COHEN and WOLF P.C.
ATTORNEYS AT LAW

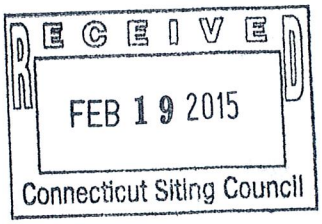
RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
Writer's Direct Dial: (203) 337-4110
E-Mail: rschwartzman@cohenandwolf.com

February 18, 2015

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

ORIGINAL



Re: EM-T-MOBILE-006-130528
T-Mobile Site ID CT11299D
60 Rice Lane, Beacon Falls, Connecticut
Notice of Compliance with Conditions and Construction Completion

Dear Attorney Bachman:

The Connecticut Siting Council ("Council") acknowledged the above referenced T-Mobile Northeast LLC ("T-Mobile") notice of exempt modification on June 26, 2013.

The Council imposed the following conditions in its acknowledgment:

- The coax lines and accessory equipment shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated April 30, 2013 and stamped by Christopher Murphy;
- T-Mobile shall verify that the modifications listed in FDH Engineering, Inc. (Project No, 12-04772E S3 – part of the structural analysis included with AT&T's exempt modification filing: EM-CING-006120827) dated August 21, 2012 have been completed;
- Within 45 days following completion of the antenna installation, T-Mobile shall provide documentation certified by a professional engineer that its installation complied with the recommendation of the structural analysis.

The attached PE Closeout Letter, dated February 18, 2015, provides evidence of compliance with each of the conditions outlined by the Council. To ensure that installation conformed to the structural analysis, T-Mobile worked extensively with its engineers and vendors to certify compliance, causing some postponement in production of the requested documentation.

In addition, T-Mobile hereby notifies the Council that construction of the acknowledged modifications were complete as of May 23, 2014.

Please don't hesitate to contact me with any questions.

Sincerely,

Rachel Schwartzman

Rachel A. Schwartzman, Esq.

cc: Samuel Simons, T-Mobile
Mark Richard, T-Mobile
Robert Stanford, Vertical Development, LLC
Julie Kohler, Esq.

ADVANCED
ENGINEERING GROUP, P.C.

500 North
Broadway East
Providence, RI 02914
Phone: 401-354-2403
Fax: 401-633-6354

February 18, 2015

Mr. Samuel Simons
Engineering Development - Connecticut
T-Mobile
35 Griffin Road South
Bloomfield, CT 06002
sam.simons@t-mobile.com

RE: PE Close Out Letter
EM-T-MOBILE-006-130528 / T-Mobile Site ID #CT11299D

Mr. Simons:

Advanced Engineering Group, P.C. has completed its post-construction review of the above-referenced site to determine whether T-Mobile complied with conditions imposed by the Connecticut Siting Council's (the "Council") acknowledgment letter, dated 6/26/13 ("the Acknowledgment Letter"). Our compliance review included the following: the Acknowledgment Letter, the approved tower Structural Analysis report by FDH dated 4/30/13 (the "Structural Analysis"), and the approved design plans by this office entitled "CT11299D, Beacon Falls / Rt. 8", Rev 1, dated 5/6/13.

On behalf of Advanced Engineering Group, P.C., based on my review of the information, I, Marc Chretien, licensed professional engineer number 28307, certify that to the best of my knowledge, T-Mobile's work complied with the recommendations of the approved Structural Analysis. Specifically, as required by the Acknowledgment Letter, T-Mobile's work complied with the following structural conditions imposed by the Council:

- The coax lines and accessory equipment shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated, April 30, 2013 and stamped by Christopher Murphy;
- T-Mobile shall verify that the modifications listed in FDH Engineering, Inc. (Project No. 12-04772E S3- part of the structural analysis including AT&T's exempt modification filing: EM-CING-006-120827) dated, August 21, 2012 have been completed.

Should you have any questions regarding the foregoing review, please contact me directly at 401-354-2403 or email to mchretien@aegpc.net.

Very truly yours

Marc R. Chretien, P.E.
Advanced Engineering Group. P.C.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

December 23, 2014

Rachel A. Schwartzman, Esq.
Cohen and Wolf, P.C.
P.O. Box 1821
Bridgeport, CT 06601

RE: EM-T-MOBILE-002-130529, 401 Wakelee Avenue, Ansonia, Connecticut
EM-T-MOBILE-006-130528, 60 Rice Lane, Beacon Falls, Connecticut

Dear Attorney Schwartzman:

The Connecticut Siting Council (Council) is in receipt of your letter dated December 22, 2014, submitted on behalf of T-Mobile, requesting an extension of time to submit a notice of completion of construction and associated post modification inspection reports for the above-referenced exempt modifications.

The Council hereby grants a 60-day extension of time to submit a notice of completion of construction and associated post modification inspection reports for the above-referenced exempt modifications.

This extension is granted with the understanding that the Council will be notified should T-Mobile need additional time beyond 60 days to submit a notice of completion and associated post modification inspection reports or decide not to proceed with construction.

Thank you for your attention to this matter.

Sincerely,

Melanie A. Bachman
Acting Executive Director

MAB/cm

COHEN and WOLF P.C.
ATTORNEYS AT LAW

ORIGINAL

RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
Writer's Direct Dial: (203) 337-4110
E-Mail: rschwartzman@cohenandwolf.com

December 22, 2014

Via Electronic and Overnight Mail

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: T-Mobile Notice of Completion Filings (First and Second Quarter Audit)
Connecticut Siting Council Letter, dated August 27, 2014

Dear Attorney Bachman:

T-Mobile Northeast, LLC (T-Mobile) respectfully requests an additional two-month extension of time to respond to the Council's request for notice of completion of construction and associated post-modification inspection reports (the "Compliance Filings") for the following sites:

EM-T-MOBILE-002-130529, 401 Wakelee Avenue, Ansonia, CT (Site ID 11810A)
EM-T-MOBILE-006-130528, 60 Rice Lane, Beacon Falls, CT (Site ID 11299D)

T-Mobile has filed the appropriate Compliance Filings for all first and second quarter audits, apart from the two above-referenced sites for which extension is sought. T-Mobile has diligently acquired much of the required documentation and is working with its vendors and engineers to acquire the proper closeout records. T-Mobile continues to actively compile the requested information but needs additional time to provide the necessary documentation.

Please do not hesitate to let me know if you have any questions.

Sincerely,

Rachel Schwartzman

Rachel A. Schwartzman

RAS/lcc

COHEN and WOLF P.C. ATTORNEYS AT LAW

cc: Patricia Hennelly, T-Mobile Northeast, LLC (via electronic mail)
Samuel Simons, T-Mobile Northeast, LLC (via electronic mail)
Mark Richard, T-Mobile Northeast, LLC (via electronic mail)
Robert Stanford, Vertical Development, LLC (via electronic mail)
Julie Kohler, Esq. (via electronic mail)

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

June 26, 2013

Rick Woods
SBA Communications Corporation
33 Boston Post Road West
Suite 320
Marlborough, MA 01752

RE: **EM-T-MOBILE-006-130528** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 60 Rice Lane, Beacon Falls, Connecticut.

Dear Mr. Woods:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The coax lines and accessory equipment shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated April 30, 2013 and stamped by Christopher Murphy;
- T-Mobile shall verify that the modifications listed in FDH Engineering, Inc. (Project No. 12-04772E S3 – part of the structural analysis included with AT&T's exempt modification filing: EM-CING-006-120827) dated August 21, 2012 have been completed;
- Within 45 days following completion of the antenna installation, T-Mobile shall provide documentation certified by a professional engineer that its installation complied with the recommendations of the structural analysis;
- Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated May 23, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/jb

c: The Honorable Gerard F. Smith, First Selectman, Town of Beacon Falls
Douglas R. Bousquet, Zoning Bd. Of Appeals,Chm., Town of Beacon Falls

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

May 29, 2013

The Honorable Gerard F. Smith
First Selectman
Town of Beacon Falls
10 Maple Avenue
Beacon Falls. CT 06403

RE: **EM-T-MOBILE-006-130528** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 60 Rice Lane, Beacon Falls, Connecticut.

Dear First Selectman Smith:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by June 12, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Melanie Bachman
Acting Executive Director

MB/jb

c: Douglas R. Bousquet, Zoning Bd. Of Appeals,Chm., Town of Beacon Falls

EM-T-MOBILE-006-130528

May 23, 2013

ORIGINAL

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

RE: Notice of Exempt Modification
60 Rice Lane
Beacon Falls, CT 06403
N 41° 27' 21"
W 73° 02' 22"

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 60 Rice Lane, Beacon Falls, CT.

The 60 Rice Lane facility consists of a 160' MONOPOLE Tower owned and operated by SBA Properties, 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 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) 614-0389 with any questions you may have concerning this matter.

Thank you,

Rick Woods
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbasite.com

T-Mobile

Equipment Modification

60 Rice Lane, Beacon Falls, CT
Site number CT11299D

Tower Owner: SBA Properties LLC

Equipment Configuration: Monopole Tower

Current and/or approved:

- (6) EMS FR90-16-04DP
- (3) RFS APX16DWV-16DWVS-E-A20
- (3) Ericsson DRY 112 144/1 TMAs
- (18) 1-5/8" Coax

Planned Modifications:

- (3) Ericsson AIR B2A/B4P
- (3) Ericsson AIR B4A/B4P
- (3) Ericsson KRY 112 144 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 .556% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 40.236% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.556%
AT&T	20.390%
Verizon Wireless	10.800%
Clearwire	0.770%
Sprint	5.500%
Beacon Hose Co.	2.220%
Total Site MPE %	40.236%

May 23, 2013

Gerard F. Smith, First Selectman
Town of Beacon Falls
10 Maple Ave
Beacon Falls, CT 06403

RE: Telecommunications Facility @ 60 Rice Lane, Beacon Falls, CT

Dear Mr. Smith,

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) 614-0389.

Thank you,

Rick Woods
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbasite.com

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11299D

Beacon Falls / Route 8
60 Rice Lane
Beacon Falls, CT 06403

May 21, 2013

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

EBI Consulting
environmental | engineering | due diligence

May 21, 2013

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

Re: Emissions Values for Site: **CT11299D - Beacon Falls / Route 8**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 60 Rice Lane, Beacon Falls, CT, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of 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 band 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 T-Mobile Wireless antenna facility located at 60 Rice Lane, Beacon Falls, 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 / 1980.000 MHz—to 1985.000 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 **142.9 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	CT11299D - Beacon Falls / Route 8
Site Addresss	60 Rice Lane, Beacon Falls, CT 06403
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	142.9	136.9	None	0	0	48.326044	0.927001	0.09270%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	142.9	136.9	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	142.9	136.9	1-5/8"	0	0	24.163022	0.463501	0.04635%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	142.9	136.9	1-5/8"	0	0	24.163022	0.463501	0.04635%
														Sector total Power Density Value:		0.185%	

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	142.9	136.9	None	0	0	48.326044	0.927001	0.09270%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	142.9	136.9	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	142.9	136.9	1-5/8"	0	0	24.163022	0.463501	0.04635%
28	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	142.9	136.9	1-5/8"	0	0	24.163022	0.463501	0.04635%
														Sector total Power Density Value:		0.185%	

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	142.9	136.9	None	0	0	48.326044	0.927001	0.09270%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	142.9	136.9	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	142.9	136.9	1-5/8"	0	0	24.163022	0.463501	0.04635%
28	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	142.9	136.9	1-5/8"	0	0	24.163022	0.463501	0.04635%
														Sector total Power Density Value:		0.185%	

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.556%
AT&T	20.390%
Verizon Wireless	10.800%
Clearwire	0.770%
Sprint	5.500%
Beacon Hose Co.	2.220%
Total Site MPE %	**40.236%**

EBI Consulting
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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 **0.556% (0.185% 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 **40.236%** 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 within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

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

Structural Analysis for SBA Network Services, Inc.

160' Monopole Tower

SBA Site Name: Beacon Falls
SBA Site ID: CT02049-S-02
T-Mobile Site ID: CT1299D

FDH Project Number 1327371400

Analysis Results

Tower Components	98.6 %	Sufficient
Foundation	74.6 %	Sufficient

Prepared By:

Joe W. Fulk, EI
Project Engineer

Reviewed By:

Christopher M Murphy, PE
President
CT PE License No. 25842

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

April 30, 2013

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

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 Beacon Falls, 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 the *2005 Connecticut Building Code (CBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, soil parameters, foundation dimensions, and member sizes was obtained from:

- Fred A. Nudd Corp. (Project No. 7342) original design drawings dated January 14, 2000
- SEA Consultants, Inc. (Ref. No. 99339.02-A) Geotechnical Investigation Report dated August 2, 1999
- O2 Wireless Solutions (Job No. 2230-022) Monopole Tower Rework Construction Drawings dated May 23, 2002
- FDH, Inc. (Job No. 09-04127T T1) Steel Data Monopole Tower Report dated May 5, 2009
- FDH Engineering, Inc. (Project No. 09-04232E S2) Extension & Modification As-Built Drawings for a 150' Monopole dated November 3, 2009
- FDH Engineering, Inc. (Project No. 09-04232E S2) Post-Construction Inspection Report dated December 28, 2009
- FDH, Inc. (Job No. 09-04127T T2) TIA Inspection Report dated December 29, 2009
- FDH Engineering, Inc. (Project No. 12-04772E S3) Modification Drawings for a 160' Monopole dated August 21, 2012
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CBC* is 85 mph without ice 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 142.9 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was constructed per the original design drawings (see Fred A. Nudd Project No. 7342) and utilizing the soil parameters provided (see SEA Ref. No. 99339.02-A), the foundation should have 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 the *2005 CBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax may be installed outside of the pole shaft in a single row.
2. The proposed TMAs should be installed directly behind the proposed panel antennas.
3. Modifications per FDH Engineering, Inc. (Project No. 12-04772E S3) Modification Drawings for a 160' Monopole dated August 21, 2012 must be installed for this analysis to be valid.

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[1]	Carrier	Mount Elevation (ft)	Mount Type
165	(1) Andrew DB222 Dipole	(1) 7/8"	BFFD	160	(1) Pipe Mount
162.2	(6) Decibel DB846F65ZAXY (6) Antel LPA-185063/8CF (3) Antel BXA-70063/4CF	(18) 1-5/8"	Verizon		(1) 14' Low Profile Platform
155	(3) Horizon Duo ODUs (3) Andrew VHLP2.5 Dishes	(3) 1/2"	Clearwire	148.3	(1) 14' Low Profile Platform
152	(3) RFS APXVSPP18-C-A20 (3) ALU 1900 MHz RRUs (3) ALU 800 MHz RRUs (3) ALU 800 MHz Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4"	Sprint		
143.8	(6) Powerwave LGP13907 TMAs	(18) 1-5/8"	T-Mobile	142.2	(1) 15' Low Profile Platform
142.9[2]	(6) EMS FR90-16-04DP (3) RFS APX16DWV-16DWVS-E-A20 (3) Ericsson KRY 112 144/1 TMAs				
135	(6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(6) 1-5/8" (6) 1-1/4" (2) WR-VG122ST-BRDA DC Cables	AT&T	135	(1) Collar Mount (Valmont P/N 801068/527286)
132.5[3]	(3) Kathrein 800-10121 (2) KMW AM-X-CD-16-6500T (1) Andrew SBNH-1D6565C (6) Powerwave LGP21901 Diplexers (6) Powerwave LGP21401 TMAs			132.5	(3) T-Arms (Andrew P/N MC-K12M-B)
115	(1) Andrew DB222 Dipole	(1) 7/8"	BFFD	110	(1) Standoff (Assumed CaAa = 0.98 ft²)
40	(1) GPS	(1) 1/2"	Sprint	39.5	(1) 4' Standoff

1. Coax located inside the pole's shaft unless otherwise noted.
2. T-Mobile currently has (6) 1-5/8" coax located outside of the pole's shaft in a single row.
3. The DC cables are installed inside a 3" flex conduit inside of the poles shaft.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
142.9[1]	(3) Ericsson AIR 21 B2A/B4P (3) Ericsson AIR 21 B4A/B4P (3) Ericsson KRY 112 144 TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	142.2	(1) 15' Low Profile Platform

1. T-Mobile will remove the (6) 1-5/8" existing coax installed outside of the pole's shaft, and install (1) 1-5/8" fiber cable outside the pole's shaft.

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Tower Extension Section	50 ksi
Tower Shaft Sections	45 ksi & 65 ksi
Flange Plates	50 ksi
Flange Bolts	F_u = 120 ksi
Base Plate	50 ksi
Anchor Bolts	F_u = 125 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. **Table 5** displays the maximum antenna 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
L1	160 - 150	Pole	TP16x16x0.25	39.7	Pass
---	150	Flange Bolts	(20) 0.5"Ø on 21" BC	62.0	Pass
---	150	Flange Plate	PL 0.75" thk. x 24"Ø	53.1	Pass
L3	150 - 145	Pole	TP24x24x0.25	24.1	Pass
---	145	Flange Bolts	(18) 0.5"Ø. on 27" BC	98.6	Pass
---	145	Flange Plate	PL 0.5" thk. x 30"Ø	70.9	Pass
L4	145 - 115	Pole	TP29.4x24x0.25	82.3	Pass
L5	115 - 95	Pole	TP33x29.4x0.3125	83.4	Pass
L6	95 - 80	Modified Pole	TP35.7x31.475x0.3125 w/ Flat Plate	82.9	Pass
L7	80 - 50	Modified Pole	TP41.1x35.7x0.375 w/ Flat Plate	89.5	Pass
L8	50 - 46	Modified Pole	TP47.22x38.91x0.375 w/ Flat Plate	88.4	Pass
	46 - 16	Modified Pole	TP47.22x38.91x0.375 w/ Flat Plate	89.4	Pass
L9	16 - 0	Modified Pole	TP50.1x45.2829x0.375 w/ Flat Plate	92.9	Pass
		Anchor Bolts	(18) 2"Ø on a 58"Ø BC w/ (3) 1.75"Ø on a 72"Ø BC	81.4	Pass
		Base Plate	PL 1.5" thk. x 63"Ø	69.0	Pass

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

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)**	Original Design *(TIA/EIA-222-F)*
Axial	45 k	---
Shear	36 k	25 k
Moment	3,903 k-ft	2,374 k-ft

*Foundation determined adequate per independent analysis.

Table 5 - Maximum Antenna Rotations at Service Wind Speeds

Centerline Elevation (ft)	Antenna	Tilt (deg)*	Twist (deg)*
155	(3) Andrew VHLP2.5 Dishes	2.7805	0.0072

*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

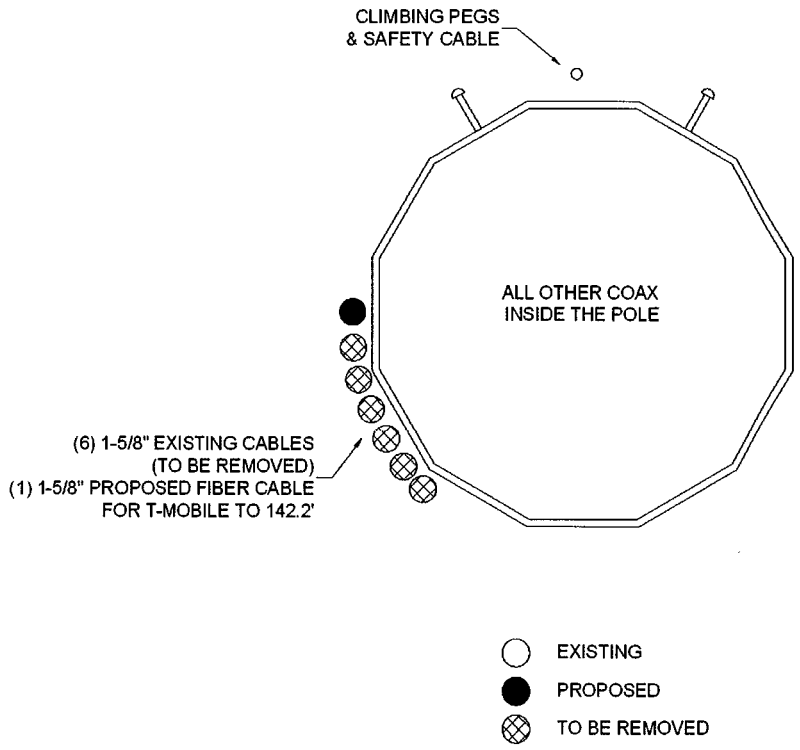
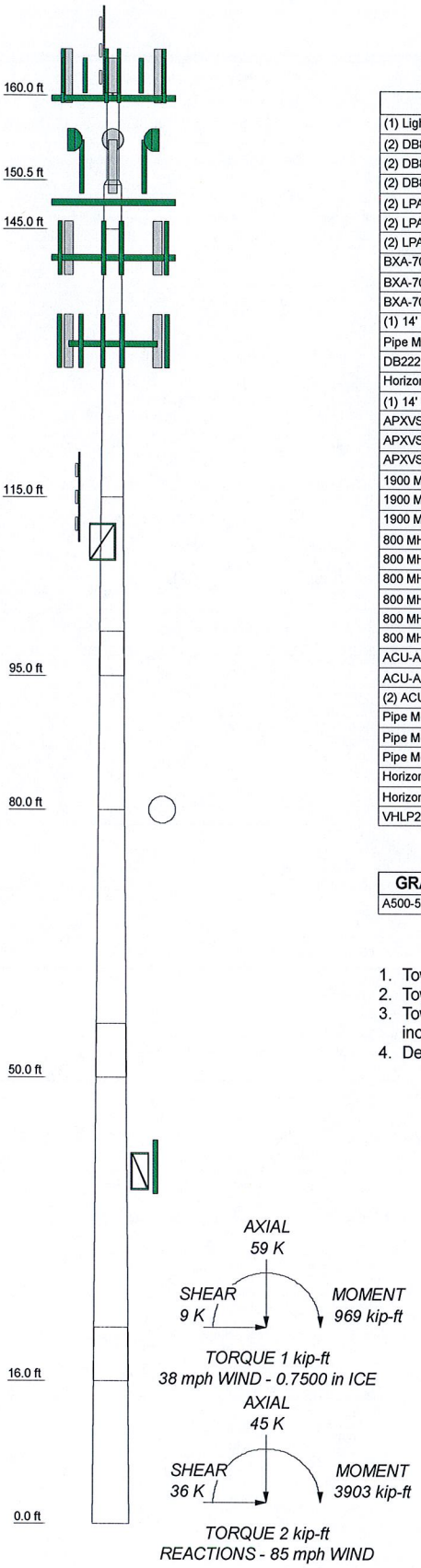


Figure 1 – Assumed Coax Layout

Section	1	2	3	4	5	6	7	8	9
Length (ft)	9.50	5.00	5.00	30.00	20.00	20.00	30.00	40.00	22.00
Number of Sides	1	12	12	12	12	12	12	12	12
Thickness (in)	0.2500	0.2500	0.2500	0.2500	0.3125	0.3125	0.3750	0.3750	0.3750
Socket Length (ft)				5.00			6.00	6.00	
Top Dia (in)	16.0000	16.0000	24.3760	24.3750	30.1382	32.3947	36.0831	39.7592	45.4906
Bot Dia (in)	16.0000	16.0000	24.3760	30.1382	33.9803	36.0831	41.6158	47.3844	50.3750
Grade	A500-50			A572-65					
Weight (K)	0.4	0.0	0.3	2.2	2.2	2.3	4.7	7.1	4.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(1) Lightning Rod	160	VHLP2.5	148.3
(2) DB846F65ZAXY w/ Mount Pipe	160	VHLP2.5	148.3
(2) DB846F65ZAXY w/ Mount Pipe	160	AIR 21 B4A/B2P w/Mount Pipe	142.2
(2) DB846F65ZAXY w/ Mount Pipe	160	KRY 112 144	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	KRY 112 144	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	KRY 112 144	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(1) 15' Low Profile Platform MNT	142.2
BXA-70063/4CF w/ Mount Pipe	160	AIR 21 B2A/B4P w/Mount Pipe	142.2
BXA-70063/4CF w/ Mount Pipe	160	AIR 21 B2A/B4P w/Mount Pipe	142.2
BXA-70063/4CF w/ Mount Pipe	160	AIR 21 B2A/B4P w/Mount Pipe	142.2
(1) 14' Low Profile Platform MNT	160	AIR 21 B4A/B2P w/Mount Pipe	142.2
Pipe Mount	160	AIR 21 B4A/B2P w/Mount Pipe	142.2
DB222	160	(2) RRUS-11	135
Horizon Duo ODU	148.3	(2) RRUS-11	135
(1) 14' Low Profile Platform MNT	148.3	(2) RRUS-11	135
APXVSPP18-C-A20 w/Mount Pipe	148.3	DC6-48-60-18-8F Surge Arrestor	135
APXVSPP18-C-A20 w/Mount Pipe	148.3	(1) Collar Mount MNT	135
APXVSPP18-C-A20 w/Mount Pipe	148.3	(2) LGP21401 TMA	132.5
1900 MHz RRU	148.3	(2) LGP21401 TMA	132.5
1900 MHz RRU	148.3	(2) LGP21401 TMA	132.5
1900 MHz RRU	148.3	(2) LGP21901 Diplexer	132.5
800 MHz RRU	148.3	(2) LGP21901 Diplexer	132.5
800 MHz RRU	148.3	(2) LGP21901 Diplexer	132.5
800 MHz RRU	148.3	(3) T-Arms (Andrew MC-K12M-B)	132.5
800 MHz Filter	148.3	SBNH-1D6565C w/ Mount Pipe	132.5
800 MHz Filter	148.3	800 10121 w/ Mount Pipe	132.5
800 MHz Filter	148.3	800 10121 w/ Mount Pipe	132.5
ACU-A20-N RET	148.3	800 10121 w/ Mount Pipe	132.5
ACU-A20-N RET	148.3	AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
(2) ACU-A20-N RET	148.3		
Pipe Mount	148.3	AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
Pipe Mount	148.3		
Pipe Mount	148.3	(1) Standoff MNT	110
Horizon Duo ODU	148.3	DB222	110
Horizon Duo ODU	148.3	(1) 4' Standoff MNT	39.5
VHLP2.5	148.3	GPS	39.5

MATERIAL STRENGTH

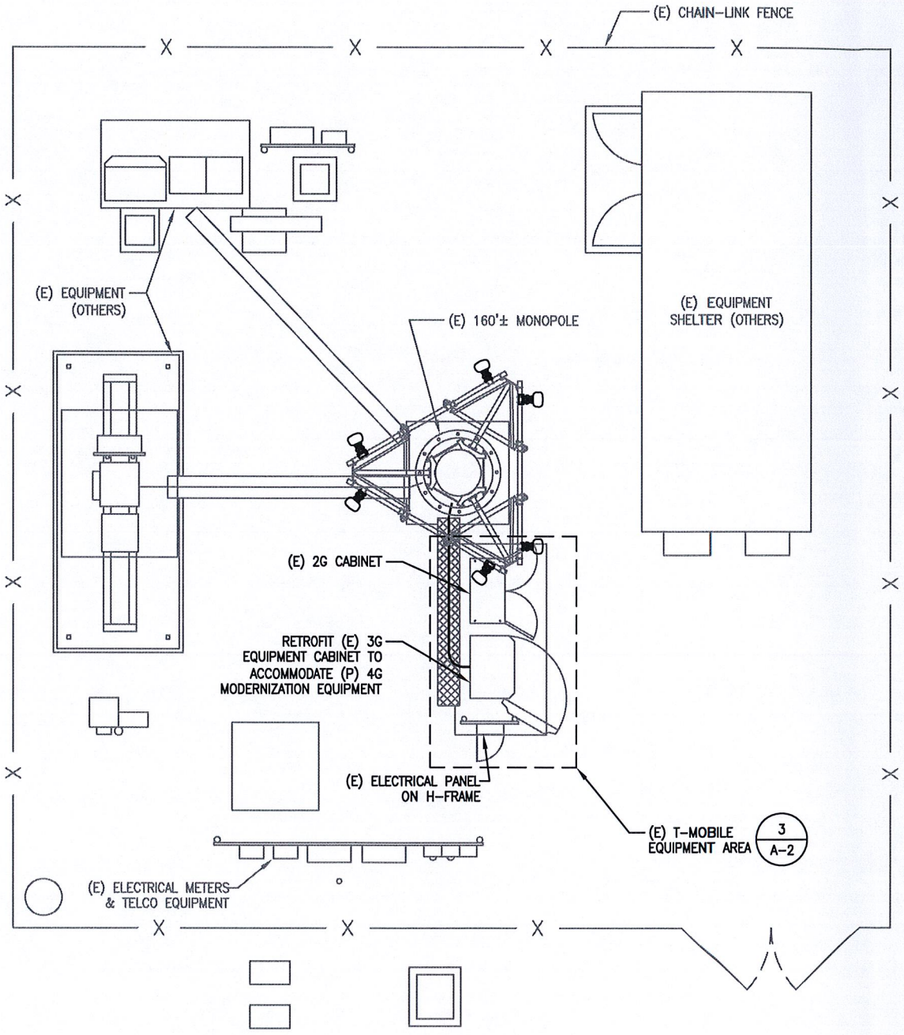
GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 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.

FDH Engineering, Inc.
6521 Meridian Drive
Raleigh, NC 27616
Phone: 919-755-1012
FAX: 919-755-1031
Tower Analysis

Job: Beacon Falls, CT02049-S-02			
Project: 1327371400			
Client: SBA Network Services, Inc.	Drawn by: Joe Fulk	App'd:	
Code: TIA/EIA-222-F	Date: 04/30/13	Scale: NTS	
Path:		Dwg No. E-1	

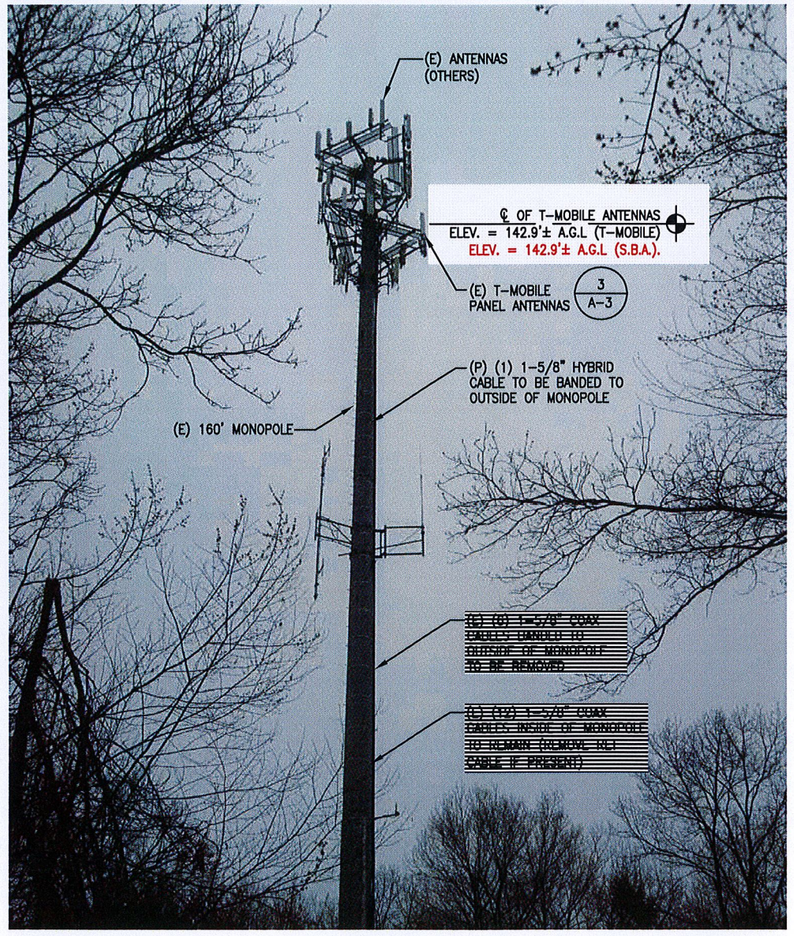


1 A-1 **COMPOUND PLAN**

SCALE: 1"=10'-0"

0' 5' 10' 20'

NOTE:
ABOVE GROUND LEVEL ELEVATIONS WERE PROVIDED BY CLIENT



NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

2 A-1 **ELEVATION**

SCALE: N.T.S.

STATE OF CONNECTICUT
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LICENSED
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33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752
PHONE: 508-366-5505

SITE NUMBER: CT11299D
SITE NAME: BEACON FALLS / RT. 8

60 RICE LANE
BEACON FALLS, CT 06403
HARTFORD COUNTY

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

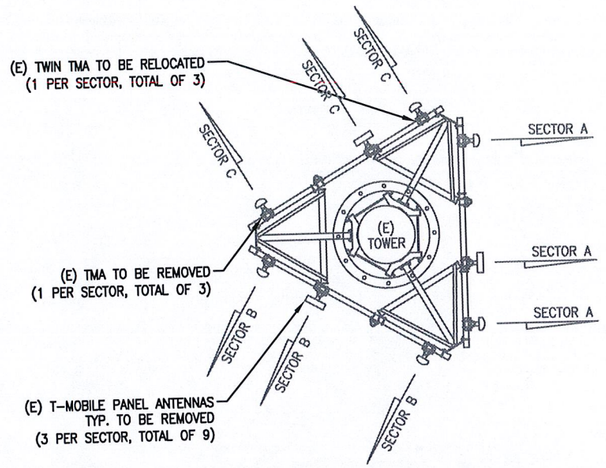
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/06/13	CONSTRUCTION FINAL	BDJ	MRC	MRC
0	04/22/13	CONSTRUCTION	MER	MRC	MRC

SCALE: AS SHOWN | DESIGNED BY: MRC | DRAWN BY: MER

T-MOBILE

COMPOUND & ELEVATION

JOB NUMBER	DRAWING NUMBER	REV
CT11299D	A-1	1



1 / A-2 **EXISTING ANTENNA PLAN**

SCALE: 1/8"=1'-0"

0' 4'-0" 8'-0"

EXISTING ANTENNA SCHEDULE

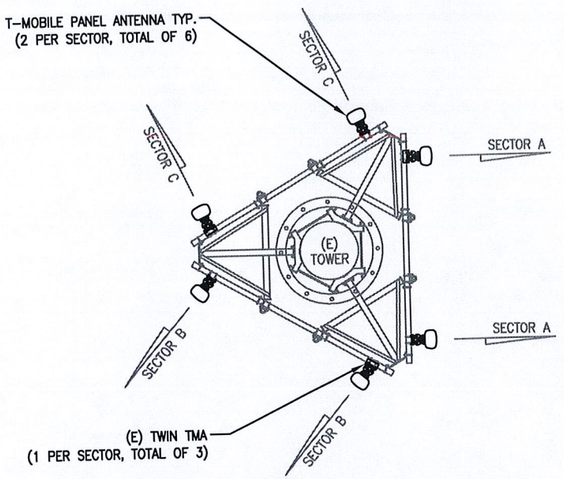
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	EMS	FR90-16-02P	8.0x2.8x56.0
	RFS	APX16DWV-16DWVS	13x3.15x55.9
	EMS	FR90-16-02P	8.0x2.8x56.0
SECTOR B:	ANDREW	RR90-17-02DP	8.0x2.8x56.0
	RFS	APX16DWV-16DWVS	13x3.15x55.9
	EMS	FR90-16-02P	8.0x2.8x56.0
SECTOR C:	ANDREW	RR90-17-02DP	8.0x2.8x56.0
	RFS	APX16DWV-16DWVS	13x3.15x55.9
	EMS	FR90-16-02P	8.0x2.8x56.0

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B2A/B4P	12x8x56
SECTOR B:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B2A/B4P	12x8x56
SECTOR C:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B2A/B4P	12x8x56

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

3 / A-3 (P) T-MOBILE PANEL ANTENNA TYP.
(2 PER SECTOR, TOTAL OF 6)



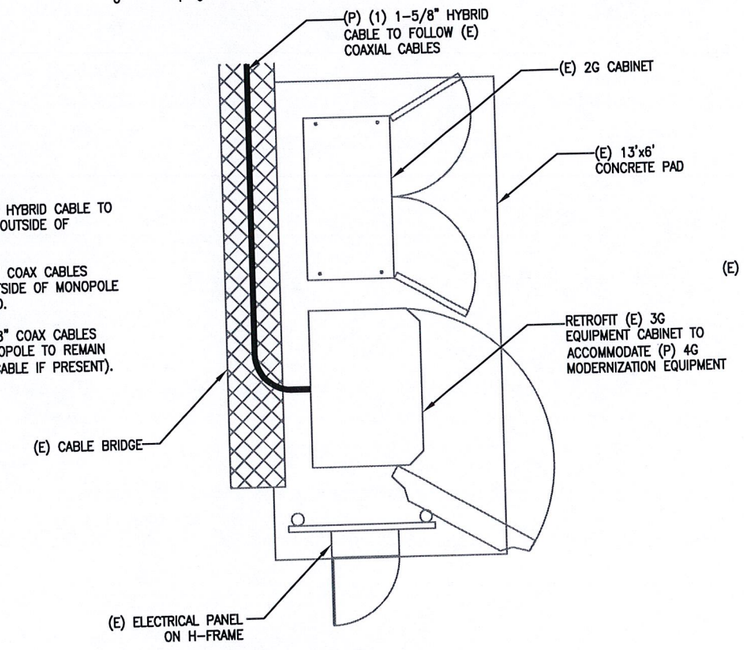
2 / A-2 **PROPOSED ANTENNA PLAN**

SCALE: 1/8"=1'-0"

0' 4'-0" 8'-0"

CABLE NOTES:

1. (P) (1) 1-5/8" HYBRID CABLE TO BE BANDED TO OUTSIDE OF MONOPOLE.
2. (E) (6) 1-5/8" COAX CABLES BANDED TO OUTSIDE OF MONOPOLE TO BE REMOVED.
3. (E) (12) 1-5/8" COAX CABLES INSIDE OF MONOPOLE TO REMAIN (REMOVE RET CABLE IF PRESENT).



3 / A-2 **PROPOSED EQUIPMENT PLAN**

SCALE: 1/4"=1'-0"

0' 2'-0" 4'-0" 8'-0"

4 / A-2 **EXISTING EQUIPMENT AREA**

SCALE: N.T.S.

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0	04/22/13	CONSTRUCTION	MER	MRC	MRC

SCALE: AS SHOWN | DESIGNED BY: MRC | DRAWN BY: MER

T-MOBILE

PLANS AND ANTENNA SCHEDULES

JOB NUMBER	DRAWING NUMBER	REV
CT11299D	A-2	1