August 05, 2014

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

RE: Notice of Exempt Modification
540 Cherry Brook Road
Canton, CT 06019
T-Mobile #: CTHA530A
N 41° 53' 38.6"
W -72° 53' 37.9"

Dear Mr. Martin and Members of the Siting Council:

On behalf of T-Mobile Northeast LLC, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 540 Cherry Brook Road, Canton CT.

The 540 Cherry Brook Road facility consists of a 150' MONOPOLE 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 Northeast LLC 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.

T-Mobile Northeast LLC wishes 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 Sprint'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 Northeast LLC, 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 3807 with any questions you may have concerning this matter.

Thank you,

Peter Nute
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3807 + T
508-251-1755 + F
Pnute@sbasite.com

T-Mobile Northeast LLC
Equipment Modification

540 Cherry Brook Road, Canton CT
Site number CTHA530A

Tower Owner: SBA Towers, LLC

Equipment Configuration: MONOPOLE Tower

Current and/or approved:

- (3) Kathrein 742 213
- (6) 1-5/8" Feed Lines

Planned Modifications:

- (3) Ericsson AIR 21 B2A/B4P
- (3) Ericsson AIR 21 B4A/B2P
- (6) 1-5/8" Feed Lines
- (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 0.689% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 40.709% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Metro MobilePCS	0.689%
Verizon Wireless	17.060%
AT&T	18.050%
Town of Canton 1	3.200%
Town of Canton 2	1.600%
Town of Canton 3	0.110%
Total Site MPE %	40.709%

August 05, 2014

Richard Barlow
First Selectman
Town of Canton
Town Hall
P.O. Box 168
Collinsville, CT 06022

RE: Telecommunications Facility @ 540 Cherry Brook Road, Canton CT

Dear Mr. Barlow,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile Northeast LLC 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 Sprint'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 3807.

Thank you,

Peter Nute
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3807 + T
508-251-1755 + F
Pnute@sbasite.com

August 05, 2014

North Canton Volunteer Fire Association
PO Box 393
North Canton CT 06059-0393

RE: Telecommunications Facility @ 540 Cherry Brook Road, Canton CT

To Whom It May Concern,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile Northeast LLC 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 Sprint'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 3807.

Thank you,

Peter Nute
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3807 + T
508-251-1755 + F
Pnute@sbasite.com

PRINT SOLUTIONS (770) 416-6099

4537

DATE 08/06/14

TO CSC

FOR ZONING - CSC

CTHA530A

535031

TAX DEDUCTIBLE

DEPOSITS

TOTAL		
THIS CHECK	625	-
OTHER		
BALANCE		

0139 E8650F -*heck1 10/04/11 12:07

4537

SBA NETWORK SERVICES, LLC (MASSACHUSETTS)
900 CUMMINGS CENTER, SUITE 316U
BEVERLY, MA 01915-6181
(561) 995-7670

63-2-630

DATE 08/06/14

PAY TO THE ORDER OF Connecticut Siting Council $ 625.00

Six Hundred Twenty Five and 00/100 DOLLARS

Security Features Included Details on Back.

OVER $5,000 REQUIRES TWO SIGNATURES

Wells Fargo, N.A.

FOR CSC - CTHA530A - 535031

⑈00004537⑈ ⑆063000021⑆ 2000017262525⑈

EBI Consulting
environmental | engineering | due diligence

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

Metro MobilePCS Existing Facility

Site ID: CTHA530A

SBA Canton Cherry Brook Rd Monopole
540 Cherry Brook Road
Canton, CT 06019

July 24, 2014

EBI Project Number: 62144001

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

EBI Consulting
environmental | engineering | due diligence

July 24, 2014

Metro MobilePCS USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CTHA530A - SBA Canton Cherry Brook Rd Monopole**

EBI Consulting was directed to analyze the proposed Metro MobilePCS facility located at 540 Cherry Brook Road, Canton, CT, for the purpose of determining whether the emissions from the Proposed Metro MobilePCS Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of µW/cm2 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 (µW/cm2). The general population exposure limit for the cellular band is 567 µW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 µW/cm2. 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 Metro MobilePCS Wireless antenna facility located at 540 Cherry Brook Road, Canton, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Metro MobilePCS 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 **129 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 calculations were done with respect to uncontrolled / general public threshold limits.

Site ID	CTHA530A - SBA Canton Cherry Brook Rd Monopole
Site Addresss	540 Cherry Brook Road, Canton, CT 06019
Site Type	Monopole

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	129	123	None	0	0	48.326044	1.148357	0.11484%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	129	123	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	129	123	1-5/8"	0	0	24.163022	0.574179	0.05742%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	129	123	1-5/8"	0	0	24.163022	0.574179	0.05742%
														Sector total Power Density Value:		0.230%	

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	129	123	None	0	0	48.326044	1.148357	0.11484%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	129	123	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	129	123	1-5/8"	0	0	24.163022	0.574179	0.05742%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	129	123	1-5/8"	0	0	24.163022	0.574179	0.05742%
														Sector total Power Density Value:		0.230%	

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	129	123	None	0	0	48.326044	1.148357	0.11484%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	129	123	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	129	123	1-5/8"	0	0	24.163022	0.574179	0.05742%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	129	123	1-5/8"	0	0	24.163022	0.574179	0.05742%
														Sector total Power Density Value:		0.230%	

Site Composite MPE %

Carrier	MPE %
Metro MobilePCS	0.689%
Verizon Wireless	17.060%
AT&T	18.050%
Town of Canton 1	3.200%
Town of Canton 2	1.600%
Town of Canton 3	0.110%
Total Site MPE %	**40.709%**

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 Metro MobilePCS facility are **0.689% (0.230% 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 **40.709%** 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

Structural Analysis for SBA Network Services, Inc.

150' Monopole Tower

SBA Site Name: Canton 2
SBA Site ID: CT01500-S-04
T-Mobile Site ID: CTHA530A

FDH Project Number 1466BU1400

Analysis Results

Tower Components	74.7%	Sufficient
Foundation	72.4%	Sufficient

Prepared By:

Virginia Chriscoe
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

STATE OF CONNECTICUT
BRADLEY R. NEWMAN
29630
LICENSED
PROFESSIONAL ENGINEER
6/3/14

June 3, 2014

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Canton, 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 (CSBS)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, foundation dimensions, and member sizes was obtained from:

- Fred A. Nudd Corporation (Project No. 7221) Design of 150' Monopole Tower dated November 2, 2000
- Vertical Structures, Inc. (Job No. 2009-007-014) Structural Analysis Report dated June 24, 2009
- Vertical Structures, Inc. (Job No. 2008-007-029) Modification Design Drawings dated October 6, 2008
- Vertical Structures, Inc. (Job No. 2009-012-001) Post Rework Report dated January 13, 2009
- Jaworski Geotech, Inc. (Project No. 99503G) Geotechnical Evaluation dated November 29, 1999
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 CSBC* 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 129 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CSBC* provided the **Recommendation** listed below is satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Nudd Proj. No. 7221), the foundation should have the necessary capacity to support both the proposed and existing 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.

Recommendation

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 recommendation:

1. The proposed coax must be installed inside the pole's shaft.

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	Feedlines[1]	Carrier	Mount Elevation (ft)	Mount Type
161	(1) Celwave PD220 Omni	(2) 1-5/8"	NCVFD	150	(1) Low Profile Platform
159.4	(1) Celwave TD1142 Omni				
150	(3) Antel BXA-70063/6CF (2) Antel BXA-171085-12BF (2) Antel LPA-80063/6CF (1) Antel BXA-171063/12BF-2 (4) Antel LPA-80080/6CF	(18) 1-5/8"[2]	Verizon		
138	(6) Powerwave 7770.00 (6) Powerwave LGP 21401 TMAs (6) Powerwave LGP21903 Diplexers (3) Decibel 978QNB120E-M (3) Powerwave P65-17-XLH-RR (6) Ericsson RRUS11 RRUs (1) Andrew ABT-DF-DMADBH Surge Arrestor (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8" (3) 1/2" (1) 3" Conduit (2) 3/4" DC Power (1) 7/16" Fiber	AT&T	138	(1) Low Profile Platform
129	(3) Kathrein 742 213	(6) 1-5/8"	T-Mobile	129	Direct Mount
92	(1) 4' Yagi	(1) 1/2"	---	92	Direct Mount

1. Coax installed inside the pole's shaft unless otherwise noted.
2. Verizon's existing coax may be installed outside the pole's shaft in a single row to 150'.

Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feedlines	Carrier	Mount Elevation (ft)	Mount Type
129	(3) Ericsson AIR 21 B2A/B4P (3) Ericsson AIR 21 B4A/B2P	(6) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	129	(3) T-Arms (Valmont P/N RMV12-3xx)

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	36 & 65 ksi
Flange Plate	50 ksi
Flange Bolts	92 ksi
Base Plate	50 ksi
Anchor Bolts	105 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.

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 - 139	Pole	TP24x24x0.2813	18.9	Pass
	139	Flange Bolts	(18) 1/2"ø w/ BC=27"ø	50.2	Pass
	139	Flange Plate	PL30"ø x 0.625" Thk.	50.0	Pass
L2	139 - 89	Pole	TP35.25x24x0.25	71.7	Pass
L3	89 - 44	Pole	TP45.25x33.625x0.3125	74.7	Pass
L4	44 - 0	Pole	TP55.5x43.23x0.375	67.2	Pass
		Anchor Bolts	(18) 2"ø w/ BC=62"ø	62.9	Pass
		Base Plate	PL68"ø x 1.5" Thk. w/ 6" x 1" x 1'-3" Stiffeners	93.4	Pass

* Capacities include 1/3 allowable increase for wind per TIA/EIA-222-F Standards.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	31 k	---
Shear	23 k	32 k
Moment	2,565 k-ft	3,544 k-ft

GENERAL COMMENTS

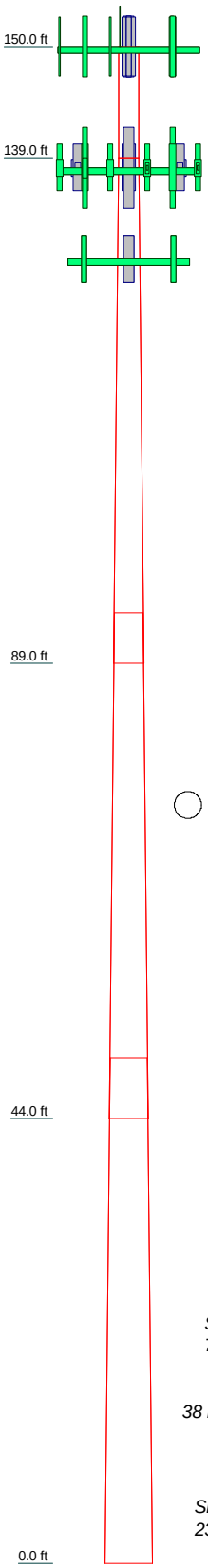
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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.

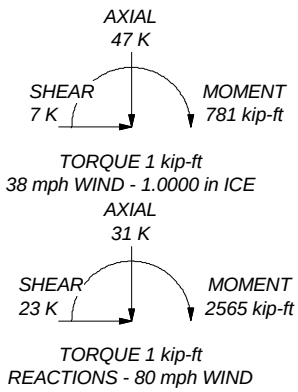
LIMITATIONS

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	11.00	1	0.2813		24.0000	24.0000	A36	0.8
2	50.00	18	0.2500	5.00	24.0000	35.2500		4.0
3	50.00	18	0.3125	6.00	33.6250	45.2500	A572-65	6.6
4	50.00	18	0.3750		43.2300	55.5000		9.9
								21.3





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	150	(2) LGP21903 Diplexer	138
PD220	150	(2) LGP21903 Diplexer	138
TD1142	150	978QNB120E-M	138
BXA-70063/6CF w/ Mount Pipe	150	978QNB120E-M	138
BXA-70063/6CF w/ Mount Pipe	150	978QNB120E-M	138
BXA-70063/6CF w/ Mount Pipe	150	P65-17-XLH-RR w/Mount Pipe	138
BXA-171085-12BF w/ Mount Pipe	150	P65-17-XLH-RR w/Mount Pipe	138
BXA-171085-12BF w/ Mount Pipe	150	P65-17-XLH-RR w/Mount Pipe	138
LPA-80063/6CF w/ Mount Pipe	150	(2) RRUS 11	138
LPA-80063/6CF w/ Mount Pipe	150	(2) RRUS 11	138
BXA-171063/12BF-2 w/ Mount Pipe	150	(2) RRUS 11	138
LPA-80080/6CF w/ Mount Pipe	150	ABT-DFDM-ADBH	138
LPA-80080/6CF w/ Mount Pipe	150	DC6-48-60-18-8F	138
(2) LPA-80080/6CF w/ Mount Pipe	150	Low Profile Platform	138
Low Profile Platform	150	AIR 21 B2A/B4P w/Mount Pipe	129
(2) 7770.00 w/Mount Pipe	138	AIR 21 B2A/B4P w/Mount Pipe	129
(2) 7770.00 w/Mount Pipe	138	AIR 21 B2A/B4P w/Mount Pipe	129
(2) 7770.00 w/Mount Pipe	138	AIR 21 B4A/B2P w/Mount Pipe	129
(2) LGP21401 TMA	138	AIR 21 B4A/B2P w/Mount Pipe	129
(2) LGP21401 TMA	138	AIR 21 B4A/B2P w/Mount Pipe	129
(2) LGP21401 TMA	138	(3) T-Arms (Valmont P/N RMV12-3xx)	129
(2) LGP21903 Diplexer	138	4' Yagi (32 Element)	92

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi	A572-65	65 ksi	80 ksi

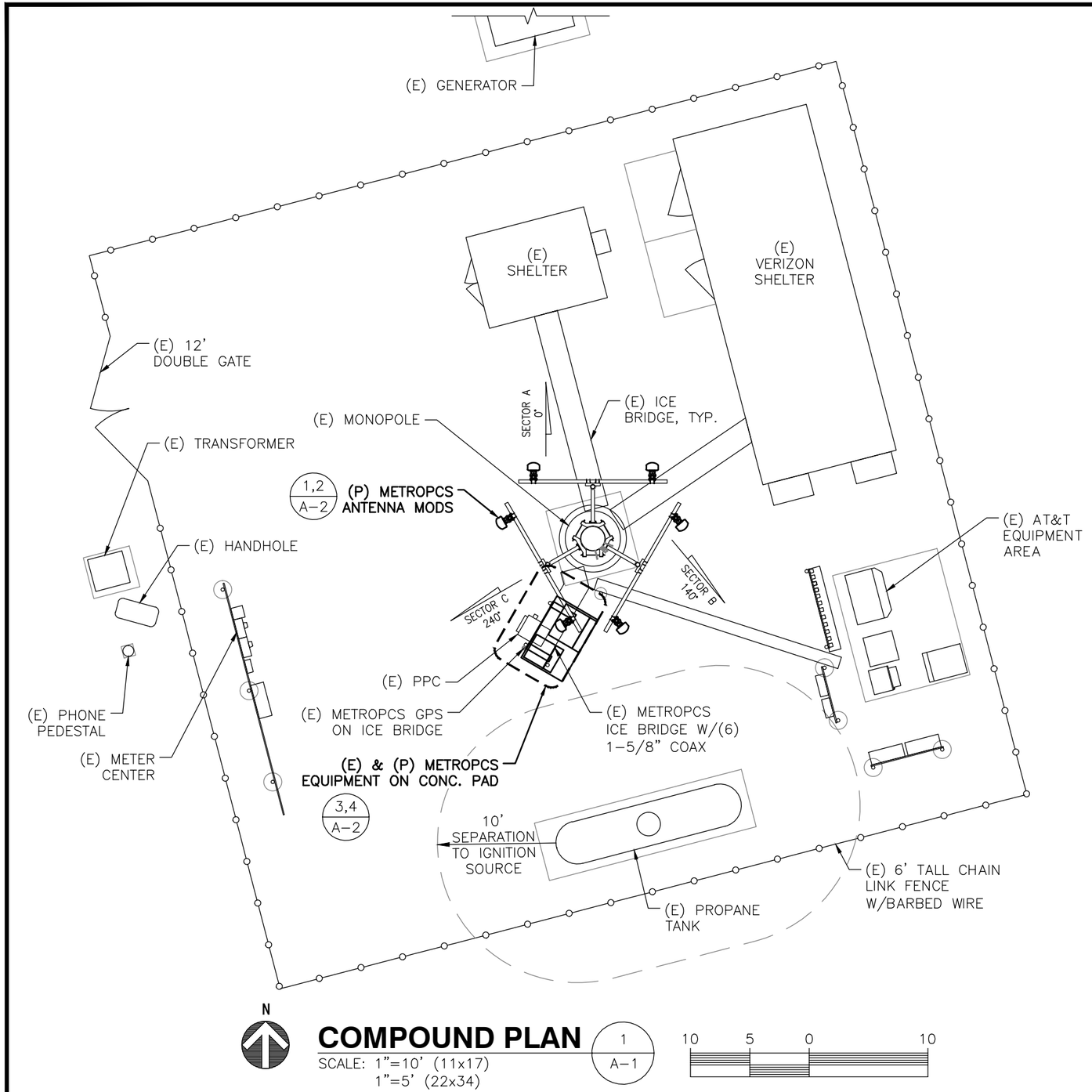
TOWER DESIGN NOTES

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: 74.7%

FDH Engineering, Inc.
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
Phone: 9197551012
FAX: 9197551031

Tower Analysis

Job: Canton 2, CT01500-S			
Project: 1466BU1400			
Client: SBA	Drawn by: VChriscoe	App'd:	
Code: TIA/EIA-222-F	Date: 06/03/14	Scale: NTS	
Path:		Dwg No. E-1	



COMPOUND PLAN

1 / A-1

SCALE: 1"=10' (11x17)
1"=5' (22x34)

10 5 0 10

IMAGE SOURCE: PROTERRA 06/03/14

EXISTING ELEVATION

2 / A-1

SCALE: N.T.S.

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

*NOTE:
ANTENNA ELEVATION BASED ON CLIENT-PROVIDED INFORMATION

STATE OF CONNECTICUT
THOMAS E. JOHNSON
No. 28192
LICENSED PROFESSIONAL ENGINEER
7-8-14

ProTerra DESIGN GROUP, LLC
1 Short Street
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Northampton, MA 01060
Ph: (413)320-4918
Fax: (413)320-4917

SBA
SBA COMMUNICATIONS CORPORATION
33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752
PHONE: 508-251-0720

SITE NUMBER: CTHA530A
SITE NAME: SBA CANTON CHERRYBROOK RD MONOPOLE
540 CHERRY BROOK ROAD, CANTON, CT 06019

metroPCS
Unlimit Yourself.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

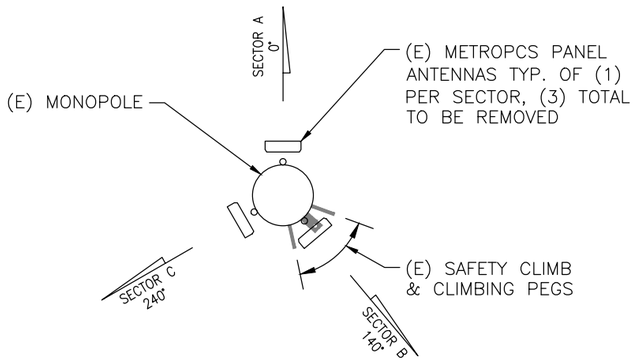
NO.	DATE	REVISIONS	BY	CHK	APP'D
2	07/08/14	CONSTRUCTION FINAL	JEB	TEJ	TEJ
1	06/19/14	CONSTRUCTION	JEB	TEJ	JMM
0	06/13/14	CONSTRUCTION	BLM	TEJ	JMM

SCALE: AS SHOWN | DESIGNED BY: JMM/TEJ | DRAWN BY: BLM

METROPCS

COMPOUND PLAN AND ELEVATION

JOB NUMBER	SHEET	REV
#13-062	A-1	2



N

EXISTING ANTENNA PLAN

SCALE: 1"=5' (11x17)
1"=2.5' (22x34)

1 / A-2

5 2.5 0 5

EXISTING ANTENNA SCHEDULE

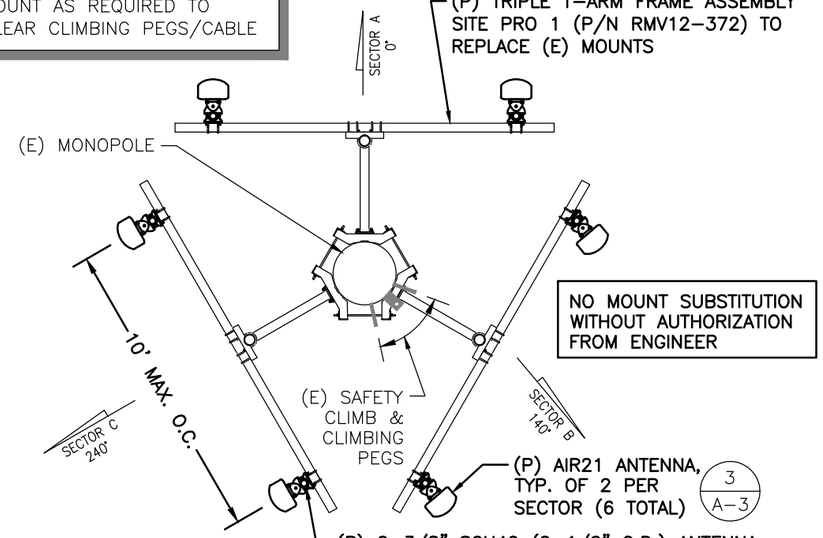
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	KATHREIN	742-213	6.1x2.7x76.5
SECTOR B:	KATHREIN	742-213	6.1x2.7x76.5
SECTOR C:	KATHREIN	742-213	6.1x2.7x76.5

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	ERICSSON	AIR21 B2A/B4P	12x7.8x55.9
	ERICSSON	AIR21 B4A/B2P	12x7.8x55.9
SECTOR B:	ERICSSON	AIR21 B2A/B4P	12x7.8x55.9
	ERICSSON	AIR21 B4A/B2P	12x7.8x55.9
SECTOR C:	ERICSSON	AIR21 B2A/B4P	12x7.8x55.9
	ERICSSON	AIR21 B4A/B2P	12x7.8x55.9

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

ROTATE AND PAN PROPOSED MOUNT AS REQUIRED TO CLEAR CLIMBING PEGS/CABLE



NO MOUNT SUBSTITUTION WITHOUT AUTHORIZATION FROM ENGINEER

N

PROPOSED ANTENNA PLAN

SCALE: 1"=5' (11x17)
1"=2.5' (22x34)

2 / A-2

5 2.5 0 5

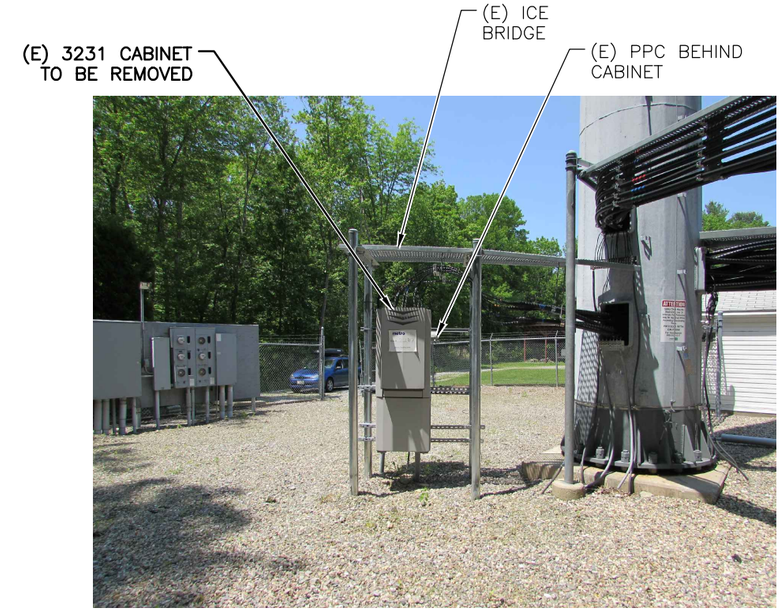
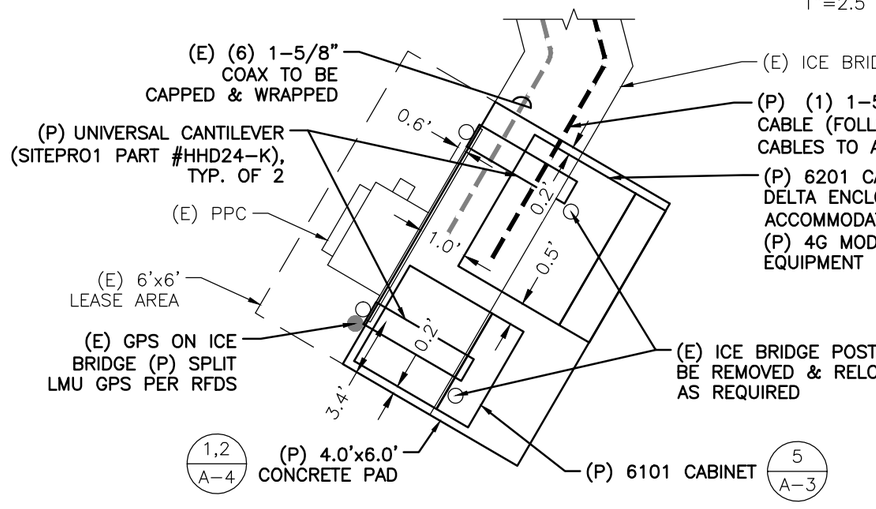


IMAGE SOURCE: PROTERRA 06/03/14

EXISTING EQUIPMENT AREA

SCALE: N.T.S.

3 / A-2



N

PROPOSED EQUIPMENT AREA

SCALE: 1"=3' (11x17)
1"=1.5' (22x34)

4 / A-2

3 1.5 0 3

STATE OF CONNECTICUT
THOMAS E. JOHNSON
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SCALE: AS SHOWN | DESIGNED BY: JMM/TEJ | DRAWN BY: BLM

METROPCS

PLANS AND ANTENNA SCHEDULES

JOB NUMBER	SHEET	REV
#13-062	A-2	2