

# 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 Internet: ct.gov/csc

January 9, 2009

Steven L. Levine Real Estate Consultant New Cingular Wireless PCS, LLC 500 Enterprise Drive Rocky Hill, CT 06067-3900

RE: **EM-CING-013-081203-** New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 131 Gifford Lane, Bozrah, Connecticut.

Dear Mr. Levine:

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 shall be installed as specified in the structural analysis report dated November 21, 2008 and sealed by Christopher Michael Murphy, P.E.;
- The tower mounted amplifiers and diplexers shall be installed behind the antennas; and
- A letter shall be submitted to the Council to certify that the coax, tower mounted amplifiers, and diplexers were installed as specified.

The proposed modifications are to be implemented as specified here and in your notice dated December 3, 2008, including the placement of all necessary equipment and shelters within the tower compound. 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.



Thank you for your attention and cooperation.

Vervituly vours.

Executive Director

SDP/MP/laf

c: The Honorable William E. Ballinger, First Selectman, Town of Bozrah Seymour Adelman, Planning and Zoning Chairman, Town of Bozrah SBA, Inc.

# Daniel F. Caruso Chairman

# 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 Internet: ct.gov/csc

December 4, 2008

The Honorable William E. Ballinger First Selectman Town of Bozrah Town Hall 1 River Road Bozrah, CT 06334-0158

RE: EM-CING-013-081203- New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 131 Gifford Lane, Bozrah, Connecticut.

Dear Mr. Ballinger:

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 December 18, 2008.

Thank you for your cooperation and consideration.

Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Seymour Adelman, Planning and Zoning Chairman, Town of Bozrah



#### EM-CING-013-081203





New Cingular Wireless PCS, LLC

500 Enterprise Drive Rocky Hill, Connecticut 06067-3900

Phone: (860) 513-7636 Fax: (860) 513-7190

Steven L. Levine

ORIGINAL

Real Estate Consultant

CONNECTICUT SITING COUNCIL

#### HAND DELIVERED

December 3, 2008

Honorable Daniel F. Caruso, Chairman, and Members of the Connecticut Siting Council Connecticut Siting Council 10 Franklin Square New Britain, Connecticut 06051

> New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-Re: communications facility located at 131 Gifford Lane, Bozrah (owner, SBA)

Dear Chairman Caruso and Members of the Council:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") 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.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile (GSM) communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

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 height of the overall structure will be unaffected. Modifications to the existing site include all or some of the following as necessary to bring the site into conformance with the plan:
  - Replacement of existing panel antennas with new antennas or, installation of additional antennas of a size required to accommodate UMTS.
  - Installation of small tower mount amplifiers ("TMA's") and/or diplexers to the platform on which the panel antennas are mounted to enhance signal reception.
  - Installation of additional or larger coaxial cables as required.
  - Installation of an additional equipment cabinet in existing shelters, or on existing or enlarged concrete pads.
  - Radome enlargement for flagpole and "stick" structures to accommodate larger antennas and additional associated equipment.

None of these modifications will extend the height of the tower.

- 2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.
- 3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
- 4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. However, the changes 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, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,

Steven L. Levine

Real Estate Consultant

Attachments

# **NEW CINGULAR WIRELESS Equipment Modification**

131 Gifford Lane Site Number 2223

Exempt Mods approved 2/04

Tower Owner/Manager:

SBA

**Equipment Configuration:** 

Monopole

Current and/or Approved: Nine CSS DUO-1417-8686 panel antennas @ 182 ft AGL

Six TMA's and three diplexers @ 82 ft

Nine runs 1 5/8 inch coax cable

**Equipment Shelter** 

**Planned Modifications:** 

Remove all existing antennas, TMA's, and diplexers

Install six Powerwave 7770 antennas (or equivalent) @ 182 ft

Install six TMA's and six diplexers @ 182 ft Install three additional lines 1 5/8 inch coax

# **Power Density:**

Worst-case calculations for existing wireless operations at the site indicate a radio frequency electromagnetic radiation power density, measured at ground level beside the tower, of approximately 12 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 14 % of the standard.

#### **Existing**

Company	Centerline Ht	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm²)	Standard Limits (mW/cm²)	Percent of Limit
Other Users *		•					9.93
AT&T GSM *	182	1900 Band	2	427	0.0093	1.0000	0.93
AT&T GSM *	182	880 - 894	2	296	0.0064	0.5867	1.10
Total						100	12.0%

<sup>\*</sup> Per CSC records

# Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm²)	Standard Limits (mW/cm²)	Percent of Limit
Other Users *							9.93
AT&T UMTS	182	880 - 894	1	500	0.0054	0.5867	0.93
AT&T GSM	182	1900 Band	2	427	0.0093	1.0000	0.93
AT&T GSM	182	880 - 894	4	296	0.0129	0.5867	2.19
Total						19	14.0%

<sup>\*</sup> Per CSC records

# **Structural information:**

The attached structural analysis demonstrates that the tower and foundation have adequate structural capacity to accommodate the proposed equipment modifications. (FDH Engineering, 11/21/08)





New Cingular Wireless PCS, LLC

500 Enterprise Drive

Rocky Hill, Connecticut 06067-3900

Phone: (860) 513-7636 Fax: (860) 513-7190

Steven L. Levine Real Estate Consultant

December 3, 2008

William E. Ballinger, 1<sup>st</sup> Selectman Town of Bozrah Town Hall 1 River Road Bozrah, CT 06334

Re: Telecommunications Facility – 131 Gifford Lane

Dear Mr. Ballinger:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") 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 AT&T'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 AT&T'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 (860) 513-7636 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine

Real Estate Consultant

Enclosure



# Structural Analysis for SBA Network Services, Inc.

193' Self Support Tower

Site Name: Bozrah Site ID: CT01105-S

# 2223 131 GIFFORD LN

FDH Project Number 08-01208E S2

Prepared By:

Bradley Newman, El Project Engineer Reviewed By:

(hrutapher M. Murphy)
Christopher M. Murphy, PE

Vice President CT PE License No. 25842

FDH Engineering, Inc.

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 (919)-755-1012 info@fdh-inc.com

November 21, 2008



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#### **EXECUTIVE SUMMARY**

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed an analysis of the existing self supported tower located in Bozrah, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standards for Antenna Supporting Structures and Antennas, ANSI/TIA-222-G.* Information pertaining to the existing/proposed antenna loading, current tower geometry, and the member sizes was obtained from Pirod, Inc. (Eng. File No. A-115466) original design drawings dated February 23, 1999, Jaworski Geotech, Inc. (Project No. C98492G) Geotechnical Evaluation report dated December 14, 1998, and SBA Network Services, Inc.

The basic design wind speed per ANSI/TIA-222-G standards is 115 mph without ice and 50 mph with 3/4" radial ice. Furthermore, the tower was analyzed as a class II structure in Exposure Category B.

#### **Conclusions**

With the existing and proposed loading from Cingular in place at 182 ft, the tower meets the requirements of the ANSI/TIA-222-G standards. Furthermore, provided the foundations were constructed per the original design drawings (see Pirod, Inc. Drawing No. 204669-B), the foundations should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

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

#### Recommendation

To ensure the requirements of the ANSI/TIA-222-G standards are met with the existing and proposed loading in place, we have the following recommendations:

- 1. Coax lines must be installed as shown in Figure 1.
- 2. The proposed TMAs should be installed behind the corresponding panel antennas.

# **APPURTENANCE LISTING**

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

Table 1 - Appurtenance Loading

# **Existing Loading:**

Antenna	Centerline Elevation (ft)	Coax and Lines <sup>1</sup>	Carrier	Mount Type	Description
1-9	195 <sup>2</sup>	(12) 1-5/8"	T-Mobile	(1) 13' Low Profile Platform	(9) EMS RR90-17-02DP
10-21	182 <sup>3,4</sup>	(12) 1-5/8"	Cingular	(3) 12' T-Frames	(12) CSS DUO-1417-8686-40 (6) TMAs
22-27	175	(6) 1-5/8"	Sprint	(3) 12' T-Frames	(6) 6'x1' panels (assumed)
28-39	162	(12) 1-5/8"	Verizon	(3) 12' T-Frames	(6) Decibel DB948F85E-M (2) Antel LPA-80063/4CF (4) Decibel DB846H80E-SX
40-41	30 <sup>5</sup>	(2) 1/2"	T-Mobile	Direct (assumed)	(2) Andrew PC1N0F-0190B-002M E911 antennas

1 See Figure 1 for coax location.

2 Currently, T-Mobile has (6) EMS RR90-17-02DP antennas and (12) 1-5/8" coax installed at 195 ft. According to information provided by SBA, T-Mobile may install up to (9) RR90-17-02DP and (12) coax at 195 ft. Analysis performed with total leased loading in place.

3 Currently, Cingular has (9) CSS DUO-1417-8686-40 antennas and (9) 1-5/8" coax installed at 182 ft. According to information provided by SBA, Cingular may install up to (12) DUO-1417-8686-40 antennas and (12) coax at 182 ft. Analysis performed with total leased loading in place.

4 The loading for Cingular at 182 ft will be altered. See the proposed loading below.

5 Currently, there is no loading at 30 ft. According to information provided by SBA, T-Mobile may install up to (2) Andrew PC1N0F-0190B-002M E911 antennas and (2) 1/2" at 30 ft. Analysis performed with total leased loading in place.

# **Proposed Loading:**

Antenna	Centerline Elevation (ft)	Coax and Lines	Carrier	Mount Type	Description
1-6	182 <sup>1</sup>	(12) 1-5/8"	Cingular	(3) 12' T-Frames	(6) Powerwave 7770 (6) Powerwave LGP21401 TMAs (6) Diplexers (6) TMAs

1 This represents the final configuration for Cingular at 182 ft. According to information provided by SBA, Cingular will remove (12) CSS DUO-1417-8686-40 antennas and install (6) Powerwave 7770 antennas, (6) Powerwave LGP21401 TMAs, and (6) diplexers for a final configuration of (6) antennas, (12) TMAs, (6) diplexers, and (12) 1-5/8" coax at 182 ft.

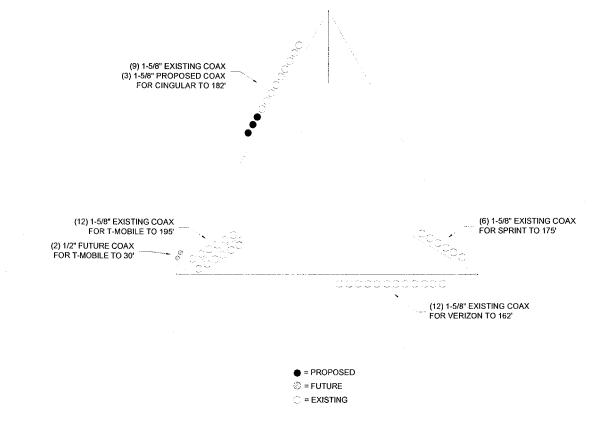


Figure 1 – Coax Layout

#### **RESULTS**

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

Table 2 - Material Strength

Member Type	Yield Strength		
Legs	50 ksi		
Diagonals	36 ksi & 50 ksi		
Horizontals	50 ksi		

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

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

See the **Appendix** for detailed modeling information

Table 3 – Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T1	193 - 185	Leg	1 3/4	7.5	Pass
		Diagonal	7/8	11.9	Pass
		Top Girt	7/8	8.4	Pass
		Bottom Girt	7/8	9.9	Pass
T2	185 - 170	Leg	1 3/4	44.9	Pass
		Diagonal	7/8	47.5	Pass
		Top Girt	7/8	3.5	Pass
		Bottom Girt	7/8	24.8	Pass
T3	170 - 150	Leg	2 1/4	71.7	Pass
		Diagonal	1	47.1	Pass
		Top Girt	1	15.3	Pass
		Bottom Girt	1	29.6	Pass
T4	150 - 140	Leg	Pirod 105244	77.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	66.2	Pass
T5	140 - 120	Leg	Pirod 105217	74.9	Pass
		Diagonal	L3x3x3/16	45.4 50.7 (b)	Pass
T6	120 - 100	Leg	Pirod 105218	68.3	Pass
		Diagonal	L3x3x3/16	53.9	Pass
T7	100 - 80	Leg	Pirod 105219	62.2	Pass
		Diagonal	L3x3x5/16	44.3	Pass
T8	80 - 60	Leg	Pirod 105219	72.7	Pass
		Diagonal	L3x3x5/16	59.3	Pass
T9	60 - 40	Leg	Pirod 105220	64.7	Pass
		Diagonal	L3x3x5/16	75.8	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T10	40 - 20	Leg	Pirod 105220	72.5	Pass
		Diagonal	L3 1/2x3 1/2x5/16	61.0	Pass
T11	20 - 0	Leg	Pirod 105220	79.8	Pass
		Diagonal	L3 1/2x3 1/2x5/16	85.1	Pass

Table 4 - Maximum Base Reactions

Load Type	Direction	Current Analysis (ANSI/TIA-222-G)*	Original Design (TIA/EIA-222-F)
Individual Foundation	Horizontal	42 k	
	Uplift	379 k	405 k
	Compression	420 k	449 k
Overturning Moment		6,959 k-ft	7,388 k-ft

<sup>\*</sup> Current analysis reactions are within an allowable factor of 1.35 per ANSI/TIA-222-G when the original design reactions are based on an allowable stress design.

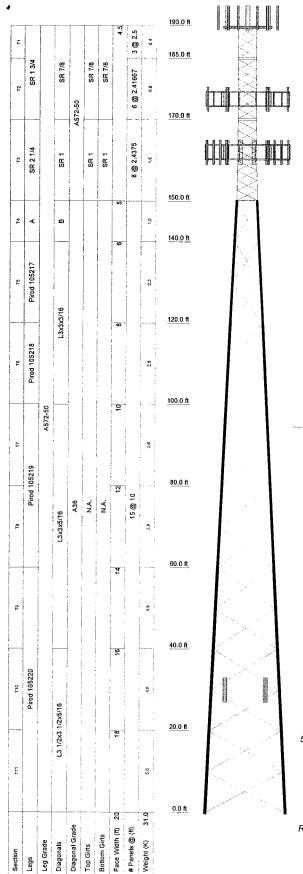
#### **GENERAL COMMENTS**

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	
(3) RR90-17-02DP (T-Mobile)	195	12' T-Frame Sector Mount (1)	182	
(3) RR90-17-02DP (T-Mobile)	195	(Cingular)		
(3) RR90-17-02DP (T-Mobile)	195	(2) 6' x 1' (Sprint)	175	
13' Low Profile Platform Top (Lattice)	193	(2) 6' x 1' (Sprint)	175	
(T-Mobile)		(2) 6' x 1' (Sprint)	175	
(2) TMA (Cingular)	182	12' T-Frame Sector Mount (1) (Sprint)	175	
(2) TMA (Cingular)	182	12' T-Frame Sector Mount (1) (Sprint)	175	
(2) TMA (Cingular)	182	12' T-Frame Sector Mount (1) (Sprint)	175	
(2) 7770.00 (Cingular)	182	(2) LPA-80063/4CFx5 (Verizon)	162	
(2) 7770.00 (Cingular)	182	(2) DB846H80E-SX (Verizon)	162	
(2) 7770.00 (Cingular)	182	(2) DB846H80E-SX (Verizon)	162	
(2) LGP21401 TMA (Cingular)	182	(2) DB948F85E-M (Verizon)	162	
(2) LGP21401 TMA (Cingular)	182	(2) DB948F85E-M (Verizon)	162	
(2) LGP21401 TMA (Cingular)	182	(2) DB948F85E-M (Verizon)	162	
(2) Diplexer (Cingular)	182	12' T-Frame Sector Mount (1)	162	
(2) Diplexer (Cingular)	182	(Verizon)		
(2) Diplexer (Cingular)	182	12' T-Frame Sector Mount (1)	162	
12' T-Frame Sector Mount (1)	182	(Verizon)		
(Cingular)		12' T-Frame Sector Mount (1)	162	
12' T-Frame Sector Mount (1)	182	(Verizon)		
(Cingular)		(2) PC1N0F-0190B-002M (T-Mobile)	30	

#### **SYMBOL LIST**

MARK	SIZE	MARK	SIZE
Α	Pirod 105244	В	L2 1/2x2 1/2x3/16

#### **MATERIAL STRENGTH**

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

#### **TOWER DESIGN NOTES**

- 1. Tower is located in New London County, Connecticut.
- 2. Tower designed for Exposure B to the TIA-222-G Standard.
- 3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-G Standard.
- Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- 5. Deflections are based upon a 60 mph wind.
- 6. TOWER RATING: 85.1%

MAX. CORNER REACTIONS AT BASE:

DOWN: 420 K UPLIFT: -379 K SHEAR: 42 K

AXIAL 184 K

SHEAR MOMENT 15 K 1580 kip-ft

TORQUE 0 kip-ft 50 mph WIND - 0.7500 in ICE

AXIAL 54 K MOMENT SHEAR 65 K

TORQUE 0 kip-ft REACTIONS - 115 mph WIND

**FDH** 

*FDH Engineering, Inc.* 2730 Rowland Rd, Ste 100

Raleigh, NC 27615 Phone: (919) 755-1012 FAX: (919) 755-1031

<sup>Job:</sup> Bozrah, CT01105-S <sup>Project:</sup> 08-01208E S2		
Code: TIA-222-G	Date: 11/24/08	Scale: NTS
Path:		Dwg No. ⊏