Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

March 7, 2019

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

Notice of Exempt Modification
71 Moxley Hill Road, Montville, CT 06382
Latitude- 41.4352188800
Longitude- -72.1233580000

Dear Ms. Bachman,

T-Mobile currently maintains (3) existing antennas at the 150' level of the existing 190' guyed lattice tower on 71 Moxley Hill Road in Montville, Connecticut. The tower and property is owned by SBA. T-Mobile now intends to remove the existing antennas and replace with (3) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 150' level of the tower.

The facility was originally approved by the Town of Montville with Site Plan Approval on January 13, 1998. This modification complies with the original approval.

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 Ronald McDaniel, Mayor of the Town of Montville, Marcia Vlaun, Town Planner for the Town of Montville, as well as the owner.

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

1. The proposed modification 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 modification 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.

For the foregoing reasons, T-Mobile 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,

Kyle Richers

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
908-447-4716
krichers@transcendwireless.com

cc: Ronald McDaniel - as elected official
Marcia Vlaun- as zoning official
SBA- as owner

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, March 6, 2019 4:15 PM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11146F CSC EO

You have a package coming.

Scheduled Delivery Date: Thursday, 03/07/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424296055502
Ship To:	Ronald McDaniel Town of Montville 310 Norwich-New London Tpke. UNCASVILLE, CT 063822523 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	03/07/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11146F CSC EO

Download the UPS mobile app

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, March 6, 2019 4:20 PM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11146F CSC ZO

You have a package coming.

Scheduled Delivery Date: Thursday, 03/07/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424297085513
Ship To:	Marcia Vlaun Town of Montville 310 Norwich-New London Tpke. Room 101 UNCASVILLE, CT 063822523 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	03/07/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11146F CSC ZO

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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, March 6, 2019 4:27 PM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11146F CSC Owner

You have a package coming.

Scheduled Delivery Date: Monday, 03/11/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424298135529
Ship To:	SBA Towers II LLC 8051 Congress Avenue BOCA RATON, FL 334871307 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	03/11/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11146F CSC Owner

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The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2016.

Information on the Property Records for the Municipality of Montville was last updated on 3/6/2019.

Parcel Information

Location:	71 MOXLEY RD	Property Use:	Vacant Land	Primary Use:	Cell Tower
Unique ID:	17012CEL	Map Block Lot:	017/012/CEL	Acres:	1.00
490 Acres:	0.00	Zone:	LI	Volume / Page:	0001/0001
Developers Map / Lot:		Census:			

Value Information

	Appraised Value	Assessed Value
Land	0	0
Buildings	0	0
Detached Outbuildings	855,129	598,590
Total	855,129	598,590

Owner's Information

Owner's Data
SBA TOWERS II LLC ATTN: TAX DEPT CT10016-A 8051 CONGRESS AVE BOCA RATON, FL 33487-1307

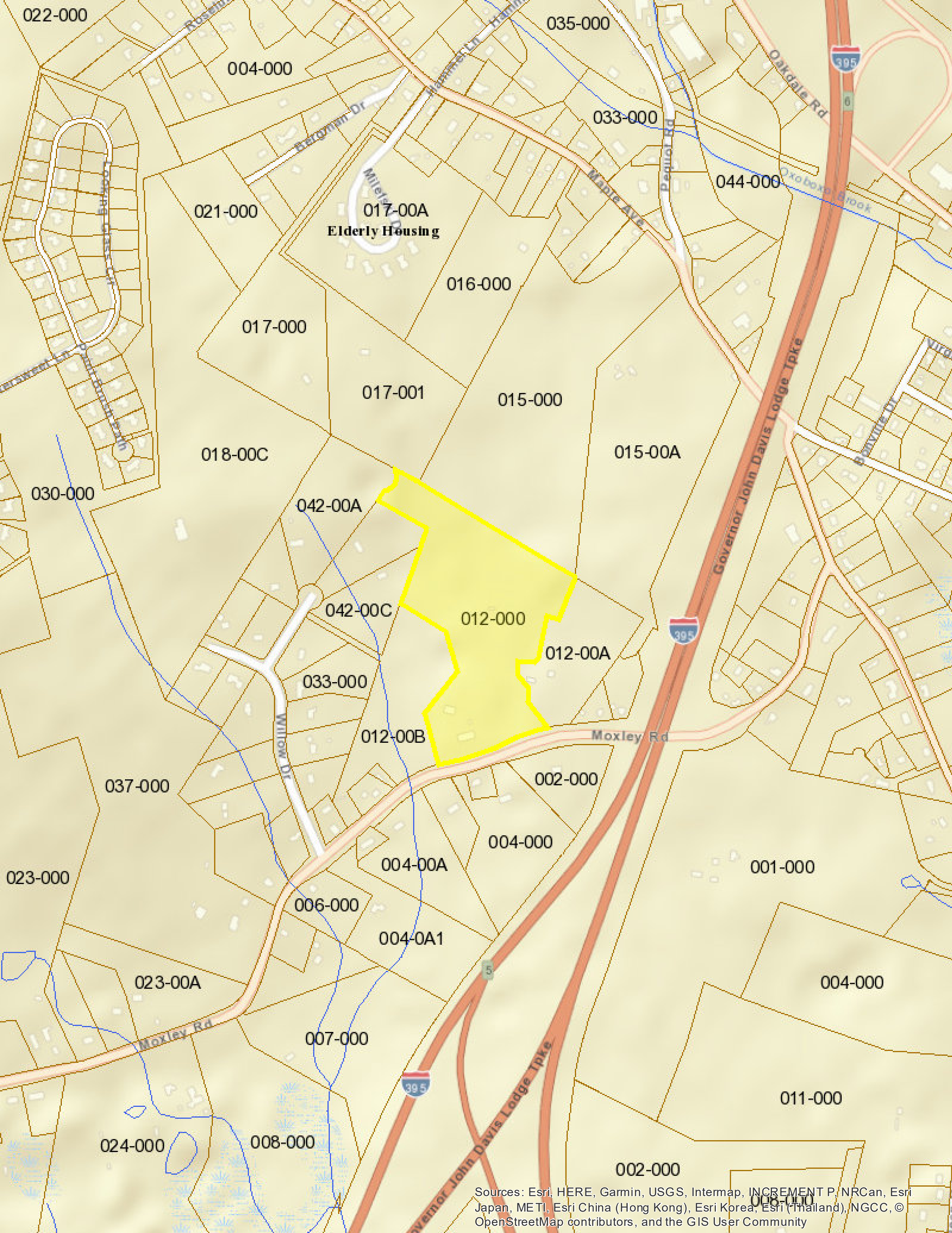
Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
6 Ft Top Rail Fence	0000	216.00	0.00	216
Cell Shed	0000	288.00	0.00	288
Cell Shed	0000	192.00	0.00	192
Cell Tower	2011	5.00	0.00	5

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
SBA TOWERS II LLC	0001	0001	10/01/2011		No	$0

Information Published With Permission From The Assessor


022-000
035-000
004-000
033-000
044-000
Oakdale Rd
Bergman Dr
Hammer Ln
Maple Ave
Pequot Rd
Oxoboxo Brook
021-000
017-00A
Elderly Housing
016-000
017-000
017-001
015-000
018-00C
015-00A
030-000
042-00A
Governor John Davis Lodge Tpke
042-00C
012-000
012-00A
033-000
012-00B
Moxley Rd
Willow Dr
037-000
002-000
004-000
023-000
004-00A
001-000
006-000
004-0A1
023-00A
004-000
007-000
011-000
024-000
008-000
002-000
395
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11146F

Montville/ I-395 X78_1
71 Moxley Hill Road
Montville, CT 06382

February 19, 2019

EBI Project Number: 6219000466

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.50 %

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

EBI Consulting
environmental | engineering | due diligence

February 19, 2019

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11146F – Montville/ I-395 X78_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **71 Moxley Hill Road, Montville, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile 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 population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

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 1900 MHz (PCS) and 2100 MHz (AWS) frequency 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 T-Mobile Wireless antenna facility located at **71 Moxley Hill Road, Montville, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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 for directional panel antennas, 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) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.

2) 1 UMTS channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) Cable losses were factored in the calculations for this site. Since all of the proposed radios are ground mounted the following cable loss values were used. For each ground mounted 1900 MHz (PCS) radio there was 2.06 dB of cable loss calculated into the system gains / losses for this site. For each ground mounted 2100 MHz (AWS) radio there was 2.12 dB of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for 200 feet of 1-5/8" coax

6) 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.

7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

8) The antennas used in this modeling are the **RFS APXV18-206516S-C-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

9) The antenna mounting height centerline of the proposed antennas is **150 feet** above ground level (AGL).

10) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	150 feet	Height (AGL):	150	Height (AGL):	150
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	8	Channel Count	8
Total TX Power(W):	255	Total TX Power(W):	360	Total TX Power(W):	360
ERP (W):	6,725.54	ERP (W):	5,032.81	ERP (W):	5,032.81
Antenna A1 MPE%	**1.17**	Antenna B1 MPE%	**1.17**	Antenna C1 MPE%	**1.17**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.17 %**
Verizon Wireless	**2.81** %
Sprint	**2.24** %
MetroPCS	**0.17** %
AT&T	**3.11** %
Site Total MPE %:	**9.50 %**

T-Mobile Sector A Total:	1.17 %
T-Mobile Sector B Total:	1.17 %
T-Mobile Sector C Total:	1.17 %
Site Total:	9.50 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (□W/cm^2)	Frequency (MHz)	Allowable MPE (□W/cm^2)	Calculated % MPE
T-Mobile PCS - 1900 MHz GSM	1	398.19	150	0.69	PCS - 1900 MHz	1000.00	0.07%
T-Mobile PCS - 1900 MHz UMTS	1	1,061.84	150	1.84	PCS - 1900 MHz	1000.00	0.18%
T-Mobile PCS - 1900 MHz LTE	2	1,061.84	150	3.68	PCS - 1900 MHz	1000.00	0.37%
T-Mobile AWS - 2100 MHz LTE	2	1,570.91	150	5.45	AWS - 2100 MHz	1000.00	0.55%
						Total:	**1.17%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	1.17 %
Sector B:	1.17 %
Sector C:	1.17 %
T-Mobile Maximum MPE % (Per Sector):	1.17 %
Site Total:	9.50 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.50%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Tower Engineering Solutions

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

Structural Analysis Report

Existing 190 ft Rohn Guyed Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10016-A

Customer Site Name: Montville 3, CT

Carrier Name: T-Mobile (App#: 93799, V#3)

Carrier Site ID / Name: CT11146F / Montville/I-395 X78_1

Site Location: 71 Moxley Road

Uncasville, Connecticut

New London County

Latitude: 41.435211

Longitude: -72.123319

Analysis Result:

Max Structural Usage: 99.5% [Pass]

Max Foundation Usage: 65.0% [Pass]

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

Report Prepared By : Uma S Atluri

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

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Analysis Result:

Max Structural Usage: 99.5% [Pass]

Max Foundation Usage: 65.0% [Pass]

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

Report Prepared By : Uma S Atluri

Introduction

The purpose of this report is to summarize the analysis results on the 190 ft Rohn Guyed Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Rohn, Inc. Eng. File # 37183AE001 dated 04/21/1998.
Foundation Drawing	Rohn, Inc. Eng. File # 37183AE001 dated 04/21/1998.
Geotechnical Report	FDH Engineering, Inc. Project # 11-02193EG1 dated 08/10/2011.
Modification Drawings	FDH Velocitel, Project # 15BJIT1400 dated 04/22/2015: FDH Engineering, Inc. Project # 1465RU1400 dated 05/29/2014.

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESTowers,** 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.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 135.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 105.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	175.0	6	Kathrein - 800 10504 - Panel	(3) T-Frames	(12) 1 5/8" (1) 3/8"	Metro PCS
2		6	Kathrein - 860 10118 - RET			
3	160.0	3	RFS APXVSPP18-C-A20 - Panel	(3) Sector Frames	(4) 1 1/4" Hybrid	Sprint Nextel
4		3	RFS APXVTM14-C-I20 - Panel			
5		4	RFS ACU-A20-N RET			
6		3	Alcatel Lucent 1900 MHz RRH			
7		3	Alcatel Lucent 800 MHz RRH			
8		3	Alcatel Lucent TD-RRH8x20-25			
9		3	Alcatel Lucent 800 MHz Filter			
-	150.0	3	Ericsson - AIR 21 B2A-B4P – Panel	(3) T-Frames	(12) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
-		3	Ericsson - AIR 21 B4A-B2P – Panel			
-		3	Ericsson - KRY 112 144/1 – TMA			
13	141.0	3	Antel - BXA-70063-6CF-EDIN-0 – Panel	(3) T-Frames	(12) 1 5/8" (1) 1 5/8" Hybrid	Verizon
14		3	Commscope - LNX-8513DS-VTM - Panel			
15		6	Commscope - HBXX-6517DS-A2M - Panel			
16		6	RFS - FD9R6004/2C-3L – Diplexer			
17		3	ALU - RRH2X60-AWS – RRH			
18		1	RFS - DB-T1-6Z-8AB-0Z – DC Surge			
19	130.0	3	Powerwave - 7770.00 - Panel	(3) T-Frames	(12) 1 1/4" (1) 1/2" Hybrid (2) 3/4" DC	AT&T
20		1	CCI - HPA-65R-BUU-H8 - Panel			
21		1	CCI - HPA-65R-BUU-H6 - Panel			
22		1	Andrew - SBNHH-1D65A - Panel			
23		6	Powerwave - LGP21401 – TMA			
24		6	Kathrein - 860 10025 - RET			
25		3	Ericsson - RRUS-11 – RRU			
26		3	Ericsson – RRUS-12 – RRU			
27		3	Ericsson – RRUS-A2 – RRU			
28		1	Raycap - DC6-48-60-18-8F – Surge Supp.			
29	76.0	1	Andrew - GPS 7.5"X3" - GPS	(1) Stand-off Mount	(1) 1/2"	Verizon

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
10	150.0	6	Andrew RR65-18-VDPL2 - Panel	(3) Sector Frames	(12) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
11		3	Ericsson APXV18 - Panel			
12		6	Ericsson 1301-KRY 112 71/3 Uen			

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

Analysis Results

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

Tower Component	Legs	Diagonals	Horizontals	Guy Wires
Max. Usage:	**86.6%**	**99.5%**	**21.5%**	**52.9%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Base Reactions		Inner Anchors	
Reactions (kips)	Axial	Shear	Uplift	Shear
Analysis Reactions	156.6	6.0	40.5	47.3

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9222 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT10016-A-SBA

Site Name:	Montville 3, CT			**Code:**	EIA/TIA-222-G	1/9/2019
Type:	Guyed	**Base Shape:**	Triangle	**Basic WS:**	105.00	
Height:	190.00 (ft)	**Base Width:**	0.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	3.42	**Operational WS:**	60.00	Page: 1

IES Tower Engineering Solutions

Section Properties

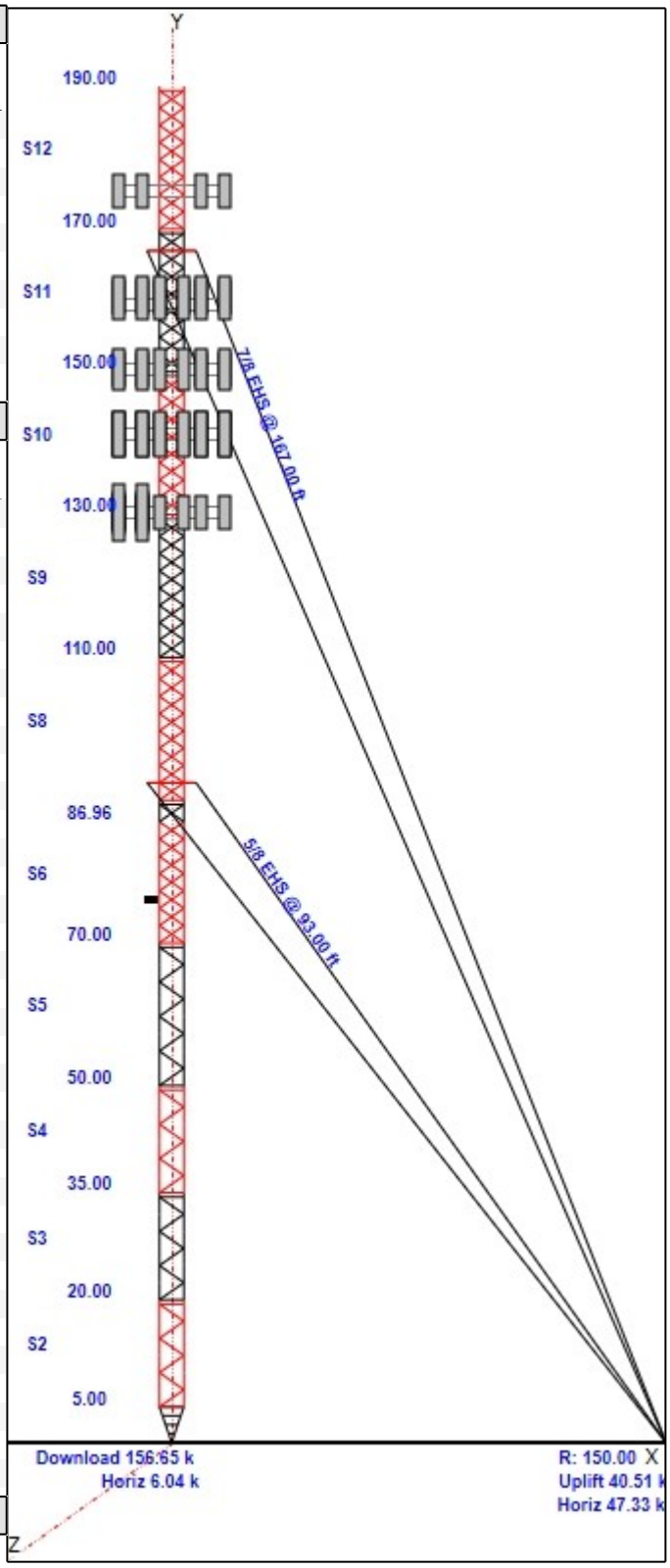
Sect	Leg Members	Diagonal Members	Horizontal Members
1	PX 3" DIA PIPE		SAE 8X8X0.75
2	PX 3" DIA PIPE	PSP ROHN 1 1/2X11GA	PSP ROHN 1 1/2X11GA
3-4	PX 3" DIA PIPE	PSP ROHN 1 1/2X16GA	PSP ROHN 1 1/2X16GA
5	PX 3" DIA PIPE	PSP ROHN 1 1/2X11GA	PSP ROHN 1 1/2X11GA
6	PX 3" DIA PIPE	PSP ROHN 1 1/2X16GA	PSP ROHN 1 1/2X16GA
7	PX 3" DIA PIPE	SAE 2X2X0.25	PSP ROHN 1 1/2X16GA
8	PX 3" DIA PIPE	PSP ROHN 1 1/2X11GA	PSP ROHN 1 1/2X11GA
9	MOD 2.5"PX+3'PX1/2P	PSP ROHN 1 1/2X11GA	PSP ROHN 1 1/2X11GA
10	MOD 2.5"PX+3'PX1/2P	PSP ROHN 1 1/2X16GA	PSP ROHN 1 1/2X16GA
11-12	PX 3" DIA PIPE	SAE 2X2X0.25	SAE 2X2X0.25

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
175.00	175.00	6	800 10504
175.00	175.00	6	860 10118
175.00	175.00	3	Sector Frame
159.00	160.00	3	RFS APXVSPP18-C-A20
159.00	160.00	3	RFS APXVTM14-C-I20
159.00	160.00	3	Alcatel Lucent 1900 MHz RRH
159.00	160.00	3	Alcatel Lucent 800 MHz RRH
159.00	160.00	3	Alcatel Lucent TD-RRH8x20-25
159.00	160.00	3	Alcatel Lucent 800 MHz Filter
159.00	160.00	4	RFS ACU-A20-N RET
159.00	159.00	3	Sector Frame
150.00	150.00	3	Sector Frames
150.00	150.00	6	Andrew RR65-18-VDPL2
150.00	150.00	3	Ericsson APXV18
150.00	150.00	6	Ericsson 1301-KRY 112 71/3 Uen
141.00	141.00	3	BXA-70063-6CF-EDIN-0
141.00	141.00	3	LNX-8513DS-VTM
141.00	141.00	6	HBXX-6517DS-A2M
141.00	141.00	6	FD9R6004/2C-3L
141.00	141.00	3	RRH2X60-AWS
141.00	141.00	1	DB-T1-6Z-8AB-0Z
141.00	141.00	3	Sector Frame
130.00	130.00	3	7770.00
130.00	130.00	1	HPA-65R-BUU-H8
130.00	130.00	1	HPA-65R-BUU-H6
130.00	130.00	1	SBNHH-1D65A
130.00	130.00	6	LGP21401
130.00	130.00	6	860 10025
130.00	130.00	3	RRUS 12
130.00	130.00	3	RRUS A2 Module
130.00	130.00	1	DC6-48-60-18-8F
130.00	130.00	3	RRUS-11
130.00	130.00	3	Sector Frame
76.00	76.00	1	Andrew - GPS 7.5"X3" - GPS
76.00	76.00	1	Stand-Off

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	175.00	12	1 5/8" Coax



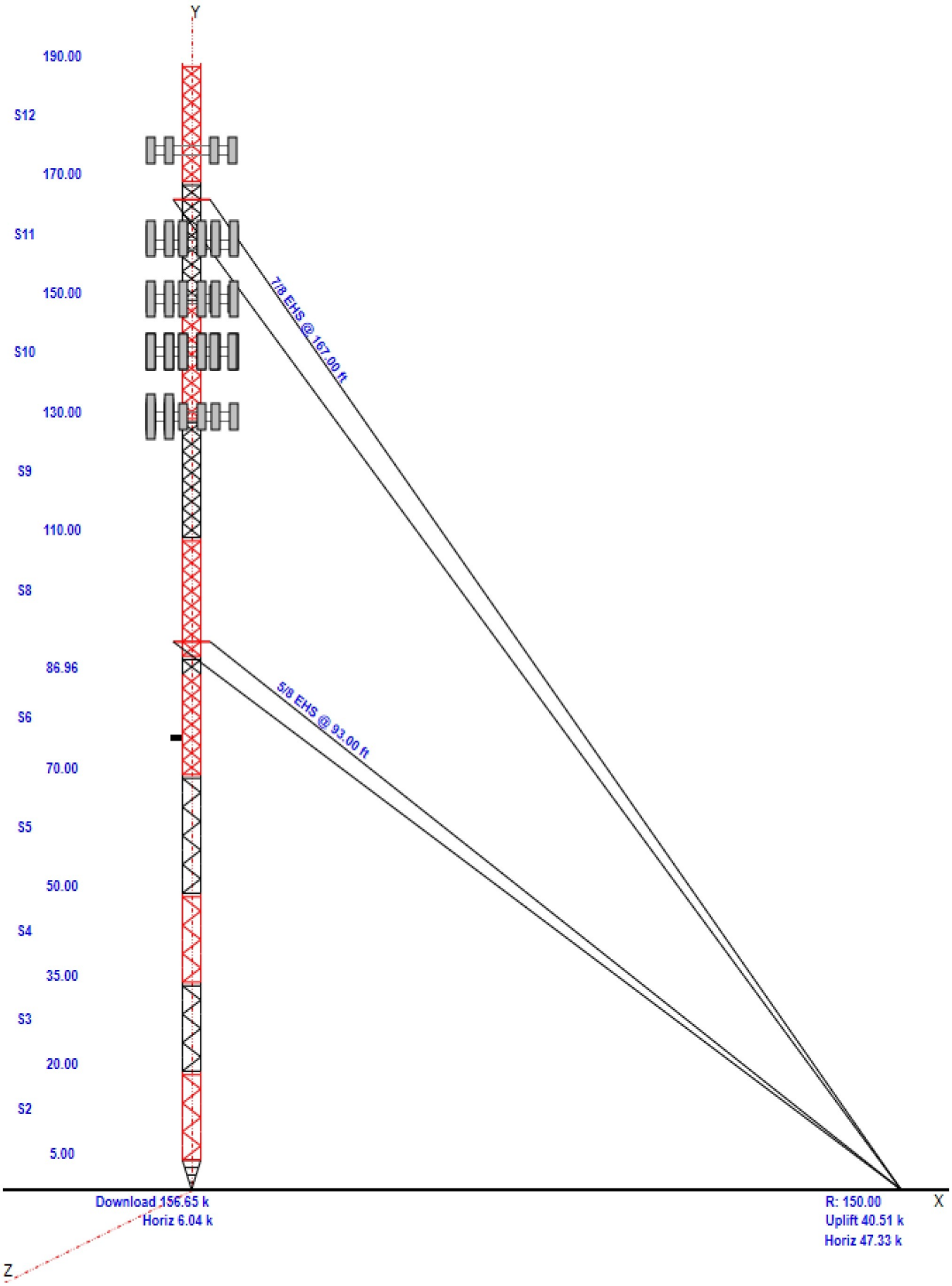
0.00	175.00	1	3/8" Coax
0.00	160.00	4	1-1/4" Hybrid
0.00	150.00	12	1 5/8" Coax
0.00	150.00	1	1 5/8" Hybrid
0.00	141.00	6	1 5/8" Coax
0.00	141.00	6	1 5/8" Coax
0.00	141.00	1	1 5/8" Hybrid
0.00	130.00	12	1 1/4" Coax
0.00	130.00	1	1/2" Hybrid
0.00	130.00	2	3/4" DC
0.00	76.00	1	1/2" Coax

Max Guy Wire

52.86% @ 92.4221 ft - 5/8 EHS

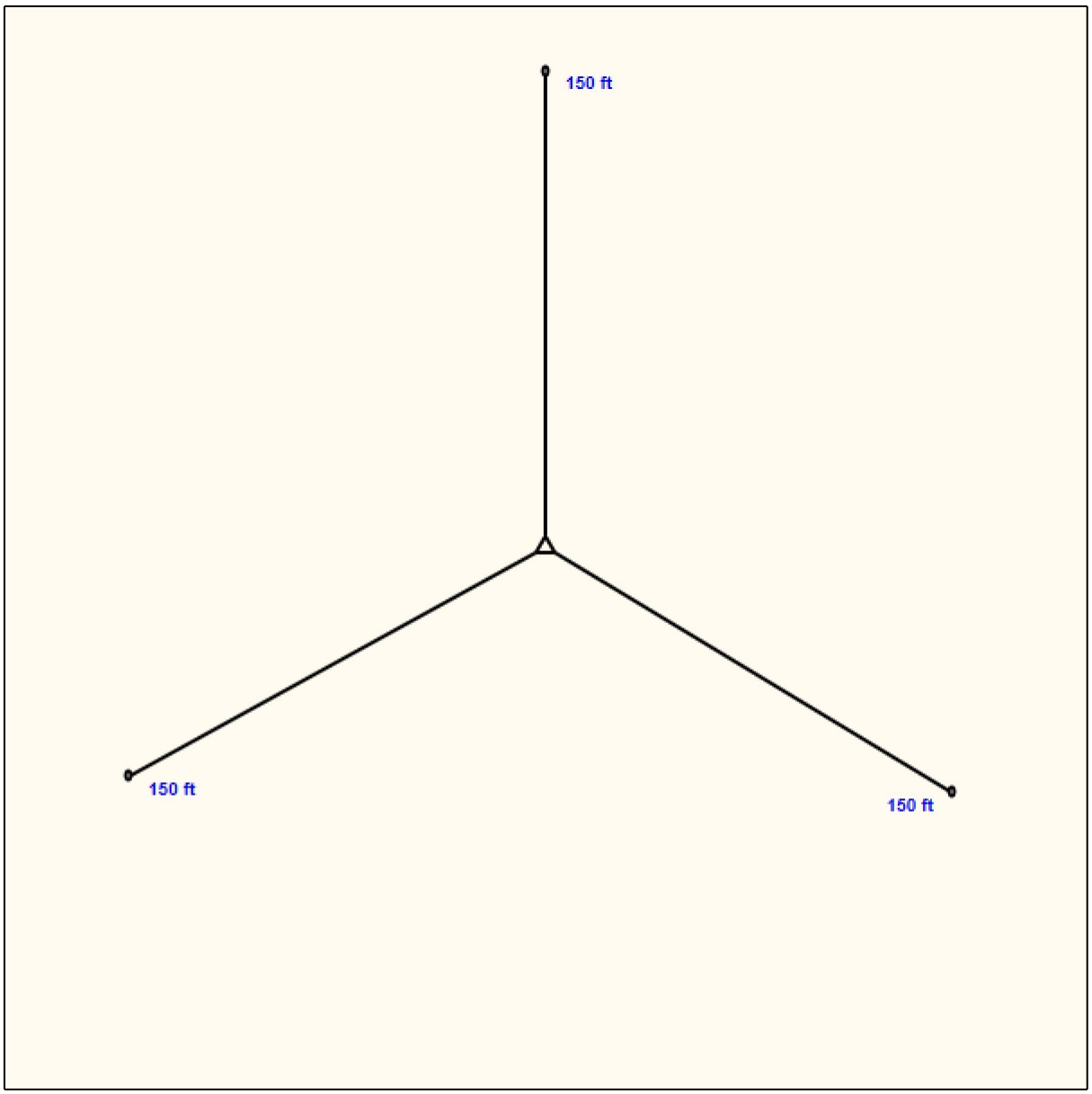
Structure: CT10016-A-SBA

Site Name:	Montville 3, CT			**Code:**	EIA/TIA-222-G	1/9/2019
Type:	Guyed	**Base Shape:**	Triangle	**Basic WS:**	105.00	
Height:	190.00 (ft)	**Base Width:**	0.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	3.42	**Operational WS:**	60.00	Page: 3



Anchor Drops with Guy Radius - Structure: CT10016-A-SBA

Site Name:	Montville 3, CT			**Code:**	EIA/TIA-222-G	1/9/2019
Type:	Guyed	**Base Shape:**	Triangle	**Basic WS:**	105.00	
Height:	190.00 (ft)	**Base Width:**	0.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	3.42	**Operational WS:**	60.00	Page: 4

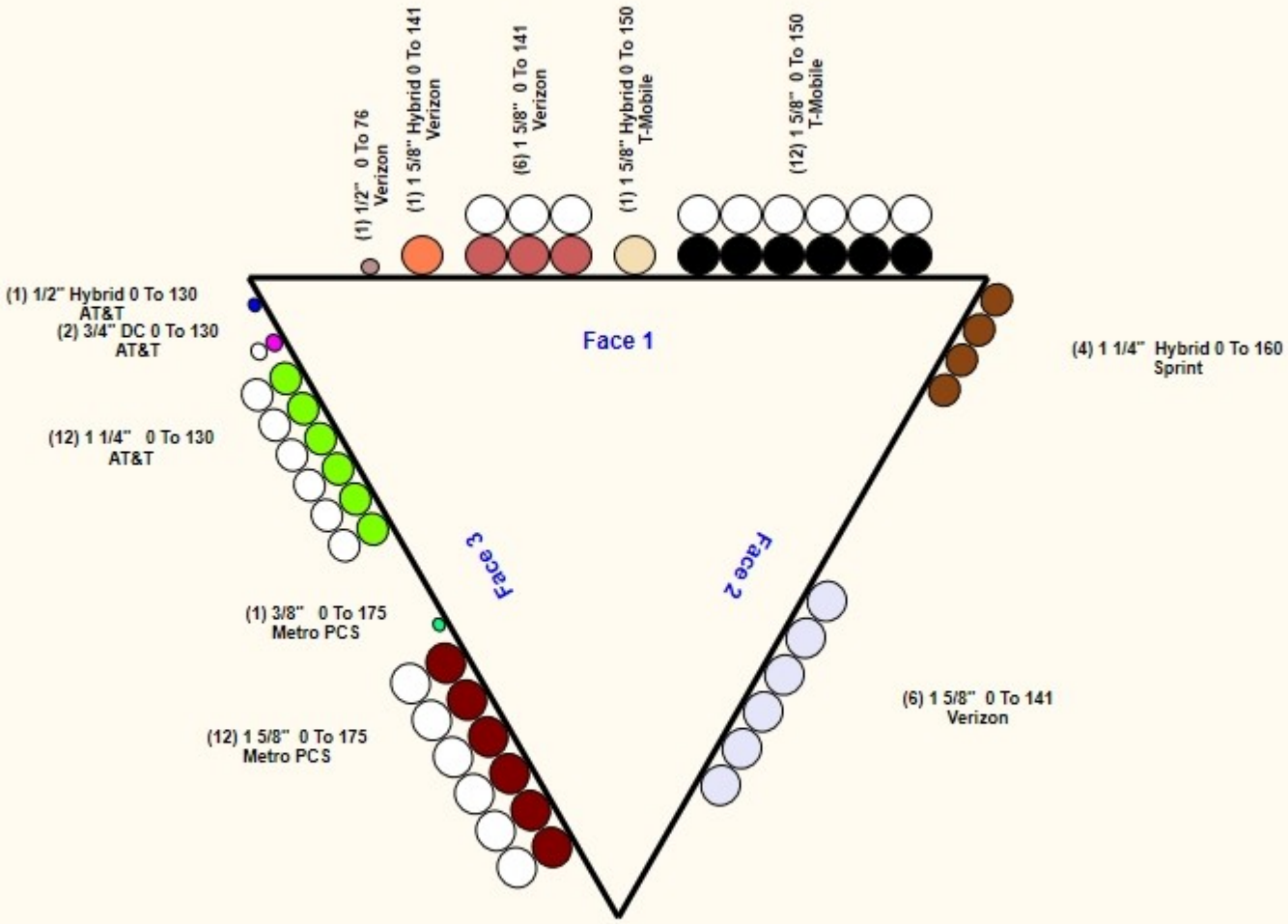


Structure: CT10016-A-SBA - Coax Line Placement

Type: Guyed
Site Name: Montville 3, CT
Height: 190.00 (ft)

1/9/2019

Tower Engineering Solutions



Loading Summary

Structure:	CT10016-A-SBA		**Code:**	EIA/TIA-222-G	1/9/2019
Site Name:	Montville 3, CT		**Exposure:**	B	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 6

Tower Engineering Solutions

Discrete Appurtenances Properties

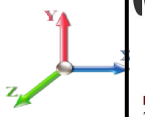
Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
175.00	800 10504	6	17.60	3.340	81.69	5.187	54.000	6.100	2.700	0.80	0.72	0.000
175.00	860 10118	6	1.10	0.160	6.34	0.512	7.000	2.400	2.000	0.80	0.50	0.000
175.00	Sector Frame	3	500.00	17.500	1210.93	31.683	0.000	0.000	0.000	0.75	0.75	0.000
159.00	RFS APXVSPP18-C-A20	3	57.00	8.020	258.23	9.324	72.000	11.800	7.000	0.80	0.83	1.000
159.00	RFS APXVTM14-C-I20	3	56.00	6.340	217.66	7.461	56.300	12.600	6.300	0.80	0.79	1.000
159.00	Alcatel Lucent 1900 MHz RRH	3	60.00	2.770	143.98	4.047	25.000	11.100	11.400	0.80	0.67	1.000
159.00	Alcatel Lucent 800 MHz RRH	3	53.00	2.490	127.44	3.641	19.700	13.000	10.800	0.80	0.50	1.000
159.00	Alcatel Lucent TD-RRH8x20-25	3	70.00	4.050	181.33	4.869	26.100	18.600	6.700	0.80	0.67	1.000
159.00	Alcatel Lucent 800 MHz Filter	3	8.80	0.780	26.56	1.431	10.000	8.000	3.000	0.80	0.67	1.000
159.00	RFS ACU-A20-N RET	4	1.00	0.140	5.32	0.439	4.000	2.000	3.500	0.80	0.67	1.000
159.00	Sector Frame	3	500.00	17.500	1202.61	31.517	0.000	0.000	0.000	0.75	0.75	0.000
150.00	Sector Frames	3	500.00	17.500	1193.29	31.331	0.000	0.000	0.000	0.75	0.75	0.000
150.00	Andrew RR65-18-VDPL2	6	13.50	4.360	111.32	5.339	56.000	8.000	2.800	0.80	0.68	0.000
150.00	Ericsson APXV18	3	26.40	5.170	118.61	7.529	72.000	6.800	3.100	0.80	0.73	0.000
150.00	Ericsson 1301-KRY 112 71/3 Uen	6	15.20	0.900	38.10	1.625	13.700	6.700	4.200	0.80	0.50	0.000
141.00	BXA-70063-6CF-EDIN-0	3	17.00	7.570	189.73	8.821	71.000	11.200	5.200	0.80	0.73	0.000
141.00	LNX-8513DS-VTM	3	26.30	8.170	228.02	9.465	72.700	11.900	7.100	0.80	0.83	0.000
141.00	HBXX-6517DS-A2M	6	40.80	8.550	242.94	9.849	74.900	12.000	6.500	0.80	0.77	0.000
141.00	FD9R6004/2C-3L	6	3.10	0.360	11.07	0.800	5.800	6.500	1.500	0.80	0.67	0.000
141.00	RRH2X60-AWS	3	55.00	3.500	134.46	4.284	37.000	11.000	6.000	0.80	0.67	0.000
141.00	DB-T1-6Z-8AB-0Z	1	18.90	4.800	161.46	5.667	24.000	24.000	10.000	1.00	1.00	0.000
141.00	Sector Frame	3	500.00	17.500	1193.29	31.331	0.000	0.000	0.000	0.75	0.75	0.000
130.00	7770.00	3	35.00	5.500	166.53	6.540	55.000	11.000	5.000	0.80	0.73	0.000
130.00	HPA-65R-BUU-H8	1	68.00	12.980	351.59	14.557	92.400	14.800	7.400	0.80	0.85	0.000
130.00	HPA-65R-BUU-H6	1	51.00	9.660	292.75	10.994	72.000	14.800	9.000	0.80	0.85	0.000
130.00	SBNHH-1D65A	1	33.50	5.880	187.67	6.935	55.000	11.900	7.100	0.80	0.85	0.000
130.00	LGP21401	6	19.00	1.290	51.95	2.107	14.400	9.200	2.600	0.80	0.67	0.000
130.00	860 10025	6	1.20	0.180	7.06	0.550	7.600	2.400	2.000	0.80	0.67	0.000
130.00	RRUS 12	3	60.00	2.700	125.54	3.345	18.200	17.800	8.000	0.80	0.67	0.000
130.00	RRUS A2 Module	3	21.20	1.860	56.51	2.812	12.800	15.000	3.400	0.80	0.67	0.000
130.00	DC6-48-60-18-8F	1	31.80	0.920	92.26	1.348	24.000	11.000	11.000	1.00	1.00	0.000
130.00	RRUS-11	3	55.00	2.520	131.22	3.139	17.000	17.800	7.200	0.80	0.67	0.000
130.00	Sector Frame	3	500.00	17.500	1182.68	31.119	0.000	0.000	0.000	0.75	0.75	0.000
76.00	Andrew - GPS 7.5"X3" - GPS	1	1.00	0.130	8.92	0.340	7.500	3.000	3.000	1.00	1.00	0.000
76.00	Stand-Off	1	15.00	4.310	36.59	9.358	0.000	0.000	0.000	1.00	1.00	0.000
	Totals:	**116**	**10,194.30**		**28,721.23**						**Number of Appurtenances :**	**35**

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	175.00	1 5/8" Coax	12	1.98	1.04	50.00	3	Block		N	0.50	1.00	
0.00	175.00	3/8" Coax	1	0.44	0.08	100.00	3	Individual NR		N	1.00	1.00	
0.00	160.00	1-1/4" Hybrid	4	1.25	0.95	100.00	2	Individual IR		N	1.00	0.67	
0.00	150.00	1 5/8" Coax	12	1.98	1.04	50.00	1	Block		N	0.50	1.00	
0.00	150.00	1 5/8" Hybrid	1	2.00	1.10	100.00	1	Individual NR		N	1.00	1.00	
0.00	141.00	1 5/8" Coax	6	1.98	1.04	100.00	2	Individual IR		N	1.00	0.67	
0.00	141.00	1 5/8" Coax	6	1.98	1.04	50.00	1	Block		N	0.50	1.00	
0.00	141.00	1 5/8" Hybrid	1	2.00	1.10	100.00	1	Individual NR		N	1.00	1.00	
0.00	130.00	1 1/4" Coax	12	1.55	0.66	50.00	3	Block		N	0.50	1.00	
0.00	130.00	1/2" Hybrid	1	0.50	0.52	100.00	3	Individual NR		N	1.00	1.00	
0.00	130.00	3/4" DC	2	0.75	0.40	50.00	3	Block		N	1.00	1.00	
0.00	76.00	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	16.79	4.917	3.14	0.00	0.81	1.82	1.00	1.00	0.00	7.71	29.47	0.00	1,711.2	0.0	320.32	184.15	479.66
2	12.5	16.79	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,706.4	0.0	424.20	1701.59	2,125.79
3	27.5	16.79	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,617.6	0.0	424.20	1701.59	2,125.79
4	42.5	18.57	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,617.6	0.0	468.98	1881.23	2,350.20
5	60.0	20.49	0.000	16.35	0.00	0.22	2.53	1.00	1.00	0.00	9.66	117.87	0.00	2,261.5	0.0	681.12	2768.02	3,449.14
6	78.5	22.12	0.000	17.11	0.00	0.27	2.37	1.00	1.00	0.00	10.43	99.37	0.00	1,920.3	0.0	744.56	2521.88	3,266.44
7	88.5	22.89	1.299	2.16	0.00	0.31	2.28	1.00	1.00	0.00	2.62	17.73	0.00	412.2	0.0	185.78	465.97	651.75
8	100.0	23.71	0.000	20.24	0.00	0.27	2.37	1.00	1.00	0.00	12.35	116.78	0.00	2,471.2	0.0	943.99	3177.83	4,121.82
9	120.0	24.98	0.000	19.21	0.00	0.26	2.41	1.00	1.00	0.00	11.65	116.78	0.00	2,654.7	0.0	951.47	3347.75	4,299.22
10	140.0	26.10	0.000	19.22	0.00	0.26	2.40	1.00	1.00	0.00	11.65	79.42	0.00	2,084.6	0.0	994.24	2376.72	3,370.96
11	160.0	27.12	11.444	11.67	0.00	0.31	2.27	1.00	1.00	0.00	18.46	28.87	0.00	1,933.4	0.0	1542.05	925.59	2,467.64
12	180.0	28.04	11.435	11.67	0.00	0.31	2.27	1.00	1.00	0.00	18.43	6.18	0.00	1,661.6	0.0	1592.72	210.74	1,803.46
														22,052.4	**0.0**			**30,511.88**

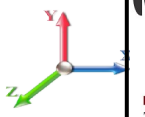
Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	16.79	4.917	3.14	0.00	0.81	1.82	0.80	1.00	0.00	6.72	29.47	0.00	1,711.2	0.0	279.44	184.15	463.59
2	12.5	16.79	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,706.4	0.0	424.20	1701.59	2,125.79
3	27.5	16.79	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,617.6	0.0	424.20	1701.59	2,125.79
4	42.5	18.57	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,617.6	0.0	468.98	1881.23	2,350.20
5	60.0	20.49	0.000	16.35	0.00	0.22	2.53	0.80	1.00	0.00	9.66	117.87	0.00	2,261.5	0.0	681.12	2768.02	3,449.14
6	78.5	22.12	0.000	17.11	0.00	0.27	2.37	0.80	1.00	0.00	10.43	99.37	0.00	1,920.3	0.0	744.56	2521.88	3,266.44
7	88.5	22.89	1.299	2.16	0.00	0.31	2.28	0.80	1.00	0.00	2.36	17.73	0.00	412.2	0.0	167.37	465.97	633.34
8	100.0	23.71	0.000	20.24	0.00	0.27	2.37	0.80	1.00	0.00	12.35	116.78	0.00	2,471.2	0.0	943.99	3177.83	4,121.82
9	120.0	24.98	0.000	19.21	0.00	0.26	2.41	0.80	1.00	0.00	11.65	116.78	0.00	2,654.7	0.0	951.47	3347.75	4,299.22
10	140.0	26.10	0.000	19.22	0.00	0.26	2.40	0.80	1.00	0.00	11.65	79.42	0.00	2,084.6	0.0	994.24	2376.72	3,370.96
11	160.0	27.12	11.444	11.67	0.00	0.31	2.27	0.80	1.00	0.00	16.17	28.87	0.00	1,933.4	0.0	1350.83	925.59	2,276.42
12	180.0	28.04	11.435	11.67	0.00	0.31	2.27	0.80	1.00	0.00	16.14	6.18	0.00	1,661.6	0.0	1395.08	210.74	1,605.82
														22,052.4	**0.0**			**30,088.54**

Section Forces

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	16.79	4.917	3.14	0.00	0.81	1.82	0.85	1.00	0.00	6.97	29.47	0.00	1,711.2	0.0	289.66	184.15	473.81
2	12.5	16.79	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,706.4	0.0	424.20	1701.59	2,125.79
3	27.5	16.79	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,617.6	0.0	424.20	1701.59	2,125.79
4	42.5	18.57	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,617.6	0.0	468.98	1881.23	2,350.20
5	60.0	20.49	0.000	16.35	0.00	0.22	2.53	0.85	1.00	0.00	9.66	117.87	0.00	2,261.5	0.0	681.12	2768.02	3,449.14
6	78.5	22.12	0.000	17.11	0.00	0.27	2.37	0.85	1.00	0.00	10.43	99.37	0.00	1,920.3	0.0	744.56	2521.88	3,266.44
7	88.5	22.89	1.299	2.16	0.00	0.31	2.28	0.85	1.00	0.00	2.43	17.73	0.00	412.2	0.0	171.97	465.97	637.94
8	100.0	23.71	0.000	20.24	0.00	0.27	2.37	0.85	1.00	0.00	12.35	116.78	0.00	2,471.2	0.0	943.99	3177.83	4,121.82
9	120.0	24.98	0.000	19.21	0.00	0.26	2.41	0.85	1.00	0.00	11.65	116.78	0.00	2,654.7	0.0	951.47	3347.75	4,299.22
10	140.0	26.10	0.000	19.22	0.00	0.26	2.40	0.85	1.00	0.00	11.65	79.42	0.00	2,084.6	0.0	994.24	2376.72	3,370.96
11	160.0	27.12	11.444	11.67	0.00	0.31	2.27	0.85	1.00	0.00	16.74	28.87	0.00	1,933.4	0.0	1398.63	925.59	2,324.22
12	180.0	28.04	11.435	11.67	0.00	0.31	2.27	0.85	1.00	0.00	16.71	6.18	0.00	1,661.6	0.0	1444.49	210.74	1,655.23
														22,052.4	**0.0**			**30,200.58**

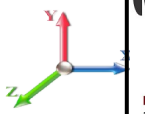
Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	16.79	4.917	3.14	0.00	0.81	1.82	1.00	1.00	0.00	7.71	29.47	0.00	1,283.4	0.0	320.32	184.15	504.47
2	12.5	16.79	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,279.8	0.0	424.20	1701.59	2,125.79
3	27.5	16.79	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,213.2	0.0	424.20	1701.59	2,125.79
4	42.5	18.57	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,213.2	0.0	468.98	1881.23	2,350.20
5	60.0	20.49	0.000	16.35	0.00	0.22	2.53	1.00	1.00	0.00	9.66	117.87	0.00	1,696.1	0.0	681.12	2768.02	3,449.14
6	78.5	22.12	0.000	17.11	0.00	0.27	2.37	1.00	1.00	0.00	10.43	99.37	0.00	1,440.3	0.0	744.56	2521.88	3,266.44
7	88.5	22.89	1.299	2.16	0.00	0.31	2.28	1.00	1.00	0.00	2.62	17.73	0.00	309.2	0.0	185.78	465.97	651.75
8	100.0	23.71	0.000	20.24	0.00	0.27	2.37	1.00	1.00	0.00	12.35	116.78	0.00	1,853.4	0.0	943.99	3177.83	4,121.82
9	120.0	24.98	0.000	19.21	0.00	0.26	2.41	1.00	1.00	0.00	11.65	116.78	0.00	1,991.0	0.0	951.47	3347.75	4,299.22
10	140.0	26.10	0.000	19.22	0.00	0.26	2.40	1.00	1.00	0.00	11.65	79.42	0.00	1,563.5	0.0	994.24	2376.72	3,370.96
11	160.0	27.12	11.444	11.67	0.00	0.31	2.27	1.00	1.00	0.00	18.46	28.87	0.00	1,450.1	0.0	1542.05	925.59	2,467.64
12	180.0	28.04	11.435	11.67	0.00	0.31	2.27	1.00	1.00	0.00	18.43	6.18	0.00	1,246.2	0.0	1592.72	210.74	1,803.46
														16,539.3	**0.0**			**30,536.70**

Section Forces

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	



Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	16.79	4.917	3.14	0.00	0.81	1.82	0.80	1.00	0.00	6.72	29.47	0.00	1,283.4	0.0	279.44	184.15	463.59
2	12.5	16.79	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,279.8	0.0	424.20	1701.59	2,125.79
3	27.5	16.79	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,213.2	0.0	424.20	1701.59	2,125.79
4	42.5	18.57	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,213.2	0.0	468.98	1881.23	2,350.20
5	60.0	20.49	0.000	16.35	0.00	0.22	2.53	0.80	1.00	0.00	9.66	117.87	0.00	1,696.1	0.0	681.12	2768.02	3,449.14
6	78.5	22.12	0.000	17.11	0.00	0.27	2.37	0.80	1.00	0.00	10.43	99.37	0.00	1,440.3	0.0	744.56	2521.88	3,266.44
7	88.5	22.89	1.299	2.16	0.00	0.31	2.28	0.80	1.00	0.00	2.36	17.73	0.00	309.2	0.0	167.37	465.97	633.34
8	100.0	23.71	0.000	20.24	0.00	0.27	2.37	0.80	1.00	0.00	12.35	116.78	0.00	1,853.4	0.0	943.99	3177.83	4,121.82
9	120.0	24.98	0.000	19.21	0.00	0.26	2.41	0.80	1.00	0.00	11.65	116.78	0.00	1,991.0	0.0	951.47	3347.75	4,299.22
10	140.0	26.10	0.000	19.22	0.00	0.26	2.40	0.80	1.00	0.00	11.65	79.42	0.00	1,563.5	0.0	994.24	2376.72	3,370.96
11	160.0	27.12	11.444	11.67	0.00	0.31	2.27	0.80	1.00	0.00	16.17	28.87	0.00	1,450.1	0.0	1350.83	925.59	2,276.42
12	180.0	28.04	11.435	11.67	0.00	0.31	2.27	0.80	1.00	0.00	16.14	6.18	0.00	1,246.2	0.0	1395.08	210.74	1,605.82
														16,539.3	**0.0**			**30,088.54**

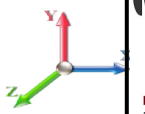
Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 105 mph Wind at 90° From Face

Wind Load Factor: 1.60
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	16.79	4.917	3.14	0.00	0.81	1.82	0.85	1.00	0.00	6.97	29.47	0.00	1,283.4	0.0	289.66	184.15	473.81
2	12.5	16.79	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,279.8	0.0	424.20	1701.59	2,125.79
3	27.5	16.79	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,213.2	0.0	424.20	1701.59	2,125.79
4	42.5	18.57	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,213.2	0.0	468.98	1881.23	2,350.20
5	60.0	20.49	0.000	16.35	0.00	0.22	2.53	0.85	1.00	0.00	9.66	117.87	0.00	1,696.1	0.0	681.12	2768.02	3,449.14
6	78.5	22.12	0.000	17.11	0.00	0.27	2.37	0.85	1.00	0.00	10.43	99.37	0.00	1,440.3	0.0	744.56	2521.88	3,266.44
7	88.5	22.89	1.299	2.16	0.00	0.31	2.28	0.85	1.00	0.00	2.43	17.73	0.00	309.2	0.0	171.97	465.97	637.94
8	100.0	23.71	0.000	20.24	0.00	0.27	2.37	0.85	1.00	0.00	12.35	116.78	0.00	1,853.4	0.0	943.99	3177.83	4,121.82
9	120.0	24.98	0.000	19.21	0.00	0.26	2.41	0.85	1.00	0.00	11.65	116.78	0.00	1,991.0	0.0	951.47	3347.75	4,299.22
10	140.0	26.10	0.000	19.22	0.00	0.26	2.40	0.85	1.00	0.00	11.65	79.42	0.00	1,563.5	0.0	994.24	2376.72	3,370.96
11	160.0	27.12	11.444	11.67	0.00	0.31	2.27	0.85	1.00	0.00	16.74	28.87	0.00	1,450.1	0.0	1398.63	925.59	2,324.22
12	180.0	28.04	11.435	11.67	0.00	0.31	2.27	0.85	1.00	0.00	16.71	6.18	0.00	1,246.2	0.0	1444.49	210.74	1,655.23
														16,539.3	**0.0**			**30,200.58**

Section Forces

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	3.81	4.917	6.86	3.73	1.00	2.10	1.00	1.00	1.16	12.12	39.56	4.83	2,947.9	1236.6	82.40	0.00	82.40
2	12.5	3.81	0.000	26.48	14.04	0.45	1.98	1.00	1.00	1.36	17.63	122.22	17.02	5,097.0	3390.6	112.77	326.42	439.19
3	27.5	3.81	0.000	27.63	15.19	0.47	1.95	1.00	1.00	1.47	18.63	124.18	18.41	5,316.7	3699.1	117.49	323.66	441.15
4	42.5	4.21	0.000	28.31	15.87	0.48	1.93	1.00	1.00	1.54	19.23	125.32	19.23	5,502.7	3885.1	133.03	355.84	488.87
5	60.0	4.65	0.000	37.67	21.32	0.47	1.94	1.00	1.00	1.59	25.53	168.36	26.54	7,610.6	5349.1	195.21	531.42	726.63
6	78.5	5.02	0.000	43.27	26.17	0.64	1.78	1.00	1.00	1.64	33.75	143.05	20.13	7,072.6	5152.3	256.81	328.60	585.42
7	88.5	5.19	1.299	7.09	4.93	0.69	1.78	1.00	1.00	1.66	7.05	25.62	3.35	1,378.6	966.4	55.22	51.59	106.81
8	100.0	5.38	0.000	52.04	31.80	0.65	1.78	1.00	1.00	1.68	41.01	169.22	22.34	8,703.7	6232.5	333.71	400.33	734.03
9	120.0	5.66	0.000	51.60	32.39	0.65	1.78	1.00	1.00	1.71	40.55	169.94	22.76	8,984.1	6329.3	347.73	426.62	774.35
10	140.0	5.92	0.000	52.11	32.89	0.66	1.78	1.00	1.00	1.73	41.14	112.69	14.73	7,078.3	4993.7	368.41	287.53	655.94
11	160.0	6.15	11.444	45.00	33.33	0.71	1.78	1.00	1.00	1.76	48.11	40.15	5.86	5,393.9	3460.5	446.66	95.94	542.60
12	180.0	6.36	11.435	45.39	33.73	0.71	1.78	1.00	1.00	1.78	48.56	7.66	1.48	4,333.0	2671.4	466.39	20.74	487.13
														69,419.2	**47366.8**			**6,064.53**

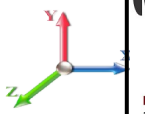
Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	3.81	4.917	6.86	3.73	1.00	2.10	0.80	1.00	1.16	11.14	39.56	4.83	2,947.9	1236.6	75.71	0.00	75.71
2	12.5	3.81	0.000	26.48	14.04	0.45	1.98	0.80	1.00	1.36	17.63	122.22	17.02	5,097.0	3390.6	112.77	326.42	439.19
3	27.5	3.81	0.000	27.63	15.19	0.47	1.95	0.80	1.00	1.47	18.63	124.18	18.41	5,316.7	3699.1	117.49	323.66	441.15
4	42.5	4.21	0.000	28.31	15.87	0.48	1.93	0.80	1.00	1.54	19.23	125.32	19.23	5,502.7	3885.1	133.03	355.84	488.87
5	60.0	4.65	0.000	37.67	21.32	0.47	1.94	0.80	1.00	1.59	25.53	168.36	26.54	7,610.6	5349.1	195.21	531.42	726.63
6	78.5	5.02	0.000	43.27	26.17	0.64	1.78	0.80	1.00	1.64	33.75	143.05	20.13	7,072.6	5152.3	256.81	328.60	585.42
7	88.5	5.19	1.299	7.09	4.93	0.69	1.78	0.80	1.00	1.66	6.79	25.62	3.35	1,378.6	966.4	53.19	51.59	104.78
8	100.0	5.38	0.000	52.04	31.80	0.65	1.78	0.80	1.00	1.68	41.01	169.22	22.34	8,703.7	6232.5	333.71	400.33	734.03
9	120.0	5.66	0.000	51.60	32.39	0.65	1.78	0.80	1.00	1.71	40.55	169.94	22.76	8,984.1	6329.3	347.73	426.62	774.35
10	140.0	5.92	0.000	52.11	32.89	0.66	1.78	0.80	1.00	1.73	41.14	112.69	14.73	7,078.3	4993.7	368.41	287.53	655.94
11	160.0	6.15	11.444	45.00	33.33	0.71	1.78	0.80	1.00	1.76	45.82	40.15	5.86	5,393.9	3460.5	425.41	95.94	521.35
12	180.0	6.36	11.435	45.39	33.73	0.71	1.78	0.80	1.00	1.78	46.27	7.66	1.48	4,333.0	2671.4	444.42	20.74	465.17
														69,419.2	**47366.8**			**6,012.60**

Section Forces

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	



Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	3.81	4.917	6.86	3.73	1.00	2.10	0.85	1.00	1.16	11.38	39.56	4.83	2,947.9	1236.6	77.38	0.00	77.38
2	12.5	3.81	0.000	26.48	14.04	0.45	1.98	0.85	1.00	1.36	17.63	122.22	17.02	5,097.0	3390.6	112.77	326.42	439.19
3	27.5	3.81	0.000	27.63	15.19	0.47	1.95	0.85	1.00	1.47	18.63	124.18	18.41	5,316.7	3699.1	117.49	323.66	441.15
4	42.5	4.21	0.000	28.31	15.87	0.48	1.93	0.85	1.00	1.54	19.23	125.32	19.23	5,502.7	3885.1	133.03	355.84	488.87
5	60.0	4.65	0.000	37.67	21.32	0.47	1.94	0.85	1.00	1.59	25.53	168.36	26.54	7,610.6	5349.1	195.21	531.42	726.63
6	78.5	5.02	0.000	43.27	26.17	0.64	1.78	0.85	1.00	1.64	33.75	143.05	20.13	7,072.6	5152.3	256.81	328.60	585.42
7	88.5	5.19	1.299	7.09	4.93	0.69	1.78	0.85	1.00	1.66	6.85	25.62	3.35	1,378.6	966.4	53.69	51.59	105.29
8	100.0	5.38	0.000	52.04	31.80	0.65	1.78	0.85	1.00	1.68	41.01	169.22	22.34	8,703.7	6232.5	333.71	400.33	734.03
9	120.0	5.66	0.000	51.60	32.39	0.65	1.78	0.85	1.00	1.71	40.55	169.94	22.76	8,984.1	6329.3	347.73	426.62	774.35
10	140.0	5.92	0.000	52.11	32.89	0.66	1.78	0.85	1.00	1.73	41.14	112.69	14.73	7,078.3	4993.7	368.41	287.53	655.94
11	160.0	6.15	11.444	45.00	33.33	0.71	1.78	0.85	1.00	1.76	46.39	40.15	5.86	5,393.9	3460.5	430.73	95.94	526.66
12	180.0	6.36	11.435	45.39	33.73	0.71	1.78	0.85	1.00	1.78	46.84	7.66	1.48	4,333.0	2671.4	449.91	20.74	470.66
														69,419.2	**47366.8**			**6,025.58**

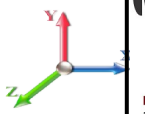
Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	5.48	4.917	3.14	0.00	0.81	1.82	1.00	1.00	0.00	7.71	29.47	0.00	1,426.0	0.0	65.37	37.58	102.95
2	12.5	5.48	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,422.0	0.0	86.57	347.26	433.83
3	27.5	5.48	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,348.0	0.0	86.57	347.26	433.83
4	42.5	6.06	0.000	12.44	0.00	0.22	2.52	1.00	1.00	0.00	7.37	88.40	0.00	1,348.0	0.0	95.71	383.92	479.63
5	60.0	6.69	0.000	16.35	0.00	0.22	2.53	1.00	1.00	0.00	9.66	117.87	0.00	1,884.6	0.0	139.00	564.90	703.91
6	78.5	7.22	0.000	17.11	0.00	0.27	2.37	1.00	1.00	0.00	10.43	99.37	0.00	1,600.3	0.0	151.95	514.67	666.62
7	88.5	7.48	1.299	2.16	0.00	0.31	2.28	1.00	1.00	0.00	2.62	17.73	0.00	343.5	0.0	37.91	95.10	133.01
8	100.0	7.74	0.000	20.24	0.00	0.27	2.37	1.00	1.00	0.00	12.35	116.78	0.00	2,059.3	0.0	192.65	648.54	841.19
9	120.0	8.16	0.000	19.21	0.00	0.26	2.41	1.00	1.00	0.00	11.65	116.78	0.00	2,212.3	0.0	194.18	683.21	877.39
10	140.0	8.52	0.000	19.22	0.00	0.26	2.40	1.00	1.00	0.00	11.65	79.42	0.00	1,737.2	0.0	202.91	485.05	687.95
11	160.0	8.85	11.444	11.67	0.00	0.31	2.27	1.00	1.00	0.00	18.47	28.87	0.00	1,611.2	0.0	315.00	188.90	503.90
12	180.0	9.16	11.435	11.67	0.00	0.31	2.27	1.00	1.00	0.00	18.46	6.18	0.00	1,384.6	0.0	325.66	43.01	368.67
														18,377.0	**0.0**			**6,232.90**

Section Forces

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	



TES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	5.48	4.917	3.14	0.00	0.81	1.82	0.80	1.00	0.00	6.72	29.47	0.00	1,426.0	0.0	57.03	37.58	94.61
2	12.5	5.48	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,422.0	0.0	86.57	347.26	433.83
3	27.5	5.48	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,348.0	0.0	86.57	347.26	433.83
4	42.5	6.06	0.000	12.44	0.00	0.22	2.52	0.80	1.00	0.00	7.37	88.40	0.00	1,348.0	0.0	95.71	383.92	479.63
5	60.0	6.69	0.000	16.35	0.00	0.22	2.53	0.80	1.00	0.00	9.66	117.87	0.00	1,884.6	0.0	139.00	564.90	703.91
6	78.5	7.22	0.000	17.11	0.00	0.27	2.37	0.80	1.00	0.00	10.43	99.37	0.00	1,600.3	0.0	151.95	514.67	666.62
7	88.5	7.48	1.299	2.16	0.00	0.31	2.28	0.80	1.00	0.00	2.36	17.73	0.00	343.5	0.0	34.16	95.10	129.25
8	100.0	7.74	0.000	20.24	0.00	0.27	2.37	0.80	1.00	0.00	12.35	116.78	0.00	2,059.3	0.0	192.65	648.54	841.19
9	120.0	8.16	0.000	19.21	0.00	0.26	2.41	0.80	1.00	0.00	11.65	116.78	0.00	2,212.3	0.0	194.18	683.21	877.39
10	140.0	8.52	0.000	19.22	0.00	0.26	2.40	0.80	1.00	0.00	11.65	79.42	0.00	1,737.2	0.0	202.91	485.05	687.95
11	160.0	8.85	11.444	11.67	0.00	0.31	2.27	0.80	1.00	0.00	16.19	28.87	0.00	1,611.2	0.0	275.98	188.90	464.88
12	180.0	9.16	11.435	11.67	0.00	0.31	2.27	0.80	1.00	0.00	16.18	6.18	0.00	1,384.6	0.0	285.33	43.01	328.34
														18,377.0	**0.0**			**6,141.44**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

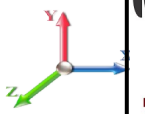
Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	5.48	4.917	3.14	0.00	0.81	1.82	0.85	1.00	0.00	6.97	29.47	0.00	1,426.0	0.0	59.11	37.58	96.70
2	12.5	5.48	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,422.0	0.0	86.57	347.26	433.83
3	27.5	5.48	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,348.0	0.0	86.57	347.26	433.83
4	42.5	6.06	0.000	12.44	0.00	0.22	2.52	0.85	1.00	0.00	7.37	88.40	0.00	1,348.0	0.0	95.71	383.92	479.63
5	60.0	6.69	0.000	16.35	0.00	0.22	2.53	0.85	1.00	0.00	9.66	117.87	0.00	1,884.6	0.0	139.00	564.90	703.91
6	78.5	7.22	0.000	17.11	0.00	0.27	2.37	0.85	1.00	0.00	10.43	99.37	0.00	1,600.3	0.0	151.95	514.67	666.62
7	88.5	7.48	1.299	2.16	0.00	0.31	2.28	0.85	1.00	0.00	2.43	17.73	0.00	343.5	0.0	35.10	95.10	130.19
8	100.0	7.74	0.000	20.24	0.00	0.27	2.37	0.85	1.00	0.00	12.35	116.78	0.00	2,059.3	0.0	192.65	648.54	841.19
9	120.0	8.16	0.000	19.21	0.00	0.26	2.41	0.85	1.00	0.00	11.65	116.78	0.00	2,212.3	0.0	194.18	683.21	877.39
10	140.0	8.52	0.000	19.22	0.00	0.26	2.40	0.85	1.00	0.00	11.65	79.42	0.00	1,737.2	0.0	202.91	485.05	687.95
11	160.0	8.85	11.444	11.67	0.00	0.31	2.27	0.85	1.00	0.00	16.76	28.87	0.00	1,611.2	0.0	285.74	188.90	474.63
12	180.0	9.16	11.435	11.67	0.00	0.31	2.27	0.85	1.00	0.00	16.75	6.18	0.00	1,384.6	0.0	295.41	43.01	338.42
														18,377.0	**0.0**			**6,164.30**

Force/Stress Compression Summary

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5	PX - 3" DIA PIPE	-60.30	1.2D + 1.0Di + 1.0Wi 60° Wind	1.34	100	100	100	14.15	50.00	133.93	45.0	Member X
2	20	PX - 3" DIA PIPE	-70.88	1.2D + 1.6W 60° Wind	2.40	200	200	200	50.47	50.00	112.80	62.8	Member X
3	35	PX - 3" DIA PIPE	-90.69	1.2D + 1.6W 60° Wind	2.40	200	200	200	50.47	50.00	112.80	80.4	Member X
4	50	PX - 3" DIA PIPE	-97.58	1.2D + 1.6W 90° Wind	2.40	200	200	200	50.47	50.00	112.80	86.5	Member X
5	70	PX - 3" DIA PIPE	-97.33	1.2D + 1.6W 90° Wind	2.42	200	200	200	51.01	50.00	112.35	86.6	Member X
6	86.96	PX - 3" DIA PIPE	-84.05	1.2D + 1.6W Normal Wind	2.42	100	100	100	25.51	50.00	129.59	64.9	Member X
7	89.99	PX - 3" DIA PIPE	-83.73	1.2D + 1.6W 90° Wind	2.42	100	100	100	25.49	50.00	129.59	64.6	Member X
8	109.9	PX - 3" DIA PIPE	-82.61	1.2D + 1.6W 90° Wind	2.42	100	100	100	25.51	50.00	129.59	63.7	Member X
9	129.9	MOD - 2.5"PX+3'PX1/2P	-111.65	1.2D + 1.6W 60° Wind	2.42	100	100	100	29.67	50.00	158.72	70.3	Member X
10	149.9	MOD - 2.5"PX+3'PX1/2P	-111.90	1.2D + 1.6W 60° Wind	2.42	100	100	100	29.67	50.00	158.72	70.5	Member X
11	169.9	PX - 3" DIA PIPE	-80.67	1.2D + 1.6W 60° Wind	2.42	100	100	100	25.51	50.00	129.59	62.3	Member X
12	189.9	PX - 3" DIA PIPE	-9.24	1.2D + 1.6W Normal Wind	2.42	100	100	100	25.51	50.00	129.59	7.1	Member X

HORIZONTAL MEMBERS

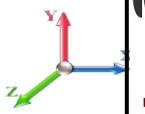
Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	5	SAE - 8X8X0.75	-15.3	1.2D + 1.6W 90° Wind	0.85	100	100	100	6.49	36.00	369.84	0	0			4	Member Z
2	20	PSP - ROHN 1 1/2X11G	-1.50	1.2D + 1.6W Normal Wind	3.42	100	100	100		42.00	9.72	1	2			15	User Input
3	35	PSP - ROHN 1 1/2X16G	-0.91	1.2D + 1.6W 90° Wind	3.42	100	100	100		42.00	6.49	1	2			14	User Input
4	50	PSP - ROHN 1 1/2X16G	-0.54	1.2D + 1.6W Normal Wind	3.42	100	100	100		42.00	6.49	1	2			8	User Input
5	70	PSP - ROHN 1 1/2X11G	-1.16	1.2D + 1.6W 90° Wind	3.42	100	100	100		42.00	9.72	1	2			12	User Input
6	86.9	PSP - ROHN 1 1/2X16G	-0.31	0.9D + 1.6W 60° Wind	3.42	100	100	100		42.00	6.49	1	2			5	User Input
7	89.9	PSP - ROHN 1 1/2X16G	-0.14	0.9D + 1.6W 90° Wind	3.42	100	100	100		42.00	6.49	1	2			2	User Input
8	109.	PSP - ROHN 1 1/2X11G	-0.78	0.9D + 1.6W 60° Wind	3.42	100	100	100		42.00	9.72	1	2			8	User Input
9	129.	PSP - ROHN 1 1/2X11G	-0.84	0.9D + 1.6W 60° Wind	3.42	100	100	100		42.00	9.72	1	2			9	User Input
10	149.	PSP - ROHN 1 1/2X16G	-0.42	0.9D + 1.6W 60° Wind	3.42	100	100	100		42.00	6.49	1	2			6	User Input
11	169.	SAE - 2X2X0.25	-1.61	0.9D + 1.6W 60° Wind	3.42	100	100	100	112.43	36.00	15.65	2	1	24.86	33.49	10	Member Z
12	189.	SAE - 2X2X0.25	-1.70	0.9D + 1.6W Normal Wind	3.42	100	100	100	112.43	36.00	15.65	2	1	24.86	33.49	11	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	5				0.00						0.00	0	0				
2	20	PSP - ROHN 1 1/2X11G	-7.04	1.2D + 1.6W 90° Wind	4.17	100	100	100		42.00	9.72	1	2			72	User Input
3	35	PSP - ROHN 1 1/2X16G	-5.62	1.2D + 1.6W Normal Wind	4.17	100	100	100		42.00	6.49	1	2			87	User Input
4	50	PSP - ROHN 1 1/2X16G	-3.53	1.2D + 1.6W Normal Wind	4.17	100	100	100		42.00	6.49	1	2			54	User Input
5	70	PSP - ROHN 1 1/2X11G	-3.21	1.2D + 1.6W 60° Wind	4.19	100	100	100		42.00	9.72	1	2			33	User Input
6	86.9	PSP - ROHN 1 1/2X16G	-2.89	1.2D + 1.6W 90° Wind	4.19	100	100	100		42.00	6.49	1	2			44	User Input
7	89.9	SAE - 2X2X0.25	-4.00	1.2D + 1.6W 60° Wind	4.19	100	100	100	128.54	36.00	12.76	1	1	7.95	10.0	50	Bolt Shear
8	109.	PSP - ROHN 1 1/2X11G	-5.08	1.2D + 1.6W 90° Wind	4.19	100	100	100		42.00	9.72	1	2			52	User Input
9	129.	PSP - ROHN 1 1/2X11G	-3.12	1.2D + 1.6W 60° Wind	4.19	100	100	100		42.00	9.72	1	2			32	User Input
10	149.	PSP - ROHN 1 1/2X16G	-4.24	1.2D + 1.6W 90° Wind	4.19	100	100	100		42.00	6.49	1	2			65	User Input
11	169.	SAE - 2X2X0.25	-8.71	0.9D + 1.6W 90° Wind	4.19	100	100	100	126.56	36.00	13.11	2	1	24.86	33.4	67	Member Z
12	189.	SAE - 2X2X0.25	-1.73	0.9D + 1.6W 90° Wind	4.19	100	100	100	126.56	36.00	13.11	2	1	24.86	33.4	13	Member Z

Force/Stress Tension Summary

Structure:	CT10016-A-SBA	**Code:**	EIA/TIA-222-G	1/9/2019	
Site Name:	Montville 3, CT	**Exposure:**	B		
Height:	190.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	



Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5				0	0.00		
2	20	PX - 3" DIA PIPE	29.15	0.9D + 1.6W Normal Wind	50	135.90	21.5	Member
3	35	PX - 3" DIA PIPE	60.96	0.9D + 1.6W Normal Wind	50	135.90	44.9	Member
4	50	PX - 3" DIA PIPE	77.54	0.9D + 1.6W Normal Wind	50	135.90	57.1	Member
5	70	PX - 3" DIA PIPE	79.39	0.9D + 1.6W Normal Wind	50	135.90	58.4	Member
6	86.962	PX - 3" DIA PIPE	71.44	0.9D + 1.6W Normal Wind	50	135.90	52.6	Member
7	89.999	PX - 3" DIA PIPE	42.33	0.9D + 1.6W 90° Wind	50	135.90	31.1	Member
8	109.99	PX - 3" DIA PIPE	84.03	0.9D + 1.6W Normal Wind	50	135.90	61.8	Member
9	129.99	MOD - 2.5"PX+3'PX1/2P	99.03	0.9D + 1.6W Normal Wind	50	169.27	58.5	Member
10	149.99	MOD - 2.5"PX+3'PX1/2P	98.36	0.9D + 1.6W Normal Wind	50	169.27	58.1	Member
11	169.99	PX - 3" DIA PIPE	52.43	0.9D + 1.6W Normal Wind	50	135.90	38.6	Member
12	189.99	PX - 3" DIA PIPE	7.00	0.9D + 1.6W 60° Wind	50	135.90	5.2	Member

HORIZONTAL MEMBERS

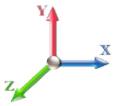
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SAE - 8X8X0.75	24.47	1.2D + 1.6W Normal Wi	36	370.66	0	0				6.6	Member
2	20	PSP - ROHN 1 1/2X11GA	1.49	1.2D + 1.6W 90° Wind	42	9.72	1	2				15.3	User Input
3	35	PSP - ROHN 1 1/2X16GA	1.18	1.2D + 1.6W Normal Wi	42	5.47	1	2				21.5	User Input
4	50	PSP - ROHN 1 1/2X16GA	0.57	1.2D + 1.6W Normal Wi	42	5.47	1	2				10.5	User Input
5	70	PSP - ROHN 1 1/2X11GA	1.34	1.2D + 1.6W 90° Wind	42	9.72	1	2				13.8	User Input
6	86.962	PSP - ROHN 1 1/2X16GA	1.03	1.2D + 1.6W 90° Wind	42	5.47	1	2				18.9	User Input
7	89.999	PSP - ROHN 1 1/2X16GA	1.00	1.2D + 1.0Di + 1.0Wi Nc	42	5.47	1	2				18.3	User Input
8	109.99	PSP - ROHN 1 1/2X11GA	2.05	1.2D + 1.6W Normal Wi	42	9.72	1	2				21.1	User Input
9	129.99	PSP - ROHN 1 1/2X11GA	1.36	1.2D + 1.6W Normal Wi	42	9.72	1	2				14.0	User Input
10	149.99	PSP - ROHN 1 1/2X16GA	0.94	1.2D + 1.6W Normal Wi	42	5.47	1	2				17.3	User Input
11	169.99	SAE - 2X2X0.25	2.67	1.2D + 1.6W Normal Wi	36	30.46	2	1	24.86	33.49	19.45	13.7	Blck Shear
12	189.99	SAE - 2X2X0.25	0.07	0.9D + 1.6W Normal Wi	36	30.46	2	1	24.86	33.49	19.45	0.4	Blck Shear

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	-	0.00		36	0.00	0	0					
2	20	PSP - ROHN 1 1/2X11GA	6.83	1.2D + 1.6W 90° Wind	42	9.72	1	2				70.3	User Input
3	35	PSP - ROHN 1 1/2X16GA	5.44	1.2D + 1.6W 90° Wind	42	5.47	1	2				99.5	User Input
4	50	PSP - ROHN 1 1/2X16GA	3.27	1.2D + 1.6W Normal Wi	42	5.47	1	2				59.8	User Input
5	70	PSP - ROHN 1 1/2X11GA	2.84	1.2D + 1.6W 60° Wind	42	9.72	1	2				29.2	User Input
6	86.962	PSP - ROHN 1 1/2X16GA	2.89	1.2D + 1.6W 60° Wind	42	5.47	1	2				52.9	User Input
7	89.999	SAE - 2X2X0.25	3.92	1.2D + 1.6W 90° Wind	36	30.46	1	1	7.95	10.01	9.66	49.3	Bolt Shear
8	109.99	PSP - ROHN 1 1/2X11GA	3.83	1.2D + 1.6W 60° Wind	42	9.72	1	2				39.4	User Input
9	129.99	PSP - ROHN 1 1/2X11GA	2.38	1.2D + 1.6W 60° Wind	42	9.72	1	2				24.4	User Input
10	149.99	PSP - ROHN 1 1/2X16GA	4.03	1.2D + 1.6W 90° Wind	42	5.47	1	2				73.7	User Input
11	169.99	SAE - 2X2X0.25	6.84	0.9D + 1.6W 90° Wind	36	30.46	2	1	24.86	33.49	18.09	37.8	Blck Shear
12	189.99	SAE - 2X2X0.25	1.37	0.9D + 1.6W 90° Wind	36	30.46	2	1	24.86	33.49	18.09	7.6	Blck Shear

Support Forces Summary

Structure:	CT10016-A-SBA		**Code:**	EIA/TIA-222-G	1/9/2019
Site Name:	Montville 3, CT		**Exposure:**	B	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 16



Tower Engineering Solutions

Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	107.31	-5.81	
	A1	0.00	-1.03	0.74	
	A1b	-33.83	-34.45	-21.05	
	A1a	33.83	-34.45	-21.05	
1.2D + 1.6W 60° Wind	1	-4.56	92.39	-2.63	
	A1	-0.89	-7.56	7.21	
	A1b	-40.87	-40.39	-23.60	
	A1a	5.81	-7.57	-4.38	
1.2D + 1.6W 90° Wind	1	-5.71	101.58	0.84	
	A1	-1.34	-21.55	23.45	
	A1b	-41.41	-40.51	-22.92	
	A1a	1.60	-2.40	-1.38	
0.9D + 1.6W Normal Wind	1	0.00	98.62	-6.04	
	A1	0.00	-1.04	0.75	
	A1b	-33.66	-34.37	-20.95	
	A1a	33.66	-34.37	-20.95	
0.9D + 1.6W 60° Wind	1	-4.66	83.98	-2.68	
	A1	-0.89	-7.62	7.26	
	A1b	-40.82	-40.41	-23.57	
	A1a	5.85	-7.63	-4.40	
0.9D + 1.6W 90° Wind	1	-5.89	92.95	0.92	
	A1	-1.34	-21.50	23.29	
	A1b	-41.25	-40.45	-22.84	
	A1a	1.61	-2.41	-1.39	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	156.65	-1.19	
	A1	0.00	-10.17	11.80	
	A1b	-17.97	-17.97	-11.14	
	A1a	17.97	-17.97	-11.14	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.91	155.93	-0.53	
	A1	-0.63	-12.69	14.54	
	A1b	-20.79	-20.39	-12.00	
	A1a	12.28	-12.69	-7.82	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.12	156.25	0.07	
	A1	-0.80	-15.32	17.78	
	A1b	-20.34	-19.76	-11.37	
	A1a	10.64	-10.84	-6.49	
1.0D + 1.0W Normal Wind	1	0.00	60.37	-2.44	
	A1	0.00	-5.06	4.96	
	A1b	-10.06	-11.91	-6.08	
	A1a	10.06	-11.91	-6.08	
1.0D + 1.0W 60° Wind	1	-1.73	61.25	-0.99	
	A1	-0.21	-7.71	7.43	
	A1b	-12.67	-14.45	-7.31	
	A1a	6.34	-7.71	-3.90	

1.0D + 1.0W 90° Wind	1	-2.21	60.82	0.19
	A1	-0.27	-9.80	9.53
	A1b	-11.98	-13.70	-6.78
	A1a	4.89	-5.89	-2.94

Max Reactions (kips)	Base	Anchor 1
Vertical	156.65	40.51
Horizontal	6.04	47.33

Cable Forces Summary

Structure:	CT10016-A-SBA		**Code:**	EIA/TIA-222-G	1/9/2019
Site Name:	Montville 3, CT		**Exposure:**	B	
Height:	190.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kips)	Applied Tension (kips)	Use %
1.2D + 1.6W Normal	92.42	5/8 EHS	A1	T1	25.44	0.10	0
			A1b	T1b	25.44	11.27	44
			A1a	T1a	25.44	9.63	38
			A1a	T1	25.44	11.27	44
			A1b	T1a	25.44	9.63	38
			A1	T1b	25.44	0.10	0
	166.96	7/8 EHS	A1	T2	47.82	0.88	2
			A1b	T2b	47.82	20.11	42
			A1a	T2a	47.82	12.90	27
			A1a	T2	47.82	20.11	42
			A1b	T2a	47.82	12.90	27
			A1	T2b	47.82	0.88	2
1.2D + 1.6W 60° Wind	92.42	5/8 EHS	A1	T1	25.44	0.73	3
			A1b	T1b	25.44	12.80	50
			A1a	T1a	25.44	0.69	3
			A1a	T1	25.44	0.72	3
			A1b	T1a	25.44	12.75	50
			A1	T1b	25.44	0.69	3
	166.96	7/8 EHS	A1	T2	47.82	5.68	12
			A1b	T2b	47.82	18.96	40
			A1a	T2a	47.82	4.15	9
			A1a	T2	47.82	5.68	12
			A1b	T2a	47.82	18.95	40
			A1	T2b	47.82	4.13	9
1.2D + 1.6W 90° Wind	92.42	5/8 EHS	A1	T1	25.44	5.56	22
			A1b	T1b	25.44	12.17	48
			A1a	T1a	25.44	0.23	1
			A1a	T1	25.44	0.25	1
			A1b	T1a	25.44	13.45	53
			A1	T1b	25.44	4.23	17
	166.96	7/8 EHS	A1	T2	47.82	14.76	31
			A1b	T2b	47.82	16.02	34
			A1a	T2a	47.82	1.63	3
			A1a	T2	47.82	1.78	4
			A1b	T2a	47.82	22.00	46
			A1	T2b	47.82	8.31	17
0.9D + 1.6W Normal	92.42	5/8 EHS	A1	T1	25.44	0.10	0
			A1b	T1b	25.44	11.10	44
			A1a	T1a	25.44	9.48	37
			A1a	T1	25.44	11.10	44
			A1b	T1a	25.44	9.48	37
			A1	T1b	25.44	0.10	0
	166.96	7/8 EHS	A1	T2	47.82	0.89	2
			A1b	T2b	47.82	20.16	42
			A1a	T2a	47.82	12.97	27
			A1a	T2	47.82	20.16	42
			A1b	T2a	47.82	12.97	27
			A1	T2b	47.82	0.89	2
0.9D + 1.6W 60° Wind	92.42	5/8 EHS	A1	T1	25.44	0.73	3
			A1b	T1b	25.44	12.71	50
			A1a	T1a	25.44	0.69	3
			A1a	T1	25.44	0.72	3
			A1b	T1a	25.44	12.65	50

0.9D + 1.6W 60° Wind	92.42	5/8 EHS	A1	T1b	25.44	0.69	3
	166.96	7/8 EHS	A1	T2	47.82	5.73	12
			A1b	T2b	47.82	19.03	40
			A1a	T2a	47.82	4.18	9
			A1a	T2	47.82	5.73	12
			A1b	T2a	47.82	19.02	40
			A1	T2b	47.82	4.16	9
0.9D + 1.6W 90° Wind	92.42	5/8 EHS	A1	T1	25.44	5.40	21
			A1b	T1b	25.44	12.03	47
			A1a	T1a	25.44	0.23	1
			A1a	T1	25.44	0.25	1
			A1b	T1a	25.44	13.28	52
			A1	T1b	25.44	4.12	16
	166.96	7/8 EHS	A1	T2	47.82	14.81	31
			A1b	T2b	47.82	16.10	34
			A1a	T2a	47.82	1.65	3
			A1a	T2	47.82	1.79	4
			A1b	T2a	47.82	22.05	46
			A1	T2b	47.82	8.37	18
1.2D + 1.0Di + 1.0Wi	92.42	5/8 EHS	A1	T1	25.44	1.81	7
			A1b	T1b	25.44	3.83	15
			A1a	T1a	25.44	3.76	15
			A1a	T1	25.44	3.83	15
			A1b	T1a	25.44	3.76	15
			A1	T1b	25.44	1.81	7
	166.96	7/8 EHS	A1	T2	47.82	7.66	16
			A1b	T2b	47.82	12.56	26
			A1a	T2a	47.82	11.04	23
			A1a	T2	47.82	12.56	26
			A1b	T2a	47.82	11.04	23
			A1	T2b	47.82	7.66	16
1.2D + 1.0Di + 1.0Wi	92.42	5/8 EHS	A1	T1	25.44	2.25	9
			A1b	T1b	25.44	4.51	18
			A1a	T1a	25.44	2.23	9
			A1a	T1	25.44	2.25	9
			A1b	T1a	25.44	4.50	18
			A1	T1b	25.44	2.23	9
	166.96	7/8 EHS	A1	T2	47.82	9.66	20
			A1b	T2b	47.82	12.99	27
			A1a	T2a	47.82	8.57	18
			A1a	T2	47.82	9.65	20
			A1b	T2a	47.82	12.98	27
			A1	T2b	47.82	8.56	18
1.2D + 1.0Di + 1.0Wi	92.42	5/8 EHS	A1	T1	25.44	2.99	12
			A1b	T1b	25.44	4.32	17
			A1a	T1a	25.44	1.87	7
			A1a	T1	25.44	1.88	7
			A1b	T1a	25.44	4.36	17
			A1	T1b	25.44	2.94	12
	166.96	7/8 EHS	A1	T2	47.82	11.25	24
			A1b	T2b	47.82	12.20	26
			A1a	T2a	47.82	7.83	16
			A1a	T2	47.82	8.30	17
			A1b	T2a	47.82	13.14	27
			A1	T2b	47.82	9.72	20
1.0D + 1.0W Normal	92.42	5/8 EHS	A1	T1	25.44	0.27	1
			A1b	T1b	25.44	0.88	3
			A1a	T1a	25.44	0.85	3
			A1a	T1	25.44	0.88	3
			A1b	T1a	25.44	0.84	3
			A1	T1b	25.44	0.27	1
	166.96	7/8 EHS	A1	T2	47.82	3.64	8
			A1b	T2b	47.82	9.39	20
			A1a	T2a	47.82	6.38	13
			A1a	T2	47.82	9.39	20
			A1b	T2a	47.82	6.38	13
			A1	T2b	47.82	3.64	8

1.0D + 1.0W 60° Wind	92.42	5/8 EHS	A1	T1	25.44	0.37	1
			A1b	T1b	25.44	1.59	6
			A1a	T1a	25.44	0.36	1
			A1a	T1	25.44	0.37	1
			A1b	T1a	25.44	1.59	6
			A1	T1b	25.44	0.36	1
	166.96	7/8 EHS	A1	T2	47.82	6.42	13
			A1b	T2b	47.82	9.10	19
			A1a	T2a	47.82	4.30	9
			A1a	T2	47.82	6.41	13
			A1b	T2a	47.82	9.10	19
			A1	T2b	47.82	4.29	9
1.0D + 1.0W 90° Wind	92.42	5/8 EHS	A1	T1	25.44	0.56	2
			A1b	T1b	25.44	1.32	5
			A1a	T1a	25.44	0.28	1
			A1a	T1	25.44	0.29	1
			A1b	T1a	25.44	1.38	5
			A1	T1b	25.44	0.54	2
	166.96	7/8 EHS	A1	T2	47.82	8.15	17
			A1b	T2b	47.82	7.84	16
			A1a	T2a	47.82	3.67	8
			A1a	T2	47.82	4.69	10
			A1b	T2a	47.82	9.69	20
			A1	T2b	47.82	5.18	11

Max Reactions

Base:	156.65 (Vertical)	6.04 (Horizontal)
Anchor 1:	40.51 (Vertical)	47.33 (Horizontal)

Max Usages

Max Leg: 86.6% (1.2D + 1.6W 90° Wind - Sect 5)
Max Diag: 99.5% (1.2D + 1.6W 90° Wind - Sect 3)
Max Horiz: 21.5% (1.2D + 1.6W Normal Wind - Sect 3)
Max Cable: 52.9% (1.2D + 1.6W 90° Wind) - Elev: 92 ft

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 105 mph Wind at 60° From Face	74.85	1.2083	0.0327	0.1652
	130.00	1.1248	0.0212	0.5530
	142.11	0.9722	0.0161	0.8859
	150.00	0.8357	0.0124	1.1139
	159.69	0.6443	0.0074	1.2182
	174.85	0.3218	0.0121	1.2000
0.9D + 1.6W 105 mph Wind at 90° From Face	74.85	2.0812	0.1554	0.4035
	130.00	1.7778	0.1375	1.1364
	142.11	1.5039	0.1340	1.4909
	150.00	1.2840	0.1306	1.7325
	159.69	0.9902	0.1325	1.8378
	174.85	0.5101	0.1311	1.8056
0.9D + 1.6W 105 mph Wind at Normal To Face	74.85	2.2217	-0.0009	0.4319
	130.00	1.9241	0.0001	1.1581
	142.11	1.6391	0.0007	1.5452
	150.00	1.4097	0.0002	1.8059
	159.69	1.1030	0.0036	1.8809
	174.85	0.6011	0.0064	1.8725
1.0D + 1.0W 60 mph Wind at 60° From Face	74.85	0.7172	0.0083	0.1325
	130.00	0.5268	0.0059	0.5152
	142.11	0.4082	0.0042	0.6145
	150.00	0.3193	0.0031	0.6869
	159.69	0.2037	0.0017	0.7068
	174.85	0.0171	0.0020	0.7007
1.0D + 1.0W 60 mph Wind at 90° From Face	74.85	0.8482	0.0512	0.1603
	130.00	0.6105	0.0372	0.6202
	142.11	0.4680	0.0312	0.7332
	150.00	0.3624	0.0274	0.8062
	159.69	0.2260	0.0247	0.8328
	174.85	0.0132	0.0227	0.8254

1.0D + 1.0W 60 mph Wind at Normal To Face	74.85	0.9690	-0.0013	0.1887
	130.00	0.6893	0.0002	0.7221
	142.11	0.5249	0.0004	0.8408
	150.00	0.4041	0.0003	0.9222
	159.69	0.2485	0.0006	0.9418
	174.85	0.0018	0.0014	0.9394
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	74.85	0.5655	0.0119	0.0665
	130.00	0.4233	0.0088	0.3718
	142.11	0.3364	0.0068	0.4556
	150.00	0.2704	0.0056	0.5180
	159.69	0.1831	0.0044	0.5371
	174.85	0.0415	0.0040	0.5315
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	74.85	0.6703	0.0632	0.0800
	130.00	0.4805	0.0529	0.4654
	142.11	0.3730	0.0482	0.5591
	150.00	0.2924	0.0454	0.6217
	159.69	0.1878	0.0435	0.6475
	174.85	0.0326	0.0420	0.6416
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	74.85	0.7626	-0.0022	0.0899
	130.00	0.5346	-0.0002	0.5449
	142.11	0.4089	-0.0001	0.6473
	150.00	0.3158	-0.0002	0.7116
	159.69	0.1948	-0.0009	0.7356
	174.85	0.0013	-0.0015	0.7346
1.2D + 1.6W 105 mph Wind at 60° From Face	74.85	1.2147	0.0327	0.1605
	130.00	1.1282	0.0213	0.5556
	142.11	0.9750	0.0162	0.8886
	150.00	0.8381	0.0125	1.1166
	159.69	0.6463	0.0075	1.2209
	174.85	0.3230	0.0123	1.2030
1.2D + 1.6W 105 mph Wind at 90° From Face	74.85	2.1003	0.1524	0.3982
	130.00	1.7891	0.1375	1.1465
	142.11	1.5132	0.1351	1.5008
	150.00	1.2919	0.1325	1.7425
	159.69	0.9965	0.1350	1.8474
	174.85	0.5138	0.1341	1.8157
1.2D + 1.6W 105 mph Wind at Normal To Face	74.85	2.2403	-0.0009	0.4253
	130.00	1.9351	0.0001	1.1666
	142.11	1.6483	0.0008	1.5538
	150.00	1.4178	0.0001	1.8144
	159.69	1.1097	0.0036	1.8893
	174.85	0.6056	0.0064	1.8810

Guyed Tower Base Design

			Date 1/9/2019
Customer Name:	SBA Communications Corp	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	190
Site Nmber:	CT10016-A-SBA	**Engineer Name:**	U. Atluri
Engr. Number:	67221	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Guyed Tower

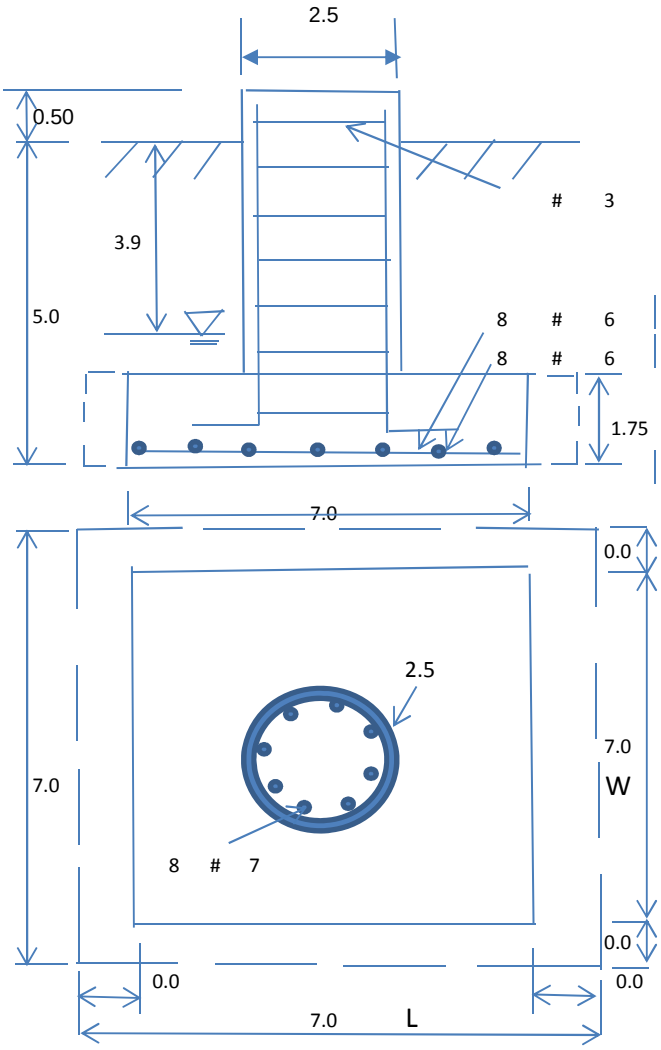
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	156.6	Shear Force (Kips):	6.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	2.5	Depth of Base BG (ft.):	5.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	1.75
Length of Pad (ft.):	7	Width of Pad (ft.):	7
Final Length of pad (ft)	7.0	Final width of pad (ft):	7.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	36	
Vertical Rebar Size #:	7	Tie / Stirrup Size #:	3	
Qty. of Vertical Rebars:	8	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	6	
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):	8	Qty. of Rebar in Pad (W):	8	

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	52.6	Pcf		
Water Table B.G.S. (ft):	3.9	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	30
					Angle from Bottm of Pad:	25

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.6

Total Dry Soil Volume (cu. Ft.):	143.30	Total Dry Soil Weight (Kips):	16.48
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	16.48	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	50.26	Total Dry Concrete Weight (Kips):	7.54
Total Buoyant Concrete Volume (cu. Ft.):	53.90	Total Buoyant Concrete Weight (Kips):	4.72
Total Effective Concrete Weight (Kips):	12.26	Total Vertical Load on Base (Kips):	185.39

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	4011.3	<	Allowable Factored Soil Bearing (psf):	18000	0.22	OK!
Calculated Foundation Allowable Axail Capacity (Kips):	882.0	>	Design Factored Axial Load (Kips):	176	0.20	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:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.60		Tie / Stirrup Area (sq. in./each):	0.11		
Calculated Moment Capacity (Mn,Kips-Ft):	248.7	>	Design Factored Moment (Mu, Kips-Ft	22.7	0.09	OK!
Calculated Shear Capacity (Kips):	89.8	>	Design Factored Shear (Kips):	6.0	0.07	OK!
Calculated Tension Capacity (Tn, Kips):	259.2	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	930.9	>	Design Factored Axial Load (Pu Kips):	156.6	0.17	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.26	OK!				
Pier Reinforcement Ratio:	0.007					
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Dir. Kips);	121.6	>	One-Way Factored Shear (L-Dir Kips):	17.9	0.15	OK!
One-Way Design Shear Capacity (W-Dir. Kips):	121.6	>	One-Way Factored Shear (W-Dir Kips)	17.9	0.15	OK!
Two-Way Design Shear Capacity (Kips):	433.3	>	Two-Way Factored Shear (Kips):	117.2	0.27	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0024	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0024		OK!
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	271.4	>	Moment at Bottom (L-Direct. K-Ft):	58.1	0.21	OK!
Lower Steel Pad Moment Capacity (W-Dir. Kips-ft):	271.4	>	Moment at Bottom (W-Dir. Kips-Ft):	58.1	0.21	OK!

Guy Anchor Analysis and Design

			Date 43474
Customer Name:	SBA Communications Corp	**EIA/TIA Standard:**	EIA-222-G
Site Name:	0	**Structure Height (Ft.):**	190
Site Nmber:	CT10016-A-SBA	**Engineer Name:**	U. Atluri
Engr. Number:	67221	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations **Number of Anchors:** 1 Set

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	52.6	Pcf	Cohesion of Soils (psf):	
Water Table B.G.S. (ft):	3.9	Unit Weight of Water:	62.4	pcf	Internal Angle of Friction (°)	34
Ultimate lateral Pressure (psf):		Ultimate Skin Friction:	200	Psf	Coefficient of Shear Friction:	0.40
Conical Failure Angle from Top:	30	Failure Angle from Bottm	20			

Material Properties:

Concrete Strength (psi):	4000	Unit Weight of Concrete:	150.0	psf	Horizontal Rebar Yield (psi):	60000
Shear Strength Reduction Factor:	0.75				Flexure Strength Reduction Factor:	0.9

A. Inner Anchors:

Radius (ft.): 150

1. Design Reactions (Factored):

Uplift (Kips:)	40.5	Shear (Kips)	47.3	Angle of force resultant (Ø):	40.6

2. Foundation Geometries:

Block Base Depth B.G.S. (ft):	12.0	Block with/without toe?	No		Water Table below grade (ft):	3.90
Length of Anchor Block (L, ft.):	10.0	Width of Anchor Block:	3.0	ft.	Thickness of Anchor Block (ft.):	3.0
Concrete Block @ top of Anchor?	No					

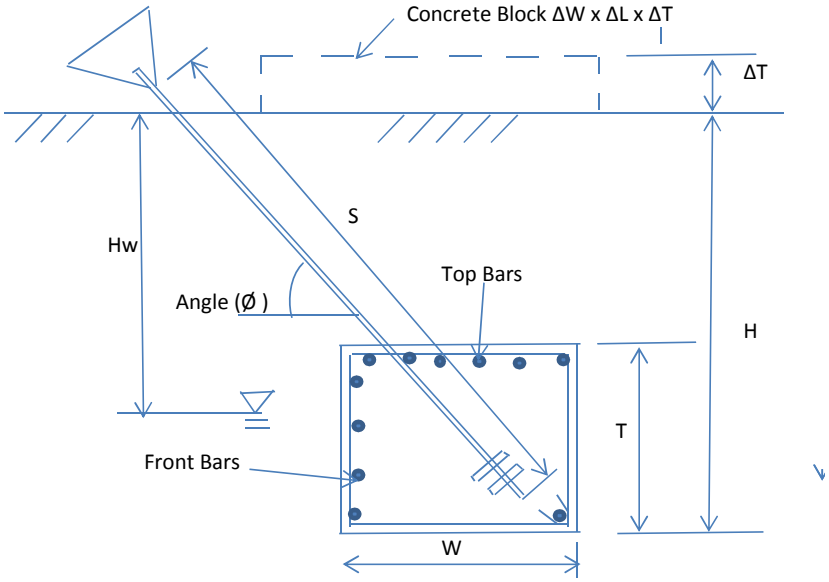
(1). Inner Anchors: *Radius (ft.):* 150

H (ft.):	12.0	*Hw(ft.):*	3.9
L (ft.):	10.0	*W (ft.):*	3.0
T (ft.):	3.0	*Angle (Ø):*	40.6
S (ft.):	19.22		

Top bars: 4 # 7

Front bars: 4 # 7

Concrete Volume (Cu. Yd.)/Each: 3.33



3. Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	662.25	Total Dry Soil Weight (Kips):	68.26
Total Buoyant Soil Volume (cu. Ft.):	510.38	Total Buoyant Soil Weight (Kips):	26.85
Total Effective Soil Weight (Kips):	96.03	Weight of the Concrete Block at Top (Kips):	0.00
Total Dry Concrete Volume (cu. Ft.):	0.00	Total Dry Concrete Weight (Kip):	0.00
Total Buoyant Concrete Volume (cu. Ft.):	90.00	Total Buoyant Concrete Weight (Kips):	7.88
Total Effective Concrete Weight (Kips):	7.88	Weight Reduction Factor:	0.9
Uplift Strength Reduction Factor on Soil:	0.75	Shear Strength Reduction Factor on Soil:	0.75

4. Check Soil and Foundation Capacities:

Nominal Factored Uplift Resistance:	84.98	Kips >	Design Uplift Force (Kips):	40.5	OK!
Ultimate Shear Friction Resistance at base:	8.99	Kips	Ultimate Resistance Pressure:	2814.4	Psf
Factored Shear Resistance:	72.76	Kips >	Design Shear Force (Kips):	47.3	OK!

5. Design Concrete Block:

Rebar Size (#):	7	Wind Load Factor on Concrete Design:	1.00	
Qty. of the Rebar at top of the block:	4	Qty. of the Rebar in the front of the block:	4	
Area of Single Rebar (sq. in.):	0.60	Factor for concrete compression zone:	0.85	
One Way Shear due to Shear Force (Kips):	23.7	One Way Shear Capacity for shear (kips):	109.3	OK!
One Way Shear due to Uplift (Kips):	20.3	One Way Shear Capacity for uplift (kips):	109.3	OK!
Moment due to Shear Load (Kips-ft):	59.2	Flexural Capacity for Shear Load (Kips-ft):	345.4	OK!
Moment due to uplift Load (Kips-ft):	50.6	Flexural Capacity for uplift Load (Kips-ft):	345.4	OK!
Ratio of Design Moment/Moment capacity:	0.17			
Max. Ratio of Shear Force/Shear capacity:	0.22	OK!		

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

MONTVILLE/I-395 X78_1

SITE ID: CT11146F

71 MOXLEY HILL RD

MONTVILLE, CT 06382

T-MOBILE RF CONFIGURATION

94B_1QP SIMO

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE 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.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

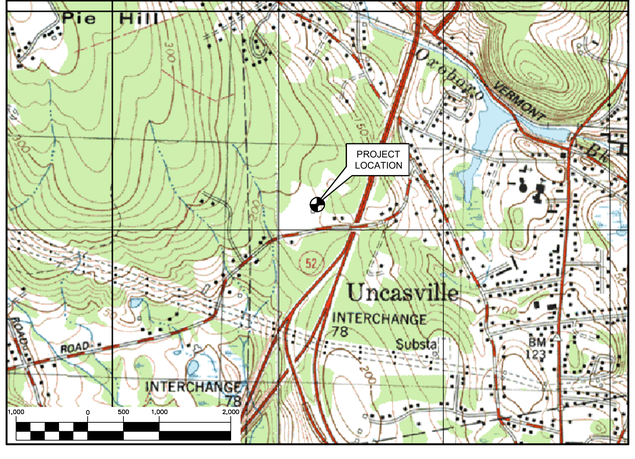
SITE DIRECTIONS

FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002 **TO:** 71 MOXLEY HILL RD, MONTVILLE, CT 06382

1.	HEAD SOUTHEAST ON W NEWBERRY ROD TOWARD GRIFFIN RD S.	0.10 MI.
2.	TURN LEFT ONTO GRIFFIN RD S.	0.60 MI.
3.	TURN RIGHT ONTO DAY HILL RD.	3.60 MI.
4.	USE THE RIGHT LANE TO MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD.	0.40 MI.
5.	MERGE ONTO I-91 S.	7.30 MI.
6.	USE THE LEFT LANE TO TAKE EXIT 30 FOR I-84 E TOWARD CT-2/E HARTFORD/NEW LONDON.	0.20 MI.
7.	MERGE ONTO I-84 E.	0.50 MI.
8.	TAKE EXIT 55 FOR CT-2 E TOWARD NORWICH/NEW LONDON/I-84 E.	0.40 MI.
9.	CONTINUE ONTO CT-2 E.	23.40 MI.
10.	KEEP LEFT AT THE FORK TO STAY ON CT-2 E, FOLLOW SIGNS FOR 2 E.	12.50 MI.
11.	TAKE EXIT 28S FOR I-395 S/CT-2A S TOWARD NEW HAVEN.	0.30 MI.
12.	MERGE ONTO CT-2A E/I-395 S.	6.80 MI.
13.	TAKE EXIT 6 FOR CT-163 TOWARD UNCASVILLE/MONTVILLE.	0.30 MI.
14.	TURN RIGHT ONTO CT-163 N.	0.30 MI.
15.	TURN LEFT ONTO PEQUOT RD.	0.60 MI.
16.	SLIGHT LEFT ONTO MAPLE AVE.	0.20 MI.
17.	TURN RIGHT ONTO JEROME RD.	0.10 MI.
18.	TURN RIGHT ONTO MOXLEY RD.	0.40 MI.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. REMOVE AND REPLACE EXISTING POSITION ONE (1) ANTENNA, TYPICAL OF (3)/(1) PER SECTOR, WITH (3) NEW RFS ANTENNAS.

PROJECT INFORMATION

SITE NAME:	MONTVILLE/I-395 X78_1
SITE ID:	CT11146F
SITE ADDRESS:	71 MOXLEY HILL RD MONTVILLE, CT 06382
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592-8291
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-26'-06.81" N LONGITUDE: 72°-07'-24.05" W GROUND ELEVATION: 195'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	DESIGN BASIS AND SITE NOTES	0
C-1	SITE LOCATION PLAN	0
C-2	PLAN, ELEVATION AND ANTENNA MOUNTING CONFIGURATION	0
E-1	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	03/06/19	TJL	CAG	ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT — CHRISTOPHER A. GOULET — LICENSED PROFESSIONAL ENGINEER

T-Mobile — Transcend Wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
MONTVILLE/I-395 X78_1
SITE ID: CT11146F
71 MOXLEY HILL RD
MONTVILLE, CT 06382

DATE: 09/14/18
SCALE: AS NOTED
JOB NO. 18127.03

TITLE SHEET

T-1

Sheet No. 1 of 5

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 105 MPH (Vasd) (EXPOSURE C/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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MONTVILLE, CT 06382

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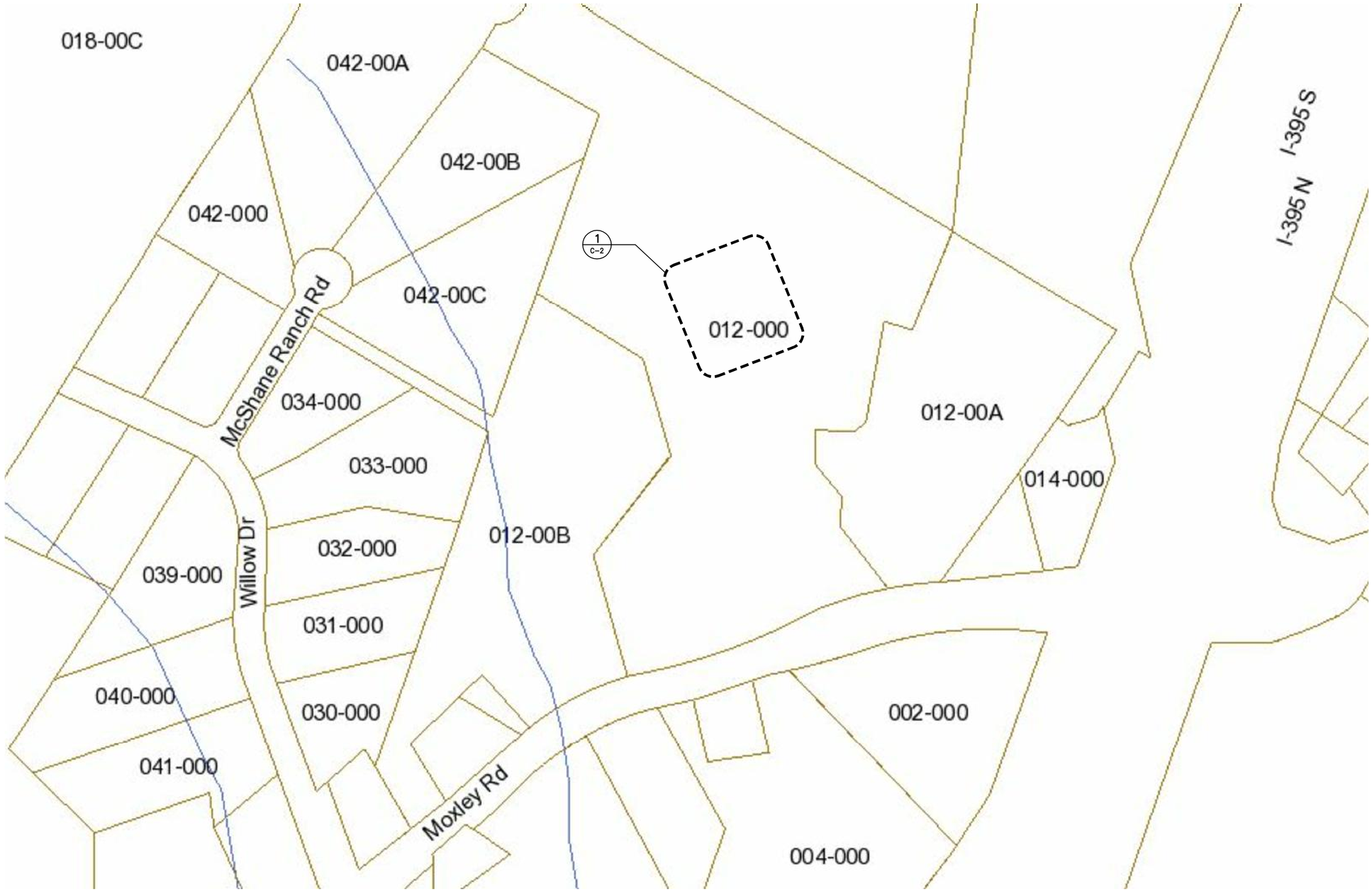
DESIGN BASIS AND SITE NOTES

N-1

Sheet No. 2 of 5



1 / C-1 SITE LOCATION PLAN
SCALE: 1" = 50'

APPROX. NORTH

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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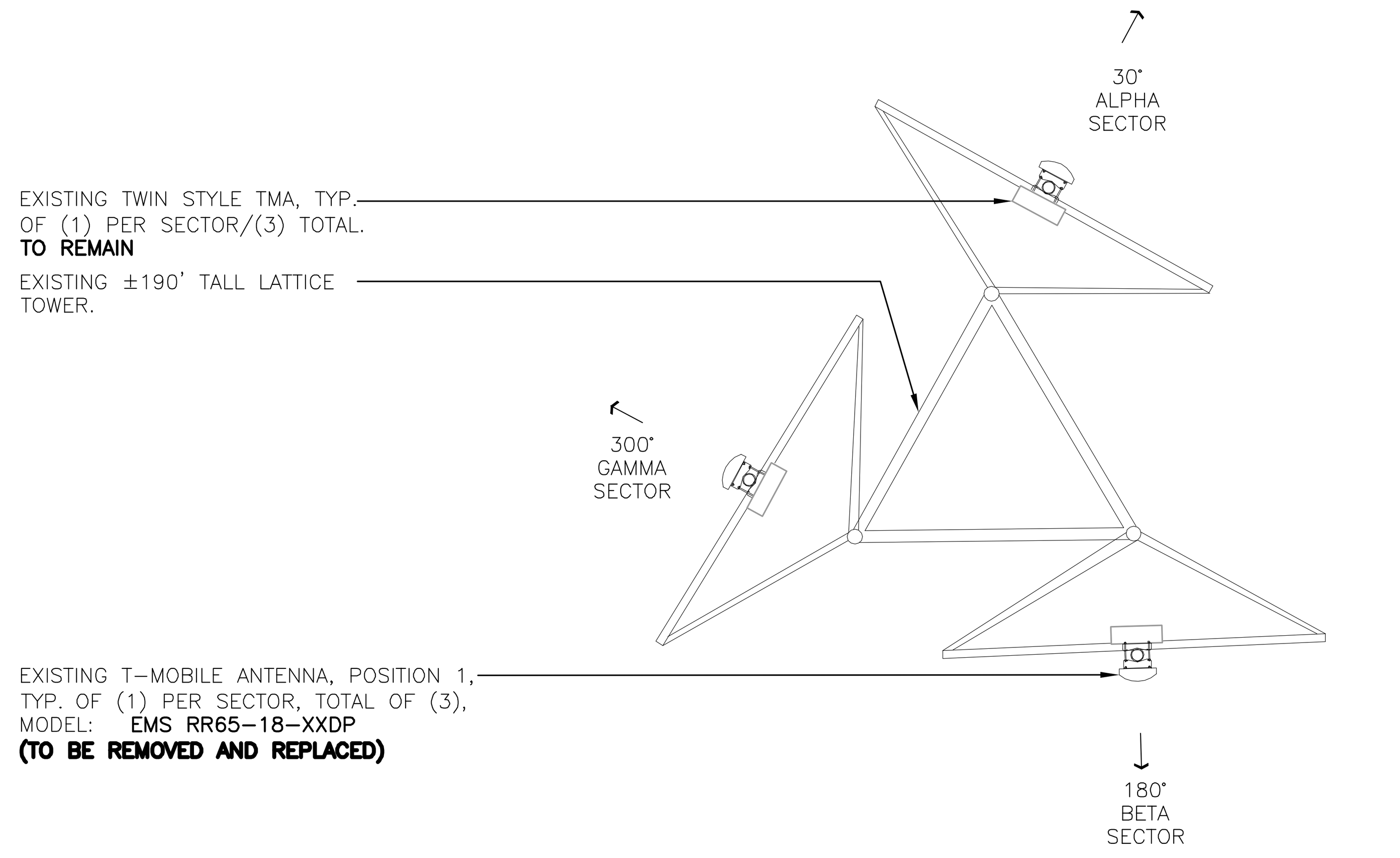
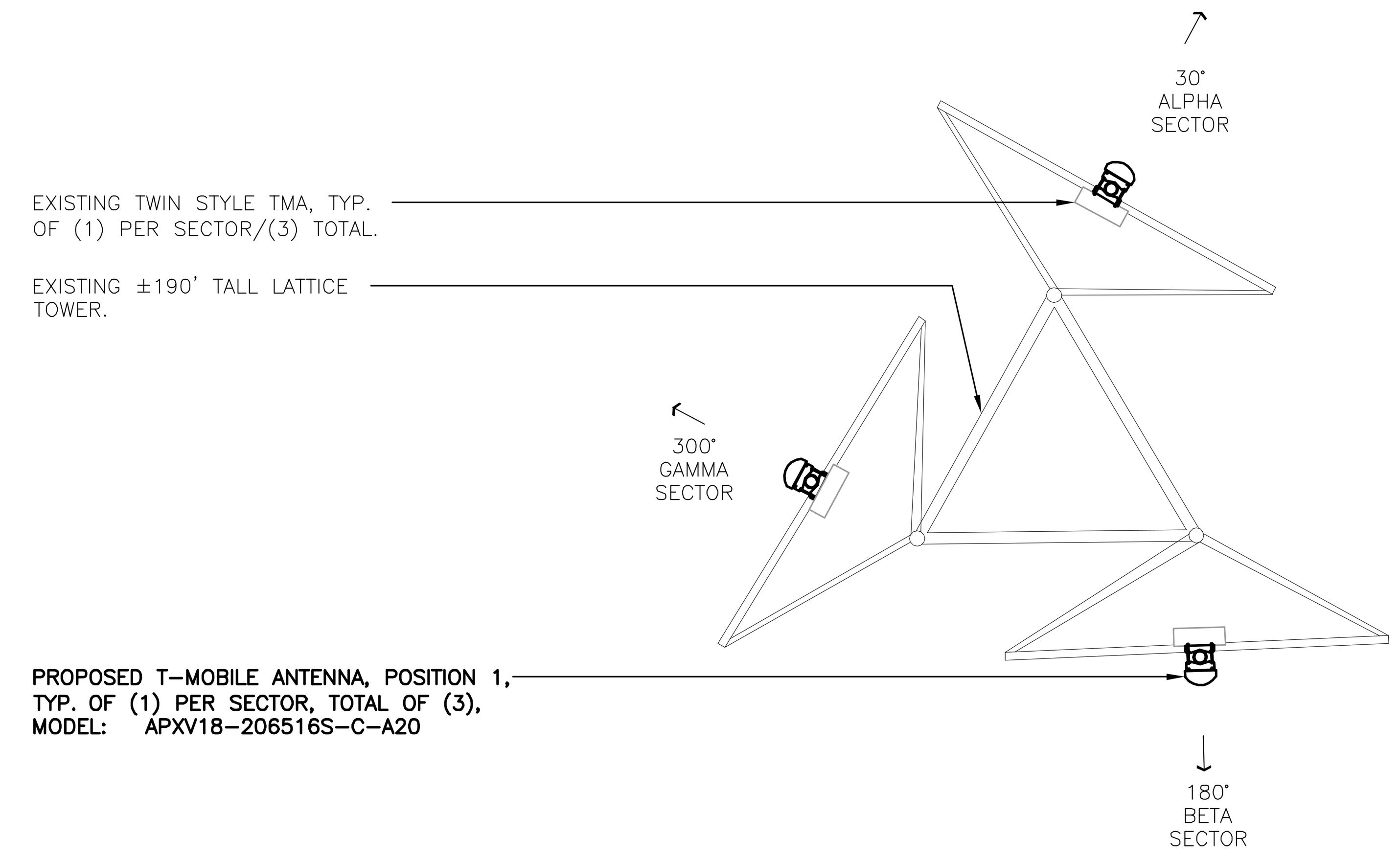
SITE LOCATION PLAN

C-1

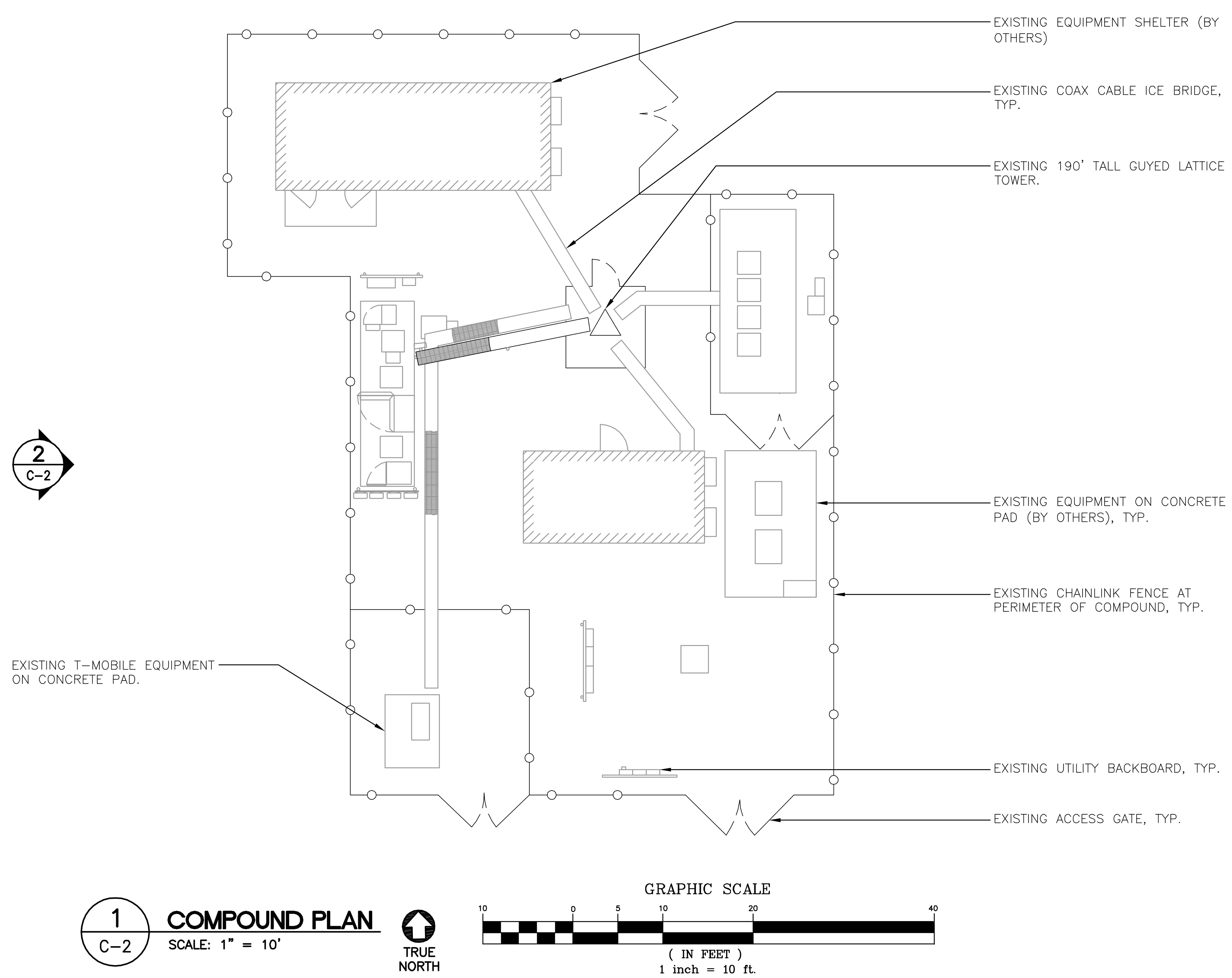
Sheet No. 3 of 5



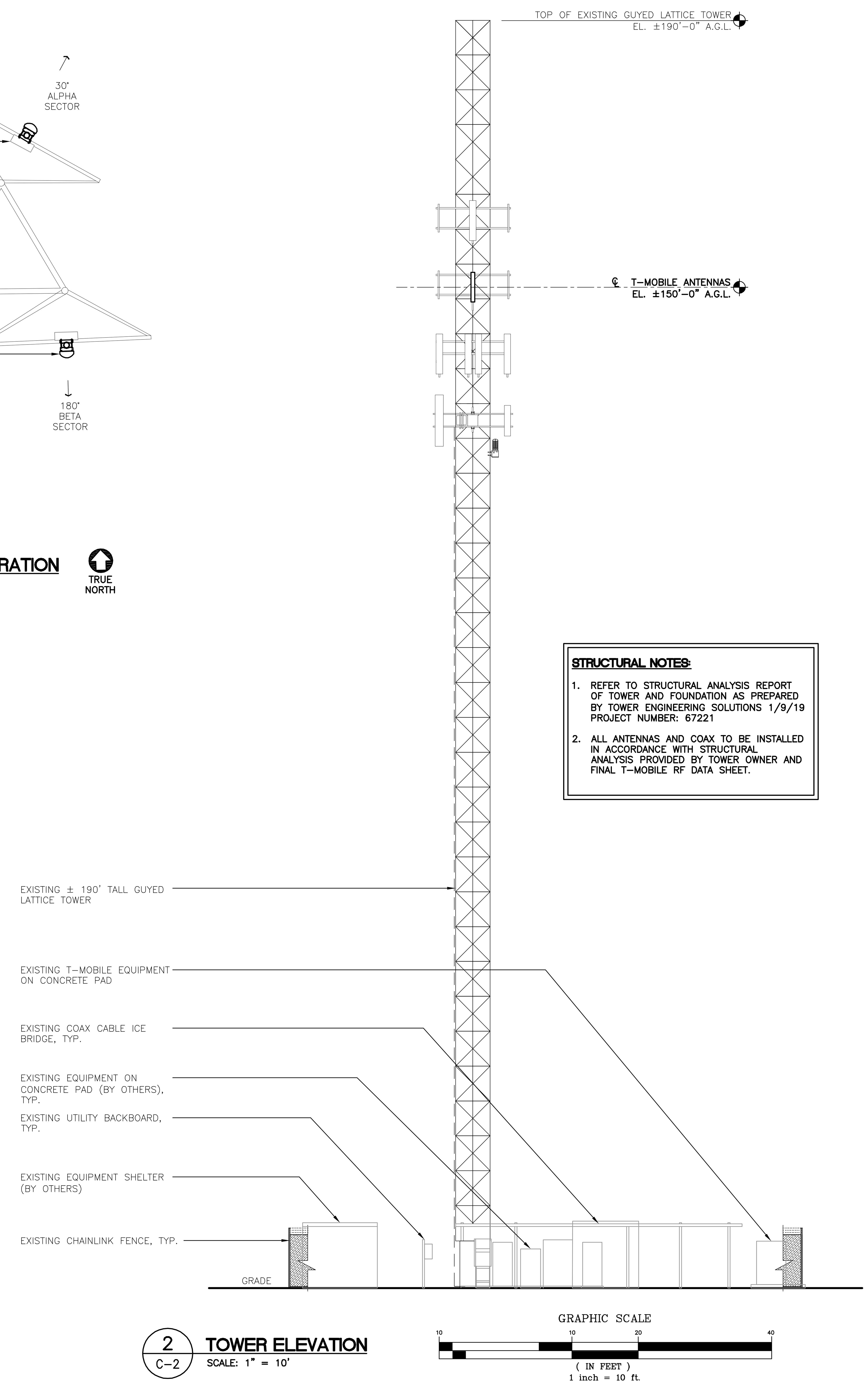
3 C-2 **EXISTING ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1'
TRUE NORTH



4 C-2 **PROPOSED ANTENNA MOUNTING CONFIGURATION**
SCALE: 3/8" = 1'
TRUE NORTH



1 C-2 **COMPOUND PLAN**
SCALE: 1" = 10'
TRUE NORTH



STRUCTURAL NOTES:

1. REFER TO STRUCTURAL ANALYSIS REPORT OF TOWER AND FOUNDATION AS PREPARED BY TOWER ENGINEERING SOLUTIONS 1/9/19 PROJECT NUMBER: 67221
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY TOWER OWNER AND FINAL T-MOBILE RF DATA SHEET.

2 C-2 **TOWER ELEVATION**
SCALE: 1" = 10'

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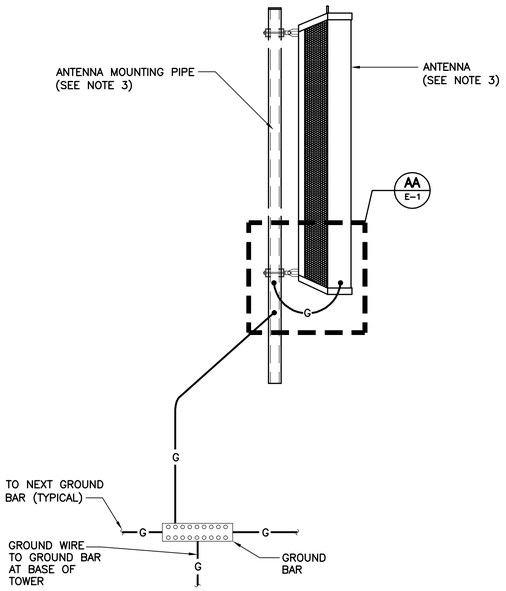
PLAN, ELEVATION AND ANTENNA MOUNTING CONFIGURATION

C-2

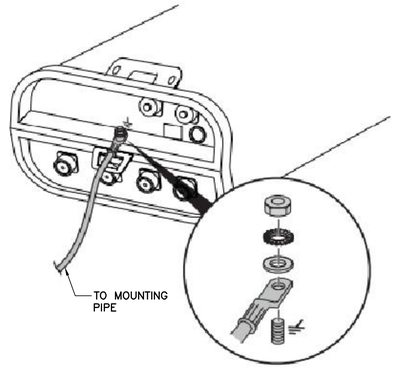
Sheet No. 4 of 5



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 / E-1 **TYPICAL ANTENNA GROUNDING DETAIL**
SCALE: NONE



AA / E-1 **TYPICAL ANTENNA GROUNDING DETAIL**
SCALE: NONE

FRONT

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: APXV18-206516S-C-A20	53.1"L x 6.9"W x 3.15"D	18.7 LBS.

2 / E-1 **PROPOSED ANTENNA DETAIL**
SCALE: NONE

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TYPICAL ELECTRICAL DETAILS

E-1

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