



10 INDUSTRIAL AVE,  
SUITE 3  
MAHWAH NJ 07430

PHONE: 201.684.0055  
FAX: 201.684.0066

September 17, 2018

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

Notice of Exempt Modification  
1069 Connecticut Avenue, Bridgeport, CT 06607  
Latitude- 41.18362900  
Longitude- -73.15806000

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas 116' level of the existing 126' monopole at 1069 Connecticut Avenue in Bridgeport, Connecticut. The tower is owned by American Tower Corporation. The property is owned by WR CT Avenue LLC. T-Mobile now intends to remove (6) of the existing antennas and add (6) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 116' level of the tower. T-Mobile also intends to add (3) remote radio heads and add (2) hybrid cables.

This facility was approved by the Council in Petition No. 552 on April 3, 2002. This approval did not come with conditions that would be violated by this modification. This modification complies with the 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 Joseph P. Ganim, Mayor of the City of Bridgeport, Dennis Buckley, Zoning Administrator for the City of Bridgeport, as well as the tower 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](mailto:krichers@transcendwireless.com)

cc: Joseph P. Ganim- as elected official  
Dennis Buckley- as zoning official  
American Tower- as tower owner  
WR CT Avenue LLC- as property owner

# 1069 CONNECTICUT AV

**Location** 1069 CONNECTICUT AV

**Mblu** 44/ 723/ 3/A /

**Acct#** R--0004050

**Owner** WR CT AVENUE LLC

**Assessment** \$1,902,240

**Appraisal** \$2,717,490

**PID** 4911

**Building Count** 3

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$1,808,490	\$909,000	\$2,717,490

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$1,265,940	\$636,300	\$1,902,240

## Owner of Record

**Owner** WR CT AVENUE LLC  
**Co-Owner** C/O WESTROCK DEVELOPMENT LLC  
**Address** 440 MAMARONECK AVENUE  
SUITE N-503  
HARRISON, NY 10528

**Sale Price** \$0  
**Certificate**  
**Book & Page** 7844/ 40  
**Sale Date** 06/27/2008  
**Instrument** 14

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WR CT AVENUE LLC	\$0		7844/ 40	14	06/27/2008
WR CT AVENUE LLC	\$0		7844/ 34	14	06/27/2008
BRIDGEPORT CITY OF	\$0		7370/ 268	14	02/09/2007
AMERICAN FABRICS CO	\$0		2195/ 149		11/25/1986

## Building Information

### Building 1 : Section 1

**Year Built:** 1939  
**Living Area:** 106,726  
**Replacement Cost:** \$5,015,157  
**Building Percent** 20  
**Good:**

**Replacement Cost  
Less Depreciation:** \$1,003,030

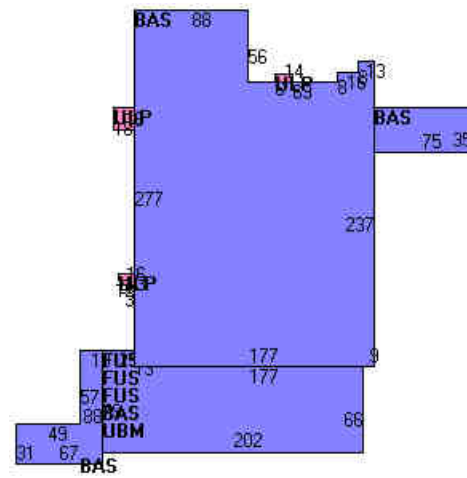
Building Attributes	
Field	Description
STYLE	Mill Building
MODEL	Ind/Comm
Grade:	Average
Stories:	4
Occupancy:	1
Exterior Wall 1:	Brick
Exterior Wall 2:	
Roof Struct:	Irregular
Roof Cover:	T+G/Rubber
Interior Wall 1:	Minim/Masonry
Interior Wall 2:	
Interior Floor 1:	Hardwood
Interior Floor 2:	Carpet
Heating Fuel:	Oil
Heating Type:	Hot Water
AC Type:	None
Bldg Use:	Mill Building
Ttl Rooms:	
Ttl Bedrms:	00
Ttl Baths:	0
Ttl Half Baths:	0
Ttl Xtra Fix:	0
1st Floor Use:	
Heat/AC:	None
Frame Type:	Masonry
Baths/Plumbing:	Average
Ceiling/Wall:	Ceiling Only
Rooms/Prtns:	Average
Wall Height:	16
% Comn Wall:	

**Building Photo**



(http://images.vgsi.com/photos/BridgeportCTPhotos//\00\00\50

**Building Layout**



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	65,755	65,755
FUS	Finished Upper Story	40,971	40,971
UBM	Unfin Basement	13,657	0
ULP	Uncovered Loading Platform	502	0
		120,885	106,726

**Building 2 : Section 1**

**Year Built:** 1967  
**Living Area:** 28,945  
**Replacement Cost:** \$1,058,496  
**Building Percent Good:** 23  
**Replacement Cost Less Depreciation:** \$243,450

### Building Attributes : Bldg 2 of 3

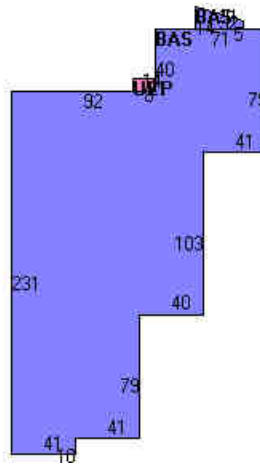
Field	Description
STYLE	Industrial
MODEL	Ind/Comm
Grade:	Average
Stories:	1
Occupancy:	1
Exterior Wall 1:	Concr/CinderBl
Exterior Wall 2:	
Roof Struct:	Flat
Roof Cover:	T+G/Rubber
Interior Wall 1:	Minim/Masonry
Interior Wall 2:	
Interior Floor 1:	Concr-Finished
Interior Floor 2:	
Heating Fuel:	Oil
Heating Type:	Hot Air-No Duc
AC Type:	None
Bldg Use:	Industrial Mdl 96
Ttl Rooms:	
Ttl Bedrms:	00
Ttl Baths:	0
Ttl Half Baths:	0
Ttl Xtra Fix:	10
1st Floor Use:	
Heat/AC:	None
Frame Type:	Masonry
Baths/Plumbing:	Average
Ceiling/Wall:	None
Rooms/Prtns:	Average
Wall Height:	14
% Comn Wall:	

### Building Photo



(<http://images.vgsi.com/photos/BridgeportCTPhotos//default.jp>)

### Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	28,945	28,945
UEP	Utility Enclosed Porch	112	0
		29,057	28,945

### Building 3 : Section 1

**Year Built:** 1955  
**Living Area:** 16,539  
**Replacement Cost:** \$713,174  
**Building Percent Good:** 20  
**Replacement Cost Less Depreciation:** \$142,630

### Building Attributes : Bldg 3 of 3

Field	Description

STYLE	Mill Building
MODEL	Ind/Comm
Grade:	D+
Stories:	4
Occupancy:	1
Exterior Wall 1:	Brick
Exterior Wall 2:	
Roof Struct:	Flat
Roof Cover:	Tar + Gravel
Interior Wall 1:	Minim/Masonry
Interior Wall 2:	
Interior Floor 1:	Concr-Finished
Interior Floor 2:	
Heating Fuel:	None
Heating Type:	None
AC Type:	None
Bldg Use:	Industrial Mdl 96
Ttl Rooms:	
Ttl Bedrms:	00
Ttl Baths:	0
Ttl Half Baths:	0
Ttl Xtra Fix:	10
1st Floor Use:	
Heat/AC:	None
Frame Type:	Masonry
Baths/Plumbing:	Average
Ceiling/Wall:	None
Rooms/Prtns:	Average
Wall Height:	15
% Comn Wall:	

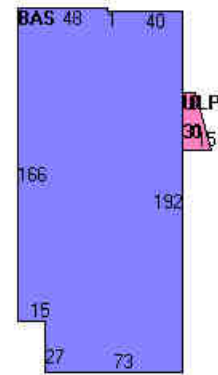
### Building Photo



(<http://images.vgsi.com/photos/BridgeportCTPhotos//\00\09\91>)

### Building Layout

UBM[7600]



Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	16,539	16,539
UBM	Unfin Basement	7,600	0
ULP	Uncovered Loading Platform	315	0
		24,454	16,539

### Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SPR1	Sprinklers-Wet	106726 SF	\$57,630	1
SPR1	Sprinklers-Wet	28651 SF	\$17,790	2
SPR1	Sprinklers-Wet	81037 SF	\$43,760	3
LDL1	Load Levler	2 UNITS	\$1,610	2
ELV1	Freight	5 STOPS	\$16,500	1
ELV1	Freight	5 STOPS	\$16,500	1

## Land

### Land Use

**Use Code** 342  
**Description** Mill Building  
**Zone** LI  
**Neighborhood** CTA  
**Alt Land Appr** No  
**Category**

### Land Line Valuation

**Size (Acres)** 6.06  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$636,300  
**Appraised Value** \$909,000

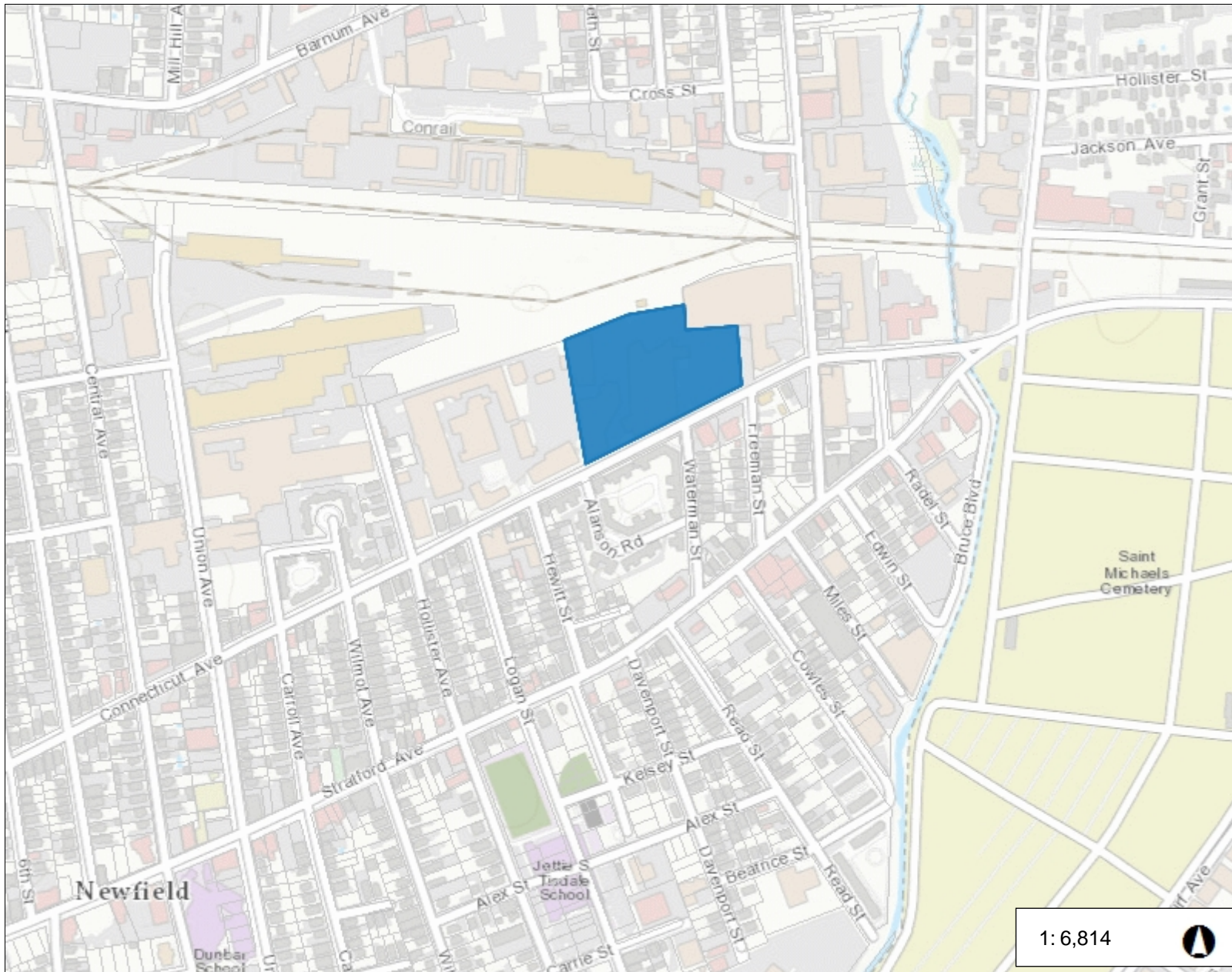
## Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD1	Shed	MT	Metal	336 SF	\$1,210	1
PAV1	Paving Asph			110000 SF	\$231,000	1
FN1	Fence, Chain	4	4 ft	668 LF	\$2,200	1
SHD3	Shed w/ Lt	CM	Comm	240 SF	\$4,320	1
TWR	Tower			130 LF	\$26,000	1
PAV2	Paving Conc			240 SF	\$860	1



## Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2014	\$1,953,750	\$1,060,500	\$3,014,250
2013	\$1,953,750	\$1,060,500	\$3,014,250
2012	\$1,953,750	\$1,060,500	\$3,014,250

Assessment			
Valuation Year	Improvements	Land	Total
2014	\$1,367,630	\$742,350	\$2,109,980
2013	\$1,367,630	\$742,350	\$2,109,980
2012	\$1,367,630	\$742,350	\$2,109,980



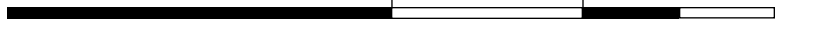
### Legend

-  Parcel Label
-  Parcels

1:6,814



1,135.6      0      567.79      1,135.6 Feet



WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
 Created by Greater Bridgeport Regional Council

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

**THIS MAP IS NOT TO BE USED FOR NAVIGATION**







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

T-Mobile Existing Facility

Site ID: CT11452A

Bridgeport/Connecticut Ave  
1069 Connecticut Avenue  
Bridgeport, CT 06607

**August 19, 2018**

**EBI Project Number: 6218005634**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>13.39 %</b>



August 19, 2018

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

## Emissions Analysis for Site: **CT11452A – Bridgeport/Connecticut Ave**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1069 Connecticut Avenue, Bridgeport, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$  respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 **1069 Connecticut Avenue, Bridgeport, 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 channel (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) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 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 AIR 3246 B66**, **Ericsson AIR32 B2A/B66Aa** and the **RFS APXVAARR24\_43-U-NA20** for 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is **116 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 #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Ericsson AIR 3246 B66	Make / Model:	Ericsson AIR 3246 B66	Make / Model:	Ericsson AIR 3246 B66
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	116 feet	Height (AGL):	116 feet	Height (AGL):	116 feet
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	160	Total TX Power(W):	160	Total TX Power(W):	160
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A1 MPE%	<b>1.85</b>	Antenna B1 MPE%	<b>1.85</b>	Antenna C1 MPE%	<b>1.85</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
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):	116 feet	Height (AGL):	116 feet	Height (AGL):	116 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	2	Channel Count	2	Channel Count	2
Total TX Power(W):	80	Total TX Power(W):	80	Total TX Power(W):	80
ERP (W):	3,112.36	ERP (W):	3,112.36	ERP (W):	3,112.36
Antenna A2 MPE%	<b>0.93</b>	Antenna B2 MPE%	<b>0.93</b>	Antenna C2 MPE%	<b>0.93</b>
Antenna #:	<b>3</b>	Antenna #:	<b>3</b>	Antenna #:	<b>3</b>
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	15.65 / 16.35 / 12.95 / 13/35 dBd	Gain:	15.65 / 16.35 / 12.95 / 13/35 dBd	Gain:	15.65 / 16.35 / 12.95 / 13/35 dBd
Height (AGL):	116 feet	Height (AGL):	116 feet	Height (AGL):	116 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	175	Total TX Power(W):	175	Total TX Power(W):	175
ERP (W):	4,720.03	ERP (W):	4,720.03	ERP (W):	4,720.03
Antenna A3 MPE%	<b>2.39</b>	Antenna B3 MPE%	<b>2.39</b>	Antenna C3 MPE%	<b>2.39</b>

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	<b>5.17 %</b>
Clearwire	<b>0.18 %</b>
Sprint	<b>0.96 %</b>
AT&T	<b>4.90 %</b>
MetroPCS	<b>2.18 %</b>
<b>Site Total MPE %:</b>	<b>13.39 %</b>

T-Mobile Sector A Total:	5.17 %
T-Mobile Sector B Total:	5.17 %
T-Mobile Sector C Total:	5.17 %
<b>Site Total:</b>	
	<b>13.39 %</b>



## 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 ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	4	1,556.18	116	18.49	AWS - 2100 MHz	1000.00	1.85%
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	116	9.25	PCS - 1900 MHz	1000.00	0.93%
T-Mobile PCS - 1900 MHz GSM	1	550.92	116	1.64	PCS - 1900 MHz	1000.00	0.16%
T-Mobile AWS - 2100 MHz UMTS	1	1,726.08	116	5.13	AWS - 2100 MHz	1000.00	0.51%
T-Mobile 600 MHz LTE	2	788.97	116	4.69	600 MHz	400.00	1.17%
T-Mobile 700 MHz LTE	2	432.54	116	2.57	700 MHz	467.00	0.55%
						<b>Total:</b>	<b>5.17%</b>



## 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:	5.17 %
Sector B:	5.17 %
Sector C:	5.17 %
T-Mobile Maximum MPE % (Per Sector):	5.17 %
Site Total:	13.39 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **13.39%** 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

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## Structural Analysis Report

**Structure** : 126 ft Monopole  
**ATC Site Name** : Bridgeport CT 2, CT  
**ATC Site Number** : 302469  
**Engineering Number** : OAA732815\_C3\_02  
**Proposed Carrier** : T-Mobile  
**Carrier Site Name** : N/A  
**Carrier Site Number** : CT11452  
**Site Location** : 1069 Connecticut Avenue  
Bridgeport, CT 06607-1226  
41.183600,-73.158400  
**County** : Fairfield  
**Date** : August 1, 2018  
**Max Usage** : 77%  
**Result** : Pass

Prepared By:  
Ryan Daudelin  
Engineer Intern

Reviewed By:

**COA: PEC.0001553**





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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 126 ft monopole to reflect the change in loading by T-Mobile.

## Supporting Documents

<b>Tower Drawings</b>	EEI Project #5543, dated October 14, 1999
<b>Foundation Drawing</b>	EEI Project #5543, dated October 14, 1999
<b>Geotechnical Report</b>	Applied Earth Technologies Project #9903A, dated November 23, 1999
<b>Modifications</b>	ATC Job #41045932, dated November 2, 2007

## 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.

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust, V <sub>as</sub> ) / 125 mph (3-Second Gust, V <sub>ult</sub> )
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	S <sub>s</sub> = 0.20, S <sub>1</sub> = 0.06
<b>Site Class:</b>	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](mailto: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**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
126.0	131.0	6	Alcatel-Lucent RRH2x50-08	T-Arms	(3) 1/2" Coax (3) 1 1/4" Hybriflex (2) 2" Conduit (1) 1.7" Hybrid	Clearwire
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	Nokia 2.5G MAA - AAHC(64T64R)			
		3	Commscope NNVV-65B-R4			
	127.0	2	DragonWave Horizon Compact			
		1	Dragonwave A-ANT-23G-1-C			
		1	Dragonwave A-ANT-18G-2-C			
116.0	116.0	3	Kathrein Smart Bias Tee	Low Profile Platform	(18) 1 5/8" Coax	T-Mobile
		3	Ericsson AIR-32 B2A/B66Aa			
106.0	110.0	6	Powerwave LGP21901	Platform w/ Handrails	(2) 2" Conduit (2) 1.24" 4 AWG 6 (12) 1 5/8" Coax (1) 0.51" Hybrid	AT&T Mobility
		12	Powerwave LGP2140X			
		1	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS A2 B2			
		3	Ericsson RRUS-11 (19.7")			
		3	Ericsson RRUS E2 B29			
		3	Powerwave 7770.00			
		6	CCI OPA-65R-LCUU-H4			
101.0	101.0	3	RCU (Remote Control Unit)	Flush	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
		3	Kathrein 800 10504			

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
116.0	116.0	3	RFS APX16DWV-16DWVS-E-A20	-	(1) 7/8" Fiber	T-Mobile
		3	Andrew LNX-6515DS-VTM			
		6	Ericsson KRY 112 489/1			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
116.0	116.0	3	Ericsson KRY 112 144/2	Low Profile Platform	(1) 1 5/8" Fiber (2) 1 1/4" Fiber	T-Mobile
		3	Ericsson KRY 112 489/2			
		3	Ericsson Radio 4449 B12,B71			
		3	Ericsson Air 3246 B66			
		3	RFS APXVAARR24_43-U-NA20			

<sup>1</sup>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	54%	Pass
Shaft	55%	Pass
Base Plate	44%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,834.7	57%
Axial (Kips)	35.1	5%
Shear (Kips)	19.5	77%

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) (°)
126.0	Dragonwave A-ANT-23G-1-C	Clearwire Corporatio	1.394	1.191
	Dragonwave A-ANT-18G-2-C			
116.0	Ericsson KRY 112 144/2	T-Mobile	1.188	1.166
	Ericsson KRY 112 489/2			
	Ericsson Radio 4449 B12,B71			
	Ericsson Air 3246 B66			
	RFS APXVAARR24_43-U-NA20			

\*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

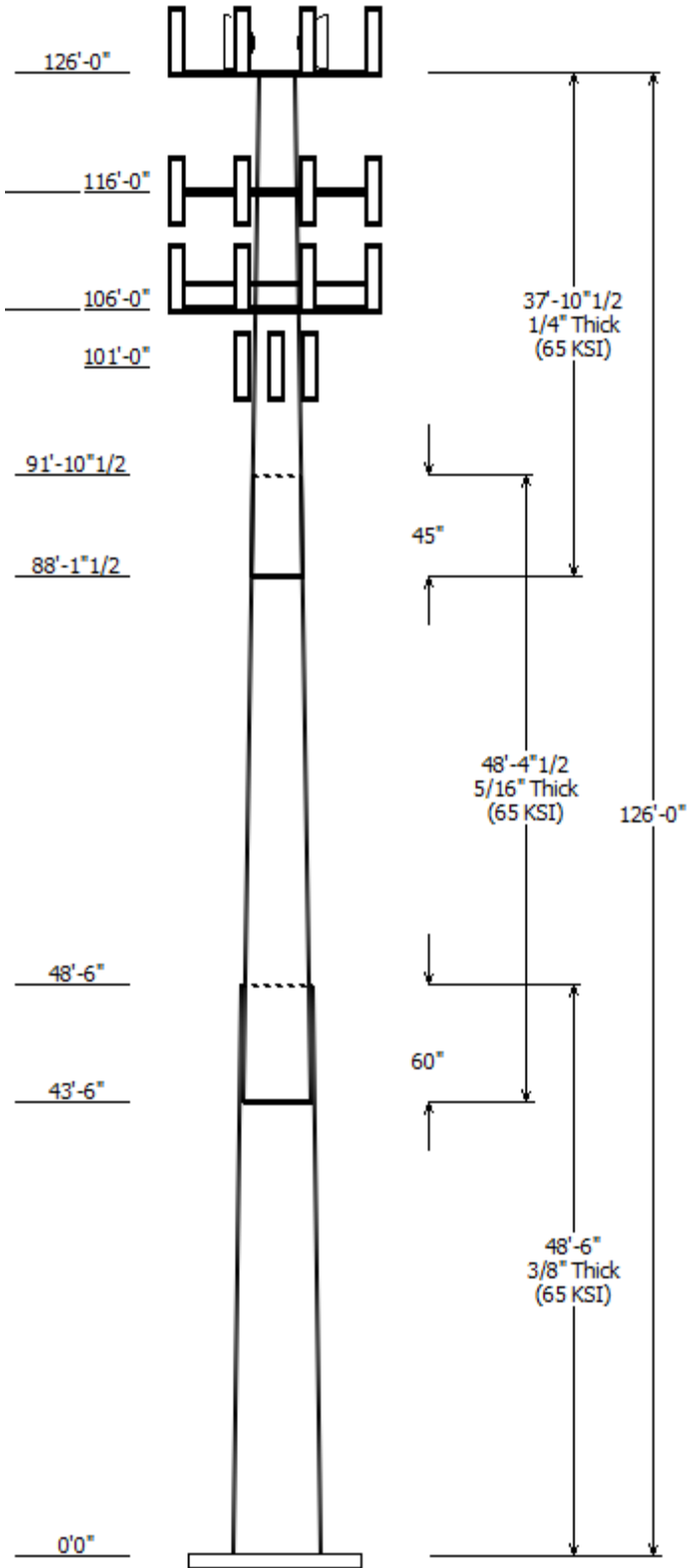
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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.

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Job Information	
Pole : 302469	Code: ANSI/TIA-222-G
Location : Bridgeport CT 2, CT	
Description : 126 ft Monopole	
Client : T-MOBILE	Struct Class : II
Shape : 18 Sides	Exposure : B
Height : 126.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.23512(in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Across Top	Flats Bottom				
1	48.500	34.09	45.50	0.375		0.000	18 Sides 65
2	48.375	24.52	35.89	0.313	Slip Joint	60.000	18 Sides 65
3	37.875	17.00	25.90	0.250	Slip Joint	45.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
126.000	126.000	3	Round T-Arm
126.000	131.000	3	Nokia 2.5G MAA -
126.000	127.000	1	Dragonwave A-ANT-18G-2-C
126.000	131.000	3	Commscope NNVV-65B-R4
126.000	131.000	3	Alcatel-Lucent 1900 MHz 4x45
126.000	131.000	6	Alcatel-Lucent RRH2x50-08
126.000	127.000	1	Dragonwave A-ANT-23G-1-C
126.000	127.000	2	DragonWave Horizon Compact
116.000	116.000	3	Ericsson Radio 4449 B12,B71
116.000	116.000	3	Ericsson KRY 112 144/2
116.000	116.000	3	Ericsson KRY 112 489/2
116.000	116.000	1	Round Low Profile Platform
116.000	116.000	3	RFS APXVAARR24_43-U-NA20
116.000	116.000	3	Ericsson AIR-32 B2A/B66Aa
116.000	116.000	3	Ericsson Air 3246 B66
116.000	116.000	3	Kathrein Scala Smart Bias Tee
106.000	110.000	6	Powerwave Allgon LGP21901
106.000	110.000	3	Powerwave Allgon 7770.00
106.000	110.000	12	Powerwave Allgon LGP2140X
106.000	106.000	1	Round Platform w/ Handrails
106.000	110.000	6	CCI OPA-65R-LCUU-H4
106.000	110.000	3	Ericsson RRUS E2 B29
106.000	110.000	3	Ericsson RRUS-11 (19.7")
106.000	110.000	3	Ericsson RRUS A2 B2
106.000	110.000	1	Raycap DC6-48-60-18-8F
101.000	101.000	3	Kathrein Scala 800 10504
101.000	101.000	3	RCU (Remote Control Unit)

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	101.0	1 5/8" Coax	Yes
0.000	101.0	3/8" Coax	Yes
0.000	106.0	0.51" Hybrid	Yes
0.000	106.0	1 5/8" Coax	Yes
0.000	106.0	1.24" (31.6mm) 4	Yes
0.000	106.0	2" Conduit	Yes
0.000	116.0	1 1/4" Fiber	No
0.000	116.0	1 5/8" Coax	No
0.000	116.0	1 5/8" Fiber	No
0.000	126.0	1 1/4" Hybriflex	No

0.000	126.0	1.7" Hybrid	No
0.000	126.0	1/2" Coax	No
0.000	126.0	2" Conduit	No

### Load Cases

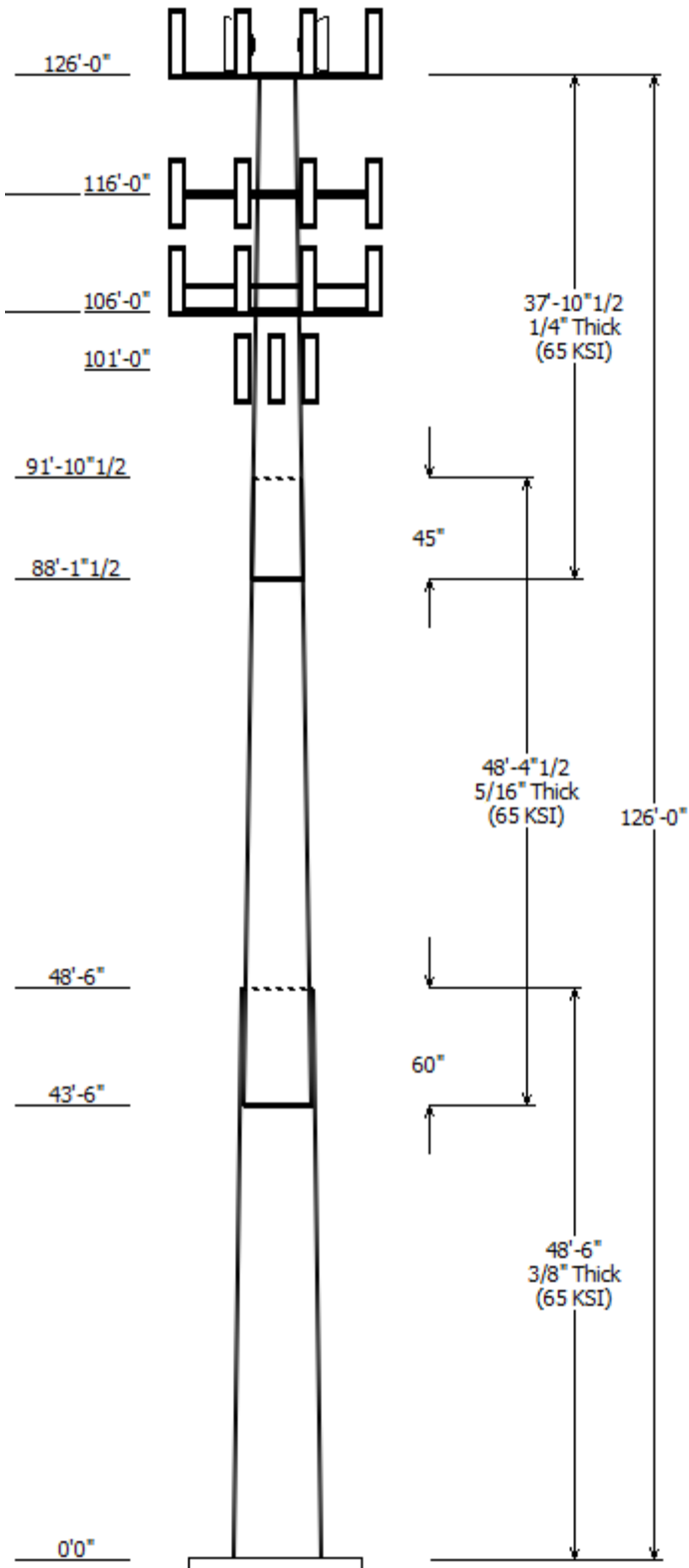
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

### Reactions

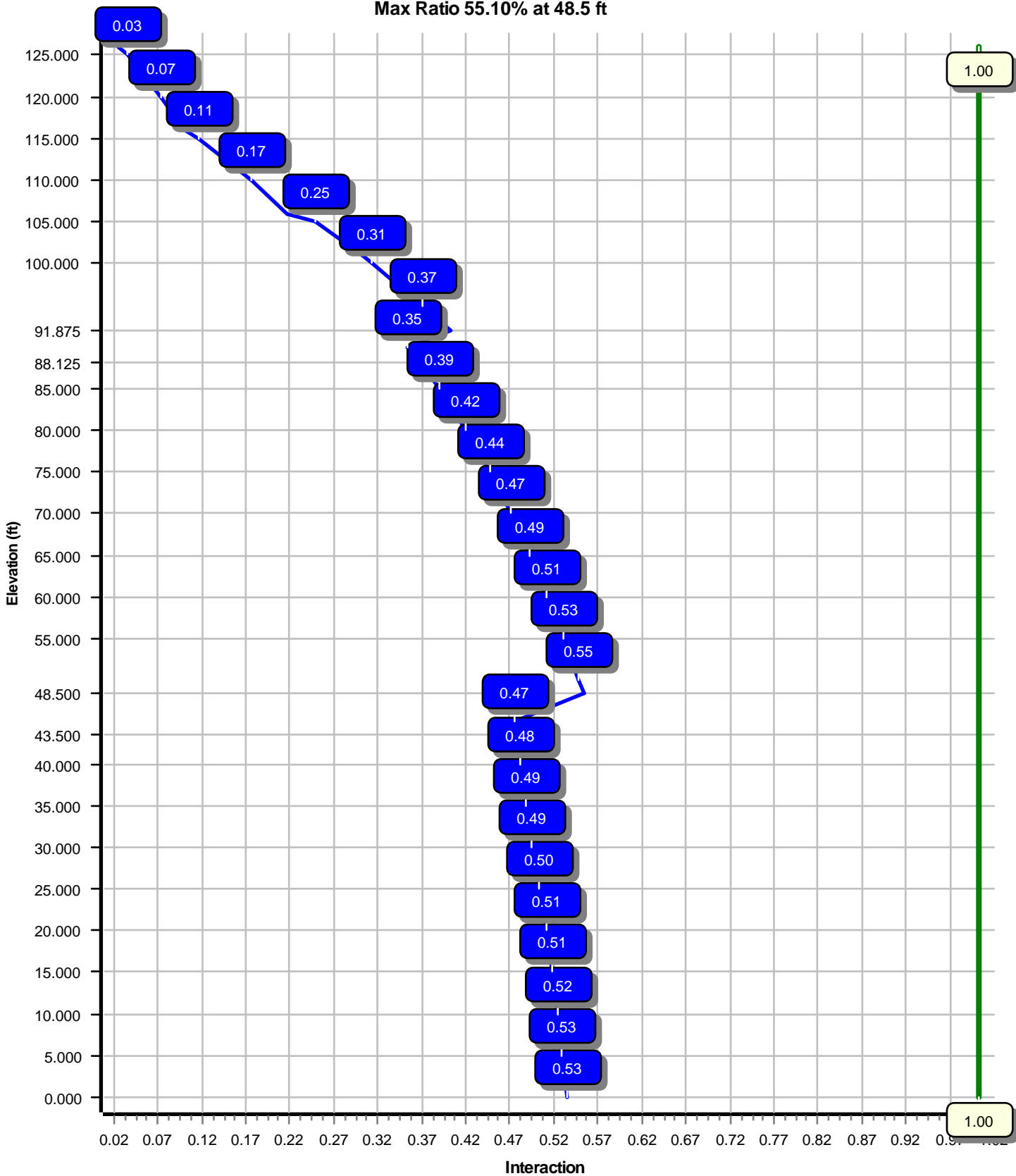
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1834.71	19.49	35.10
0.9D + 1.6W	1774.91	18.68	26.32
1.2D + 1.0Di + 1.0Wi	476.81	4.94	60.77
(1.2 + 0.2Sds) * DL + E ELFM	123.11	1.17	34.94
(1.2 + 0.2Sds) * DL + E EMAM	226.36	2.19	34.94
(0.9 - 0.2Sds) * DL + E ELFM	121.15	1.17	24.06
(0.9 - 0.2Sds) * DL + E EMAM	222.68	2.19	24.06
1.0D + 1.0W	426.58	4.47	29.27

### Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	126.00	16.725	1.191
1.0D + 1.0W	126.00	16.725	1.191



Load Case : 1.2D + 1.6W  
Max Ratio 55.10% at 48.5 ft





Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:33 AM

Customer: T-MOBILE

Analysis Parameters

Location :	FAIRFIELD County, CT	Height (ft) :	126
Code :	ANSI/TIA-222-G	Base Diameter (in) :	45.50
Shape :	18 Sides	Top Diameter (in) :	17.00
Pole Type :	Taper	Taper (in/ft) :	0.235
Pole Manufacturer :	EEL	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 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):	2.23		
T <sub>L</sub> (sec):	6	p:	1.3
S <sub>s</sub> :	0.204	S <sub>1</sub> :	0.064
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.218	S <sub>d1</sub> :	0.102
		C <sub>s</sub> :	0.031
		C <sub>s</sub> Max:	0.031
		C <sub>s</sub> Min:	0.030

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

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Customer: T-MOBILE

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom					Top							
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	48.500	0.3750	65		0.00	7,744	45.50	0.00	53.71	13817.4	19.63	121.33	34.09	48.50	40.14	5766.3	14.27	90.92	0.235121
2-18	48.375	0.3125	65	Slip	60.00	4,881	35.89	43.50	35.29	5646.6	18.49	114.87	24.52	91.88	24.01	1778.4	12.07	78.47	0.235121
3-18	37.875	0.2500	65	Slip	45.00	2,168	25.90	88.13	20.36	1692.8	16.51	103.62	17.00	126.00	13.29	471.1	10.23	68.00	0.235121
Shaft Weight						14,793													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
126.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	5.000	60.00	2.320	0.67
126.00	Alcatel-Lucent RRH2x50-08	6	0.000	5.000	52.90	1.700	0.50
126.00	Commscope NNVV-65B-R4	3	0.000	5.000	77.40	12.270	0.64
126.00	Dragonwave A-ANT-18G-2-C	1	0.000	1.000	27.10	4.690	1.00
126.00	Dragonwave A-ANT-23G-1-C	1	0.000	1.000	15.00	1.610	1.00
126.00	DragonWave Horizon Compact	2	0.000	1.000	10.60	0.430	0.50
126.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.000	5.000	103.60	4.200	0.64
126.00	Round T-Arm	3	0.000	0.000	250.00	9.700	1.00
116.00	Ericsson Air 3246 B66	3	0.000	0.000	180.00	7.940	0.69
116.00	Ericsson AIR-32 B2A/B66Aa	3	0.000	0.000	132.20	6.510	0.71
116.00	Ericsson KRY 112 144/2	3	0.000	0.000	9.70	0.560	0.50
116.00	Ericsson KRY 112 489/2	3	0.000	0.000	15.40	0.650	0.50
116.00	Ericsson Radio 4449 B12,B71	3	0.000	0.000	74.00	1.640	0.50
116.00	Kathrein Scala Smart Bias Tee	3	0.000	0.000	3.31	0.090	0.50
116.00	RFS APXVAARR24_43-U-NA20	3	0.000	0.000	127.90	20.240	0.63
116.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
106.00	CCI OPA-65R-LCUU-H4	6	0.000	4.000	57.00	6.080	0.66
106.00	Ericsson RRUS A2 B2	3	0.000	4.000	22.00	2.060	0.67
106.00	Ericsson RRUS E2 B29	3	0.000	4.000	60.00	3.150	0.67
106.00	Ericsson RRUS-11 (19.7")	3	0.000	4.000	51.00	2.790	0.67
106.00	Powerwave Allgon 7770.00	3	0.000	4.000	35.00	5.510	0.65
106.00	Powerwave Allgon LGP2140X	12	0.000	4.000	19.00	1.080	0.50
106.00	Powerwave Allgon LGP21901	6	0.000	4.000	5.50	0.230	0.50
106.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	4.000	31.80	1.280	1.00
106.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	27.200	1.00
101.00	Kathrein Scala 800 10504	3	0.000	0.000	17.60	3.340	0.67
101.00	RCU (Remote Control Unit)	3	0.000	0.000	1.00	0.160	0.50
Totals	Num Loadings:27	88			8175.83		

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width (in)	Exposed To Wind	Carrier
0.00	126.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N 0.00	N	Clearwire Corporation
0.00	126.00	1	1.7" Hybrid	1.70	1.78	N 0.00	N	Clearwire Corporation
0.00	126.00	3	1/2" Coax	0.63	0.15	N 0.00	N	Clearwire Corporation
0.00	126.00	2	2" Conduit	2.38	3.65	N 0.00	N	Clearwire Corporation
0.00	116.00	2	1 1/4" Fiber	1.25	1.05	N 0.00	N	T-Mobile
0.00	116.00	18	1 5/8" Coax	1.98	0.82	N 0.00	N	T-Mobile
0.00	116.00	1	1 5/8" Fiber	1.63	1.61	N 0.00	N	T-Mobile
0.00	106.00	1	0.51" Hybrid	0.51	0.14	N 0.00	Y	AT&T Mobility
0.00	106.00	12	1 5/8" Coax	1.98	0.82	N 3.96	Y	AT&T Mobility

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Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

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Customer: T-MOBILE

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0.00	106.00	2	1.24" (31.6mm) 4 AWG	1.24	1.17	N	0.00	Y	AT&T Mobility
0.00	106.00	2	2" Conduit	2.38	3.65	N	0.00	Y	AT&T Mobility
0.00	101.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	Metro PCS
0.00	101.00	1	3/8" Coax	0.44	0.08	N	0.00	Y	Metro PCS

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

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Customer: T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.3750	45.500	53.708	13,817.4	19.63	121.33	78.3	598.1	0.0	0.0
5.00		0.3750	44.324	52.309	12,765.4	19.08	118.20	79.0	567.2	0.0	901.9
10.00		0.3750	43.149	50.910	11,768.2	18.53	115.06	79.6	537.2	0.0	878.1
15.00		0.3750	41.973	49.510	10,824.3	17.97	111.93	80.3	507.9	0.0	854.3
20.00		0.3750	40.798	48.111	9,932.2	17.42	108.79	80.9	479.5	0.0	830.5
25.00		0.3750	39.622	46.712	9,090.6	16.87	105.66	81.6	451.9	0.0	806.7
30.00		0.3750	38.446	45.313	8,297.9	16.31	102.52	82.2	425.1	0.0	782.9
35.00		0.3750	37.271	43.914	7,552.7	15.76	99.39	82.6	399.1	0.0	759.0
40.00		0.3750	36.095	42.514	6,853.5	15.21	96.25	82.6	374.0	0.0	735.2
43.50	Bot - Section 2	0.3750	35.272	41.535	6,390.7	14.82	94.06	82.6	356.9	0.0	500.5
45.00		0.3750	34.920	41.115	6,198.9	14.66	93.12	82.6	349.6	0.0	390.2
48.50	Top - Section 1	0.3125	34.722	34.128	5,105.2	17.83	111.11	80.4	289.6	0.0	895.2
50.00		0.3125	34.369	33.779	4,949.8	17.63	109.98	80.7	283.7	0.0	173.3
55.00		0.3125	33.193	32.612	4,454.7	16.97	106.22	81.4	264.3	0.0	564.8
60.00		0.3125	32.018	31.446	3,993.8	16.30	102.46	82.2	245.7	0.0	544.9
65.00		0.3125	30.842	30.280	3,565.8	15.64	98.69	82.6	227.7	0.0	525.1
70.00		0.3125	29.667	29.114	3,169.5	14.98	94.93	82.6	210.4	0.0	505.3
75.00		0.3125	28.491	27.948	2,803.8	14.31	91.17	82.6	193.8	0.0	485.4
80.00		0.3125	27.315	26.782	2,467.3	13.65	87.41	82.6	177.9	0.0	465.6
85.00		0.3125	26.140	25.616	2,158.9	12.99	83.65	82.6	162.7	0.0	445.8
88.13	Bot - Section 3	0.3125	25.405	24.888	1,979.8	12.57	81.30	82.6	153.5	0.0	268.5
90.00		0.3125	24.964	24.450	1,877.3	12.32	79.89	82.6	148.1	0.0	286.2
91.88	Top - Section 2	0.2500	25.023	19.657	1,524.2	15.89	100.09	82.6	120.0	0.0	281.1
95.00		0.2500	24.288	19.074	1,392.5	15.37	97.15	82.6	112.9	0.0	205.9
100.0		0.2500	23.113	18.141	1,198.1	14.54	92.45	82.6	102.1	0.0	316.6
101.0		0.2500	22.878	17.954	1,161.5	14.37	91.51	82.6	100.0	0.0	61.4
105.0		0.2500	21.937	17.208	1,022.6	13.71	87.75	82.6	91.8	0.0	239.3
106.0		0.2500	21.702	17.022	989.7	13.54	86.81	82.6	89.8	0.0	58.2
110.0		0.2500	20.762	16.275	865.1	12.88	83.05	82.6	82.1	0.0	226.6
115.0		0.2500	19.586	15.343	724.7	12.05	78.34	82.6	72.9	0.0	269.0
116.0		0.2500	19.351	15.156	698.6	11.89	77.40	82.6	71.1	0.0	51.9
120.0		0.2500	18.410	14.410	600.4	11.22	73.64	82.6	64.2	0.0	201.2
125.0		0.2500	17.235	13.477	491.2	10.39	68.94	82.6	56.1	0.0	237.2
126.0		0.2500	17.000	13.290	471.1	10.23	68.00	82.6	54.6	0.0	45.5
14,793.2											

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:33 AM

Customer: T-MOBILE

**Load Case: 1.2D + 1.6W**

97 mph with No Ice

24 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		Discrete Forces			Linear Forces		Sum of Forces				
		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		189.9	0.0					0.0	0.0	189.9	0.0	0.0	0.0
5.00		376.6	1,082.3					0.0	333.7	376.6	1,416.0	0.0	0.0
10.00		370.2	1,053.7					0.0	333.7	370.2	1,387.4	0.0	0.0
15.00		363.9	1,025.1					0.0	333.7	363.9	1,358.8	0.0	0.0
20.00		357.5	996.6					0.0	333.7	357.5	1,330.3	0.0	0.0
25.00		351.1	968.0					0.0	333.7	351.1	1,301.7	0.0	0.0
30.00		348.8	939.4					0.0	333.7	348.8	1,273.1	0.0	0.0
35.00		353.6	910.9					0.0	333.7	353.6	1,244.6	0.0	0.0
40.00		305.7	882.3					0.0	333.7	305.7	1,216.0	0.0	0.0
43.50	Bot - Section 2	182.7	600.6					0.0	233.6	182.7	834.2	0.0	0.0
45.00		186.7	468.2					0.0	100.1	186.7	568.3	0.0	0.0
48.50	Top - Section 1	186.9	1,074.2					0.0	233.6	186.9	1,307.8	0.0	0.0
50.00		243.5	208.0					0.0	100.1	243.5	308.1	0.0	0.0
55.00		376.2	677.7					0.0	333.7	376.2	1,011.5	0.0	0.0
60.00		377.9	653.9					0.0	333.7	377.9	987.7	0.0	0.0
65.00		378.7	630.1					0.0	333.7	378.7	963.8	0.0	0.0
70.00		457.4	606.3					0.0	333.7	457.4	940.0	0.0	0.0
75.00		530.1	582.5					107.8	333.7	637.9	916.2	0.0	0.0
80.00		517.7	558.7					109.9	333.7	627.6	892.4	0.0	0.0
85.00		411.8	534.9					111.9	333.7	523.6	868.6	0.0	0.0
88.13	Bot - Section 3	250.3	322.2					70.9	208.6	321.2	530.8	0.0	0.0
90.00		187.2	343.4					42.9	125.1	230.1	468.5	0.0	0.0
91.88	Top - Section 2	245.8	337.4					43.1	125.1	288.9	462.5	0.0	0.0
95.00		390.4	247.1					72.5	208.6	462.9	455.7	0.0	0.0
100.00		284.3	379.9					117.4	333.7	401.6	713.6	0.0	0.0
101.00	Appurtenance(s)	167.4	73.7	277.5	0.0	0.0	67.0	23.7	66.7	468.6	207.4	0.0	0.0
105.00		150.9	287.2					0.0	243.0	150.9	530.1	0.0	0.0
106.00	Appurtenance(s)	125.0	69.9	2,921.2	0.0	7,282.1	3,766.6	0.0	60.7	3,046.2	3,897.2	0.0	0.0
110.00		209.2	271.9					0.0	148.8	209.2	420.7	0.0	0.0
115.00		136.4	322.8					0.0	186.0	136.4	508.8	0.0	0.0
116.00	Appurtenance(s)	108.9	62.3	3,324.9	0.0	0.0	3,753.0	0.0	37.2	3,433.8	3,852.5	0.0	0.0
120.00		190.0	241.5					0.0	60.1	190.0	301.6	0.0	0.0
125.00		123.4	284.7					0.0	75.2	123.4	359.9	0.0	0.0
126.00	Appurtenance(s)	20.0	54.7	2,943.7	0.0	7,400.1	2,224.4	0.0	15.0	2,963.7	2,294.1	0.0	0.0
<b>Totals:</b>										19,623.3	35,130.1	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:36 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W

97 mph with No Ice

24 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-35.10	-19.49	0.00	-1,834.71	0.00	1,834.71	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.532
5.00	-33.62	-19.22	0.00	-1,737.26	0.00	1,737.26	3,717.33	1,858.67	6,708.61	3,359.29	0.10	-0.18	0.526
10.00	-32.17	-18.95	0.00	-1,641.15	0.00	1,641.15	3,647.68	1,823.84	6,405.34	3,207.43	0.39	-0.37	0.521
15.00	-30.75	-18.68	0.00	-1,546.40	0.00	1,546.40	3,576.40	1,788.20	6,106.06	3,057.57	0.89	-0.56	0.514
20.00	-29.36	-18.41	0.00	-1,453.00	0.00	1,453.00	3,503.48	1,751.74	5,811.01	2,909.82	1.58	-0.76	0.508
25.00	-28.00	-18.14	0.00	-1,360.95	0.00	1,360.95	3,428.92	1,714.46	5,520.42	2,764.31	2.49	-0.96	0.501
30.00	-26.67	-17.86	0.00	-1,270.26	0.00	1,270.26	3,352.72	1,676.36	5,234.53	2,621.15	3.61	-1.17	0.493
35.00	-25.37	-17.58	0.00	-1,180.94	0.00	1,180.94	3,262.56	1,631.28	4,934.93	2,471.13	4.95	-1.38	0.486
40.00	-24.11	-17.32	0.00	-1,093.06	0.00	1,093.06	3,158.60	1,579.30	4,623.93	2,315.40	6.50	-1.59	0.480
43.50	-23.25	-17.15	0.00	-1,032.45	0.00	1,032.45	3,085.84	1,542.92	4,412.25	2,209.40	7.73	-1.75	0.475
45.00	-22.65	-17.00	0.00	-1,006.72	0.00	1,006.72	3,054.65	1,527.33	4,323.05	2,164.74	8.29	-1.82	0.473
48.50	-21.32	-16.81	0.00	-947.24	0.00	947.24	2,470.49	1,235.24	3,488.73	1,746.96	9.68	-1.97	0.551
50.00	-20.97	-16.61	0.00	-922.03	0.00	922.03	2,452.28	1,226.14	3,427.21	1,716.15	10.31	-2.04	0.546
55.00	-19.90	-16.29	0.00	-838.96	0.00	838.96	2,390.53	1,195.26	3,224.53	1,614.66	12.59	-2.30	0.528
60.00	-18.86	-15.95	0.00	-757.53	0.00	757.53	2,327.14	1,163.57	3,025.74	1,515.12	15.13	-2.55	0.508
65.00	-17.84	-15.61	0.00	-677.77	0.00	677.77	2,249.69	1,124.84	2,815.52	1,409.85	17.93	-2.81	0.489
70.00	-16.86	-15.18	0.00	-599.73	0.00	599.73	2,163.06	1,081.53	2,601.80	1,302.84	21.01	-3.06	0.468
75.00	-15.92	-14.56	0.00	-523.85	0.00	523.85	2,076.43	1,038.21	2,396.52	1,200.04	24.35	-3.31	0.444
80.00	-15.01	-13.94	0.00	-451.05	0.00	451.05	1,989.80	994.90	2,199.68	1,101.47	27.95	-3.56	0.417
85.00	-14.13	-13.41	0.00	-381.33	0.00	381.33	1,903.17	951.59	2,011.27	1,007.13	31.81	-3.80	0.386
88.13	-13.59	-13.08	0.00	-339.42	0.00	339.42	1,849.03	924.51	1,897.79	950.31	34.34	-3.95	0.365
90.00	-13.12	-12.84	0.00	-314.89	0.00	314.89	1,816.54	908.27	1,831.29	917.01	35.91	-4.04	0.351
91.88	-12.66	-12.55	0.00	-290.81	0.00	290.81	1,460.41	730.20	1,483.31	742.76	37.51	-4.12	0.400
95.00	-12.20	-12.09	0.00	-251.60	0.00	251.60	1,417.09	708.55	1,396.21	699.14	40.26	-4.26	0.369
100.00	-11.49	-11.66	0.00	-191.15	0.00	191.15	1,347.79	673.89	1,262.31	632.09	44.84	-4.48	0.311
101.00	-11.30	-11.20	0.00	-179.49	0.00	179.49	1,333.93	666.96	1,236.34	619.09	45.78	-4.53	0.299
105.00	-10.77	-11.02	0.00	-134.70	0.00	134.70	1,278.48	639.24	1,135.17	568.43	49.64	-4.68	0.246
106.00	-7.12	-7.68	0.00	-116.40	0.00	116.40	1,264.62	632.31	1,110.55	556.10	50.62	-4.72	0.215
110.00	-6.71	-7.45	0.00	-85.69	0.00	85.69	1,209.18	604.59	1,014.77	508.14	54.62	-4.83	0.174
115.00	-6.20	-7.27	0.00	-48.46	0.00	48.46	1,139.88	569.94	901.12	451.23	59.74	-4.94	0.113
116.00	-2.66	-3.52	0.00	-41.18	0.00	41.18	1,126.02	563.01	879.21	440.26	60.78	-4.96	0.096
120.00	-2.37	-3.31	0.00	-27.10	0.00	27.10	1,070.57	535.29	794.22	397.70	64.96	-5.02	0.070
125.00	-2.02	-3.15	0.00	-10.55	0.00	10.55	1,001.27	500.64	694.07	347.55	70.23	-5.06	0.032
126.00	0.00	-2.96	0.00	-7.40	0.00	7.40	987.41	493.71	674.85	337.93	71.29	-5.07	0.022

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:36 AM

Customer: T-MOBILE

**Load Case:** 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		174.1	0.0					0.0	0.0	174.1	0.0	0.0	0.0
5.00		343.6	811.7					0.0	250.3	343.6	1,062.0	0.0	0.0
10.00		334.5	790.3					0.0	250.3	334.5	1,040.6	0.0	0.0
15.00		325.4	768.8					0.0	250.3	325.4	1,019.1	0.0	0.0
20.00		316.3	747.4					0.0	250.3	316.3	997.7	0.0	0.0
25.00		307.2	726.0					0.0	250.3	307.2	976.3	0.0	0.0
30.00		301.6	704.6					0.0	250.3	301.6	954.9	0.0	0.0
35.00		302.0	683.1					0.0	250.3	302.0	933.4	0.0	0.0
40.00		258.2	661.7					0.0	250.3	258.2	912.0	0.0	0.0
43.50	Bot - Section 2	153.0	450.5					0.0	175.2	153.0	625.7	0.0	0.0
45.00		154.8	351.2					0.0	75.1	154.8	426.3	0.0	0.0
48.50	Top - Section 1	154.6	805.6					0.0	175.2	154.6	980.8	0.0	0.0
50.00		200.1	156.0					0.0	75.1	200.1	231.1	0.0	0.0
55.00		306.1	508.3					0.0	250.3	306.1	758.6	0.0	0.0
60.00		302.7	490.5					0.0	250.3	302.7	740.7	0.0	0.0
65.00		298.4	472.6					0.0	250.3	298.4	722.9	0.0	0.0
70.00		416.0	454.7					0.0	250.3	416.0	705.0	0.0	0.0
75.00		530.1	436.9					107.8	250.3	637.9	687.2	0.0	0.0
80.00		517.7	419.0					109.9	250.3	627.6	669.3	0.0	0.0
85.00		411.8	401.2					111.9	250.3	523.6	651.5	0.0	0.0
88.13	Bot - Section 3	250.3	241.7					70.9	156.4	321.2	398.1	0.0	0.0
90.00		187.2	257.5					42.9	93.9	230.1	351.4	0.0	0.0
91.88	Top - Section 2	245.8	253.0					43.1	93.9	288.9	346.9	0.0	0.0
95.00		390.4	185.3					72.5	156.4	462.9	341.8	0.0	0.0
100.00		284.3	284.9					117.4	250.3	401.6	535.2	0.0	0.0
101.00	Appurtenance(s)	145.5	55.3	277.5	0.0	0.0	50.2	23.7	50.1	446.7	155.5	0.0	0.0
105.00		123.2	215.4					0.0	182.2	123.2	397.6	0.0	0.0
106.00	Appurtenance(s)	119.3	52.4	2,921.2	0.0	7,282.1	2,824.9	0.0	45.6	3,040.5	2,922.9	0.0	0.0
110.00		209.2	203.9					0.0	111.6	209.2	315.5	0.0	0.0
115.00		136.4	242.1					0.0	139.5	136.4	381.6	0.0	0.0
116.00	Appurtenance(s)	108.9	46.7	3,324.9	0.0	0.0	2,814.8	0.0	27.9	3,433.8	2,889.4	0.0	0.0
120.00		190.0	181.1					0.0	45.1	190.0	226.2	0.0	0.0
125.00		123.4	213.5					0.0	56.4	123.4	269.9	0.0	0.0
126.00	Appurtenance(s)	20.0	41.0	2,943.7	0.0	7,400.1	1,668.3	0.0	11.3	2,963.7	1,720.6	0.0	0.0
<b>Totals:</b>										18,809.4	26,347.5	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:40 AM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

24 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	-26.32	-18.68	0.00	-1,774.91	0.00	1,774.91	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.512
5.00	-25.20	-18.41	0.00	-1,681.53	0.00	1,681.53	3,717.33	1,858.67	6,708.61	3,359.29	0.10	-0.18	0.507
10.00	-24.10	-18.15	0.00	-1,589.47	0.00	1,589.47	3,647.68	1,823.84	6,405.34	3,207.43	0.38	-0.36	0.502
15.00	-23.03	-17.89	0.00	-1,498.73	0.00	1,498.73	3,576.40	1,788.20	6,106.06	3,057.57	0.86	-0.55	0.497
20.00	-21.97	-17.64	0.00	-1,409.27	0.00	1,409.27	3,503.48	1,751.74	5,811.01	2,909.82	1.53	-0.74	0.491
25.00	-20.94	-17.39	0.00	-1,321.08	0.00	1,321.08	3,428.92	1,714.46	5,520.42	2,764.31	2.41	-0.93	0.484
30.00	-19.93	-17.14	0.00	-1,234.14	0.00	1,234.14	3,352.72	1,676.36	5,234.53	2,621.15	3.49	-1.13	0.477
35.00	-18.94	-16.89	0.00	-1,148.43	0.00	1,148.43	3,262.56	1,631.28	4,934.93	2,471.13	4.79	-1.34	0.471
40.00	-17.99	-16.66	0.00	-1,064.00	0.00	1,064.00	3,158.60	1,579.30	4,623.93	2,315.40	6.30	-1.55	0.465
43.50	-17.33	-16.52	0.00	-1,005.68	0.00	1,005.68	3,085.84	1,542.92	4,412.25	2,209.40	7.49	-1.70	0.461
45.00	-16.88	-16.39	0.00	-980.90	0.00	980.90	3,054.65	1,527.33	4,323.05	2,164.74	8.04	-1.76	0.459
48.50	-15.88	-16.23	0.00	-923.53	0.00	923.53	2,470.49	1,235.24	3,488.73	1,746.96	9.39	-1.92	0.535
50.00	-15.61	-16.07	0.00	-899.18	0.00	899.18	2,452.28	1,226.14	3,427.21	1,716.15	10.00	-1.98	0.530
55.00	-14.79	-15.80	0.00	-818.84	0.00	818.84	2,390.53	1,195.26	3,224.53	1,614.66	12.21	-2.23	0.513
60.00	-14.00	-15.53	0.00	-739.84	0.00	739.84	2,327.14	1,163.57	3,025.74	1,515.12	14.68	-2.48	0.494
65.00	-13.22	-15.25	0.00	-662.21	0.00	662.21	2,249.69	1,124.84	2,815.52	1,409.85	17.41	-2.73	0.476
70.00	-12.47	-14.86	0.00	-585.94	0.00	585.94	2,163.06	1,081.53	2,601.80	1,302.84	20.40	-2.98	0.456
75.00	-11.76	-14.23	0.00	-511.65	0.00	511.65	2,076.43	1,038.21	2,396.52	1,200.04	23.65	-3.22	0.432
80.00	-11.07	-13.61	0.00	-440.48	0.00	440.48	1,989.80	994.90	2,199.68	1,101.47	27.15	-3.47	0.406
85.00	-10.41	-13.09	0.00	-372.41	0.00	372.41	1,903.17	951.59	2,011.27	1,007.13	30.91	-3.70	0.375
88.13	-10.01	-12.76	0.00	-331.52	0.00	331.52	1,849.03	924.51	1,897.79	950.31	33.38	-3.84	0.354
90.00	-9.66	-12.52	0.00	-307.59	0.00	307.59	1,816.54	908.27	1,831.29	917.01	34.90	-3.93	0.341
91.88	-9.31	-12.23	0.00	-284.12	0.00	284.12	1,460.41	730.20	1,483.31	742.76	36.46	-4.01	0.389
95.00	-8.96	-11.77	0.00	-245.92	0.00	245.92	1,417.09	708.55	1,396.21	699.14	39.14	-4.15	0.358
100.00	-8.44	-11.35	0.00	-187.08	0.00	187.08	1,347.79	673.89	1,262.31	632.09	43.60	-4.37	0.303
101.00	-8.30	-10.90	0.00	-175.73	0.00	175.73	1,333.93	666.96	1,236.34	619.09	44.52	-4.41	0.290
105.00	-7.89	-10.76	0.00	-132.12	0.00	132.12	1,278.48	639.24	1,135.17	568.43	48.28	-4.56	0.239
106.00	-5.21	-7.50	0.00	-114.08	0.00	114.08	1,264.62	632.31	1,110.55	556.10	49.24	-4.60	0.209
110.00	-4.90	-7.28	0.00	-84.06	0.00	84.06	1,209.18	604.59	1,014.77	508.14	53.13	-4.71	0.170
115.00	-4.52	-7.12	0.00	-47.66	0.00	47.66	1,139.88	569.94	901.12	451.23	58.13	-4.82	0.110
116.00	-1.93	-3.45	0.00	-40.55	0.00	40.55	1,126.02	563.01	879.21	440.26	59.14	-4.84	0.094
120.00	-1.72	-3.25	0.00	-26.73	0.00	26.73	1,070.57	535.29	794.22	397.70	63.21	-4.89	0.069
125.00	-1.46	-3.10	0.00	-10.50	0.00	10.50	1,001.27	500.64	694.07	347.55	68.35	-4.94	0.032
126.00	0.00	-2.96	0.00	-7.40	0.00	7.40	987.41	493.71	674.85	337.93	69.39	-4.94	0.022



<b>Load Case:</b> 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

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		56.1	0.0					0.0	0.0	56.1	0.0	0.0	0.0
5.00		111.1	1,412.4					0.0	616.1	111.1	2,028.6	0.0	0.0
10.00		108.8	1,413.8					0.0	651.2	108.8	2,064.9	0.0	0.0
15.00		106.2	1,394.6					0.0	669.3	106.2	2,063.9	0.0	0.0
20.00		103.6	1,368.7					0.0	682.0	103.6	2,050.7	0.0	0.0
25.00		101.0	1,339.3					0.0	691.8	101.0	2,031.1	0.0	0.0
30.00		99.5	1,307.7					0.0	699.9	99.5	2,007.6	0.0	0.0
35.00		100.0	1,274.5					0.0	706.9	100.0	1,981.4	0.0	0.0
40.00		85.7	1,240.2					0.0	712.9	85.7	1,953.1	0.0	0.0
43.50	Bot - Section 2	50.9	848.4					0.0	502.3	50.9	1,350.7	0.0	0.0
45.00		51.6	575.9					0.0	216.0	51.6	791.9	0.0	0.0
48.50	Top - Section 1	51.6	1,321.2					0.0	505.8	51.6	1,826.9	0.0	0.0
50.00		66.9	313.4					0.0	217.4	66.9	530.8	0.0	0.0
55.00		102.6	1,019.8					0.0	727.7	102.6	1,747.5	0.0	0.0
60.00		101.9	987.6					0.0	731.8	101.9	1,719.4	0.0	0.0
65.00		100.9	954.9					0.0	735.6	100.9	1,690.5	0.0	0.0
70.00		99.5	921.9					0.0	739.2	99.5	1,661.1	0.0	0.0
75.00		97.9	888.5					37.5	742.5	135.4	1,631.0	0.0	0.0
80.00		96.1	854.8					38.3	745.7	134.5	1,600.5	0.0	0.0
85.00		76.8	820.9					39.1	748.6	115.9	1,569.5	0.0	0.0
88.13	Bot - Section 3	46.8	497.1					24.9	469.3	71.7	966.4	0.0	0.0
90.00		35.1	448.9					15.1	282.1	50.1	731.0	0.0	0.0
91.88	Top - Section 2	46.2	441.4					15.2	282.5	61.4	723.8	0.0	0.0
95.00		73.7	416.1					25.5	471.6	99.2	887.8	0.0	0.0
100.00		53.8	639.3					41.4	756.7	95.2	1,396.0	0.0	0.0
101.00	Appurtenance(s)	43.6	125.2	60.2	0.0	0.0	328.1	8.4	151.6	112.3	605.0	0.0	0.0
105.00		43.4	486.0					0.0	483.6	43.4	969.5	0.0	0.0
106.00	Appurtenance(s)	42.3	119.2	718.2	0.0	1,506.0	7,175.4	0.0	121.1	760.5	7,415.7	0.0	0.0
110.00		74.5	461.8					0.0	148.8	74.5	610.6	0.0	0.0
115.00		48.8	548.6					0.0	186.0	48.8	734.6	0.0	0.0
116.00	Appurtenance(s)	39.3	107.1	756.2	0.0	0.0	7,353.1	0.0	37.2	795.4	7,497.4	0.0	0.0
120.00		69.0	413.0					0.0	60.1	69.0	473.2	0.0	0.0
125.00		45.0	487.4					0.0	75.2	45.0	562.6	0.0	0.0
126.00	Appurtenance(s)	7.3	94.8	751.0	0.0	1,618.8	4,790.6	0.0	15.0	758.4	4,900.5	0.0	0.0
<b>Totals:</b>										4,968.55	60,775.2	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:43 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	-60.77	-4.94	0.00	-476.81	0.00	476.81	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.152
5.00	-58.74	-4.88	0.00	-452.12	0.00	452.12	3,717.33	1,858.67	6,708.61	3,359.29	0.03	-0.05	0.150
10.00	-56.67	-4.81	0.00	-427.74	0.00	427.74	3,647.68	1,823.84	6,405.34	3,207.43	0.10	-0.10	0.149
15.00	-54.60	-4.75	0.00	-403.68	0.00	403.68	3,576.40	1,788.20	6,106.06	3,057.57	0.23	-0.15	0.147
20.00	-52.55	-4.69	0.00	-379.92	0.00	379.92	3,503.48	1,751.74	5,811.01	2,909.82	0.41	-0.20	0.146
25.00	-50.51	-4.63	0.00	-356.48	0.00	356.48	3,428.92	1,714.46	5,520.42	2,764.31	0.65	-0.25	0.144
30.00	-48.50	-4.56	0.00	-333.35	0.00	333.35	3,352.72	1,676.36	5,234.53	2,621.15	0.94	-0.31	0.142
35.00	-46.52	-4.50	0.00	-310.53	0.00	310.53	3,262.56	1,631.28	4,934.93	2,471.13	1.29	-0.36	0.140
40.00	-44.56	-4.44	0.00	-288.04	0.00	288.04	3,158.60	1,579.30	4,623.93	2,315.40	1.70	-0.42	0.139
43.50	-43.21	-4.40	0.00	-272.51	0.00	272.51	3,085.84	1,542.92	4,412.25	2,209.40	2.02	-0.46	0.137
45.00	-42.42	-4.36	0.00	-265.91	0.00	265.91	3,054.65	1,527.33	4,323.05	2,164.74	2.17	-0.48	0.137
48.50	-40.59	-4.32	0.00	-250.65	0.00	250.65	2,470.49	1,235.24	3,488.73	1,746.96	2.53	-0.52	0.160
50.00	-40.05	-4.27	0.00	-244.18	0.00	244.18	2,452.28	1,226.14	3,427.21	1,716.15	2.69	-0.54	0.159
55.00	-38.30	-4.20	0.00	-222.81	0.00	222.81	2,390.53	1,195.26	3,224.53	1,614.66	3.29	-0.60	0.154
60.00	-36.58	-4.12	0.00	-201.82	0.00	201.82	2,327.14	1,163.57	3,025.74	1,515.12	3.96	-0.67	0.149
65.00	-34.88	-4.04	0.00	-181.21	0.00	181.21	2,249.69	1,124.84	2,815.52	1,409.85	4.70	-0.74	0.144
70.00	-33.22	-3.96	0.00	-161.01	0.00	161.01	2,163.06	1,081.53	2,601.80	1,302.84	5.51	-0.81	0.139
75.00	-31.59	-3.84	0.00	-141.22	0.00	141.22	2,076.43	1,038.21	2,396.52	1,200.04	6.39	-0.87	0.133
80.00	-29.98	-3.71	0.00	-122.03	0.00	122.03	1,989.80	994.90	2,199.68	1,101.47	7.34	-0.94	0.126
85.00	-28.41	-3.59	0.00	-103.48	0.00	103.48	1,903.17	951.59	2,011.27	1,007.13	8.36	-1.01	0.118
88.13	-27.45	-3.52	0.00	-92.25	0.00	92.25	1,849.03	924.51	1,897.79	950.31	9.04	-1.05	0.112
90.00	-26.72	-3.47	0.00	-85.65	0.00	85.65	1,816.54	908.27	1,831.29	917.01	9.45	-1.07	0.108
91.88	-25.99	-3.41	0.00	-79.14	0.00	79.14	1,460.41	730.20	1,483.31	742.76	9.88	-1.09	0.124
95.00	-25.10	-3.31	0.00	-68.50	0.00	68.50	1,417.09	708.55	1,396.21	699.14	10.61	-1.13	0.116
100.00	-23.71	-3.20	0.00	-51.94	0.00	51.94	1,347.79	673.89	1,262.31	632.09	11.82	-1.19	0.100
101.00	-23.10	-3.09	0.00	-48.73	0.00	48.73	1,333.93	666.96	1,236.34	619.09	12.07	-1.20	0.096
105.00	-22.13	-3.04	0.00	-36.37	0.00	36.37	1,278.48	639.24	1,135.17	568.43	13.10	-1.25	0.081
106.00	-14.74	-2.12	0.00	-31.83	0.00	31.83	1,264.62	632.31	1,110.55	556.10	13.36	-1.26	0.069
110.00	-14.13	-2.04	0.00	-23.36	0.00	23.36	1,209.18	604.59	1,014.77	508.14	14.43	-1.29	0.058
115.00	-13.39	-1.98	0.00	-13.16	0.00	13.16	1,139.88	569.94	901.12	451.23	15.80	-1.32	0.041
116.00	-5.91	-1.01	0.00	-11.19	0.00	11.19	1,126.02	563.01	879.21	440.26	16.07	-1.32	0.031
120.00	-5.44	-0.93	0.00	-7.15	0.00	7.15	1,070.57	535.29	794.22	397.70	17.19	-1.34	0.023
125.00	-4.88	-0.87	0.00	-2.49	0.00	2.49	1,001.27	500.64	694.07	347.55	18.60	-1.35	0.012
126.00	0.00	-0.76	0.00	-1.62	0.00	1.62	987.41	493.71	674.85	337.93	18.88	-1.35	0.005

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:43 AM

Customer: T-MOBILE

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

23 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**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		41.6	0.0					0.0	0.0	41.6	0.0	0.0	0.0
5.00		82.2	901.9					0.0	278.1	82.2	1,180.0	0.0	0.0
10.00		80.0	878.1					0.0	278.1	80.0	1,156.2	0.0	0.0
15.00		77.8	854.3					0.0	278.1	77.8	1,132.4	0.0	0.0
20.00		75.6	830.5					0.0	278.1	75.6	1,108.6	0.0	0.0
25.00		73.5	806.7					0.0	278.1	73.5	1,084.8	0.0	0.0
30.00		72.1	782.9					0.0	278.1	72.1	1,061.0	0.0	0.0
35.00		72.2	759.0					0.0	278.1	72.2	1,037.1	0.0	0.0
40.00		61.7	735.2					0.0	278.1	61.7	1,013.3	0.0	0.0
43.50	Bot - Section 2	36.6	500.5					0.0	194.7	36.6	695.2	0.0	0.0
45.00		37.0	390.2					0.0	83.4	37.0	473.6	0.0	0.0
48.50	Top - Section 1	37.0	895.2					0.0	194.7	37.0	1,089.8	0.0	0.0
50.00		47.9	173.3					0.0	83.4	47.9	256.7	0.0	0.0
55.00		73.2	564.8					0.0	278.1	73.2	842.9	0.0	0.0
60.00		72.4	544.9					0.0	278.1	72.4	823.0	0.0	0.0
65.00		71.4	525.1					0.0	278.1	71.4	803.2	0.0	0.0
70.00		99.5	505.3					0.0	278.1	99.5	783.4	0.0	0.0
75.00		126.8	485.4					25.8	278.1	152.6	763.5	0.0	0.0
80.00		123.8	465.6					26.3	278.1	150.1	743.7	0.0	0.0
85.00		98.5	445.8					26.8	278.1	125.2	723.9	0.0	0.0
88.13	Bot - Section 3	59.9	268.5					17.0	173.8	76.8	442.3	0.0	0.0
90.00		44.8	286.2					10.3	104.3	55.0	390.4	0.0	0.0
91.88	Top - Section 2	58.8	281.1					10.3	104.3	69.1	385.4	0.0	0.0
95.00		93.4	205.9					17.3	173.8	110.7	379.7	0.0	0.0
100.00		68.0	316.6					28.1	278.1	96.0	594.7	0.0	0.0
101.00	Appurtenance(s)	34.8	61.4	66.4	0.0	0.0	55.8	5.7	55.6	106.8	172.8	0.0	0.0
105.00		29.5	239.3					0.0	202.5	29.5	441.8	0.0	0.0
106.00	Appurtenance(s)	28.5	58.2	698.6	0.0	1,741.4	3,138.8	0.0	50.6	727.1	3,247.7	0.0	0.0
110.00		50.0	226.6					0.0	124.0	50.0	350.6	0.0	0.0
115.00		32.6	269.0					0.0	155.0	32.6	424.0	0.0	0.0
116.00	Appurtenance(s)	26.0	51.9	795.1	0.0	0.0	3,127.5	0.0	31.0	821.1	3,210.4	0.0	0.0
120.00		45.4	201.2					0.0	50.1	45.4	251.3	0.0	0.0
125.00		29.5	237.2					0.0	62.6	29.5	299.9	0.0	0.0
126.00	Appurtenance(s)	4.8	45.5	703.9	0.0	1,769.6	1,853.7	0.0	12.5	708.7	1,911.8	0.0	0.0
<b>Totals:</b>										4,497.95	29,275.0	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:46 AM

Customer: T-MOBILE

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-29.27	-4.47	0.00	-426.58	0.00	426.58	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.129
5.00	-28.09	-4.41	0.00	-404.25	0.00	404.25	3,717.33	1,858.67	6,708.61	3,359.29	0.02	-0.04	0.128
10.00	-26.93	-4.35	0.00	-382.22	0.00	382.22	3,647.68	1,823.84	6,405.34	3,207.43	0.09	-0.09	0.127
15.00	-25.80	-4.29	0.00	-360.49	0.00	360.49	3,576.40	1,788.20	6,106.06	3,057.57	0.21	-0.13	0.125
20.00	-24.68	-4.23	0.00	-339.06	0.00	339.06	3,503.48	1,751.74	5,811.01	2,909.82	0.37	-0.18	0.124
25.00	-23.60	-4.17	0.00	-317.93	0.00	317.93	3,428.92	1,714.46	5,520.42	2,764.31	0.58	-0.22	0.122
30.00	-22.53	-4.11	0.00	-297.08	0.00	297.08	3,352.72	1,676.36	5,234.53	2,621.15	0.84	-0.27	0.120
35.00	-21.49	-4.05	0.00	-276.52	0.00	276.52	3,262.56	1,631.28	4,934.93	2,471.13	1.15	-0.32	0.118
40.00	-20.47	-4.00	0.00	-256.26	0.00	256.26	3,158.60	1,579.30	4,623.93	2,315.40	1.52	-0.37	0.117
43.50	-19.78	-3.97	0.00	-242.26	0.00	242.26	3,085.84	1,542.92	4,412.25	2,209.40	1.80	-0.41	0.116
45.00	-19.30	-3.94	0.00	-236.31	0.00	236.31	3,054.65	1,527.33	4,323.05	2,164.74	1.93	-0.42	0.115
48.50	-18.21	-3.90	0.00	-222.53	0.00	222.53	2,470.49	1,235.24	3,488.73	1,746.96	2.26	-0.46	0.135
50.00	-17.95	-3.86	0.00	-216.68	0.00	216.68	2,452.28	1,226.14	3,427.21	1,716.15	2.41	-0.48	0.134
55.00	-17.11	-3.80	0.00	-197.37	0.00	197.37	2,390.53	1,195.26	3,224.53	1,614.66	2.94	-0.54	0.129
60.00	-16.28	-3.74	0.00	-178.38	0.00	178.38	2,327.14	1,163.57	3,025.74	1,515.12	3.53	-0.60	0.125
65.00	-15.47	-3.67	0.00	-159.70	0.00	159.70	2,249.69	1,124.84	2,815.52	1,409.85	4.19	-0.66	0.120
70.00	-14.69	-3.58	0.00	-141.34	0.00	141.34	2,163.06	1,081.53	2,601.80	1,302.84	4.91	-0.72	0.115
75.00	-13.92	-3.43	0.00	-123.45	0.00	123.45	2,076.43	1,038.21	2,396.52	1,200.04	5.69	-0.78	0.110
80.00	-13.18	-3.28	0.00	-106.30	0.00	106.30	1,989.80	994.90	2,199.68	1,101.47	6.54	-0.83	0.103
85.00	-12.45	-3.16	0.00	-89.89	0.00	89.89	1,903.17	951.59	2,011.27	1,007.13	7.44	-0.89	0.096
88.13	-12.01	-3.08	0.00	-80.03	0.00	80.03	1,849.03	924.51	1,897.79	950.31	8.04	-0.93	0.091
90.00	-11.62	-3.02	0.00	-74.26	0.00	74.26	1,816.54	908.27	1,831.29	917.01	8.41	-0.95	0.087
91.88	-11.24	-2.95	0.00	-68.59	0.00	68.59	1,460.41	730.20	1,483.31	742.76	8.78	-0.97	0.100
95.00	-10.86	-2.84	0.00	-59.37	0.00	59.37	1,417.09	708.55	1,396.21	699.14	9.43	-1.00	0.093
100.00	-10.26	-2.74	0.00	-45.16	0.00	45.16	1,347.79	673.89	1,262.31	632.09	10.50	-1.05	0.079
101.00	-10.09	-2.63	0.00	-42.42	0.00	42.42	1,333.93	666.96	1,236.34	619.09	10.72	-1.06	0.076
105.00	-9.65	-2.60	0.00	-31.88	0.00	31.88	1,278.48	639.24	1,135.17	568.43	11.63	-1.10	0.064
106.00	-6.41	-1.81	0.00	-27.54	0.00	27.54	1,264.62	632.31	1,110.55	556.10	11.86	-1.11	0.055
110.00	-6.06	-1.76	0.00	-20.29	0.00	20.29	1,209.18	604.59	1,014.77	508.14	12.80	-1.14	0.045
115.00	-5.64	-1.72	0.00	-11.49	0.00	11.49	1,139.88	569.94	901.12	451.23	14.01	-1.16	0.030
116.00	-2.45	-0.83	0.00	-9.77	0.00	9.77	1,126.02	563.01	879.21	440.26	14.25	-1.17	0.024
120.00	-2.20	-0.78	0.00	-6.44	0.00	6.44	1,070.57	535.29	794.22	397.70	15.23	-1.18	0.018
125.00	-1.90	-0.75	0.00	-2.52	0.00	2.52	1,001.27	500.64	694.07	347.55	16.48	-1.19	0.009
126.00	0.00	-0.71	0.00	-1.77	0.00	1.77	987.41	493.71	674.85	337.93	16.72	-1.19	0.005

### Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.20
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
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 ( $S_{ds}$ ):	0.22
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	2.23
Redundancy Factor ( $\rho$ ):	1.30
Seismic Force Distribution Exponent (k):	1.86
Total Unfactored Dead Load:	29.28 k
Seismic Base Shear (E):	1.17 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)
33	125.50	58	475	0.005	6	72
32	122.50	300	2,346	0.023	27	373
31	118.00	251	1,834	0.018	21	313
30	115.50	83	581	0.006	7	103
29	112.50	424	2,830	0.028	33	527
28	108.00	351	2,169	0.022	25	436
27	105.50	109	645	0.006	7	135
26	103.00	442	2,501	0.025	29	549
25	100.50	117	633	0.006	7	146
24	97.50	595	3,040	0.030	35	740
23	93.44	380	1,793	0.018	21	472
22	90.94	385	1,730	0.017	20	479
21	89.06	390	1,686	0.017	20	486
20	86.56	442	1,811	0.018	21	550
19	82.50	724	2,710	0.027	31	900
18	77.50	744	2,478	0.025	29	925
17	72.50	764	2,246	0.022	26	949
16	67.50	783	2,017	0.020	23	974
15	62.50	803	1,792	0.018	21	999
14	57.50	823	1,572	0.016	18	1,023
13	52.50	843	1,358	0.014	16	1,048
12	49.25	257	367	0.004	4	319
11	46.75	1,090	1,415	0.014	16	1,355

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

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Customer: T-MOBILE

10	44.25	474	555	0.006	6	589
9	41.75	695	731	0.007	8	864
8	37.50	1,013	872	0.009	10	1,260
7	32.50	1,037	684	0.007	8	1,290
6	27.50	1,061	512	0.005	6	1,319
5	22.50	1,085	360	0.004	4	1,349
4	17.50	1,109	230	0.002	3	1,379
3	12.50	1,132	126	0.001	1	1,408
2	7.50	1,156	49	0.000	1	1,438
1	2.50	1,180	7	0.000	0	1,467
DragonWave Horizon C	126.00	21	175	0.002	2	26
Dragonwave A-ANT-23G	126.00	15	124	0.001	1	19
Alcatel-Lucent RRH2x	126.00	317	2,617	0.026	30	395
Alcatel-Lucent 1900	126.00	180	1,484	0.015	17	224
Nokia 2.5G MAA - AAH	126.00	311	2,563	0.025	30	386
Dragonwave A-ANT-18G	126.00	27	223	0.002	3	34
Round T-Arm	126.00	750	6,184	0.061	72	933
Commscope NNVV-65B-R	126.00	232	1,914	0.019	22	289
Kathrein Scala Smart	116.00	10	70	0.001	1	12
Ericsson KRY 112 144	116.00	29	206	0.002	2	36
Ericsson KRY 112 489	116.00	46	326	0.003	4	57
Ericsson Radio 4449	116.00	222	1,569	0.016	18	276
Ericsson AIR-32 B2A/	116.00	397	2,803	0.028	32	493
Ericsson Air 3246 B6	116.00	540	3,816	0.038	44	672
RFS APXVAARR24_43-U-	116.00	384	2,712	0.027	31	477
Round Low Profile PI	116.00	1,500	10,600	0.105	123	1,865
Powerwave Allgon LGP	106.00	33	197	0.002	2	41
Powerwave Allgon LGP	106.00	228	1,362	0.014	16	284
Raycap DC6-48-60-18-	106.00	32	190	0.002	2	40
Ericsson RRUS A2 B2	106.00	66	394	0.004	5	82
Ericsson RRUS-11 (19	106.00	153	914	0.009	11	190
Ericsson RRUS E2 B29	106.00	180	1,075	0.011	12	224
Powerwave Allgon 777	106.00	105	627	0.006	7	131
CCI OPA-65R-LCUU-H4	106.00	342	2,043	0.020	24	425
Round Platform w/ Ha	106.00	2,000	11,947	0.119	138	2,487
RCU (Remote Control	101.00	3	16	0.000	0	4
Kathrein Scala 800 1	101.00	53	288	0.003	3	66
		29,275	100,593	1.000	1,166	36,404

Load Case (0.9 - 0.2Sds) \* DL + E EFLM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
33	125.50	58	475	0.005	6	50
32	122.50	300	2,346	0.023	27	257
31	118.00	251	1,834	0.018	21	215
30	115.50	83	581	0.006	7	71
29	112.50	424	2,830	0.028	33	363
28	108.00	351	2,169	0.022	25	300
27	105.50	109	645	0.006	7	93
26	103.00	442	2,501	0.025	29	378
25	100.50	117	633	0.006	7	100
24	97.50	595	3,040	0.030	35	509
23	93.44	380	1,793	0.018	21	325
22	90.94	385	1,730	0.017	20	330
21	89.06	390	1,686	0.017	20	334
20	86.56	442	1,811	0.018	21	379
19	82.50	724	2,710	0.027	31	620
18	77.50	744	2,478	0.025	29	637
17	72.50	764	2,246	0.022	26	654

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number:OAA732815\_C3\_02

8/1/2018 11:53:46 AM

Customer: T-MOBILE

16	67.50	783	2,017	0.020	23	671
15	62.50	803	1,792	0.018	21	688
14	57.50	823	1,572	0.016	18	705
13	52.50	843	1,358	0.014	16	722
12	49.25	257	367	0.004	4	220
11	46.75	1,090	1,415	0.014	16	933
10	44.25	474	555	0.006	6	406
9	41.75	695	731	0.007	8	595
8	37.50	1,013	872	0.009	10	868
7	32.50	1,037	684	0.007	8	888
6	27.50	1,061	512	0.005	6	909
5	22.50	1,085	360	0.004	4	929
4	17.50	1,109	230	0.002	3	949
3	12.50	1,132	126	0.001	1	970
2	7.50	1,156	49	0.000	1	990
1	2.50	1,180	7	0.000	0	1,011
DragonWave Horizon C	126.00	21	175	0.002	2	18
Dragonwave A-ANT-23G	126.00	15	124	0.001	1	13
Alcatel-Lucent RRH2x	126.00	317	2,617	0.026	30	272
Alcatel-Lucent 1900	126.00	180	1,484	0.015	17	154
Nokia 2.5G MAA - AAH	126.00	311	2,563	0.025	30	266
Dragonwave A-ANT-18G	126.00	27	223	0.002	3	23
Round T-Arm	126.00	750	6,184	0.061	72	642
Commscope NNVV-65B-R	126.00	232	1,914	0.019	22	199
Kathrein Scala Smart	116.00	10	70	0.001	1	9
Ericsson KRY 112 144	116.00	29	206	0.002	2	25
Ericsson KRY 112 489	116.00	46	326	0.003	4	40
Ericsson Radio 4449	116.00	222	1,569	0.016	18	190
Ericsson AIR-32 B2A/	116.00	397	2,803	0.028	32	340
Ericsson Air 3246 B6	116.00	540	3,816	0.038	44	462
RFS APXVAARR24_43-U-	116.00	384	2,712	0.027	31	329
Round Low Profile PI	116.00	1,500	10,600	0.105	123	1,285
Powerwave Allgon LGP	106.00	33	197	0.002	2	28
Powerwave Allgon LGP	106.00	228	1,362	0.014	16	195
Raycap DC6-48-60-18-	106.00	32	190	0.002	2	27
Ericsson RRUS A2 B2	106.00	66	394	0.004	5	57
Ericsson RRUS-11 (19	106.00	153	914	0.009	11	131
Ericsson RRUS E2 B29	106.00	180	1,075	0.011	12	154
Powerwave Allgon 777	106.00	105	627	0.006	7	90
CCI OPA-65R-LCUU-H4	106.00	342	2,043	0.020	24	293
Round Platform w/ Ha	106.00	2,000	11,947	0.119	138	1,713
RCU (Remote Control	101.00	3	16	0.000	0	3
Kathrein Scala 800 1	101.00	53	288	0.003	3	45
		29,275	100,593	1.000	1,166	25,074

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	-34.94	-1.17	0.00	-123.11	0.00	123.11	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.044
5.00	-33.50	-1.18	0.00	-117.27	0.00	117.27	3,717.33	1,858.67	6,708.61	3,359.29	0.01	-0.01	0.044
10.00	-32.09	-1.18	0.00	-111.39	0.00	111.39	3,647.68	1,823.84	6,405.34	3,207.43	0.03	-0.03	0.044
15.00	-30.71	-1.18	0.00	-105.48	0.00	105.48	3,576.40	1,788.20	6,106.06	3,057.57	0.06	-0.04	0.043
20.00	-29.36	-1.19	0.00	-99.56	0.00	99.56	3,503.48	1,751.74	5,811.01	2,909.82	0.11	-0.05	0.043
25.00	-28.04	-1.19	0.00	-93.63	0.00	93.63	3,428.92	1,714.46	5,520.42	2,764.31	0.17	-0.07	0.042
30.00	-26.75	-1.18	0.00	-87.70	0.00	87.70	3,352.72	1,676.36	5,234.53	2,621.15	0.24	-0.08	0.041
35.00	-25.49	-1.18	0.00	-81.79	0.00	81.79	3,262.56	1,631.28	4,934.93	2,471.13	0.34	-0.09	0.041
40.00	-24.63	-1.17	0.00	-75.90	0.00	75.90	3,158.60	1,579.30	4,623.93	2,315.40	0.44	-0.11	0.041
43.50	-24.04	-1.17	0.00	-71.79	0.00	71.79	3,085.84	1,542.92	4,412.25	2,209.40	0.53	-0.12	0.040
45.00	-22.68	-1.15	0.00	-70.04	0.00	70.04	3,054.65	1,527.33	4,323.05	2,164.74	0.57	-0.12	0.040
48.50	-22.36	-1.15	0.00	-66.01	0.00	66.01	2,470.49	1,235.24	3,488.73	1,746.96	0.66	-0.14	0.047
50.00	-21.32	-1.14	0.00	-64.28	0.00	64.28	2,452.28	1,226.14	3,427.21	1,716.15	0.70	-0.14	0.046
55.00	-20.29	-1.12	0.00	-58.60	0.00	58.60	2,390.53	1,195.26	3,224.53	1,614.66	0.86	-0.16	0.045
60.00	-19.29	-1.10	0.00	-52.99	0.00	52.99	2,327.14	1,163.57	3,025.74	1,515.12	1.04	-0.18	0.043
65.00	-18.32	-1.08	0.00	-47.47	0.00	47.47	2,249.69	1,124.84	2,815.52	1,409.85	1.23	-0.19	0.042
70.00	-17.37	-1.06	0.00	-42.05	0.00	42.05	2,163.06	1,081.53	2,601.80	1,302.84	1.44	-0.21	0.040
75.00	-16.44	-1.03	0.00	-36.75	0.00	36.75	2,076.43	1,038.21	2,396.52	1,200.04	1.67	-0.23	0.039
80.00	-15.54	-1.00	0.00	-31.59	0.00	31.59	1,989.80	994.90	2,199.68	1,101.47	1.92	-0.25	0.036
85.00	-14.99	-0.98	0.00	-26.58	0.00	26.58	1,903.17	951.59	2,011.27	1,007.13	2.19	-0.26	0.034
88.13	-14.51	-0.96	0.00	-23.51	0.00	23.51	1,849.03	924.51	1,897.79	950.31	2.37	-0.27	0.033
90.00	-14.03	-0.94	0.00	-21.71	0.00	21.71	1,816.54	908.27	1,831.29	917.01	2.47	-0.28	0.031
91.88	-13.56	-0.92	0.00	-19.94	0.00	19.94	1,460.41	730.20	1,483.31	742.76	2.59	-0.29	0.036
95.00	-12.82	-0.88	0.00	-17.07	0.00	17.07	1,417.09	708.55	1,396.21	699.14	2.78	-0.29	0.033
100.00	-12.67	-0.88	0.00	-12.65	0.00	12.65	1,347.79	673.89	1,262.31	632.09	3.09	-0.31	0.029
101.00	-12.05	-0.84	0.00	-11.77	0.00	11.77	1,333.93	666.96	1,236.34	619.09	3.16	-0.31	0.028
105.00	-11.92	-0.84	0.00	-8.40	0.00	8.40	1,278.48	639.24	1,135.17	568.43	3.42	-0.32	0.024
106.00	-7.58	-0.57	0.00	-7.56	0.00	7.56	1,264.62	632.31	1,110.55	556.10	3.49	-0.33	0.020
110.00	-7.05	-0.54	0.00	-5.28	0.00	5.28	1,209.18	604.59	1,014.77	508.14	3.77	-0.33	0.016
115.00	-6.95	-0.53	0.00	-2.61	0.00	2.61	1,139.88	569.94	901.12	451.23	4.12	-0.34	0.012
116.00	-2.75	-0.23	0.00	-2.08	0.00	2.08	1,126.02	563.01	879.21	440.26	4.19	-0.34	0.007
120.00	-2.38	-0.20	0.00	-1.17	0.00	1.17	1,070.57	535.29	794.22	397.70	4.48	-0.34	0.005
125.00	-2.30	-0.19	0.00	-0.19	0.00	0.19	1,001.27	500.64	694.07	347.55	4.84	-0.34	0.003
126.00	0.00	-0.18	0.00	0.00	0.00	0.00	987.41	493.71	674.85	337.93	4.91	-0.34	0.000



Load Case (0.9 - 0.2Sds) \* DL + E ELM

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	-24.06	-1.17	0.00	-121.15	0.00	121.15	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.041
5.00	-23.07	-1.17	0.00	-115.32	0.00	115.32	3,717.33	1,858.67	6,708.61	3,359.29	0.01	-0.01	0.041
10.00	-22.10	-1.17	0.00	-109.46	0.00	109.46	3,647.68	1,823.84	6,405.34	3,207.43	0.03	-0.02	0.040
15.00	-21.15	-1.18	0.00	-103.59	0.00	103.59	3,576.40	1,788.20	6,106.06	3,057.57	0.06	-0.04	0.040
20.00	-20.22	-1.18	0.00	-97.71	0.00	97.71	3,503.48	1,751.74	5,811.01	2,909.82	0.11	-0.05	0.039
25.00	-19.31	-1.17	0.00	-91.83	0.00	91.83	3,428.92	1,714.46	5,520.42	2,764.31	0.17	-0.06	0.039
30.00	-18.43	-1.17	0.00	-85.96	0.00	85.96	3,352.72	1,676.36	5,234.53	2,621.15	0.24	-0.08	0.038
35.00	-17.56	-1.16	0.00	-80.12	0.00	80.12	3,262.56	1,631.28	4,934.93	2,471.13	0.33	-0.09	0.038
40.00	-16.96	-1.16	0.00	-74.31	0.00	74.31	3,158.60	1,579.30	4,623.93	2,315.40	0.43	-0.11	0.037
43.50	-16.56	-1.15	0.00	-70.26	0.00	70.26	3,085.84	1,542.92	4,412.25	2,209.40	0.52	-0.12	0.037
45.00	-15.62	-1.14	0.00	-68.53	0.00	68.53	3,054.65	1,527.33	4,323.05	2,164.74	0.56	-0.12	0.037
48.50	-15.40	-1.13	0.00	-64.56	0.00	64.56	2,470.49	1,235.24	3,488.73	1,746.96	0.65	-0.13	0.043
50.00	-14.68	-1.12	0.00	-62.86	0.00	62.86	2,452.28	1,226.14	3,427.21	1,716.15	0.69	-0.14	0.043
55.00	-13.98	-1.10	0.00	-57.27	0.00	57.27	2,390.53	1,195.26	3,224.53	1,614.66	0.84	-0.15	0.041
60.00	-13.29	-1.08	0.00	-51.76	0.00	51.76	2,327.14	1,163.57	3,025.74	1,515.12	1.02	-0.17	0.040
65.00	-12.62	-1.06	0.00	-46.35	0.00	46.35	2,249.69	1,124.84	2,815.52	1,409.85	1.21	-0.19	0.038
70.00	-11.96	-1.04	0.00	-41.04	0.00	41.04	2,163.06	1,081.53	2,601.80	1,302.84	1.41	-0.21	0.037
75.00	-11.32	-1.01	0.00	-35.85	0.00	35.85	2,076.43	1,038.21	2,396.52	1,200.04	1.64	-0.22	0.035
80.00	-10.70	-0.98	0.00	-30.80	0.00	30.80	1,989.80	994.90	2,199.68	1,101.47	1.88	-0.24	0.033
85.00	-10.33	-0.96	0.00	-25.91	0.00	25.91	1,903.17	951.59	2,011.27	1,007.13	2.15	-0.26	0.031
88.13	-9.99	-0.94	0.00	-22.92	0.00	22.92	1,849.03	924.51	1,897.79	950.31	2.32	-0.27	0.030
90.00	-9.66	-0.92	0.00	-21.16	0.00	21.16	1,816.54	908.27	1,831.29	917.01	2.42	-0.27	0.028
91.88	-9.34	-0.90	0.00	-19.43	0.00	19.43	1,460.41	730.20	1,483.31	742.76	2.53	-0.28	0.033
95.00	-8.83	-0.86	0.00	-16.63	0.00	16.63	1,417.09	708.55	1,396.21	699.14	2.72	-0.29	0.030
100.00	-8.73	-0.85	0.00	-12.32	0.00	12.32	1,347.79	673.89	1,262.31	632.09	3.03	-0.30	0.026
101.00	-8.30	-0.82	0.00	-11.47	0.00	11.47	1,333.93	666.96	1,236.34	619.09	3.09	-0.31	0.025
105.00	-8.21	-0.81	0.00	-8.19	0.00	8.19	1,278.48	639.24	1,135.17	568.43	3.35	-0.32	0.021
106.00	-5.22	-0.56	0.00	-7.37	0.00	7.37	1,264.62	632.31	1,110.55	556.10	3.42	-0.32	0.017
110.00	-4.86	-0.52	0.00	-5.15	0.00	5.15	1,209.18	604.59	1,014.77	508.14	3.69	-0.33	0.014
115.00	-4.79	-0.51	0.00	-2.54	0.00	2.54	1,139.88	569.94	901.12	451.23	4.03	-0.33	0.010
116.00	-1.89	-0.22	0.00	-2.03	0.00	2.03	1,126.02	563.01	879.21	440.26	4.10	-0.33	0.006
120.00	-1.64	-0.19	0.00	-1.15	0.00	1.15	1,070.57	535.29	794.22	397.70	4.38	-0.33	0.004
125.00	-1.59	-0.19	0.00	-0.19	0.00	0.19	1,001.27	500.64	694.07	347.55	4.74	-0.34	0.002
126.00	0.00	-0.18	0.00	0.00	0.00	0.00	987.41	493.71	674.85	337.93	4.81	-0.34	0.000

### 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 ( $S_s$ ):	0.20
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
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 ( $S_{ds}$ ):	0.22
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	2.23
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)
33	125.50	58	1.875	1.902	1.112	0.402	20	72
32	122.50	300	1.786	1.478	0.954	0.339	88	373
31	118.00	251	1.658	0.968	0.751	0.254	55	313
30	115.50	83	1.588	0.742	0.654	0.212	15	103
29	112.50	424	1.507	0.518	0.551	0.165	61	527
28	108.00	351	1.389	0.263	0.420	0.104	31	436
27	105.50	109	1.325	0.157	0.359	0.074	7	135
26	103.00	442	1.263	0.072	0.304	0.047	18	549
25	100.50	117	1.202	0.007	0.257	0.024	2	146
24	97.50	595	1.132	-0.050	0.207	0.000	0	740
23	93.44	380	1.039	-0.098	0.152	-0.025	-8	472
22	90.94	385	0.984	-0.113	0.124	-0.037	-12	479
21	89.06	390	0.944	-0.120	0.105	-0.044	-15	486
20	86.56	442	0.892	-0.122	0.084	-0.050	-19	550
19	82.50	724	0.810	-0.114	0.057	-0.053	-33	900
18	77.50	744	0.715	-0.091	0.033	-0.047	-30	925
17	72.50	764	0.626	-0.062	0.018	-0.030	-20	949
16	67.50	783	0.542	-0.032	0.009	-0.007	-5	974
15	62.50	803	0.465	-0.004	0.006	0.017	12	999
14	57.50	823	0.394	0.020	0.007	0.036	26	1,023
13	52.50	843	0.328	0.039	0.010	0.050	36	1,048
12	49.25	257	0.289	0.048	0.013	0.055	12	319
11	46.75	1,090	0.260	0.053	0.016	0.058	54	1,355
10	44.25	474	0.233	0.058	0.019	0.059	24	589
9	41.75	695	0.208	0.062	0.022	0.060	36	864
8	37.50	1,013	0.167	0.066	0.028	0.060	53	1,260
7	32.50	1,037	0.126	0.070	0.034	0.059	53	1,290
6	27.50	1,061	0.090	0.071	0.038	0.057	52	1,319
5	22.50	1,085	0.060	0.072	0.041	0.055	52	1,349
4	17.50	1,109	0.036	0.070	0.041	0.053	51	1,379
3	12.50	1,132	0.019	0.063	0.037	0.049	48	1,408
2	7.50	1,156	0.007	0.049	0.028	0.040	40	1,438
1	2.50	1,180	0.001	0.021	0.011	0.020	20	1,467
DragonWave Horizon C	126.00	21	1.890	1.980	1.140	0.413	8	26

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

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Customer: T-MOBILE

Dragonwave A-ANT-23G	126.00	15	1.890	1.980	1.140	0.413	5	19
Alcatel-Lucent RRH2x	126.00	317	1.890	1.980	1.140	0.413	114	395
Alcatel-Lucent 1900	126.00	180	1.890	1.980	1.140	0.413	64	224
Nokia 2.5G MAA - AAH	126.00	311	1.890	1.980	1.140	0.413	111	386
Dragonwave A-ANT-18G	126.00	27	1.890	1.980	1.140	0.413	10	34
Round T-Arm	126.00	750	1.890	1.980	1.140	0.413	268	933
Commscope NNVV-	126.00	232	1.890	1.980	1.140	0.413	83	289
Kathrein Scala Smart	116.00	10	1.602	0.784	0.673	0.220	2	12
Ericsson KRY 112 144	116.00	29	1.602	0.784	0.673	0.220	6	36
Ericsson KRY 112 489	116.00	46	1.602	0.784	0.673	0.220	9	57
Ericsson Radio 4449	116.00	222	1.602	0.784	0.673	0.220	42	276
Ericsson AIR-32 B2A/	116.00	397	1.602	0.784	0.673	0.220	76	493
Ericsson Air 3246 B6	116.00	540	1.602	0.784	0.673	0.220	103	672
RFS APXVAARR24_43-U-	116.00	384	1.602	0.784	0.673	0.220	73	477
Round Low Profile PI	116.00	1,500	1.602	0.784	0.673	0.220	286	1,865
Powerwave Allgon LGP	106.00	33	1.338	0.176	0.370	0.080	2	41
Powerwave Allgon LGP	106.00	228	1.338	0.176	0.370	0.080	16	284
Raycap DC6-48-60-18-	106.00	32	1.338	0.176	0.370	0.080	2	40
Ericsson RRUS A2 B2	106.00	66	1.338	0.176	0.370	0.080	5	82
Ericsson RRUS-11 (19	106.00	153	1.338	0.176	0.370	0.080	11	190
Ericsson RRUS E2 B29	106.00	180	1.338	0.176	0.370	0.080	12	224
Powerwave Allgon 777	106.00	105	1.338	0.176	0.370	0.080	7	131
CCI OPA-65R-LCUU-H4	106.00	342	1.338	0.176	0.370	0.080	24	425
Round Platform w/ Ha	106.00	2,000	1.338	0.176	0.370	0.080	138	2,487
RCU (Remote Control	101.00	3	1.214	0.019	0.266	0.028	0	4
Kathrein Scala 800 1	101.00	53	1.214	0.019	0.266	0.028	1	66
		29,275	66.363	29.799	24.869	7.888	2,201	36,404

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)
33	125.50	58	1.875	1.902	1.112	0.402	20	50
32	122.50	300	1.786	1.478	0.954	0.339	88	257
31	118.00	251	1.658	0.968	0.751	0.254	55	215
30	115.50	83	1.588	0.742	0.654	0.212	15	71
29	112.50	424	1.507	0.518	0.551	0.165	61	363
28	108.00	351	1.389	0.263	0.420	0.104	31	300
27	105.50	109	1.325	0.157	0.359	0.074	7	93
26	103.00	442	1.263	0.072	0.304	0.047	18	378
25	100.50	117	1.202	0.007	0.257	0.024	2	100
24	97.50	595	1.132	-0.050	0.207	0.000	0	509
23	93.44	380	1.039	-0.098	0.152	-0.025	-8	325
22	90.94	385	0.984	-0.113	0.124	-0.037	-12	330
21	89.06	390	0.944	-0.120	0.105	-0.044	-15	334
20	86.56	442	0.892	-0.122	0.084	-0.050	-19	379
19	82.50	724	0.810	-0.114	0.057	-0.053	-33	620
18	77.50	744	0.715	-0.091	0.033	-0.047	-30	637
17	72.50	764	0.626	-0.062	0.018	-0.030	-20	654
16	67.50	783	0.542	-0.032	0.009	-0.007	-5	671
15	62.50	803	0.465	-0.004	0.006	0.017	12	688
14	57.50	823	0.394	0.020	0.007	0.036	26	705
13	52.50	843	0.328	0.039	0.010	0.050	36	722
12	49.25	257	0.289	0.048	0.013	0.055	12	220
11	46.75	1,090	0.260	0.053	0.016	0.058	54	933
10	44.25	474	0.233	0.058	0.019	0.059	24	406
9	41.75	695	0.208	0.062	0.022	0.060	36	595
8	37.50	1,013	0.167	0.066	0.028	0.060	53	868
7	32.50	1,037	0.126	0.070	0.034	0.059	53	888

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

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Customer: T-MOBILE

6	27.50	1,061	0.090	0.071	0.038	0.057	52	909
5	22.50	1,085	0.060	0.072	0.041	0.055	52	929
4	17.50	1,109	0.036	0.070	0.041	0.053	51	949
3	12.50	1,132	0.019	0.063	0.037	0.049	48	970
2	7.50	1,156	0.007	0.049	0.028	0.040	40	990
1	2.50	1,180	0.001	0.021	0.011	0.020	20	1,011
DragonWave Horizon C	126.00	21	1.890	1.980	1.140	0.413	8	18
Dragonwave A-ANT-23G	126.00	15	1.890	1.980	1.140	0.413	5	13
Alcatel-Lucent RRH2x	126.00	317	1.890	1.980	1.140	0.413	114	272
Alcatel-Lucent 1900	126.00	180	1.890	1.980	1.140	0.413	64	154
Nokia 2.5G MAA - AAH	126.00	311	1.890	1.980	1.140	0.413	111	266
Dragonwave A-ANT-18G	126.00	27	1.890	1.980	1.140	0.413	10	23
Round T-Arm	126.00	750	1.890	1.980	1.140	0.413	268	642
Commscope NNVV-	126.00	232	1.890	1.980	1.140	0.413	83	199
Kathrein Scala Smart	116.00	10	1.602	0.784	0.673	0.220	2	9
Ericsson KRY 112 144	116.00	29	1.602	0.784	0.673	0.220	6	25
Ericsson KRY 112 489	116.00	46	1.602	0.784	0.673	0.220	9	40
Ericsson Radio 4449	116.00	222	1.602	0.784	0.673	0.220	42	190
Ericsson AIR-32 B2A/	116.00	397	1.602	0.784	0.673	0.220	76	340
Ericsson Air 3246 B6	116.00	540	1.602	0.784	0.673	0.220	103	462
RFS APXVAARR24_43-U-	116.00	384	1.602	0.784	0.673	0.220	73	329
Round Low Profile PI	116.00	1,500	1.602	0.784	0.673	0.220	286	1,285
Powerwave Allgon LGP	106.00	33	1.338	0.176	0.370	0.080	2	28
Powerwave Allgon LGP	106.00	228	1.338	0.176	0.370	0.080	16	195
Raycap DC6-48-60-18-	106.00	32	1.338	0.176	0.370	0.080	2	27
Ericsson RRUS A2 B2	106.00	66	1.338	0.176	0.370	0.080	5	57
Ericsson RRUS-11 (19	106.00	153	1.338	0.176	0.370	0.080	11	131
Ericsson RRUS E2 B29	106.00	180	1.338	0.176	0.370	0.080	12	154
Powerwave Allgon 777	106.00	105	1.338	0.176	0.370	0.080	7	90
CCI OPA-65R-LCUU-H4	106.00	342	1.338	0.176	0.370	0.080	24	293
Round Platform w/ Ha	106.00	2,000	1.338	0.176	0.370	0.080	138	1,713
RCU (Remote Control	101.00	3	1.214	0.019	0.266	0.028	0	3
Kathrein Scala 800 1	101.00	53	1.214	0.019	0.266	0.028	1	45
		29,275	66.363	29.799	24.869	7.888	2,201	25,074

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	-34.94	-2.19	0.00	-226.36	0.00	226.36	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.074
5.00	-33.50	-2.16	0.00	-215.42	0.00	215.42	3,717.33	1,858.67	6,708.61	3,359.29	0.01	-0.02	0.073
10.00	-32.09	-2.13	0.00	-204.62	0.00	204.62	3,647.68	1,823.84	6,405.34	3,207.43	0.05	-0.05	0.073
15.00	-30.71	-2.09	0.00	-193.99	0.00	193.99	3,576.40	1,788.20	6,106.06	3,057.57	0.11	-0.07	0.072
20.00	-29.36	-2.05	0.00	-183.56	0.00	183.56	3,503.48	1,751.74	5,811.01	2,909.82	0.20	-0.10	0.071
25.00	-28.04	-2.00	0.00	-173.33	0.00	173.33	3,428.92	1,714.46	5,520.42	2,764.31	0.31	-0.12	0.071
30.00	-26.75	-1.96	0.00	-163.31	0.00	163.31	3,352.72	1,676.36	5,234.53	2,621.15	0.45	-0.15	0.070
35.00	-25.49	-1.92	0.00	-153.51	0.00	153.51	3,262.56	1,631.28	4,934.93	2,471.13	0.62	-0.17	0.070
40.00	-24.62	-1.89	0.00	-143.93	0.00	143.93	3,158.60	1,579.30	4,623.93	2,315.40	0.82	-0.20	0.070
43.50	-24.03	-1.87	0.00	-137.32	0.00	137.32	3,085.84	1,542.92	4,412.25	2,209.40	0.97	-0.22	0.070
45.00	-22.68	-1.81	0.00	-134.52	0.00	134.52	3,054.65	1,527.33	4,323.05	2,164.74	1.04	-0.23	0.070
48.50	-22.36	-1.81	0.00	-128.17	0.00	128.17	2,470.49	1,235.24	3,488.73	1,746.96	1.22	-0.25	0.082
50.00	-21.31	-1.77	0.00	-125.46	0.00	125.46	2,452.28	1,226.14	3,427.21	1,716.15	1.30	-0.26	0.082
55.00	-20.29	-1.76	0.00	-116.59	0.00	116.59	2,390.53	1,195.26	3,224.53	1,614.66	1.59	-0.30	0.081
60.00	-19.29	-1.75	0.00	-107.81	0.00	107.81	2,327.14	1,163.57	3,025.74	1,515.12	1.92	-0.33	0.079
65.00	-18.31	-1.76	0.00	-99.05	0.00	99.05	2,249.69	1,124.84	2,815.52	1,409.85	2.29	-0.37	0.078
70.00	-17.36	-1.79	0.00	-90.25	0.00	90.25	2,163.06	1,081.53	2,601.80	1,302.84	2.70	-0.41	0.077
75.00	-16.43	-1.82	0.00	-81.31	0.00	81.31	2,076.43	1,038.21	2,396.52	1,200.04	3.15	-0.45	0.076
80.00	-15.53	-1.86	0.00	-72.21	0.00	72.21	1,989.80	994.90	2,199.68	1,101.47	3.64	-0.48	0.073
85.00	-14.98	-1.88	0.00	-62.92	0.00	62.92	1,903.17	951.59	2,011.27	1,007.13	4.16	-0.52	0.070
88.13	-14.49	-1.90	0.00	-57.05	0.00	57.05	1,849.03	924.51	1,897.79	950.31	4.52	-0.55	0.068
90.00	-14.01	-1.91	0.00	-53.49	0.00	53.49	1,816.54	908.27	1,831.29	917.01	4.73	-0.56	0.066
91.88	-13.54	-1.91	0.00	-49.92	0.00	49.92	1,460.41	730.20	1,483.31	742.76	4.96	-0.58	0.076
95.00	-12.80	-1.91	0.00	-43.94	0.00	43.94	1,417.09	708.55	1,396.21	699.14	5.34	-0.60	0.072
100.00	-12.65	-1.92	0.00	-34.37	0.00	34.37	1,347.79	673.89	1,262.31	632.09	6.00	-0.64	0.064
101.00	-12.04	-1.89	0.00	-32.45	0.00	32.45	1,333.93	666.96	1,236.34	619.09	6.13	-0.65	0.061
105.00	-11.90	-1.89	0.00	-24.88	0.00	24.88	1,278.48	639.24	1,135.17	568.43	6.69	-0.68	0.053
106.00	-7.56	-1.59	0.00	-22.99	0.00	22.99	1,264.62	632.31	1,110.55	556.10	6.83	-0.68	0.047
110.00	-7.04	-1.53	0.00	-16.63	0.00	16.63	1,209.18	604.59	1,014.77	508.14	7.41	-0.71	0.039
115.00	-6.93	-1.51	0.00	-9.00	0.00	9.00	1,139.88	569.94	901.12	451.23	8.17	-0.73	0.026
116.00	-2.74	-0.81	0.00	-7.49	0.00	7.49	1,126.02	563.01	879.21	440.26	8.32	-0.73	0.019
120.00	-2.37	-0.71	0.00	-4.26	0.00	4.26	1,070.57	535.29	794.22	397.70	8.94	-0.74	0.013
125.00	-2.30	-0.69	0.00	-0.69	0.00	0.69	1,001.27	500.64	694.07	347.55	9.72	-0.75	0.004
126.00	0.00	-0.66	0.00	0.00	0.00	0.00	987.41	493.71	674.85	337.93	9.87	-0.75	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	-24.06	-2.19	0.00	-222.68	0.00	222.68	3,785.34	1,892.67	7,015.62	3,513.02	0.00	0.00	0.070
5.00	-23.07	-2.15	0.00	-211.76	0.00	211.76	3,717.33	1,858.67	6,708.61	3,359.29	0.01	-0.02	0.069
10.00	-22.10	-2.12	0.00	-200.99	0.00	200.99	3,647.68	1,823.84	6,405.34	3,207.43	0.05	-0.05	0.069
15.00	-21.15	-2.07	0.00	-190.41	0.00	190.41	3,576.40	1,788.20	6,106.06	3,057.57	0.11	-0.07	0.068
20.00	-20.22	-2.03	0.00	-180.05	0.00	180.05	3,503.48	1,751.74	5,811.01	2,909.82	0.19	-0.09	0.068
25.00	-19.31	-1.98	0.00	-169.91	0.00	169.91	3,428.92	1,714.46	5,520.42	2,764.31	0.30	-0.12	0.067
30.00	-18.42	-1.94	0.00	-160.00	0.00	160.00	3,352.72	1,676.36	5,234.53	2,621.15	0.44	-0.14	0.067
35.00	-17.55	-1.89	0.00	-150.32	0.00	150.32	3,262.56	1,631.28	4,934.93	2,471.13	0.61	-0.17	0.066
40.00	-16.96	-1.86	0.00	-140.87	0.00	140.87	3,158.60	1,579.30	4,623.93	2,315.40	0.80	-0.20	0.066
43.50	-16.55	-1.84	0.00	-134.37	0.00	134.37	3,085.84	1,542.92	4,412.25	2,209.40	0.95	-0.22	0.066
45.00	-15.62	-1.78	0.00	-131.61	0.00	131.61	3,054.65	1,527.33	4,323.05	2,164.74	1.02	-0.23	0.066
48.50	-15.40	-1.77	0.00	-125.37	0.00	125.37	2,470.49	1,235.24	3,488.73	1,746.96	1.20	-0.25	0.078
50.00	-14.67	-1.74	0.00	-122.71	0.00	122.71	2,452.28	1,226.14	3,427.21	1,716.15	1.28	-0.26	0.077
55.00	-13.97	-1.72	0.00	-114.01	0.00	114.01	2,390.53	1,195.26	3,224.53	1,614.66	1.56	-0.29	0.076
60.00	-13.28	-1.71	0.00	-105.41	0.00	105.41	2,327.14	1,163.57	3,025.74	1,515.12	1.89	-0.33	0.075
65.00	-12.61	-1.72	0.00	-96.85	0.00	96.85	2,249.69	1,124.84	2,815.52	1,409.85	2.25	-0.36	0.074
70.00	-11.95	-1.74	0.00	-88.24	0.00	88.24	2,163.06	1,081.53	2,601.80	1,302.84	2.65	-0.40	0.073
75.00	-11.31	-1.78	0.00	-79.52	0.00	79.52	2,076.43	1,038.21	2,396.52	1,200.04	3.09	-0.44	0.072
80.00	-10.69	-1.81	0.00	-70.63	0.00	70.63	1,989.80	994.90	2,199.68	1,101.47	3.56	-0.47	0.070
85.00	-10.31	-1.83	0.00	-61.57	0.00	61.57	1,903.17	951.59	2,011.27	1,007.13	4.08	-0.51	0.067
88.13	-9.98	-1.85	0.00	-55.83	0.00	55.83	1,849.03	924.51	1,897.79	950.31	4.43	-0.54	0.064
90.00	-9.65	-1.86	0.00	-52.37	0.00	52.37	1,816.54	908.27	1,831.29	917.01	4.64	-0.55	0.062
91.88	-9.32	-1.87	0.00	-48.88	0.00	48.88	1,460.41	730.20	1,483.31	742.76	4.86	-0.57	0.072
95.00	-8.81	-1.87	0.00	-43.04	0.00	43.04	1,417.09	708.55	1,396.21	699.14	5.24	-0.59	0.068
100.00	-8.71	-1.87	0.00	-33.69	0.00	33.69	1,347.79	673.89	1,262.31	632.09	5.88	-0.63	0.060
101.00	-8.28	-1.85	0.00	-31.82	0.00	31.82	1,333.93	666.96	1,236.34	619.09	6.01	-0.64	0.058
105.00	-8.19	-1.84	0.00	-24.43	0.00	24.43	1,278.48	639.24	1,135.17	568.43	6.55	-0.66	0.049
106.00	-5.20	-1.56	0.00	-22.59	0.00	22.59	1,264.62	632.31	1,110.55	556.10	6.69	-0.67	0.045
110.00	-4.84	-1.50	0.00	-16.35	0.00	16.35	1,209.18	604.59	1,014.77	508.14	7.26	-0.69	0.036
115.00	-4.77	-1.48	0.00	-8.86	0.00	8.86	1,139.88	569.94	901.12	451.23	8.00	-0.71	0.024
116.00	-1.88	-0.80	0.00	-7.38	0.00	7.38	1,126.02	563.01	879.21	440.26	8.15	-0.72	0.018
120.00	-1.63	-0.70	0.00	-4.20	0.00	4.20	1,070.57	535.29	794.22	397.70	8.76	-0.73	0.012
125.00	-1.58	-0.68	0.00	-0.68	0.00	0.68	1,001.27	500.64	694.07	347.55	9.52	-0.73	0.004
126.00	0.00	-0.66	0.00	0.00	0.00	0.00	987.41	493.71	674.85	337.93	9.67	-0.73	0.000

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA732815\_C3\_02

8/1/2018 11:53:46 AM

Customer: T-MOBILE

### Analysis Summary

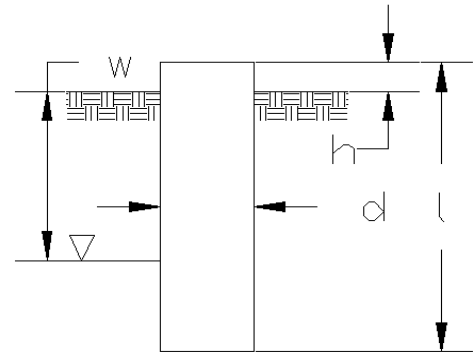
Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	19.49	0.00	35.10	0.00	0.00	1834.71	48.50	0.55
0.9D + 1.6W	18.68	0.00	26.32	0.00	0.00	1774.91	48.50	0.54
1.2D + 1.0Di + 1.0Wi	4.94	0.00	60.77	0.00	0.00	476.81	48.50	0.16
(1.2 + 0.2Sds) * DL + E ELFM	1.17	0.00	34.94	0.00	0.00	123.11	48.50	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.19	0.00	34.94	0.00	0.00	226.36	48.50	0.08
(0.9 - 0.2Sds) * DL + E ELFM	1.17	0.00	24.06	0.00	0.00	121.15	48.50	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.19	0.00	24.06	0.00	0.00	222.68	48.50	0.08
1.0D + 1.0W	4.47	0.00	29.27	0.00	0.00	426.58	48.50	0.13

Site Name: Bridgeport CT 2, CT  
 Site Number: 302469  
 Engineer: Ryan.Daudelin  
 Engineering Number: OAA732815  
 Date: 07/31/18

Program Last Updated: 5/13/2014  
 American Tower Corporation

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

Analyze or Design a Foundation? Analyze  
 Foundation Mapped: N  
 Moment (M): 1834.7 k-ft  
 Shear/Leg (V): 19.5 k  
 Axial Load (P): 35.1 k  
 Uplift/Leg (U): 0.0 k  
 Tower Type (GT / SST / MP): MP  
 Diameter of Caisson (d): 6.0 ft  
 Caisson Embedment (L-h): 18.0 ft  
 Caisson Height Above Ground (h): 1.0 ft  
 Depth Below Ground Surface to Water Table (w): 99.0 ft  
 Unit Weight of Concrete: 150.0 pcf  
 Unit Weight of Water: 62.4 pcf  
 Tension Skin Friction/Compression Skin Friction: 1.00  
 Pullout Angle: 30.0 degrees



6.0 ft  
 18.0 ft  
 1.0 ft  
 99.0 ft  
 150.0 pcf  
 62.4 pcf  
 1.00  
 30.0 degrees

**Engineer Notes**

**Soil Mechanical Properties**

Depth (ft)		$\gamma_{Soil}$	Cohesion	$\phi$	Ultimate Skin	Ultimate Bearing
Top	Bottom	(pcf)	(psf)	(degree)	Friction (psf)	Pressure (psf)
0.0	5.0	120	0	0	0	0
5.0	19.0	165	0	45	942	22000

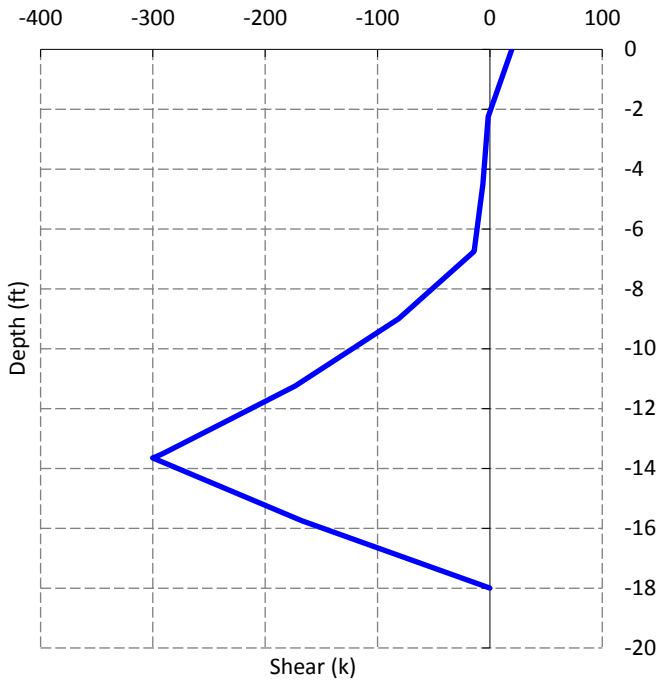
Required Embedment: 14.8 ft - OK, Caisson Embedment Satisfactory  
 Volume of Concrete: 537.2 ft<sup>3</sup> = 19.9 yd<sup>3</sup>  
 Weight of Concrete (Buoyancy Effect Considered): 80.6 k  
 Average Soil Unit Weight: 152.5 pcf  
 Skin Friction Resistance: 230.8 k  
 Compressive Bearing Resistance: 622.0 k  
 Pullout Weight (Minus Concrete Weight): 579.3 k  
 Nominal Uplift Capacity per Leg ( $\phi_s T_n$ ): 233.6 k  
 Nominal Compressive Capacity per Leg ( $\phi_s P_n$ ): 639.7 k  
 $P_u$ : 33.6 k  
 $T_u / \phi_s T_n$ : 0.00 Result: OK  
 $P_u / \phi_s P_n$ : 0.05 Result: OK  
 Total Lateral Resistance: 1792.5 k  
 Inflection Point (Below Ground Surface): 13.6 ft  
 Design Overturning Moment At Inflection Point ( $M_D$ ): 2120.3 k-ft  
 Nominal Moment Capacity ( $\phi_s M_n$ ): 3745.9 k-ft  
 $M_D / \phi_s M_n$ : 0.57 Result: OK  
 $\phi_s$ : 0.75



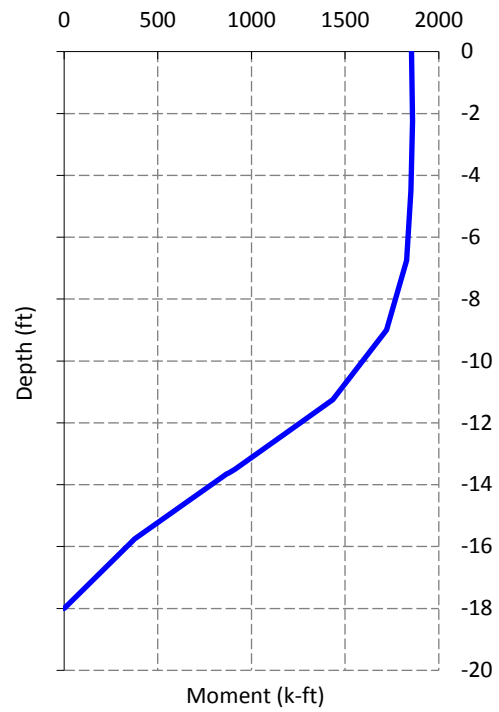
## Caisson Strength Capacity

Concrete Compressive Strength ( $f'_c$ ):	4000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in <sup>2</sup>
# of Vertical Steel Rebars:	16
Vertical Steel Rebar Yield Strength ( $F_y$ ):	60 ksi
Horizontal Tie / Stirrup Size #:	5
Horizontal Tie / Stirrup Area:	0.31 in <sup>2</sup>
Design Horizontal Tie / Stirrup Spacing:	12.0 in
Horizontal Tie / Stirrup Steel Yield Strength ( $F_y$ ):	60 ksi
Rebar Cage Diameter:	64.0 in
Strength Bending/Tension Reduction Factor ( $\phi_B$ ):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor ( $\phi_V$ ):	0.75 ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor ( $\phi_P$ ):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment ( $M_u$ ):	1859.8 k-ft
Nominal Moment Capacity ( $\phi_B M_n$ ):	3528.7 k-ft - ACI318-005 - 10.2
$M_u / \phi_B M_n$ :	0.53 Result: OK
Design Shear ( $V_u$ ):	300.3 k
Nominal Shear Capacity ( $\phi_V V_n$ ):	387.9 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$ :	0.77 Result: OK
Design Tension ( $T_u$ ):	0.0 k
Nominal Tension Capacity ( $\phi_T T_n$ ):	1347.8 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$ :	0.00 Result: OK
Design Compression ( $P_u$ ):	33.6 k
Nominal Compression Capacity ( $\phi_P P_n$ ):	7154.3 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$ :	0.00 Result: OK
Bending Reinforcement Ratio:	0.006 ACI318-05 - 10.8.4 & 10.9.1
$M_u / \phi_B M_n + T_u / \phi_T T_n$ :	0.53 Result: OK

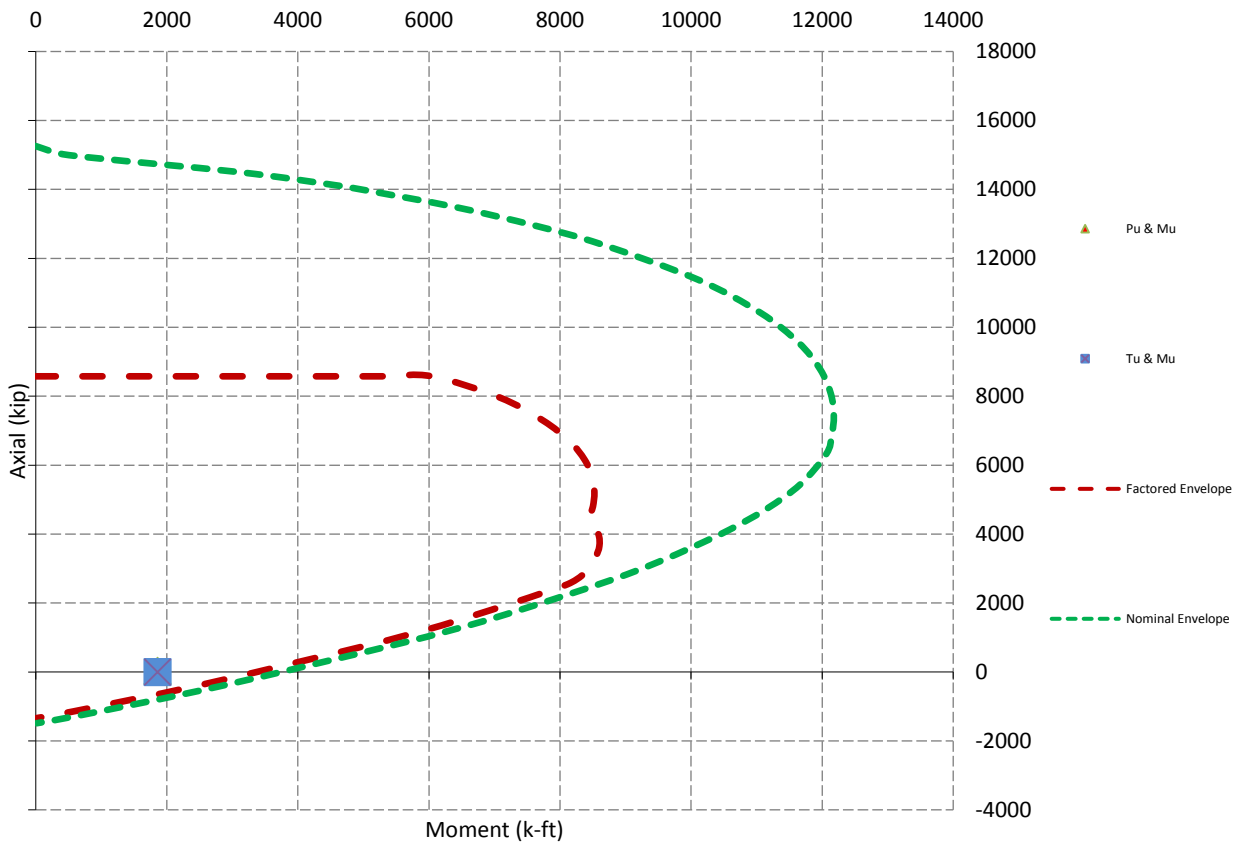
Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads





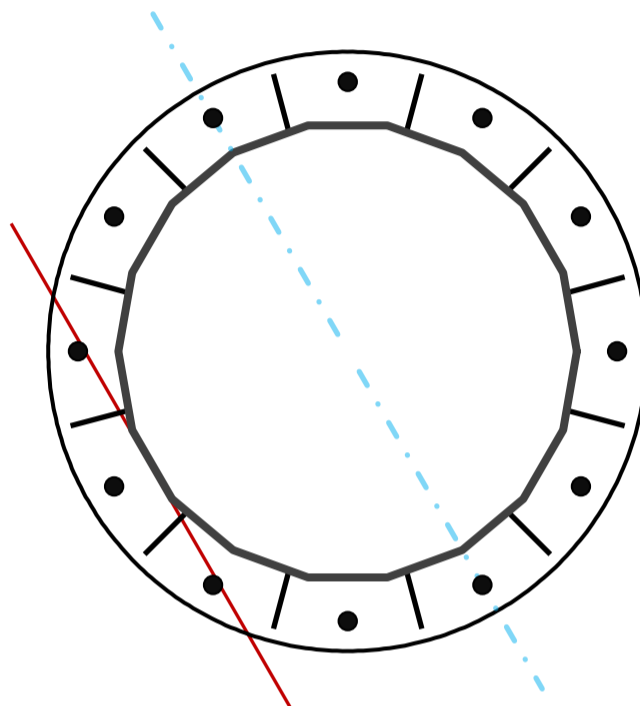
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	45	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1834.7	k-ft
Axial, Pu	35.1	k
Shear, Vu	19.5	k
Neutral Axis	120	°

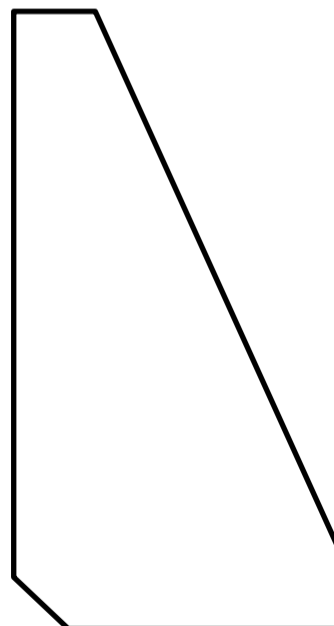
Report Capacities		
Component	Capacity	Result
Base Plate	44%	Pass
Anchor Rods	54%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, $\phi$	60	in
Thickness	1 3/4	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	789.6	k
Bending Stress, $\phi Mn$	1811.4	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	12	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	54	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	14.1	in
Orientation Offset	0	°
Applied Force, Pu	138.7	k
Anchor Rods, $\phi Pn$	259.8	k

Stiffeners		
Arrangement	Radial	-
Quantity	12	-
Height	12	in
Width	6	in
Effective Width	6.000	in
Thickness	1/2	in
Effective Thickness	0.500	in
Notch	1	in
Flat Edge	1.5	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Horizontal Weld	Fillet	-
Horizontal Fillet Size	1/2	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, $\phi Rn$	198.2	k
Horz. Weld, $\phi Rn$	111.2	k
Ten. Capacity, $\phi Tn$	109.7	k
Comp. Capacity, $\phi Pn$	227.0	k



# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	19.5	1834.7	1.00
Anchor Rod Forces	19.5	1834.7	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	7.9	741.5	0.40

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	52.3061	2.9059	0.1368		13022.69
Bolt	3.9761	3.2477	0.8393	4.5	14215.47
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	2.5000	2.2500	36.0000		8832.75

Base Plate		
Shape	Round	-
Diameter, D	60	in
Thickness, t	1.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	39.686	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	12	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	54	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	138.7	k
Applied Shear, Vu	1.3	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.534	OK
Interaction Capacity	0.544	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	57.0	k
Applied Horizontal Force, Vu	0.33	k
Vertical Weld		
Vert.-to-Stiffener a=e <sub>x</sub> /l	0.167	-
Spacing Ratio, k	0.042	-
Weld Coefficient, C	3.670	-
Compressive Capacity, φPn	198.2	k
Vert.-to-Plate a=e <sub>x</sub> /l	0.333	-
Spacing Ratio, k	0.042	-
Weld Coefficient, C	2.940	-
Shear Capacity, φVn	158.8	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	0.290	OK

External Base Plate		
Chord Length AA	33.833	in
Additional AA	9.981	in
Section Modulus, Z	33.545	in <sup>3</sup>
Applied Moment, Mu	789.6	k-ft
Bending Capacity, φMn	1811.4	k-ft
Capacity, Mu/φMn	0.436	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Horizontal Weld		
Horz.-to-Stiffener a=e <sub>x</sub> /l	0.167	-
Spacing Ratio, k	0.083	-
Weld Coefficient, C	2.940	-
Effective Fillet	0.500	in
Compressive Capacity, φPn	105.8	k
Horz.-to-Pole a=e <sub>x</sub> /l	0.333	-
Spacing Ratio, k	0.083	-
Weld Coefficient, C	3.090	-
Shear Capacity, φVn	111.2	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	0.542	OK

Chord Length AB	32.879	in
Additional AB	9.027	in
Section Modulus, Z	32.084	in <sup>3</sup>
Applied Moment, Mu	657.1	k-ft
Bending Capacity, φMn	1732.6	k-ft
Capacity, Mu/φMn	0.379	OK

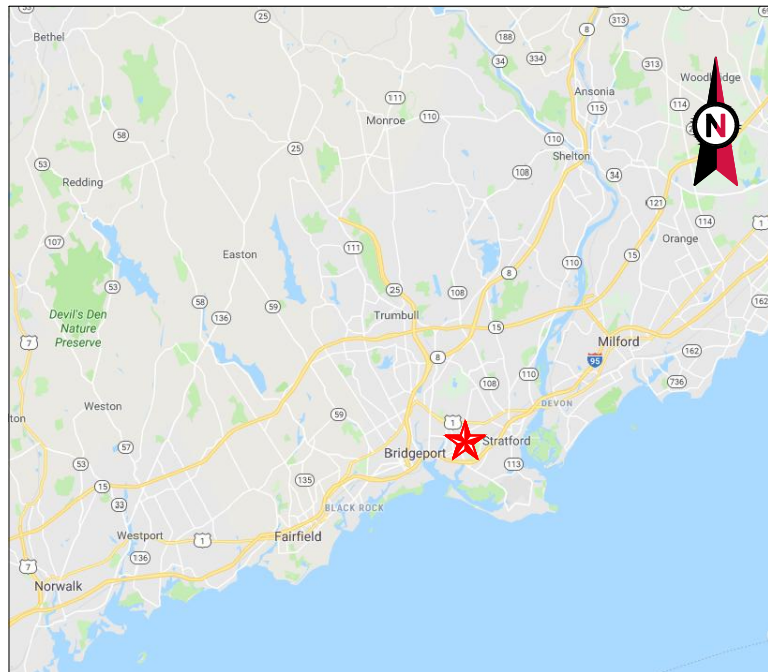
Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Plate Tension		
Gross Cross Section	2.500	in <sup>2</sup>
Net Cross Section	2.250	in <sup>2</sup>
Tensile Capacity, φTn	109.7	k
Capacity, Tu/φTn	0.260	OK

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

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	51.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Plate Compression		
Radius of Gyration	0.144	in <sup>3</sup>
kl/r	49.88	-
4.71 √(E/Fy)	113.43	-
Buckling Stress(F <sub>e</sub> )	115.0	-
Crit. Buckling Stress(F <sub>cr</sub> )	100.9	ksi
Compressive Capacity, φPn	227.0	k
Capacity, Pu/φPn	0.126	OK



VICINITY MAP



**AMERICAN TOWER®**

ATC SITE NAME: BRIDGEPORT CT 2  
 ATC SITE NUMBER: 302469  
 T-MOBILE SITE ID: CT11452A  
 SITE ADDRESS: 1069 CONNECTICUT AVE  
 BRIDGEPORT, CT 06607



LOCATION MAP

**T-MOBILE ANTENNA AMENDMENT  
 67D94M HYBRID CONFIGURATION**



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

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	09/13/18

ATC SITE NUMBER:

**302469**

ATC SITE NAME:

**BRIDGEPORT CT 2**

SITE ADDRESS:

1069 CONNECTICUT AVE  
 BRIDGEPORT, CT 06607

SEAL:



DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	09/13/18
ATC JOB NO:	12588467

**TITLE SHEET**

SHEET NUMBER: **G-001**      REVISION: **0**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
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	<u>SITE ADDRESS:</u> 1069 CONNECTICUT AVE BRIDGEPORT, CT 06607 COUNTY: FAIRFIELD  <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.18361667 LONGITUDE: -73.15838333 GROUND ELEVATION: 32' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:  REMOVE (6) ANTENNAS  INSTALL (6) NEW ANTENNAS, (3) RRU's, AND (2) 7/8" HYBRID CABLES  EXISTING (3) ANTENNAS, (6) TTAs, (18) 1-5/8" COAX CABLES, (1) 7/8" HYBRID CABLE, AND (3) SMART BIAS T TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
		<u>PROJECT NOTES</u>  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.	G-001	TITLE SHEET	0	09/13/18	MG
<u>UTILITY COMPANIES</u>  POWER COMPANY: UNITED ILLUMINATING PHONE: (800) 722-5584  TELEPHONE COMPANY: FRONTIER PHONE: (800) 376-6843	<u>PROJECT TEAM</u>  <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801  <u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518  <u>PROPERTY OWNER:</u> WR CT AVENUE LLC C/O WESTROCK DEVELOPMENT 656 CENTRAL PARK AVE YONKERS, NY 10704	<u>PROJECT LOCATION DIRECTIONS</u>  FROM MILFORD, CT:  HEAD SOUTHWEST ON BOSTON POST RD TOWARD MEADOW ST/TURN RIGHT ONTO HIGH ST/ CONTINUE ONTO WHEELERS FARM RD/TURN RIGHT TO MERGE ONTO I-95 S/TAKE EXIT 31 FOR SOUTH AVE/TURN RIGHT ONTO SOUTH AVE/TURN LEFT ONTO STRATFORD AVE/STRATFORD AVE TURN SLIGHTLY RIGHT AND BECOMES CONNECTICUT AVE  DESTINATION WILL BE ON THE RIGHT	G-002	GENERAL NOTES	0	09/13/18	MG
			C-101	DETAILED SITE PLAN & TOWER ELEVATION	0	09/13/18	MG
			C-501	ANTENNA INFORMATION & SCHEDULE	0	09/13/18	MG
			E-501	GROUNDING DETAILS	0	09/13/18	MG
			R-601	SUPPLEMENTAL			



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**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 NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE 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 1/2" 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.



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 3500 REGENCY PARKWAY  
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 COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	09/13/18

ATC SITE NUMBER:

**302469**

ATC SITE NAME:

**BRIDGEPORT CT 2**

SITE ADDRESS:

1069 CONNECTICUT AVE  
 BRIDGEPORT, CT 06607

SEAL:



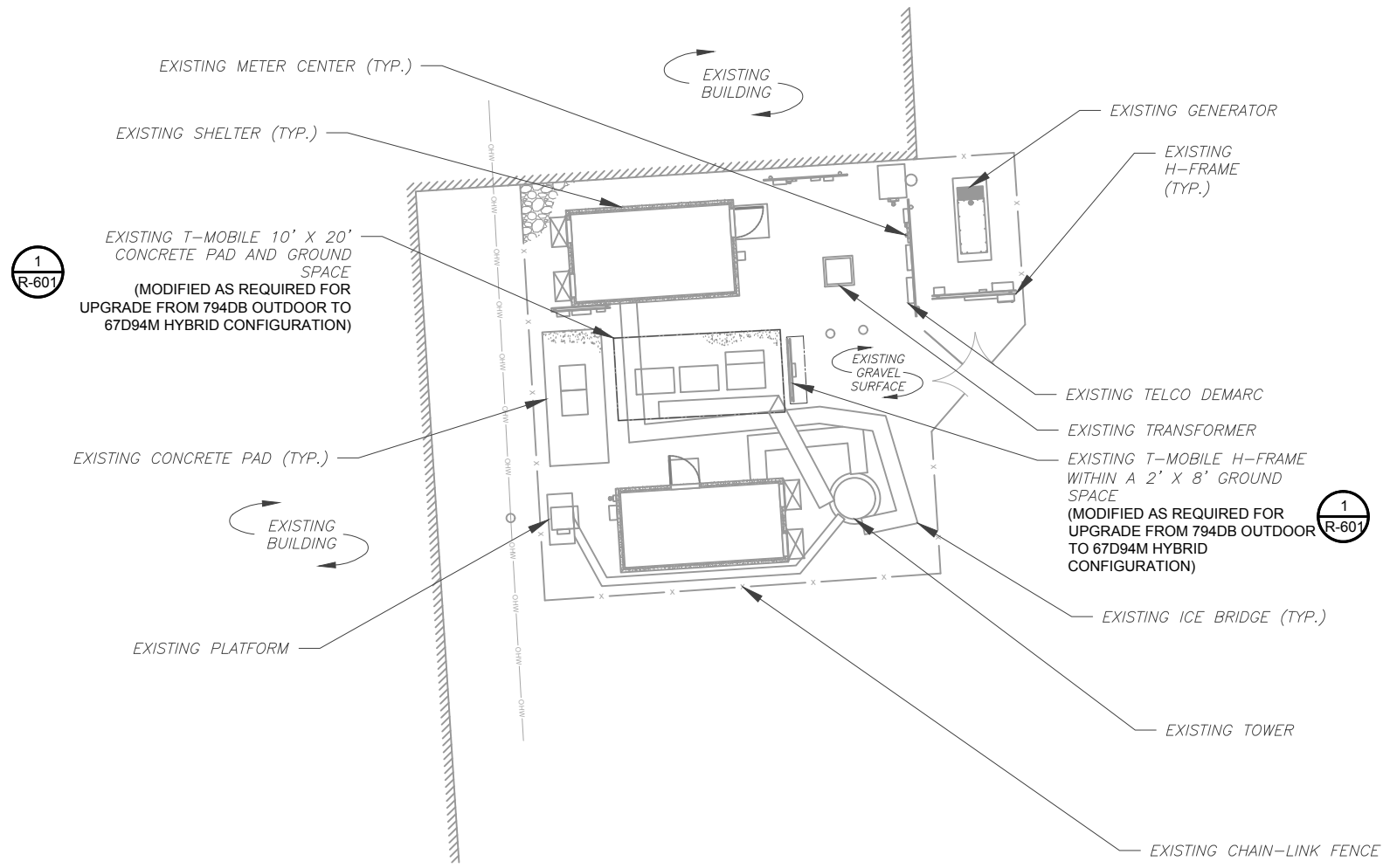
DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	09/13/18
ATC JOB NO:	12588467

**GENERAL NOTES**

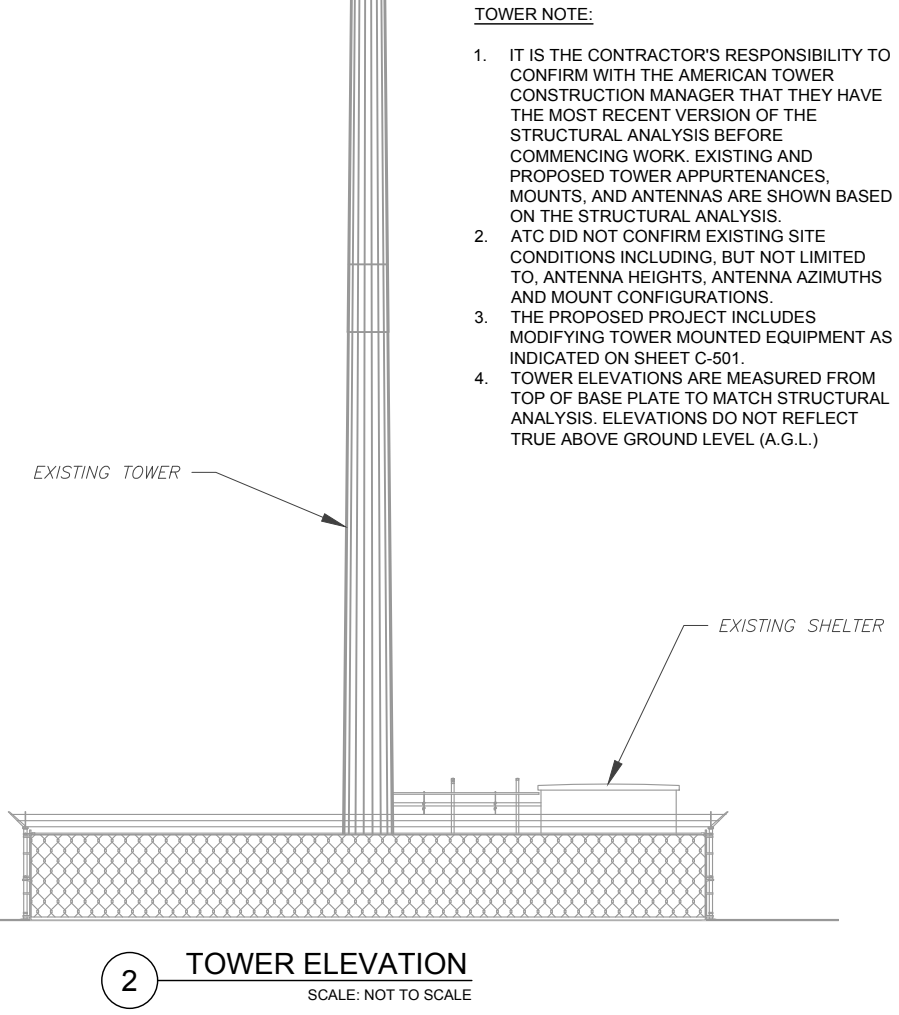
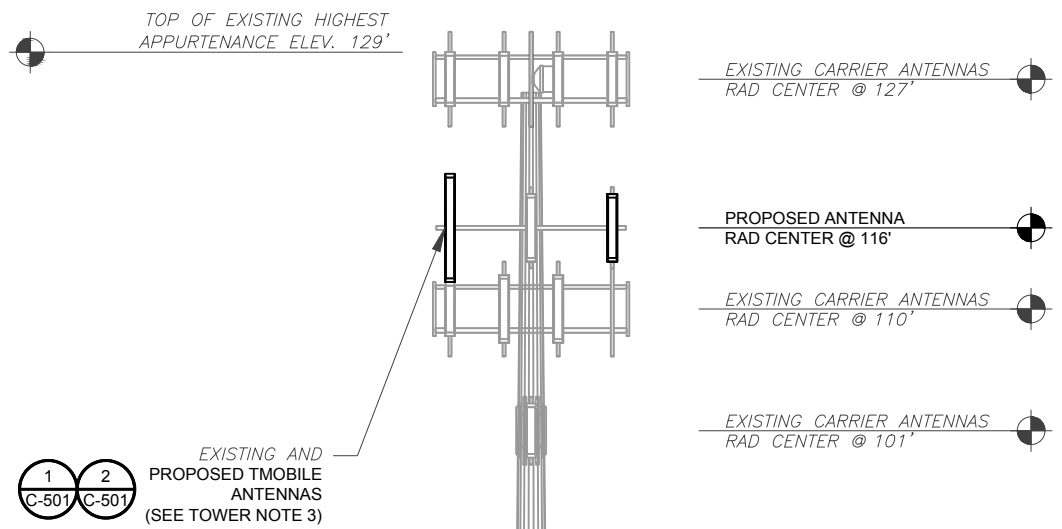
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<b>G-002</b>	<b>0</b>

**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. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.



**1 DETAILED SITE PLAN**  
 SCALE: 1"=20' (11X17)  
 1"=10' (22X34)



**2 TOWER ELEVATION**  
 SCALE: NOT TO SCALE

- 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. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)



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0	FOR CONSTRUCTION	MG	09/13/18

ATC SITE NUMBER:  
**302469**  
 ATC SITE NAME:  
**BRIDGEPORT CT 2**

SITE ADDRESS:  
 1069 CONNECTICUT AVE  
 BRIDGEPORT, CT 06607

SEAL:

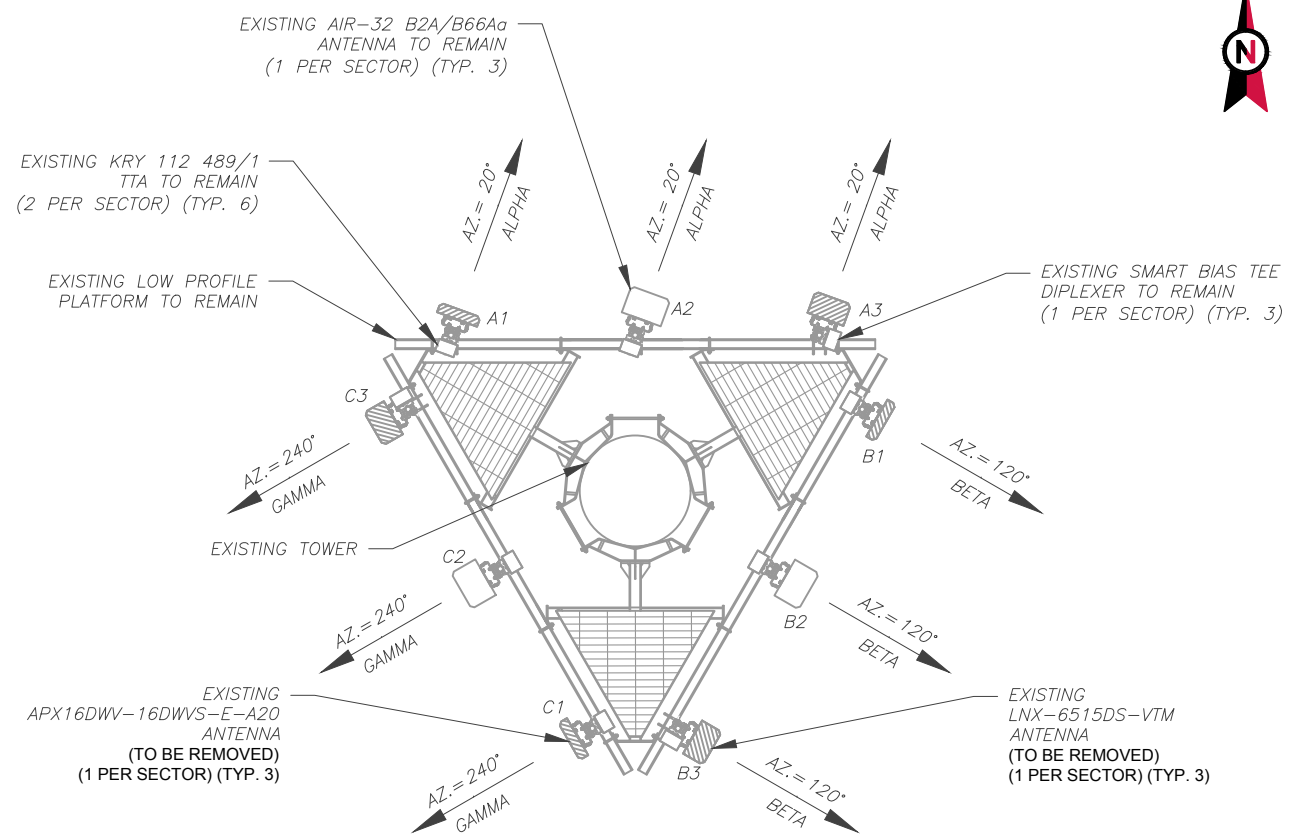


DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	09/13/18
ATC JOB NO:	12588467

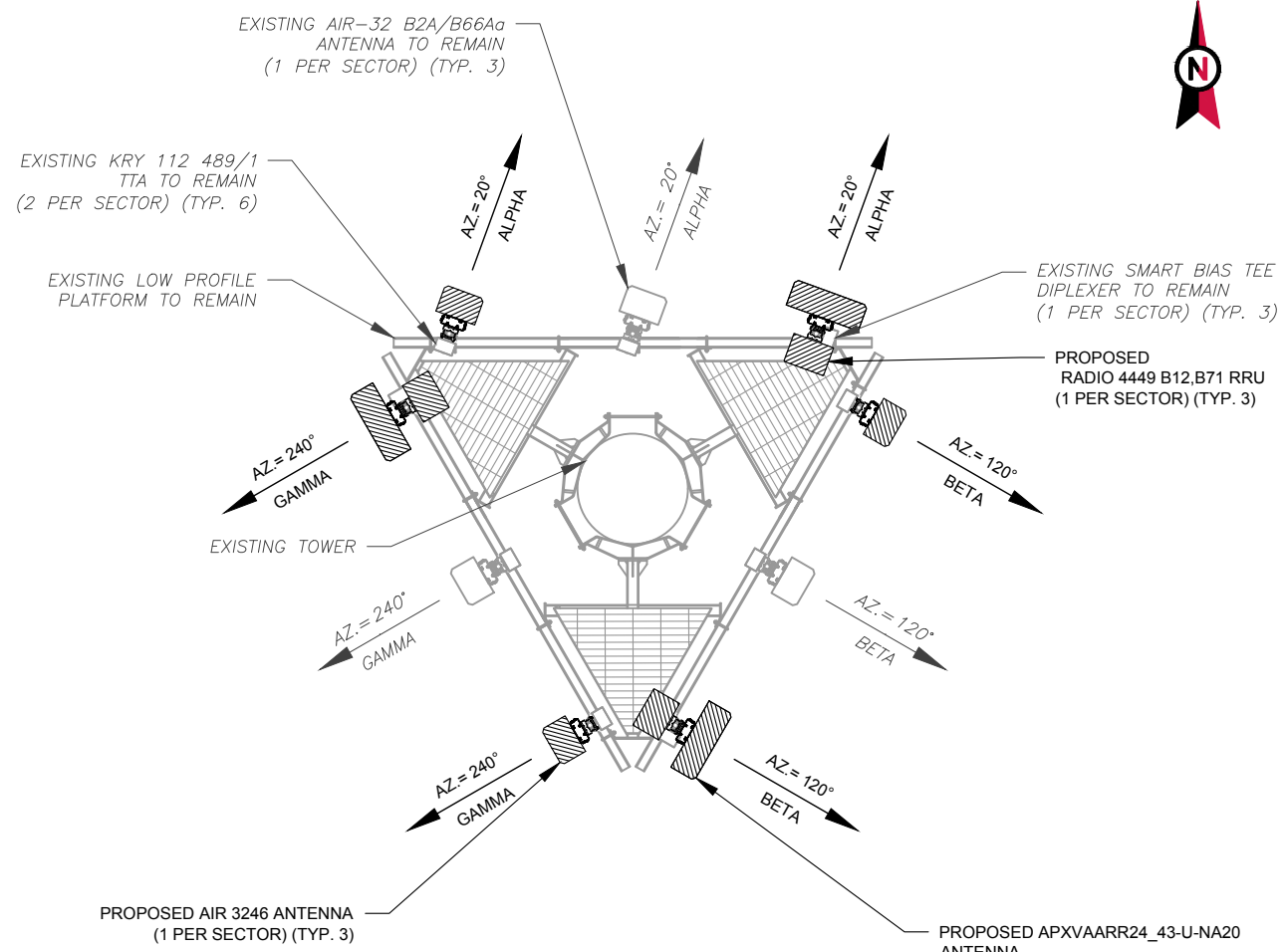
**DETAILED SITE PLAN & TOWER ELEVATION**

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>0</b>

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1 EXISTING ANTENNA PLAN



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.

- 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.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.

EXISTING ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	APX16DWV-16DWVS-E-A20	116'-0"	20°	2"	7"	KRY 112 489/1	(4) 1-5/8"
ALPHA	A2	AIR-32 B2A/B66Aa	116'-0"	20°	2"	4"	KRY 112 489/1	-
ALPHA	A3	LNX-6515DS-VTM	116'-0"	20°	0"	2"	SMART BIAS TEE	(2) 1-5/8"
BETA	B1	APX16DWV-16DWVS-E-A20	116'-0"	120°	2"	7"	KRY 112 489/1	(4) 1-5/8"
BETA	B2	AIR-32 B2A/B66Aa	116'-0"	120°	2"	4"	KRY 112 489/1	-
BETA	B3	LNX-6515DS-VTM	116'-0"	120°	0"	2"	SMART BIAS TEE	(2) 1-5/8"
GAMMA	C1	APX16DWV-16DWVS-E-A20	116'-0"	240°	2"	7"	KRY 112 489/1	(4) 1-5/8"
GAMMA	C2	AIR-32 B2A/B66Aa	116'-0"	240°	2"	4"	KRY 112 489/1	-
GAMMA	C3	LNX-6515DS-VTM	116'-0"	240°	0"	2"	SMART BIAS TEE	(2) 1-5/8"

1. (1) EXISTING 7/8" HYBRID CABLE (TO REMAIN)

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 COAX DESCRIPTION
ALPHA	A1	AIR 3246	116'-0"	20°	-	-	KRY 112 489/1	(2) 1-5/8"
ALPHA	A2	AIR-32 B2A/B66Aa	116'-0"	20°	-	-	KRY 112 489/1	(2) 1-5/8"
ALPHA	A3	APXVAARR24_43-U-NA20	116'-0"	20°	-	-	RADIO 4449 B12,B71 SMART BIAS TEE	(2) 1-5/8"
BETA	B1	AIR 3246	116'-0"	120°	-	-	KRY 112 489/1	(2) 1-5/8"
BETA	B2	AIR-32 B2A/B66Aa	116'-0"	20°	-	-	KRY 112 489/1	(2) 1-5/8"
BETA	B3	APXVAARR24_43-U-NA20	116'-0"	120°	-	-	RADIO 4449 B12,B71 SMART BIAS TEE	(2) 1-5/8"
GAMMA	C1	AIR 3246	116'-0"	240°	-	-	KRY 112 489/1	(2) 1-5/8"
GAMMA	C2	AIR-32 B2A/B66Aa	116'-0"	20°	-	-	KRY 112 489/1	(2) 1-5/8"
GAMMA	C3	APXVAARR24_43-U-NA20	116'-0"	240°	-	-	RADIO 4449 B12,B71 SMART BIAS TEE	(2) 1-5/8"

1. BASED ON APPROVED ATC APPLICATION OAA732815, DATED 05-18-2018. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
1. (1) EXISTING 7/8" HYBRID CABLE (TO REMAIN)
  2. (2) PROPOSED 7/8" HYBRID CABLE (165±)



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

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	09/13/18

ATC SITE NUMBER:

302469

ATC SITE NAME:

BRIDGEPORT CT 2

SITE ADDRESS:

1069 CONNECTICUT AVE  
 BRIDGEPORT, CT 06607

SEAL:



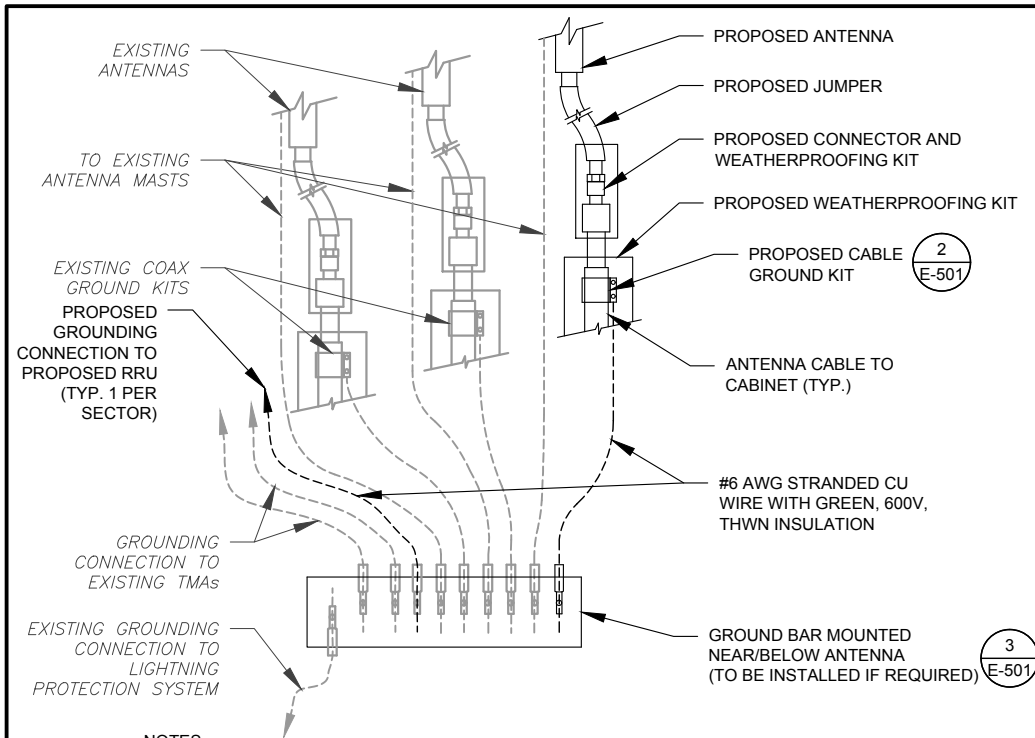
DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	09/13/18
ATC JOB NO:	12588467

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	0

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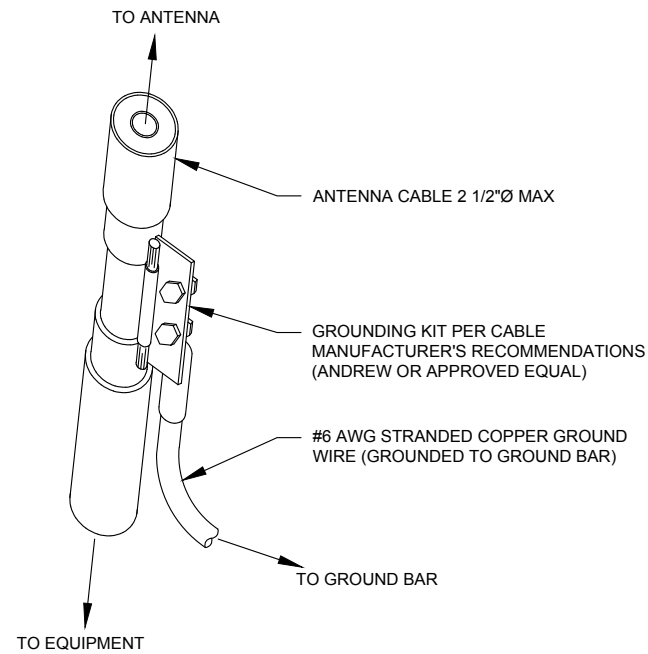




**NOTES:**

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.

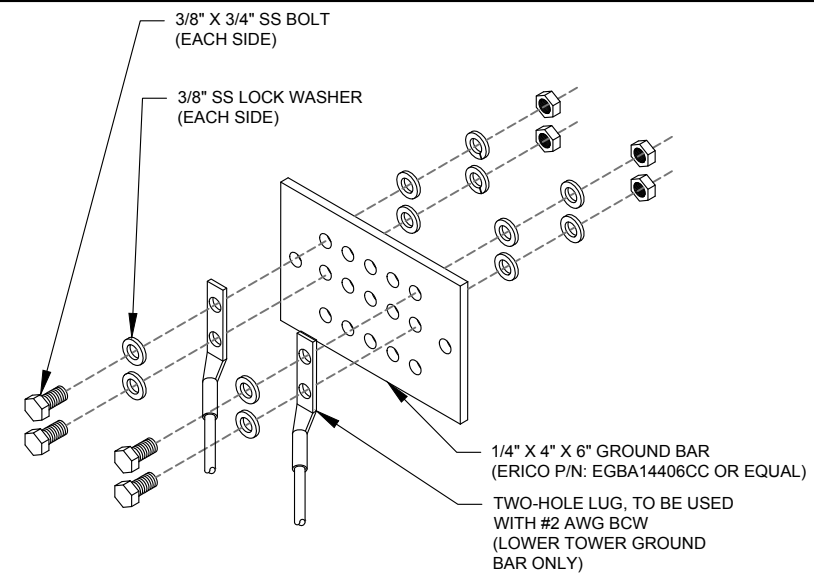
**1** TYPICAL ANTENNA GROUNDING DIAGRAM  
SCALE: NOT TO SCALE



**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

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	09/13/18

ATC SITE NUMBER:

**302469**

ATC SITE NAME:

**BRIDGEPORT CT 2**

SITE ADDRESS:

1069 CONNECTICUT AVE  
BRIDGEPORT, CT 06607

SEAL:



DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	09/13/18
ATC JOB NO:	12588467

**GROUNDING DETAILS**

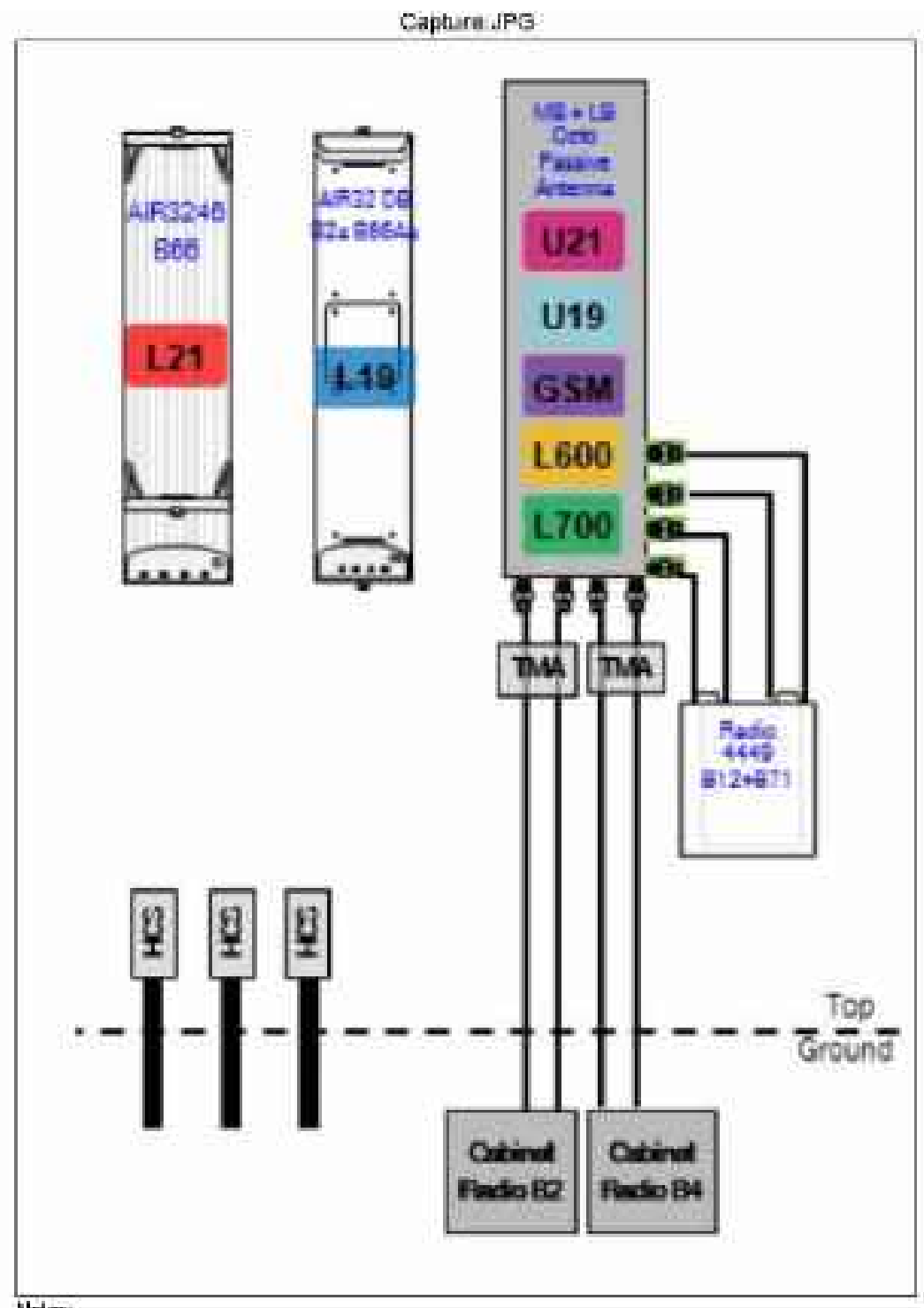
SHEET NUMBER:	REVISION:
<b>E-501</b>	<b>0</b>

Existing RAN Equipment			
Template: 794DB Outdoor (evolved from 4E)			
Enclosure	1	2	3
Enclosure Type	RBS 6102	Ground Mount	Ancillary Equipment
Backhaul	DUS41 (x2) DUA90 (x2) DUG20		
Hybrid Cable System			Ericsson 6x12 HCS "Select Length & AWG"
Multiplex	XMU		
Radio	RUS01 B2 (x2) G1900 RUS01 B4 (x2) U2100	RUS01 B2 (x2) U1900 (DECOMMISSIONED)	RRUS11 B12 (x2) L700

Proposed RAN Equipment		
Template: 67D94M Hybrid (Evolved from 4E)		
Enclosure	1	2
Enclosure Type	RBS 6102	Ancillary Equipment
Backhaul	BB 5216 L1900 L700 L800	DU/V30 U2100 DU/V30 U1900 DUG20 G1900 BB 5216 L2100
Hybrid Cable System		Ericsson 6x12 HCS "Select Length & AWG" (x2) Ericsson 6x12 HCS "Select AWG & Length"
Multiplex	XMU L1900 L700 L800	
Radio	RUS01 B2 (x2) G1900	RUS01 B2 (x2) L1900
RAN Scope of Work:		

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE



2 ANTENNA CONFIGURATION  
SCALE: NOT TO SCALE

SUPPLEMENTAL

SHEET NUMBER: R-601  
REVISION: 0

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

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, September 18, 2018 11:48 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11452A property owner



### Your package has been delivered.

**Delivery Date:** Tuesday, 09/18/2018  
**Delivery Time:** 11:44 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

**Tracking Number:** [1ZV257424295852401](#)  
Westrock Development LLC  
WR CT Avenue LLC  
440 MAMARONECK AVE  
ROOM 503  
HARRISON, NY 10528  
US

**Ship To:**

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Weight:** 1.0 LBS

**Delivery Location:** RECEPTION  
PIERETTI

**Signature Required:** A signature is required for package delivery

**Reference Number 1:** CT11452A property owner



[Download the UPS mobile app](#)

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, September 19, 2018 11:04 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11452A zoning



### Your package has been delivered.

**Delivery Date:** Wednesday, 09/19/2018  
**Delivery Time:** 09:51 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

**Tracking Number:** [1ZV257424296252389](#)

**Ship To:** Dennis Buckley  
City of Bridgeport  
45 LYON TER  
FLOOR 2 ROOM 210  
BRIDGEPORT, CT 06604  
US

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Weight:** 1.0 LBS

**Delivery Location:** OFFICE  
CLAPS

**Signature Required:** A signature is required for package delivery

**Reference Number 1:** CT11452A zoning



[Download the UPS mobile app](#)

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, September 19, 2018 11:28 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11452A mayor



### Your package has been delivered.

**Delivery Date:** Wednesday, 09/19/2018  
**Delivery Time:** 11:24 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

**Tracking Number:** [1ZV257424296482372](#)

**Ship To:** Joseph Ganim  
City of Bridgeport  
999 BROAD ST  
FLOOR 2  
BRIDGEPORT, CT 06604  
US

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Weight:** 1.0 LBS

**Delivery Location:** OFFICE  
SOTO

**Signature Required:** A signature is required for package delivery

**Reference Number 1:** CT11452A mayor



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## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Thursday, September 20, 2018 11:53 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11452A ATC



### Your package has been delivered.

**Delivery Date:** Thursday, 09/20/2018  
**Delivery Time:** 11:45 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

<b>Tracking Number:</b>	<a href="#">1ZV257424296042392</a>
<b>Ship To:</b>	American Tower Corporation 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
<b>UPS Service:</b>	UPS GROUND
<b>Number of Packages:</b>	1
<b>Weight:</b>	1.0 LBS
<b>Delivery Location:</b>	OFFICE LONG
<b>Signature Required:</b>	A signature is required for package delivery
<b>Reference Number 1:</b>	CT11452A ATC



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