

**UPS CampusShip: View/Print Label**

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
- 3. **GETTING YOUR SHIPMENT TO UPS**  
**Customers with a Daily Pickup**  
 Your driver will pickup your shipment(s) as usual.

**Customers without a Daily Pickup**

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

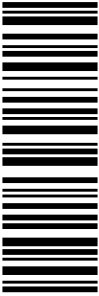
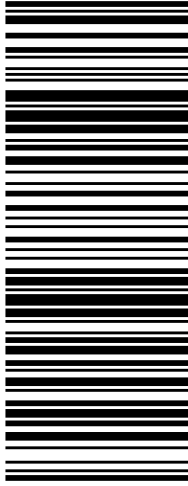

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages. Hand the package to any UPS driver in your area.

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555 WASHINGTON ST  
SOUTH EASTON ,MA 02375

UPS Access Point™  
CVS STORE # 7232  
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NORTH EASTON ,MA 02356

UPS Access Point™  
TOWN LINE GENERAL STORE  
450 E CENTER ST  
WEST BRIDGEWATER ,MA 02379

FOLD HERE

<p style="text-align: right;"><b>1 OF 1</b></p> <p><b>1 LBS</b></p> <p>JENNIFER ILADES 978-944-1804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> MARK C. NICKERSON, FIRST SELECTMAN 860-739-6931 TOWN OF EAST LYME 108 PENNSYLVANIA AVENUE <b>NIANTIC CT 06357-2510</b></p>	<p style="font-size: 2em;"><b>CT 063 5-02</b></p> 	<p><b>UPS GROUND</b></p> <p>TRACKING #: 1Z 9Y4 503 03 1028 6062</p> 	<p style="text-align: center;"><b>BILLING: P/P</b></p> <p style="text-align: center;">Reference # 1: CT1269 - CSC to 1st Selectman</p> <p style="text-align: center; font-size: 0.8em;">CS 22.0.11. WNTNVS0 20.04.10/2019</p> 
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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, January 14, 2020 10:20 AM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030310286062



### Your package has been delivered.

**Delivery Date:** Tuesday, 01/14/2020  
**Delivery Time:** 10:12 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

<b>Tracking Number:</b>	<a href="#"><u>1Z9Y45030310286062</u></a>
<b>Ship To:</b>	Mark C. Nickerson, First Selectman Town of East Lyme 108 PENNSYLVANIA AVE NIANTIC, CT 06357 US
<b>UPS Service:</b>	UPS GROUND
<b>Number of Packages:</b>	1
<b>Weight:</b>	0.5 LBS
<b>Delivery Location:</b>	OFFICE ANDERSON
<b>Reference Number 1:</b>	CT1269 - CSC to 1st Selectman



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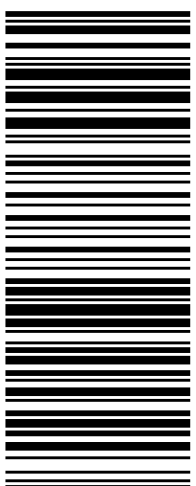

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages. Hand the package to any UPS driver in your area.

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<p style="text-align: right;"><b>1 OF 1</b></p> <p><b>1 LBS</b></p> <p>JENNIFER ILADES 978-944-1804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> WILLIAM MULHOLLAND, ZONING OFFICIAL 860-691-4114 TOWN OF EAST LYME 108 PENNSYLVANIA AVENUE <b>NIANTIC CT 06357-2510</b></p>	<p style="font-size: 2em;"><b>CT 063 5-02</b></p> 	<p><b>UPS GROUND</b></p> <p>TRACKING #: 1Z 9Y4 503 03 0771 8084</p> 	<p style="text-align: center;"><b>BILLING: P/P</b></p> <p style="text-align: center;">Reference # 1: CT1269 - CSC to Zoning CS 22.0.11. WNTNVS0 20.04.10/2019</p> 
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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, January 14, 2020 10:20 AM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030307718084



### Your package has been delivered.

**Delivery Date:** Tuesday, 01/14/2020  
**Delivery Time:** 10:11 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

<b>Tracking Number:</b>	<b><u>1Z9Y45030307718084</u></b>
<b>Ship To:</b>	William Mulholland, Zoning Official Town of East Lyme 108 PENNSYLVANIA AVE NIANTIC, CT 06357 US
<b>UPS Service:</b>	UPS GROUND
<b>Number of Packages:</b>	1
<b>Weight:</b>	0.5 LBS
<b>Delivery Location:</b>	OFFICE ROLFE
<b>Reference Number 1:</b>	CT1269 - CSC to Zoning



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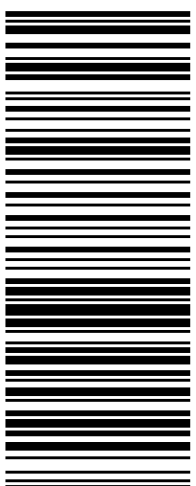

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<p><b>1 LBS</b></p> <p>JENNIFER ILADES 978-944-1804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> GARY A. GOESCHEL, DIR. OF PLANNING 860-739-6931 TOWN OF EAST LYME 108 PENNSYLVANIA AVENUE <b>NIANTIC CT 06357-2510</b></p>	<p><b>1 OF 1</b></p> <p><b>CT 063 5-02</b></p> 	<p><b>UPS GROUND</b></p> <p>TRACKING #: 1Z 9Y4 503 03 0750 1076</p> 	<p><b>BILLING: P/P</b></p> <p>Reference # 1: CT1269 - CSC to Planning</p> <p>CS 22.0.11. WNTNVS0 20.04.10/2019</p> 
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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, January 14, 2020 10:20 AM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030307501076



### Your package has been delivered.

**Delivery Date:** Tuesday, 01/14/2020  
**Delivery Time:** 10:13 AM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

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<b>Tracking Number:</b>	<a href="#"><u>1Z9Y45030307501076</u></a>
<b>Ship To:</b>	Gary A. Goeschel, Dir. of Planning Town of East Lyme 108 PENNSYLVANIA AVE NIANTIC, CT 06357 US
<b>UPS Service:</b>	UPS GROUND
<b>Number of Packages:</b>	1
<b>Weight:</b>	0.5 LBS
<b>Delivery Location:</b>	OFFICE LINDO
<b>Reference Number 1:</b>	CT1269 - CSC to Planning



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<p><b>1 LBS</b> <span style="float: right;"><b>1 OF 1</b></span></p> <p>JENNIFER ILIADES 978-944-1804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> SHAWN NOTTAGE 401-533-6434 SBA TOWERS V, LLC 8051 CONGRESS AVENUE <b>BOCA RATON FL 33487-1307</b></p>	<p><b>FL 332 6-07</b></p> 	<p><b>UPS 2ND DAY AIR</b></p> <p><b>2</b></p> <p>TRACKING #: 1Z 9Y4 503 02 1133 7097</p> 	<p>BILLING: P/P</p> <p>Reference # 1: CTT1269 - CSC to SBA</p> <p><small>CS 22.0.11. WNTNVS0 20.0A.10/2019</small></p> 
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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, January 15, 2020 1:53 PM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030211337097



### Your package has been delivered.

**Delivery Date:** Wednesday, 01/15/2020  
**Delivery Time:** 01:50 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

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<b>Tracking Number:</b>	<a href="#"><u>1Z9Y45030211337097</u></a>
<b>Ship To:</b>	Shawn Nottage SBA Towers V, LLC 8051 CONGRESS AVE BOCA RATON, FL 33487 US
<b>UPS Service:</b>	UPS 2ND DAY AIR
<b>Number of Packages:</b>	1
<b>Weight:</b>	0.5 LBS
<b>Delivery Location:</b>	OFFICE MORALES
<b>Reference Number 1:</b>	CT1269 - CSC to SBA



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<p style="text-align: right;"><b>1 OF 1</b></p> <p><b>1 LBS</b></p> <p>JENNIFER ILIADES 978-944-1804 CENTERLINE COMMUNICATIONS 750 W CENTER ST WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> C/O SBA TOWERS V, LLC 401-533-6434 CHRISTOPHER SAMUELSON 8051 CONGRESS AVENUE <b>BOCA RATON FL 33487-1307</b></p>	<p><b>FL 332 6-07</b></p> 	<p><b>UPS 2ND DAY AIR</b></p> <p><b>2</b></p> <p>TRACKING #: 1Z 9Y4 503 02 1875 8101</p> 	<p style="text-align: center;"><b>BILLING: P/P</b></p> <p style="text-align: center;">Reference # 1: CTT1269 -CSC to ground owner c/o SBA</p> <p style="text-align: center; font-size: small;">CS 22.0.11. WNTNVS0 20.04.10/2019</p> 
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## Jennifer Iliades

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, January 15, 2020 1:53 PM  
**To:** Jennifer Iliades  
**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030218758101



### Your package has been delivered.

**Delivery Date:** Wednesday, 01/15/2020  
**Delivery Time:** 01:50 PM

At the request of CENTERLINE SITE ACQUISITION this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

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<b>Tracking Number:</b>	<a href="#"><u>1Z9Y45030218758101</u></a>
<b>Ship To:</b>	c/o SBA Towers V, LLC Christopher Samuelson 8051 CONGRESS AVE BOCA RATON, FL 33487 US
<b>UPS Service:</b>	UPS 2ND DAY AIR
<b>Number of Packages:</b>	1
<b>Weight:</b>	0.5 LBS
<b>Delivery Location:</b>	OFFICE MORALES
<b>Reference Number 1:</b>	CT1269 -CSC to ground owner c/o SBA



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January 10, 2020

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

**Regarding: Notice of Exempt Modification – AT&T Site CT1269**  
**Address: 49 Brainerd Road, Niantic, CT**

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains a wireless telecommunications facility on an existing 169’ monopole tower at the above-referenced address, latitude 41.307583, longitude -72.223916. Said monopole tower is managed by SBA Towers V LLC.

AT&T desires to modify its existing telecommunications facility by swapping (3) antennas, swapping (3) remote radio heads, adding (3) remote radio heads, adding (1) surge arrester and accompanying feedlines as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group LLC, last revised January 3, 2020. The centerline height of the existing antennas is and will remain at 170 feet.

Please accept this letter 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). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: Mark C. Nickerson, First Selectman, Town of East Lyme; William Mulholland, Zoning Official, Town of East Lyme; Gary A. Goeschel II, Director of Planning, Town of East Lyme; SBA Towers V LLC as manager of the above referenced tower; and Christopher Samuelson as property owner at the above referenced address.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*
5. The proposed modifications will not cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated December 19, 2019 and prepared by Tower Engineering Solutions enclosed herewith.*

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

Sincerely,



Jennifer Iliades  
Site Acquisition Consultant  
Centerline Communications, LLC  
750 West Center Street, Suite 301  
West Bridgewater, MA 02379  
jiliades@clinellc.com

Enclosures: Exhibit 1 – Construction Drawings  
Exhibit 2 – Property Card and GIS  
Exhibit 3 – Structural Analysis  
Exhibit 4 – Mount Analysis  
Exhibit 5 – RF Emissions Analysis Report Evaluation  
Exhibit 6 – Original CSC Decision

cc: Mark C. Nickerson, First Selectman, Town of East Lyme  
William Mulholland, Zoning Official, Town of East Lyme  
Gary A. Goeschel II, Director of Planning, Town of East Lyme  
SBA Towers V LLC, as manager of tower  
Christopher Samuelson as property owner

# EXHIBIT 1

**PROJECT INFORMATION**

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

- NEW AT&T ANTENNAS: DMP65R-BU4A (TOTAL OF 1 FOR ALPHA).
- NEW AT&T ANTENNAS: DMP65R-BU6A (TOTAL OF 1 FOR BETA).
- NEW AT&T ANTENNAS: DMP65R-BU8A (TOTAL OF 1 FOR GAMMA).
- NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8C-EV (NO FIBER TO BE INSTALLED) (TOTAL OF 1) WITH (2) DC POWER LINES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- SWAP (2) EXISTING DUS FOR (2) 6630.
- INSTALL (1) DC 12
- INSTALL RECTIFIER SHELF AND NEW RECTIFIER.
- REPLACE IDL2 WITH (1) IDLe

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNAS: SBNHH-1D65A @ POS. 4 (TOTAL OF 1 FOR ALPHA).
- EXISTING AT&T ANTENNAS: HPA-65R-BUU-H6 @ POS. 4 (TOTAL OF 1 FOR BETA).
- EXISTING AT&T ANTENNAS: HPA-65R-BUU-H8 @ POS. 4 (TOTAL OF 1 FOR GAMMA).
- EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO REMAIN:

- (9) ANTENNAS, (6) RRU'S, (3) TMA'S, (6) DIPLEXERS, (2) SURGE ARRESTOR, (6) COAX CABLES, (4) DC POWER & (2) FIBER.

SITE ADDRESS: 49 BRAINERD RD.  
NIANTIC, CT 06357

LATITUDE: 41.307583° N, 41° 18' 27.29" N  
LONGITUDE: 72.223916° W, 72° 13' 26.10" W  
TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT  
STRUCTURE HEIGHT: 170'-0"±  
RAD CENTER: 168'-0"±  
CURRENT USE: TELECOMMUNICATIONS FACILITY  
PROPOSED USE: TELECOMMUNICATIONS FACILITY



**SITE NUMBER: CT1269**

**SITE NAME: NIAN TIC BRAINERD RD.**

**FA CODE: 10133918**

**PACE ID: MRCTB040527, MRCTB040435**

**PROJECT: LTE 4C\_5C 2020 UPGRADE**

**VICINITY MAP**

**GENERAL NOTES**

**DRAWING INDEX**

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

**DIRECTIONS TO SITE:**

HEAD SOUTH TOWARD ENTERPRISE DR. TURN LEFT ONTO ENTERPRISE DR. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I-91 S. MERGE ONTO I-91 S. TAKE EXIT 22S ON THE LEFT TO MERGE ONTO CT-9 S TOWARD MIDDLETOWN/OLD SAYBROOK. TAKE EXIT ON THE LEFT ONTO I-95 N/US-1 NORTH TOWARD NEW LONDON/PROVIDENCE. TAKE EXIT 72 TOWARD ROCKY NECK/STATE PARK CONTINUE ONTO ROCKY NECK CON. TURN LEFT ONTO CT-156 E. TURN RIGHT ONTO FAIRHAVEN RD. TURN RIGHT ONTO BRAINERD RD.



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

**SBA SITE #: CT11794**

**72 HOURS**

**CALL BEFORE YOU DIG**  
CALL TOLL FREE 1-800-922-4455  
OR CALL 811

**UNDERGROUND SERVICE ALERT**

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

**CENTERLINE COMMUNICATIONS**  
750 WEST CENTER STREET, SUITE #301  
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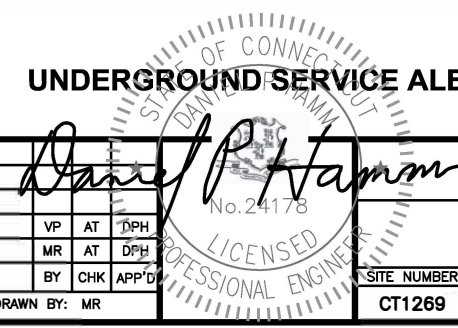
**SITE NUMBER: CT1269**  
**SITE NAME: NIAN TIC BRAINERD RD.**  
**SBA SITE # ID: CT11794**  
49 BRAINERD RD.  
NIANTIC, CT 06357  
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	01/03/20	ISSUED FOR CONSTRUCTION	VP	AT	DPH
A	11/04/19	ISSUED FOR REVIEW	MR	AT	DPH

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

**AT&T**  
TITLE SHEET  
LTE 4C\_5C 2020 UPGRADE  
SITE NUMBER: CT1269    DRAWING NUMBER: T-1    REV: 1





**GROUNDING NOTES**

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

**GENERAL NOTES**

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

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

**BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS**  
**ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

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

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

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

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

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

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



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

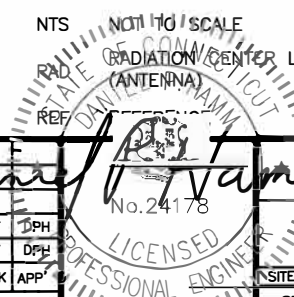
**SITE NUMBER: CT1269**  
**SITE NAME: NIANTIC BRAINERD RD.**  
**SBA SITE # ID: CT11794**

49 BRAINERD RD.  
 NIANTIC, CT 06357  
 NEW LONDON COUNTY



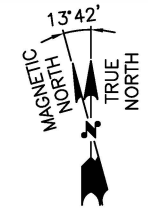
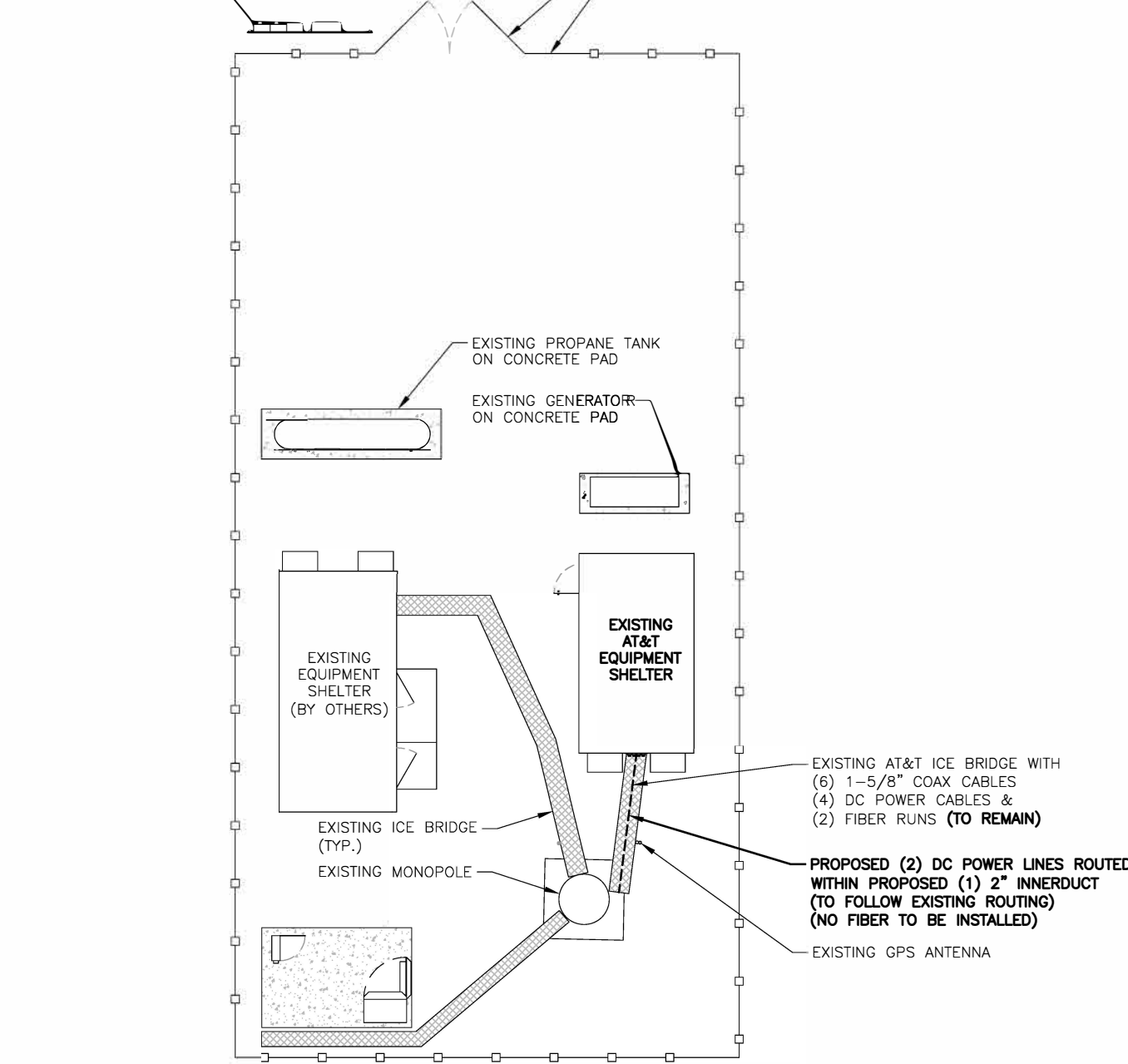
500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06067

				AT&T	
				GENERAL NOTES	
				LTE 4C_5C 2020 UPGRADE	
NO.	DATE	REVIS IONS	BY	CHK	APP
1	01/03/20	ISSUED FOR CONSTRUCTION	VP	AT	DPH
A	11/04/19	ISSUED FOR REVIEW	MR	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: MR		
SITE NUMBER		DRAWING NUMBER		REV	
CT1269		GN-1		1	

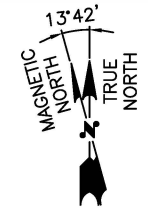
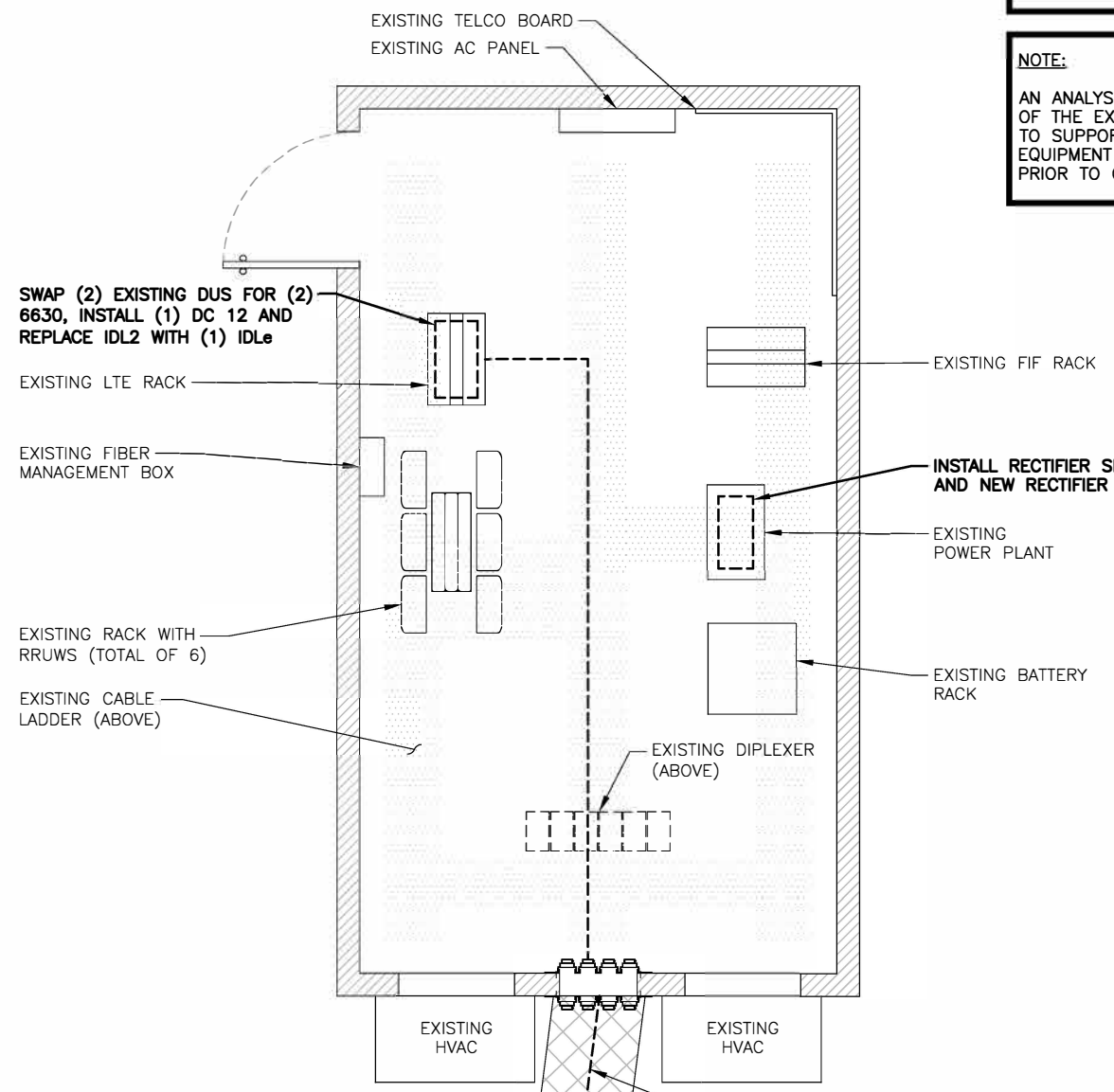




EXISTING BOLLARD (TYP.)  
 EXISTING HANDHOLE  
 EXISTING TELCO PEDESTAL  
 EXISTING TRANSFORMER ON CONCRETE PAD  
 EXISTING METER BANK  
 EXISTING ACCESS GATE (TYP.)  
 EXISTING STOCKADE FENCE (TYP.)



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



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

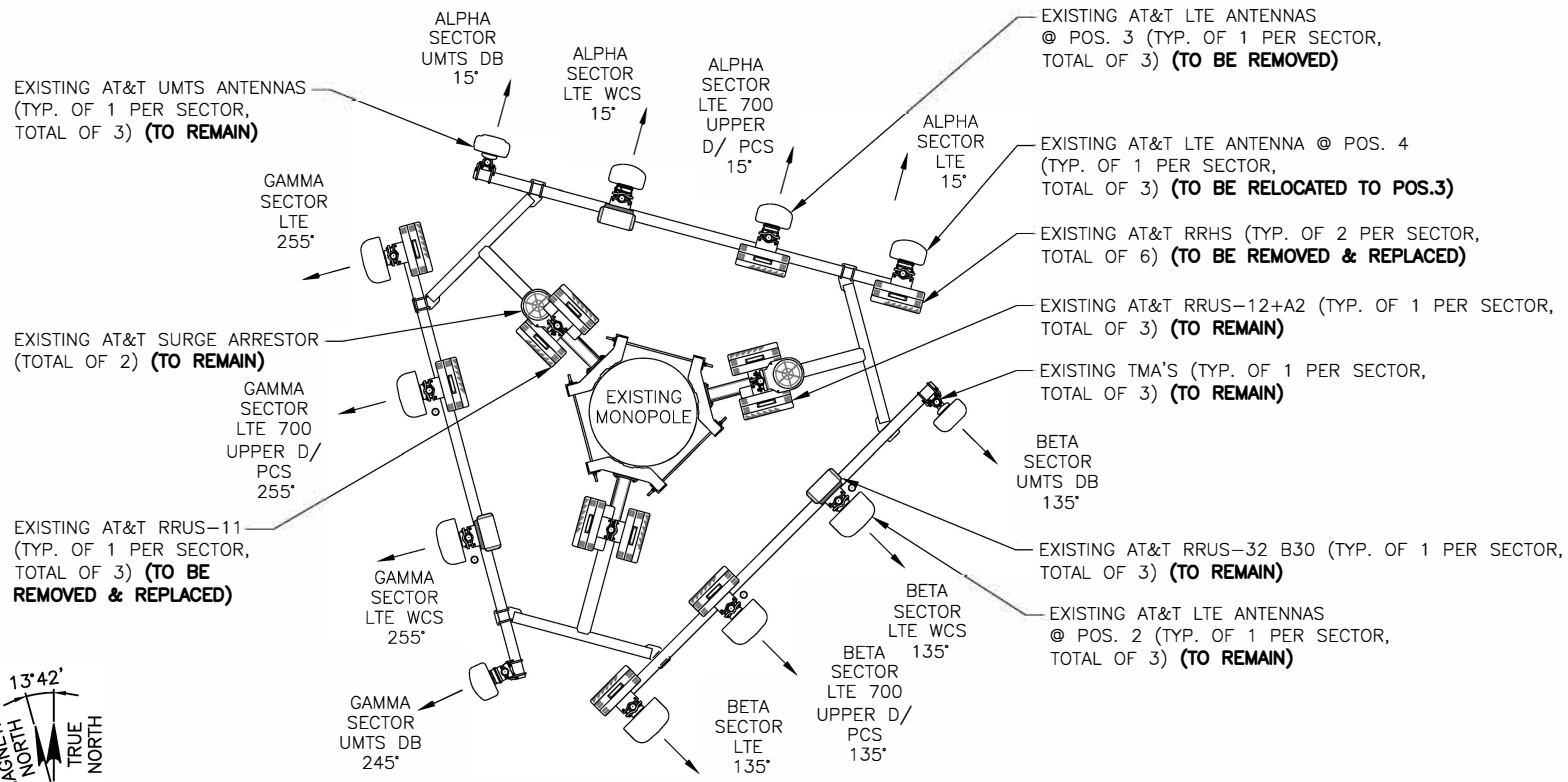
**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
 AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: NOVEMBER 27, 2019

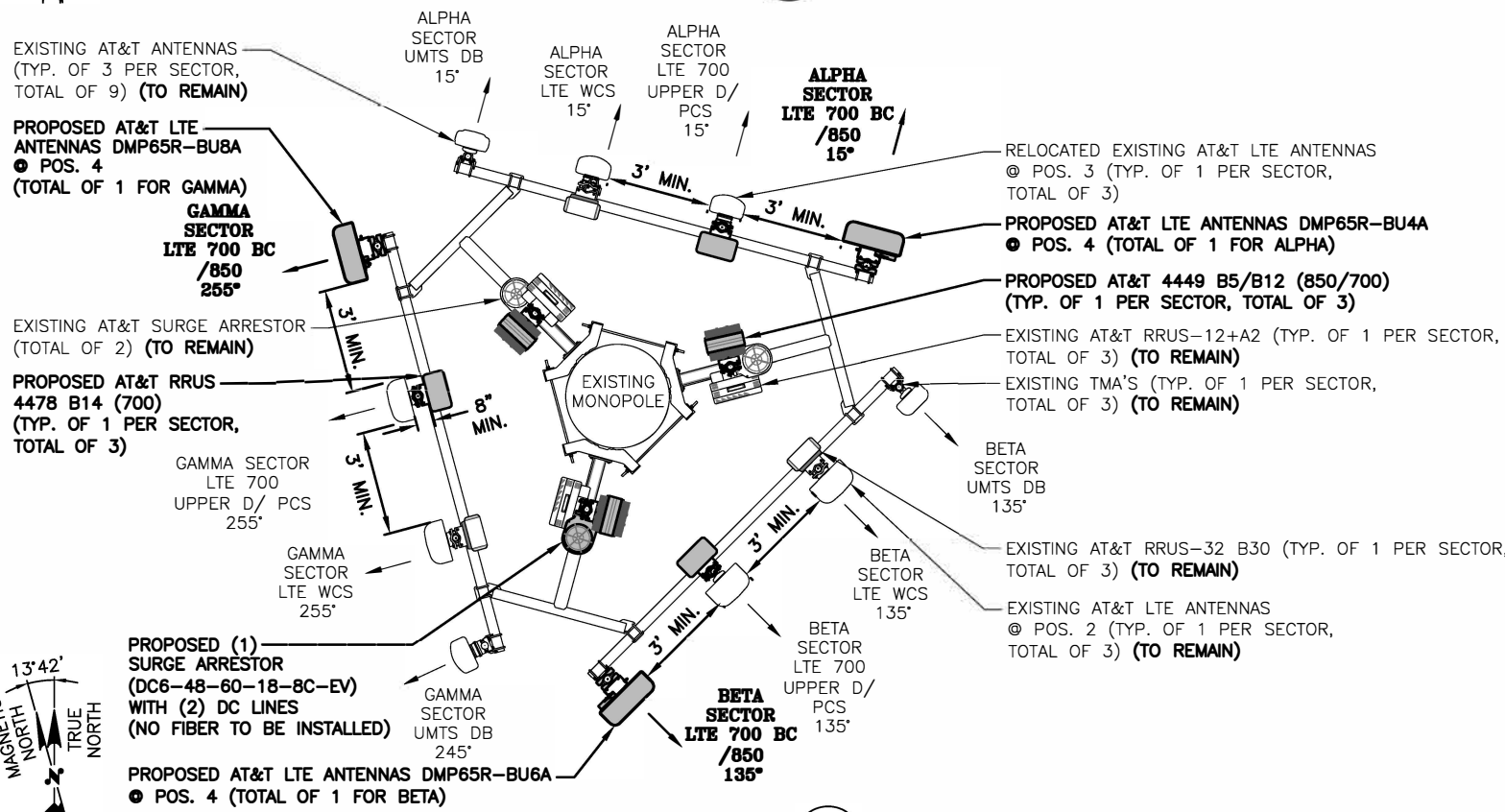
**NOTE:**  
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1	01/03/20	ISSUED FOR CONSTRUCTION	VP	AT	DPH
A	11/04/19	ISSUED FOR REVIEW	MR	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: MR		

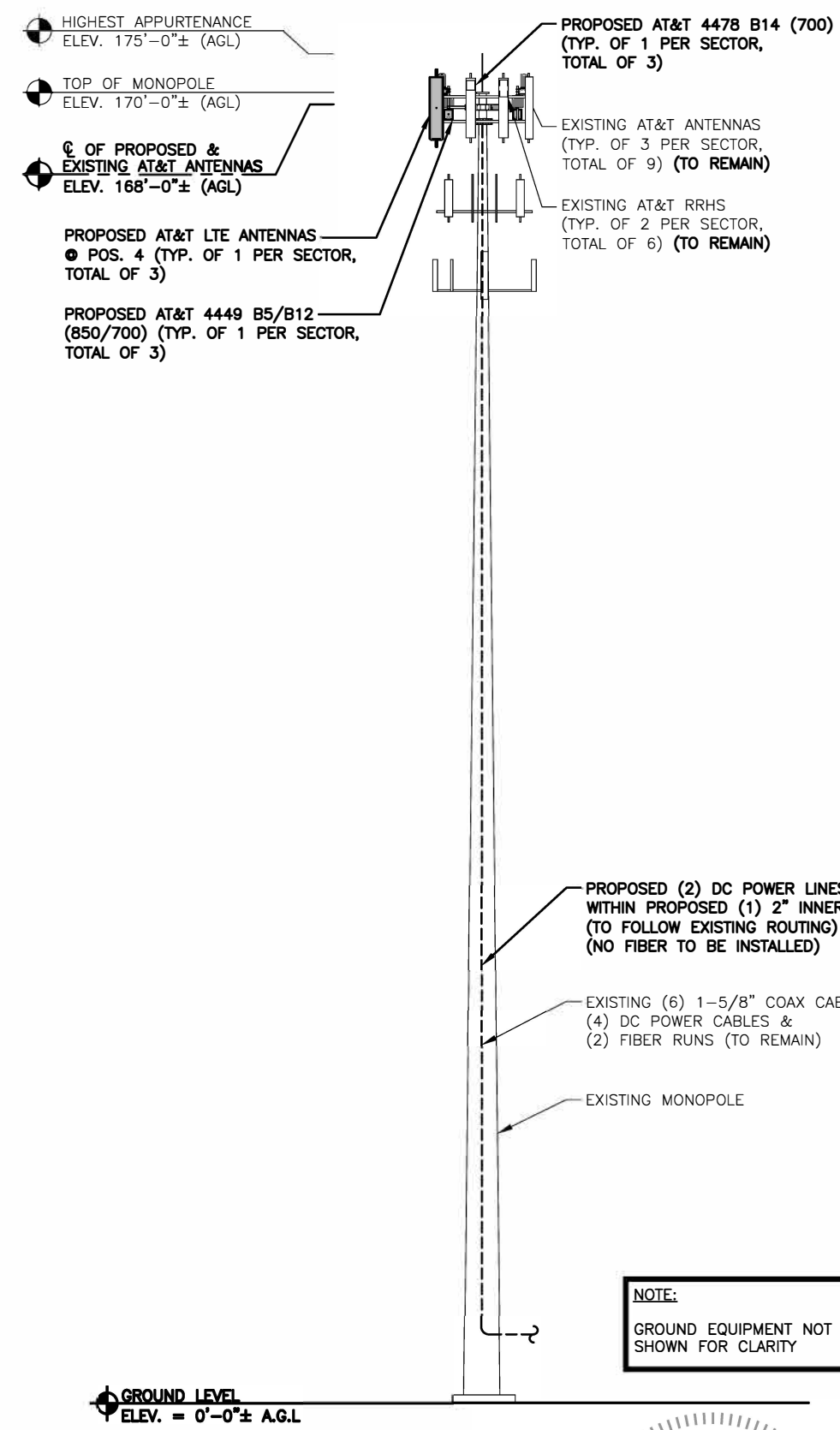




**EXISTING ANTENNA LAYOUT**  
SCALE: N.T.S. 1 A-2



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



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

**NOTE:**  
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**NOTE:**  
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**NOTE:**  
GROUND EQUIPMENT NOT SHOWN FOR CLARITY



**ANTENNA SCHEDULE**

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (LxWxD)	ANTENNA Ø HEIGHT	AZIMUTH	TMA/DIPLEXER	RRU	SIZE (INCHES) (LxWxD)	FEEDER	RAYCAP
A1	EXISTING	UMTS DB	AM-X-CD-14-65-00T-RET	48X11.8X5.9	168'-0"±	15°	(1)(E) DTMABP7819VG12A (2)(E) CM1007-DBPXBC-003	-	-	(2)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-18-8F
A2	EXISTING	LTE WCS	SBNHH-1D65A	55x11.9x7.1	168'-0"±	15°	-	(E) RRUS-32 B30 (WCS)	-	-	
A3	EXISTING	LTE 700 UPPER D/ PCS	SBNHH-1D65A	55x11.9x7.1	168'-0"±	15°	-	(P) 4478 B14 (700) (E) RRUS-12 (PCS) (E) RRUS-A2 B25	18.1"x13.4"x8.3"	-	
A4	PROPOSED	LTE 700 BC /850	DMP65R-BU4A	48.0x20.7x7.7	168'-0"±	15°	-	(P) 4449 B5/B12 (850/700)	17.9"x13.19"x9.44"	-	(E) (1) RAYCAP DC6-48-60-18-18-8F
B1	EXISTING	UMTS DB	AM-X-CD-16-65-00T-RET	72X11.8X5.9	168'-0"±	135°	(1)(E) DTMABP7819VG12A (2)(E) CM1007-DBPXBC-003	-	-	(2)1-5/8 COAX	
B2	EXISTING	LTE WCS	HPA-65R-BUU-H6	72x14.8x9	168'-0"±	135°	-	(E) RRUS-32 B30 (WCS)	-	-	
B3	EXISTING	LTE 700 UPPER D/ PCS	HPA-65R-BUU-H6	72x14.8x9	168'-0"±	135°	-	(P) 4478 B14 (700) (E) RRUS-12 (PCS) (E) RRUS-A2 B25	18.1"x13.4"x8.3"	-	(E) (1) RAYCAP DC6-48-60-18-18-8F
B4	PROPOSED	LTE 700 BC /850	DMP65R-BU6A	71.2x20.7x7.7	168'-0"±	135°	-	(P) 4449 B5/B12 (850/700)	17.9"x13.19"x9.44"	-	
C1	EXISTING	UMTS DB	SBNH-1D6565C	96.4X11.9X7.1	168'-0"±	245°	(1)(E) DTMABP7819VG12A (2)(E) CM1007-DBPXBC-003	-	-	(2)1-5/8 COAX	
C2	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4x14.8x7.4	168'-0"±	255°	-	(E) RRUS-32 B30 (WCS)	-	-	(P) (1) RAYCAP DC6-48-60-18-18-8C-EV
C3	EXISTING	LTE 700 UPPER D/ PCS	HPA-65R-BUU-H8	92.4x14.8x7.4	168'-0"±	255°	-	(P) 4478 B14 (700) (E) RRUS-12 (PCS) (E) RRUS-A2 B25	18.1"x13.4"x8.3"	-	
C4	PROPOSED	LTE 700 BC /850	DMP65R-BU8A	96.0x20.7x7.7	168'-0"±	255°	-	(P) 4449 B5/B12 (850/700)	17.9"x13.19"x9.44"	-	

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

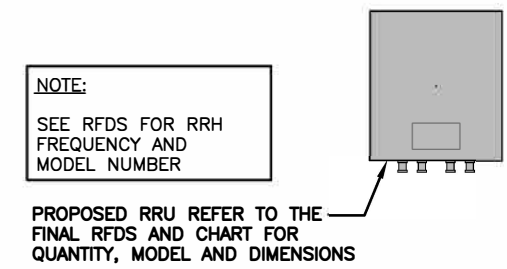
NOTE:  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:  
HUDSON DESIGN GROUP, LLC.  
DATED: NOVEMBER 27, 2019

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

**FINAL ANTENNA SCHEDULE** 1  
SCALE: N.T.S. A-3

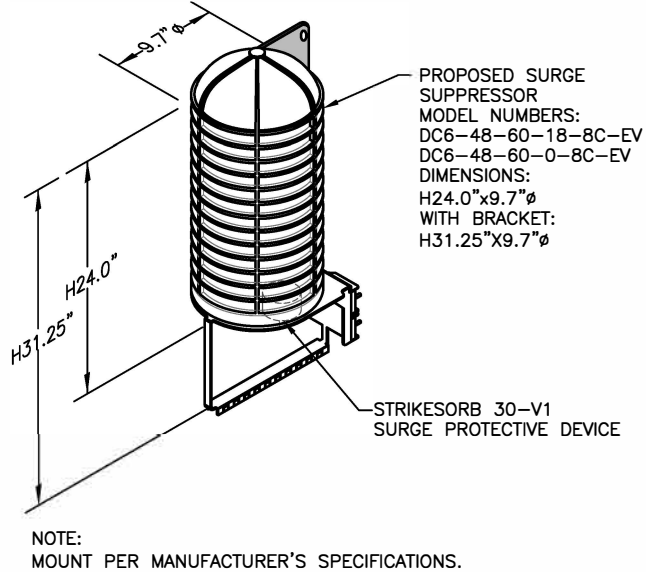
RRU CHART		
QTY.	MODEL	SIZE (L x W x D)
3(P)	4449 B5/B12 (850/700)	17.9"x13.19"x9.44"
3(P)	4478 B14 (700)	18.1"x13.4"x8.3"
3(E)	RRUS-32 (WCS)	27.2"x12.1"x7.0"
3(E)	RRUS-12 B2 + A2 B25	20.4"x18.5"x7.5"

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

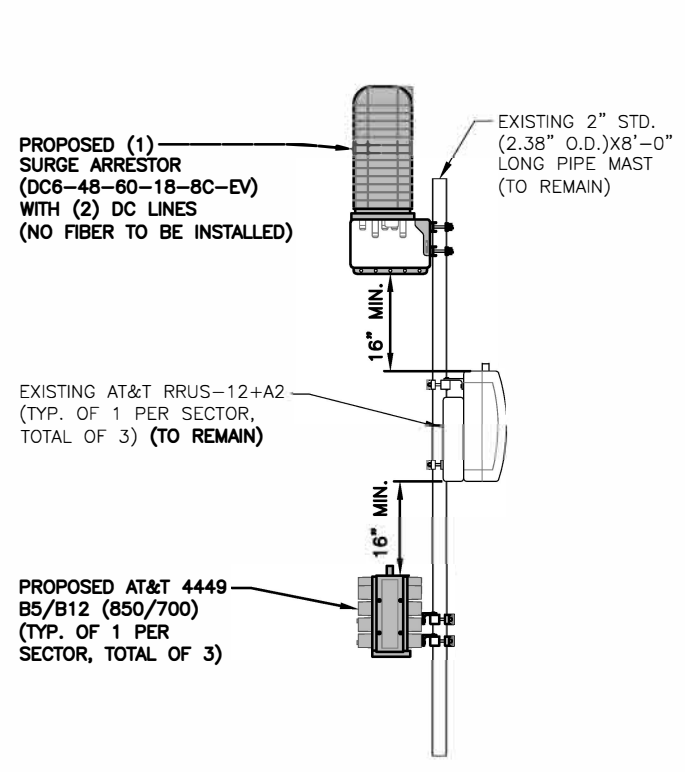


NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

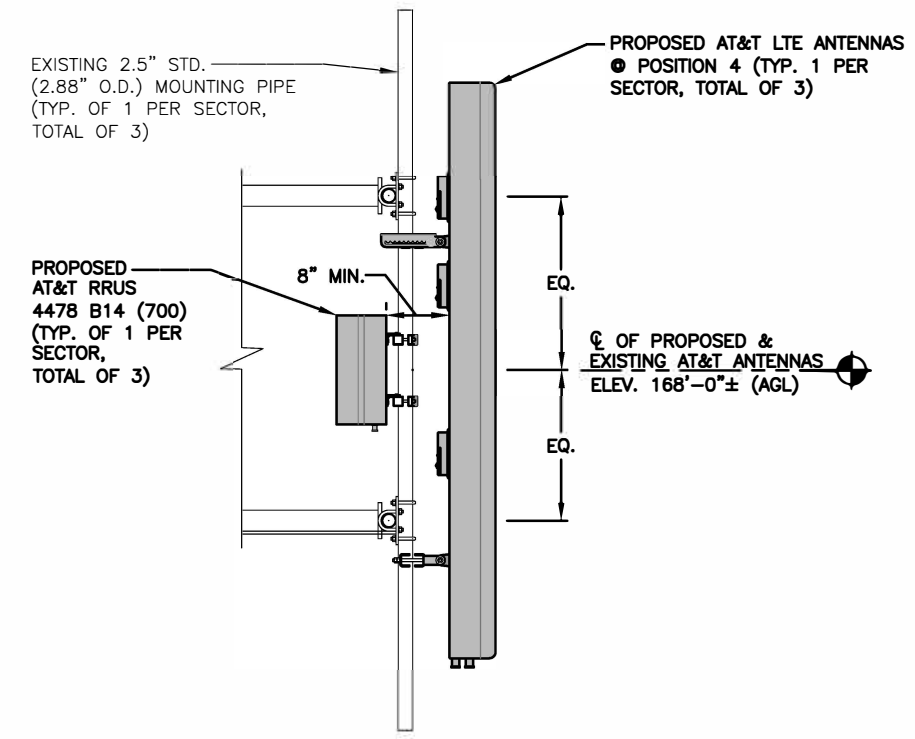
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SCALE: N.T.S. A-3



**DC SURGE SUPPRESSOR DETAIL** 3  
SCALE: N.T.S. A-3

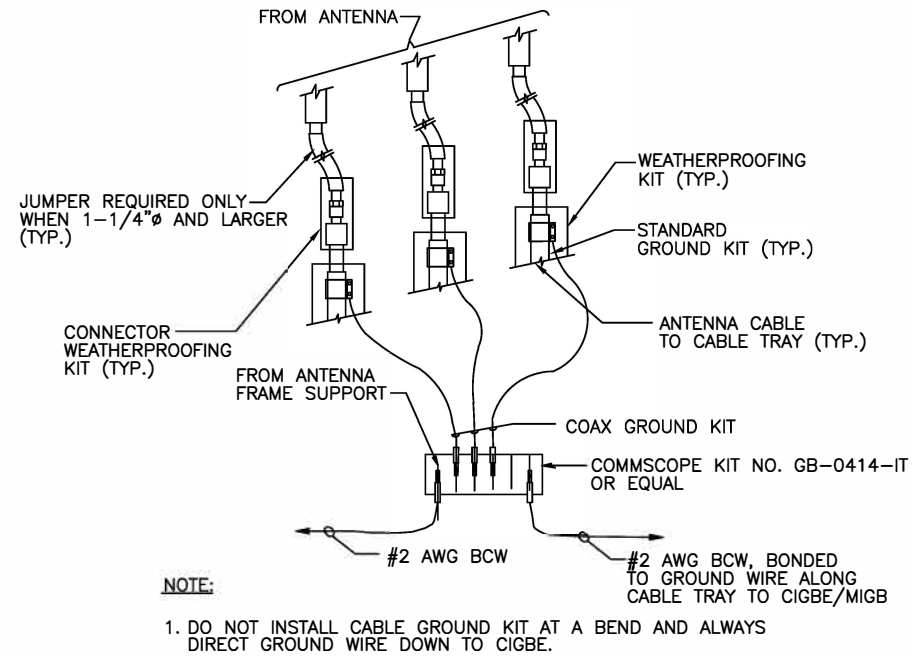


**SURGE ARRESTOR MOUNTING DETAIL** 4  
SCALE: N.T.S. A-3

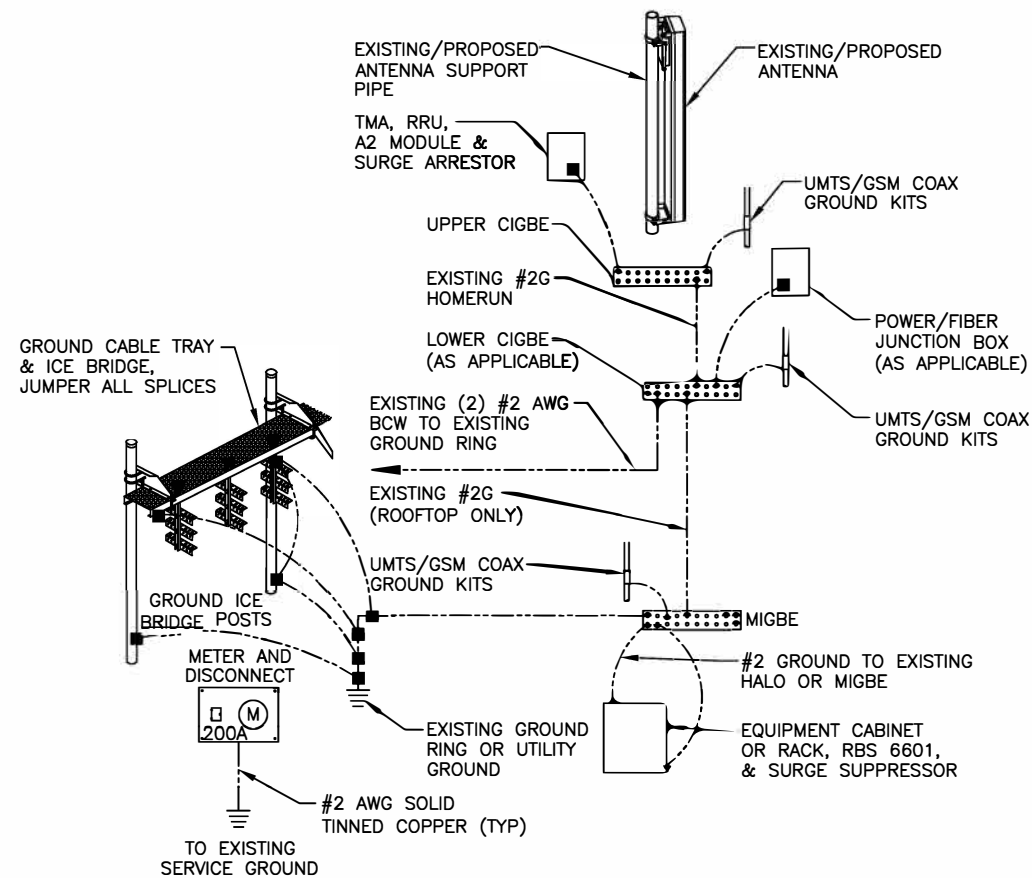


**PROPOSED LTE ANTENNA MOUNTING DETAIL** 5  
22x34 SCALE: 3/4"=1'-0" A-3  
11x17 SCALE: 3/8"=1'-0"

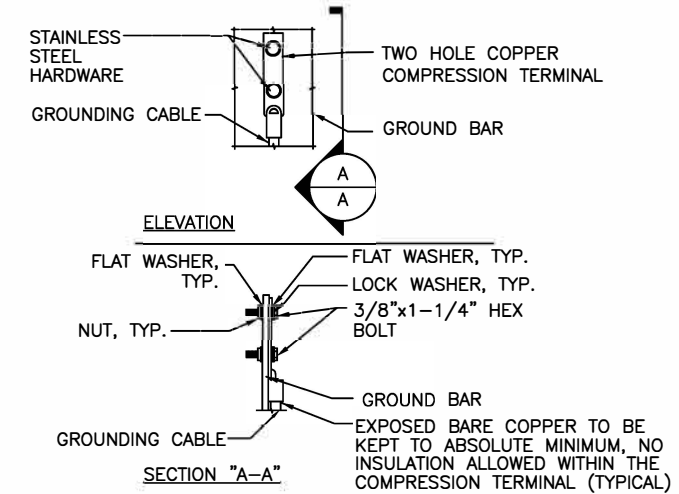
<p>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586</p>	<p>750 WEST CENTER STREET, SUITE #301 WEST BRIDGEWATER, MA 02379</p>	<p>SITE NUMBER: CT1269 SITE NAME: NIAN TIC BRAINERD RD. SBA SITE # ID: CT11794</p> <p>49 BRAINERD RD. NIANTIC, CT 06357 NEW LONDON COUNTY</p>	<p>500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067</p>	<p>1 01/03/20 ISSUED FOR CONSTRUCTION VP AT DPH</p> <p>A 11/04/19 ISSUED FOR REVIEW MR AT DPH</p> <p>NO. DATE REVISIONS BY CHK APP'D</p>	<p>AT&amp;T</p> <p>DETAILS</p> <p>LTE 4C_5C 2020 UPGRADE</p>	<p>SITE NUMBER</p> <p>CT1269</p>	<p>DRAWING NUMBER</p> <p>A-3</p>	<p>REV</p> <p>1</p>
						<p>SCALE: AS SHOWN</p>	<p>DESIGNED BY: AT</p>	<p>DRAWN BY: MR</p>



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



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



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

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

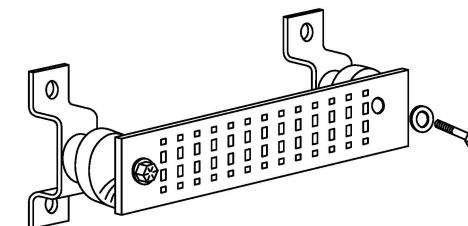
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

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

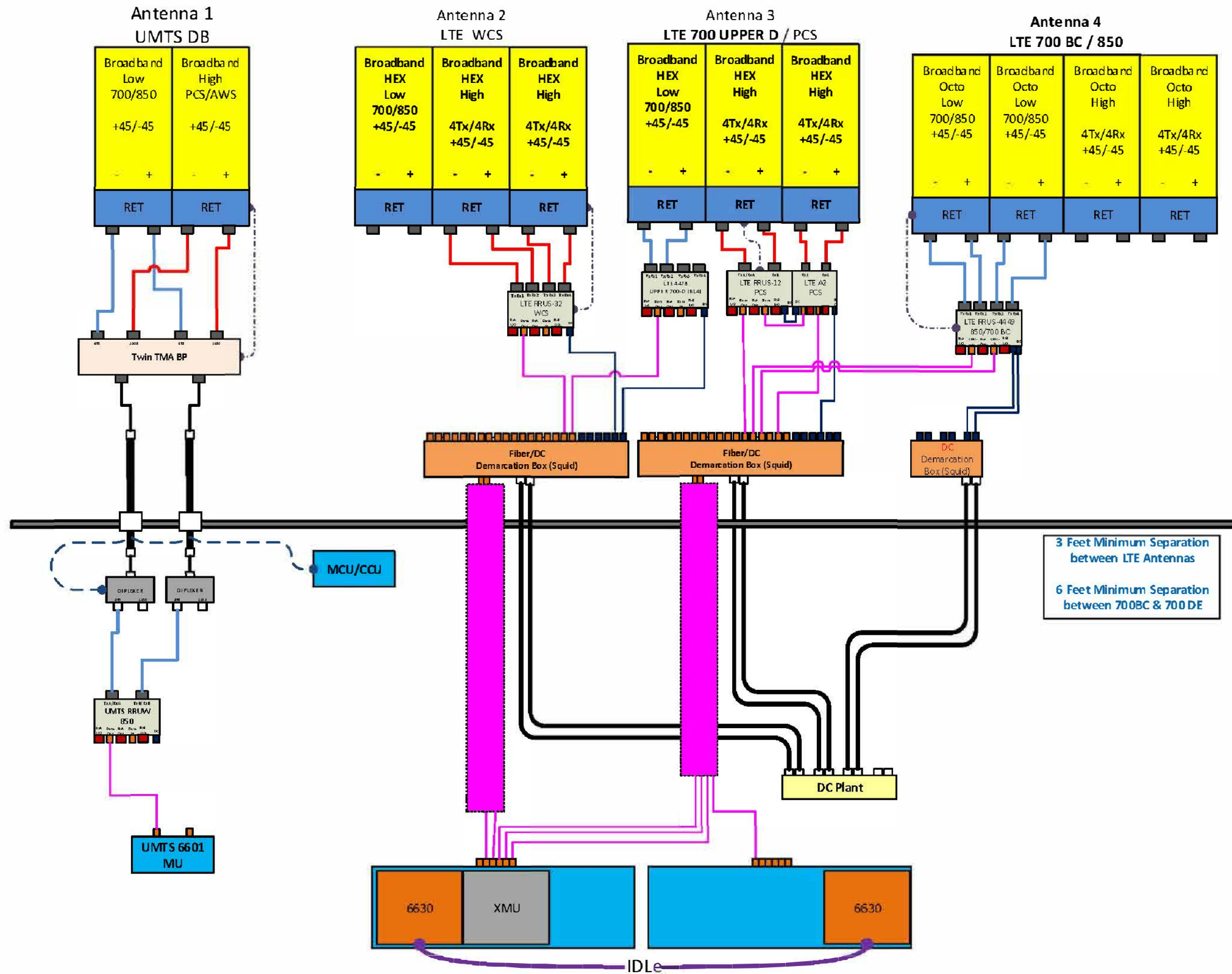
**SECTION "A" - SURGE ABSORBERS**

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



**GROUND BAR - DETAIL (AS REQUIRED)** 4  
SCALE: N.T.S. G-1

				AT&T		
				GROUNDING DETAILS		
				LTE 4C_5C 2020 UPGRADE		
NO.	DATE	REVISIONS	BY	CHK	APP'D	REV
1	01/03/20	ISSUED FOR CONSTRUCTION	VP	AT	DPH	
A	11/04/19	ISSUED FOR REVIEW	MR	AT	DPH	
SCALE: AS SHOWN			DESIGNED BY: AT	DRAWN BY: MR		
SITE NUMBER		DRAWING NUMBER		REV		
CT1269		G-1				1



3 Feet Minimum Separation  
between LTE Antennas  
  
6 Feet Minimum Separation  
between 700BC & 700DE

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

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

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

<p>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586</p>	<p>750 WEST CENTER STREET, SUITE #301 WEST BRIDGEWATER, MA 02379</p>	<p><b>SITE NUMBER: CT1269</b> <b>SITE NAME: NIANTIC BRAINERD RD.</b> <b>SBA SITE # ID: CT11794</b></p> <p>49 BRAINERD RD. NIANTIC, CT 06357 NEW LONDON COUNTY</p>	<p>500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>NO.</td> <td>DATE</td> <td>REVISIONS</td> <td>BY</td> <td>CHK</td> <td>APP'D</td> </tr> <tr> <td>1</td> <td>01/03/20</td> <td>ISSUED FOR CONSTRUCTION</td> <td>VP</td> <td>AT</td> <td>DPH</td> </tr> <tr> <td>A</td> <td>11/04/19</td> <td>ISSUED FOR REVIEW</td> <td>MR</td> <td>AT</td> <td>DPH</td> </tr> </table> <p>SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: MR</p>	NO.	DATE	REVISIONS	BY	CHK	APP'D	1	01/03/20	ISSUED FOR CONSTRUCTION	VP	AT	DPH	A	11/04/19	ISSUED FOR REVIEW	MR	AT	DPH	<p><b>AT&amp;T</b></p> <p><b>RF PLUMBING DIAGRAM</b> <b>LTE 4C_5C 2020 UPGRADE</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>SITE NUMBER</td> <td>DRAWING NUMBER</td> <td>REV</td> </tr> <tr> <td>CT1269</td> <td>RF-1</td> <td>1</td> </tr> </table>	SITE NUMBER	DRAWING NUMBER	REV	CT1269	RF-1	1
NO.	DATE	REVISIONS	BY	CHK	APP'D																								
1	01/03/20	ISSUED FOR CONSTRUCTION	VP	AT	DPH																								
A	11/04/19	ISSUED FOR REVIEW	MR	AT	DPH																								
SITE NUMBER	DRAWING NUMBER	REV																											
CT1269	RF-1	1																											

# EXHIBIT 2

# 49 BRAINERD RD

**Location** 49 BRAINERD RD

**Mblu** 07.4/ 21/ / /

**Acct#** 005680

**Owner** SAMUELSEN CHRISTOPHER

**Assessment** \$359,810

**Appraisal** \$667,600

**PID** 5939

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$231,700	\$435,900	\$667,600

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$162,190	\$197,620	\$359,810

## Owner of Record

**Owner** SAMUELSEN CHRISTOPHER  
**Co-Owner**  
**Address** 49 BRAINERD RD  
NIANTIC, CT 06357

**Sale Price** \$0  
**Certificate**  
**Book & Page** 831/ 222  
**Sale Date** 07/10/2009  
**Instrument** 04

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
SAMUELSEN CHRISTOPHER &	\$0		788/ 266	04	10/24/2007
SAMUELSEN CHRISTOPHER	\$560,000		748/ 207	07	07/13/2006
BOUTIN WYNN R	\$0		737/ 532	01	04/03/2006
BOUTIN ZACHARY H OR WYNN R	\$0		542/ 147	08	10/01/2001

## Building Information

### Building 1 : Section 1

**Year Built:** 1890  
**Living Area:** 2,485  
**Replacement Cost:** \$284,098  
**Building Percent** 67  
**Good:**



**Replacement Cost  
Less Depreciation:** \$190,300

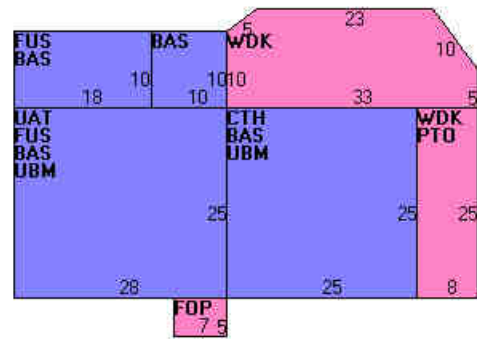
Building Attributes	
Field	Description
Style	Conventional
Model	Residential
Grade:	Good
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Wood Shingle
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F GlS/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Ceram Clay Til
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Modern
Kitchen Style:	Modern

### Building Photo



(<http://images.vgsi.com/photos2/EastLymeCTPhotos//\01\00\60/>)

### Building Layout



(<http://images.vgsi.com/photos2/EastLymeCTPhotos//Sketches/5>)

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	1,605	1,605
FUS	Upper Story, Finished	880	880
CTH	Cathedral Ceiling	625	0
FOP	Porch, Open, Finished	35	0
PTO	Patio	200	0
UAT	Attic, Unfinished	700	0
UBM	Basement, Unfinished	1,325	0
WDK	Deck, Wood	599	0
		5,969	2,485

### Extra Features

Extra Features	Legend



No Data for Extra Features

## Land

### Land Use

**Use Code** 1010  
**Description** Single Fam MDL-01  
**Zone** R40  
**Neighborhood** 0060  
**Alt Land Appr Category** No

### Land Line Valuation

**Size (Acres)** 51.31  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$197,620  
**Appraised Value** \$435,900

## Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN4	1 STY LFT&BSMT			378 S.F.	\$3,400	1
SHP1	WORK SHOP AVE			841 S.F.	\$21,000	1
FGR2	GARAGE-GOOD			841 S.F.	\$16,800	1
SHD1	SHED FRAME			45 S.F.	\$200	1

## Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$231,700	\$435,900	\$667,600
2017	\$231,700	\$435,900	\$667,600
2016	\$231,700	\$435,900	\$667,600

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$162,190	\$197,620	\$359,810
2017	\$162,190	\$197,620	\$359,810
2016	\$162,190	\$197,620	\$359,810

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# 49 BRAINERD RD

1/10/2020 3:07:25

1"=500'

## Property Information

Parcel ID	07.4 21
Address	49 BRAINERD RD
Sale Price	null



The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.



# EXHIBIT 3



**Tower Engineering Solutions**

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

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**Structural Analysis Report**

**Existing 169 ft SABRE Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT11794-S**

**Customer Site Name: East Lyme 1**

**Carrier Name: AT&T (App#: 127602, V1)**

**Carrier Site ID / Name: CT1269 / NIAN TIC BRAINERD RD**

**Site Location: 49 Brainerd Road**

**Niantic, Connecticut**

**New Haven County**

**Latitude: 41.307583**

**Longitude: -72.223916**

**Analysis Result:**

**Max Structural Usage: 71.7% [Pass]**

**Max Foundation Usage: 54.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**



**Report Prepared By: Younus Alkarawi**



**Tower Engineering Solutions**

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

---

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**Existing 169 ft SABRE Monopole**

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**Longitude: -72.223916**

### **Analysis Result:**

**Max Structural Usage: 71.7% [Pass]**

**Max Foundation Usage: 54.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Younus Alkarawi**

## Introduction

The purpose of this report is to summarize the analysis results on the 169 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Sabre Towers & Poles, Job# 42498. Dated 04/06/2011
<b>Foundation Drawing</b>	Sabre Towers & Poles, Job# 42498. Dated 04/06/2011
<b>Geotechnical Report</b>	Tower Engineering Professionals, Project #: 103196.01. Dated 03/18/2011.
<b>Modification Drawings</b>	N/A

## Analysis Criteria

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

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	D
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.186$ , $S_1 = 0.062$

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

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	170.0	1	KMW - AM-X-CD-14-65-00T-RET - Panel	(3) Reinforced T-Arms	(6) 1-5/8" (1) 1.50" Fiber (6) 0.64" DC Power	AT&T
-		1	KMW - AM-X-CD-16-65-00T-RET - Panel			
-		1	Andrew - SBNH-1D6565C - Panel			
-		3	CCI DTMABP7819VG12A TMAs			
-		6	Ericsson RRUS 11 RRUs			
-		6	Ericsson RRUS 12 RRUs			
-		3	CCI - HPA-65R-BBU-H8 - Panel			
-		3	Andrew - SBNHH-1D65A - Panel			
-		3	CCI - HPA-65R-BUU-H6 - Panel			
-		3	Ericsson RRUS-32 RRUs			
-		3	Ericsson RRUS-E2 RRUs			
-		6	Ericsson RRUS A2 Module			
-		3	Raycap DC6-48-60-18-8F DC - SP			
18		160.0	3			
19	3		Ericsson - Air21 B4A/B2P - Panel			
20	3		Commscope - LNX-6515DS-A1M - Panel			
21	3		Ericsson KRY 112-114/1 TMAs			
22	147.0	4	Swedcom SC-E 6014 rev2 - Panel	Low Profile Platform	(10) 1 5/8" (2) 1 5/8" Fiber	Verizon
23		6	Andrew SBNHH-1D65B - Panel			
24		2	Antel LPA-80080/4CF - Panel			
25		6	RFS FD9R6004/2C-3L - DP			
26		2	RFS DB-T1-6Z-8AB-OZ - RET			
27		3	Alcatel 2X60-770 U - RRH			
28		3	Alcatel 2x60-1900 - RRH			
29		3	Alcatel RRH 2x90 AWS - RRH			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	170.0	1	KMW AM-X-CD-14-65-00T-RET- Panel	(3) Reinforced T-Arms	(6) 1-5/8" (4) 0.64" DC Power <sup>1</sup> (1) 1.5" Fiber (1) 2" Conduit <sup>2</sup>	AT&T
2		1	Andrew SBNH-1D6565C 60.8#- Panel			
3		3	Cci DTMABP7819VG12A TMA			
4		1	KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe - Panel			
5		1	Cci DMP65R-BU4DA - Panel			
6		1	Cci DMP65R-BU6DA- Panel			
7		1	Cci DMP65R-BU8DA- Panel			
8		3	Ericsson RRUS 4478 B14			
9		3	Ericsson 4449 B5/B12			
10		3	Raycap DC6-48-60-18-8F			
11		2	Cci HPA-65R-BUU-H8- Panel			
12		2	Cci HPA-65R-BUU-H6- Panel			
13		2	Commscope SBNHH-1D65A- Panel			
14		6	Ericsson RRUS 12 RRUs			
15		3	Ericsson RRUS-32 RRUs			
16		3	Ericsson RRUS E2 B29			
17		6	Ericsson RRUS-A2			

1 - (4) 0.64" (Routed outside conduit)

2 - (Housing (1) 3/8" Fiber & (2) 0.64" DC cables)

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



## **Analysis Results**

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	<b>71.7%</b>	<b>69.4%</b>	<b>52.5%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	4801.2	38.5	80.0

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

### **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 2.1902 degrees under the operational wind speed as specified in the Analysis Criteria.

### **Conclusions**

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

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

## Usage Diagram - Max Ratio 71.74% at 148.5ft

**Structure:** CT11794-S-SBA  
**Site Name:** East Lyme 1  
**Height:** 169.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** D  
**Gh:** 1.1

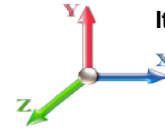
12/19/2019



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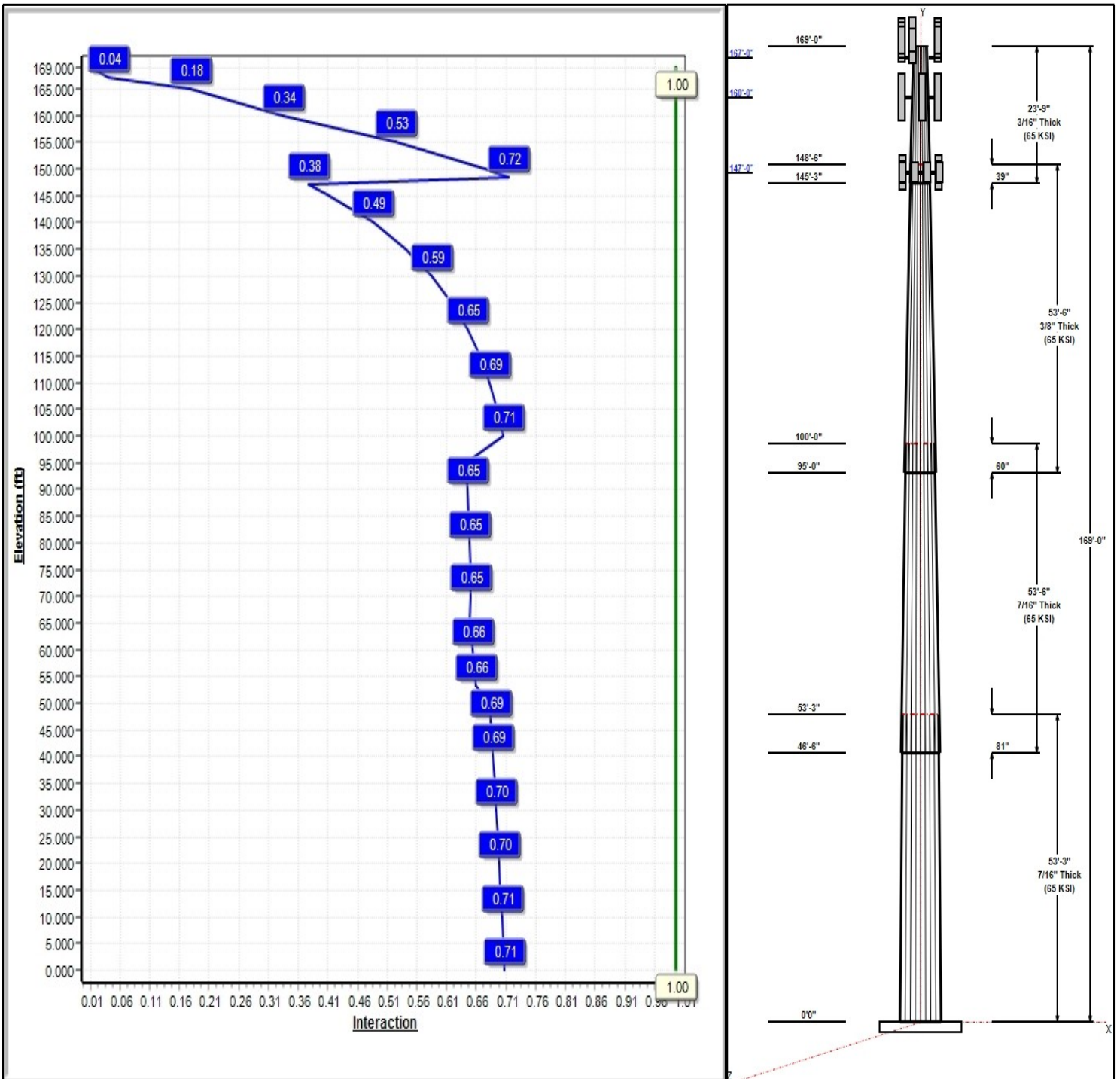
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 97 mph Wind**



**Iterations:** 25

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## Structure: CT11794-S-SBA

**Type:** Tapered  
**Site Name:** East Lyme 1  
**Height:** 169.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.27302

12/19/2019

Page: 2



### Shaft Properties

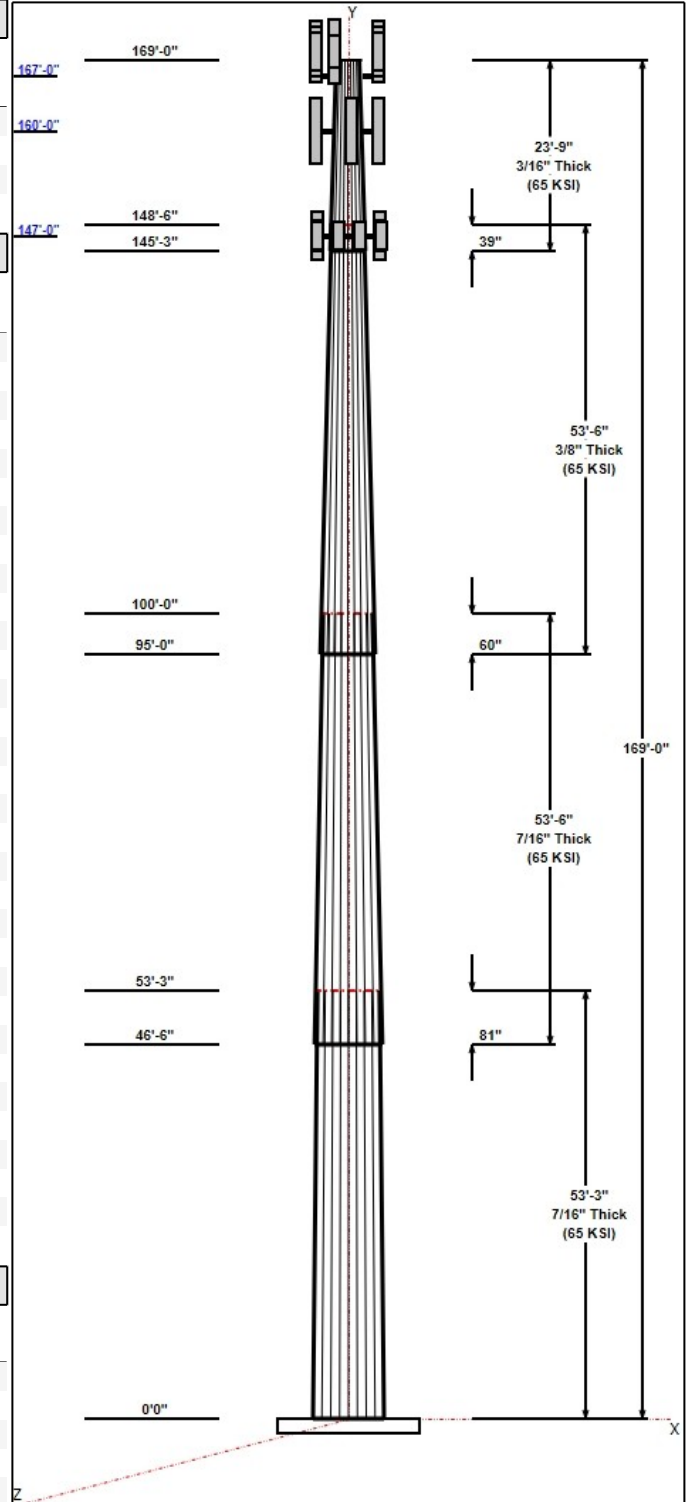
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	45.60	60.14	0.438		0.27302	65
2	53.50	33.71	48.32	0.438	Slip	0.27302	65
3	53.50	21.22	35.83	0.375	Slip	0.27302	65
4	23.75	16.00	22.48	0.188	Slip	0.27302	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
169.00	170.00	1	KMW	AT&T
169.00	170.00	1	Andrew SBNH-1D6565C	AT&T
169.00	170.00	3	CCI DTMABP7819VG12A	AT&T
169.00	170.00	1	DMP65R-BU4DA	AT&T
169.00	170.00	1	DMP65R-BU6DA	AT&T
169.00	170.00	1	DMP65R-BU8DA	AT&T
169.00	170.00	3	RRUS 4478 B14	AT&T
169.00	170.00	3	4449 B5/B12	AT&T
169.00	170.00	1	AM-X-CD-16-65-00T-RET	AT&T
167.00	170.00	3	Raycap DC6-48-60-18-8F	AT&T
167.00	167.00	3	Reinforced T-Arms	AT&T
167.00	170.00	2	HPA-65R-BBU-H8	AT&T
167.00	170.00	2	HPA-65R-BUU-H6	AT&T
167.00	170.00	2	SBNHH-1D65A	AT&T
167.00	170.00	6	Ericsson RRUS-12 RRUs	AT&T
167.00	170.00	3	Ericsson RRUS 32 RRUs	AT&T
167.00	170.00	3	Ericsson RRUS-E2 RRUs	AT&T
167.00	170.00	6	Ericsson RRUS A2	AT&T
160.00	160.00	3	Air21 B2A/B4P	T-Mobile
160.00	160.00	3	Air21 B4A/B2P	T-Mobile
160.00	160.00	3	LNX-6515DS-A1M	T-Mobile
160.00	160.00	3	Ericsson KRY 112-114/1	T-Mobile
160.00	160.00	3	T-Arm	T-Mobile
147.00	147.00	3	Alcatel 2x60-1900 RRH	Verizon
147.00	147.00	3	RRH 2X90 AWS	Verizon
147.00	147.00	4	Swedcom SC-E 6014 rev2	Verizon
147.00	147.00	2	Antel LPA-80080/4CF	Verizon
147.00	147.00	6	Andrew SBNHH-1D65B	Verizon
147.00	147.00	3	ALU 2X60-770 U RRH	Verizon
147.00	147.00	6	FD9R6004/2C-3L	Verizon
147.00	147.00	2	RFS DB-T1-6Z-8AB-OZ	Verizon
147.00	147.00	1	Low Profile Platform	Verizon

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	170.00	Inside	0.64" DC Power	AT&T
0.00	170.00	Inside	1 5/8" Coax	AT&T
0.00	170.00	Inside	1.5" Fiber	AT&T
0.00	170.00	Inside	2" Conduit	AT&T
0.00	169.00	Outside	Safety Cable	
0.00	169.00	Outside	Step bolts (ladder)	
0.00	160.00	Inside	1 5/8" Coax	T-Mobile
0.00	160.00	Inside	1 5/8" Fiber	T-Mobile
0.00	147.00	Inside	1 5/8" Coax	Verizon
0.00	147.00	Inside	1 5/8" Fiber	Verizon



**Structure: CT11794-S-SBA**

<b>Type:</b> Tapered	<b>Base Shape:</b> 18 Sided	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Taper:</b> 0.27302	
<b>Height:</b> 169.00 (ft)		
<b>Base Elev:</b> 0.00 (ft)		Page: 3



**Anchor Bolts**

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

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	72.8	50.0	Round

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	4801.2	38.5	52.9
0.9D + 1.6W 97 mph Wind	4746.8	38.5	39.7
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1311.4	10.7	80.0
1.2D + 1.0E	285.4	2.2	53.0
0.9D + 1.0E	281.9	2.2	39.7
1.0D + 1.0W 60 mph Wind	1142.4	9.2	44.2

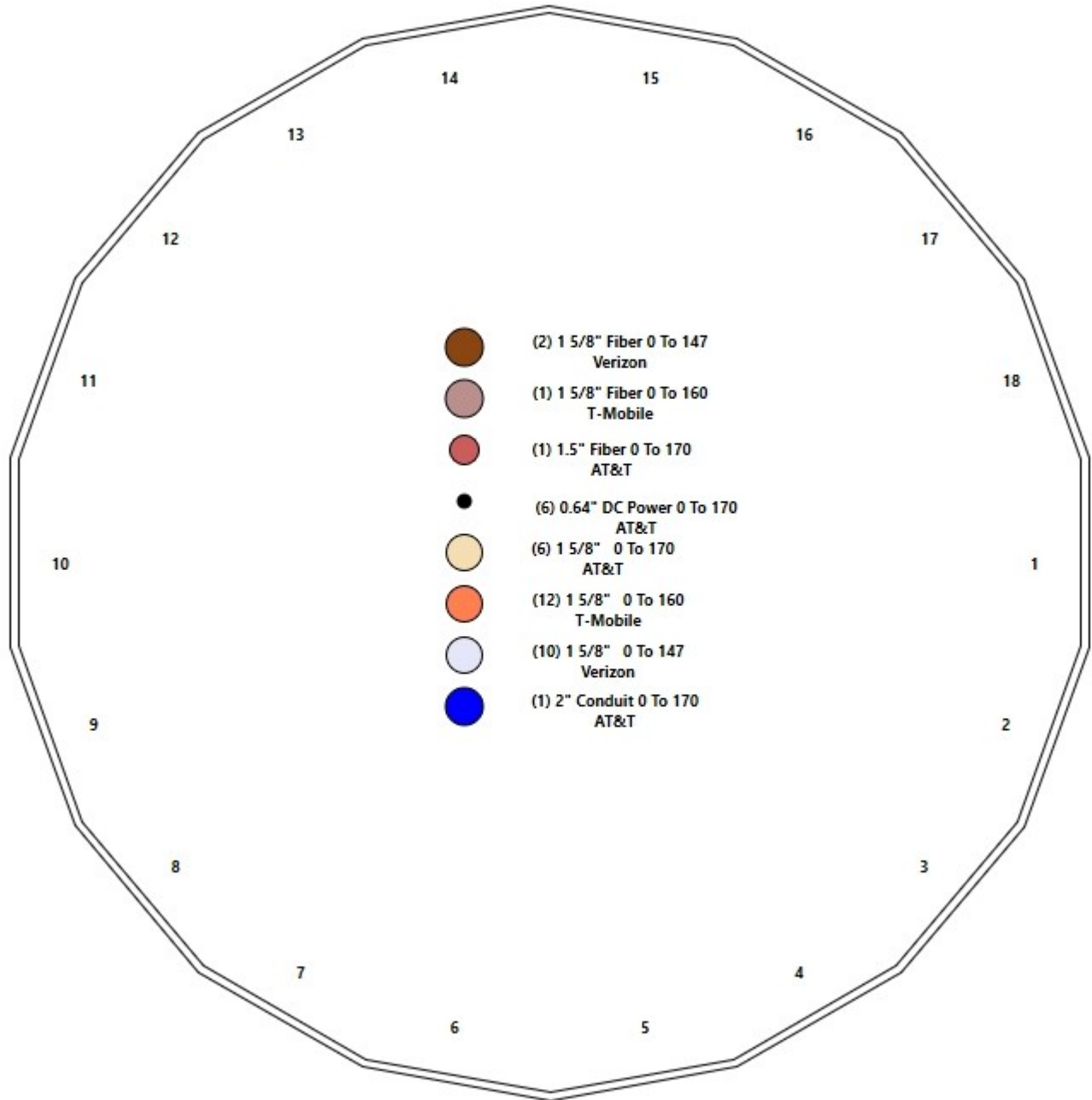
# Structure: CT11794-S-SBA - Coax Line Placement

**Type:** Monopole  
**Site Name:** East Lyme 1  
**Height:** 169.00 (ft)

12/19/2019



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## Shaft Properties

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.4375	65		0.00	13,193
2	18	53.500	0.4375	65	Slip	81.00	10,258
3	18	53.500	0.3750	65	Slip	60.00	6,099
4	18	23.750	0.1875	65	Slip	39.00	916
<b>Total Shaft Weight:</b>							<b>30,466</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	60.14	0.00	82.90	37333.61	22.83	137.46	45.60	53.25	62.71	16162.5	16.97	104.2	0.273018
2	48.32	46.50	66.49	19259.46	18.06	110.44	33.71	100.00	46.21	6464.05	12.18	77.06	0.273018
3	35.83	95.00	42.20	6701.10	15.44	95.54	21.22	148.50	24.81	1362.38	8.57	56.59	0.273018
4	22.48	145.2	13.27	833.42	19.73	119.92	16.00	169.00	9.41	297.27	13.64	85.33	0.273018



## Load Summary

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	169.00	KMW AM-X-CD-14-65-00T-RET	1	36.40	5.00	0.75	149.26	6.897	0.75	0.00	1.00
2	169.00	Andrew SBNH-1D6565C	1	60.80	11.47	0.80	274.79	14.760	0.80	0.00	1.00
3	169.00	CCI DTMAPB7819VG12A TMA's	3	19.18	1.14	0.67	44.98	1.919	0.67	0.00	1.00
4	169.00	DMP65R-BU4DA	1	67.90	8.28	0.71	395.72	9.573	0.73	0.00	1.00
5	169.00	DMP65R-BU6DA	1	79.40	12.71	0.72	370.82	14.217	0.74	0.00	1.00
6	169.00	DMP65R-BU8DA	1	95.70	17.87	0.73	477.77	19.716	0.75	0.00	1.00
7	169.00	RRUS 4478 B14	3	59.40	1.65	0.67	101.36	2.175	0.67	0.00	1.00
8	169.00	4449 B5/B12	3	71.00	1.97	0.67	125.02	2.524	0.67	0.00	1.00
9	169.00	AM-X-CD-16-65-00T-RET	1	48.50	8.02	0.75	212.72	10.847	0.75	0.00	1.00
10	167.00	Raycap DC6-48-60-18-8F	3	32.80	1.47	1.00	95.29	2.177	1.00	0.00	3.00
11	167.00	Reinforced T-Arms	3	450.00	14.00	0.75	767.53	26.348	0.75	0.00	0.00
12	167.00	HPA-65R-BBU-H8	2	68.00	12.98	0.79	362.71	14.614	0.79	0.00	3.00
13	167.00	HPA-65R-BUU-H6	2	51.00	9.66	0.85	302.23	11.042	0.85	0.00	3.00
14	167.00	SBNHH-1D65A	2	33.50	5.88	0.83	193.92	6.973	0.83	0.00	3.00
15	167.00	Ericsson RRUS-12 RRUs	6	58.00	3.15	0.67	154.65	3.873	0.67	0.00	3.00
16	167.00	Ericsson RRUS 32 RRUs	3	77.00	3.87	0.67	192.07	4.115	0.67	0.00	3.00
17	167.00	Ericsson RRUS-E2 RRUs	3	60.00	3.87	0.67	156.65	3.873	0.67	0.00	3.00
18	167.00	Ericsson RRUS A2	6	22.00	1.86	0.67	59.88	2.844	0.67	0.00	3.00
19	160.00	Air21 B2A/B4P	3	91.50	6.09	0.86	259.85	7.136	0.86	0.00	0.00
20	160.00	Air21 B4A/B2P	3	90.30	6.09	0.86	829.39	7.136	0.86	0.00	0.00
21	160.00	LNx-6515DS-A1M	3	50.30	11.47	0.80	283.66	14.758	0.80	0.00	0.00
22	160.00	Ericsson KRY 112-114/1 TMA's	3	11.00	0.41	0.70	21.85	0.888	0.70	0.00	0.00
23	160.00	T-Arm	3	400.00	10.00	0.75	681.04	18.783	0.75	0.00	0.00
24	147.00	Alcatel 2x60-1900 RRH	3	40.00	1.51	0.67	106.97	2.465	0.67	0.00	0.00
25	147.00	RRH 2X90 AWS	3	64.00	3.50	0.67	156.92	4.288	0.67	0.00	0.00
26	147.00	Swedcom SC-E 6014 rev2	4	15.00	3.33	0.97	109.59	4.996	0.97	0.00	0.00
27	147.00	Antel LPA-80080/4CF	2	12.00	2.61	1.70	147.12	3.461	1.70	0.00	0.00
28	147.00	Andrew SBNHH-1D65B	6	40.00	8.08	0.83	242.64	9.457	0.83	0.00	0.00
29	147.00	ALU 2X60-770 U RRH	3	55.60	3.50	0.67	136.32	4.288	0.67	0.00	0.00
30	147.00	FD9R6004/2C-3L	6	3.10	0.36	1.00	11.11	0.802	1.00	0.00	0.00
31	147.00	RFS DB-T1-6Z-8AB-OZ	2	44.00	4.80	0.71	187.39	5.672	0.71	0.00	0.00
32	147.00	Low Profile Platform	1	1200.00	26.00	1.00	2245.02	47.736	1.00	0.00	0.00
<b>Totals:</b>			<b>90</b>	<b>7,520.54</b>			<b>21,637.62</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	170.00	(6) 0.64" DC Power	0.00	Inside
0.00	170.00	(6) 1 5/8" Coax	0.00	Inside
0.00	170.00	(1) 1.5" Fiber	0.00	Inside
0.00	170.00	(1) 2" Conduit	0.00	Inside
0.00	169.00	(1) Safety Cable	0.38	Outside
0.00	169.00	(1) Step bolts (ladder)	0.00	Outside
0.00	160.00	(12) 1 5/8" Coax	0.00	Inside
0.00	160.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	147.00	(10) 1 5/8" Coax	0.00	Inside

## Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
0.00	147.00	(2) 1 5/8" Fiber		0.00		Inside					

## Shaft Section Properties

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	60.140	82.901	37333.6	22.83	137.46	74.6	1222.	0.0
5.00		0.4375	58.775	81.006	34830.8	22.28	134.34	75.2	1167.	1394.4
10.00		0.4375	57.410	79.110	32442.5	21.73	131.22	75.8	1113.	1362.1
15.00		0.4375	56.045	77.215	30165.9	21.18	128.10	76.5	1060.	1329.8
20.00		0.4375	54.680	75.319	27998.4	20.63	124.98	77.1	1008.	1297.6
25.00		0.4375	53.315	73.424	25937.3	20.08	121.86	77.8	958.2	1265.3
30.00		0.4375	51.949	71.528	23979.9	19.53	118.74	78.4	909.2	1233.1
35.00		0.4375	50.584	69.633	22123.5	18.98	115.62	79.1	861.4	1200.8
40.00		0.4375	49.219	67.737	20365.5	18.43	112.50	79.7	815.0	1168.6
45.00		0.4375	47.854	65.842	18703.2	17.88	109.38	80.4	769.8	1136.3
46.50	Bot - Section 2	0.4375	47.445	65.273	18222.8	17.71	108.44	80.6	756.5	334.6
50.00		0.4375	46.489	63.946	17133.9	17.33	106.26	81.0	725.9	1553.4
53.25	Top - Section 1	0.4375	46.477	63.929	17120.2	17.32	106.23	0.0	0.0	1414.2
55.00		0.4375	45.999	63.266	16592.7	17.13	105.14	81.3	710.5	378.7
60.00		0.4375	44.634	61.370	15145.5	16.58	102.02	81.9	668.3	1060.3
65.00		0.4375	43.269	59.475	13785.0	16.03	98.90	82.5	627.5	1028.0
70.00		0.4375	41.904	57.579	12508.5	15.48	95.78	82.5	587.9	995.8
75.00		0.4375	40.539	55.683	11313.4	14.93	92.66	82.5	549.7	963.5
80.00		0.4375	39.174	53.788	10196.9	14.38	89.54	82.5	512.7	931.3
85.00		0.4375	37.808	51.892	9156.4	13.83	86.42	82.5	477.0	899.0
90.00		0.4375	36.443	49.997	8189.2	13.28	83.30	82.5	442.6	866.8
95.00	Bot - Section 3	0.4375	35.078	48.101	7292.7	12.73	80.18	82.5	409.5	834.5
100.00	Top - Section 2	0.3750	34.463	40.572	5956.5	14.79	91.90	0.0	0.0	1506.4
105.00		0.3750	33.098	38.947	5269.1	14.15	88.26	82.5	313.6	676.5
110.00		0.3750	31.733	37.323	4636.8	13.51	84.62	82.5	287.8	648.8
115.00		0.3750	30.368	35.698	4057.3	12.87	80.98	82.5	263.1	621.2
120.00		0.3750	29.003	34.073	3528.1	12.23	77.34	82.5	239.6	593.5
125.00		0.3750	27.638	32.448	3047.1	11.58	73.70	82.5	217.2	565.9
130.00		0.3750	26.273	30.824	2611.9	10.94	70.06	82.5	195.8	538.3
135.00		0.3750	24.908	29.199	2220.3	10.30	66.42	82.5	175.6	510.6
140.00		0.3750	23.543	27.574	1869.9	9.66	62.78	82.5	156.4	483.0
145.00		0.3750	22.177	25.949	1558.4	9.02	59.14	82.5	138.4	455.3
145.25	Bot - Section 4	0.3750	22.109	25.868	1543.8	8.99	58.96	82.5	137.5	22.0
147.00		0.3750	21.631	25.300	1444.3	8.76	57.68	82.5	131.5	230.5
148.50	Top - Section 3	0.1875	21.597	12.741	737.8	18.90	115.18	0.0	0.0	193.5
150.00		0.1875	21.187	12.497	696.3	18.51	113.00	79.6	64.7	64.4
155.00		0.1875	19.822	11.685	569.1	17.23	105.72	81.1	56.6	205.7
160.00		0.1875	18.457	10.872	458.5	15.95	98.44	82.5	48.9	191.9
165.00		0.1875	17.092	10.060	363.2	14.66	91.16	82.5	41.9	178.1
167.00		0.1875	16.546	9.735	329.1	14.15	88.25	82.5	39.2	67.4
169.00		0.1875	16.000	9.410	297.3	13.64	85.33	82.5	36.6	65.1

**30466.3**

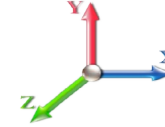
## Wind Loading - Shaft

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	23.569	25.93	500.98	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	23.569	25.93	489.61	0.650	0.000	5.00	25.156	16.35	678.3	0.0	1673.2
10.00		1.00	1.03	23.569	25.93	478.24	0.650	0.000	5.00	24.579	15.98	662.7	0.0	1634.5
15.00		1.00	1.03	23.574	25.93	466.92	0.650	0.000	5.00	24.001	15.60	647.3	0.0	1595.8
20.00		1.00	1.08	24.784	27.26	467.09	0.650	0.000	5.00	23.423	15.23	664.1	0.0	1557.1
25.00		1.00	1.13	25.765	28.34	464.35	0.650	0.000	5.00	22.846	14.85	673.4	0.0	1518.4
30.00		1.00	1.16	26.595	29.25	459.69	0.650	0.000	5.00	22.268	14.47	677.5	0.0	1479.7
35.00		1.00	1.19	27.317	30.05	453.65	0.650	0.000	5.00	21.691	14.10	677.9	0.0	1441.0
40.00		1.00	1.22	27.959	30.75	446.56	0.650	0.000	5.00	21.113	13.72	675.3	0.0	1402.3
45.00		1.00	1.25	28.538	31.39	438.65	0.650	0.000	5.00	20.536	13.35	670.4	0.0	1363.6
46.50	Bot - Section 2	1.00	1.25	28.701	31.57	436.13	0.650	0.000	1.50	6.048	3.93	198.6	0.0	401.5
50.00		1.00	1.27	29.065	31.97	430.06	0.650	0.000	3.50	14.169	9.21	471.1	0.0	1864.1
53.25	Top - Section 1	1.00	1.28	29.385	32.32	424.16	0.650	0.000	3.25	12.904	8.39	433.8	0.0	1697.0
55.00		1.00	1.29	29.551	32.51	429.06	0.650	0.000	1.75	6.847	4.45	231.5	0.0	454.5
60.00		1.00	1.31	30.002	33.00	419.49	0.650	0.000	5.00	19.173	12.46	658.1	0.0	1272.3
65.00		1.00	1.33	30.422	33.46	409.50	0.650	0.000	5.00	18.596	12.09	647.2	0.0	1233.6
70.00		1.00	1.35	30.817	33.90	399.15	0.650	0.000	5.00	18.018	11.71	635.2	0.0	1194.9
75.00		1.00	1.36	31.189	34.31	388.47	0.650	0.000	5.00	17.440	11.34	622.3	0.0	1156.2
80.00		1.00	1.38	31.541	34.70	377.50	0.650	0.000	5.00	16.863	10.96	608.5	0.0	1117.5
85.00		1.00	1.39	31.875	35.06	366.27	0.650	0.000	5.00	16.285	10.59	593.9	0.0	1078.8
90.00		1.00	1.41	32.194	35.41	354.81	0.650	0.000	5.00	15.708	10.21	578.5	0.0	1040.1
95.00	Bot - Section 3	1.00	1.42	32.498	35.75	343.12	0.650	0.000	5.00	15.130	9.83	562.5	0.0	1001.4
100.00	Top - Section 2	1.00	1.43	32.789	36.07	331.25	0.650	0.000	5.00	14.870	9.67	557.8	0.0	1807.7
105.00		1.00	1.45	33.069	36.38	326.59	0.650	0.000	5.00	14.292	9.29	540.7	0.0	811.8
110.00		1.00	1.46	33.337	36.67	314.38	0.650	0.000	5.00	13.715	8.91	523.1	0.0	778.6
115.00		1.00	1.47	33.596	36.96	302.03	0.650	0.000	5.00	13.137	8.54	504.9	0.0	745.4
120.00		1.00	1.48	33.845	37.23	289.52	0.650	0.000	5.00	12.560	8.16	486.3	0.0	712.2
125.00		1.00	1.49	34.087	37.50	276.87	0.650	0.000	5.00	11.982	7.79	467.2	0.0	679.1
130.00		1.00	1.50	34.320	37.75	264.10	0.650	0.000	5.00	11.405	7.41	447.8	0.0	645.9
135.00		1.00	1.51	34.546	38.00	251.20	0.650	0.000	5.00	10.827	7.04	427.9	0.0	612.7
140.00		1.00	1.52	34.765	38.24	238.18	0.650	0.000	5.00	10.249	6.66	407.6	0.0	579.6
145.00		1.00	1.53	34.978	38.48	225.06	0.650	0.000	5.00	9.672	6.29	387.0	0.0	546.4
145.25	Bot - Section 4	1.00	1.53	34.988	38.49	224.40	0.650	0.000	0.25	0.468	0.30	18.7	0.0	26.4
147.00	Appurtenance(s)	1.00	1.53	35.061	38.57	219.78	0.650	0.000	1.75	3.294	2.14	132.1	0.0	276.6
148.50	Top - Section 3	1.00	1.53	35.123	38.64	215.81	0.650	0.000	1.50	2.767	1.80	111.2	0.0	232.3
150.00		1.00	1.54	35.185	38.70	215.64	0.650	0.000	1.50	2.715	1.76	109.3	0.0	77.3
155.00		1.00	1.55	35.386	38.92	202.33	0.650	0.000	5.00	8.675	5.64	351.2	0.0	246.9
160.00	Appurtenance(s)	1.00	1.55	35.582	39.14	188.91	0.650	0.000	5.00	8.098	5.26	329.6	0.0	230.3
165.00		1.00	1.56	35.773	39.35	175.41	0.650	0.000	5.00	7.520	4.89	307.8	0.0	213.7
167.00	Appurtenance(s)	1.00	1.57	35.848	39.43	169.99	0.650	0.000	2.00	2.846	1.85	116.7	0.0	80.8
169.00	Appurtenance(s)	1.00	1.57	35.922	39.51	164.55	0.650	0.000	2.00	2.754	1.79	113.2	0.0	78.2
<b>Totals:</b>									<b>169.00</b>			<b>18,608.1</b>		<b>36,559.6</b>

## Discrete Appurtenance Forces

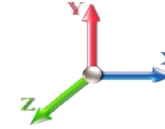
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	169.00	DMP65R-BU4DA	1	35.959	39.555	0.64	0.90	5.31	81.48	0.000	1.000	335.79	0.00	335.79
2	169.00	KMW	1	35.959	39.555	0.75	1.00	3.75	43.68	0.000	1.000	237.33	0.00	237.33
3	169.00	Andrew SBNH-1D6565C	1	35.959	39.555	0.80	1.00	9.18	72.96	0.000	1.000	580.73	0.00	580.73
4	169.00	CCI DTMAPB7819VG12A	3	35.959	39.555	0.60	0.90	2.06	69.05	0.000	1.000	130.52	0.00	130.52
5	169.00	AM-X-CD-16-65-00T-RET	1	35.959	39.555	0.75	1.00	6.01	58.20	0.000	1.000	380.68	0.00	380.68
6	169.00	DMP65R-BU8DA	1	35.959	39.555	0.65	0.90	11.69	114.84	0.000	1.000	739.98	0.00	739.98
7	169.00	RRUS 4478 B14	3	35.959	39.555	0.60	0.90	2.98	213.84	0.000	1.000	188.90	0.00	188.90
8	169.00	4449 B5/B12	3	35.959	39.555	0.60	0.90	3.56	255.60	0.000	1.000	225.54	0.00	225.54
9	169.00	DMP65R-BU6DA	1	35.959	39.555	0.65	0.90	8.25	95.28	0.000	1.000	521.97	0.00	521.97
10	167.00	SBNHH-1D65A	2	35.959	39.555	0.75	0.90	8.78	80.40	0.000	3.000	555.97	0.00	1667.90
11	167.00	HPA-65R-BBU-H8	2	35.959	39.555	0.71	0.90	18.46	163.20	0.000	3.000	1168.14	0.00	3504.42
12	167.00	HPA-65R-BUJ-H6	2	35.959	39.555	0.77	0.90	14.78	122.40	0.000	3.000	935.38	0.00	2806.14
13	167.00	Ericsson RRUS-E2 RRUs	3	35.959	39.555	0.60	0.90	7.00	216.00	0.000	3.000	443.07	0.00	1329.20
14	167.00	Ericsson RRUS-12 RRUs	6	35.959	39.555	0.60	0.90	11.40	417.60	0.000	3.000	721.27	0.00	2163.82
15	167.00	Ericsson RRUS 32 RRUs	3	35.959	39.555	0.60	0.90	7.00	277.20	0.000	3.000	443.07	0.00	1329.20
16	167.00	Ericsson RRUS A2	6	35.959	39.555	0.60	0.90	6.73	158.40	0.000	3.000	425.89	0.00	1277.68
17	167.00	Reinforced T-Arms	3	35.848	39.433	0.56	0.75	23.63	1620.00	0.000	0.000	1490.55	0.00	0.00
18	167.00	Raycap DC6-48-60-18-8F	3	35.959	39.555	0.90	0.90	3.97	118.08	0.000	3.000	251.19	0.00	753.57
19	160.00	T-Arm	3	35.582	39.140	0.56	0.75	16.88	1440.00	0.000	0.000	1056.78	0.00	0.00
20	160.00	Ericsson KRY 112-114/1	3	35.582	39.140	0.56	0.80	0.69	39.60	0.000	0.000	43.14	0.00	0.00
21	160.00	LNx-6515DS-A1M	3	35.582	39.140	0.64	0.80	22.02	181.08	0.000	0.000	1379.13	0.00	0.00
22	160.00	Air21 B4A/B2P	3	35.582	39.140	0.69	0.80	12.57	325.08	0.000	0.000	787.17	0.00	0.00
23	160.00	Air21 B2A/B4P	3	35.582	39.140	0.69	0.80	12.57	329.40	0.000	0.000	787.17	0.00	0.00
24	147.00	Antel LPA-80080/4CF	2	35.061	38.567	1.36	0.80	7.10	28.80	0.000	0.000	438.08	0.00	0.00
25	147.00	Alcatel 2x60-1900 RRH	3	35.061	38.567	0.54	0.80	2.43	144.00	0.000	0.000	149.83	0.00	0.00
26	147.00	RRH 2X90 AWS	3	35.061	38.567	0.54	0.80	5.63	230.40	0.000	0.000	347.29	0.00	0.00
27	147.00	Swedcom SC-E 6014 rev2	4	35.061	38.567	0.78	0.80	10.34	72.00	0.000	0.000	637.83	0.00	0.00
28	147.00	RFS DB-T1-6Z-8AB-0Z	2	35.061	38.567	0.57	0.80	5.45	105.60	0.000	0.000	336.48	0.00	0.00
29	147.00	Andrew SBNHH-1D65B	6	35.061	38.567	0.66	0.80	32.19	288.00	0.000	0.000	1986.42	0.00	0.00
30	147.00	ALU 2X60-770 U RRH	3	35.061	38.567	0.54	0.80	5.63	200.16	0.000	0.000	347.29	0.00	0.00
31	147.00	FD9R6004/2C-3L	6	35.061	38.567	0.80	0.80	1.73	22.32	0.000	0.000	106.63	0.00	0.00
32	147.00	Low Profile Platform	1	35.061	38.567	1.00	1.00	26.00	1440.00	0.000	0.000	1604.41	0.00	0.00
<b>Totals:</b>									<b>9,024.65</b>			<b>19,783.63</b>		

## Total Applied Force Summary

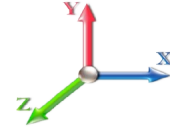
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		678.29	1906.58	0.00	0.00
10.00		662.71	1867.88	0.00	0.00
15.00		647.29	1829.18	0.00	0.00
20.00		664.12	1790.48	0.00	0.00
25.00		673.38	1751.78	0.00	0.00
30.00		677.50	1713.08	0.00	0.00
35.00		677.86	1674.38	0.00	0.00
40.00		675.31	1635.68	0.00	0.00
45.00		670.43	1596.98	0.00	0.00
46.50		198.58	471.55	0.00	0.00
50.00		471.14	2027.47	0.00	0.00
53.25		433.78	1848.69	0.00	0.00
55.00		231.48	536.13	0.00	0.00
60.00		658.06	1505.68	0.00	0.00
65.00		647.19	1466.98	0.00	0.00
70.00		635.22	1428.28	0.00	0.00
75.00		622.28	1389.58	0.00	0.00
80.00		608.46	1350.88	0.00	0.00
85.00		593.85	1312.18	0.00	0.00
90.00		578.51	1273.48	0.00	0.00
95.00		562.51	1234.78	0.00	0.00
100.00		557.78	2041.01	0.00	0.00
105.00		540.69	1045.12	0.00	0.00
110.00		523.05	1011.95	0.00	0.00
115.00		504.91	978.77	0.00	0.00
120.00		486.30	945.60	0.00	0.00
125.00		467.25	912.43	0.00	0.00
130.00		447.77	879.26	0.00	0.00
135.00		427.89	846.09	0.00	0.00
140.00		407.63	812.92	0.00	0.00
145.00		387.02	779.74	0.00	0.00
145.25		18.75	38.12	0.00	0.00
147.00	(30) attachments	6086.39	2889.57	0.00	0.00
148.50		111.19	279.58	0.00	0.00
150.00		109.29	124.62	0.00	0.00
155.00		351.20	404.61	0.00	0.00
160.00	(15) attachments	4383.02	2703.19	0.00	0.00
165.00		307.76	289.96	0.00	0.00
167.00	(30) attachments	6551.26	3284.62	0.00	14831.93
169.00	(15) attachments	3454.62	1113.62	0.00	3341.44
<b>Totals:</b>		<b>38,391.71</b>	<b>52,992.44</b>	<b>0.00</b>	<b>18,173.37</b>

## Linear Appurtenance Segment Forces (Factored)

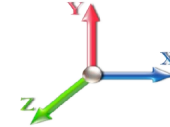
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.006	0.000	23.569	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	23.569	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.006	0.000	23.569	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	23.569	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	23.574	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	23.574	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	24.784	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	24.784	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	25.765	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	25.765	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	26.595	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	26.595	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	27.317	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	27.317	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	27.959	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	27.959	0.00	6.24
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.008	0.000	28.538	0.00	1.64
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	28.538	0.00	6.24
46.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.008	0.000	28.701	0.00	0.49
46.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.008	0.000	28.701	0.00	1.87
50.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.008	0.000	29.065	0.00	1.15
50.00	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.008	0.000	29.065	0.00	4.37
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.008	0.000	29.385	0.00	1.06
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.008	0.000	29.385	0.00	4.06
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.008	0.000	29.551	0.00	0.57
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.008	0.000	29.551	0.00	2.18
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.008	0.000	30.002	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	30.002	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	30.422	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	30.422	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	30.817	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	30.817	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	31.189	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	31.189	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	31.541	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	31.541	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	31.875	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	31.875	0.00	6.24
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	32.194	0.00	1.64
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	32.194	0.00	6.24
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	32.498	0.00	1.64
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	32.498	0.00	6.24
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	32.789	0.00	1.64
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	32.789	0.00	6.24
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	33.069	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	33.069	0.00	6.24
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	33.337	0.00	1.64



## Linear Appurtenance Segment Forces (Factored)

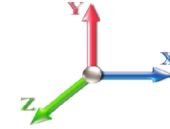
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	33.337	0.00	6.24
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	33.596	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	33.596	0.00	6.24
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	33.845	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	33.845	0.00	6.24
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	34.087	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	34.087	0.00	6.24
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	34.320	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.014	0.000	34.320	0.00	6.24
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	34.546	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	34.546	0.00	6.24
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	34.765	0.00	1.64
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	34.765	0.00	6.24
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	34.978	0.00	1.64
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.016	0.000	34.978	0.00	6.24
145.25	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.017	0.000	34.988	0.00	0.08
145.25	Step bolts (ladder)	Yes	0.25	0.000	0.00	0.00	0.00	0.017	0.000	34.988	0.00	0.31
147.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.017	0.000	35.061	0.00	0.57
147.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.017	0.000	35.061	0.00	2.18
148.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.017	0.000	35.123	0.00	0.49
148.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	35.123	0.00	1.87
150.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.017	0.000	35.185	0.00	0.49
150.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	35.185	0.00	1.87
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	35.386	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.018	0.000	35.386	0.00	6.24
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	35.582	0.00	1.64
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.020	0.000	35.582	0.00	6.24
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	35.773	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.021	0.000	35.773	0.00	6.24
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.022	0.000	35.848	0.00	0.66
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.022	0.000	35.848	0.00	2.50
169.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.023	0.000	35.922	0.00	0.66
169.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.023	0.000	35.922	0.00	2.50
<b>Totals:</b>											<b>0.0</b>	<b>266.3</b>



## Calculated Forces

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

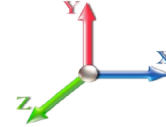


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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.93	-38.48	0.00	-4801.2	0.00	4801.22	5562.36	2781.18	13652.7	6836.50	0.00	0.000	0.000	0.712
5.00	-50.90	-37.96	0.00	-4608.8	0.00	4608.85	5482.35	2741.17	13146.4	6582.98	0.10	-0.179	0.000	0.710
10.00	-48.92	-37.44	0.00	-4419.0	0.00	4419.07	5400.13	2700.07	12644.0	6331.40	0.38	-0.364	0.000	0.707
15.00	-46.97	-36.94	0.00	-4231.8	0.00	4231.85	5315.71	2657.86	12145.8	6081.95	0.87	-0.553	0.000	0.705
20.00	-45.06	-36.41	0.00	-4047.1	0.00	4047.15	5229.08	2614.54	11652.3	5834.81	1.55	-0.748	0.000	0.702
25.00	-43.19	-35.87	0.00	-3865.1	0.00	3865.10	5140.25	2570.12	11163.7	5590.18	2.44	-0.949	0.000	0.700
30.00	-41.36	-35.31	0.00	-3685.7	0.00	3685.76	5049.20	2524.60	10680.6	5348.24	3.55	-1.157	0.000	0.698
35.00	-39.57	-34.75	0.00	-3509.2	0.00	3509.22	4955.95	2477.97	10203.2	5109.18	4.87	-1.370	0.000	0.695
40.00	-37.82	-34.18	0.00	-3335.4	0.00	3335.49	4860.49	2430.24	9731.91	4873.19	6.43	-1.590	0.000	0.692
45.00	-36.16	-33.55	0.00	-3164.6	0.00	3164.62	4762.82	2381.41	9267.12	4640.45	8.21	-1.817	0.000	0.690
46.50	-35.62	-33.41	0.00	-3114.2	0.00	3114.29	4733.09	2366.54	9129.00	4571.29	8.80	-1.889	0.000	0.689
50.00	-33.52	-32.97	0.00	-2997.3	0.00	2997.35	4662.94	2331.47	8809.20	4411.15	10.24	-2.056	0.000	0.687
53.25	-31.62	-32.53	0.00	-2890.2	0.00	2890.21	4662.03	2331.01	8805.10	4409.10	11.70	-2.215	0.000	0.662
55.00	-31.00	-32.37	0.00	-2833.2	0.00	2833.27	4626.54	2313.27	8646.55	4329.70	12.53	-2.303	0.000	0.661
60.00	-29.39	-31.77	0.00	-2671.4	0.00	2671.43	4523.67	2261.83	8198.57	4105.38	15.06	-2.539	0.000	0.657
65.00	-27.82	-31.18	0.00	-2512.5	0.00	2512.58	4418.66	2209.33	7758.49	3885.01	17.85	-2.782	0.000	0.653
70.00	-26.29	-30.59	0.00	-2356.6	0.00	2356.69	4277.83	2138.92	7269.40	3640.10	20.90	-3.033	0.000	0.654
75.00	-24.80	-30.00	0.00	-2203.7	0.00	2203.76	4137.00	2068.50	6796.24	3403.17	24.21	-3.293	0.000	0.654
80.00	-23.35	-29.43	0.00	-2053.7	0.00	2053.74	3996.18	1998.09	6339.00	3174.21	27.80	-3.560	0.000	0.653
85.00	-21.94	-28.86	0.00	-1906.6	0.00	1906.61	3855.35	1927.67	5897.69	2953.23	31.68	-3.837	0.000	0.652
90.00	-20.56	-28.30	0.00	-1762.3	0.00	1762.32	3714.52	1857.26	5472.29	2740.21	35.84	-4.122	0.000	0.649
95.00	-19.23	-27.74	0.00	-1620.8	0.00	1620.84	3573.69	1786.85	5062.82	2535.17	40.31	-4.415	0.000	0.645
100.00	-17.10	-27.12	0.00	-1482.1	0.00	1482.13	3014.30	1507.15	4208.99	2107.62	45.10	-4.718	0.000	0.709
105.00	-15.95	-26.58	0.00	-1346.5	0.00	1346.54	2893.59	1446.80	3876.87	1941.32	50.20	-5.029	0.000	0.699
110.00	-14.83	-26.06	0.00	-1213.6	0.00	1213.63	2772.88	1386.44	3558.41	1781.85	55.65	-5.375	0.000	0.687
115.00	-13.75	-25.55	0.00	-1083.3	0.00	1083.34	2652.17	1326.09	3253.59	1629.21	61.46	-5.727	0.000	0.670
120.00	-12.70	-25.05	0.00	-955.60	0.00	955.60	2531.46	1265.73	2962.42	1483.41	67.64	-6.085	0.000	0.650
125.00	-11.69	-24.56	0.00	-830.36	0.00	830.36	2410.75	1205.38	2684.90	1344.44	74.19	-6.445	0.000	0.623
130.00	-10.72	-24.08	0.00	-707.58	0.00	707.58	2290.04	1145.02	2421.02	1212.31	81.12	-6.804	0.000	0.589
135.00	-9.79	-23.61	0.00	-587.19	0.00	587.19	2169.33	1084.67	2170.80	1087.01	88.42	-7.156	0.000	0.545
140.00	-8.90	-23.15	0.00	-469.14	0.00	469.14	2048.62	1024.31	1934.22	968.55	96.08	-7.495	0.000	0.489
145.00	-8.12	-22.69	0.00	-353.37	0.00	353.37	1927.91	963.96	1711.29	856.92	104.08	-7.807	0.000	0.417
145.25	-8.06	-22.67	0.00	-347.70	0.00	347.70	1921.88	960.94	1700.50	851.51	104.49	-7.823	0.000	0.413
147.00	-6.00	-16.26	0.00	-308.02	0.00	308.02	1879.63	939.81	1625.94	814.18	107.37	-7.929	0.000	0.382
148.50	-5.72	-16.12	0.00	-283.63	0.00	283.63	907.84	453.92	797.93	399.56	109.86	-8.017	0.000	0.717
150.00	-5.53	-16.02	0.00	-259.46	0.00	259.46	895.57	447.78	771.95	386.55	112.39	-8.102	0.000	0.679
155.00	-5.07	-15.65	0.00	-179.36	0.00	179.36	853.23	426.61	687.23	344.13	121.10	-8.550	0.000	0.528
160.00	-3.01	-10.92	0.00	-101.11	0.00	101.11	807.76	403.88	604.95	302.92	130.22	-8.900	0.000	0.338
165.00	-2.75	-10.58	0.00	-46.51	0.00	46.51	747.41	373.70	517.50	259.13	139.64	-9.129	0.000	0.184
167.00	-0.55	-3.59	0.00	-10.52	0.00	10.52	723.26	361.63	484.43	242.57	143.46	-9.186	0.000	0.044
169.00	0.00	-3.45	0.00	-3.34	0.00	3.34	699.12	349.56	452.45	226.56	147.30	-9.198	0.000	0.015

## Wind Loading - Shaft

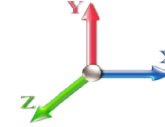
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	23.569	25.93	500.98	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	23.569	25.93	489.61	0.650	0.000	5.00	25.156	16.35	678.3	0.0	1254.9
10.00		1.00	1.03	23.569	25.93	478.24	0.650	0.000	5.00	24.579	15.98	662.7	0.0	1225.9
15.00		1.00	1.03	23.574	25.93	466.92	0.650	0.000	5.00	24.001	15.60	647.3	0.0	1196.9
20.00		1.00	1.08	24.784	27.26	467.09	0.650	0.000	5.00	23.423	15.23	664.1	0.0	1167.8
25.00		1.00	1.13	25.765	28.34	464.35	0.650	0.000	5.00	22.846	14.85	673.4	0.0	1138.8
30.00		1.00	1.16	26.595	29.25	459.69	0.650	0.000	5.00	22.268	14.47	677.5	0.0	1109.8
35.00		1.00	1.19	27.317	30.05	453.65	0.650	0.000	5.00	21.691	14.10	677.9	0.0	1080.8
40.00		1.00	1.22	27.959	30.75	446.56	0.650	0.000	5.00	21.113	13.72	675.3	0.0	1051.7
45.00		1.00	1.25	28.538	31.39	438.65	0.650	0.000	5.00	20.536	13.35	670.4	0.0	1022.7
46.50	Bot - Section 2	1.00	1.25	28.701	31.57	436.13	0.650	0.000	1.50	6.048	3.93	198.6	0.0	301.2
50.00		1.00	1.27	29.065	31.97	430.06	0.650	0.000	3.50	14.169	9.21	471.1	0.0	1398.1
53.25	Top - Section 1	1.00	1.28	29.385	32.32	424.16	0.650	0.000	3.25	12.904	8.39	433.8	0.0	1272.8
55.00		1.00	1.29	29.551	32.51	429.06	0.650	0.000	1.75	6.847	4.45	231.5	0.0	340.8
60.00		1.00	1.31	30.002	33.00	419.49	0.650	0.000	5.00	19.173	12.46	658.1	0.0	954.2
65.00		1.00	1.33	30.422	33.46	409.50	0.650	0.000	5.00	18.596	12.09	647.2	0.0	925.2
70.00		1.00	1.35	30.817	33.90	399.15	0.650	0.000	5.00	18.018	11.71	635.2	0.0	896.2
75.00		1.00	1.36	31.189	34.31	388.47	0.650	0.000	5.00	17.440	11.34	622.3	0.0	867.2
80.00		1.00	1.38	31.541	34.70	377.50	0.650	0.000	5.00	16.863	10.96	608.5	0.0	838.1
85.00		1.00	1.39	31.875	35.06	366.27	0.650	0.000	5.00	16.285	10.59	593.9	0.0	809.1
90.00		1.00	1.41	32.194	35.41	354.81	0.650	0.000	5.00	15.708	10.21	578.5	0.0	780.1
95.00	Bot - Section 3	1.00	1.42	32.498	35.75	343.12	0.650	0.000	5.00	15.130	9.83	562.5	0.0	751.1
100.00	Top - Section 2	1.00	1.43	32.789	36.07	331.25	0.650	0.000	5.00	14.870	9.67	557.8	0.0	1355.7
105.00		1.00	1.45	33.069	36.38	326.59	0.650	0.000	5.00	14.292	9.29	540.7	0.0	608.8
110.00		1.00	1.46	33.337	36.67	314.38	0.650	0.000	5.00	13.715	8.91	523.1	0.0	583.9
115.00		1.00	1.47	33.596	36.96	302.03	0.650	0.000	5.00	13.137	8.54	504.9	0.0	559.1
120.00		1.00	1.48	33.845	37.23	289.52	0.650	0.000	5.00	12.560	8.16	486.3	0.0	534.2
125.00		1.00	1.49	34.087	37.50	276.87	0.650	0.000	5.00	11.982	7.79	467.2	0.0	509.3
130.00		1.00	1.50	34.320	37.75	264.10	0.650	0.000	5.00	11.405	7.41	447.8	0.0	484.4
135.00		1.00	1.51	34.546	38.00	251.20	0.650	0.000	5.00	10.827	7.04	427.9	0.0	459.5
140.00		1.00	1.52	34.765	38.24	238.18	0.650	0.000	5.00	10.249	6.66	407.6	0.0	434.7
145.00		1.00	1.53	34.978	38.48	225.06	0.650	0.000	5.00	9.672	6.29	387.0	0.0	409.8
145.25	Bot - Section 4	1.00	1.53	34.988	38.49	224.40	0.650	0.000	0.25	0.468	0.30	18.7	0.0	19.8
147.00	Appurtenance(s)	1.00	1.53	35.061	38.57	219.78	0.650	0.000	1.75	3.294	2.14	132.1	0.0	207.5
148.50	Top - Section 3	1.00	1.53	35.123	38.64	215.81	0.650	0.000	1.50	2.767	1.80	111.2	0.0	174.2
150.00		1.00	1.54	35.185	38.70	215.64	0.650	0.000	1.50	2.715	1.76	109.3	0.0	58.0
155.00		1.00	1.55	35.386	38.92	202.33	0.650	0.000	5.00	8.675	5.64	351.2	0.0	185.1
160.00	Appurtenance(s)	1.00	1.55	35.582	39.14	188.91	0.650	0.000	5.00	8.098	5.26	329.6	0.0	172.7
165.00		1.00	1.56	35.773	39.35	175.41	0.650	0.000	5.00	7.520	4.89	307.8	0.0	160.3
167.00	Appurtenance(s)	1.00	1.57	35.848	39.43	169.99	0.650	0.000	2.00	2.846	1.85	116.7	0.0	60.6
169.00	Appurtenance(s)	1.00	1.57	35.922	39.51	164.55	0.650	0.000	2.00	2.754	1.79	113.2	0.0	58.6
<b>Totals:</b>									<b>169.00</b>			<b>18,608.1</b>		<b>27,419.7</b>

## Discrete Appurtenance Forces

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

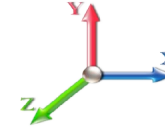


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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	169.00	DMP65R-BU4DA	1	35.959	39.555	0.64	0.90	5.31	61.11	0.000	1.000	335.79	0.00	335.79
2	169.00	KMW	1	35.959	39.555	0.75	1.00	3.75	32.76	0.000	1.000	237.33	0.00	237.33
3	169.00	Andrew SBNH-1D6565C	1	35.959	39.555	0.80	1.00	9.18	54.72	0.000	1.000	580.73	0.00	580.73
4	169.00	CCI DTMAPB7819VG12A	3	35.959	39.555	0.60	0.90	2.06	51.79	0.000	1.000	130.52	0.00	130.52
5	169.00	AM-X-CD-16-65-00T-RET	1	35.959	39.555	0.75	1.00	6.01	43.65	0.000	1.000	380.68	0.00	380.68
6	169.00	DMP65R-BU8DA	1	35.959	39.555	0.65	0.90	11.69	86.13	0.000	1.000	739.98	0.00	739.98
7	169.00	RRUS 4478 B14	3	35.959	39.555	0.60	0.90	2.98	160.38	0.000	1.000	188.90	0.00	188.90
8	169.00	4449 B5/B12	3	35.959	39.555	0.60	0.90	3.56	191.70	0.000	1.000	225.54	0.00	225.54
9	169.00	DMP65R-BU6DA	1	35.959	39.555	0.65	0.90	8.25	71.46	0.000	1.000	521.97	0.00	521.97
10	167.00	SBNHH-1D65A	2	35.959	39.555	0.75	0.90	8.78	60.30	0.000	3.000	555.97	0.00	1667.90
11	167.00	HPA-65R-BBU-H8	2	35.959	39.555	0.71	0.90	18.46	122.40	0.000	3.000	1168.14	0.00	3504.42
12	167.00	HPA-65R-BUJ-H6	2	35.959	39.555	0.77	0.90	14.78	91.80	0.000	3.000	935.38	0.00	2806.14
13	167.00	Ericsson RRUS-E2 RRUs	3	35.959	39.555	0.60	0.90	7.00	162.00	0.000	3.000	443.07	0.00	1329.20
14	167.00	Ericsson RRUS-12 RRUs	6	35.959	39.555	0.60	0.90	11.40	313.20	0.000	3.000	721.27	0.00	2163.82
15	167.00	Ericsson RRUS 32 RRUs	3	35.959	39.555	0.60	0.90	7.00	207.90	0.000	3.000	443.07	0.00	1329.20
16	167.00	Ericsson RRUS A2	6	35.959	39.555	0.60	0.90	6.73	118.80	0.000	3.000	425.89	0.00	1277.68
17	167.00	Reinforced T-Arms	3	35.848	39.433	0.56	0.75	23.63	1215.00	0.000	0.000	1490.55	0.00	0.00
18	167.00	Raycap DC6-48-60-18-8F	3	35.959	39.555	0.90	0.90	3.97	88.56	0.000	3.000	251.19	0.00	753.57
19	160.00	T-Arm	3	35.582	39.140	0.56	0.75	16.88	1080.00	0.000	0.000	1056.78	0.00	0.00
20	160.00	Ericsson KRY 112-114/1	3	35.582	39.140	0.56	0.80	0.69	29.70	0.000	0.000	43.14	0.00	0.00
21	160.00	LNx-6515DS-A1M	3	35.582	39.140	0.64	0.80	22.02	135.81	0.000	0.000	1379.13	0.00	0.00
22	160.00	Air21 B4A/B2P	3	35.582	39.140	0.69	0.80	12.57	243.81	0.000	0.000	787.17	0.00	0.00
23	160.00	Air21 B2A/B4P	3	35.582	39.140	0.69	0.80	12.57	247.05	0.000	0.000	787.17	0.00	0.00
24	147.00	Antel LPA-80080/4CF	2	35.061	38.567	1.36	0.80	7.10	21.60	0.000	0.000	438.08	0.00	0.00
25	147.00	Alcatel 2x60-1900 RRH	3	35.061	38.567	0.54	0.80	2.43	108.00	0.000	0.000	149.83	0.00	0.00
26	147.00	RRH 2X90 AWS	3	35.061	38.567	0.54	0.80	5.63	172.80	0.000	0.000	347.29	0.00	0.00
27	147.00	Swedcom SC-E 6014 rev2	4	35.061	38.567	0.78	0.80	10.34	54.00	0.000	0.000	637.83	0.00	0.00
28	147.00	RFS DB-T1-6Z-8AB-0Z	2	35.061	38.567	0.57	0.80	5.45	79.20	0.000	0.000	336.48	0.00	0.00
29	147.00	Andrew SBNHH-1D65B	6	35.061	38.567	0.66	0.80	32.19	216.00	0.000	0.000	1986.42	0.00	0.00
30	147.00	ALU 2X60-770 U RRH	3	35.061	38.567	0.54	0.80	5.63	150.12	0.000	0.000	347.29	0.00	0.00
31	147.00	FD9R6004/2C-3L	6	35.061	38.567	0.80	0.80	1.73	16.74	0.000	0.000	106.63	0.00	0.00
32	147.00	Low Profile Platform	1	35.061	38.567	1.00	1.00	26.00	1080.00	0.000	0.000	1604.41	0.00	0.00
<b>Totals:</b>									<b>6,768.49</b>			<b>19,783.63</b>		

## Total Applied Force Summary

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

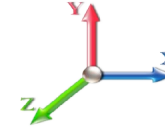


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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		678.29	1429.93	0.00	0.00
10.00		662.71	1400.91	0.00	0.00
15.00		647.29	1371.88	0.00	0.00
20.00		664.12	1342.86	0.00	0.00
25.00		673.38	1313.83	0.00	0.00
30.00		677.50	1284.81	0.00	0.00
35.00		677.86	1255.78	0.00	0.00
40.00		675.31	1226.76	0.00	0.00
45.00		670.43	1197.73	0.00	0.00
46.50		198.58	353.66	0.00	0.00
50.00		471.14	1520.60	0.00	0.00
53.25		433.78	1386.52	0.00	0.00
55.00		231.48	402.10	0.00	0.00
60.00		658.06	1129.26	0.00	0.00
65.00		647.19	1100.23	0.00	0.00
70.00		635.22	1071.21	0.00	0.00
75.00		622.28	1042.18	0.00	0.00
80.00		608.46	1013.16	0.00	0.00
85.00		593.85	984.13	0.00	0.00
90.00		578.51	955.11	0.00	0.00
95.00		562.51	926.08	0.00	0.00
100.00		557.78	1530.76	0.00	0.00
105.00		540.69	783.84	0.00	0.00
110.00		523.05	758.96	0.00	0.00
115.00		504.91	734.08	0.00	0.00
120.00		486.30	709.20	0.00	0.00
125.00		467.25	684.32	0.00	0.00
130.00		447.77	659.44	0.00	0.00
135.00		427.89	634.57	0.00	0.00
140.00		407.63	609.69	0.00	0.00
145.00		387.02	584.81	0.00	0.00
145.25		18.75	28.59	0.00	0.00
147.00	(30) attachments	6086.39	2167.18	0.00	0.00
148.50		111.19	209.68	0.00	0.00
150.00		109.29	93.46	0.00	0.00
155.00		351.20	303.46	0.00	0.00
160.00	(15) attachments	4383.02	2027.39	0.00	0.00
165.00		307.76	217.47	0.00	0.00
167.00	(30) attachments	6551.26	2463.47	0.00	14831.93
169.00	(15) attachments	3454.62	835.21	0.00	3341.44
<b>Totals:</b>		<b>38,391.71</b>	<b>39,744.33</b>	<b>0.00</b>	<b>18,173.37</b>

## Linear Appurtenance Segment Forces (Factored)

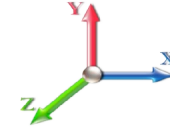
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.006	0.000	23.569	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	23.569	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.006	0.000	23.569	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	23.569	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	23.574	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	23.574	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	24.784	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	24.784	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	25.765	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	25.765	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	26.595	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	26.595	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	27.317	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	27.317	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	27.959	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	27.959	0.00	4.68
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.008	0.000	28.538	0.00	1.23
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	28.538	0.00	4.68
46.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.008	0.000	28.701	0.00	0.37
46.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.008	0.000	28.701	0.00	1.40
50.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.008	0.000	29.065	0.00	0.86
50.00	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.008	0.000	29.065	0.00	3.28
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.008	0.000	29.385	0.00	0.80
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.008	0.000	29.385	0.00	3.04
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.008	0.000	29.551	0.00	0.43
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.008	0.000	29.551	0.00	1.64
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.008	0.000	30.002	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	30.002	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	30.422	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	30.422	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	30.817	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	30.817	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	31.189	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	31.189	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	31.541	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	31.541	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	31.875	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	31.875	0.00	4.68
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	32.194	0.00	1.23
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	32.194	0.00	4.68
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	32.498	0.00	1.23
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	32.498	0.00	4.68
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	32.789	0.00	1.23
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	32.789	0.00	4.68
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	33.069	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	33.069	0.00	4.68
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	33.337	0.00	1.23

## Linear Appurtenance Segment Forces (Factored)

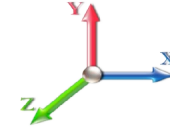
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	33.337	0.00	4.68
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	33.596	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	33.596	0.00	4.68
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	33.845	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	33.845	0.00	4.68
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	34.087	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	34.087	0.00	4.68
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	34.320	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.014	0.000	34.320	0.00	4.68
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	34.546	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	34.546	0.00	4.68
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	34.765	0.00	1.23
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	34.765	0.00	4.68
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	34.978	0.00	1.23
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.016	0.000	34.978	0.00	4.68
145.25	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.017	0.000	34.988	0.00	0.06
145.25	Step bolts (ladder)	Yes	0.25	0.000	0.00	0.00	0.00	0.017	0.000	34.988	0.00	0.23
147.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.017	0.000	35.061	0.00	0.43
147.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.017	0.000	35.061	0.00	1.64
148.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.017	0.000	35.123	0.00	0.37
148.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	35.123	0.00	1.40
150.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.017	0.000	35.185	0.00	0.37
150.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	35.185	0.00	1.40
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	35.386	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.018	0.000	35.386	0.00	4.68
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	35.582	0.00	1.23
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.020	0.000	35.582	0.00	4.68
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	35.773	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.021	0.000	35.773	0.00	4.68
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.022	0.000	35.848	0.00	0.49
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.022	0.000	35.848	0.00	1.87
169.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.023	0.000	35.922	0.00	0.49
169.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.023	0.000	35.922	0.00	1.87
<b>Totals:</b>											<b>0.0</b>	<b>199.7</b>



## Calculated Forces

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

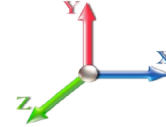


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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.68	-38.45	0.00	-4746.8	0.00	4746.82	5562.36	2781.18	13652.7	6836.50	0.00	0.000	0.000	0.702
5.00	-38.14	-37.89	0.00	-4554.5	0.00	4554.55	5482.35	2741.17	13146.4	6582.98	0.10	-0.177	0.000	0.699
10.00	-36.62	-37.34	0.00	-4365.0	0.00	4365.09	5400.13	2700.07	12644.0	6331.40	0.38	-0.359	0.000	0.696
15.00	-35.13	-36.80	0.00	-4178.3	0.00	4178.38	5315.71	2657.86	12145.8	6081.95	0.86	-0.547	0.000	0.694
20.00	-33.67	-36.24	0.00	-3994.3	0.00	3994.38	5229.08	2614.54	11652.3	5834.81	1.53	-0.739	0.000	0.691
25.00	-32.24	-35.66	0.00	-3813.2	0.00	3813.20	5140.25	2570.12	11163.7	5590.18	2.41	-0.938	0.000	0.689
30.00	-30.84	-35.07	0.00	-3634.9	0.00	3634.91	5049.20	2524.60	10680.6	5348.24	3.50	-1.142	0.000	0.686
35.00	-29.47	-34.47	0.00	-3459.5	0.00	3459.57	4955.95	2477.97	10203.2	5109.18	4.81	-1.352	0.000	0.683
40.00	-28.13	-33.88	0.00	-3287.2	0.00	3287.20	4860.49	2430.24	9731.91	4873.19	6.35	-1.569	0.000	0.681
45.00	-26.87	-33.24	0.00	-3117.8	0.00	3117.83	4762.82	2381.41	9267.12	4640.45	8.11	-1.793	0.000	0.678
46.50	-26.46	-33.08	0.00	-3067.9	0.00	3067.97	4733.09	2366.54	9129.00	4571.29	8.68	-1.864	0.000	0.677
50.00	-24.86	-32.63	0.00	-2952.1	0.00	2952.17	4662.94	2331.47	8809.20	4411.15	10.11	-2.028	0.000	0.675
53.25	-23.42	-32.20	0.00	-2846.1	0.00	2846.12	4662.03	2331.01	8805.10	4409.10	11.55	-2.184	0.000	0.651
55.00	-22.94	-32.01	0.00	-2789.7	0.00	2789.78	4626.54	2313.27	8646.55	4329.70	12.36	-2.271	0.000	0.649
60.00	-21.71	-31.40	0.00	-2629.7	0.00	2629.71	4523.67	2261.83	8198.57	4105.38	14.87	-2.504	0.000	0.646
65.00	-20.51	-30.79	0.00	-2472.7	0.00	2472.72	4418.66	2209.33	7758.49	3885.01	17.62	-2.743	0.000	0.641
70.00	-19.34	-30.19	0.00	-2318.7	0.00	2318.78	4277.83	2138.92	7269.40	3640.10	20.62	-2.990	0.000	0.642
75.00	-18.20	-29.59	0.00	-2167.8	0.00	2167.84	4137.00	2068.50	6796.24	3403.17	23.89	-3.246	0.000	0.642
80.00	-17.09	-29.00	0.00	-2019.8	0.00	2019.89	3996.18	1998.09	6339.00	3174.21	27.43	-3.509	0.000	0.641
85.00	-16.01	-28.43	0.00	-1874.8	0.00	1874.87	3855.35	1927.67	5897.69	2953.23	31.24	-3.780	0.000	0.639
90.00	-14.96	-27.86	0.00	-1732.7	0.00	1732.74	3714.52	1857.26	5472.29	2740.21	35.35	-4.061	0.000	0.637
95.00	-13.94	-27.30	0.00	-1593.4	0.00	1593.45	3573.69	1786.85	5062.82	2535.17	39.75	-4.350	0.000	0.633
100.00	-12.31	-26.69	0.00	-1456.9	0.00	1456.94	3014.30	1507.15	4208.99	2107.62	44.47	-4.647	0.000	0.696
105.00	-11.43	-26.15	0.00	-1323.4	0.00	1323.49	2893.59	1446.80	3876.87	1941.32	49.49	-4.953	0.000	0.686
110.00	-10.57	-25.63	0.00	-1192.7	0.00	1192.74	2772.88	1386.44	3558.41	1781.85	54.85	-5.293	0.000	0.674
115.00	-9.73	-25.11	0.00	-1064.6	0.00	1064.61	2652.17	1326.09	3253.59	1629.21	60.58	-5.639	0.000	0.657
120.00	-8.92	-24.61	0.00	-939.04	0.00	939.04	2531.46	1265.73	2962.42	1483.41	66.66	-5.990	0.000	0.637
125.00	-8.14	-24.13	0.00	-815.98	0.00	815.98	2410.75	1205.38	2684.90	1344.44	73.11	-6.344	0.000	0.611
130.00	-7.40	-23.65	0.00	-695.35	0.00	695.35	2290.04	1145.02	2421.02	1212.31	79.94	-6.697	0.000	0.577
135.00	-6.68	-23.19	0.00	-577.10	0.00	577.10	2169.33	1084.67	2170.80	1087.01	87.12	-7.043	0.000	0.534
140.00	-6.00	-22.74	0.00	-461.15	0.00	461.15	2048.62	1024.31	1934.22	968.55	94.66	-7.376	0.000	0.480
145.00	-5.41	-22.30	0.00	-347.43	0.00	347.43	1927.91	963.96	1711.29	856.92	102.53	-7.683	0.000	0.409
145.25	-5.36	-22.28	0.00	-341.85	0.00	341.85	1921.88	960.94	1700.50	851.51	102.94	-7.699	0.000	0.405
147.00	-4.01	-15.96	0.00	-302.86	0.00	302.86	1879.63	939.81	1625.94	814.18	105.77	-7.803	0.000	0.374
148.50	-3.79	-15.83	0.00	-278.91	0.00	278.91	907.84	453.92	797.93	399.56	108.23	-7.889	0.000	0.703
150.00	-3.64	-15.73	0.00	-255.17	0.00	255.17	895.57	447.78	771.95	386.55	110.71	-7.973	0.000	0.665
155.00	-3.28	-15.36	0.00	-176.52	0.00	176.52	853.23	426.61	687.23	344.13	119.28	-8.414	0.000	0.518
160.00	-1.88	-10.73	0.00	-99.72	0.00	99.72	807.76	403.88	604.95	302.92	128.26	-8.759	0.000	0.332
165.00	-1.69	-10.40	0.00	-46.06	0.00	46.06	747.41	373.70	517.50	259.13	137.53	-8.985	0.000	0.181
167.00	-0.28	-3.54	0.00	-10.43	0.00	10.43	723.26	361.63	484.43	242.57	141.30	-9.041	0.000	0.043
169.00	0.00	-3.45	0.00	-3.34	0.00	3.34	699.12	349.56	452.45	226.56	145.07	-9.053	0.000	0.015

## Wind Loading - Shaft

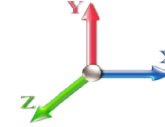
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	6.262	6.89	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	6.262	6.89	0.00	1.200	1.242	5.00	26.191	31.43	216.5	467.0	2140.2
10.00		1.00	1.03	6.262	6.89	0.00	1.200	1.331	5.00	25.688	30.83	212.3	489.9	2124.4
15.00		1.00	1.03	6.264	6.89	0.00	1.200	1.386	5.00	25.156	30.19	208.0	498.7	2094.6
20.00		1.00	1.08	6.585	7.24	0.00	1.200	1.427	5.00	24.612	29.53	213.9	501.4	2058.6
25.00		1.00	1.13	6.846	7.53	0.00	1.200	1.459	5.00	24.062	28.87	217.4	500.6	2019.0
30.00		1.00	1.16	7.066	7.77	0.00	1.200	1.486	5.00	23.506	28.21	219.3	497.3	1977.0
35.00		1.00	1.19	7.258	7.98	0.00	1.200	1.509	5.00	22.948	27.54	219.9	492.3	1933.4
40.00		1.00	1.22	7.429	8.17	0.00	1.200	1.529	5.00	22.387	26.86	219.5	486.1	1888.4
45.00		1.00	1.25	7.583	8.34	0.00	1.200	1.547	5.00	21.825	26.19	218.4	478.8	1842.4
46.50	Bot - Section 2	1.00	1.25	7.626	8.39	0.00	1.200	1.552	1.50	6.436	7.72	64.8	142.9	544.5
50.00		1.00	1.27	7.723	8.50	0.00	1.200	1.564	3.50	15.081	18.10	153.7	335.4	2199.6
53.25	Top - Section 1	1.00	1.28	7.808	8.59	0.00	1.200	1.574	3.25	13.756	16.51	141.8	307.8	2004.8
55.00		1.00	1.29	7.852	8.64	0.00	1.200	1.579	1.75	7.307	8.77	75.7	164.7	619.1
60.00		1.00	1.31	7.972	8.77	0.00	1.200	1.592	5.00	20.500	24.60	215.7	461.1	1733.4
65.00		1.00	1.33	8.083	8.89	0.00	1.200	1.605	5.00	19.933	23.92	212.7	451.2	1684.8
70.00		1.00	1.35	8.188	9.01	0.00	1.200	1.617	5.00	19.366	23.24	209.3	440.8	1635.7
75.00		1.00	1.36	8.287	9.12	0.00	1.200	1.628	5.00	18.797	22.56	205.6	430.0	1586.3
80.00		1.00	1.38	8.381	9.22	0.00	1.200	1.639	5.00	18.229	21.87	201.7	418.9	1536.4
85.00		1.00	1.39	8.469	9.32	0.00	1.200	1.649	5.00	17.659	21.19	197.4	407.4	1486.3
90.00		1.00	1.41	8.554	9.41	0.00	1.200	1.658	5.00	17.090	20.51	193.0	395.7	1435.8
95.00	Bot - Section 3	1.00	1.42	8.635	9.50	0.00	1.200	1.667	5.00	16.520	19.82	188.3	383.7	1385.1
100.00	Top - Section 2	1.00	1.43	8.712	9.58	0.00	1.200	1.676	5.00	16.267	19.52	187.1	379.3	2186.9
105.00		1.00	1.45	8.786	9.67	0.00	1.200	1.684	5.00	15.696	18.83	182.0	366.8	1178.6
110.00		1.00	1.46	8.858	9.74	0.00	1.200	1.692	5.00	15.125	18.15	176.8	354.1	1132.7
115.00		1.00	1.47	8.927	9.82	0.00	1.200	1.699	5.00	14.554	17.46	171.5	341.2	1086.7
120.00		1.00	1.48	8.993	9.89	0.00	1.200	1.707	5.00	13.982	16.78	166.0	328.2	1040.4
125.00		1.00	1.49	9.057	9.96	0.00	1.200	1.714	5.00	13.410	16.09	160.3	314.9	994.0
130.00		1.00	1.50	9.119	10.03	0.00	1.200	1.720	5.00	12.838	15.41	154.5	301.5	947.4
135.00		1.00	1.51	9.179	10.10	0.00	1.200	1.727	5.00	12.266	14.72	148.6	288.0	900.7
140.00		1.00	1.52	9.237	10.16	0.00	1.200	1.733	5.00	11.694	14.03	142.6	274.2	853.8
145.00		1.00	1.53	9.294	10.22	0.00	1.200	1.739	5.00	11.121	13.35	136.4	260.4	806.8
145.25	Bot - Section 4	1.00	1.53	9.297	10.23	0.00	1.200	1.740	0.25	0.541	0.65	6.6	13.0	39.4
147.00	Appurtenance(s)	1.00	1.53	9.316	10.25	0.00	1.200	1.742	1.75	3.802	4.56	46.8	90.6	367.2
148.50	Top - Section 3	1.00	1.53	9.332	10.27	0.00	1.200	1.743	1.50	3.203	3.84	39.5	76.4	308.7
150.00		1.00	1.54	9.349	10.28	0.00	1.200	1.745	1.50	3.152	3.78	38.9	75.2	152.4
155.00		1.00	1.55	9.402	10.34	0.00	1.200	1.751	5.00	10.135	12.16	125.8	236.4	483.3
160.00	Appurtenance(s)	1.00	1.55	9.454	10.40	0.00	1.200	1.757	5.00	9.562	11.47	119.3	222.2	452.5
165.00		1.00	1.56	9.505	10.46	0.00	1.200	1.762	5.00	8.989	10.79	112.8	207.9	421.6
167.00	Appurtenance(s)	1.00	1.57	9.525	10.48	0.00	1.200	1.764	2.00	3.434	4.12	43.2	80.8	161.7
169.00	Appurtenance(s)	1.00	1.57	9.545	10.50	0.00	1.200	1.766	2.00	3.343	4.01	42.1	78.5	156.7
<b>Totals:</b>								<b>169.00</b>				<b>6,205.8</b>		<b>49,601.0</b>



## Discrete Appurtenance Forces

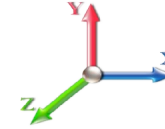
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	169.00	DMP65R-BU4DA	1	9.554	10.510	0.66	0.90	6.30	397.20	0.000	1.000	66.19	0.00	66.19	
2	169.00	KMW	1	9.554	10.510	0.75	1.00	5.17	124.64	0.000	1.000	54.36	0.00	54.36	
3	169.00	Andrew SBNH-1D6565C	1	9.554	10.510	0.80	1.00	11.81	215.75	0.000	1.000	124.10	0.00	124.10	
4	169.00	CCI DTMAPB7819VG12A	3	9.554	10.510	0.60	0.90	3.47	124.49	0.000	1.000	36.48	0.00	36.48	
5	169.00	AM-X-CD-16-65-00T-RET	1	9.554	10.510	0.75	1.00	8.14	175.92	0.000	1.000	85.50	0.00	85.50	
6	169.00	DMP65R-BU8DA	1	9.554	10.510	0.67	0.90	13.24	496.91	0.000	1.000	139.12	0.00	139.12	
7	169.00	RRUS 4478 B14	3	9.554	10.510	0.60	0.90	3.93	311.53	0.000	1.000	41.34	0.00	41.34	
8	169.00	4449 B5/B12	3	9.554	10.510	0.60	0.90	4.57	376.86	0.000	1.000	47.99	0.00	47.99	
9	169.00	DMP65R-BU6DA	1	9.554	10.510	0.67	0.90	9.49	386.70	0.000	1.000	99.78	0.00	99.78	
10	167.00	SBNHH-1D65A	2	9.554	10.510	0.75	0.90	10.42	401.23	0.000	3.000	109.49	0.00	328.46	
11	167.00	HPA-65R-BBU-H8	2	9.554	10.510	0.71	0.90	20.78	752.62	0.000	3.000	218.40	0.00	655.21	
12	167.00	HPA-65R-BU-H6	2	9.554	10.510	0.77	0.90	16.89	624.85	0.000	3.000	177.56	0.00	532.67	
13	167.00	Ericsson RRUS-E2 RRUs	3	9.554	10.510	0.60	0.90	7.01	505.95	0.000	3.000	73.63	0.00	220.89	
14	167.00	Ericsson RRUS-12 RRUs	6	9.554	10.510	0.60	0.90	14.01	997.49	0.000	3.000	147.26	0.00	441.77	
15	167.00	Ericsson RRUS 32 RRUs	3	9.554	10.510	0.60	0.90	7.44	622.42	0.000	3.000	78.24	0.00	234.73	
16	167.00	Ericsson RRUS A2	6	9.554	10.510	0.60	0.90	10.29	329.27	0.000	3.000	108.16	0.00	324.47	
17	167.00	Reinforced T-Arms	3	9.525	10.477	0.56	0.75	44.46	2482.59	0.000	0.000	465.85	0.00	0.00	
18	167.00	Raycap DC6-48-60-18-8F	3	9.554	10.510	0.90	0.90	5.88	252.45	0.000	3.000	61.79	0.00	185.36	
19	160.00	T-Arm	3	9.454	10.400	0.56	0.75	31.70	2043.13	0.000	0.000	329.62	0.00	0.00	
20	160.00	Ericsson KRY 112-114/1	3	9.454	10.400	0.56	0.80	1.49	62.85	0.000	0.000	15.52	0.00	0.00	
21	160.00	LNx-6515DS-A1M	3	9.454	10.400	0.64	0.80	28.34	685.25	0.000	0.000	294.68	0.00	0.00	
22	160.00	Air21 B4A/B2P	3	9.454	10.400	0.69	0.80	14.73	2542.35	0.000	0.000	153.18	0.00	0.00	
23	160.00	Air21 B2A/B4P	3	9.454	10.400	0.69	0.80	14.73	834.44	0.000	0.000	153.18	0.00	0.00	
24	147.00	Antel LPA-80080/4CF	2	9.316	10.247	1.36	0.80	9.41	299.04	0.000	0.000	96.48	0.00	0.00	
25	147.00	Alcatel 2x60-1900 RRH	3	9.316	10.247	0.54	0.80	3.96	344.91	0.000	0.000	40.62	0.00	0.00	
26	147.00	RRH 2X90 AWS	3	9.316	10.247	0.54	0.80	6.89	475.86	0.000	0.000	70.65	0.00	0.00	
27	147.00	Swedcom SC-E 6014 rev2	4	9.316	10.247	0.78	0.80	15.51	341.98	0.000	0.000	158.90	0.00	0.00	
28	147.00	RFS DB-T1-6Z-8AB-0Z	2	9.316	10.247	0.57	0.80	6.44	392.37	0.000	0.000	66.03	0.00	0.00	
29	147.00	Andrew SBNHH-1D65B	6	9.316	10.247	0.66	0.80	37.68	1503.87	0.000	0.000	386.10	0.00	0.00	
30	147.00	ALU 2X60-770 U RRH	3	9.316	10.247	0.54	0.80	6.89	368.83	0.000	0.000	70.65	0.00	0.00	
31	147.00	FD9R6004/2C-3L	6	9.316	10.247	0.80	0.80	3.85	56.58	0.000	0.000	39.47	0.00	0.00	
32	147.00	Low Profile Platform	1	9.316	10.247	1.00	1.00	47.74	2185.02	0.000	0.000	489.18	0.00	0.00	
<b>Totals:</b>									<b>21,715.37</b>						<b>4,499.49</b>

## Total Applied Force Summary

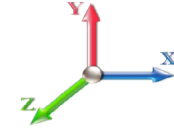
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		216.51	2397.47	0.00	0.00
10.00		212.35	2384.78	0.00	0.00
15.00		208.00	2357.01	0.00	0.00
20.00		213.94	2322.56	0.00	0.00
25.00		217.43	2284.24	0.00	0.00
30.00		219.26	2243.36	0.00	0.00
35.00		219.86	2200.63	0.00	0.00
40.00		219.53	2156.49	0.00	0.00
45.00		218.45	2111.23	0.00	0.00
46.50		64.79	625.18	0.00	0.00
50.00		153.74	2388.23	0.00	0.00
53.25		141.77	2180.30	0.00	0.00
55.00		75.74	713.66	0.00	0.00
60.00		215.71	2004.13	0.00	0.00
65.00		212.69	1956.08	0.00	0.00
70.00		209.31	1907.54	0.00	0.00
75.00		205.62	1858.56	0.00	0.00
80.00		201.65	1809.19	0.00	0.00
85.00		197.42	1759.47	0.00	0.00
90.00		192.96	1709.44	0.00	0.00
95.00		188.29	1659.11	0.00	0.00
100.00		187.07	2461.33	0.00	0.00
105.00		182.04	1453.34	0.00	0.00
110.00		176.84	1407.84	0.00	0.00
115.00		171.48	1362.13	0.00	0.00
120.00		165.97	1316.22	0.00	0.00
125.00		160.32	1270.12	0.00	0.00
130.00		154.53	1223.85	0.00	0.00
135.00		148.62	1177.42	0.00	0.00
140.00		142.58	1130.82	0.00	0.00
145.00		136.43	1084.09	0.00	0.00
145.25		6.64	53.30	0.00	0.00
147.00	(30) attachments	1464.83	6432.79	0.00	0.00
148.50		39.46	369.24	0.00	0.00
150.00		38.89	213.04	0.00	0.00
155.00		125.78	685.52	0.00	0.00
160.00	(15) attachments	1065.51	6823.01	0.00	0.00
165.00		112.78	542.84	0.00	0.00
167.00	(30) attachments	1483.55	7179.10	0.00	2923.55
169.00	(15) attachments	736.98	2815.31	0.00	694.86
<b>Totals:</b>		<b>10,705.32</b>	<b>80,029.97</b>	<b>0.00</b>	<b>3,618.41</b>

## Linear Appurtenance Segment Forces (Factored)

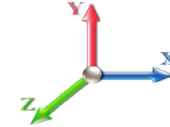
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	1.19	0.00	0.006	0.000	6.262	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	6.262	0.00	18.85
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.27	0.00	0.006	0.000	6.262	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	6.262	0.00	20.46
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.31	0.00	0.007	0.000	6.264	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	6.264	0.00	21.51
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.35	0.00	0.007	0.000	6.585	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	6.585	0.00	22.31
25.00	Safety Cable	Yes	5.00	0.000	0.38	1.37	0.00	0.007	0.000	6.846	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	6.846	0.00	22.95
30.00	Safety Cable	Yes	5.00	0.000	0.38	1.40	0.00	0.007	0.000	7.066	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	7.066	0.00	23.50
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.42	0.00	0.007	0.000	7.258	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	7.258	0.00	23.98
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.43	0.00	0.007	0.000	7.429	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	7.429	0.00	24.40
45.00	Safety Cable	Yes	5.00	0.000	0.38	1.45	0.00	0.008	0.000	7.583	0.00	18.58
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	7.583	0.00	24.79
46.50	Safety Cable	Yes	1.50	0.000	0.38	0.44	0.00	0.008	0.000	7.626	0.00	5.60
46.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.008	0.000	7.626	0.00	7.47
50.00	Safety Cable	Yes	3.50	0.000	0.38	1.02	0.00	0.008	0.000	7.723	0.00	13.24
50.00	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.008	0.000	7.723	0.00	17.60
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.96	0.00	0.008	0.000	7.808	0.00	12.43
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.008	0.000	7.808	0.00	16.48
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.52	0.00	0.008	0.000	7.852	0.00	6.73
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.008	0.000	7.852	0.00	8.91
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.49	0.00	0.008	0.000	7.972	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	7.972	0.00	25.76
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.50	0.00	0.009	0.000	8.083	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	8.083	0.00	26.04
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.51	0.00	0.009	0.000	8.188	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	8.188	0.00	26.31
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.009	0.000	8.287	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	8.287	0.00	26.56
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.009	0.000	8.381	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	8.381	0.00	26.79
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.53	0.00	0.010	0.000	8.469	0.00	20.71
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	8.469	0.00	27.02
90.00	Safety Cable	Yes	5.00	0.000	0.38	1.54	0.00	0.010	0.000	8.554	0.00	20.91
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	8.554	0.00	27.23
95.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.010	0.000	8.635	0.00	21.11
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	8.635	0.00	27.44
100.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.011	0.000	8.712	0.00	21.30
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	8.712	0.00	27.63
105.00	Safety Cable	Yes	5.00	0.000	0.38	1.56	0.00	0.011	0.000	8.786	0.00	21.48
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	8.786	0.00	27.82
110.00	Safety Cable	Yes	5.00	0.000	0.38	1.57	0.00	0.012	0.000	8.858	0.00	21.65

## Linear Appurtenance Segment Forces (Factored)

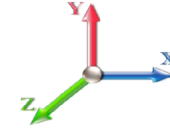
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	8.858	0.00	28.00
115.00	Safety Cable	Yes	5.00	0.000	0.38	1.57	0.00	0.012	0.000	8.927	0.00	21.82
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	8.927	0.00	28.18
120.00	Safety Cable	Yes	5.00	0.000	0.38	1.58	0.00	0.013	0.000	8.993	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	8.993	0.00	28.34
125.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.013	0.000	9.057	0.00	22.14
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	9.057	0.00	28.51
130.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.014	0.000	9.119	0.00	22.29
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.014	0.000	9.119	0.00	28.67
135.00	Safety Cable	Yes	5.00	0.000	0.38	1.60	0.00	0.015	0.000	9.179	0.00	22.43
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	9.179	0.00	28.82
140.00	Safety Cable	Yes	5.00	0.000	0.38	1.60	0.00	0.015	0.000	9.237	0.00	22.57
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	9.237	0.00	28.97
145.00	Safety Cable	Yes	5.00	0.000	0.38	1.61	0.00	0.016	0.000	9.294	0.00	22.71
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.016	0.000	9.294	0.00	29.11
145.25	Safety Cable	Yes	0.25	0.000	0.38	0.08	0.00	0.017	0.000	9.297	0.00	1.14
145.25	Step bolts (ladder)	Yes	0.25	0.000	0.00	0.00	0.00	0.017	0.000	9.297	0.00	1.46
147.00	Safety Cable	Yes	1.75	0.000	0.38	0.56	0.00	0.017	0.000	9.316	0.00	7.97
147.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.017	0.000	9.316	0.00	10.21
148.50	Safety Cable	Yes	1.50	0.000	0.38	0.48	0.00	0.017	0.000	9.332	0.00	6.84
148.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	9.332	0.00	8.76
150.00	Safety Cable	Yes	1.50	0.000	0.38	0.48	0.00	0.017	0.000	9.349	0.00	6.85
150.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	9.349	0.00	8.78
155.00	Safety Cable	Yes	5.00	0.000	0.38	1.62	0.00	0.018	0.000	9.402	0.00	22.98
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.018	0.000	9.402	0.00	29.39
160.00	Safety Cable	Yes	5.00	0.000	0.38	1.62	0.00	0.020	0.000	9.454	0.00	23.11
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.020	0.000	9.454	0.00	29.52
165.00	Safety Cable	Yes	5.00	0.000	0.38	1.63	0.00	0.021	0.000	9.505	0.00	23.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.021	0.000	9.505	0.00	29.65
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.65	0.00	0.022	0.000	9.525	0.00	9.31
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.022	0.000	9.525	0.00	11.88
169.00	Safety Cable	Yes	2.00	0.000	0.38	0.65	0.00	0.023	0.000	9.545	0.00	9.33
169.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.023	0.000	9.545	0.00	11.90
<b>Totals:</b>											<b>0.0</b>	<b>1,571.7</b>

## Calculated Forces

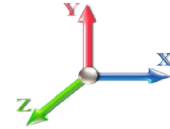
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor**    1.20  
**Wind Load Factor**    1.00



**Iterations**    25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-80.03	-10.74	0.00	-1311.3	0.00	1311.37	5562.36	2781.18	13652.7	6836.50	0.00	0.000	0.000	0.206
5.00	-77.62	-10.59	0.00	-1257.6	0.00	1257.67	5482.35	2741.17	13146.4	6582.98	0.03	-0.049	0.000	0.205
10.00	-75.22	-10.44	0.00	-1204.7	0.00	1204.72	5400.13	2700.07	12644.0	6331.40	0.10	-0.099	0.000	0.204
15.00	-72.86	-10.29	0.00	-1152.5	0.00	1152.52	5315.71	2657.86	12145.8	6081.95	0.24	-0.151	0.000	0.203
20.00	-70.53	-10.14	0.00	-1101.0	0.00	1101.05	5229.08	2614.54	11652.3	5834.81	0.42	-0.204	0.000	0.202
25.00	-68.23	-9.98	0.00	-1050.3	0.00	1050.35	5140.25	2570.12	11163.7	5590.18	0.67	-0.259	0.000	0.201
30.00	-65.98	-9.81	0.00	-1000.4	0.00	1000.45	5049.20	2524.60	10680.6	5348.24	0.97	-0.315	0.000	0.200
35.00	-63.77	-9.65	0.00	-951.38	0.00	951.38	4955.95	2477.97	10203.2	5109.18	1.33	-0.373	0.000	0.199
40.00	-61.61	-9.48	0.00	-903.15	0.00	903.15	4860.49	2430.24	9731.91	4873.19	1.75	-0.432	0.000	0.198
45.00	-59.49	-9.28	0.00	-855.76	0.00	855.76	4762.82	2381.41	9267.12	4640.45	2.24	-0.494	0.000	0.197
46.50	-58.86	-9.25	0.00	-841.84	0.00	841.84	4733.09	2366.54	9129.00	4571.29	2.39	-0.513	0.000	0.197
50.00	-56.47	-9.11	0.00	-809.48	0.00	809.48	4662.94	2331.47	8809.20	4411.15	2.79	-0.558	0.000	0.196
53.25	-54.29	-8.98	0.00	-779.86	0.00	779.86	4662.03	2331.01	8805.10	4409.10	3.18	-0.601	0.000	0.189
55.00	-53.57	-8.94	0.00	-764.14	0.00	764.14	4626.54	2313.27	8646.55	4329.70	3.41	-0.625	0.000	0.188
60.00	-51.55	-8.76	0.00	-719.45	0.00	719.45	4523.67	2261.83	8198.57	4105.38	4.10	-0.689	0.000	0.187
65.00	-49.59	-8.58	0.00	-675.66	0.00	675.66	4418.66	2209.33	7758.49	3885.01	4.85	-0.754	0.000	0.185
70.00	-47.68	-8.40	0.00	-632.76	0.00	632.76	4277.83	2138.92	7269.40	3640.10	5.68	-0.822	0.000	0.185
75.00	-45.81	-8.22	0.00	-590.76	0.00	590.76	4137.00	2068.50	6796.24	3403.17	6.58	-0.891	0.000	0.185
80.00	-44.00	-8.05	0.00	-549.65	0.00	549.65	3996.18	1998.09	6339.00	3174.21	7.55	-0.963	0.000	0.184
85.00	-42.23	-7.88	0.00	-509.40	0.00	509.40	3855.35	1927.67	5897.69	2953.23	8.60	-1.037	0.000	0.183
90.00	-40.51	-7.71	0.00	-470.03	0.00	470.03	3714.52	1857.26	5472.29	2740.21	9.72	-1.113	0.000	0.182
95.00	-38.85	-7.54	0.00	-431.50	0.00	431.50	3573.69	1786.85	5062.82	2535.17	10.93	-1.191	0.000	0.181
100.00	-36.38	-7.35	0.00	-393.82	0.00	393.82	3014.30	1507.15	4208.99	2107.62	12.22	-1.272	0.000	0.199
105.00	-34.92	-7.19	0.00	-357.07	0.00	357.07	2893.59	1446.80	3876.87	1941.32	13.60	-1.354	0.000	0.196
110.00	-33.51	-7.03	0.00	-321.14	0.00	321.14	2772.88	1386.44	3558.41	1781.85	15.07	-1.446	0.000	0.192
115.00	-32.14	-6.88	0.00	-285.99	0.00	285.99	2652.17	1326.09	3253.59	1629.21	16.63	-1.539	0.000	0.188
120.00	-30.82	-6.72	0.00	-251.61	0.00	251.61	2531.46	1265.73	2962.42	1483.41	18.29	-1.633	0.000	0.182
125.00	-29.54	-6.58	0.00	-217.99	0.00	217.99	2410.75	1205.38	2684.90	1344.44	20.05	-1.728	0.000	0.174
130.00	-28.31	-6.43	0.00	-185.11	0.00	185.11	2290.04	1145.02	2421.02	1212.31	21.91	-1.822	0.000	0.165
135.00	-27.13	-6.29	0.00	-152.97	0.00	152.97	2169.33	1084.67	2170.80	1087.01	23.87	-1.914	0.000	0.153
140.00	-26.00	-6.14	0.00	-121.54	0.00	121.54	2048.62	1024.31	1934.22	968.55	25.92	-2.002	0.000	0.138
145.00	-24.91	-5.98	0.00	-90.83	0.00	90.83	1927.91	963.96	1711.29	856.92	28.07	-2.083	0.000	0.119
145.25	-24.86	-5.98	0.00	-89.33	0.00	89.33	1921.88	960.94	1700.50	851.51	28.18	-2.087	0.000	0.118
147.00	-18.48	-4.29	0.00	-78.86	0.00	78.86	1879.63	939.81	1625.94	814.18	28.95	-2.114	0.000	0.107
148.50	-18.11	-4.25	0.00	-72.43	0.00	72.43	907.84	453.92	797.93	399.56	29.61	-2.136	0.000	0.201
150.00	-17.90	-4.22	0.00	-66.06	0.00	66.06	895.57	447.78	771.95	386.55	30.29	-2.158	0.000	0.191
155.00	-17.21	-4.10	0.00	-44.96	0.00	44.96	853.23	426.61	687.23	344.13	32.61	-2.271	0.000	0.151
160.00	-10.43	-2.77	0.00	-24.46	0.00	24.46	807.76	403.88	604.95	302.92	35.04	-2.358	0.000	0.094
165.00	-9.89	-2.64	0.00	-10.61	0.00	10.61	747.41	373.70	517.50	259.13	37.54	-2.413	0.000	0.054
167.00	-2.78	-0.86	0.00	-2.41	0.00	2.41	723.26	361.63	484.43	242.57	38.56	-2.425	0.000	0.014
169.00	0.00	-0.74	0.00	-0.69	0.00	0.69	699.12	349.56	452.45	226.56	39.57	-2.428	0.000	0.003

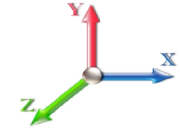
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.36	<b>SA</b> 0.04
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1394.3	0.00	0.03	0.02	24.81	
10.00		1362.1	0.01	0.05	0.03	35.94	
15.00		1329.8	0.01	0.06	0.04	41.12	
20.00		1297.6	0.03	0.07	0.04	43.33	
25.00		1265.3	0.04	0.07	0.04	44.06	
30.00		1233.1	0.06	0.07	0.04	44.12	
35.00		1200.8	0.08	0.07	0.04	43.94	
40.00		1168.6	0.11	0.07	0.04	43.68	
45.00		1136.3	0.13	0.07	0.03	43.34	
46.50	Bot - Section 2	334.62	0.14	0.07	0.03	12.83	
50.00		1553.4	0.17	0.07	0.03	60.14	
53.25	Top - Section 1	1414.1	0.19	0.06	0.02	54.97	
55.00		378.71	0.20	0.06	0.02	14.71	
60.00		1060.2	0.24	0.06	0.02	40.41	
65.00		1028.0	0.28	0.05	0.01	37.04	
70.00		995.77	0.32	0.04	0.01	31.87	
75.00		963.52	0.37	0.03	0.01	24.60	
80.00		931.27	0.42	0.01	0.01	15.24	
85.00		899.02	0.48	-0.01	0.01	4.39	
90.00		866.77	0.54	-0.03	0.01	-6.75	
95.00	Bot - Section 3	834.52	0.60	-0.05	0.01	-16.64	
100.00	Top - Section 2	1506.3	0.66	-0.07	0.02	-44.96	
105.00		676.47	0.73	-0.10	0.04	-24.57	
110.00		648.82	0.80	-0.11	0.05	-25.12	
115.00		621.18	0.88	-0.12	0.08	-22.91	
120.00		593.54	0.95	-0.12	0.11	-18.29	
125.00		565.89	1.03	-0.10	0.15	-11.65	
130.00		538.25	1.12	-0.06	0.20	-3.37	
135.00		510.61	1.21	0.01	0.26	6.20	
140.00		482.96	1.30	0.12	0.33	16.74	
145.00		455.32	1.39	0.27	0.42	27.91	
145.25	Bot - Section 4	22.04	1.40	0.28	0.43	1.38	
147.00	Appurtenance(s)	2339.9	1.43	0.34	0.46	171.14	
148.50	Top - Section 3	193.54	1.46	0.41	0.50	15.96	
150.00		64.41	1.49	0.47	0.53	5.94	
155.00		205.71	1.59	0.75	0.66	26.19	
160.00	Appurtenance(s)	2121.1	1.69	1.10	0.81	353.95	
165.00		178.07	1.80	1.55	0.98	37.55	
167.00	Appurtenance(s)	2711.7	1.85	1.75	1.06	623.01	
169.00	Appurtenance(s)	902.59	1.89	1.98	1.14	225.06	
<b>Totals:</b>		<b>37,986.9</b>				<b>1,997.3</b>	<b>Total Wind: 38,391.7</b>

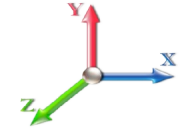
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.0E		<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b> 1.20	<b>Seismic Load Factor</b> 1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency (f1)</b> 0.36	<b>SA</b> 0.04
	<b>Seismic Importance Factor</b> 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.99	-2.18	0.00	-285.36	0.00	285.36	5562.36	2781.18	13652.7	6836.50	0.00	0.00	0.00	0.051
5.00	-51.09	-2.16	0.00	-274.48	0.00	274.48	5482.35	2741.17	13146.4	6582.98	0.01	-0.01	0.051	
10.00	-49.22	-2.13	0.00	-263.68	0.00	263.68	5400.13	2700.07	12644.0	6331.40	0.02	-0.02	0.051	
15.00	-47.39	-2.10	0.00	-253.01	0.00	253.01	5315.71	2657.86	12145.8	6081.95	0.05	-0.03	0.051	
20.00	-45.60	-2.07	0.00	-242.51	0.00	242.51	5229.08	2614.54	11652.3	5834.81	0.09	-0.04	0.050	
25.00	-43.84	-2.03	0.00	-232.17	0.00	232.17	5140.25	2570.12	11163.7	5590.18	0.15	-0.06	0.050	
30.00	-42.13	-1.99	0.00	-222.02	0.00	222.02	5049.20	2524.60	10680.6	5348.24	0.21	-0.07	0.050	
35.00	-40.46	-1.96	0.00	-212.06	0.00	212.06	4955.95	2477.97	10203.2	5109.18	0.29	-0.08	0.050	
40.00	-38.82	-1.92	0.00	-202.28	0.00	202.28	4860.49	2430.24	9731.91	4873.19	0.38	-0.10	0.049	
45.00	-37.22	-1.88	0.00	-192.68	0.00	192.68	4762.82	2381.41	9267.12	4640.45	0.49	-0.11	0.049	
46.50	-36.75	-1.87	0.00	-189.86	0.00	189.86	4733.09	2366.54	9129.00	4571.29	0.53	-0.11	0.049	
50.00	-34.72	-1.81	0.00	-183.32	0.00	183.32	4662.94	2331.47	8809.20	4411.15	0.61	-0.12	0.049	
53.25	-32.87	-1.76	0.00	-177.43	0.00	177.43	4662.03	2331.01	8805.10	4409.10	0.70	-0.13	0.047	
55.00	-32.34	-1.75	0.00	-174.35	0.00	174.35	4626.54	2313.27	8646.55	4329.70	0.75	-0.14	0.047	
60.00	-30.83	-1.71	0.00	-165.62	0.00	165.62	4523.67	2261.83	8198.57	4105.38	0.90	-0.15	0.047	
65.00	-29.36	-1.68	0.00	-157.07	0.00	157.07	4418.66	2209.33	7758.49	3885.01	1.07	-0.17	0.047	
70.00	-27.94	-1.65	0.00	-148.68	0.00	148.68	4277.83	2138.92	7269.40	3640.10	1.26	-0.18	0.047	
75.00	-26.55	-1.63	0.00	-140.44	0.00	140.44	4137.00	2068.50	6796.24	3403.17	1.46	-0.20	0.048	
80.00	-25.20	-1.61	0.00	-132.30	0.00	132.30	3996.18	1998.09	6339.00	3174.21	1.68	-0.22	0.048	
85.00	-23.88	-1.61	0.00	-124.23	0.00	124.23	3855.35	1927.67	5897.69	2953.23	1.92	-0.24	0.048	
90.00	-22.61	-1.61	0.00	-116.17	0.00	116.17	3714.52	1857.26	5472.29	2740.21	2.17	-0.25	0.048	
95.00	-21.37	-1.62	0.00	-108.09	0.00	108.09	3573.69	1786.85	5062.82	2535.17	2.45	-0.27	0.049	
100.00	-19.33	-1.61	0.00	-100.01	0.00	100.01	3014.30	1507.15	4208.99	2107.62	2.75	-0.29	0.054	
105.00	-18.29	-1.62	0.00	-91.94	0.00	91.94	2893.59	1446.80	3876.87	1941.32	3.07	-0.32	0.054	
110.00	-17.27	-1.62	0.00	-83.87	0.00	83.87	2772.88	1386.44	3558.41	1781.85	3.41	-0.34	0.053	
115.00	-16.29	-1.62	0.00	-75.78	0.00	75.78	2652.17	1326.09	3253.59	1629.21	3.78	-0.36	0.053	
120.00	-15.35	-1.62	0.00	-67.69	0.00	67.69	2531.46	1265.73	2962.42	1483.41	4.17	-0.39	0.052	
125.00	-14.43	-1.62	0.00	-59.60	0.00	59.60	2410.75	1205.38	2684.90	1344.44	4.60	-0.41	0.050	
130.00	-13.55	-1.62	0.00	-51.51	0.00	51.51	2290.04	1145.02	2421.02	1212.31	5.04	-0.44	0.048	
135.00	-12.71	-1.61	0.00	-43.42	0.00	43.42	2169.33	1084.67	2170.80	1087.01	5.52	-0.47	0.046	
140.00	-11.89	-1.59	0.00	-35.37	0.00	35.37	2048.62	1024.31	1934.22	968.55	6.02	-0.49	0.042	
145.00	-11.11	-1.56	0.00	-27.40	0.00	27.40	1927.91	963.96	1711.29	856.92	6.55	-0.52	0.038	
145.25	-11.08	-1.56	0.00	-27.01	0.00	27.01	1921.88	960.94	1700.50	851.51	6.58	-0.52	0.037	
147.00	-8.19	-1.36	0.00	-24.28	0.00	24.28	1879.63	939.81	1625.94	814.18	6.77	-0.52	0.034	
148.50	-7.91	-1.35	0.00	-22.24	0.00	22.24	907.84	453.92	797.93	399.56	6.93	-0.53	0.064	
150.00	-7.78	-1.34	0.00	-20.22	0.00	20.22	895.57	447.78	771.95	386.55	7.10	-0.54	0.061	
155.00	-7.38	-1.32	0.00	-13.52	0.00	13.52	853.23	426.61	687.23	344.13	7.69	-0.57	0.048	
160.00	-4.68	-0.94	0.00	-6.94	0.00	6.94	807.76	403.88	604.95	302.92	8.30	-0.60	0.029	
165.00	-4.39	-0.90	0.00	-2.26	0.00	2.26	747.41	373.70	517.50	259.13	8.94	-0.61	0.015	
167.00	-1.11	-0.24	0.00	-0.47	0.00	0.47	723.26	361.63	484.43	242.57	9.19	-0.61	0.003	
169.00	0.00	-0.23	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56	9.45	-0.62	0.000	



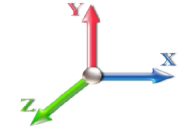
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.36	<b>SA</b> 0.04
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1394.3	0.00	0.03	0.02	24.81	
10.00		1362.1	0.01	0.05	0.03	35.94	
15.00		1329.8	0.01	0.06	0.04	41.12	
20.00		1297.6	0.03	0.07	0.04	43.33	
25.00		1265.3	0.04	0.07	0.04	44.06	
30.00		1233.1	0.06	0.07	0.04	44.12	
35.00		1200.8	0.08	0.07	0.04	43.94	
40.00		1168.6	0.11	0.07	0.04	43.68	
45.00		1136.3	0.13	0.07	0.03	43.34	
46.50	Bot - Section 2	334.62	0.14	0.07	0.03	12.83	
50.00		1553.4	0.17	0.07	0.03	60.14	
53.25	Top - Section 1	1414.1	0.19	0.06	0.02	54.97	
55.00		378.71	0.20	0.06	0.02	14.71	
60.00		1060.2	0.24	0.06	0.02	40.41	
65.00		1028.0	0.28	0.05	0.01	37.04	
70.00		995.77	0.32	0.04	0.01	31.87	
75.00		963.52	0.37	0.03	0.01	24.60	
80.00		931.27	0.42	0.01	0.01	15.24	
85.00		899.02	0.48	-0.01	0.01	4.39	
90.00		866.77	0.54	-0.03	0.01	-6.75	
95.00	Bot - Section 3	834.52	0.60	-0.05	0.01	-16.64	
100.00	Top - Section 2	1506.3	0.66	-0.07	0.02	-44.96	
105.00		676.47	0.73	-0.10	0.04	-24.57	
110.00		648.82	0.80	-0.11	0.05	-25.12	
115.00		621.18	0.88	-0.12	0.08	-22.91	
120.00		593.54	0.95	-0.12	0.11	-18.29	
125.00		565.89	1.03	-0.10	0.15	-11.65	
130.00		538.25	1.12	-0.06	0.20	-3.37	
135.00		510.61	1.21	0.01	0.26	6.20	
140.00		482.96	1.30	0.12	0.33	16.74	
145.00		455.32	1.39	0.27	0.42	27.91	
145.25	Bot - Section 4	22.04	1.40	0.28	0.43	1.38	
147.00	Appurtenance(s)	2339.9	1.43	0.34	0.46	171.14	
148.50	Top - Section 3	193.54	1.46	0.41	0.50	15.96	
150.00		64.41	1.49	0.47	0.53	5.94	
155.00		205.71	1.59	0.75	0.66	26.19	
160.00	Appurtenance(s)	2121.1	1.69	1.10	0.81	353.95	
165.00		178.07	1.80	1.55	0.98	37.55	
167.00	Appurtenance(s)	2711.7	1.85	1.75	1.06	623.01	
169.00	Appurtenance(s)	902.59	1.89	1.98	1.14	225.06	
<b>Totals:</b>		<b>37,986.9</b>				<b>1,997.3</b>	<b>Total Wind: 38,391.7</b>

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



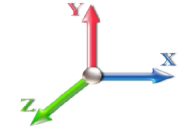
## Calculated Forces

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E						<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.36	<b>SA</b>	0.04	<b>Seismic Importance Factor</b> 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.74	-2.17	0.00	-281.93	0.00	281.93	5562.36	2781.18	13652.7	6836.50	0.00	0.00	0.00	0.048
5.00	-38.31	-2.16	0.00	-271.06	0.00	271.06	5482.35	2741.17	13146.4	6582.98	0.01	-0.01	0.048	
10.00	-36.91	-2.13	0.00	-260.27	0.00	260.27	5400.13	2700.07	12644.0	6331.40	0.02	-0.02	0.048	
15.00	-35.54	-2.09	0.00	-249.63	0.00	249.63	5315.71	2657.86	12145.8	6081.95	0.05	-0.03	0.048	
20.00	-34.20	-2.06	0.00	-239.17	0.00	239.17	5229.08	2614.54	11652.3	5834.81	0.09	-0.04	0.048	
25.00	-32.88	-2.02	0.00	-228.89	0.00	228.89	5140.25	2570.12	11163.7	5590.18	0.14	-0.06	0.047	
30.00	-31.60	-1.98	0.00	-218.80	0.00	218.80	5049.20	2524.60	10680.6	5348.24	0.21	-0.07	0.047	
35.00	-30.34	-1.94	0.00	-208.91	0.00	208.91	4955.95	2477.97	10203.2	5109.18	0.29	-0.08	0.047	
40.00	-29.11	-1.90	0.00	-199.21	0.00	199.21	4860.49	2430.24	9731.91	4873.19	0.38	-0.09	0.047	
45.00	-27.92	-1.86	0.00	-189.70	0.00	189.70	4762.82	2381.41	9267.12	4640.45	0.48	-0.11	0.047	
46.50	-27.56	-1.85	0.00	-186.91	0.00	186.91	4733.09	2366.54	9129.00	4571.29	0.52	-0.11	0.047	
50.00	-26.04	-1.79	0.00	-180.44	0.00	180.44	4662.94	2331.47	8809.20	4411.15	0.61	-0.12	0.046	
53.25	-24.66	-1.74	0.00	-174.61	0.00	174.61	4662.03	2331.01	8805.10	4409.10	0.69	-0.13	0.045	
55.00	-24.25	-1.73	0.00	-171.57	0.00	171.57	4626.54	2313.27	8646.55	4329.70	0.74	-0.14	0.045	
60.00	-23.12	-1.69	0.00	-162.95	0.00	162.95	4523.67	2261.83	8198.57	4105.38	0.89	-0.15	0.045	
65.00	-22.02	-1.65	0.00	-154.51	0.00	154.51	4418.66	2209.33	7758.49	3885.01	1.06	-0.17	0.045	
70.00	-20.95	-1.62	0.00	-146.24	0.00	146.24	4277.83	2138.92	7269.40	3640.10	1.24	-0.18	0.045	
75.00	-19.91	-1.60	0.00	-138.12	0.00	138.12	4137.00	2068.50	6796.24	3403.17	1.44	-0.20	0.045	
80.00	-18.89	-1.59	0.00	-130.11	0.00	130.11	3996.18	1998.09	6339.00	3174.21	1.66	-0.21	0.046	
85.00	-17.91	-1.59	0.00	-122.17	0.00	122.17	3855.35	1927.67	5897.69	2953.23	1.89	-0.23	0.046	
90.00	-16.95	-1.59	0.00	-114.24	0.00	114.24	3714.52	1857.26	5472.29	2740.21	2.14	-0.25	0.046	
95.00	-16.03	-1.59	0.00	-106.30	0.00	106.30	3573.69	1786.85	5062.82	2535.17	2.42	-0.27	0.046	
100.00	-14.50	-1.59	0.00	-98.36	0.00	98.36	3014.30	1507.15	4208.99	2107.62	2.71	-0.29	0.051	
105.00	-13.71	-1.59	0.00	-90.42	0.00	90.42	2893.59	1446.80	3876.87	1941.32	3.02	-0.31	0.051	
110.00	-12.95	-1.59	0.00	-82.48	0.00	82.48	2772.88	1386.44	3558.41	1781.85	3.36	-0.33	0.051	
115.00	-12.22	-1.59	0.00	-74.54	0.00	74.54	2652.17	1326.09	3253.59	1629.21	3.72	-0.36	0.050	
120.00	-11.51	-1.59	0.00	-66.59	0.00	66.59	2531.46	1265.73	2962.42	1483.41	4.11	-0.38	0.049	
125.00	-10.82	-1.59	0.00	-58.64	0.00	58.64	2410.75	1205.38	2684.90	1344.44	4.53	-0.41	0.048	
130.00	-10.16	-1.59	0.00	-50.69	0.00	50.69	2290.04	1145.02	2421.02	1212.31	4.97	-0.43	0.046	
135.00	-9.53	-1.58	0.00	-42.74	0.00	42.74	2169.33	1084.67	2170.80	1087.01	5.44	-0.46	0.044	
140.00	-8.92	-1.57	0.00	-34.82	0.00	34.82	2048.62	1024.31	1934.22	968.55	5.93	-0.48	0.040	
145.00	-8.33	-1.53	0.00	-27.00	0.00	27.00	1927.91	963.96	1711.29	856.92	6.45	-0.51	0.036	
145.25	-8.30	-1.53	0.00	-26.61	0.00	26.61	1921.88	960.94	1700.50	851.51	6.48	-0.51	0.036	
147.00	-6.14	-1.34	0.00	-23.93	0.00	23.93	1879.63	939.81	1625.94	814.18	6.66	-0.52	0.033	
148.50	-5.93	-1.33	0.00	-21.92	0.00	21.92	907.84	453.92	797.93	399.56	6.83	-0.52	0.061	
150.00	-5.83	-1.32	0.00	-19.93	0.00	19.93	895.57	447.78	771.95	386.55	6.99	-0.53	0.058	
155.00	-5.53	-1.30	0.00	-13.32	0.00	13.32	853.23	426.61	687.23	344.13	7.57	-0.56	0.045	
160.00	-3.51	-0.92	0.00	-6.84	0.00	6.84	807.76	403.88	604.95	302.92	8.17	-0.59	0.027	
165.00	-3.29	-0.88	0.00	-2.23	0.00	2.23	747.41	373.70	517.50	259.13	8.80	-0.60	0.013	
167.00	-0.83	-0.23	0.00	-0.47	0.00	0.47	723.26	361.63	484.43	242.57	9.05	-0.61	0.003	
169.00	0.00	-0.23	0.00	0.00	0.00	0.00	699.12	349.56	452.45	226.56	9.31	-0.61	0.000	

## Wind Loading - Shaft

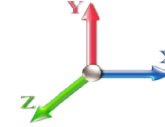
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	9.018	9.92	309.89	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	9.018	9.92	302.85	0.650	0.000	5.00	25.156	16.35	162.2	0.0	1394.4
10.00		1.00	1.03	9.018	9.92	295.82	0.650	0.000	5.00	24.579	15.98	158.5	0.0	1362.1
15.00		1.00	1.03	9.020	9.92	288.82	0.650	0.000	5.00	24.001	15.60	154.8	0.0	1329.8
20.00		1.00	1.08	9.483	10.43	288.92	0.650	0.000	5.00	23.423	15.23	158.8	0.0	1297.6
25.00		1.00	1.13	9.858	10.84	287.23	0.650	0.000	5.00	22.846	14.85	161.0	0.0	1265.3
30.00		1.00	1.16	10.175	11.19	284.34	0.650	0.000	5.00	22.268	14.47	162.0	0.0	1233.1
35.00		1.00	1.19	10.452	11.50	280.61	0.650	0.000	5.00	21.691	14.10	162.1	0.0	1200.8
40.00		1.00	1.22	10.697	11.77	276.22	0.650	0.000	5.00	21.113	13.72	161.5	0.0	1168.6
45.00		1.00	1.25	10.919	12.01	271.33	0.650	0.000	5.00	20.536	13.35	160.3	0.0	1136.3
46.50	Bot - Section 2	1.00	1.25	10.981	12.08	269.77	0.650	0.000	1.50	6.048	3.93	47.5	0.0	334.6
50.00		1.00	1.27	11.121	12.23	266.01	0.650	0.000	3.50	14.169	9.21	112.7	0.0	1553.4
53.25	Top - Section 1	1.00	1.28	11.243	12.37	262.37	0.650	0.000	3.25	12.904	8.39	103.7	0.0	1414.2
55.00		1.00	1.29	11.307	12.44	265.40	0.650	0.000	1.75	6.847	4.45	55.4	0.0	378.7
60.00		1.00	1.31	11.479	12.63	259.48	0.650	0.000	5.00	19.173	12.46	157.4	0.0	1060.3
65.00		1.00	1.33	11.640	12.80	253.30	0.650	0.000	5.00	18.596	12.09	154.8	0.0	1028.0
70.00		1.00	1.35	11.791	12.97	246.90	0.650	0.000	5.00	18.018	11.71	151.9	0.0	995.8
75.00		1.00	1.36	11.933	13.13	240.29	0.650	0.000	5.00	17.440	11.34	148.8	0.0	963.5
80.00		1.00	1.38	12.068	13.27	233.50	0.650	0.000	5.00	16.863	10.96	145.5	0.0	931.3
85.00		1.00	1.39	12.196	13.42	226.56	0.650	0.000	5.00	16.285	10.59	142.0	0.0	899.0
90.00		1.00	1.41	12.318	13.55	219.47	0.650	0.000	5.00	15.708	10.21	138.3	0.0	866.8
95.00	Bot - Section 3	1.00	1.42	12.434	13.68	212.24	0.650	0.000	5.00	15.130	9.83	134.5	0.0	834.5
100.00	Top - Section 2	1.00	1.43	12.546	13.80	204.89	0.650	0.000	5.00	14.870	9.67	133.4	0.0	1506.4
105.00		1.00	1.45	12.652	13.92	202.01	0.650	0.000	5.00	14.292	9.29	129.3	0.0	676.5
110.00		1.00	1.46	12.755	14.03	194.46	0.650	0.000	5.00	13.715	8.91	125.1	0.0	648.8
115.00		1.00	1.47	12.854	14.14	186.82	0.650	0.000	5.00	13.137	8.54	120.7	0.0	621.2
120.00		1.00	1.48	12.950	14.24	179.08	0.650	0.000	5.00	12.560	8.16	116.3	0.0	593.5
125.00		1.00	1.49	13.042	14.35	171.26	0.650	0.000	5.00	11.982	7.79	111.7	0.0	565.9
130.00		1.00	1.50	13.131	14.44	163.36	0.650	0.000	5.00	11.405	7.41	107.1	0.0	538.3
135.00		1.00	1.51	13.218	14.54	155.38	0.650	0.000	5.00	10.827	7.04	102.3	0.0	510.6
140.00		1.00	1.52	13.302	14.63	147.33	0.650	0.000	5.00	10.249	6.66	97.5	0.0	483.0
145.00		1.00	1.53	13.383	14.72	139.21	0.650	0.000	5.00	9.672	6.29	92.5	0.0	455.3
145.25	Bot - Section 4	1.00	1.53	13.387	14.73	138.80	0.650	0.000	0.25	0.468	0.30	4.5	0.0	22.0
147.00	Appurtenance(s)	1.00	1.53	13.415	14.76	135.95	0.650	0.000	1.75	3.294	2.14	31.6	0.0	230.5
148.50	Top - Section 3	1.00	1.53	13.439	14.78	133.49	0.650	0.000	1.50	2.767	1.80	26.6	0.0	193.5
150.00		1.00	1.54	13.462	14.81	133.39	0.650	0.000	1.50	2.715	1.76	26.1	0.0	64.4
155.00		1.00	1.55	13.539	14.89	125.15	0.650	0.000	5.00	8.675	5.64	84.0	0.0	205.7
160.00	Appurtenance(s)	1.00	1.55	13.614	14.98	116.85	0.650	0.000	5.00	8.098	5.26	78.8	0.0	191.9
165.00		1.00	1.56	13.687	15.06	108.50	0.650	0.000	5.00	7.520	4.89	73.6	0.0	178.1
167.00	Appurtenance(s)	1.00	1.57	13.716	15.09	105.15	0.650	0.000	2.00	2.846	1.85	27.9	0.0	67.4
169.00	Appurtenance(s)	1.00	1.57	13.744	15.12	101.78	0.650	0.000	2.00	2.754	1.79	27.1	0.0	65.1
<b>Totals:</b>									<b>169.00</b>			<b>4,449.8</b>		<b>30,466.3</b>

## Discrete Appurtenance Forces

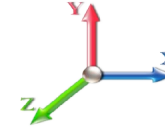
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	169.00	DMP65R-BU4DA	1	13.758	15.134	0.64	0.90	5.31	67.90	0.000	1.000	80.30	0.00	80.30
2	169.00	KMW	1	13.758	15.134	0.75	1.00	3.75	36.40	0.000	1.000	56.75	0.00	56.75
3	169.00	Andrew SBNH-1D6565C	1	13.758	15.134	0.80	1.00	9.18	60.80	0.000	1.000	138.87	0.00	138.87
4	169.00	CCI DTMAPB7819VG12A	3	13.758	15.134	0.60	0.90	2.06	57.54	0.000	1.000	31.21	0.00	31.21
5	169.00	AM-X-CD-16-65-00T-RET	1	13.758	15.134	0.75	1.00	6.01	48.50	0.000	1.000	91.03	0.00	91.03
6	169.00	DMP65R-BU8DA	1	13.758	15.134	0.65	0.90	11.69	95.70	0.000	1.000	176.95	0.00	176.95
7	169.00	RRUS 4478 B14	3	13.758	15.134	0.60	0.90	2.98	178.20	0.000	1.000	45.17	0.00	45.17
8	169.00	4449 B5/B12	3	13.758	15.134	0.60	0.90	3.56	213.00	0.000	1.000	53.93	0.00	53.93
9	169.00	DMP65R-BU6DA	1	13.758	15.134	0.65	0.90	8.25	79.40	0.000	1.000	124.82	0.00	124.82
10	167.00	SBNHH-1D65A	2	13.758	15.134	0.75	0.90	8.78	67.00	0.000	3.000	132.95	0.00	398.85
11	167.00	HPA-65R-BBU-H8	2	13.758	15.134	0.71	0.90	18.46	136.00	0.000	3.000	279.34	0.00	838.02
12	167.00	HPA-65R-BUJ-H6	2	13.758	15.134	0.77	0.90	14.78	102.00	0.000	3.000	223.68	0.00	671.04
13	167.00	Ericsson RRUS-E2 RRUs	3	13.758	15.134	0.60	0.90	7.00	180.00	0.000	3.000	105.95	0.00	317.86
14	167.00	Ericsson RRUS-12 RRUs	6	13.758	15.134	0.60	0.90	11.40	348.00	0.000	3.000	172.48	0.00	517.44
15	167.00	Ericsson RRUS 32 RRUs	3	13.758	15.134	0.60	0.90	7.00	231.00	0.000	3.000	105.95	0.00	317.86
16	167.00	Ericsson RRUS A2	6	13.758	15.134	0.60	0.90	6.73	132.00	0.000	3.000	101.85	0.00	305.54
17	167.00	Reinforced T-Arms	3	13.716	15.087	0.56	0.75	23.63	1350.00	0.000	0.000	356.44	0.00	0.00
18	167.00	Raycap DC6-48-60-18-8F	3	13.758	15.134	0.90	0.90	3.97	98.40	0.000	3.000	60.07	0.00	180.20
19	160.00	T-Arm	3	13.614	14.975	0.56	0.75	16.88	1200.00	0.000	0.000	252.71	0.00	0.00
20	160.00	Ericsson KRY 112-114/1	3	13.614	14.975	0.56	0.80	0.69	33.00	0.000	0.000	10.32	0.00	0.00
21	160.00	LNx-6515DS-A1M	3	13.614	14.975	0.64	0.80	22.02	150.90	0.000	0.000	329.80	0.00	0.00
22	160.00	Air21 B4A/B2P	3	13.614	14.975	0.69	0.80	12.57	270.90	0.000	0.000	188.24	0.00	0.00
23	160.00	Air21 B2A/B4P	3	13.614	14.975	0.69	0.80	12.57	274.50	0.000	0.000	188.24	0.00	0.00
24	147.00	Antel LPA-80080/4CF	2	13.415	14.756	1.36	0.80	7.10	24.00	0.000	0.000	104.76	0.00	0.00
25	147.00	Alcatel 2x60-1900 RRH	3	13.415	14.756	0.54	0.80	2.43	120.00	0.000	0.000	35.83	0.00	0.00
26	147.00	RRH 2X90 AWS	3	13.415	14.756	0.54	0.80	5.63	192.00	0.000	0.000	83.05	0.00	0.00
27	147.00	Swedcom SC-E 6014 rev2	4	13.415	14.756	0.78	0.80	10.34	60.00	0.000	0.000	152.53	0.00	0.00
28	147.00	RFS DB-T1-6Z-8AB-0Z	2	13.415	14.756	0.57	0.80	5.45	88.00	0.000	0.000	80.46	0.00	0.00
29	147.00	Andrew SBNHH-1D65B	6	13.415	14.756	0.66	0.80	32.19	240.00	0.000	0.000	475.02	0.00	0.00
30	147.00	ALU 2X60-770 U RRH	3	13.415	14.756	0.54	0.80	5.63	166.80	0.000	0.000	83.05	0.00	0.00
31	147.00	FD9R6004/2C-3L	6	13.415	14.756	0.80	0.80	1.73	18.60	0.000	0.000	25.50	0.00	0.00
32	147.00	Low Profile Platform	1	13.415	14.756	1.00	1.00	26.00	1200.00	0.000	0.000	383.67	0.00	0.00

**Totals:** 7,520.54

**4,730.91**

## Total Applied Force Summary

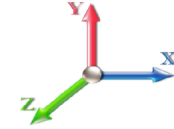
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		162.20	1588.82	0.00	0.00
10.00		158.48	1556.56	0.00	0.00
15.00		154.79	1524.31	0.00	0.00
20.00		158.81	1492.06	0.00	0.00
25.00		161.03	1459.81	0.00	0.00
30.00		162.01	1427.56	0.00	0.00
35.00		162.10	1395.31	0.00	0.00
40.00		161.49	1363.06	0.00	0.00
45.00		160.32	1330.81	0.00	0.00
46.50		47.49	392.95	0.00	0.00
50.00		112.66	1689.56	0.00	0.00
53.25		103.73	1540.58	0.00	0.00
55.00		55.35	446.78	0.00	0.00
60.00		157.36	1254.73	0.00	0.00
65.00		154.76	1222.48	0.00	0.00
70.00		151.90	1190.23	0.00	0.00
75.00		148.81	1157.98	0.00	0.00
80.00		145.50	1125.73	0.00	0.00
85.00		142.01	1093.48	0.00	0.00
90.00		138.34	1061.23	0.00	0.00
95.00		134.51	1028.98	0.00	0.00
100.00		133.38	1700.84	0.00	0.00
105.00		129.30	870.93	0.00	0.00
110.00		125.08	843.29	0.00	0.00
115.00		120.74	815.65	0.00	0.00
120.00		116.29	788.00	0.00	0.00
125.00		111.73	760.36	0.00	0.00
130.00		107.08	732.72	0.00	0.00
135.00		102.32	705.07	0.00	0.00
140.00		97.48	677.43	0.00	0.00
145.00		92.55	649.79	0.00	0.00
145.25		4.48	31.76	0.00	0.00
147.00	(30) attachments	1455.46	2407.98	0.00	0.00
148.50		26.59	232.98	0.00	0.00
150.00		26.14	103.85	0.00	0.00
155.00		83.98	337.18	0.00	0.00
160.00	(15) attachments	1048.12	2252.66	0.00	0.00
165.00		73.60	241.63	0.00	0.00
167.00	(30) attachments	1566.62	2737.18	0.00	3546.80
169.00	(15) attachments	826.11	928.01	0.00	799.05
<b>Totals:</b>		<b>9,180.71</b>	<b>44,160.36</b>	<b>0.00</b>	<b>4,345.85</b>

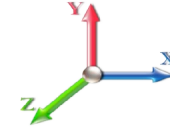
## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.006	0.000	9.018	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	9.018	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.006	0.000	9.018	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.006	0.000	9.018	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	9.020	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	9.020	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	9.483	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	9.483	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	9.858	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	9.858	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	10.175	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	10.175	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	10.452	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	10.452	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.007	0.000	10.697	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.007	0.000	10.697	0.00	5.20
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.008	0.000	10.919	0.00	1.37
45.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	10.919	0.00	5.20
46.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.008	0.000	10.981	0.00	0.41
46.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.008	0.000	10.981	0.00	1.56
50.00	Safety Cable	Yes	3.50	0.000	0.38	0.11	0.00	0.008	0.000	11.121	0.00	0.96
50.00	Step bolts (ladder)	Yes	3.50	0.000	0.00	0.00	0.00	0.008	0.000	11.121	0.00	3.64
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.008	0.000	11.243	0.00	0.89
53.25	Step bolts (ladder)	Yes	3.25	0.000	0.00	0.00	0.00	0.008	0.000	11.243	0.00	3.38
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.008	0.000	11.307	0.00	0.48
55.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.008	0.000	11.307	0.00	1.82
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.008	0.000	11.479	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.008	0.000	11.479	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	11.640	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	11.640	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	11.791	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	11.791	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	11.933	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	11.933	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.009	0.000	12.068	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.009	0.000	12.068	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	12.196	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	12.196	0.00	5.20
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	12.318	0.00	1.37
90.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	12.318	0.00	5.20
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	12.434	0.00	1.37
95.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.010	0.000	12.434	0.00	5.20
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	12.546	0.00	1.37
100.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	12.546	0.00	5.20
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	12.652	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.011	0.000	12.652	0.00	5.20
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	12.755	0.00	1.37

## Linear Appurtenance Segment Forces (Factored)

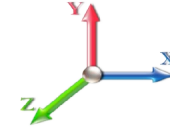
<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
110.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	12.755	0.00	5.20
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	12.854	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.012	0.000	12.854	0.00	5.20
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	12.950	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	12.950	0.00	5.20
125.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	13.042	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.013	0.000	13.042	0.00	5.20
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	13.131	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.014	0.000	13.131	0.00	5.20
135.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	13.218	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	13.218	0.00	5.20
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	13.302	0.00	1.37
140.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.015	0.000	13.302	0.00	5.20
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.016	0.000	13.383	0.00	1.37
145.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.016	0.000	13.383	0.00	5.20
145.25	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.017	0.000	13.387	0.00	0.07
145.25	Step bolts (ladder)	Yes	0.25	0.000	0.00	0.00	0.00	0.017	0.000	13.387	0.00	0.26
147.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.017	0.000	13.415	0.00	0.48
147.00	Step bolts (ladder)	Yes	1.75	0.000	0.00	0.00	0.00	0.017	0.000	13.415	0.00	1.82
148.50	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.017	0.000	13.439	0.00	0.41
148.50	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	13.439	0.00	1.56
150.00	Safety Cable	Yes	1.50	0.000	0.38	0.05	0.00	0.017	0.000	13.462	0.00	0.41
150.00	Step bolts (ladder)	Yes	1.50	0.000	0.00	0.00	0.00	0.017	0.000	13.462	0.00	1.56
155.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.018	0.000	13.539	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.018	0.000	13.539	0.00	5.20
160.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.020	0.000	13.614	0.00	1.37
160.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.020	0.000	13.614	0.00	5.20
165.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.021	0.000	13.687	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	0.00	0.00	0.00	0.021	0.000	13.687	0.00	5.20
167.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.022	0.000	13.716	0.00	0.55
167.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.022	0.000	13.716	0.00	2.08
169.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.023	0.000	13.744	0.00	0.55
169.00	Step bolts (ladder)	Yes	2.00	0.000	0.00	0.00	0.00	0.023	0.000	13.744	0.00	2.08
<b>Totals:</b>											<b>0.0</b>	<b>221.9</b>



## Calculated Forces

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

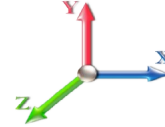


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-44.16	-9.20	0.00	-1142.3	0.00	1142.39	5562.36	2781.18	13652.7	6836.50	0.00	0.000	0.000	0.175
5.00	-42.56	-9.07	0.00	-1096.4	0.00	1096.41	5482.35	2741.17	13146.4	6582.98	0.02	-0.043	0.000	0.174
10.00	-41.00	-8.94	0.00	-1051.0	0.00	1051.08	5400.13	2700.07	12644.0	6331.40	0.09	-0.087	0.000	0.174
15.00	-39.47	-8.81	0.00	-1006.3	0.00	1006.39	5315.71	2657.86	12145.8	6081.95	0.21	-0.132	0.000	0.173
20.00	-37.97	-8.68	0.00	-962.33	0.00	962.33	5229.08	2614.54	11652.3	5834.81	0.37	-0.178	0.000	0.172
25.00	-36.50	-8.54	0.00	-918.93	0.00	918.93	5140.25	2570.12	11163.7	5590.18	0.58	-0.226	0.000	0.171
30.00	-35.07	-8.41	0.00	-876.21	0.00	876.21	5049.20	2524.60	10680.6	5348.24	0.84	-0.275	0.000	0.171
35.00	-33.67	-8.27	0.00	-834.17	0.00	834.17	4955.95	2477.97	10203.2	5109.18	1.16	-0.326	0.000	0.170
40.00	-32.30	-8.13	0.00	-792.83	0.00	792.83	4860.49	2430.24	9731.91	4873.19	1.53	-0.378	0.000	0.169
45.00	-30.96	-7.98	0.00	-752.19	0.00	752.19	4762.82	2381.41	9267.12	4640.45	1.95	-0.432	0.000	0.169
46.50	-30.57	-7.94	0.00	-740.23	0.00	740.23	4733.09	2366.54	9129.00	4571.29	2.09	-0.449	0.000	0.168
50.00	-28.87	-7.84	0.00	-712.43	0.00	712.43	4662.94	2331.47	8809.20	4411.15	2.44	-0.489	0.000	0.168
53.25	-27.33	-7.73	0.00	-686.97	0.00	686.97	4662.03	2331.01	8805.10	4409.10	2.78	-0.527	0.000	0.162
55.00	-26.88	-7.69	0.00	-673.44	0.00	673.44	4626.54	2313.27	8646.55	4329.70	2.98	-0.547	0.000	0.161
60.00	-25.62	-7.55	0.00	-634.98	0.00	634.98	4523.67	2261.83	8198.57	4105.38	3.58	-0.604	0.000	0.160
65.00	-24.39	-7.40	0.00	-597.26	0.00	597.26	4418.66	2209.33	7758.49	3885.01	4.25	-0.661	0.000	0.159
70.00	-23.19	-7.26	0.00	-560.24	0.00	560.24	4277.83	2138.92	7269.40	3640.10	4.97	-0.721	0.000	0.159
75.00	-22.03	-7.12	0.00	-523.94	0.00	523.94	4137.00	2068.50	6796.24	3403.17	5.76	-0.783	0.000	0.159
80.00	-20.90	-6.98	0.00	-488.33	0.00	488.33	3996.18	1998.09	6339.00	3174.21	6.61	-0.846	0.000	0.159
85.00	-19.80	-6.85	0.00	-453.42	0.00	453.42	3855.35	1927.67	5897.69	2953.23	7.53	-0.912	0.000	0.159
90.00	-18.73	-6.71	0.00	-419.18	0.00	419.18	3714.52	1857.26	5472.29	2740.21	8.53	-0.980	0.000	0.158
95.00	-17.70	-6.58	0.00	-385.61	0.00	385.61	3573.69	1786.85	5062.82	2535.17	9.59	-1.050	0.000	0.157
100.00	-15.99	-6.44	0.00	-352.70	0.00	352.70	3014.30	1507.15	4208.99	2107.62	10.73	-1.122	0.000	0.173
105.00	-15.11	-6.31	0.00	-320.51	0.00	320.51	2893.59	1446.80	3876.87	1941.32	11.94	-1.196	0.000	0.170
110.00	-14.26	-6.19	0.00	-288.95	0.00	288.95	2772.88	1386.44	3558.41	1781.85	13.24	-1.278	0.000	0.167
115.00	-13.44	-6.07	0.00	-258.00	0.00	258.00	2652.17	1326.09	3253.59	1629.21	14.62	-1.362	0.000	0.163
120.00	-12.65	-5.95	0.00	-227.65	0.00	227.65	2531.46	1265.73	2962.42	1483.41	16.10	-1.447	0.000	0.158
125.00	-11.88	-5.84	0.00	-197.89	0.00	197.89	2410.75	1205.38	2684.90	1344.44	17.66	-1.533	0.000	0.152
130.00	-11.14	-5.73	0.00	-168.69	0.00	168.69	2290.04	1145.02	2421.02	1212.31	19.31	-1.619	0.000	0.144
135.00	-10.43	-5.62	0.00	-140.05	0.00	140.05	2169.33	1084.67	2170.80	1087.01	21.05	-1.703	0.000	0.134
140.00	-9.75	-5.52	0.00	-111.94	0.00	111.94	2048.62	1024.31	1934.22	968.55	22.88	-1.783	0.000	0.120
145.00	-9.10	-5.41	0.00	-84.36	0.00	84.36	1927.91	963.96	1711.29	856.92	24.79	-1.858	0.000	0.103
145.25	-9.07	-5.41	0.00	-83.01	0.00	83.01	1921.88	960.94	1700.50	851.51	24.88	-1.862	0.000	0.102
147.00	-6.71	-3.88	0.00	-73.55	0.00	73.55	1879.63	939.81	1625.94	814.18	25.57	-1.887	0.000	0.094
148.50	-6.48	-3.84	0.00	-67.73	0.00	67.73	907.84	453.92	797.93	399.56	26.17	-1.908	0.000	0.177
150.00	-6.37	-3.82	0.00	-61.97	0.00	61.97	895.57	447.78	771.95	386.55	26.77	-1.928	0.000	0.167
155.00	-6.03	-3.74	0.00	-42.86	0.00	42.86	853.23	426.61	687.23	344.13	28.85	-2.035	0.000	0.132
160.00	-3.81	-2.61	0.00	-24.18	0.00	24.18	807.76	403.88	604.95	302.92	31.03	-2.119	0.000	0.085
165.00	-3.57	-2.53	0.00	-11.13	0.00	11.13	747.41	373.70	517.50	259.13	33.28	-2.174	0.000	0.048
167.00	-0.90	-0.86	0.00	-2.52	0.00	2.52	723.26	361.63	484.43	242.57	34.20	-2.187	0.000	0.012
169.00	0.00	-0.83	0.00	-0.80	0.00	0.80	699.12	349.56	452.45	226.56	35.11	-2.190	0.000	0.004

## Final Analysis Summary

<b>Structure:</b> CT11794-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	38.5	0.00	52.93	0.00	0.00	4801.22
0.9D + 1.6W 97 mph Wind	38.5	0.00	39.68	0.00	0.00	4746.82
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.7	0.00	80.03	0.00	0.00	1311.37
1.2D + 1.0E	2.2	0.00	52.99	0.00	0.00	285.36
0.9D + 1.0E	2.2	0.00	39.74	0.00	0.00	281.93
1.0D + 1.0W 60 mph Wind	9.2	0.00	44.16	0.00	0.00	1142.39

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-5.72	-16.12	0.00	-283.63	0.00	-283.63	907.84	453.92	797.93	399.56	148.50	0.717
0.9D + 1.6W 97 mph Wind	-3.79	-15.83	0.00	-278.91	0.00	-278.91	907.84	453.92	797.93	399.56	148.50	0.703
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-80.03	-10.74	0.00	-1311.3	0.00	-1311.3	5562.36	2781.1	13652.7	6836.50	0.00	0.206
1.2D + 1.0E	-7.91	-1.35	0.00	-22.24	0.00	-22.24	907.84	453.92	797.93	399.56	148.50	0.064
0.9D + 1.0E	-5.93	-1.33	0.00	-21.92	0.00	-21.92	907.84	453.92	797.93	399.56	148.50	0.061
1.0D + 1.0W 60 mph Wind	-6.48	-3.84	0.00	-67.73	0.00	-67.73	907.84	453.92	797.93	399.56	148.50	0.177



## Base Plate Summary

<b>Structure:</b> CT11794-S-SB	<b>Code:</b> EIA/TIA-222-G	12/19/2019
<b>Site Name:</b> East Lyme 1	<b>Exposure:</b> D	
<b>Height:</b> 169.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 50.00	<b>Bolt Circle:</b> 66.75
<b>Moment (kip-ft):</b> 6776.67	<b>Width (in):</b> 72.75	<b>Number Bolts:</b> 20.00
<b>Axial (kip):</b> 62.81	<b>Style:</b> Round	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 55.54	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.25
Analysis	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 4801.22	<b>Effective Len (in):</b> 13.07	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 80.03	<b>Moment (kip-in):</b> 583.76	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 38.48	<b>Allow Stress (ksi):</b> 67.50	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 0.00	<b>Start Angle (deg):</b> 0.00
<b>Moment Design %:</b> 70.85	<b>Stress Ratio:</b> 0.52	<b>Compression</b>
		<b>Force (kip):</b> 176.63
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.69
		<b>Tension</b>
		<b>Force (kip):</b> 168.63
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.66



# Monopole Mat Foundation Design

Date

12/19/2019

<b>Customer Name:</b>	AT&T	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	169
<b>Site Number:</b>	CT11794-S-SBA	<b>Engineer Name:</b>	T. Alajaj
<b>Engr. Number:</b>	90604	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations

**Structure Type:**

Monopole

**Analysis or Design?**

Analysis

**Base Reactions (Factored):**

Axial Load (Kips):	80.0	Shear Force (Kips):	38.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4801.2

Allowable overstress %: 5.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	30	Width of Pad (ft.):	30
Final Length of pad (ft)	30.0	Final width of pad (ft):	30.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0

**Material Properties and Rebar Info:**

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	48	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	54	Qty. of Rebar in Pad (W):	54	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	54	Qty. of Rebar in Pad (W):	54	

Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

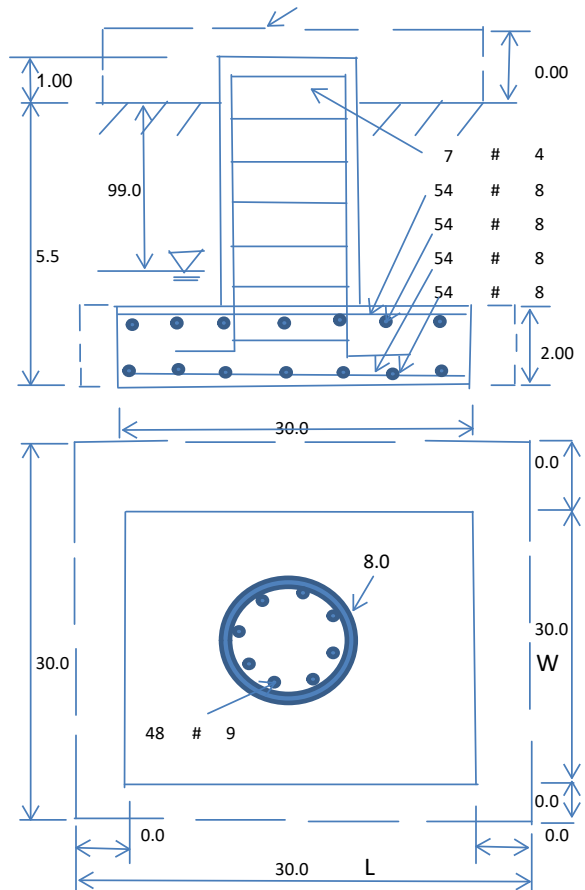
Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	15000	Ultimate Skin Friction:	175	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:	30	
		Angle from Bottm of Pad:	25	
		Angle from Bottm of Pad:	25	

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2974.07	Total Dry Soil Weight (Kips):	356.89
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	356.89	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2026.19	Total Dry Concrete Weight (Kips):	303.93
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	303.93	Total Vertical Load on Base (Kips):	740.82

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2018	<	Allowable Factored Soil Bearing (psf):	11250	0.18	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	10121.0	>	Design Factored Momont (kips-ft):	5051	0.50	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.00					OK!



**Check the capacities of Reinforcing Concrete:**

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

Load/  
Capacity  
Ratio**(1) Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	9280.8	> Design Factored Moment (Mu, Kips-Ft):	4974.5	0.54	OK!
Calculated Shear Capacity (Kips):	840.3	> Design Factored Shear (Kips):	38.5	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	2592.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12712.3	> Design Factored Axial Load (Pu Kips):	80.0	0.01	OK!
Moment & Axial Strength Combination:	0.54	OK! Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			

**(2).Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):	700.1	> One-Way Factored Shear (L-D. Kips):	304.2	0.43	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	700.1	> One-Way Factored Shear (W-D., Kips)	304.2	0.43	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	723.7	> One-Way Factored Shear (C-C, Kips):	300.8	0.42	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0058	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0058		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3734.7	> Moment at Bottom ( L-Dir. K-Ft):	1827.3	0.49	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3734.7	> Moment at Bottom ( W-Dir. K-Ft):	1827.3	0.49	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5215.6	> Moment at Bottom ( C-C Dir. K-Ft):	2584.2	0.50	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0058	OK! Upper Steel Reinf. Ratio (W-Dir. ):	0.0058		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	3734.7	> Moment at the top (L-Dir K-Ft):	782.7	0.21	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	3734.7	> Moment at the top (W-Dir K-Ft):	782.7	0.21	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5215.6	> Moment at the top (C-C Dir. K-Ft):	733.1	0.14	OK!

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

Moment transferred by punching shear:	1920.5	k-ft.	Max. factored shear stress $v_{u,CD}$ :	0.5	Psi
Max. factored shear stress $v_{u,AB}$ :	18.6	Psi	Factored shear Strength $\phi v_n$ :	189.7	Psi
Max. factored shear stress $v_u$ :	18.6	Psi	Check Usage of Punching Shear Capacity:	0.10	OK!

# EXHIBIT 4

November 27, 2019



Centerline Communications  
750 West Center Street, Suite #301  
West Bridgewater, MA 02379

RE:      Site Number:            CT1269 (LTE 4C/5C)  
          FA Number:            10133918  
          PACE Number:          MRCTB040527  
          PT Number:            2051AOPQRC  
          Site Name:            NIAN TIC BRAINERD RD  
          Site Address:         49 Brainerd Road  
   Niantic, CT 06357

To Whom It May Concern:

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

- (1) AM-X-CD-14-65-00T-RET Antennas (48.0"x11.8"x5.9" – Wt. = 37 lbs.)
- (2) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)
- (1) AM-X-CD-16-65-00T-RET Antennas (72.0"x11.8"x5.9" – Wt. = 49 lbs.)
- (2) HPA-65R-BUU-H6 Antennas (72.0"x14.8"x7.4" – Wt. = 51 lbs. /each)
- (1) SBNH-1D6565C Antennas (96.4"x11.9"x7.1" – Wt. = 61 lbs.)
- (2) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-12 B2 RRH's (20.4"x18.5"x7.5" – Wt. = 58 lbs. /each)
- (3) DTMABP7819VG12A TMA's (10.7"x11.1"x3.8" - Wt. = 20 lbs. /each)
- (3) A2 Modules (16.4"x15.2"x3.4" – Wt. = 22 lbs. /each)
- (2) Squid Surge Arrestors (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs. /each)
- **(1) DMP65R-BU4DA Antennas (48.0"x20.7"x7.7" – Wt. = 68 lbs.)**
- **(1) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs.)**
- **(1) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs.)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 85/812 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs.)**

\*Proposed equipment shown in bold

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on November 20, 2019.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 135 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.18 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with ring mount and thru bolts. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Existing (LTE 4C/5C) Mount Rating</b>	68	LC1	85%	<b>PASS</b>

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,  
Hudson Design Group LLC



Michael Cabral  
Vice President



Daniel P. Hamm, PE  
Principal

**FIELD PHOTOS:**









**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**

Date: 11/27/2019  
 Project Name: NIANTIC BRAINERD RD  
 Project No.: CT1269  
 Designed By: RL Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

$K_z = 2.01 (z/z_g)^{2/\alpha}$   
 $K_z =$  **1.415**  
 $z =$  170 (ft)  
 $z_g =$  900 (ft)  
 $\alpha =$  9.5

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

**Table 2-4**

Exposure	$Z_g$	$\alpha$	$K_{zmin}$	$K_c$
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

**2.6.6.2 Topographic Factor:**

**Table 2-5**

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

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

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

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

$K_h =$  **#DIV/0!**

$K_c =$  1.0 (from Table 2-4)

$K_t =$  0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 170

$z_s =$  50 (Mean elevation of base of structure above sea level)

H = 0 (Ht. of the crest above surrounding terrain)

$K_{zt} =$  1.00 (from 2.6.6.2.1)

$K_e =$  1.00 (from 2.6.8)

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

Category = **1**

**2.6.10 Design Ice Thickness**

Max Ice Thickness =

$t_i =$  1.00 in

Importance Factor =

I = 1.0 (from Table 2-3)

$K_{iz} =$  1.18 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

$t_{iz} =$  1.18 in

Date: 11/27/2019  
 Project Name: NIAN TIC BRAINERD RD  
 Project No.: CT1269  
 Designed By: RL Checked By: MSC



**2.6.9 Gust Effect Factor**

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$  Latticed Structures > 600 ft

$G_h = 0.85$  Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$  ht. of structure

$h = 175$

$G_h = 0.85$

2.6.9.2 Guyed Masts

$G_h = 0.85$

2.6.9.3 Pole Structures

$G_h = 1.1$

2.6.9 Appurtenances

$G_h = 1.0$

2.6.9.4 Structures Supported on Other Structures

(Cantilvered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

$G_h = 1.35$

$G_h = 1.00$

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z = 62.61$   
 $q_z (ice) = 8.59$   
 $q_z (30) = 3.09$

$K_z = 1.415$  (from 2.6.5.2)  
 $K_{zt} = 1.0$  (from 2.6.6.2.1)  
 $K_s = 1.0$  (from 2.6.7)  
 $K_e = 1.00$  (from 2.6.8)  
 $K_d = 0.95$  (from Table 2-2)  
 $V_{max} = 135$  mph (Ultimate Wind Speed)  
 $V_{max (ice)} = 50$  mph  
 $V_{30} = 30$  mph

**Table 2-2**

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

**Determine Ca:**

**Table 2-9**

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r <sub>s</sub> ) ≥ 0.85	1.4 - 4.0(r <sub>s</sub> ) ≥ 0.90	2.0 - 6.0(r <sub>s</sub> ) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	4.14/(C <sup>0.485</sup> )	3.66/(C <sup>0.415</sup> )	46.8/(C <sup>1.0</sup> )
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.  
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,  
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.18 in**      Angle = **0 (deg)**      Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	4.07	1.27	313	54	15
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	373	64	18
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.32	1.20	518	83	26
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	6.10	1.36	502	85	25
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	4.86	1.31	605	99	30
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	796	126	39
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	8.10	1.44	717	121	35
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	812	132	40
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	1119	175	55
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	172	31	8
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	136.00	5.70	13	26	1
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	127	23	6
B14 4478 RRH (Shielded)	18.1	1.5	8.3	0.19	12.07	1.57	19	7	1
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.43	1.20	81	16	4
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.72	1.21	80	16	4
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.96	1.20	62	13	3
A2 Modules	16.4	15.2	3.4	1.73	1.08	1.20	130	24	6
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	71	13	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	15	5	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	22	6	1
4" Pipe	4.5	12.0		0.38	0.38	1.20	28	7	1

**WIND LOADS**

Angle = 30 (deg) Ice Thickness = 1.18 in. Equivalent Angle = 210 (deg)

**WIND LOADS WITH NO ICE:**

341.0158

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ce (normal)	Ce (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	919	177	279
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	973	245	341
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	518	220	444
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	502	291	449
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	605	345	540
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	796	352	685
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	717	482	650
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	812	471	727
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1119	509	966
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	172	104	155
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	92	104	95
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	127	78	115
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	64	78	67
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	81	103	86
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	80	197	110
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	62	21	52
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	130	32	103

**WIND LOADS WITH ICE:**

AM-X-CD-14-65-00T-RET Antenna	50.4	14.2	8.3	4.95	2.89	3.56	6.10	1.25	1.36	53	34	48
SBNHH-1D65A Antenna	58.0	14.3	9.5	5.74	3.81	4.07	6.13	1.27	1.36	63	44	58
DMP65R-BU4DA Antenna	50.4	23.1	10.1	8.06	3.52	2.18	5.01	1.20	1.31	83	40	72
AM-X-CD-16-65-00T-RET Antenna	74.4	14.2	8.3	7.31	4.26	5.25	9.01	1.32	1.47	83	54	76
HPA-65R-BUU-H6 Antenna	74.4	17.2	9.8	8.86	5.04	4.33	7.62	1.28	1.42	98	61	88
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.78	5.14	3.19	7.31	1.23	1.41	124	62	109
SBNH-1D6565C Antenna	98.8	14.3	9.5	9.78	6.49	6.93	10.44	1.40	1.51	117	84	109
HPA-65R-BUU-H8 Antenna	94.8	17.2	9.8	11.29	6.42	5.52	9.71	1.33	1.49	129	82	118
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.75	6.87	4.27	9.78	1.28	1.49	179	88	152
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.92	2.04	3.16	1.20	1.23	91	20	29
RRUS-32 B2 RRH (Shielded)	29.6	7.2	9.4	1.48	1.92	4.09	3.16	1.27	1.23	16	20	17
B14 4478 RRH	20.5	15.8	10.7	2.24	1.51	1.30	1.92	1.20	1.20	23	16	21
B14 4478 RRH (Shielded)	20.5	7.9	10.7	1.12	1.51	2.60	1.92	1.20	1.20	12	16	13
B5/B12 4449 RRH	17.3	12.8	15.6	1.53	1.86	1.35	1.11	1.20	1.20	16	19	17
RRUS-12 B2 RRH	22.8	9.9	20.9	1.56	3.30	2.31	1.09	1.20	1.20	16	34	21
DTMABP7819VG12A TMA	13.1	13.5	6.2	1.22	0.56	0.97	2.12	1.20	1.20	13	6	11
A2 Modules	18.8	17.6	5.8	2.29	0.75	1.07	3.26	1.20	1.23	24	8	20

**WIND LOADS AT 30 MPH:**

AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	15	9	14
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	18	12	17
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	26	11	22
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	25	14	22
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	30	17	27
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	39	17	34
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	35	24	32
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	40	23	36
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	55	25	48
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	8
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	6
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	4	3
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	4
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	4	10	5
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	3
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	6	2	5

Date: 11/27/2019  
 Project Name: NANTIC BEARER ED  
 Project No.: CT1269  
 Designed By: RL Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.18 in. Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appearance	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	913	177	211
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	975	245	277
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	518	220	294
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	502	291	344
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	605	945	410
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	796	352	463
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	717	482	541
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	812	471	556
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1119	509	661
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	172	104	121
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	131	104	111
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	127	78	90
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	95	78	88
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	81	103	97
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	80	197	168
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	62	21	32
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	130	32	56

WIND LOADS WITH ICE:

AM-X-CD-14-65-00T-RET Antenna	50.4	14.2	8.3	4.95	2.89	3.56	6.10	1.25	1.36	53	94	39
SBNHH-1D65A Antenna	58.0	14.3	9.5	5.74	3.81	4.07	6.13	1.27	1.36	63	44	49
DMP65R-BU4DA Antenna	50.4	23.1	10.1	8.06	3.52	2.18	5.01	1.20	1.31	83	40	50
AM-X-CD-16-65-00T-RET Antenna	74.4	14.2	8.3	7.31	4.26	5.25	9.01	1.32	1.47	83	54	61
HPA-65R-BUU-H6 Antenna	74.4	17.2	9.8	8.86	5.04	4.33	7.62	1.28	1.42	98	61	70
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.78	5.14	3.19	7.31	1.23	1.41	124	62	78
SBNH-1D6565C Antenna	98.8	14.3	9.5	9.78	6.49	6.93	10.44	1.40	1.51	117	84	93
HPA-65R-BUU-H8 Antenna	94.8	17.2	9.8	11.29	6.42	5.52	9.71	1.33	1.49	129	82	94
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.75	6.87	4.27	9.78	1.28	1.49	179	88	109
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.92	2.04	3.16	1.20	1.23	31	20	23
RRUS-32 B2 RRH (Shielded)	29.6	10.8	9.4	2.23	1.92	2.73	3.16	1.21	1.23	23	20	21
B14 4478 RRH	20.5	15.8	10.7	2.24	1.51	1.30	1.92	1.20	1.20	25	16	17
B14 4478 RRH (Shielded)	20.5	11.8	10.7	1.68	1.51	1.73	1.92	1.20	1.20	17	16	16
B5/B12 4449 RRH	17.3	12.8	15.6	1.53	1.86	1.35	1.11	1.20	1.20	16	19	18
RRUS-12 B2 RRH	22.8	9.9	20.9	1.56	3.30	2.31	1.09	1.20	1.20	16	34	29
DTMABP7819VG12A TMA	13.1	13.5	6.2	1.22	0.56	0.97	2.12	1.20	1.20	13	6	7
A2 Modules	18.8	17.6	5.8	2.29	0.75	1.07	3.26	1.20	1.23	24	8	12

WIND LOADS AT 30 MPH:

AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	15	9	10
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	18	12	14
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	26	11	15
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	25	14	17
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	30	17	20
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	39	17	23
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	35	24	27
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	40	23	27
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	55	25	33
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	8
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	5
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	4	10	8
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	2
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	6	2	3

Date: 11/27/2019  
 Project Name: NIAN TIC BRAINERD RD  
 Project No: CT1269  
 Designed By: RL Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.18 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	C <sub>a</sub> (normal)	C <sub>a</sub> (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	313	177	177
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	379	245	245
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	518	220	220
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	502	291	291
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	605	345	345
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	796	352	352
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	717	482	482
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	812	471	471
DMP65R-BU8DA Antenna	96.0	20.7	7.7	18.80	5.13	4.64	12.47	1.30	1.58	1119	509	509
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	172	104	104
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	1.52	136.00	3.89	5.70	1.26	19	104	104
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	127	78	78
B14 4478 RRH (Shielded)	18.1	1.5	8.3	0.19	1.04	12.07	2.18	1.57	1.20	19	78	78
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	81	103	103
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	80	197	197
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	62	21	21
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	190	32	32

WIND LOADS WITH ICE:

AM-X-CD-14-65-00T-RET Antenna	50.4	14.2	8.3	4.95	2.89	3.56	6.10	1.25	1.36	59	34	34
SBNHH-1D65A Antenna	58.0	14.3	9.5	5.74	3.81	4.07	6.13	1.27	1.36	63	44	44
DMP65R-BU4DA Antenna	50.4	23.1	10.1	8.06	3.52	2.18	5.01	1.20	1.31	83	40	40
AM-X-CD-16-65-00T-RET Antenna	74.4	14.2	8.3	7.31	4.26	5.25	9.01	1.32	1.47	83	54	54
HPA-65R-BUU-H6 Antenna	74.4	17.2	9.8	8.86	5.04	4.33	7.62	1.28	1.42	98	61	61
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.78	5.14	3.19	7.31	1.23	1.41	124	62	62
SBNH-1D6565C Antenna	98.8	14.3	9.5	9.78	6.49	6.93	10.44	1.40	1.51	117	84	84
HPA-65R-BUU-H8 Antenna	94.8	17.2	9.8	11.29	6.42	5.52	9.71	1.33	1.49	129	82	82
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.75	6.87	4.27	9.78	1.28	1.49	179	88	88
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.92	2.04	3.16	1.20	1.23	91	20	20
RRUS-32 B2 RRH (Shielded)	29.6	2.6	9.4	0.52	1.92	11.56	3.16	1.55	1.23	7	20	20
B14 4478 RRH	20.5	15.8	10.7	2.24	1.51	1.30	1.92	1.20	1.20	23	16	16
B14 4478 RRH (Shielded)	20.5	3.9	10.7	0.55	1.51	5.30	1.92	1.32	1.20	6	16	16
B5/B12 4449 RRH	17.3	12.8	15.6	1.53	1.86	1.35	1.11	1.20	1.20	16	19	19
RRUS-12 B2 RRH	22.8	9.9	20.9	1.56	3.30	2.31	1.09	1.20	1.20	16	94	94
DTMABP7819VG12A TMA	13.1	13.5	6.2	1.22	0.56	0.97	2.12	1.20	1.20	13	6	6
A2 Modules	18.8	17.6	5.8	2.29	0.75	1.07	3.26	1.20	1.23	24	8	8

WIND LOADS AT 30 MPH:

AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	15	9	9
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	18	12	12
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	26	11	11
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	25	14	14
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	30	17	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	39	17	17
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	33	24	24
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	40	23	23
DMP65R-BU8DA Antenna	96.0	20.7	7.7	18.80	5.13	4.64	12.47	1.30	1.58	53	25	25
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	1.52	136.00	3.89	5.70	1.26	1	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Shielded)	18.1	1.5	8.3	0.19	1.04	12.07	2.18	1.57	1.20	1	4	4
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	5
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	4	10	10
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	1
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	6	2	2



Date: 11/27/2019  
 Project Name: NIAN TIC BRAINEED RD  
 Project No.: CT1269  
 Designed By: RL Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.18 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	313	177	211
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	379	245	277
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	518	220	294
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	502	291	344
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	605	345	410
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	796	352	463
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	717	482	541
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	812	471	556
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1119	509	661
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	172	104	121
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	131	104	111
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	127	78	90
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	95	78	83
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	81	103	97
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	80	197	168
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	62	21	32
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	190	37	56

WIND LOADS WITH ICE:

AM-X-CD-14-65-00T-RET Antenna	50.4	14.2	8.3	4.95	2.89	3.56	6.10	1.25	1.36	53	34	39
SBNHH-1D65A Antenna	58.0	14.3	9.5	5.74	3.81	4.07	6.13	1.27	1.36	63	44	49
DMP65R-BU4DA Antenna	50.4	23.1	10.1	8.06	3.52	2.18	5.01	1.20	1.31	83	40	50
AM-X-CD-16-65-00T-RET Antenna	74.4	14.2	8.3	7.31	4.26	5.25	9.01	1.32	1.47	89	54	61
HPA-65R-BUU-H6 Antenna	74.4	17.2	9.8	8.86	5.04	4.33	7.62	1.28	1.42	98	61	70
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.78	5.14	3.19	7.31	1.23	1.41	124	62	78
SBNH-1D6565C Antenna	98.8	14.3	9.5	9.78	6.49	6.93	10.44	1.40	1.51	117	84	93
HPA-65R-BUU-H8 Antenna	94.8	17.2	9.8	11.29	6.42	5.52	9.71	1.33	1.49	129	82	94
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.75	6.87	4.27	9.78	1.28	1.49	173	88	109
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.92	2.04	3.16	1.20	1.23	31	20	23
RRUS-32 B2 RRH (Shielded)	29.6	10.8	9.4	2.23	1.92	2.73	3.16	1.21	1.23	23	20	21
B14 4478 RRH	20.5	15.8	10.7	2.24	1.51	1.30	1.92	1.20	1.20	23	16	17
B14 4478 RRH (Shielded)	20.5	11.8	10.7	1.68	1.51	1.73	1.92	1.20	1.20	17	16	16
B5/B12 4449 RRH	17.3	12.8	15.6	1.53	1.86	1.35	1.11	1.20	1.20	16	19	18
RRUS-12 B2 RRH	22.8	9.9	20.9	1.56	3.30	2.31	1.09	1.20	1.20	16	34	29
DTMABP7819VG12A TMA	13.1	13.5	6.2	1.22	0.56	0.97	2.12	1.20	1.20	13	6	7
A2 Modules	18.8	17.6	5.8	2.29	0.75	1.07	3.26	1.20	1.23	24	8	12

WIND LOADS AT 30 MPH:

AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	15	9	10
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	18	12	14
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	26	11	15
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	25	14	17
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	30	17	20
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	39	17	23
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	35	24	27
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	40	23	27
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	55	25	33
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	5	4	4
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	5
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	4	10	8
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	2
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	6	2	3

Date: 11/27/2019  
 Project Name: NIANIC BRAINERD RD  
 Project No: CT1249  
 Designed By: RL Checked By: MSC



**WIND LOADS**

Angle = **150** (deg)      Ice Thickness = **1.18** in.      Equivalent Angle = **330** (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Cd (normal)	Cd (side)	Force (lbs)	Force (lbs)	Force (lbs)
AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	513	177	279
SBNH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	373	245	341
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	518	220	444
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	502	291	449
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	605	345	540
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	796	352	685
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	717	482	658
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	812	471	727
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1119	509	966
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.92	2.25	3.89	1.20	1.26	172	104	155
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.92	4.50	3.89	1.29	1.26	92	104	95
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	127	78	115
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	64	78	67
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	81	103	86
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	80	197	110
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	62	21	52
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	130	92	105

**WIND LOADS WITH ICE:**

AM-X-CD-14-65-00T-RET Antenna	50.4	14.2	8.3	4.95	2.89	3.56	6.10	1.25	1.36	59	94	48
SBNH-1D65A Antenna	58.0	14.3	9.5	5.74	3.81	4.07	6.13	1.27	1.36	69	44	58
DMP65R-BU4DA Antenna	50.4	23.1	10.1	8.06	3.52	2.18	5.01	1.20	1.31	89	40	72
AM-X-CD-16-65-00T-RET Antenna	74.4	14.2	8.3	7.31	4.26	5.25	9.01	1.32	1.47	83	54	76
HPA-65R-BUU-H6 Antenna	74.4	17.2	9.8	8.86	5.04	4.33	7.62	1.28	1.42	98	61	88
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.78	5.14	3.19	7.31	1.23	1.41	124	62	109
SBNH-1D6565C Antenna	98.8	14.3	9.5	9.78	6.49	6.93	10.44	1.40	1.51	117	84	109
HPA-65R-BUU-H8 Antenna	94.8	17.2	9.8	11.29	6.42	5.52	9.71	1.33	1.49	129	82	118
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.75	6.87	4.27	9.78	1.28	1.49	173	88	152
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.92	2.04	3.16	1.20	1.23	31	20	28
RRUS-32 B2 RRH (Shielded)	29.6	7.2	9.4	1.48	1.92	4.09	3.16	1.27	1.23	16	20	17
B14 4478 RRH	20.5	15.8	10.7	2.24	1.51	1.30	1.92	1.20	1.20	23	16	21
B14 4478 RRH (Shielded)	20.5	7.9	10.7	1.12	1.51	2.60	1.92	1.20	1.20	12	16	13
B5/B12 4449 RRH	17.3	12.8	15.6	1.53	1.86	1.35	1.11	1.20	1.20	16	19	17
RRUS-12 B2 RRH	22.8	9.9	20.9	1.56	3.30	2.31	1.09	1.20	1.20	16	94	21
DTMABP7819VG12A TMA	13.1	13.5	6.2	1.22	0.56	0.97	2.12	1.20	1.20	13	6	11
A2 Modules	18.8	17.6	5.8	2.29	0.75	1.07	3.26	1.20	1.23	24	8	20

**WIND LOADS AT 30 MPH:**

AM-X-CD-14-65-00T-RET Antenna	48.0	11.8	5.9	3.93	1.97	4.07	8.14	1.27	1.44	15	9	14
SBNH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	18	12	17
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	26	11	22
AM-X-CD-16-65-00T-RET Antenna	72.0	11.8	5.9	5.90	2.95	6.10	12.20	1.36	1.57	25	14	22
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	30	17	27
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	39	17	34
SBNH-1D6565C Antenna	96.4	11.9	7.1	7.97	4.75	8.10	13.58	1.44	1.62	35	24	32
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	40	23	36
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	55	25	48
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.92	2.25	3.89	1.20	1.26	8	5	8
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.92	4.50	3.89	1.29	1.26	5	5	5
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	6
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	4	5
B5/B12 4449 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	4
RRUS-12 B2 RRH	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	4	10	5
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	3
A2 Modules	16.4	15.2	3.4	1.73	0.39	1.08	4.82	1.20	1.30	6	2	5

Date: 11/27/2019  
 Project Name: NIAN TIC BRAINERD RD  
 Project No.: CT1269  
 Designed By: RL Checked By: MSC



**ICE WEIGHT CALCULATIONS**

Thickness of ice: 1.18 in.  
 Density of ice: 56 pcf

**AM-X-CD-14-65-00T-RET Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 48.0  
 Width (in): 11.8  
 Depth (in): 5.9  
 Total weight of ice on object: 83 lbs  
 Weight of object: 37.0 lbs  
**Combined weight of ice and object: 120 lbs**

**SBNHH-1D65A Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 55.6  
 Width (in): 11.9  
 Depth (in): 7.1  
 Total weight of ice on object: 100 lbs  
 Weight of object: 34.0 lbs  
**Combined weight of ice and object: 134 lbs**

**DMP65R-BU4DA Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 48.0  
 Width (in): 20.7  
 Depth (in): 7.7  
 Total weight of ice on object: 134 lbs  
 Weight of object: 68.0 lbs  
**Combined weight of ice and object: 202 lbs**

**AM-X-CD-16-65-00T-RET Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 72.0  
 Width (in): 11.8  
 Depth (in): 5.9  
 Total weight of ice on object: 124 lbs  
 Weight of object: 49.0 lbs  
**Combined weight of ice and object: 173 lbs**

**HPA-65R-BUU-H6 Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 72.0  
 Width (in): 14.8  
 Depth (in): 7.4  
 Total weight of ice on object: 153 lbs  
 Weight of object: 51.0 lbs  
**Combined weight of ice and object: 204 lbs**

**DMP65R-BU6DA Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 71.2  
 Width (in): 20.7  
 Depth (in): 7.7  
 Total weight of ice on object: 199 lbs  
 Weight of object: 80.0 lbs  
**Combined weight of ice and object: 279 lbs**

**SBNH-1D656C Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 96.4  
 Width (in): 11.9  
 Depth (in): 7.1  
 Total weight of ice on object: 174 lbs  
 Weight of object: 61.0 lbs  
**Combined weight of ice and object: 235 lbs**

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

Weight of ice based on total radial SF area:  
 Height (in): 92.4  
 Width (in): 14.8  
 Depth (in): 7.4  
 Total weight of ice on object: 197 lbs  
 Weight of object: 68.0 lbs  
**Combined weight of ice and object: 265 lbs**

**DMP65R-BU8DA Antenna**

Weight of ice based on total radial SF area:  
 Height (in): 96.0  
 Width (in): 20.7  
 Depth (in): 7.7  
 Total weight of ice on object: 268 lbs  
 Weight of object: 96.0 lbs  
**Combined weight of ice and object: 364 lbs**

**RRUS-32 B2 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 27.2  
 Width (in): 12.1  
 Depth (in): 7.0  
 Total weight of ice on object: 50 lbs  
 Weight of object: 60.0 lbs  
**Combined weight of ice and object: 110 lbs**

**B14 4478 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 18.1  
 Width (in): 13.4  
 Depth (in): 8.3  
 Total weight of ice on object: 37 lbs  
 Weight of object: 60.0 lbs  
**Combined weight of ice and object: 97 lbs**

**B5/B12 4449 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 14.9  
 Width (in): 13.2  
 Depth (in): 10.4  
 Total weight of ice on object: 32 lbs  
 Weight of object: 73.0 lbs  
**Combined weight of ice and object: 105 lbs**

**RRUS-12 B2 RRH**

Weight of ice based on total radial SF area:  
 Height (in): 20.4  
 Width (in): 18.5  
 Depth (in): 7.5  
 Total weight of ice on object: 52 lbs  
 Weight of object: 58.0 lbs  
**Combined weight of ice and object: 110 lbs**

**DTMABP7819VG12A TMA**

Weight of ice based on total radial SF area:  
 Height (in): 10.7  
 Width (in): 11.1  
 Depth (in): 3.8  
 Total weight of ice on object: 17 lbs  
 Weight of object: 20.0 lbs  
**Combined weight of ice and object: 37 lbs**

**A2 Modules**

Weight of ice based on total radial SF area:  
 Height (in): 16.4  
 Width (in): 15.2  
 Depth (in): 3.4  
 Total weight of ice on object: 33 lbs  
 Weight of object: 22.0 lbs  
**Combined weight of ice and object: 55 lbs**

**Squid Surge Arrestor**

Weight of ice based on total radial SF area:  
 Depth (in): 24.0  
 Diameter (in): 9.7  
 Total weight of ice on object: 31 lbs  
 Weight of object: 33 lbs  
**Combined weight of ice and object: 64 lbs**

**2" pipe**

Per foot weight of ice:  
 diameter (in): 2.38  
**Per foot weight of ice on object: 5 pif**

**3" Pipe**

Per foot weight of ice:  
 diameter (in): 3.5  
**Per foot weight of ice on object: 7 pif**

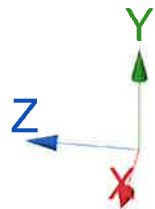
**4" Pipe**

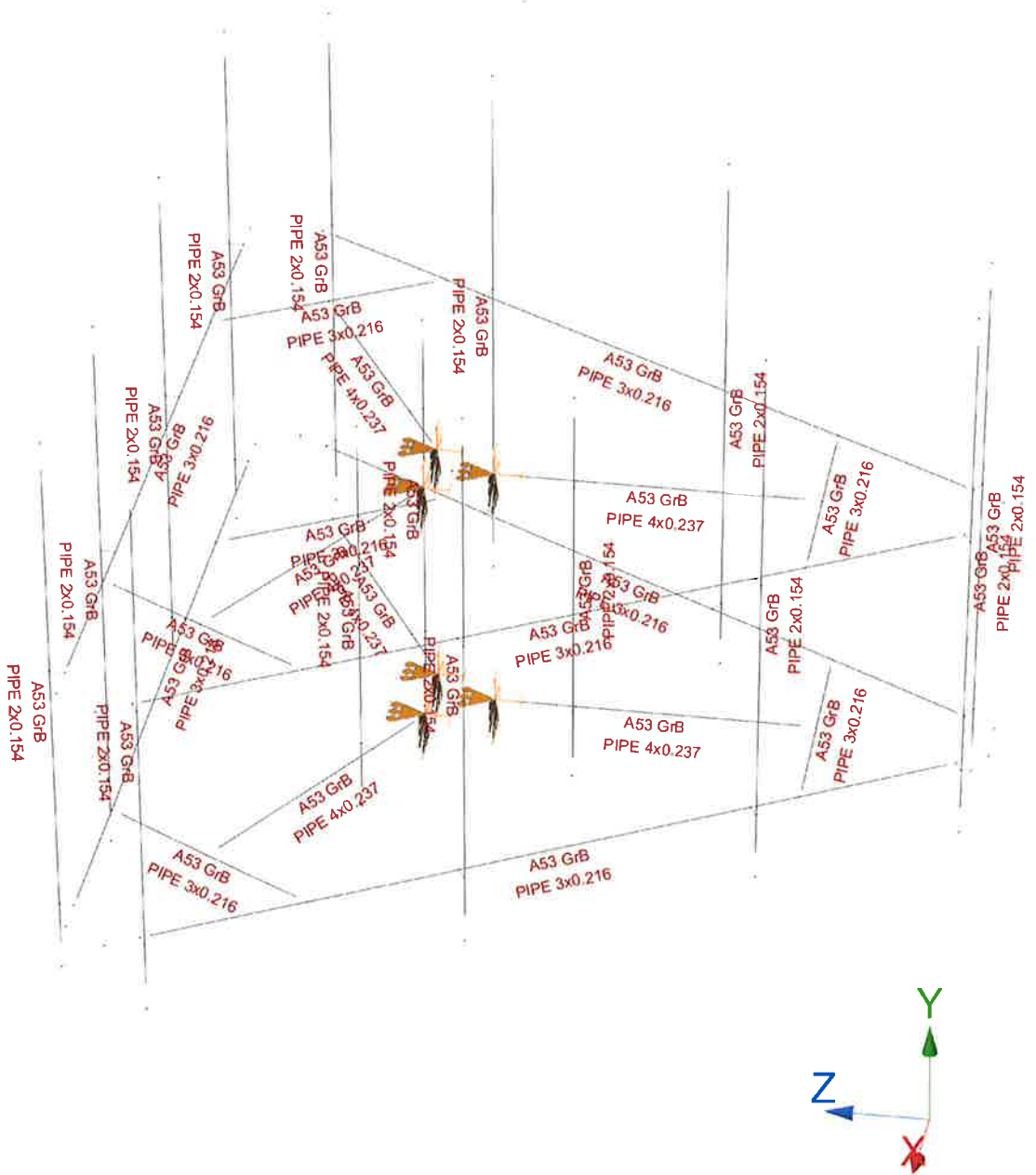
Per foot weight of ice:  
 diameter (in): 4.5  
**Per foot weight of ice on object: 8 pif**







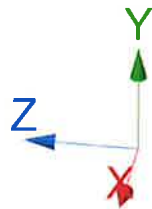
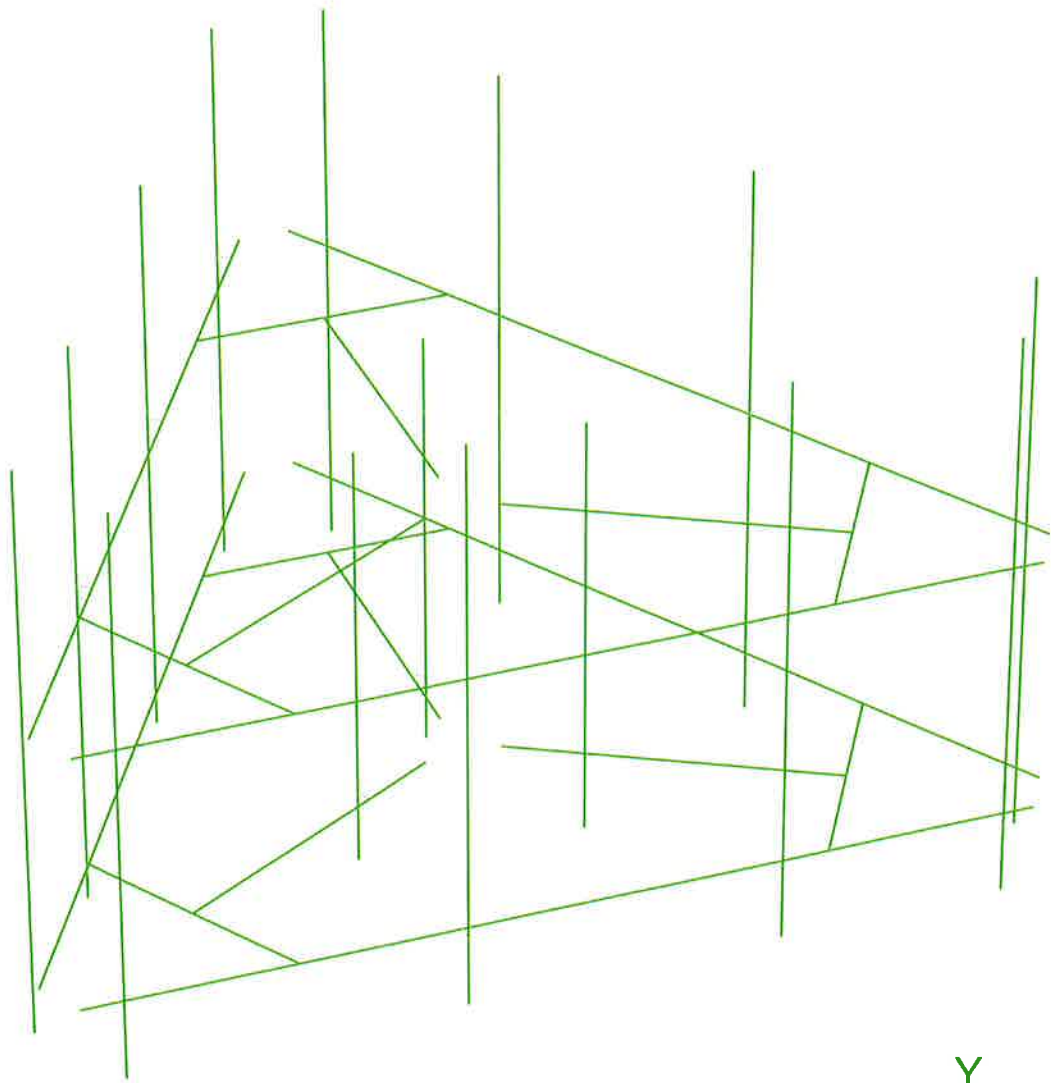
**HUDSON**  
Design Group LLC

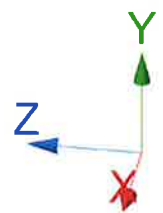
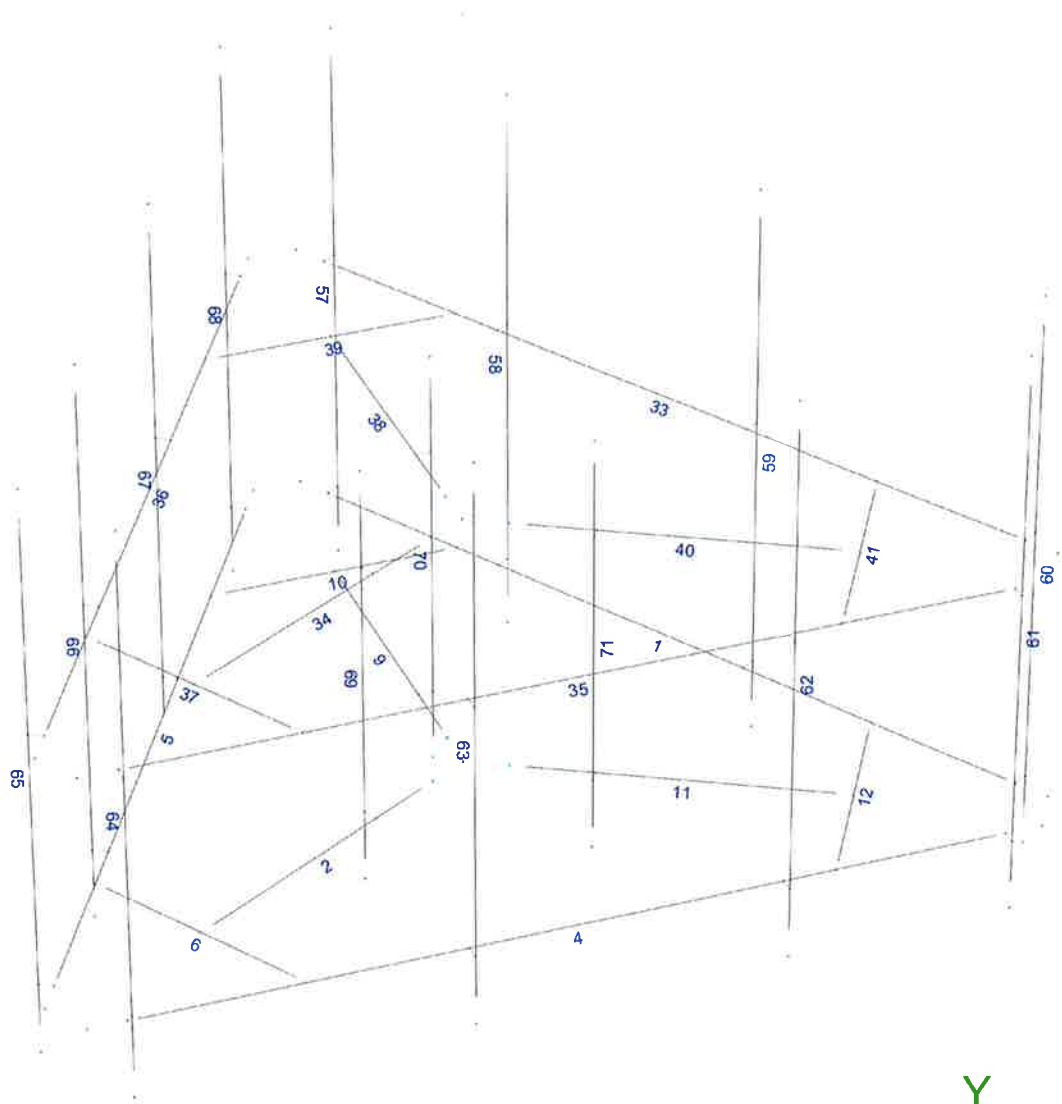
**Mount Calculations  
(Existing Conditions)**





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







Current Date: 11/27/2019 9:31 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1269\LTE (4C 5C)\CT1269 (LTE 4C 5C).retx\

## Load data

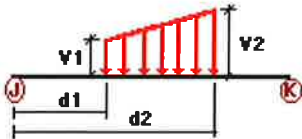
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

### Distributed force on members

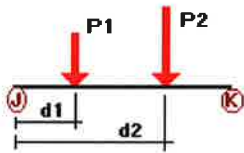


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	2	y	-0.01	-0.01	0.00	No	100.00	Yes
	6	y	-0.01	-0.01	0.00	No	100.00	Yes
	9	y	-0.01	-0.01	0.00	No	100.00	Yes
	10	y	-0.01	-0.01	0.00	No	100.00	Yes
	11	y	-0.01	-0.01	0.00	No	100.00	Yes
	12	y	-0.01	-0.01	0.00	No	100.00	Yes
W0	1	z	-0.022	-0.022	0.00	No	100.00	Yes
	2	z	-0.028	-0.028	0.00	No	100.00	Yes
	4	z	-0.022	-0.022	0.00	No	100.00	Yes
	5	z	-0.022	-0.022	0.00	No	100.00	Yes
	6	z	-0.022	-0.022	0.00	No	100.00	Yes
	9	z	-0.028	-0.028	0.00	No	100.00	Yes
	10	z	-0.022	-0.022	0.00	No	100.00	Yes
	12	z	-0.022	-0.022	0.00	No	100.00	Yes

	33	z	-0.022	-0.022	0.00	No	100.00	Yes
	34	z	-0.028	-0.028	0.00	No	100.00	Yes
	35	z	-0.022	-0.022	0.00	No	100.00	Yes
	36	z	-0.022	-0.022	0.00	No	100.00	Yes
	37	z	-0.022	-0.022	0.00	No	100.00	Yes
	38	z	-0.028	-0.028	0.00	No	100.00	Yes
	39	z	-0.022	-0.022	0.00	No	100.00	Yes
	41	z	-0.022	-0.022	0.00	No	100.00	Yes
	57	z	-0.015	-0.015	0.00	No	100.00	Yes
	58	z	-0.015	-0.015	0.00	No	100.00	Yes
	59	z	-0.015	-0.015	0.00	No	100.00	Yes
	60	z	-0.015	-0.015	0.00	No	100.00	Yes
	61	z	-0.015	-0.015	0.00	No	100.00	Yes
	62	z	-0.015	-0.015	0.00	No	100.00	Yes
	63	z	-0.015	-0.015	0.00	No	100.00	Yes
	64	z	-0.015	-0.015	0.00	No	100.00	Yes
	69	z	-0.015	-0.015	0.00	No	100.00	Yes
	70	z	-0.015	-0.015	0.00	No	100.00	Yes
	71	z	-0.015	-0.015	0.00	No	100.00	Yes
W30	1	x	-0.022	-0.022	0.00	No	100.00	Yes
	2	x	-0.028	-0.028	0.00	No	100.00	Yes
	4	x	-0.022	-0.022	0.00	No	100.00	Yes
	6	x	-0.022	-0.022	0.00	No	100.00	Yes
	9	x	-0.028	-0.028	0.00	No	100.00	Yes
	10	x	-0.022	-0.022	0.00	No	100.00	Yes
	11	x	-0.028	-0.028	0.00	No	100.00	Yes
	33	x	-0.022	-0.022	0.00	No	100.00	Yes
	34	x	-0.028	-0.028	0.00	No	100.00	Yes
	35	x	-0.022	-0.022	0.00	No	100.00	Yes
	37	x	-0.022	-0.022	0.00	No	100.00	Yes
	38	x	-0.028	-0.028	0.00	No	100.00	Yes
	39	x	-0.022	-0.022	0.00	No	100.00	Yes
	40	x	-0.028	-0.028	0.00	No	100.00	Yes
	57	x	-0.015	-0.015	0.00	No	100.00	Yes
	58	x	-0.015	-0.015	0.00	No	100.00	Yes
	59	x	-0.015	-0.015	0.00	No	100.00	Yes
	60	x	-0.015	-0.015	0.00	No	100.00	Yes
	65	x	-0.015	-0.015	0.00	No	100.00	Yes
	66	x	-0.015	-0.015	0.00	No	100.00	Yes
	67	x	-0.015	-0.015	0.00	No	100.00	Yes
	68	x	-0.015	-0.015	0.00	No	100.00	Yes
	69	x	-0.015	-0.015	0.00	No	100.00	Yes
	70	x	-0.015	-0.015	0.00	No	100.00	Yes
	71	x	-0.015	-0.015	0.00	No	100.00	Yes
Di	1	y	-0.007	-0.007	0.00	No	100.00	Yes
	2	y	-0.008	-0.008	0.00	No	100.00	Yes
	4	y	-0.007	-0.007	0.00	No	100.00	Yes
	5	y	-0.007	-0.007	0.00	No	100.00	Yes
	6	y	-0.007	-0.007	0.00	No	100.00	Yes
	9	y	-0.008	-0.008	0.00	No	100.00	Yes
	10	y	-0.007	-0.007	0.00	No	100.00	Yes
	11	y	-0.008	-0.008	0.00	No	100.00	Yes
	12	y	-0.007	-0.007	0.00	No	100.00	Yes
	33	y	-0.007	-0.007	0.00	No	100.00	Yes
	34	y	-0.008	-0.008	0.00	No	100.00	Yes
	35	y	-0.007	-0.007	0.00	No	100.00	Yes
	36	y	-0.007	-0.007	0.00	No	100.00	Yes
	37	y	-0.007	-0.007	0.00	No	100.00	Yes
	38	y	-0.008	-0.008	0.00	No	100.00	Yes
	39	y	-0.007	-0.007	0.00	No	100.00	Yes

40	y	-0.008	-0.008	0.00	No	100.00	Yes
41	y	-0.007	-0.007	0.00	No	100.00	Yes
57	y	-0.005	-0.005	0.00	No	100.00	Yes
58	y	-0.005	-0.005	0.00	No	100.00	Yes
59	y	-0.005	-0.005	0.00	No	100.00	Yes
60	y	-0.005	-0.005	0.00	No	100.00	Yes
61	y	-0.005	-0.005	0.00	No	100.00	Yes
62	y	-0.005	-0.005	0.00	No	100.00	Yes
63	y	-0.005	-0.005	0.00	No	100.00	Yes
64	y	-0.005	-0.005	0.00	No	100.00	Yes
65	y	-0.005	-0.005	0.00	No	100.00	Yes
66	y	-0.005	-0.005	0.00	No	100.00	Yes
67	y	-0.005	-0.005	0.00	No	100.00	Yes
68	y	-0.005	-0.005	0.00	No	100.00	Yes
69	y	-0.005	-0.005	0.00	No	100.00	Yes
70	y	-0.005	-0.005	0.00	No	100.00	Yes
71	y	-0.005	-0.005	0.00	No	100.00	Yes

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	57	y	-0.019	2.50	No
		y	-0.019	5.50	No
		y	-0.02	4.50	No
	58	y	-0.017	2.50	No
		y	-0.017	5.50	No
		y	-0.06	4.50	No
	59	y	-0.017	2.50	No
		y	-0.017	5.50	No
		y	-0.06	4.50	No
	60	y	-0.034	2.50	No
		y	-0.034	5.50	No
		y	-0.025	1.50	No
	61	y	-0.025	6.50	No
		y	-0.02	4.50	No
		y	-0.026	1.50	No
	62	y	-0.026	6.50	No
		y	-0.06	4.50	No
		y	-0.026	1.50	No
	63	y	-0.026	6.50	No
		y	-0.06	4.50	No
		y	-0.04	1.50	No
	64	y	-0.04	6.50	No
		y	-0.031	0.50	No
		y	-0.031	7.50	No
	65	y	-0.02	4.50	No
		y	-0.034	0.50	No
		y	-0.034	7.50	No
	66	y	-0.06	4.50	No

	67	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	4.50	No
	68	y	-0.048	0.50	No
		y	-0.048	7.50	No
	69	y	-0.073	4.50	No
		y	-0.058	3.00	No
		y	-0.022	2.50	No
		y	-0.033	1.00	No
	70	y	-0.073	4.50	No
		y	-0.058	3.00	No
		y	-0.022	2.50	No
		y	-0.033	1.00	No
	71	y	-0.073	4.50	No
		y	-0.058	3.00	No
		y	-0.022	2.50	No
		y	-0.033	1.00	No
W0	57	z	-0.106	2.50	No
		z	-0.106	5.50	No
		z	-0.032	4.50	No
	58	z	-0.139	2.50	No
		z	-0.139	5.50	No
		z	-0.111	4.50	No
	59	z	-0.139	2.50	No
		z	-0.139	5.50	No
		z	-0.083	4.50	No
	60	z	-0.148	2.50	No
		z	-0.148	5.50	No
	61	z	-0.172	1.50	No
		z	-0.172	6.50	No
		z	-0.032	4.50	No
	62	z	-0.206	1.50	No
		z	-0.206	6.50	No
		z	-0.111	4.50	No
	63	z	-0.206	1.50	No
		z	-0.206	6.50	No
		z	-0.083	4.50	No
	64	z	-0.232	1.50	No
		z	-0.232	6.50	No
	65	z	-0.359	0.50	No
		z	-0.359	7.50	No
	66	z	-0.407	0.50	No
		z	-0.407	7.50	No
		z	-0.013	4.50	No
	67	z	-0.407	0.50	No
		z	-0.407	7.50	No
		z	-0.019	4.50	No
	68	z	-0.56	0.50	No
		z	-0.56	7.50	No
	69	z	-0.097	4.50	No
		z	-0.168	3.00	No
		z	-0.056	2.50	No
		z	-0.071	1.00	No
	70	z	-0.097	4.50	No
		z	-0.168	3.00	No
		z	-0.056	2.50	No
		z	-0.071	1.00	No
	71	z	-0.081	4.50	No
		z	-0.08	3.00	No
		z	-0.13	2.50	No

W30	57	z	-0.071	1.00	No
		x	-0.14	2.50	No
		x	-0.14	5.50	No
	58	x	-0.052	4.50	No
		x	-0.171	2.50	No
		x	-0.171	5.50	No
	59	x	-0.095	4.50	No
		x	-0.171	2.50	No
		x	-0.171	5.50	No
	60	x	-0.067	4.50	No
		x	-0.222	2.50	No
		x	-0.222	5.50	No
	61	x	-0.225	1.50	No
		x	-0.225	6.50	No
		x	-0.052	4.50	No
	62	x	-0.27	1.50	No
		x	-0.27	6.50	No
		x	-0.095	4.50	No
	63	x	-0.27	1.50	No
		x	-0.27	6.50	No
		x	-0.067	4.50	No
	64	x	-0.343	1.50	No
		x	-0.343	6.50	No
		x	-0.241	0.50	No
	65	x	-0.241	7.50	No
		x	-0.021	4.50	No
		x	-0.236	0.50	No
	66	x	-0.236	7.50	No
		x	-0.104	4.50	No
		x	-0.236	0.50	No
	67	x	-0.236	7.50	No
		x	-0.078	4.50	No
		x	-0.255	0.50	No
	68	x	-0.255	7.50	No
		x	-0.086	4.50	No
		x	-0.11	3.00	No
69	x	-0.105	2.50	No	
	x	-0.071	1.00	No	
	x	-0.086	4.50	No	
70	x	-0.11	3.00	No	
	x	-0.105	2.50	No	
	x	-0.071	1.00	No	
71	x	-0.103	4.50	No	
	x	-0.197	3.00	No	
	x	-0.032	2.50	No	
Di	57	x	-0.071	1.00	No
		y	-0.041	2.50	No
		y	-0.041	5.50	No
58	y	-0.017	4.50	No	
	y	-0.05	2.50	No	
	y	-0.05	5.50	No	
59	y	-0.05	4.50	No	
	y	-0.05	2.50	No	
	y	-0.05	5.50	No	
60	y	-0.037	4.50	No	
	y	-0.067	2.50	No	
	y	-0.067	5.50	No	
61	y	-0.062	1.50	No	
	y	-0.062	6.50	No	
	y	-0.017	4.50	No	

	62	y	-0.077	1.50	No
		y	-0.077	6.50	No
		y	-0.05	4.50	No
	63	y	-0.077	1.50	No
		y	-0.077	6.50	No
		y	-0.037	4.50	No
	64	y	-0.10	1.50	No
		y	-0.10	6.50	No
	65	y	-0.087	0.50	No
		y	-0.087	7.50	No
		y	-0.017	4.50	No
	66	y	-0.098	0.50	No
		y	-0.098	7.50	No
		y	-0.05	4.50	No
	67	y	-0.098	0.50	No
		y	-0.098	7.50	No
		y	-0.037	4.50	No
	68	y	-0.134	0.50	No
		y	-0.134	7.50	No
	69	y	-0.032	4.50	No
		y	-0.052	3.00	No
		y	-0.033	2.50	No
		y	-0.031	1.00	No
	70	y	-0.032	4.50	No
		y	-0.052	3.00	No
		y	-0.033	2.50	No
		y	-0.031	1.00	No
	71	y	-0.032	4.50	No
		y	-0.052	3.00	No
		y	-0.033	2.50	No
		y	-0.031	1.00	No
W10	57	z	-0.02	2.50	No
		z	-0.02	5.50	No
		z	-0.007	4.50	No
	58	z	-0.025	2.50	No
		z	-0.025	5.50	No
		z	-0.021	4.50	No
	59	z	-0.025	2.50	No
		z	-0.025	5.50	No
		z	-0.016	4.50	No
	60	z	-0.026	2.50	No
		z	-0.026	5.50	No
	61	z	-0.031	1.50	No
		z	-0.031	6.50	No
		z	-0.007	4.50	No
	62	z	-0.036	1.50	No
		z	-0.036	6.50	No
		z	-0.021	4.50	No
	63	z	-0.036	1.50	No
		z	-0.036	6.50	No
		z	-0.016	4.50	No
	64	z	-0.039	1.50	No
		z	-0.039	6.50	No
	65	z	-0.061	0.50	No
		z	-0.061	7.50	No
	66	z	-0.067	0.50	No
		z	-0.067	7.50	No
		z	-0.026	4.50	No
	67	z	-0.067	0.50	No
		z	-0.067	7.50	No

		z	-0.007	4.50	No
68		z	-0.088	0.50	No
		z	-0.088	7.50	No
69		z	-0.018	4.50	No
		z	-0.029	3.00	No
		z	-0.012	2.50	No
		z	-0.013	1.00	No
70		z	-0.018	4.50	No
		z	-0.029	3.00	No
		z	-0.012	2.50	No
		z	-0.013	1.00	No
71		z	-0.016	4.50	No
		z	-0.016	3.00	No
		z	-0.024	2.50	No
		z	-0.013	1.00	No
Wi30	57	x	-0.025	2.50	No
		x	-0.025	5.50	No
		x	-0.011	4.50	No
58		x	-0.03	2.50	No
		x	-0.03	5.50	No
		x	-0.017	4.50	No
59		x	-0.03	2.50	No
		x	-0.03	5.50	No
		x	-0.013	4.50	No
60		x	-0.037	2.50	No
		x	-0.037	5.50	No
61		x	-0.038	1.50	No
		x	-0.038	6.50	No
		x	-0.011	4.50	No
62		x	-0.045	1.50	No
		x	-0.045	6.50	No
		x	-0.017	4.50	No
63		x	-0.045	1.50	No
		x	-0.045	6.50	No
		x	-0.013	4.50	No
64		x	-0.055	1.50	No
		x	-0.055	6.50	No
65		x	-0.043	0.50	No
		x	-0.043	7.50	No
		x	-0.006	4.50	No
66		x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.02	4.50	No
67		x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.016	4.50	No
68		x	-0.045	0.50	No
		x	-0.045	7.50	No
69		x	-0.017	4.50	No
		x	-0.021	3.00	No
		x	-0.02	2.50	No
		x	-0.013	1.00	No
70		x	-0.017	4.50	No
		x	-0.021	3.00	No
		x	-0.02	2.50	No
		x	-0.013	1.00	No
71		x	-0.019	4.50	No
		x	-0.034	3.00	No
		x	-0.008	2.50	No
		x	-0.013	1.00	No

WLO	57	z	-0.006	2.50	No
		z	-0.006	5.50	No
		z	-0.002	4.50	No
58	z	-0.007	2.50	No	
	z	-0.007	5.50	No	
	z	-0.005	4.50	No	
59	z	-0.007	2.50	No	
	z	-0.007	5.50	No	
	z	-0.004	4.50	No	
60	z	-0.008	2.50	No	
	z	-0.008	5.50	No	
	z	-0.009	1.50	No	
61	z	-0.009	6.50	No	
	z	-0.002	4.50	No	
	z	-0.002	4.50	No	
62	z	-0.011	1.50	No	
	z	-0.011	6.50	No	
	z	-0.005	4.50	No	
63	z	-0.011	1.50	No	
	z	-0.011	6.50	No	
	z	-0.004	4.50	No	
64	z	-0.012	1.50	No	
	z	-0.012	6.50	No	
	z	-0.018	0.50	No	
65	z	-0.018	7.50	No	
	z	-0.021	0.50	No	
	z	-0.021	7.50	No	
66	z	-0.001	4.50	No	
	z	-0.021	0.50	No	
	z	-0.021	7.50	No	
67	z	-0.001	4.50	No	
	z	-0.028	0.50	No	
	z	-0.028	7.50	No	
68	z	-0.028	7.50	No	
	z	-0.005	4.50	No	
	z	-0.008	3.00	No	
69	z	-0.003	2.50	No	
	z	-0.003	1.00	No	
	z	-0.005	4.50	No	
70	z	-0.008	3.00	No	
	z	-0.003	2.50	No	
	z	-0.003	1.00	No	
71	z	-0.003	1.00	No	
	z	-0.004	4.50	No	
	z	-0.004	3.00	No	
WL30	57	z	-0.006	2.50	No
		x	-0.007	5.50	No
		x	-0.003	4.50	No
58	x	-0.009	2.50	No	
	x	-0.009	5.50	No	
	x	-0.005	4.50	No	
59	x	-0.009	2.50	No	
	x	-0.009	5.50	No	
	x	-0.003	4.50	No	
60	x	-0.011	2.50	No	
	x	-0.011	5.50	No	
	x	-0.012	1.50	No	
61	x	-0.012	6.50	No	
	x	-0.003	4.50	No	
	x	-0.003	4.50	No	
62	x	-0.014	1.50	No	
	x	-0.014	6.50	No	
	x	-0.014	6.50	No	



		x	-0.005	4.50	No
63		x	-0.014	1.50	No
		x	-0.014	6.50	No
		x	-0.003	4.50	No
64		x	-0.017	1.50	No
		x	-0.017	6.50	No
65		x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.001	4.50	No
66		x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.005	4.50	No
67		x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.004	4.50	No
68		x	-0.013	0.50	No
		x	-0.013	7.50	No
69		x	-0.004	4.50	No
		x	-0.005	3.00	No
		x	-0.005	2.50	No
		x	-0.003	1.00	No
70		x	-0.004	4.50	No
		x	-0.005	3.00	No
		x	-0.005	2.50	No
		x	-0.003	1.00	No
71		x	-0.005	4.50	No
		x	-0.01	3.00	No
		x	-0.002	2.50	No
		x	-0.003	1.00	No
LL1	36	y	-0.25	50.00	Yes
LL2	36	y	-0.25	0.00	Yes
LLa1	65	y	-0.25	50.00	Yes
LLa2	66	y	-0.25	50.00	Yes
LLa3	67	y	-0.25	50.00	Yes
LLa4	68	y	-0.25	50.00	Yes

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

## Earthquake (Dynamic analysis only)

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Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00



Current Date: 11/27/2019 9:32 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1269\LTE (4C 5C)\CT1269 (LTE 4C 5C).retx\

## Steel Code Check

Report: Summary - Group by member

**Load conditions to be included in design :**

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+W0
- LC10=1.2DL+Di+W30
- LC11=1.2DL+Di-W0
- LC12=1.2DL+Di-W30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+WL0+1.5LLa1
- LC18=1.2DL+WL30+1.5LLa1
- LC19=1.2DL-WL0+1.5LLa1
- LC20=1.2DL-WL30+1.5LLa1
- LC21=1.2DL+WL0+1.5LLa2
- LC22=1.2DL+WL30+1.5LLa2
- LC23=1.2DL-WL0+1.5LLa2
- LC24=1.2DL-WL30+1.5LLa2
- LC25=1.2DL+WL0+1.5LLa3
- LC26=1.2DL+WL30+1.5LLa3
- LC27=1.2DL-WL0+1.5LLa3
- LC28=1.2DL-WL30+1.5LLa3
- LC29=1.2DL+WL0+1.5LLa4
- LC30=1.2DL+WL30+1.5LLa4
- LC31=1.2DL-WL0+1.5LLa4
- LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>PIPE 2x0.154</b>	<b>57</b>	LC2 at 43.75%	0.16	OK	
		<b>58</b>	LC2 at 43.75%	0.15	OK	
		<b>59</b>	LC2 at 43.75%	0.14	OK	
		<b>60</b>	LC1 at 43.75%	0.16	OK	
		<b>61</b>	LC2 at 41.67%	0.22	OK	
		<b>62</b>	LC2 at 41.67%	0.27	OK	
		<b>63</b>	LC2 at 41.67%	0.27	OK	
		<b>64</b>	LC2 at 41.67%	0.34	OK	
		<b>65</b>	LC1 at 41.67%	0.55	OK	
		<b>66</b>	LC1 at 41.67%	0.62	OK	
		<b>67</b>	LC1 at 41.67%	0.62	OK	
		<b>68</b>	LC1 at 41.67%	<b>0.85</b>	<b>OK</b>	
		<b>69</b>	LC11 at 25.00%	0.19	OK	
		<b>70</b>	LC10 at 25.00%	0.18	OK	
		<b>71</b>	LC9 at 25.00%	0.13	OK	
	<b>PIPE 3x0.216</b>	<b>1</b>	LC9 at 22.32%	0.12	OK	

4	LC11 at 22.32%	0.13	OK
5	LC3 at 21.43%	0.20	OK
6	LC3 at 50.00%	0.26	OK
10	LC2 at 50.00%	0.25	OK
12	LC1 at 50.00%	0.23	OK
33	LC4 at 21.43%	0.18	OK
35	LC4 at 21.43%	0.20	OK
36	LC1 at 21.43%	0.39	OK
37	LC3 at 50.00%	<b>0.54</b>	<b>OK</b>
39	LC3 at 46.88%	0.49	OK
41	LC1 at 50.00%	0.43	OK

**PIPE 4x0.237**

2	LC12 at 0.00%	0.38	OK
9	LC10 at 0.00%	0.35	OK
11	LC10 at 0.00%	0.33	OK
34	LC3 at 0.00%	<b>0.46</b>	<b>OK</b>
38	LC3 at 0.00%	0.42	OK
40	LC4 at 0.00%	0.41	OK

## Geometry data

### GLOSSARY

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

### Nodes

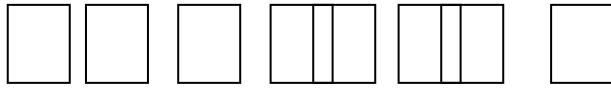
Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
36	-0.5196	0.00	0.30	0
117	-0.5196	3.60	0.30	0
19	0.5196	0.00	0.30	0
109	0.5196	3.60	0.30	0
40	0.00	0.00	-0.60	0
121	0.00	3.60	-0.60	0

### Restraints

Node	TX	TY	TZ	RX	RY	RZ
36	1	1	1	1	1	1
117	1	1	1	1	1	1
19	1	1	1	1	1	1
109	1	1	1	1	1	1
40	1	1	1	1	1	1
121	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	14	13		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	19	20		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
4	26	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
5	30	29		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
6	18	27		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
9	36	35		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
10	37	38		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
11	40	39		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
12	41	42		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
33	107	106		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
34	109	110		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
35	112	111		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
36	115	114		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
37	108	113		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
38	117	116		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
39	118	119		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
40	121	120		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
41	122	123		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
57	158	59		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
58	157	58		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
59	155	56		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
60	156	57		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
61	164	92		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
62	163	89		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
63	161	83		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
64	162	86		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
65	168	104		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	167	101		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	165	95		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	166	98		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	159	65		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
70	154	55		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	160	68		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00





# Radio Frequency Emissions Analysis Report

Site Name: **CT1269**

49 Brainerd Rd  
Niantic, Connecticut 06357

**January 2, 2020**

**Centerline Communications Project Number: 950012-334**

Site Compliance Summary	
Compliance Status:	<b>Compliant</b>
Site total MPE% of FCC general population allowable limit:	<b>5.71%</b>





January 2, 2020

AT&T Mobility – New England  
Attn: John Benedetto, RF Manager  
550 Cochituate Road  
Suite 550 – 13&14  
Framingham, MA 01701

### Emissions Analysis for Site: **CT1269**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility to be located on a **monopole** at **49 Brainerd Rd, Niantic Connecticut 06357** for the purpose of determining whether the emissions from the proposed facility are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 1900 MHz (PCS) and 5 GHz (B46) bands is  $1000 \mu\text{W}/\text{cm}^2$ .



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

Additional details can be found in FCC OET 65.



## CALCULATIONS

Calculations were performed for the proposed facility using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing focused omnidirectional antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. This is a very conservative estimate since the gain reduction in actual applications is typically greater than 10 dB in the direction of ground immediately surrounding the facility. Real world emissions values from this facility are expected to be lower than values listed in this report at ground level. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

Antenna	Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
ATT A1	LTE	850	1	40
ATT A2	LTE	2300	4	25
ATT A3	LTE	700	2	40
ATT A3	LTE	1900	4	40
ATT A4	LTE	700	2	40
ATT A4	LTE	850	1	40
ATT A4	LTE	850	1	40
ATT B1	LTE	850	1	40
ATT B2	LTE	2300	4	25
ATT B3	LTE	700	2	40
ATT B3	LTE	1900	4	40
ATT B4	LTE	700	2	40
ATT B4	LTE	850	1	40
ATT B4	LTE	850	1	40
ATT C1	LTE	850	1	40
ATT C2	LTE	2300	4	25
ATT C3	LTE	700	2	40
ATT C3	LTE	1900	4	40
ATT C4	LTE	700	2	40
ATT C4	LTE	850	1	40

ATT C4	LTE	850	1	40
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*Table 1: Channel Data Table*



The following antennas listed in *Table 2* were used in the modeling for transmission in the 1900 MHz (PCS), 2100 MHz (AWS) and 5 GHz (Band 46) frequency bands. This is based on information from the carrier with regard to anticipated antenna selection. Maximum gain values for all antennas are listed in the AT&T Antenna Inventory & Power Levels table (*Table 3*) below in the Results section. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	KMW AM-X-CD-14-65-00T	170
A	2	Andrew SBNHH-1D65A	170
A	3	Andrew SBNHH-1D65A	170
A	4	CCI DMP65R-BU4DA	170
B	5	KMW AM-X-CD-14-65-00T	170
B	6	Andrew SBNHH-1D65A	170
B	7	Andrew SBNHH-1D65A	170
B	8	CCI DMP65R-BU4DA	170
C	9	KMW AM-X-CD-14-65-00T	170
C	10	Andrew SBNHH-1D65A	170
C	11	Andrew SBNHH-1D65A	170
C	12	CCI DMP65R-BU4DA	170

*Table 2: Antenna Data*

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



## RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Antenna Height (ft)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
ATT A1	KMW AM-X-CD-14-65-00T	850	12.9	170	1	40	779.94	0.1711%
ATT A2	Andrew SBNHH-1D65A	2300	15.35	170	4	25	3427.68	0.4264%
ATT A3	Andrew SBNHH-1D65A	700	11.25	170	2	40	1066.82	0.2842%
ATT A3	Andrew SBNHH-1D65A	1900	14.55	170	4	40	4561.63	0.5675%
ATT A4	CCI DMP65R-BU4DA	700	10.55	170	2	40	908.01	0.2419%
ATT A4	CCI DMP65R-BU4DA	850	10.85	170	1	40	486.47	0.1067%
ATT A4	CCI DMP65R-BU4DA	850	10.85	170	1	40	486.47	0.1067%
ATT B1	KMW AM-X-CD-14-65-00T	850	12.9	170	1	40	779.94	0.1711%
ATT B2	Andrew SBNHH-1D65A	2300	15.35	170	4	25	3427.68	0.4264%
ATT B3	Andrew SBNHH-1D65A	700	11.25	170	2	40	1066.82	0.2842%
ATT B3	Andrew SBNHH-1D65A	1900	14.55	170	4	40	4561.63	0.5675%
ATT B4	CCI DMP65R-BU4DA	700	10.55	170	2	40	908.01	0.2419%
ATT B4	CCI DMP65R-BU4DA	850	10.85	170	1	40	486.47	0.1067%
ATT B4	CCI DMP65R-BU4DA	850	10.85	170	1	40	486.47	0.1067%
ATT C1	KMW AM-X-CD-14-65-00T	850	12.9	170	1	40	779.94	0.1711%
ATT C2	Andrew SBNHH-1D65A	2300	15.35	170	4	25	3427.68	0.4264%
ATT C3	Andrew SBNHH-1D65A	700	11.25	170	2	40	1066.82	0.2842%
ATT C3	Andrew SBNHH-1D65A	1900	14.55	170	4	40	4561.63	0.5675%
ATT C4	CCI DMP65R-BU4DA	700	10.55	170	2	40	908.01	0.2419%
ATT C4	CCI DMP65R-BU4DA	850	10.85	170	1	40	486.47	0.1067%
ATT C4	CCI DMP65R-BU4DA	850	10.85	170	1	40	486.47	0.1067%
Sector A Composite MPE%								<b>5.71 %</b>



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). Since this proposed facility is utilizing an omnidirectional antenna there is only one sector for this site (Sector A).

AT&T Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (PW/cm <sup>2</sup> )	Frequency (MHz)	Allowable MPE (PW/cm <sup>2</sup> )	Calculated % MPE
AT&T 850 MHz	1	779.94	170	0.9702	850 MHz	1000	0.1711%
AT&T 2300 MHz	4	3427.68	170	4.2640	2300 MHz	1000	0.4264%
AT&T 700 MHz	2	1066.82	170	1.3271	700 MHz	1000	0.2842%
AT&T 1900 MHz	4	4561.63	170	5.6746	1900 MHz	1000	0.5675%
AT&T 700 MHz	2	908.01	170	1.1296	700 MHz	1000	0.2419%
AT&T 850 MHz	1	486.47	170	0.6052	850 MHz	1000	0.1067%
AT&T 850 MHz	1	486.47	170	0.6052	850 MHz	1000	0.1067%
AT&T 850 MHz	1	779.94	170	0.9702	850 MHz	1000	0.1711%
AT&T 2300 MHz	4	3427.68	170	4.2640	2300 MHz	1000	0.4264%
AT&T 700 MHz	2	1066.82	170	1.3271	700 MHz	1000	0.2842%
AT&T 1900 MHz	4	4561.63	170	5.6746	1900 MHz	1000	0.5675%
AT&T 700 MHz	2	908.01	170	1.1296	700 MHz	1000	0.2419%
AT&T 850 MHz	1	486.47	170	0.6052	850 MHz	1000	0.1067%
AT&T 850 MHz	1	486.47	170	0.6052	850 MHz	1000	0.1067%
AT&T 850 MHz	1	779.94	170	0.9702	850 MHz	1000	0.1711%
AT&T 2300 MHz	4	3427.68	170	4.2640	2300 MHz	1000	0.4264%
AT&T 700 MHz	2	1066.82	170	1.3271	700 MHz	1000	0.2842%
AT&T 1900 MHz	4	4561.63	170	5.6746	1900 MHz	1000	0.5675%
AT&T 700 MHz	2	908.01	170	1.1296	700 MHz	1000	0.2419%
AT&T 850 MHz	1	486.47	170	0.6052	850 MHz	1000	0.1067%
AT&T 850 MHz	1	486.47	170	0.6052	850 MHz	1000	0.1067%
						<b>Sector A</b>	<b>5.71%</b>
						<b>Total:</b>	

Table 6: AT&T Maximum Sector MPE Power Values



## Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	5.71%
AT&T Maximum Site Total:	5.71%
Site Total:	<b>5.71%</b>
Site Compliance Status:	<b>Compliant</b>

The anticipated composite MPE value for this site assuming all carriers present is **5.71%** of the allowable FCC established general population limit sampled at the ground level.

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

A handwritten signature in cursive script that reads 'Michelle L. Stone'.

Michelle L. Stone  
RF Compliance Consultant  
**Centerline Communications, LLC**

750 West Center St. Suite 301  
West Bridgewater, MA 02379



# EXHIBIT 6

**DOCKET NO. 396** – SBA Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and management of a telecommunications facility located at 49 Brainerd Road, Niantic (East Lyme), Connecticut.

Connecticut

Siting

Council

March 3, 2011

### Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and management of a telecommunications facility, 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 disproportionate, either alone or cumulatively with other effects, when compared to need, 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 General Statutes § 16-50k, be issued to SBA Towers II, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at the SBA Hybrid Site (i.e. approximately 310 feet to the south of the proposed location) at 49 Brainerd Road, East Lyme, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, managed, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC (AT&T), Cellco Partnership d/b/a Verizon Wireless (Cellco), and other entities, both public and private, but such tower shall not exceed a height of 170 feet above ground level. All commercial wireless telecommunications antennas shall be attached to the tower via T-arms.
2. 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 Connecticut State Agencies. The D&M Plan shall be served on the Town of East Lyme for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
  - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of East Lyme public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of East Lyme. Any proposed modifications to this Decision and Order shall likewise be so served.
9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
10. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.
11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.
12. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.
13. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

14. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.
15. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Day.

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 Connecticut State Agencies.

The parties and intervenors to this proceeding are:

**Applicant**

SBA Towers II LLC

**Its Representative**

Carrie L. Larson, Esq.  
Pullman & Comley, LLC  
90 State House Square  
Hartford, CT 06103-3702

**Intervenor**

Cellco Partnership d/b/a Verizon Wireless

**Its Representative**

Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103-3597

**Intervenor**

Russell L. Brown

**Its Representative**

Russell L. Brown  
41 Brainerd Road  
Niantic, CT 06357

**Party**

Town of East Lyme

**Its Representative**

Edward B. O'Connell, Esq.  
Waller, Smith & Palmer, P.C.  
52 Eugene O'Neill Drive  
P.O. Box 88  
New London, CT 06320

**Intervenor**

New Cingular Wireless PCS, LLC

**Party**

Friends of the Pattagansett Trust

**Intervenor**

Joseph Raia

**Its Representative**

Daniel M. Laub, Esq.  
Christopher B. Fisher, Esq.  
Cuddy & Feder LLP  
445 Hamilton Avenue, 14<sup>th</sup> floor  
White Plain, NY 10601

**Its Representative**

Keith R. Ainsworth, Esq.  
Evans Feldman & Ainsworth, LLC  
261 Bradley Street  
P.O. Box 1694  
New Haven, CT 06507-1694

**Its Representative**

Joseph Raia  
97 West Main Street, Unit 9  
Niantic, CT 06357