Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

May 3, 2019

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

Notice of Exempt Modification
1590 Newfield Ave., Stamford, CT 06905
Latitude- 41.11275
Longitude- -73.538335278

Dear Ms. Bachman,

T-Mobile currently maintains (3) existing antennas at the 160' level of the existing 152' monopole at 1590 Newfield Ave. in Stamford, Connecticut. The tower is owned by American Tower Corporation. The property is owned by Cellco Partnership. T-Mobile now intends to remove (3) of the existing antennas and add (3) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 160' level of the tower. T-Mobile also intends to add (3) remote radio heads and add (1) hybrid cable. At the 132' level of the tower, T-Mobile intends to replace the inactive (12) existing antennas and associated equipment, and add (6) new antennas, (3) tower-mounted amplifiers, and (2) hybrid cables. T-Mobile has approval from the tower owner to replace the equipment located at this level of the tower.

This facility was originally approved by the Connecticut Siting Council in Docket No. 45 on September 14, 1984. The 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 David Martin, Mayor of the City of Stamford, Ralph Blessing, Land Use Bureau Chief of the City of Stamford, as well as the tower owner and property 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: David Martin- as elected official
Ralph Blessing- as zoning official
American Tower- as tower owner
Cellco Partnership- as property owner

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Friday, May 3, 2019 8:52 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11373A EO

You have a package coming.

Scheduled Delivery Date: Monday, 05/06/2019

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:	1ZV257424293908944
Ship To:	David Martin City of Stamford 888 Washington Boulevard 10th Floor STAMFORD, CT 069012902 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	05/06/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11373A EO

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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Friday, May 3, 2019 8:55 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11373A CSC ZO

You have a package coming.

Scheduled Delivery Date: Monday, 05/06/2019

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:	1ZV257424292490950
Ship To:	Ralph Blessing City of Stamford 888 Washington Boulevard 7th Floor STAMFORD, CT 069012902 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	05/06/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11373A CSC ZO

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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Friday, May 3, 2019 8:57 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11373A CSC PO

You have a package coming.

Scheduled Delivery Date: Monday, 05/06/2019

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:	1ZV257424293876961
Ship To:	Cellco Partnership 1 Verizon Way BASKING RIDGE, NJ 079201025 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	05/06/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11373A CSC PO

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Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Friday, May 3, 2019 8:58 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11373A CSC TO

You have a package coming.

Scheduled Delivery Date: Monday, 05/06/2019

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:	1ZV257424294666972
Ship To:	Contacts Management American Tower Corporation 10 Presidential Way WOBURN, MA 018011053 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	05/06/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11373A CSC TO

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Google Maps

41°06'45.9"N 73°32'18.0"W

CT11373A Map

Map data ©2018 Google 100 ft

41°06'45.9"N 73°32'18.0"W

41.112750, -73.538335

133 Eastover Rd, Stamford, CT 06905

4F76+4M Stamford, Connecticut

EASTOVER ROAD

Location	EASTOVER ROAD	**Mblu**	004/ 2955/ / /
Acct#	004-2955	**Owner**	CELLCO PARTNERSHIP
Assessment	$703,460	**Appraisal**	$1,004,930
PID	183864	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$412,320	$592,610	$1,004,930

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$288,630	$414,830	$703,460

Owner of Record

Owner	CELLCO PARTNERSHIP	**Sale Price**	$594,710
Co-Owner	VERIZON WIRELESS	**Book & Page**	4954/ 250
Address	P.O. BOX 2549 ADDISON, TX 75001	**Sale Date**	03/30/1998
		Instrument	00

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
CELLCO PARTNERSHIP	$594,710	4954/ 250	00	03/30/1998
METRO MOBILE CTS OF FAIRFIELD	$0	3571/ 172	00	05/23/1990

Building Information

Building 1 : Section 1

Year Built: 1994
Living Area: 415

Building Attributes	
Field	**Description**
STYLE	Telephone Bldg
Stories:	1
Occupancy	1

Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Radiant
AC Type	None
Bldg Use	Industrial MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300C
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	None
Ceiling/Wall	Ceil & Mn Wall
Rooms/Prtns	Light
Wall Height	9
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\12\83/3

Building Layout

BAS[415]

(http://images.vgsi.com/photos/StamfordCTPhotos//Sketches/18

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	415	415
		415	415

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	200
Description	Commercial MDL-94
Zone	RA1

Land Line Valuation

Size (Acres)	3.46
Depth	
Assessed Value	$414,830

Neighborhood 0100
Alt Land Appr No
Category

Appraised Value $592,610

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
AP1	Fence Chn Lk			1596 L.F.	$13,770	1
CEL1	Cell Tower			2 SITES	$370,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$412,320	$592,610	$1,004,930
2016	$394,720	$538,730	$933,450
2015	$394,720	$538,730	$933,450

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$288,630	$414,830	$703,460
2016	$276,310	$377,110	$653,420
2015	$276,310	$377,110	$653,420

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: CT11373A

Stamford/MP Exit 35-36
5 High Ridge Park Road
Stamford, CT 06905

April 30, 2019

EBI Project Number: 6219001367

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	15.51 %

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

EBI Consulting
environmental | engineering | due diligence

April 30, 2019

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

Emissions Analysis for Site: **CT11373A – Stamford/MP Exit 35-36**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **5 High Ridge Park Road, Stamford, 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 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 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 **5 High Ridge Park Road, Stamford, 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 (AWS Band – 2100 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) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

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

8) For the following calculations the sample point was the top of a 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.

9) The antennas used in this modeling are the **Ericsson AIR32 B2A / B66Aa** & **Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz 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.

10) The antenna mounting height centerlines of the proposed antennas are **132 feet & 160 feet** above ground level (AGL).

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

12) 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:	Ericsson AIR32 B2A / B66Aa	Make / Model:	Ericsson AIR32 B2A / B66Aa	Make / Model:	Ericsson AIR32 B2A / B66Aa
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	**1.06**	Antenna B1 MPE%	**1.06**	Antenna C1 MPE%	**1.06**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	132 feet	Height (AGL):	132 feet	Height (AGL):	132 feet
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	4	Channel Count	4	Channel Count	4
Total TX Power(W):	135	Total TX Power(W):	135	Total TX Power(W):	135
ERP (W):	5,252.11	ERP (W):	5,252.11	ERP (W):	5,252.11
Antenna A2 MPE%	**1.19**	Antenna B2 MPE%	**1.19**	Antenna C2 MPE%	**1.19**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	160 feet	Height (AGL):	160 feet	Height (AGL):	160 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	**0.88**	Antenna B3 MPE%	**0.88**	Antenna C3 MPE%	**0.88**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**3.13 %**
Sensus (CL&P)	**0.12** %
AT&T	**5.53** %
Clearwire	**0.11** %
Nextel	**0.76** %
Sprint	**3.78** %
Verizon Wireless	**2.08** %
Site Total MPE %:	**15.51 %**

T-Mobile Sector A Total:	3.13 %
T-Mobile Sector B Total:	3.13 %
T-Mobile Sector C Total:	3.13 %
Site Total:	15.51 %

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 ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	132	10.57	AWS - 2100 MHz	1000.00	1.06%
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	132	7.05	PCS - 1900 MHz	1000.00	0.71%
T-Mobile PCS - 1900 MHz GSM	1	583.57	132	1.32	PCS - 1900 MHz	1000.00	0.13%
T-Mobile AWS - 2100 MHz UMTS	1	1,556.18	132	3.52	AWS - 2100 MHz	1000.00	0.35%
T-Mobile 600 MHz LTE	2	788.97	160	2.39	600 MHz	400.00	0.60%
T-Mobile 700 MHz LTE	2	432.54	160	1.31	700 MHz	467.00	0.28%
						Total:	**3.13%**

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:	3.13 %
Sector B:	3.13 %
Sector C:	3.13 %
T-Mobile Maximum MPE % (Per Sector):	3.13 %
Site Total:	15.51 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.51%** 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.

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**148 ft Monopole**
ATC Site Name	:	**SMFR - North, CT**
ATC Site Number	:	**302515**
Engineering Number	:	**12598483_C3_03**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**CT11373A**
Carrier Site Number	:	**CT11373A**
Site Location	:	**5 High Ridge Park Road** **Stamford, CT 06905-1403** **41.112800,-73.538400**
County	:	**Fairfield**
Date	:	**March 1, 2019**
Max Usage	:	**72%**
Result	:	**Pass**

Prepared By:
Trevor Ridilla, E.I.
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Mar 1 2019 4:55 PM

cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 148 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Engineered Endeavors Job #5591, dated November 22, 1999
Foundation Drawing	Engineered Endeavors Job #5591, dated November 17, 1999
Geotechnical Report	Dr. Clarence Welti, dated October 25, 2000
Modifications	ATC Project #43868633, dated September 1, 2009 ATC Project #51772939, dated April 11, 2013

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.25, S_1 = 0.10
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
160.0	3	Commscope ATSBT-TOP-MF-4G	Flush	(18) 1 5/8" Coax	T-MOBILE
152.0	1	Raycap DC6-48-60-18-8F (23.5" Height)	Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (2) 3" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F			
	1	Raycap DC6-48-60-0-8F (24" Height)			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 11 (Band 12) (55 lb)			
	3	Ericsson RRUS 32 (50.8 lbs)			
	3	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 32 B66			
	3	Powerwave Allgon 7770.00			
	3	Quintel QS66512-2			
	3	CCI OPA-65R-LCUU-H6			
	3	Kathrein Scala 80010965			
	6	Kaelus DBC0061F1V51-2			
	6	Powerwave Allgon LGP21401			
143.0	6	RFS FD9R6004	Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	2	Antel BXA-70063/6CF __ 2°			
	1	Amphenol Antel BXA-80063-6BF-EDIN-X			
	2	RFS DB-T1-6Z-8AB-0Z			
	4	Alcatel-Lucent RRH2X60-1900			
	1	Antel BXA-80080/6CF			
	4	Commscope SBNHH-1D65B			
	4	Commscope SBNHH-1D45B			
	4	Alcatel-Lucent RRH2x60 700			
	4	Alcatel-Lucent RRH4x45-B66 w/o Solar Shield			
120.0	3	Commscope DT465B-2XR	Low Profile Platform	(4) 1 1/4" Hybriflex Cable	SPRINT NEXTEL
	3	RFS APXVSPP18-C-A20			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	Alcatel-Lucent 4x40W RRH (91 lb)			
	3	Alcatel-Lucent RRH2x50-08			
	3	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter			
105.0	1	Antel BCD-87010 ___ 4°	Side Arm	(1) 7/8" Coax	SENSUS USA INC.
75.0	1	PCTEL GPS-TMG-HR-26N	Side Arm	(2) 1/2" Coax	SPRINT NEXTEL

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
160.0	3	Andrew E15S09P94	-	(18) 1 5/8" Coax	T-MOBILE
	3	RFS ATMAP1412D-1A20			
159.0	3	Andrew SBNHH-1D65B			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
160.0	3	Ericsson Radio 4449 B12,B71	Flush	(2) 1 1/4" (1.25"-31.8mm) Fiber	T-MOBILE
	3	RFS APXVAARR24_43-U-NA20			
132.0	3	Ericsson KRY 112 144/2	Low Profile Platform	(2) 1 1/4" (1.25"-31.8mm) Fiber	
	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)			
	3	Ericsson AIR-32 B2A/B66Aa			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	56%	Pass
Base Plate	54%	Pass
Reinforcement	61%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,232.5	72%
Axial (Kips)	69.9	7%
Shear (Kips)	26.7	68%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
160.0	Ericsson Radio 4449 B12,B71	T-MOBILE	0.000	0.000
148.0	RFS APXVAARR24_43-U-NA20		1.755	1.357
132.0	Ericsson KRY 112 144/2		1.386	1.260
	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)			
	Ericsson AIR-32 B2A/B66Aa			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

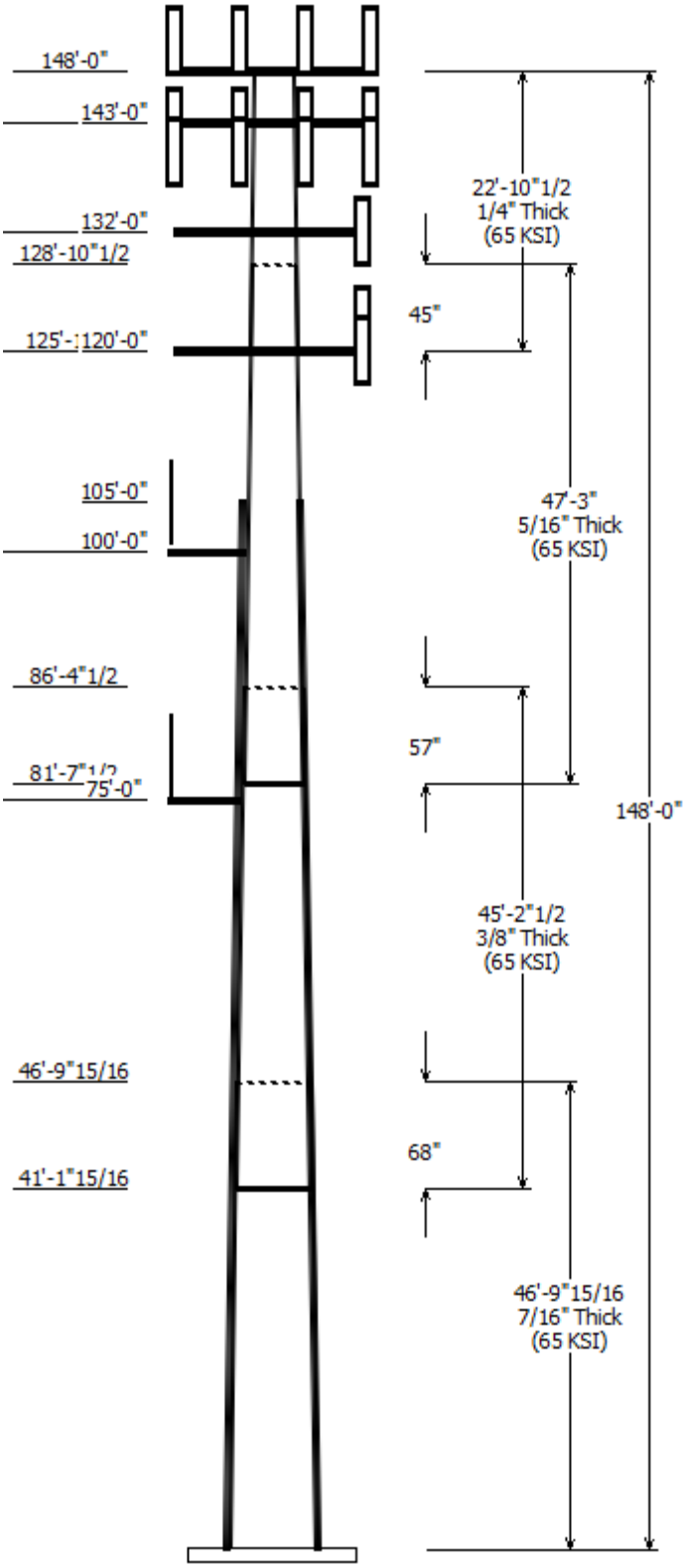
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

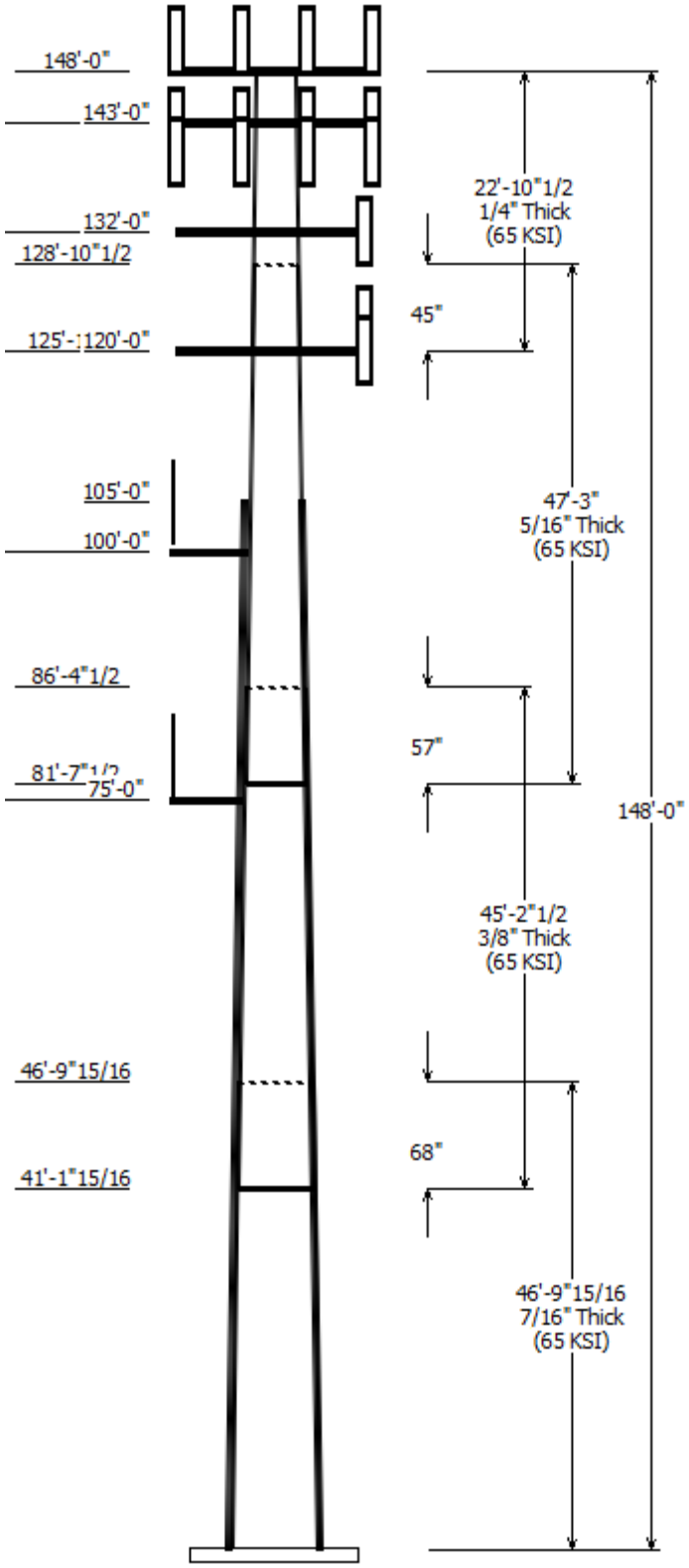
Pole :	302515	Code:	ANSI/TIA-222-G
Location :	SMFR - North, CT		
Description :	148 ft EEI Monopole		
Client :	T-MOBILE	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	148.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.195101 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	46.830	38.86	48.00	0.438		0.000	18 Sides	65
2	45.210	31.89	40.71	0.375	Slip Joint	68.000	18 Sides	65
3	47.250	24.23	33.45	0.313	Slip Joint	57.000	18 Sides	65
4	22.877	21.00	25.46	0.250	Slip Joint	45.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.000	160.000	3	Commscope ATSBT-TOP-MF-
160.000	160.000	3	Ericsson Radio 4449 B12,B71
148.000	152.000	3	Kathrein Scala 80010965
148.000	152.000	3	CCI OPA-65R-LCUU-H6
148.000	152.000	3	Quintel QS66512-2
148.000	152.000	3	Powerwave Allgon 7770.00
148.000	152.000	3	Ericsson RRUS 32 B66
148.000	152.000	3	Ericsson RRUS 32 B2
148.000	152.000	3	Ericsson RRUS 32 (50.8 lbs)
148.000	152.000	3	Ericsson RRUS 11 (Band 12) (55
148.000	152.000	3	Ericsson RRUS 4478 B14
148.000	152.000	1	Raycap DC6-48-60-0-8F (24" Hei
148.000	152.000	1	Raycap DC6-48-60-18-8F
148.000	152.000	1	Raycap DC6-48-60-18-8F (23.5"
148.000	152.000	6	Powerwave Allgon LGP21401
148.000	152.000	6	Kaelus DBC0061F1V51-2
148.000	152.000	3	RFS APXVAARR24_43-U-NA20
148.000	148.000	1	Flat Platform w/ Handrails
148.000	154.000	1	Pipe Mount
143.000	143.000	1	Flat Low Profile Platform
143.000	142.000	4	Commscope SBNHH-1D45B
143.000	142.000	4	Commscope SBNHH-1D65B
143.000	143.000	1	Antel BXA-80080/6CF
143.000	143.000	2	Antel BXA-70063/6CF __ 2°
143.000	142.000	1	Amphenol Antel BXA-80063-
143.000	142.000	2	RFS DB-T1-6Z-8AB-0Z
143.000	142.000	4	Alcatel-Lucent RRH4x45-B66
143.000	142.000	4	Alcatel-Lucent RRH2x60 700
143.000	142.000	4	Alcatel-Lucent RRH2X60-1900
143.000	142.000	6	RFS FD9R6004
132.000	132.000	1	Flat Low Profile Platform
132.000	132.000	3	Ericsson AIR-32 B2A/B66Aa
132.000	132.000	3	Ericsson AIR 21, 1.3M, B2A B4P
132.000	132.000	3	Ericsson KRY 112 144/2
120.000	120.000	1	Flat Low Profile Platform
120.000	120.000	3	Commscope DT465B-2XR
120.000	121.000	3	RFS APXVSPP18-C-A20
120.000	120.000	3	Alcatel-Lucent TD-RRH8x20-25
120.000	120.000	3	Alcatel-Lucent 4x40W RRH (91 l
120.000	120.000	3	Alcatel-Lucent 800 MHz 2X50W
120.000	120.000	3	Alcatel-Lucent RRH2x50-08
105.000	105.000	1	Antel BCD-87010 ___ 4°
100.000	100.000	1	Flat Side Arm
75.000	75.000	1	Round Side Arm



75.000	76.000	1	PCTEL GPS-TMG-HR-26N

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
10.000	75.000	1/2" Coax	Yes
10.000	76.000	1/2" Coax	Yes
10.000	105.0	7/8" Coax	Yes
10.000	143.0	1 5/8" Hybriflex	Yes
10.000	132.0	1 1/4" (1.25"-	Yes
10.000	160.0	1 5/8" Coax	Yes
0.000	143.0	1 5/8" Coax	No
0.000	151.0	3" conduit	No
0.000	152.0	0.39" (10mm)	No
0.000	152.0	0.78" (19.7mm) 8	No
0.000	152.0	1 1/4" Coax	No
0.000	152.0	3" conduit	No
0.000	160.0	1 1/4" (1.25"-	No
0.000	113.3	DYWIDAG	Yes
0.000	120.0	1 1/4" Hybriflex	No

Load Cases

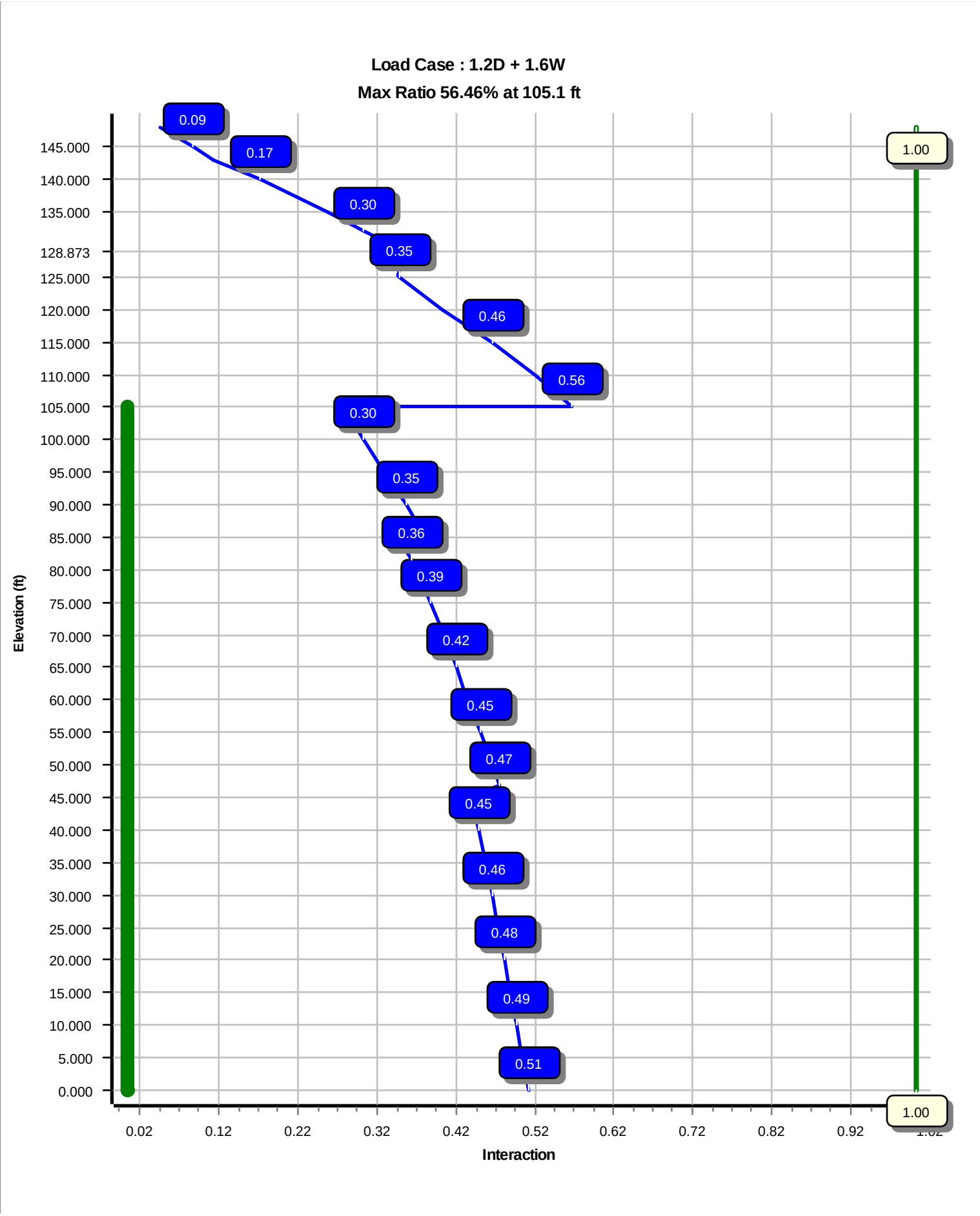
1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3232.54	26.68	69.94
0.9D + 1.6W	3058.50	25.26	52.45
1.2D + 1.0Di + 1.0Wi	942.30	7.48	120.50
(1.2 + 0.2Sds) * DL + E ELFM	370.64	2.98	70.27
(1.2 + 0.2Sds) * DL + E EMAM	652.35	5.26	70.26
(0.9 - 0.2Sds) * DL + E ELFM	363.62	2.98	47.55
(0.9 - 0.2Sds) * DL + E EMAM	639.35	5.25	47.55
1.0D + 1.0W	800.48	6.57	58.32

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 56.46% at 105.1 ft
0.09
0.17
0.30
0.35
0.46
0.56
0.30
0.35
0.36
0.39
0.42
0.45
0.47
0.45
0.46
0.48
0.49
0.51
1.00
1.00
145.000
140.000
135.000
128.873
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	302515	Code: ANSI/TIA-222-G	
Site Name:	SMFR - North, CT	Engineering Number:12598483_C3_03	3/1/2019 9:27:38 AM
Customer:	T-MOBILE		

Analysis Parameters

Location :	FAIRFIELD County, CT	Height (ft) :	148
Code :	ANSI/TIA-222-G	Base Diameter (in) :	48.00
Shape :	18 Sides	Top Diameter (in) :	21.00
Pole Type :	Taper	Taper (in/ft) :	0.195
Pole Manfacturer :	EEI	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.58				
T_L (sec):	6	p:	1.3	C_s:	0.040
S_s:	0.246	S_1:	0.096	C_s Max:	0.040
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.262	S_{d1}:	0.154		

Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number:12598483_C3_03 3/1/2019 9:27:38 AM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	46.830	0.4375	65		0.00	9,513	48.00	0.00	66.04	18876.3	17.93	109.71	38.86	46.83	53.36	9953.9	14.25	88.83	0.195101
2-18	45.210	0.3750	65	Slip	68.00	6,579	40.71	41.16	48.02	9874.4	17.74	108.58	31.89	86.37	37.52	4710.6	13.59	85.06	0.195101
3-18	47.250	0.3125	65	Slip	57.00	4,549	33.45	81.62	32.87	4560.0	17.46	107.04	24.23	128.87	23.72	1714.9	12.26	77.54	0.195101
4-18	22.877	0.2500	65	Slip	45.00	1,420	25.46	125.12	20.01	1606.8	16.55	101.85	21.00	148.00	16.46	895.7	13.40	84.00	0.195101
				Shaft Weight		22,062													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
160.00	Commscope ATSBT-TOP-MF-4G	3	1.00	0.000	1.80	0.170	0.50	7.63	0.464	0.50
160.00	Ericsson Radio 4449 B12,B71	3	1.00	0.000	74.00	1.640	0.50	129.97	2.484	0.50
148.00	Kaelus DBC0061F1V51-2	6	0.75	4.000	25.50	0.430	0.50	43.97	0.876	0.50
148.00	Powerwave Allgon LGP21401	6	0.75	4.000	14.10	1.100	0.50	39.04	1.811	0.50
148.00	Raycap DC6-48-60-18-8F (23.5"	1	0.75	4.000	20.00	1.260	1.00	72.64	1.918	1.00
148.00	Raycap DC6-48-60-18-8F	1	0.75	4.000	20.00	1.260	1.00	72.64	1.918	1.00
148.00	Raycap DC6-48-60-0-8F (24"	1	0.75	4.000	32.80	1.470	1.00	139.87	2.168	1.00
148.00	Ericsson RRUS 4478 B14	3	0.75	4.000	59.90	1.840	0.50	115.17	2.736	0.50
148.00	Ericsson RRUS 11 (Band 12) (55	3	0.75	4.000	55.00	2.520	0.67	122.26	3.559	0.67
148.00	Ericsson RRUS 32 (50.8 lbs)	3	0.75	4.000	50.80	2.690	0.67	122.30	3.844	0.67
148.00	Ericsson RRUS 32 B2	3	0.75	4.000	53.00	2.740	0.67	126.53	3.908	0.67
148.00	Ericsson RRUS 32 B66	3	0.75	4.000	53.00	2.740	0.67	126.53	3.908	0.67
148.00	Powerwave Allgon 7770.00	3	0.75	4.000	35.00	5.510	0.65	169.78	6.562	0.65
148.00	Pipe Mount	1	0.75	6.000	200.00	6.400	1.00	339.29	7.291	1.00
148.00	Quintel QS66512-2	3	0.75	4.000	111.00	8.130	0.74	310.21	10.916	0.74
148.00	CCI OPA-65R-LCUU-H6	3	0.75	4.000	73.00	9.660	0.66	276.46	12.432	0.66
148.00	Kathrein Scala 80010965	3	0.75	4.000	97.60	13.810	0.62	364.12	16.859	0.62
148.00	RFS APXVAARR24_43-U-NA20	3	1.00	4.000	127.90	20.240	0.63	520.36	23.947	0.63
148.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,420.74	63.366	1.00
143.00	RFS FD9R6004	6	0.80	-1.000	3.10	0.310	0.50	11.08	0.690	0.50
143.00	Alcatel-Lucent RRH2X60-1900	4	0.80	-1.000	43.00	1.880	0.50	98.12	2.816	0.50
143.00	Alcatel-Lucent RRH2x60 700	4	0.80	-1.000	56.70	2.150	0.67	124.50	3.148	0.67
143.00	Alcatel-Lucent RRH4x45-B66 w/o	4	0.80	-1.000	63.30	2.470	0.67	126.56	3.579	0.67
143.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	-1.000	44.00	4.800	0.72	169.39	6.216	0.72
143.00	Amphenol Antel BXA-80063-6BF-	1	0.80	-1.000	19.20	7.260	1.00	162.85	9.910	1.00
143.00	Antel BXA-70063/6CF __ 2°	2	0.80	0.000	17.00	7.570	0.73	157.89	10.318	0.73
143.00	Antel BXA-80080/6CF	1	0.80	0.000	22.00	7.780	1.00	166.85	10.593	1.00
143.00	Commscope SBNHH-1D65B	4	0.80	-1.000	50.70	8.170	0.69	225.54	10.988	0.69
143.00	Commscope SBNHH-1D45B	4	0.80	-1.000	61.70	11.400	0.63	289.30	14.177	0.63
143.00	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,145.44	45.120	1.00
132.00	Ericsson KRY 112 144/2	3	0.80	0.000	9.70	0.480	0.50	23.74	0.948	0.50
132.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.80	0.000	91.50	6.040	0.70	235.43	8.161	0.70
132.00	Ericsson AIR-32 B2A/B66Aa	3	0.80	0.000	132.20	6.510	0.71	289.98	8.675	0.71
132.00	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,140.49	44.974	1.00
120.00	Alcatel-Lucent RRH2x50-08	3	0.80	0.000	52.90	1.700	0.50	110.85	2.543	0.50
120.00	Alcatel-Lucent 800 MHz 2X50W	3	0.80	0.000	64.00	2.060	0.67	139.34	2.997	0.67
120.00	Alcatel-Lucent 4x40W RRH (91	3	0.80	0.000	91.00	3.290	0.72	198.06	4.458	0.72
120.00	Alcatel-Lucent TD-RRH8x20-25	3	0.80	0.000	70.00	4.050	0.61	162.42	5.350	0.61
120.00	RFS APXVSPP18-C-A20	3	0.80	1.000	57.00	8.020	0.69	225.68	10.746	0.69
120.00	Commscope DT465B-2XR	3	0.80	0.000	58.00	9.100	0.69	255.56	11.809	0.69
120.00	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,133.56	44.770	1.00
105.00	Antel BCD-87010 ___ 4°	1	1.00	0.000	26.50	2.900	1.00	155.27	6.575	1.00
100.00	Flat Side Arm	1	1.00	0.000	150.00	6.300	1.00	220.21	8.659	1.00
75.00	PCTEL GPS-TMG-HR-26N	1	1.00	1.000	0.60	0.090	1.00	5.11	0.258	1.00
75.00	Round Side Arm	1	1.00	0.000	150.00	5.200	1.00	218.16	7.732	1.00

Totals Num Loadings:45 119 12,875.80 28,165.45

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	160.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0.00	N	T-MOBILE
10.00	160.00	18	1 5/8" Coax	1.98	0.82	N	3.96	Y	T-MOBILE
0.00	152.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
0.00	152.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	152.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T MOBILITY
0.00	152.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T MOBILITY
0.00	151.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T MOBILITY
0.00	143.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	VERIZON WIRELESS
10.00	143.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	Y	VERIZON WIRELESS
10.00	132.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0.00	Y	T-MOBILE
0.00	120.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	SPRINT NEXTEL
0.00	113.30	4	DYWIDAG	2.50	16.70	N	1.66	Y	-
10.00	105.00	1	7/8" Coax	1.09	0.33	N	0.00	Y	SENSUS USA INC.
10.00	76.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	SPRINT NEXTEL
10.00	75.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	SPRINT NEXTEL

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	105.1	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.4375	48.000	66.044	18,876.3	17.93	109.71	80.3	774.6	0.0	0.0	19.64	7,401	0.0
5.00		0.4375	47.024	64.690	17,738.5	17.54	107.48	80.8	743.0	0.0	1,112.1	19.64	7,141	334.0
10.00		0.4375	46.049	63.335	16,647.3	17.15	105.25	81.2	712.0	0.0	1,089.1	19.64	6,885	334.0
15.00		0.4375	45.073	61.980	15,601.9	16.76	103.03	81.7	681.8	0.0	1,066.1	19.64	6,634	334.0
20.00		0.4375	44.098	60.626	14,601.2	16.36	100.80	82.2	652.2	0.0	1,043.0	19.64	6,387	334.0
25.00		0.4375	43.122	59.271	13,644.2	15.97	98.57	82.6	623.2	0.0	1,020.0	19.64	6,145	334.0
30.00		0.4375	42.147	57.917	12,729.9	15.58	96.34	82.6	594.9	0.0	996.9	19.64	5,908	334.0
35.00		0.4375	41.171	56.562	11,857.5	15.18	94.11	82.6	567.3	0.0	973.9	19.64	5,676	334.0
40.00		0.4375	40.196	55.208	11,025.8	14.79	91.88	82.6	540.3	0.0	950.8	19.64	5,448	334.0
41.16	Bot - Section 2	0.4375	39.969	54.892	10,838.1	14.70	91.36	82.6	534.1	0.0	217.9	19.64	5,396	77.7
45.00		0.4375	39.220	53.853	10,234.0	14.40	89.65	82.6	513.9	0.0	1,330.9	19.64	5,396	256.3
46.83	Top - Section 1	0.3750	39.613	46.702	9,084.7	17.22	105.64	81.2	451.7	0.0	625.9	19.64	5,314	122.2
50.00		0.3750	38.995	45.966	8,661.8	16.93	103.99	81.5	437.5	0.0	499.8	19.64	5,174	211.8
55.00		0.3750	38.019	44.805	8,021.9	16.47	101.39	82.0	415.6	0.0	772.2	19.64	4,956	334.0
60.00		0.3750	37.044	43.644	7,414.3	16.01	98.78	82.6	394.2	0.0	752.4	19.64	4,744	334.0
65.00		0.3750	36.068	42.483	6,838.2	15.55	96.18	82.6	373.4	0.0	732.7	19.64	4,536	334.0
70.00		0.3750	35.093	41.321	6,292.7	15.09	93.58	82.6	353.2	0.0	712.9	19.64	4,332	334.0
75.00		0.3750	34.117	40.160	5,777.0	14.63	90.98	82.6	333.5	0.0	693.2	19.64	4,134	334.0
80.00		0.3750	33.142	38.999	5,290.3	14.17	88.38	82.6	314.4	0.0	673.4	19.64	3,940	334.0
81.62	Bot - Section 3	0.3750	32.825	38.622	5,138.4	14.02	87.53	82.6	308.3	0.0	214.4	19.64	3,878	108.4
85.00		0.3750	32.166	37.838	4,831.7	13.71	85.78	82.6	295.9	0.0	813.2	19.64	3,871	225.6
86.37	Top - Section 2	0.3125	32.523	31.948	4,188.0	16.94	104.08	81.5	253.6	0.0	326.0	19.64	3,819	91.7
90.00		0.3125	31.816	31.246	3,918.0	16.54	101.81	81.9	242.6	0.0	389.9	19.64	3,683	242.3
95.00		0.3125	30.840	30.279	3,565.2	15.99	98.69	82.6	227.7	0.0	523.4	19.64	3,500	334.0
100.0		0.3125	29.865	29.311	3,234.2	15.44	95.57	82.6	213.3	0.0	506.9	19.64	3,322	334.0
105.0		0.3125	28.889	28.344	2,924.4	14.89	92.45	82.6	199.4	0.0	490.5	19.64	3,148	334.0
105.1	Reinf. Top	0.3125	28.865	28.319	2,916.9	14.88	92.37	82.6	199.0	0.0	12.1	19.64	3,144	8.3
110.0		0.3125	27.914	27.376	2,635.0	14.34	89.32	82.6	185.9	0.0	462.0			
115.0		0.3125	26.938	26.409	2,365.4	13.79	86.20	82.6	172.9	0.0	457.5			
120.0		0.3125	25.963	25.441	2,114.8	13.24	83.08	82.6	160.4	0.0	441.1			
125.0		0.3125	24.987	24.473	1,882.6	12.69	79.96	82.6	148.4	0.0	424.6			
125.1	Bot - Section 4	0.3125	24.963	24.450	1,877.1	12.67	79.88	82.6	148.1	0.0	10.3			
128.8	Top - Section 3	0.2500	24.732	19.425	1,471.0	16.03	98.93	82.5	117.1	0.0	558.9			
130.0		0.2500	24.512	19.251	1,431.7	15.88	98.05	82.6	115.0	0.0	74.1			
132.0		0.2500	24.122	18.941	1,363.7	15.60	96.49	82.6	111.4	0.0	130.0			
135.0		0.2500	23.536	18.477	1,265.9	15.19	94.15	82.6	105.9	0.0	191.0			
140.0		0.2500	22.561	17.703	1,113.3	14.50	90.24	82.6	97.2	0.0	307.8			
143.0		0.2500	21.976	17.239	1,028.0	14.09	87.90	82.6	92.1	0.0	178.3			
145.0		0.2500	21.585	16.929	973.6	13.81	86.34	82.6	88.8	0.0	116.3			
148.0		0.2500	21.000	16.465	895.7	13.40	84.00	82.6	84.0	0.0	170.4			
											22,061.8			7,022.3

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number:12598483_C3_03 3/1/2019 9:27:39 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 93 mph with No Ice 23 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		169.3	0.0					0.0	0.0	169.3	0.0	0.0	0.0
5.00		335.1	1,334.6					0.0	1,055.5	335.1	2,390.1	0.0	0.0
10.00		338.6	1,306.9					0.0	1,055.5	338.6	2,362.4	0.0	0.0
15.00		343.2	1,279.3					0.0	1,176.1	343.2	2,455.3	0.0	0.0
20.00		338.3	1,251.6					0.0	1,176.1	338.3	2,427.7	0.0	0.0
25.00		333.5	1,223.9					0.0	1,176.1	333.5	2,400.0	0.0	0.0
30.00		332.5	1,196.3					0.0	1,176.1	332.5	2,372.4	0.0	0.0
35.00		338.4	1,168.6					0.0	1,176.1	338.4	2,344.7	0.0	0.0
40.00		211.8	1,141.0					0.0	1,176.1	211.8	2,317.0	0.0	0.0
41.16	Bot - Section 2	177.4	261.5					0.0	273.6	177.4	535.1	0.0	0.0
45.00		203.1	1,597.1					0.0	902.4	203.1	2,499.5	0.0	0.0
46.83	Top - Section 1	180.4	751.1					0.0	430.4	180.4	1,181.6	0.0	0.0
50.00		296.7	599.8					0.0	745.6	296.7	1,345.4	0.0	0.0
55.00		366.4	926.6					0.0	1,176.1	366.4	2,102.7	0.0	0.0
60.00		369.7	902.9					0.0	1,176.1	369.7	2,079.0	0.0	0.0
65.00		372.2	879.2					0.0	1,176.1	372.2	2,055.3	0.0	0.0
70.00		374.0	855.5					0.0	1,176.1	374.0	2,031.6	0.0	0.0
75.00	Appurtenance(s)	375.1	831.8	178.3	0.0	3.0	180.7	0.0	1,176.1	553.4	2,188.6	0.0	0.0
80.00		248.8	808.1					0.0	1,174.4	248.8	1,982.5	0.0	0.0
81.62	Bot - Section 3	190.3	257.3					0.0	381.2	190.3	638.5	0.0	0.0
85.00		181.9	975.8					0.0	793.0	181.9	1,768.8	0.0	0.0
86.37	Top - Section 2	190.3	391.2					0.0	322.5	190.3	713.7	0.0	0.0
90.00		327.3	467.9					0.0	851.7	327.3	1,319.6	0.0	0.0
95.00		378.6	628.1					0.0	1,174.3	378.6	1,802.3	0.0	0.0
100.00	Appurtenance(s)	377.3	608.3	230.5	0.0	0.0	180.0	0.0	1,174.3	607.8	1,962.6	0.0	0.0
105.00	Appurtenance(s)	193.0	588.6	107.6	0.0	0.0	31.8	0.0	1,174.3	300.6	1,794.6	0.0	0.0
105.13	Reinf. Top	187.4	14.5					0.0	29.3	187.4	43.8	0.0	0.0
110.00		360.3	554.3					0.0	752.2	360.3	1,306.5	0.0	0.0
115.00		336.8	549.1					0.0	635.2	336.8	1,184.3	0.0	0.0
120.00	Appurtenance(s)	316.6	529.3	2,753.7	0.0	513.1	3,214.4	0.0	370.7	3,070.3	4,114.4	0.0	0.0
125.00		161.3	509.5					0.0	346.7	161.3	856.2	0.0	0.0
125.12	Bot - Section 4	123.1	12.3					0.0	8.6	123.1	20.9	0.0	0.0
128.87	Top - Section 3	154.5	670.7					0.0	260.0	154.5	930.7	0.0	0.0
130.00		97.7	89.0					0.0	78.1	97.7	167.1	0.0	0.0
132.00	Appurtenance(s)	155.5	156.0	1,897.7	0.0	0.0	2,640.2	0.0	138.7	2,053.2	2,934.9	0.0	0.0
135.00		246.4	229.2					0.0	200.4	246.4	429.6	0.0	0.0
140.00		244.3	369.3					0.0	334.1	244.3	703.4	0.0	0.0
143.00	Appurtenance(s)	151.1	214.0	4,337.8	0.0	-2,669.7	3,340.1	0.0	200.4	4,488.9	3,754.5	0.0	0.0
145.00		149.7	139.5					0.0	103.8	149.7	243.3	0.0	0.0
148.00	Appurtenance(s)	89.6	204.5	6,802.6	0.0	20,667.4	5,590.8	0.0	155.7	6,892.1	5,951.0	0.0	0.0
								Totals:		26,625.6	69,711.6	0.00	0.00

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number: 12598483_C3_03 3/1/2019 9:27:44 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W 93 mph with No Ice 23 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-69.94	-26.68	0.00	-3,232.54	0.00	3,232.54	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.509
5.00	-67.47	-26.54	0.00	-3,099.16	0.00	3,099.16	4,702.37	2,351.19	8,987.95	4,500.65	0.09	-0.17	0.502
10.00	-65.03	-26.39	0.00	-2,966.46	0.00	2,966.46	4,630.27	2,315.13	8,663.09	4,337.98	0.36	-0.34	0.495
15.00	-62.50	-26.22	0.00	-2,834.52	0.00	2,834.52	4,557.03	2,278.52	8,341.98	4,177.19	0.82	-0.52	0.487
20.00	-60.00	-26.04	0.00	-2,703.42	0.00	2,703.42	4,482.67	2,241.34	8,024.78	4,018.36	1.46	-0.70	0.478
25.00	-57.52	-25.86	0.00	-2,573.22	0.00	2,573.22	4,403.56	2,201.78	7,705.28	3,858.37	2.29	-0.88	0.470
30.00	-55.07	-25.66	0.00	-2,443.94	0.00	2,443.94	4,302.92	2,151.46	7,355.37	3,683.15	3.30	-1.06	0.463
35.00	-52.65	-25.44	0.00	-2,315.65	0.00	2,315.65	4,202.28	2,101.14	7,013.59	3,512.01	4.50	-1.24	0.455
40.00	-50.29	-25.27	0.00	-2,188.46	0.00	2,188.46	4,101.65	2,050.82	6,679.95	3,344.94	5.90	-1.42	0.447
41.16	-49.72	-25.16	0.00	-2,159.05	0.00	2,159.05	4,078.23	2,039.12	6,603.48	3,306.65	6.25	-1.46	0.445
45.00	-47.18	-24.98	0.00	-2,062.51	0.00	2,062.51	4,001.01	2,000.51	6,354.43	3,181.94	7.49	-1.61	0.433
46.83	-45.97	-24.84	0.00	-2,016.80	0.00	2,016.80	3,410.94	1,705.47	5,490.25	2,749.21	8.12	-1.67	0.473
50.00	-44.57	-24.62	0.00	-1,938.06	0.00	1,938.06	3,371.32	1,685.66	5,340.15	2,674.05	9.27	-1.79	0.463
55.00	-42.39	-24.33	0.00	-1,814.95	0.00	1,814.95	3,307.92	1,653.96	5,106.10	2,556.85	11.25	-1.98	0.448
60.00	-40.25	-24.02	0.00	-1,693.30	0.00	1,693.30	3,242.50	1,621.25	4,874.14	2,440.69	13.43	-2.18	0.432
65.00	-38.13	-23.69	0.00	-1,573.20	0.00	1,573.20	3,156.24	1,578.12	4,616.98	2,311.92	15.81	-2.37	0.418
70.00	-36.04	-23.35	0.00	-1,454.73	0.00	1,454.73	3,069.98	1,534.99	4,366.78	2,186.64	18.39	-2.56	0.402
75.00	-33.81	-22.81	0.00	-1,337.97	0.00	1,337.97	2,983.72	1,491.86	4,123.56	2,064.84	21.17	-2.74	0.386
80.00	-31.79	-22.53	0.00	-1,223.94	0.00	1,223.94	2,897.46	1,448.73	3,887.31	1,946.54	24.14	-2.93	0.368
81.62	-31.13	-22.35	0.00	-1,187.37	0.00	1,187.37	2,869.45	1,434.73	3,812.10	1,908.88	25.15	-2.99	0.362
85.00	-29.34	-22.12	0.00	-1,111.89	0.00	1,111.89	2,811.20	1,405.60	3,658.02	1,831.73	27.30	-3.11	0.344
86.37	-28.60	-21.94	0.00	-1,081.51	0.00	1,081.51	2,342.68	1,171.34	3,095.01	1,549.81	28.21	-3.16	0.373
90.00	-27.25	-21.61	0.00	-1,001.95	0.00	1,001.95	2,304.43	1,152.21	2,976.95	1,490.69	30.65	-3.29	0.354
95.00	-25.41	-21.20	0.00	-893.91	0.00	893.91	2,249.56	1,124.78	2,815.20	1,409.69	34.19	-3.46	0.327
100.00	-23.43	-20.54	0.00	-787.90	0.00	787.90	2,177.68	1,088.84	2,637.27	1,320.60	37.91	-3.63	0.301
105.00	-21.63	-20.16	0.00	-685.20	0.00	685.20	2,105.79	1,052.90	2,465.16	1,234.41	41.80	-3.79	0.274
105.13	-21.57	-19.99	0.00	-682.68	0.00	682.68	2,103.99	1,052.00	2,460.93	1,232.29	41.90	-3.80	0.273
105.13	-21.57	-19.99	0.00	-682.68	0.00	682.68	2,103.99	1,052.00	2,460.93	1,232.29	41.90	-3.80	0.565
110.00	-20.21	-19.62	0.00	-585.21	0.00	585.21	2,033.91	1,016.95	2,298.85	1,151.13	45.85	-3.94	0.519
115.00	-18.96	-19.30	0.00	-487.09	0.00	487.09	1,962.02	981.01	2,138.35	1,070.76	50.13	-4.23	0.465
120.00	-15.03	-15.99	0.00	-390.10	0.00	390.10	1,890.14	945.07	1,983.66	993.30	54.70	-4.49	0.401
125.00	-14.15	-15.79	0.00	-310.17	0.00	310.17	1,818.26	909.13	1,834.77	918.75	59.53	-4.73	0.346
125.12	-14.12	-15.68	0.00	-308.23	0.00	308.23	1,816.48	908.24	1,831.17	916.95	59.66	-4.74	0.344
128.87	-13.18	-15.47	0.00	-249.42	0.00	249.42	1,443.09	721.55	1,448.31	725.23	63.44	-4.89	0.354
130.00	-13.00	-15.38	0.00	-231.99	0.00	231.99	1,430.26	715.13	1,422.41	712.26	64.60	-4.94	0.335
132.00	-10.23	-13.09	0.00	-201.24	0.00	201.24	1,407.26	703.63	1,376.79	689.42	66.68	-5.03	0.300
135.00	-9.80	-12.83	0.00	-161.96	0.00	161.96	1,372.75	686.38	1,309.76	655.86	69.88	-5.14	0.254
140.00	-9.10	-12.54	0.00	-97.79	0.00	97.79	1,315.24	657.62	1,201.77	601.78	75.33	-5.28	0.170
143.00	-5.77	-7.73	0.00	-60.17	0.00	60.17	1,280.74	640.37	1,139.20	570.45	78.67	-5.35	0.110
145.00	-5.54	-7.56	0.00	-44.71	0.00	44.71	1,257.74	628.87	1,098.42	550.03	80.92	-5.37	0.086
148.00	0.00	-7.01	0.00	-22.03	0.00	22.03	1,223.23	611.62	1,038.64	520.09	84.30	-5.40	0.042

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number: 12598483_C3_03 3/1/2019 9:27:44 AM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 93 mph with No Ice (Reduced DL) 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		169.3	0.0					0.0	0.0	169.3	0.0	0.0	0.0
5.00		335.1	1,000.9					0.0	791.6	335.1	1,792.6	0.0	0.0
10.00		328.2	980.2					0.0	791.6	328.2	1,771.8	0.0	0.0
15.00		321.2	959.4					0.0	882.0	321.2	1,841.5	0.0	0.0
20.00		314.3	938.7					0.0	882.0	314.3	1,820.7	0.0	0.0
25.00		307.3	918.0					0.0	882.0	307.3	1,800.0	0.0	0.0
30.00		303.9	897.2					0.0	882.0	303.9	1,779.3	0.0	0.0
35.00		306.7	876.5					0.0	882.0	306.7	1,758.5	0.0	0.0
40.00		190.9	855.7					0.0	882.0	190.9	1,737.8	0.0	0.0
41.16	Bot - Section 2	158.7	196.1					0.0	205.2	158.7	401.4	0.0	0.0
45.00		181.1	1,197.8					0.0	676.8	181.1	1,874.7	0.0	0.0
46.83	Top - Section 1	160.5	563.3					0.0	322.8	160.5	886.2	0.0	0.0
50.00		263.0	449.8					0.0	559.2	263.0	1,009.0	0.0	0.0
55.00		322.3	695.0					0.0	882.0	322.3	1,577.0	0.0	0.0
60.00		322.0	677.2					0.0	882.0	322.0	1,559.2	0.0	0.0
65.00		320.8	659.4					0.0	882.0	320.8	1,541.4	0.0	0.0
70.00		318.8	641.6					0.0	882.0	318.8	1,523.7	0.0	0.0
75.00	Appurtenance(s)	316.1	623.8	178.3	0.0	3.0	135.5	0.0	882.0	494.4	1,641.4	0.0	0.0
80.00		208.0	606.1					0.0	880.8	208.0	1,486.9	0.0	0.0
81.62	Bot - Section 3	157.5	192.9					0.0	285.9	157.5	478.9	0.0	0.0
85.00		150.0	731.8					0.0	594.8	150.0	1,326.6	0.0	0.0
86.37	Top - Section 2	156.4	293.4					0.0	241.9	156.4	535.3	0.0	0.0
90.00		267.4	350.9					0.0	638.8	267.4	989.7	0.0	0.0
95.00		305.7	471.1					0.0	880.7	305.7	1,351.7	0.0	0.0
100.00	Appurtenance(s)	300.4	456.2	230.5	0.0	0.0	135.0	0.0	880.7	530.9	1,471.9	0.0	0.0
105.00	Appurtenance(s)	152.5	441.4	107.6	0.0	0.0	23.8	0.0	880.7	260.1	1,346.0	0.0	0.0
105.13	Reinf. Top	145.9	10.8					0.0	22.0	145.9	32.8	0.0	0.0
110.00		284.9	415.8					0.0	564.1	284.9	979.9	0.0	0.0
115.00		282.0	411.8					0.0	476.4	282.0	888.2	0.0	0.0
120.00	Appurtenance(s)	275.1	397.0	2,753.7	0.0	513.1	2,410.8	0.0	278.0	3,028.9	3,085.8	0.0	0.0
125.00		139.1	382.2					0.0	260.0	139.1	642.2	0.0	0.0
125.12	Bot - Section 4	104.7	9.2					0.0	6.4	104.7	15.7	0.0	0.0
128.87	Top - Section 3	131.4	503.0					0.0	195.0	131.4	698.1	0.0	0.0
130.00		82.9	66.7					0.0	58.6	82.9	125.3	0.0	0.0
132.00	Appurtenance(s)	131.0	117.0	1,897.7	0.0	0.0	1,980.2	0.0	104.0	2,028.7	2,201.1	0.0	0.0
135.00		205.1	171.9					0.0	150.3	205.1	322.2	0.0	0.0
140.00		201.2	277.0					0.0	250.6	201.2	527.6	0.0	0.0
143.00	Appurtenance(s)	122.9	160.5	4,337.8	0.0	-2,669.7	2,505.1	0.0	150.3	4,460.7	2,815.9	0.0	0.0
145.00		120.3	104.6					0.0	77.8	120.3	182.5	0.0	0.0
148.00	Appurtenance(s)	71.7	153.4	6,802.6	0.0	20,667.4	4,193.1	0.0	116.7	6,874.3	4,463.2	0.0	0.0
								Totals:		25,244.5	52,283.7	0.00	0.00

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number: 12598483_C3_03 3/1/2019 9:27:49 AM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W 93 mph with No Ice (Reduced DL) 23 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-52.45	-25.26	0.00	-3,058.50	0.00	3,058.50	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.480
5.00	-50.59	-25.07	0.00	-2,932.18	0.00	2,932.18	4,702.37	2,351.19	8,987.95	4,500.65	0.09	-0.16	0.473
10.00	-48.75	-24.88	0.00	-2,806.83	0.00	2,806.83	4,630.27	2,315.13	8,663.09	4,337.98	0.35	-0.33	0.466
15.00	-46.84	-24.68	0.00	-2,682.46	0.00	2,682.46	4,557.03	2,278.52	8,341.98	4,177.19	0.78	-0.49	0.458
20.00	-44.95	-24.48	0.00	-2,559.08	0.00	2,559.08	4,482.67	2,241.34	8,024.78	4,018.36	1.38	-0.66	0.451
25.00	-43.08	-24.27	0.00	-2,436.69	0.00	2,436.69	4,403.56	2,201.78	7,705.28	3,858.37	2.16	-0.83	0.443
30.00	-41.23	-24.07	0.00	-2,315.33	0.00	2,315.33	4,302.92	2,151.46	7,355.37	3,683.15	3.12	-1.00	0.437
35.00	-39.41	-23.84	0.00	-2,195.00	0.00	2,195.00	4,202.28	2,101.14	7,013.59	3,512.01	4.26	-1.17	0.430
40.00	-37.63	-23.69	0.00	-2,075.78	0.00	2,075.78	4,101.65	2,050.82	6,679.95	3,344.94	5.58	-1.35	0.422
41.16	-37.20	-23.57	0.00	-2,048.23	0.00	2,048.23	4,078.23	2,039.12	6,603.48	3,306.65	5.92	-1.39	0.420
45.00	-35.29	-23.41	0.00	-1,957.78	0.00	1,957.78	4,001.01	2,000.51	6,354.43	3,181.94	7.09	-1.52	0.409
46.83	-34.37	-23.28	0.00	-1,914.95	0.00	1,914.95	3,410.94	1,705.47	5,490.25	2,749.21	7.68	-1.59	0.447
50.00	-33.31	-23.07	0.00	-1,841.17	0.00	1,841.17	3,371.32	1,685.66	5,340.15	2,674.05	8.77	-1.70	0.438
55.00	-31.67	-22.80	0.00	-1,725.82	0.00	1,725.82	3,307.92	1,653.96	5,106.10	2,556.85	10.65	-1.88	0.424
60.00	-30.05	-22.52	0.00	-1,611.83	0.00	1,611.83	3,242.50	1,621.25	4,874.14	2,440.69	12.72	-2.06	0.409
65.00	-28.45	-22.23	0.00	-1,499.23	0.00	1,499.23	3,156.24	1,578.12	4,616.98	2,311.92	14.97	-2.25	0.396
70.00	-26.88	-21.94	0.00	-1,388.08	0.00	1,388.08	3,069.98	1,534.99	4,366.78	2,186.64	17.42	-2.43	0.382
75.00	-25.19	-21.45	0.00	-1,278.40	0.00	1,278.40	2,983.72	1,491.86	4,123.56	2,064.84	20.06	-2.60	0.367
80.00	-23.67	-21.22	0.00	-1,171.17	0.00	1,171.17	2,897.46	1,448.73	3,887.31	1,946.54	22.88	-2.78	0.350
81.62	-23.17	-21.07	0.00	-1,136.72	0.00	1,136.72	2,869.45	1,434.73	3,812.10	1,908.88	23.84	-2.84	0.345
85.00	-21.82	-20.89	0.00	-1,065.57	0.00	1,065.57	2,811.20	1,405.60	3,658.02	1,831.73	25.89	-2.95	0.328
86.37	-21.27	-20.73	0.00	-1,036.89	0.00	1,036.89	2,342.68	1,171.34	3,095.01	1,549.81	26.74	-3.00	0.356
90.00	-20.24	-20.47	0.00	-961.69	0.00	961.69	2,304.43	1,152.21	2,976.95	1,490.69	29.07	-3.12	0.338
95.00	-18.85	-20.14	0.00	-859.37	0.00	859.37	2,249.56	1,124.78	2,815.20	1,409.69	32.43	-3.29	0.313
100.00	-17.36	-19.57	0.00	-758.67	0.00	758.67	2,177.68	1,088.84	2,637.27	1,320.60	35.97	-3.46	0.288
105.00	-16.00	-19.25	0.00	-660.81	0.00	660.81	2,105.79	1,052.90	2,465.16	1,234.41	39.67	-3.61	0.263
105.13	-15.96	-19.12	0.00	-658.41	0.00	658.41	2,103.99	1,052.00	2,460.93	1,232.29	39.77	-3.61	0.262
105.13	-15.96	-19.12	0.00	-658.41	0.00	658.41	2,103.99	1,052.00	2,460.93	1,232.29	39.77	-3.61	0.542
110.00	-14.93	-18.83	0.00	-565.18	0.00	565.18	2,033.91	1,016.95	2,298.85	1,151.13	43.53	-3.75	0.499
115.00	-13.97	-18.56	0.00	-471.03	0.00	471.03	1,962.02	981.01	2,138.35	1,070.76	47.61	-4.03	0.447
120.00	-11.05	-15.36	0.00	-377.74	0.00	377.74	1,890.14	945.07	1,983.66	993.30	51.97	-4.29	0.386
125.00	-10.39	-15.19	0.00	-300.96	0.00	300.96	1,818.26	909.13	1,834.77	918.75	56.59	-4.52	0.334
125.12	-10.36	-15.10	0.00	-299.09	0.00	299.09	1,816.48	908.24	1,831.17	916.95	56.70	-4.52	0.332
128.87	-9.65	-14.93	0.00	-242.47	0.00	242.47	1,443.09	721.55	1,448.31	725.23	60.32	-4.68	0.341
130.00	-9.52	-14.85	0.00	-225.65	0.00	225.65	1,430.26	715.13	1,422.41	712.26	61.42	-4.72	0.324
132.00	-7.47	-12.65	0.00	-195.96	0.00	195.96	1,407.26	703.63	1,376.79	689.42	63.42	-4.80	0.290
135.00	-7.14	-12.44	0.00	-158.00	0.00	158.00	1,372.75	686.38	1,309.76	655.86	66.47	-4.92	0.246
140.00	-6.61	-12.20	0.00	-95.81	0.00	95.81	1,315.24	657.62	1,201.77	601.78	71.69	-5.06	0.165
143.00	-4.19	-7.51	0.00	-59.20	0.00	59.20	1,280.74	640.37	1,139.20	570.45	74.89	-5.12	0.107
145.00	-4.02	-7.38	0.00	-44.17	0.00	44.17	1,257.74	628.87	1,098.42	550.03	77.04	-5.15	0.084
148.00	0.00	-6.99	0.00	-22.03	0.00	22.03	1,223.23	611.62	1,038.64	520.09	80.28	-5.17	0.042

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number: 12598483_C3_03 3/1/2019 9:27:49 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 23 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		59.2	0.0					0.0	0.0	59.2	0.0	0.0	0.0
5.00		117.5	1,684.4					0.0	1,119.2	117.5	2,803.6	0.0	0.0
10.00		115.7	1,690.5					0.0	1,126.5	115.7	2,817.0	0.0	0.0
15.00		113.6	1,675.2					0.0	1,588.8	113.6	3,264.0	0.0	0.0
20.00		111.5	1,652.9					0.0	1,604.2	111.5	3,257.1	0.0	0.0
25.00		109.3	1,626.9					0.0	1,616.1	109.3	3,243.1	0.0	0.0
30.00		108.4	1,598.7					0.0	1,626.0	108.4	3,224.7	0.0	0.0
35.00		109.7	1,568.9					0.0	1,634.4	109.7	3,203.3	0.0	0.0
40.00		68.4	1,537.9					0.0	1,641.8	68.4	3,179.7	0.0	0.0
41.16	Bot - Section 2	56.9	354.1					0.0	382.9	56.9	737.1	0.0	0.0
45.00		65.0	1,904.4					0.0	1,265.4	65.0	3,169.8	0.0	0.0
46.83	Top - Section 1	57.7	897.4					0.0	604.8	57.7	1,502.2	0.0	0.0
50.00		94.7	850.7					0.0	1,049.4	94.7	1,900.2	0.0	0.0
55.00		116.3	1,316.2					0.0	1,659.6	116.3	2,975.9	0.0	0.0
60.00		116.5	1,286.5					0.0	1,664.6	116.5	2,951.1	0.0	0.0
65.00		116.4	1,256.4					0.0	1,669.2	116.4	2,925.6	0.0	0.0
70.00		116.0	1,225.9					0.0	1,673.5	116.0	2,899.4	0.0	0.0
75.00	Appurtenance(s)	115.3	1,195.0	48.6	0.0	1.6	404.0	0.0	1,677.6	164.0	3,276.6	0.0	0.0
80.00		76.0	1,163.9					0.0	1,642.9	76.0	2,806.8	0.0	0.0
81.62	Bot - Section 3	57.7	372.2					0.0	532.7	57.7	904.9	0.0	0.0
85.00		54.9	1,215.4					0.0	1,109.1	54.9	2,324.5	0.0	0.0
86.37	Top - Section 2	57.4	488.2					0.0	451.5	57.4	939.7	0.0	0.0
90.00		98.4	719.5					0.0	1,193.3	98.4	1,912.8	0.0	0.0
95.00		112.8	966.5					0.0	1,647.6	112.8	2,614.1	0.0	0.0
100.00	Appurtenance(s)	111.3	938.4	57.2	0.0	0.0	400.2	0.0	1,650.3	168.5	2,989.0	0.0	0.0
105.00	Appurtenance(s)	56.6	910.1	44.1	0.0	0.0	160.6	0.0	1,652.9	100.7	2,723.6	0.0	0.0
105.13	Reinf. Top	54.3	22.5					0.0	40.7	54.3	63.2	0.0	0.0
110.00		106.4	859.4					0.0	1,196.9	106.4	2,056.3	0.0	0.0
115.00		105.8	853.1					0.0	1,061.6	105.8	1,914.6	0.0	0.0
120.00	Appurtenance(s)	103.6	824.3	735.1	0.0	124.2	8,623.7	0.0	736.7	838.7	10,184.7	0.0	0.0
125.00		52.5	795.4					0.0	714.3	52.5	1,509.7	0.0	0.0
125.12	Bot - Section 4	39.6	19.4					0.0	17.6	39.6	37.0	0.0	0.0
128.87	Top - Section 3	49.8	883.9					0.0	536.8	49.8	1,420.7	0.0	0.0
130.00		31.5	152.6					0.0	161.4	31.5	314.0	0.0	0.0
132.00	Appurtenance(s)	49.9	267.4	533.8	0.0	0.0	6,428.2	0.0	286.8	583.7	6,982.3	0.0	0.0
135.00		78.4	392.9					0.0	401.3	78.4	794.1	0.0	0.0
140.00		77.2	632.4					0.0	669.8	77.2	1,302.2	0.0	0.0
143.00	Appurtenance(s)	47.3	368.5	1,127.2	0.0	-646.7	9,992.3	0.0	402.5	1,174.5	10,763.3	0.0	0.0
145.00		46.5	241.0					0.0	219.3	46.5	460.3	0.0	0.0
148.00	Appurtenance(s)	27.8	353.2	1,638.5	0.0	4,762.0	16,790.2	0.0	329.2	1,666.2	17,472.7	0.0	0.0
								Totals:		7,448.15	119,820.	0.00	0.00

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number: 12598483_C3_03 3/1/2019 9:27:54 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 23 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-120.50	-7.48	0.00	-942.30	0.00	942.30	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.165
5.00	-117.69	-7.46	0.00	-904.92	0.00	904.92	4,702.37	2,351.19	8,987.95	4,500.65	0.03	-0.05	0.163
10.00	-114.87	-7.44	0.00	-867.62	0.00	867.62	4,630.27	2,315.13	8,663.09	4,337.98	0.11	-0.10	0.160
15.00	-111.60	-7.42	0.00	-830.41	0.00	830.41	4,557.03	2,278.52	8,341.98	4,177.19	0.24	-0.15	0.158
20.00	-108.34	-7.40	0.00	-793.30	0.00	793.30	4,482.67	2,241.34	8,024.78	4,018.36	0.43	-0.20	0.156
25.00	-105.09	-7.37	0.00	-756.30	0.00	756.30	4,403.56	2,201.78	7,705.28	3,858.37	0.67	-0.26	0.153
30.00	-101.86	-7.34	0.00	-719.43	0.00	719.43	4,302.92	2,151.46	7,355.37	3,683.15	0.97	-0.31	0.151
35.00	-98.65	-7.31	0.00	-682.70	0.00	682.70	4,202.28	2,101.14	7,013.59	3,512.01	1.32	-0.36	0.149
40.00	-95.46	-7.27	0.00	-646.16	0.00	646.16	4,101.65	2,050.82	6,679.95	3,344.94	1.73	-0.42	0.146
41.16	-94.72	-7.26	0.00	-637.70	0.00	637.70	4,078.23	2,039.12	6,603.48	3,306.65	1.83	-0.43	0.146
45.00	-91.55	-7.22	0.00	-609.86	0.00	609.86	4,001.01	2,000.51	6,354.43	3,181.94	2.19	-0.47	0.142
46.83	-90.04	-7.19	0.00	-596.65	0.00	596.65	3,410.94	1,705.47	5,490.25	2,749.21	2.38	-0.49	0.156
50.00	-88.14	-7.15	0.00	-573.86	0.00	573.86	3,371.32	1,685.66	5,340.15	2,674.05	2.72	-0.53	0.153
55.00	-85.16	-7.09	0.00	-538.12	0.00	538.12	3,307.92	1,653.96	5,106.10	2,556.85	3.30	-0.58	0.148
60.00	-82.20	-7.02	0.00	-502.67	0.00	502.67	3,242.50	1,621.25	4,874.14	2,440.69	3.94	-0.64	0.143
65.00	-79.27	-6.95	0.00	-467.56	0.00	467.56	3,156.24	1,578.12	4,616.98	2,311.92	4.64	-0.70	0.139
70.00	-76.37	-6.87	0.00	-432.82	0.00	432.82	3,069.98	1,534.99	4,366.78	2,186.64	5.40	-0.75	0.134
75.00	-73.09	-6.73	0.00	-398.46	0.00	398.46	2,983.72	1,491.86	4,123.56	2,064.84	6.22	-0.81	0.129
80.00	-70.28	-6.66	0.00	-364.79	0.00	364.79	2,897.46	1,448.73	3,887.31	1,946.54	7.10	-0.86	0.124
81.62	-69.37	-6.62	0.00	-353.98	0.00	353.98	2,869.45	1,434.73	3,812.10	1,908.88	7.40	-0.88	0.122
85.00	-67.04	-6.56	0.00	-331.61	0.00	331.61	2,811.20	1,405.60	3,658.02	1,831.73	8.03	-0.92	0.116
86.37	-66.10	-6.52	0.00	-322.60	0.00	322.60	2,342.68	1,171.34	3,095.01	1,549.81	8.30	-0.93	0.126
90.00	-64.19	-6.44	0.00	-298.96	0.00	298.96	2,304.43	1,152.21	2,976.95	1,490.69	9.02	-0.97	0.121
95.00	-61.57	-6.34	0.00	-266.77	0.00	266.77	2,249.56	1,124.78	2,815.20	1,409.69	10.07	-1.02	0.112
100.00	-58.58	-6.16	0.00	-235.08	0.00	235.08	2,177.68	1,088.84	2,637.27	1,320.60	11.17	-1.07	0.104
105.00	-55.85	-6.03	0.00	-204.27	0.00	204.27	2,105.79	1,052.90	2,465.16	1,234.41	12.32	-1.12	0.095
105.13	-55.79	-6.00	0.00	-203.51	0.00	203.51	2,103.99	1,052.00	2,460.93	1,232.29	12.35	-1.12	0.095
105.13	-55.79	-6.00	0.00	-203.51	0.00	203.51	2,103.99	1,052.00	2,460.93	1,232.29	12.35	-1.12	0.192
110.00	-53.73	-5.91	0.00	-174.26	0.00	174.26	2,033.91	1,016.95	2,298.85	1,151.13	13.52	-1.17	0.178
115.00	-51.81	-5.84	0.00	-144.69	0.00	144.69	1,962.02	981.01	2,138.35	1,070.76	14.79	-1.25	0.162
120.00	-41.64	-4.83	0.00	-115.35	0.00	115.35	1,890.14	945.07	1,983.66	993.30	16.14	-1.33	0.138
125.00	-40.13	-4.76	0.00	-91.21	0.00	91.21	1,818.26	909.13	1,834.77	918.75	17.58	-1.40	0.121
125.12	-40.09	-4.74	0.00	-90.62	0.00	90.62	1,816.48	908.24	1,831.17	916.95	17.61	-1.40	0.121
128.87	-38.67	-4.68	0.00	-72.84	0.00	72.84	1,443.09	721.55	1,448.31	725.23	18.73	-1.45	0.127
130.00	-38.35	-4.65	0.00	-67.58	0.00	67.58	1,430.26	715.13	1,422.41	712.26	19.08	-1.46	0.122
132.00	-31.39	-3.90	0.00	-58.28	0.00	58.28	1,407.26	703.63	1,376.79	689.42	19.69	-1.49	0.107
135.00	-30.59	-3.82	0.00	-46.58	0.00	46.58	1,372.75	686.38	1,309.76	655.86	20.64	-1.52	0.093
140.00	-29.29	-3.73	0.00	-27.46	0.00	27.46	1,315.24	657.62	1,201.77	601.78	22.25	-1.56	0.068
143.00	-18.56	-2.26	0.00	-16.29	0.00	16.29	1,280.74	640.37	1,139.20	570.45	23.24	-1.58	0.043
145.00	-18.10	-2.20	0.00	-11.77	0.00	11.77	1,257.74	628.87	1,098.42	550.03	23.90	-1.59	0.036
148.00	0.00	-1.70	0.00	-5.16	0.00	5.16	1,223.23	611.62	1,038.64	520.09	24.90	-1.59	0.010

Site Number: 302515 Code: ANSI/TIA-222-G

Site Name: SMFR - North, CT Engineering Number: 12598483_C3_03 3/1/2019 9:27:55 AM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		44.0	0.0					0.0	0.0	44.0	0.0	0.0	0.0
5.00		87.2	1,112.1					0.0	879.6	87.2	1,991.7	0.0	0.0
10.00		85.4	1,089.1					0.0	879.6	85.4	1,968.7	0.0	0.0
15.00		83.6	1,066.1					0.0	980.0	83.6	2,046.1	0.0	0.0
20.00		81.8	1,043.0					0.0	980.0	81.8	2,023.1	0.0	0.0
25.00		79.9	1,020.0					0.0	980.0	79.9	2,000.0	0.0	0.0
30.00		79.1	996.9					0.0	980.0	79.1	1,977.0	0.0	0.0
35.00		79.8	973.9					0.0	980.0	79.8	1,953.9	0.0	0.0
40.00		49.7	950.8					0.0	980.0	49.7	1,930.9	0.0	0.0
41.16	Bot - Section 2	41.3	217.9					0.0	228.0	41.3	445.9	0.0	0.0
45.00		47.1	1,330.9					0.0	752.0	47.1	2,082.9	0.0	0.0
46.83	Top - Section 1	41.8	625.9					0.0	358.7	41.8	984.6	0.0	0.0
50.00		68.4	499.8					0.0	621.4	68.4	1,121.1	0.0	0.0
55.00		83.9	772.2					0.0	980.0	83.9	1,752.2	0.0	0.0
60.00		83.8	752.4					0.0	980.0	83.8	1,732.5	0.0	0.0
65.00		83.4	732.7					0.0	980.0	83.4	1,712.7	0.0	0.0
70.00		82.9	712.9					0.0	980.0	82.9	1,693.0	0.0	0.0
75.00	Appurtenance(s)	82.2	693.2	46.4	0.0	0.8	150.6	0.0	980.0	128.6	1,823.8	0.0	0.0
80.00		54.1	673.4					0.0	978.7	54.1	1,652.1	0.0	0.0
81.62	Bot - Section 3	41.0	214.4					0.0	317.7	41.0	532.1	0.0	0.0
85.00		39.0	813.2					0.0	660.8	39.0	1,474.0	0.0	0.0
86.37	Top - Section 2	40.7	326.0					0.0	268.8	40.7	594.8	0.0	0.0
90.00		69.6	389.9					0.0	709.8	69.6	1,099.7	0.0	0.0
95.00		79.5	523.4					0.0	978.5	79.5	1,501.9	0.0	0.0
100.00	Appurtenance(s)	78.2	506.9	60.0	0.0	0.0	150.0	0.0	978.5	138.1	1,635.5	0.0	0.0
105.00	Appurtenance(s)	39.7	490.5	28.0	0.0	0.0	26.5	0.0	978.5	67.7	1,495.5	0.0	0.0
105.13	Reinf. Top	37.9	12.1					0.0	24.4	37.9	36.5	0.0	0.0
110.00		74.1	462.0					0.0	626.8	74.1	1,088.8	0.0	0.0
115.00		73.4	457.5					0.0	529.3	73.4	986.9	0.0	0.0
120.00	Appurtenance(s)	71.6	441.1	716.4	0.0	133.5	2,678.7	0.0	308.9	787.9	3,428.7	0.0	0.0
125.00		36.2	424.6					0.0	288.9	36.2	713.5	0.0	0.0
125.12	Bot - Section 4	27.2	10.3					0.0	7.1	27.2	17.4	0.0	0.0
128.87	Top - Section 3	34.2	558.9					0.0	216.7	34.2	775.6	0.0	0.0
130.00		21.6	74.1					0.0	65.1	21.6	139.2	0.0	0.0
132.00	Appurtenance(s)	34.1	130.0	493.7	0.0	0.0	2,200.2	0.0	115.6	527.8	2,445.7	0.0	0.0
135.00		53.4	191.0					0.0	167.0	53.4	358.0	0.0	0.0
140.00		52.3	307.8					0.0	278.4	52.3	586.2	0.0	0.0
143.00	Appurtenance(s)	32.0	178.3	1,128.5	0.0	-694.5	2,783.4	0.0	167.0	1,160.4	3,128.8	0.0	0.0
145.00		31.3	116.3					0.0	86.5	31.3	202.7	0.0	0.0
148.00	Appurtenance(s)	18.6	170.4	1,769.7	0.0	5,376.5	4,659.0	0.0	129.7	1,788.3	4,959.2	0.0	0.0
								Totals:		6,567.25	58,093.0	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-58.32	-6.57	0.00	-800.48	0.00	800.48	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.133
5.00	-56.32	-6.53	0.00	-767.61	0.00	767.61	4,702.37	2,351.19	8,987.95	4,500.65	0.02	-0.04	0.131
10.00	-54.35	-6.48	0.00	-734.97	0.00	734.97	4,630.27	2,315.13	8,663.09	4,337.98	0.09	-0.09	0.129
15.00	-52.30	-6.43	0.00	-702.57	0.00	702.57	4,557.03	2,278.52	8,341.98	4,177.19	0.20	-0.13	0.127
20.00	-50.27	-6.39	0.00	-670.40	0.00	670.40	4,482.67	2,241.34	8,024.78	4,018.36	0.36	-0.17	0.125
25.00	-48.26	-6.34	0.00	-638.47	0.00	638.47	4,403.56	2,201.78	7,705.28	3,858.37	0.57	-0.22	0.122
30.00	-46.28	-6.29	0.00	-606.79	0.00	606.79	4,302.92	2,151.46	7,355.37	3,683.15	0.82	-0.26	0.121
35.00	-44.32	-6.23	0.00	-575.37	0.00	575.37	4,202.28	2,101.14	7,013.59	3,512.01	1.12	-0.31	0.119
40.00	-42.39	-6.19	0.00	-544.21	0.00	544.21	4,101.65	2,050.82	6,679.95	3,344.94	1.46	-0.35	0.117
41.16	-41.94	-6.16	0.00	-537.01	0.00	537.01	4,078.23	2,039.12	6,603.48	3,306.65	1.55	-0.36	0.116
45.00	-39.86	-6.12	0.00	-513.36	0.00	513.36	4,001.01	2,000.51	6,354.43	3,181.94	1.86	-0.40	0.113
46.83	-38.87	-6.09	0.00	-502.16	0.00	502.16	3,410.94	1,705.47	5,490.25	2,749.21	2.01	-0.42	0.123
50.00	-37.75	-6.04	0.00	-482.87	0.00	482.87	3,371.32	1,685.66	5,340.15	2,674.05	2.30	-0.44	0.121
55.00	-35.99	-5.97	0.00	-452.68	0.00	452.68	3,307.92	1,653.96	5,106.10	2,556.85	2.79	-0.49	0.117
60.00	-34.25	-5.90	0.00	-422.84	0.00	422.84	3,242.50	1,621.25	4,874.14	2,440.69	3.33	-0.54	0.113
65.00	-32.54	-5.82	0.00	-393.36	0.00	393.36	3,156.24	1,578.12	4,616.98	2,311.92	3.92	-0.59	0.109
70.00	-30.84	-5.75	0.00	-364.24	0.00	364.24	3,069.98	1,534.99	4,366.78	2,186.64	4.57	-0.64	0.105
75.00	-29.01	-5.62	0.00	-335.49	0.00	335.49	2,983.72	1,491.86	4,123.56	2,064.84	5.26	-0.68	0.101
80.00	-27.36	-5.56	0.00	-307.38	0.00	307.38	2,897.46	1,448.73	3,887.31	1,946.54	6.00	-0.73	0.097
81.62	-26.83	-5.53	0.00	-298.35	0.00	298.35	2,869.45	1,434.73	3,812.10	1,908.88	6.25	-0.74	0.095
85.00	-25.35	-5.48	0.00	-279.69	0.00	279.69	2,811.20	1,405.60	3,658.02	1,831.73	6.78	-0.77	0.091
86.37	-24.75	-5.44	0.00	-272.17	0.00	272.17	2,342.68	1,171.34	3,095.01	1,549.81	7.01	-0.79	0.098
90.00	-23.65	-5.37	0.00	-252.45	0.00	252.45	2,304.43	1,152.21	2,976.95	1,490.69	7.62	-0.82	0.094
95.00	-22.15	-5.28	0.00	-225.61	0.00	225.61	2,249.56	1,124.78	2,815.20	1,409.69	8.50	-0.86	0.087
100.00	-20.51	-5.14	0.00	-199.19	0.00	199.19	2,177.68	1,088.84	2,637.27	1,320.60	9.43	-0.91	0.080
105.00	-19.01	-5.05	0.00	-173.51	0.00	173.51	2,105.79	1,052.90	2,465.16	1,234.41	10.40	-0.95	0.073
105.13	-18.98	-5.02	0.00	-172.88	0.00	172.88	2,103.99	1,052.00	2,460.93	1,232.29	10.43	-0.95	0.073
105.13	-18.98	-5.02	0.00	-172.88	0.00	172.88	2,103.99	1,052.00	2,460.93	1,232.29	10.43	-0.95	0.149
110.00	-17.88	-4.94	0.00	-148.42	0.00	148.42	2,033.91	1,016.95	2,298.85	1,151.13	11.41	-0.98	0.138
115.00	-16.89	-4.87	0.00	-123.71	0.00	123.71	1,962.02	981.01	2,138.35	1,070.76	12.48	-1.06	0.124
120.00	-13.48	-4.03	0.00	-99.21	0.00	99.21	1,890.14	945.07	1,983.66	993.30	13.63	-1.13	0.107
125.00	-12.76	-3.99	0.00	-79.04	0.00	79.04	1,818.26	909.13	1,834.77	918.75	14.84	-1.18	0.093
125.12	-12.74	-3.97	0.00	-78.54	0.00	78.54	1,816.48	908.24	1,831.17	916.95	14.87	-1.19	0.093
128.87	-11.97	-3.92	0.00	-63.67	0.00	63.67	1,443.09	721.55	1,448.31	725.23	15.82	-1.23	0.096
130.00	-11.83	-3.90	0.00	-59.25	0.00	59.25	1,430.26	715.13	1,422.41	712.26	16.11	-1.24	0.091
132.00	-9.39	-3.32	0.00	-51.44	0.00	51.44	1,407.26	703.63	1,376.79	689.42	16.63	-1.26	0.081
135.00	-9.03	-3.27	0.00	-41.47	0.00	41.47	1,372.75	686.38	1,309.76	655.86	17.44	-1.29	0.070
140.00	-8.45	-3.21	0.00	-25.12	0.00	25.12	1,315.24	657.62	1,201.77	601.78	18.81	-1.33	0.048
143.00	-5.34	-1.98	0.00	-15.50	0.00	15.50	1,280.74	640.37	1,139.20	570.45	19.65	-1.34	0.031
145.00	-5.14	-1.94	0.00	-11.55	0.00	11.55	1,257.74	628.87	1,098.42	550.03	20.21	-1.35	0.025
148.00	0.00	-1.82	0.00	-5.73	0.00	5.73	1,223.23	611.62	1,038.64	520.09	21.06	-1.36	0.011

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.25	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.10	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.15	
Seismic Response Coefficient (C_s):	0.04	
Upper Limit C_s	0.04	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.58	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	58.32	k
Seismic Base Shear (E):	3.01	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	146.50	300	6,442	0.014	41	376
38	144.00	203	4,204	0.009	27	254
37	141.50	345	6,915	0.015	44	433
36	137.50	586	11,082	0.023	70	734
35	133.50	358	6,381	0.013	40	448
34	131.00	246	4,213	0.009	27	308
33	129.44	139	2,333	0.005	15	174
32	127.00	776	12,510	0.026	79	971
31	125.06	17	272	0.001	2	22
30	122.50	714	10,707	0.023	68	894
29	117.50	750	10,354	0.022	65	939
28	112.50	987	12,490	0.026	79	1,236
27	107.56	1,089	12,597	0.026	80	1,364
26	105.06	36	403	0.001	3	46
25	102.50	1,469	15,434	0.032	98	1,840
24	97.50	1,485	14,121	0.030	89	1,861
23	92.50	1,502	12,851	0.027	81	1,881
22	88.19	1,100	8,552	0.018	54	1,377
21	85.69	595	4,367	0.009	28	745
20	83.31	1,474	10,231	0.022	65	1,846
19	80.81	532	3,475	0.007	22	666
18	77.50	1,652	9,923	0.021	63	2,069
17	72.50	1,673	8,795	0.018	56	2,096

16	67.50	1,693	7,714	0.016	49	2,120
15	62.50	1,713	6,690	0.014	42	2,145
14	57.50	1,732	5,728	0.012	36	2,170
13	52.50	1,752	4,830	0.010	31	2,195
12	48.42	1,121	2,628	0.006	17	1,404
11	45.92	985	2,076	0.004	13	1,233
10	43.08	2,083	3,866	0.008	24	2,609
9	40.58	446	734	0.002	5	559
8	37.50	1,931	2,715	0.006	17	2,418
7	32.50	1,954	2,064	0.004	13	2,447
6	27.50	1,977	1,495	0.003	9	2,476
5	22.50	2,000	1,013	0.002	6	2,505
4	17.50	2,023	620	0.001	4	2,534
3	12.50	2,046	320	0.001	2	2,563
2	7.50	1,969	111	0.000	1	2,466
1	2.50	1,992	12	0.000	0	2,495
Commscope ATSBT-TOP-	160.00	5	138	0.000	1	7
Ericsson Radio 4449	160.00	222	5,683	0.012	36	278
Kaelus DBC0061F1V51-	148.00	153	3,351	0.007	21	192
Powerwave Allgon LGP	148.00	85	1,853	0.004	12	106
Raycap DC6-48-60-18-	148.00	20	438	0.001	3	25
Raycap DC6-48-60-18-	148.00	20	438	0.001	3	25
Raycap DC6-48-60-0-8	148.00	33	718	0.002	5	41
Ericsson RRUS 4478 B	148.00	180	3,936	0.008	25	225
Ericsson RRUS 11 (Ba	148.00	165	3,614	0.008	23	207
Ericsson RRUS 32 (50	148.00	152	3,338	0.007	21	191
Ericsson RRUS 32 B2	148.00	159	3,483	0.007	22	199
Ericsson RRUS 32 B66	148.00	159	3,483	0.007	22	199
Powerwave Allgon 777	148.00	105	2,300	0.005	15	132
Pipe Mount	148.00	200	4,381	0.009	28	250
Quintel QS66512-2	148.00	333	7,294	0.015	46	417
CCI OPA-65R-LCUU-H6	148.00	219	4,797	0.010	30	274
Kathrein Scala 80010	148.00	293	6,413	0.013	41	367
RFS APXVAARR24_43-U-	148.00	384	8,405	0.018	53	481
Flat Platform w/ Han	148.00	2,000	43,808	0.092	277	2,505
RFS FD9R6004	143.00	19	380	0.001	2	23
Alcatel-Lucent RRH2X	143.00	172	3,517	0.007	22	215
Alcatel-Lucent RRH2x	143.00	227	4,638	0.010	29	284
Alcatel-Lucent RRH4x	143.00	253	5,178	0.011	33	317
RFS DB-T1-6Z-8AB-0Z	143.00	88	1,800	0.004	11	110
Amphenol Antel BXA-8	143.00	19	393	0.001	2	24
Antel BXA-70063/6CF	143.00	34	695	0.001	4	43
Antel BXA-80080/6CF	143.00	22	450	0.001	3	28
Commscope SBNHH-1D65	143.00	203	4,147	0.009	26	254
Commscope SBNHH-1D45	143.00	247	5,047	0.011	32	309
Flat Low Profile Pla	143.00	1,500	30,674	0.064	194	1,879
Ericsson KRY 112 144	132.00	29	507	0.001	3	36
Ericsson AIR 21, 1.3	132.00	275	4,783	0.010	30	344
Ericsson AIR-32 B2A/	132.00	397	6,910	0.015	44	497
Flat Low Profile Pla	132.00	1,500	26,136	0.055	165	1,879
Alcatel-Lucent RRH2x	120.00	159	2,285	0.005	14	199
Alcatel-Lucent 800 M	120.00	192	2,765	0.006	17	240
Alcatel-Lucent 4x40W	120.00	273	3,931	0.008	25	342
Alcatel-Lucent TD-RR	120.00	210	3,024	0.006	19	263
RFS APXVSPP18-C-A20	120.00	171	2,462	0.005	16	214
Commscope DT465B-2XR	120.00	174	2,506	0.005	16	218
Flat Low Profile Pla	120.00	1,500	21,600	0.045	137	1,879
Antel BCD-87010 ___	105.00	26	292	0.001	2	33
Flat Side Arm	100.00	150	1,500	0.003	9	188
PCTEL GPS-TMG-HR-26N	75.00	1	3	0.000	0	1
Round Side Arm	75.00	150	844	0.002	5	188
		58,320	475,607	1.000	3,007	73,045

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	146.50	300	6,442	0.014	41	254
38	144.00	203	4,204	0.009	27	172
37	141.50	345	6,915	0.015	44	293
36	137.50	586	11,082	0.023	70	497
35	133.50	358	6,381	0.013	40	303
34	131.00	246	4,213	0.009	27	208
33	129.44	139	2,333	0.005	15	118
32	127.00	776	12,510	0.026	79	657
31	125.06	17	272	0.001	2	15
30	122.50	714	10,707	0.023	68	605
29	117.50	750	10,354	0.022	65	636
28	112.50	987	12,490	0.026	79	836
27	107.56	1,089	12,597	0.026	80	923
26	105.06	36	403	0.001	3	31
25	102.50	1,469	15,434	0.032	98	1,245
24	97.50	1,485	14,121	0.030	89	1,259
23	92.50	1,502	12,851	0.027	81	1,273
22	88.19	1,100	8,552	0.018	54	932
21	85.69	595	4,367	0.009	28	504
20	83.31	1,474	10,231	0.022	65	1,249
19	80.81	532	3,475	0.007	22	451
18	77.50	1,652	9,923	0.021	63	1,400
17	72.50	1,673	8,795	0.018	56	1,418
16	67.50	1,693	7,714	0.016	49	1,435
15	62.50	1,713	6,690	0.014	42	1,452
14	57.50	1,732	5,728	0.012	36	1,468
13	52.50	1,752	4,830	0.010	31	1,485
12	48.42	1,121	2,628	0.006	17	950
11	45.92	985	2,076	0.004	13	835
10	43.08	2,083	3,866	0.008	24	1,765
9	40.58	446	734	0.002	5	378
8	37.50	1,931	2,715	0.006	17	1,636
7	32.50	1,954	2,064	0.004	13	1,656
6	27.50	1,977	1,495	0.003	9	1,676
5	22.50	2,000	1,013	0.002	6	1,695
4	17.50	2,023	620	0.001	4	1,715
3	12.50	2,046	320	0.001	2	1,734
2	7.50	1,969	111	0.000	1	1,669
1	2.50	1,992	12	0.000	0	1,688
Commscope ATSBT-TOP-	160.00	5	138	0.000	1	5
Ericsson Radio 4449	160.00	222	5,683	0.012	36	188
Kaelus DBC0061F1V51-	148.00	153	3,351	0.007	21	130
Powerwave Allgon LGP	148.00	85	1,853	0.004	12	72
Raycap DC6-48-60-18-	148.00	20	438	0.001	3	17
Raycap DC6-48-60-18-	148.00	20	438	0.001	3	17
Raycap DC6-48-60-0-8	148.00	33	718	0.002	5	28
Ericsson RRUS 4478 B	148.00	180	3,936	0.008	25	152
Ericsson RRUS 11 (Ba	148.00	165	3,614	0.008	23	140
Ericsson RRUS 32 (50	148.00	152	3,338	0.007	21	129
Ericsson RRUS 32 B2	148.00	159	3,483	0.007	22	135
Ericsson RRUS 32 B66	148.00	159	3,483	0.007	22	135
Powerwave Allgon 777	148.00	105	2,300	0.005	15	89
Pipe Mount	148.00	200	4,381	0.009	28	170
Quintel QS66512-2	148.00	333	7,294	0.015	46	282
CCI OPA-65R-LCUU-H6	148.00	219	4,797	0.010	30	186
Kathrein Scala 80010	148.00	293	6,413	0.013	41	248
RFS APXVAARR24_43-U-	148.00	384	8,405	0.018	53	325

Flat Platform w/ Han	148.00	2,000	43,808	0.092	277	1,695
RFS FD9R6004	143.00	19	380	0.001	2	16
Alcatel-Lucent RRH2X	143.00	172	3,517	0.007	22	146
Alcatel-Lucent RRH2x	143.00	227	4,638	0.010	29	192
Alcatel-Lucent RRH4x	143.00	253	5,178	0.011	33	215
RFS DB-T1-6Z-8AB-0Z	143.00	88	1,800	0.004	11	75
Amphenol Antel BXA-8	143.00	19	393	0.001	2	16
Antel BXA-70063/6CF	143.00	34	695	0.001	4	29
Antel BXA-80080/6CF	143.00	22	450	0.001	3	19
Commscope SBNHH-1D65	143.00	203	4,147	0.009	26	172
Commscope SBNHH-1D45	143.00	247	5,047	0.011	32	209
Flat Low Profile Pla	143.00	1,500	30,674	0.064	194	1,271
Ericsson KRY 112 144	132.00	29	507	0.001	3	25
Ericsson AIR 21, 1.3	132.00	275	4,783	0.010	30	233
Ericsson AIR-32 B2A/	132.00	397	6,910	0.015	44	336
Flat Low Profile Pla	132.00	1,500	26,136	0.055	165	1,271
Alcatel-Lucent RRH2x	120.00	159	2,285	0.005	14	135
Alcatel-Lucent 800 M	120.00	192	2,765	0.006	17	163
Alcatel-Lucent 4x40W	120.00	273	3,931	0.008	25	231
Alcatel-Lucent TD-RR	120.00	210	3,024	0.006	19	178
RFS APXVSPP18-C-A20	120.00	171	2,462	0.005	16	145
Commscope DT465B-2XR	120.00	174	2,506	0.005	16	147
Flat Low Profile Pla	120.00	1,500	21,600	0.045	137	1,271
Antel BCD-87010 ___	105.00	26	292	0.001	2	22
Flat Side Arm	100.00	150	1,500	0.003	9	127
PCTEL GPS-TMG-HR-26N	75.00	1	3	0.000	0	1
Round Side Arm	75.00	150	844	0.002	5	127
		58,320	475,607	1.000	3,007	49,428

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-70.27	-2.98	0.00	-370.64	0.00	370.64	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.068
5.00	-67.80	-3.00	0.00	-355.73	0.00	355.73	4,702.37	2,351.19	8,987.95	4,500.65	0.01	-0.02	0.067
10.00	-65.23	-3.02	0.00	-340.71	0.00	340.71	4,630.27	2,315.13	8,663.09	4,337.98	0.04	-0.04	0.066
15.00	-62.70	-3.04	0.00	-325.59	0.00	325.59	4,557.03	2,278.52	8,341.98	4,177.19	0.09	-0.06	0.065
20.00	-60.19	-3.05	0.00	-310.39	0.00	310.39	4,482.67	2,241.34	8,024.78	4,018.36	0.17	-0.08	0.064
25.00	-57.72	-3.06	0.00	-295.13	0.00	295.13	4,403.56	2,201.78	7,705.28	3,858.37	0.26	-0.10	0.063
30.00	-55.27	-3.06	0.00	-279.83	0.00	279.83	4,302.92	2,151.46	7,355.37	3,683.15	0.38	-0.12	0.061
35.00	-52.85	-3.06	0.00	-264.53	0.00	264.53	4,202.28	2,101.14	7,013.59	3,512.01	0.52	-0.14	0.060
40.00	-52.29	-3.06	0.00	-249.24	0.00	249.24	4,101.65	2,050.82	6,679.95	3,344.94	0.68	-0.16	0.059
41.16	-49.68	-3.04	0.00	-245.67	0.00	245.67	4,078.23	2,039.12	6,603.48	3,306.65	0.72	-0.17	0.059
45.00	-48.45	-3.03	0.00	-234.01	0.00	234.01	4,001.01	2,000.51	6,354.43	3,181.94	0.86	-0.18	0.057
46.83	-47.04	-3.02	0.00	-228.45	0.00	228.45	3,410.94	1,705.47	5,490.25	2,749.21	0.93	-0.19	0.062
50.00	-44.85	-3.00	0.00	-218.88	0.00	218.88	3,371.32	1,685.66	5,340.15	2,674.05	1.06	-0.20	0.061
55.00	-42.68	-2.97	0.00	-203.89	0.00	203.89	3,307.92	1,653.96	5,106.10	2,556.85	1.29	-0.23	0.058
60.00	-40.53	-2.93	0.00	-189.05	0.00	189.05	3,242.50	1,621.25	4,874.14	2,440.69	1.54	-0.25	0.056
65.00	-38.41	-2.89	0.00	-174.39	0.00	174.39	3,156.24	1,578.12	4,616.98	2,311.92	1.81	-0.27	0.054
70.00	-36.31	-2.84	0.00	-159.94	0.00	159.94	3,069.98	1,534.99	4,366.78	2,186.64	2.10	-0.29	0.051
75.00	-34.05	-2.77	0.00	-145.77	0.00	145.77	2,983.72	1,491.86	4,123.56	2,064.84	2.42	-0.31	0.049
80.00	-33.39	-2.75	0.00	-131.93	0.00	131.93	2,897.46	1,448.73	3,887.31	1,946.54	2.75	-0.33	0.047
81.62	-31.54	-2.68	0.00	-127.46	0.00	127.46	2,869.45	1,434.73	3,812.10	1,908.88	2.87	-0.34	0.045
85.00	-30.80	-2.65	0.00	-118.41	0.00	118.41	2,811.20	1,405.60	3,658.02	1,831.73	3.11	-0.35	0.043
86.37	-29.42	-2.59	0.00	-114.77	0.00	114.77	2,342.68	1,171.34	3,095.01	1,549.81	3.21	-0.36	0.047
90.00	-27.54	-2.51	0.00	-105.36	0.00	105.36	2,304.43	1,152.21	2,976.95	1,490.69	3.49	-0.37	0.044
95.00	-25.68	-2.42	0.00	-92.82	0.00	92.82	2,249.56	1,124.78	2,815.20	1,409.69	3.88	-0.39	0.040
100.00	-23.65	-2.30	0.00	-80.74	0.00	80.74	2,177.68	1,088.84	2,637.27	1,320.60	4.30	-0.40	0.037
105.00	-23.57	-2.30	0.00	-69.23	0.00	69.23	2,105.79	1,052.90	2,465.16	1,234.41	4.73	-0.42	0.034
105.13	-22.21	-2.21	0.00	-68.94	0.00	68.94	2,103.99	1,052.00	2,460.93	1,232.29	4.74	-0.42	0.033
105.13	-22.21	-2.21	0.00	-68.94	0.00	68.94	2,103.99	1,052.00	2,460.93	1,232.29	4.74	-0.42	0.067
110.00	-20.97	-2.13	0.00	-58.15	0.00	58.15	2,033.91	1,016.95	2,298.85	1,151.13	5.18	-0.44	0.061
115.00	-20.03	-2.07	0.00	-47.49	0.00	47.49	1,962.02	981.01	2,138.35	1,070.76	5.65	-0.46	0.055
120.00	-15.78	-1.73	0.00	-37.14	0.00	37.14	1,890.14	945.07	1,983.66	993.30	6.16	-0.49	0.046
125.00	-15.76	-1.73	0.00	-28.49	0.00	28.49	1,818.26	909.13	1,834.77	918.75	6.68	-0.51	0.040
125.12	-14.79	-1.64	0.00	-28.28	0.00	28.28	1,816.48	908.24	1,831.17	916.95	6.69	-0.51	0.039
128.87	-14.62	-1.63	0.00	-22.11	0.00	22.11	1,443.09	721.55	1,448.31	725.23	7.10	-0.53	0.041
130.00	-14.31	-1.60	0.00	-20.27	0.00	20.27	1,430.26	715.13	1,422.41	712.26	7.23	-0.53	0.038
132.00	-11.11	-1.29	0.00	-17.07	0.00	17.07	1,407.26	703.63	1,376.79	689.42	7.45	-0.54	0.033
135.00	-10.37	-1.22	0.00	-13.19	0.00	13.19	1,372.75	686.38	1,309.76	655.86	7.79	-0.55	0.028
140.00	-9.94	-1.17	0.00	-7.11	0.00	7.11	1,315.24	657.62	1,201.77	601.78	8.37	-0.56	0.019
143.00	-6.20	-0.75	0.00	-3.60	0.00	3.60	1,280.74	640.37	1,139.20	570.45	8.73	-0.56	0.011
145.00	-5.83	-0.70	0.00	-2.11	0.00	2.11	1,257.74	628.87	1,098.42	550.03	8.96	-0.56	0.008
148.00	0.00	-0.65	0.00	0.00	0.00	0.00	1,223.23	611.62	1,038.64	520.09	9.32	-0.57	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.55	-2.98	0.00	-363.62	0.00	363.62	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.064
5.00	-45.88	-2.99	0.00	-348.73	0.00	348.73	4,702.37	2,351.19	8,987.95	4,500.65	0.01	-0.02	0.063
10.00	-44.14	-3.00	0.00	-333.77	0.00	333.77	4,630.27	2,315.13	8,663.09	4,337.98	0.04	-0.04	0.062
15.00	-42.43	-3.01	0.00	-318.75	0.00	318.75	4,557.03	2,278.52	8,341.98	4,177.19	0.09	-0.06	0.061
20.00	-40.73	-3.02	0.00	-303.69	0.00	303.69	4,482.67	2,241.34	8,024.78	4,018.36	0.16	-0.08	0.059
25.00	-39.05	-3.02	0.00	-288.59	0.00	288.59	4,403.56	2,201.78	7,705.28	3,858.37	0.26	-0.10	0.058
30.00	-37.40	-3.02	0.00	-273.49	0.00	273.49	4,302.92	2,151.46	7,355.37	3,683.15	0.37	-0.12	0.057
35.00	-35.76	-3.01	0.00	-258.40	0.00	258.40	4,202.28	2,101.14	7,013.59	3,512.01	0.51	-0.14	0.056
40.00	-35.38	-3.01	0.00	-243.35	0.00	243.35	4,101.65	2,050.82	6,679.95	3,344.94	0.66	-0.16	0.055
41.16	-33.61	-2.99	0.00	-239.85	0.00	239.85	4,078.23	2,039.12	6,603.48	3,306.65	0.70	-0.16	0.054
45.00	-32.78	-2.98	0.00	-228.38	0.00	228.38	4,001.01	2,000.51	6,354.43	3,181.94	0.84	-0.18	0.053
46.83	-31.83	-2.97	0.00	-222.93	0.00	222.93	3,410.94	1,705.47	5,490.25	2,749.21	0.91	-0.19	0.058
50.00	-30.34	-2.94	0.00	-213.53	0.00	213.53	3,371.32	1,685.66	5,340.15	2,674.05	1.04	-0.20	0.056
55.00	-28.87	-2.91	0.00	-198.84	0.00	198.84	3,307.92	1,653.96	5,106.10	2,556.85	1.26	-0.22	0.054
60.00	-27.42	-2.87	0.00	-184.30	0.00	184.30	3,242.50	1,621.25	4,874.14	2,440.69	1.51	-0.24	0.052
65.00	-25.99	-2.82	0.00	-169.95	0.00	169.95	3,156.24	1,578.12	4,616.98	2,311.92	1.77	-0.26	0.050
70.00	-24.57	-2.77	0.00	-155.83	0.00	155.83	3,069.98	1,534.99	4,366.78	2,186.64	2.06	-0.28	0.048
75.00	-23.04	-2.70	0.00	-141.98	0.00	141.98	2,983.72	1,491.86	4,123.56	2,064.84	2.36	-0.30	0.045
80.00	-22.59	-2.68	0.00	-128.47	0.00	128.47	2,897.46	1,448.73	3,887.31	1,946.54	2.69	-0.32	0.043
81.62	-21.34	-2.61	0.00	-124.11	0.00	124.11	2,869.45	1,434.73	3,812.10	1,908.88	2.80	-0.33	0.042
85.00	-20.83	-2.59	0.00	-115.29	0.00	115.29	2,811.20	1,405.60	3,658.02	1,831.73	3.04	-0.34	0.040
86.37	-19.90	-2.53	0.00	-111.73	0.00	111.73	2,342.68	1,171.34	3,095.01	1,549.81	3.14	-0.35	0.043
90.00	-18.63	-2.45	0.00	-102.55	0.00	102.55	2,304.43	1,152.21	2,976.95	1,490.69	3.41	-0.36	0.040
95.00	-17.37	-2.35	0.00	-90.32	0.00	90.32	2,249.56	1,124.78	2,815.20	1,409.69	3.80	-0.38	0.037
100.00	-16.00	-2.24	0.00	-78.55	0.00	78.55	2,177.68	1,088.84	2,637.27	1,320.60	4.20	-0.40	0.034
105.00	-15.94	-2.24	0.00	-67.33	0.00	67.33	2,105.79	1,052.90	2,465.16	1,234.41	4.63	-0.41	0.031
105.13	-15.02	-2.16	0.00	-67.05	0.00	67.05	2,103.99	1,052.00	2,460.93	1,232.29	4.64	-0.41	0.030
105.13	-15.02	-2.16	0.00	-67.05	0.00	67.05	2,103.99	1,052.00	2,460.93	1,232.29	4.64	-0.41	0.062
110.00	-14.18	-2.08	0.00	-56.54	0.00	56.54	2,033.91	1,016.95	2,298.85	1,151.13	5.06	-0.43	0.056
115.00	-13.55	-2.01	0.00	-46.16	0.00	46.16	1,962.02	981.01	2,138.35	1,070.76	5.52	-0.45	0.050
120.00	-10.68	-1.68	0.00	-36.10	0.00	36.10	1,890.14	945.07	1,983.66	993.30	6.01	-0.48	0.042
125.00	-10.66	-1.68	0.00	-27.69	0.00	27.69	1,818.26	909.13	1,834.77	918.75	6.53	-0.50	0.036
125.12	-10.00	-1.60	0.00	-27.48	0.00	27.48	1,816.48	908.24	1,831.17	916.95	6.54	-0.50	0.035
128.87	-9.89	-1.58	0.00	-21.49	0.00	21.49	1,443.09	721.55	1,448.31	725.23	6.94	-0.51	0.036
130.00	-9.68	-1.56	0.00	-19.70	0.00	19.70	1,430.26	715.13	1,422.41	712.26	7.06	-0.52	0.034
132.00	-7.51	-1.26	0.00	-16.59	0.00	16.59	1,407.26	703.63	1,376.79	689.42	7.28	-0.52	0.029
135.00	-7.02	-1.18	0.00	-12.82	0.00	12.82	1,372.75	686.38	1,309.76	655.86	7.61	-0.53	0.025
140.00	-6.72	-1.14	0.00	-6.91	0.00	6.91	1,315.24	657.62	1,201.77	601.78	8.18	-0.55	0.017
143.00	-4.20	-0.73	0.00	-3.50	0.00	3.50	1,280.74	640.37	1,139.20	570.45	8.52	-0.55	0.009
145.00	-3.94	-0.68	0.00	-2.05	0.00	2.05	1,257.74	628.87	1,098.42	550.03	8.75	-0.55	0.007
148.00	0.00	-0.65	0.00	0.00	0.00	0.00	1,223.23	611.62	1,038.64	520.09	9.10	-0.55	0.000

Site Number:	302515	Code: ANSI/TIA-222-G	
Site Name:	SMFR - North, CT	Engineering Number: 12598483_C3_03	3/1/2019 9:28:00 AM
Customer:	T-MOBILE		

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.25
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.10
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.15
Period Based on Rayleigh Method (sec):	2.58
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	146.50	300	1.852	1.785	1.069	0.466	121	376
38	144.00	203	1.789	1.490	0.959	0.413	73	254
37	141.50	345	1.728	1.230	0.858	0.363	109	433
36	137.50	586	1.631	0.879	0.713	0.289	147	734
35	133.50	358	1.538	0.599	0.589	0.222	69	448
34	131.00	246	1.481	0.455	0.520	0.184	39	308
33	129.44	139	1.446	0.376	0.480	0.162	20	174
32	127.00	776	1.392	0.268	0.423	0.129	87	971
31	125.06	17	1.350	0.195	0.382	0.105	2	22
30	122.50	714	1.295	0.113	0.332	0.076	47	894
29	117.50	750	1.191	-0.003	0.248	0.028	18	939
28	112.50	987	1.092	-0.074	0.182	-0.010	-8	1,236
27	107.56	1,089	0.998	-0.110	0.131	-0.036	-34	1,364
26	105.06	36	0.952	-0.119	0.109	-0.046	-1	46
25	102.50	1,469	0.907	-0.122	0.090	-0.052	-67	1,840
24	97.50	1,485	0.820	-0.115	0.060	-0.058	-74	1,861
23	92.50	1,502	0.738	-0.098	0.038	-0.053	-68	1,881
22	88.19	1,100	0.671	-0.078	0.025	-0.041	-39	1,377
21	85.69	595	0.634	-0.065	0.019	-0.032	-17	745
20	83.31	1,474	0.599	-0.053	0.014	-0.022	-28	1,846
19	80.81	532	0.563	-0.040	0.011	-0.011	-5	666
18	77.50	1,652	0.518	-0.023	0.008	0.004	6	2,069
17	72.50	1,673	0.454	0.000	0.006	0.026	38	2,096
16	67.50	1,693	0.393	0.020	0.007	0.044	65	2,120
15	62.50	1,713	0.337	0.036	0.009	0.057	85	2,145
14	57.50	1,732	0.285	0.048	0.014	0.065	98	2,170
13	52.50	1,752	0.238	0.057	0.018	0.069	105	2,195
12	48.42	1,121	0.202	0.062	0.023	0.070	68	1,404
11	45.92	985	0.182	0.065	0.026	0.070	60	1,233
10	43.08	2,083	0.160	0.067	0.029	0.070	126	2,609
9	40.58	446	0.142	0.069	0.031	0.069	27	559
8	37.50	1,931	0.121	0.070	0.034	0.068	114	2,418
7	32.50	1,954	0.091	0.071	0.038	0.067	113	2,447
6	27.50	1,977	0.065	0.072	0.041	0.065	111	2,476

5	22.50	2,000	0.044	0.071	0.042	0.063	109	2,505
4	17.50	2,023	0.026	0.067	0.040	0.059	104	2,534
3	12.50	2,046	0.013	0.059	0.035	0.054	95	2,563
2	7.50	1,969	0.005	0.044	0.025	0.042	72	2,466
1	2.50	1,992	0.001	0.018	0.010	0.020	34	2,495
Commscope ATSBT-	160.00	5	2.209	4.120	1.851	0.805	4	7
Ericsson Radio 4449	160.00	222	2.209	4.120	1.851	0.805	155	278
Kaelus DBC0061F1V51-	148.00	153	1.890	1.980	1.140	0.499	66	192
Powerwave Allgon LGP	148.00	85	1.890	1.980	1.140	0.499	37	106
Raycap DC6-48-60-18-	148.00	20	1.890	1.980	1.140	0.499	9	25
Raycap DC6-48-60-18-	148.00	20	1.890	1.980	1.140	0.499	9	25
Raycap DC6-48-60-0-8	148.00	33	1.890	1.980	1.140	0.499	14	41
Ericsson RRUS 4478 B	148.00	180	1.890	1.980	1.140	0.499	78	225
Ericsson RRUS 11 (Ba	148.00	165	1.890	1.980	1.140	0.499	71	207
Ericsson RRUS 32 (50	148.00	152	1.890	1.980	1.140	0.499	66	191
Ericsson RRUS 32 B2	148.00	159	1.890	1.980	1.140	0.499	69	199
Ericsson RRUS 32 B66	148.00	159	1.890	1.980	1.140	0.499	69	199
Powerwave Allgon 777	148.00	105	1.890	1.980	1.140	0.499	45	132
Pipe Mount	148.00	200	1.890	1.980	1.140	0.499	87	250
Quintel QS66512-2	148.00	333	1.890	1.980	1.140	0.499	144	417
CCI OPA-65R-LCUU-H6	148.00	219	1.890	1.980	1.140	0.499	95	274
Kathrein Scala 80010	148.00	293	1.890	1.980	1.140	0.499	127	367
RFS APXVAARR24_43-U-	148.00	384	1.890	1.980	1.140	0.499	166	481
Flat Platform w/ Han	148.00	2,000	1.890	1.980	1.140	0.499	866	2,505
RFS FD9R6004	143.00	19	1.764	1.382	0.917	0.393	6	23
Alcatel-Lucent RRH2X	143.00	172	1.764	1.382	0.917	0.393	59	215
Alcatel-Lucent RRH2x	143.00	227	1.764	1.382	0.917	0.393	77	284
Alcatel-Lucent RRH4x	143.00	253	1.764	1.382	0.917	0.393	86	317
RFS DB-T1-6Z-8AB-0Z	143.00	88	1.764	1.382	0.917	0.393	30	110
Amphenol Antel BXA-8	143.00	19	1.764	1.382	0.917	0.393	7	24
Antel BXA-70063/6CF	143.00	34	1.764	1.382	0.917	0.393	12	43
Antel BXA-80080/6CF	143.00	22	1.764	1.382	0.917	0.393	7	28
Commscope SBNHH-	143.00	203	1.764	1.382	0.917	0.393	69	254
Commscope SBNHH-	143.00	247	1.764	1.382	0.917	0.393	84	309
Flat Low Profile Pla	143.00	1,500	1.764	1.382	0.917	0.393	510	1,879
Ericsson KRY 112 144	132.00	29	1.503	0.510	0.547	0.199	5	36
Ericsson AIR 21, 1.3	132.00	275	1.503	0.510	0.547	0.199	47	344
Ericsson AIR-32 B2A/	132.00	397	1.503	0.510	0.547	0.199	68	497
Flat Low Profile Pla	132.00	1,500	1.503	0.510	0.547	0.199	259	1,879
Alcatel-Lucent RRH2x	120.00	159	1.243	0.049	0.288	0.051	7	199
Alcatel-Lucent 800 M	120.00	192	1.243	0.049	0.288	0.051	8	240
Alcatel-Lucent 4x40W	120.00	273	1.243	0.049	0.288	0.051	12	342
Alcatel-Lucent TD-RR	120.00	210	1.243	0.049	0.288	0.051	9	263
RFS APXVSPP18-C-A20	120.00	171	1.243	0.049	0.288	0.051	8	214
Commscope DT465B-	120.00	174	1.243	0.049	0.288	0.051	8	218
Flat Low Profile Pla	120.00	1,500	1.243	0.049	0.288	0.051	66	1,879
Antel BCD-87010 ___	105.00	26	0.951	-0.119	0.109	-0.046	-1	33
Flat Side Arm	100.00	150	0.863	-0.120	0.074	-0.056	-7	188
PCTEL GPS-TMG-HR-	75.00	1	0.485	-0.011	0.007	0.015	0	1
Round Side Arm	75.00	150	0.485	-0.011	0.007	0.015	2	188
		58,320	101.398	66.606	45.255	18.556	5,428	73,045

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	146.50	300	1.852	1.785	1.069	0.466	121	254
38	144.00	203	1.789	1.490	0.959	0.413	73	172
37	141.50	345	1.728	1.230	0.858	0.363	109	293

36	137.50	586	1.631	0.879	0.713	0.289	147	497
35	133.50	358	1.538	0.599	0.589	0.222	69	303
34	131.00	246	1.481	0.455	0.520	0.184	39	208
33	129.44	139	1.446	0.376	0.480	0.162	20	118
32	127.00	776	1.392	0.268	0.423	0.129	87	657
31	125.06	17	1.350	0.195	0.382	0.105	2	15
30	122.50	714	1.295	0.113	0.332	0.076	47	605
29	117.50	750	1.191	-0.003	0.248	0.028	18	636
28	112.50	987	1.092	-0.074	0.182	-0.010	-8	836
27	107.56	1,089	0.998	-0.110	0.131	-0.036	-34	923
26	105.06	36	0.952	-0.119	0.109	-0.046	-1	31
25	102.50	1,469	0.907	-0.122	0.090	-0.052	-67	1,245
24	97.50	1,485	0.820	-0.115	0.060	-0.058	-74	1,259
23	92.50	1,502	0.738	-0.098	0.038	-0.053	-68	1,273
22	88.19	1,100	0.671	-0.078	0.025	-0.041	-39	932
21	85.69	595	0.634	-0.065	0.019	-0.032	-17	504
20	83.31	1,474	0.599	-0.053	0.014	-0.022	-28	1,249
19	80.81	532	0.563	-0.040	0.011	-0.011	-5	451
18	77.50	1,652	0.518	-0.023	0.008	0.004	6	1,400
17	72.50	1,673	0.454	0.000	0.006	0.026	38	1,418
16	67.50	1,693	0.393	0.020	0.007	0.044	65	1,435
15	62.50	1,713	0.337	0.036	0.009	0.057	85	1,452
14	57.50	1,732	0.285	0.048	0.014	0.065	98	1,468
13	52.50	1,752	0.238	0.057	0.018	0.069	105	1,485
12	48.42	1,121	0.202	0.062	0.023	0.070	68	950
11	45.92	985	0.182	0.065	0.026	0.070	60	835
10	43.08	2,083	0.160	0.067	0.029	0.070	126	1,765
9	40.58	446	0.142	0.069	0.031	0.069	27	378
8	37.50	1,931	0.121	0.070	0.034	0.068	114	1,636
7	32.50	1,954	0.091	0.071	0.038	0.067	113	1,656
6	27.50	1,977	0.065	0.072	0.041	0.065	111	1,676
5	22.50	2,000	0.044	0.071	0.042	0.063	109	1,695
4	17.50	2,023	0.026	0.067	0.040	0.059	104	1,715
3	12.50	2,046	0.013	0.059	0.035	0.054	95	1,734
2	7.50	1,969	0.005	0.044	0.025	0.042	72	1,669
1	2.50	1,992	0.001	0.018	0.010	0.020	34	1,688
Commscope ATSBT-	160.00	5	2.209	4.120	1.851	0.805	4	5
Ericsson Radio 4449	160.00	222	2.209	4.120	1.851	0.805	155	188
Kaelus DBC0061F1V51-	148.00	153	1.890	1.980	1.140	0.499	66	130
Powerwave Allgon LGP	148.00	85	1.890	1.980	1.140	0.499	37	72
Raycap DC6-48-60-18-	148.00	20	1.890	1.980	1.140	0.499	9	17
Raycap DC6-48-60-18-	148.00	20	1.890	1.980	1.140	0.499	9	17
Raycap DC6-48-60-0-8	148.00	33	1.890	1.980	1.140	0.499	14	28
Ericsson RRUS 4478 B	148.00	180	1.890	1.980	1.140	0.499	78	152
Ericsson RRUS 11 (Ba	148.00	165	1.890	1.980	1.140	0.499	71	140
Ericsson RRUS 32 (50	148.00	152	1.890	1.980	1.140	0.499	66	129
Ericsson RRUS 32 B2	148.00	159	1.890	1.980	1.140	0.499	69	135
Ericsson RRUS 32 B66	148.00	159	1.890	1.980	1.140	0.499	69	135
Powerwave Allgon 777	148.00	105	1.890	1.980	1.140	0.499	45	89
Pipe Mount	148.00	200	1.890	1.980	1.140	0.499	87	170
Quintel QS66512-2	148.00	333	1.890	1.980	1.140	0.499	144	282
CCI OPA-65R-LCUU-H6	148.00	219	1.890	1.980	1.140	0.499	95	186
Kathrein Scala 80010	148.00	293	1.890	1.980	1.140	0.499	127	248
RFS APXVAARR24_43-U-	148.00	384	1.890	1.980	1.140	0.499	166	325
Flat Platform w/ Han	148.00	2,000	1.890	1.980	1.140	0.499	866	1,695
RFS FD9R6004	143.00	19	1.764	1.382	0.917	0.393	6	16
Alcatel-Lucent RRH2X	143.00	172	1.764	1.382	0.917	0.393	59	146
Alcatel-Lucent RRH2x	143.00	227	1.764	1.382	0.917	0.393	77	192
Alcatel-Lucent RRH4x	143.00	253	1.764	1.382	0.917	0.393	86	215
RFS DB-T1-6Z-8AB-0Z	143.00	88	1.764	1.382	0.917	0.393	30	75
Amphenol Antel BXA-8	143.00	19	1.764	1.382	0.917	0.393	7	16
Antel BXA-70063/6CF	143.00	34	1.764	1.382	0.917	0.393	12	29
Antel BXA-80080/6CF	143.00	22	1.764	1.382	0.917	0.393	7	19
Commscope SBNHH-	143.00	203	1.764	1.382	0.917	0.393	69	172

Commscope SBNHH-	143.00	247	1.764	1.382	0.917	0.393	84	209
Flat Low Profile Pla	143.00	1,500	1.764	1.382	0.917	0.393	510	1,271
Ericsson KRY 112 144	132.00	29	1.503	0.510	0.547	0.199	5	25
Ericsson AIR 21, 1.3	132.00	275	1.503	0.510	0.547	0.199	47	233
Ericsson AIR-32 B2A/	132.00	397	1.503	0.510	0.547	0.199	68	336
Flat Low Profile Pla	132.00	1,500	1.503	0.510	0.547	0.199	259	1,271
Alcatel-Lucent RRH2x	120.00	159	1.243	0.049	0.288	0.051	7	135
Alcatel-Lucent 800 M	120.00	192	1.243	0.049	0.288	0.051	8	163
Alcatel-Lucent 4x40W	120.00	273	1.243	0.049	0.288	0.051	12	231
Alcatel-Lucent TD-RR	120.00	210	1.243	0.049	0.288	0.051	9	178
RFS APXVSPP18-C-A20	120.00	171	1.243	0.049	0.288	0.051	8	145
Commscope DT465B-	120.00	174	1.243	0.049	0.288	0.051	8	147
Flat Low Profile Pla	120.00	1,500	1.243	0.049	0.288	0.051	66	1,271
Antel BCD-87010 ___	105.00	26	0.951	-0.119	0.109	-0.046	-1	22
Flat Side Arm	100.00	150	0.863	-0.120	0.074	-0.056	-7	127
PCTEL GPS-TMG-HR-	75.00	1	0.485	-0.011	0.007	0.015	0	1
Round Side Arm	75.00	150	0.485	-0.011	0.007	0.015	2	127
		58,320	101.398	66.606	45.255	18.556	5,428	49,428

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-70.26	-5.26	0.00	-652.35	0.00	652.35	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.112
5.00	-67.80	-5.23	0.00	-626.07	0.00	626.07	4,702.37	2,351.19	8,987.95	4,500.65	0.02	-0.03	0.110
10.00	-65.23	-5.17	0.00	-599.94	0.00	599.94	4,630.27	2,315.13	8,663.09	4,337.98	0.07	-0.07	0.109
15.00	-62.69	-5.10	0.00	-574.10	0.00	574.10	4,557.03	2,278.52	8,341.98	4,177.19	0.17	-0.11	0.107
20.00	-60.18	-5.02	0.00	-548.61	0.00	548.61	4,482.67	2,241.34	8,024.78	4,018.36	0.29	-0.14	0.105
25.00	-57.71	-4.94	0.00	-523.49	0.00	523.49	4,403.56	2,201.78	7,705.28	3,858.37	0.46	-0.18	0.103
30.00	-55.26	-4.86	0.00	-498.78	0.00	498.78	4,302.92	2,151.46	7,355.37	3,683.15	0.67	-0.21	0.102
35.00	-52.83	-4.77	0.00	-474.50	0.00	474.50	4,202.28	2,101.14	7,013.59	3,512.01	0.91	-0.25	0.101
40.00	-52.27	-4.76	0.00	-450.67	0.00	450.67	4,101.65	2,050.82	6,679.95	3,344.94	1.20	-0.29	0.100
41.16	-49.66	-4.64	0.00	-445.13	0.00	445.13	4,078.23	2,039.12	6,603.48	3,306.65	1.27	-0.30	0.099
45.00	-48.43	-4.59	0.00	-427.35	0.00	427.35	4,001.01	2,000.51	6,354.43	3,181.94	1.52	-0.33	0.097
46.83	-47.02	-4.53	0.00	-418.95	0.00	418.95	3,410.94	1,705.47	5,490.25	2,749.21	1.65	-0.34	0.106
50.00	-44.83	-4.43	0.00	-404.60	0.00	404.60	3,371.32	1,685.66	5,340.15	2,674.05	1.88	-0.37	0.104
55.00	-42.66	-4.35	0.00	-382.43	0.00	382.43	3,307.92	1,653.96	5,106.10	2,556.85	2.29	-0.41	0.101
60.00	-40.51	-4.28	0.00	-360.67	0.00	360.67	3,242.50	1,621.25	4,874.14	2,440.69	2.73	-0.45	0.099
65.00	-38.39	-4.23	0.00	-339.27	0.00	339.27	3,156.24	1,578.12	4,616.98	2,311.92	3.22	-0.49	0.097
70.00	-36.29	-4.20	0.00	-318.14	0.00	318.14	3,069.98	1,534.99	4,366.78	2,186.64	3.76	-0.53	0.094
75.00	-34.03	-4.19	0.00	-297.16	0.00	297.16	2,983.72	1,491.86	4,123.56	2,064.84	4.33	-0.57	0.092
80.00	-33.36	-4.20	0.00	-276.21	0.00	276.21	2,897.46	1,448.73	3,887.31	1,946.54	4.95	-0.61	0.089
81.62	-31.51	-4.22	0.00	-269.38	0.00	269.38	2,869.45	1,434.73	3,812.10	1,908.88	5.16	-0.62	0.088
85.00	-30.76	-4.24	0.00	-255.12	0.00	255.12	2,811.20	1,405.60	3,658.02	1,831.73	5.61	-0.65	0.085
86.37	-29.38	-4.28	0.00	-249.29	0.00	249.29	2,342.68	1,171.34	3,095.01	1,549.81	5.80	-0.66	0.092
90.00	-27.50	-4.34	0.00	-233.77	0.00	233.77	2,304.43	1,152.21	2,976.95	1,490.69	6.32	-0.69	0.088
95.00	-25.64	-4.41	0.00	-212.07	0.00	212.07	2,249.56	1,124.78	2,815.20	1,409.69	7.07	-0.73	0.083
100.00	-23.60	-4.47	0.00	-190.02	0.00	190.02	2,177.68	1,088.84	2,637.27	1,320.60	7.86	-0.78	0.077
105.00	-23.52	-4.48	0.00	-167.65	0.00	167.65	2,105.79	1,052.90	2,465.16	1,234.41	8.69	-0.81	0.072
105.13	-22.16	-4.51	0.00	-167.09	0.00	167.09	2,103.99	1,052.00	2,460.93	1,232.29	8.71	-0.82	0.071
105.13	-22.16	-4.51	0.00	-167.09	0.00	167.09	2,103.99	1,052.00	2,460.93	1,232.29	8.71	-0.82	0.146
110.00	-20.92	-4.52	0.00	-145.13	0.00	145.13	2,033.91	1,016.95	2,298.85	1,151.13	9.57	-0.85	0.136
115.00	-19.97	-4.51	0.00	-122.55	0.00	122.55	1,962.02	981.01	2,138.35	1,070.76	10.50	-0.92	0.125
120.00	-15.72	-4.29	0.00	-100.02	0.00	100.02	1,890.14	945.07	1,983.66	993.30	11.50	-0.99	0.109
125.00	-15.70	-4.30	0.00	-78.57	0.00	78.57	1,818.26	909.13	1,834.77	918.75	12.57	-1.05	0.094
125.12	-14.73	-4.20	0.00	-78.04	0.00	78.04	1,816.48	908.24	1,831.17	916.95	12.60	-1.05	0.093
128.87	-14.55	-4.18	0.00	-62.31	0.00	62.31	1,443.09	721.55	1,448.31	725.23	13.44	-1.09	0.096
130.00	-14.24	-4.14	0.00	-57.60	0.00	57.60	1,430.26	715.13	1,422.41	712.26	13.70	-1.10	0.091
132.00	-11.05	-3.63	0.00	-49.32	0.00	49.32	1,407.26	703.63	1,376.79	689.42	14.17	-1.12	0.079
135.00	-10.32	-3.48	0.00	-38.42	0.00	38.42	1,372.75	686.38	1,309.76	655.86	14.88	-1.15	0.066
140.00	-9.88	-3.36	0.00	-21.04	0.00	21.04	1,315.24	657.62	1,201.77	601.78	16.11	-1.18	0.043
143.00	-6.17	-2.27	0.00	-10.95	0.00	10.95	1,280.74	640.37	1,139.20	570.45	16.86	-1.20	0.024
145.00	-5.79	-2.14	0.00	-6.42	0.00	6.42	1,257.74	628.87	1,098.42	550.03	17.36	-1.20	0.016
148.00	0.00	-2.02	0.00	0.00	0.00	0.00	1,223.23	611.62	1,038.64	520.09	18.11	-1.20	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.55	-5.25	0.00	-639.35	0.00	639.35	4,773.35	2,386.68	9,316.44	4,665.14	0.00	0.00	0.106
5.00	-45.87	-5.20	0.00	-613.11	0.00	613.11	4,702.37	2,351.19	8,987.95	4,500.65	0.02	-0.03	0.105
10.00	-44.14	-5.13	0.00	-587.09	0.00	587.09	4,630.27	2,315.13	8,663.09	4,337.98	0.07	-0.07	0.103
15.00	-42.42	-5.05	0.00	-561.41	0.00	561.41	4,557.03	2,278.52	8,341.98	4,177.19	0.16	-0.10	0.101
20.00	-40.72	-4.97	0.00	-536.15	0.00	536.15	4,482.67	2,241.34	8,024.78	4,018.36	0.29	-0.14	0.100
25.00	-39.04	-4.88	0.00	-511.32	0.00	511.32	4,403.56	2,201.78	7,705.28	3,858.37	0.45	-0.17	0.098
30.00	-37.38	-4.78	0.00	-486.94	0.00	486.94	4,302.92	2,151.46	7,355.37	3,683.15	0.65	-0.21	0.097
35.00	-35.75	-4.68	0.00	-463.04	0.00	463.04	4,202.28	2,101.14	7,013.59	3,512.01	0.89	-0.25	0.095
40.00	-35.37	-4.67	0.00	-439.63	0.00	439.63	4,101.65	2,050.82	6,679.95	3,344.94	1.17	-0.28	0.094
41.16	-33.60	-4.54	0.00	-434.19	0.00	434.19	4,078.23	2,039.12	6,603.48	3,306.65	1.24	-0.29	0.094
45.00	-32.76	-4.49	0.00	-416.76	0.00	416.76	4,001.01	2,000.51	6,354.43	3,181.94	1.48	-0.32	0.092
46.83	-31.81	-4.43	0.00	-408.54	0.00	408.54	3,410.94	1,705.47	5,490.25	2,749.21	1.61	-0.33	0.100
50.00	-30.33	-4.33	0.00	-394.50	0.00	394.50	3,371.32	1,685.66	5,340.15	2,674.05	1.84	-0.36	0.099
55.00	-28.86	-4.24	0.00	-372.84	0.00	372.84	3,307.92	1,653.96	5,106.10	2,556.85	2.23	-0.40	0.096
60.00	-27.40	-4.17	0.00	-351.62	0.00	351.62	3,242.50	1,621.25	4,874.14	2,440.69	2.67	-0.44	0.094
65.00	-25.96	-4.11	0.00	-330.78	0.00	330.78	3,156.24	1,578.12	4,616.98	2,311.92	3.15	-0.48	0.092
70.00	-24.54	-4.08	0.00	-310.23	0.00	310.23	3,069.98	1,534.99	4,366.78	2,186.64	3.67	-0.52	0.089
75.00	-23.01	-4.07	0.00	-289.84	0.00	289.84	2,983.72	1,491.86	4,123.56	2,064.84	4.23	-0.56	0.087
80.00	-22.56	-4.08	0.00	-269.48	0.00	269.48	2,897.46	1,448.73	3,887.31	1,946.54	4.84	-0.60	0.085
81.62	-21.31	-4.11	0.00	-262.86	0.00	262.86	2,869.45	1,434.73	3,812.10	1,908.88	5.04	-0.61	0.083
85.00	-20.80	-4.12	0.00	-248.99	0.00	248.99	2,811.20	1,405.60	3,658.02	1,831.73	5.48	-0.64	0.080
86.37	-19.87	-4.16	0.00	-243.33	0.00	243.33	2,342.68	1,171.34	3,095.01	1,549.81	5.67	-0.65	0.087
90.00	-18.59	-4.22	0.00	-228.25	0.00	228.25	2,304.43	1,152.21	2,976.95	1,490.69	6.17	-0.68	0.084
95.00	-17.33	-4.30	0.00	-207.13	0.00	207.13	2,249.56	1,124.78	2,815.20	1,409.69	6.90	-0.72	0.079
100.00	-15.96	-4.36	0.00	-185.65	0.00	185.65	2,177.68	1,088.84	2,637.27	1,320.60	7.68	-0.76	0.074
105.00	-15.90	-4.37	0.00	-163.84	0.00	163.84	2,105.79	1,052.90	2,465.16	1,234.41	8.49	-0.79	0.068
105.13	-14.98	-4.40	0.00	-163.30	0.00	163.30	2,103.99	1,052.00	2,460.93	1,232.29	8.51	-0.80	0.068
105.13	-14.98	-4.40	0.00	-163.30	0.00	163.30	2,103.99	1,052.00	2,460.93	1,232.29	8.51	-0.80	0.140
110.00	-14.14	-4.41	0.00	-141.87	0.00	141.87	2,033.91	1,016.95	2,298.85	1,151.13	9.34	-0.83	0.130
115.00	-13.49	-4.39	0.00	-119.84	0.00	119.84	1,962.02	981.01	2,138.35	1,070.76	10.25	-0.90	0.119
120.00	-10.62	-4.19	0.00	-97.87	0.00	97.87	1,890.14	945.07	1,983.66	993.30	11.23	-0.97	0.104
125.00	-10.60	-4.20	0.00	-76.90	0.00	76.90	1,818.26	909.13	1,834.77	918.75	12.28	-1.03	0.090
125.12	-9.94	-4.10	0.00	-76.39	0.00	76.39	1,816.48	908.24	1,831.17	916.95	12.30	-1.03	0.089
128.87	-9.82	-4.08	0.00	-61.00	0.00	61.00	1,443.09	721.55	1,448.31	725.23	13.13	-1.07	0.091
130.00	-9.62	-4.04	0.00	-56.40	0.00	56.40	1,430.26	715.13	1,422.41	712.26	13.38	-1.08	0.086
132.00	-7.46	-3.56	0.00	-48.31	0.00	48.31	1,407.26	703.63	1,376.79	689.42	13.83	-1.10	0.075
135.00	-6.96	-3.41	0.00	-37.64	0.00	37.64	1,372.75	686.38	1,309.76	655.86	14.53	-1.12	0.062
140.00	-6.67	-3.29	0.00	-20.62	0.00	20.62	1,315.24	657.62	1,201.77	601.78	15.73	-1.16	0.039
143.00	-4.16	-2.22	0.00	-10.74	0.00	10.74	1,280.74	640.37	1,139.20	570.45	16.46	-1.17	0.022
145.00	-3.91	-2.10	0.00	-6.29	0.00	6.29	1,257.74	628.87	1,098.42	550.03	16.95	-1.17	0.015
148.00	0.00	-2.02	0.00	0.00	0.00	0.00	1,223.23	611.62	1,038.64	520.09	17.69	-1.18	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	26.68	0.00	69.94	0.00	0.00	3232.54	105.13	0.56
0.9D + 1.6W	25.26	0.00	52.45	0.00	0.00	3058.50	105.13	0.54
1.2D + 1.0Di + 1.0Wi	7.48	0.00	120.50	0.00	0.00	942.30	105.13	0.19
(1.2 + 0.2Sds) * DL + E ELFM	2.98	0.00	70.27	0.00	0.00	370.64	0.00	0.07
(1.2 + 0.2Sds) * DL + E EMAM	5.26	0.00	70.26	0.00	0.00	652.35	105.13	0.15
(0.9 - 0.2Sds) * DL + E ELFM	2.98	0.00	47.55	0.00	0.00	363.62	0.00	0.06
(0.9 - 0.2Sds) * DL + E EMAM	5.25	0.00	47.55	0.00	0.00	639.35	105.13	0.14
1.0D + 1.0W	6.57	0.00	58.32	0.00	0.00	800.48	105.13	0.15

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Intermediate Connectors Shear Applied (kips)	Intermediate Connectors Shear phiVn (kips)	Intermediate Connectors Ratio	Max Member Pu (kip)	Max Member phiPn (kip)	Max Member Ratio
0.00	105.13	(4) SOL-#20 All Thread Bar	291.4	8.7	16.8	0.520	202.9	330.5	0.614

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	Upper Termination Connectors phiVn (kips)	Upper Termination Connectors Num Reqd	Upper Termination Connectors Num Actual	Upper Termination Connectors Ratio	Lower Termination Connectors MQ/I (kips)	Lower Termination Connectors phiVn (kips)	Lower Termination Connectors Num Reqd	Lower Termination Connectors Num Actual	Lower Termination Connectors Ratio
0.00	105.13	(4) SOL-#20 All Thread Bar	118.6	12.0	10	24	0.412	0.0	12.0	0	0	0.000

Base Plate & Anchor Rod Analysis

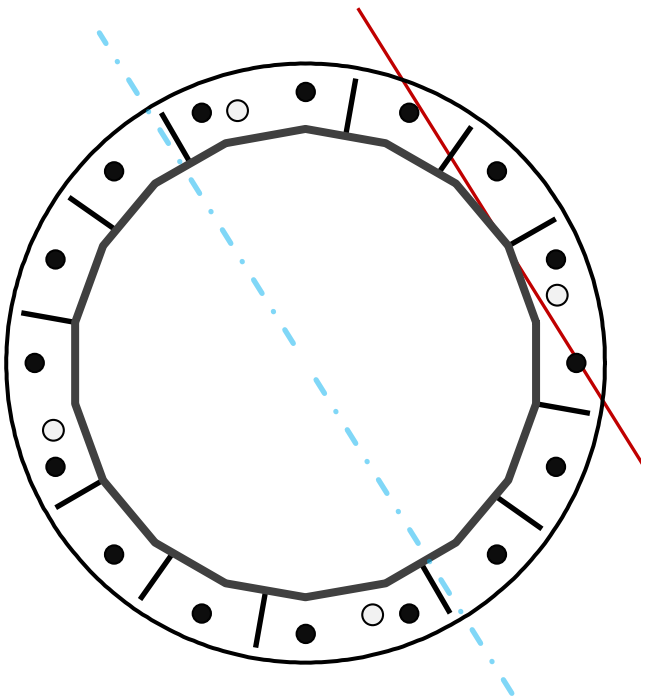
Pole Dimensions		
Number of Sides	18	-
Diameter	48	in
Thickness	0.438	in
Orientation Offset	10	°

Base Reactions		
Moment, Mu	3232.5	k-ft
Axial, Pu	69.9	k
Shear, Vu	26.7	k
Neutral Axis	302	°

Report Capacities		
Component	Capacity	Result
Base Plate	54%	Pass
Anchor Rods	47%	Pass
Dwyidag	51%	Pass

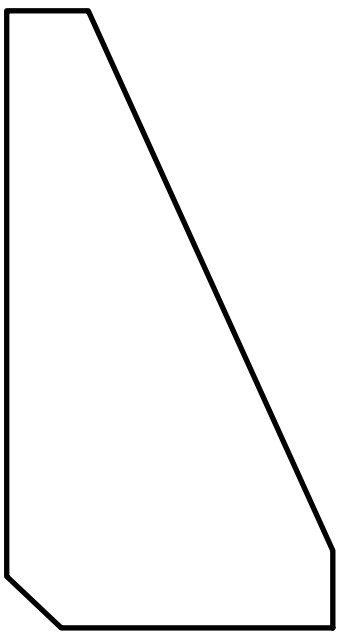
Base Plate		
Shape	Round	-
Diameter, ø	63	in
Thickness	2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	900.6	k
Bending Stress, ϕMn	1678.6	k

Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	54.88	in
Orientation Offset	15	°
Applied Force, Pu	198.6	k
Dywidag Bar, ϕPn	392.7	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	57	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	11.2	in
Orientation Offset	0	°
Applied Force, Pu	122.7	k
Anchor Rods, ϕPn	259.8	k

Stiffeners		
Arrangement	Radial	-
Quantity	12	-
Height	12	in
Width	6	in
Effective Width	6.000	in
Thickness	3/4	in
Effective Thickness	0.750	in
Notch	1	in
Flat Edge	1.5	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	3/8	in
Bevel Depth		in
Vertical Weld	Fillet	
Vertical Fillet Size	3/8	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	0	°
Vertical Weld, ϕRn	198.2	k
Horz. Weld, ϕRn	106.4	k
Ten. Capacity, ϕTn	121.5	k
Comp. Capacity, ϕPn	766.0	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	26.7	2306.0	0.71
Anchor Rod Forces	26.7	2306.0	0.71
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	926.6	0.29
Stiffener Forces	11.9	1029.2	0.32

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	65.1144	3.6175	0.2324		18416.45
Bolt	3.9761	3.2477	0.8393	4.5	21116.92
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		7399.77
Stiffener	3.7500	3.3750	54.0000		14844.52

Base Plate		
Shape	Round	-
Diameter, D	63	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	40.804	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	34.467	in
Additional AA	10.818	in
Section Modulus, Z	45.286	in^3
Applied Moment, Mu	900.6	k-ft
Bending Capacity, ϕMn	2445.4	k-ft
Capacity, Mu/ϕMn	0.368	OK
Chord Length AB	33.390	in
Additional AB	9.626	in
Section Modulus, Z	43.016	in^3
Applied Moment, Mu	809.3	k-ft
Bending Capacity, ϕMn	2322.8	k-ft
Capacity, Mu/ϕMn	0.348	OK
Bend Line Length	25.555	in
Additional Bend Line	5.531	in
Section Modulus, Z	31.086	in^3
Applied Moment, Mu	900.6	k-ft
Bending Capacity, ϕMn	1678.6	k-ft
Capacity, Mu/ϕMn	0.537	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	57	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	122.7	k
Applied Shear, Vu	0.3	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.472	OK
Interaction Capacity	0.475	OK

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	54.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	198.6	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.506	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	77.6	k
Applied Horizontal Force, Vu	0.50	k

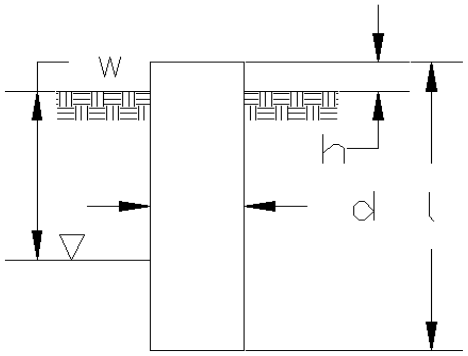
Vertical Weld		
Vert.-to-Stiffener $a=e_x/l$	0.167	-
Spacing Ratio, k	0.063	-
Weld Coefficient, C	3.670	-
Compressive Capacity, ϕPn	198.2	k
Vert.-to-Plate $a=e_x/l$	0.333	-
Spacing Ratio, k	0.063	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	158.8	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.395	OK

Horizontal Weld		
Horz.-to-Stiffener $a=e_x/l$	0.167	-
Spacing Ratio, k	0.125	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.375	in
Compressive Capacity, ϕPn	106.4	k
Horz.-to-Pole $a=e_x/l$	0.333	-
Spacing Ratio, k	0.125	-
Weld Coefficient, C	3.090	-
Shear Capacity, ϕVn	83.4	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.736	OK

Plate Tension		
Gross Cross Section	3.750	in^2
Net Cross Section	3.375	in^2
Tensile Capacity, ϕTn	121.5	k
Capacity, Tu/ϕTn	0.319	OK

Plate Compression		
Radius of Gyration	0.217	in^3
kl/r	33.26	-
4.71 $\sqrt{(E/Fy)}$	133.68	-
Buckling Stress(Fe)	258.8	-
Crit. Buckling Stress(Fcr)	227.0	ksi
Compressive Capacity, ϕPn	766.0	k
Capacity, Pu/ϕPn	0.051	OK

Site Name:	SMFR - North, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302515	*American Tower Corporation*	
Engineer:	Trevor.Ridilla		
Engineering Number:	12598483		
Date:	03/01/19		



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	3232.5	k-ft
Shear/Leg (V):	26.7	k
Axial Load (P):	69.9	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	6.5	ft
Caisson Embedment (L-h):	24	ft
Caisson Height Above Ground (h):	1	ft
Depth Below Ground Surface to Water Table (w):	22	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1	
Pullout Angle:	30	degrees

Engineer Notes

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0	2	100	0	0	0	0
2	10	120	0	30	400	0
10	25	125	0	36	1400	40000

Required Embedment:	20.4	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	829.6	ft^3 = 30.7 yd^3
Weight of Concrete (Buoyancy Effect Considered):	120.3	k
Average Soil Unit Weight:	114.0	pcf
Skin Friction Resistance:	465.6	k
Compressive Bearing Resistance:	1327.3	k
Pullout Weight (Minus Concrete Weight):	936.9	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	439.4	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	1344.7	k
P_u:	99.4	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.07	Result: OK
Total Lateral Resistance:	2023.1	k
Inflection Point (Below Ground Surface):	17.6	ft
Design Overturning Moment At Inflection Point (M_D):	3729.1	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	6494.1	k-ft
$M_D/\phi_s M_n$:	0.57	Result: OK
ϕ_s:	0.75	

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	21	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	5	
Horizontal Tie / Stirrup Area:	0.31	in^2
Design Horizontal Tie / Stirrup Spacing:	12	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	70.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.85	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	3269.2	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	4571.5	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.72	Result: OK
Design Shear (V_u):	350.9	k
Nominal Shear Capacity ($\phi_V V_n$):	517.5	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.68	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	1769.0	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	99.4	k
Nominal Compression Capacity ($\phi_P P_n$):	8390.2	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.01	Result: OK
Bending Reinforcement Ratio:	0.007	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.72	Result: OK

VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: SMFR - NORTH
ATC SITE NUMBER: 302515
T-MOBILE SITE ID: CT11373A
SITE ADDRESS: 133 EASTOVER ROAD STAMFORD, CT 06905

T-MOBILE L600 ANTENNA AMENDMENT 67D92DB CONFIGURATION

LOCATION MAP

COMPLIANCE CODE

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

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: EVERSOURCE
PHONE: (877) 659-6326

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 376-6843

811 Know what's below. Call before you dig.

PROJECT SUMMARY

SITE ADDRESS:

133 EASTOVER ROAD
STAMFORD, CT 06905
COUNTY: FAIRFIELD

1A CERTIFICATE SUMMARY:

LATITUDE: 41° 06' 46" N

LONGITUDE: 73° 32' 20" W

GROUND ELEVATION: 227' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

BELL ATLANTIC
PO BOX 64498
BALTIMORE, MD 21264

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

REMOVE (3) PANELS AND (6) TTAs

INSTALL (9) NEW PANELS, (4) TTAs, (3) RRUs, AND (4) 1-1/4" HYBRID CABLES

EXISTING (3) DIPLEXERS, AND (18) 1-5/8" COAX CABLES TO REMAIN

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM HARTFORD, CT:

TAKE I-91 SOUTH TO EXIT 16 FOR WILBUR CROSS PARKWAY (THIS TURNS IN MERRITT PARKWAY). STAY ON MERRITT TO EXIT 35. TURN RIGHT OFF EXIT, GO TO FIRST LIGHT AND TURN LEFT ON BUXTON FARMS RD. GO TO STOP SIGN AND TURN LEFT ON TURN OF RIVER ROAD. FOLLOW TO FIVE HIGH RIDGE PARK AND TURN LEFT. ACCESS ROAD ENTRANCE IS AT REAR LEFT OF PARKING LOT.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	04/11/19	TW
G-002	GENERAL NOTES	0	04/11/19	TW
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	04/11/19	TW
C-501	ANTENNA INFORMATION & SCHEDULE	0	04/11/19	TW
C-502	ANTENNA INFORMATION & SCHEDULE	0	04/11/19	TW
E-501	GROUNDING DETAILS	0	04/11/19	TW
R-601	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TW	04/11/19

ATC SITE NUMBER:
302515

ATC SITE NAME:
SMFR - NORTH

SITE ADDRESS:
133 EASTOVER ROAD
STAMFORD, CT 06905

SEAL:

Apr 12 2019 11:42 AM cosign

T-Mobile

DRAWN BY:	TW
APPROVED BY:	KRF
DATE DRAWN:	04/11/19
ATC JOB NO:	12930853

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH T-MOBILE WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY T-MOBILE WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TW	04/11/19

ATC SITE NUMBER:
302515

ATC SITE NAME:
SMFR - NORTH

SITE ADDRESS:
133 EASTOVER ROAD
STAMFORD, CT 06905

SEAL:

Apr 12 2019 11:42 AM cosign

T-Mobile

DRAWN BY:	TW
APPROVED BY:	KRF
DATE DRAWN:	04/11/19
ATC JOB NO:	12930853

GENERAL NOTES

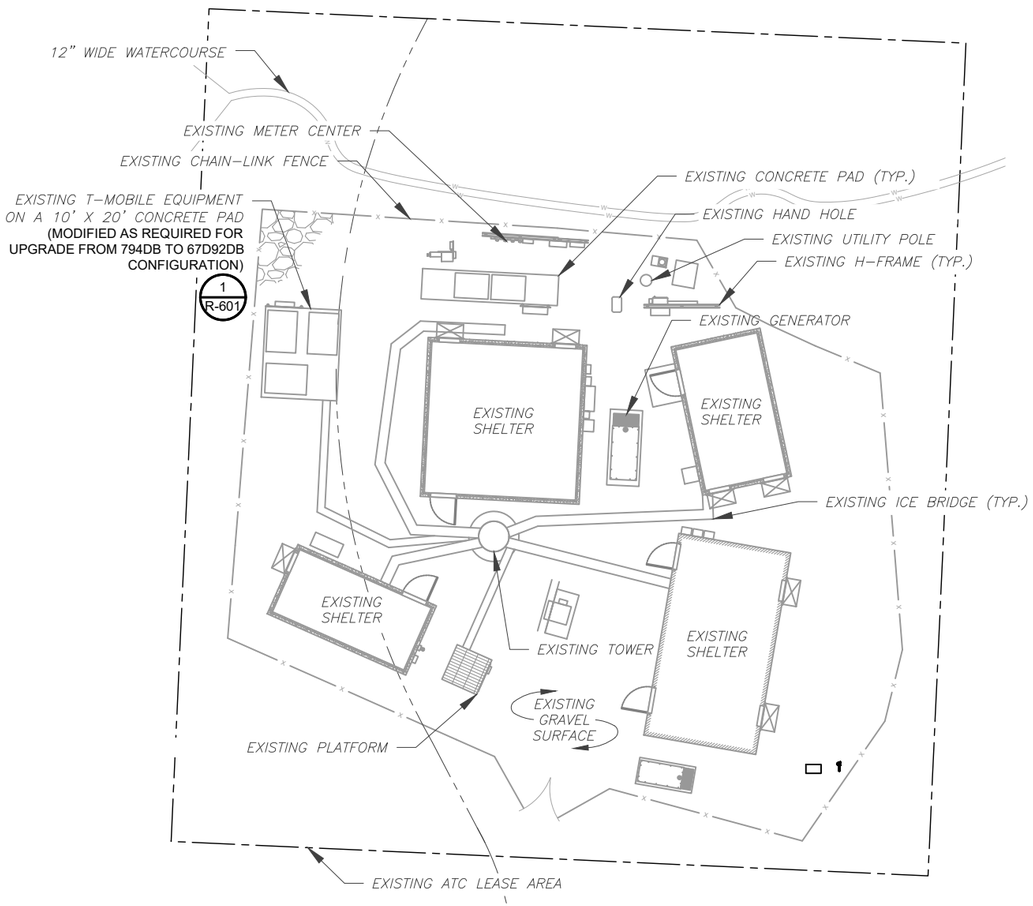
SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

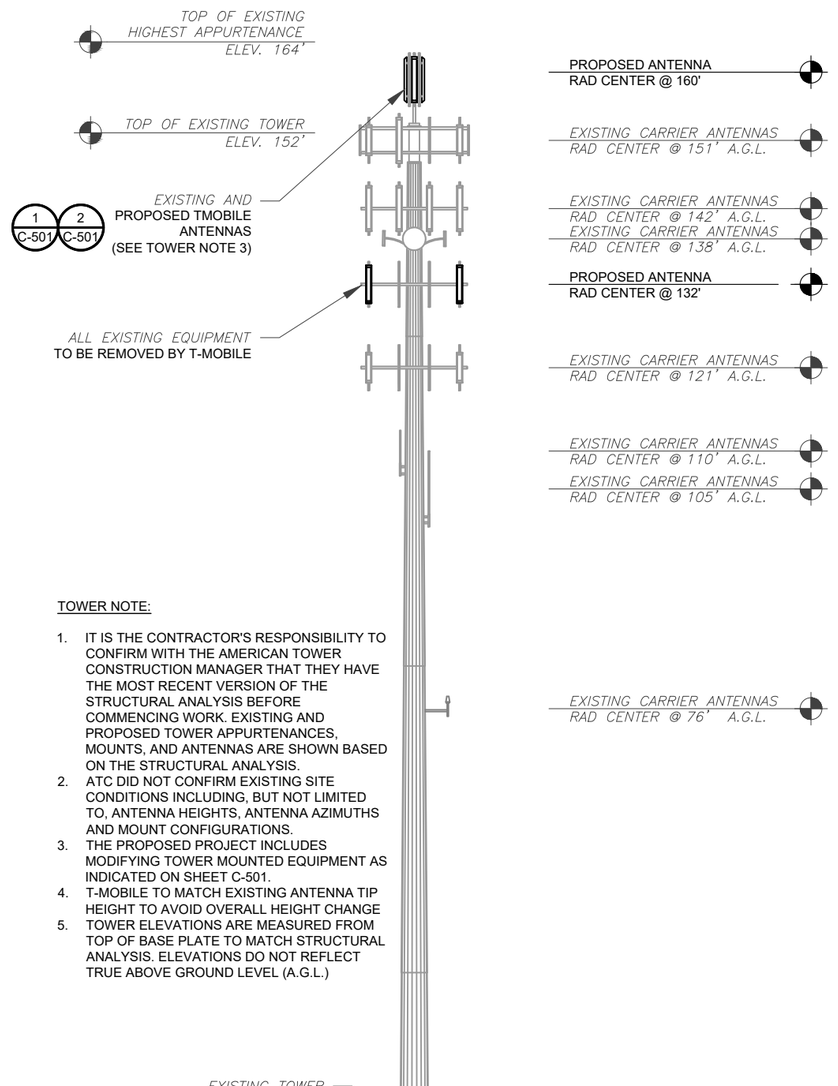
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.



1 DETAILED SITE PLAN

0 20' 40'

SCALE: 1"=20' (11X17)
1"=10' (22X34)



TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
3. THE PROPOSED PROJECT INCLUDES MODIFYING TOWER MOUNTED EQUIPMENT AS INDICATED ON SHEET C-501.
4. T-MOBILE TO MATCH EXISTING ANTENNA TIP HEIGHT TO AVOID OVERALL HEIGHT CHANGE
5. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION
SCALE: NOT TO SCALE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TW	04/11/19
1	INCORRECT DETAIL SCALE	TW	04/11/19

ATC SITE NUMBER:
302515

ATC SITE NAME:
SMFR - NORTH

SITE ADDRESS:
133 EASTOVER ROAD
STAMFORD, CT 06905

SEAL:

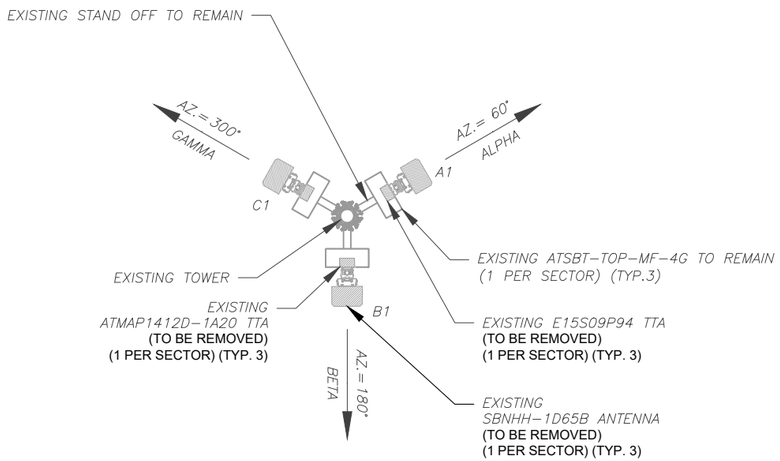
Apr 12 2019 11:42 AM cosign

T··Mobile·

DRAWN BY:	TW
APPROVED BY:	KRF
DATE DRAWN:	04/11/19
ATC JOB NO:	12930853

DETAILED SITE PLAN & TOWER ELEVATION

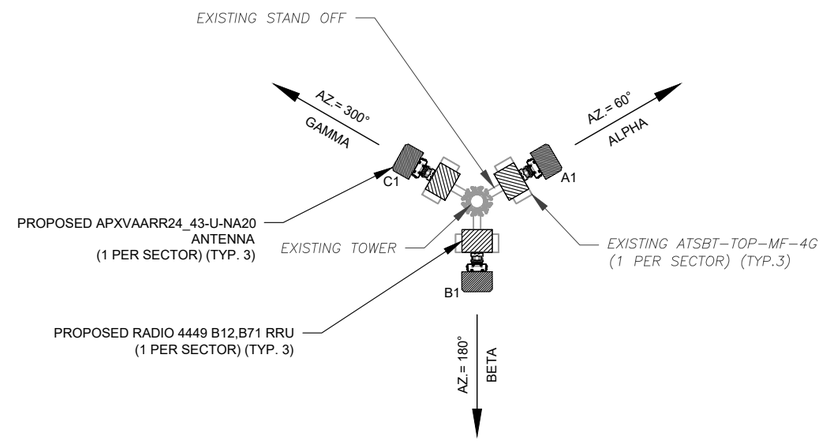
SHEET NUMBER:	REVISION:
C-101	1



1 EXISTING ANTENNA PLAN

NOTES:

1. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIGURATION OR MOUNT CONFIGURATION. CONTRACTOR TO VERIFY MOUNT CONFIGURATION HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (I.E. CLEARANCES, MOUNT PIPE OR SUFFICIENT LENGTH, ETC.)



2 FINAL ANTENNA PLAN

NOTES:

1. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
2. SPACING OF PROPOSED EQUIPMENT SHALL BE CONFIRMED FOR TOWER CONFLICTS AND PROPOSED MOUNTS SHALL NOT IMPEDE TOWER CLIMBING PEGS.
3. ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
4. CONTRACTOR SHALL RE-ORIENT T-ARMS AS NECESSARY TO ACHEIVE PROPOSED ANTENNA AZIMUTHS. (DELETE IF NOT USED)

EXISTING ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA CABLE DESCRIPTION
ALPHA	A1	SBNHH–1D65B	160'	60°	–	–	ATMAP1412D–1A20 E15S09P94 ATSBT–TOP–MF–4G	(6) 1–5/8"
ALPHA	A2	–	–	°	–	–	–	
ALPHA	A3	–	–	°	–	–		
BETA	B1	SBNHH–1D65B	160'	180°	–	–	ATMAP1412D–1A20 E15S09P94 ATSBT–TOP–MF–4G	
BETA	B2	–	–	°	–	–	–	
BETA	B3	–	–	°	–	–		
GAMMA	C1	SBNHH–1D65B	160'	300°	–	–	ATMAP1412D–1A20 E15S09P94 ATSBT–TOP–MF–4G	
GAMMA	C2	–	–	°	–	–	–	
GAMMA	C3	–	–	°	–	–		

FINAL ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA CABLE DESCRIPTION
ALPHA	A1	APXVAARR24_43-U-NA20	160'-0"	60°	-	-	ATSBT–TOP–MF–4G RADIO 4449 B12,B71	(E)(6) 1–5/8" COAX (P) (1) 1-1/4" HYBRID
BETA	B1	APXVAARR24_43-U-NA20	160'-0"	180°	-	-	ATSBT–TOP–MF–4G RADIO 4449 B12,B71	
GAMMA	C1	APXVAARR24_43-U-NA20	160'-0"	300°	-	-	ATSBT–TOP–MF–4G RADIO 4449 B12,B71	

1. BASED ON APPROVED ATC APPLICATION 12598483, DATED 02-14-2019. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.

3 ANTENNA SCHEDULE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TW	04/11/19

ATC SITE NUMBER:
302515

ATC SITE NAME:
SMFR - NORTH

SITE ADDRESS:
133 EASTOVER ROAD
STAMFORD, CT 06905

SEAL:

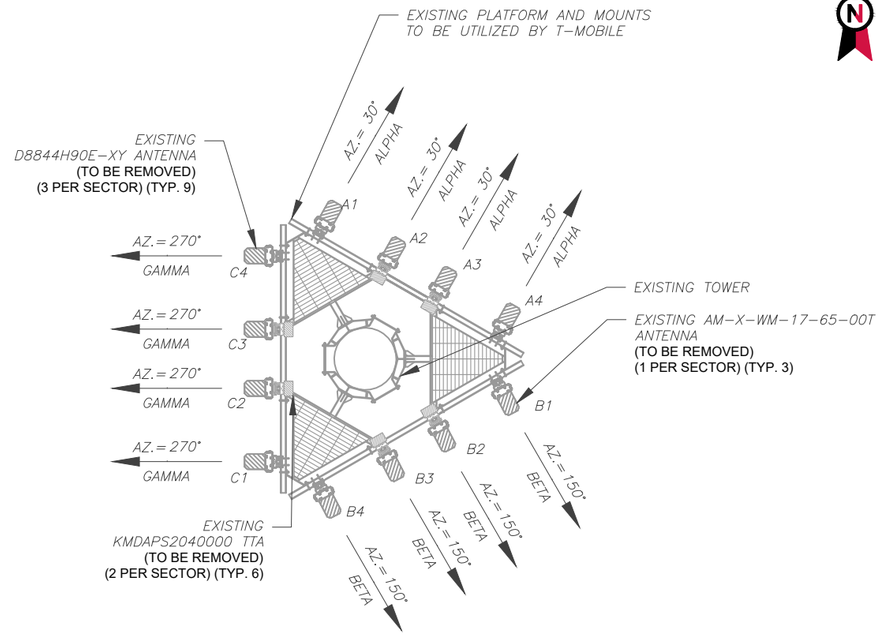
Apr 12 2019 11:43 AM cosign

T-Mobile

DRAWN BY:	TW
APPROVED BY:	KRF
DATE DRAWN:	04/11/19
ATC JOB NO:	12930853

ANTENNA INFORMATION & SCHEDULE

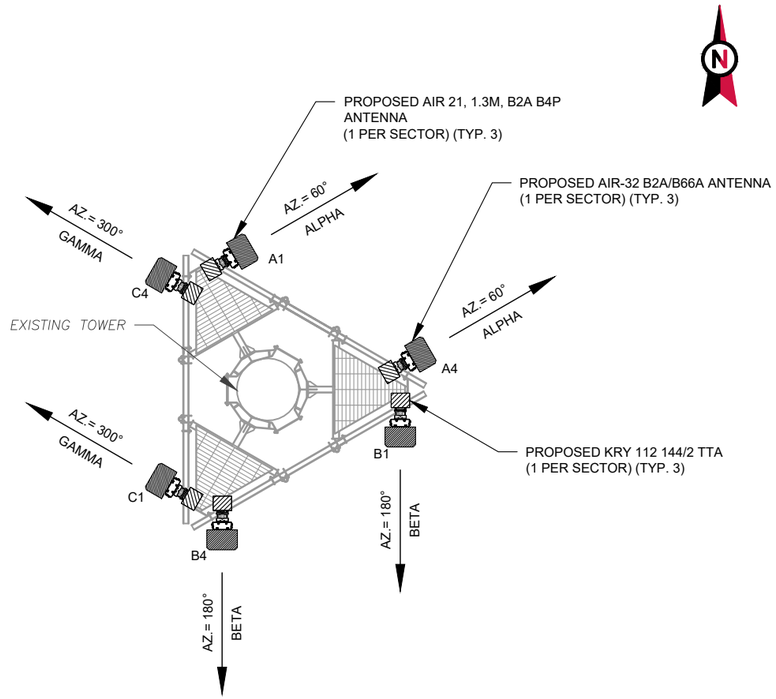
SHEET NUMBER:	REVISION:
C-501	0



1 EXISTING ANTENNA PLAN

NOTES:

1. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIGURATION OR MOUNT CONFIGURATION. CONTRACTOR TO VERIFY MOUNT CONFIGURATION HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (I.E. CLEARANCES, MOUNT PIPE OR SUFFICIENT LENGTH, ETC.)



2 FINAL ANTENNA PLAN

NOTES:

1. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
2. SPACING OF PROPOSED EQUIPMENT SHALL BE CONFIRMED FOR TOWER CONFLICTS AND PROPOSED MOUNTS SHALL NOT IMPEDE TOWER CLIMBING PEGS.
3. ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
4. CONTRACTOR SHALL RE-ORIENT T-ARMS AS NECESSARY TO ACHEIVE PROPOSED ANTENNA AZIMUTHS. (DELETE IF NOT USED)

EXISTING ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA CABLE DESCRIPTION
ALPHA	A1	AM-X-WM-17-65-00T	132'	30°	–	–	–	(E)(12)1-5/8" COAX
ALPHA	A2	D8844H90E-XY	132'	30°	–	–	KMDAPS2040000	
ALPHA	A3	D8844H90E-XY	132'	30°	–	–	KMDAPS2040000	
ALPHA	A4	D8844H90E-XY	132'	30°	–	–	–	
BETA	B1	AM-X-WM-17-65-00T	132'	150°	–	–	–	
BETA	B2	D8844H90E-XY	132'	150°	–	–	KMDAPS2040000	
BETA	B3	D8844H90E-XY	132'	150°	–	–	KMDAPS2040000	
BETA	B4	D8844H90E-XY	132'	150°	–	–	–	
GAMMA	C1	AM-X-WM-17-65-00T	132'	270°	–	–	–	
GAMMA	C2	D8844H90E-XY	132'	270°	–	–	KMDAPS2040000	
GAMMA	C3	D8844H90E-XY	132'	270°	–	–	KMDAPS2040000	
GAMMA	C4	D8844H90E-XY	132'	270°	–	–	–	

3 ANTENNA SCHEDULE

FINAL ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA CABLE DESCRIPTION
ALPHA	A1	AIR 21, 1.3M, B2A B4P	132'-0"	60°	-	-	KRY 112 144/2	(E)(12)1-5/8" COAX (P) (2) 1-1/4" HYBRIDS
ALPHA	A2	-	132'-0"	°	-	-	-	
ALPHA	A3	-	132'-0"	°	-	-	-	
ALPHA	A4	AIR-32 B2A/B66A	132'-0"	60°	-	-		
BETA	B1	AIR 21, 1.3M, B2A B4P	132'-0"	180°	-	-	KRY 112 144/2	
BETA	B2	-	132'-0"	°	-	-	-	
BETA	B3	-	132'-0"	°	-	-	-	
BETA	B4	AIR-32 B2A/B66A	132'-0"	180°	-	-		
GAMMA	C1	AIR 21, 1.3M, B2A B4P	132'-0"	300°	-	-	KRY 112 144/2	
GAMMA	C2	-	132'-0"	°	-	-	-	
GAMMA	C3	-	132'-0"	°	-	-	-	
GAMMA	C4	AIR-32 B2A/B66A	132'-0"	300°	-	-		

1. BASED ON APPROVED ATC APPLICATION 12598483, DATED 02-14-2019. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
2. NOTES FOR CONTROL CABLE OR FIBER (OR DELETE)

AMERICAN TOWER®
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CARY, NC 27518
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COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TW	04/11/19

ATC SITE NUMBER:
302515

ATC SITE NAME:
SMFR - NORTH

SITE ADDRESS:
133 EASTOVER ROAD
STAMFORD, CT 06905

SEAL:

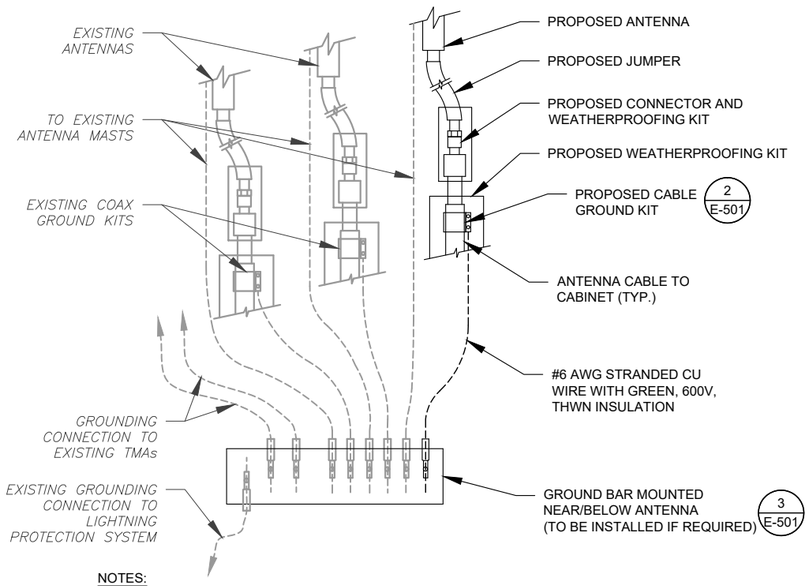
Apr 12 2019 11:43 AM cosign

T-Mobile

DRAWN BY:	TW
APPROVED BY:	KRF
DATE DRAWN:	04/11/19
ATC JOB NO:	12930853

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-502	0

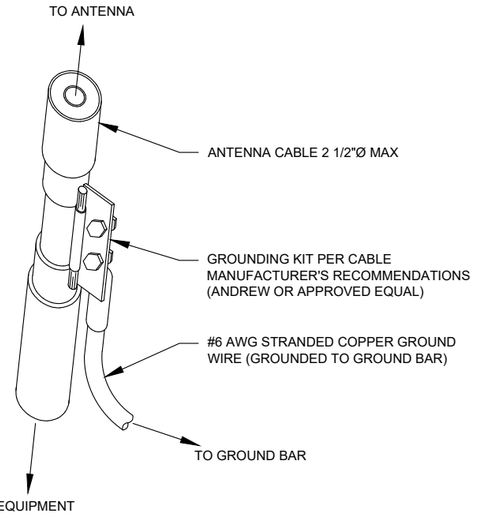


NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

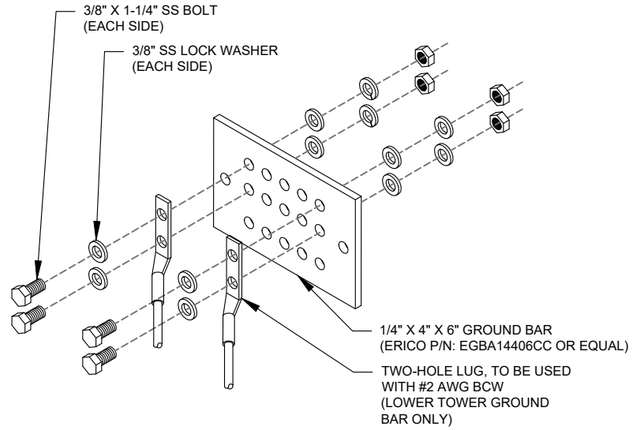


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: NOT TO SCALE



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: NOT TO SCALE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	TW	04/11/19

ATC SITE NUMBER:
302515

ATC SITE NAME:
SMFR - NORTH

SITE ADDRESS:
133 EASTOVER ROAD
STAMFORD, CT 06905

SEAL:

Apr 12 2019 11:43 AM cosign

T-Mobile

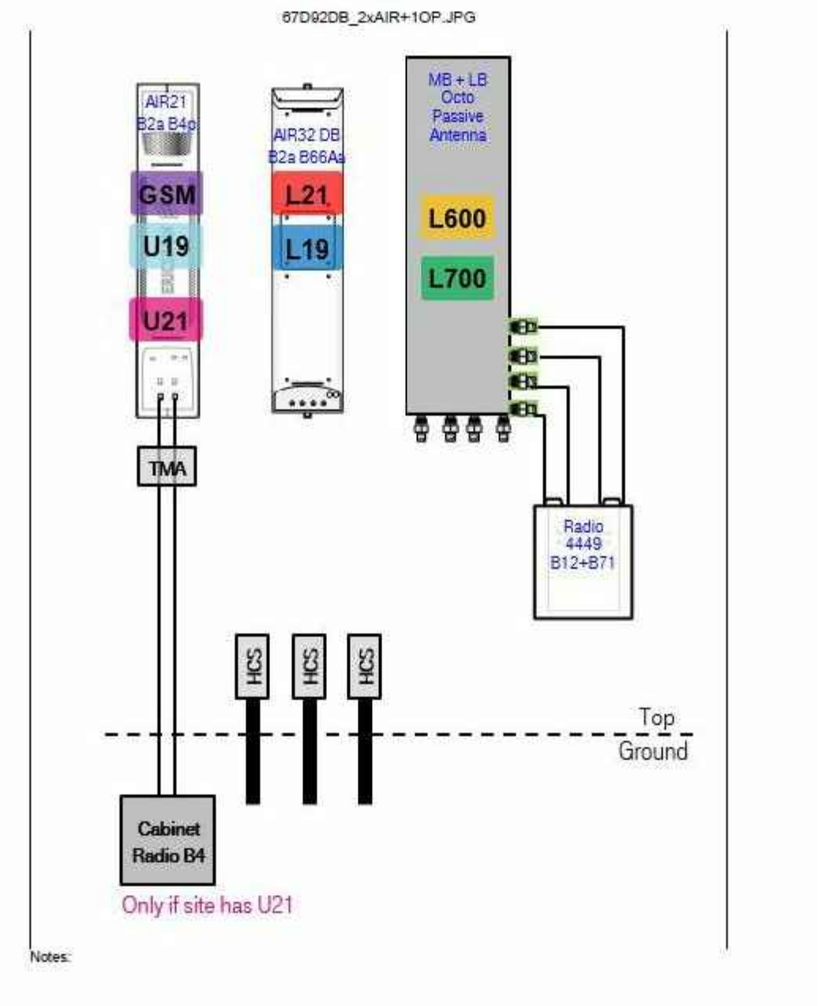
DRAWN BY:	TW
APPROVED BY:	KRF
DATE DRAWN:	04/11/19
ATC JOB NO:	12930853

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Existing RAN Equipment		
Template: 794DB Outdoor (evolved from 4B)		
Enclosure	1	2
Enclosure Type	RBS 6102	Ground Mount
Baseband	DUW30, DUG20, DUS41 (L2100)	
Multiplexer	XMU (L1900, L700)	
Radio	RUS01 B2 (x3) (L1900, G1900); RUS01 B2 (x3) (L1900); RUS01 B4 (x3) (U2100); RUS01 B4 (x3) (L2100)	RRUS11 B12 (x3) (L700)

Proposed RAN Equipment		
Template: 67D92DB Hybrid		
Enclosure	1	2
Enclosure Type	RBS 6102	Ancillary Equipment
Baseband	DUW30 (U2100); DUW30 (U1900 (DECOMMISSIONED)); DUG20 (G1900); BB 6630 (N600 (DARK)); BB 6630 (L2100, L1900, L700, L600)	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* (x3); Ericsson 6x12 HCS *Select AWG & Length*
Radio	RUS01 B4 (x3) (U2100)	
RAN Scope of Work:		



1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0