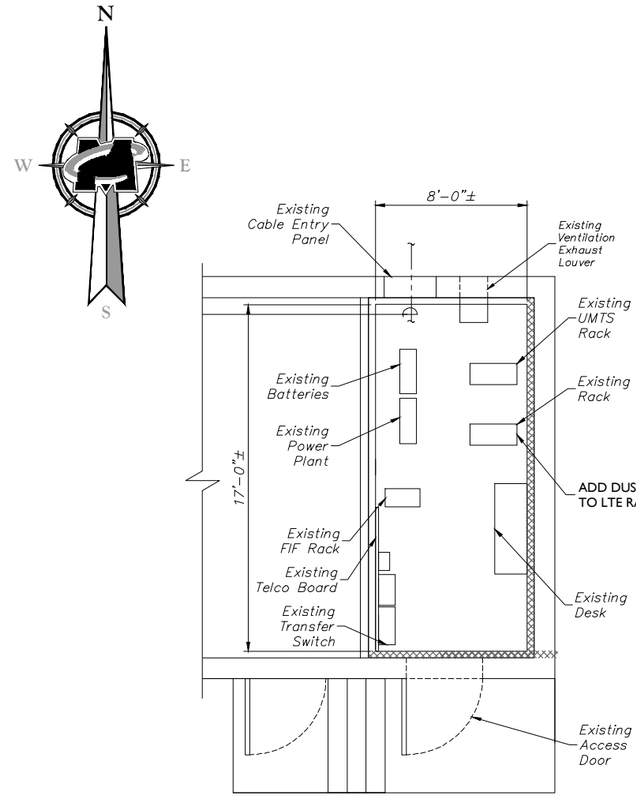
COMPOUND PLAN

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

SCALE: 1" = 10' FOR 24"X36" DRAWINGS
(DO NOT SCALE 11"X17" DRAWINGS)



EQUIPMENT PLAN

GRAPHIC SCALE

4 0 2 4 8

(IN FEET)

SCALE: 1" = 4' FOR 24"X36" DRAWINGS
(DO NOT SCALE 11"X17" DRAWINGS)

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STATE OF CONNECTICUT
FRANK E. FAZDEN
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LICENSED PROFESSIONAL ENGINEER

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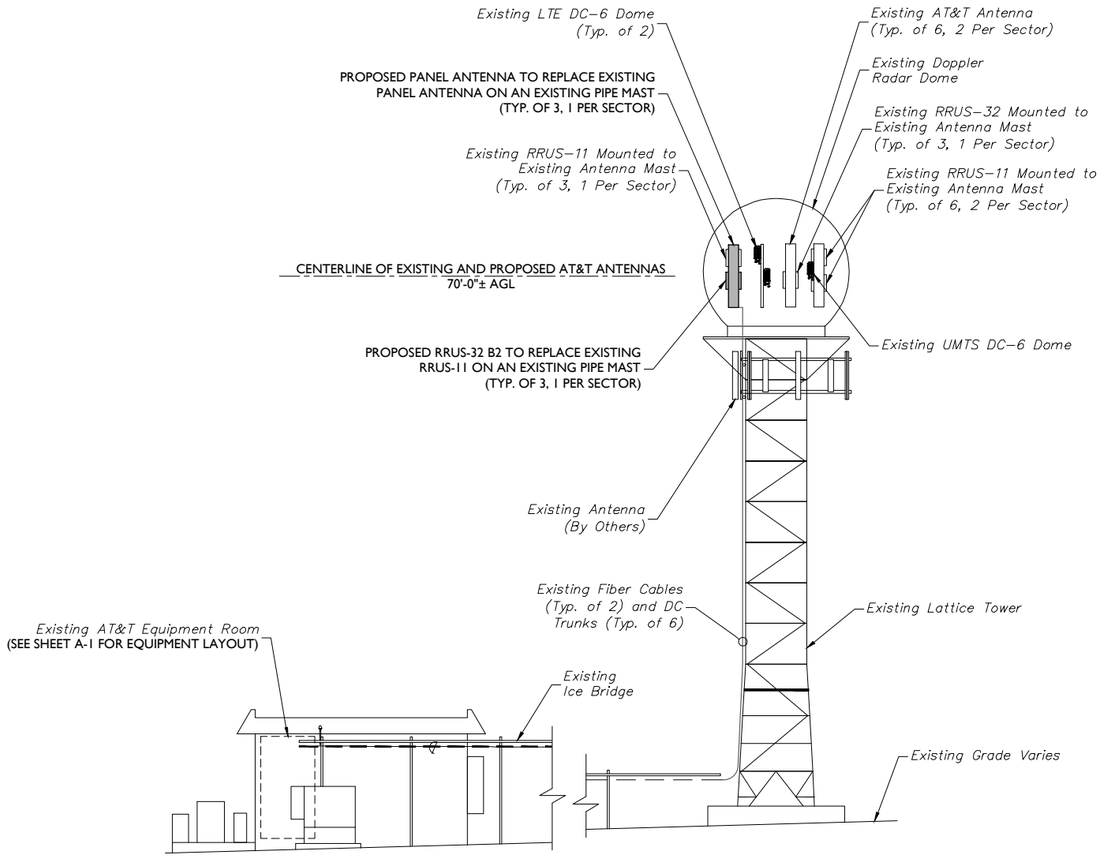
SHEET TITLE:
COMPOUND PLAN AND EQUIPMENT PLAN

SHEET NUMBER:
A-1



ELEVATION VIEW

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

SCALE: 1" = 10' FOR 24"X36" DRAWINGS
(DO NOT SCALE 11"X17" DRAWINGS)

NOTE:

THESE PLANS WERE DESIGNED WITH THE ASSUMPTION THAT THE PREVIOUS PLANS PREPARED BY MASER CONSULTING CONNECTICUT DATED 02/15/16 WILL BE COMPLETED PRIOR TO THE CURRENT SCOPE OF WORK BEING INSTALLED. ANY CHANGES IN PREVIOUS DESIGN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

PROPOSED ANTENNA AND RRUS CONFIGURATION

SECTOR		EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL ELEV (ft.)	RRUS CONFIGURATION	STATUS
ALPHA	A1	Andrew SBNH-1D6565C	Andrew SBNH-1D6565C	UMTS	REMAIN	96.40	11.90	7.10	60.80	90°	70'	(2) RRUS-11	REMAIN
	A2	CCI OPA-65R-LCUU-H8	CCI OPA-65R-LCUU-H8	LTE WCS	REMAIN	92.70	14.40	7.00	88.00	90°	70'	(1) RRUS-32	REMAIN
	A3	VACANT MAST	VACANT MAST	-	-	-	-	-	-	-	-	-	-
	A4	Andrew SBNH-1D6565C	**TPA-65R-LCUUUU-H8**	**LTE 700/1900**	**NEW**	**96.00**	**14.40**	**8.60**	**75.00**	**90°**	**70'**	(1) RRUS-11 **(1) RRUS-32 B2**	REMAIN **NEW**
BETA	B1	Andrew SBNH-1D6565C	Andrew SBNH-1D6565C	UMTS	REMAIN	96.40	11.90	7.10	60.80	210°	70'	(2) RRUS-11	REMAIN
	B2	CCI OPA-65R-LCUU-H8	CCI OPA-65R-LCUU-H8	LTE WCS	REMAIN	92.70	14.40	7.00	88.00	210°	70'	(1) RRUS-32	REMAIN
	B3	VACANT MAST	VACANT MAST	-	-	-	-	-	-	-	-	-	-
	B4	Andrew SBNH-1D6565C	**TPA-65R-LCUUUU-H8**	**LTE 700/1900**	**NEW**	**96.00**	**14.40**	**8.60**	**75.00**	**210°**	**70'**	(1) RRUS-11 **(1) RRUS-32 B2**	REMAIN **NEW**
GAMMA	C1	Andrew SBNH-1D6565C	Andrew SBNH-1D6565C	UMTS	REMAIN	96.40	11.90	7.10	60.80	330°	70'	(2) RRUS-11	REMAIN
	C2	CCI OPA-65R-LCUU-H8	CCI OPA-65R-LCUU-H8	LTE WCS	REMAIN	92.70	14.40	7.00	88.00	330°	70'	(1) RRUS-32	REMAIN
	C3	VACANT MAST	VACANT MAST	-	-	-	-	-	-	-	-	-	-
	C4	Andrew SBNH-1D6565C	**TPA-65R-LCUUUU-H8**	**LTE 700/1900**	**NEW**	**96.00**	**14.40**	**8.60**	**75.00**	**330°**	**70'**	(1) RRUS-11 **(1) RRUS-32 B2**	REMAIN **NEW**

ANTENNA SCHEDULE

STRUCTURAL NOTES:

1. NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF THE EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN COMPLETED.
2. THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT AS-BUILT FIELD CONDITIONS FOR ALL EXISTING INVENTORY LOADING/ANTENNAS/APPURTANENCES ON STRUCTURE. REFER TO THE LATEST STRUCTURAL ANALYSIS FOR EXISTING STRUCTURE LOADING AND THE PROPOSED METHOD OF ATTACHMENT OF THE PROPOSED ANTENNAS/CABLES.
3. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.

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STATE OF CONNECTICUT — FRANK E. PAZDEN — LICENSED PROFESSIONAL ENGINEER

FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.0[illegible]

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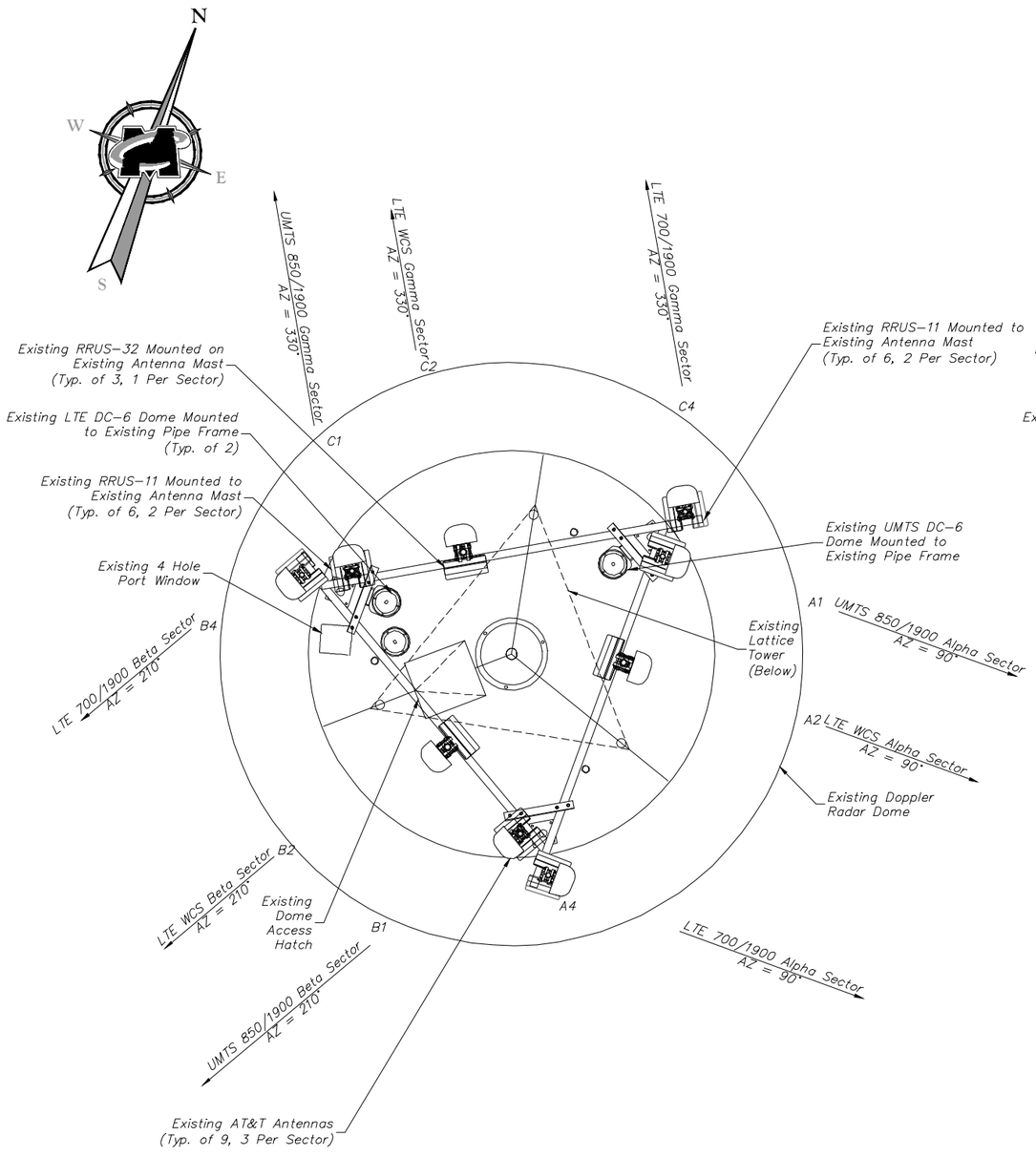
SHEET TITLE :

ELEVATION VIEW AND ANTENNA SCHEDULE

SHEET NUMBER :

A-2



EXISTING - ANTENNA LAYOUT

NOT TO SCALE

NOTES:

EXISTING ANTENNA LAYOUT WITHIN EXISTING RF-TRANSPARENT DOME STRUCTURE BASED ON PHOTOS BY OTHERS, AS-BUILT DRAWINGS BY EASTERN COMMUNICATIONS DATED 4/2/14, AS-BUILT DRAWINGS BY BERKSHIRE WIRELESS DATED 8/7/15, AND REDLINED RFDS REV. 2 BY EASTERN COMMUNICATIONS DATED 4/2/14. THE BASIS FOR EACH AS-BUILT DRAWING WAS A CONSTRUCTION DRAWING SET PREPARED BY CENTEK ENGINEERING DATED 01/24/14.

NOTE:

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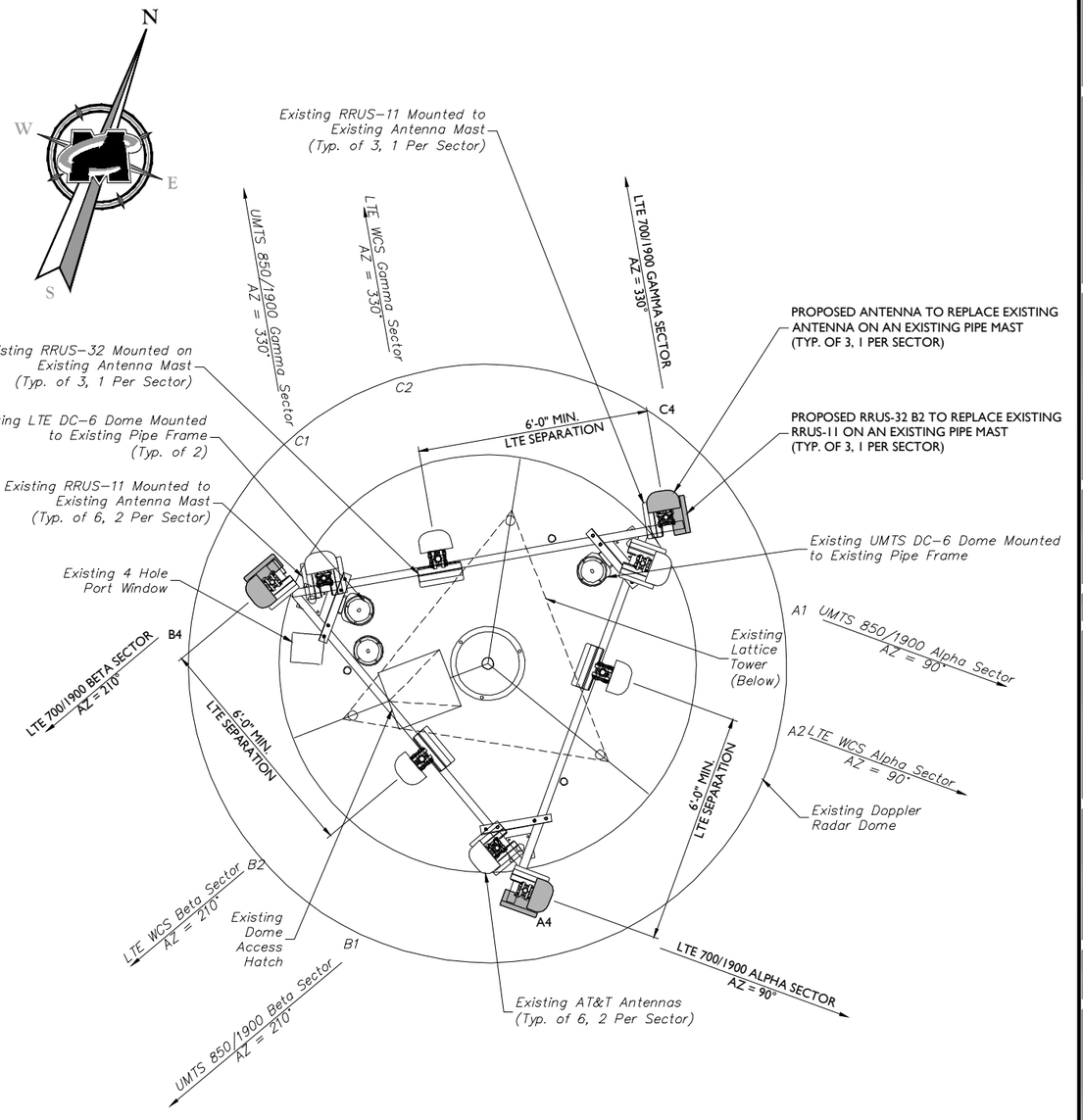

PROPOSED - ANTENNA LAYOUT

NOT TO SCALE

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STATE OF CONNECTICUT — FRANK E. FAZDEN — 20911 — LICENSED PROFESSIONAL ENGINEER

FRANK E. FAZDEN
CONNECTICUT LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.20911

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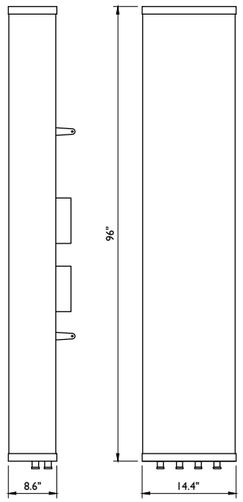
SHEET TITLE :
ANTENNA LAYOUTS

SHEET NUMBER :
A-3

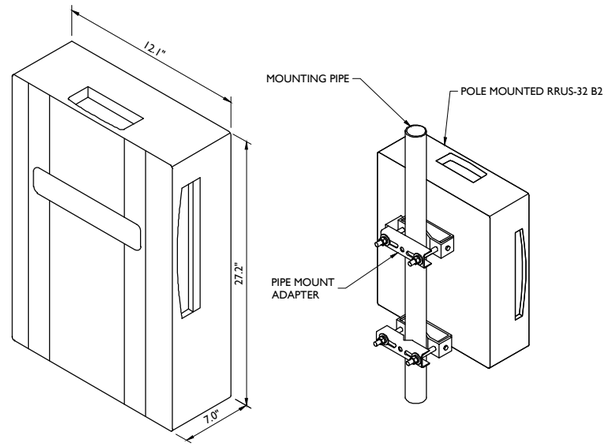


WEIGHT = 75 LBS

CCI TPA-65R-LCUUUU-H8

ANTENNA AND RRUS MOUNTING DETAILS

NOT TO SCALE



RRUS–32 B2 DIMENSIONS (H X W X D): 27.2" X 12.1" X 7.0" (INCLUDES SUNSHIELD)
WEIGHT: 53 LBS

RRUS-32 B2 DETAIL

NOT TO SCALE

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STATE OF CONNECTICUT
FRANK E. PAZDEN
LICENSED PROFESSIONAL ENGINEER
FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.0[illegible]

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SHEET TITLE :
DETAILS

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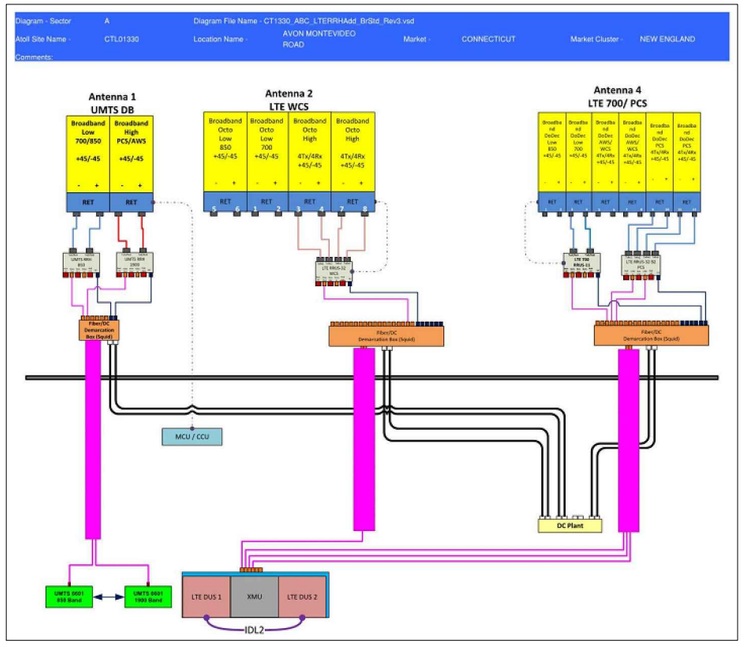
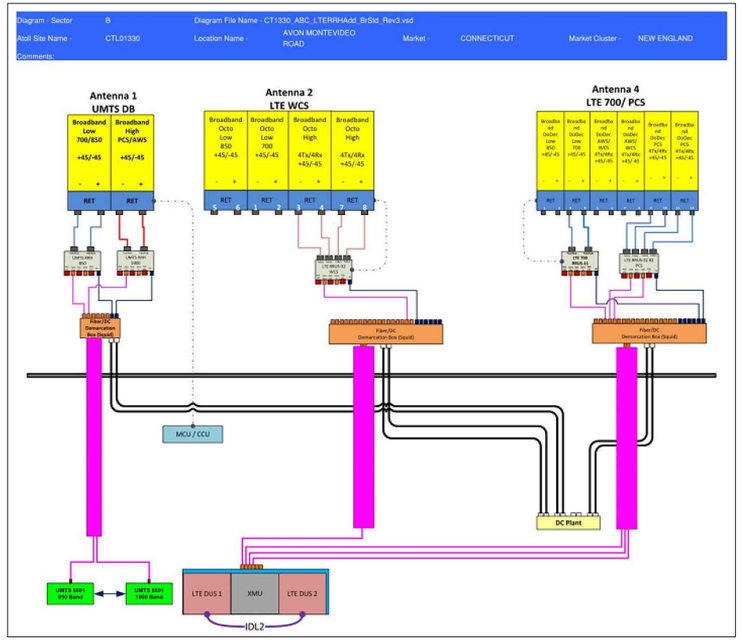
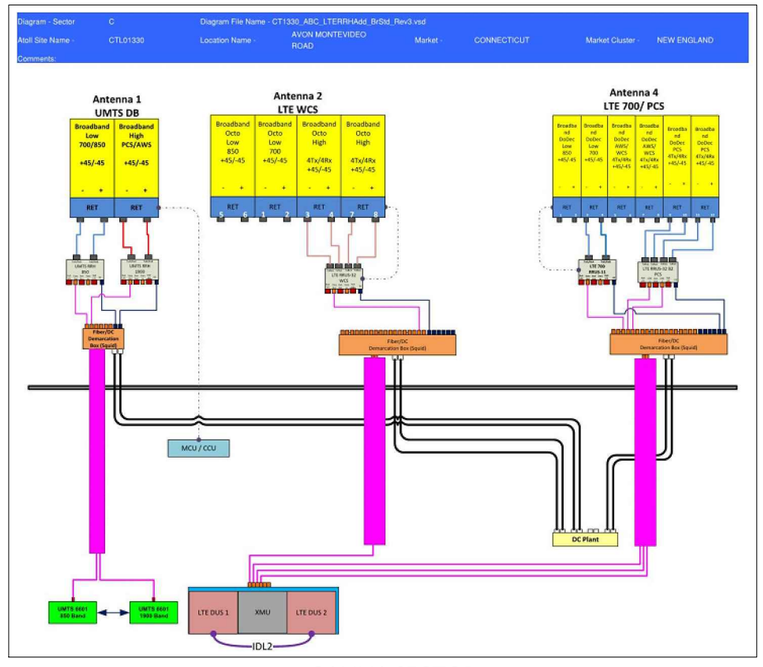


ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTL01330_2016-LTE-Extended-Carrier_RRH-Add_om636a_2051A048Z7_10141394_139386_01-11-2016_Final-Approved_v5.00"

RF PLUMBING DIAGRAMS

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STATE OF CONNECTICUT — FRANK E. PATEN — LICENSED PROFESSIONAL ENGINEER

FRANK E. PATEN
CONNECTICUT LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.0018

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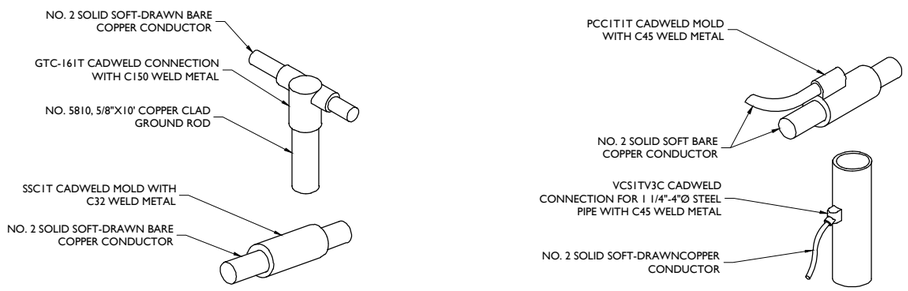
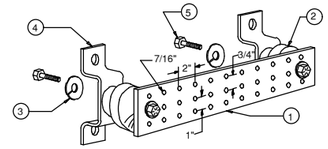
SHEET TITLE : RF PLUMBING DIAGRAMS

SHEET NUMBER : A-5



CADWELD DETAILS
NOT TO SCALE



LEGEND

1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.

2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4

3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8

4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056

5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

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

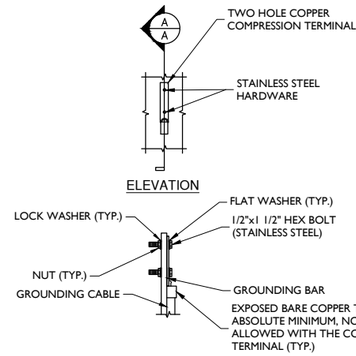
SECTION "P" - SURGE PRODUCERS

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.

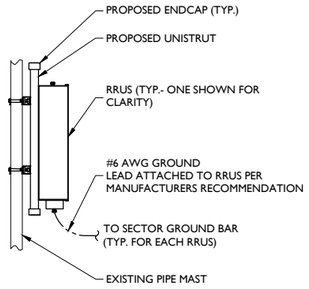
SECTION "A" - SURGE ABSORBERS

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

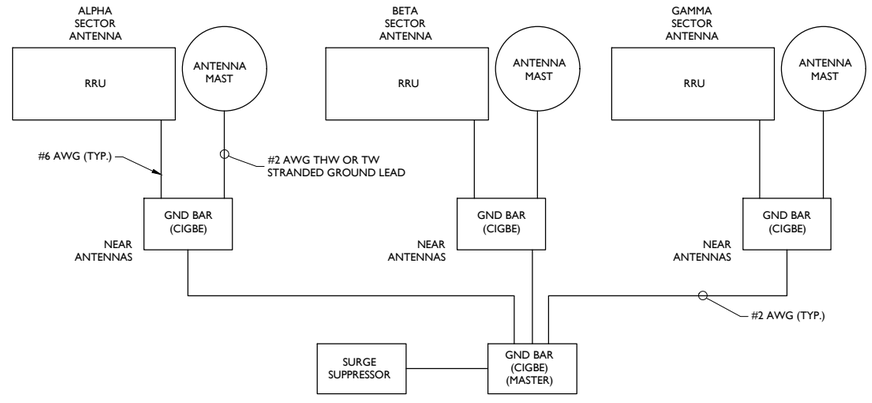
MASTER GROUND BAR
NOT TO SCALE



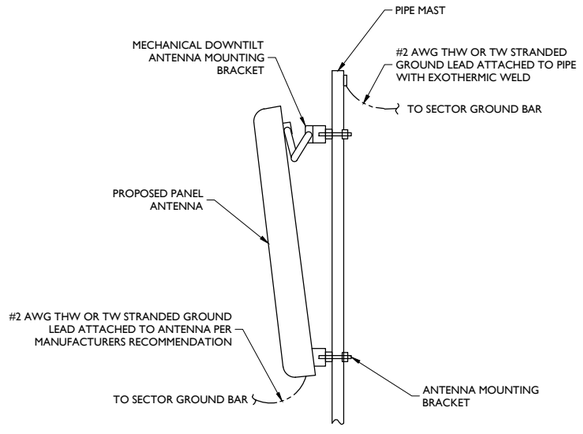
TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE



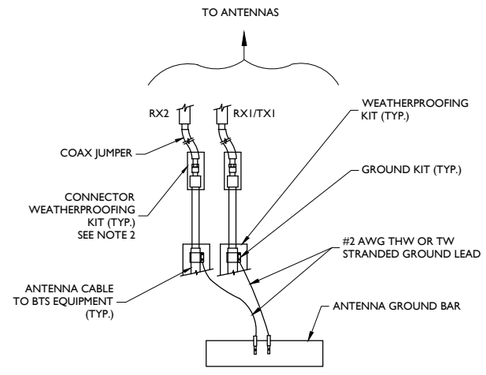
RRH GROUNDING
NOT TO SCALE



SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE



ANTENNA GROUNDING
NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR
NOT TO SCALE

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2	04/10/17	REVISED W/ TOWER MODS	RA	FEP
1	12/27/16	FOR CONSTRUCTION	RA	FEP
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STATE OF CONNECTICUT — FRANK E. PAZDEN — LICENSED PROFESSIONAL ENGINEER
FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.38

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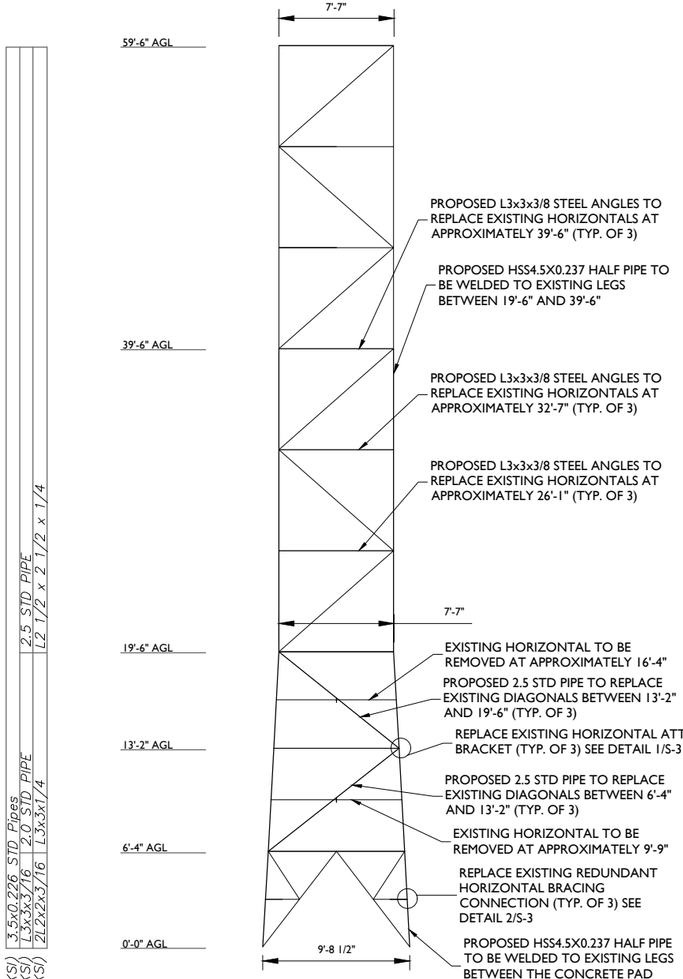
SHEET TITLE: GROUNDING DETAILS

SHEET NUMBER: G-1

NOTES:

1. YIELD STRENGTH OF EXISTING TOWER MEMBERS IS ASSUMED.
2. EXISTING TOWER MEMBERS WERE DETERMINED FROM A STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK SOLUTIONS, PROJECT NO. 15001.047, DATED JUNE 02, 2015.
3. CONTRACTOR IS TO REMOVE AND REPLACE EXISTING APPURTENANCES, MOUNTS AND TOWER HARDWARE AS REQUIRED TO INSTALL THE PROPOSED REINFORCEMENTS.
4. CONTRACTOR SHALL PERFORM A TOWER INSPECTION PRIOR TO PURCHASE AND/OR FABRICATION OF MATERIAL.
5. THE MEANS AND METHODS OF INSTALLATION ARE THE RESPONSIBILITIES OF THE CONTRACTOR.
6. ZRC GALVANIZING COMPOUND OR EQUAL SHALL TREAT ALL WELDED AREAS.
7. CONTRACTOR SHALL NOT REUSE EXISTING BOLTS AND ASSOCIATED HARDWARE.
8. THE OVERALL TOWER USAGE HAS BEEN DETERMINED TO BE 99.4% FOR THE EXISTING AND PROPOSED LOADING, ONCE THE TOWER MODIFICATIONS HAVE BEEN COMPLETED. MAXIMUM USAGE OCCURS AT THE TOWER DIAGONALS AT 19.5 FEET ABOVE GROUND LEVEL.



LEGS (50 KSI) 3.5x0.226 STD Pipes
DIAGONALS (36 KSI) L3x3x3/16 2.0" STD PIPE
HORIZONTALS (36 KSI) 2L2x2x3/16 L3x3x1/4
2.5" STD PIPE
L2 1/2 x 2 1/2 x 1/4

TOWER ELEVATION

GRAPHIC SCALE
5 0 2.5 5 10
(IN FEET)
SCALE: 1" = 5' FOR 24"X36" DRAWINGS
(DO NOT SCALE 11"X17" DRAWINGS)

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SBNH-1D6565C (att)	70	Andrew 10' Platform	68
SBNH-1D6565C (att)	70	APX75-866514 (verizon)	55
SBNH-1D6565C (att)	70	BXA-70063-6CF-EDIN-X (verizon)	55
TPA-65R-LCUUUU-H8 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
TPA-65R-LCUUUU-H8 (att)	70	Pirod 12' T-Frame Sector Mount (1) (verizon)	55
TPA-65R-LCUUUU-H8 (att)	70		
CCI OPA-65R-LCUU-H8 (att)	70	Pirod 12' T-Frame Sector Mount (1) (verizon)	55
CCI OPA-65R-LCUU-H8 (att)	70		
CCI OPA-65R-LCUU-H8 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
(3) RRUS-11 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
(3) RRUS-11 (att)	70	LPA-80063-6CF-EDIN-5 (verizon)	55
(3) RRUS-11 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 (att)	70	(3) RRH 2x60 (verizon)	55
RRUS 32 (att)	70	(3) RRH 2x60 (verizon)	55
RRUS 32 B2 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 B2 (att)	70	SBNHH-1D65B (verizon)	55
RRUS 32 B2 (att)	70	RHSDC-3315-PF-48 (verizon)	51
(3) DC6-48-06-18-8F (att)	70	RHSDC-3315-PF-48 (verizon)	51
18-ft doppler	68.5		

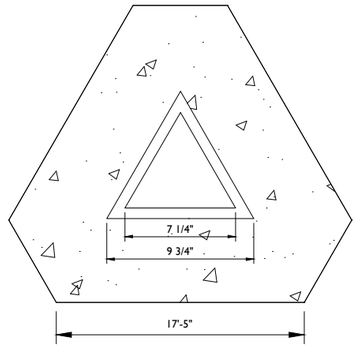
TOWER MODIFICATION TABLE

ELEVATION (FT)	MEMBER TYPE	EXISTING MEMBER SIZE	QTY	PROPOSED MEMBER SIZE	QTY	LENGTH *	END BOLT	QTY
0.00 - 39.5	LEGS	3.5 STD PIPE	-	HSS 4X0.237	-	± 39'-6"	-	-
0.00 - 6.3	DIAGONALS	L3x3x3/16	9	-	-	-	WELD **	-
6.3 - 13.2	DIAGONALS	2.0 STD PIPE	3	2.5 STD PIPE	3	± 11'-1"	3/4" Ø A325	6
13.2 - 19.5	DIAGONALS	2.0 STD PIPE	3	2.5 STD PIPE	3	±11'-1"	3/4" Ø A325	6
26.1', 32.7', 39.5'	HORIZONTALS	L2.5x2.5x1/4	9	L3x3x3/8	9	±7'-6"	3/4" Ø A325	18
19.5 - 39.5	DIAGONALS	2.5 STD PIPE	9	-	-	-	WELD **	-
39.5 - 39.5	DIAGONALS	2.5 STD PIPE	9	-	-	-	WELD **	-

* LENGTH IS THEORETICAL. CONTRACTOR TO FIELD VERIFY THE LENGTH OF THE EXISTING MEMBERS IN THE FIELD PRIOR TO FABRICATION OF THE PROPOSED BRACING MEMBER
* EXISTING BOLTED CONNECTIONS ARE TO BE REMOVED AND WELDED

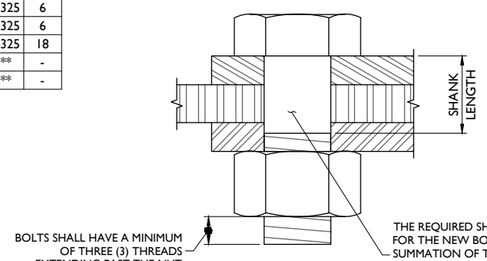
TOWER FOUNDATION REACTIONS

REACTION TYPE	FORCE
COMPRESSION (MAX KIP PER LEG)	173
UPLIFT (MAX KIP PER LEG)	158
OVERTURNING MOMENT (KIP-FT)	1399
SHEAR (KIP)	19



TOWER PLAN

GRAPHIC SCALE
5 0 2.5 5 10
(IN FEET)
SCALE: 1" = 5' FOR 24"X36" DRAWINGS
(DO NOT SCALE 11"X17" DRAWINGS)



BOLT DETAIL

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STATE OF CONNECTICUT — FRANK E. PAZDEN — PROFESSIONAL ENGINEER — LICENSED

FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.261

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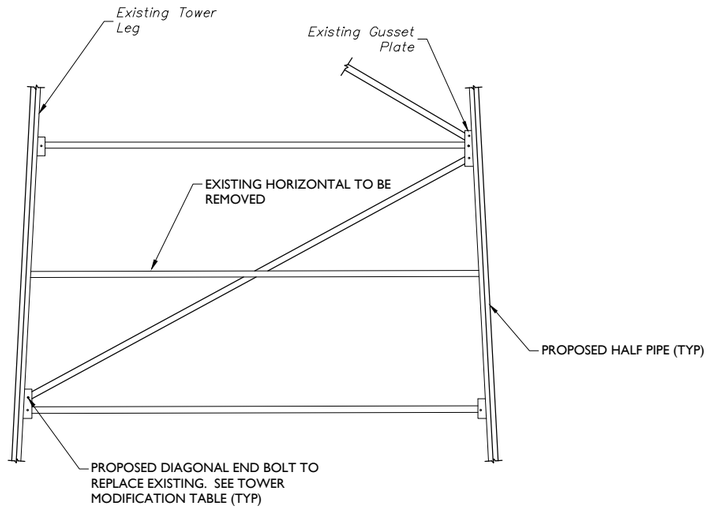
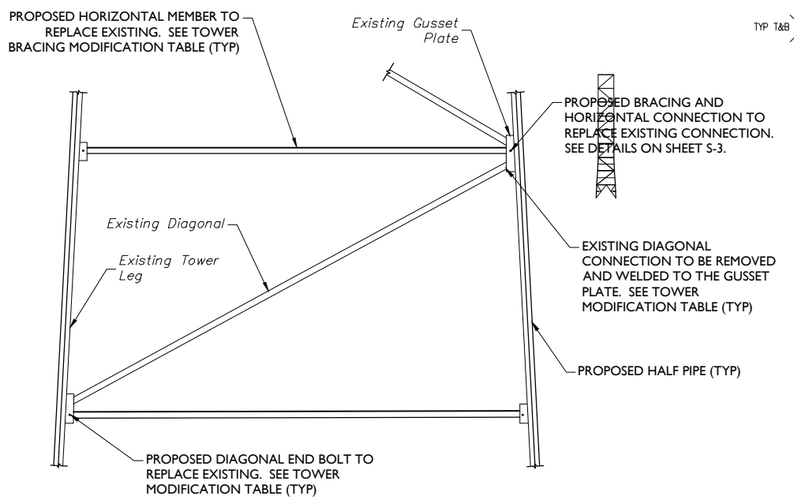
SHEET TITLE: TOWER MODIFICATION DESIGN DETAILS

SHEET NUMBER: S-1



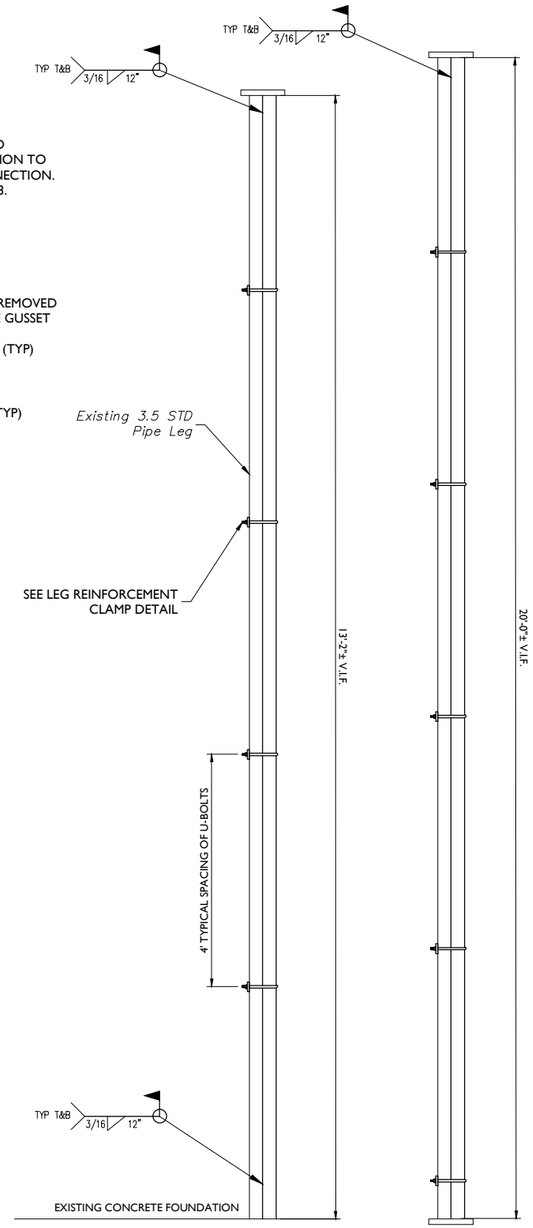
TOWER DIAGONAL REINFORCEMENT DETAILS

NOT TO SCALE



TOWER HORIZONTAL REINFORCEMENT DETAILS

NOT TO SCALE

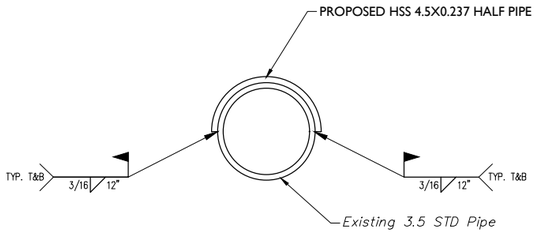


NOTE:

LENGTH FROM CONCRETE FOUNDATION TO TOP FLANGE PLATE TO BE DETERMINED IN THE FIELD PRIOR TO FABRICATION OF STEEL

TYPICAL LEG REINFORCEMENT DETAIL

NOT TO SCALE

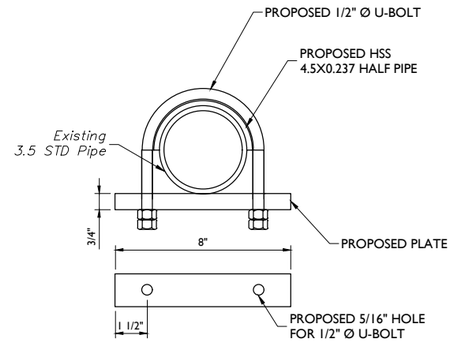


LEG REINFORCEMENT PLAN

NOT TO SCALE

NOTES:

1. PROPOSED LEG REINFORCEMENT TO BE INSTALLED BETWEEN THE ELEVATIONS 0'-0" AND 39'-6".
2. LEG REINFORCEMENT CONSISTS OF AN HSS4.5X0.2370 PIPE CUT IN HALF ACROSS ITS CROSS SECTION.
3. HSS4.5X0.2370 PIPE IS 4.5" O.D. AND 4.03" I.D.
4. DO NOT DRILL EXISTING TOWER STEEL
5. ZRC GALVANIZING COMPOUND OR EQUAL SHALL TREAT ALL WELDED AREAS



LEG REINFORCEMENT CLAMP DETAIL

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STATE OF CONNECTICUT — FRANK E. FAZDEN — PROFESSIONAL ENGINEER — LICENSED PROFESSIONAL ENGINEER

FRANK E. FAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.0[illegible]

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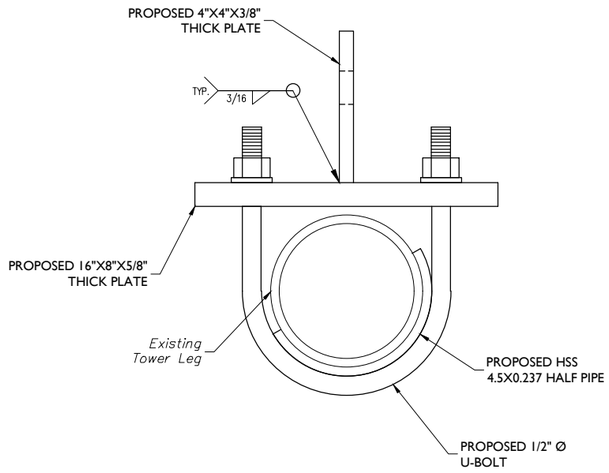
SHEET TITLE :

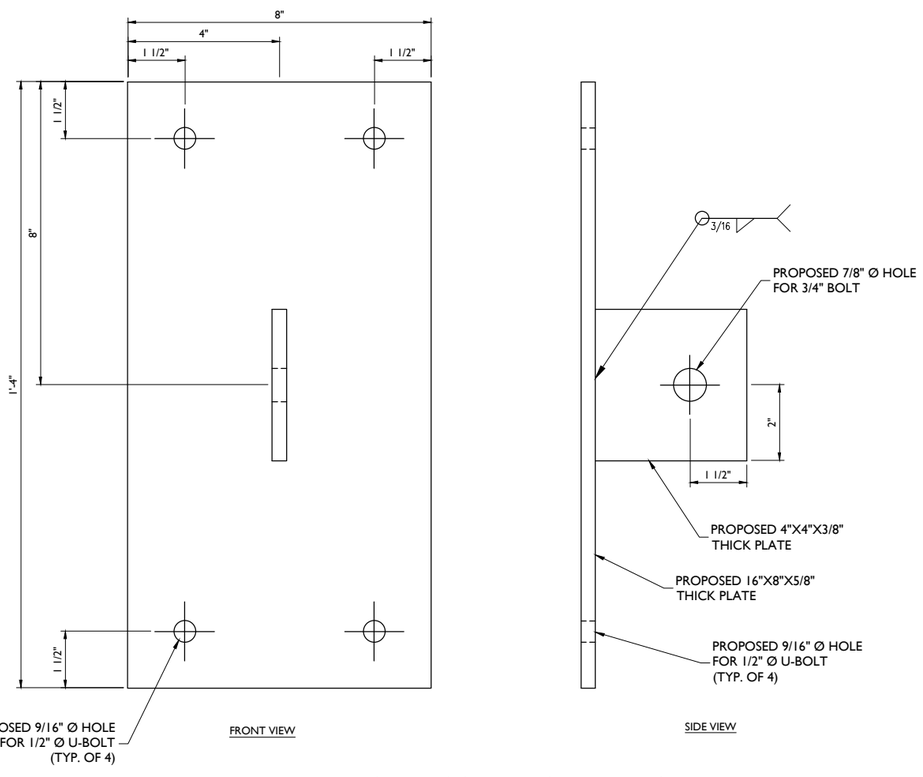
STRUCTURAL DETAILS - 1

SHEET NUMBER :

S-2



TOP VIEW



FRONT VIEW

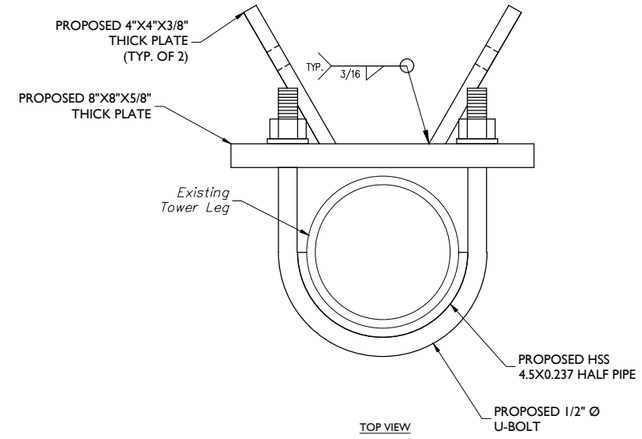
SIDE VIEW

BRACING CONNECTION DETAIL 1/S-3

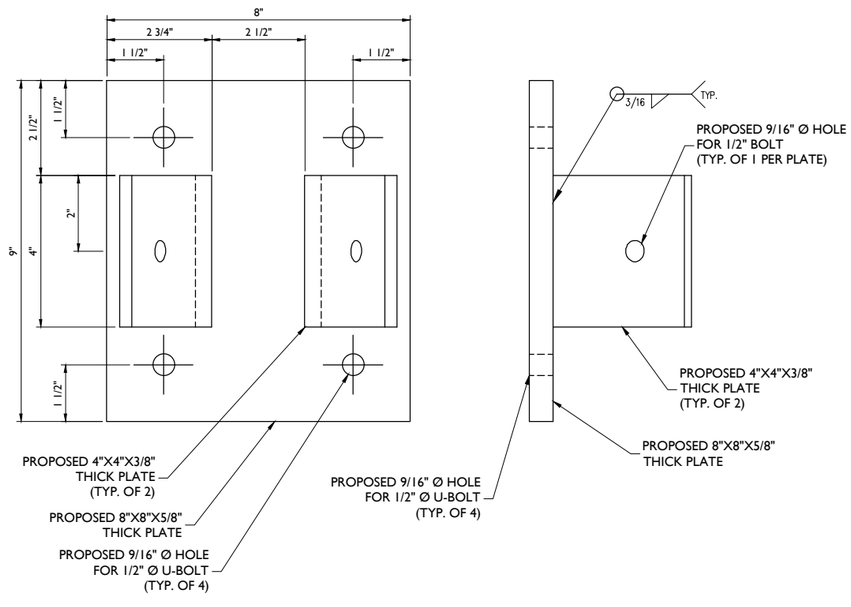
NOT TO SCALE

NOTES:

THIS BRACKET IS TO REATTACH THE PROPOSED HORIZONTAL BRACING TO THE EXISTING TOWER LEG AFTER THE LEG REINFORCEMENTS ARE COMPLETED



TOP VIEW



FRONT VIEW

SIDE VIEW

BRACING CONNECTION DETAIL 2/S-3

NOT TO SCALE

NOTES:

THIS BRACKET IS TO REATTACH THE EXISTING REDUNDANT HORIZONTAL BRACES TO THE EXISTING TOWER LEG AFTER THE LEG REINFORCEMENTS ARE COMPLETED

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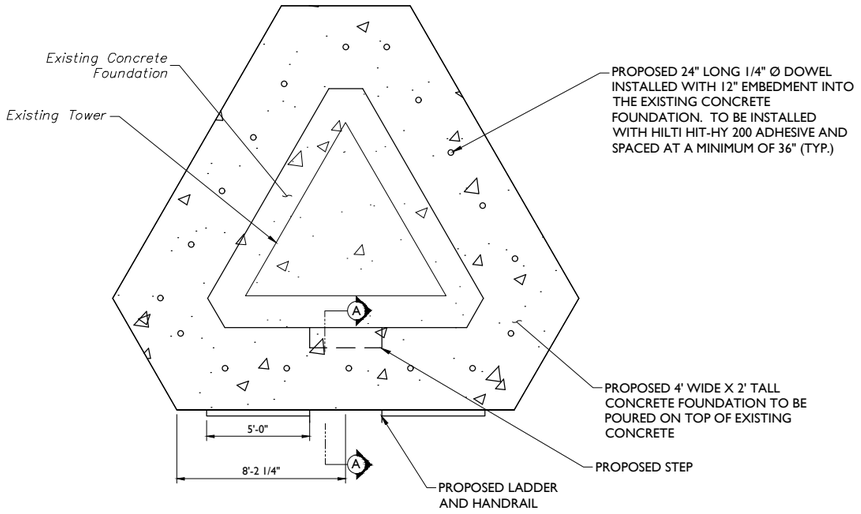
SHEET TITLE :

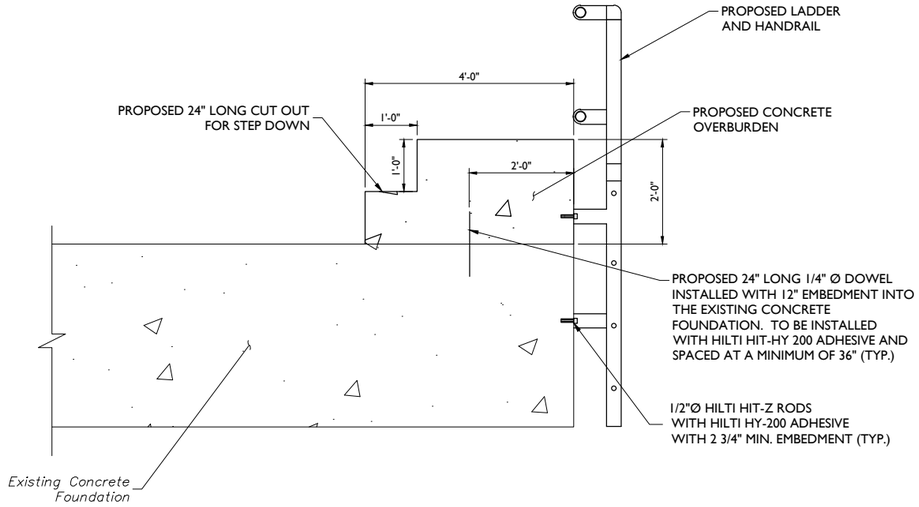
STRUCTURAL DETAILS - 2

SHEET NUMBER :

S-3



FOUNDATION REINFORCEMENT DETAILS
NOT TO SCALE



SECTION A-A
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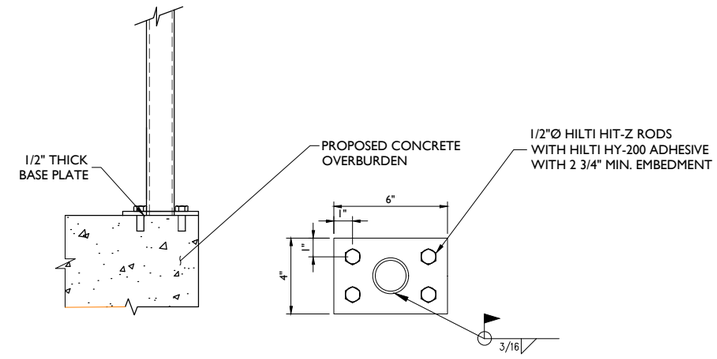

HANDRAIL POST CONNECTIONS TO CONCRETE
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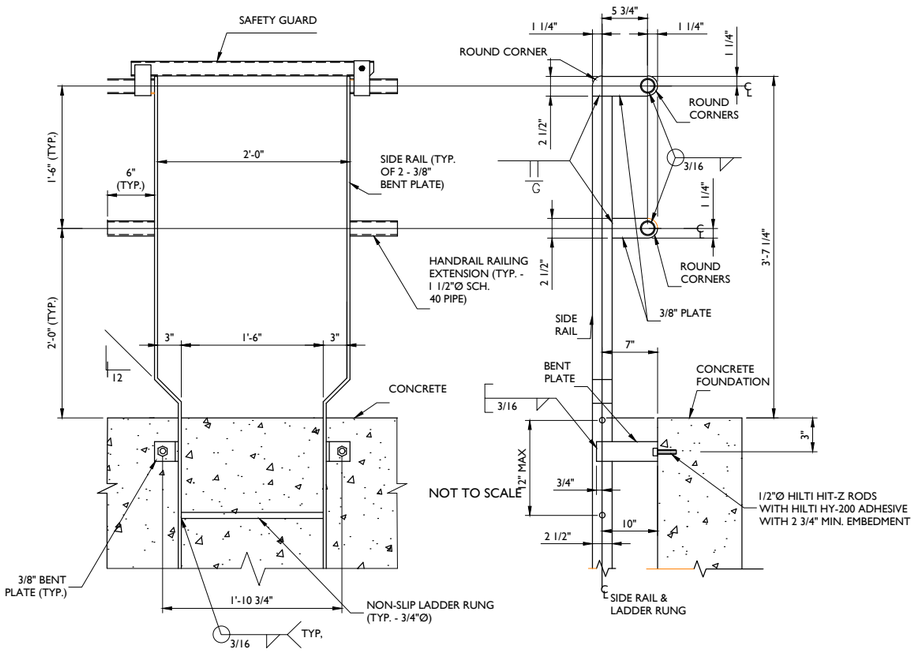
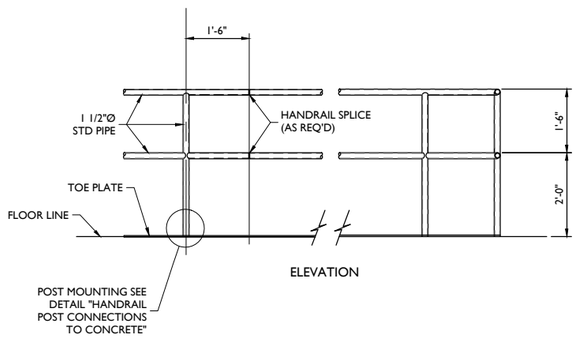


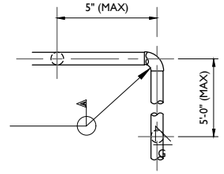
SIDE ELEVATION VIEW

FRONT ELEVATION VIEW

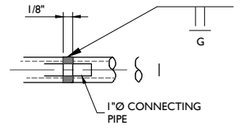
ACCESS LADDER



ELEVATION



CORNER DETAIL



RAILING SPLICE

FIXED HANDRAIL DETAILS
NOT TO SCALE

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SCALE :	JOB NUMBER :
AS SHOWN	16946029A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
2	04/10/17	REVISED W/ TOWER MODS	RA	FEP
1	12/27/16	FOR CONSTRUCTION	RA	FEP
0	12/14/16	ISSUED	AJC	FEP

STATE OF CONNECTICUT — FRANK E. FAZDEN — 10 — LICENSED PROFESSIONAL ENGINEER
FRANK E. FAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.0[illegible]

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

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SHEET TITLE :
FOUNDATION MODIFICATION DETAILS

SHEET NUMBER :
S-4

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR DISSEMINATION OF REVISIONS TO CONTRACT DOCUMENTS AND REQUIREMENTS TO ALL SUBCONTRACTORS. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES AND EQUIPMENT MANUFACTURERS.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING FIELD CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION. DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES, GROUNDS, DRAIN PIPES AND VENTS BEFORE COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER IF ACTUAL CONDITIONS DIFFER SIGNIFICANTLY FROM WHAT IS SHOWN ON DRAWINGS.
3. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A NEAT AND ORDERLY PROJECT SITE, REMOVE AND DISPOSE OF OFF SITE RUBBISH, WASTE MATERIALS, LITTER, AND ALL FOREIGN SUBSTANCES DAILY.
4. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE OWNER'S WRITTEN APPROVAL.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUCH COVERING, SHIELDING, AND BARRICADES AS REQUIRED TO PROTECT BYSTANDERS AND PASSERSBY, EQUIPMENT, SUPPLIES, ETC. FROM DUST, DEBRIS AND OTHER CAUSE OF DAMAGE RESULTING FROM CONSTRUCTION. ANY DAMAGE DURING CONSTRUCTION SHALL BE RESTORED TO PREVIOUS CONDITIONS.
6. IN AREAS WHERE EXISTING ANTENNA MOUNTS, TRANSMISSION LINES OR OTHER SUPPORTING EQUIPMENT IS TO BE REMOVED, THE EXISTING STRUCTURE SHALL BE REPAIRED AS REQUIRED.
7. ALL SAFETY AND OSHA REGULATIONS SHALL BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL ARE THE CONTRACTOR'S RESPONSIBILITY.
8. CONTRACTOR TO PROVIDE TEMPORARY SUPPORT FOR ALL EXISTING ANTENNAS, TRANSMISSION LINES OR OTHER APPURTENANCES DURING CONSTRUCTION.
9. CONTRACTOR SHALL PROTECT EXISTING APPURTENANCES FROM DAMAGE DURING CONSTRUCTION.
10. NO ANTENNAS, CABLES, OR OTHER APPURTENANCES SHALL BE ADDED TO THE TOWER UNTIL THE MODIFICATION WORK IS COMPLETE.
11. ALL DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE DIMENSIONS WITH TOWER MANUFACTURER OR FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING MEMBERS.
12. THE CONTRACTOR SHALL LOCATE ALL UTILITIES IN THE AREA OF CONSTRUCTION AND PREVENT DAMAGE TO THEM. SHOULD DAMAGE OCCUR TO ANY UTILITIES, THE CONTRACTOR IS REQUIRED TO REPAIR THE DAMAGE TO THE SATISFACTION OF THE OWNER AT HIS OWN EXPENSE.
13. ALL EXISTING PLANS, DETAILS, DIMENSIONS, AND ELEVATIONS INDICATE EXISTING CONDITIONS AS KNOWN. THE EXISTING INFORMATION SHOWN IS NOT INTENDED TO BE "AS BUILT" AND THE ACTUAL CONSTRUCTION MAY DIFFER FROM THAT SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING DIMENSIONS AND ELEVATIONS PRIOR TO STARTING CONSTRUCTION. MINOR VARIATIONS CAN BE EXPECTED AND ANY REQUIRED DEVIATION FROM THE CONTRACT DOCUMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
14. MODIFICATION DETAILS REPRESENTS TYPICAL CONDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DEVIATION AS A RESULT OF SITE SPECIFIC CONDITIONS. REINFORCE ALL TOWER FACES IDENTICALLY, UNLESS OTHERWISE NOTED.
15. IN AREAS TO BE MODIFIED, ANY ANTENNA, COAX, OR CONDUIT SHALL BE TEMPORARILY MOVED AND THEN REPLACED AFTER COMPLETION OF WORK. COORDINATE WITH OWNER.
16. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL MATERIAL TO BE REMOVED.
17. CONTRACTOR SHALL ENSURE STABILITY OF TOWER DURING ALL WORK.
18. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE TEMPORARY BRACING OF THE STRUCTURE DURING ALL STAGES OF CONSTRUCTION. THE STRUCTURE IS DESIGNED FOR A COMPLETED CONDITION ONLY AND THEREFORE MAY REQUIRE ADDITIONAL SUPPORT BEFORE COMPLETIONS.
19. THIS DESIGN ASSUMES THE TOWER AND FOUNDATIONS HAVE BEEN WELL MAINTAINED, IN GOOD COMMON, AND ARE WITHOUT DEFECT. BENT MEMBERS, CORRODED MEMBERS, LOOSE BOLTS, CRACKED WELDS AND OTHER MEMBER DEFECTS HAVE NOT BEEN CONSIDERED. THE TOWER IS ASSUMED TO BE PLUMB AND THE SITE IS ASSUMED TO BE LEVEL. THIS DESIGN IS BEING PROVIDED WITHOUT THE BENEFIT OF A COMMON ASSESSMENT BY MASER CONSULTING P.A.. CONTRACTOR SHALL COMMISSION A COMPLETE CONDITION ASSESSMENT PRIOR TO ORDERING ANY REINFORCING MATERIALS. CONTRACTOR SHALL SUPPLY CONDITION ASSESSMENT TD ENGINEER FOR REVIEW. SEE CONTRACTOR NOTES.
20. ALL SUBSTITUTES PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR DETERMINING IF SUBSTITUTE IS SUITABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE. REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
21. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
22. INSPECTION OF THE MODIFICATIONS SHALL BE COMPLETED BY A THIRD PARTY. INSPECTION SHALL TAKE PLACE WITHIN 72 HOURS OF THE COMPLETION OF THE TOWER MODIFICATIONS. NO PROPOSED LOADING SHALL BE INSTALLED PRIOR TO INSPECTOR APPROVAL.

DESIGN LOADS

1. WIND: TIA/EIA-222-G STANDARD
   BASIC WIND SPEED: 98 MPH
2. DESIGN BASED ON THE SAME TOWER LOADING AND ASSUMPTIONS NOTED IN STRUCTURAL ANALYSIS REPORT BY MASER CONSULTING P.A. DATED FEBRUARY 7, 2017.
3. TOWER MODIFICATIONS WERE DESIGNED IN ACCORDANCE TO TIA/EIA-222-G AND INTERNATIONAL BUILDING CODE 2012, AS WELL AS APPLICABLE LOCAL BUILDING CODES.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A36.
2. DESIGN, FABRICATION, ERECTION AND WORKMANSHIP SHALL CONFORM TO AISC MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION.
3. CONNECTION BOLTS SHALL BE 3/4"Ø ASTM A325N UNLESS OTHERWISE NOTED.
4. FIELD WELDING SHALL BE PERFORMED BY WELDERS THAT ARE CERTIFIED (AWS "STANDARD QUALIFICATION PROCEDURE") TO PERFORM THE TYPE OF WORK REQUIRED. WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE - STEEL". PROVIDE THE MINIMUM SIZE PER PART 8 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", LRFD 3RD EDITION, WHEN WELD SIZES ARE NOT SHOWN. USE E70XX ELECTRODES FOR ALL WELDING.
5. RETURN ALL WELDS AT CORNERS TWICE THE NOMINAL SIZE OF THE WELD MINIMUM, UNLESS OTHERWISE NOTED.
6. TO REDUCE WARPING TO A MINIMUM WHEN WELDING TO EXISTING MEMBERS CARRYING LOAD, SHORE OR BRACE EXISTING MEMBER DURING WELDING.
7. ALL COPES, BLOCKS, CUT OUTS, AND OTHER CUTTING OF STRUCTURAL MEMBERS SHALL HAVE ALL RE-ENTRANT CORNERS SHAPED, NOTCHED FREE TO A RADIUS OF AT LEAST 1/2".
8. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE BRACING OF STEEL CONSTRUCTION.
9. ALL NEW STRUCTURAL STEEL SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
10. ALL NEW STEEL BOLTS, NUTS, AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
11. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
12. ALL STRUCTURAL STEEL SHALL ABIDE BY THE FOLLOWING MATERIAL STRENGTH LIST UNLESS OTHERWISE NOTED:

PLATES	ASTM A36 (GR 36)
ANGLES	ASTM A36 (GR 36)
SOLID ROUND	ASTM A992 (GR 50)
BOLTS	ASTM A325 (ALL BOLT HOLES STANDARD SIZE U.N.O.)
NUTS	ASTM A194-2H
WASHERS	ASTM F436
HOT-DIPPED GALVANIZING	ASTM A123
WELDS	E70XX
PAINT	NEW STEEL TO BE PAINTED TO MATCH EXISTING TOWER

CONTRACTOR NOTES

1. ALL CONTRACTORS AND LOWER TIER CONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER AND MASER CONSULTING P.A. THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW TOWER OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR TOWER OWNER AND MASER CONSULTING P.A. ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM LOWER TIER SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO TOWER OWNER AND MASER CONSULTING P.A.
2. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, MASER CONSULTING P.A. SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
3. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE TOWER OWNER AND ENGINEER.
4. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THIS WORK.
6. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING; ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOBILIZATION. THE CONTRACTOR MUST VISIT THE SITE PRIOR TO ORDERING ANY MATERIAL AND MUST RESOLVE ALL ISSUES WITH THE OWNER PREVENTING A CONTINUOUS INSTALLATION. CONTRACTOR SHALL NOTE ALL ANTENNAS, MOUNTS, COAX, LIGHTING, CLIMBING SUPPORTS, STEP BOLTS, PORT HOLES, AND ANY OTHER TOWER APPURTENANCES IN THE REGION OF THE MODIFICATIONS.
7. CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ALL COAX, T-BRACKETS, ANTENNA MOUNTS, AND ANY OTHER TOWER APPURTENANCE THAT MAY INTERFERE WITH THE TOWER MODIFICATIONS. ALL TOWER APPURTENANCES MUST BE REPLACED AND/OR RESTORED TO ITS ORIGINAL LOCATION. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
8. SOME ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATIONS TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOMIZATIONS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO REMOVING SUCH ATTACHMENTS. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
9. CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE TOWER OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.
10. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 10-MPH) CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL TOWER SHORING, TEMPORARY GLOBAL TOWER SHORING, AND ALL SHORING OF SURROUNDING BUILDINGS, PADS, AND OTHER OUTDOOR SITE OBSTRUCTIONS. ALL SHORING. TEMPORARY BRACING, AND TEMPORARY SUPPORTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
11. MODIFICATIONS SHOWN SHALL BE INSTALLED ON ALL TOWER LEGS/FACES.

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SCALE : AS SHOWN

JOB NUMBER : 16946029A

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2	04/10/17	REVISED W/ TOWER MODS	RA	FEP
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0	12/14/16	ISSUED FOR REVIEW	AJC	FEP

STATE OF CONNECTICUT — FRANK E. PAZDEN — 20 — LICENSED PROFESSIONAL ENGINEER

FRANK E. PAZDEN
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN.20[illegible]

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SHEET TITLE :
RF PLUMBING DIAGRAMS

SHEET NUMBER :
S-5