

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@po.state.ct.us

Web Site: www.state.ct.us/csc/index.htm

August 16, 2002

Peter W. van Wilgen
Southwestern Bell Mobile Systems, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-081-130-151-166-020730** - SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Southbury, Middlebury, Waterbury, and Wolcott, Connecticut.

Dear Mr. van Wilgen:

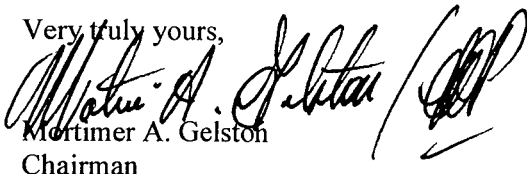
At a public meeting held on August 15, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify these existing telecommunications facilities, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the condition that the Wolcott site tower be reinforced in accordance with the recommendations made in a letter from Max Engineering dated June 7, 2002, and that a professional engineer certifies to the Council the successful completion of these reinforcements.

The proposed modifications are to be implemented as specified here and in your notice dated July 30, 2002. 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 sites that would not increase tower heights, extend the boundaries of the tower site, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundaries to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. These facilities have also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on these towers.

This decision is under the exclusive jurisdiction of the Council. Any additional change to these facilities 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.

Very truly yours,


Mortimer A. Gelston
Chairman

MAG/DM/laf

c: See attached list.

List Attachment.

- c: Honorable Edward B. St. John, First Selectman, Town of Middlebury
- William J. Stowell, Planning and Zoning Chairman, Town of Middlebury
- Honorable Mark A. R. Cooper, First Selectman, Town of Southbury
- Mark D. Cody, Zoning Enforcement Officer, Town of Southbury
- Honorable Michael J. Jarjura, Mayor, City of Waterbury
- Vincent Viggiano, Zoning Enforcement Officer, City of Waterbury
- Honorable Michael A. DeNegris, Mayor, Town of Wolcott
- Central Naugatuck Regional Planning Agency



SNET Mobility, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7730
Fax: (860) 513-7190

Peter W. van Wilgen
Senior Manager – Construction

HAND DELIVERED

July 30, 2002

RECEIVED

JUL 30 2002

**CONNECTICUT
SITING COUNCIL**

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: SNET Mobility, LLC notice of intent to modify existing telecommunications facilities located in Wolcott, Waterbury, Middlebury and Southbury

Dear Mr. Gelston:

In order to accommodate technological changes, implement E-911 capability and enhance system performance, SNET Mobility, LLC ("SNET" or "Cingular Wireless") plans to modify the antenna configurations at 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 each of the municipalities in which an affected cell site is located.

Attached are summary sheets detailing the planned changes, including power density calculations reflecting the change in the effect of Cingular's operations at each site. Also included is documentation of the structural sufficiency of each tower to accommodate the revised antenna configuration.

The changes to the facilities do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facilities will not be significantly changed or altered. Rather, the planned changes to the facilities fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

Mr. Mortimer A. Gelston
July 30, 2002
Page 2

1. The height of the overall structure will be unaffected. At almost all sites, new panel antennas approximately the same size will replace those previously installed. Tower mount amplifiers, approximately 5" x 9" x 13", will be added to the platform on which the panel antennas are mounted to enhance signal reception at the cell site. In addition, the mandated provision of E-911 capability will require installation of one LMU ("location measurement unit"), approximately nine inches high, on either the tower, the equipment shelter or the ice bridge. One GPS receive-only antenna will be attached to the equipment shelter at each site. None of the 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.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density will increase due to use of additional channels broadcasting at higher power. 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, Cingular Wireless respectfully submits that the proposed changes at the referenced sites constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7730 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Peter W. van Wilgen
Senior Manager - Construction

Enclosures

**CINGULAR WIRELESS
Antenna Modification**

Site Address: 347 East Street, Wolcott
exempt modification

Tower Owner/Manager: Crown Atlantic Company LLC

Antenna configuration Antenna center line – current 158', proposed 162'

Current and/or approved: 12 DB846H80 or comparable

Planned: 9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 25')

Power Density:

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 4.7% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 6.3%, or an additional 1.6% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	158	880 - 894	19	100	0.0274	0.5867	4.7

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	162	880 - 894	16	100	0.0219	0.5867	3.7
SNET GSM	162	880 - 894	2	296	0.0081	0.5867	1.4
SNET GSM	162	1930 - 1935	2	427	0.0117	1.0000	1.2
Total							6.3%

Structural information: Please see attached. Modifications are to be made by AT&T Wireless, per AT&T Wireless agreement with Crown, and will be reflected in a filing to be made by AT&T Wireless.



MAX ENGINEERING LLC
9000 Southwest Freeway, Suite 410
Houston, Texas 77074-1522

E-mail: hak@maxengr.com
Phone: (713) 776-0629
Fax: (713) 776-9599

To: Lincoln Erhard
Crown Castle International
500 W. Cummings Park, Suite 6500
Woburn, MA 01801

Subject: 180' Rohn Self Supporting Tower at Wolcott site, 347 East Street, Wolcott, CT
(BU#806362)

Dear Mr. Erhard,


Max Engineering has performed a structural analysis on the above referenced tower (Crown BU#806362) for Cingular's proposed nine antennas "change-out" with nine 1+5/8" coaxial cables at elevation 162'. The tower is analyzed in accordance with TIA/EIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures for 85 mph basic design wind (1/2" ice case does not govern).

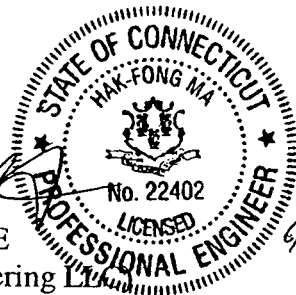
Our analysis report (dated 6-07-2002) indicates that provided that the following actions are done, the existing tower foundation and the tower upper-structure will be structurally adequate.

1. Replace existing main diagonals at elevations 40' to 80' by (nominal) 3" standard pipe. Replace diagonals between elevations 160' to 167' by (nominal) 1.5" XS or 2" standard pipe Use new 5/8" diameter (or larger) A325 bolts for deg-to diagonal connections. Do not re-use existing bolts.
2. Reinforce each existing leg foundation by additional concrete dowelled into the existing pier. (To increase dead weights against potential uplift). See Attachment A4 of the report for further details.

We appreciate this opportunity to provide you with our services. If you have any questions or comments, please do not hesitate to call me.

Sincerely Yours,


Hak-Fong Ma, Ph.D., PE
(President, Max Engineering LLC)
Date: 06-07-2002



6/7/02

Section 1 Introduction

The purpose of this report is to investigate the structural adequacy of an existing 180' self-supporting tower at Wolcott, CT site (BU#806362, address: 347 East Street, Wolcott, CT), to support Cingular Wireless's (9) proposed antennas change-out at elevation 162', in addition to the existing or previously proposed (AT&T) antennas. The computer inputs and outputs for the critical load cases are listed in Section 8.

The manufacturer of the existing 180' self-supporting tower is Rohn. Information on this tower was obtained from the drawings of Rohn provided by Crown Castle, and this was used as design input.

The new proposed antennas and the existing ones are listed in the "Tower Loading Information" section (Section 3). The main forces considered in the analysis of the tower are those resulting from wind. Per EIA/TIA-222-F, the basic wind speed in New Haven County, NH is 85 mph. The results are summarized in Section 5.

The finite element program used in this analysis is licensed from and developed by Guymast Inc./Weisman Consultants Inc. located in Downsview, Ontario, Canada. It is a specialized computer program developed to facilitate speedy modeling and analysis.

Section 2 Analysis Criteria

- **Wind and ice conditions:** 85 mph wind with 0" ice case and 73.6 mph wind simultaneously with ½" ice case.
- **Source codes governing the analysis:** ANSI/TIA/EIA-222-F-1996

Section 3 Tower Loading Information

A) Original Tower Design Loadings (Criteria: EIA Rev unknown)

Rad Center Elevation	Antenna Description and Count	Feedline Size, Count, and Location	Mount Type	Note
180'	(4) PD10017 antennas	Not Clearly stated	(3) Side arms	
170'	(3) PD1132D antennas	Not Clearly stated	(3) Side arms	
160'	(2) 6' diameter Std dishes	Not Clearly stated	On tower legs	

B) Existing or Previously Proposed Tower Loadings

Level	Antenna Description, and Count, (Azimuth)	Feedline Size Count & Location	Mount Type	Carrier	Note(s)
178'	(12) Allgon 7130.16.05 antennas (27,147,267); (52"x11.4")	(12) 1+5/8"	(3) T-arms	BAM	
158'	(12) DB846H80 antenna (23,143,263) (72"x6.6"x8.25")	(12) 1+5/8"	(3) T-arms	SNET	1
118'	(1) Andrew 8' diameter HP dish; (200)	(1) EW52	On tower leg C	BAM	
112'	(1) Andrew 8' diameter HP dish, (200)	(1) EW52	On tower leg C	BAM	
65'	(1) Andrew 10' diameter HP dish; (100)	(1) EW52	On tower leg B	BAM	
168'	(6) EMS RR-90-17-02 antennas (56"x8"), (0,140,270)	(12) 1+ 5/8"	(3) T-arms	AT&T Wireless	2

Note 1: Changed out to 162' level as shown on next table.

Note 2: Previously proposed antennas

C) Proposed & Future Loading

Level	Antenna Description, and Count, Azimuth (Note 1)	Feedline size & count	Mount Type & (Carrier)	Note
162'	(9) CCS DU04-8670 antennas (48"x14"), (24,140,261) + (6) TMAs (13"x9" each)	(9) 1+ 5/8"	(3) T-arms (Cingular, replaced SNET)	
162'	(1) Omni (9"x1")	(1) 1/2"	(Cingular)	2

1. Azimuth is based on best estimate only. The impact of this estimate on results is considered minimal as wind forces in different directions are considered.
2. Conservative to assume at 162' elevation for analysis purpose.

Section 4 Assumptions made

1. The tower is constructed in accordance with the drawings from the tower manufacturer (Rohn) and the tower has not been deteriorated.
2. Coaxial cables (feed lines) are neatly attached to the tower faces and they are considered as structural members in calculating wind forces in accordance with TIA/EIA-222-F formulas.
3. Material yield stresses assumed are stated in Section 6. The welds between the diagonals and the gusset plates are stronger than the connection bolts.
4. The original foundation design (5'x5' concrete block with rock anchors) is sufficient to support the original uplift load of 185 k. Reinforcements of the foundation will take on the forces exceeding the original design value.

Section 5 Results

The existing 185' self-supporting tower is analyzed with the existing antennas and the new proposed antennas, for the governing design wind load of 85 mph without ice per TIA/EIA-222-F criteria. (1/2" ice case with 73.6 mph) The results show that except for diagonals between elevations 40' to 100', the existing tower upper structure is structurally adequate to support the proposed antennas. However, existing foundation adequacy is established based on recommended reinforcements and calculations performed in Attachment A4.

The actual and allowable stress of the key tower members are tabulated as follows:

Tower Legs: Assumed Steel Yield Stress = 50 ksi, bolts = A325 or better

Section Elevation	A) Max Member force K	B) Allowable Force K	Stress Ratio A/B	Size
0' - 20'	246.0	337.6	0.73	8.75"OD,3/8" t
20' - 40'	229.6	264.1	0.87	6" XS
40' - 60'	197.4	264.1	0.75	6" XS
60' - 80'	164.8	212.0	0.78	6" EHS
80' - 100'	132.7	177.6	0.75	5" XS
100' - 120'	99.8	177.6	0.56	5" XS
120' - 140'	73.6	139.1	0.53	4" XS
140' - 160'	41.5	84.0	0.49	3" XS
160' - 180'	9.4	41.0	0.23	2.5" STD

Buckling of leg members govern the leg capacity. Capacity is calculated based on conservative slenderness ratio.

Yield stresses (50 ksi) of leg members are based on materials typically used by (Rohn) tower. This remains as a key assumption.

Diagonals: Assumed Steel Yield Stress = 36 ksi, bolts = A325 or better

Section Elevation	A) Member Force K	B) Allowable Force K	Stress Ratio A/B	Note
0' - 20'	18.82	25.60	0.74	Bolt governs
20' - 40'	13.00	17.27	0.75	Brace governs
40' - 60'	12.49	11.93	1.05	Brace governs
60' - 80'	11.89	11.23	1.06	Brace governs
80' - 100'	11.58	12.66	0.91	Brace governs
100' - 120'	11.67	14.39	0.81	Brace governs
120' - 140'	8.73	11.54	0.76	Brace governs
140' - 160'	8.88	13.27	0.67	Brace governs
160' - 167'	7.45	7.21	1.03	Brace governs
167'-180'	4.04	7.21	0.56	Brace governs

Horizontals: Assumed Steel Materials = A36; Bolt Materials = A325

Section Elevation	A) Connection Force K	B) Allowable Force K	Stress Ratio A/B	Note
20'	10.78	24.7	0.44	Bolt governs
30', 40'	10.22	14.8	0.69	Member governs
50', 60'	9.50	17.0	0.56	Bolt governs
70', 80'	8.52	17.0	0.50	Bolt governs
90', 100'	7.75	13.6	0.57	Member governs
110', 120'	8.31	17.0	0.49	Bolt governs
120'-140'	5.89	17.0	0.35	Bolt governs
140'- 160'	5.43	14.3	0.38	Member governs
160'-180'	5.05	16.7	0.30	Member governs

Forces at the internal braces, sub-diagonals and sub-horizontals are small and are acceptable.

Comparison of Foundation Forces

Item	a) Calculated Force k (ft-k)	b) Original Design Force k (ft-k)	Comparison Ratio (a/b)	Note
Max. Leg Uplift	235.1 k	185 k	1.27	
Max. Leg Compression	274.3 k	225 k	1.22	

Uplift is the controlling force for the foundation design. See Section 8, Attachment A4 for reinforcements suggested to assure adequacy.

Max Engineering, LLC.
 9000 Southwest Freeway, Suite 410
 Houston, Texas 77074-1522
 Telephone (713) 776-0629

Section 6 Conclusions

The existing 180' self-supporting tower was analyzed with existing antennas and new proposed antennas, for a basic wind speed of 85 mph per TIA/EIA-222-F criteria. The analysis shows that the existing tower is structurally inadequate to support the Cingular change-out and previous AT&T Wireless's proposed antennas at elevation 168' unless the following actions are done.

Diagonals between elevations 40' to 80' are to be replaced by (nominal) 3" standard pipe, whereas diagonals between elevations 160' to 167' are to be replaced by (nominal) 1.5" XS (or nominal 2" standard) pipe.

The existing foundation adequacy is assured based on the assumption that the original foundation design is capable to resist the original design load (185 k uplift). The additional reinforcements recommended are demonstrated to be sufficient to resist any additional loads beyond the original designed value (see Attachment A4 calculations).

Section 7 P.E. Signature and Seal
(Site: Wilcott, BU# 806362)



**This report is prepared by or under the supervision of:
Hak-Fong Ma, PE
Registered & Licensed Professional Engineer
License Number: 22402**

**Max Engineering, LLC.
9000 Southwest Freeway, Suite 410
Houston, Texas 77074-1522
Telephone (713) 776-0629**

CINGULAR WIRELESS
Antenna Modification

Site Address: Farmdale Drive, Waterbury
Docket No. 44

Tower Owner/Manager: Springwich Cellular Limited Partnership;
managed by SpectraSite Communications, Inc.

Antenna configuration Antenna center line – 154'

Current and/or approved: up to 12 Allgon 7120 or comparable

Planned: 10 CSS DUO4-8670 or comparable
9 tower mount amplifiers
1 LMU (at 38.75')

Power Density:

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 4.9% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 7.0%, or an additional 2.1% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	154	880 - 894	19	100	0.0288	0.5867	4.9

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	154	880 - 894	16	100	0.0243	0.5867	4.1
SNET GSM	154	880 - 894	2	296	0.0090	0.5867	1.5
SNET GSM	154	1930 - 1935	2	427	0.0129	1.0000	1.3
Total							7.0%

Structural information: Please see attached.

RE: CT-0012 [Wtbr-Waterbury]
 Structural Evaluation of 150' Guyed Monopole
 Farmdale Drive
 Waterbury, CT 06708
 New Haven County

Date: June 28, 2002

SpectraSite Engineering has performed a *Level 1 evaluation*¹ for the above-noted tower. The evaluation was based on the requirements of the TIA/EIA-222-F Standard for a basic wind speed of **85 mph** without ice and 75% of the wind load with 1/2" radial ice.

Table 1. Existing and Proposed Antennas


ELEVATION (Ft-AGL)	ANTENNA	CARRIER	COAX*	NOTES
161 158 154 154	(1) Decibel DB589T3-Y (1) 3 Element Yagi (7) Allgon 7120.16.05.00 (4) CSS SA-1460N on Platform Mount with Handrails	Cingular	(2) 1-5/8" [I] (1) 1/2" [I] (11) 1-1/4" [I] (2) 7/8" [I]	Remove Existing
161 158 154 154	(1) Decibel DB589T3-Y (1) 3 Element Yagi (10) CSS DU04-8670 (9) CSS ADC Amplifiers on Platform Mount with Handrails	Cingular	(4) 1-5/8" [I] (1) 1/2" [I] (10) 1-1/4" [I] (2) 7/8" [I]	Proposed Replacement
129	(4) Allgon 7120.06.05.00 (4) EMS RV90-11-0DAL2 (4) Allgon 7130.14.05.00 on Platform Mount with Handrails	Verizon	(12) 7/8" [O]	Existing
38-75	(1) Nokia GS7218701 on Standoff Mount	Cingular	(1) 1/2" [O]	Proposed

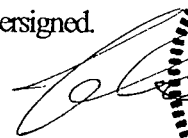
*[I] / [O] represents coax installed inside or outside the monopole, respectively.

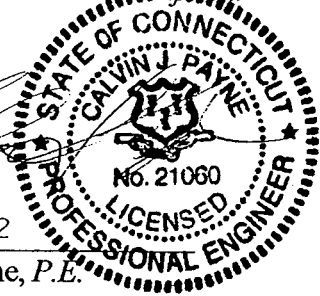
The subject tower and foundation are *adequate* to support the above stated loads and *in conformance* with the requirements of TIA/EIA-222-F Standard.

The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in Table 1.

Should any questions arise concerning this report please contact the undersigned.


 Raphael Mohamed, P. Eng.
 Project Engineer


 06-28-2002
 Calvin J. Payne, P.E.
 Chief Engineer



¹ Level 1 evaluation means:

- the applied (existing and proposed) loads (Table 1) on the tower are compared to the original design loads,
- the design wind criteria is compared to the recent code requirements.

**CINGULAR WIRELESS
Antenna Modification**

Site Address: 670 Captain Neville Drive, Waterbury
TS-SCLP-151-000330 (4/12/00)

Tower Owner/Manager: Candid Communications of Waterbury, LLC

Antenna configuration Antenna center line – 150'

Current and/or approved: up to 12 Allgon 7120.16 or comparable

Planned: 9 CSS DUO4-8670 or comparable
9 tower mount amplifiers

Power Density:

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 5.2% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 7.3%, or an additional 2.1% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	150	880 - 894	19	100	0.0304	0.5867	5.2

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	150	880 - 894	16	100	0.0256	0.5867	4.4
SNET GSM	150	880 - 894	2	296	0.0095	0.5867	1.6
SNET GSM	150	1930 - 1935	2	427	0.0136	1.0000	1.4
Total							7.3%

Structural information: Please see attached.



June 19, 2002

Mr. Richard R. Johanson
Project Manager-Bechtel
175 Capitol Boulevard, Suite 100
Rocky Hill, CT 06067

**Reference: Existing Telecommunications Facility
Cingular Wireless Site No.: 1127
670 Captain Neville Drive
Waterbury, Connecticut
F300002292.38**

Dear Mr. Johanson:

URS Corporation AES (URS) conducted a review and evaluated the existing 150' monopole tower structure located at 670 Captain Neville Drive in Waterbury, Connecticut. The purpose of this review was to evaluate the affect of the proposed modification to the existing Cingular Wireless antennas and mounts on the existing monopole structure. The monopole was designed by Engineered Endeavors, Inc., File No.: 6430 approved February 22, 2000. The monopole foundation was designed by URS Corporation Project No.: F300001877.00. The monopole and its foundation were originally designed to support four telecommunication carriers with (12) Allgon A-800-100 panel antennas on low profile platforms for each carrier at elevations 120' and 150'. The monopole presently supports existing Cingular Wireless antennas at 150' AT&T Wireless at 140' and XM Radio at 158'-6" including a dish at 20' (for details see the attached report). The proposed Cingular Wireless modifications are to replace the existing Cingular Wireless antennas with antennas listed below.

(9) DUO4-8670 antennas on low profile platform amplifiers with (9) 1 1/4" coaxial cable installed within the pole	Cingular	<u>Antenna Center Elevation</u> 150'
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It is our determination that the existing monopole and its foundation have sufficient structural capacity to support the presently installed AT&T Wireless, XM Radio equipment and the proposed Cingular Wireless modification as specified above including the two future unoccupied platforms. This evaluation is based on requirements of the TIA/EIA-222-F dated March 1996 and the Connecticut State Building Code dated 1999 and the latest supplement and amendments.

We have attached our structural review for this site outlining the criteria and assumptions used for this review. The user of this report shall review the attached report and filed verify antennas and mounts criteria as specified in this report. Notify the engineer immediately if any of the assumption in this report are found to be other than sepecified

If you should have any questions, please email me at mohsen@urscorp.com

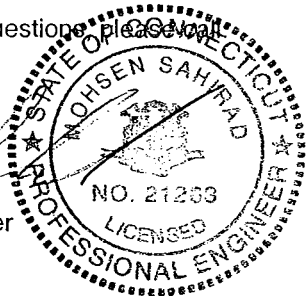
Sincerely,
URS Corporation AES

Mohsen Sahirad, P.E.
Senior Structural Engineer

MS/mks

cc: Doug Roberts - URS
Ignacio Artaiz - URS
Alitz Abadjian - URS
CF/Book

URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Tel: 860.529.8882
Fax: 860.529.3991



**CINGULAR WIRELESS
Antenna Modification**

Site Address: 1021 Straits Turnpike, Middlebury
tower share 5/4/99

Tower Owner/Manager: VoiceStream Wireless

Antenna configuration Antenna center line – 189'

Current and/or approved: 12 Allgon 7120.16 or comparable

Planned: 9 CSS DUO4-8670 or comparable DB (dual band)
6 tower mount amplifiers

Power Density:

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 3.3% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 4.6%, or an additional 1.3% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	189	880 - 894	19	100	0.0191	0.5867	3.3

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	189	880 - 894	16	100	0.0161	0.5867	2.7
SNET GSM	189	880 - 894	2	296	0.0060	0.5867	1.0
SNET GSM	189	1930 - 1935	2	427	0.0086	1.0000	0.9
Total							4.6%

Structural information: Please see attached.

INTRODUCTION

This report summarizes the results of the structural analysis performed on the 195' self supported tower at the Middlebury site in New Haven County, Connecticut. The tower analysis was performed using 1999 GuyMast/Mast program.

ANALYSIS CRITERIA

The tower was analyzed for the specified loads in accordance with the current EIA-222-F publication, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." This analysis derives its applied forces from EIA minimum 85 MPH basic wind speed with no ice accumulation and 74 MPH wind speed with 1/2" ice.

TOWER LOADING INFORMATION

Bechtel Corporation requested o2wireless Solutions analyze the tower to verify its structural integrity under the following antenna and transmission line loading:

ELEVATION	STATUS	DESCRIPTION	LINE
195'	EXISTING	6- EMS RV90-17	6- 1 5/8" COAX
189'	PROPOSED	9- DB PANEL ANTENNAS *	9- 1 5/8" COAX
175'	EXISTING	12- ALLGON 7120.16	12- 1 5/8" COAX
165'	EXISTING	12- ALLGON 7130.16	12- 1 5/8" COAX
155'	EXISTING	9- DB980H90T3EM	9- 1 1/4" COAX
145'	EXISTING	12- ALLGON 7184.14	12- 1/4" COAX

* 6- DDD TMA 1900 to accompany antennas at level 189'.

AVAILABLE DOCUMENTS

- All tower data information, antenna types and locations were obtained from Fred A. Nudd Corporation structural analysis dated March 2000. Tower analysis was performed based on the latest modification stated in that report. o2wireless Solutions can not be held responsible for it's accuracy.
- RF sheet.

RESULTS

The graphs enclosed summarize the results of the tower study and itemize the structural components, specifying member function, elevation, and size. Values for allowable and actual member loads are reported along with the corresponding allowable wind conditions. The graphs summarize the existing structural components and their corresponding applied loads.

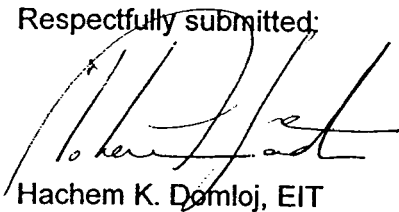
CONCLUSIONS AND RECOMMENDATIONS:

The Middlebury tower will support the proposed loading and meet the requirements of the EIA Standard without any further modifications required. The analysis is reflected in run GM3637-16 and shown in the drawing pages and is based on the previous modifications called for in the Nudd analysis dated March 20, 2000 being in place.

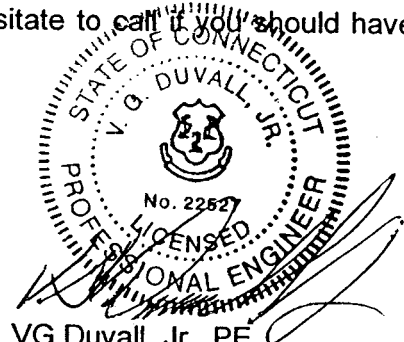
Information on the foundations and geotechnical report was not provided, thus, precluding any comments on their performance under the proposed loading criteria.

Thank you for this opportunity to work with you and do not hesitate to call if you should have any questions.

Respectfully submitted:



Hachem K. Domloj, EIT
Project Designer



VG Duvall, Jr., PE
Connecticut Professional Engineer

**CINGULAR WIRELESS
Antenna Modification**

Site Address: 1432 Old Waterbury Road, Southbury
exempt modification

Tower Owner/Manager: Crown Atlantic Company LLC

Antenna configuration Antenna center line – 195'

Current and/or approved: 12 ALP 110 11

Planned: 9 CSS DUO4-8670 or comparable
6 tower mount amplifiers
1 LMU (at 25')

Power Density:

Calculations for Cingular's current operations at the site indicate a radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 3.1% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density for Cingular's planned operations would be approximately 4.3%, or an additional 1.2% of the standard.

Cingular Current

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET	195	880 - 894	19	100	0.0180	0.5867	3.1

Cingular Planned

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
SNET TDMA	195	880 - 894	16	100	0.0151	0.5867	2.6
SNET GSM	195	880 - 894	2	296	0.0056	0.5867	1.0
SNET GSM	195	1930 - 1935	2	427	0.0081	1.0000	0.8
Total							4.3%

Structural information: Please see attached. Please note that, since the LMU will be installed at 25' rather than at 120' as shown in the structural analysis, the analysis presents a conservative calculation.

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A Subsidiary
of Quanta
Services, Inc.



TOWER ANALYSIS REPORT

Crown Castle USA

Site Name: Southbury

Site Number: 806358

Southbury, CT

Revision 1

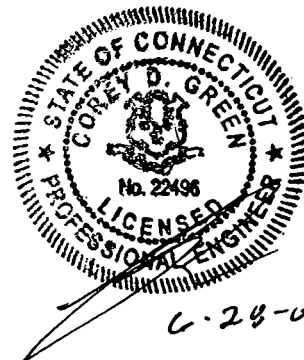
(230' Monopole Tower)



GEM Engineering Company, Inc.
June 28, 2002

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TOWER INFORMATION

Tower Height: 230'

Tower Type: Monopole


Tower Manufacturer: EE, Inc.

Tower Model Number: -

Location: Southbury, CT

Report Prepared for: Crown Castle USA

Report Prepared by: Ahmad Ayyubi

Report Checked by: 

GEM Project Number: 981594

Site Name: Southbury

Site Number: 806358

Report Date: June 26, 2002

Section 1 Introduction

The purpose of this report is to investigate the structural adequacy of an existing tower, to support the new proposed antennas, in addition to the load from existing antennas. This is re-analysis report.

The existing tower is a 230' monopole tower designed by "EE, Inc.". Information on this tower and original base reactions was obtained from "EE, Inc.", drawing number GS51558, dated August 11, 1999. Information on the existing antennas and new antennas was supplied by "Crown Castle USA".

The new and existing antennas are listed in the "Tower Loading Information & Criteria" section. The main forces that are considered in the analysis of the tower are those resulting from wind. Per TIA/EIA-222-F, the basic wind speed for New Haven County in Connecticut is 85 mph with 0.5" ice. Wind load combination with ice includes reduction in the tower loading.

The tower was analyzed for the following load combinations:

- Dead Load + Wind Load
- Dead Load + Wind Load + Ice

Allowable stresses were increased by 1/3 for these load combinations. This is according to TIA/EIA code. Dead Load consists of the loads due to the weight of all existing and future antennas, coaxes, tower members, and all related appurtenances.

Section 2 Tower Loading Information & Criteria

Customer Name: Crown Castle USA

Site: Southbury, CT

TOWER ANALYSIS DATA:

Tower Analysis Criteria: TIA-EIA-222-F

Tower Height: 230'

Ice Load: 0.5"

Wind Load: 85 mph

Frequency: -

ANTENNAS:

Model	Carrier Name	Level	Azimuth	Existing / New	Mount Type	Coaxial Cables
(1) KS249019L112	Sprint PCS	75'		E		½" φ
(9) DB978H90M	Sprint PCS	175'		E		* Not exposed
(9) DB980		185'		E		* Not exposed
(12) ALP11011*	Cingular	195'		E		* Not exposed
(12) RR65-18-02		205'		E		* Not exposed
(12) ALP 9212*	Nextel	220'		E		* Not exposed
(12) ALP 9212		230'		E		* Not exposed
(9) DU04-8670 w/ (6) Amplifiers*	Cingular	195'		N		* Not exposed
(1) Kathrein 738449	Cingular	195'		N		* Not exposed
(12) DB844H90E-XY*	Nextel	220'		N		* Not exposed

* The (12) existing antennas at 195' and (12) existing antennas at 220' shall be removed, and were not included in the analysis.

Section 3 Results

Structural Element	Stress	Maximum Ratio	Notes
Monopole Shaft	O.K.	0.925	-
Legs	N/A	N/A	-
Leg Bolts	N/A	N/A	-
Diagonals	N/A	N/A	-
Diagonal Bolts	N/A	N/A	-
Girts	N/A	N/A	-
Girt Bolts	N/A	N/A	-
Guy Wires	N/A	N/A	-

N/A = Not Applicable, N.G. = Not Good (Structurally)

Acceptable Maximum Ratio is 1.05

BASE REACTIONS	Moment (k-ft)	Shear (k)	Axial (k)
Original Base Loads *	8439.1	50.8	78.7
New Foundation Loads	8407	50.90	88.39

* The original base loads were obtained from "EE, Inc.", drawing number D5262-230.1, dated 08/27/99.

Section 4 Conclusions

The existing 230' monopole tower was analyzed for loadings from existing and new proposed antennas, including 85 mph basic wind speed & 0.5" ice load. The analysis shows that **the existing tower and its foundation are structurally adequate** to support ten (10) new antennas at 195' and twelve (12) new antennas at 220', in addition to all existing antennas (the twelve existing antennas at 195' and twelve existing antennas at 220' shall be removed).