



CT11351C

February 28, 2014

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

RE: Notice of Exempt Modification
1 Hartford Square, New Britain, CT 06050
N 41° 39' 59"
W -72° 48' 46"

Dear Mr. Martin and 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 1 Hartford Square, New Britain, CT.

The 1 Hartford Square, New Britain, CT facility consists of a 175' Lattice Tower owned and operated by SBA Towers, 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 modernization 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 the 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



T-Mobile Equipment Modification

1 Hartford Square, New Britain, CT
Site number CT11351C

Tower Owner: SBA Towers, LLC

Equipment Configuration: Lattice Tower

Current and/or approved:

- (6) RFS APX16PV-16PVL
- (6) OneBase Twin Dual Duplex TMAs
- (18) 1-5/8" Coax

Planned Modifications:

- (3) Ericsson Air B2A B4P
- (3) Ericsson Air B4A B2P
- (3) Ericsson KRY112 144 TMAs
- (12) 1-5/8" Coax
- (1) 1-5/8" Fiber

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 0.489% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 43.379% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.489%
AT&T	13.470%
Verizon Wireless	19.670%
MetroPCS	7.190%
Clearwire	0.630%
Nextel	1.930%
Total Site MPE %	43.379%



February 28, 2014

Mayor Erin E. Stewart
City of New Britain
27 West Main Street
New Britain, CT 06051

RE: Telecommunications Facility @ 1 Hartford Square, New Britain, CT 06050

Dear Mayor Stewart,

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 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,

A handwritten signature in black ink, appearing to read "Kri Pelletier", is positioned above the typed name.

Kri Pelletier
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
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kpelletier@sbsite.com



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

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

176' Self-Support Tower

**SBA Site Name: New Britain 2
SBA Site ID: CT04382-S
T-Mobile Site ID: CT11351C**

FDH Project Number 1422QX1400

Analysis Results

Tower Components	87.4%	Sufficient
Foundation	71.5%	Sufficient

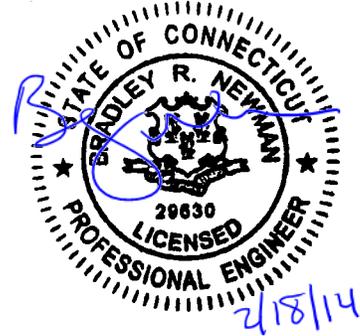
Prepared By:

Chip DeVoto, EI
Project Engineer

Reviewed By:

Bradley R. Newman, PE
Senior Project Engineer
CT PE License No. 29630

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



February 18, 2014

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut 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 existing self-supported tower located in New Britain, 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 Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, the member sizes, and foundation dimensions was obtained from:

- Rohn Industries, Inc. (Eng. File No. 44545AE) Tower Assembly Drawings dated August 18, 2000
- Rohn Industries, Inc. (Eng. File No. 44545AE) Mat Foundation Detail dated July 26, 2000
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* is 80 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from T-Mobile in place at 152 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Rohn Industries, Inc. Eng. File No. 44545AE), 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 Connecticut Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. Coax lines must be installed as shown in **Figure 1**.
2. The proposed TMAs should be installed directly behind the proposed panel 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	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
172	(9) Decibel DB844H90E-XY (3) Kathrein 840 10054 (4) Andrew VHLP2.5 Dishes (3) Dragonwave Horizon Duo ODUs (3) Samsung RRUs	(12) 1-1/4" (5) 1/2" (6) 5/16" ¹	Clearwire/Nextel	172	(3) T-Frames
162 ²	(6) Powerwave 7770 (6) KMW AM-X-CD-16-65-00T (6) Powerwave LGP21401 TMAs (6) Powerwave LGP13519 Diplexers (6) Ericsson RRH-11 RRUs	(12) 1-5/8" (1) 10mm Fiber (3) 12 Gage	AT&T	162	(3) T-Frames
152	(6) RFS APX16PV-16PVL (6) OneBase Twin Dual Duplex TMAs	(18) 1-5/8"	T-Mobile	152	(3) T-Frames
140	(1) GPS Antenna (3) Kathrein 800 10735V01 (3) Antel BXA-185090-8CF (3) Antel BXA-171063-12CF (3) Antel BXA-80080-4CF (6) RFS FD9R6004/2C-3L Diplexers (3) Alcatel Lucent RRH 2x40 AWS RRUs (1) RFS DB-T1-6Z-8AB-0Z Distribution Box	(12) 1-5/8" (1) 1/2" (1) 1-5/8" Hybriflex	Verizon	140	(3) T-Frames
130	(3) Kathrein 742 213	(6) 1-5/8"	Pocket Communications	130	Direct Mount

1. Clearwire/Nextel's existing (6) 5/16" coax are installed inside (2) 2" conduits.

2. AT&T's existing (1) 10mm fiber cable and (3) 12 gage coax are installed inside (1) 3" flex conduit.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
152	(3) Ericsson Air B2A B4P (3) Ericsson Air B4A B2P (3) Ericsson KRY112 144 TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	152	(3) T-Frames

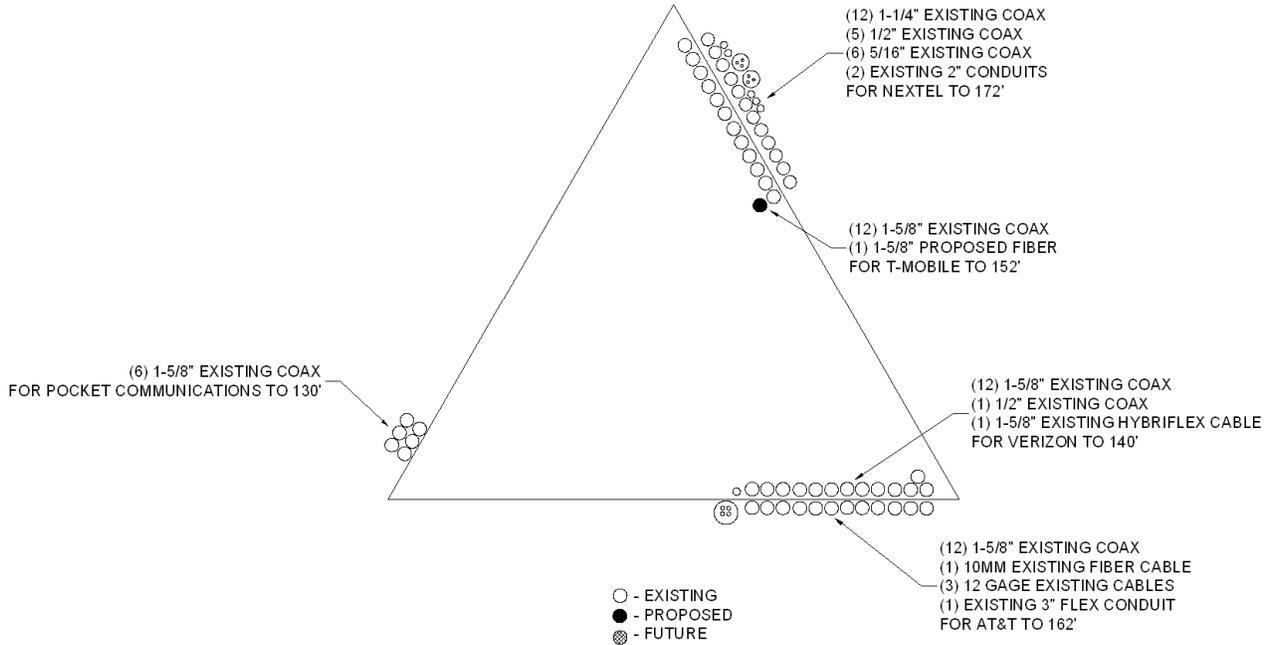


Figure 1 – Coax Layout

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 ksi
Bracing	36 ksi & 50 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. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions. **Table 5** displays the maximum antennas rotations at service wind speeds.

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
T1	176 - 160	Leg	ROHN 3 EH	13.0	Pass
		Diagonal	L2x2x1/4	18.3 36.8 (b)	Pass
		Top Girt	L2x2x1/4	3.4 4.5 (b)	Pass
T2	160 - 140	Leg	ROHN 4 EH	31.4	Pass
		Diagonal	L2x2x3/16	36.0 63.5 (b)	Pass
T3	140 - 120	Leg	ROHN 5 EH	39.9	Pass
		Diagonal	L2x2x3/16	73.5 85.9 (b)	Pass
T4	120 - 100	Leg	ROHN 6 EHS	50.0	Pass
		Diagonal	L2 1/2x2 1/2x3/16	65.3 81.9 (b)	Pass
T5	100 - 80	Leg	ROHN 6 EH	49.7	Pass
		Diagonal	L2 1/2x2 1/2x3/16	87.4	Pass
T6	80 - 60	Leg	ROHN 6 EH	58.7	Pass
		Diagonal	L3x3x1/4	51.5	Pass
T7	60 - 40	Leg	ROHN 8 EHS	59.0	Pass
		Diagonal	L3 1/2x3 1/2x1/4	54.9 57.1 (b)	Pass
T8	40 - 20	Leg	ROHN 8 X-STR	50.7 51.3 (b)	Pass
		Diagonal	L3 1/2x3 1/2x1/4	68.3	Pass
T9	20 - 0	Leg	ROHN 8 EH	56.0	Pass
		Diagonal	L4x4x1/4	57.6 63.5 (b)	Pass

*Capacities include a 1/3 allowable stress increase for wind.

Table 4 - Maximum Base Reactions

Load Type	Direction	Current Analysis (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Individual Foundation	Horizontal	25 k*	34 k
	Uplift	212 k	312 k
	Compression	250 k	365 k
Overturing Moment	---	4,263 k-ft	5,964 k-ft

* Per our experience with foundations of similar type, the shear loading should not control the foundation analysis.

Table 5 – Maximum Antenna Rotations at Service Wind Speeds

Centerline Elevation (ft)	Antenna	Tilt (deg)*	Twist (deg)*
172	(4) Andrew VHLP2.5 Dishes	0.2585	0.0439

*Allowable tilt and twist values to be reviewed by the carrier.

GENERAL COMMENTS

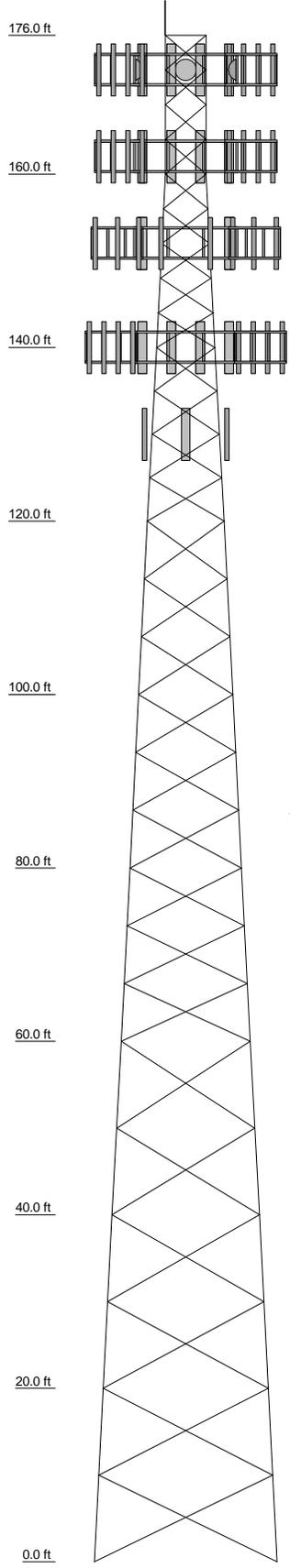
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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	T1	T2	T3	T4	T5	T6	T7	T8	T9	21
Legs	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH	ROHN 8 X-STR	ROHN 8 EHS	ROHN 8 X-STR	ROHN 8 EH	21
Leg Grade					A572-50					21
Diagonals	L2x2x1/4			L2 1/2x2 1/2x3/16		L3 1/2x3 1/2x1/4			L4x4x1/4	21
Diagonal Grade					N.A.					21
Top Girts	L2x2x1/4			A36						21
Face Width (ft)	4.6875		6.72656	8.76563	10.8047	12.8438	14.8828	16.9219	18.9609	21
# Panels @ (ft)		9 @ 4	4 @ 5		9 @ 6.66667	6 @ 10	6 @ 10	6 @ 10	6 @ 10	23.5
Weight (K)		1.4	1.8	2.0	2.5	3.1	3.3	4.0	4.4	23.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	176	AIR B4A/B2P w/Mount Pipe	152
HORIZON DUO	172	AIR B4A/B2P w/Mount Pipe	152
HORIZON DUO	172	AIR B4A/B2P w/Mount Pipe	152
HORIZON DUO	172	KRY112 144	152
Samsung RRU	172	KRY112 144	152
Samsung RRU	172	KRY112 144	152
Samsung RRU	172	(3) T-Frames	152
(3) DB844H90E-XY w/Mount Pipe	172	AIR B2A/B4P w/Mount Pipe	152
(3) DB844H90E-XY w/Mount Pipe	172	AIR B2A/B4P w/Mount Pipe	152
(3) DB844H90E-XY w/Mount Pipe	172	AIR B2A/B4P w/Mount Pipe	152
840 10054 w/Mount Pipe	172	800 10735V01 w/ Mount Pipe	140
840 10054 w/Mount Pipe	172	GPS Antenna	140
840 10054 w/Mount Pipe	172	BXA-185090-8CF w/Mount Pipe	140
(3) T-Frames	172	BXA-185090-8CF w/Mount Pipe	140
(2) Andrew VHLP2.5	172	BXA-185090-8CF w/Mount Pipe	140
Andrew VHLP2.5	172	BXA-171063/12CF w/ Mount Pipe	140
Andrew VHLP2.5	172	BXA-171063/12CF w/ Mount Pipe	140
(2) Powerwave 7770 w/ Mount Pipe	162	BXA-171063/12CF w/ Mount Pipe	140
(2) Powerwave 7770 w/ Mount Pipe	162	BXA-80080/4CF w/ Mount Pipe	140
(2) Powerwave 7770 w/ Mount Pipe	162	BXA-80080/4CF w/ Mount Pipe	140
(2) Powerwave LGP21401 TMA	162	BXA-80080/4CF w/ Mount Pipe	140
(2) Powerwave LGP21401 TMA	162	(2) FD9R6004/2C-3L Diplexer	140
(2) Powerwave LGP21401 TMA	162	(2) FD9R6004/2C-3L Diplexer	140
(2) Powerwave LGP13519 Diplexer	162	(2) FD9R6004/2C-3L Diplexer	140
(2) Powerwave LGP13519 Diplexer	162	RRH2X40-AWS	140
(2) Powerwave LGP13519 Diplexer	162	RRH2X40-AWS	140
(2) RRH-11	162	RRH2X40-AWS	140
(2) RRH-11	162	DB-T1-6Z-8AB-0Z Distribution Box	140
(3) T-Frames	162	(3) T-Frames	140
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	162	800 10735V01 w/ Mount Pipe	140
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	162	800 10735V01 w/ Mount Pipe	140
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	162	742 213 w/ Mount Pipe	130
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	162	742 213 w/ Mount Pipe	130
(2) KMW AM-X-CD-16-65-00T w/ Mount Pipe	162	742 213 w/ Mount Pipe	130

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

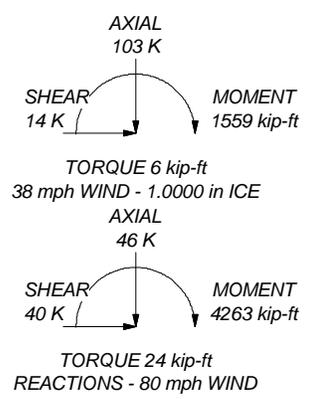
TOWER DESIGN NOTES

1. Tower is located in Hartford 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 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 87.4%

MAX. CORNER REACTIONS AT BASE:

DOWN: 250 K
SHEAR: 25 K

UPLIFT: -212 K
SHEAR: 22 K



<p>Tower Analysis</p>	FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031		Job: New Britain 2, CT04382-S	
	Project: 1422QX1400		Client: SBA Network Services, Inc.	
	Code: TIA/EIA-222-F		Date: 02/18/14	
	Path:		App'd: Chip DeVoto, EI Scale: NTS Dwg No. E-1	

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

T-Mobile Existing Facility

Site ID: CT11351C

New Britain / Route 72 Wooster
1 Hartford Square Street
New Britain, CT 06053

February 25, 2014

February 25, 2014

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

Re: Emissions Values for Site: **CT11351C - New Britain / Route 72 Wooster**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 1 Hartford Square Street, New Britain, 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 cellular band is $567 \mu\text{W}/\text{cm}^2$, 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 1 Hartford Square Street, New Britain, 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, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is 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 (1935.000 MHz—to 1945.000 MHz) were considered for each sector of the proposed installation.
- 2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 4) 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.
- 5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 6) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications

- 7) The antenna mounting height centerline of the proposed antennas is **152 feet** above ground level (AGL)
- 8) 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 calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT11351C - New Britain / Route 72 Wooster
Site Address	1 Hartford Square Street, New Britain, CT 06053
Site Type	Self Support Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBD)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	152	146	None	0	0	48.326044	0.815045	0.08150%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	152	146	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	152	146	1-5/8"	0	0	24.163022	0.407522	0.04075%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	152	146	1-5/8"	0	0	24.163022	0.407522	0.04075%

Sector total Power Density Value: 0.163%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBD)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	152	146	None	0	0	48.326044	0.815045	0.08150%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	152	146	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	152	146	1-5/8"	0	0	24.163022	0.407522	0.04075%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	152	146	1-5/8"	0	0	24.163022	0.407522	0.04075%

Sector total Power Density Value: 0.163%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBD)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	152	146	None	0	0	48.326044	0.815045	0.08150%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	152	146	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	152	146	1-5/8"	0	0	24.163022	0.407522	0.04075%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	152	146	1-5/8"	0	0	24.163022	0.407522	0.04075%

Sector total Power Density Value: 0.163%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.489%
AT&T	13.470%
Verizon Wireless	19.670%
MetroPCS	7.190%
Clearwire	0.630%
Nextel	1.930%
Total Site MPE %	43.379%

Summary

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

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.489% (0.163% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

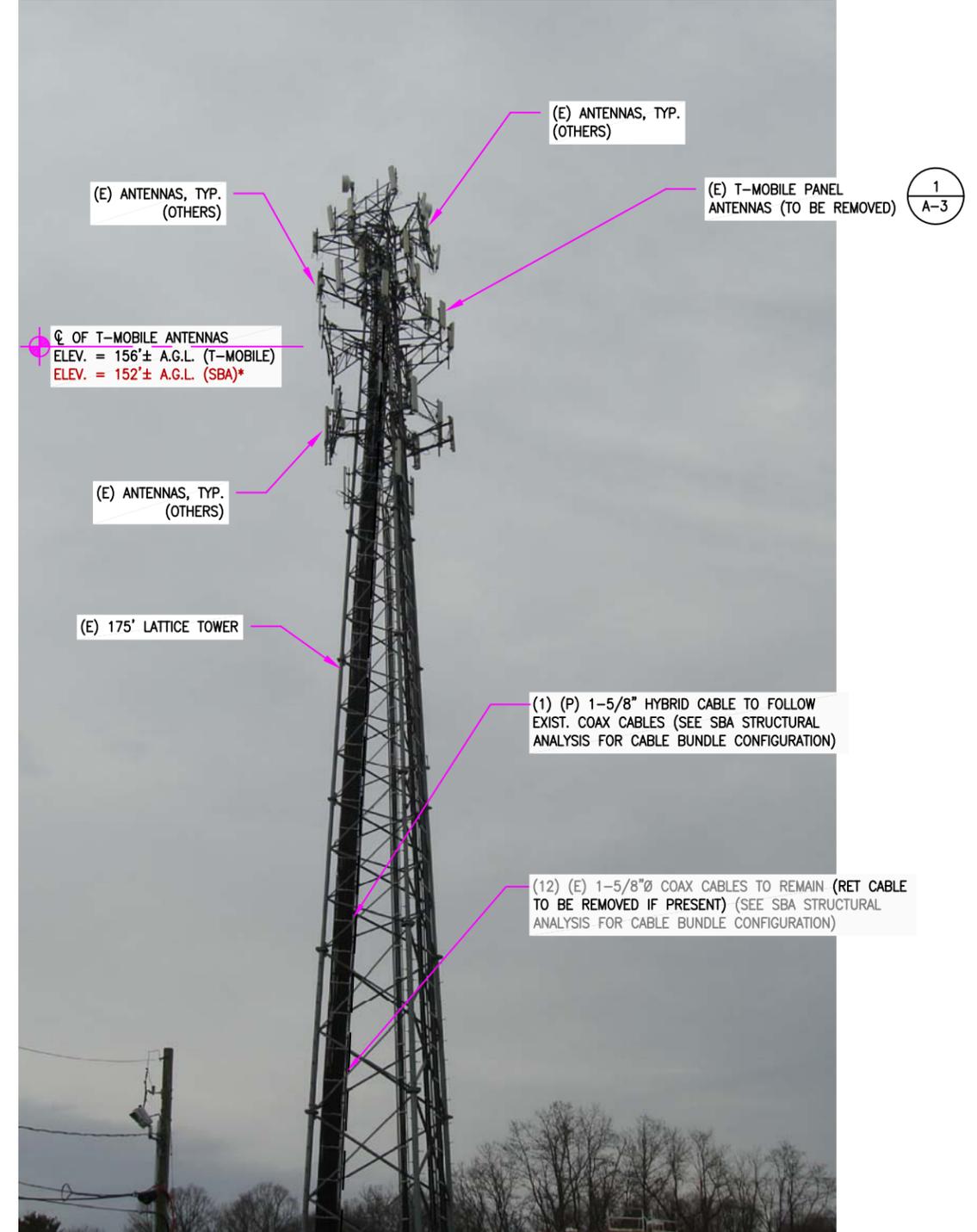
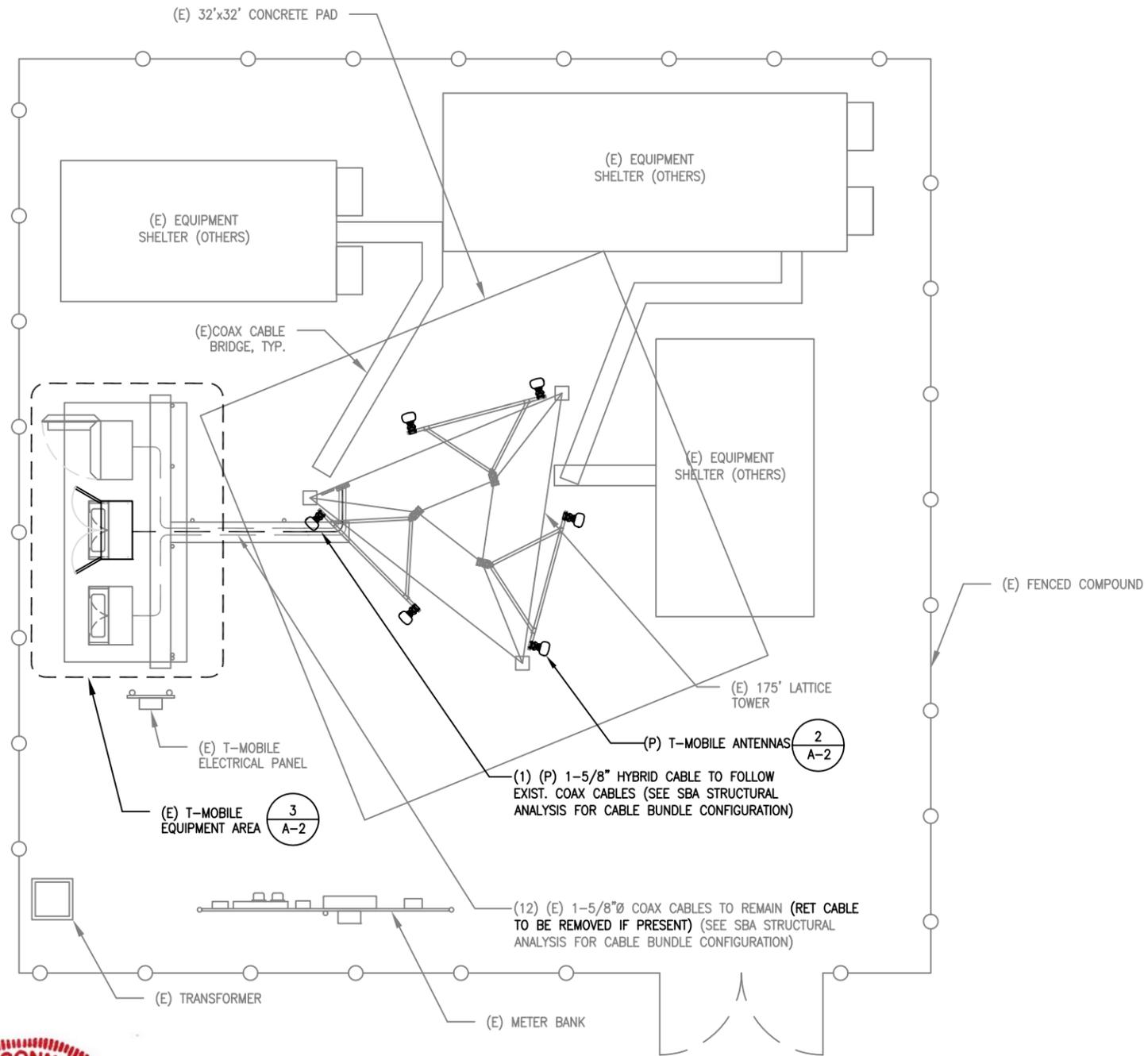
The anticipated composite MPE value for this site assuming all carriers present is **43.379%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



1
A-1 **COMPOUND PLAN**
SCALE: 3/32"=1'-0"
0' 5'-4" 10'-8" 21'-4"

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

2
A-1 **EXISTING ELEVATION**
SCALE: NTS

*NOTE:
ANTENNA ELEVATION BASED ON CLIENT-PROVIDED INFORMATION



ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development Surveying - Telecommunications
500 NORTH BROADWAY
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PH: (401) 354-2403
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SBA
SBA COMMUNICATIONS CORPORATION
33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752
PHONE: 508-251-0720

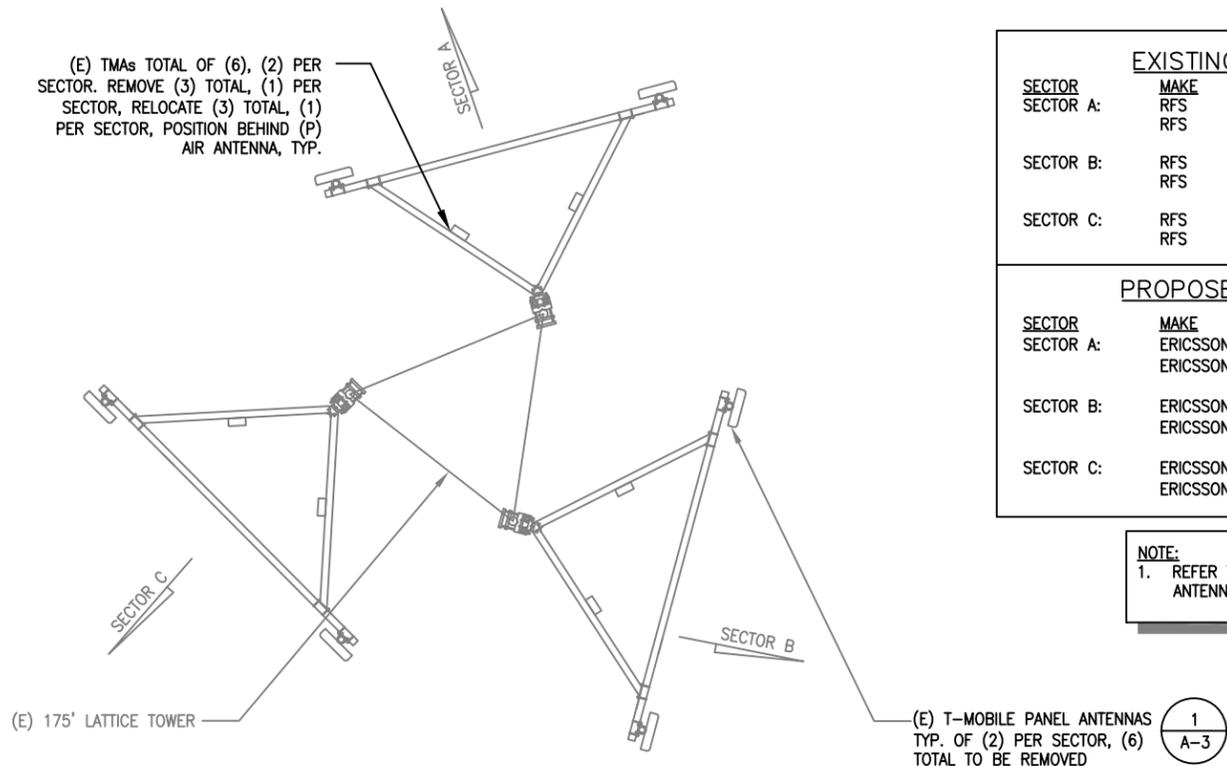
SITE NUMBER: CT11351C
SITE NAME: SBA NEW BRITAIN 2
1 HARTFORD SQUARE
NEW BRITAIN, CT 06050

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

0	02/04/14	CONSTRUCTION	SOS	MRC	MRC
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: MRC	DRAWN BY: SOS		

T-MOBILE		
COMPOUND PLAN AND ELEVATION		
JOB NUMBER	DRAWING NUMBER	REV
CT11351C	A-1	0

(E) TMAs TOTAL OF (6), (2) PER SECTOR. REMOVE (3) TOTAL, (1) PER SECTOR, RELOCATE (3) TOTAL, (1) PER SECTOR, POSITION BEHIND (P) AIR ANTENNA, TYP.



EXISTING ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	RFS	APX16DWV-16DWV-S	13x3.15x59.9
	RFS	APX16DWV-16DWV-S	13x3.15x59.9
SECTOR B:	RFS	APX16DWV-16DWV-S	13x3.15x59.9
	RFS	APX16DWV-16DWV-S	13x3.15x59.9
SECTOR C:	RFS	APX16DWV-16DWV-S	13x3.15x59.9
	RFS	APX16DWV-16DWV-S	13x3.15x59.9

PROPOSED ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B4A/B2P	12x8x56
SECTOR B:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B4A/B2P	12x8x56
SECTOR C:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B4A/B2P	12x8x56

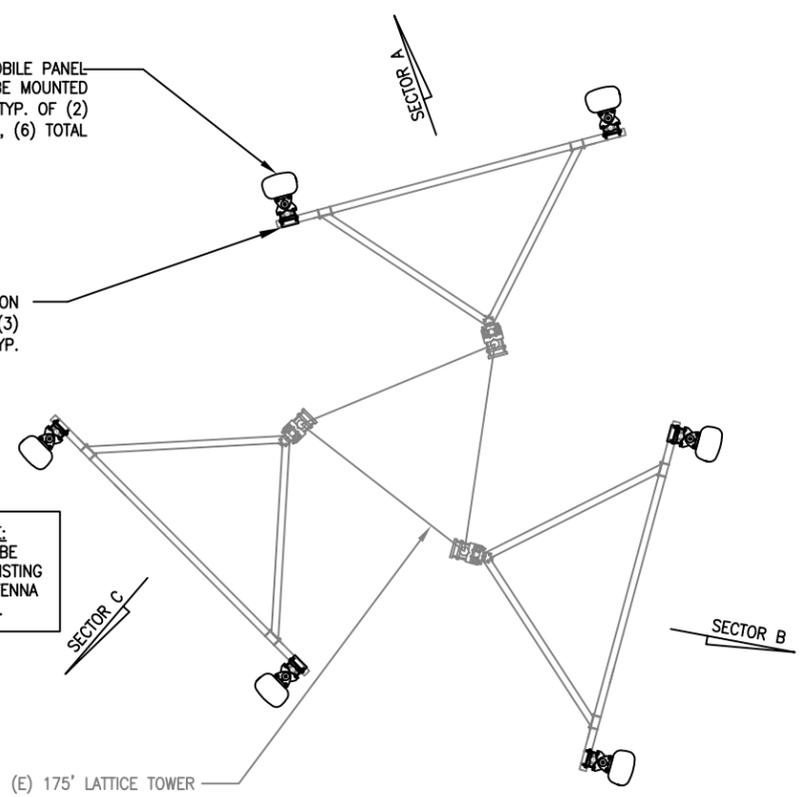
NOTE:
1. REFER TO FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

2
A-3

*(P) T-MOBILE PANEL ANTENNAS TO BE MOUNTED TO (E) PIPE TYP. OF (2) PER SECTOR, (6) TOTAL

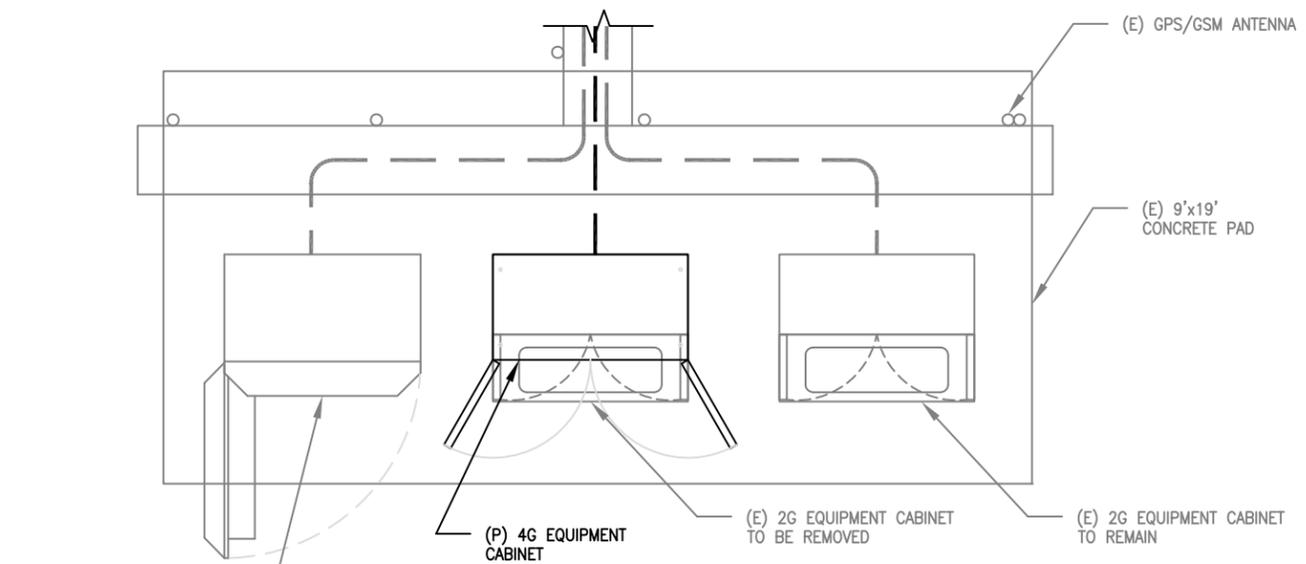
RELOCATE (E) TMAs TO POSITION BEHIND (P) AIR ANTENNA, (3) TOTAL, (1) PER SECTOR, TYP.

*** SPECIAL INSTALLATION NOTE:**
PROPOSED ANTENNAS SHALL BE VERTICALLY CENTERED ON EXISTING PLATFORM RAIL. ADJUST ANTENNA MOUNTING PIPE AS REQUIRED.



1
A-2
EXISTING ANTENNA PLAN
SCALE: 3/16"=1'-0"
0' 2'-8" 5'-4"

2
A-2
PROPOSED ANTENNA PLAN
SCALE: 3/16"=1'-0"
0' 2'-8" 5'-4"



3
A-2
EXISTING EQUIPMENT PLAN
SCALE: 1/4"=1'-0"
0' 2'-0" 4'-0"

(E) GPS/GSM ANTENNA
(E) 3G EQUIPMENT CABINET
(E) 2G EQUIPMENT CABINET TO BE REMOVED
(E) 2G EQUIPMENT CABINET TO REMAIN

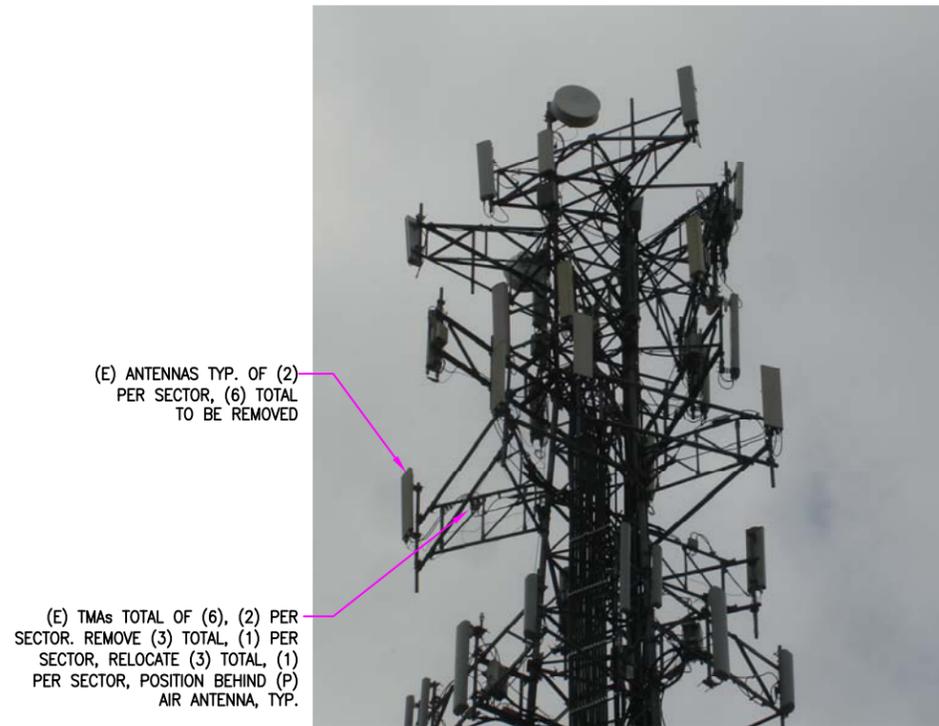


4
A-3
EXISTING EQUIPMENT AREA.
N.T.S.



0	02/04/14	CONSTRUCTION	SOS	MRC	MRC
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: MRC	DRAWN BY: SOS		

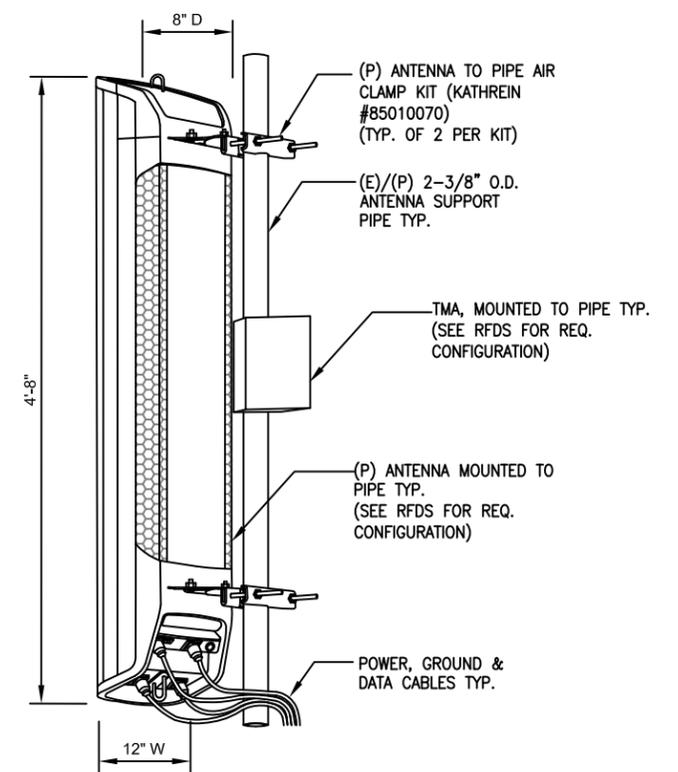
T-MOBILE		
PLANS AND ANTENNA SCHEDULES		
JOB NUMBER	DRAWING NUMBER	REV
CT11351C	A-2	0



1
A-3
EXISTING ANTENNA MOUNT TYP.
N.T.S.

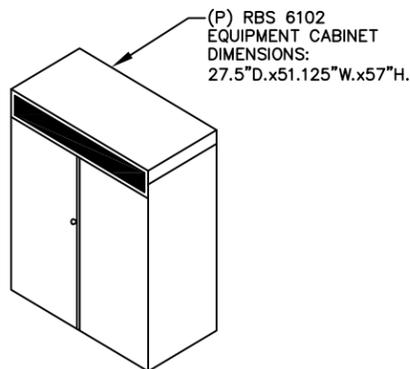


2
A-3
PROPOSED ANTENNA MOUNT TYP.
N.T.S.



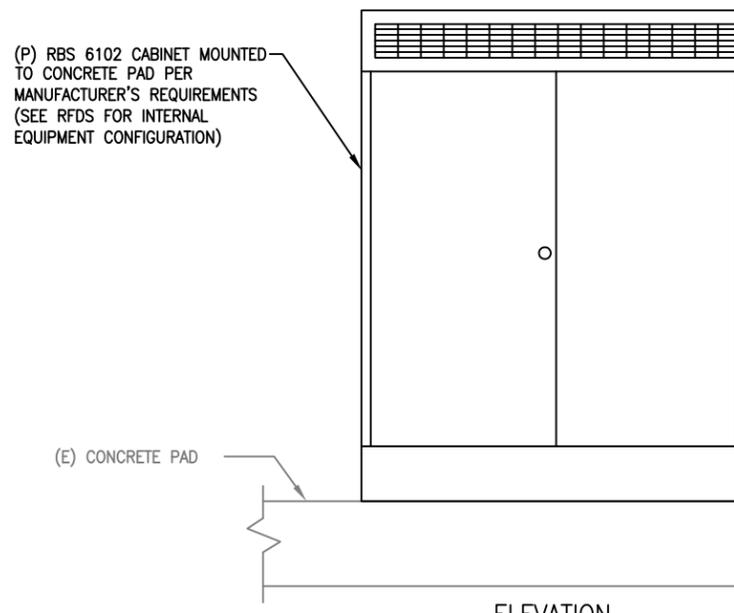
3
A-3
ANTENNA MOUNT TYP.
SCALE: N.T.S.

RBS 6102 OUTDOOR DIMENSIONS		
CABINET	DEPTH x WIDTH x HEIGHT	
OUTDOOR RBS 6102	27.5" x 51.125" x 57"	
RBS 6102 OUTDOOR WEIGHT		
CABINET	APPROX. MAX. WEIGHT	MAX. FLOOR LOADING
OUTDOOR RBS 6102	1028 LBS.	N/A
RBS 6102 MINIMUM CLEARANCE		
DIRECTION	MINIMUM CLEARANCE	
CABINET REAR	8"	
CABINET SIDES	4"	
ABOVE THE CABINET	20"	
IN FRONT OF THE CABINET	28"	

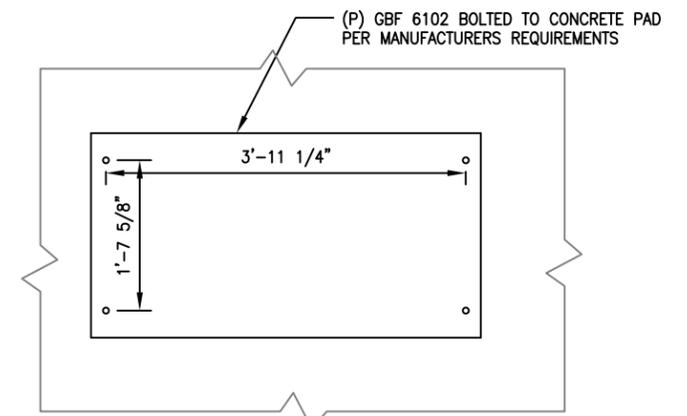


NOTE: ANCHOR (P) EQUIPMENT TO (P) CURB PER MANUFACTURER'S RECOMMENDATIONS

4
A-3
RBS 6102 CABINET
SCALE: N.T.S.



ELEVATION



PLAN

5
A-3
RBS 6102 MOUNTING DETAIL
SCALE: 1"=2'-0"

