Alex Murshteyn, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMurshteyn@centerlincommunications.com

February 22, 2016

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

RE: Notice of Exempt Modification // Site Number: CT2359 (Name: Ansonia Deerfield Ln)
1 Deerfield Lane, Ansonia, CT 06401 (2 Osbourne Lane)
N 41.35075 // W 73.04925

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains 9 antennas at the 148-foot level of the existing 170-foot monopole tower at 1 Deerfield Lane, Ansonia, CT. The tower is owned by SBA Towers IV, LLC. The property is also owned by Macabee Properties, LLC. AT&T now intends to replace 3 of its existing antennas with 3 new LTE (700/1900 band) antennas for its LTE upgrade. These antennas would be installed at the 148-foot level of the tower. AT&T also intends to install 3 remote radio units with A2 modules.

The current proposal involves an antenna swap only (three for three); no antennas will be added.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to David S. Cassetti, Mayor for the City of Ansonia, as well as the tower owner, SBA Towers IV, LLC and the ground owner, Macabee Properties, LLC.

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

Attached to accommodate this filing are construction drawings dated February 17, 2016 by ComEx Consultants, a structural analysis dated December 9, 2015 by Tower Engineering Solutions and an Emissions Analysis Report dated November 13, 2015 by EBI Consulting.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

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

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading with certain modifications as shown in the attached structural analysis by Tower Engineering Solutions, dated December 9, 2015.

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

Sincerely,

_____

Alex Murshteyn, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMurshteyn@centerlincommunications.com

Attachments

cc: David S. Cassetti, Mayor, City of Ansonia - as elected official
SBA Towers IV, LLC - as tower owner
Macabee Properties, LLC - as property owner

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

Post-Mod Structural Analysis Report

Existing 169 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13071-A

Customer Site Name: Woodbridge

Carrier Name: AT&T

Carrier Site ID/ Name: CT2359

Site Location: 1 Deerfield Lane

Ansonia, Connecticut

New Haven County

Latitude: 41.350750

Longitude: -73.049250

Analysis Result:

Max Structural Usage: 99.7% [Pass]

Max Foundation Usage: 98.0% [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

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Latitude: 41.350750

Longitude: -73.049250

Analysis Result:

Max Structural Usage: 99.7% [Pass]

Max Foundation Usage: 98.0% [Pass]

Report Prepared By : Uma S Atluri

Introduction

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

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Sabre, DWG # 08-01016-PE, dated 1/7/2008
Foundation Drawing	Sabre, DWG # 08-01016, dated 1/30/2008
Geotechnical Report	JGI Eastern, Inc., Project # J2085109, dated 1/29/2008
Existing Modification	TES, Project # 17022, dated 9/1/2015
Proposed Modification	**TES** Job # 19194

Analysis Criteria

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-F**.** 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.

Basic Wind Speed Used in the Analysis:	85.0 mph (fastest mile) (Equivalent to 105 mph 3-second Gust wind speed)
Basic Wind Speed with Ice:	74 mph (fastest mile) with 1/2" radial ice concurrent
Operational Wind Speed:	50 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-F / 2005 Connecticut State Building Code

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	167.0	3	Ericsson - AIR B2A B4P - Panel	(3) T-Arms w/Commscope VSR-MS-B stabilizer Pipe	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - AIR B4A B2P - Panel			
3		3	Commscope - LNX-6515DS - Panel			
4		3	Ericsson S11B12-RRU			
5		3	Ericsson KRY 112 144/1-TMA			
6	157.0	3	ALU RRH2X60-AWS RRH	(3) T-Arms	(6) 1 5/8"* (12) 1 5/8" (1) 1 5/8" Fiber (1) 1/2"	Verizon
7		1	Antel BXA-70063/6CF - Panel			
8		4	Decibel - DB846F65ZAXY - Panel			
9		2	Decibel - DB846H80E-SX - Panel			
10		1	GPS			
11		6	Andrew - HBX-6517DS-VTM - Panel			
12		1	RFS DB T1-6Z-8AB-OZ Distribution Box			
13		2	Swedcom - SLCP 2x6014F - Panel			
-	150.0	1	Raycap DC6-48-60-18-8F-SA	Collar Mount	(12) 1 5/8" (1) 10 MM Fiber (2) DC Power	AT&T
		6	Ericsson - RRUS 11-RRU			
-	148.0	6	Powerwave - 7770.00 - Panel	(3) T-Arms		
		3	KMW - AM-X-CD-16-65-00T - Panel			
		6	Powerwave - LGP13519 Diplexers			
		6	Powerwave - LGP21401-TMA			
23	127.0	3	Samsung - 2.5GHz RRH BTS	(3) T-Arms	(4) 1/2" (3) 1/4" (3) 5/16" (3) 5/8"	Clearwire
24		3	Argus - LLPX310R - Panel			
25		3	Andrew - VHLP2-11 - Dish			
26		1	Andrew - VHLP800-11 - Dish			

*lines outside of the pole

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
14	150.0	6	Ericsson RRUS-11-RRU	(3) T-Arms	(12) 1 5/8" (1) 1/2" Fiber (Rosenberger 10mm FB-L98B-002 fiber Trunk) (2) 3/4" DC (WR-VG122ST-BRDA 12 gauge DC)	AT&T
15		1	Raycap DC6-48-60-18-8F-Surge Supperssor/Squid			
16	148.0	6	Powerwave 7770 - Panel			
17		1	Cci OPA-65R-LCUU-H6 - Panel			
18		2	Cci OPA-65R-LCUU-H8 - Panel			
19		6	Powerwave LGP21401 TMA-TMA			
20		3	Ericsson RRUS 12-B2-RRU			
21		3	Ericsson RRUS A2 Module - RRUS			
22		6	Powerwave LGP13519 Diplexer-Diplexer			

All proposed transmission lines are considered running inside of the pole shafts. The proposed tower mounted equipment (TTA/TMA/RRU/RRUS) must be installed behind the panel antennas.

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	Reinforcing Plates
Max. Usage:	**99.7%**	**87.0%**	**75.0%**	**78.7%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	4082.2	33.1	51.7

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):

Maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft)	Dish	Carrier	Twist (deg)	Sway (deg)
148.0	Various - Panels	AT&T	0.002	2.224
127.0	Andrew - VHLP800-11 - Dish	Clearwire	0.002	1.969
127.0	Andrew - VHLP2-11 - Dish	Clearwire	0.002	1.969

It is recommended that the carriers review the twist and sway values of the microwave dishes.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the design ANSI/TIA/EIA 222-F standards under a basic wind speed of 85 mph no ice and 74 mph with 1/2” radial ice after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 19194

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed AT&T equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-1019 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-1019. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-1019 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

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 or/and 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 Stress 99.7% at 100.0ft

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)			Page: 1	

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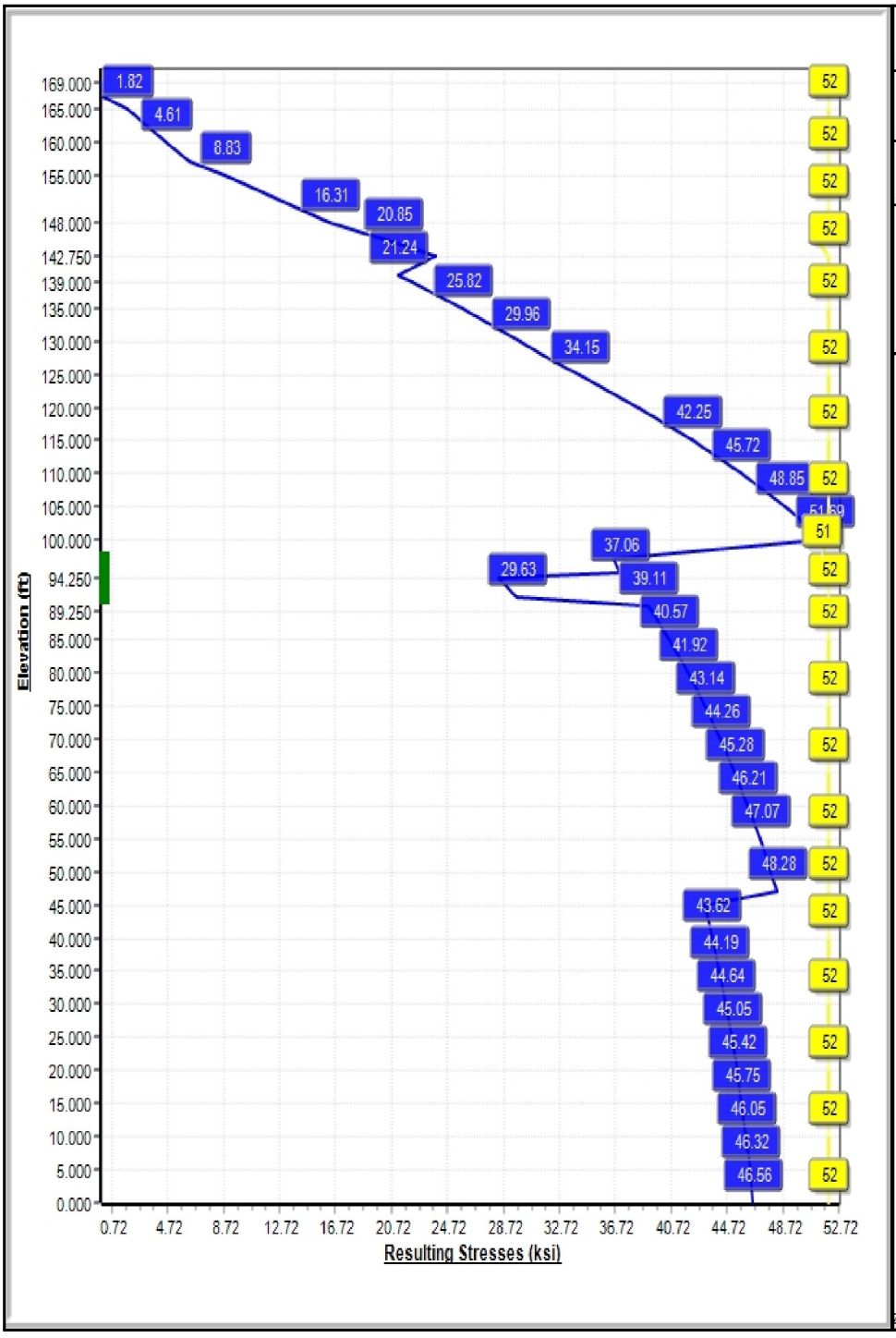
Dead Load Factor:	1.00
Wind Load Factor:	1.00

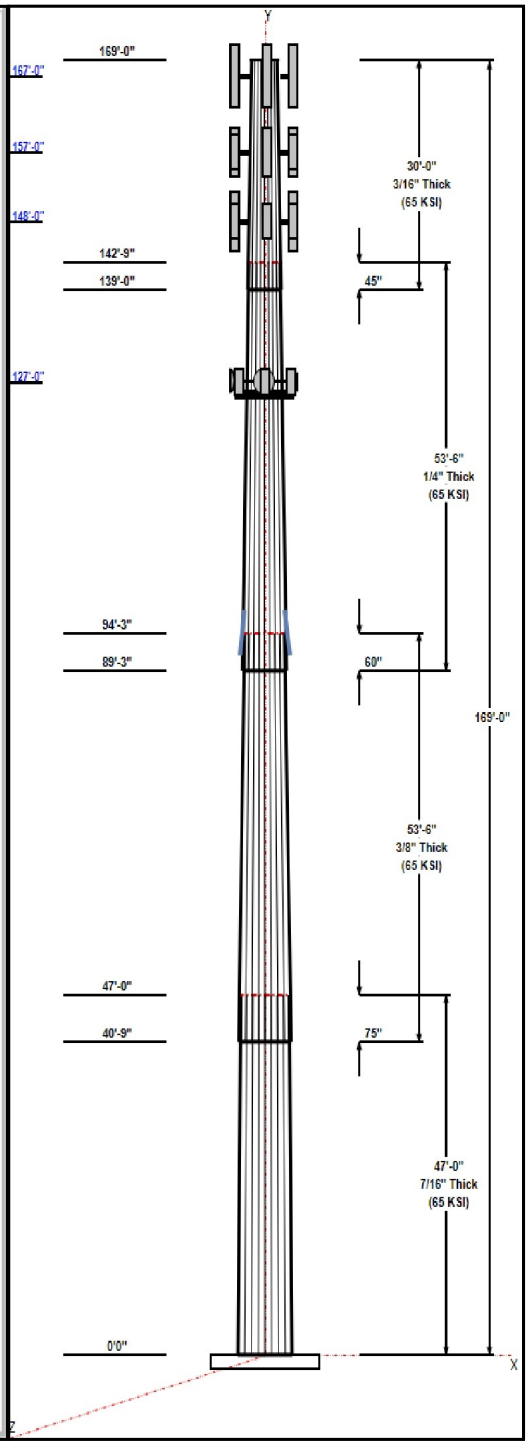
52 Alllowable Stress

52 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 27





Structure: CT13071-A-SBA

Type: Tapered
Site Name: Woodbridge
Height: 169.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.20003

12/9/2015

Tower Engineering Solutions

Shaft Properties

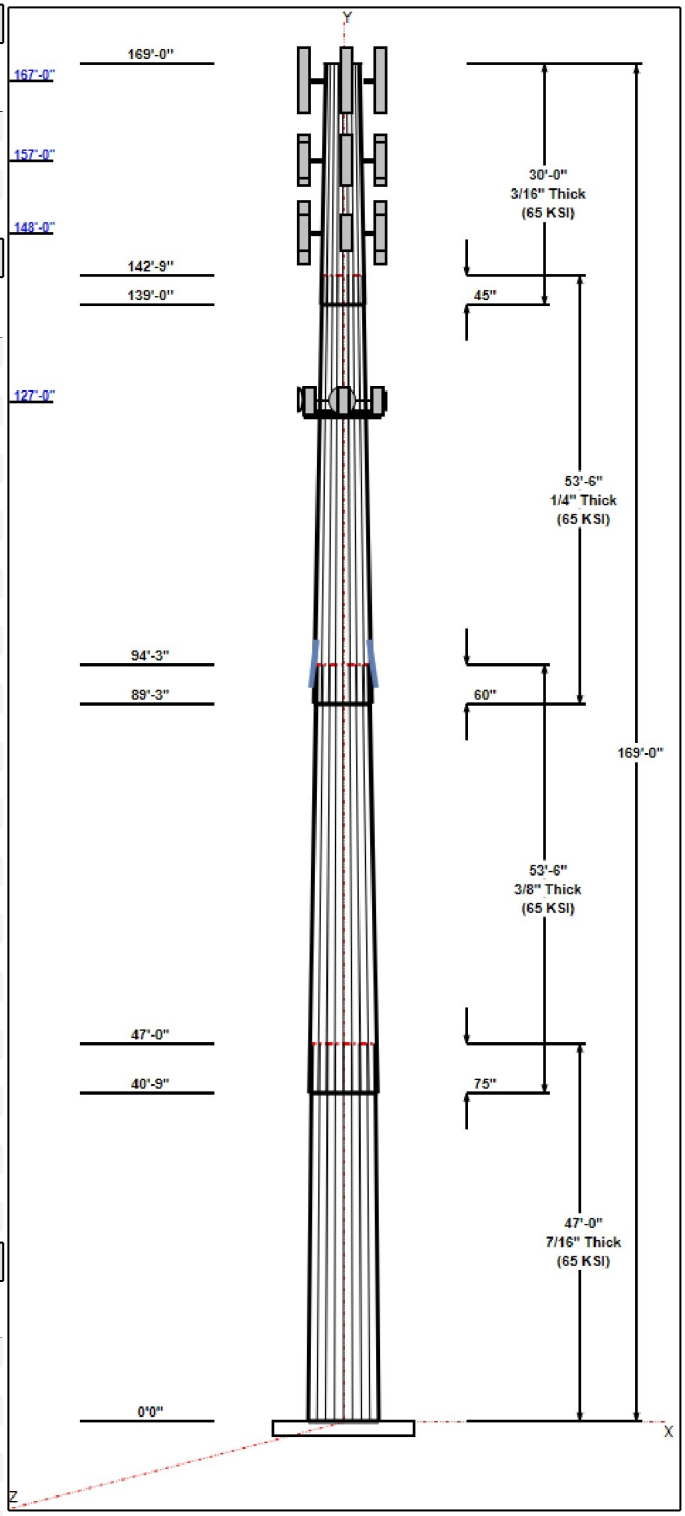
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	47.00	46.78	56.18	0.438		0.20003	65
2	53.50	38.08	48.78	0.375	Slip	0.20003	65
3	53.50	28.88	39.58	0.250	Slip	0.20003	65
4	30.00	24.00	30.00	0.188	Slip	0.20003	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
167.00	167.00	3	AIR B2A B4P	T-Mobile
167.00	167.00	3	AIR B4A B2P	T-Mobile
167.00	167.00	3	Ericsson KRY 112 144/1	T-Mobile
167.00	167.00	3	Ericsson S11B12	T-Mobile
167.00	167.00	3	LNX-6515DS	T-Mobile
167.00	167.50	3	T-Arms/Commscope	T-Mobile
157.00	157.00	3	ALU RRH2X60-AWS RRH	Verizon
157.00	157.00	1	BXA-70063/6CF	Verizon
157.00	157.00	4	DB846F65ZAXY	Verizon
157.00	157.00	2	DB846H80E-SX	Verizon
157.00	157.00	1	GPS	Verizon
157.00	157.00	6	HBX-6517DS-VTM	Verizon
157.00	157.00	1	RFS DB T1-6Z-8AB-OZ	Verizon
157.00	157.00	2	SLCP 2x6014F	Verizon
157.00	157.00	3	T-Arms	Verizon
150.00	150.00	1	Collar Mount	AT&T
150.00	150.00	6	Ericsson RRUS-11-RRU	AT&T
150.00	150.00	1	Raycap	AT&T
148.00	148.00	1	Cci OPA-65R-LCUU-H6	AT&T
148.00	148.00	2	Cci OPA-65R-LCUU-H8	AT&T
148.00	148.00	3	Ericsson RRUS	AT&T
148.00	148.00	3	Ericsson RRUS A2 Module	AT&T
148.00	148.00	6	Powerwave 7770	AT&T
148.00	148.00	6	Powerwave LGP13519	AT&T
148.00	148.00	6	Powerwave LGP21401	AT&T
148.00	148.00	3	T-Arms	AT&T
127.00	127.00	3	2.5GHz RRH BTS	Clearwire
127.00	127.00	3	LLPX310R	Clearwire
127.00	127.00	3	Sector Frames	Clearwire
127.00	127.00	3	VHLP2-11	Clearwire
127.00	127.00	1	VHLP800-11	Clearwire

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	167.00	Inside	1 5/8" Coax	T-Mobile
0.00	167.00	Inside	1 5/8" Fiber	T-Mobile
0.00	157.00	Inside	1 5/8" Coax	Verizon
0.00	157.00	Outside	1 5/8" Coax	Verizon
0.00	157.00	Inside	1 5/8" Fiber	Verizon
0.00	157.00	Inside	1/2" Coax	Verizon
0.00	150.00	Inside	1 5/8" Coax	AT&T
0.00	150.00	Inside	1/2" Fiber	AT&T
0.00	150.00	Inside	3/4" DC Power	AT&T
0.00	127.00	Inside	1/2" Coax	Clearwire
0.00	127.00	Inside	1/4" Coax	Clearwire



0.00	127.00	Inside	5/16" Coax	Clearwire
0.00	127.00	Inside	5/8"	Clearwire
89.25	99.25	Outside	1" Reinforcing plate	

Anchor Bolts

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

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	61.3	60.0	Square

Reactions

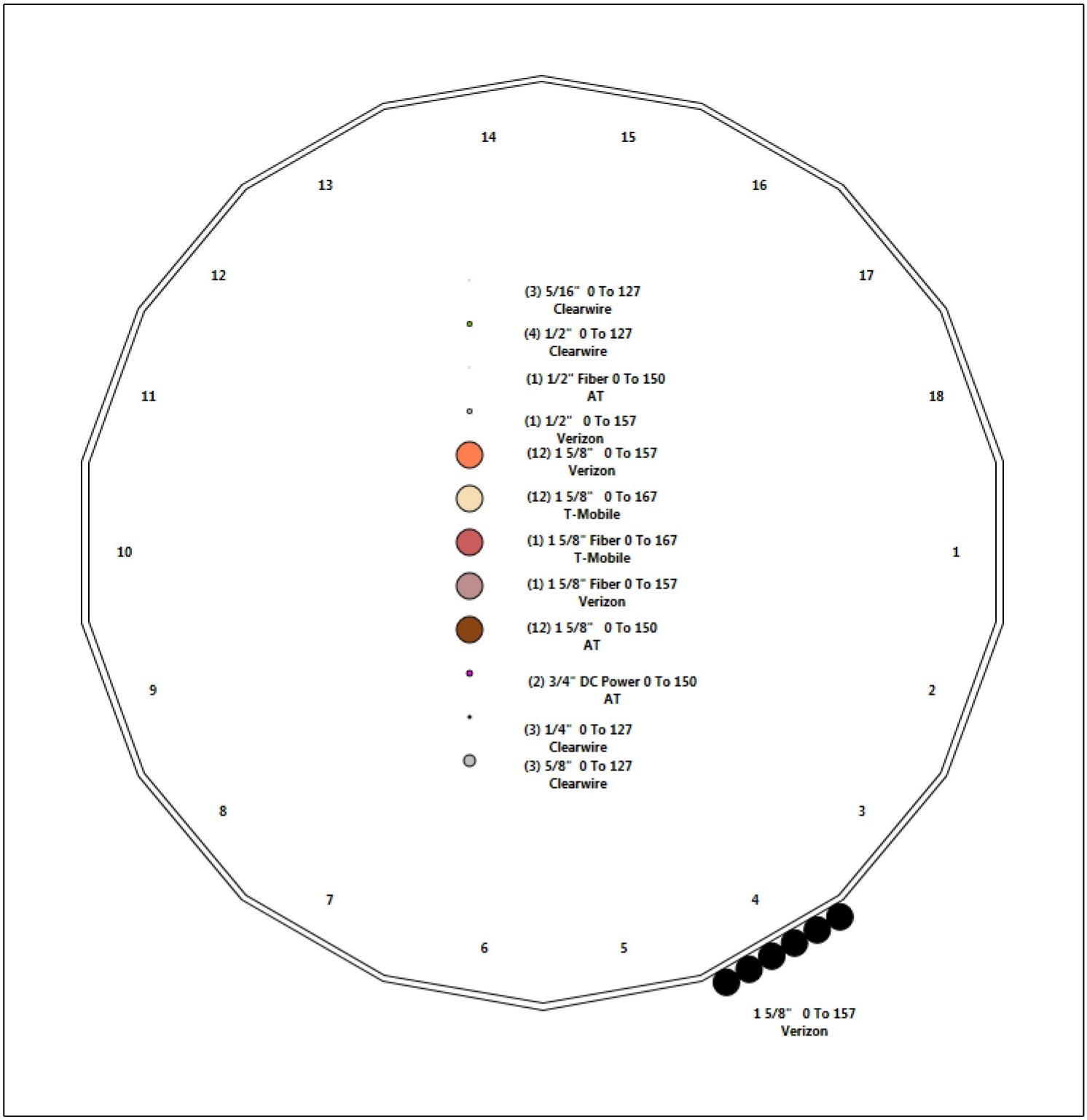
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	4082.2	33.1	43.1
73.61 mph Wind with 0.5" Ice	3267.2	26.3	51.7
50 mph Wind with 0" Ice	1414.9	11.5	43.2

Structure: CT13071-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Woodbridge
Height: 169.00 (ft)

12/9/2015

Tower Engineering Solutions



Shaft Properties

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	47.000	0.4375	65		0.00	11,335
2	18	53.500	0.3750	65	Slip	75.00	9,329
3	18	53.500	0.2500	65	Slip	60.00	4,908
4	18	30.000	0.1875	65	Slip	45.00	1,629
					Total Shaft Weight:		**27,200**

	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	56.18	0.00	77.40	30386.58	21.23	128.4	46.78	47.00	64.35	17459.0	17.44	106.9	0.200030
2	48.78	40.75	57.61	17053.51	21.52	130.0	38.08	94.25	44.87	8058.91	16.49	101.5	0.200030
3	39.58	89.25	31.21	6097.74	26.50	158.3	28.88	142.7	22.71	2351.56	18.95	115.5	0.200030
4	30.00	139.0	17.74	1992.41	26.80	160.0	24.00	169.0	14.17	1015.22	21.15	128	0.200030

Additional Steel

							Intermediate Connectors		Termination Connectors			
Elev From (ft)	**Elev To (ft)**	**Qty**	**Description**	**Fy (ksi)**	**Fu (ksi)**	**Offset (in)**	**Description**	**Spacing (in)**	**Description**	**Spacing (in)**	**Lower Qty**	**Upper Qty**
91.25	97.25	3	LNP LP6X100-G-10TT	65	80	0.00	5/8" Hollo Bolt	23.00	5/8" Hollo Bolt		9	9

Loading Summary

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	167.0	AIR B2A B4P	3	91.50	6.58	0.86	129.20	6.970	0.86	0.00	0.00
2	167.0	AIR B4A B2P	3	90.40	6.58	0.86	128.10	6.970	0.86	0.00	0.00
3	167.0	Ericsson KRY 112 144/1	3	11.00	0.41	0.50	14.10	0.550	0.50	0.00	0.00
4	167.0	Ericsson S11B12	3	51.00	3.31	0.50	75.70	3.890	0.50	0.00	0.00
5	167.0	LNX-6515DS	3	50.30	11.41	0.84	115.60	12.34	0.84	0.00	0.00
6	167.0	T-Arms/Commscope VSR-MS-B	3	340.00	6.75	0.75	420.00	10.50	0.75	0.00	0.50
7	157.0	ALU RRH2X60-AWS RRH	3	60.00	3.96	0.50	80.10	4.230	0.50	0.00	0.00
8	157.0	BXA-70063/6CF	1	17.00	7.73	0.70	57.60	8.540	0.70	0.00	0.00
9	157.0	DB846F65ZAXY	4	21.00	7.05	0.93	0.00	0.000	0.93	0.00	0.00
10	157.0	DB846H80E-SX	2	16.00	5.01	1.10	0.00	0.000	1.10	0.00	0.00
11	157.0	GPS	1	10.00	1.00	1.00	18.00	1.250	1.00	0.00	0.00
12	157.0	HBX-6517DS-VTM	6	18.70	5.30	0.75	46.20	6.010	0.75	0.00	0.00
13	157.0	RFS DB T1-6Z-8AB-OZ Distribution	1	19.00	3.74	0.67	35.80	3.960	0.67	0.00	0.00
14	157.0	SLCP 2x6014F	2	20.00	7.21	0.89	70.40	7.880	0.89	0.00	0.00
15	157.0	T-Arms	3	350.00	8.00	0.75	420.00	10.50	0.75	0.00	0.00
16	150.0	Collar Mount	1	100.00	3.00	1.00	450.00	5.000	1.00	0.00	0.00
17	150.0	Ericsson RRUS-11-RRU	6	50.00	2.94	0.67	66.00	3.140	0.67	0.00	0.00
18	150.0	Raycap DC6-48-60-18-8F-Surge	1	32.80	1.47	1.00	49.50	1.670	1.00	0.00	0.00
19	148.0	Cci OPA-65R-LCUU-H6	1	73.00	10.36	0.79	134.00	10.85	0.79	0.00	0.00
20	148.0	Cci OPA-65R-LCUU-H8	2	88.00	12.98	0.79	162.00	13.58	0.79	0.00	0.00
21	148.0	Ericsson RRUS 12-B2-RRU	3	58.00	3.67	0.50	75.70	3.890	0.50	0.00	0.00
22	148.0	Ericsson RRUS A2 Module	3	21.20	1.86	0.50	31.40	2.150	0.50	0.00	0.00
23	148.0	Powerwave 7770	6	35.00	5.88	0.73	0.00	6.530	0.73	0.00	0.00
24	148.0	Powerwave LGP13519	6	5.30	0.34	0.50	8.00	0.470	0.50	0.00	0.00
25	148.0	Powerwave LGP21401 TMA	6	14.10	1.29	0.50	21.20	1.530	0.50	0.00	0.00
26	148.0	T-Arms	3	350.00	8.00	0.75	420.00	10.50	0.75	0.00	0.00
27	127.0	2.5GHz RRH BTS	3	33.00	1.82	0.73	44.90	2.090	0.73	0.00	0.00
28	127.0	LLPX310R	3	28.60	4.83	0.69	54.50	5.360	0.69	0.00	0.00
29	127.0	Sector Frames	3	500.00	15.00	0.75	700.00	21.50	0.75	0.00	0.00
30	127.0	VHLP2-11	3	27.00	4.68	0.90	55.00	5.050	0.90	0.10	0.00
31	127.0	VHLP800-11	1	48.00	8.43	1.00	97.00	8.920	1.00	0.10	0.00
		Totals:	**92**	**7,556.40**			**10,448.00**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Weight (lb/ft)**	**CaAa (sf/ft)**	**Weight (lb/ft)**	**CaAa (sf/ft)**	**Exposed**
0.00	167.0	(12) 1 5/8" Coax	12.00	0.00	12.00	0.00	Inside
0.00	167.0	(1) 1 5/8" Fiber	1.20	0.00	1.20	0.00	Inside
0.00	157.0	(12) 1 5/8" Coax	12.00	0.00	12.00	0.00	Inside
0.00	157.0	(6) 1 5/8" Coax	6.00	0.20	15.00	0.30	Outside
0.00	157.0	(1) 1 5/8" Fiber	1.20	0.00	1.20	0.00	Inside
0.00	157.0	(1) 1/2" Coax	0.75	0.00	0.75	0.00	Inside
0.00	150.0	(12) 1 5/8" Coax	12.00	0.00	12.00	0.00	Inside
0.00	150.0	(1) 1/2" Fiber	0.72	0.00	0.72	0.00	Inside
0.00	150.0	(2) 3/4" DC Power	1.60	0.00	1.60	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)		Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	127.0	(4) 1/2" Coax		3.00	0.00		3.00	0.00	Inside		
0.00	127.0	(3) 1/4" Coax		0.12	0.00		0.12	0.00	Inside		
0.00	127.0	(3) 5/16" Coax		0.30	0.00		0.30	0.00	Inside		
0.00	127.0	(3) 5/8"		0.52	0.00		0.52	0.00	Inside		
89.25	99.25	(1) 1" Reinforcing plate		0.00	0.17		0.00	0.27	Outside		
			Totals:	**7,984.93**			**9,397.93**				

Shaft Section Properties

Structure: CT13071-A-SBA
Site Name: Woodbridge
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

12/9/2015

Tower Engineering Solutions

Increment Length: 5 (ft)

											Additional Reinforcing			
Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00		0.4375	56.180	77.403	30386.6	21.23	128.41	65	52	0.0	0.00	0.0	0.0	0.0
5.00		0.4375	55.180	76.014	28780.1	20.83	126.13	65	52	1305.1				
10.00		0.4375	54.180	74.625	27231.3	20.43	123.84	65	52	1281.5				
15.00		0.4375	53.180	73.236	25739.1	20.02	121.55	65	52	1257.8				
20.00		0.4375	52.179	71.848	24302.4	19.62	119.27	65	52	1234.2				
25.00		0.4375	51.179	70.459	22920.2	19.22	116.98	65	52	1210.6				
30.00		0.4375	50.179	69.070	21591.5	18.81	114.70	65	52	1187.0				
35.00		0.4375	49.179	67.681	20315.1	18.41	112.41	65	52	1163.3				
40.00		0.4375	48.179	66.292	19090.0	18.01	110.12	65	52	1139.7				
40.75	Bot - Section 2	0.4375	48.029	66.084	18910.6	17.95	109.78	65	52	168.9				
45.00		0.4375	47.179	64.904	17915.2	17.60	107.84	65	52	1773.0				
47.00	Top - Section 1	0.3750	47.529	56.123	15766.0	20.94	126.74	65	52	823.4				
50.00		0.3750	46.929	55.408	15171.7	20.66	125.14	65	52	569.3				
55.00		0.3750	45.928	54.218	14214.7	20.19	122.48	65	52	932.6				
60.00		0.3750	44.928	53.028	13298.8	19.71	119.81	65	52	912.3				
65.00		0.3750	43.928	51.837	12423.2	19.24	117.14	65	52	892.1				
70.00		0.3750	42.928	50.647	11586.8	18.77	114.47	65	52	871.8				
75.00		0.3750	41.928	49.456	10788.9	18.30	111.81	65	52	851.6				
80.00		0.3750	40.928	48.266	10028.4	17.83	109.14	65	52	831.3				
85.00		0.3750	39.927	47.076	9304.6	17.36	106.47	65	52	811.1				
89.25	Bot - Section 3	0.3750	39.077	46.064	8717.4	16.96	104.21	65	52	673.5				
90.00		0.3750	38.927	45.885	8616.4	16.89	103.81	65	52	196.8				
91.25	RB1	0.3750	38.677	45.588	8449.9	16.78	103.14	65	52	326.3	18.00	4460.1	2812.1	76.6
94.25	Top - Section 2	0.2500	38.577	30.412	5644.2	25.80	154.31	65	52	774.6	18.00	4328.3	2729.4	183.7
95.00		0.2500	38.427	30.293	5578.2	25.69	153.71	65	51	77.5	18.00	4290.5	2703.4	45.9
97.25	RT1	0.2500	37.977	29.935	5383.3	25.37	151.91	65	51	230.6	18.00	4193.5	2642.6	137.8
100.00		0.2500	37.427	29.499	5151.2	24.99	149.71	65	52	278.1				
105.00		0.2500	36.427	28.705	4746.6	24.28	145.71	65	52	495.1				
110.00		0.2500	35.427	27.912	4363.7	23.58	141.71	65	52	481.6				
115.00		0.2500	34.427	27.118	4001.9	22.87	137.71	65	52	468.1				
120.00		0.2500	33.426	26.325	3660.8	22.17	133.71	65	52	454.6				
125.00		0.2500	32.426	25.531	3339.6	21.46	129.71	65	52	441.1				
127.00		0.2500	32.026	25.214	3216.6	21.18	128.10	65	52	172.7				
130.00		0.2500	31.426	24.737	3037.7	20.75	125.70	65	52	255.0				
135.00		0.2500	30.426	23.944	2754.7	20.05	121.70	65	52	414.1				
139.00	Bot - Section 4	0.2500	29.626	23.309	2541.3	19.48	118.50	65	52	321.6				
140.00		0.2500	29.426	23.150	2489.7	19.34	117.70	65	52	139.2				
142.75	Top - Section 3	0.1875	29.251	17.296	1845.8	26.10	156.00	65	52	378.0				
145.00		0.1875	28.801	17.028	1761.3	25.67	153.60	65	51	131.4				
148.00		0.1875	28.201	16.671	1652.8	25.11	150.40	65	52	172.0				
150.00		0.1875	27.801	16.433	1583.0	24.73	148.27	65	52	112.6				
155.00		0.1875	26.800	15.837	1417.2	23.79	142.94	65	52	274.5				
157.00		0.1875	26.400	15.599	1354.2	23.42	140.80	65	52	107.0				
160.00		0.1875	25.800	15.242	1263.3	22.85	137.60	65	52	157.4				
165.00		0.1875	24.800	14.647	1121.0	21.91	132.27	65	52	254.3				
167.00		0.1875	24.400	14.409	1067.3	21.54	130.13	65	52	98.9				
169.00		0.1875	24.000	14.171	1015.2	21.16	128.00	65	52	97.3				
									Total Weight	**27200.5**				**444.1**

Wind Loading - Shaft

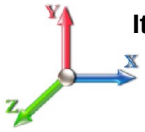
Structure: CT13071-A-SBA
Site Name: Woodbridge
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

12/9/2015

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 27

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		0.00	1.00	18.496	31.26	397.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	390.86	0.650	0.000	5.00	23.200	15.08	471.4	0.0	1305.1
10.00		0.00	1.00	18.496	31.26	383.77	0.650	0.000	5.00	22.783	14.81	462.9	0.0	1281.5
15.00		0.00	1.00	18.496	31.26	376.69	0.650	0.000	5.00	22.367	14.54	454.4	0.0	1257.8
20.00		0.00	1.00	18.496	31.26	369.60	0.650	0.000	5.00	21.950	14.27	446.0	0.0	1234.2
25.00		0.00	1.00	18.496	31.26	362.52	0.650	0.000	5.00	21.533	14.00	437.5	0.0	1210.6
30.00		0.00	1.00	18.496	31.26	355.44	0.650	0.000	5.00	21.116	13.73	429.0	0.0	1187.0
35.00		0.00	1.02	18.810	31.79	351.29	0.650	0.000	5.00	20.700	13.45	427.7	0.0	1163.3
40.00		0.00	1.06	19.541	33.02	350.78	0.650	0.000	5.00	20.283	13.18	435.4	0.0	1139.7
40.75	Bot - Section 2	0.00	1.06	19.645	33.20	350.61	0.650	0.000	0.75	3.006	1.95	64.9	0.0	168.9
45.00		0.00	1.09	20.210	34.15	349.32	0.650	0.000	4.25	17.125	11.13	380.2	0.0	1773.0
47.00	Top - Section 1	0.00	1.11	20.463	34.58	348.52	0.650	0.000	2.00	7.955	5.17	178.8	0.0	823.4
50.00		0.00	1.13	20.827	35.20	352.74	0.650	0.000	3.00	11.807	7.67	270.1	0.0	569.3
55.00		0.00	1.16	21.402	36.17	349.95	0.650	0.000	5.00	19.345	12.57	454.8	0.0	932.6
60.00		0.00	1.19	21.941	37.08	346.62	0.650	0.000	5.00	18.928	12.30	456.2	0.0	912.3
65.00		0.00	1.21	22.449	37.94	342.80	0.650	0.000	5.00	18.512	12.03	456.5	0.0	892.1
70.00		0.00	1.24	22.929	38.75	338.56	0.650	0.000	5.00	18.095	11.76	455.8	0.0	871.8
75.00		0.00	1.26	23.386	39.52	333.94	0.650	0.000	5.00	17.678	11.49	454.1	0.0	851.6
80.00		0.00	1.29	23.821	40.26	329.00	0.650	0.000	5.00	17.262	11.22	451.7	0.0	831.3
85.00		0.00	1.31	24.237	40.96	323.75	0.650	0.000	5.00	16.845	10.95	448.5	0.0	811.1
89.25	Bot - Section 3	0.00	1.33	24.577	41.54	319.07	0.650	0.000	4.25	13.990	9.09	377.7	0.0	673.5
90.00		0.00	1.33	24.636	41.63	318.23	0.650	0.000	0.75	2.469	1.60	66.8	0.0	196.8
91.25	RB1	0.00	1.34	24.733	41.80	316.81	0.650	0.000	1.25	4.094	2.66	111.2	0.0	479.5
94.25	Top - Section 2	0.00	1.35	24.963	42.19	313.34	0.650	0.000	3.00	9.719	6.32	266.5	0.0	1142.1
95.00		0.00	1.35	25.020	42.28	316.58	0.650	0.000	0.75	2.406	1.56	66.1	0.0	169.3
97.25	RT1	0.00	1.36	25.188	42.57	313.92	0.650	0.000	2.25	7.163	4.66	198.2	0.0	506.2
100.00		0.00	1.37	25.389	42.91	310.60	0.650	0.000	2.75	8.640	5.62	241.0	0.0	278.1
105.00		0.00	1.39	25.745	43.51	304.42	0.650	0.000	5.00	15.386	10.00	435.1	0.0	495.1
110.00		0.00	1.41	26.090	44.09	298.03	0.650	0.000	5.00	14.970	9.73	429.0	0.0	481.6
115.00		0.00	1.43	26.423	44.66	291.47	0.650	0.000	5.00	14.553	9.46	422.4	0.0	468.1
120.00		0.00	1.45	26.747	45.20	284.72	0.650	0.000	5.00	14.136	9.19	415.3	0.0	454.6
125.00		0.00	1.46	27.060	45.73	277.82	0.650	0.000	5.00	13.719	8.92	407.8	0.0	441.1
127.00	Appurtenance(s)	0.00	1.47	27.183	45.94	275.02	0.650	0.000	2.00	5.371	3.49	160.4	0.0	172.7
130.00		0.00	1.48	27.365	46.25	270.76	0.650	0.000	3.00	7.932	5.16	238.4	0.0	255.0
135.00		0.00	1.50	27.662	46.75	263.56	0.650	0.000	5.00	12.886	8.38	391.6	0.0	414.1
139.00	Bot - Section 4	0.00	1.51	27.894	47.14	257.71	0.650	0.000	4.00	10.009	6.51	306.7	0.0	321.6
140.00		0.00	1.51	27.951	47.24	256.23	0.650	0.000	1.00	2.492	1.62	76.5	0.0	139.2
142.75	Top - Section 3	0.00	1.52	28.107	47.50	252.14	0.650	0.000	2.75	6.766	4.40	208.9	0.0	378.0
145.00		0.00	1.53	28.233	47.71	252.04	0.650	0.000	2.25	5.442	3.54	168.8	0.0	131.4
148.00	Appurtenance(s)	0.00	1.54	28.398	47.99	247.52	0.650	0.000	3.00	7.125	4.63	222.3	0.0	172.0
150.00	Appurtenance(s)	0.00	1.54	28.507	48.18	244.47	0.650	0.000	2.00	4.667	3.03	146.1	0.0	112.6
155.00		0.00	1.56	28.776	48.63	236.78	0.650	0.000	5.00	11.375	7.39	359.6	0.0	274.5
157.00	Appurtenance(s)	0.00	1.56	28.881	48.81	233.68	0.650	0.000	2.00	4.433	2.88	140.7	0.0	107.0
160.00		0.00	1.57	29.038	49.07	228.98	0.650	0.000	3.00	6.525	4.24	208.1	0.0	157.4
165.00		0.00	1.58	29.294	49.51	221.08	0.650	0.000	5.00	10.542	6.85	339.2	0.0	254.3
167.00	Appurtenance(s)	0.00	1.59	29.395	49.68	217.89	0.650	0.000	2.00	4.100	2.67	132.4	0.0	98.9
169.00		0.00	1.59	29.495	49.85	214.68	0.650	0.000	2.00	4.033	2.62	130.7	0.0	97.3
								Totals:	**169.00**			**14,303.6**		**28,088.6**

Discrete Appurtenance Forces

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	LNX-6515DS	3	29.395	49.678	0.84	28.75	150.90	0.000	0.000	1428.41	0.00	0.00
2	167.00	Ericsson S11B12	3	29.395	49.678	0.50	4.96	153.00	0.000	0.000	246.65	0.00	0.00
3	167.00	Ericsson KRY 112 144/1	3	29.395	49.678	0.50	0.61	33.00	0.000	0.000	30.55	0.00	0.00
4	167.00	AIR B4A B2P	3	29.395	49.678	0.86	16.98	271.20	0.000	0.000	843.36	0.00	0.00
5	167.00	AIR B2A B4P	3	29.395	49.678	0.86	16.98	274.50	0.000	0.000	843.36	0.00	0.00
6	167.00	T-Arms/Commscope	3	29.420	49.721	0.75	15.19	1020.00	0.000	0.500	755.13	0.00	377.57
7	157.00	DB846H80E-SX	2	28.881	48.809	1.10	11.02	32.00	0.000	0.000	537.98	0.00	0.00
8	157.00	ALU RRH2X60-AWS RRH	3	28.881	48.809	0.50	5.94	180.00	0.000	0.000	289.93	0.00	0.00
9	157.00	BXA-70063/6CF	1	28.881	48.809	0.70	5.41	17.00	0.000	0.000	264.11	0.00	0.00
10	157.00	DB846F65ZAXY	4	28.881	48.809	0.93	26.23	84.00	0.000	0.000	1280.07	0.00	0.00
11	157.00	SLCP 2x6014F	2	28.881	48.809	0.89	12.83	40.00	0.000	0.000	626.41	0.00	0.00
12	157.00	GPS	1	28.881	48.809	1.00	1.00	10.00	0.000	0.000	48.81	0.00	0.00
13	157.00	HBX-6517DS-VTM	6	28.881	48.809	0.75	23.85	112.20	0.000	0.000	1164.10	0.00	0.00
14	157.00	RFS DB T1-6Z-8AB-OZ	1	28.881	48.809	0.67	2.51	19.00	0.000	0.000	122.31	0.00	0.00
15	157.00	T-Arms	3	28.881	48.809	0.75	18.00	1050.00	0.000	0.000	878.57	0.00	0.00
16	150.00	Raycap	1	28.507	48.177	1.00	1.47	32.80	0.000	0.000	70.82	0.00	0.00
17	150.00	Collar Mount	1	28.507	48.177	1.00	3.00	100.00	0.000	0.000	144.53	0.00	0.00
18	150.00	Ericsson RRUS-11-RRU	6	28.507	48.177	0.67	11.82	300.00	0.000	0.000	569.40	0.00	0.00
19	148.00	Ericsson RRUS A2 Module	3	28.398	47.993	0.50	2.79	63.60	0.000	0.000	133.90	0.00	0.00
20	148.00	Cci OPA-65R-LCUU-H6	1	28.398	47.993	0.79	8.18	73.00	0.000	0.000	392.79	0.00	0.00
21	148.00	Cci OPA-65R-LCUU-H8	2	28.398	47.993	0.79	20.51	176.00	0.000	0.000	984.26	0.00	0.00
22	148.00	Ericsson RRUS 12-B2-RRU	3	28.398	47.993	0.50	5.50	174.00	0.000	0.000	264.20	0.00	0.00
23	148.00	Powerwave 7770	6	28.398	47.993	0.73	25.75	210.00	0.000	0.000	1236.03	0.00	0.00
24	148.00	Powerwave LGP13519	6	28.398	47.993	0.50	1.02	31.80	0.000	0.000	48.95	0.00	0.00
25	148.00	Powerwave LGP21401 TMA	6	28.398	47.993	0.50	3.87	84.60	0.000	0.000	185.73	0.00	0.00
26	148.00	T-Arms	3	28.398	47.993	0.75	18.00	1050.00	0.000	0.000	863.87	0.00	0.00
27	127.00	VHLP800-11	1	27.183	45.940	1.00	8.43	48.00	1.455	0.000	387.27	563.49	0.00
28	127.00	VHLP2-11	3	27.183	45.940	0.90	12.64	81.00	1.455	0.000	580.50	844.63	0.00
29	127.00	Sector Frames	3	27.183	45.940	0.75	33.75	1500.00	0.000	0.000	1550.47	0.00	0.00
30	127.00	LLPX310R	3	27.183	45.940	0.69	10.00	85.80	0.000	0.000	459.31	0.00	0.00
31	127.00	2.5GHz RRH BTS	3	27.183	45.940	0.73	3.99	99.00	0.000	0.000	183.11	0.00	0.00
						Totals:		**7,556.40**			**17,414.90**		

Total Applied Force Summary

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

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		502.63	1562.16	0.00	0.00
10.00		494.16	1538.53	0.00	0.00
15.00		485.70	1514.90	0.00	0.00
20.00		477.23	1491.27	0.00	0.00
25.00		468.76	1467.64	0.00	0.00
30.00		460.30	1444.01	0.00	0.00
35.00		459.49	1420.38	0.00	0.00
40.00		468.41	1396.76	0.00	0.00
40.75		69.86	207.48	0.00	0.00
45.00		409.22	1991.49	0.00	0.00
47.00		192.64	926.20	0.00	0.00
50.00		291.25	723.50	0.00	0.00
55.00		490.99	1189.63	0.00	0.00
60.00		493.30	1169.38	0.00	0.00
65.00		494.44	1149.13	0.00	0.00
70.00		494.52	1128.88	0.00	0.00
75.00		493.66	1108.62	0.00	0.00
80.00		491.94	1088.37	0.00	0.00
85.00		489.44	1068.12	0.00	0.00
89.25		413.02	891.97	0.00	0.00
90.00		78.37	235.37	0.00	0.00
91.25		130.56	467.17	0.00	0.00
94.25		313.35	1112.59	0.00	0.00
95.00		77.87	161.96	0.00	0.00
97.25		233.62	484.04	0.00	0.00
100.00		279.16	419.46	0.00	0.00
105.00		478.65	752.19	0.00	0.00
110.00		473.11	738.69	0.00	0.00
115.00		467.06	725.19	0.00	0.00
120.00		460.53	711.68	0.00	0.00
125.00		453.55	698.18	0.00	0.00
127.00	(13) appurtenances	3339.42	2089.29	1408.12	0.00
130.00		266.18	397.37	0.00	0.00
135.00		438.31	651.48	0.00	0.00
139.00		344.39	511.46	0.00	0.00
140.00		85.95	186.68	0.00	0.00
142.75		235.04	508.51	0.00	0.00
145.00		190.26	238.20	0.00	0.00
148.00	(30) appurtenances	4360.82	2177.41	0.00	0.00
150.00	(8) appurtenances	950.17	640.38	0.00	0.00
155.00		408.20	440.27	0.00	0.00
157.00	(23) appurtenances	5372.46	1717.47	0.00	0.00
160.00		208.14	197.02	0.00	0.00
165.00		339.23	320.27	0.00	0.00
167.00	(18) appurtenances	4279.84	2027.87	0.00	377.57
169.00		130.68	97.25	0.00	0.00
	Totals:	**33,035.92**	**43,185.88**	**1,408.12**	**377.57**

Resulting Forces and Deflections

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-33.108	-43.130	0.000	-0.019	-1.383	-4082.2	0.000	0.000	0.000	0.000	0.000
5.00	-32.739	-41.462	0.000	-0.019	-1.383	-3916.6	-0.100	0.000	0.100	-0.187	0.000
10.00	-32.370	-39.818	0.000	-0.019	-1.383	-3752.9	-0.398	0.000	0.398	-0.377	0.000
15.00	-32.001	-38.200	0.000	-0.020	-1.383	-3591.1	-0.896	0.000	0.896	-0.569	0.000
20.00	-31.631	-36.607	0.000	-0.020	-1.383	-3431.1	-1.595	0.000	1.595	-0.763	0.000
25.00	-31.261	-35.039	0.000	-0.021	-1.383	-3272.9	-2.499	0.000	2.499	-0.959	0.000
30.00	-30.891	-33.496	0.000	-0.022	-1.384	-3116.6	-3.610	0.000	3.610	-1.157	0.000
35.00	-30.513	-31.979	0.000	-0.023	-1.384	-2962.2	-4.929	0.000	4.929	-1.357	-0.001
40.00	-30.071	-30.534	0.000	-0.023	-1.384	-2809.6	-6.459	0.000	6.459	-1.559	-0.001
40.75	-30.050	-30.275	0.000	-0.025	-1.384	-2787.1	-6.707	0.000	6.707	-1.591	-0.001
45.00	-29.646	-28.230	0.000	-0.025	-1.385	-2659.4	-8.202	0.000	8.202	-1.765	-0.001
47.00	-29.474	-27.256	0.000	-0.026	-1.385	-2600.1	-8.959	0.000	8.959	-1.848	-0.001
50.00	-29.241	-26.452	0.000	-0.029	-1.385	-2511.7	-10.161	0.000	10.161	-1.973	-0.001
55.00	-28.807	-25.166	0.000	-0.031	-1.386	-2365.5	-12.350	0.000	12.350	-2.202	-0.001
60.00	-28.363	-23.904	0.001	-0.033	-1.387	-2221.4	-14.779	0.000	14.779	-2.432	-0.001
65.00	-27.910	-22.666	0.001	-0.036	-1.388	-2079.6	-17.449	0.001	17.449	-2.662	-0.001
70.00	-27.447	-21.453	0.001	-0.039	-1.389	-1940.1	-20.359	0.001	20.359	-2.892	-0.001
75.00	-26.977	-20.264	0.001	-0.042	-1.390	-1802.8	-23.509	0.001	23.509	-3.121	-0.002
80.00	-26.501	-19.100	0.001	-0.045	-1.391	-1667.9	-26.900	0.001	26.900	-3.350	-0.002
85.00	-26.014	-17.968	0.001	-0.049	-1.392	-1535.4	-30.529	0.002	30.529	-3.577	-0.002
89.25	-25.578	-17.054	0.001	-0.050	-1.392	-1424.9	-33.800	0.002	33.800	-3.770	-0.002
90.00	-25.498	-16.804	0.001	-0.051	-1.392	-1405.7	-34.394	0.002	34.394	-3.804	-0.002
91.25	-25.359	-16.312	0.001	-0.053	-1.393	-1373.8	-35.398	0.002	35.398	-3.862	-0.002
94.25	-24.987	-15.196	0.001	-0.054	-1.393	-1297.8	-37.855	0.002	37.855	-3.963	-0.002
95.00	-24.914	-15.013	0.001	-0.055	-1.395	-1279.0	-38.480	0.002	38.480	-3.988	-0.002
97.25	-24.674	-14.501	0.001	-0.056	-1.396	-1223.0	-40.381	0.003	40.381	-4.085	-0.003
100.00	-24.417	-14.012	0.001	-0.060	-1.398	-1155.1	-42.767	0.003	42.767	-4.201	-0.003
105.00	-23.951	-13.174	0.001	-0.065	-1.400	-1033.0	-47.326	0.004	47.326	-4.503	-0.003
110.00	-23.482	-12.360	0.001	-0.071	-1.402	-913.32	-52.195	0.005	52.195	-4.795	-0.004
115.00	-23.009	-11.569	0.001	-0.077	-1.404	-795.91	-57.362	0.006	57.362	-5.073	-0.004
120.00	-22.534	-10.803	0.002	-0.084	-1.406	-680.87	-62.812	0.007	62.812	-5.336	-0.005
125.00	-22.045	-10.087	0.002	-0.090	-1.407	-568.20	-68.525	0.008	68.525	-5.578	-0.005
127.00	-18.533	-8.299	0.002	0.046	0.000	-524.11	-70.879	0.009	70.879	-5.671	-0.005
130.00	-18.251	-7.877	0.002	0.041	0.000	-468.51	-74.481	0.009	74.481	-5.803	-0.005
135.00	-17.770	-7.222	0.002	0.033	0.000	-377.26	-80.657	0.010	80.657	-6.001	-0.005
139.00	-17.383	-6.724	0.002	0.027	0.000	-306.18	-85.738	0.011	85.738	-6.142	-0.005
140.00	-17.284	-6.530	0.002	0.025	0.000	-288.80	-87.027	0.011	87.027	-6.176	-0.005
142.75	-17.003	-6.029	0.002	0.021	0.000	-241.27	-90.603	0.012	90.603	-6.259	-0.005
145.00	-16.795	-5.791	0.002	0.018	0.000	-203.01	-93.562	0.012	93.562	-6.319	-0.005
148.00	-12.225	-4.097	0.001	0.013	0.000	-152.63	-97.555	0.013	97.555	-6.406	-0.005
150.00	-11.213	-3.553	0.001	0.011	0.000	-128.18	-100.24	0.014	100.244	-6.454	-0.005
155.00	-10.761	-3.151	0.001	0.006	0.000	-72.116	-107.04	0.015	107.043	-6.544	-0.005
157.00	-5.228	-2.057	0.000	0.004	0.000	-50.595	-109.78	0.015	109.784	-6.568	-0.005
160.00	-5.000	-1.882	0.000	0.003	0.000	-34.910	-113.91	0.016	113.912	-6.595	-0.005
165.00	-4.626	-1.602	0.000	0.001	0.000	-9.912	-120.82	0.017	120.820	-6.621	-0.005
167.00	-0.141	-0.082	0.000	0.000	0.000	-0.282	-123.58	0.017	123.589	-6.623	-0.005
169.00	-0.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	126.357	-6.623	-0.005

Resulting Stresses

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.56	0.86	0.00	0.01	0.00	45.98	46.56	52.0	0.896
5.00	0.55	0.87	0.00	0.01	0.00	45.75	46.32	52.0	0.891
10.00	0.53	0.87	0.00	0.01	0.00	45.49	46.05	52.0	0.886
15.00	0.52	0.88	0.00	0.01	0.00	45.20	45.75	52.0	0.880
20.00	0.51	0.89	0.00	0.01	0.00	44.88	45.42	52.0	0.874
25.00	0.50	0.89	0.00	0.01	0.00	44.53	45.05	52.0	0.867
30.00	0.48	0.90	0.00	0.01	0.00	44.13	44.64	52.0	0.859
35.00	0.47	0.91	0.00	0.01	0.00	43.69	44.19	52.0	0.850
40.00	0.46	0.91	0.00	0.01	0.00	43.20	43.69	52.0	0.841
40.75	0.46	0.92	0.00	0.01	0.00	43.13	43.62	52.0	0.839
45.00	0.43	0.92	0.00	0.01	0.00	42.67	43.13	52.0	0.830
47.00	0.49	1.06	0.00	0.01	0.00	47.76	48.28	52.0	0.929
50.00	0.48	1.06	0.00	0.01	0.00	47.33	47.85	52.0	0.920
55.00	0.46	1.07	0.00	0.01	0.00	46.57	47.07	52.0	0.905
60.00	0.45	1.08	0.00	0.01	0.00	45.72	46.21	52.0	0.889
65.00	0.44	1.09	0.00	0.01	0.00	44.80	45.28	52.0	0.871
70.00	0.42	1.09	0.00	0.02	0.00	43.79	44.26	52.0	0.851
75.00	0.41	1.10	0.00	0.02	0.00	42.69	43.14	52.0	0.830
80.00	0.40	1.11	0.00	0.02	0.00	41.47	41.92	52.0	0.806
85.00	0.38	1.11	0.00	0.02	0.00	40.14	40.57	52.0	0.781
89.25	0.37	1.12	0.00	0.02	0.00	38.92	39.34	52.0	0.757
90.00	0.37	1.12	0.00	0.02	0.00	38.69	39.11	52.0	0.752
91.25	0.36	1.12	0.00	0.02	0.00	29.27	29.63	52.0	0.570
94.25	0.50	1.66	0.00	0.03	0.00	28.43	28.43	52.0	0.547
95.00	0.50	1.66	0.00	0.03	0.00	37.06	37.06	51.2	0.723
97.25	0.48	1.66	0.00	0.03	0.00	36.14	36.63	51.5	0.711
100.00	0.48	1.67	0.00	0.03	0.00	51.13	51.69	51.8	0.997
105.00	0.46	1.68	0.00	0.03	0.00	48.30	48.85	52.0	0.940
110.00	0.44	1.70	0.00	0.03	0.00	45.18	45.72	52.0	0.879
115.00	0.43	1.71	0.00	0.04	0.00	41.71	42.25	52.0	0.813
120.00	0.41	1.73	0.00	0.04	0.00	37.88	38.41	52.0	0.739
125.00	0.40	1.74	0.00	0.04	0.01	33.61	34.15	52.0	0.657
127.00	0.33	1.48	0.00	0.00	0.00	31.79	32.23	52.0	0.620
130.00	0.32	1.49	0.00	0.00	0.00	29.53	29.96	52.0	0.576
135.00	0.30	1.50	0.00	0.00	0.00	25.39	25.82	52.0	0.497
139.00	0.29	1.50	0.00	0.00	0.00	21.75	22.19	52.0	0.427
140.00	0.28	1.50	0.00	0.00	0.00	20.80	21.24	52.0	0.409
142.75	0.35	1.98	0.00	0.00	0.00	23.30	23.89	52.0	0.460
145.00	0.34	1.99	0.00	0.00	0.00	20.22	20.85	51.2	0.407
148.00	0.25	1.48	0.00	0.00	0.00	15.87	16.31	51.7	0.315
150.00	0.22	1.38	0.00	0.00	0.00	13.71	14.13	52.0	0.272
155.00	0.20	1.37	0.00	0.00	0.00	8.31	8.83	52.0	0.170
157.00	0.13	0.68	0.00	0.00	0.00	6.01	6.25	52.0	0.120
160.00	0.12	0.66	0.00	0.00	0.00	4.34	4.61	52.0	0.089
165.00	0.11	0.64	0.00	0.00	0.00	1.34	1.82	52.0	0.035
167.00	0.01	0.02	0.00	0.00	0.00	0.04	0.06	52.0	0.001
169.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	52.0	0.001

Wind Loading - Shaft

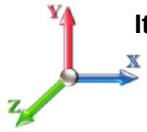
Structure: CT13071-A-SBA
Site Name: Woodbridge
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

12/9/2015

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 27

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		0.00	1.00	13.871	23.44	344.62	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	338.48	0.650	0.500	5.00	23.617	15.35	359.9	171.8	1476.9
10.00		0.00	1.00	13.871	23.44	332.35	0.650	0.500	5.00	23.200	15.08	353.5	168.7	1450.2
15.00		0.00	1.00	13.871	23.44	326.21	0.650	0.500	5.00	22.783	14.81	347.2	165.6	1423.5
20.00		0.00	1.00	13.871	23.44	320.08	0.650	0.500	5.00	22.366	14.54	340.8	162.6	1396.8
25.00		0.00	1.00	13.871	23.44	313.94	0.650	0.500	5.00	21.950	14.27	334.5	159.5	1370.1
30.00		0.00	1.00	13.871	23.44	307.81	0.650	0.500	5.00	21.533	14.00	328.1	156.4	1343.3
35.00		0.00	1.02	14.106	23.84	304.22	0.650	0.500	5.00	21.116	13.73	327.2	153.3	1316.6
40.00		0.00	1.06	14.655	24.77	303.77	0.650	0.500	5.00	20.700	13.45	333.2	150.2	1289.9
40.75	Bot - Section 2	0.00	1.06	14.733	24.90	303.63	0.650	0.500	0.75	3.069	1.99	49.7	22.5	191.4
45.00		0.00	1.09	15.156	25.61	302.51	0.650	0.500	4.25	17.479	11.36	291.0	127.0	1900.0
47.00	Top - Section 1	0.00	1.11	15.346	25.93	301.82	0.650	0.500	2.00	8.121	5.28	136.9	59.3	882.7
50.00		0.00	1.13	15.620	26.40	305.47	0.650	0.500	3.00	12.057	7.84	206.9	87.8	657.1
55.00		0.00	1.16	16.051	27.13	303.06	0.650	0.500	5.00	19.762	12.85	348.4	143.3	1075.8
60.00		0.00	1.19	16.455	27.81	300.17	0.650	0.500	5.00	19.345	12.57	349.7	140.2	1052.5
65.00		0.00	1.21	16.836	28.45	296.86	0.650	0.500	5.00	18.928	12.30	350.1	137.1	1029.2
70.00		0.00	1.24	17.196	29.06	293.19	0.650	0.500	5.00	18.512	12.03	349.7	134.0	1005.8
75.00		0.00	1.26	17.538	29.64	289.20	0.650	0.500	5.00	18.095	11.76	348.6	130.9	982.5
80.00		0.00	1.29	17.865	30.19	284.91	0.650	0.500	5.00	17.678	11.49	346.9	127.8	959.2
85.00		0.00	1.31	18.177	30.72	280.37	0.650	0.500	5.00	17.261	11.22	344.7	124.7	935.8
89.25	Bot - Section 3	0.00	1.33	18.432	31.15	276.32	0.650	0.500	4.25	14.345	9.32	290.4	103.8	777.3
90.00		0.00	1.33	18.476	31.22	275.59	0.650	0.500	0.75	2.531	1.65	51.4	18.5	215.3
91.25	RB1	0.00	1.34	18.549	31.35	274.36	0.650	0.500	1.25	4.198	2.73	85.5	30.6	510.1
94.25	Top - Section 2	0.00	1.35	18.721	31.64	271.35	0.650	0.500	3.00	9.969	6.48	205.0	72.3	1214.5
95.00		0.00	1.35	18.764	31.71	274.15	0.650	0.500	0.75	2.469	1.60	50.9	18.0	187.4
97.25	RT1	0.00	1.36	18.890	31.92	271.85	0.650	0.500	2.25	7.350	4.78	152.5	53.4	559.6
100.00		0.00	1.37	19.041	32.18	268.98	0.650	0.500	2.75	8.869	5.76	185.5	64.4	342.5
105.00		0.00	1.39	19.308	32.63	263.63	0.650	0.500	5.00	15.803	10.27	335.2	113.9	609.1
110.00		0.00	1.41	19.566	33.07	258.10	0.650	0.500	5.00	15.386	10.00	330.7	110.9	592.5
115.00		0.00	1.43	19.816	33.49	252.41	0.650	0.500	5.00	14.969	9.73	325.9	107.8	575.9
120.00		0.00	1.45	20.059	33.90	246.57	0.650	0.500	5.00	14.553	9.46	320.7	104.7	559.3
125.00		0.00	1.46	20.294	34.30	240.59	0.650	0.500	5.00	14.136	9.19	315.1	101.6	542.7
127.00	Appurtenance(s)	0.00	1.47	20.386	34.45	238.16	0.650	0.500	2.00	5.538	3.60	124.0	40.1	212.8
130.00		0.00	1.48	20.523	34.68	234.48	0.650	0.500	3.00	8.182	5.32	184.4	59.1	314.1
135.00		0.00	1.50	20.745	35.06	228.25	0.650	0.500	5.00	13.303	8.65	303.1	95.4	509.6
139.00	Bot - Section 4	0.00	1.51	20.919	35.35	223.17	0.650	0.500	4.00	10.342	6.72	237.7	74.4	395.9
140.00		0.00	1.51	20.962	35.43	221.89	0.650	0.500	1.00	2.575	1.67	59.3	18.7	157.9
142.75	Top - Section 3	0.00	1.52	21.079	35.62	218.35	0.650	0.500	2.75	6.995	4.55	162.0	50.5	428.5
145.00		0.00	1.53	21.173	35.78	218.27	0.650	0.500	2.25	5.630	3.66	130.9	40.7	172.1
148.00	Appurtenance(s)	0.00	1.54	21.297	35.99	214.35	0.650	0.500	3.00	7.375	4.79	172.5	53.1	225.1
150.00	Appurtenance(s)	0.00	1.54	21.379	36.13	211.71	0.650	0.500	2.00	4.833	3.14	113.5	34.9	147.6
155.00		0.00	1.56	21.581	36.47	205.06	0.650	0.500	5.00	11.792	7.66	279.5	84.2	358.8
157.00	Appurtenance(s)	0.00	1.56	21.660	36.60	202.36	0.650	0.500	2.00	4.600	2.99	109.5	33.2	140.2
160.00		0.00	1.57	21.777	36.80	198.30	0.650	0.500	3.00	6.775	4.40	162.1	48.7	206.1
165.00		0.00	1.58	21.969	37.13	191.45	0.650	0.500	5.00	10.958	7.12	264.5	78.1	332.3
167.00	Appurtenance(s)	0.00	1.59	22.045	37.26	188.69	0.650	0.500	2.00	4.267	2.77	103.3	30.7	129.6
169.00		0.00	1.59	22.120	37.38	185.91	0.650	0.500	2.00	4.200	2.73	102.1	30.2	127.5
								Totals:	**169.00**			**11,004.2**		**32,283.4**

Discrete Appurtenance Forces

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	LNX-6515DS	3	22.045	37.256	0.84	31.10	346.80	0.000	0.000	1158.56	0.00	0.00
2	167.00	Ericsson S11B12	3	22.045	37.256	0.50	5.83	227.10	0.000	0.000	217.39	0.00	0.00
3	167.00	Ericsson KRY 112 144/1	3	22.045	37.256	0.50	0.83	42.30	0.000	0.000	30.74	0.00	0.00
4	167.00	AIR B4A B2P	3	22.045	37.256	0.86	17.98	384.30	0.000	0.000	669.97	0.00	0.00
5	167.00	AIR B2A B4P	3	22.045	37.256	0.86	17.98	387.60	0.000	0.000	669.97	0.00	0.00
6	167.00	T-Arms/Commscope	3	22.064	37.288	0.75	23.63	1260.00	0.000	0.500	880.93	0.00	440.47
7	157.00	DB846H80E-SX	2	21.660	36.605	1.10	0.00	0.00	0.000	0.000	0.00	0.00	0.00
8	157.00	ALU RRH2X60-AWS RRH	3	21.660	36.605	0.50	6.35	240.30	0.000	0.000	232.26	0.00	0.00
9	157.00	BXA-70063/6CF	1	21.660	36.605	0.70	5.98	57.60	0.000	0.000	218.82	0.00	0.00
10	157.00	DB846F65ZAXY	4	21.660	36.605	0.93	0.00	0.00	0.000	0.000	0.00	0.00	0.00
11	157.00	SLCP 2x6014F	2	21.660	36.605	0.89	14.03	140.80	0.000	0.000	513.43	0.00	0.00
12	157.00	GPS	1	21.660	36.605	1.00	1.25	18.00	0.000	0.000	45.76	0.00	0.00
13	157.00	HBX-6517DS-VTM	6	21.660	36.605	0.75	27.05	277.20	0.000	0.000	989.98	0.00	0.00
14	157.00	RFS DB T1-6Z-8AB-OZ	1	21.660	36.605	0.67	2.65	35.80	0.000	0.000	97.12	0.00	0.00
15	157.00	T-Arms	3	21.660	36.605	0.75	23.63	1260.00	0.000	0.000	864.79	0.00	0.00
16	150.00	Raycap	1	21.379	36.131	1.00	1.67	49.50	0.000	0.000	60.34	0.00	0.00
17	150.00	Collar Mount	1	21.379	36.131	1.00	5.00	450.00	0.000	0.000	180.65	0.00	0.00
18	150.00	Ericsson RRUS-11-RRU	6	21.379	36.131	0.67	12.62	396.00	0.000	0.000	456.07	0.00	0.00
19	148.00	Ericsson RRUS A2 Module	3	21.297	35.993	0.50	3.22	94.20	0.000	0.000	116.08	0.00	0.00
20	148.00	Cci OPA-65R-LCUU-H6	1	21.297	35.993	0.79	8.57	134.00	0.000	0.000	308.51	0.00	0.00
21	148.00	Cci OPA-65R-LCUU-H8	2	21.297	35.993	0.79	21.46	324.00	0.000	0.000	772.27	0.00	0.00
22	148.00	Ericsson RRUS 12-B2-RRU	3	21.297	35.993	0.50	5.83	227.10	0.000	0.000	210.02	0.00	0.00
23	148.00	Powerwave 7770	6	21.297	35.993	0.73	28.60	0.00	0.000	0.000	1029.44	0.00	0.00
24	148.00	Powerwave LGP13519	6	21.297	35.993	0.50	1.41	48.00	0.000	0.000	50.75	0.00	0.00
25	148.00	Powerwave LGP21401 TMA	6	21.297	35.993	0.50	4.59	127.20	0.000	0.000	165.21	0.00	0.00
26	148.00	T-Arms	3	21.297	35.993	0.75	23.63	1260.00	0.000	0.000	850.33	0.00	0.00
27	127.00	VHLP800-11	1	20.386	34.453	1.00	8.92	97.00	1.455	0.000	307.32	447.15	0.00
28	127.00	VHLP2-11	3	20.386	34.453	0.90	13.63	165.00	1.455	0.000	469.77	683.51	0.00
29	127.00	Sector Frames	3	20.386	34.453	0.75	48.38	2100.00	0.000	0.000	1666.66	0.00	0.00
30	127.00	LLPX310R	3	20.386	34.453	0.69	11.10	163.50	0.000	0.000	382.26	0.00	0.00
31	127.00	2.5GHz RRH BTS	3	20.386	34.453	0.73	4.58	134.70	0.000	0.000	157.69	0.00	0.00
						Totals:		**10,448.00**			**13,773.08**		

Total Applied Force Summary

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 27

Dead Load Factor 1.00

Wind Load Factor 1.00

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		395.02	1778.97	0.00	0.00
10.00		388.67	1752.25	0.00	0.00
15.00		382.32	1725.54	0.00	0.00
20.00		375.97	1698.82	0.00	0.00
25.00		369.62	1672.11	0.00	0.00
30.00		363.27	1645.39	0.00	0.00
35.00		362.97	1618.68	0.00	0.00
40.00		370.38	1591.97	0.00	0.00
40.75		55.27	236.69	0.00	0.00
45.00		323.68	2156.76	0.00	0.00
47.00		152.47	1003.48	0.00	0.00
50.00		230.64	838.31	0.00	0.00
55.00		389.13	1377.90	0.00	0.00
60.00		391.39	1354.56	0.00	0.00
65.00		392.74	1331.22	0.00	0.00
70.00		393.27	1307.88	0.00	0.00
75.00		393.07	1284.54	0.00	0.00
80.00		392.21	1261.20	0.00	0.00
85.00		390.74	1237.86	0.00	0.00
89.25		330.16	1034.03	0.00	0.00
90.00		64.73	260.61	0.00	0.00
91.25		107.88	509.02	0.00	0.00
94.25		259.12	1211.94	0.00	0.00
95.00		64.44	186.72	0.00	0.00
97.25		193.46	557.72	0.00	0.00
100.00		229.43	508.58	0.00	0.00
105.00		384.12	911.14	0.00	0.00
110.00		380.30	894.55	0.00	0.00
115.00		376.09	877.96	0.00	0.00
120.00		371.51	861.37	0.00	0.00
125.00		366.58	844.78	0.00	0.00
127.00	(13) appurtenances	3128.39	2993.84	1130.67	0.00
130.00		215.66	483.48	0.00	0.00
135.00		355.74	791.91	0.00	0.00
139.00		280.08	621.83	0.00	0.00
140.00		69.92	214.38	0.00	0.00
142.75		191.37	583.75	0.00	0.00
145.00		155.10	299.14	0.00	0.00
148.00	(30) appurtenances	3707.54	2609.05	0.00	0.00
150.00	(8) appurtenances	832.26	1156.01	0.00	0.00
155.00		334.25	569.51	0.00	0.00
157.00	(23) appurtenances	3093.58	2254.18	0.00	0.00
160.00		162.07	245.71	0.00	0.00
165.00		264.46	398.34	0.00	0.00
167.00	(18) appurtenances	3730.88	2804.11	0.00	440.47
169.00		102.06	127.49	0.00	0.00
	Totals:	**26,264.02**	**51,685.30**	**1,130.67**	**440.47**

Resulting Forces and Deflections

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-26.333	-51.650	0.000	-0.015	-1.118	-3267.2	0.000	0.000	0.000	0.000	0.000
5.00	-26.067	-49.803	0.000	-0.016	-1.118	-3135.5	-0.080	0.000	0.080	-0.150	0.000
10.00	-25.799	-47.984	0.000	-0.016	-1.118	-3005.2	-0.319	0.000	0.319	-0.302	0.000
15.00	-25.530	-46.192	0.000	-0.016	-1.118	-2876.2	-0.717	0.000	0.717	-0.455	0.000
20.00	-25.260	-44.428	0.000	-0.016	-1.118	-2748.5	-1.277	0.000	1.277	-0.611	0.000
25.00	-24.988	-42.692	0.000	-0.017	-1.118	-2622.2	-2.001	0.000	2.001	-0.768	0.000
30.00	-24.715	-40.983	0.000	-0.018	-1.118	-2497.3	-2.891	0.000	2.891	-0.927	0.000
35.00	-24.434	-39.303	0.000	-0.018	-1.118	-2373.7	-3.947	0.000	3.947	-1.087	0.000
40.00	-24.092	-37.680	0.000	-0.018	-1.118	-2251.6	-5.173	0.000	5.173	-1.249	-0.001
40.75	-24.086	-37.409	0.000	-0.019	-1.118	-2233.5	-5.371	0.000	5.371	-1.274	-0.001
45.00	-23.775	-35.218	0.000	-0.019	-1.119	-2131.1	-6.569	0.000	6.569	-1.414	-0.001
47.00	-23.647	-34.184	0.000	-0.020	-1.119	-2083.6	-7.176	0.000	7.176	-1.481	-0.001
50.00	-23.477	-33.294	0.000	-0.022	-1.119	-2012.7	-8.138	0.000	8.138	-1.581	-0.001
55.00	-23.150	-31.854	0.000	-0.023	-1.119	-1895.3	-9.892	0.000	9.892	-1.764	-0.001
60.00	-22.813	-30.440	0.000	-0.025	-1.120	-1779.5	-11.838	0.000	11.838	-1.948	-0.001
65.00	-22.466	-29.052	0.000	-0.026	-1.120	-1665.5	-13.977	0.000	13.977	-2.132	-0.001
70.00	-22.112	-27.689	0.000	-0.028	-1.121	-1553.1	-16.308	0.001	16.308	-2.316	-0.001
75.00	-21.749	-26.353	0.000	-0.030	-1.121	-1442.6	-18.833	0.001	18.833	-2.500	-0.001
80.00	-21.380	-25.043	0.000	-0.032	-1.122	-1333.8	-21.549	0.001	21.549	-2.683	-0.001
85.00	-20.999	-23.764	0.001	-0.034	-1.122	-1226.9	-24.456	0.001	24.456	-2.865	-0.002
89.25	-20.652	-22.716	0.001	-0.035	-1.123	-1137.7	-27.076	0.001	27.076	-3.019	-0.002
90.00	-20.588	-22.446	0.001	-0.036	-1.123	-1122.2	-27.552	0.001	27.552	-3.046	-0.002
91.25	-20.477	-21.921	0.001	-0.037	-1.123	-1096.5	-28.356	0.001	28.356	-3.092	-0.002
94.25	-20.171	-20.707	0.001	-0.037	-1.123	-1035.0	-30.324	0.002	30.324	-3.173	-0.002
95.00	-20.113	-20.507	0.001	-0.038	-1.124	-1019.9	-30.824	0.002	30.824	-3.193	-0.002
97.25	-19.918	-19.932	0.001	-0.039	-1.125	-974.70	-32.347	0.002	32.347	-3.270	-0.002
100.00	-19.717	-19.379	0.001	-0.041	-1.125	-919.92	-34.257	0.002	34.257	-3.362	-0.002
105.00	-19.354	-18.413	0.001	-0.044	-1.126	-821.34	-37.907	0.002	37.907	-3.603	-0.003
110.00	-18.986	-17.470	0.001	-0.048	-1.127	-724.57	-41.803	0.003	41.803	-3.834	-0.003
115.00	-18.612	-16.551	0.001	-0.052	-1.128	-629.64	-45.936	0.004	45.936	-4.055	-0.003
120.00	-18.234	-15.656	0.001	-0.056	-1.129	-536.58	-50.293	0.004	50.293	-4.262	-0.004
125.00	-17.837	-14.801	0.001	-0.060	-1.130	-445.42	-54.858	0.005	54.858	-4.453	-0.004
127.00	-14.503	-12.039	0.001	0.028	0.000	-409.74	-56.738	0.006	56.738	-4.526	-0.004
130.00	-14.275	-11.542	0.001	0.025	0.000	-366.24	-59.613	0.006	59.613	-4.629	-0.004
135.00	-13.881	-10.750	0.001	0.020	0.000	-294.86	-64.542	0.007	64.542	-4.784	-0.004
139.00	-13.561	-10.138	0.001	0.016	0.000	-239.34	-68.594	0.007	68.594	-4.894	-0.004
140.00	-13.481	-9.920	0.001	0.015	0.000	-225.78	-69.621	0.007	69.621	-4.920	-0.004
142.75	-13.249	-9.342	0.001	0.013	0.000	-188.71	-72.472	0.008	72.472	-4.985	-0.004
145.00	-13.078	-9.044	0.001	0.011	0.000	-158.90	-74.831	0.008	74.831	-5.033	-0.004
148.00	-9.160	-6.765	0.001	0.008	0.000	-119.66	-78.013	0.009	78.013	-5.100	-0.004
150.00	-8.234	-5.679	0.001	0.007	0.000	-101.34	-80.155	0.009	80.155	-5.138	-0.004
155.00	-7.853	-5.136	0.001	0.004	0.000	-60.181	-85.572	0.010	85.572	-5.211	-0.004
157.00	-4.568	-3.171	0.000	0.003	0.000	-44.475	-87.757	0.010	87.757	-5.232	-0.004
160.00	-4.386	-2.940	0.000	0.002	0.000	-30.769	-91.048	0.010	91.048	-5.255	-0.004
165.00	-4.086	-2.566	0.000	0.001	0.000	-8.840	-96.559	0.011	96.559	-5.278	-0.004
167.00	-0.113	-0.118	0.000	0.000	0.000	-0.227	-98.767	0.011	98.767	-5.280	-0.004
169.00	-0.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	100.976	-5.280	-0.004

Resulting Stresses

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 27

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.67	0.69	0.00	0.01	0.00	36.80	37.49	52.0	0.721
5.00	0.66	0.69	0.00	0.01	0.00	36.63	37.30	52.0	0.718
10.00	0.64	0.70	0.00	0.01	0.00	36.43	37.09	52.0	0.714
15.00	0.63	0.70	0.00	0.01	0.00	36.21	36.86	52.0	0.709
20.00	0.62	0.71	0.00	0.01	0.00	35.96	36.59	52.0	0.704
25.00	0.61	0.71	0.00	0.01	0.00	35.67	36.30	52.0	0.698
30.00	0.59	0.72	0.00	0.01	0.00	35.36	35.98	52.0	0.692
35.00	0.58	0.73	0.00	0.01	0.00	35.01	35.61	52.0	0.685
40.00	0.57	0.73	0.00	0.01	0.00	34.62	35.21	52.0	0.677
40.75	0.57	0.73	0.00	0.01	0.00	34.56	35.15	52.0	0.676
45.00	0.54	0.74	0.00	0.01	0.00	34.19	34.76	52.0	0.669
47.00	0.61	0.85	0.00	0.01	0.00	38.27	38.91	52.0	0.749
50.00	0.60	0.85	0.00	0.01	0.00	37.93	38.56	52.0	0.742
55.00	0.59	0.86	0.00	0.01	0.00	37.31	37.93	52.0	0.730
60.00	0.57	0.87	0.00	0.01	0.00	36.63	37.23	52.0	0.716
65.00	0.56	0.87	0.00	0.01	0.00	35.88	36.47	52.0	0.702
70.00	0.55	0.88	0.00	0.01	0.00	35.06	35.64	52.0	0.686
75.00	0.53	0.89	0.00	0.01	0.00	34.16	34.72	52.0	0.668
80.00	0.52	0.89	0.00	0.01	0.00	33.17	33.72	52.0	0.649
85.00	0.50	0.90	0.00	0.01	0.00	32.08	32.62	52.0	0.628
89.25	0.49	0.90	0.00	0.02	0.00	31.07	31.61	52.0	0.608
90.00	0.49	0.90	0.00	0.02	0.00	30.89	31.42	52.0	0.604
91.25	0.48	0.91	0.00	0.02	0.00	23.36	23.84	52.0	0.459
94.25	0.68	1.34	0.00	0.02	0.00	22.67	22.67	52.0	0.436
95.00	0.68	1.34	0.00	0.02	0.00	29.55	29.55	51.2	0.577
97.25	0.67	1.34	0.00	0.02	0.00	28.80	29.47	51.5	0.572
100.00	0.66	1.35	0.00	0.02	0.00	40.72	41.45	51.8	0.800
105.00	0.64	1.36	0.00	0.03	0.00	38.40	39.12	52.0	0.753
110.00	0.63	1.37	0.00	0.03	0.00	35.84	36.55	52.0	0.703
115.00	0.61	1.38	0.00	0.03	0.00	33.00	33.70	52.0	0.648
120.00	0.59	1.40	0.00	0.03	0.00	29.85	30.55	52.0	0.588
125.00	0.58	1.41	0.00	0.03	0.00	26.35	27.04	52.0	0.520
127.00	0.48	1.16	0.00	0.00	0.00	24.86	25.41	52.0	0.489
130.00	0.47	1.16	0.00	0.00	0.00	23.08	23.64	52.0	0.455
135.00	0.45	1.17	0.00	0.00	0.00	19.84	20.39	52.0	0.392
139.00	0.43	1.17	0.00	0.00	0.00	17.00	17.55	52.0	0.338
140.00	0.43	1.17	0.00	0.00	0.00	16.26	16.81	52.0	0.323
142.75	0.54	1.54	0.00	0.00	0.00	18.22	18.95	52.0	0.365
145.00	0.53	1.55	0.00	0.00	0.00	15.83	16.58	51.2	0.324
148.00	0.41	1.11	0.00	0.00	0.00	12.44	12.99	51.7	0.251
150.00	0.35	1.01	0.00	0.00	0.00	10.84	11.33	52.0	0.218
155.00	0.32	1.00	0.00	0.00	0.00	6.93	7.46	52.0	0.144
157.00	0.20	0.59	0.00	0.00	0.00	5.28	5.58	52.0	0.107
160.00	0.19	0.58	0.00	0.00	0.00	3.83	4.14	52.0	0.080
165.00	0.18	0.56	0.00	0.00	0.00	1.19	1.68	52.0	0.032
167.00	0.01	0.02	0.00	0.00	0.00	0.03	0.05	52.0	0.001
169.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	52.0	0.000

Wind Loading - Shaft

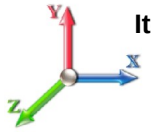
Structure: CT13071-A-SBA
Site Name: Woodbridge
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

12/9/2015

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	234.08	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	229.92	0.650	0.000	5.00	23.200	15.08	163.1	0.0	1305.1
10.00		0.00	1.00	6.400	10.82	225.75	0.650	0.000	5.00	22.783	14.81	160.2	0.0	1281.5
15.00		0.00	1.00	6.400	10.82	221.58	0.650	0.000	5.00	22.367	14.54	157.2	0.0	1257.8
20.00		0.00	1.00	6.400	10.82	217.41	0.650	0.000	5.00	21.950	14.27	154.3	0.0	1234.2
25.00		0.00	1.00	6.400	10.82	213.25	0.650	0.000	5.00	21.533	14.00	151.4	0.0	1210.6
30.00		0.00	1.00	6.400	10.82	209.08	0.650	0.000	5.00	21.116	13.73	148.5	0.0	1187.0
35.00		0.00	1.02	6.509	11.00	206.64	0.650	0.000	5.00	20.700	13.45	148.0	0.0	1163.3
40.00		0.00	1.06	6.762	11.43	206.34	0.650	0.000	5.00	20.283	13.18	150.7	0.0	1139.7
40.75	Bot - Section 2	0.00	1.06	6.798	11.49	206.24	0.650	0.000	0.75	3.006	1.95	22.4	0.0	168.9
45.00		0.00	1.09	6.993	11.82	205.48	0.650	0.000	4.25	17.125	11.13	131.6	0.0	1773.0
47.00	Top - Section 1	0.00	1.11	7.080	11.97	205.01	0.650	0.000	2.00	7.955	5.17	61.9	0.0	823.4
50.00		0.00	1.13	7.207	12.18	207.49	0.650	0.000	3.00	11.807	7.67	93.5	0.0	569.3
55.00		0.00	1.16	7.406	12.52	205.86	0.650	0.000	5.00	19.345	12.57	157.4	0.0	932.6
60.00		0.00	1.19	7.592	12.83	203.89	0.650	0.000	5.00	18.928	12.30	157.9	0.0	912.3
65.00		0.00	1.21	7.768	13.13	201.65	0.650	0.000	5.00	18.512	12.03	158.0	0.0	892.1
70.00		0.00	1.24	7.934	13.41	199.15	0.650	0.000	5.00	18.095	11.76	157.7	0.0	871.8
75.00		0.00	1.26	8.092	13.68	196.44	0.650	0.000	5.00	17.678	11.49	157.1	0.0	851.6
80.00		0.00	1.29	8.242	13.93	193.53	0.650	0.000	5.00	17.262	11.22	156.3	0.0	831.3
85.00		0.00	1.31	8.387	14.17	190.44	0.650	0.000	5.00	16.845	10.95	155.2	0.0	811.1
89.25	Bot - Section 3	0.00	1.33	8.504	14.37	187.69	0.650	0.000	4.25	13.990	9.09	130.7	0.0	673.5
90.00		0.00	1.33	8.525	14.41	187.19	0.650	0.000	0.75	2.469	1.60	23.1	0.0	196.8
91.25	RB1	0.00	1.34	8.558	14.46	186.36	0.650	0.000	1.25	4.094	2.66	38.5	0.0	479.5
94.25	Top - Section 2	0.00	1.35	8.638	14.60	184.32	0.650	0.000	3.00	9.719	6.32	92.2	0.0	1142.1
95.00		0.00	1.35	8.657	14.63	186.22	0.650	0.000	0.75	2.406	1.56	22.9	0.0	169.3
97.25	RT1	0.00	1.36	8.715	14.73	184.66	0.650	0.000	2.25	7.163	4.66	68.6	0.0	506.2
100.00		0.00	1.37	8.785	14.85	182.71	0.650	0.000	2.75	8.640	5.62	83.4	0.0	278.1
105.00		0.00	1.39	8.908	15.06	179.07	0.650	0.000	5.00	15.386	10.00	150.6	0.0	495.1
110.00		0.00	1.41	9.028	15.26	175.31	0.650	0.000	5.00	14.970	9.73	148.5	0.0	481.6
115.00		0.00	1.43	9.143	15.45	171.45	0.650	0.000	5.00	14.553	9.46	146.2	0.0	468.1
120.00		0.00	1.45	9.255	15.64	167.48	0.650	0.000	5.00	14.136	9.19	143.7	0.0	454.6
125.00		0.00	1.46	9.363	15.82	163.42	0.650	0.000	5.00	13.719	8.92	141.1	0.0	441.1
127.00	Appurtenance(s)	0.00	1.47	9.406	15.90	161.77	0.650	0.000	2.00	5.371	3.49	55.5	0.0	172.7
130.00		0.00	1.48	9.469	16.00	159.27	0.650	0.000	3.00	7.932	5.16	82.5	0.0	255.0
135.00		0.00	1.50	9.572	16.18	155.04	0.650	0.000	5.00	12.886	8.38	135.5	0.0	414.1
139.00	Bot - Section 4	0.00	1.51	9.652	16.31	151.59	0.650	0.000	4.00	10.009	6.51	106.1	0.0	321.6
140.00		0.00	1.51	9.672	16.35	150.72	0.650	0.000	1.00	2.492	1.62	26.5	0.0	139.2
142.75	Top - Section 3	0.00	1.52	9.726	16.44	148.32	0.650	0.000	2.75	6.766	4.40	72.3	0.0	378.0
145.00		0.00	1.53	9.769	16.51	148.26	0.650	0.000	2.25	5.442	3.54	58.4	0.0	131.4
148.00	Appurtenance(s)	0.00	1.54	9.826	16.61	145.60	0.650	0.000	3.00	7.125	4.63	76.9	0.0	172.0
150.00	Appurtenance(s)	0.00	1.54	9.864	16.67	143.81	0.650	0.000	2.00	4.667	3.03	50.6	0.0	112.6
155.00		0.00	1.56	9.957	16.83	139.28	0.650	0.000	5.00	11.375	7.39	124.4	0.0	274.5
157.00	Appurtenance(s)	0.00	1.56	9.994	16.89	137.46	0.650	0.000	2.00	4.433	2.88	48.7	0.0	107.0
160.00		0.00	1.57	10.048	16.98	134.70	0.650	0.000	3.00	6.525	4.24	72.0	0.0	157.4
165.00		0.00	1.58	10.136	17.13	130.05	0.650	0.000	5.00	10.542	6.85	117.4	0.0	254.3
167.00	Appurtenance(s)	0.00	1.59	10.171	17.19	128.17	0.650	0.000	2.00	4.100	2.67	45.8	0.0	98.9
169.00		0.00	1.59	10.206	17.25	126.28	0.650	0.000	2.00	4.033	2.62	45.2	0.0	97.3
								Totals:	**169.00**			**4,949.3**		**28,088.6**

Discrete Appurtenance Forces

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	LNX-6515DS	3	10.171	17.190	0.84	28.75	150.90	0.000	0.000	494.26	0.00	0.00
2	167.00	Ericsson S11B12	3	10.171	17.190	0.50	4.96	153.00	0.000	0.000	85.35	0.00	0.00
3	167.00	Ericsson KRY 112 144/1	3	10.171	17.190	0.50	0.61	33.00	0.000	0.000	10.57	0.00	0.00
4	167.00	AIR B4A B2P	3	10.171	17.190	0.86	16.98	271.20	0.000	0.000	291.82	0.00	0.00
5	167.00	AIR B2A B4P	3	10.171	17.190	0.86	16.98	274.50	0.000	0.000	291.82	0.00	0.00
6	167.00	T-Arms/Commscope	3	10.180	17.204	0.75	15.19	1020.00	0.000	0.500	261.29	0.00	130.65
7	157.00	DB846H80E-SX	2	9.994	16.889	1.10	11.02	32.00	0.000	0.000	186.15	0.00	0.00
8	157.00	ALU RRH2X60-AWS RRH	3	9.994	16.889	0.50	5.94	180.00	0.000	0.000	100.32	0.00	0.00
9	157.00	BXA-70063/6CF	1	9.994	16.889	0.70	5.41	17.00	0.000	0.000	91.39	0.00	0.00
10	157.00	DB846F65ZAXY	4	9.994	16.889	0.93	26.23	84.00	0.000	0.000	442.93	0.00	0.00
11	157.00	SLCP 2x6014F	2	9.994	16.889	0.89	12.83	40.00	0.000	0.000	216.75	0.00	0.00
12	157.00	GPS	1	9.994	16.889	1.00	1.00	10.00	0.000	0.000	16.89	0.00	0.00
13	157.00	HBX-6517DS-VTM	6	9.994	16.889	0.75	23.85	112.20	0.000	0.000	402.80	0.00	0.00
14	157.00	RFS DB T1-6Z-8AB-OZ	1	9.994	16.889	0.67	2.51	19.00	0.000	0.000	42.32	0.00	0.00
15	157.00	T-Arms	3	9.994	16.889	0.75	18.00	1050.00	0.000	0.000	304.00	0.00	0.00
16	150.00	Raycap	1	9.864	16.670	1.00	1.47	32.80	0.000	0.000	24.51	0.00	0.00
17	150.00	Collar Mount	1	9.864	16.670	1.00	3.00	100.00	0.000	0.000	50.01	0.00	0.00
18	150.00	Ericsson RRUS-11-RRU	6	9.864	16.670	0.67	11.82	300.00	0.000	0.000	197.02	0.00	0.00
19	148.00	Ericsson RRUS A2 Module	3	9.826	16.607	0.50	2.79	63.60	0.000	0.000	46.33	0.00	0.00
20	148.00	Cci OPA-65R-LCUU-H6	1	9.826	16.607	0.79	8.18	73.00	0.000	0.000	135.91	0.00	0.00
21	148.00	Cci OPA-65R-LCUU-H8	2	9.826	16.607	0.79	20.51	176.00	0.000	0.000	340.57	0.00	0.00
22	148.00	Ericsson RRUS 12-B2-RRU	3	9.826	16.607	0.50	5.50	174.00	0.000	0.000	91.42	0.00	0.00
23	148.00	Powerwave 7770	6	9.826	16.607	0.73	25.75	210.00	0.000	0.000	427.69	0.00	0.00
24	148.00	Powerwave LGP13519	6	9.826	16.607	0.50	1.02	31.80	0.000	0.000	16.94	0.00	0.00
25	148.00	Powerwave LGP21401 TMA	6	9.826	16.607	0.50	3.87	84.60	0.000	0.000	64.27	0.00	0.00
26	148.00	T-Arms	3	9.826	16.607	0.75	18.00	1050.00	0.000	0.000	298.92	0.00	0.00
27	127.00	VHLP800-11	1	9.406	15.896	1.00	8.43	48.00	1.455	0.000	134.00	194.98	0.00
28	127.00	VHLP2-11	3	9.406	15.896	0.90	12.64	81.00	1.455	0.000	200.86	292.26	0.00
29	127.00	Sector Frames	3	9.406	15.896	0.75	33.75	1500.00	0.000	0.000	536.50	0.00	0.00
30	127.00	LLPX310R	3	9.406	15.896	0.69	10.00	85.80	0.000	0.000	158.93	0.00	0.00
31	127.00	2.5GHz RRH BTS	3	9.406	15.896	0.73	3.99	99.00	0.000	0.000	63.36	0.00	0.00
						Totals:		**7,556.40**			**6,025.92**		

Total Applied Force Summary

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		173.92	1562.16	0.00	0.00
10.00		170.99	1538.53	0.00	0.00
15.00		168.06	1514.90	0.00	0.00
20.00		165.13	1491.27	0.00	0.00
25.00		162.20	1467.64	0.00	0.00
30.00		159.27	1444.01	0.00	0.00
35.00		158.99	1420.38	0.00	0.00
40.00		162.08	1396.76	0.00	0.00
40.75		24.17	207.48	0.00	0.00
45.00		141.60	1991.49	0.00	0.00
47.00		66.66	926.20	0.00	0.00
50.00		100.78	723.50	0.00	0.00
55.00		169.89	1189.63	0.00	0.00
60.00		170.69	1169.38	0.00	0.00
65.00		171.09	1149.13	0.00	0.00
70.00		171.11	1128.88	0.00	0.00
75.00		170.82	1108.62	0.00	0.00
80.00		170.22	1088.37	0.00	0.00
85.00		169.36	1068.12	0.00	0.00
89.25		142.91	891.97	0.00	0.00
90.00		27.12	235.37	0.00	0.00
91.25		45.18	467.17	0.00	0.00
94.25		108.43	1112.59	0.00	0.00
95.00		26.94	161.96	0.00	0.00
97.25		80.84	484.04	0.00	0.00
100.00		96.59	419.46	0.00	0.00
105.00		165.62	752.19	0.00	0.00
110.00		163.71	738.69	0.00	0.00
115.00		161.61	725.19	0.00	0.00
120.00		159.35	711.68	0.00	0.00
125.00		156.94	698.18	0.00	0.00
127.00	(13) appurtenances	1155.51	2089.29	487.24	0.00
130.00		92.10	397.37	0.00	0.00
135.00		151.66	651.48	0.00	0.00
139.00		119.17	511.46	0.00	0.00
140.00		29.74	186.68	0.00	0.00
142.75		81.33	508.51	0.00	0.00
145.00		65.83	238.20	0.00	0.00
148.00	(30) appurtenances	1508.93	2177.41	0.00	0.00
150.00	(8) appurtenances	328.78	640.38	0.00	0.00
155.00		141.25	440.27	0.00	0.00
157.00	(23) appurtenances	1858.98	1717.47	0.00	0.00
160.00		72.02	197.02	0.00	0.00
165.00		117.38	320.27	0.00	0.00
167.00	(18) appurtenances	1480.92	2027.87	0.00	130.65
169.00		45.22	97.25	0.00	0.00
	Totals:	**11,431.11**	**43,185.88**	**487.24**	**130.65**

Resulting Forces and Deflections

Structure:	CT13071-A-SB	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-11.455	-43.179	0.000	-0.002	-0.486	-1414.8	0.000	0.000	0.000	0.000	0.000
5.00	-11.328	-41.604	0.000	-0.002	-0.486	-1357.5	-0.035	0.000	0.035	-0.065	0.000
10.00	-11.200	-40.053	0.000	-0.002	-0.486	-1300.9	-0.138	0.000	0.138	-0.131	0.000
15.00	-11.073	-38.526	0.000	-0.002	-0.486	-1244.9	-0.310	0.000	0.310	-0.197	0.000
20.00	-10.946	-37.022	0.000	-0.002	-0.486	-1189.5	-0.553	0.000	0.553	-0.264	0.000
25.00	-10.818	-35.543	0.000	-0.003	-0.486	-1134.8	-0.866	0.000	0.866	-0.332	0.000
30.00	-10.691	-34.087	0.000	-0.003	-0.486	-1080.7	-1.251	0.000	1.251	-0.401	0.000
35.00	-10.561	-32.655	0.000	-0.003	-0.486	-1027.3	-1.709	0.000	1.709	-0.471	0.000
40.00	-10.408	-31.252	0.000	-0.003	-0.486	-974.51	-2.239	0.000	2.239	-0.541	0.000
40.75	-10.402	-31.039	0.000	-0.003	-0.486	-966.70	-2.325	0.000	2.325	-0.552	0.000
45.00	-10.262	-29.041	0.000	-0.003	-0.486	-922.49	-2.844	0.000	2.844	-0.612	0.000
47.00	-10.203	-28.109	0.000	-0.003	-0.486	-901.97	-3.106	0.000	3.106	-0.641	0.000
50.00	-10.124	-27.376	0.000	-0.003	-0.486	-871.36	-3.523	0.000	3.523	-0.684	0.000
55.00	-9.975	-26.174	0.000	-0.004	-0.486	-820.74	-4.282	0.000	4.282	-0.764	0.000
60.00	-9.823	-24.994	0.000	-0.004	-0.486	-770.87	-5.125	0.000	5.125	-0.843	0.000
65.00	-9.667	-23.834	0.000	-0.004	-0.486	-721.76	-6.051	0.000	6.051	-0.923	0.000
70.00	-9.509	-22.695	0.000	-0.005	-0.486	-673.42	-7.060	0.000	7.060	-1.003	-0.001
75.00	-9.348	-21.577	0.000	-0.005	-0.486	-625.88	-8.154	0.000	8.154	-1.083	-0.001
80.00	-9.185	-20.479	0.000	-0.005	-0.487	-579.14	-9.330	0.000	9.330	-1.162	-0.001
85.00	-9.017	-19.403	0.000	-0.006	-0.487	-533.22	-10.590	0.000	10.590	-1.241	-0.001
89.25	-8.867	-18.509	0.000	-0.006	-0.487	-494.90	-11.725	0.000	11.725	-1.308	-0.001
90.00	-8.840	-18.272	0.000	-0.006	-0.487	-488.25	-11.932	0.000	11.932	-1.320	-0.001
91.25	-8.792	-17.802	0.000	-0.006	-0.487	-477.20	-12.280	0.000	12.280	-1.340	-0.001
94.25	-8.664	-16.689	0.000	-0.007	-0.487	-450.82	-13.133	0.000	13.133	-1.375	-0.001
95.00	-8.639	-16.524	0.000	-0.007	-0.487	-444.32	-13.350	0.000	13.350	-1.384	-0.001
97.25	-8.557	-16.037	0.000	-0.007	-0.487	-424.88	-14.010	0.000	14.010	-1.417	-0.001
100.00	-8.470	-15.609	0.000	-0.007	-0.487	-401.35	-14.838	0.000	14.838	-1.458	-0.001
105.00	-8.312	-14.846	0.000	-0.008	-0.487	-359.00	-16.422	0.000	16.422	-1.563	-0.001
110.00	-8.152	-14.098	0.000	-0.009	-0.487	-317.44	-18.113	0.001	18.113	-1.664	-0.001
115.00	-7.990	-13.365	0.000	-0.009	-0.487	-276.69	-19.908	0.001	19.908	-1.761	-0.001
120.00	-7.828	-12.647	0.000	-0.010	-0.487	-236.74	-21.802	0.001	21.802	-1.852	-0.002
125.00	-7.660	-11.947	0.000	-0.011	-0.487	-197.60	-23.788	0.001	23.788	-1.936	-0.002
127.00	-6.441	-9.894	0.000	0.006	0.000	-182.28	-24.606	0.001	24.606	-1.969	-0.002
130.00	-6.345	-9.493	0.000	0.005	0.000	-162.96	-25.858	0.001	25.858	-2.015	-0.002
135.00	-6.179	-8.841	0.000	0.004	0.000	-131.23	-28.005	0.001	28.005	-2.083	-0.002
139.00	-6.045	-8.331	0.000	0.003	0.000	-106.52	-29.773	0.001	29.773	-2.133	-0.002
140.00	-6.011	-8.144	0.000	0.003	0.000	-100.47	-30.221	0.001	30.221	-2.144	-0.002
142.75	-5.914	-7.636	0.000	0.003	0.000	-83.947	-31.464	0.001	31.464	-2.173	-0.002
145.00	-5.843	-7.398	0.000	0.002	0.000	-70.640	-32.494	0.002	32.494	-2.194	-0.002
148.00	-4.253	-5.279	0.000	0.002	0.000	-53.112	-33.883	0.002	33.883	-2.224	-0.002
150.00	-3.902	-4.650	0.000	0.001	0.000	-44.605	-34.818	0.002	34.818	-2.241	-0.002
155.00	-3.745	-4.214	0.000	0.001	0.000	-25.096	-37.183	0.002	37.183	-2.272	-0.002
157.00	-1.819	-2.572	0.000	0.001	0.000	-17.607	-38.137	0.002	38.137	-2.281	-0.002
160.00	-1.740	-2.378	0.000	0.000	0.000	-12.149	-39.573	0.002	39.573	-2.290	-0.002
165.00	-1.610	-2.062	0.000	0.000	0.000	-3.449	-41.977	0.002	41.977	-2.299	-0.002
167.00	-0.049	-0.095	0.000	0.000	0.000	-0.098	-42.940	0.002	42.940	-2.300	-0.002
169.00	-0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	43.903	-2.300	-0.002

Resulting Stresses

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 25

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.56	0.30	0.00	0.00	0.00	15.94	16.50	52.0	0.317
5.00	0.55	0.30	0.00	0.00	0.00	15.86	16.41	52.0	0.316
10.00	0.54	0.30	0.00	0.00	0.00	15.77	16.32	52.0	0.314
15.00	0.53	0.30	0.00	0.00	0.00	15.67	16.21	52.0	0.312
20.00	0.52	0.31	0.00	0.00	0.00	15.56	16.09	52.0	0.309
25.00	0.50	0.31	0.00	0.00	0.00	15.44	15.95	52.0	0.307
30.00	0.49	0.31	0.00	0.00	0.00	15.30	15.81	52.0	0.304
35.00	0.48	0.31	0.00	0.00	0.00	15.15	15.64	52.0	0.301
40.00	0.47	0.32	0.00	0.00	0.00	14.98	15.47	52.0	0.298
40.75	0.47	0.32	0.00	0.00	0.00	14.96	15.44	52.0	0.297
45.00	0.45	0.32	0.00	0.00	0.00	14.80	15.26	52.0	0.294
47.00	0.50	0.37	0.00	0.00	0.00	16.57	17.08	52.0	0.329
50.00	0.49	0.37	0.00	0.00	0.00	16.42	16.93	52.0	0.326
55.00	0.48	0.37	0.00	0.00	0.00	16.16	16.65	52.0	0.320
60.00	0.47	0.37	0.00	0.01	0.00	15.87	16.35	52.0	0.315
65.00	0.46	0.38	0.00	0.01	0.00	15.55	16.02	52.0	0.308
70.00	0.45	0.38	0.00	0.01	0.00	15.20	15.66	52.0	0.301
75.00	0.44	0.38	0.00	0.01	0.00	14.82	15.27	52.0	0.294
80.00	0.42	0.38	0.00	0.01	0.00	14.40	14.84	52.0	0.285
85.00	0.41	0.39	0.00	0.01	0.00	13.94	14.37	52.0	0.276
89.25	0.40	0.39	0.00	0.01	0.00	13.52	13.93	52.0	0.268
90.00	0.40	0.39	0.00	0.01	0.00	13.44	13.85	52.0	0.267
91.25	0.39	0.39	0.00	0.01	0.00	10.17	10.56	52.0	0.203
94.25	0.55	0.57	0.00	0.01	0.00	9.87	9.87	52.0	0.190
95.00	0.55	0.57	0.00	0.01	0.00	12.87	12.87	51.2	0.251
97.25	0.54	0.58	0.00	0.01	0.00	12.56	13.09	51.5	0.254
100.00	0.53	0.58	0.00	0.01	0.00	17.77	18.32	51.8	0.354
105.00	0.52	0.58	0.00	0.01	0.00	16.79	17.33	52.0	0.333
110.00	0.51	0.59	0.00	0.01	0.00	15.70	16.24	52.0	0.312
115.00	0.49	0.59	0.00	0.01	0.00	14.50	15.03	52.0	0.289
120.00	0.48	0.60	0.00	0.01	0.00	13.17	13.69	52.0	0.263
125.00	0.47	0.60	0.00	0.01	0.00	11.69	12.20	52.0	0.235
127.00	0.39	0.51	0.00	0.00	0.00	11.06	11.48	52.0	0.221
130.00	0.38	0.52	0.00	0.00	0.00	10.27	10.69	52.0	0.206
135.00	0.37	0.52	0.00	0.00	0.00	8.83	9.24	52.0	0.178
139.00	0.36	0.52	0.00	0.00	0.00	7.57	7.97	52.0	0.153
140.00	0.35	0.52	0.00	0.00	0.00	7.24	7.64	52.0	0.147
142.75	0.44	0.69	0.00	0.00	0.00	8.11	8.63	52.0	0.166
145.00	0.43	0.69	0.00	0.00	0.00	7.04	7.57	51.2	0.148
148.00	0.32	0.51	0.00	0.00	0.00	5.52	5.91	51.7	0.114
150.00	0.28	0.48	0.00	0.00	0.00	4.77	5.12	52.0	0.099
155.00	0.27	0.48	0.00	0.00	0.00	2.89	3.26	52.0	0.063
157.00	0.16	0.24	0.00	0.00	0.00	2.09	2.29	52.0	0.044
160.00	0.16	0.23	0.00	0.00	0.00	1.51	1.71	52.0	0.033
165.00	0.14	0.22	0.00	0.00	0.00	0.46	0.72	52.0	0.014
167.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	52.0	0.000
169.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	52.0	0.000

Resulting Stresses

Structure:	CT13071-A-SBA	**Code:**	EIA/TIA-222-F	12/9/2015	
Site Name:	Woodbridge	**Exposure:**	C		
Height:	169.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 26	

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	t MZ (ft-kips)
85 mph Wind with 0" Ice	33.1	0.00	43.13	0.02	1.38	4082.23
73.61 mph Wind with 0.5" Ice	26.3	0.00	51.65	0.02	1.12	3267.23
50 mph Wind with 0" Ice	11.5	0.00	43.18	0.00	0.49	1414.86

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.48	1.67	0.00	0.03	0.00	51.13	51.69	51.8	100.00	0.997
73.61 mph Wind with 0.5" Ice	0.66	1.35	0.00	0.02	0.00	40.72	41.45	51.8	100.00	0.800
50 mph Wind with 0" Ice	0.53	0.58	0.00	0.01	0.00	17.77	18.32	51.8	100.00	0.354

Additional Steel Summary

			Intermediate Connectors			Upper Termination			Lower Termination			Max Member			
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	V (kips)	Shear Allow (kips)	MQ/I (kips)	Num Reqd	Num Actual	MQ/I (kips)	Num Reqd	Num Actual	MQ/I (kips)	Ta (kips)	Pa (kips)	Ratio
91.3	97.3	(3) LNP-LP6X100-G-10TT	-336.2	-7.73	22.5	199.9	9	9	167.5	2	9	205.1	260.0	260.4	0.787

Monopole Mat Foundation Design

			Date: 11/24/2015
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-F
Site Name:		**Structure Height (Ft.):**	169
Site Number:	CT13071-A-SBA	**Engineer Name:**	U. Atluri
Engr. Number:	18969	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

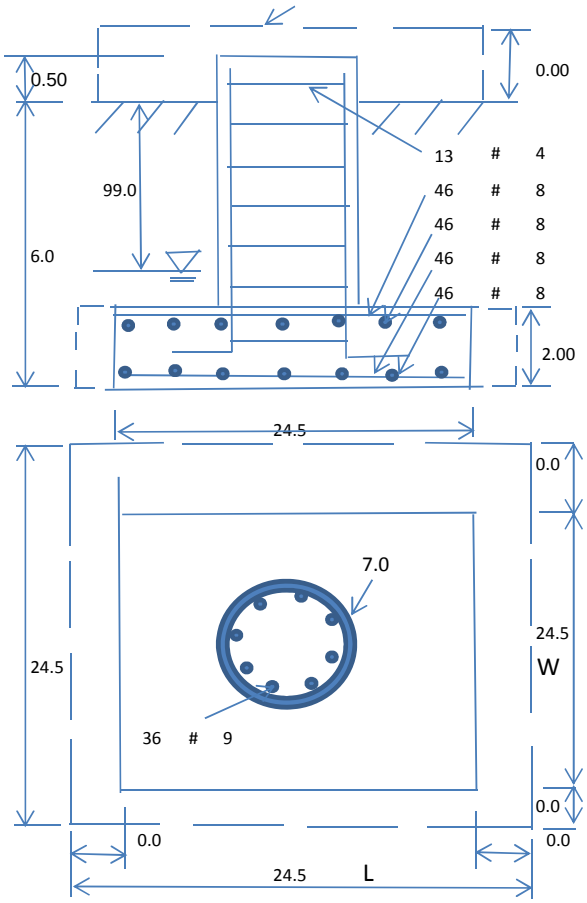
Analysis or Design? Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	43.1	Shear Force (Kips):	33.1
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4082.2
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	24.5	Width of Pad (ft.):	24.5
Final Length of pad (ft)	24.5	Final width of pad (ft):	24.5
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	46	Qty. of Rebar in Pad (W):	46	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	46	Qty. of Rebar in Pad (W):	46	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	6666	Allowable Skin Friction:	200	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	Yes	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hori. force for O.T.M.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	2247.06	Total Dry Soil Weight (Kips):	269.65
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	269.65	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1373.68	Total Dry Concrete Weight (Kips):	206.05
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	206.05	Total Vertical Load on Base (Kips):	518.80

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3895	<	Allowable Soil Bearing (psf): 6666	0.58	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	4356.9	>	Applied Momont (kips-ft): 4264	0.98	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.53	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.30		
				Load/ Capacity Ratio	
(1) Concrete Pier:					
Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	6090.2 >	Design Factored Moment (Mu, Kips-F	5500.5	0.90	OK!
Calculated Shear Capacity (Kips):	794.5 >	Design Factored Shear (Kips):	43.0	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	1944.0 >	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9734.2 >	Design Factored Axial Load (Pu Kips):	56.0	0.01	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.91 OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.006	Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Direction, Kips):	571.8 >	One-Way Factored Shear (L-D. Kips):	395.3	0.69	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	571.8 >	One-Way Factored Shear (W-D., Kips)	395.3	0.69	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	645.2 >	One-Way Factored Shear (C-C, Kips):	553.6	0.86	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0060 OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0060		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3174.0 >	Moment at Bottom (L-Direct. K-Ft):	1070.6	0.34	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3174.0 >	Moment at Bottom (W-Direct. K-Ft):	1070.6	0.34	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	4424.9 >	Moment at Bottom (C-C Dir. K-Ft):	1514.1	0.34	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0060 OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0060		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3174.0 >	Moment at the top (L-Dir Kips-Ft):	555.7	0.18	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3174.0 >	Moment at the top (W-Dir Kips-Ft):	555.7	0.18	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4424.9 >	Moment at the top (C-C Direc. K-Ft):	893.0	0.20	OK!

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT2359

Ansonia CT Deerfield Ln
1 Deerfield Avenue
Ansonia, CT 06401

November 13, 2015

EBI Project Number: 6215005564

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	6.45 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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November 13, 2015

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2359 – Ansonia CT Deerfield Ln**

EBI Consulting was directed to analyze the proposed AT&T facility located at **1 Deerfield Avenue, Ansonia, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the PCS, AWS and WCS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **1 Deerfield Avenue, Ansonia, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 4 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 GSM channels (850 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **Powerwave 7770** for 1900 MHz (PCS) and 850 MHz channels and the **CCI OPA-65R-LCUU-H6 & CCI OPA-65R-LCUU-H8** for 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **148.3 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.3 dBd	Gain:	11.4 / 13.3 dBd	Gain:	11.4 / 13.3 dBd
Height (AGL):	148.3 feet	Height (AGL):	148.3 feet	Height (AGL):	148.3 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	8	Channel Count	8	# PCS Channels:	8
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	4,281.78	ERP (W):	4,281.78	ERP (W):	4,281.78
Antenna A1 MPE%	**0.98**	Antenna B1 MPE%	**0.98**	Antenna C1 MPE%	**0.98**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	11.7 / 14.9 dBd	Gain:	12.6 / 14.9 dBd	Gain:	12.6 / 14.9 dBd
Height (AGL):	148.3 feet	Height (AGL):	148.3 feet	Height (AGL):	148.3 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	5,483.28	ERP (W):	5,892.00	ERP (W):	5,892.00
Antenna A2 MPE%	**1.33**	Antenna B2 MPE%	**1.49**	Antenna C2 MPE%	**1.49**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	12.5 / 15.5 dBd	Gain:	13.4 / 15 dBd	Gain:	13.4 / 15 dBd
Height (AGL):	148.3 feet	Height (AGL):	148.3 feet	Height (AGL):	148.3 feet
Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	180	Total TX Power:	180	Total TX Power:	180
ERP (W):	5,324.73	ERP (W):	5,107.39	ERP (W):	5,107.39
Antenna A3 MPE%	**1.67**	Antenna B3 MPE%	**1.60**	Antenna C3 MPE%	**1.60**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**4.07**
T-Mobile	0.01 %
Clearwire	0.12 %
Verizon Wireless	1.89 %
MetroPCS	0.36 %
Site Total MPE %:	**6.45 %**

AT&T Sector 1 Total:	3.99 %
AT&T Sector 2 Total:	4.07 %
AT&T Sector 3 Total:	4.07 %
Site Total:	6.45 %

AT&T _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	**4**	**414.12**	**148.3**	**2.94**	**850**	**567**	**0.52 %**
AT&T 1900 MHz (PCS) UMTS	**4**	**656.33**	**148.3**	**4.66**	**1900**	**1000**	**0.47 %**
AT&T 700 MHz LTE	**2**	**1091.82**	**148.3**	**3.88**	**700**	**467**	**0.83 %**
AT&T 1900 MHz (PCS) LTE	**2**	**1854.18**	**148.3**	**6.58**	**1900**	**1000**	**0.66 %**
AT&T 850 MHz GSM	**2**	**656.33**	**148.3**	**2.33**	**850**	**567**	**0.41 %**
AT&T 2300 MHz (WCS) LTE	**2**	**1897.37**	**148.3**	**6.74**	**2300**	**1000**	**1.19 %**
						Total:	**4.07 %**

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Summary

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

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

AT&T Sector	Power Density Value (%)
Sector 1:	3.99 %
Sector 2:	4.07 %
Sector 3 :	4.07 %
AT&T Maximum Total (per sector):	4.07 %
Site Total:	6.45 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.45%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

PROJECT INFORMATION

SCOPE OF WORK:

- REMOVE (1) EXISTING LTE ANTENNA PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) EXISTING ANTENNAS TO BE REMOVED.
- NEW AT&T ANTENNAS: (1) NEW ANTENNA PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW ANTENNAS; (6) EXISTING GSM/UMTS ANTENNAS TO REMAIN (2 PER SECTOR)
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (1) EXISTING RRU PER SECTOR TO REMAIN, FOR A TOTAL OF (3) EXISTING RRUs.
- (1) NEW A2 MODULE PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW A2 MODULES.

SITE ADDRESS:	1 DEERFIELD LANE ANSONIA, CT 06401	
LATITUDE:	41.3505556	41° 21' 02.00016"N
LONGITUDE:	−72.600250	−73° 02' 57.3"W
USID:	97775	
TOWER OWNER:		
TYPE OF SITE:	MONOPOLE/INDOOR EQUIPMENT	
MONOPOLE HEIGHT:	170'−0"±	
RAD CENTER:	148'−0"±	
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY	
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY	

DRAWING INDEX

		REV.
T−1	TITLE SHEET	0
GN−1	GROUNDING & GENERAL NOTES	0
A−1	COMPOUND LAYOUT	0
A−2	EQUIPMENT LAYOUTS	0
A−3	ANTENNA LAYOUTS & ELEVATIONS	0
A−4	DETAILS	0
A−5	ANTENNA MOUNTING DETAILS	0
G−1	GROUNDING, ONE−LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10126685
SITE NUMBER: CT2359
SITE NAME: ANSONIA DEERFIELD LN

VICINITY MAP

1. TAKE RAMP LEFT FOR I−91 SOUTH, 9.7 MI. 2. AT EXIT 17, TAKE RAMP RIGHT FOR CT−15 SOUTH TOWARD W. CROSS PKWY / E. MAIN ST, 21.8 MI. 3. TAKE RAMP RIGHT FOR CT−34 WEST / DERBY AVE, 0.8 MI. 4. TURN RIGHT ONTO SADOM LN, 0.5 MI. 5. TURN RIGHT ONTO MARSHALL LN, 1.0 MI. 6. TURN RIGHT ONTO CT−243 / PULASKI HWY, 0.2 MI. 7. TURN RIGHT ONTO BENZ ST 0.6 MI. 8. TURN RIGHT ONTO FORD ST, AND THEN IMMEDIATELY TURN LEFT ONTO BENZ ST, 0.5 MI. 9. TURN RIGHT ONTO MILON RD, 343 FT. 10. KEEP STRAIGHT ONTO DEERFIELD LN, 48 FT. ARRIVE AT 1 DEERFIELD LN, ANSONIA, CT 06401.

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617−639−4908
EMAIL: dcooper@empiretelecomm.com

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GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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COM−EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2359
SITE NAME: ANSONIA DEERFIELD LN

1 DEERFIELD LANE
ANSONIA, CT 06401
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	2/17/16	ISSUED AS FINAL	AM	NDB	NDB

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

SEAL: STATE OF CONNECTICUT, NICHOLAS D. BARILE, LICENSE NO. 28643, PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15043−EMP	T−1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - CONTRACTOR – EMPIRE TELECOM
   - SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   - OWNER – AT&T MOBILITY
   - OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

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

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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SITE NUMBER: CT2359
SITE NAME: ANSONIA DEERFIELD LN

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ANSONIA, CT 06401
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	2/17/16	ISSUED AS FINAL	AM	NDB	NDB

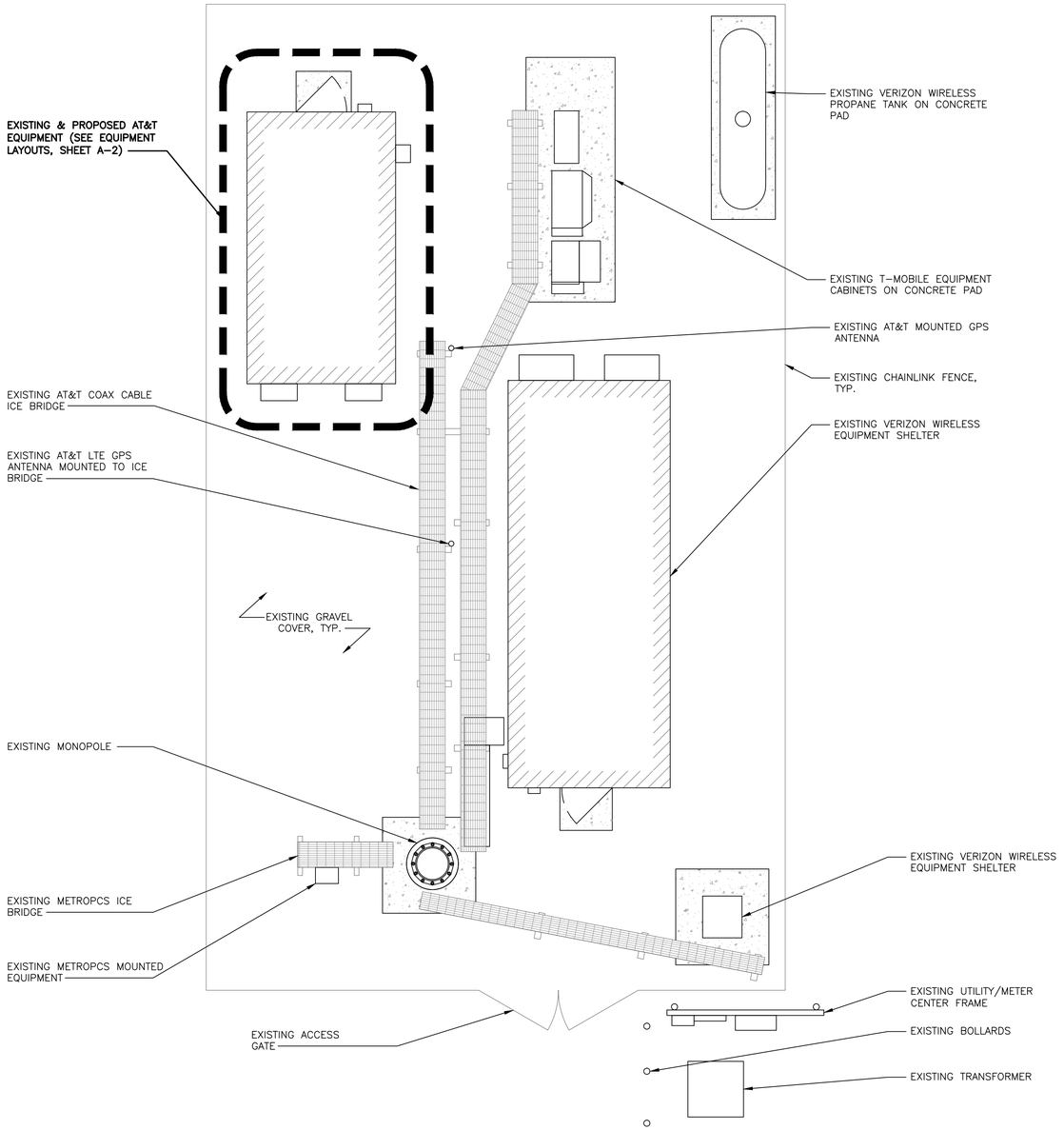
SCALE: AS SHOWN | DESIGNED BY: AM | DRAWN BY: AM

SEAL: NICHOLAS D. BARILE, STATE OF CONNECTICUT, PROFESSIONAL ENGINEER, LICENSE NO. 28643

AT&T

DRAWING TITLE: GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15043-EMP	GN-1	0

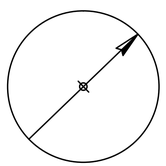


COMPOUND LAYOUT

SCALE: 3/16" = 1'–0"

6' 2' 0 6' 18'

3/16 Inch = 1 Foot



NORTH

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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DRAWING TITLE: COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
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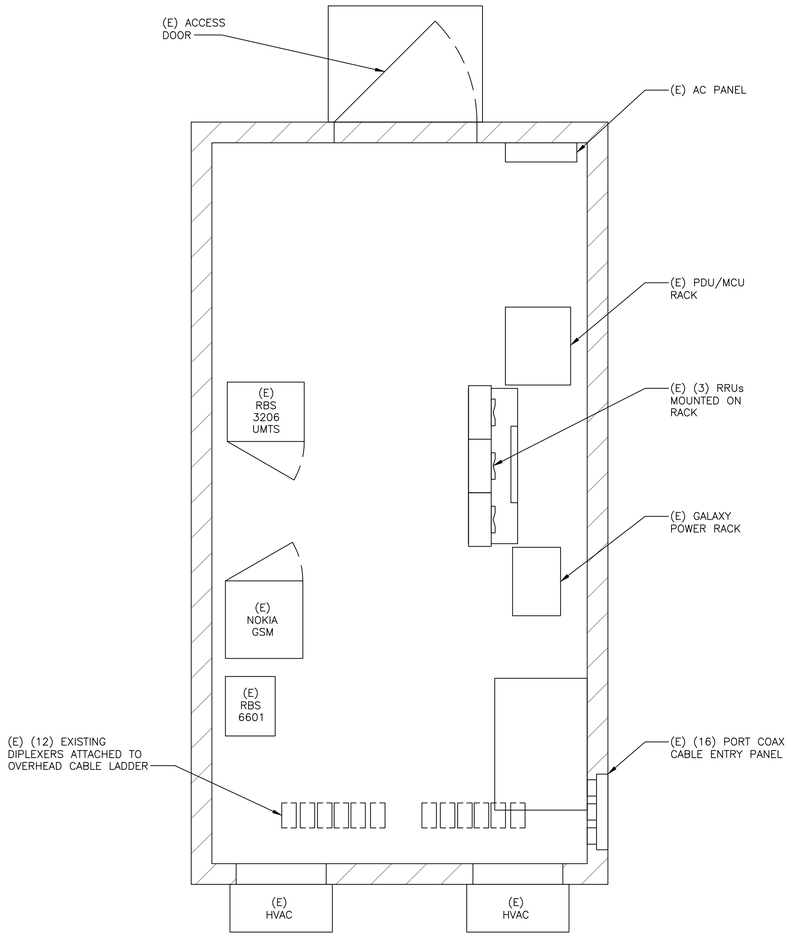
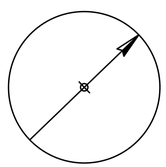


EXISTING EQUIPMENT LAYOUT

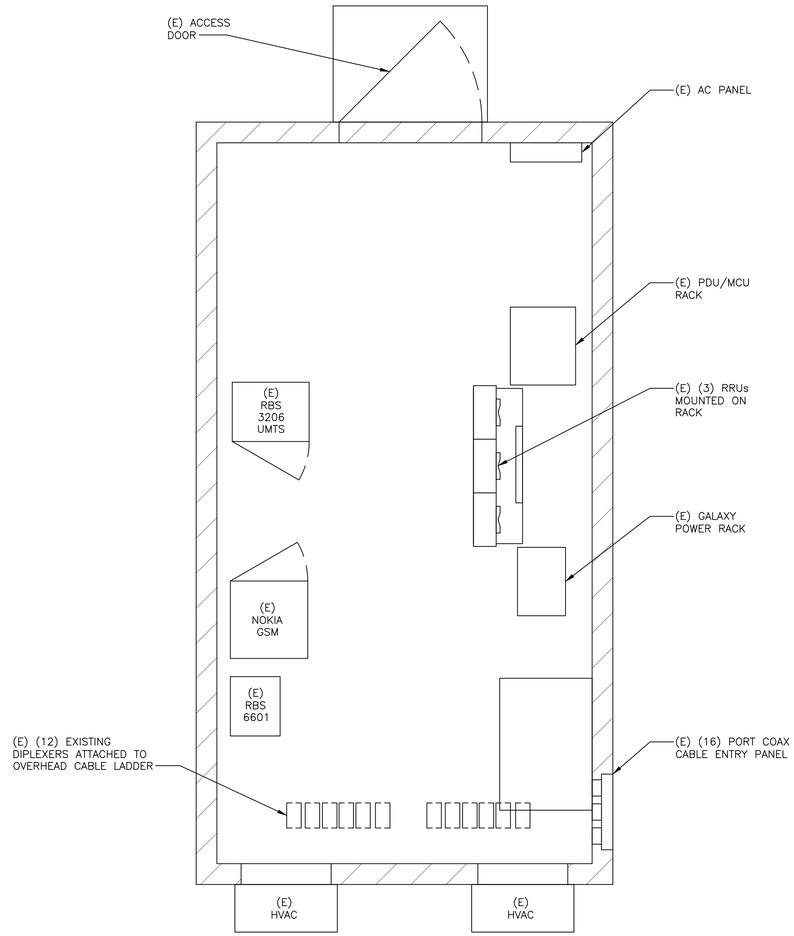
SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



NORTH



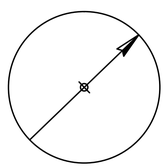
PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

NO GROUND EQUIPMENT MODIFICATIONS ARE BEING MADE AS PART OF THIS SCOPE. EXISTING GROUND EQUIPMENT CONFIGURATION TO REMAIN.



NORTH

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SEAL: STATE OF CONNECTICUT — NICHOLAS D. BARBA — LICENSED PROFESSIONAL ENGINEER — LICENSE NO. 28643 — PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE: EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
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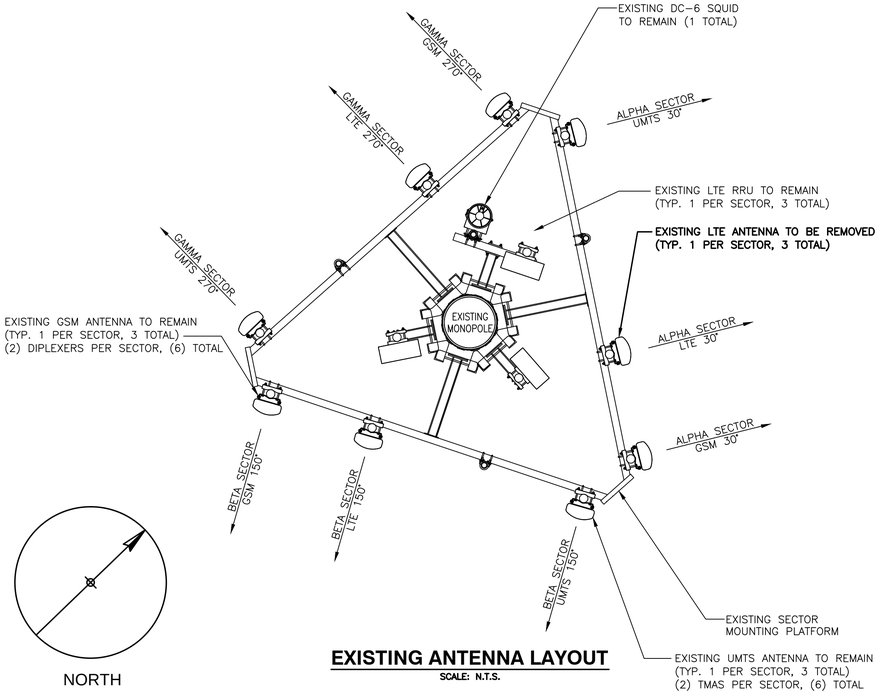
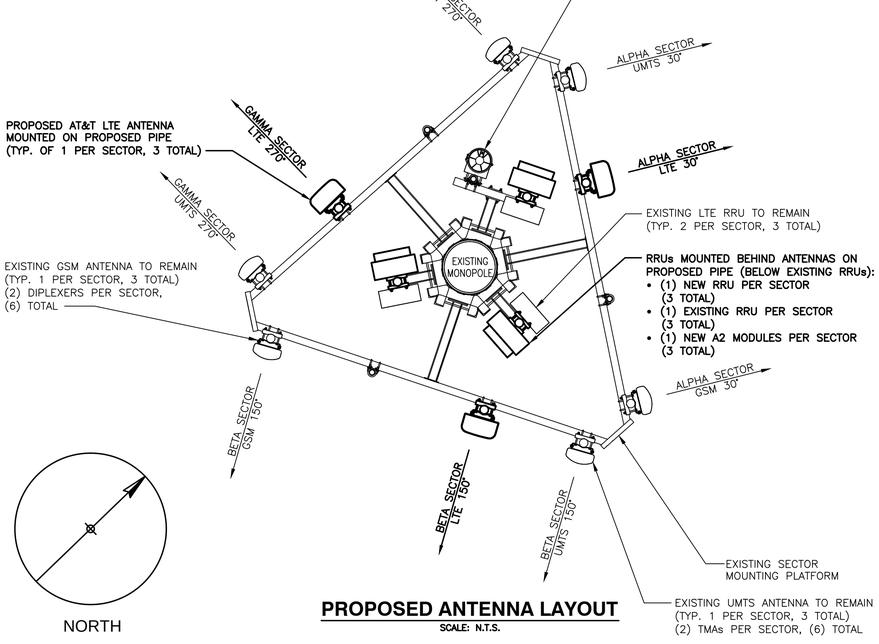


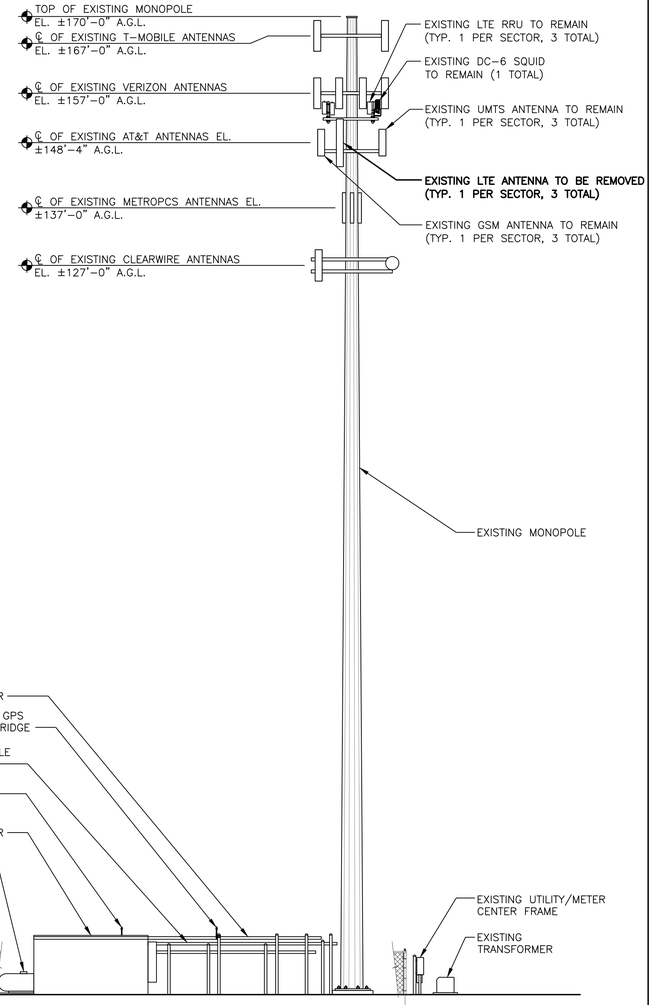
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



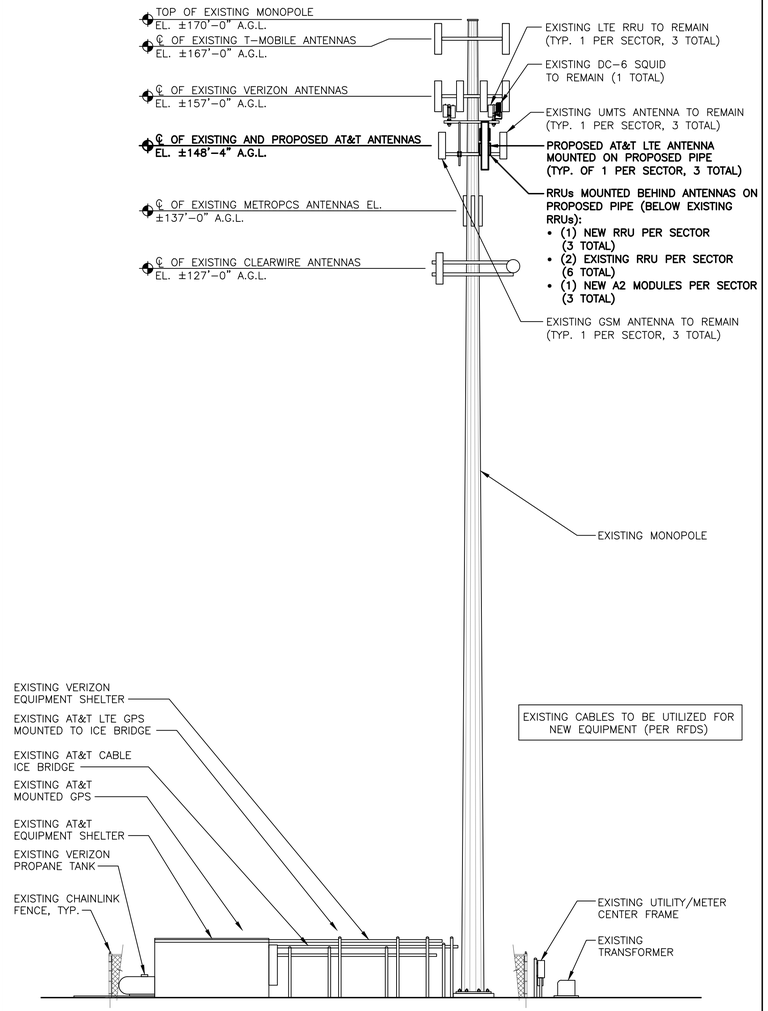
PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS



PROPOSED TOWER ELEVATION

SCALE: NTS

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SEAL: STATE OF CONNECTICUT — NICHOLAS D. BARLOW — 18643 — REGISTERED PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
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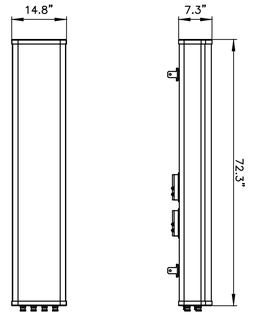
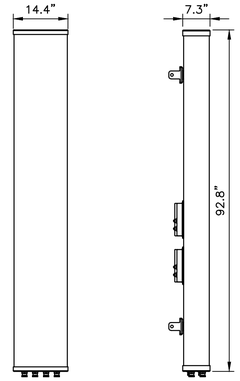


FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H6
WEIGHT	73 LBS



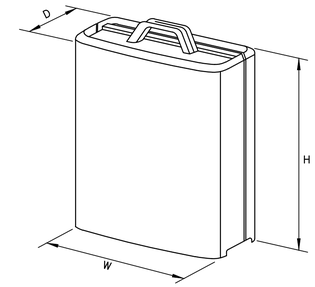
FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H8
WEIGHT	88 LBS

LTE ANTENNA DETAILS

SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL

SCALE: N.T.S.

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DRAWING TITLE: DETAILS

JOB NUMBER	DRAWING NUMBER	REV
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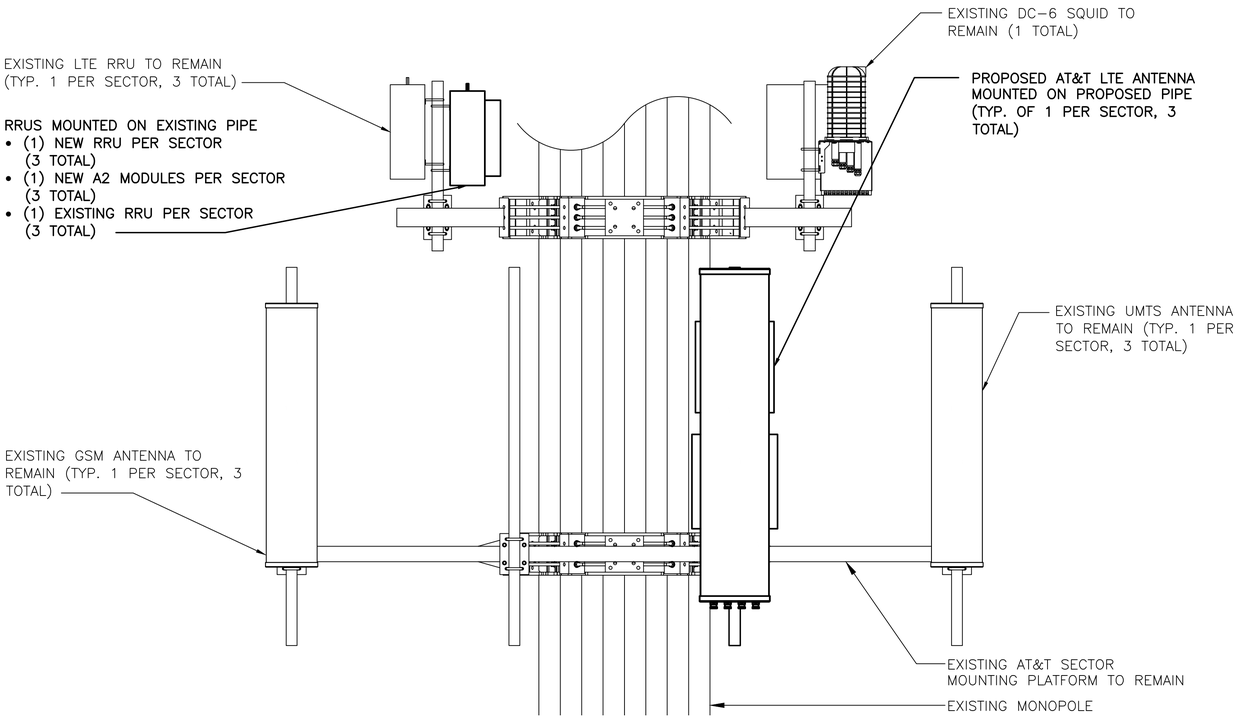
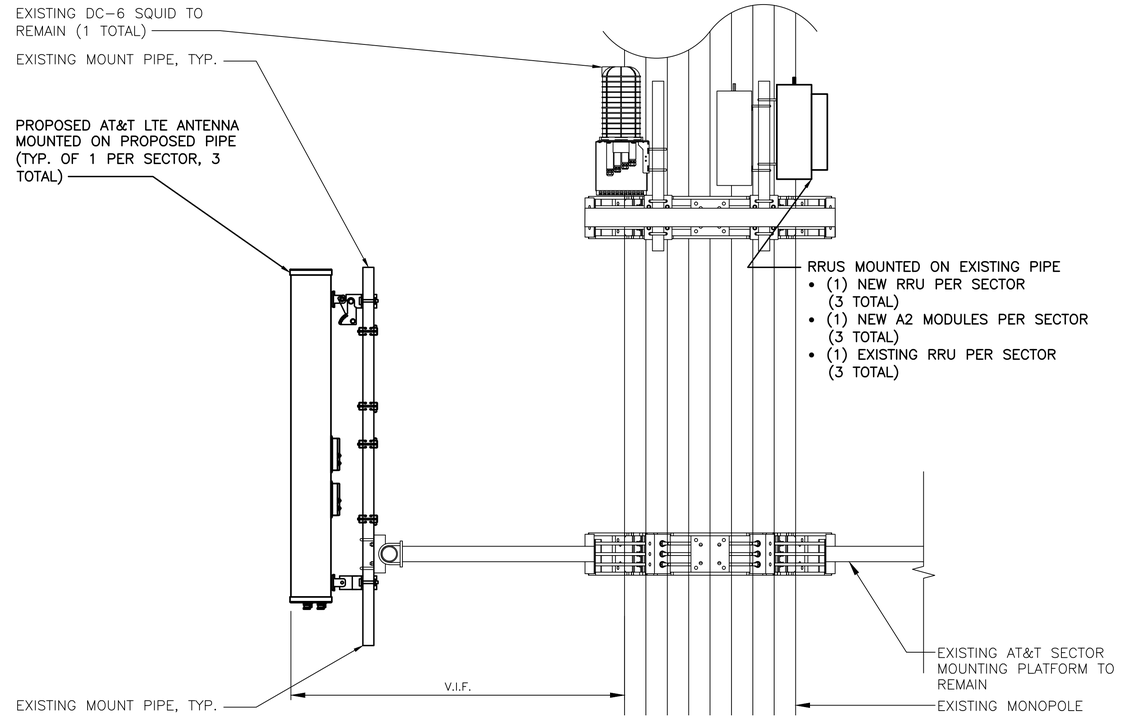


PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)
SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	–	–	–
	A3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	–	–	–
	B3	POWERWAVE	P65-17-XLH-RR	96"x12"x6"
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	–	–	–
	G3	ANDREW	SBNH-1D6565C	96.4"x11.9"x7.1"
	G4	POWERWAVE	7770	55"x11"x5"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	7770	55"x11"x5"
	A2	CCI	OPA-65R-LCUU-H6	72"x14.8"x7.4"
	A3	–	–	–
	A4	POWERWAVE	7770	55"x11"x5"
BETA	B1	POWERWAVE	7770	55"x11"x5"
	B2	CCI	OPA-65R-LCUU-H8	92.7"x14.4"x7"
	B3	–	–	–
	B4	POWERWAVE	7770	55"x11"x5"
GAMMA	G1	POWERWAVE	7770	55"x11"x5"
	G2	CCI	OPA-65R-LCUU-H8	92.7"x14.4"x7"
	G3	–	–	–
	G4	POWERWAVE	7770	55"x11"x5"

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11(EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11(EXISTING) (GROUND LEVEL)	19.7"x16.9"x7.2"		
BETA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11(EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11(EXISTING) (GROUND LEVEL)	19.7"x16.9"x7.2"		
GAMMA	ERICSSON	RRUS-12	20.4"x18.5"x7.5"	ERICSSON A2 MODULE	16.4"x15.2"x3.4"
	ERICSSON	RRUS-11(EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11(EXISTING) (GROUND LEVEL)	19.7"x16.9"x7.2"		

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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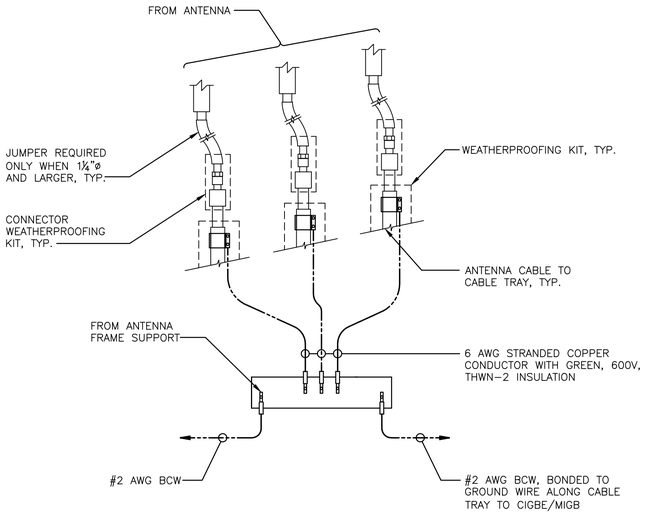
SEAL: STATE OF CONNECTICUT — NICHOLAS D. BARILE — 28643 — PROFESSIONAL ENGINEER

AT&T

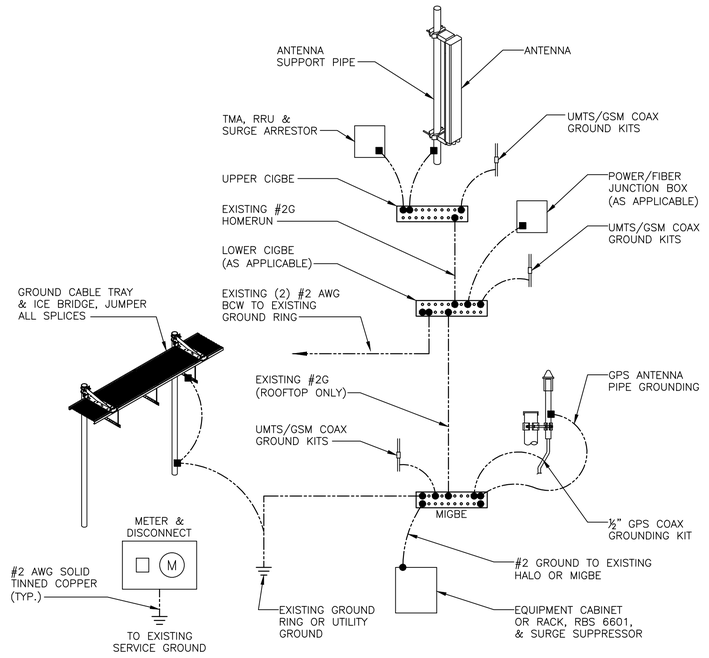
DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15043-EMP	A-5	0



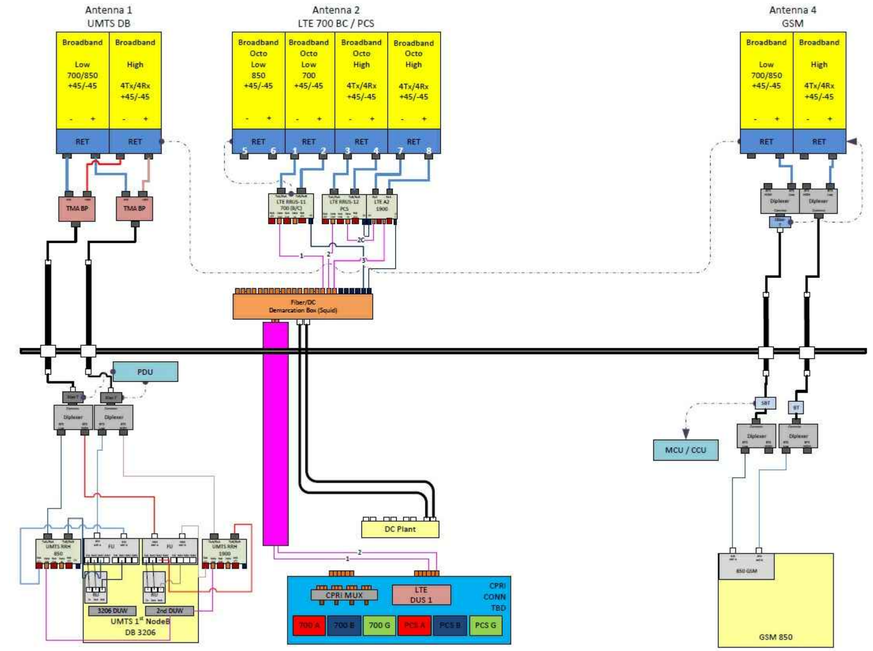
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



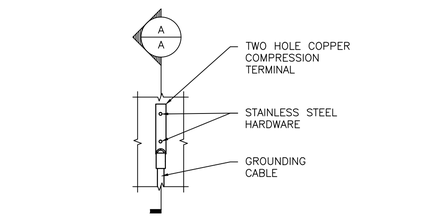
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

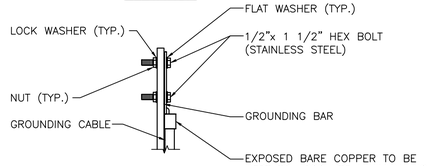


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



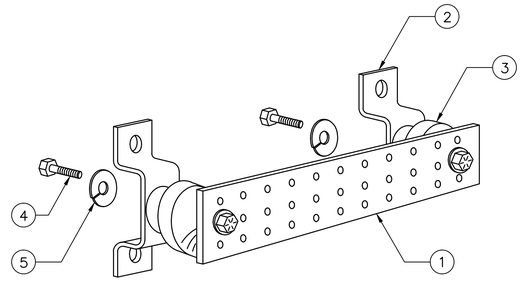
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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

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

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT2359
SITE NAME: ANSONIA DEERFIELD LN

1 DEERFIELD LANE
ANSONIA, CT 06401
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	2/17/16	ISSUED AS FINAL	AM	NDB	NDB

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

SEAL: STATE OF CONNECTICUT – NICHOLAS D. BARLOW – 28643 – PROFESSIONAL ENGINEER

AT&T

DRAWING TITLE: GROUNDING, ONE-LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15043-EMP	G-1	0