



March 24, 2015

Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Notice of Exempt Modification  
29 Bogus Hill Road, New Fairfield CT, 06812  
N 41° 30' 42.60"  
W 74° 32' 58.10"  
T-Mobile Site #: CTFF750A\_L700

Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 29 Bogus Hill Road, New Fairfield CT, 06812.

The 29 Bogus Hill Road, New Fairfield CT facility consists of a 149' Monopole Tower owned and operated by SBA Towers IV, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of T-Mobile's L700 project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of \$625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be

significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinets.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of T-Mobile, respectfully submits that he proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 508.251.0720 x 3804 with any questions you may have concerning this matter.

Thank you,



Kri Pelletier  
SBA Communications Corporation  
33 Boston Post Road West Suite 320  
Marlborough, MA 01752  
508-251-0720 x 3804 + T  
508-251-1755 + F  
203-446-7700 + C  
[kpelletier@sbsite.com](mailto:kpelletier@sbsite.com)



**T-Mobile  
Equipment Modification**

29 Bogus Hill Road, New Fairfield CT, 06812  
Site number CTFF750A\_L700

**Tower Owner:** SBA Towers IV, LLC

**Equipment Configuration:** Monopole

**Current and/or approved:**

- (9) RFS APXV18-209014
- (18) 1-5/8" feed lines

**Planned Modifications:**

- (3) RFS APXV18-209014
- (3) RFS APXV18-206517S-A20
- (3) Commscope LNX-6515DS-VTM
- (3) Ericsson KRY 112 489/2
- (3) Kathrein 782 11056 Bias Ts
- (18) 1-5/8" feed lines

**Structural Information:**

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

**Power Density:**

The anticipated Maximum Composite contributions from the T-Mobile facility are 5.60% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 39.85% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE%	
Carrier	MPE%
T-Mobile	5.60
Cingular	7.90 %
CL&P	4.46 %
Verizon Wireless	21.89 %
Site Total MPE %:	39.85 %

March 24, 2015

Ms. Susan Chapman  
First Selectman  
Town of New Fairfield  
New Fairfield Town Hall  
4 Brush Hill Rd.  
New Fairfield, CT 06812

RE: Telecommunications Facility @ 29 Bogus Hill Road, New Fairfield CT, 06812

Dear Ms. Chapman,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

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

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the above referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

Thank you,



Kri Pelletier  
SBA Communications Company  
33 Boston Post Road West Suite 320  
Marlborough, MA 01752  
508-251-0720 x 3804 + T  
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203-446-7700 + C  
[kpelletier@sbsite.com](mailto:kpelletier@sbsite.com)



March 24, 2015

Girl Scout Council of Southwestern Connecticut, Inc.  
340 Washington Street  
Hartford, CT 06106

RE: Telecommunications Facility @ 29 Bogus Hill Road, New Fairfield CT, 06812

To Whom It May Concern:

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

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

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the above referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

Thank you,

Kri Pelletier

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FDH Engineering, Inc., 6521 Meriden Drive Raleigh, NC 27616, Ph. 919.755.1012

**Structural Analysis for  
SBA Network Services, Inc.**

**149' Monopole Tower (150' AGL)**

**SBA Site Name: New Fairfield  
SBA Site ID: CT13061-A-03  
T-Mobile Site ID: CTFF750A  
Site Address: 29 Bogus Hill Road, New Fairfield, CT 06812-2801**

FDH Project Number 15BFZD1400

**Analysis Results**

Tower Components	87.1%	Sufficient
Foundation	98.1%	Sufficient

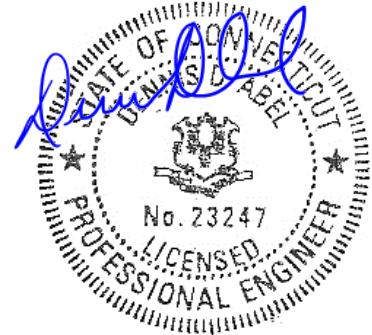
Prepared By:

Christopher Lee, EIT  
Project Engineer

Reviewed By:

Dennis D. Abel, PE  
Director of Structural Engineering  
CT PE License No. 23247

**FDH Engineering, Inc.**  
6521 Meriden Drive  
Raleigh, NC 27616  
(919) 755-1012  
info@fdh-inc.com



03-12-2015

March 12, 2015

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut State Building Code

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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in New Fairfield, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and *2005 Connecticut State Building Code (2005 CSBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, foundation dimensions, geotechnical data, and member sizes was obtained from:

- Sabre (Job No. 07-11088) Structural Design Report dated November 7, 2006
- JGI Eastern, Inc. (Project No. 06645G) Geotechnical Evaluation dated October 12, 2006
- FDH Engineering, Inc. (Job No. 08-07126T) TIA Inspection Report dated September 10, 2008
- SBA Network Services, Inc.

The basic design wind speed per the *TIA/EIA-222-F* standards and *2005 CSBC* is 80 mph without ice (equivalent to 95 mph 3-second gust) and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

## Conclusions

With the existing and proposed antennas from T-Mobile in place at 150 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CSBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was constructed per the original design drawings (see Sabre Job No. 07-11088) and utilizing the existing soil parameters (see JGI Project No. 06645G), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

## Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and *2005 CSBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed feed lines should be installed inside the pole's shaft.
2. The proposed TMAs should be installed directly behind the existing and proposed antennas.



## APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

**Table 1 - Appurtenance Loading**

### Existing Loading:

Antenna Elevation (ft)	Description	Feed Lines <sup>1</sup>	Carrier	Mount Elevation (ft)	Mount Type
151.3	(1) RFS BA1010 Omni	(1) 7/8" <sup>2</sup>	Town of New Fairfield	149	(1) Standoff (Assumed C <sub>a</sub> A <sub>a</sub> =1.22 ft <sup>2</sup> )
149	(9) RFS APXV18-209014	(18) 1-5/8"	T-Mobile	149	(1) 12.5' Low Profile Platform
141	(9) Powerwave 7770.00 (3) Powerwave P65-16 (6) Powerwave LGP21401 (3) Powerwave LGP2140x (3) Powerwave TT19-08BP111-001 (6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Suppressor	(24) 1-5/8" <sup>3</sup> (1) .393" Fiber (2) .645" DC	AT&T	141	(1) 12' Low Profile Platform
134.8	(1) RFS BA40-41	(1) 7/8"	Town of New Fairfield	129	(1) Standoff (Assumed C <sub>a</sub> A <sub>a</sub> =1.22 ft <sup>2</sup> )
119.5	(6) Antel LPA 80080/4CF (3) Antel BXA 70063-6CF_2 (3) Antel BXA 171085/12CF-2 (6) RFS FD9R6004/2C-3L	(12) 1-5/8"	Verizon	119.5	(1) 12.5' Low Profile Platform
99.3	(2) RFS 1142	(2) 7/8"	CL&P	93	(2) Single Arm Mounts
94.5	(1) Sinclair SD210D	(1) 7/8"		92	(1) Single Arm Mount

1. Feed lines installed inside the pole's shaft unless otherwise noted.
2. The (1) 7/8" feed line is installed on the outside of the pole's shaft from 94' to the mount elevation.
3. The (24) 1-5/8" feed lines are installed outside the pole's shaft in a single row.

### Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
150	(3) RFS APXV18-209014 (3) RFS APXV18-206517S-A20 (3) Commscope LNX-6515DS-VTM (3) Ericsson KRY 112 489/2 (3) Kathrein 782 11056 Bias Ts	(18) 1-5/8"	T-Mobile	149	(1) 12.5' Low Profile Platform

## RESULTS

The following yield strength of steel for individual members was used for analysis:

**Table 2 - Material Strength**

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Flange Plate	60 ksi
Flange Bolts	92 ksi
Base Plate	60 ksi
Anchor Bolts	75 ksi

**Table 3** displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

**Table 3 - Summary of Working Percentage of Structural Components**

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
L1	150 - 130	Pole	TP24.09x19x0.1875	39.2	Pass
	130	Flange Bolts	(8) 1"Ø w/ BC=27.25"	65.5	Pass
	130	Flange Plate	PL 31.5"Ø x 1" Thick	49.7	Pass
L2	130 - 98.25	Pole	TP32.3x24.09x0.25	64.7	Pass
L3	98.25 - 48.75	Pole	TP44.39x30.7657x0.3125	73.9	Pass
L4	48.75 - 1	Pole	TP55.92x42.3644x0.3125	87.1	Pass
		Anchor Bolts	(12) 2.25"Ø w/ BC=62.25"	84.2	Pass
		Base Plate	PL 59.75" SQ. x 2.75" Thick	64.7	Pass

\*Capacities include a 1/3 allowable stress increase for wind per TIA/EIA-222-F standards.

**Table 4 - Maximum Base Reactions**

Base Reactions	Current Analysis* (TIA/EIA-222-F)	Original Design (ANSI/TIA-222-G)
Axial	33 k	44 k
Shear	24 k	30 k
Moment	2,596 k-ft	3,340 k-ft

\*Foundation determined to be adequate per independent analysis.

## **GENERAL COMMENTS**

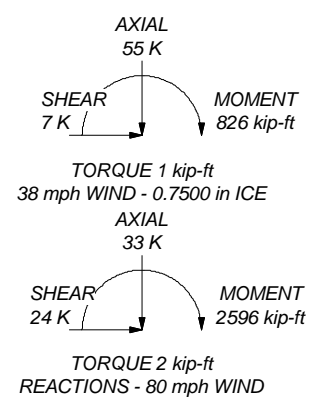
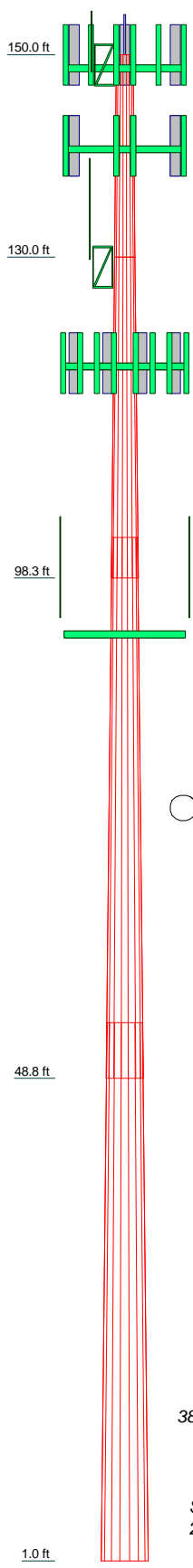
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

## **LIMITATIONS**

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

## **APPENDIX**

Section	1	2	3	4	18.8
Length (ft)	20.00	31.75	53.50	53.25	18.8
Number of Sides	18	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3125	0.3125	0.3125
Socket Length (ft)		4.00	5.50	42.3644	
Top Dia (in)	19.0000	24.0900	30.7657	55.9200	
Bot Dia (in)	24.0900	32.3000	44.3900		
Grade			A572-65		
Weight (K)	0.9	2.4	6.7	8.8	18.8



### DESIGNED APPURTENANCE LOADING


TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	150	TT19-08BP111	141
12.5' Low Profile Platform Mount	149	(2) RRUS 11	141
APXV18-209014 W/Mount Pipe	149	(2) RRUS 11	141
APXV18-209014 W/Mount Pipe	149	DC6-48-60-18-8F	141
APXV18-206517S-A20 w/Mount Pipe	149	12' Low Profile Platform Mount	141
APXV18-206517S-A20 w/Mount Pipe	149	P65-16-XLH-RR w/Mount Pipe	141
APXV18-206517S-A20 w/Mount Pipe	149	BA40-41 Omni	129
LNx-6515DS-VTM w/ Mount Pipe	149	Standoff	129
LNx-6515DS-VTM w/ Mount Pipe	149	12.5' Low Profile Platform Mount	119.5
LNx-6515DS-VTM w/ Mount Pipe	149	12.5' Low Profile Platform Mount	119.5
KRY 112 489/2	149	(2) LPA-80080/4CF W/Mount Pipe	119.5
KRY 112 489/2	149	(2) LPA-80080/4CF W/Mount Pipe	119.5
KRY 112 489/2	149	(2) LPA-80080/4CF W/Mount Pipe	119.5
782 11056	149	BXA-70063/6CF-2 W/Mount Pipe	119.5
782 11056	149	BXA-70063/6CF-2 W/Mount Pipe	119.5
782 11056	149	BXA-70063/6CF-2 W/Mount Pipe	119.5
BA1010 Omni	149	BXA-171085/12CF-2	119.5
Standoff	149	BXA-171085/12CF-2	119.5
P65-16-XLH-RR w/Mount Pipe	141	BXA-171085/12CF-2	119.5
P65-16-XLH-RR w/Mount Pipe	141	(2) RFS FD9R6004/2C-3L Diplexer	119.5
(3) 7770.00 W/Mount Pipe	141	(2) RFS FD9R6004/2C-3L Diplexer	119.5
(3) 7770.00 W/Mount Pipe	141	(2) RFS FD9R6004/2C-3L Diplexer	119.5
(3) 7770.00 W/Mount Pipe	141	1142 Omni	93
(3) LGP21401 TMA	141	SD210D dipole	93
(3) LGP21401 TMA	141	Single Arm Mount	93
(3) LGP21401 TMA	141	Single Arm Mount	93
TT19-08BP111	141	Single Arm Mount	93
TT19-08BP111	141	1142 Omni	93

### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

### TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 87.1%

 <b>FDH Engineering, Inc.</b> 6521 Meridian Drive, Suite 107 Raleigh, North Carolina 27616 Phone: 9197551012 FAX: 9197551031	<b>Job: New Fairfield, CT13061-A-03</b>		
	Project: <b>15BFZD1400</b>		
	Client: SBA Network	Drawn by: CLee	App'd:
	Code: TIA/EIA-222-F	Date: 03/12/15	Scale: NTS
	Path:		Dwg No. E-1

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

T-Mobile Existing Facility

Site ID: CTF750A

New Fairfield  
29 Bogus Hill Road  
New Fairfield, CT 06812

**March 23, 2015**

**EBI Project Number: 6215001706**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general public allowable limit:	<b>39.85 %</b>

March 23, 2015

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

Emissions Analysis for Site: **CTFF750A – New Fairfield**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **29 Bogus Hill Road, New Fairfield, 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 public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 700 MHz Band is  $467 \mu\text{W}/\text{cm}^2$ , and the general population exposure limit for the PCS and AWS 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 **29 Bogus Hill Road, New Fairfield, 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, 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) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 5) 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.



- 6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antennas used in this modeling are the **RFS APXV18-209014** and the **RFS APXV18-206517S-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-209014** has a maximum gain of **14.4 dBd** at its main lobe. The **RFS APXV18-206517S-A20** has a maximum gain of **16.7 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antenna mounting height centerline of the proposed antennas is **150 feet** above ground level (AGL).
- 9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

**T-Mobile Site Inventory and Power Data**

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV18-209014	Make / Model:	RFS APXV18-209014	Make / Model:	RFS APXV18-209014
Gain:	14.4 dBd	Gain:	14.4 dBd	Gain:	14.4 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	3,305.07	ERP (W):	3,305.07	ERP (W):	3,305.07
Antenna A1 MPE%	0.57	Antenna B1 MPE%	0.57	Antenna C1 MPE%	0.57
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXV18-206517S-A20	Make / Model:	RFS APXV18-206517S-A20	Make / Model:	RFS APXV18-206517S-A20
Gain:	16.7 dBd	Gain:	16.7 dBd	Gain:	16.7 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	5,612.82	ERP (W):	5,612.82	ERP (W):	5,612.82
Antenna A2 MPE%	0.97	Antenna B2 MPE%	0.97	Antenna C2 MPE%	0.97
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.32	Antenna B3 MPE%	0.32	Antenna C3 MPE%	0.32

Site Composite MPE%	
Carrier	MPE%
T-Mobile	5.60
Cingular	7.90 %
CL&P	4.46 %
Verizon Wireless	21.89 %
<b>Site Total MPE %:</b>	<b>39.85 %</b>

T-Mobile Sector 1 Total:	1.87 %
T-Mobile Sector 2 Total:	1.87 %
T-Mobile Sector 3 Total:	1.87 %
<b>Site Total:</b>	<b>39.85 %</b>

## Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.87 %
Sector 2:	1.87 %
Sector 3 :	1.87 %
T-Mobile Total:	5.60 %
Site Total:	39.85 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **39.85%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



**Scott Heffernan**  
RF Engineering Director

**EBI Consulting**  
21 B Street  
Burlington, MA 01803

**T-MOBILE  
NORTHEAST LLC**

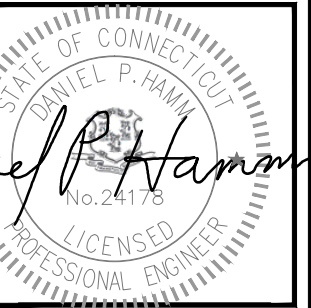
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
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SBA COMMUNICATIONS CORP.  
33 BOSTON POST ROAD WEST, SUITE 320 TEL: (508) 251-0720  
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1600 OSGOOD STREET  
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N. ANDOVER, MA 01845 FAX: (978) 336-5586



*Daniel P. Hamm*

CHECKED BY: KB

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
0	02/26/15	ISSUED FOR CONSTRUCTION	KMS

SITE NUMBER:

CTFF750A

SITE NAME:

NEW FAIRFIELD

SITE ADDRESS:

29 BOGUS HILL ROAD  
NEW FAIRFIELD, CT 06812  
FAIRFIELD COUNTY

SHEET TITLE

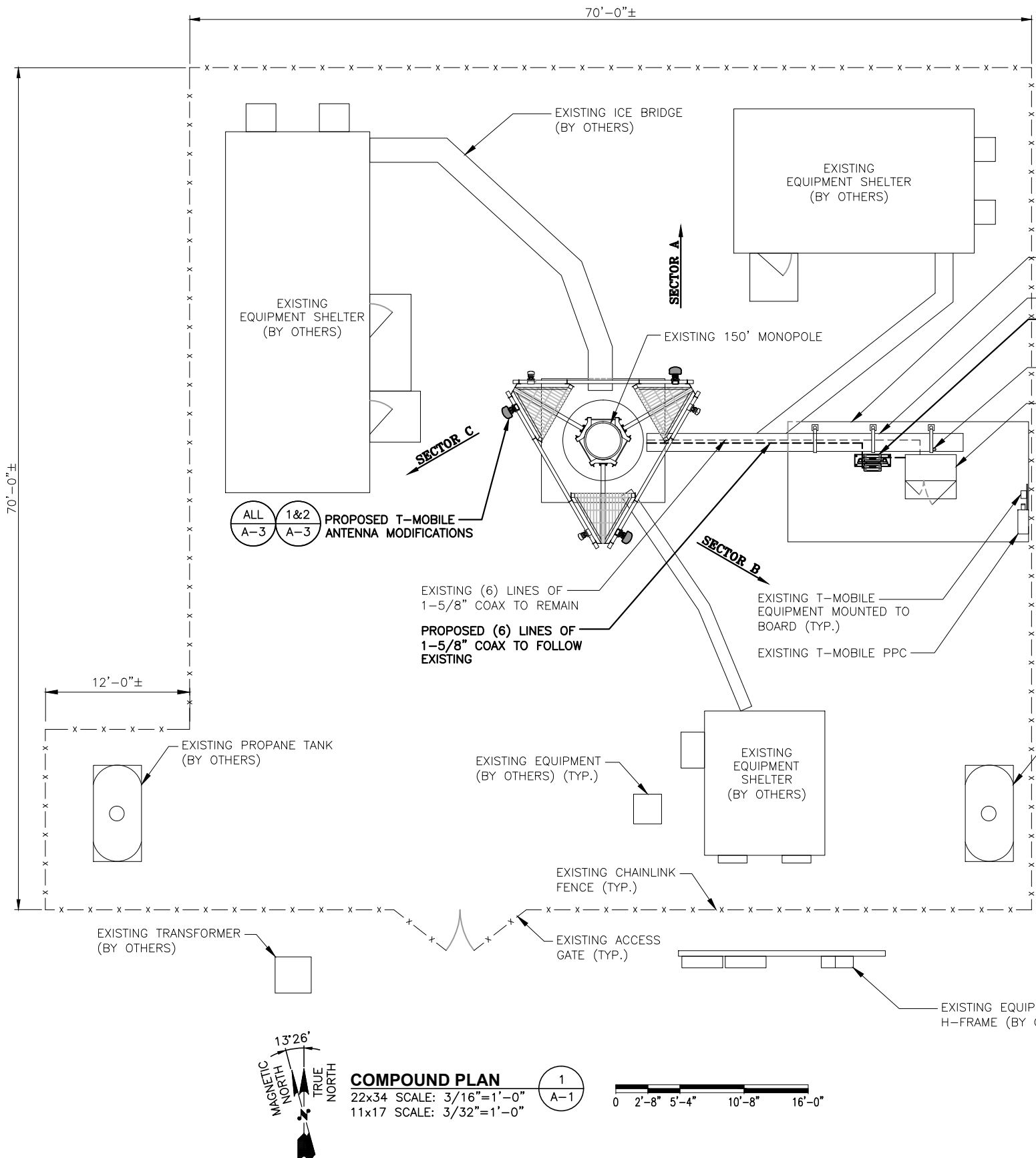
COMPOUND PLAN &  
ELEVATION

SHEET NUMBER

**A-1**

**STRUCTURAL NOTES:**  
1. ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.  
2. MOUNT ALL ANTENNAS, COAX, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS.

**ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:**  
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT IS ADEQUATE TO ACCOMMODATE ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.



2 A-2 1&2 A-3 T-MOBILE PLATFORM  
ELEV. = 160.0'± A.G.L.

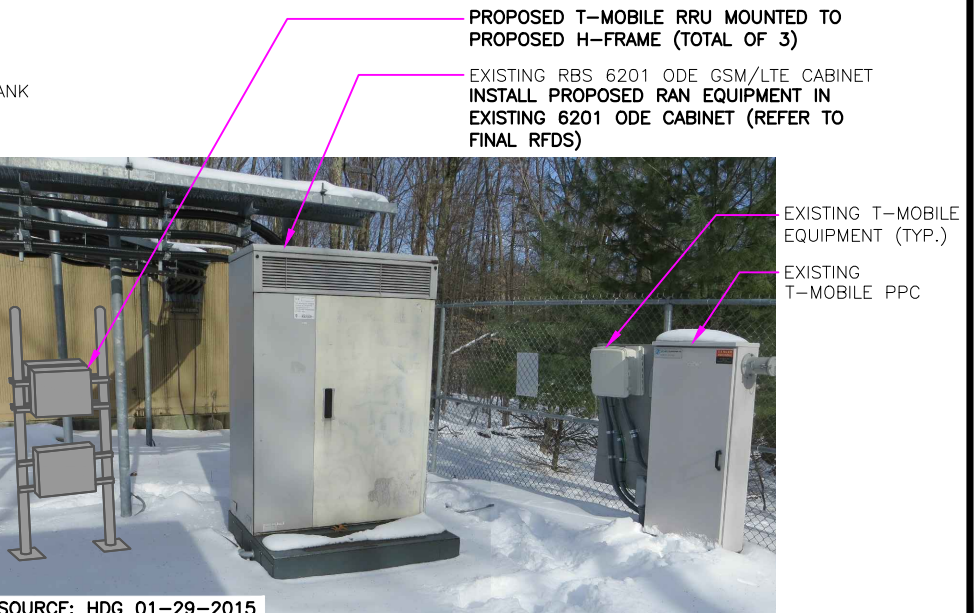
EXISTING T-MOBILE 10'-0"X20'-0" EQUIPMENT PAD  
EXISTING T-MOBILE ICE BRIDGE  
PROPOSED T-MOBILE RRU MOUNTED TO PROPOSED H-FRAME (TOTAL OF 3) 5&6 A-3  
EXISTING T-MOBILE GPS MOUNTED TO ICE BRIDGE  
EXISTING RBS 6201 ODE GSM/LTE CABINET  
INSTALL PROPOSED RAN EQUIPMENT IN EXISTING 6201 ODE CABINET (REFER TO FINAL RFDS)

PROPOSED (6) LINES OF 1-5/8" COAX TO FOLLOW INSIDE EXISTING MONOPOLE

EXISTING (6) LINES OF 1-5/8" COAX TO REMAIN



**PARTIAL ELEVATION PHOTO DETAIL** 2 A-1  
SCALE: N.T.S



**EQUIPMENT PHOTO DETAIL** 3 A-1  
SCALE: N.T.S

**T-MOBILE  
NORTHEAST LLC**

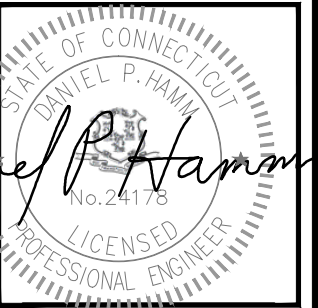
35 GRIFFIN ROAD SOUTH  
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SITE ADDRESS:

29 BOGUS HILL ROAD  
NEW FAIRFIELD, CT 06812  
FAIRFIELD COUNTY

SHEET TITLE

EXISTING &  
PROPOSED ANTENNA  
PLANS

SHEET NUMBER

**A-2**

**STRUCTURAL NOTES:**  
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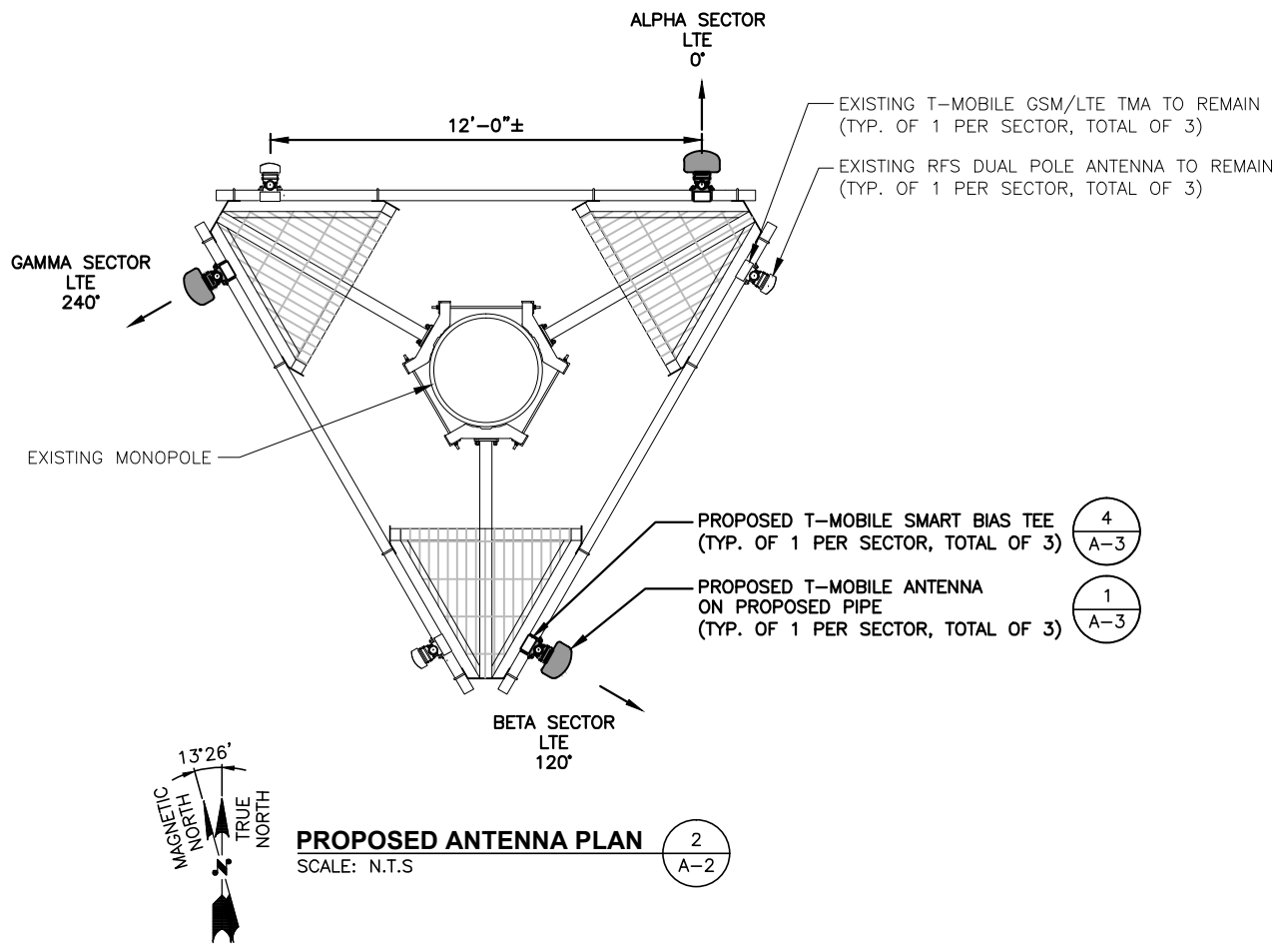
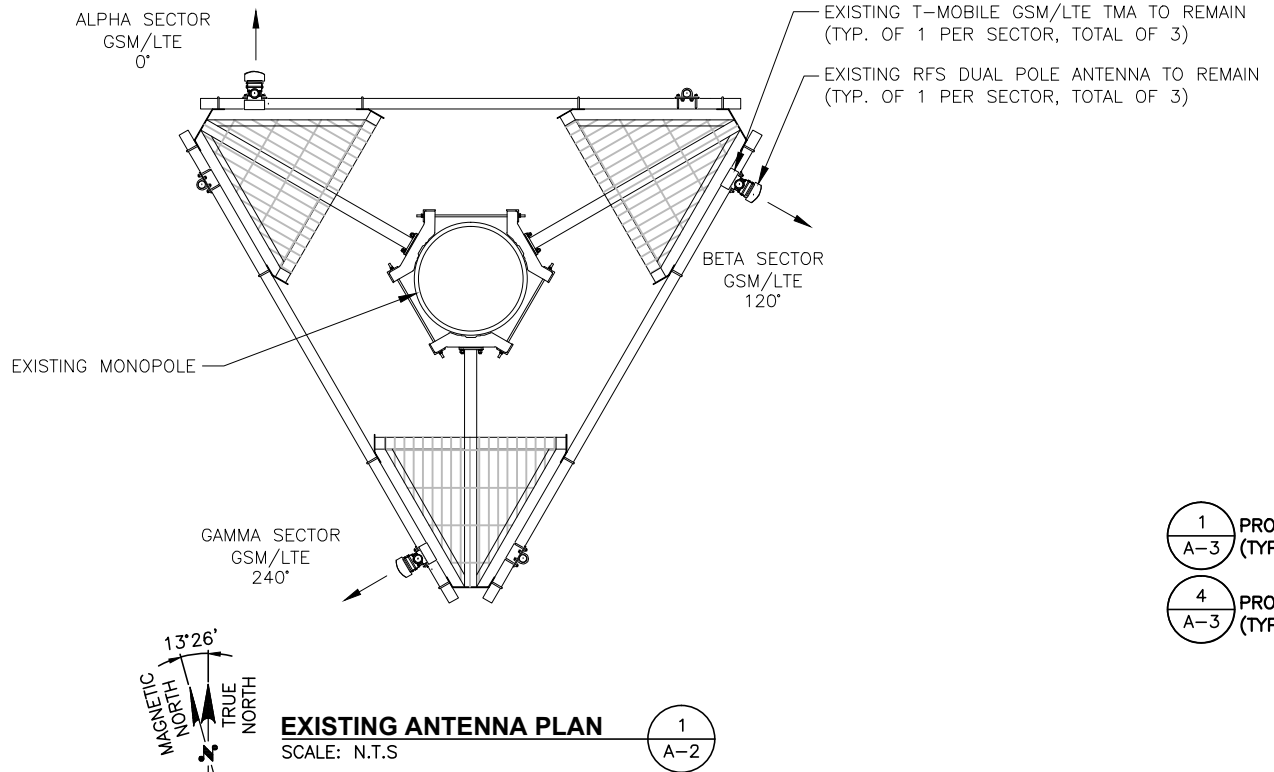
**SPECIAL WORK NOTE:**  
VERTICALLY CENTER ON EXISTING MOUNTING RAIL, THE PIPE MAST AND ANTENNA

- 1  
A-3 PROPOSED T-MOBILE ANTENNA ON PROPOSED PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- 4  
A-3 PROPOSED T-MOBILE SMART BIAS TEE (TYP. OF 1 PER SECTOR, TOTAL OF 3)



SOURCE: HDG 01-29-2015

**PROPOSED ANTENNA PHOTO DETAIL** 3  
SCALE: N.T.S. A-2



EXISTING T-MOBILE GSM/LTE TMA TO REMAIN (TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING RFS DUAL POLE ANTENNA TO REMAIN (TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING T-MOBILE GSM/LTE TMA TO REMAIN (TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING RFS DUAL POLE ANTENNA TO REMAIN (TYP. OF 1 PER SECTOR, TOTAL OF 3)

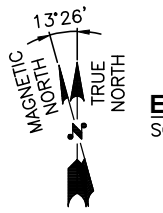
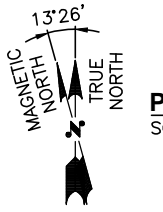
PROPOSED T-MOBILE SMART BIAS TEE (TYP. OF 1 PER SECTOR, TOTAL OF 3) 4  
A-3

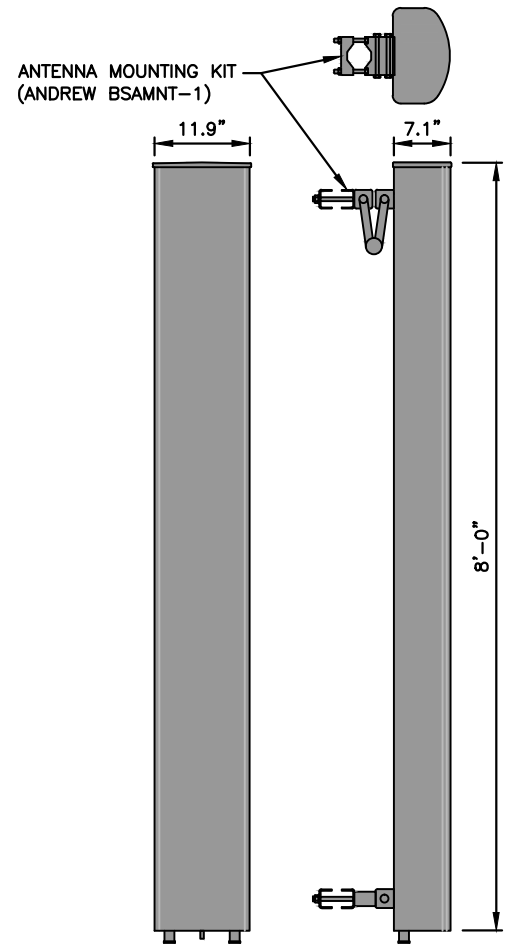
PROPOSED T-MOBILE ANTENNA ON PROPOSED PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3) 1  
A-3

BETA SECTOR LTE 120°

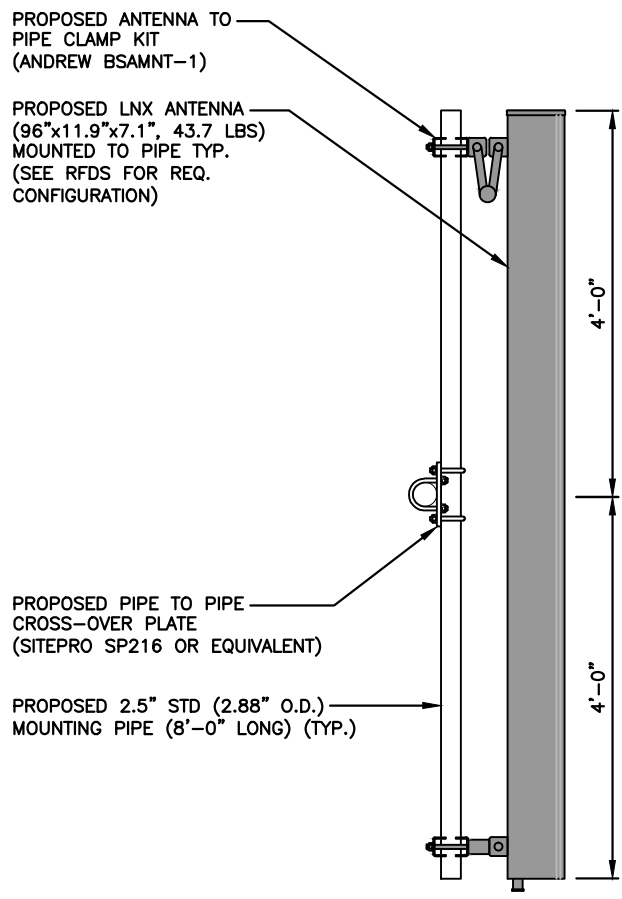
ALPHA SECTOR LTE 0°

GAMMA SECTOR LTE 240°





**LNx ANTENNA DETAIL** 1  
SCALE: N.T.S. A-3

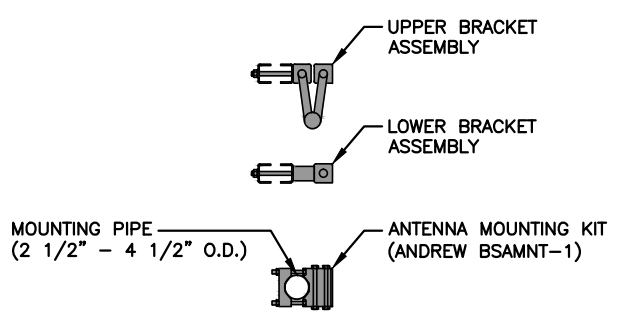


**PROPOSED ANTENNA MOUNTING DETAIL** 2  
SCALE: N.T.S. A-3

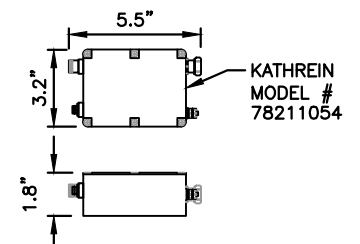
**SPECIAL WORK NOTE:**  
VERTICALLY CENTER ON EXISTING MOUNTING RAIL, THE PIPE MAST AND ANTENNA

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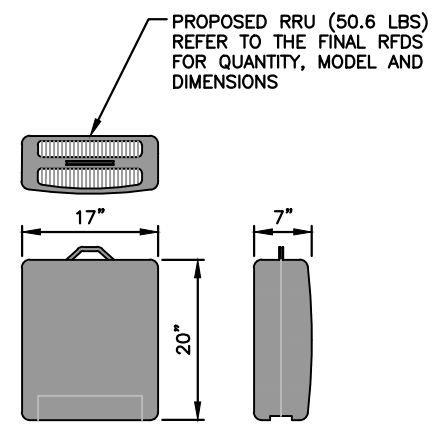
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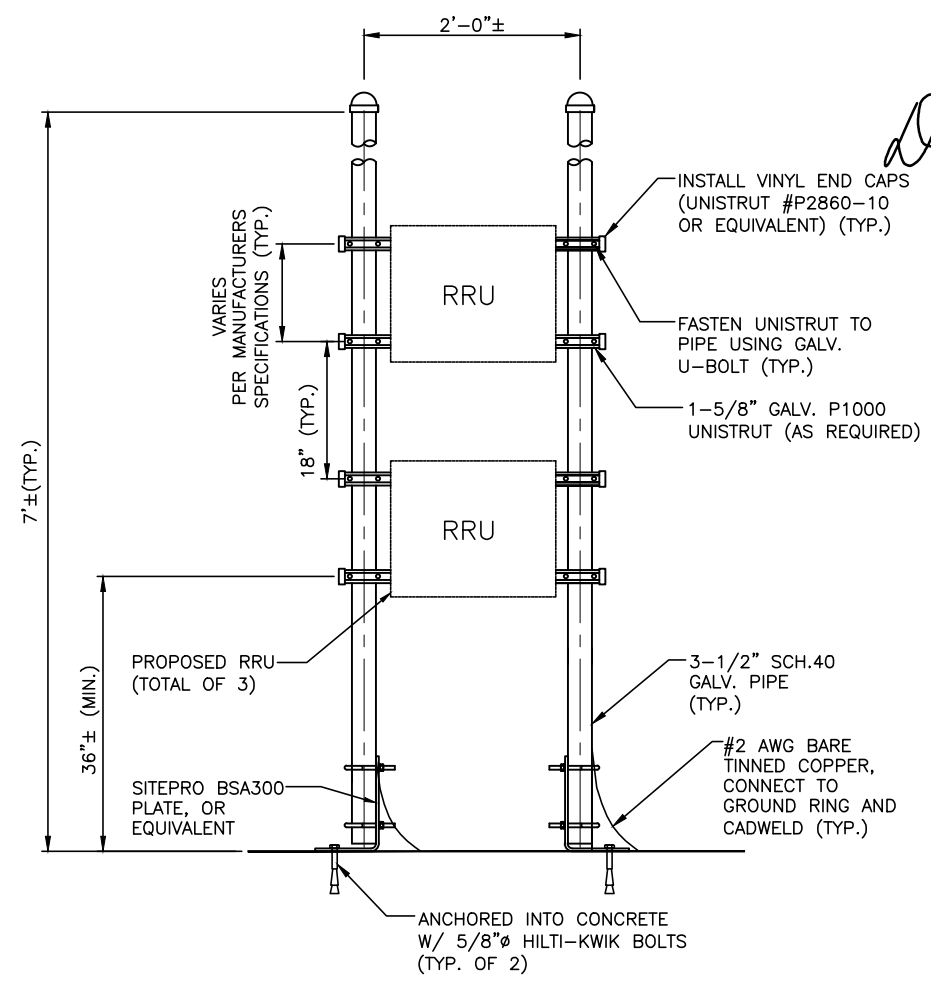
**ANTENNA MOUNTING BRACKET** 3  
SCALE: N.T.S. A-3



**SMART BIAS TEE (SBT)** 4  
SCALE: N.T.S. A-3



**PROPOSED RRU DETAIL** 5  
SCALE: N.T.S. A-3



**PROPOSED RRU MOUNTING DETAIL ON H-FRAME** 6  
SCALE: N.T.S. A-3

**T-MOBILE  
NORTHEAST LLC**

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**Hudson  
Design Group**

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STATE OF CONNECTICUT  
DANIEL P. HAMM  
No. 24178  
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: KB

APPROVED BY: DPH

**SUBMITTALS**

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FAIRFIELD COUNTY

SHEET TITLE  
DETAILS

SHEET NUMBER  
**A-3**