



**Centek Engineering, Inc.**  
3-2 North Branford Road  
Branford, Connecticut 06405  
Phone: (203) 488-0580  
Fax: (203) 488-8587

**Steven L. Levine**  
Real Estate Consultant

**HAND DELIVERED**

February 2, 2017

Attorney Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

**Notice of Exempt Modification: Existing Telecommunications Facility at 383 Torrington Road, Litchfield**

Dear Ms. Bachman:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, copies of this letter are being sent to the chief elected official and the Planning & Zoning Department of the municipality in which the affected cell site is located, the property owner of record, and the tower owner or operator.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

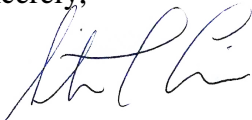
The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical and environmental characteristics of the site will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will not increase.
2. The proposed changes will not extend the site boundaries.
3. The proposed changes will not increase the noise level at the site boundary by six decibels or more, or to levels that exceed state and local criteria.
4. The changes will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The proposed equipment changes will not impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

For the foregoing reasons, AT&T respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 830-0380 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Steven L. Levine  
Real Estate Consultant

cc: Chief Elected Official, Town of Litchfield (by email)  
Planning & Zoning Department, Town of Litchfield (by email)  
Property Owner of Record – Old Toll Gate Hill, LLC  
Tower Owner / Operator – SBA (by email)

Attachments

**NEW CINGULAR WIRELESS PCS, LLC**  
**Equipment Modification**

383 Torrington Road, Litchfield  
Geographic Coordinates: N 41-45-58.6 W 73-10-42.7  
Site Number 1131  
Prior Decisions: Docket 299; Exempt Mods 11/12 and 10/14

**Tower Owner/Manager:** SBA

**Land Owner of Record:** Old Toll Gate Hill, LLC

Please see the attached Litchfield Assessor's card for Parcel 126 / 36 / 91. The attached property description from Siting Council Docket 299 identified the property as being Parcel 126 / 36 / 91; and the attached Docket 299 D&M Comprehensive Site Plan shows the boundaries of the corresponding property.

**Original Permitting:** The Torrington Road facility was approved by the Council under Docket 299 in 2005. (See the attached Decision and Order.) AT&T's present Notice contains no proposed modifications that would violate the conditions of approval.

**Lease Area:** The attached Comprehensive Site Plan excerpt from the Docket 299 D&M Plan shows the lease area, fenced compound, tower and equipment building layout approved in 2005. Between 2007 and 2012, the fenced compound was extended approximately 15 feet to the southeast for installation of a propane tank; the site's lease line was not exceeded thereby. Ownership of the tank is unclear, but it was not installed by AT&T, nor does it belong to AT&T; we do not have a generator at the site. Since all proposed modifications will occur either on the existing tower structure or within AT&T's existing equipment shelter, the proposed modifications will not extend either AT&T's lease area or the existing overall site boundaries.

**Equipment Configuration:** 139-ft Monopole (140 ft maximum height per Docket 299)

**Current and/or Approved:** T-mounts @ 118 ft  
Six PowerWave 7770 antennas @ 118 ft c.l.  
One KMW AM-X-CD-14-65-00T-RET antennas @ 118 ft c.l.  
One KMW AM-X-CD-16-65-00T-RET antennas @ 118 ft c.l.  
One Kathrein 800-10764V01 antenna @ 118 ft c.l.  
Six PowerWave TMA's @ 118 ft  
One surge arrestor @ 118 ft  
Six Ericsson RRUS-11 remote radio heads @ 118 ft  
Twelve lines 1 5/8 inch coax  
One fiber and two DC cables  
Equipment shelter

**Proposed Modifications:** Remove three Ericsson RRUS-11 remote radio heads.  
Install three Ericsson RRUS-12 remote radio heads @ 118 ft.

**Power Density:**

Worst-case calculations with 10 dB reduction for existing wireless operations at the site indicate a radio frequency electromagnetic radiation power density, measured at six feet above ground level beside the tower, of approximately 7.7 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 8.5 % of the standard.

**Existing**

Carrier & Technology	Frequency (MHz)	Antennas (Total for All Sectors)	Centerline Ht (feet)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users *								5.15
AT&T LTE *	734		118	1	1313	0.0376	0.4893	0.77
AT&T UMTS *	880		118	2	565	0.0324	0.5867	0.55
AT&T UMTS *	1900		118	2	875	0.0502	1.0000	0.50
AT&T GSM *	880		118	1	283	0.0081	0.5867	0.14
AT&T GSM *	1900		118	4	525	0.0602	1.0000	0.60
<b>Total</b>								<b>7.71%</b>

\* Per CSC records.

**Proposed**

Carrier & Technology	Frequency (MHz)	Antennas (Total for All Sectors)	Centerline Ht (feet)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users *								5.15
AT&T LTE	740	2 KMW 1 Kathrein	118	1	1476	0.0423	0.4933	0.86
AT&T LTE	1900	2 KMW 1 Kathrein	118	2	3664	0.2101	1.0000	2.10
AT&T UMTS	880	3 PowerWave	118	1	305	0.0087	0.5867	0.15
AT&T UMTS	1900	3 PowerWave	118	1	402	0.0115	1.0000	0.12
AT&T GSM	880	3 PowerWave	118	1	305	0.0087	0.5867	0.15
<b>Total</b>								<b>8.52%</b>

\* Per CSC records.

**Structural information:**

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed equipment modifications. (Tower Engineering Solutions, 1-26-17)

**383 TORRINGTON RD**

**Assessor Card**

**Location** 383 TORRINGTON RD

**Mblu** 126/ 36/ 91/ /

**Acct#** 002199

**Owner** OLD TOLL GATE HILL LLC

**Assessment** \$1,074,590

**PID** 300

**Building Count** 5

**Current Value**

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$848,450	\$226,140	\$1,074,590

**Owner of Record**

**Owner** OLD TOLL GATE HILL LLC  
**Co-Owner** C/O WM PERSSONATTI

**Sale Price** \$0  
**Certificate**  
**Book & Page** 234/ 333  
**Sale Date** 11/13/1996  
**Instrument** 25

**Ownership History**

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
OLD TOLL GATE HILL LLC	\$0		234/ 333	25	11/13/1996
BOLUS,ANGELA M			225/ 1159		02/09/1995
BOLUS ANGELA M			164/ 267		01/18/1979

**Building Information**

**Building 5 : Section 1**

**Year Built:** 2008  
**Living Area:** 580  
**Replacement Cost:** \$45,362  
**Building Percent Good:** 96  
**Replacement Cost Less Depreciation:** \$43,550

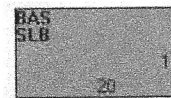
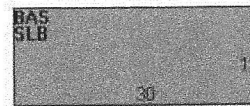
**Building Photo**



(<http://images.vgsi.com/photos/LitchfieldCTPhotos//00\01\02\25.jpg>)

Building Attributes : Bldg 5 of 5	
Field	Description
STYLE	Commercial
MODEL	Comm/Ind
Grade	C
Stories	1
Occupancy	0
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
Central Air	None
Sprinkler %	0
Bldg Use	Commercial
Total Rooms	0
Full Baths	0
Half Baths	0
Extra Fixtures	0
Total Fixtures	0
1st Floor Use	
Heat/AC	None
Frame Type	Reinf. Concr
Baths/Plumbing	Average
Common Wall	0
Wall Height	10
Perimeter	146

**Building Layout**



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	580	580
SLB	Slab	580	0
		1160	580

# Excerpt from Docket 299 Application Site Description

Application, only a copy of the cover letters and the radio-frequency engineering report have been included under Tab 9.

The Town has not yet provided Sprint with comments on the 60-day notice.

## SECTION 4. THE SITE

### A. LOCATION & LAND USE

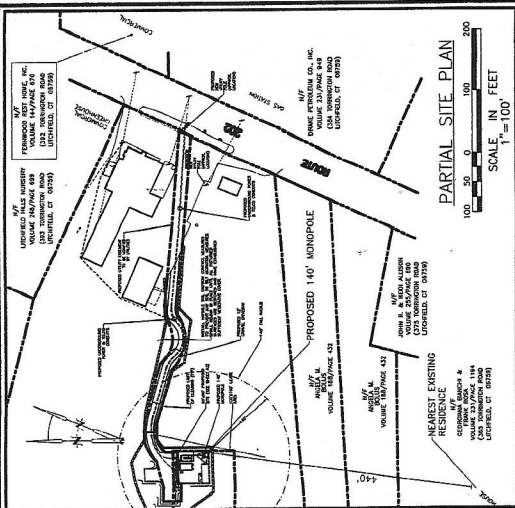
The Facility is located on a 6.7-acre parcel at 383 Torrington Road (Route 202) in Litchfield (Parcel Identification Number 126-036-091). Litchfield Center is approximately 1.4 miles to the southwest. The parcel is commercially developed and currently occupied by Renaissance of Litchfield (art studio), a landscape company, Natural Foods of Litchfield (natural food store) and a barn. Land use in the general vicinity of the Site is comprised of both commercial and residential parcels with several small tracts of undeveloped, forested land. The subject parcel is zoned R-80 (Residence Zone). Topography in the area is generally characterized by rolling hills that range in elevation from approximately 750 feet above mean sea level ("AMSL") to 1300 feet AMSL. A site plan is included under Tab 10.<sup>2</sup>

The Litchfield Zoning Regulations address the Town's requirements for telecommunication facilities and sites in Article V, Section 31 (see page 28). A copy of the Zoning Regulations, Inland Wetlands and Watercourses Regulations and Plan of Development has been included in the original Application under Tab 11 and four copies are being provided bulk filed. The Zoning Regulation state that the purpose of the Town's telecommunication facility regulations are to:

- regulate placement of antennas, towers, and other related facilities in a manner that will protect the Town's visual quality, safeguard the community and:
  - to require information necessary to evaluate a proposed facility;

<sup>2</sup> Four full size site plans have been bulk filed.





**PROPOSED TOWER INFORMATION**

PROPOSED LOCATION (CENTER OF TOWER)  
 GEODETIC NAD 83  
 E 840228  
 S 285934

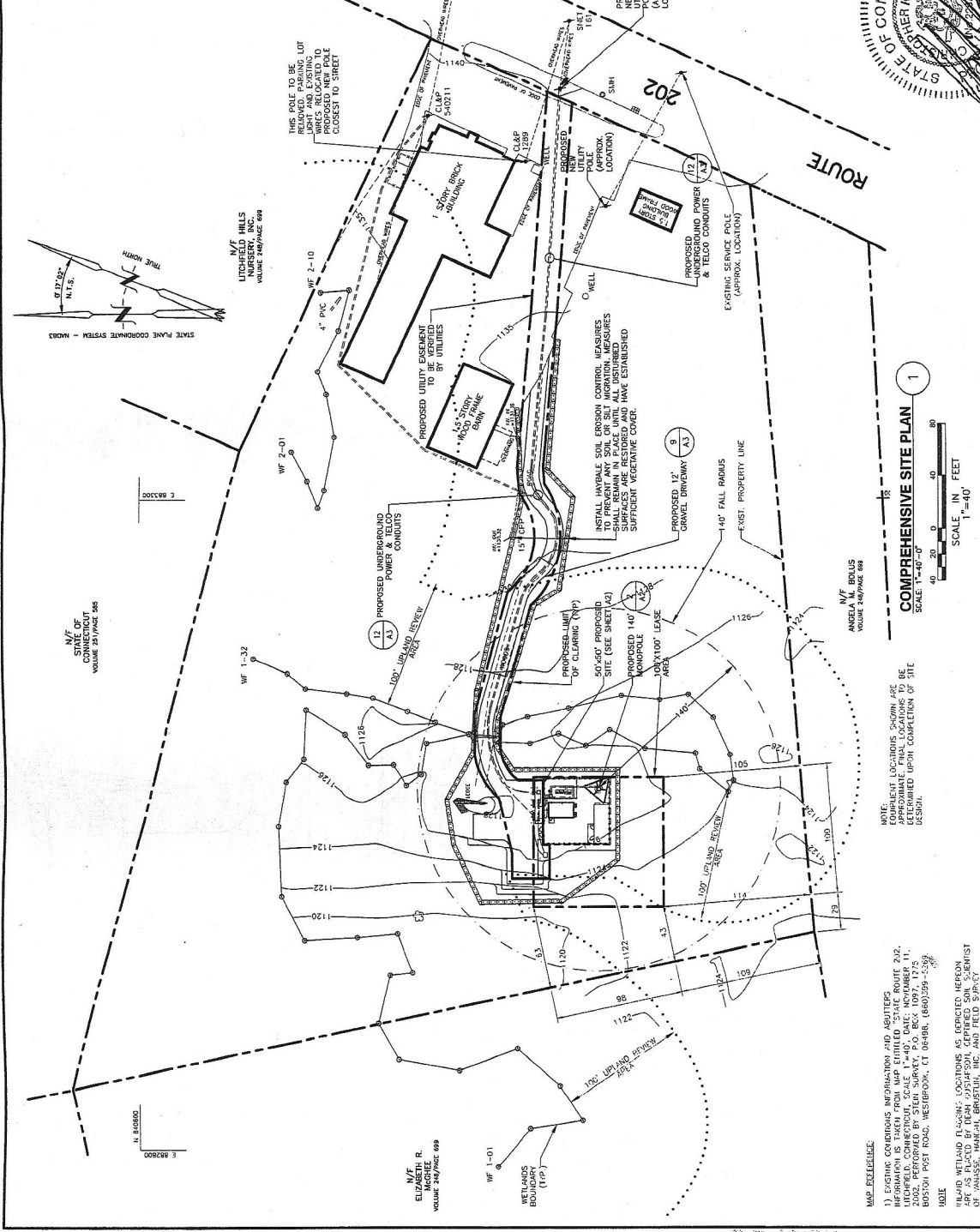
GEODETIC LAT./LONG. NAD 83  
 LAT=41°45'36.82" N  
 LONG=73°10'42.70" W

PROPOSED TOWER BASE ELEVATION 1127.3 HANDB  
 PROPOSED HIGHEST TOWER ANTENNA ELEVATION 1137.3 HANDB

**LEGEND:**

- UTILITY POLE
- WETLAND 11-25 AND LIMIT
- LIMIT OF UPWARD REVIEW AREA
- SWH SERVICE MANHOLE
- ▢ CURBED CATCH BASIN
- N/F NOW OR FORTHCOMING
- OH OVERHEAD WIRES
- X CHAIR LINK FENCE
- CHD CONNECTICUT HIGHWAY DEPARTMENT
- HT'S HOT TO SCALE
- PVC POLYETHYLENE GLYCOL
- 1127 EXISTING CONDUITS
- 1122 EXISTING CONDUITS
- ▨ LEASE
- HAY BALE
- - - PROPERTY / STREET LINE

NOTE: ALL AND TELCO ROUTING SHOWN IS PROPOSED. FINAL ROUTING SHALL BE APPROVED BY TELEPHONE AND POWER COMPANIES.



**COMPREHENSIVE SITE PLAN**  
 SCALE 1"=40'-0"

NOTE: EQUIPMENT LOCATIONS SHOWN ARE BEING OBTAINED UPON COMPLETION OF SITE DESIGN.

MAP REFERENCE:  
 EXISTING CONDUITS INFORMATION AND UTILITIES INFORMATION FROM MAP ENTITLED "STATE ROUTE 202, LITCHFIELD, CONNECTICUT, SCALE 1"=40', DATE: NOVEMBER 11, 2002, PERFORMED BY STEVE SURVEY, P.E., REG. NO. 10974, 1775 BOSTON POST ROAD, WESTPORT, CT 06894, (860)559-5000

INDEX  
 HILAND WETLAND (LWS) LOCATIONS AS DEPICTED HEREON ARE THE RESULT OF A VISUAL INSPECTION PERFORMED BY ANGLA M. BOLIS, INC. AND FIELD SURVEY CONDUCTED BY STEVE SURVEY.

<b>Sprint PCS</b>		COMPREHENSIVE SITE PLAN	
3139-05	YUS02A1	DATE	02/2
Sprint Spectrum LP		HARRITFORD, LITCHFIELD, CONNECTICUT 06759	
LITCHFIELD		383 TOWNSHIP ROAD	
LITCHFIELD, CONNECTICUT 06759		7133X0597	
Sprint Spectrum LP		HARRITFORD, LITCHFIELD, CONNECTICUT 06759	
LITCHFIELD		383 TOWNSHIP ROAD	
LITCHFIELD, CONNECTICUT 06759		7133X0597	
Dewberry		Engineers Planners Surveyors	
Dewberry-Goodkind, Inc.		35 ELM STREET NEW HAVEN, CT 06510 203.785.0770 PHONE 203.785.0800 FAX	

**Docket 299 D&M Plan Excerpt  
 Property Map and Site Plan**

# Excerpt from Docket 299 Decision & Order

**DOCKET NO. 299** – Sprint Spectrum, L.P. application for a } Connecticut  
Certificate of Environmental Compatibility and Public Need for }  
the construction, maintenance and operation of a } Siting  
telecommunications facility at 383 Torrington Road in Litchfield, } Council  
Connecticut. }

August 24, 2005

## 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, operation, and maintenance 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 Sprint Spectrum, L.P. for the construction, maintenance and operation of a wireless telecommunications facility to be located at 383 Torrington Road, in Litchfield, Connecticut.

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

1. The tower shall be designed as a monopole and shall be constructed no taller than 140 feet above ground level to provide telecommunications services to both public and private entities.
2. The Certificate Holder, in developing the facility, shall incorporate wetlands mitigation measures that shall include, but not be limited to, the installation of a small culvert underneath the proposed access road to hydraulically connect the wetlands separated by the access road and the inclusion of wildlife planting consisting of native shrubs and a wildlife conservation seed mix that would be planted in areas disturbed around the proposed facility and access road.
3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Litchfield 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 mountings, equipment building, access road, utility line, and landscaping; and

- b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of 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 electromagnetic radio frequency power density is submitted to the Council in the event other carriers locate at this facility or if circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
5. 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.
6. 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.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
8. If the facility authorized herein is not fully constructed and providing wireless services 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.
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 antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
11. Any request for extension of the time periods referred to in Conditions 8 and 9 shall be filed with the Council not later than sixty days prior to the expiration date of this Certificate and shall be served on all parties and intervenors and the Town of Litchfield, as listed in the service list. Any proposed modifications to this Decision and Order shall likewise be so served.

12. 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 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.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Litchfield Enquirer and in the Waterbury Republican-American.

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:

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<b>Applicant</b>	Sprint Spectrum, L.P. d/b/a Sprint PCS	Thomas J. Regan, Esq. Brown Rudnick Berlack Israels LLP CityPlace I, 38 <sup>th</sup> Floor 185 Asylum Street Hartford, CT 06103-3402 (860) 509-6522 (860) 509-6501 – f <a href="mailto:tregan@brbilaw.com">tregan@brbilaw.com</a>
<b>Intervenor (Approved 12/1/04)</b>	Southwestern Bell Mobile Systems, LLC d/b/a Cingular Wireless	Wendell G. Davis, Esq. Blackwell, Davis & Spadaccini, LLC 158 East Center Street Manchester, CT 06040 860-432-0676 860-432-2926 – f <a href="mailto:wdavis@bds-law.com">wdavis@bds-law.com</a>





500 ENTERPRISE DRIVE SUITE 3A  
ROCKY HILL, CT 06067



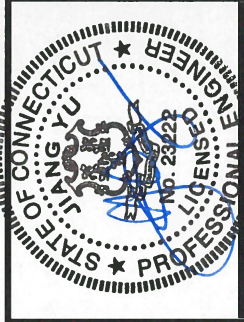
27 NORTHWESTERN DRIVE  
SALEM, NH 03079

**CT1131**  
**LITCHFIELD CT**  
**TORRINGTON ROAD**

CONSTRUCTION DRAWINGS	
0	01/31/17 ISSUED AS FINAL
1	10/10/17 ISSUED FOR REVIEW



**Dewberry Engineers Inc.**  
600 PARSIPPANY ROAD  
SUITE 301  
PARSIPPANY, NJ 07054  
PHONE: 973.739.8400  
FAX: 973.739.8710



CONNECTICUT LICENSE NO. 0023222  
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS  
SPECIFICALLY AUTHORIZED BY THE BOARD OF  
REGISTERED PROFESSIONAL ENGINEERS TO ALTER THIS  
DOCUMENT.

DRAWN BY:	BJR
REVIEWED BY:	DER
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50065677
SITE ADDRESS:	

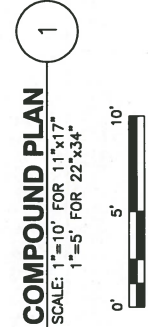
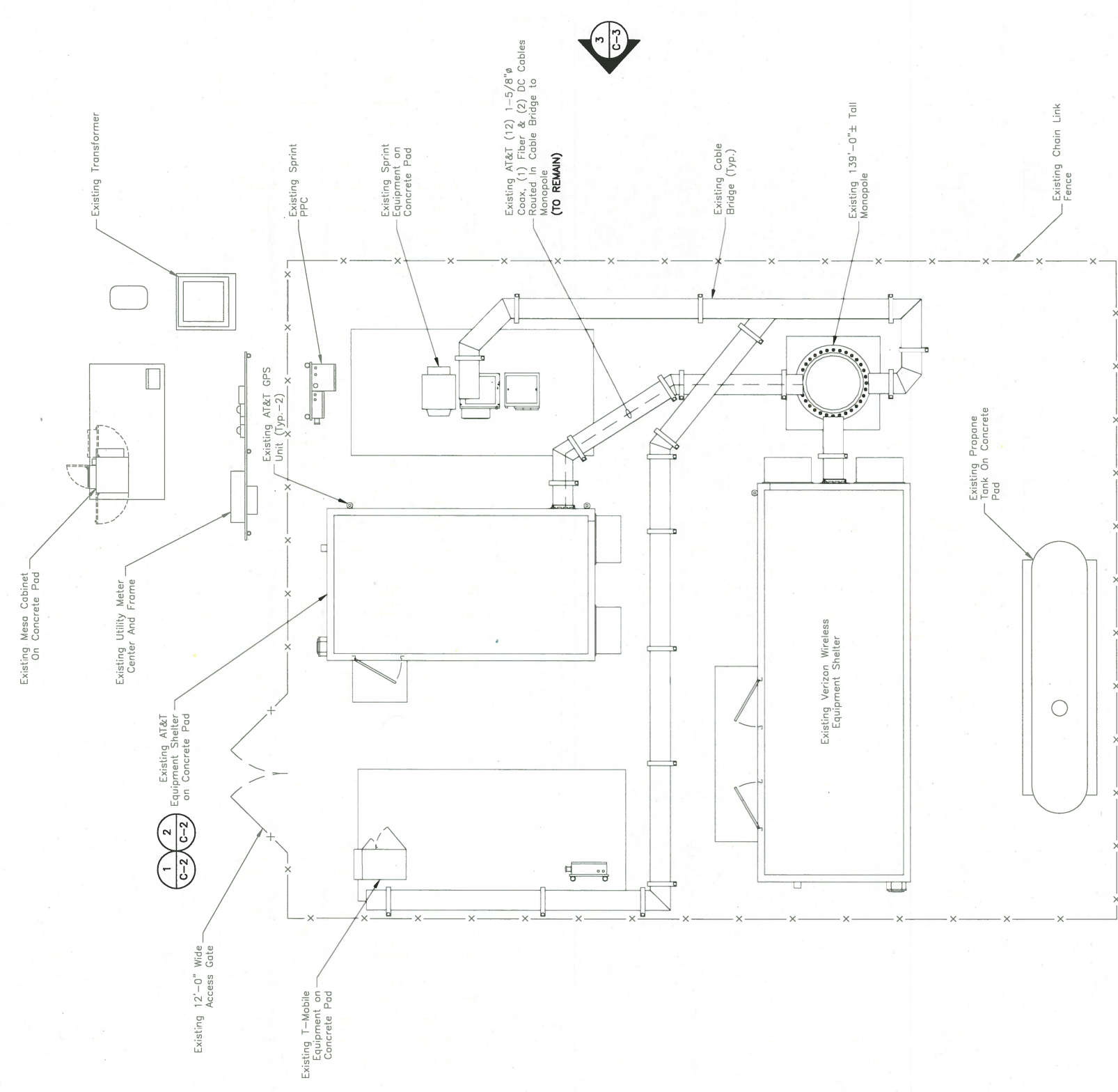
383 TORRINGTON ROAD  
LITCHFIELD, CT 06759  
LITCHFIELD COUNTY

SHEET TITLE

COMPOUND PLAN

SHEET NUMBER

C-1



- NOTES:**
1. NORTH SHOWN AS APPROXIMATE.
  2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
  3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TOWER ENGINEERING SOLUTIONS DATED JANUARY 26, 2017.



500 ENTERPRISE DRIVE SUITE 3A  
ROCKY HILL, CT 06067



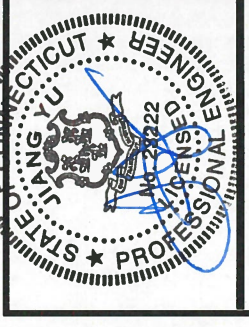
27 NORTHWESTERN DRIVE  
SALEM, NH 03079

**CT1131**  
**LITCHFIELD CT**  
**TORRINGTON ROAD**

CONSTRUCTION DRAWINGS	
0	01/23/17 ISSUED AS FINAL
A	01/10/17 ISSUED FOR REVIEW



**Dewberry Engineers Inc.**  
600 PARSIPPANY ROAD  
SUITE 301  
PARSIPPANY, NJ 07054  
PHONE: 973.739.9400  
FAX: 973.739.9710



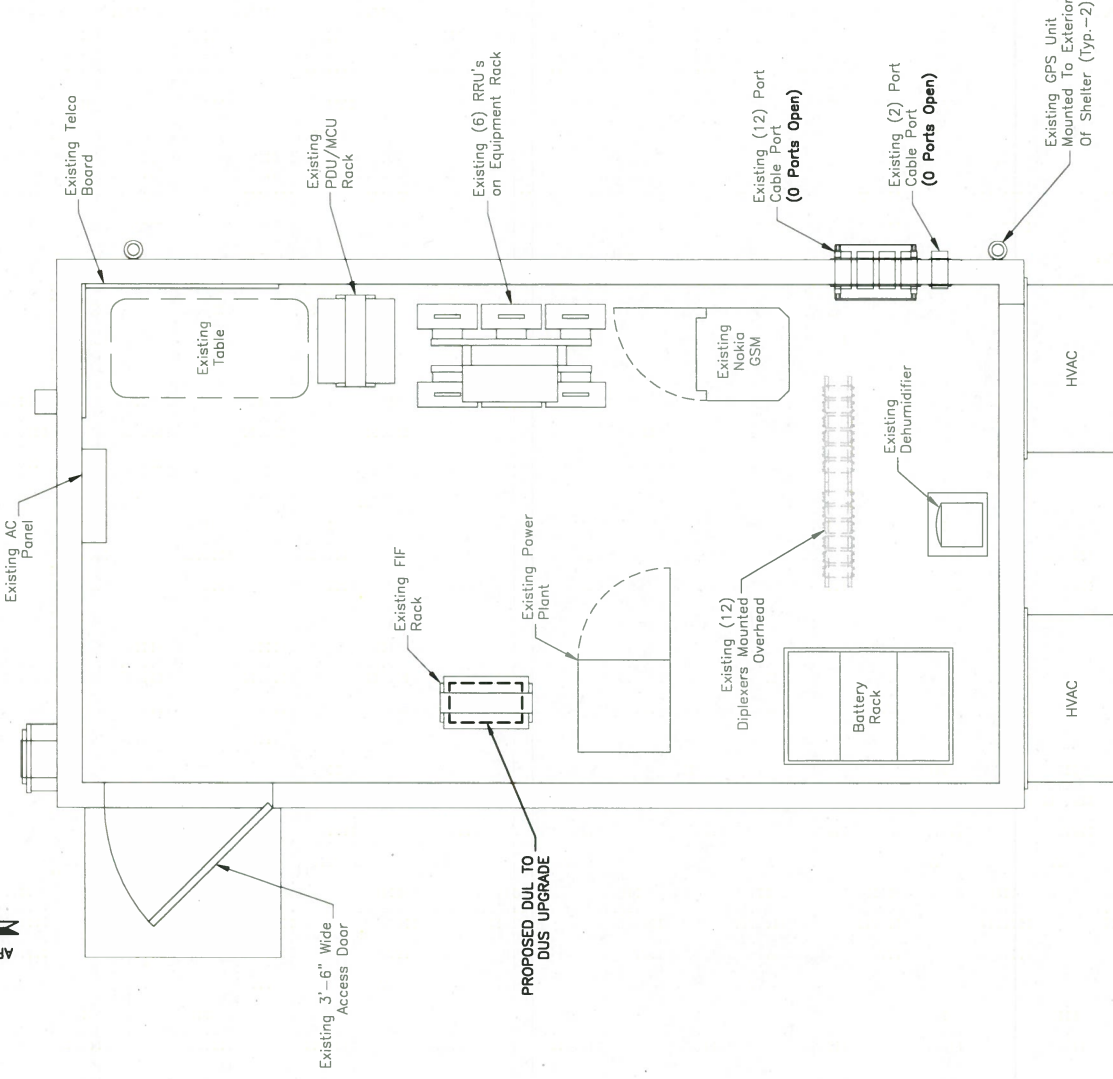
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DRAWN BY:	BJR
REVIEWED BY:	DER
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50065677
SITE ADDRESS:	

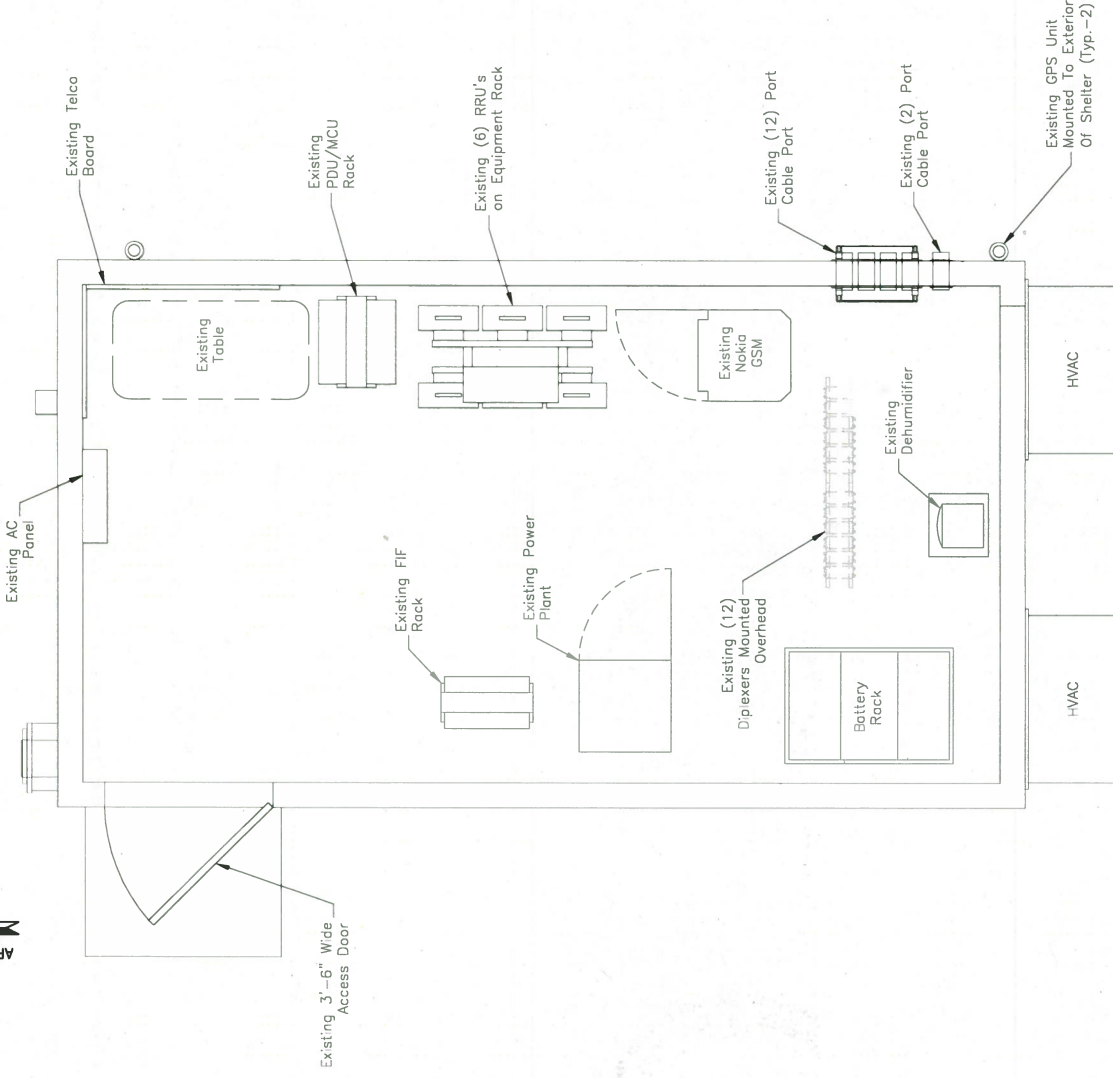
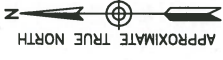
383 TORRINGTON ROAD  
LITCHFIELD, CT 06759  
LITCHFIELD COUNTY

SHEET TITLE	
EXISTING & PROPOSED SHELTER LAYOUTS	
SHEET NUMBER	

C-2



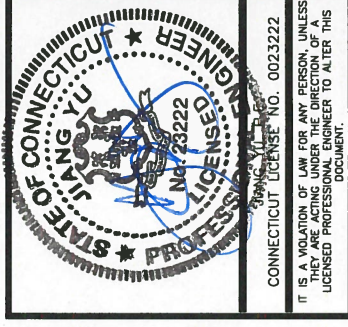
**PROPOSED SHELTER LAYOUT**  
SCALE: 1/4"=1' FOR 11"x17"  
1/2"=1' FOR 22"x34"



**EXISTING SHELTER LAYOUT**  
SCALE: 1/4"=1' FOR 11"x17"  
1/2"=1' FOR 22"x34"

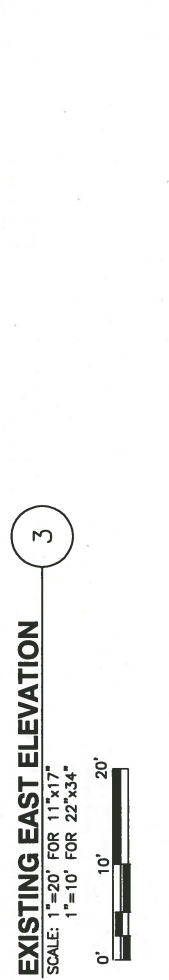
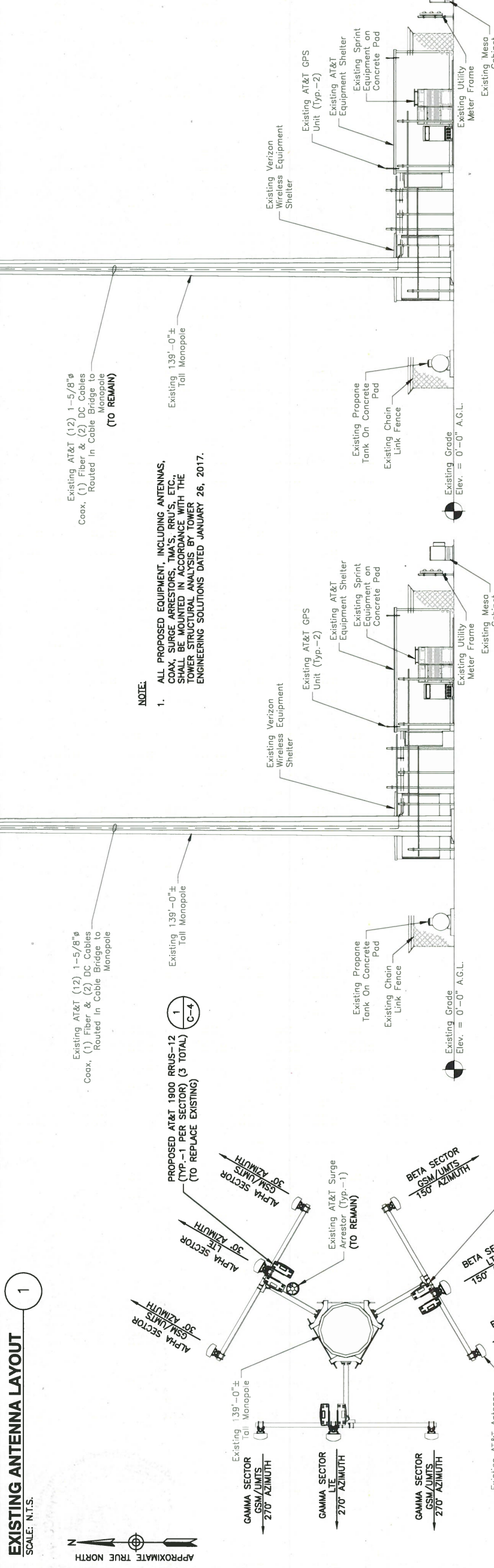
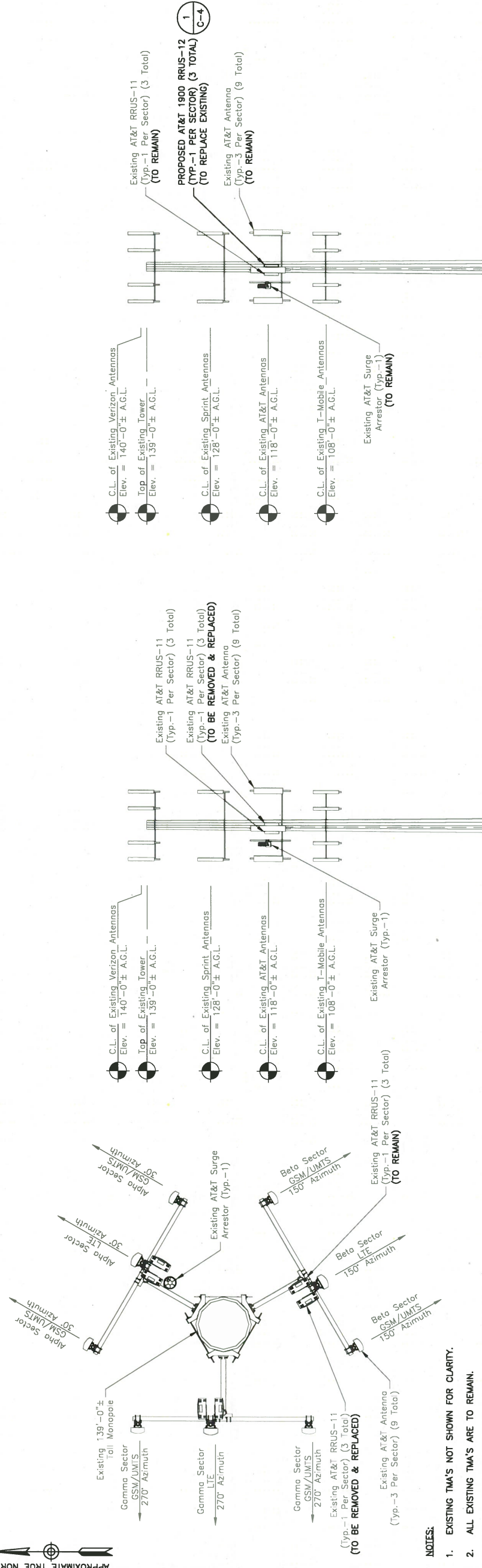


CONSTRUCTION DRAWINGS	
01/31/17	ISSUED AS FINAL
01/10/17	ISSUED FOR REVIEW



DRAWN BY:	BUR
REVIEWED BY:	DER
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50065677
SITE ADDRESS:	383 TORRINGTON ROAD LITCHFIELD, CT 06759 LITCHFIELD COUNTY

SHEET TITLE	ANTENNA LAYOUTS & ELEVATIONS
SHEET NUMBER	C-3



**NOTE:**

- ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRUS'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TOWER ENGINEERING SOLUTIONS DATED JANUARY 26, 2017.

Existing AT&T (12) 1-5/8"φ Coax, (1) Fiber & (2) DC Cables Routed In Cable Bridge to Monopole (TO REMAIN)

Existing AT&T (12) 1-5/8"φ Coax, (1) Fiber & (2) DC Cables Routed In Cable Bridge to Monopole (TO REMAIN)

**EXISTING ANTENNA LAYOUT**  
SCALE: N.T.S.

**PROPOSED ANTENNA LAYOUT**  
SCALE: N.T.S.





**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

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## **Structural Analysis Report**

**Existing 139 ft Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT46123-A**

**Customer Site Name: Litchfield**

**Carrier Name: AT&T**

**Carrier Site ID / Name: CT1131 / Litchfield CT/Torrington Road**

**Site Location: 383 Torrington Rd**

**Litchfield, Connecticut**

**Litchfield County**

**Latitude: 41.766278**

**Longitude: -73.178527**

### **Analysis Result:**

**Max Structural Usage: 53.2% [Pass]**

**Max Foundation Usage: 60.0% [Pass]**

**Report Prepared By : Uma S Atluri**



## Introduction

The purpose of this report is to summarize the analysis results on the 139 ft 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>	FDH, Previous SA, Project # 15BGLG1400, dated 3/19/2015
<b>Foundation Drawing</b>	EEL, Project # 14854, dated 04/08/208
<b>Geotechnical Report</b>	Clarence Welti Associates, Inc., Geo Report, dated 8/19/2005
<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 $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	40 mph (3-Sec. Gust) with 1" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.183$ , $S_1 = 0.065$

## 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
1	140.0	3	Antel BXA-70063/6CF-2 - Panel	(3) T-Arms	(12) 1 5/8"	Verizon
2		6	Antel LPA-80063/4CF - Panel			
3		3	Antel BXA-171063-8BF-2 - Panel			
4		6	RFS FD9R6004/2C-3L Diplexers			
5	127.0	3	RFS APXVSP18-C-A20 - Panel	(3) T-Arms	(4) 1 1/4"	Sprint
6		3	Alcatel Lucent 1900 MHz			
7		3	Alcatel Lucent 800 MHz			
8		3	Alcatel Lucent 800 MHz Filters			
9		4	RFS ACU-A20-N RETs			
10		3	RFS APXVTM14-C-I20 - Panel			
11		3	Alcatel Lucent TD-RRH8x20-25			
-	118.0	1	KMW AM-X-CD-14-65-00T-RET- Panel	(3) T-Arms	(12) 1 5/8" (2) 3/4" DC & (1) 7/16" Fiber In (1) 3" innerduct	AT&T
		1	Andrew AM-X-CD-16-65-00T-RET - Panel			
		6	Powerwave 7770 - Panel			
		1	Kathrein 80010764V01 - Panel			
		18	Powerwave 21401 TMA			
		18	Powerwave LGP13519			
		6	Powerwave 7020 (DB)-RET			
		6	Ericsson RRUS-11-RRU			
		1	Raycap DC6-48-60-18-8F DC Surge			
22	108.0	3	RFS - APX16PV-16VL-E - Panel	Low Profile Platform	(18) 1 5/8"	T-Mobile
23		3	RFS - APXV18-209014 - Panel			
24		3	Andrew - LNX-6515DS - Panel			
25		12	TMA			
26		3	Kathrein 782 11056-Bias-T			

**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
12	119.0	1	KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe - Panel	(3) T-Arms	(12) 1 5/8" (2) 3/4" DC & (1) 7/16" Fiber In (1) 3" Conduit	AT&T
13	118.0	1	KMW AM-X-CW-14-65-00T-RET - Panel			
14		6	Powerwave 7770 - Panel			
15		1	Kathrein 800 10121 - Panel			
16		18	Powerwave 21401 TMA			
17		6	Powerwave 7020.00 RET			
18		3	Ericsson RRU-11-RRU			
19		3	Ericsson RRU-12-RRU			
20		18	Powerwave LGP13519 Diplexer			
21		1	Raycap DC6-48-60-18-8F Surge Arrestor			

All transmission lines are considered running inside of the pole shafts.

## **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>53.2%</b>	<b>47.0%</b>	<b>34.0%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	3021.6	29.2
Analysis Reactions	2369.5	24.0
Factored Reactions*	4079.2	39.4
% of Design Reactions	58.1%	60.9%

\* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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 0.9388 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.

## Structure: CT46123-A-SBA

**Type:** Tapered  
**Site Name:** Litchfield  
**Height:** 139.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.24460

1/26/2017

Page: 2



### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.41	40.43	53.25	0.375		0.24460	65
2	52.42	29.78	42.61	0.375	Slip	0.24460	65
3	44.50	20.50	31.39	0.250	Slip	0.24460	65

### Discrete Appurtenances

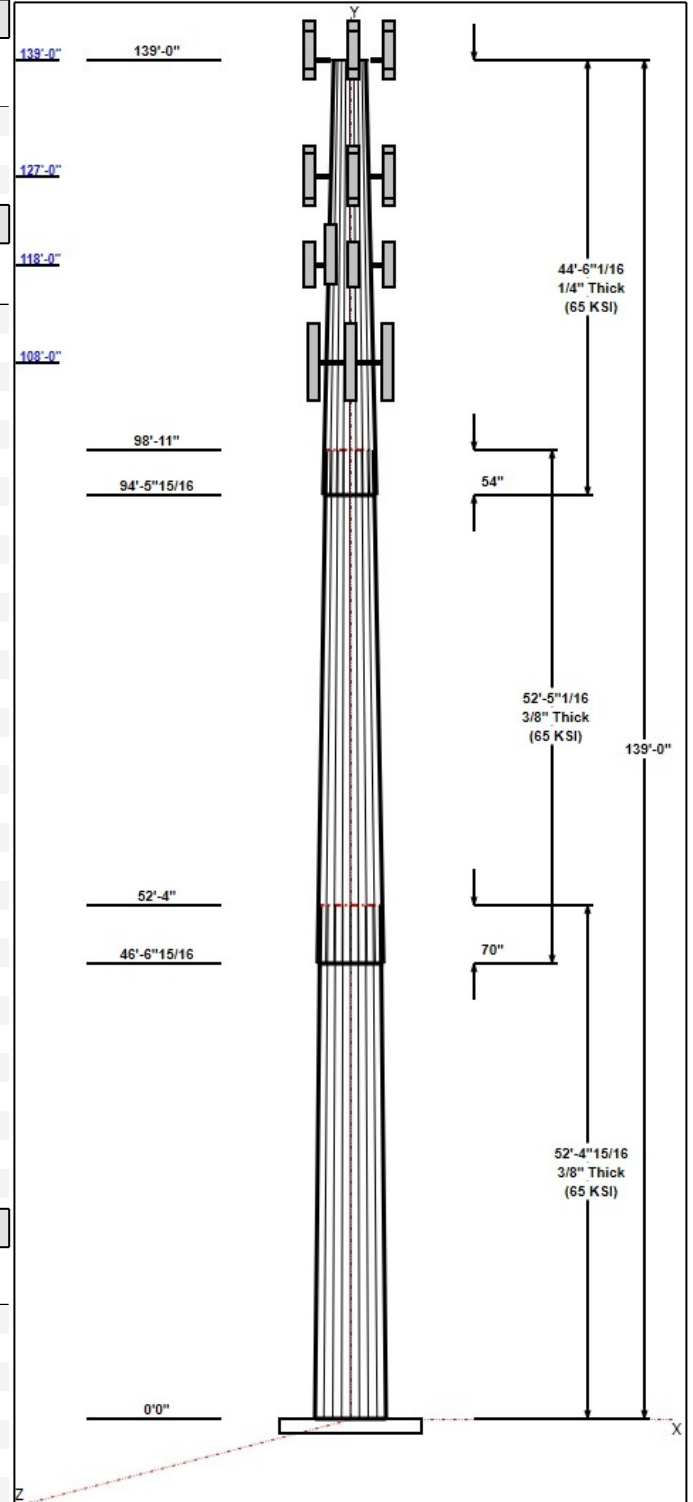
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
139.00	136.00	3	T-Arms	Verizon
139.00	140.00	3	Antel BXA-70063/6CF-2	Verizon
139.00	140.00	6	Antel LPA-80063/4CF	Verizon
139.00	140.00	3	Antel BXA-171063-8BF-2	Verizon
139.00	140.00	6	RFS FD9R6004/2C-3L	Verizon
127.00	127.00	3	T-Arms	Sprint
127.00	127.00	3	Collar Mounts	Sprint
127.00	127.00	3	RFS APXVSP18-C-A20	Sprint
127.00	127.00	3	Alcatel Lucent 1900 MHz	Sprint
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint
127.00	127.00	4	RFS ACU-A20-N RETs	Sprint
127.00	127.00	3	RFS APXVTM14-C-I20	Sprint
127.00	127.00	3	Alcatel Lucent	Sprint
119.00	119.00	1	KMW	AT&T
118.00	118.00	1	Kathrein 800 10121	AT&T
118.00	118.00	18	Powerwave 21401 TMA	AT&T
118.00	118.00	6	Powerwave 7020.00 RET	AT&T
118.00	118.00	3	Ericsson RRU-11-RRU	AT&T
118.00	118.00	3	Ericsson RRU-12-RRU	AT&T
118.00	118.00	18	Powerwave LGP13519	AT&T
118.00	118.00	1	Raycap DC6-48-60-18-8F	AT&T
118.00	118.00	3	T-Arms	AT&T
118.00	118.00	6	Powerwave 7770	AT&T
118.00	118.00	1	KMW	AT&T
108.00	108.00	1	Low Profile Platform	T-Mobile
108.00	108.00	3	APX16PV-16VL-E	T-Mobile
108.00	108.00	3	APXV18-209014	T-Mobile
108.00	108.00	3	LNx-6515DS	T-Mobile
108.00	108.00	12	TMA	T-Mobile
108.00	108.00	3	Kathrein 782 11056-Bias-T	T-Mobile

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	139.00	Inside	1 5/8" Coax	Verizon
0.00	127.00	Inside	1 1/4" Coax	Sprint
0.00	118.00	Inside	1 5/8" Coax	AT&T
0.00	118.00	Inside	3" Conduit	AT&T
0.00	118.00	Inside	3/4" DC	AT&T
0.00	118.00	Inside	7/16" Fiber	AT&T
0.00	108.00	Inside	1 5/8" Coax	T-Mobile

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Radial



Email To: PaulL@Townoflitchfield.org  
DTobin@Townoflitchfield.org  
MLuther@SBAsite.com

**New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 383 Torrington Road, Litchfield**

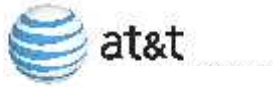
In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) and Long Term Evolution (“LTE”) capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“AT&T”) will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T’s proposal. Please accept this letter as notification under Section 16-50j-73 and Siting Council policy of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The enclosed Notice fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council’s procedures, please contact the undersigned at 860-830-0380 or Ms. Melanie Bachman, Acting Executive Director, Connecticut Siting Council at (860) 827-2935.

Thank you.

-- Steve Levine, for AT&T



**Centek Engineering, Inc.**  
3-2 North Branford Road  
Branford, Connecticut 06405  
Phone: (203) 488-0580  
Fax: (203) 488-8587

**Steven L. Levine**  
Real Estate Consultant

February 2, 2017

William Perssonatti  
Old Toll Gate Hill, LLC  
387 Torrington Road  
Litchfield, CT 06759

**Notice of Exempt Modification: Existing Telecommunications Facility at 383 Torrington Road, Litchfield**

Dear Mr. Perssonatti:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The enclosed Notice fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned at 860-830-0380 or Ms. Melanie Bachman, Acting Executive Director, Connecticut Siting Council at (860) 827-2935

Sincerely,

A handwritten signature in black ink, appearing to read "S. Levine".

Steven L. Levine  
Real Estate Consultant

Enclosure





**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

---

## **Structural Analysis Report**

**Existing 139 ft Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT46123-A**

**Customer Site Name: Litchfield**

**Carrier Name: AT&T**

**Carrier Site ID / Name: CT1131 / Litchfield CT/Torrington Road**

**Site Location: 383 Torrington Rd**

**Litchfield, Connecticut**

**Litchfield County**

**Latitude: 41.766278**

**Longitude: -73.178527**

### **Analysis Result:**

**Max Structural Usage: 53.2% [Pass]**

**Max Foundation Usage: 60.0% [Pass]**

**Report Prepared By : Uma S Atluri**





**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

---

## **Structural Analysis Report**

**Existing 139 ft Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT46123-A**

**Customer Site Name: Litchfield**

**Carrier Name: AT&T**

**Carrier Site ID / Name: CT1131 / Litchfield CT/Torrington Road**

**Site Location: 383 Torrington Rd**

**Litchfield, Connecticut**

**Litchfield County**

**Latitude: 41.766278**

**Longitude: -73.178527**

### **Analysis Result:**

**Max Structural Usage: 53.2% [Pass]**

**Max Foundation Usage: 60.0% [Pass]**

**Report Prepared By : Uma S Atluri**

## Introduction

The purpose of this report is to summarize the analysis results on the 139 ft 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>	FDH, Previous SA, Project # 15BGLG1400, dated 3/19/2015
<b>Foundation Drawing</b>	EEL, Project # 14854, dated 04/08/208
<b>Geotechnical Report</b>	Clarence Welti Associates, Inc., Geo Report, dated 8/19/2005
<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 $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	40 mph (3-Sec. Gust) with 1" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.183$ , $S_1 = 0.065$

## 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
1	140.0	3	Antel BXA-70063/6CF-2 - Panel	(3) T-Arms	(12) 1 5/8"	Verizon
2		6	Antel LPA-80063/4CF - Panel			
3		3	Antel BXA-171063-8BF-2 - Panel			
4		6	RFS FD9R6004/2C-3L Diplexers			
5	127.0	3	RFS APXVSP18-C-A20 - Panel	(3) T-Arms	(4) 1 1/4"	Sprint
6		3	Alcatel Lucent 1900 MHz			
7		3	Alcatel Lucent 800 MHz			
8		3	Alcatel Lucent 800 MHz Filters			
9		4	RFS ACU-A20-N RETs			
10		3	RFS APXVTM14-C-I20 - Panel			
11		3	Alcatel Lucent TD-RRH8x20-25			
-	118.0	1	KMW AM-X-CD-14-65-00T-RET- Panel	(3) T-Arms	(12) 1 5/8" (2) 3/4" DC & (1) 7/16" Fiber In (1) 3" innerduct	AT&T
		1	Andrew AM-X-CD-16-65-00T-RET - Panel			
		6	Powerwave 7770 - Panel			
		1	Kathrein 80010764V01 - Panel			
		18	Powerwave 21401 TMA			
		18	Powerwave LGP13519			
		6	Powerwave 7020 (DB)-RET			
		6	Ericsson RRUS-11-RRU			
		1	Raycap DC6-48-60-18-8F DC Surge			
22	108.0	3	RFS - APX16PV-16VL-E - Panel	Low Profile Platform	(18) 1 5/8"	T-Mobile
23		3	RFS - APXV18-209014 - Panel			
24		3	Andrew - LNX-6515DS - Panel			
25		12	TMA			
26		3	Kathrein 782 11056-Bias-T			

**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
12	119.0	1	KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe - Panel	(3) T-Arms	(12) 1 5/8" (2) 3/4" DC & (1) 7/16" Fiber In (1) 3" Conduit	AT&T
13	118.0	1	KMW AM-X-CW-14-65-00T-RET - Panel			
14		6	Powerwave 7770 - Panel			
15		1	Kathrein 800 10121 - Panel			
16		18	Powerwave 21401 TMA			
17		6	Powerwave 7020.00 RET			
18		3	Ericsson RRU-11-RRU			
19		3	Ericsson RRU-12-RRU			
20		18	Powerwave LGP13519 Diplexer			
21		1	Raycap DC6-48-60-18-8F Surge Arrestor			

All transmission lines are considered running inside of the pole shafts.

## **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>53.2%</b>	<b>47.0%</b>	<b>34.0%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	3021.6	29.2
Analysis Reactions	2369.5	24.0
Factored Reactions*	4079.2	39.4
% of Design Reactions	58.1%	60.9%

\* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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 0.9388 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

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

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 53.20% at 0.0ft

**Structure:** CT46123-A-SBA  
**Site Name:** Litchfield  
**Height:** 139.00 (ft)  
**Base Elev:** 0.000 (ft)

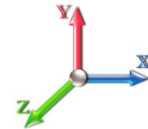
**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Gh:** 1.1

1/26/2017  
 Page: 1



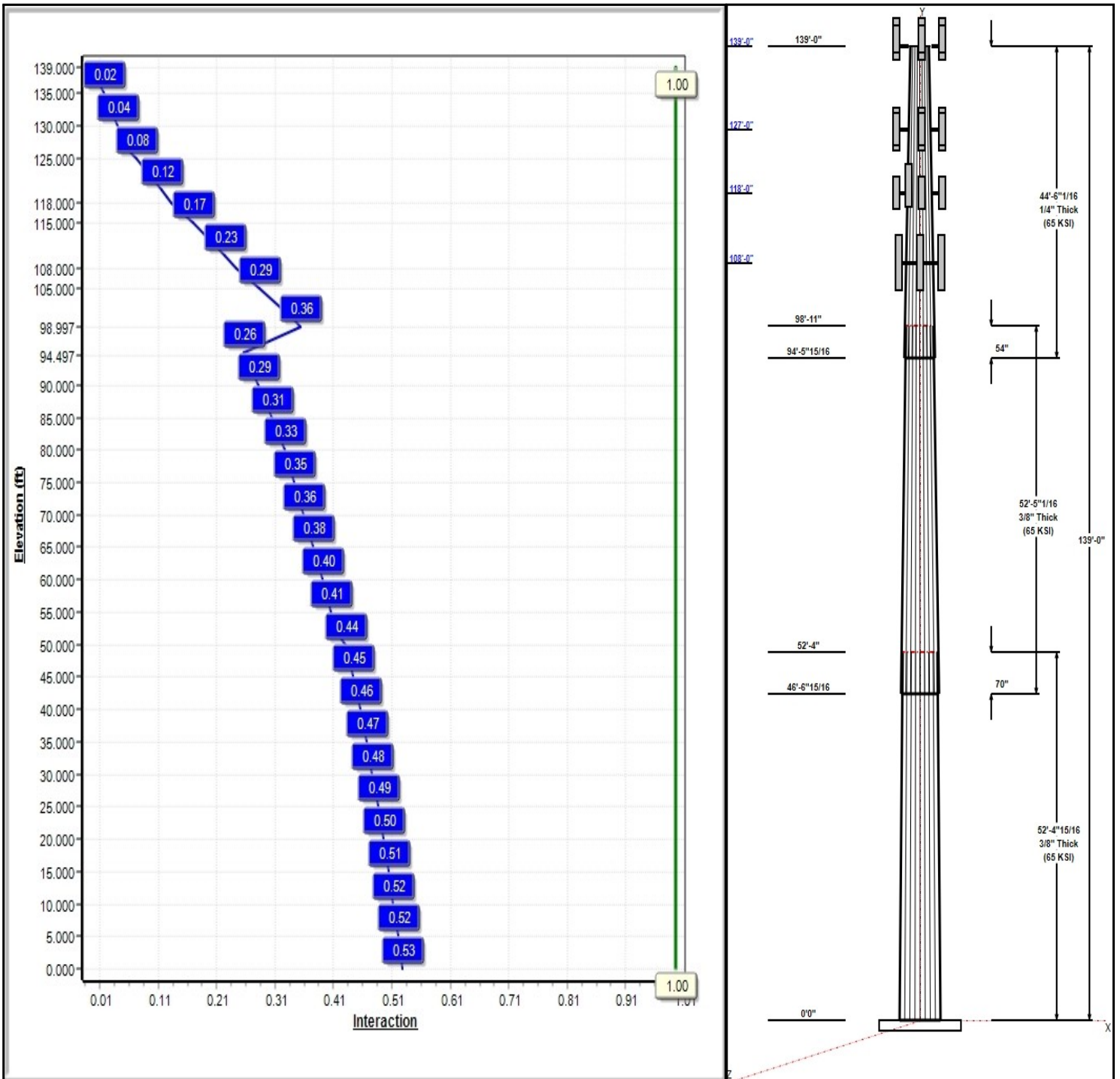
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 93 mph Wind**



**Iterations:** 23

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## Structure: CT46123-A-SBA

**Type:** Tapered  
**Site Name:** Litchfield  
**Height:** 139.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.24460

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### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	52.41	40.43	53.25	0.375		0.24460	65
2	52.42	29.78	42.61	0.375	Slip	0.24460	65
3	44.50	20.50	31.39	0.250	Slip	0.24460	65

### Discrete Appurtenances

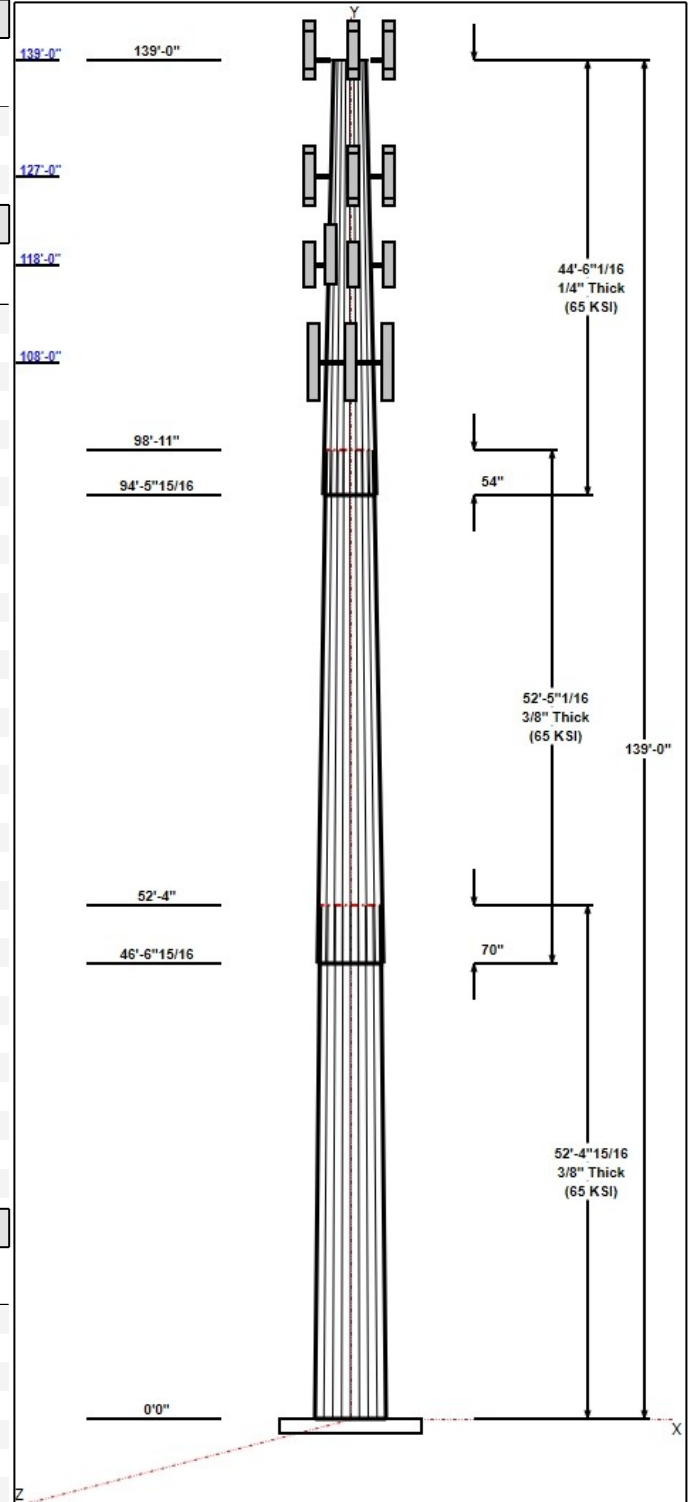
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
139.00	136.00	3	T-Arms	Verizon
139.00	140.00	3	Antel BXA-70063/6CF-2	Verizon
139.00	140.00	6	Antel LPA-80063/4CF	Verizon
139.00	140.00	3	Antel BXA-171063-8BF-2	Verizon
139.00	140.00	6	RFS FD9R6004/2C-3L	Verizon
127.00	127.00	3	T-Arms	Sprint
127.00	127.00	3	Collar Mounts	Sprint
127.00	127.00	3	RFS APXVSP18-C-A20	Sprint
127.00	127.00	3	Alcatel Lucent 1900 MHz	Sprint
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint
127.00	127.00	3	Alcatel Lucent 800 MHz	Sprint
127.00	127.00	4	RFS ACU-A20-N RETs	Sprint
127.00	127.00	3	RFS APXVTM14-C-I20	Sprint
127.00	127.00	3	Alcatel Lucent	Sprint
119.00	119.00	1	KMW	AT&T
118.00	118.00	1	Kathrein 800 10121	AT&T
118.00	118.00	18	Powerwave 21401 TMA	AT&T
118.00	118.00	6	Powerwave 7020.00 RET	AT&T
118.00	118.00	3	Ericsson RRU-11-RRU	AT&T
118.00	118.00	3	Ericsson RRU-12-RRU	AT&T
118.00	118.00	18	Powerwave LGP13519	AT&T
118.00	118.00	1	Raycap DC6-48-60-18-8F	AT&T
118.00	118.00	3	T-Arms	AT&T
118.00	118.00	6	Powerwave 7770	AT&T
118.00	118.00	1	KMW	AT&T
108.00	108.00	1	Low Profile Platform	T-Mobile
108.00	108.00	3	APX16PV-16VL-E	T-Mobile
108.00	108.00	3	APXV18-209014	T-Mobile
108.00	108.00	3	LNx-6515DS	T-Mobile
108.00	108.00	12	TMA	T-Mobile
108.00	108.00	3	Kathrein 782 11056-Bias-T	T-Mobile

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	139.00	Inside	1 5/8" Coax	Verizon
0.00	127.00	Inside	1 1/4" Coax	Sprint
0.00	118.00	Inside	1 5/8" Coax	AT&T
0.00	118.00	Inside	3" Conduit	AT&T
0.00	118.00	Inside	3/4" DC	AT&T
0.00	118.00	Inside	7/16" Fiber	AT&T
0.00	108.00	Inside	1 5/8" Coax	T-Mobile

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Radial



## Structure: CT46123-A-SBA

**Type:** Tapered  
**Site Name:** Litchfield  
**Height:** 139.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.24460

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### Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	72.0	60.0	Round

### Reactions

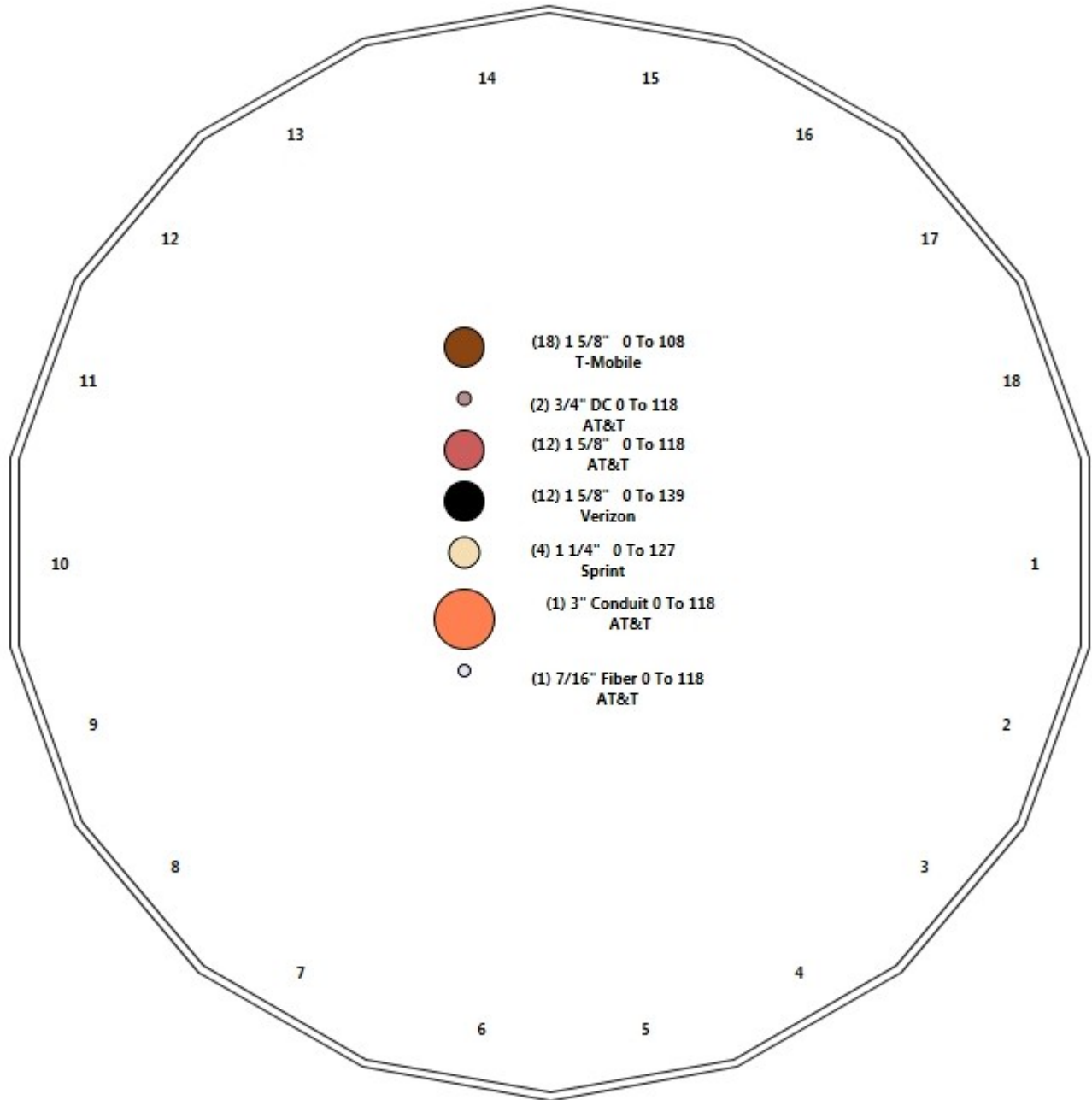
Load Case	Moment	Shear	Axial
1.2D + 1.6W 93 mph Wind	2369.5	24.0	41.3
0.9D + 1.6W 93 mph Wind	2348.7	24.0	31.0
1.2D + 1.0Di + 1.0Wi 40 mph Wind	627.5	6.0	66.8
1.2D + 1.0E	91.6	0.9	41.3
0.9D + 1.0E	90.8	0.9	31.0
1.0D + 1.0W 60 mph Wind	613.1	6.2	34.4

# Structure: CT46123-A-SBA - Coax Line Placement

**Type:** Monopole  
**Site Name:** Litchfield  
**Height:** 139.00 (ft)

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## Shaft Properties

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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	52.410	0.3750	65		0.00	9,863
2	18	52.420	0.3750	65	Slip	70.00	7,605
3	18	44.503	0.2500	65	Slip	54.00	3,087
<b>Total Shaft Weight:</b>							<b>20,555</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	53.25	0.00	62.93	22229.35	23.63	142.00	40.43	52.41	47.67	9663.96	17.60	107.8	0.244604
2	42.61	46.58	50.27	11326.74	18.62	113.62	29.78	99.00	35.00	3825.25	12.59	79.43	0.244604
3	31.39	94.50	24.71	3025.94	20.73	125.54	20.50	139.00	16.07	832.45	13.05	82.00	0.244604

## Load Summary

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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	139.00	T-Arms	3	400.00	10.00	0.75	769.49	21.547	1.00	0.00	-3.00
2	139.00	Antel BXA-70063/6CF-2	3	17.00	7.57	0.75	213.23	11.227	1.00	0.00	1.00
3	139.00	Antel LPA-80063/4CF	6	11.30	4.04	0.50	127.52	6.399	1.00	0.00	1.00
4	139.00	Antel BXA-171063-8BF-2	3	10.50	2.94	0.75	97.23	5.134	1.00	0.00	1.00
5	139.00	RFS FD9R6004/2C-3L Diplexers	6	3.10	0.36	0.67	13.72	0.947	1.00	0.00	1.00
6	127.00	T-Arms	3	400.00	10.00	0.75	766.17	21.443	1.00	0.00	0.00
7	127.00	Collar Mounts	3	100.00	3.50	0.75	209.85	6.704	1.00	0.00	0.00
8	127.00	RFS APXVSP18-C-A20	3	57.00	8.02	0.83	283.66	11.684	1.00	0.00	0.00
9	127.00	Alcatel Lucent 1900 MHz	3	44.00	3.80	0.67	187.15	5.623	1.00	0.00	0.00
10	127.00	Alcatel Lucent 800 MHz	3	53.00	2.49	0.67	149.99	3.990	1.00	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz Filters	3	61.80	2.91	0.67	180.77	4.506	1.00	0.00	0.00
12	127.00	RFS ACU-A20-N RETs	4	1.00	0.14	0.67	6.63	0.529	1.00	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	56.00	6.34	0.79	279.77	7.829	1.00	0.00	0.00
14	127.00	Alcatel Lucent TD-RRH8x20-25	3	70.00	4.05	0.67	224.44	5.142	1.00	0.00	0.00
15	119.00	KMW AM-X-CD-16-65-00T-RET w/	1	48.50	8.02	0.75	259.92	11.660	1.00	0.00	0.00
16	118.00	Kathrein 800 10121	1	46.30	5.15	0.79	195.83	7.892	1.00	0.00	0.00
17	118.00	Powerwave 21401 TMA	18	14.10	1.29	0.67	46.64	2.378	1.00	0.00	0.00
18	118.00	Powerwave 7020.00 RET	6	2.20	0.40	0.67	15.52	1.030	1.00	0.00	0.00
19	118.00	Ericsson RRU-11-RRU	3	50.70	2.52	0.67	174.87	3.391	1.00	0.00	0.00
20	118.00	Ericsson RRU-12-RRU	3	60.00	2.70	0.67	147.24	3.559	1.00	0.00	0.00
21	118.00	Powerwave LGP13519 Diplexer	18	5.30	0.34	0.67	17.66	0.931	1.00	0.00	0.00
22	118.00	Raycap DC6-48-60-18-8F Surge	1	32.80	0.92	0.00	115.81	1.490	0.00	0.00	0.00
23	118.00	T-Arms	3	350.00	8.00	0.75	668.05	17.087	1.00	0.00	0.00
24	118.00	Powerwave 7770	6	35.00	5.50	0.73	223.21	6.914	1.00	0.00	0.00
25	118.00	KMW AM-X-CW-14-65-00T-RET	1	30.80	5.00	0.75	175.98	7.440	1.00	0.00	0.00
26	108.00	Low Profile Platform	1	1500.00	22.00	1.00	3188.82	44.788	1.00	0.00	0.00
27	108.00	APX16PV-16VL-E	3	39.60	6.03	0.67	217.51	7.448	1.00	0.00	0.00
28	108.00	APXV18-209014	3	18.70	3.58	0.74	143.60	4.814	1.00	0.00	0.00
29	108.00	LNx-6515DS	3	48.50	11.47	0.80	345.11	15.664	1.00	0.00	0.00
30	108.00	TMA	12	10.50	0.59	0.67	29.78	1.326	1.00	0.00	0.00
31	108.00	Kathrein 782 11056-Bias-T	3	11.00	0.68	0.74	32.52	1.473	1.00	0.00	0.00
<b>Totals:</b>			<b>135</b>	<b>7,990.60</b>			<b>23,029.62</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	139.00	(12) 1 5/8" Coax	0.00	Inside
0.00	127.00	(4) 1 1/4" Coax	0.00	Inside
0.00	118.00	(12) 1 5/8" Coax	0.00	Inside
0.00	118.00	(1) 3" Conduit	0.00	Inside
0.00	118.00	(2) 3/4" DC	0.00	Inside
0.00	118.00	(1) 7/16" Fiber	0.00	Inside
0.00	108.00	(18) 1 5/8" Coax	0.00	Inside

## Shaft Section Properties

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	53.250	62.932	22229.4	23.63	142.00	73.6	822.2	0.0
5.00		0.3750	52.027	61.477	20722.2	23.05	138.74	74.3	784.5	1058.3
10.00		0.3750	50.804	60.021	19284.8	22.48	135.48	75.0	747.7	1033.6
15.00		0.3750	49.581	58.565	17915.5	21.90	132.22	75.6	711.7	1008.8
20.00		0.3750	48.358	57.110	16612.5	21.33	128.95	76.3	676.6	984.0
25.00		0.3750	47.135	55.654	15374.3	20.75	125.69	77.0	642.4	959.3
30.00		0.3750	45.912	54.198	14199.2	20.18	122.43	77.7	609.1	934.5
35.00		0.3750	44.689	52.743	13085.6	19.60	119.17	78.3	576.7	909.7
40.00		0.3750	43.466	51.287	12031.8	19.03	115.91	79.0	545.2	885.0
45.00		0.3750	42.243	49.831	11036.1	18.45	112.65	79.7	514.6	860.2
46.58	Bot - Section 2	0.3750	41.857	49.372	10733.9	18.27	111.62	79.9	505.1	266.1
50.00		0.3750	41.020	48.376	10096.9	17.88	109.39	80.4	484.8	1149.1
52.41	Top - Section 1	0.3750	41.180	48.567	10217.0	17.95	109.81	0.0	0.0	795.0
55.00		0.3750	40.547	47.813	9748.5	17.65	108.12	80.6	473.5	424.7
60.00		0.3750	39.324	46.357	8885.0	17.08	104.86	81.3	445.0	801.1
65.00		0.3750	38.101	44.901	8074.0	16.50	101.60	82.0	417.4	776.3
70.00		0.3750	36.878	43.446	7313.9	15.93	98.34	82.5	390.6	751.6
75.00		0.3750	35.655	41.990	6603.1	15.35	95.08	82.5	364.8	726.8
80.00		0.3750	34.432	40.534	5939.9	14.78	91.82	82.5	339.8	702.0
85.00		0.3750	33.209	39.079	5322.7	14.20	88.56	82.5	315.7	677.3
90.00		0.3750	31.986	37.623	4749.8	13.63	85.29	82.5	292.5	652.5
94.50	Bot - Section 3	0.3750	30.886	36.314	4271.0	13.11	82.36	82.5	272.4	565.7
95.00		0.3750	30.763	36.168	4219.5	13.05	82.03	82.5	270.2	104.3
99.00	Top - Section 2	0.2500	30.285	23.832	2716.2	19.95	121.14	0.0	0.0	813.3
100.00		0.2500	30.040	23.637	2650.2	19.78	120.16	78.1	173.8	81.0
105.00		0.2500	28.817	22.667	2337.0	18.91	115.27	79.2	159.7	393.9
108.00		0.2500	28.083	22.084	2161.5	18.40	112.33	79.8	151.6	228.4
110.00		0.2500	27.594	21.696	2049.5	18.05	110.37	80.2	146.3	149.0
115.00		0.2500	26.371	20.726	1786.6	17.19	105.48	81.2	133.4	360.9
118.00		0.2500	25.637	20.144	1640.2	16.67	102.55	81.8	126.0	208.6
119.00		0.2500	25.392	19.950	1593.3	16.50	101.57	82.0	123.6	68.2
120.00		0.2500	25.147	19.755	1547.2	16.33	100.59	82.2	121.2	67.6
125.00		0.2500	23.924	18.785	1330.2	15.46	95.70	82.5	109.5	327.9
127.00		0.2500	23.435	18.397	1249.5	15.12	93.74	82.5	105.0	126.5
130.00		0.2500	22.701	17.815	1134.5	14.60	90.81	82.5	98.4	184.8
135.00		0.2500	21.478	16.844	959.0	13.74	85.91	82.5	87.9	294.8
139.00		0.2500	20.500	16.068	832.5	13.05	82.00	82.5	80.0	224.0

**20554.8**

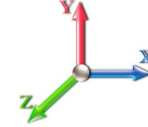
## Wind Loading - Shaft

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.2D + 1.6W 93 mph Wind

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



**Iterations** 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	386.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	377.48	0.650	0.000	5.00	22.271	14.48	455.5	0.0	1270.0
10.00		1.00	0.85	17.879	19.67	368.60	0.650	0.000	5.00	21.754	14.14	444.9	0.0	1240.3
15.00		1.00	0.85	17.879	19.67	359.73	0.650	0.000	5.00	21.236	13.80	434.4	0.0	1210.6
20.00		1.00	0.90	18.971	20.87	361.40	0.650	0.000	5.00	20.719	13.47	449.6	0.0	1180.8
25.00		1.00	0.95	19.883	21.87	360.64	0.650	0.000	5.00	20.201	13.13	459.5	0.0	1151.1
30.00		1.00	0.98	20.661	22.73	358.09	0.650	0.000	5.00	19.684	12.79	465.3	0.0	1121.4
35.00		1.00	1.01	21.343	23.48	354.25	0.650	0.000	5.00	19.166	12.46	468.0	0.0	1091.7
40.00		1.00	1.04	21.951	24.15	349.43	0.650	0.000	5.00	18.649	12.12	468.3	0.0	1062.0
45.00		1.00	1.07	22.502	24.75	343.84	0.650	0.000	5.00	18.131	11.79	466.7	0.0	1032.3
46.58 Bot - Section 2		1.00	1.08	22.666	24.93	341.93	0.650	0.000	1.58	5.610	3.65	145.5	0.0	319.3
50.00		1.00	1.09	23.007	25.31	337.60	0.650	0.000	3.42	12.221	7.94	321.7	0.0	1378.9
52.41 Top - Section 1		1.00	1.10	23.236	25.56	334.41	0.650	0.000	2.41	8.458	5.50	224.8	0.0	954.0
55.00		1.00	1.12	23.473	25.82	337.08	0.650	0.000	2.59	8.956	5.82	240.5	0.0	509.6
60.00		1.00	1.14	23.907	26.30	329.92	0.650	0.000	5.00	16.896	10.98	462.1	0.0	961.3
65.00		1.00	1.16	24.313	26.74	322.36	0.650	0.000	5.00	16.379	10.65	455.6	0.0	931.6
70.00		1.00	1.17	24.696	27.17	314.46	0.650	0.000	5.00	15.861	10.31	448.1	0.0	901.9
75.00		1.00	1.19	25.057	27.56	306.24	0.650	0.000	5.00	15.344	9.97	439.8	0.0	872.2
80.00		1.00	1.21	25.400	27.94	297.75	0.650	0.000	5.00	14.827	9.64	430.8	0.0	842.4
85.00		1.00	1.22	25.726	28.30	289.02	0.650	0.000	5.00	14.309	9.30	421.1	0.0	812.7
90.00		1.00	1.24	26.037	28.64	280.05	0.650	0.000	5.00	13.792	8.96	410.8	0.0	783.0
94.50 Bot - Section 3		1.00	1.25	26.306	28.94	271.81	0.650	0.000	4.50	11.961	7.77	360.0	0.0	678.8
95.00		1.00	1.25	26.336	28.97	270.88	0.650	0.000	0.50	1.334	0.87	40.2	0.0	125.2
99.00 Top - Section 2		1.00	1.26	26.565	29.22	263.41	0.650	0.000	4.00	10.407	6.76	316.3	0.0	976.0
100.00		1.00	1.27	26.621	29.28	265.95	0.650	0.000	1.00	2.561	1.66	78.0	0.0	97.2
105.00		1.00	1.28	26.896	29.59	256.43	0.650	0.000	5.00	12.451	8.09	383.1	0.0	472.7
108.00 Appurtenance(s)		1.00	1.29	27.056	29.76	250.65	0.650	0.000	3.00	7.222	4.69	223.5	0.0	274.1
110.00		1.00	1.29	27.161	29.88	246.76	0.650	0.000	2.00	4.711	3.06	146.4	0.0	178.8
115.00		1.00	1.30	27.416	30.16	236.92	0.650	0.000	5.00	11.416	7.42	358.1	0.0	433.1
118.00 Appurtenance(s)		1.00	1.31	27.565	30.32	230.96	0.650	0.000	3.00	6.601	4.29	208.2	0.0	250.3
119.00 Appurtenance(s)		1.00	1.31	27.614	30.38	228.96	0.650	0.000	1.00	2.159	1.40	68.2	0.0	81.9
120.00		1.00	1.32	27.663	30.43	226.95	0.650	0.000	1.00	2.138	1.39	67.7	0.0	81.1
125.00		1.00	1.33	27.902	30.69	216.84	0.650	0.000	5.00	10.381	6.75	331.4	0.0	393.4
127.00 Appurtenance(s)		1.00	1.33	27.995	30.79	212.76	0.650	0.000	2.00	4.008	2.60	128.3	0.0	151.8
130.00		1.00	1.34	28.133	30.95	206.61	0.650	0.000	3.00	5.856	3.81	188.5	0.0	221.8
135.00		1.00	1.35	28.358	31.19	196.26	0.650	0.000	5.00	9.346	6.07	303.2	0.0	353.8
139.00 Appurtenance(s)		1.00	1.36	28.533	31.39	187.89	0.650	0.000	4.00	7.104	4.62	231.9	0.0	268.8
<b>Totals:</b>									<b>139.00</b>			<b>11,546.0</b>		<b>24,665.8</b>

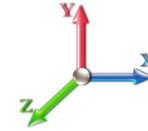
## Discrete Appurtenance Forces

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.2D + 1.6W 93 mph Wind

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



**Iterations** 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	139.00	Antel BXA-171063-8BF-2	3	28.576	31.433	0.60	0.80	5.29	37.80	0.000	1.000	266.15	0.00	266.15	
2	139.00	Antel LPA-80063/4CF	6	28.576	31.433	0.40	0.80	9.70	81.36	0.000	1.000	487.64	0.00	487.64	
3	139.00	Antel BXA-70063/6CF-2	3	28.576	31.433	0.60	0.80	13.63	61.20	0.000	1.000	685.29	0.00	685.29	
4	139.00	T-Arms	3	28.402	31.242	0.56	0.75	16.88	1440.00	0.000	-3.000	843.53	0.00	-2530.60	
5	139.00	RFS FD9R6004/2C-3L	6	28.576	31.433	0.54	0.80	1.16	22.32	0.000	1.000	58.23	0.00	58.23	
6	127.00	Alcatel Lucent 1900 MHz	3	27.995	30.795	0.54	0.80	6.11	158.40	0.000	0.000	301.07	0.00	0.00	
7	127.00	T-Arms	3	27.995	30.795	0.56	0.75	16.88	1440.00	0.000	0.000	831.46	0.00	0.00	
8	127.00	Collar Mounts	3	27.995	30.795	0.56	0.75	5.91	360.00	0.000	0.000	291.01	0.00	0.00	
9	127.00	RFS APXVSP18-C-A20	3	27.995	30.795	0.66	0.80	15.98	205.20	0.000	0.000	787.16	0.00	0.00	
10	127.00	RFS ACU-A20-N RETs	4	27.995	30.795	0.54	0.80	0.30	4.80	0.000	0.000	14.79	0.00	0.00	
11	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.00	190.80	0.000	0.000	197.28	0.00	0.00	
12	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.68	222.48	0.000	0.000	230.56	0.00	0.00	
13	127.00	RFS APXVTM14-C-I20	3	27.995	30.795	0.63	0.80	12.02	201.60	0.000	0.000	592.28	0.00	0.00	
14	127.00	Alcatel Lucent	3	27.995	30.795	0.54	0.80	6.51	252.00	0.000	0.000	320.88	0.00	0.00	
15	119.00	KMW	1	27.614	30.376	0.60	0.80	4.81	58.20	0.000	0.000	233.87	0.00	0.00	
16	118.00	KMW	1	27.565	30.322	0.60	0.80	3.00	36.96	0.000	0.000	145.55	0.00	0.00	
17	118.00	Ericsson RRU-11-RRU	3	27.565	30.322	0.54	0.80	4.05	182.52	0.000	0.000	196.59	0.00	0.00	
18	118.00	Kathrein 800 10121	1	27.565	30.322	0.63	0.80	3.25	55.56	0.000	0.000	157.91	0.00	0.00	
19	118.00	Powerwave 21401 TMA	18	27.565	30.322	0.54	0.80	12.45	304.56	0.000	0.000	603.82	0.00	0.00	
20	118.00	Powerwave 7020.00 RET	6	27.565	30.322	0.54	0.80	1.29	15.84	0.000	0.000	62.41	0.00	0.00	
21	118.00	Powerwave 7770	6	27.565	30.322	0.58	0.80	19.27	252.00	0.000	0.000	934.99	0.00	0.00	
22	118.00	Ericsson RRU-12-RRU	3	27.565	30.322	0.54	0.80	4.34	216.00	0.000	0.000	210.63	0.00	0.00	
23	118.00	Powerwave LGP13519	18	27.565	30.322	0.54	0.80	3.28	114.48	0.000	0.000	159.15	0.00	0.00	
24	118.00	Raycap DC6-48-60-18-8F	1	27.565	30.322	0.00	1.00	0.92	39.36	0.000	0.000	44.63	0.00	0.00	
25	118.00	T-Arms	3	27.565	30.322	0.56	0.75	13.50	1260.00	0.000	0.000	654.96	0.00	0.00	
26	108.00	Kathrein 782	3	27.056	29.762	0.59	0.80	1.21	39.60	0.000	0.000	57.51	0.00	0.00	
27	108.00	TMA	12	27.056	29.762	0.54	0.80	3.79	151.20	0.000	0.000	180.71	0.00	0.00	
28	108.00	LNx-6515DS	3	27.056	29.762	0.64	0.80	22.02	174.60	0.000	0.000	1048.69	0.00	0.00	
29	108.00	APXV18-209014	3	27.056	29.762	0.59	0.80	6.36	67.32	0.000	0.000	302.77	0.00	0.00	
30	108.00	APX16PV-16VL-E	3	27.056	29.762	0.54	0.80	9.70	142.56	0.000	0.000	461.73	0.00	0.00	
31	108.00	Low Profile Platform	1	27.056	29.762	1.00	1.00	22.00	1800.00	0.000	0.000	1047.62	0.00	0.00	
<b>Totals:</b>									<b>9,588.72</b>						<b>12,410.85</b>



## Total Applied Force Summary

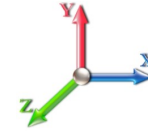
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 93 mph Wind

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



**Iterations** 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		455.53	1564.01	0.00	0.00
10.00		444.94	1534.29	0.00	0.00
15.00		434.36	1504.57	0.00	0.00
20.00		449.64	1474.85	0.00	0.00
25.00		459.50	1445.13	0.00	0.00
30.00		465.25	1415.41	0.00	0.00
35.00		467.96	1385.69	0.00	0.00
40.00		468.31	1355.97	0.00	0.00
45.00		466.75	1326.25	0.00	0.00
46.58		145.47	412.05	0.00	0.00
50.00		321.66	1580.15	0.00	0.00
52.41		224.83	1095.70	0.00	0.00
55.00		240.49	661.94	0.00	0.00
60.00		462.11	1255.32	0.00	0.00
65.00		455.57	1225.60	0.00	0.00
70.00		448.12	1195.88	0.00	0.00
75.00		439.84	1166.16	0.00	0.00
80.00		430.82	1136.44	0.00	0.00
85.00		421.13	1106.72	0.00	0.00
90.00		410.81	1077.00	0.00	0.00
94.50		359.97	943.20	0.00	0.00
95.00		40.19	154.76	0.00	0.00
99.00		316.29	1211.01	0.00	0.00
100.00		77.99	156.24	0.00	0.00
105.00		383.11	766.69	0.00	0.00
108.00	(25) attachments	3322.56	2825.78	0.00	0.00
110.00		146.39	251.44	0.00	0.00
115.00		358.05	614.74	0.00	0.00
118.00	(60) attachments	3378.79	2836.61	0.00	0.00
119.00	(1) attachments	302.08	158.20	0.00	0.00
120.00		67.67	99.21	0.00	0.00
125.00		331.36	484.15	0.00	0.00
127.00	(28) attachments	3694.83	3223.39	0.00	0.00
130.00		188.47	266.72	0.00	0.00
135.00		303.20	428.69	0.00	0.00
139.00	(21) attachments	2572.74	1971.36	0.00	-1033.28
	<b>Totals:</b>	<b>23,956.80</b>	<b>41,311.30</b>	<b>0.00</b>	<b>-1,033.28</b>

## Calculated Forces

**Structure:** CT46123-A-SBA  
**Site Name:** Litchfield  
**Height:** 139.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Topography:** 1

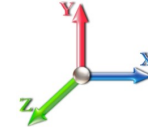
**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** B - Competent Rock  
**Struct Class:** II

1/26/2017  
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**Load Case:** 1.2D + 1.6W 93 mph Wind

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



**Iterations** 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.28	-24.01	0.00	-2369.5	0.00	2369.54	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.532
5.00	-39.65	-23.66	0.00	-2249.4	0.00	2249.49	4110.19	2055.10	8728.63	4370.80	0.08	-0.148	0.000	0.524
10.00	-38.06	-23.31	0.00	-2131.2	0.00	2131.21	4049.41	2024.70	8394.45	4203.46	0.32	-0.298	0.000	0.517
15.00	-36.50	-22.96	0.00	-2014.6	0.00	2014.68	3986.85	1993.43	8062.85	4037.42	0.71	-0.451	0.000	0.508
20.00	-34.96	-22.59	0.00	-1899.8	0.00	1899.88	3922.52	1961.26	7734.09	3872.79	1.27	-0.606	0.000	0.500
25.00	-33.46	-22.21	0.00	-1786.9	0.00	1786.91	3856.42	1928.21	7408.45	3709.73	1.99	-0.764	0.000	0.490
30.00	-31.99	-21.81	0.00	-1675.8	0.00	1675.87	3788.55	1894.27	7086.18	3548.36	2.87	-0.925	0.000	0.481
35.00	-30.56	-21.41	0.00	-1566.8	0.00	1566.80	3718.90	1859.45	6767.57	3388.81	3.93	-1.087	0.000	0.471
40.00	-29.15	-21.00	0.00	-1459.7	0.00	1459.76	3647.48	1823.74	6452.87	3231.23	5.16	-1.251	0.000	0.460
45.00	-27.80	-20.55	0.00	-1354.7	0.00	1354.78	3574.29	1787.15	6142.37	3075.75	6.56	-1.418	0.000	0.448
46.58	-27.36	-20.44	0.00	-1322.3	0.00	1322.38	3550.85	1775.42	6045.37	3027.18	7.03	-1.472	0.000	0.445
50.00	-25.75	-20.12	0.00	-1252.4	0.00	1252.41	3499.33	1749.66	5836.32	2922.50	8.13	-1.589	0.000	0.436
52.41	-24.63	-19.90	0.00	-1203.9	0.00	1203.93	3509.27	1754.63	5876.22	2942.48	8.96	-1.672	0.000	0.416
55.00	-23.93	-19.69	0.00	-1152.3	0.00	1152.39	3469.86	1734.93	5719.21	2863.86	9.89	-1.762	0.000	0.409
60.00	-22.64	-19.25	0.00	-1053.9	0.00	1053.93	3392.44	1696.22	5419.79	2713.92	11.82	-1.923	0.000	0.395
65.00	-21.38	-18.82	0.00	-957.66	0.00	957.66	3313.25	1656.62	5125.48	2566.55	13.92	-2.084	0.000	0.380
70.00	-20.15	-18.38	0.00	-863.58	0.00	863.58	3227.80	1613.90	4829.83	2418.50	16.19	-2.245	0.000	0.363
75.00	-18.95	-17.94	0.00	-771.69	0.00	771.69	3119.66	1559.83	4510.01	2258.36	18.63	-2.404	0.000	0.348
80.00	-17.79	-17.51	0.00	-681.96	0.00	681.96	3011.51	1505.75	4201.15	2103.70	21.23	-2.560	0.000	0.330
85.00	-16.66	-17.09	0.00	-594.40	0.00	594.40	2903.36	1451.68	3903.25	1954.53	23.99	-2.713	0.000	0.310
90.00	-15.56	-16.66	0.00	-508.97	0.00	508.97	2795.21	1397.61	3616.30	1810.84	26.91	-2.861	0.000	0.287
94.50	-14.62	-16.27	0.00	-434.06	0.00	434.06	2697.95	1348.98	3367.59	1686.30	29.67	-2.988	0.000	0.263
95.00	-14.45	-16.24	0.00	-425.87	0.00	425.87	2687.07	1343.53	3340.31	1672.64	29.99	-3.002	0.000	0.260
99.00	-13.24	-15.87	0.00	-360.98	0.00	360.98	1671.63	835.82	2062.09	1032.58	32.55	-3.108	0.000	0.358
100.00	-13.06	-15.81	0.00	-345.05	0.00	345.05	1662.31	831.15	2033.69	1018.35	33.20	-3.134	0.000	0.347
105.00	-12.28	-15.41	0.00	-266.02	0.00	266.02	1614.76	807.38	1893.73	948.27	36.57	-3.298	0.000	0.288
108.00	-9.64	-11.94	0.00	-219.79	0.00	219.79	1585.38	792.69	1811.10	906.90	38.68	-3.387	0.000	0.249
110.00	-9.38	-11.79	0.00	-195.91	0.00	195.91	1565.43	782.72	1756.61	879.61	40.11	-3.442	0.000	0.229
115.00	-8.77	-11.41	0.00	-136.95	0.00	136.95	1514.34	757.17	1622.58	812.50	43.77	-3.557	0.000	0.175
118.00	-6.15	-7.86	0.00	-102.72	0.00	102.72	1482.83	741.42	1543.76	773.03	46.03	-3.615	0.000	0.137
119.00	-6.01	-7.55	0.00	-94.85	0.00	94.85	1472.19	736.09	1517.77	760.01	46.79	-3.632	0.000	0.129
120.00	-5.91	-7.49	0.00	-87.30	0.00	87.30	1461.47	730.74	1491.92	747.07	47.55	-3.648	0.000	0.121
125.00	-5.44	-7.13	0.00	-49.87	0.00	49.87	1395.63	697.82	1354.03	678.02	51.40	-3.711	0.000	0.078
127.00	-2.46	-3.23	0.00	-35.62	0.00	35.62	1366.79	683.40	1298.36	650.14	52.96	-3.729	0.000	0.057
130.00	-2.21	-3.03	0.00	-25.92	0.00	25.92	1323.53	661.77	1217.05	609.43	55.31	-3.750	0.000	0.044
135.00	-1.80	-2.70	0.00	-10.79	0.00	10.79	1251.44	625.72	1087.38	544.50	59.25	-3.773	0.000	0.021
139.00	0.00	-2.57	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	62.41	-3.780	0.000	0.000

## Wind Loading - Shaft

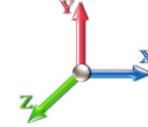
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

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



**Iterations** 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	386.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	377.48	0.650	0.000	5.00	22.271	14.48	455.5	0.0	952.5
10.00		1.00	0.85	17.879	19.67	368.60	0.650	0.000	5.00	21.754	14.14	444.9	0.0	930.2
15.00		1.00	0.85	17.879	19.67	359.73	0.650	0.000	5.00	21.236	13.80	434.4	0.0	907.9
20.00		1.00	0.90	18.971	20.87	361.40	0.650	0.000	5.00	20.719	13.47	449.6	0.0	885.6
25.00		1.00	0.95	19.883	21.87	360.64	0.650	0.000	5.00	20.201	13.13	459.5	0.0	863.3
30.00		1.00	0.98	20.661	22.73	358.09	0.650	0.000	5.00	19.684	12.79	465.3	0.0	841.1
35.00		1.00	1.01	21.343	23.48	354.25	0.650	0.000	5.00	19.166	12.46	468.0	0.0	818.8
40.00		1.00	1.04	21.951	24.15	349.43	0.650	0.000	5.00	18.649	12.12	468.3	0.0	796.5
45.00		1.00	1.07	22.502	24.75	343.84	0.650	0.000	5.00	18.131	11.79	466.7	0.0	774.2
46.58 Bot - Section 2		1.00	1.08	22.666	24.93	341.93	0.650	0.000	1.58	5.610	3.65	145.5	0.0	239.5
50.00		1.00	1.09	23.007	25.31	337.60	0.650	0.000	3.42	12.221	7.94	321.7	0.0	1034.1
52.41 Top - Section 1		1.00	1.10	23.236	25.56	334.41	0.650	0.000	2.41	8.458	5.50	224.8	0.0	715.5
55.00		1.00	1.12	23.473	25.82	337.08	0.650	0.000	2.59	8.956	5.82	240.5	0.0	382.2
60.00		1.00	1.14	23.907	26.30	329.92	0.650	0.000	5.00	16.896	10.98	462.1	0.0	721.0
65.00		1.00	1.16	24.313	26.74	322.36	0.650	0.000	5.00	16.379	10.65	455.6	0.0	698.7
70.00		1.00	1.17	24.696	27.17	314.46	0.650	0.000	5.00	15.861	10.31	448.1	0.0	676.4
75.00		1.00	1.19	25.057	27.56	306.24	0.650	0.000	5.00	15.344	9.97	439.8	0.0	654.1
80.00		1.00	1.21	25.400	27.94	297.75	0.650	0.000	5.00	14.827	9.64	430.8	0.0	631.8
85.00		1.00	1.22	25.726	28.30	289.02	0.650	0.000	5.00	14.309	9.30	421.1	0.0	609.5
90.00		1.00	1.24	26.037	28.64	280.05	0.650	0.000	5.00	13.792	8.96	410.8	0.0	587.2
94.50 Bot - Section 3		1.00	1.25	26.306	28.94	271.81	0.650	0.000	4.50	11.961	7.77	360.0	0.0	509.1
95.00		1.00	1.25	26.336	28.97	270.88	0.650	0.000	0.50	1.334	0.87	40.2	0.0	93.9
99.00 Top - Section 2		1.00	1.26	26.565	29.22	263.41	0.650	0.000	4.00	10.407	6.76	316.3	0.0	732.0
100.00		1.00	1.27	26.621	29.28	265.95	0.650	0.000	1.00	2.561	1.66	78.0	0.0	72.9
105.00		1.00	1.28	26.896	29.59	256.43	0.650	0.000	5.00	12.451	8.09	383.1	0.0	354.5
108.00 Appurtenance(s)		1.00	1.29	27.056	29.76	250.65	0.650	0.000	3.00	7.222	4.69	223.5	0.0	205.6
110.00		1.00	1.29	27.161	29.88	246.76	0.650	0.000	2.00	4.711	3.06	146.4	0.0	134.1
115.00		1.00	1.30	27.416	30.16	236.92	0.650	0.000	5.00	11.416	7.42	358.1	0.0	324.8
118.00 Appurtenance(s)		1.00	1.31	27.565	30.32	230.96	0.650	0.000	3.00	6.601	4.29	208.2	0.0	187.7
119.00 Appurtenance(s)		1.00	1.31	27.614	30.38	228.96	0.650	0.000	1.00	2.159	1.40	68.2	0.0	61.4
120.00		1.00	1.32	27.663	30.43	226.95	0.650	0.000	1.00	2.138	1.39	67.7	0.0	60.8
125.00		1.00	1.33	27.902	30.69	216.84	0.650	0.000	5.00	10.381	6.75	331.4	0.0	295.1
127.00 Appurtenance(s)		1.00	1.33	27.995	30.79	212.76	0.650	0.000	2.00	4.008	2.60	128.3	0.0	113.9
130.00		1.00	1.34	28.133	30.95	206.61	0.650	0.000	3.00	5.856	3.81	188.5	0.0	166.3
135.00		1.00	1.35	28.358	31.19	196.26	0.650	0.000	5.00	9.346	6.07	303.2	0.0	265.4
139.00 Appurtenance(s)		1.00	1.36	28.533	31.39	187.89	0.650	0.000	4.00	7.104	4.62	231.9	0.0	201.6
<b>Totals:</b>									<b>139.00</b>			<b>11,546.0</b>		<b>18,499.4</b>

## Discrete Appurtenance Forces

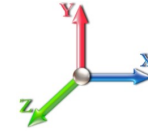
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>1/26/2017</b>
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

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



**Iterations** 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	Antel BXA-171063-8BF-2	3	28.576	31.433	0.60	0.80	5.29	28.35	0.000	1.000	266.15	0.00	266.15
2	139.00	Antel LPA-80063/4CF	6	28.576	31.433	0.40	0.80	9.70	61.02	0.000	1.000	487.64	0.00	487.64
3	139.00	Antel BXA-70063/6CF-2	3	28.576	31.433	0.60	0.80	13.63	45.90	0.000	1.000	685.29	0.00	685.29
4	139.00	T-Arms	3	28.402	31.242	0.56	0.75	16.88	1080.00	0.000	-3.000	843.53	0.00	-2530.60
5	139.00	RFS FD9R6004/2C-3L	6	28.576	31.433	0.54	0.80	1.16	16.74	0.000	1.000	58.23	0.00	58.23
6	127.00	Alcatel Lucent 1900 MHz	3	27.995	30.795	0.54	0.80	6.11	118.80	0.000	0.000	301.07	0.00	0.00
7	127.00	T-Arms	3	27.995	30.795	0.56	0.75	16.88	1080.00	0.000	0.000	831.46	0.00	0.00
8	127.00	Collar Mounts	3	27.995	30.795	0.56	0.75	5.91	270.00	0.000	0.000	291.01	0.00	0.00
9	127.00	RFS APXVSP18-C-A20	3	27.995	30.795	0.66	0.80	15.98	153.90	0.000	0.000	787.16	0.00	0.00
10	127.00	RFS ACU-A20-N RETs	4	27.995	30.795	0.54	0.80	0.30	3.60	0.000	0.000	14.79	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.00	143.10	0.000	0.000	197.28	0.00	0.00
12	127.00	Alcatel Lucent 800 MHz	3	27.995	30.795	0.54	0.80	4.68	166.86	0.000	0.000	230.56	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	27.995	30.795	0.63	0.80	12.02	151.20	0.000	0.000	592.28	0.00	0.00
14	127.00	Alcatel Lucent	3	27.995	30.795	0.54	0.80	6.51	189.00	0.000	0.000	320.88	0.00	0.00
15	119.00	KMW	1	27.614	30.376	0.60	0.80	4.81	43.65	0.000	0.000	233.87	0.00	0.00
16	118.00	KMW	1	27.565	30.322	0.60	0.80	3.00	27.72	0.000	0.000	145.55	0.00	0.00
17	118.00	Ericsson RRU-11-RRU	3	27.565	30.322	0.54	0.80	4.05	136.89	0.000	0.000	196.59	0.00	0.00
18	118.00	Kathrein 800 10121	1	27.565	30.322	0.63	0.80	3.25	41.67	0.000	0.000	157.91	0.00	0.00
19	118.00	Powerwave 21401 TMA	18	27.565	30.322	0.54	0.80	12.45	228.42	0.000	0.000	603.82	0.00	0.00
20	118.00	Powerwave 7020.00 RET	6	27.565	30.322	0.54	0.80	1.29	11.88	0.000	0.000	62.41	0.00	0.00
21	118.00	Powerwave 7770	6	27.565	30.322	0.58	0.80	19.27	189.00	0.000	0.000	934.99	0.00	0.00
22	118.00	Ericsson RRU-12-RRU	3	27.565	30.322	0.54	0.80	4.34	162.00	0.000	0.000	210.63	0.00	0.00
23	118.00	Powerwave LGP13519	18	27.565	30.322	0.54	0.80	3.28	85.86	0.000	0.000	159.15	0.00	0.00
24	118.00	Raycap DC6-48-60-18-8F	1	27.565	30.322	0.00	1.00	0.92	29.52	0.000	0.000	44.63	0.00	0.00
25	118.00	T-Arms	3	27.565	30.322	0.56	0.75	13.50	945.00	0.000	0.000	654.96	0.00	0.00
26	108.00	Kathrein 782	3	27.056	29.762	0.59	0.80	1.21	29.70	0.000	0.000	57.51	0.00	0.00
27	108.00	TMA	12	27.056	29.762	0.54	0.80	3.79	113.40	0.000	0.000	180.71	0.00	0.00
28	108.00	LNx-6515DS	3	27.056	29.762	0.64	0.80	22.02	130.95	0.000	0.000	1048.69	0.00	0.00
29	108.00	APXV18-209014	3	27.056	29.762	0.59	0.80	6.36	50.49	0.000	0.000	302.77	0.00	0.00
30	108.00	APX16PV-16VL-E	3	27.056	29.762	0.54	0.80	9.70	106.92	0.000	0.000	461.73	0.00	0.00
31	108.00	Low Profile Platform	1	27.056	29.762	1.00	1.00	22.00	1350.00	0.000	0.000	1047.62	0.00	0.00
<b>Totals:</b>								<b>7,191.54</b>			<b>12,410.85</b>			

## Total Applied Force Summary

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

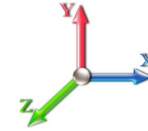


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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		455.53	1173.00	0.00	0.00
10.00		444.94	1150.71	0.00	0.00
15.00		434.36	1128.43	0.00	0.00
20.00		449.64	1106.14	0.00	0.00
25.00		459.50	1083.85	0.00	0.00
30.00		465.25	1061.56	0.00	0.00
35.00		467.96	1039.27	0.00	0.00
40.00		468.31	1016.98	0.00	0.00
45.00		466.75	994.69	0.00	0.00
46.58		145.47	309.04	0.00	0.00
50.00		321.66	1185.11	0.00	0.00
52.41		224.83	821.78	0.00	0.00
55.00		240.49	496.45	0.00	0.00
60.00		462.11	941.49	0.00	0.00
65.00		455.57	919.20	0.00	0.00
70.00		448.12	896.91	0.00	0.00
75.00		439.84	874.62	0.00	0.00
80.00		430.82	852.33	0.00	0.00
85.00		421.13	830.04	0.00	0.00
90.00		410.81	807.75	0.00	0.00
94.50		359.97	707.40	0.00	0.00
95.00		40.19	116.07	0.00	0.00
99.00		316.29	908.26	0.00	0.00
100.00		77.99	117.18	0.00	0.00
105.00		383.11	575.01	0.00	0.00
108.00	(25) attachments	3322.56	2119.34	0.00	0.00
110.00		146.39	188.58	0.00	0.00
115.00		358.05	461.05	0.00	0.00
118.00	(60) attachments	3378.79	2127.46	0.00	0.00
119.00	(1) attachments	302.08	118.65	0.00	0.00
120.00		67.67	74.41	0.00	0.00
125.00		331.36	363.12	0.00	0.00
127.00	(28) attachments	3694.83	2417.55	0.00	0.00
130.00		188.47	200.04	0.00	0.00
135.00		303.20	321.52	0.00	0.00
139.00	(21) attachments	2572.74	1478.52	0.00	-1033.28
	<b>Totals:</b>	<b>23,956.80</b>	<b>30,983.47</b>	<b>0.00</b>	<b>-1,033.28</b>

## Calculated Forces

**Structure:** CT46123-A-SBA

**Code:** EIA/TIA-222-G

1/26/2017

**Site Name:** Litchfield

**Exposure:** C

**Height:** 139.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** B - Competent Rock

**Gh:** 1.1

**Topography:** 1

**Struct Class:** II

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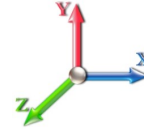


**Load Case:** 0.9D + 1.6W 93 mph Wind

**Iterations** 23

**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	-30.95	-24.00	0.00	-2348.7	0.00	2348.72	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.525
5.00	-29.72	-23.62	0.00	-2228.7	0.00	2228.74	4110.19	2055.10	8728.63	4370.80	0.08	-0.146	0.000	0.517
10.00	-28.51	-23.24	0.00	-2110.6	0.00	2110.66	4049.41	2024.70	8394.45	4203.46	0.31	-0.295	0.000	0.509
15.00	-27.32	-22.87	0.00	-1994.4	0.00	1994.45	3986.85	1993.43	8062.85	4037.42	0.70	-0.447	0.000	0.501
20.00	-26.16	-22.48	0.00	-1880.0	0.00	1880.08	3922.52	1961.26	7734.09	3872.79	1.25	-0.601	0.000	0.492
25.00	-25.02	-22.08	0.00	-1767.6	0.00	1767.66	3856.42	1928.21	7408.45	3709.73	1.97	-0.757	0.000	0.483
30.00	-23.91	-21.67	0.00	-1657.2	0.00	1657.26	3788.55	1894.27	7086.18	3548.36	2.85	-0.915	0.000	0.473
35.00	-22.82	-21.25	0.00	-1548.9	0.00	1548.93	3718.90	1859.45	6767.57	3388.81	3.89	-1.076	0.000	0.463
40.00	-21.75	-20.82	0.00	-1442.7	0.00	1442.70	3647.48	1823.74	6452.87	3231.23	5.10	-1.238	0.000	0.453
45.00	-20.73	-20.37	0.00	-1338.6	0.00	1338.61	3574.29	1787.15	6142.37	3075.75	6.49	-1.403	0.000	0.441
46.58	-20.39	-20.25	0.00	-1306.5	0.00	1306.50	3550.85	1775.42	6045.37	3027.18	6.96	-1.457	0.000	0.437
50.00	-19.18	-19.93	0.00	-1237.1	0.00	1237.19	3499.33	1749.66	5836.32	2922.50	8.05	-1.572	0.000	0.429
52.41	-18.34	-19.71	0.00	-1189.1	0.00	1189.17	3509.27	1754.63	5876.22	2942.48	8.87	-1.654	0.000	0.409
55.00	-17.80	-19.49	0.00	-1138.1	0.00	1138.14	3469.86	1734.93	5719.21	2863.86	9.79	-1.743	0.000	0.403
60.00	-16.83	-19.04	0.00	-1040.7	0.00	1040.70	3392.44	1696.22	5419.79	2713.92	11.70	-1.902	0.000	0.389
65.00	-15.87	-18.60	0.00	-945.48	0.00	945.48	3313.25	1656.62	5125.48	2566.55	13.78	-2.061	0.000	0.373
70.00	-14.94	-18.16	0.00	-852.48	0.00	852.48	3227.80	1613.90	4829.83	2418.50	16.02	-2.220	0.000	0.357
75.00	-14.04	-17.72	0.00	-761.68	0.00	761.68	3119.66	1559.83	4510.01	2258.36	18.43	-2.376	0.000	0.342
80.00	-13.16	-17.29	0.00	-673.06	0.00	673.06	3011.51	1505.75	4201.15	2103.70	21.00	-2.531	0.000	0.324
85.00	-12.30	-16.87	0.00	-586.60	0.00	586.60	2903.36	1451.68	3903.25	1954.53	23.73	-2.682	0.000	0.304
90.00	-11.48	-16.44	0.00	-502.27	0.00	502.27	2795.21	1397.61	3616.30	1810.84	26.62	-2.827	0.000	0.282
94.50	-10.77	-16.06	0.00	-428.33	0.00	428.33	2697.95	1348.98	3367.59	1686.30	29.35	-2.953	0.000	0.258
95.00	-10.64	-16.03	0.00	-420.24	0.00	420.24	2687.07	1343.53	3340.31	1672.64	29.66	-2.967	0.000	0.255
99.00	-9.73	-15.67	0.00	-356.19	0.00	356.19	1671.63	835.82	2062.09	1032.58	32.19	-3.072	0.000	0.351
100.00	-9.59	-15.61	0.00	-340.47	0.00	340.47	1662.31	831.15	2033.69	1018.35	32.83	-3.098	0.000	0.340
105.00	-9.01	-15.21	0.00	-262.44	0.00	262.44	1614.76	807.38	1893.73	948.27	36.17	-3.259	0.000	0.283
108.00	-7.07	-11.78	0.00	-216.80	0.00	216.80	1585.38	792.69	1811.10	906.90	38.24	-3.347	0.000	0.244
110.00	-6.87	-11.63	0.00	-193.24	0.00	193.24	1565.43	782.72	1756.61	879.61	39.66	-3.401	0.000	0.224
115.00	-6.42	-11.26	0.00	-135.08	0.00	135.08	1514.34	757.17	1622.58	812.50	43.28	-3.515	0.000	0.171
118.00	-4.50	-7.76	0.00	-101.31	0.00	101.31	1482.83	741.42	1543.76	773.03	45.51	-3.571	0.000	0.134
119.00	-4.40	-7.45	0.00	-93.55	0.00	93.55	1472.19	736.09	1517.77	760.01	46.26	-3.588	0.000	0.126
120.00	-4.32	-7.38	0.00	-86.10	0.00	86.10	1461.47	730.74	1491.92	747.07	47.01	-3.604	0.000	0.118
125.00	-3.98	-7.03	0.00	-49.20	0.00	49.20	1395.63	697.82	1354.03	678.02	50.82	-3.666	0.000	0.076
127.00	-1.80	-3.19	0.00	-35.15	0.00	35.15	1366.79	683.40	1298.36	650.14	52.36	-3.684	0.000	0.055
130.00	-1.61	-2.99	0.00	-25.59	0.00	25.59	1323.53	661.77	1217.05	609.43	54.68	-3.705	0.000	0.043
135.00	-1.31	-2.66	0.00	-10.65	0.00	10.65	1251.44	625.72	1087.38	544.50	58.57	-3.728	0.000	0.021
139.00	0.00	-2.57	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	61.70	-3.734	0.000	0.000

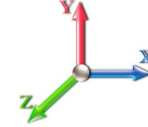
## Wind Loading - Shaft

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 1.2D + 1.0Di + 1.0Wi 40 mph Wind

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



**Iterations** 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	3.308	3.64	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	3.308	3.64	0.00	1.200	1.656	5.00	23.651	28.38	103.3	556.9	1826.9
10.00		1.00	0.85	3.308	3.64	0.00	1.200	1.775	5.00	23.233	27.88	101.4	584.5	1824.8
15.00		1.00	0.85	3.308	3.64	0.00	1.200	1.848	5.00	22.776	27.33	99.4	595.4	1806.0
20.00		1.00	0.90	3.509	3.86	0.00	1.200	1.902	5.00	22.304	26.76	103.3	598.8	1779.7
25.00		1.00	0.95	3.678	4.05	0.00	1.200	1.945	5.00	21.822	26.19	106.0	597.9	1749.1
30.00		1.00	0.98	3.822	4.20	0.00	1.200	1.981	5.00	21.335	25.60	107.6	594.2	1715.6
35.00		1.00	1.01	3.948	4.34	0.00	1.200	2.012	5.00	20.843	25.01	108.6	588.4	1680.1
40.00		1.00	1.04	4.061	4.47	0.00	1.200	2.039	5.00	20.348	24.42	109.1	581.0	1643.0
45.00		1.00	1.07	4.163	4.58	0.00	1.200	2.063	5.00	19.851	23.82	109.1	572.4	1604.6
46.58 Bot - Section 2		1.00	1.08	4.193	4.61	0.00	1.200	2.070	1.58	6.154	7.38	34.1	179.6	498.9
50.00		1.00	1.09	4.256	4.68	0.00	1.200	2.085	3.42	13.411	16.09	75.3	392.0	1770.9
52.41 Top - Section 1		1.00	1.10	4.298	4.73	0.00	1.200	2.095	2.41	9.299	11.16	52.8	273.6	1227.6
55.00		1.00	1.12	4.342	4.78	0.00	1.200	2.105	2.59	9.864	11.84	56.5	291.2	800.8
60.00		1.00	1.14	4.423	4.86	0.00	1.200	2.123	5.00	18.666	22.40	109.0	551.0	1512.4
65.00		1.00	1.16	4.498	4.95	0.00	1.200	2.140	5.00	18.162	21.79	107.8	539.3	1470.9
70.00		1.00	1.17	4.569	5.03	0.00	1.200	2.156	5.00	17.658	21.19	106.5	527.0	1428.9
75.00		1.00	1.19	4.635	5.10	0.00	1.200	2.171	5.00	17.153	20.58	105.0	514.2	1386.4
80.00		1.00	1.21	4.699	5.17	0.00	1.200	2.185	5.00	16.648	19.98	103.3	501.0	1343.4
85.00		1.00	1.22	4.759	5.24	0.00	1.200	2.198	5.00	16.141	19.37	101.4	487.3	1300.1
90.00		1.00	1.24	4.817	5.30	0.00	1.200	2.211	5.00	15.634	18.76	99.4	473.4	1256.4
94.50 Bot - Section 3		1.00	1.25	4.866	5.35	0.00	1.200	2.222	4.50	13.627	16.35	87.5	414.2	1092.9
95.00		1.00	1.25	4.872	5.36	0.00	1.200	2.223	0.50	1.521	1.82	9.8	46.9	172.1
99.00 Top - Section 2		1.00	1.26	4.914	5.41	0.00	1.200	2.232	4.00	11.894	14.27	77.2	363.2	1339.2
100.00		1.00	1.27	4.925	5.42	0.00	1.200	2.234	1.00	2.934	3.52	19.1	90.6	187.8
105.00		1.00	1.28	4.976	5.47	0.00	1.200	2.245	5.00	14.322	17.19	94.1	436.6	909.3
108.00 Appurtenance(s)		1.00	1.29	5.005	5.51	0.00	1.200	2.252	3.00	8.348	10.02	55.2	256.5	530.6
110.00		1.00	1.29	5.025	5.53	0.00	1.200	2.256	2.00	5.463	6.56	36.2	168.6	347.4
115.00		1.00	1.30	5.072	5.58	0.00	1.200	2.266	5.00	13.304	15.97	89.1	406.1	839.2
118.00 Appurtenance(s)		1.00	1.31	5.099	5.61	0.00	1.200	2.272	3.00	7.737	9.28	52.1	238.1	488.4
119.00 Appurtenance(s)		1.00	1.31	5.108	5.62	0.00	1.200	2.274	1.00	2.538	3.05	17.1	78.7	160.6
120.00		1.00	1.32	5.117	5.63	0.00	1.200	2.276	1.00	2.518	3.02	17.0	78.1	159.2
125.00		1.00	1.33	5.162	5.68	0.00	1.200	2.285	5.00	12.285	14.74	83.7	374.8	768.2
127.00 Appurtenance(s)		1.00	1.33	5.179	5.70	0.00	1.200	2.289	2.00	4.770	5.72	32.6	147.4	299.2
130.00		1.00	1.34	5.204	5.72	0.00	1.200	2.294	3.00	7.003	8.40	48.1	215.3	437.1
135.00		1.00	1.35	5.246	5.77	0.00	1.200	2.303	5.00	11.265	13.52	78.0	342.6	696.4
139.00 Appurtenance(s)		1.00	1.36	5.278	5.81	0.00	1.200	2.309	4.00	8.644	10.37	60.2	263.7	532.4
<b>Totals:</b>									<b>139.00</b>			<b>2,755.7</b>		<b>38,586.3</b>

## Discrete Appurtenance Forces

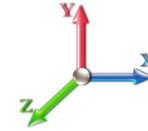
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 40 mph Wind

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



**Iterations** 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	Antel BXA-171063-8BF-2	3	5.286	5.815	0.80	0.80	12.32	241.59	0.000	1.000	71.65	0.00	71.65
2	139.00	Antel LPA-80063/4CF	6	5.286	5.815	0.80	0.80	30.71	566.86	0.000	1.000	178.59	0.00	178.59
3	139.00	Antel BXA-70063/6CF-2	3	5.286	5.815	0.80	0.80	26.95	522.38	0.000	1.000	156.68	0.00	156.68
4	139.00	T-Arms	3	5.254	5.780	0.75	0.75	48.48	2308.46	0.000	-3.000	280.19	0.00	-840.57
5	139.00	RFS FD9R6004/2C-3L	6	5.286	5.815	0.80	0.80	4.54	72.25	0.000	1.000	26.42	0.00	26.42
6	127.00	Alcatel Lucent 1900 MHz	3	5.179	5.697	0.80	0.80	13.49	494.25	0.000	0.000	76.88	0.00	0.00
7	127.00	T-Arms	3	5.179	5.697	0.75	0.75	48.25	2298.50	0.000	0.000	274.85	0.00	0.00
8	127.00	Collar Mounts	3	5.179	5.697	0.75	0.75	15.08	-360.45	0.000	0.000	85.93	0.00	0.00
9	127.00	RFS APXVSP18-C-A20	3	5.179	5.697	0.80	0.80	28.04	736.69	0.000	0.000	159.74	0.00	0.00
10	127.00	RFS ACU-A20-N RETs	4	5.179	5.697	0.80	0.80	1.69	22.13	0.000	0.000	9.65	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	5.179	5.697	0.80	0.80	9.58	418.46	0.000	0.000	54.55	0.00	0.00
12	127.00	Alcatel Lucent 800 MHz	3	5.179	5.697	0.80	0.80	10.81	501.40	0.000	0.000	61.60	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	5.179	5.697	0.80	0.80	18.79	872.92	0.000	0.000	107.04	0.00	0.00
14	127.00	Alcatel Lucent	3	5.179	5.697	0.80	0.80	12.34	715.31	0.000	0.000	70.30	0.00	0.00
15	119.00	KMW	1	5.108	5.619	0.80	0.80	9.33	223.12	0.000	0.000	52.42	0.00	0.00
16	118.00	KMW	1	5.099	5.609	0.80	0.80	5.95	150.24	0.000	0.000	33.39	0.00	0.00
17	118.00	Ericsson RRU-11-RRU	3	5.099	5.609	0.80	0.80	8.14	555.04	0.000	0.000	45.65	0.00	0.00
18	118.00	Kathrein 800 10121	1	5.099	5.609	0.80	0.80	6.31	172.19	0.000	0.000	35.42	0.00	0.00
19	118.00	Powerwave 21401 TMA	18	5.099	5.609	0.80	0.80	34.24	762.56	0.000	0.000	192.07	0.00	0.00
20	118.00	Powerwave 7020.00 RET	6	5.099	5.609	0.80	0.80	4.94	78.39	0.000	0.000	27.73	0.00	0.00
21	118.00	Powerwave 7770	6	5.099	5.609	0.80	0.80	33.19	1381.29	0.000	0.000	186.16	0.00	0.00
22	118.00	Ericsson RRU-12-RRU	3	5.099	5.609	0.80	0.80	8.54	430.61	0.000	0.000	47.91	0.00	0.00
23	118.00	Powerwave LGP13519	18	5.099	5.609	0.80	0.80	13.41	288.42	0.000	0.000	75.20	0.00	0.00
24	118.00	Raycap DC6-48-60-18-8F	1	5.099	5.609	0.00	1.00	1.49	105.67	0.000	0.000	8.36	0.00	0.00
25	118.00	T-Arms	3	5.099	5.609	0.75	0.75	38.45	2004.15	0.000	0.000	215.66	0.00	0.00
26	108.00	Kathrein 782	3	5.005	5.506	0.80	0.80	3.54	89.76	0.000	0.000	19.47	0.00	0.00
27	108.00	TMA	12	5.005	5.506	0.80	0.80	12.73	332.20	0.000	0.000	70.09	0.00	0.00
28	108.00	LNx-6515DS	3	5.005	5.506	0.80	0.80	37.59	867.04	0.000	0.000	206.99	0.00	0.00
29	108.00	APXV18-209014	3	5.005	5.506	0.80	0.80	11.55	442.01	0.000	0.000	63.62	0.00	0.00
30	108.00	APX16PV-16VL-E	3	5.005	5.506	0.80	0.80	17.87	676.29	0.000	0.000	98.41	0.00	0.00
31	108.00	Low Profile Platform	1	5.005	5.506	1.00	1.00	44.79	3188.82	0.000	0.000	246.59	0.00	0.00
<b>Totals:</b>								<b>21,158.54</b>				<b>3,239.19</b>		



## Total Applied Force Summary

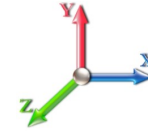
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 40 mph Wind

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



**Iterations** 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		103.26	2120.86	0.00	0.00
10.00		101.43	2118.81	0.00	0.00
15.00		99.44	2099.95	0.00	0.00
20.00		103.32	2073.66	0.00	0.00
25.00		105.95	2043.06	0.00	0.00
30.00		107.64	2009.60	0.00	0.00
35.00		108.63	1974.07	0.00	0.00
40.00		109.07	1936.98	0.00	0.00
45.00		109.08	1898.64	0.00	0.00
46.58		34.06	591.61	0.00	0.00
50.00		75.34	1972.16	0.00	0.00
52.41		52.77	1369.30	0.00	0.00
55.00		56.54	953.14	0.00	0.00
60.00		108.97	1806.36	0.00	0.00
65.00		107.83	1764.89	0.00	0.00
70.00		106.49	1722.87	0.00	0.00
75.00		104.96	1680.35	0.00	0.00
80.00		103.25	1637.41	0.00	0.00
85.00		101.40	1594.06	0.00	0.00
90.00		99.40	1550.36	0.00	0.00
94.50		87.53	1357.35	0.00	0.00
95.00		9.78	201.67	0.00	0.00
99.00		77.16	1574.23	0.00	0.00
100.00		19.08	246.83	0.00	0.00
105.00		94.06	1203.29	0.00	0.00
108.00	(25) attachments	760.31	6303.16	0.00	0.00
110.00		36.23	420.04	0.00	0.00
115.00		89.07	1020.88	0.00	0.00
118.00	(60) attachments	919.62	6525.98	0.00	0.00
119.00	(1) attachments	69.53	401.86	0.00	0.00
120.00		17.01	177.32	0.00	0.00
125.00		83.70	858.94	0.00	0.00
127.00	(28) attachments	933.15	6034.69	0.00	0.00
130.00		48.11	482.01	0.00	0.00
135.00		78.01	771.33	0.00	0.00
139.00	(21) attachments	773.76	4303.89	0.00	-407.22
	<b>Totals:</b>	<b>5,994.94</b>	<b>66,801.60</b>	<b>0.00</b>	<b>-407.22</b>

## Calculated Forces

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

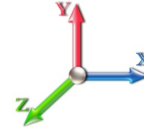


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 40 mph Wind

**Iterations** 22

**Dead Load Factor** 1.20  
**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	-66.80	-6.02	0.00	-627.46	0.00	627.46	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.154
5.00	-64.67	-5.96	0.00	-597.38	0.00	597.38	4110.19	2055.10	8728.63	4370.80	0.02	-0.039	0.000	0.152
10.00	-62.55	-5.90	0.00	-567.59	0.00	567.59	4049.41	2024.70	8394.45	4203.46	0.08	-0.079	0.000	0.150
15.00	-60.45	-5.84	0.00	-538.09	0.00	538.09	3986.85	1993.43	8062.85	4037.42	0.19	-0.120	0.000	0.148
20.00	-58.37	-5.77	0.00	-508.90	0.00	508.90	3922.52	1961.26	7734.09	3872.79	0.34	-0.162	0.000	0.146
25.00	-56.32	-5.70	0.00	-480.03	0.00	480.03	3856.42	1928.21	7408.45	3709.73	0.53	-0.204	0.000	0.144
30.00	-54.31	-5.63	0.00	-451.52	0.00	451.52	3788.55	1894.27	7086.18	3548.36	0.77	-0.247	0.000	0.142
35.00	-52.33	-5.55	0.00	-423.37	0.00	423.37	3718.90	1859.45	6767.57	3388.81	1.05	-0.291	0.000	0.139
40.00	-50.39	-5.47	0.00	-395.62	0.00	395.62	3647.48	1823.74	6452.87	3231.23	1.38	-0.335	0.000	0.136
45.00	-48.49	-5.38	0.00	-368.26	0.00	368.26	3574.29	1787.15	6142.37	3075.75	1.75	-0.380	0.000	0.133
46.58	-47.90	-5.36	0.00	-359.79	0.00	359.79	3550.85	1775.42	6045.37	3027.18	1.88	-0.395	0.000	0.132
50.00	-45.92	-5.29	0.00	-341.45	0.00	341.45	3499.33	1749.66	5836.32	2922.50	2.17	-0.427	0.000	0.130
52.41	-44.55	-5.24	0.00	-328.71	0.00	328.71	3509.27	1754.63	5876.22	2942.48	2.40	-0.450	0.000	0.124
55.00	-43.60	-5.21	0.00	-315.12	0.00	315.12	3469.86	1734.93	5719.21	2863.86	2.65	-0.474	0.000	0.123
60.00	-41.79	-5.11	0.00	-289.09	0.00	289.09	3392.44	1696.22	5419.79	2713.92	3.17	-0.518	0.000	0.119
65.00	-40.02	-5.02	0.00	-263.52	0.00	263.52	3313.25	1656.62	5125.48	2566.55	3.73	-0.563	0.000	0.115
70.00	-38.29	-4.93	0.00	-238.42	0.00	238.42	3227.80	1613.90	4829.83	2418.50	4.35	-0.607	0.000	0.110
75.00	-36.61	-4.83	0.00	-213.80	0.00	213.80	3119.66	1559.83	4510.01	2258.36	5.01	-0.651	0.000	0.106
80.00	-34.97	-4.73	0.00	-189.64	0.00	189.64	3011.51	1505.75	4201.15	2103.70	5.71	-0.694	0.000	0.102
85.00	-33.38	-4.64	0.00	-165.98	0.00	165.98	2903.36	1451.68	3903.25	1954.53	6.46	-0.737	0.000	0.096
90.00	-31.82	-4.54	0.00	-142.79	0.00	142.79	2795.21	1397.61	3616.30	1810.84	7.26	-0.778	0.000	0.090
94.50	-30.47	-4.44	0.00	-122.38	0.00	122.38	2697.95	1348.98	3367.59	1686.30	8.01	-0.814	0.000	0.084
95.00	-30.26	-4.44	0.00	-120.15	0.00	120.15	2687.07	1343.53	3340.31	1672.64	8.09	-0.818	0.000	0.083
99.00	-28.69	-4.35	0.00	-102.40	0.00	102.40	1671.63	835.82	2062.09	1032.58	8.79	-0.848	0.000	0.116
100.00	-28.44	-4.34	0.00	-98.04	0.00	98.04	1662.31	831.15	2033.69	1018.35	8.97	-0.855	0.000	0.113
105.00	-27.24	-4.24	0.00	-76.34	0.00	76.34	1614.76	807.38	1893.73	948.27	9.89	-0.902	0.000	0.097
108.00	-20.94	-3.39	0.00	-63.61	0.00	63.61	1585.38	792.69	1811.10	906.90	10.47	-0.928	0.000	0.083
110.00	-20.52	-3.36	0.00	-56.83	0.00	56.83	1565.43	782.72	1756.61	879.61	10.86	-0.944	0.000	0.078
115.00	-19.50	-3.26	0.00	-40.05	0.00	40.05	1514.34	757.17	1622.58	812.50	11.87	-0.977	0.000	0.062
118.00	-12.99	-2.23	0.00	-30.27	0.00	30.27	1482.83	741.42	1543.76	773.03	12.49	-0.994	0.000	0.048
119.00	-12.59	-2.15	0.00	-28.04	0.00	28.04	1472.19	736.09	1517.77	760.01	12.70	-0.999	0.000	0.045
120.00	-12.41	-2.14	0.00	-25.89	0.00	25.89	1461.47	730.74	1491.92	747.07	12.91	-1.004	0.000	0.043
125.00	-11.56	-2.04	0.00	-15.21	0.00	15.21	1395.63	697.82	1354.03	678.02	13.97	-1.023	0.000	0.031
127.00	-5.54	-1.00	0.00	-11.12	0.00	11.12	1366.79	683.40	1298.36	650.14	14.40	-1.028	0.000	0.021
130.00	-5.06	-0.94	0.00	-8.13	0.00	8.13	1323.53	661.77	1217.05	609.43	15.05	-1.035	0.000	0.017
135.00	-4.29	-0.85	0.00	-3.41	0.00	3.41	1251.44	625.72	1087.38	544.50	16.14	-1.042	0.000	0.010
139.00	0.00	-0.77	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	17.01	-1.044	0.000	0.000

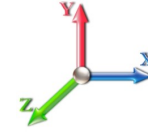
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 20
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.12
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.04
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.40	<b>SA</b>	0.02
				<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		1058.3	0.00	0.03	0.02	14.93	
10.00		1033.5	0.01	0.05	0.03	20.15	
15.00		1008.8	0.02	0.07	0.04	22.11	
20.00		984.04	0.04	0.07	0.04	22.73	
25.00		959.27	0.06	0.07	0.04	22.84	
30.00		934.51	0.09	0.07	0.04	22.84	
35.00		909.74	0.12	0.07	0.03	22.84	
40.00		884.97	0.16	0.07	0.03	22.76	
45.00		860.21	0.20	0.06	0.02	22.36	
46.58	Bot - Section 2	266.12	0.21	0.06	0.02	6.90	
50.00		1149.0	0.24	0.06	0.02	29.23	
52.41	Top - Section 1	795.00	0.27	0.05	0.02	19.62	
55.00		424.71	0.30	0.05	0.01	9.91	
60.00		801.10	0.35	0.03	0.01	15.05	
65.00		776.33	0.41	0.01	0.01	8.63	
70.00		751.56	0.48	-0.01	0.01	0.45	
75.00		726.80	0.55	-0.03	0.01	-7.87	
80.00		702.03	0.63	-0.06	0.02	-14.38	
85.00		677.27	0.71	-0.09	0.03	-17.98	
90.00		652.50	0.79	-0.11	0.05	-18.57	
94.50	Bot - Section 3	565.66	0.87	-0.12	0.08	-15.12	
95.00		104.30	0.88	-0.12	0.08	-2.75	
99.00	Top - Section 2	813.34	0.96	-0.12	0.11	-17.82	
100.00		81.03	0.98	-0.11	0.12	-1.66	
105.00		393.90	1.08	-0.08	0.17	-4.28	
108.00	Appurtenance(s)	2207.8	1.14	-0.04	0.21	-7.55	
110.00		148.98	1.18	-0.01	0.24	0.34	
115.00		360.88	1.29	0.11	0.33	6.86	
118.00	Appurtenance(s)	2273.0	1.36	0.22	0.39	70.08	
119.00	Appurtenance(s)	116.71	1.39	0.26	0.42	4.09	
120.00		67.55	1.41	0.30	0.44	2.66	
125.00		327.86	1.53	0.57	0.58	20.87	
127.00	Appurtenance(s)	2655.9	1.58	0.71	0.64	197.65	
130.00		184.83	1.65	0.95	0.74	16.96	
135.00		294.84	1.78	1.46	0.95	36.51	
139.00	Appurtenance(s)	1592.8	1.89	1.98	1.14	242.80	
<b>Totals:</b>		<b>28,545.4</b>				<b>774.2</b>	<b>Total Wind: 23,956.8</b>

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

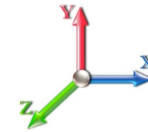
## Calculated Forces

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 20
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.12	<b>Ss</b> 0.18
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.04	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.40	<b>SA</b>	0.02	<b>Seismic Importance Factor</b> 1.00



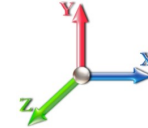
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.31	-0.88	0.00	-91.62	0.00	91.62	4169.21	2084.60	9065.11	4539.29	0.00	0.00	0.00	0.030
5.00	-39.75	-0.87	0.00	-87.20	0.00	87.20	4110.19	2055.10	8728.63	4370.80	0.00	-0.01	0.00	0.030
10.00	-38.21	-0.86	0.00	-82.84	0.00	82.84	4049.41	2024.70	8394.45	4203.46	0.01	-0.01	0.00	0.029
15.00	-36.71	-0.84	0.00	-78.56	0.00	78.56	3986.85	1993.43	8062.85	4037.42	0.03	-0.02	0.00	0.029
20.00	-35.23	-0.82	0.00	-74.37	0.00	74.37	3922.52	1961.26	7734.09	3872.79	0.05	-0.02	0.00	0.028
25.00	-33.79	-0.80	0.00	-70.28	0.00	70.28	3856.42	1928.21	7408.45	3709.73	0.08	-0.03	0.00	0.028
30.00	-32.37	-0.78	0.00	-66.29	0.00	66.29	3788.55	1894.27	7086.18	3548.36	0.11	-0.04	0.00	0.027
35.00	-30.99	-0.76	0.00	-62.40	0.00	62.40	3718.90	1859.45	6767.57	3388.81	0.15	-0.04	0.00	0.027
40.00	-29.63	-0.74	0.00	-58.62	0.00	58.62	3647.48	1823.74	6452.87	3231.23	0.20	-0.05	0.00	0.026
45.00	-28.30	-0.72	0.00	-54.93	0.00	54.93	3574.29	1787.15	6142.37	3075.75	0.26	-0.06	0.00	0.026
46.58	-27.89	-0.71	0.00	-53.80	0.00	53.80	3550.85	1775.42	6045.37	3027.18	0.27	-0.06	0.00	0.026
50.00	-26.31	-0.68	0.00	-51.37	0.00	51.37	3499.33	1749.66	5836.32	2922.50	0.32	-0.06	0.00	0.025
52.41	-25.22	-0.66	0.00	-49.73	0.00	49.73	3509.27	1754.63	5876.22	2942.48	0.35	-0.07	0.00	0.024
55.00	-24.55	-0.65	0.00	-48.01	0.00	48.01	3469.86	1734.93	5719.21	2863.86	0.39	-0.07	0.00	0.024
60.00	-23.30	-0.64	0.00	-44.75	0.00	44.75	3392.44	1696.22	5419.79	2713.92	0.46	-0.08	0.00	0.023
65.00	-22.07	-0.63	0.00	-41.55	0.00	41.55	3313.25	1656.62	5125.48	2566.55	0.55	-0.08	0.00	0.023
70.00	-20.88	-0.63	0.00	-38.39	0.00	38.39	3227.80	1613.90	4829.83	2418.50	0.64	-0.09	0.00	0.022
75.00	-19.71	-0.63	0.00	-35.23	0.00	35.23	3119.66	1559.83	4510.01	2258.36	0.74	-0.10	0.00	0.022
80.00	-18.57	-0.63	0.00	-32.06	0.00	32.06	3011.51	1505.75	4201.15	2103.70	0.85	-0.11	0.00	0.021
85.00	-17.47	-0.63	0.00	-28.89	0.00	28.89	2903.36	1451.68	3903.25	1954.53	0.96	-0.11	0.00	0.021
90.00	-16.39	-0.63	0.00	-25.73	0.00	25.73	2795.21	1397.61	3616.30	1810.84	1.08	-0.12	0.00	0.020
94.50	-15.45	-0.63	0.00	-22.88	0.00	22.88	2697.95	1348.98	3367.59	1686.30	1.20	-0.13	0.00	0.019
95.00	-15.29	-0.63	0.00	-22.56	0.00	22.56	2687.07	1343.53	3340.31	1672.64	1.21	-0.13	0.00	0.019
99.00	-14.08	-0.63	0.00	-20.03	0.00	20.03	1671.63	835.82	2062.09	1032.58	1.32	-0.13	0.00	0.028
100.00	-13.93	-0.63	0.00	-19.40	0.00	19.40	1662.31	831.15	2033.69	1018.35	1.35	-0.13	0.00	0.027
105.00	-13.16	-0.63	0.00	-16.24	0.00	16.24	1614.76	807.38	1893.73	948.27	1.49	-0.14	0.00	0.025
108.00	-10.33	-0.63	0.00	-14.34	0.00	14.34	1585.38	792.69	1811.10	906.90	1.59	-0.15	0.00	0.022
110.00	-10.08	-0.63	0.00	-13.09	0.00	13.09	1565.43	782.72	1756.61	879.61	1.65	-0.15	0.00	0.021
115.00	-9.47	-0.62	0.00	-9.96	0.00	9.96	1514.34	757.17	1622.58	812.50	1.81	-0.16	0.00	0.019
118.00	-6.63	-0.54	0.00	-8.11	0.00	8.11	1482.83	741.42	1543.76	773.03	1.92	-0.17	0.00	0.015
119.00	-6.47	-0.54	0.00	-7.57	0.00	7.57	1472.19	736.09	1517.77	760.01	1.95	-0.17	0.00	0.014
120.00	-6.37	-0.53	0.00	-7.03	0.00	7.03	1461.47	730.74	1491.92	747.07	1.99	-0.17	0.00	0.014
125.00	-5.89	-0.51	0.00	-4.36	0.00	4.36	1395.63	697.82	1354.03	678.02	2.16	-0.17	0.00	0.011
127.00	-2.67	-0.30	0.00	-3.34	0.00	3.34	1366.79	683.40	1298.36	650.14	2.24	-0.17	0.00	0.007
130.00	-2.40	-0.29	0.00	-2.43	0.00	2.43	1323.53	661.77	1217.05	609.43	2.35	-0.18	0.00	0.006
135.00	-1.97	-0.25	0.00	-1.00	0.00	1.00	1251.44	625.72	1087.38	544.50	2.53	-0.18	0.00	0.003
139.00	0.00	-0.24	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	2.69	-0.18	0.00	0.000

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 20
<b>Gust Response Factor</b>	1.10				<b>Sds</b> 0.12	<b>Ss</b> 0.18	
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00		<b>Sd1</b> 0.04	<b>S1</b> 0.07	
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.40		<b>SA</b> 0.02	<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		1058.3	0.00	0.03	0.02	14.93	
10.00		1033.5	0.01	0.05	0.03	20.15	
15.00		1008.8	0.02	0.07	0.04	22.11	
20.00		984.04	0.04	0.07	0.04	22.73	
25.00		959.27	0.06	0.07	0.04	22.84	
30.00		934.51	0.09	0.07	0.04	22.84	
35.00		909.74	0.12	0.07	0.03	22.84	
40.00		884.97	0.16	0.07	0.03	22.76	
45.00		860.21	0.20	0.06	0.02	22.36	
46.58	Bot - Section 2	266.12	0.21	0.06	0.02	6.90	
50.00		1149.0	0.24	0.06	0.02	29.23	
52.41	Top - Section 1	795.00	0.27	0.05	0.02	19.62	
55.00		424.71	0.30	0.05	0.01	9.91	
60.00		801.10	0.35	0.03	0.01	15.05	
65.00		776.33	0.41	0.01	0.01	8.63	
70.00		751.56	0.48	-0.01	0.01	0.45	
75.00		726.80	0.55	-0.03	0.01	-7.87	
80.00		702.03	0.63	-0.06	0.02	-14.38	
85.00		677.27	0.71	-0.09	0.03	-17.98	
90.00		652.50	0.79	-0.11	0.05	-18.57	
94.50	Bot - Section 3	565.66	0.87	-0.12	0.08	-15.12	
95.00		104.30	0.88	-0.12	0.08	-2.75	
99.00	Top - Section 2	813.34	0.96	-0.12	0.11	-17.82	
100.00		81.03	0.98	-0.11	0.12	-1.66	
105.00		393.90	1.08	-0.08	0.17	-4.28	
108.00	Appurtenance(s)	2207.8	1.14	-0.04	0.21	-7.55	
110.00		148.98	1.18	-0.01	0.24	0.34	
115.00		360.88	1.29	0.11	0.33	6.86	
118.00	Appurtenance(s)	2273.0	1.36	0.22	0.39	70.08	
119.00	Appurtenance(s)	116.71	1.39	0.26	0.42	4.09	
120.00		67.55	1.41	0.30	0.44	2.66	
125.00		327.86	1.53	0.57	0.58	20.87	
127.00	Appurtenance(s)	2655.9	1.58	0.71	0.64	197.65	
130.00		184.83	1.65	0.95	0.74	16.96	
135.00		294.84	1.78	1.46	0.95	36.51	
139.00	Appurtenance(s)	1592.8	1.89	1.98	1.14	242.80	
<b>Totals:</b>		<b>28,545.4</b>				<b>774.2</b>	<b>Total Wind: 23,956.8</b>

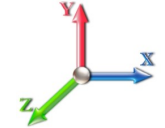
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 20
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.12	<b>Ss</b>	0.18
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.04	<b>S1</b>	0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency</b>	0.40	<b>SA</b>	0.02	<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	-30.98	-0.88	0.00	-90.76	0.00	90.76	4169.21	2084.60	9065.11	4539.29	0.00	0.00	0.00	0.027
5.00	-29.81	-0.87	0.00	-86.35	0.00	86.35	4110.19	2055.10	8728.63	4370.80	0.00	-0.01	0.00	0.027
10.00	-28.66	-0.85	0.00	-81.99	0.00	81.99	4049.41	2024.70	8394.45	4203.46	0.01	-0.01	0.00	0.027
15.00	-27.53	-0.83	0.00	-77.72	0.00	77.72	3986.85	1993.43	8062.85	4037.42	0.03	-0.02	0.00	0.026
20.00	-26.42	-0.81	0.00	-73.56	0.00	73.56	3922.52	1961.26	7734.09	3872.79	0.05	-0.02	0.00	0.026
25.00	-25.34	-0.79	0.00	-69.49	0.00	69.49	3856.42	1928.21	7408.45	3709.73	0.08	-0.03	0.00	0.025
30.00	-24.28	-0.77	0.00	-65.52	0.00	65.52	3788.55	1894.27	7086.18	3548.36	0.11	-0.04	0.00	0.025
35.00	-23.24	-0.75	0.00	-61.66	0.00	61.66	3718.90	1859.45	6767.57	3388.81	0.15	-0.04	0.00	0.024
40.00	-22.22	-0.73	0.00	-57.90	0.00	57.90	3647.48	1823.74	6452.87	3231.23	0.20	-0.05	0.00	0.024
45.00	-21.23	-0.71	0.00	-54.25	0.00	54.25	3574.29	1787.15	6142.37	3075.75	0.25	-0.06	0.00	0.024
46.58	-20.92	-0.70	0.00	-53.14	0.00	53.14	3550.85	1775.42	6045.37	3027.18	0.27	-0.06	0.00	0.023
50.00	-19.73	-0.67	0.00	-50.73	0.00	50.73	3499.33	1749.66	5836.32	2922.50	0.31	-0.06	0.00	0.023
52.41	-18.91	-0.65	0.00	-49.11	0.00	49.11	3509.27	1754.63	5876.22	2942.48	0.35	-0.07	0.00	0.022
55.00	-18.42	-0.65	0.00	-47.41	0.00	47.41	3469.86	1734.93	5719.21	2863.86	0.38	-0.07	0.00	0.022
60.00	-17.47	-0.63	0.00	-44.19	0.00	44.19	3392.44	1696.22	5419.79	2713.92	0.46	-0.08	0.00	0.021
65.00	-16.55	-0.62	0.00	-41.03	0.00	41.03	3313.25	1656.62	5125.48	2566.55	0.54	-0.08	0.00	0.021
70.00	-15.66	-0.62	0.00	-37.91	0.00	37.91	3227.80	1613.90	4829.83	2418.50	0.63	-0.09	0.00	0.021
75.00	-14.78	-0.62	0.00	-34.79	0.00	34.79	3119.66	1559.83	4510.01	2258.36	0.73	-0.10	0.00	0.020
80.00	-13.93	-0.62	0.00	-31.67	0.00	31.67	3011.51	1505.75	4201.15	2103.70	0.84	-0.10	0.00	0.020
85.00	-13.10	-0.62	0.00	-28.55	0.00	28.55	2903.36	1451.68	3903.25	1954.53	0.95	-0.11	0.00	0.019
90.00	-12.29	-0.62	0.00	-25.43	0.00	25.43	2795.21	1397.61	3616.30	1810.84	1.07	-0.12	0.00	0.018
94.50	-11.59	-0.62	0.00	-22.62	0.00	22.62	2697.95	1348.98	3367.59	1686.30	1.18	-0.12	0.00	0.018
95.00	-11.47	-0.62	0.00	-22.31	0.00	22.31	2687.07	1343.53	3340.31	1672.64	1.20	-0.13	0.00	0.018
99.00	-10.56	-0.62	0.00	-19.82	0.00	19.82	1671.63	835.82	2062.09	1032.58	1.30	-0.13	0.00	0.026
100.00	-10.44	-0.62	0.00	-19.19	0.00	19.19	1662.31	831.15	2033.69	1018.35	1.33	-0.13	0.00	0.025
105.00	-9.87	-0.62	0.00	-16.08	0.00	16.08	1614.76	807.38	1893.73	948.27	1.48	-0.14	0.00	0.023
108.00	-7.75	-0.62	0.00	-14.21	0.00	14.21	1585.38	792.69	1811.10	906.90	1.57	-0.15	0.00	0.021
110.00	-7.56	-0.62	0.00	-12.97	0.00	12.97	1565.43	782.72	1756.61	879.61	1.63	-0.15	0.00	0.020
115.00	-7.10	-0.61	0.00	-9.88	0.00	9.88	1514.34	757.17	1622.58	812.50	1.79	-0.16	0.00	0.017
118.00	-4.97	-0.54	0.00	-8.04	0.00	8.04	1482.83	741.42	1543.76	773.03	1.89	-0.16	0.00	0.014
119.00	-4.85	-0.53	0.00	-7.51	0.00	7.51	1472.19	736.09	1517.77	760.01	1.93	-0.16	0.00	0.013
120.00	-4.78	-0.53	0.00	-6.98	0.00	6.98	1461.47	730.74	1491.92	747.07	1.96	-0.17	0.00	0.013
125.00	-4.42	-0.51	0.00	-4.33	0.00	4.33	1395.63	697.82	1354.03	678.02	2.14	-0.17	0.00	0.010
127.00	-2.00	-0.30	0.00	-3.32	0.00	3.32	1366.79	683.40	1298.36	650.14	2.21	-0.17	0.00	0.007
130.00	-1.80	-0.28	0.00	-2.41	0.00	2.41	1323.53	661.77	1217.05	609.43	2.32	-0.17	0.00	0.005
135.00	-1.48	-0.25	0.00	-0.99	0.00	0.99	1251.44	625.72	1087.38	544.50	2.51	-0.18	0.00	0.003
139.00	0.00	-0.24	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	2.65	-0.18	0.00	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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** 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	249.26	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	243.53	0.650	0.000	5.00	22.271	14.48	118.5	0.0	1058.3
10.00		1.00	0.85	7.442	8.19	237.81	0.650	0.000	5.00	21.754	14.14	115.8	0.0	1033.6
15.00		1.00	0.85	7.442	8.19	232.08	0.650	0.000	5.00	21.236	13.80	113.0	0.0	1008.8
20.00		1.00	0.90	7.896	8.69	233.16	0.650	0.000	5.00	20.719	13.47	117.0	0.0	984.0
25.00		1.00	0.95	8.276	9.10	232.67	0.650	0.000	5.00	20.201	13.13	119.5	0.0	959.3
30.00		1.00	0.98	8.600	9.46	231.02	0.650	0.000	5.00	19.684	12.79	121.0	0.0	934.5
35.00		1.00	1.01	8.883	9.77	228.55	0.650	0.000	5.00	19.166	12.46	121.7	0.0	909.7
40.00		1.00	1.04	9.137	10.05	225.44	0.650	0.000	5.00	18.649	12.12	121.8	0.0	885.0
45.00		1.00	1.07	9.366	10.30	221.83	0.650	0.000	5.00	18.131	11.79	121.4	0.0	860.2
46.58 Bot - Section 2		1.00	1.08	9.434	10.38	220.60	0.650	0.000	1.58	5.610	3.65	37.8	0.0	266.1
50.00		1.00	1.09	9.576	10.53	217.81	0.650	0.000	3.42	12.221	7.94	83.7	0.0	1149.1
52.41 Top - Section 1		1.00	1.10	9.672	10.64	215.75	0.650	0.000	2.41	8.458	5.50	58.5	0.0	795.0
55.00		1.00	1.12	9.770	10.75	217.47	0.650	0.000	2.59	8.956	5.82	62.6	0.0	424.7
60.00		1.00	1.14	9.951	10.95	212.85	0.650	0.000	5.00	16.896	10.98	120.2	0.0	801.1
65.00		1.00	1.16	10.120	11.13	207.97	0.650	0.000	5.00	16.379	10.65	118.5	0.0	776.3
70.00		1.00	1.17	10.279	11.31	202.87	0.650	0.000	5.00	15.861	10.31	116.6	0.0	751.6
75.00		1.00	1.19	10.430	11.47	197.58	0.650	0.000	5.00	15.344	9.97	114.4	0.0	726.8
80.00		1.00	1.21	10.572	11.63	192.10	0.650	0.000	5.00	14.827	9.64	112.1	0.0	702.0
85.00		1.00	1.22	10.708	11.78	186.46	0.650	0.000	5.00	14.309	9.30	109.6	0.0	677.3
90.00		1.00	1.24	10.838	11.92	180.68	0.650	0.000	5.00	13.792	8.96	106.9	0.0	652.5
94.50 Bot - Section 3		1.00	1.25	10.949	12.04	175.36	0.650	0.000	4.50	11.961	7.77	93.6	0.0	565.7
95.00		1.00	1.25	10.962	12.06	174.76	0.650	0.000	0.50	1.334	0.87	10.5	0.0	104.3
99.00 Top - Section 2		1.00	1.26	11.057	12.16	169.94	0.650	0.000	4.00	10.407	6.76	82.3	0.0	813.3
100.00		1.00	1.27	11.081	12.19	171.58	0.650	0.000	1.00	2.561	1.66	20.3	0.0	81.0
105.00		1.00	1.28	11.195	12.31	165.44	0.650	0.000	5.00	12.451	8.09	99.7	0.0	393.9
108.00 Appurtenance(s)		1.00	1.29	11.262	12.39	161.71	0.650	0.000	3.00	7.222	4.69	58.2	0.0	228.4
110.00		1.00	1.29	11.305	12.44	159.20	0.650	0.000	2.00	4.711	3.06	38.1	0.0	149.0
115.00		1.00	1.30	11.412	12.55	152.85	0.650	0.000	5.00	11.416	7.42	93.1	0.0	360.9
118.00 Appurtenance(s)		1.00	1.31	11.474	12.62	149.00	0.650	0.000	3.00	6.601	4.29	54.2	0.0	208.6
119.00 Appurtenance(s)		1.00	1.31	11.494	12.64	147.71	0.650	0.000	1.00	2.159	1.40	17.7	0.0	68.2
120.00		1.00	1.32	11.514	12.67	146.42	0.650	0.000	1.00	2.138	1.39	17.6	0.0	67.6
125.00		1.00	1.33	11.614	12.78	139.90	0.650	0.000	5.00	10.381	6.75	86.2	0.0	327.9
127.00 Appurtenance(s)		1.00	1.33	11.653	12.82	137.27	0.650	0.000	2.00	4.008	2.60	33.4	0.0	126.5
130.00		1.00	1.34	11.710	12.88	133.30	0.650	0.000	3.00	5.856	3.81	49.0	0.0	184.8
135.00		1.00	1.35	11.803	12.98	126.62	0.650	0.000	5.00	9.346	6.07	78.9	0.0	294.8
139.00 Appurtenance(s)		1.00	1.36	11.876	13.06	121.22	0.650	0.000	4.00	7.104	4.62	60.3	0.0	224.0
<b>Totals:</b>									<b>139.00</b>			<b>3,003.6</b>		<b>20,554.8</b>

## Discrete Appurtenance Forces

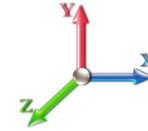
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

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



**Iterations** 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	139.00	Antel BXA-171063-8BF-2	3	11.894	13.084	0.60	0.80	5.29	31.50	0.000	1.000	69.24	0.00	69.24
2	139.00	Antel LPA-80063/4CF	6	11.894	13.084	0.40	0.80	9.70	67.80	0.000	1.000	126.86	0.00	126.86
3	139.00	Antel BXA-70063/6CF-2	3	11.894	13.084	0.60	0.80	13.63	51.00	0.000	1.000	178.28	0.00	178.28
4	139.00	T-Arms	3	11.822	13.004	0.56	0.75	16.88	1200.00	0.000	-3.000	219.44	0.00	-658.32
5	139.00	RFS FD9R6004/2C-3L	6	11.894	13.084	0.54	0.80	1.16	18.60	0.000	1.000	15.15	0.00	15.15
6	127.00	Alcatel Lucent 1900 MHz	3	11.653	12.818	0.54	0.80	6.11	132.00	0.000	0.000	78.32	0.00	0.00
7	127.00	T-Arms	3	11.653	12.818	0.56	0.75	16.88	1200.00	0.000	0.000	216.30	0.00	0.00
8	127.00	Collar Mounts	3	11.653	12.818	0.56	0.75	5.91	300.00	0.000	0.000	75.71	0.00	0.00
9	127.00	RFS APXVSP18-C-A20	3	11.653	12.818	0.66	0.80	15.98	171.00	0.000	0.000	204.78	0.00	0.00
10	127.00	RFS ACU-A20-N RETs	4	11.653	12.818	0.54	0.80	0.30	4.00	0.000	0.000	3.85	0.00	0.00
11	127.00	Alcatel Lucent 800 MHz	3	11.653	12.818	0.54	0.80	4.00	159.00	0.000	0.000	51.32	0.00	0.00
12	127.00	Alcatel Lucent 800 MHz	3	11.653	12.818	0.54	0.80	4.68	185.40	0.000	0.000	59.98	0.00	0.00
13	127.00	RFS APXVTM14-C-I20	3	11.653	12.818	0.63	0.80	12.02	168.00	0.000	0.000	154.08	0.00	0.00
14	127.00	Alcatel Lucent	3	11.653	12.818	0.54	0.80	6.51	210.00	0.000	0.000	83.47	0.00	0.00
15	119.00	KMW	1	11.494	12.643	0.60	0.80	4.81	48.50	0.000	0.000	60.84	0.00	0.00
16	118.00	KMW	1	11.474	12.621	0.60	0.80	3.00	30.80	0.000	0.000	37.86	0.00	0.00
17	118.00	Ericsson RRU-11-RRU	3	11.474	12.621	0.54	0.80	4.05	152.10	0.000	0.000	51.14	0.00	0.00
18	118.00	Kathrein 800 10121	1	11.474	12.621	0.63	0.80	3.25	46.30	0.000	0.000	41.08	0.00	0.00
19	118.00	Powerwave 21401 TMA	18	11.474	12.621	0.54	0.80	12.45	253.80	0.000	0.000	157.08	0.00	0.00
20	118.00	Powerwave 7020.00 RET	6	11.474	12.621	0.54	0.80	1.29	13.20	0.000	0.000	16.24	0.00	0.00
21	118.00	Powerwave 7770	6	11.474	12.621	0.58	0.80	19.27	210.00	0.000	0.000	243.23	0.00	0.00
22	118.00	Ericsson RRU-12-RRU	3	11.474	12.621	0.54	0.80	4.34	180.00	0.000	0.000	54.80	0.00	0.00
23	118.00	Powerwave LGP13519	18	11.474	12.621	0.54	0.80	3.28	95.40	0.000	0.000	41.40	0.00	0.00
24	118.00	Raycap DC6-48-60-18-8F	1	11.474	12.621	0.00	1.00	0.92	32.80	0.000	0.000	11.61	0.00	0.00
25	118.00	T-Arms	3	11.474	12.621	0.56	0.75	13.50	1050.00	0.000	0.000	170.38	0.00	0.00
26	108.00	Kathrein 782	3	11.262	12.388	0.59	0.80	1.21	33.00	0.000	0.000	14.96	0.00	0.00
27	108.00	TMA	12	11.262	12.388	0.54	0.80	3.79	126.00	0.000	0.000	47.01	0.00	0.00
28	108.00	LNx-6515DS	3	11.262	12.388	0.64	0.80	22.02	145.50	0.000	0.000	272.81	0.00	0.00
29	108.00	APXV18-209014	3	11.262	12.388	0.59	0.80	6.36	56.10	0.000	0.000	78.76	0.00	0.00
30	108.00	APX16PV-16VL-E	3	11.262	12.388	0.54	0.80	9.70	118.80	0.000	0.000	120.12	0.00	0.00
31	108.00	Low Profile Platform	1	11.262	12.388	1.00	1.00	22.00	1500.00	0.000	0.000	272.53	0.00	0.00
<b>Totals:</b>								<b>7,990.60</b>				<b>3,228.63</b>		



## Total Applied Force Summary

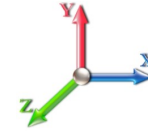
<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

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



**Iterations** 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		118.50	1303.34	0.00	0.00
10.00		115.75	1278.57	0.00	0.00
15.00		113.00	1253.81	0.00	0.00
20.00		116.97	1229.04	0.00	0.00
25.00		119.54	1204.27	0.00	0.00
30.00		121.03	1179.51	0.00	0.00
35.00		121.74	1154.74	0.00	0.00
40.00		121.83	1129.97	0.00	0.00
45.00		121.42	1105.21	0.00	0.00
46.58		37.84	343.37	0.00	0.00
50.00		83.68	1316.79	0.00	0.00
52.41		58.49	913.09	0.00	0.00
55.00		62.56	551.62	0.00	0.00
60.00		120.22	1046.10	0.00	0.00
65.00		118.52	1021.33	0.00	0.00
70.00		116.58	996.56	0.00	0.00
75.00		114.42	971.80	0.00	0.00
80.00		112.08	947.03	0.00	0.00
85.00		109.55	922.27	0.00	0.00
90.00		106.87	897.50	0.00	0.00
94.50		93.64	786.00	0.00	0.00
95.00		10.46	128.96	0.00	0.00
99.00		82.28	1009.18	0.00	0.00
100.00		20.29	130.20	0.00	0.00
105.00		99.66	638.90	0.00	0.00
108.00	(25) attachments	864.35	2354.82	0.00	0.00
110.00		38.08	209.54	0.00	0.00
115.00		93.15	512.28	0.00	0.00
118.00	(60) attachments	878.98	2363.84	0.00	0.00
119.00	(1) attachments	78.58	131.83	0.00	0.00
120.00		17.60	82.67	0.00	0.00
125.00		86.20	403.46	0.00	0.00
127.00	(28) attachments	961.19	2686.16	0.00	0.00
130.00		49.03	222.27	0.00	0.00
135.00		78.88	357.24	0.00	0.00
139.00	(21) attachments	669.29	1642.80	0.00	-268.80
	<b>Totals:</b>	<b>6,232.26</b>	<b>34,426.08</b>	<b>0.00</b>	<b>-268.80</b>

## Calculated Forces

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

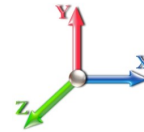


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 22

**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	-34.42	-6.24	0.00	-613.14	0.00	613.14	4169.21	2084.60	9065.11	4539.29	0.00	0.000	0.000	0.143
5.00	-33.12	-6.15	0.00	-581.92	0.00	581.92	4110.19	2055.10	8728.63	4370.80	0.02	-0.038	0.000	0.141
10.00	-31.83	-6.05	0.00	-551.19	0.00	551.19	4049.41	2024.70	8394.45	4203.46	0.08	-0.077	0.000	0.139
15.00	-30.58	-5.96	0.00	-520.93	0.00	520.93	3986.85	1993.43	8062.85	4037.42	0.18	-0.117	0.000	0.137
20.00	-29.34	-5.86	0.00	-491.14	0.00	491.14	3922.52	1961.26	7734.09	3872.79	0.33	-0.157	0.000	0.134
25.00	-28.14	-5.76	0.00	-461.85	0.00	461.85	3856.42	1928.21	7408.45	3709.73	0.51	-0.198	0.000	0.132
30.00	-26.95	-5.65	0.00	-433.07	0.00	433.07	3788.55	1894.27	7086.18	3548.36	0.74	-0.239	0.000	0.129
35.00	-25.79	-5.54	0.00	-404.82	0.00	404.82	3718.90	1859.45	6767.57	3388.81	1.02	-0.281	0.000	0.126
40.00	-24.66	-5.43	0.00	-377.12	0.00	377.12	3647.48	1823.74	6452.87	3231.23	1.33	-0.324	0.000	0.123
45.00	-23.55	-5.32	0.00	-349.96	0.00	349.96	3574.29	1787.15	6142.37	3075.75	1.70	-0.367	0.000	0.120
46.58	-23.21	-5.28	0.00	-341.57	0.00	341.57	3550.85	1775.42	6045.37	3027.18	1.82	-0.381	0.000	0.119
50.00	-21.89	-5.20	0.00	-323.48	0.00	323.48	3499.33	1749.66	5836.32	2922.50	2.10	-0.411	0.000	0.117
52.41	-20.98	-5.14	0.00	-310.95	0.00	310.95	3509.27	1754.63	5876.22	2942.48	2.32	-0.432	0.000	0.112
55.00	-20.42	-5.09	0.00	-297.62	0.00	297.62	3469.86	1734.93	5719.21	2863.86	2.56	-0.455	0.000	0.110
60.00	-19.37	-4.97	0.00	-272.17	0.00	272.17	3392.44	1696.22	5419.79	2713.92	3.06	-0.497	0.000	0.106
65.00	-18.35	-4.86	0.00	-247.30	0.00	247.30	3313.25	1656.62	5125.48	2566.55	3.60	-0.539	0.000	0.102
70.00	-17.35	-4.75	0.00	-223.00	0.00	223.00	3227.80	1613.90	4829.83	2418.50	4.19	-0.580	0.000	0.098
75.00	-16.38	-4.63	0.00	-199.27	0.00	199.27	3119.66	1559.83	4510.01	2258.36	4.82	-0.621	0.000	0.093
80.00	-15.43	-4.52	0.00	-176.10	0.00	176.10	3011.51	1505.75	4201.15	2103.70	5.49	-0.662	0.000	0.089
85.00	-14.50	-4.41	0.00	-153.49	0.00	153.49	2903.36	1451.68	3903.25	1954.53	6.20	-0.701	0.000	0.084
90.00	-13.60	-4.30	0.00	-131.44	0.00	131.44	2795.21	1397.61	3616.30	1810.84	6.96	-0.739	0.000	0.077
94.50	-12.82	-4.20	0.00	-112.10	0.00	112.10	2697.95	1348.98	3367.59	1686.30	7.67	-0.772	0.000	0.071
95.00	-12.69	-4.19	0.00	-109.98	0.00	109.98	2687.07	1343.53	3340.31	1672.64	7.75	-0.776	0.000	0.070
99.00	-11.68	-4.10	0.00	-93.22	0.00	93.22	1671.63	835.82	2062.09	1032.58	8.41	-0.803	0.000	0.097
100.00	-11.55	-4.08	0.00	-89.11	0.00	89.11	1662.31	831.15	2033.69	1018.35	8.58	-0.810	0.000	0.094
105.00	-10.91	-3.98	0.00	-68.70	0.00	68.70	1614.76	807.38	1893.73	948.27	9.45	-0.852	0.000	0.079
108.00	-8.57	-3.08	0.00	-56.76	0.00	56.76	1585.38	792.69	1811.10	906.90	10.00	-0.875	0.000	0.068
110.00	-8.36	-3.05	0.00	-50.59	0.00	50.59	1565.43	782.72	1756.61	879.61	10.37	-0.889	0.000	0.063
115.00	-7.84	-2.95	0.00	-35.37	0.00	35.37	1514.34	757.17	1622.58	812.50	11.32	-0.919	0.000	0.049
118.00	-5.49	-2.03	0.00	-26.53	0.00	26.53	1482.83	741.42	1543.76	773.03	11.90	-0.934	0.000	0.038
119.00	-5.36	-1.95	0.00	-24.49	0.00	24.49	1472.19	736.09	1517.77	760.01	12.09	-0.938	0.000	0.036
120.00	-5.28	-1.93	0.00	-22.54	0.00	22.54	1461.47	730.74	1491.92	747.07	12.29	-0.942	0.000	0.034
125.00	-4.88	-1.84	0.00	-12.88	0.00	12.88	1395.63	697.82	1354.03	678.02	13.29	-0.959	0.000	0.023
127.00	-2.21	-0.83	0.00	-9.20	0.00	9.20	1366.79	683.40	1298.36	650.14	13.69	-0.963	0.000	0.016
130.00	-1.99	-0.78	0.00	-6.70	0.00	6.70	1323.53	661.77	1217.05	609.43	14.30	-0.969	0.000	0.012
135.00	-1.63	-0.70	0.00	-2.79	0.00	2.79	1251.44	625.72	1087.38	544.50	15.32	-0.975	0.000	0.006
139.00	0.00	-0.67	0.00	0.00	0.00	0.00	1193.76	596.88	988.90	495.18	16.13	-0.976	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT46123-A-SBA	<b>Code:</b> EIA/TIA-222-G	1/26/2017
<b>Site Name:</b> Litchfield	<b>Exposure:</b> C	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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 93 mph Wind	24.0	0.00	41.28	0.00	0.00	2369.54
0.9D + 1.6W 93 mph Wind	24.0	0.00	30.95	0.00	0.00	2348.72
1.2D + 1.0Di + 1.0Wi 40 mph Wind	6.0	0.00	66.80	0.00	0.00	627.46
1.2D + 1.0E	0.9	0.00	41.31	0.00	0.00	91.62
0.9D + 1.0E	0.9	0.00	30.98	0.00	0.00	90.76
1.0D + 1.0W 60 mph Wind	6.2	0.00	34.42	0.00	0.00	613.14

### 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 93 mph Wind	-41.28	-24.01	0.00	-2369.5	0.00	-2369.5	4169.21	2084.6	9065.11	4539.29	0.00	0.532
0.9D + 1.6W 93 mph Wind	-30.95	-24.00	0.00	-2348.7	0.00	-2348.7	4169.21	2084.6	9065.11	4539.29	0.00	0.525
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-66.80	-6.02	0.00	-627.46	0.00	-627.46	4169.21	2084.6	9065.11	4539.29	0.00	0.154
1.2D + 1.0E	-41.31	-0.88	0.00	-91.62	0.00	-91.62	4169.21	2084.6	9065.11	4539.29	0.00	0.030
0.9D + 1.0E	-30.98	-0.88	0.00	-90.76	0.00	-90.76	4169.21	2084.6	9065.11	4539.29	0.00	0.027
1.0D + 1.0W 60 mph Wind	-34.42	-6.24	0.00	-613.14	0.00	-613.14	4169.21	2084.6	9065.11	4539.29	0.00	0.143