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

September 14, 2012

Jennifer Young Gaudet
HPC Wireless Services
46 Mill Plain Road, Floor 2
Danbury, CT 06811

RE: **EM-CING-006-120827** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 60 Rice Lane, Beacon Falls, Connecticut.

Dear Ms. Gaudet:

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 line shall be installed, the monopole shaft shall be reinforced, and the tower anchor bolts shall be reinforced in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated July 16, 2012 , and stamped by Christopher Murphy; and
- Prior to antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended modifications have been completed and the tower and foundation will not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed modification as specified in this notice and supporting materials with 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;
- Not less than 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 August 24, 2012. 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,

Linda Roberts
Executive Director

LR/CDM/cm

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
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www.ct.gov/csc

August 28, 2012

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

RE: **EM-CING-006-120827** – New Cingular Wireless PCS, 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 this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by September 11, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/cm

Enclosure: Notice of Intent

c: Brian Herb, Zoning Enforcement Officer, Town of Beacon Falls

CSC
CONNECTICUT SITING COUNCIL

EM-CING-006-120827

HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT, 06811
P.: 203.797.1112

HPC WIRELESS SERVICES

August 24, 2012

RECEIVED
AUG 27 2012
CONNECTICUT
SITING COUNCIL

VIA OVERNIGHT COURIER

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Linda Roberts, Executive Director

Re: New Cingular Wireless PCS, LLC – Exempt Modification
60 Rice Lane, Beacon Falls, Connecticut

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of New Cingular Wireless PCS, LLC ("AT&T"). AT&T is making modifications to certain existing sites in its Connecticut system in order to implement LTE technology. Please accept this letter and attachments as notification, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies ("R.S.C.A."), of construction that 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 First Selectman of the Town of Beacon Falls.

AT&T plans to modify the existing wireless communications facility owned by SBA and located at 60 Rice Lane, Beacon Falls, (coordinates 41°-27'-20.6" N, 72°-02'-23.2" W). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration, subject to modifications detailed in the attached structural documentation. Also included is a power density report reflecting the modification to AT&T's operations at the site.

The changes to the facility do not constitute a modification 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. 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. AT&T will install new T-arm mounts, relocate three (3) existing UMTS/GSM antennas to the T-arms, and add three (3) LTE panel antennas, all at a center line of approximately 132.5'. Six (6) RRUS (remote radio units) and one (1) surge arrestor will be mounted to the pole above the T-arm level. AT&T will also place a DC power and

fiber run from the equipment to the antennas along the existing coaxial cable run. These changes will not extend the height of the approximately 160' structure.

2. AT&T will remove and replace one (1) cabinet on the existing concrete pad and will add one (1) cabinet on a proposed 3' x 3' concrete pad adjacent to the existing pad. AT&T will also mount a new GPS antenna to the existing ice bridge. These changes will be within the existing compound and will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six (6) decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility 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. As indicated on the attached report prepared by C Squared Systems, LLC, AT&T's operations at the site will result in a power density of approximately 2.04%; the combined site operations will result in a total power density of approximately 28.25%.

Please feel free to contact me by phone at (860) 798-7454 or by e-mail at jgaudet@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

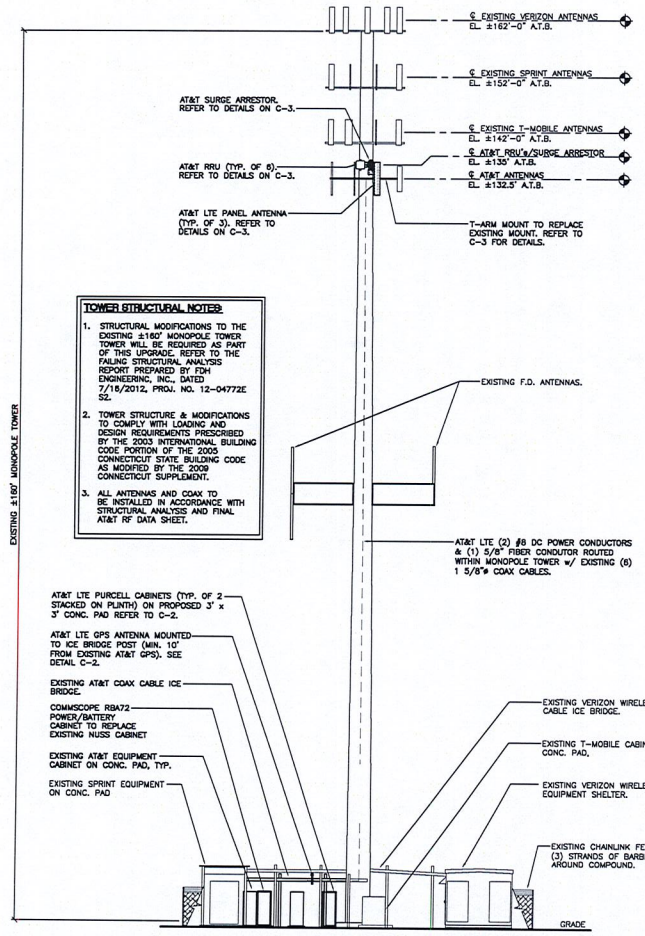
Respectfully yours,

Jennifer Young Gaudet

Jennifer Young Gaudet

Attachments

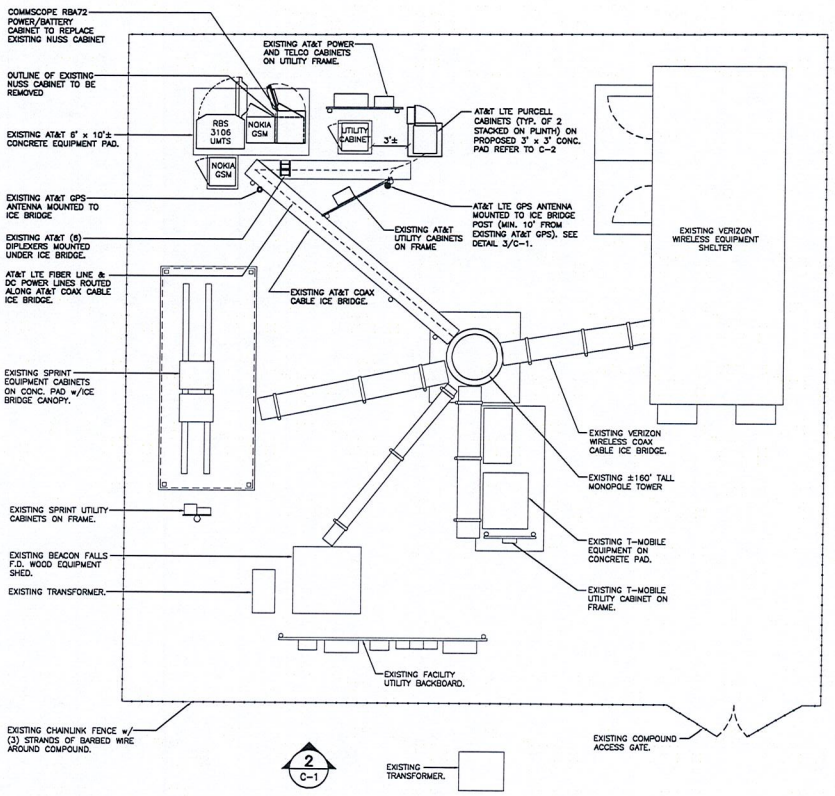
cc: Honorable Gerald F. Smith, First Selectman, Town of Beacon Falls
Charles Edwards (underlying property owner)



TOWER STRUCTURAL NOTES

1. STRUCTURAL MODIFICATIONS TO THE EXISTING ±160' MONOPOLE TOWER TOWER WILL BE REQUIRED AS PART OF THIS UPGRADE. REFER TO THE FAILING STRUCTURAL ANALYSIS REPORT PREPARED BY FDH ENGINEERING, INC., DATED 7/18/2012, PROJ. NO. 12-04772E S2.
2. TOWER STRUCTURE & MODIFICATIONS TO COMPLY WITH LOADING AND DESIGN REQUIREMENTS PRESCRIBED BY THE 2003 INTERNATIONAL BUILDING CODE PORTION OF THE 2005 CONNECTICUT STATE BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.
3. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS AND FINAL AT&T RF DATA SHEET.

2 / C-1 **WEST ELEVATION**
SCALE: 1" = 10'-0"



1 / C-1 **COMPOUND PLAN**
SCALE: 1" = 5'-0"

APPROX. NORTH

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.

DESIGNED BY:	DEB
DRAWN BY:	FLD
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY	
3	8/23/12	DEB	CFC	REVD ANTENNA ELEVATION - CONSTRUCTION
2	7/31/12	DEB	CFC	REVD ELEVATION & NOTATION - CONSTRUCTION
1	7/2/12	FLD	DEB	CONSTRUCTION - CLIENT REVIEW
0	3/22/12	FLD	DEB	

PROFESSIONAL ENGINEER SEAL

at&t

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
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Branford, CT 06405
www.CentekEng.com

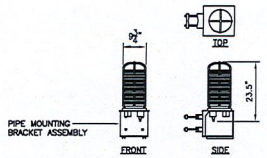
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE
CT5416
BEACON FALLS NE
69 RICE LANE
BEACON FALLS, CT 06403

DATE:	07/02/12
SCALE:	AS NOTED
JOB NO.	11118.C054

COMPOUND PLAN AND ELEVATION

C-1

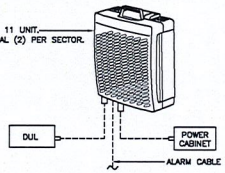
Sheet No. 1 of 7



SURGE ARRESTOR				
SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
TOWER	MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-18-8F	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUs.	20 LBS. (WITHOUT MOUNT)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

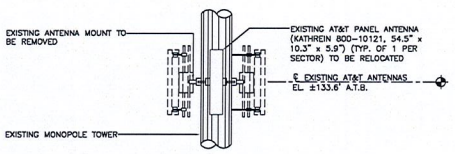
8 / C-3 SURGE ARRESTOR DETAIL
NOT TO SCALE



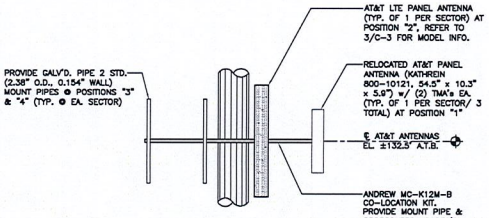
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 11	17.6"L x 17.3"W x 7.2"D	BAND 4: 44 LBS. BAND 12: 50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. SIDE: 0" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

9 / C-3 RRU DETAIL
NOT TO SCALE

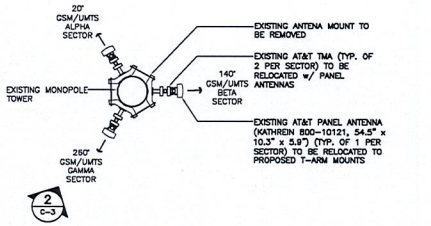


2 / C-3 EXISTING ANTENNA SECTOR ELEVATION
SCALE: 1/4" = 1'-0"

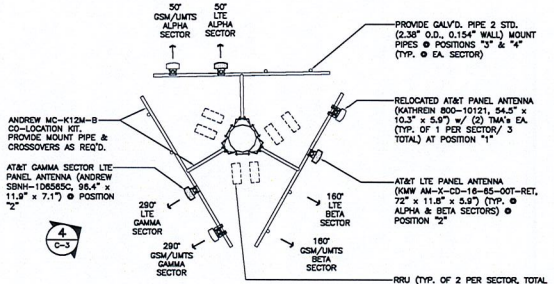


NOTE:
RRU & SURGE ARRESTOR MOUNT NOT SHOWN FOR CLARITY. REFER TO SEPARATE DETAILS THIS DRAWING.

4 / C-3 PROPOSED ANTENNA SECTOR ELEVATION
SCALE: 1/4" = 1'-0"

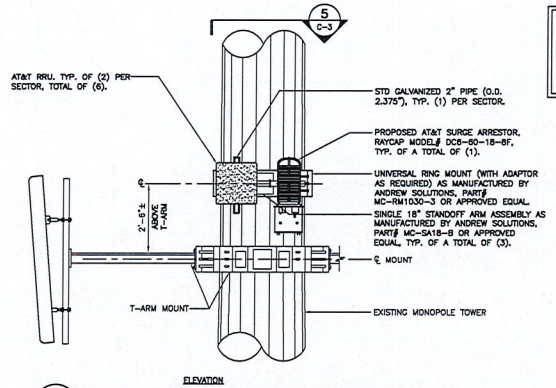


1 / C-3 EXISTING ANTENNA PLAN
SCALE: 1/4" = 1'-0"
APPROX. NORTH

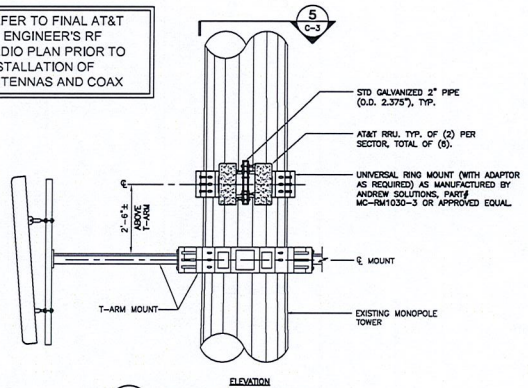


3 / C-3 PROPOSED ANTENNA PLAN
SCALE: 1/4" = 1'-0"
APPROX. NORTH

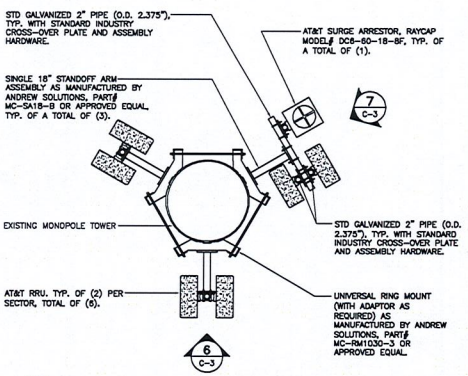
REFER TO FINAL AT&T RF ENGINEER'S RF RADIO PLAN PRIOR TO INSTALLATION OF ANTENNAS AND COAX



7 / C-3 RRU AND SURGE ARRESTOR MOUNTING DETAIL
SCALE: 1/2" = 1'- 0"



6 / C-3 RRU MOUNTING DETAIL
SCALE: 1/2" = 1'- 0"



5 / C-3 RRU AND SURGE ARRESTOR MOUNTING PLAN
SCALE: 1/2" = 1'- 0"

DESIGNED BY:	DEB
DRAWN BY:	FLD
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY
3	8/31/12	DEB	CFC
2	8/17/12	FLD	DEB
1	7/9/12	MAR	DEB
0	3/22/12	FLD	DEB

REV.0 ANTENNA ELEVATION + CONSTRUCTION
REV.1 CLOSET & NOTARIZE + CONSTRUCTION
CONSTRUCTION
CONSTRUCTION – CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

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AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY LTE UPGRADE
CT5416
BEACON FALLS NE
60 RICE LANE
BEACON FALLS, CT 06403

DATE:	07/02/12
SCALE:	AS NOTED
JOB NO.	11118.C054

LTE EQUIPMENT DETAILS

C-3

Sheet No. 3 of 7

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
AT&T Site ID: CT5416
AT&T Site Name: AWE-Beacon Falls NE

FDH Project Number 12-04772E S2

Analysis Results

Tower Components	**134.1 %**	**Insufficient**
Foundation	77.1 %	Sufficient

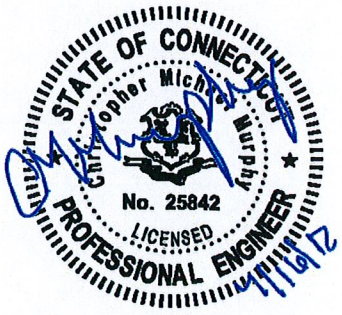
Prepared By:

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



July 16, 2012

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures & 2005 Connecticut 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 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
- 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 AT&T in place at 132.5 ft and 135 ft, the tower does not meet the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC*. However, 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. Proposed coax must be installed inside the monopole shaft.
2. Reinforcement of the monopole shaft is required to support the existing and proposed loading. See the **Results** section of this analysis for overstressed locations.
3. Reinforcement of the tower anchor bolts is required to support the existing and proposed loading.

We would anticipate the construction cost for a turnkey design/build modification project of this nature to range in price from approximately $65,000 to $75,000 (which should include the engineering design fees, inspection fees, and construction fees).

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
162.2	(6) Decibel DB846F65ZAXY (6) Antel LPA-185063/8CF (3) Antel BXA-70063/4CF	(18) 1-5/8"	Verizon	160	(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				
133.6	(3) Allgon 7770.00 (9) EMS RR90-17-02DP (6) Powerwave LGP21401 TMAs	(6) 1-5/8" (6) 1-1/4"	AT&T	133.2	(1) 14' Low Profile Platform
94.5	(1) Celwave PD1142-1 Omni	(1) 1/2"	Fire Dept.	86.2	(1) 6' Standoff
94.7	(1) 24" x 6" Trombone	(1) 5/8"			(1) 6' Standoff
78.8	(1) 24" x 6" Trombone (Inverted)	(1) 5/8"			
40	(1) GPS	(1) 1/2"	Sprint	39.5	(1) 4' Standoff

1. Coax located inside monopole shaft unless otherwise noted.
2. (6) 1-5/8" coax located on outside of monopole shaft in a single row.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
135	(6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(6) 1-5/8" (6) 1-1/4" (1) Rosenberger 10mm Fiber Trunk (2) WR-VG122ST-BRDA DC Cables	AT&T	135	(1) Collar Mount
132.5	(6) Kathrein 800-10121 (5) KMW AM-X-CD-16-6500T (1) Andrew SBNH-1D6565C (6) Powerwave LGP21901 Diplexers (6) Powerwave LGP21401 TMAs			132.5	(3) Andrew MC-K12M-B T-Arms

1. The proposed fiber and DC cables are to be installed inside a 3" conduit inside of the poles 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.

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	35.7	Pass
---	150	Flange Bolts	(20) 0.5" dia. on 21" BC	61.2	Pass
---	150	Interior Flange Plate	PL 0.75" thk. x 24" dia.	52.4	Pass
---	150	Exterior Flange Plate	PL 1.25" thk. x 26" dia.	27.3	Pass
L3	150 - 145	Pole	TP24x24x0.25	35.7	Pass
---	145	Flange Bolts	(18) 0.5" dia. on 27" BC	99.0	Pass
---	145	Flange Plates	PL 0.5" thk. x 30" dia.	71.5	Pass
L4	145 - 115	Pole	TP29.4x24x0.25	**130.7**	**Fail**
L5	115 - 95	Pole	TP33x29.4x0.3125	**134.1**	**Fail**
L6	95 - 80	Pole	TP35.7x31.475x0.3125	**112.7**	**Fail**
L7	80 - 50	Pole	TP41.1x35.7x0.375	**107.8**	**Fail**
L8	50 - 48	Pole	TP47.22x38.91x0.375	**115.8**	**Fail**
	48 - 16	Modified Pole**	TP47.22x38.91x0.375	90.5	Pass
L9	16 - 0	Modified Pole**	TP50.1x45.2829x0.375	96.4	Pass
	0	Anchor Bolts	(18) 2"Ø on 58"Ø BC	**105.3**	**Fail**
	0	Base Plate	PL 1.5" thk. x 63"Ø	88.5	Pass

*Capacities include 1/3 allowable wind increase.
** Existing modifications considered for pole strength.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)**	Original Design *(TIA/EIA-222-F)*
Axial	43 k	---
Shear	36 k	25 k
Moment	4,009 k-ft	2,374 k-ft

*Foundation determined adequate per independent analysis.

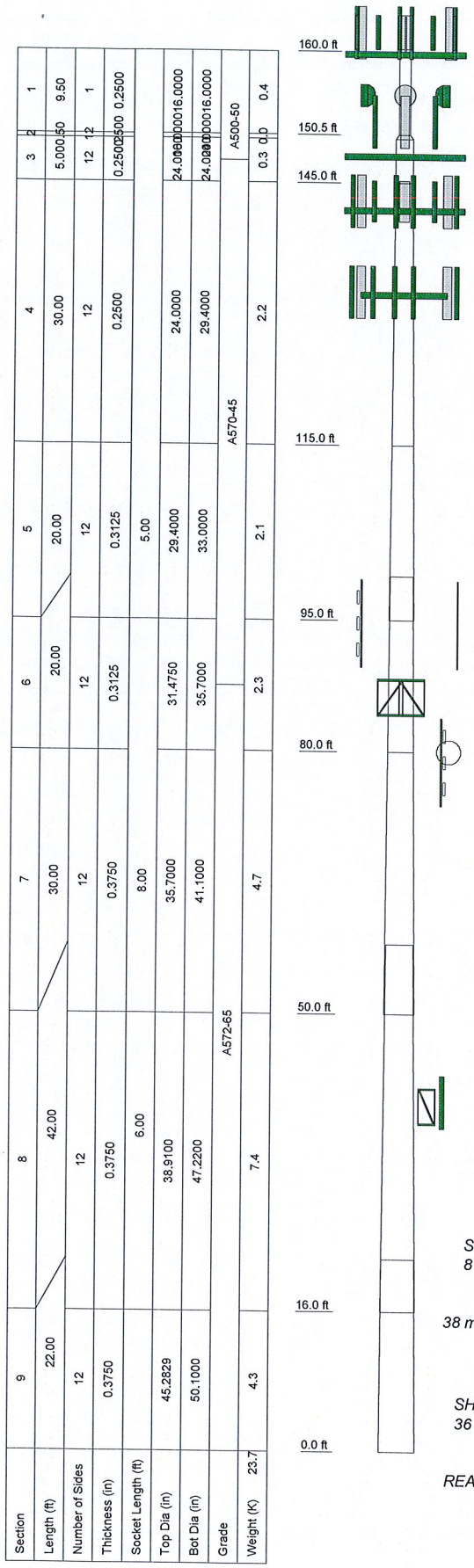
GENERAL COMMENTS

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

LIMITATIONS

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

APPENDIX



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(1) Lightning Rod	160	APX16DWV-16DWVS-E-A20 W/Mount Pipe	142.2
(2) DB846F65ZAXY w/Mount Pipe	160	KRY 112 144/1	142.2
(2) DB846F65ZAXY w/Mount Pipe	160	KRY 112 144/1	142.2
(2) DB846F65ZAXY w/Mount Pipe	160	KRY 112 144/1	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(2) LGP13907 TMA	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(2) LGP13907 TMA	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(2) LGP13907 TMA	142.2
BXA-70063/4CF w/ Mount Pipe	160	(1) Low Profile Platform MNT	142.2
BXA-70063/4CF w/ Mount Pipe	160	(2) RRUS-11	135
BXA-70063/4CF w/ Mount Pipe	160	(2) RRUS-11	135
(1) 14' Low Profile Platform MNT	160	(2) RRUS-11	135
Horizon Duo ODU	148.3	DC6-48-60-18-8F Surge Arrestor	135
Horizon Duo ODU	148.3	(1) Collar Mount MNT	135
Horizon Duo ODU	148.3	SBNH-1D6565C w/ Mount Pipe	132.5
Pipe Mount	148.3	(2) LGP21401 TMA	132.5
Pipe Mount	148.3	(2) LGP21401 TMA	132.5
Pipe Mount	148.3	(2) LGP21401 TMA	132.5
(1) 14' Low Profile Platform MNT	148.3	(2) LGP21901 Diplexer	132.5
APXVSPP18-C-A20 w/Mount Pipe	148.3	(2) LGP21901 Diplexer	132.5
APXVSPP18-C-A20 w/Mount Pipe	148.3	(2) LGP21901 Diplexer	132.5
APXVSPP18-C-A20 w/Mount Pipe	148.3	(3) T-Arms (Andrew MC-K12M-B)	132.5
1900 MHz RRU	148.3	(2) 800 10121 w/ Mount Pipe	132.5
1900 MHz RRU	148.3	(2) 800 10121 w/ Mount Pipe	132.5
1900 MHz RRU	148.3	(2) 800 10121 w/ Mount Pipe	132.5
800 MHz RRU	148.3	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
800 MHz RRU	148.3	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
800 MHz RRU	148.3	AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
800 MHz Filter	148.3	24" x 6" Trombone	86.2
800 MHz Filter	148.3	10' Pipe Mount	86.2
800 MHz Filter	148.3	10' Pipe Mount	86.2
ACU-A20-N RET	148.3	24" x 6" Trombone	86.2
ACU-A20-N RET	148.3	(1) 6' Standoff MNT	86.2
(2) ACU-A20-N RET	148.3	(1) 6' Standoff MNT	86.2
VHLP2.5	148.3	PD1142-1	86.2
VHLP2.5	148.3	GPS	39.5
VHLP2.5	148.3	(1) 4' Standoff MNT	39.5
(2) FR90-16-04DP w/Mount Pipe	142.2		
(2) FR90-16-04DP w/Mount Pipe	142.2		
(2) FR90-16-04DP w/Mount Pipe	142.2		
APX16DWV-16DWVS-E-A20 W/Mount Pipe	142.2		
APX16DWV-16DWVS-E-A20 W/Mount Pipe	142.2		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A572-65	65 ksi	80 ksi
A570-45	45 ksi	60 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.
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Raleigh, NC 27616
Phone: 919-755-1012
FAX: 919-755-1031
Tower Analysis

Job: Beacon Falls, CT02049-S		
Project: 12-04772E S2		
Client: SBA	Drawn by: Joe Fulk	App'd:
Code: TIA/EIA-222-F	Date: 07/16/12	Scale: NTS
Path: \\fdh-server\Projects\2012 Projects\14 - April\12-04772E\Beacon Falls, CT\S2 - SA_ATT\Analysis\Beacon Falls, CT02049-S.eri		Dwg No. E-1

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED BY FDH ENGINEERING, INC., PROJECT NO. 12-04772E S2 DATED JULY 16, 2012.

THIS REPORT WAS BASED ON A SPECIFIC ANTENNA AND COAX CONFIGURATION PROVIDED BY THE TOWER OWNER. ANY CHANGE TO THIS INFORMATION MUST BE REVIEWED BY FDH ENGINEERING, INC.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

PROJECT DESCRIPTION:

MODIFICATION DRAWINGS FOR A 160' MONOPOLE

SBA

SITE NAME:

BEACON FALLS

SITE NUMBER:

CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

COORDINATES:
LATITUDE: 41.4557°
LONGITUDE: -73.0399°

SHEET INDEX	
SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
N-1	POST CONSTRUCTION INSPECTION NOTES
N-2	GENERAL NOTES
S-1	MODIFICATION SCHEDULE
S-2	FLAT PLATE REINFORCEMENT DETAILS
S-3	FLAT PLATE DETAILS
S-4	ANCHOR ROD INSTALLATION DETAILS I
S-5	ANCHOR ROD INSTALLATION DETAILS II

PREPARED BY:
FDH ENGINEERING INNOVATION
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RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031

PREPARED FOR:
SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	OP
CHECKED BY:	SMN
ENG APPV'D:	CMM
PROJECT NO:	12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
06/21/12	PRELIMINARY/REVIEW	A

SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

PCI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
PRE-CONSTRUCTION	
X	PCI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
N/A	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	PCI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PCI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PCI REPORT

POST CONSTRUCTION INSPECTION NOTES:

GENERAL

1. THE POST CONSTRUCTION INSPECTION (PCI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).
2. THE PCI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE PCI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
3. ALL PCI'S SHALL BE CONDUCTED BY A PCI INSPECTOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR FDH ENGINEERING, INC.
4. TO ENSURE THAT THE REQUIREMENTS OF THE PCI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE PCI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR FDH POINT OF CONTACT (POC).
5. REFER TO CCR-01 : CONTRACTOR CLOSEOUT REQUIREMENTS FOR FURTHER DETAILS AND REQUIREMENTS.

PCI INSPECTOR

1. THE PCI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE PCI TO, AT A MINIMUM:
   - REVIEW THE REQUIREMENTS OF THE PCI CHECKLIST
   - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
2. THE PCI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE PCI REPORT TO FDH.

CORRECTION OF FAILING PCI'S

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE PCI ("FAILED PCI"), THE GC SHALL WORK WITH FDH TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
   - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT PCI.
   - OR, WITH FDH'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

REQUIRED PHOTOS

1. BETWEEN THE GC AND THE PCI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE PCI REPORT:
   - PRE-CONSTRUCTION GENERAL SITE CONDITION
   - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
     - RAW MATERIALS
     - PHOTOS OF ALL CRITICAL DETAILS
     - FOUNDATION MODIFICATIONS
     - WELD PREPARATION
     - BOLT INSTALLATION AND TORQUE
     - FINAL INSTALLED CONDITION
     - SURFACE COATING REPAIR
   - POST CONSTRUCTION PHOTOGRAPHS
     - FINAL INFIELD CONDITION
2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

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CONNECTICUT LIC. NO. 25842

DRAWN BY:	OP
CHECKED BY:	SMN
ENG APPV'D:	CMM
PROJECT NO:	12-04772E S3

SUBMITTALS

DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
POST CONSTRUCTION INSPECTION NOTES

SHEET NUMBER
N-1

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO FDH ENGINEERING FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH ENGINEERING PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH ENGINEERING APPROVAL.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.

CONTRACTOR QUALIFICATION NOTES:

1. ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE TIA/EIA 222-F "STRUCTURAL STANDARD FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH ENGINEERING, INC. IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH ENGINEERING, INC. 6521 MERIDIEN DRIVE, RALEIGH NC, 27616, TEL (919) 755-1012, FAX (919) 755-1031, E-MAIL INFO@FDH-INC.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH ENGINEERING, INC. WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH ENGINEERING, INC.

JOB SITE SAFETY & NOTES:

1. NEITHER THE PROFESSIONAL ACTIVITIES OF FDH ENGINEERING, INC. NOR THE PRESENCE OF FDH ENGINEERING, INC. OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

SUBSTITUTES AND/OR EQUALS:

1. IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE WRITTEN APPLICATION TO ENGINEER OF RECORD FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL PERFORM ADEQUATELY THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN, BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER OF RECORD IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER OF RECORD MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.

   *ALL PLATE STEEL SHALL BE ASTM A572-65 (Fy=65KSI) UNLESS OTHERWISE SPECIFIED.

   *ALL PIPE STEEL SHALL BE ASTM A500 GR. B (Fy=42KSI) UNLESS OTHERWISE SPECIFIED.

   *ALL THREADED ROD SHALL BE WILLIAMS ALL-THREAD BAR ASTM A722 (Fu=150 KSI) UNLESS OTHERWISE SPECIFIED.
2. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-80XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS OTHERWISE NOTED).
3. ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1, UNLESS OTHERWISE SPECIFIED. WHEN "X" TYPE BOLTS ARE USED, CONTRACTOR MAY BE REQUIRED TO STACK ADDITIONAL WASHERS TO OBTAIN PROPER SNUG TIGHT INSTALLATION. ALL NUTS SHALL BE HEAVY HEX UNLESS OTHERWISE NOTED.
4. ALL STEEL AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH MULTIPLE COATS OF ZRC COLD GALVANIZING COMPOUND ACHEVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. CONTRACTOR IS REQUIRED TO PROVIDE FDH ENGINEERING, INC. WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
6. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

1. ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
2. CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

SURFACE PREPARATION:

1. PREPARE SURFACE TO BE WELDED BY REMOVING PAINT OR GALVANIZATION TO BARE METAL USING POWER WIRE BRUSHING IN ACCORDANCE WITH SSPC-SP11, (STEEL STRUCTURES PAINTING COUNCIL). FOLLOWING POWER WIRE BRUSHING CONTRACTOR SHALL POLISH METAL SURFACE WITH HIGH SPEED GRINDER WITH 400+ GRIT SANDPAPER.
2. AFTER NEW STEEL INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF ZRC OR ZINGA COLD GALVANIZATION COMPOUND PER MANUFACTURER'S SPECIFICATIONS.

WELDING NOTES:

1. ALL WELDING TO THE EXISTING TOWER SHALL BE PERFORMED BY CERTIFIED WELDERS UTILIZING PROCEDURES QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND AWS C5.4.
2. CONTRACTOR SHALL COMPLY WITH AWS D1.1 FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". CONTRACTOR SHALL SUBMIT CERTIFICATION OF WELDERS TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
3. CONTRACTOR RESPONSIBLE FOR TEMPORARY HEAT SHIELDING AS REQUIRED DURING WELDING.
4. CONTRACTOR RESPONSIBLE FOR VIEWING EXISTING TOWER FOR LOOSE AND FLAMMABLE MATERIAL PRIOR TO WELDING FLAT PLATE.
5. ALL WELDS TO BE VISUALLY INSPECTED BY A CERTIFIED WELD INSPECTOR PER AWS D1.1.

EPOXY/HILTI NOTES:

1. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. ALL HARDWARE ASSEMBLY AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED; ANY CONTRADICTION BETWEEN THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS ARE TO BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER AND OWNER.
3. ANY CONTRACTOR INSTALLING ADHESIVE ANCHORING SYSTEMS SHALL BE TRAINED, IN PERSON BY A MANUFACTURER'S REPRESENTATIVE, ON THE PROPER INSTALLATION TECHNIQUES. THIS TRAINING SHALL INCLUDE PROPER DRILLING, HOLE CLEANING, AND INSTALLATION METHODS FOR THE ADHESIVE ANCHORING SYSTEM AND CONSTRUCTION CONDITIONS ON THIS PROJECT. ALL TRAINING TO BE CONDUCTED PRIOR TO CREWS STEPPING ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT MANUFACTURER REPRESENTATIVE TO SET UP TRAINING. FDH IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.

PULLOUT TESTING OF POST INSTALLED ANCHOR RODS:

1. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. CONTRACTOR SHALL ENSURE THAT CONSTRUCTION DOES NOT GO BEYOND POINT WHERE THE ANCHOR RODS CAN BE EFFECTIVELY TESTED. THE ANCHOR ROD SLEEVES AND TRANSFER PLATES SHOULD BE INSTALLED AFTER PULL-TESTING IS PERFORMED. CONTRUCTION MAY PROCEED AFTER TESTING IS COMPLETED.
3. 50% OF POST INSTALLED ANCHOR RODS SHALL BE TESTED OR A TOTAL OF 4, WHICHEVER IS GREATER.
4. THE ANCHOR ROD SHALL BE TESTED TO A TARGET TENSION OF 80% OF THE MATERIAL MINIMUM YIELD (Fy) STRENGTH ON THE NET AREA THROUGH THREADS. THE TARGET TENSION FOR THIS PULL TEST IS 265K.
5. MAINTAIN COMPLETE LOAD-DISPLACEMENT RECORDS THROUGHOUT THE TEST. LOAD THE ANCHOR IN INCREMENTS OF UP TO 15% OF THE TARGET TENSION.
6. STATIC LOAD TEST SHALL BE PERFORMED PER ASTM E488-96 (REAPPROVED 2003).
7. IF A DISPLACEMENT GREATER THAN 0.010" REMAINS AFTER THE INITIAL TEST CYCLE, ADDITIONAL TEST SHALL BE PERFORMED UP TO A MAXIMUM OF 4 TEST CYCLES TO DETERMINE IF THE MOVEMENT CONTINUES TO ACCUMULATE. INCREMENTAL RESIDUAL MOVEMENT RECORDED FROM EACH TEST CYCLE MUST BE DECREASING IN VALUE AND STABILIZE TO A VALUE NO MORE THAN 0.010", OTHERWISE THE ANCHOR SHALL BE CONSIDERED TO FAIL THE TEST. TOTAL RESIDUAL MOVEMENT SHALL NOT BE GREATER THAN 0.10" OR THE ANCHOR SHALL BE CONSIDERED TO FAIL THE TEST.
8. THIS INFORMATION SHALL BE DOCUMENTED AND INCLUDED IN THE POST MODIFICATION INSPECTION REPORT.
9. CONTACT FDH ENGINEERING, INC. IF ANY OF THE ANCHORS FAIL THE PULL TEST.

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DRAWN BY:	OP
CHECKED BY:	SMN
ENG APPV'D:	CMM
PROJECT NO:	12-04772E S3

SUBMITTALS

DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

SITE NAME:
BEACON FALLS

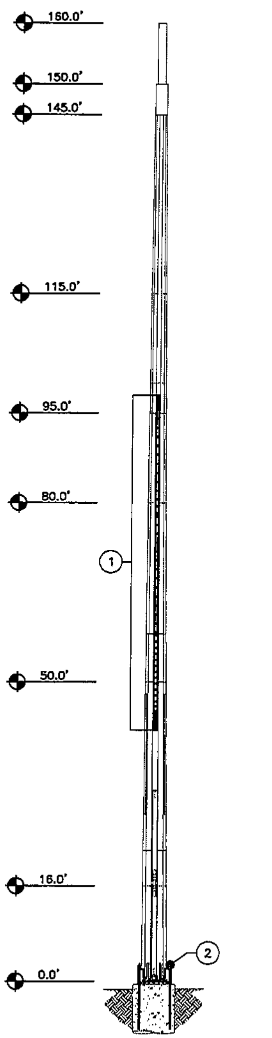
SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
N-2

LENGTH (FT)	22.00	42.00	30.00	20.00	20.00	30.00	5.00	10.00
# OF SIDES	12						1	1
THICKNESS (IN)	0.3750	0.3750	0.3750	0.3125	0.3125	0.2500	A	0.2500
SOCKET LENGTH (FT)	N/A	6.00	8.00	N/A	5.00	N/A		
TOP DIAMETER (IN)	45.2829	38.9100	35.7000	31.4750	29.4000	24.0000	B	16.0000
BOT. DIAMETER (IN)	50.1000	47.2200	41.1000	35.7000	33.0000	29.4000	B	16.0000
TOWER FINISH	GALVANIZED							



TOWER ELEVATION
SCALE: NTS

- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- ANTENNA GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.

MEMBER SIZE KEY

MARK	SIZE
A	0.2500
B	24.0000

TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 & S-3 FOR DETAILS.	42.0±	98.0±
2	INSTALLATION OF NEW ANCHOR RODS. SEE S-4 & S-5 FOR DETAILS.	-7.5±	2.0±

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RALEIGH, NC 27616
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FAX: 919-755-1031
ENGINEERING INNOVATION

PREPARED FOR:
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(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
CHECKED BY: SMN
ENG APPV'D: CMM
PROJECT NO: 12-04772E S3

SUBMITTALS

DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

SITE NAME:
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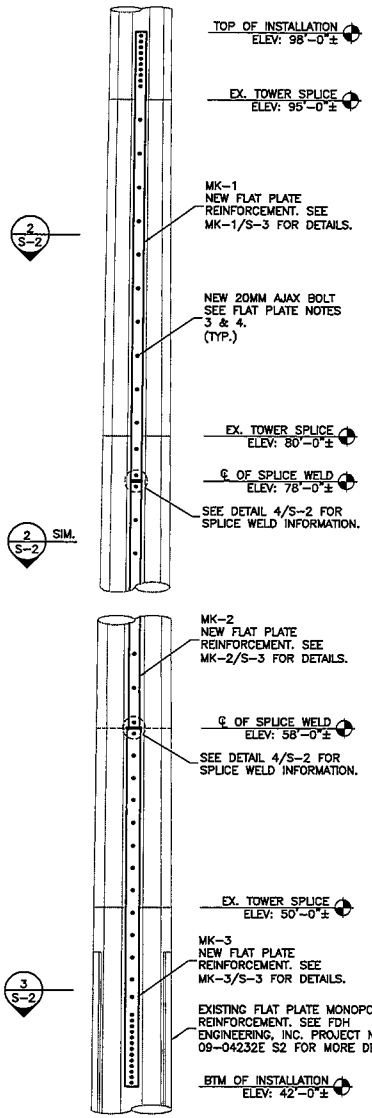
SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
MODIFICATION SCHEDULE

SHEET NUMBER
S-1



FLAT PLATE REINFORCEMENT LAYOUT
ELEVATION VIEW

1 / S-2 ELEVATION
SCALE: 3/16" = 1'-0"

NEW FLAT PLATE REINFORCEMENT NOTES:

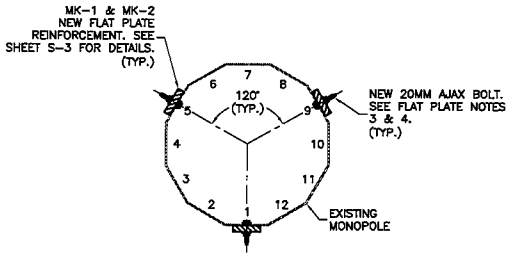
1. CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF FLAT PLATE TO ENSURE THAT PROPER SPACING CAN BE MET.
2. CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
3. ALL AJAX CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. AJAX BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE AJAX BOLT ASSEMBLY DETAIL 5/S-2.
4. ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.

CONSTRUCTION NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED FLAT PLATE LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE FLAT PLATE, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH ENGINEERING PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.

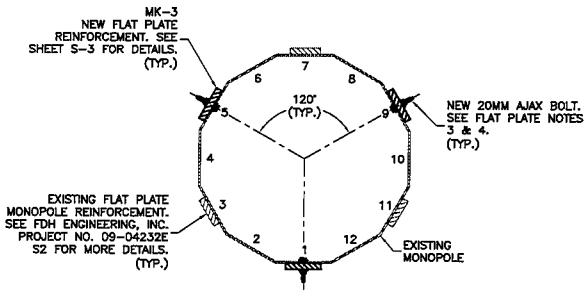
FLAT PLATE INSTALLATION SCHEDULE

PART #	QTY.	DESCRIPTION	ELEVATION
MK-1	3	FLAT PLATE REINFORCEMENT	78'-0"± TO 98'-0"±
MK-2	3	FLAT PLATE REINFORCEMENT	58'-0"± TO 78'-0"±
MK-3	3	FLAT PLATE REINFORCEMENT	42'-0"± TO 58'-0"±
-	186	20MM AJAX BOLTS	VARIES
ALL NEW FLAT PLATE STEEL TO HAVE Fy=65 KSI			



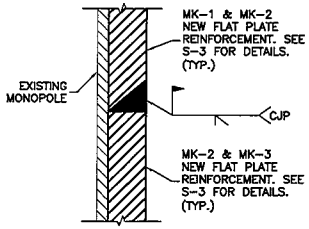
NEW FLAT PLATE REINFORCEMENT LAYOUT
SECTION VIEW

2 / S-2 SECTION
SCALE: 1/2" = 1'-0"



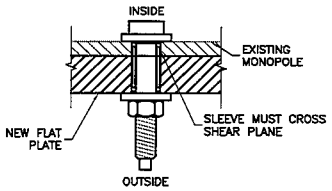
NEW FLAT PLATE REINFORCEMENT LAYOUT
SECTION VIEW

3 / S-2 SECTION
SCALE: 1/2" = 1'-0"



SPLICE WELDING
ELEVATION VIEW

4 / S-2 SECTION
NTS



AJAX BOLT ASSEMBLY
PLAN VIEW

5 / S-2 DETAIL
NTS

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(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	OP
CHECKED BY:	SMN
ENG APPVD:	CMM
PROJECT NO:	12-04772E S3

SUBMITTALS

DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

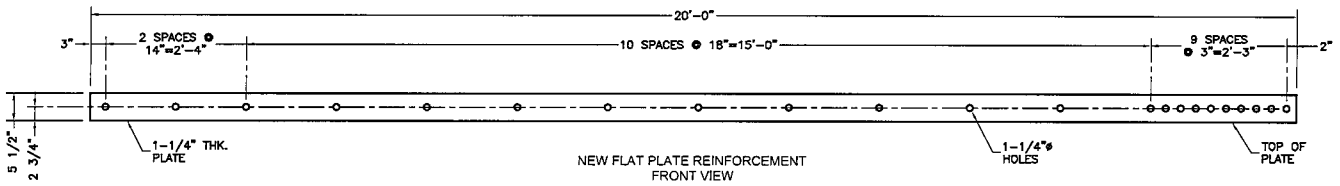
SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

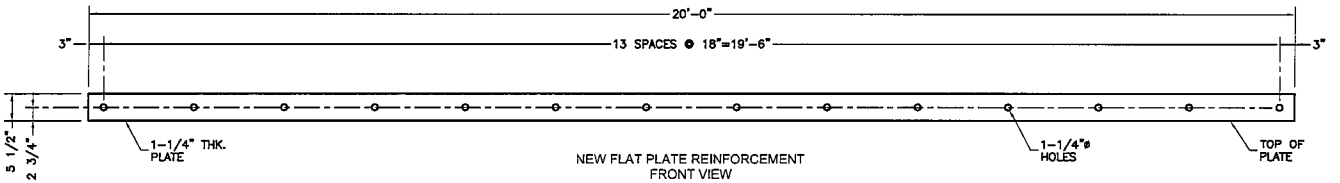
SHEET TITLE
FLAT PLATE REINFORCEMENT DETAILS

SHEET NUMBER
S-2



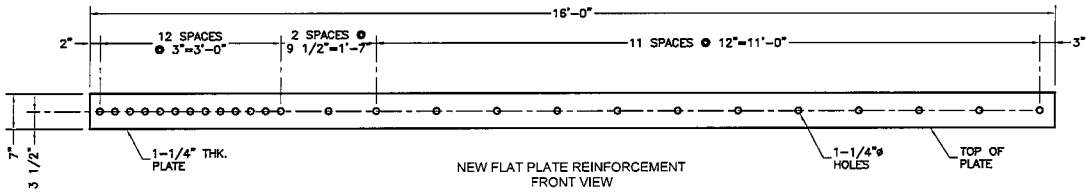
NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-1 / S-3 DETAIL
SCALE: 1/2" = 1'-0"



NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-2 / S-3 DETAIL
SCALE: 1/2" = 1'-0"



NEW FLAT PLATE REINFORCEMENT
FRONT VIEW

MK-3 / S-3 DETAIL
SCALE: 1/2" = 1'-0"

PREPARED BY:

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ENG APPV'D:	CMM
PROJECT NO:	12-04772E S3

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BEACON FALLS, CT 06403

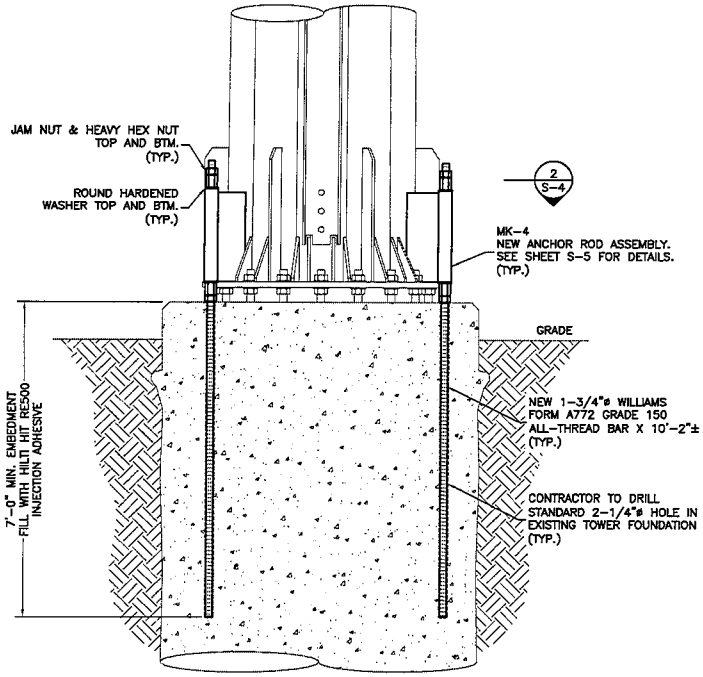
SHEET TITLE
FLAT PLATE DETAILS

SHEET NUMBER
S-3

CONTRACTOR TO PROVIDE PHOTOS OF THE ANCHOR ROD HOLES TO FDH CONSTRUCTION MANAGER PRIOR TO INSTALLING NEW ANCHOR RODS. PHOTOS MUST SHOW THE DEPTH AND DIAMETER OF ANCHOR ROD HOLES.

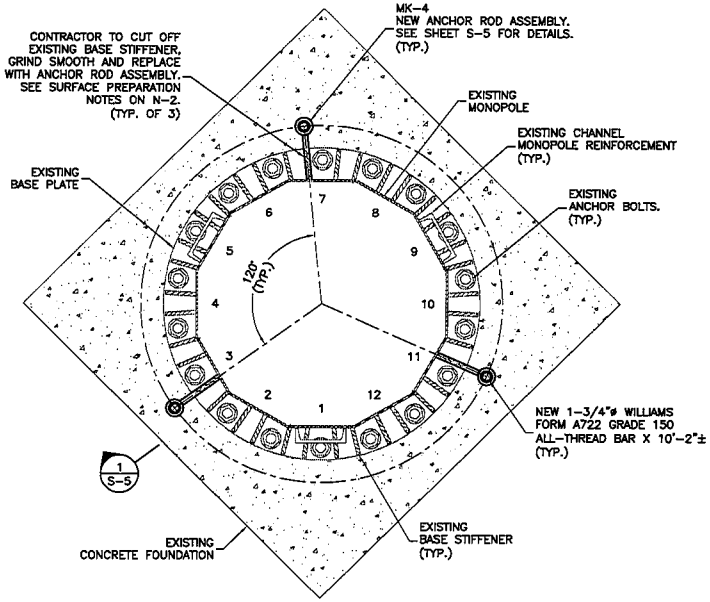
PISTON PLUGS TO BE USED IN ALL INJECTION ADHESIVE APPLICATIONS

ANCHOR ROD MATERIAL LIST			
PART. NO	QTY.	DESCRIPTION	ELEVATION
MK-4	3	ANCHOR ROD ASSEMBLY	0'-0"± TO 2'-0"±
–	3	NEW 1-3/4"ø WILLIAMS FORM A722 GRADE 150 ALL-THREAD BAR X 10'-2"±	-7'-6"± TO 2'-8"±
–	6	ROUND HARDENED WASHER	–
–	6	HEAVY HEX NUT	–
–	6	JAM NUT	–



ANCHOR ROD LAYOUT
FRONT VIEW

1 S-4 ELEVATION
SCALE: 3/8" = 1'-0"



ANCHOR ROD LAYOUT
PLAN VIEW

2 S-4 SECTION
SCALE: 1/2" = 1'-0"

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ENG APPV'D:	CMM
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CT02049-S

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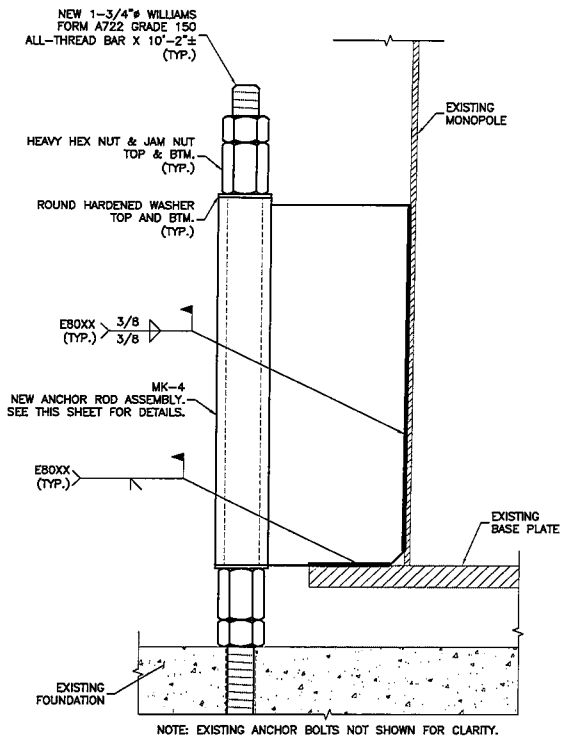
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
ANCHOR ROD
INSTALLATION DETAILS I

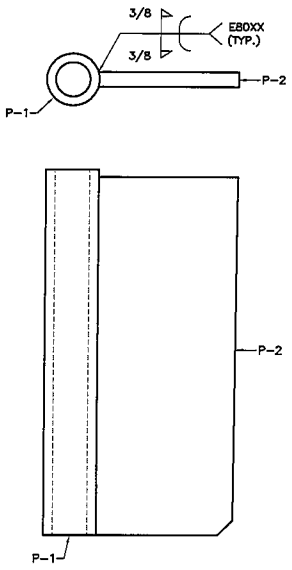
SHEET NUMBER
S-4



ANCHOR ROD ASSEMBLY WELD DETAIL
ELEVATION VIEW

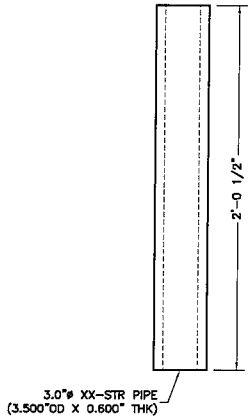
1 / S-5 — ELEVATION
SCALE: 1-1/2" = 1'-0"

MATERIAL LIST (MK-4)		
PART. NO.	QTY.	DESCRIPTION
P-1	3	ANCHOR ROD SLEEVE
P-2	3	TRANSFER PLATE



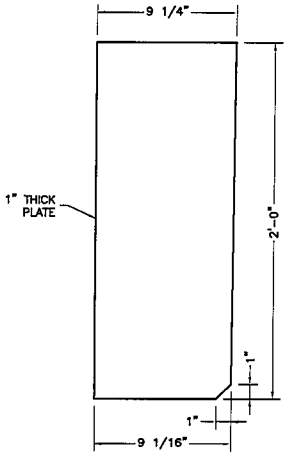
ANCHOR ROD ASSEMBLY
TOP & SIDE VIEW

MK-4 / S-5 — SECTION
SCALE: 1-1/2" = 1'-0"



ANCHOR ROD SLEEVE
SIDE VIEW

P-1 / S-5 — DETAIL
SCALE: 1-1/2" = 1'-0"



TRANSFER PLATE
SIDE VIEW

P-2 / S-5 — DETAIL
SCALE: 1-1/2" = 1'-0"

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CONNECTICUT LIC. NO. 25842

DRAWN BY:	OP
CHECKED BY:	SMN
ENG APPV'D:	CMM
PROJECT NO:	12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
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SITE ADDRESS:
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BEACON FALLS, CT 06403

SHEET TITLE
ANCHOR ROD
INSTALLATION DETAILS II

SHEET NUMBER
S-5

C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

CT5416

(Beacon Falls NE)

60 Rice Lane, Beacon Falls, CT 06403

August 20, 2012

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the monopole tower located at 60 Rice Lane in Beacon Falls, CT. The coordinates of the tower are 41° 27' 20.5" N, 73° 2' 23.3" W.

AT&T is proposing the following modifications:

1) Install three LTE 700 MHz antennas (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Cingular GSM	*132*	*1900*	*3*	*427*	*0.0264*	*1.0000*	*2.64%*
Cingular UMTS	*132*	*880*	*1*	*500*	*0.0103*	*0.5867*	*1.76%*
T-Mobile GSM	142	1945	8	93	0.0133	1.0000	1.33%
T-Mobile UMTS	142	2100	2	711	0.0254	1.0000	2.54%
Verizon PCS	162	1970	7	165	0.0158	1.0000	1.58%
Verizon cellular	162	869	9	365	0.0450	0.5793	7.77%
Verizon 700 MHz	162	757	1	534	0.0073	0.5047	1.45%
Clearwire	155	2496	2	152	0.0045	1.0000	0.45%
Clearwire	155	11 GHz	1	211	0.0032	1.0000	0.32%
Sprint	152	1962	11	500	0.0856	1.0000	8.56%
Beacon Hose Co.	90	33	1	100	0.0044	0.2000	2.22%
AT&T UMTS	132.5	880	2	565	0.0023	0.5867	0.39%
AT&T UMTS	132.5	1900	2	1077	0.0044	1.0000	0.44%
AT&T LTE	132.5	734	1	1375	0.0028	0.4893	0.58%
AT&T GSM	132.5	880	1	283	0.0006	0.5867	0.10%
AT&T GSM	132.5	1900	4	646	0.0053	1.0000	0.53%
						Total	**28.25%**

Table 1: Carrier Information[1] [2] [3]

[1] The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 7/26/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the FDH Engineering, Inc Structural Analysis dated July 16, 2012.

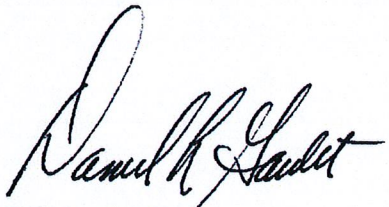
5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **28.25% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

August 20, 2012
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

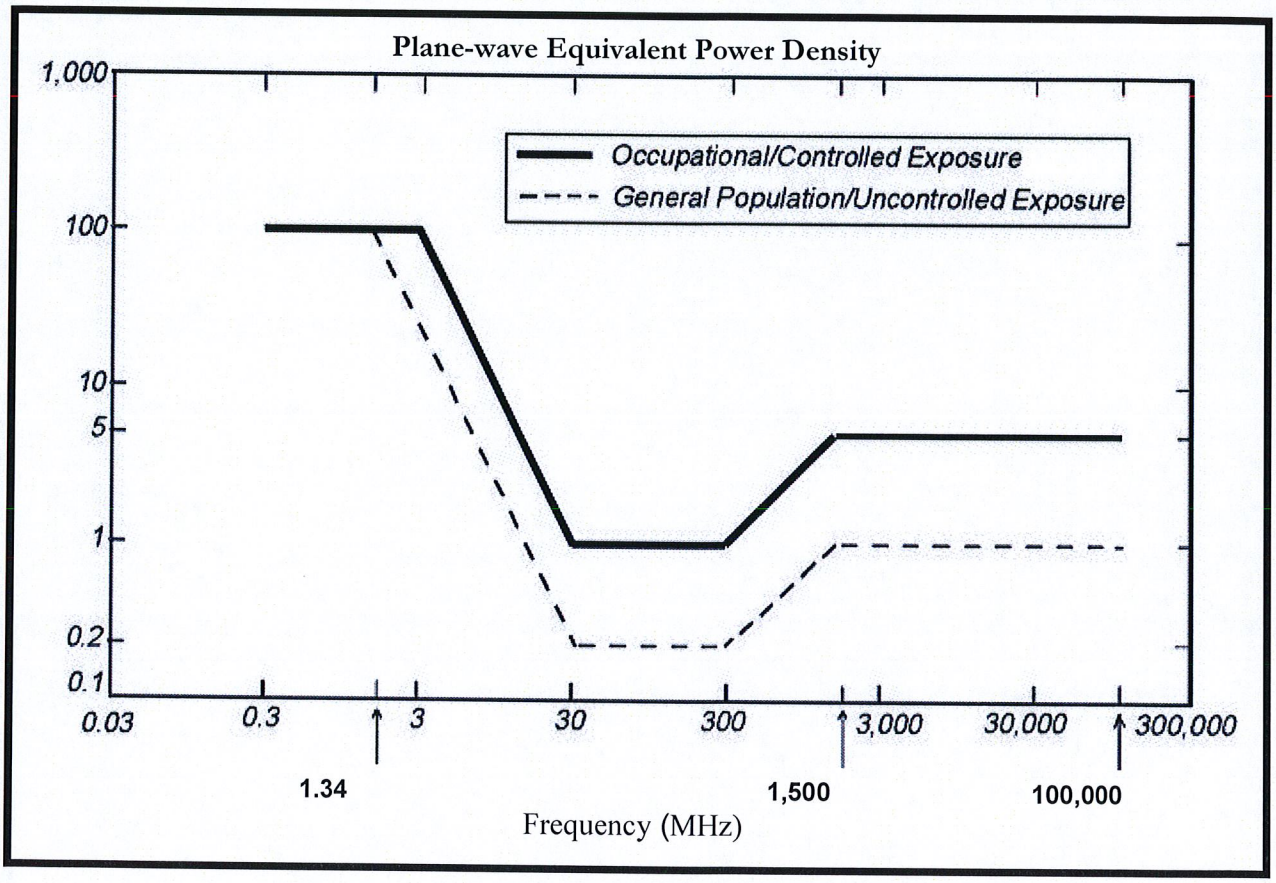
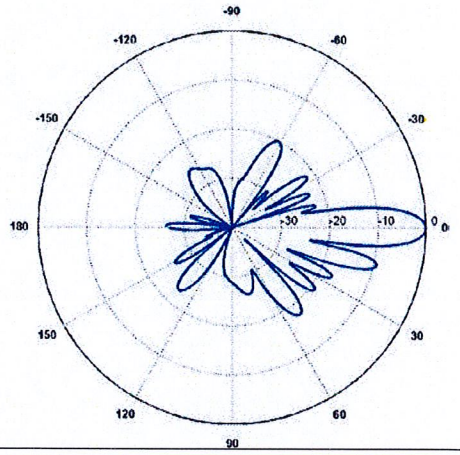


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

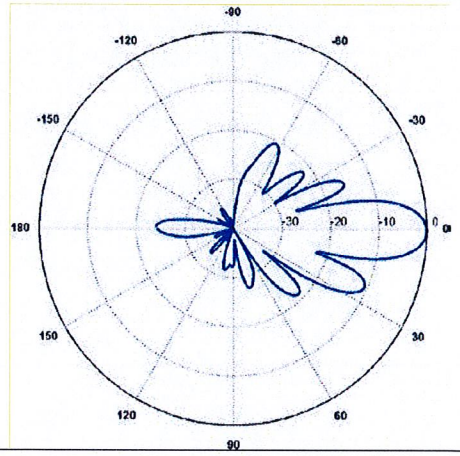
700 MHz

Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	698-806 MHz
Gain:	13.6 dBd
Vertical Beamwidth:	8.6°
Horizontal Beamwidth:	71°
Polarization:	± 45°
Size L x W x D:	96.42" x 11.85" x 7.1"



850 MHz

Manufacturer:	Kathrien Scala
Model #:	80010121
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	14.5°
Horizontal Beamwidth:	86°
Polarization:	± 45°
Size L x W x D:	54.5"x10.3"x5.9"



1900 MHz

Manufacturer:	Kathrien Scala
Model #:	80010121
Frequency Band:	1850-1990 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	6.6°
Horizontal Beamwidth:	85°
Polarization:	± 45°
Size L x W x D:	54.5"x10.3"x5.9"