August 7, 2007

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

RE: EM-CING-043-059-076-089-089-106-070703 - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 1455 Forbes Street, East Hartford; 68 Groton Long Point Road, Groton; 8 Old Route 79, Madison; 167 Lester Street, New Britain; 200 Stanley Street, New Britain; and 170 Ingham Hill Road, Old Saybrook, Connecticut.

#### Dear Mr. Levine:

At a public meeting held on July 26, 2007, 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.

The proposed modifications are to be implemented as specified here and in your notice dated July 2, 2007, including the placement of all necessary equipment and shelters within the tower compounds. 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 existing facility sites that would not increase tower heights, extend the boundaries of the tower sites, increase noise levels at the tower site boundaries by six decibels, and increase the total radio frequencies electromagnetic radiation power densities 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. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to any of 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,

Daniel F. Caruso Chairman

#### DFC/MP/laf

The Honorable Melody A. Currey, Mayor, Town of East Hartford Michael J. Dayton, Town Planner, Town of East Hartford The Honorable Harry A. Watson, Mayor, Town of Groton Kevin Quinn, Zoning Enforcement Officer, Town of Groton The Honorable Thomas S. Scarpati, First Selectman, Town of Madison Marilyn M. Ozols, Planning & Zoning Administrator, Town of Madison The Honorable Timothy T. Stewart, Mayor, City of New Britain Steven P. Schiller, Director of Planning, City of New Britain The Honorable Michael A. Pace, First Selectman, Town of Old Saybrook Christine Nelson, Town Planner, Town of Old Saybrook Christopher B. Fisher, Esq., Cuddy & Feder LLP Thomas J. Regan, Esq., Brown Rudnick Berlack Israels, LLP Kenneth C. Baldwin, Esq., Robinson & Cole LLP Christine Farrell, T-Mobile Jeffrey W. Barbadora, Crown Atlantic Company LLC American Tower Corporation **Spectrasite Communications** SBA Inc.





New Cingular Wireless PCS, LLC

500 Enterprise Drive

Rocky Hill, Connecticut 06067-3900

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

EM-CING-043-059-076-089-089-106-070703

HAND DELIVERED

July 2, 2007

Honorable Daniel F. Caruso, Chairman, and Members of the Connecticut Siting Council Connecticut Siting Council 10 Franklin Square New Britain, Connecticut 06051 Steven L. Levine Real Estate Consultant

Re: New Cingular Wireless PCS, LLC notice of intent to modify 6 existing telecommunications facilities located in East Hartford, Groton, Madison, New Britain (2), and Old Saybrook

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 ("Cingular") 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 each of the municipalities in which an affected cell site is locate.

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 are summary sheets detailing the planned changes, including power density calculations reflecting the change in the effect of Cingular's operations at each affected 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).

- 1. In each instance, the height of the overall structure will be unaffected. Modifications to the existing sites include all or some of the following as necessary to bring each site into conformance with the plan:
  - Replacement of existing panel antennas with new antennas of similar size, shape, and weight, or, installation of additional antennas of similar size, shape, and weight.
  - 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.

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 noted in the following 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 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, 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) 513-7636 with questions concerning this matter. Thank you for your consideration.

Sincerely,

Steven L. Levine

Real Estate Consultant

Attachments

# **CINGULAR WIRELESS Equipment Modification**

1455 Forbes Street, East Hartford, CT Site Number 5276 Former AT&T site Petition 535 approved 5/21/02

Tower Owner/Manager:

Crown Castle

**Equipment configuration:** 

Monopole with pipe mount

Current and/or approved: Three Allgon 7250 antennas @ 120 ft c.l.

Six runs 1 1/4 inch coax

Three outdoor cabinets on existing concrete slab

**Planned Modifications:** 

Remove existing antennas

Install three Powerwave 7770 antennas at 120 ft c.l.

Install six TMA's @ 120 ft

Install additional 6 x 6 ft concrete slab

(see attached site plans)

Install one additional outdoor cabinet for UMTS

# **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 43.3 % 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 48.3 % of the standard.

# **Existing**

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 *							41.35
Cingular GSM *	120	1900 Band	8	98	0.0196	1.0000	1.96
Total							43,3%

Per CSC Records

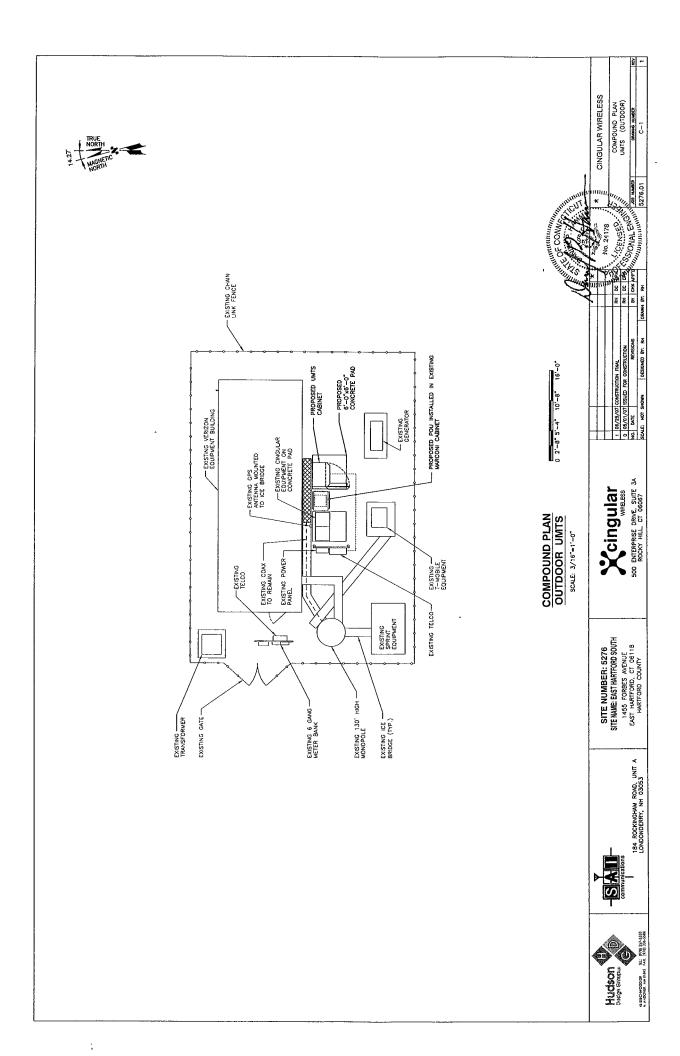
# **Proposed**

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 *							41.35
Cingular GSM	120	1900 Band	_ 3	640	0.0479	1.0000	4.79
Cingular UMTS	120	880 - 894	1	500	0.0125	0.5867	2.13
er eljoial							43)396

<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 modifications. (Morrison Hershfield, dated 6/26/07)







June 26, 2007

Mitch West Crown Castle International 46 Broadway Albany, NY 12202 518-433-6242 Morrison Hershfield 66 Perimeter Center East, Ste 600 Atlanta, GA 30346 770-379-8500

www.morrisonhershfield.com

**Subject: Structural Analysis Report** 

Carrier Designation

**Cingular Wireless Co-Locate** 

Carrier Site Number:

Carrier Site Name:

East Hartford-Forbes Avenue

Crown Castle Designation

**Crown Castle BU Number:** 

806376

5276

Crown Castle Site Name:

HRT 100 943239

Crown Castle JDE Job No.: N/A

Engineering Firm Designation

MHC Project Number:

6073000 / CN0-827R1

Site Data

1455 Forbes Street, East Hartford, CT / Hartford County

Latitude 41-43-53.3 Longitude -72-36-28.0

**130 Foot Monopole Tower** 

Dear Mr. West.

Morrison Hershfield is pleased to submit this "Structural Analysis Report" to determine the structural adequacy of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order No. 239692. The purpose of the analysis is to determine the suitability of the tower with the addition of Cingular's proposed antenna installation of three (3) Powerwave 7770.00 panel antennas with six (6) 1-1/4" feedlines at 120 ft (replacing three (3) existing Allgon 7250.03 panel antennas and six (6) 1-5/8" feedlines at 118 ft) when combined with the existing and reserved equipment on the structure. This analysis has been performed in accordance with the TIA/EIA 222-F standard based upon a fastest-mile wind speed condition of 80 mph with 1/2" radial ice, meeting the requirements of Section 3108.4 of the 2003 International Building Code.

Based on our analysis, we have determined that the tower and foundation are sufficient for the proposed loading

We at *Morrison Hershfield* appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a Galling.

Respectfully submitted,

C. H. David Tan, P.E. (CT No. 2

Senior Engineer

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Output from RISA Tower®

#### **APPENDIX B**

Cable Routing Drawing

#### **APPENDIX C**

Tower Manufacturer's Drawings Tower Modification Drawings Foundation Drawings Soils Report

## **APPENDIX D**

Antenna Application Form 45849 (Rev. 1)

#### INTRODUCTION

Morrison Hershfield, as requested by Crown Castle International, has carried out an analysis of the 130 ft monopole tower referenced in this report. The tower was originally designed by Valmont in 1991. Valmont designed the necessary modifications for the addition of a 20 ft tower extension in 2001. It is located at 1455 Forbes Street, East Hartford, CT in Hartford County.

#### **ANALYSIS CRITERIA**

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F using a fastest mile wind speed of 80 mph and 1/2" radial ice for Hartford County, meeting the requirements of 2003 International Building Code.

Information available at the time of analysis included the tower manufacturer's drawings, foundation drawings, existing and proposed antenna details, and a soils report for the site (refer to Table 3). Also provided was a structural analysis performed by Valmont that detailed the tower modifications for the 20 ft tower extension. This information was sufficient for an analysis of the tower, subject to the conditions stated in the "Assumptions" section of this report.

Table 1 – Proposed Antenna and Cable Information

Center Line Elev (feet)	Num Ants.	Antenna Manufacturer	Åntenna Model	Mount Manufacturer Mount Model	Num. Feed Lines	Feed Line
120	3	Powerwave	7770.00		6	1-1/4"
120	6	Powerwave	LGP21401 TMAs	<b>+</b>	-	-

Table 2 – Existing and Reserved Antenna and Cable Information

Center Line Elev (feet)	Num Ants.	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model++	Num: Feed Lines	Feed Line
118	3	-	+++	-	Flush Mount	-	-
109 *	6	Decibel	DB844G65ZAXY		DI-45	6	1-5/8"
109 *	6	Decibel	DB948F85T2E-M	-	Platform	6	1-5/8"
97	6	Decibel	DB980H90E-M		Dietferen	6	1-5/8"
97*	3	Decibei	DD900H90E-IN	-	Platform	3	1-5/8"
87	3	EMS	DD00 47 00DD			6	1-5/8"
87 *	6	EIVIO	RR90-17-02DP	-	(3) Low Profile T-Arms	12	1-5/8"
87 *	3	Ericsson	KRY 112 71 TMAs	1		-	-

#### Notes

Any discrepancies in loading from Tables 1 and 2 should be brought to Morrison Hershfield's attention; results of this analysis cannot be used if the loading is substantially different. Refer to Appendix B for cable routing.

- Reserved antennas.
- \*\* In order to accommodate the reserved loading at 87 ft, this analysis assumes that the three (3) existing stand-off mounts will be replaced with three (3) T-arm mounts.
- + Proposed antennas to be installed on the existing flush mounts at 118 ft.
- ++ Where no specific model is given, antenna mount details have been assumed based on photographs.
- +++ For the analysis, three (3) existing Allgon 7250.03 panels are removed and replaced with the proposed loading at 120 ft.

#### **ANALYSIS PROCEDURE**

#### Available Documentation

Crown Castle provided Morrison Hershfield with portions of various documents to assist in our analysis. These documents are listed in Table 3.

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Valmont Drawings (dated 11/12/91)	Tower manufacturer's drawings	Crown doc no. 262386	CCI Sites
Valmont Structural Analysis (dated 8/8/01)	Tower modification design	Crown doc no. 645113	CCI Sites
SAC Engineering (dated 11/30/91)	Foundation drawings	Crown doc no. 262389	CCI Sites
Dr. Clarence Welti, PE, PC Project Name 1455 Forbes Street (dated 11/11/91)	Geotechnical report	Crown doc no. 262381	CCI Sites

#### Analysis Methods -

As required by Crown Castle International, RISA Tower, a commercially available software program for the analysis of telecommunication towers, was used to create a three-dimensional model of the tower and calculate member stresses for various load cases. Selected output from the analysis is included in Appendix A.

#### **Assumptions**

The following assumptions were made in order to perform this analysis:

- 1. The tower and structures were built and have been maintained in accordance with the manufacturer's specifications and are in good condition.
- 2. Modifications to the original tower have been properly installed and maintained as per design and are in good condition.
- 3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and in the cable routing drawing in Appendix B.
- 4. The foundation is capable of supporting the original foundation design loads.

Exceptions to the foregoing assumptions are stated explicitly in this report. The analysis may be affected if any of the assumptions are not valid or have been made in error. In such an event, Morrison Hershfield shall be permitted to review any new information in order to determine its effect on the structural adequacy of the tower.

#### **ANALYSIS RESULTS**

Summary results of our structural analysis are presented in Tables 4 and 5 below. Selected listings from the computer analysis are provided in Appendix A. The results show that the **tower is in conformance** with the requirements of the relevant standards for the proposed loading. The foundation capacity is based on a comparison of the base reactions with the original design reactions. The foundation may therefore, by comparison, be considered to be adequate for the existing and proposed loading.

Table 4 - Tower Component Stresses vs. Capacity

Section No.	Elevation	Combined Stress Ratio	Allowable Stress Ratio	Percent Capacity Used
1	110 – 130 ft	0.15	1.333	12.0
2	70 – 110 ft	0.97	1.333	73.7
3	34.1 – 70 ft	1.07	1.333	81.0
4	0 – 34.1 ft	1.08	1.333	81.7
	Anchor Bolts	- Tension Stress	<u></u>	73.6
	Base Plate -	- Bending Stress		43.6

Table 5 - Tower Foundation Results

Load Type	Original Design	Current Analysis	% Ratio to Original
Compression (kip)	20.0	23.0	115 % *
Moment (kip-ft)	1947	1631	84 %
Shear (kip)	24.2	20.7	86 %

<sup>\*</sup> The compression overload has been evaluated and determined to be acceptable.

	Γ	[	Τ			Ī			130.0 ft
	20.00	12	0.1875		10.5250	15.5250		527.5	110.0 ft
2	40.00	12	0.2500	4.00	15,5250	25.5310		2221.8	
3	39.92	12	0.3125	4.92	24.0304	34,0150	A572-65	3924.0	70.0 ft
4	39.00	12	0.3438		32.1602	41,9000		5388,9	34.1 ft
Section	Length (ff)	Number of Sides	Thickness (in)	Lap Splice (ft)	Top Dia (in)	Bot Dia (In)	Grade	Weight (lb) 12062.2	<u>0.0 ft</u>



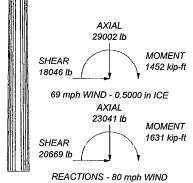
TYPE	ELEVATION	TYPE	ELEVATION	•
7770.00 (P)	120	(2) DB948F85T2E-M (E)	109	
7770.00 (P)	120	13.5 ft Platform	97	-
7770.00 (P)	120	(3) DB980H90E-M (E/R)	97	-
(2) LGP21401 (P)	120	(3) DB980H90E-M (E/R)	97	7
(2) LGP21401 (P)	120	(3) DB980H90E-M (E/R)	97	1
(2) LGP21401 (P)	120	(3) Low Profile T-Arms (R)	87	1
(3) Flush Mounts	118	(3) RR90-17-02DP (E/R)	87	-
13.5 ft Platform	109	(3) RR90-17-02DP (E/R)	87	1
(2) DB844G65ZAXY (E)	109	(3) RR90-17-02DP (E/R)	87	1
(2) DB844G65ZAXY (E)	109	Ericsson KRY 112 71 (R)	87	1
(2) DB844G65ZAXY (E)	109	Ericsson KRY 112 71 (R)	87	1
(2) DB948F85T2E-M (E)	109	Ericsson KRY 112 71 (R)	87	1
(2) DB948F85T2E-M (E)	109			J

#### **MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			·

#### **TOWER DESIGN NOTES**

- Tower is located in Hartford County, Connecticut.
   Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
   Tower is also designed for a 69 mph basic wind with 0.50 in ice.
   Deflections are based upon a 50 mph wind.
   TOWER RATING: 81.7%



Consulting Engineers

Morrison Hershfield Corporation 66 Perimeter Center East, Suite 600

Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501

n	lob: 6073000 / CN0-827R1			
)	Project: Crown# 806376 / HRT 10	0 943239		
	Client: Crown Castle International		App'd:	
	Code: TIA/EIA-222-F	Date: 06/26/07	Scale: NT	S
	Path:		Dwg No. =	-





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

July 2, 2007

Honorable Melody A. Currey Mayor, Town of East Hartford Town Hall 740 Main St. East Hartford, CT 06108-3114

Re: Telecommunications Facility – 1455 Forbes Avenue, East Hartford

Dear Mayor Currëy:

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 ("Cingular") 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 Cingular'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 Cingular'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

# CINGULAR WIRELESS Equipment Modification

68 Groton Long Point Road, Groton, CT Site Number 2164 Exempt Modifications 12/20/94, 11/21/96, and 9/5/02

**Tower Owner/Manager:** Town of Groton

**Equipment configuration:** Self-supporting lattice tower

Current and/or approved: Nine CSS DUO1417 antennas @ 133 ft c.l.

Nine runs 1 1/4 inch coax Six TMA's / three diplexers

**Planned Modifications:** Remove three CSS antennas

Install three Powerwave 7770 antennas at 133 ft c.l. Install three additional diplexers @ 133 ft (total of 6) Install three additional runs 1 1/4 inch coax (total of 12)

# **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 24.1 % 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 22.3 % of the standard.

# **Existing**

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 *					4.5		14.76
Cingular TDMA *	133	880 - 894	16	100	0.0325	0.5867	5.54
Cingular GSM *	133	880 - 894	2	296	0.0120	0.5867	2.05
Cingular GSM *	133	1900 Band	2	427	0.0174	1.0000	1.74
Total							24,1%

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

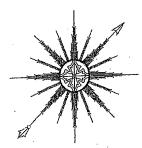
# **Proposed**

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 *							14.76
Cingular UMTS	133	880 - 894	1	500	0.0102	0.5867	1.73
Cingular GSM	133	1900 Band	2	427	0.0174	1.0000	1.74
Cingular GSM	133	880 - 894	4	296	0.0241	0.5867	4.10
Total	1.4						222/39/6

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

# Structural information:

The attached structural analysis demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed modifications. (All-Points Technology Corp., dated 6/29/07)



# ALL-POINTS TECHNOLOGY CORPORATION, P.C.

June 29, 2007

Hudson Design Group, LLC 46 Beechwood Drive North Andover, MA 01845

Attn: Derek Creaser

Re: 140' Self-Supporting Tower, Groton, CT

Cingular Site #2164; New London-Groton PD

Dear Derek,

All-Points Technology Corporation, P.C. (APT) evaluated the 140' self-supporting tower located at the Groton Police Station at 68 Groton Long Point Road in Groton, Connecticut for antenna changes proposed by Cingular Wireless. APT previously visited the tower site and performed a structural analysis for Verizon Wireless dated November 22, 2004. This evaluation also relied on information provided by others, which included recent tower photographs and antenna changes proposed by Cingular Wireless.

Cingular Wireless proposes to replace three of their existing nine CSS DUO1417-8686 panel antennas with three Powerwave 7770 panel antennas, three LGP 13519 diplexers, and three additional 1-1/4" lines. The existing six ADC CG-1900W850 tower-mounted amplifiers, three ADC diplexers and nine 1-1/4" feed lines will remain. APT recommends new feed lines be stacked on existing lines.

My evaluation indicates that the tower is capable of supporting Cingular's proposed antenna changes and associated appurtenances. The proposed changes represent an insignificant change in wind and dead loads on the structure compared to current loads. The structural capacity of the tower will not be diminished due to Cingular's proposed changes.

We appreciate this opportunity to provide our services to you. Please call if you have any questions.

Sincerely,

All-Points Technology Corporation, P.C.

Robert E. Adair, P.E.

Principal

CT198290 New London-Groton PD ltr 6-29-07.doc





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

July 2, 2007

Mr. Mark Oefinger, Town Manager Town of Groton Town Hall 45 Fort Hill Rd. Groton, CT 06340-4394 :

Re: Telecommunications Facility – 68 Groton Long Point Road, Groton

Dear Mr. Oefinger:

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 ("Cingular") 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 Cingular'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 Cingular'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

# CINGULAR WIRELESS Equipment Modification

8 Old Route 79, Madison, CT Site Number 2178 Exempt Modifications 4/12/00 and 7/11/02

**Tower Owner/Manager:** American Tower

**Equipment configuration:** Monopole

Current and/or approved: Nine CSS DUO1417 antennas @ 132 ft c.l.

Nine runs 7/8 inch coax

Six TMA's / three diplexers @ 132 ft

Decommissioned AT&T antennas at 106 ft AGL

**Planned Modifications:** Remove all nine existing antennas

Install six Powerwave 7770 antennas @ 132 ft c.l.

Remove three diplexers

Install six new diplexers @ 132 ft Remove all nine runs 7/8 inch coax Install twelve runs 1 5/8 inch coax

Remove decommissioned AT&T antennas

## Decommissioning / Removal of AT&T Antennas

Cingular hereby gives notice that it has decommissioned the existing AT&T antennas at the 106 ft level of the tower (nominally 110 ft). These antennas will be removed from the tower when the UMTS work is performed. Associated coax cables inside the tower will be left in place because, unlike other decommissioning scenarios, Cingular continues to lease this level of the tower and anticipates use for the cables in the future.

## **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 44.1 % 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 37.3 % of the standard.

# **Existing**

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 *							34.30
CingularTDMA *	130	880 - 894	16	100	0.0340	0.5867	5.80
Cingular GSM *	130	880 - 894	2	296	0.0126	0.5867	2.15
Cingular GSM *	130	1900 Band	2	427	0.0182	1.0000	1.82
Total							44/19/6

<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 *							31.70
Cingular GSM	132	880 - 894	2	296	0.0122	0.5867	2.08
Cingular GSM	132	1900 Band	2	427	0.0176	1.0000	1.76
Cingular UMTS	132	880 - 894	1	500	0.0103	0.5867	1.76
in a likelih likelih ka						100	37,39%

<sup>\*</sup> Per CSC Records, with AT&T component removed.

# Structural information:

The attached structural analysis demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed modifications, even including the decommissioned AT&T equipment to be removed (see above). (American Tower Co., dated 5/22/07)



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Level 1 Structural Evaluation <sup>1</sup>							
ATC Site Number & Name	302540, Madison CT 6	Engineering ID: 40480011					
Carrier Site Number & Name	1921, Madison PD Sire	No. 2178					
Site Address	8 Old 79						
	Madison, Connecticut 06443, New Haven County						
Tower Description	148 ft Summit Monopole						
Standards & Codes 2	ANSI/TIA/EIA-222-F (1996)	2003 International Building Code					
	85 mph w/0" radial ice	110 mph w/0" radial ice					
	74 mph w/½" radial ice						

	Table 1: Existing and Proposed Antenna Configuration								
HEIGHT (Fi)	ANTENNA	CARRIER	COAX	[I]/[O] <sup>a</sup>	STATUS				
150	(2) 10' Omni (1) 10' Dipole on Low Profile Platform	Town of Braford	(3) 7/8"	I	Existing				
149	(9) 48" x 12" Panels (3) 72" x 12" Panels on Low Profile Platform	Nextel	(12) 1-5/8"	I	Existing				
140	(9) Decibel DB844H90 (6) Decibel DB948F85T2EM on Low Profile Platform	Verizon	(15) 1-5/8"	I	Existing				
132	(6) Powerwave 7770-2 (6) Powerwave LGP 13519 on Low Profile Platform	Cingular	(12) 1-5/8"	I	Proposed				
120	(6) EMS RV90-17-02DP on Low Profile Platform	T-Mobile	(12) 1-5/8"	I	Existing				
106	(3) 48" Panels on Flush Mounts	АТ&Т	(6) 1-1/4"	I	Existing				
96	(9) 72" x 12" Panels on Low Profile Platform	Sprint	(9) 1-5/8"	I	Existing				
35	(1) GPS Antenna on Standoff Mount	Sprint	(1) 1/2"	0	Existing				

<sup>a</sup>[I]/[O] denotes coax installed inside or outside of monopole respectively.

The subject tower and foundation are adequate to support the above stated loads in conformance with specified requirements.<sup>3</sup>



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

 <sup>&</sup>lt;sup>1</sup> The existing and proposed loads of *Table 1* are compared to the tower's current design capacity or previous analysis.
 <sup>2</sup> The design wind criteria are compared to the current code requirements.
 <sup>3</sup> The tower should be re-evaluated as future loads are added or if actual loads are found different from those mentioned in *Table 1*.





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

July 2, 2007

Honorable Thomas S. Scarpati 1<sup>st</sup> Selectman, Town of Madison Madison Town Campus 8 Campus Dr. Madison, CT 06443-2563 :

Re: Telecommunications Facility – 8 Old Route 79, Madison

Dear Mr. Scarpati:

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 ("Cingular") 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 Cingular'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 Cingular'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** 

# CINGULAR WIRELESS Equipment Modification

167 Lester Street, New Britain, CT Site Number 5379 Former AT&T site Exempt Modification 4/25/02

Tower Owner/Manager: Crown Castle

**Equipment configuration:** Monopole

Current and/or approved: Four Allgon 7250 antennas @ 186 ft c.l.

Eight runs 1 5/8 inch coax

**Planned Modifications:** Remove three existing antennas

Install three Powerwave 7770 antennas at 186 ft c.l.

Install six TMA's @ 186 ft

Install additional 5 x 6 ft concrete slab for cabinets

(see attached site plans)

Install two additional outdoor cabinets

# **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 12.4 % 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 14.4 % of the standard.

# **Existing**

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 *							11.33
Cingular GSM *	187	1900 Band	4	250	0.0103	1.0000	1.03
Total							12.4%

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

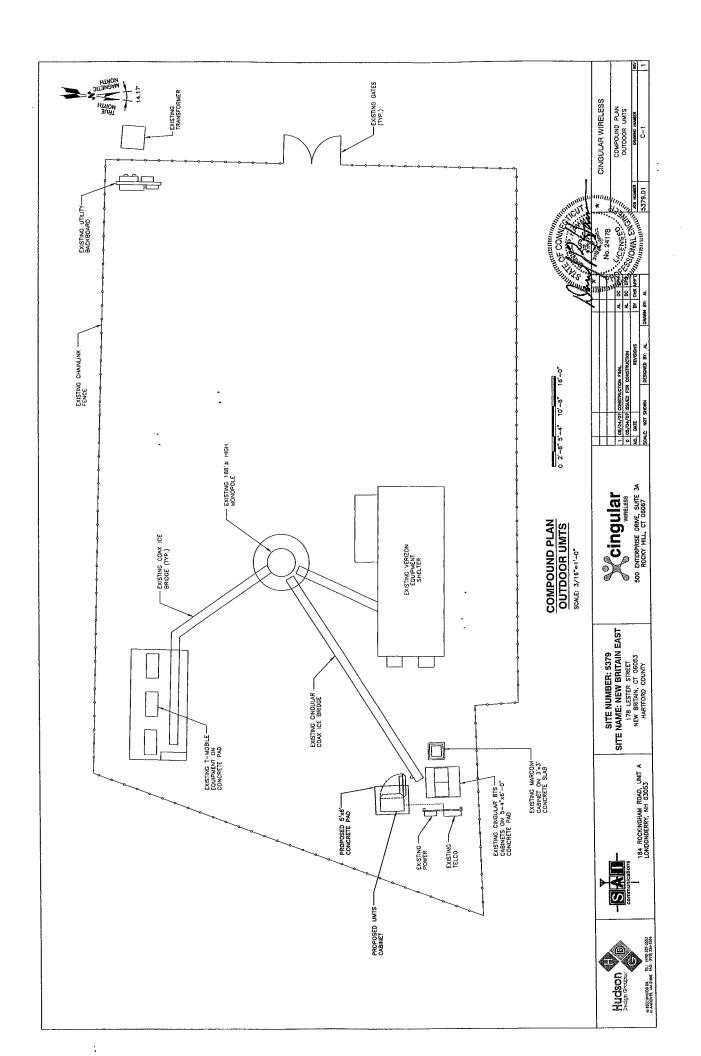
# Proposed

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 *				i i			11.33
Cingular GSM	186	1900 Band	5	427	0.0222	1.0000	2.22
Cingular UMTS	186	880 - 894	1	500	0.0052	0.5867	0.89
- Joget							*44.4%

<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 modifications. (PSG Engineering, dated 5/27/07)





Date: May 27, 2007

Eva Morales Crown Castle International 46 Broadway

Albany, NY 12204 (518) 433-6250 PSG Engineering, Ltd. 8206 Forest Gate Drive Sugar Land, TX 77479

Phone: (281) 343-7099 Fax: (281) 343-7127

Subject:

**Analysis Structural Report** 

Carrier Designation

Cingular Wireless Co-Locate Carrier Site Number: "5379"

Carrier Site Name: "New Britain-Lester Street"

Crown Castle Designation :

Crown Castle BU Number: 803175

Crown Castle Site Name: CT NEW BRITAIN 3 CAC 803175

Crown Castle JDE Job Number: 88765

Engineering Firm Designation

PSG Engineering Project Number: 0701H133-A060188

Site Data

Lester Road, New Britain, CT, Hartford County Latitude 41° 41′ 11.8″, Longitude -72° 45′ 27.8″

188 Foot - Monopole Tower

Dear Ms. Morales,

*PSG Engineering. Ltd.* is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 240559, in accordance with application 45765, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Reserved + Proposed Equipment

Note: See Table 1 and Table 2 for the proposed and existing/reserved loading.

**Sufficient Capacity** 

The analysis has been performed in accordance with the TIA/EIA 222-F standard based upon a wind speed of 80 mph fastest mile (100 mph 3-second gust).

We at *PSG Engineering*, *Ltd.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Oscar Pedraza, P.E. President

5129107

07014133-A060188 (803175) (CT NEW BRITAIN 3 CAC 803175) (Cingular)

#### 1) INTRODUCTION

The tower superstructure analysis is based on the original tower design by Paul J. Ford and Company for Summit Manufacturing, LLC dated December 11, 2000 (TIA/EIA-222-F: 85 mph and 74 with 1/2" radial ice). Since it cannot be determined which one of the two provided foundation design alternatives was built, the tower substructure analysis is based on a comparison with the original design base reactions.

#### 2) ANALYSIS CRITERIA

This tower is designed using the TIA/EIA-222-F standard.

The following design criter ia apply:

- Basic wind speed of 80 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 69 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Feedline torque is considered.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333

Table 1 - Proposed (P) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
			CAS	E A		
	3(P)	Powerwave	7770.00			!
	6(P)	Technologies	LGP21401		-	•
190			*CASE B (Contro	lling Load Case)		
	12(R)	Standard	MLA Antenna		10(0)	
	6(R)	Powerwave Technologies	LGP21401	Low Profile Platform w/Handrail (1)	12(R) (Internal)	1 5/8

\*Note: Controlling Load Case results shown in Table 5 and Appendix A.

Table 2 – Installed (I) and Reserved (R) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
**190	**4(I)	**Allgon	**7184	Low Profile Platform w/Handrail (1)	8(I) (Internal)	1 5/8
177	-	-	<b>-</b>	Low Profile Platform (1)	-	-
163	6(I)+3(R) 6(I)	EMS Wireless Standard	RR90-17-02DP TMA	Low Profile Platform (1)	12(I)+6(R) (Internal)	1 5/8
147	6(1)	Antel	WPA-80090/4CF	Law Due file Die ferme (4)	12(I) (Internal)	1 5/8
147	6(1)	Decibel	DB948F85T2E-M	Low Profile Platform (1)	1(I) (Internal)	1/2

<sup>\*\*</sup>Note: Installed antennas will be removed and replaced with proposed loads. Installed mount and coax lines will remain to support proposed loading.

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
190	12	Standard	60"x12"x3" Panel	Platform w/Handrail (1)		•
177	12	Standard	60"x12"x3" Panel	Platform w/Handrail (1)	Not Ava	ailable
162	12	Standard	60"x12"x3" Panel	Platform w/Handrail (1)	(Inter	nal)
147	12	Standard	60"x12"x3" Panel	Platform w/Handrail (1)		

#### 3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Original Tower Design	Summit Manufacturing	679659	Crown Site Data Manager
CAD Level Drawing(s)	188',177',162',147' Level Drawing(s)	_	Crown CAD Dept.

# 3.1) Analysis Method

RISATower (Version 4.7.2.1), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222F or the local building code requirements. Selected output from the analysis is included in Appendix A.

#### 3.2) Assumptions

- 1. Tower and structures were built in accordance with the manufacturer's specifications.
- 2. The tower and structures have been maintained in accordance with the manufacturer's specifications.
- 3. The configuration of antennas, transmission cables, mounts, and other appurtenances are as specified in Tables 1 and 2 and the Level drawing(s) listed in Table 4.
- 4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and PSG Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

# 4) ANALYSIS RESULTS

Table 5 - Tower Component Stresses vs. Capacity - LC1

			Summary	
Notes:	Component	Elevation	% Capacity	Pass/Fail
	L1	188 - 137	65.6	Pass
	L2	137 - 90.25	82.6	Pass
	L3	90.25 - 44.5	80.2	Pass
	L4	44.5 - 0	65.1	Pass
Individual Comp	onents:			
Notes:	Component	Elevation	% Capacity	Pass/Fail
	Base Plate	-	72.8	Pass
	Anchor Bolts	-	76.0	Pass
	Base Foundation (Compared w/ Design Loads)	-	81.6	Pass

# 4.1) Recommendations (if applicable)

No modifications are necessary.



# 137.0 ft 90.3 R

51.014

34.1

Weight (K)

Bot Dia (in) Top Dia (in)

Length (ft)
Number of Sides
Thickness (in)
Lap Splice (ft)

#### **DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
Generic C-2 Lightning Spur	1192	(2) TMA	163
(2) LGP2140X (TMA)	190	(3) RR90-17-02DP w/Mount Pipe	163
(4) Cingular MLA Panel Antenna	190	(2) TMA	163
w/Mount Pipe		(3) RR90-17-02DP w/Mount Pipe	163
(2) LGP2140X (TMA)	190	(2) TMA	163 <sup>+</sup>
(4) Cingular MLA Panel Antenna	190	(3) RR90-17-02DP w/Mount Pipe	163
w/Mount Pipe		PiROD 13' Low Profile Platform	162
(2) LGP2140X (TMA)	190	(Monopole)	
(4) Cingular MLA Panel Antenna	190	(2) WPA-80090/4CF w/Mount Pipe	147
w/Mount Pipe		_: (2) DB948F85T2E-M w/Mount Pipe	147
PiROD 13' Platform w/handrails (Monopole)	188	(2) WPA-80090/4CF w/Mount Pipe	. 147
(2) Mount Pipe (2"x72")	177	(2) DB948F85T2E-M w/Mount Pipe	147
``````````````````````````````````````		~ (2) WPA-80090/4CF w/Mount Pipe	147
(2) Mount Pipe (2"x72")	177	PiROD 13' Low Profile Platform	147
PiROD 13' Low Profile Platform (Monopole)	177	(Monopole)	
(Monopole) (2) Mount Pipe (2"x72")	177	(2) DB948F85T2E-M w/Mount Pipe	147

#### **MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
Δ572-65	65 ksi	80 ksi			

#### **TOWER DESIGN NOTES**

- 1. Tower is located in Hartford County, Connecticut.
  2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
  3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
  4. Deflections are based upon a 50 mph wind.
  5. TOWER RATING: 82.6%

	AXIAL 56 K	
SHEAR 24 K		MOMENT 3321 kip-ft ¶
69 mph Wi SHEAR 28 K	AXIAL 47 K 	500 in ICE  MOMENT 3796 kip-ft  v kip-ft

PSG Engineering, Ltd. <sup>b:</sup> PSG Engineering Project Number: 0701H133-A06018 245 Commerce Green Blvd., Suite 240 Project: (803175) (CT NEW BRITAIN 3 CAC 803175) Client: Crown Castle International Drawn by PSG App'd:
Code: TIA/EIA-222-F Date: 05/27/07 Scale: NTS Sugar Land, TX 77478 Phone: 281.265.3444 Dwg No. E-1 FAX: 281.265.3454 N;\Production\0701H133\803175.eri





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

July 2, 2007

Honorable Timothy T. Stewart, Mayor City of New Britain City Hall 27 West Main St. New Britain, CT 06051-2298

Re: Telecommunications Facility - 167 Lester Street, New Britain

Dear Mayor Stewart:

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 ("Cingular") 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 Cingular'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 Cingular'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

# CINGULAR WIRELESS Equipment Modification

200 Stanley Street, New Britain, CT

Site 5194

Former AT&T site

Petition 544 dated 2/14/02

Tower Owner/Manager: Crown Castle

**Equipment configuration:** Monopole

Current and/or approved: Three Allgon 7250 antennas @ 195 ft c.l.

Six runs 1 5/8 inch coax

**Planned Modifications:** Remove all three existing antennas

Install three Powerwave 7770 antennas @ 195 ft c.l.

Install six TMA's @ 195

Install additional 6 x 6 ft concrete slab for cabinets

(see attached site plans)

Install two additional outdoor cabinets

# **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 14.1 % 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 16.8 % of the standard.

# **Existing**

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 *							13.33
Cingular *	195	1900 Band	8	100	0.0076	1.0000	0.76
Tótal							14.1%

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

## **Proposed**

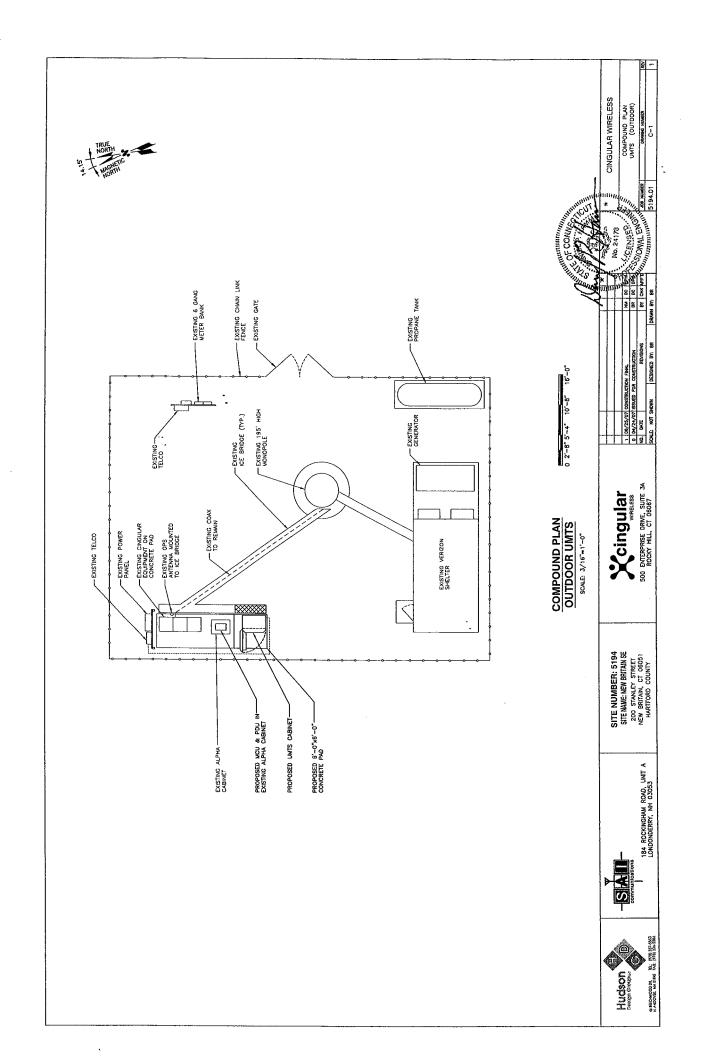
Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm²)	Standard Limits (mW/cm²)	Percent of Limit
Other Users *				5 35 48 37 20			13.33
Cingular GSM	195	1900 Band	5	570	0.0269	1.0000	2.69
Cingular UMTS	195	880 - 894	1	500	0.0047	0.5867	0.81
- Total							16.8%

<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 modifications. (PSG Engineering, dated 3/23/06)

The 2006 structural analysis allocates loading for 12 antennas to Cingular, but we are proposing to mount and operate only 3. Installation of 6 proposed TMA's represents a substitution for the 9 uninstalled antennas. We respectfully submit, therefore, that the proposed modifications are within the analyzed loading parameters. Consequently, the 2006 analysis is still valid for the proposed tower loading.





March 23, 2006

Veronica Harris Crown Castle International 1200 McArthur Blvd. Mahwah, NJ 07430 (201) 236-9094



PSG Engineering, Ltd. 8206 Forest Gate Drive Sugar Land, TX 77479

Phone: (281) 343-7099 Fax: (281) 343-7127

Subject:

Structural Analysis Report

**Carrier Designation** 

Verizon Wireless Co-Locate
Carrier Site Number: "HRT2129"
Carrier Site Name: "New Britain-4"

Crown Castle Designation

Crown Castle BU Number: 803843

Crown Castle Site Name: CT NEW BRITAIN 4 CAC 803843

Crown Castle JDE Job Number: 71179

**Engineering Firm Designation** 

PSG Engineering Project Number: 0601H115-A060195

Site Data

Stanley Street, New Britain, CT, Hartford County Latitude 41°-39'-16.4", Longitude -72°-46'-09.59".

195 Foot - Monopole Tower

Dear Ms. Harris,

PSG Engineering, Ltd. is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural Statement of Work and the terms of Crown Castle Purchase Order Number 204344. The purpose of the analysis is to determine the suitability of the tower with the addition of the proposed equipment listed in Table 1 of this report when combined with the existing and reserved equipment on the structure. This analysis has been performed in accordance with the TIA/EIA 222-F standard based upon a wind speed condition of 80 mph.

Based on our analysis we have determined the tower and foundation  $\underline{ARE}$  sufficient for the proposed loading.

All proposed equipment shall be installed in accordance with Crown Castle Drawing Number(s): 803843 A 100.DWG.

We at PSG Engineering appreciate the opportunity of providing our continuing professional services to you and Crown Castle International. If you have any questions or need further assistance on this or any other projects please give us as a limiting.

Respectfully submitted,

Oscar Pedraza, P.E. President

0801H115-A060195 (803843) (CT NEW BRITAIN 4 CAU (11) (11)

#### INTRODUCTION

This tower was designed by Paul J. Ford and Company for Summit Manufacturing, LLC on April 24, 2001 per TIA/EIA-222-F using a basic wind speed of 80 mph and 69 mph with ½" radial ice.

## **ANALYSIS CRITERIA**

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- Basic wind speed of 80 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 69 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Feedline torque is considered.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333

Table 1 - Proposed (P) Antenna and Cable Information

Ganer Elite Elevation Elevation	Number Of Antenna	Anems Vanulastura	Antenna (Node)	Mount	Number Of Feed Lines	Feeds Lipe Size (judies)
102	6(P)	Antel	WPA-80090/4CF	<u>-</u>	<u>-</u>	-

Table 2 - Installed (I) and Reserved (R) Antenna and Cable Information

Center Line Elevation	Number Of Antenna	Anterina Manufacturer	Antejira Nodel	Mount:	Number Gr Feed Lines	
195	3(1)	Allgon	7250.02	Low Profile Platform (1)	6(I)+6(R)	1 5/8
100	9(R)	Dapa	58210		(Internal)	
185	-	-	-	Low Profile Platform (1)	<u>-</u>	
	*6(I)	*Swedcom	*ALP-E 9011-DIN	T-Arm w/ work platform (3)	12(l)	1 5/8
*102	6(I)	Decibel	DB948F85T2E-M	1-Aim W Work platform (5)	(Internal)	

<sup>\*</sup>Note: Installed (6) Swedcom antennas will be removed and replaced with proposed loads. Installed (6) Decibel antennas, coax lines, and mount will remain.

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

Genter Line Elevation Jueti	Númber Of Antenna	Antenna H Manufacturer	Antenna Model		Number Feed  * Of Biscine  Feed  * Size  * Lines  * (incres) //
195	12	Standard	Panel Antenna.	14' Low Platform	
185	12	Standard	Panel Antenna	14' Low Platform	
175	12	Standard	Panel Antenna	14' Low Platform	Not Available
165	1	Standard	Microwave Dish	Dish Mount	(Internal)
155	12	Standard	Panel Antenna	(3) 14' T-Arm Mounts	(
145	12	Standard	Panel Antenna	(3) 14' T-Arm Mounts	
135	1	Standard	Microwave Dish	Dish Mount	

#### **ANALYSIS PROCEDURE**

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Original Tower Design	Summit Manufacturing	925033	Crown Site Data Manager
Crown Castle Application	Application ID: 30133 Revision 1	-	Crown Regional Office
CAD Level Drawing(s)	193',185',100' Level Drawing(s)	-	Crown CAD Dept.

Analysis Methods

RISATower (Version 4.0.0.00), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222F or the local building code requirements. Selected output from the analysis is included in Appendix A.

# **Assumptions**

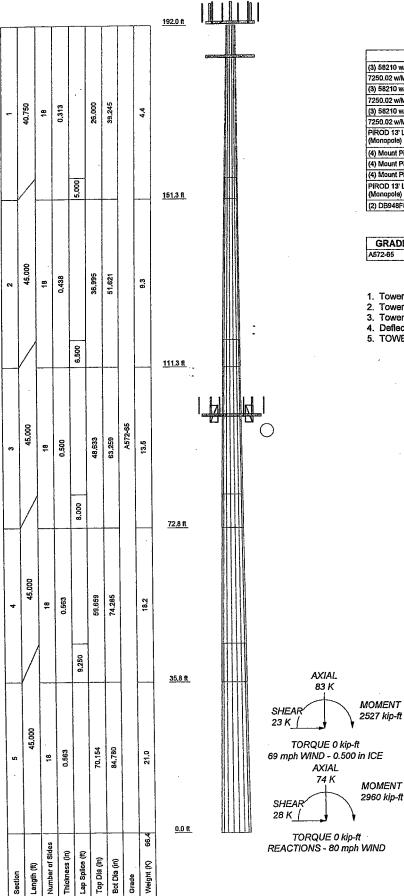
- 1. Tower and structures were built in accordance with the manufacturer's specifications.
- 2. The tower and structures have been maintained in accordance with manufacturer's specifications.
- 3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2.
- 4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and PSG Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

#### **ANALYSIS RESULTS**

**Table 5 – Tower Section Capacity** 

Section : Number	Elevation (feet) of a state of the state of	Percent Capacity Used	Pass I/Fail
1	192 - 151.25	14.0	Pass
2	151.25 - 111.25	15.9	Pass
3	111.25 - 72.75	18.6	Pass
4	72.75 - 35.75	19.9	Pass
5	35.75 - 0	22.8	Pass
Anchor Bolts	;	35.0	Pass
Base Plate		25.5	Pass
	ation (Compared with original design loads)	≤32.5	Pass



#### **APPURTENANCES**

TYPE	ELEVATION	TYPE	ELEVATION
(3) 58210 w/Mount Pipe	195	(2) WPA-80090/4CF w/Mount Pipe	102
7250.02 w/Mount Pipe	195	(2) DB948F85T2E-M w/Mount Pipe	102
(3) 58210 w/Mount Pipe	195	(2) WPA-80090/4CF w/Mount Pipe	102
7250.02 w/Mount Pipe	195	(2) DB948F85T2E-M w/Mount Pipe	102-
(3) 58210 w/Mount Pipe	195	(2) WPA-80090/4CF w/Mount Pipe	102
7250.02 w/Mount Pipe	195	5' Standoff T-Arm (14' face width)	100
PIROD 13' Low Profile Platform (Monopole)	193	T1520KTA Monopole T-Arm Work Support	100
(4) Mount Pipe (2"x72")	185	5' Standoff T-Arm (14' face width)	100
(4) Mount Pipe (2"x72")	185	T1520KTA Monopole T-Arm Work	100
(4) Mount Pipe (2"x72")	185	Support	
PIROD 13' Low Profile Platform	185	5' Standoff T-Arm (14' face width)	100
(Manapole)		T1520KTA Monopole T-Arm Work	100
(2) DB948F85T2E-M w/Mount Pipe	102	Support	

#### **MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu	
A672 86	CE kei	PO kei				

#### **TOWER DESIGN NOTES**

- Tower is located in Hartford County, Connecticut.
   Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
   Tower is also designed for a 69 mph basic wind with 0.50 in ice.
- Deflections are based upon a 50 mph wind.
   TOWER RATING: 25.9%







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

July 2, 2007

Honorable Timothy T. Stewart, Mayor City of New Britain City Hall 27 West Main St. New Britain, CT 06051-2298

Re: Telecommunications Facility – 200 Stanley Street, New Britain

Dear Mayor Stewart:

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 ("Cingular") 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 Cingular'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 Cingular'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

# CINGULAR WIRELESS Equipment Modification

170 Ingham Hill Road, Old Saybrook, CT Site Number 2019
Docket 51.2; Exempt Mods 9/26/85 and 7/11/02

Tower Owner/Manager: Cingular

**Equipment configuration:** Monopole

Current and/or approved: Nine CSS DUO1417 antennas @ 154 ft c.l.

Nine runs 11/4 inch coax

Six TMA's / three diplexers @ 154 ft

**Planned Modifications:** Remove three existing antennas

Install three Powerwave 7770 antennas at 154 ft c.l. Install three additional diplexers at 154 ft (total of 6)

Install three runs 1 1/4 inch coax (total of 12)

# **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 18.9 % 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 17.2 % of the standard.

# **Existing**

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 *		20.0					11.91
CingularTDMA *	154	880-894	16	100	0.0243	0.5867	4.13
Cingular GSM *	154	880 - 894	2	296	0.0090	0.5867	1.53
Cingular GSM *	154	1900 Band	2	427	0.0129	1.0000	1.29
Total							18.9%

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

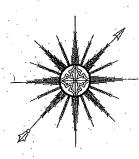
# Proposed

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 *							10.95
Cingular GSM	154	880 - 894	4	296	0.0180	0.5867	3.06
Cingular GSM	154	1900 Band	3	427	0.0194	1.0000	1.94
Cingular UMTS	154	880 - 894	1	500	0.0076	0.5867	1.29
Total		30					17.2%

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

# Structural information:

The attached structural analysis demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed modifications. (All-Points Technology Corp., dated 6/27/07)



# ALL-POINTS TECHNOLOGY CORPORATION, P.C.

# STRUCTURAL ANALYSIS REPORT 150' MONOPOLE TOWER OLD SAYBROOK, CONNECTICUT

Prepared for Hudson Design Group, LLC

Cingular Site #2019

June 27, 2007



APT Project #CT198240

# STRUCTURAL ANALYSIS REPORT 150' MONOPOLE TOWER OLD SAYBROOK, CONNECTICUT prepared for Hudson Design Group, LLC

#### **EXECUTIVE SUMMARY:**

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of this 150-foot monopole tower located at 170 Ingham Hill Road in Old Saybrook, Connecticut. The analysis was performed for Cingular Wireless's replacement of three panel antennas on an existing low-profile platform at 150'.

Our analysis indicates the tower meets the requirements of the Connecticut State Building Code and TIA-222 with the proposed changes. The base foundation could not be evaluated, as information on its design or construction was not available to APT.

#### **INTRODUCTION:**

A structural analysis of this communications tower was performed by APT for Hudson Design Group, LLC. The tower is located at 170 Ingham Hill Road in Old Saybrook, Connecticut. APT did not visit the tower site. This analysis relied solely on information provided by others, which included recent photographs, a structural analysis report by URS Corporation dated April 19, 2005, and proposed antenna changes.

The structure is a 150-foot, galvanized steel, 4-section monopole of unknown manufacturer. The analysis was conducted using the following antenna inventory (proposed antenna changes shown in **bold** text):

Antenna	Elev.	Mount	Coax.
(3) antennas inside 6' x 16" canister	162'	10' pipe extension	(6) 1-1/4"
(6) DUO1417-8686, (3) 7770.0 panels, (6) TMAs, (6) Diplexers, (3) Bias-Ts <sup>1</sup>	154'	13' low-profile platform	(12) 1-1/4"
4' grid dish	150'	On above platform	7/8"
(3) BXA-185090/8, (6) ALP-E 9011 panels	133'	13' low-profile platform	(12) 1-5/8"
FM antenna, no radome	71'	4' sidearm	1/2"
6' yagi	22'	3' sidearm	1/2"

<sup>&</sup>lt;sup>1</sup> Currently nine DUO1417-8686 antennas, nine 1-1/4" lines and six TMAs installed.

**All-Points Technology Corporation** 

150 Old Westside Road North Conway, NH 03860 (603) 496-5853 3 Saddlebrook Drive Killingworth, CT 06419 (860) 663-1697

# STRUCTURAL ANALYSIS:

#### Methodology:

The structural analysis was done in accordance with the Connecticut State Building Code and TIA/EIA-222, Revision F (TIA), <u>Structural Standards for Steel Antenna Towers and Antenna Supporting Structures</u>.

The analysis was conducted using a 85 mph fastest mile wind speed (equivalent to 105 mph 3-second gust) and one-half inch of radial ice over the structure and associated appurtenances. The TIA Standard requires a basic wind speed of 85 miles per hour for Middlesex County, Connecticut.

Two loading conditions were evaluated in accordance with TIA/EIA-222-F to determine tower capacity. The more demanding of the two cases is used to calculate tower capacity:

- Case 1 = Wind Load (without ice) + Tower Dead Load
- Case 2 = 0.75 Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits a one-third increase in allowable stresses for towers less than 700-feet tall. Allowable stresses of tower members were increased by one-third when computing the tower capacity values shown below.

#### **Analysis Results:**

Our analysis determined the tower will support the proposed antenna changes. The following table summarizes the capacity of the monopole based on combined axial and bending stresses:

Elevation	Capacity
110'-150'	81%
70'-110'	91%
35'-70'	93%
0'-35'	92%
Base plate	100%

The base foundation could not be evaluated, as information on its design or construction was not available to APT.

Base reactions imposed with the proposed antenna changes were calculated to be as follows:

Compression:

22 kips

Total Shear:

19 kips

Overturning Moment:

1877 ft-kips

**All-Points Technology Corporation** 

# CONCLUSIONS AND SUGGESTIONS:

As detailed above, our analysis indicates that the existing 150' monopole tower located at 170 Ingham Hill Road in Old Saybrook, Connecticut meets the requirements of the Connecticut State Building Code and TIA-222 with Cingular Wireless's proposed antenna changes.

The base foundation could not be evaluated, as information on its design or construction was not available to APT.

#### LIMITATIONS:

This report is based on the following:

- 1. Tower is properly installed and maintained.
- 2. All members are in new condition.
- 3. All bolts are in place and are properly tightened.
- 4. Tower is in plumb condition.
- 5. Material yield stress values as follows:

Monopole: 65 ksi Base plate: 50 ksi Anchor bolts: 75 ksi

All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

- 1. Adding or relocating antennas.
- 2. Installing antenna mounts or waveguide cables.
- 3. Extending tower.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

									150.0 ft
Į.	40.00	12	0.2500	15.5300	21,7700			2.0	
2	40.00	12	0.3125	21,7700	28.6400		A572-65	3.4	110.0 ft
	35.00	12	03750	28.6400	Coperation	22,000,00		4.4	35.0 R
4	4 4	novec	71	0.4375	33,6600	38,2900		6.0	
	Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K) 15.8	0.0 ft

# DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
6' x 16" shroud	161	7770.00	150
10'x4 1/2" Pipe Mount	155	4' grid dish	150
7770.00	150	(2) ALP-E 9011-DIN	133
(2) 1900 TMA	150	(2) ALP-E 9011-DIN	133
(2) 1900 TMA	150	(2) ALP-E 9011-DIN	133
(2) 1900 TMA	150	13' low-profile platform	133
LGP 13519	150	BXA-185090/8CF	133
LGP 13519	150	BXA-185090/8CF	133
LGP 13519	150	BXA-185090/8CF	133
(2) DUO1417-8686	150	4' sidearm	71
(2) DUO1417-8686	150	FM antenna	71
(2) DUO1417-8686	150	3' sidearm	22
13' low-profile platform	150	6' Yagi	22
7770.00	150		

#### **MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A 572 65	SE kei	80 ksi			

# **TOWER DESIGN NOTES**

- 1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
  2. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
  3. Deflections are based upon a 50 mph wind.
  4. Antennas not shown for clarity.
  5. TOWER RATING: 92.9%

All-Points Technology Corp.	lob: 150' Monopole Tower	
150 Old Westside Road North Conway, NH 03860 Phone: 603-496-5853	Project: C7198240 Old Saybrook  Client: HDG; Cingular Site #2019 Drawn by: Robert E. Adair, P.E.  Code: TIA/EIA-222-F Date: 06/27/07	App'd: Scale: NTS Dwg No. E-1
FAX: 603-356-5214	Path:	C-1





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

July 2, 2007

Honorable Michael A. Pace 1<sup>st</sup> Selectman, Town of Old Saybrook Town Hall, 302 Main St. Old Saybrook, CT 06475

Re: Telecommunications Facility – 170 Ingham Hill Road, Old Saybrook

Dear Mr. Pace:

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 ("Cingular") 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 Cingular'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 Cingular'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