

Daniel F. Caruso
Chairman

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

October 1, 2007

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

RE: **EM-CING-045-059-124-131-152-070914** – New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at Flanders Road, East Lyme; 725 (a.k.a. 741) Flanders Road, Groton; 6 Progress Avenue; Seymour; Shuttle Meadow Road, Southington; and 41 Manitock Hill Road, Waterford, Connecticut.

Dear Mr. Levine:

At a public meeting held on September 25, 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, with the conditions that:

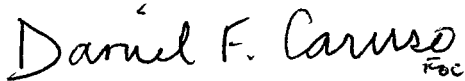
- a) The modifications specified for the Groton tower in structural analysis report dated August 16, 2007 and sealed by Robert Semaan, P.E. be performed prior to the antenna swap and that a signed letter from a Professional Engineer be submitted to the Council to certify that the modifications have been properly completed.
- b) The modifications specified for the Southington tower in structural analysis report dated May 23, 2007 and sealed by Jason Seaverson, P.E. be performed prior to the antenna swap and that a signed letter from a Professional Engineer be submitted to the Council to certify that the modifications have been properly completed.
- c) The modifications specified for the Waterford tower in structural analysis report dated July 6, 2007 and sealed by John Irving Mathis, P.E. be performed prior to the antenna swap and that a signed letter from a Professional Engineer be submitted to the Council to certify that the modifications have been properly completed.

The proposed modifications are to be implemented as specified here and in your notice dated September 14, 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.

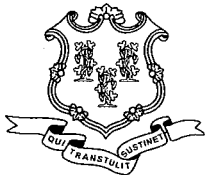
Very truly yours,



Daniel F. Caruso
Chairman

DFC/MP/cm

- c: The Honorable Beth A. Hogan, First Selectman, Town of East Lyme
Meg Parulis, Planning Director, Town of East Lyme
The Honorable Daniel M. Steward, First Selectman, Town of Waterford
Thomas V. Wagner, Planning Director, Town of Waterford
The Honorable Robert J. Koskelowski Sr., First Selectman, Town of Seymour
James Baldwin Sr., Zoning Enforcement Officer, Town of Seymour
The Honorable John Barry, Chairman Town Council, Town of Southington
Mary Hughes, Town Planner, Town of Southington
The Honorable Harry A. Watson, Mayor, Town of Groton
Kevin Quinn, Zoning Enforcement Officer, Town of Groton
Connecticut Light & Power
Christine Farrell, T-Mobile
EMAC Communications
Crown Castle
American Tower



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Chairman

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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Internet: ct.gov/csc

September 17, 2007

The Honorable Robert J. Koskelowski Sr.
First Selectman
Town of Seymour
Town Hall
One First Street
Seymour, CT 06483

RE: **EM-CING-045-059-124-131-152-070914** – New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at Flanders Road, East Lyme; 725 (a.k.a. 741) Flanders Road, Groton; 6 Progress Avenue; Seymour; Shuttle Meadow Road, Southington; and 41 Manitock Hill Road, Waterford, Connecticut.

Dear Mr. Koskelowski:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for September 25, 2007, at 1:30 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the Council by noon on September 25, 2007.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/cm

Enclosure: Notice of Intent

c: James Baldwin, Sr., Zoning Enforcement Officer, Town of Seymour



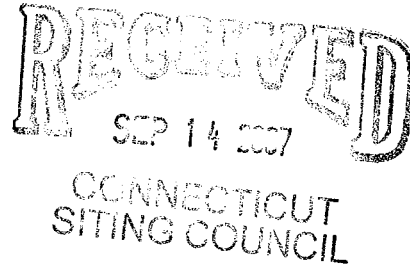
EM-CING-045-059-124-131-152-070914

New Cingular Wireless PCS, LLC
00 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

Steven L. Levine
Real Estate Consultant

HAND DELIVERED

September 14, 2007



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

Re: New Cingular Wireless PCS, LLC notice of intent to modify 5 existing tele-communications facilities located in East Lyme, Groton, Seymour, Southington, and Waterford

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 located.

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

Attached 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**

Flanders Road, East Lyme, CT
Site Number 5218
Former AT&T Wireless Cell Site
Petition 530 dated 11/29/01

Tower Owner/Manager: CT Light & Power

Equipment configuration: Powermount

Current and/or approved: Three Allgon 7250 antennas @ 107 ft c.l.
Six runs 1 ¼ inch coax
Three outdoor cabinets on concrete pad

Planned Modifications: Remove all three existing antennas
Install 3 Powerwave 7770 antennas (or equivalent) at 107 ft
Install six TMA's @ 107 ft
Remove one existing outdoor cabinet
Install one new 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 7.9 % 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 12.3 % of the standard.

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
T-Mobile*	106	1900 Band	8	200	0.0512	1.0000	5.12
Cingular GSM *	107	1900 Band	8	110	0.0276	1.0000	2.76
Total							7.9%

* Cingular per Council Records; T-Mobile, typical values

Proposed

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
Other Users *							5.12
Cingular UMTS	107	880 - 894	1	500	0.0157	0.5867	2.68
Cingular GSM	107	1900 Band	2	718	0.0451	1.0000	4.51
Total							12.3%

* Cingular per Council Records; T-Mobile, typical values

Structural information:

The attached structural analysis demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed modifications. (Tabas Associates, dated 9/7/07)



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

September 14, 2007

Honorable Beth A. Hogan
1st Selectman, Town of East Lyme
Town Hall 108 Pennsylvania Ave.
Niantic, CT 06357-0519

Re: Telecommunications Facility – Flanders Road, East Lyme

Dear Ms. Hogan:

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

Prepared for

AT&T/Cingular Wireless

500 Enterprise Drive
Suite 3A
Rocky Hill, CT 06067

**STRUCTURAL ANALYSIS REPORT AND
EVALUATION OF 110' EXISTING UTILITY POLE
FOR REPLACEMENT OF EXISTING ANTENNAS
WITH PROPOSED NEW ANTENNAS**

269 Flanders Road
East Lyme, Connecticut CL&P Pole #6077

prepared by

Tabas Associates, LLC
Consulting Structural Engineers
724 Boston Post Road
Madison, CT 06443

September 7, 2007

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 - STRUCTURAL LOADING COMPUTATIONS
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1. SUMMARY

This report summarizes the structural analysis of the existing 110' tall steel utility pole structure, CL&P pole #6077, located at east of Flanders Road in East Lyme, Connecticut. The analysis was conducted in accordance with the Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles*. The antenna loading considered in the analysis consists of replacing of the existing antennas with proposed antennas, transmission lines and ancillary items as outlined on the following page of this report.

The results of the evaluation indicate that the utility pole is in compliance with the proposed loading conditions. **The utility pole is considered structurally adequate with the Northeast Utilities loading criteria and requirements. For Structural analysis purposes, we have assumed that the existing PCS Mast is connected to the existing utility pole between the Shield Wire and the first Conductor Arms and between the first and second conductor arms.** The proposed Cingular Wireless installation consists of the following:

- (3) Powerwave 7770 Antennas Cingular Wireless @ 106'-9" Elevation
- (6) Powerwave LGP21401 (Tower Mounted Amplifiers)
- (6) 1 5/8" Coaxial Cables

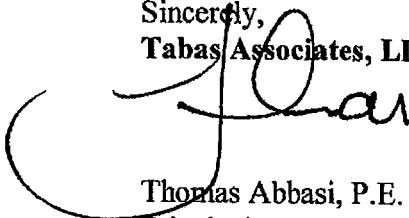
This analysis is based on:

1. The structure's theoretical capacity and not including any assessment of the existing condition of the pole.
2. Antenna inventory as specified on the following page of this report.
3. The tower was originally designed by Meyer Manufacturing, Inc.
4. Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles* dated December 7, 2001.

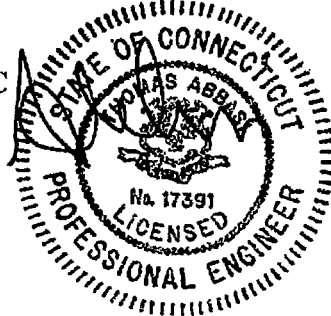
This report is only valid per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumptions of the antenna and mount configurations. Notify the engineer in writing immediately if any of the assumptions in this report are other than specified.

Please contact us if you have any questions.

Sincerely,
Tabas Associates, LLC



Thomas Abbasi, P.E.
Principal



2. INTRODUCTION

A structural analysis of the 110' tall steel transmission utility pole, CL&P pole #6077, located at Flanders Road in East Lyme, CT was performed by Tabas Associates for AT&T/Cingular Wireless. This analysis was conducted to evaluate the stresses on the utility pole and for the proposed installation of new antennas after removal of all existing antennas at the same elevation.

The pole structure is owned by CL&P, structure #6077 and was originally manufactured by Meyer Manufacturing Inc.

Antenna and Mount Configuration:

Antenna and Mount Description	Carrier	Antenna Centerline
(3) Antennas, Powerwave 7770	Cingular Wireless	@ 106'-9"
(6) Powerwave LGP21401 (Tower Mounted Amplifiers)		
(6) 1 5/8" coaxial cables (exposed)		

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with Northeast Utilities Service Company's *Criteria for Design of PCS Facilities on or Above Metal Electric Transmission Towers/Poles*, the American Society of Civil Engineers (ASCE) Manual and Reports on Engineering Practice No. 72, *Design of Steel Transmission Pole Structures*, and the American Institute of Steel Construction (AISC)

The analysis was conducted using PLS Structural Analysis Program. Two load conditions were evaluated as shown below which were compared to yield stresses (not plastic stresses) according to ASCE and AISC. The two load conditions were investigated in the analysis to determine the stresses and forces at different elevations.

Load Condition 1 = NESC C2 -2002 Extreme Wind Loading (50-year, 110 mph)

Load Condition 2 = NESC C2 -2002 Heavy Loading (combined ice and wind)

The evaluation of the existing antenna support (PCS Mast) was done in accordance with the provisions of TIA/EIA standard 222 with two conditions:

Load Condition 1 = Extreme Wind Loading (85 mph wind)

Load Condition 2 = Heavy Loading (combined ice and 74 mph wind)

4. INFORMATION PROVIDED

For the purpose of the analysis, Tabas Associates was furnished with the following information:

- Tectonic Engineering Report, dated November 21, 2001 on analysis of existing transmission pole structure with existing antennas.
- Site, Plat Plan and Elevation drawing by Tectonic Engineering, dated 6/12/01.
- Steel Shop drawings of the pole structure by Meyer Industries, Inc., dated 9/21/71.
- Proposed Antenna information by AT&T/Cingular

5. EVALUATION OF UTILITY POLE

Combined axial and bending stresses on the steel utility pole structure were evaluated to compare with stresses allowed in accordance with ASCE and AISC. The pole structure is about 80% of its capacity under Northeast Utilities Loading requirements including the loading from the proposed antennas. Refer to calculations for detailed analysis for the proposed antenna arrangement and load conditions.

6. CONCLUSIONS

The results of the analysis indicate that the existing steel utility pole structure is in compliance with the proposed loading conditions. **We conclude that the existing utility pole structure has adequate capacity to support the proposed antennas after removal of the existing antennas.**

Limitations/Assumptions:

This report is based on the following:

1. Tower inventory as listed in this report.
2. All coaxial cable is installed outside of the utility pole and pipe mount extension.
3. The utility pole was properly installed and maintained since erection.
4. All members were specified in the original design documents and are in good condition.
5. All required members are in place.
6. All bolts are in place and are properly tightened.
7. The utility pole is in plumb condition.
8. Protective coatings are in good condition.
9. All utility pole members were properly designed, detailed, fabricated and installed.
10. Structural steel, grade 65 (Fy = 65 ksi).
11. Longitudinal pole loading and stresses were not evaluated per direction of Northeast Utilities Service Co.

Tabas Associates does not assume liability for any factual changes that may occur after the date of this report. All representations, recommendations and conclusions are based upon information contained and set forth herein. If you have knowledge of any information which conflicts with information in this report or you are aware of any defects arising from original design, material, fabrication or erection deficiencies, you should disregard this report and immediately contact Tabas Associates.

**CINGULAR WIRELESS
Equipment Modification**

725 (a/k/a 741) Flanders Road, Groton, CT
 Site Number 5225
 Former AT&T Wireless Cell Site
 Exempt Modification 4/25/02

Tower Owner/Manager: T-Mobile

Equipment configuration: Monopole

Current and/or approved: Six Allgon 7250 antennas @ 121 ft c.l.
 Twelve runs 1 5/8 inch coax
 7 x 14 ft concrete pad with four outdoor cabinets

Planned Modifications: Remove existing antennas
 Install 6 Powerwave 7770 antennas (or equivalent) at 121 ft
 Install six TMA's and six diplexers @ 121 ft
 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 6.7 % 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 9.5 % of the standard.

Existing

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
Other Users *							4.26
Cingular GSM *	121	1900 Band	4	250	0.0246	1.0000	2.46
Total							6.7%

* Per CSC Records

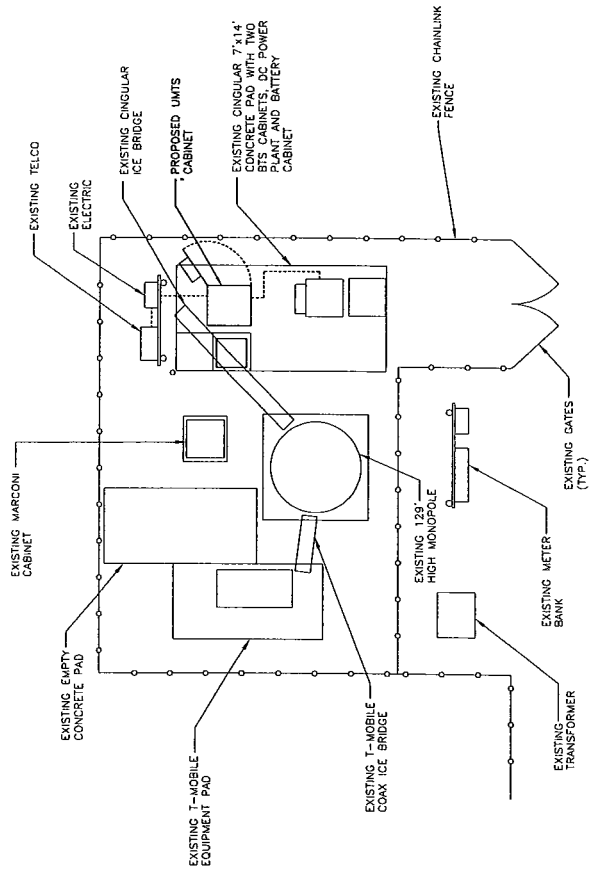
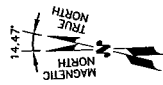
Proposed

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
Other Users *							4.26
Cingular UMTS	121	880 - 894	1	500	0.0123	0.5867	2.09
Cingular GSM	121	1900 Band	2	645	0.0317	1.0000	3.17
Total							9.5%

* Per CSC Records

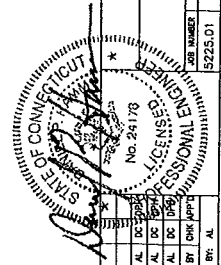
Structural information:

The attached structural analysis demonstrates that the tower has sufficient structural capacity to accommodate the proposed modifications but that the foundation would be over-stressed. (Semaan Engineering Solutions, dated 8/16/07) The analysis, however, presents foundation modifications which would fully relieve the over-stress condition. Cingular will perform the required foundation modifications prior to moving forward with the proposed equipment modifications. For this reason, Cingular respectfully requests a conditional approval for the proposed modifications.



**COMPOUND PLAN
OUTDOOR UNITS**

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



NO.	DATE	BY	CHK	APP	REVISIONS
2	08/27/07	AL	DC	AL	CONSTRUCTION FINAL
1	08/27/07	AL	DC	AL	CONSTRUCTION FINAL
0	08/27/07	AL	DC	AL	ISSUED FOR CONSTRUCTION

cingular
WIRELESS
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 08607

SITE NUMBER: 5225
SITE NAME: GROTON CENTRAL
741 FLANDERS ROAD
GROTON, CT 06355
NEW LONDON COUNTY

SIAD
communications
184 ROCKINGHAM ROAD, UNIT A
LONGONDERRY, NH 03053

Hudson
Design Engineers
46 NEWWOODS BLVD. SUITE 303
ANDOVER, MA 01810
TEL: 978.532.5553
FAX: 978.532.5288

RESPONDED BY: AL	DRAWN BY: AL
DATE: 08/27/07	SCALE: NOT SHOWN

PROJECT: CINGULAR WIRELESS	JOB NUMBER: 5225-01
COMPONENT: COMPOUND PLAN	DRAWING NUMBER: C-1
OUTDOOR UNITS	SHEET NUMBER: 2



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

September 14, 2007

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

Re: Telecommunications Facility – 725 (a/k/a 741) Flanders 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

1079 N. 204th Avenue
Eikhorn, NE 68022
Ph: 402-289-1888
Fax: 402-289-1861

SEMAAN ENGINEERING SOLUTIONS

**131 ft PIROD Monopole
Foundation Modification Package**

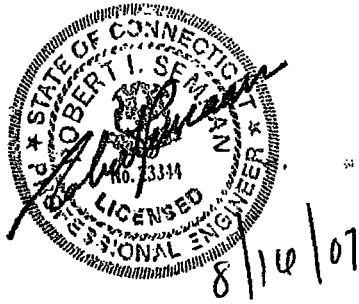
APPROVED - 8/24/07

Mark [Signature]
T-Mobile Tower Asset Mgt.

Prepared for:
T-Mobile USA
12920 SE 38th Street
Bellevue, WA 98006

RECEIVED
AUG 22 2007

Site: CT11044E / Groton / AT&T * 5 2 2 5
Groton, CT



August 16, 2007

Ms. Lisa Hamedian
T-Mobile USA
12920 SE 38th Street
Bellevue, WA 98006

Re: Site Number CT11044E – Groton, I-95, X89, Noa 1, Groton, CT.

Dear Ms. Hamedian:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the TIA/EIA-222 Rev F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

Description of Structure:

The structure is a 131 ft PIROD Monopole.

Refer to PIROD drawing 204150-B dated August 28, 1998 for a detailed description of the structure.

Method of analysis:

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. The analysis was performed in conformance with **TIA/EIA-222 Rev F and local building codes for a basic wind speed of 100 mph and 1/2" radial ice with reduced wind speed (fastest mile)**. This wind speed is equivalent to a 120 mph 3-second gust per the IBC 2003. This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4. Wind is applied to the structure, accessories and antennas.

Structure loading:

The following loads were used in the tower analysis:

Elev (ft)	Qty	Antennas	Mounts	Coax	Carrier
131.0	12	S20045A1 LNA	Pirod Low Profile platform	(24) 1 5/8"	T-Mobile
	12	RR65-19-00			
111.0	6	LPA-80063/6CF	Low Profile Platform	(12) 1 5/8"	Verizon
	6	LPA 185063/8CF			
100.0	1	HP MW Dish, 4' Dia.	Dish Mount	(1) 1 5/8" (outside)	T-Mobile

Proposed Loads:

Elev (ft)	Qty	Antennas	Mounts	Coax	Carrier
121.0	6	Dplexers	Low Profile Platform	(12) 1 5/8"	AT&T
	6	21401 TMA			
	6	Powerwave 7770.00			

All new access holes shall be reinforced with welded rims that are compatible with the pole and to be sized and supplied by pole manufacturer.

All transmission lines are assumed running inside of pole shaft with the exception of T-Mobile (1) 1 5/8" at 100.0 ft. This line is assumed strapped tightly to the pole.

Results of Analysis:

Refer to the attached Computer Summary sheets for detailed analysis results.

Structure:

The existing monopole is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 83.8%.

Foundation:

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	2,613.30	2,949.44	112.9
Shear (kips)	25.20	32.33	128.3

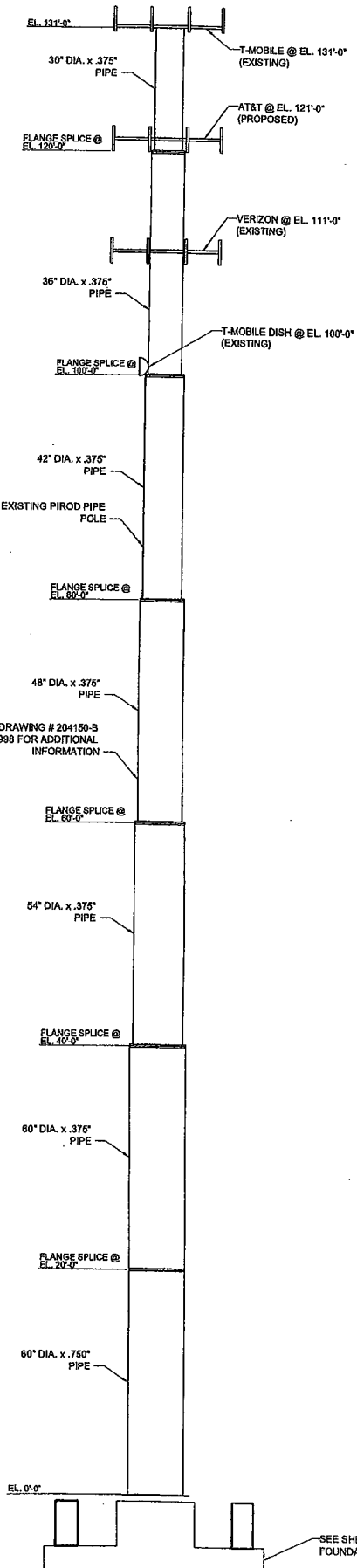
The foundation has been investigated using the supplied documents and soils report and was found inadequate to support the required loads. Modifications would be necessary to resist the larger overturning moment. Refer to the attached drawings for additional information.

Review and Recommendations:

Based on the analysis results, the existing structure does not meet the requirements per the TIA/EIA-222 Rev F standards for a basic wind speed of 100 mph and 1/2" radial ice with reduced wind speed (equivalent to a 120 mph 3-second gust wind speed).

Attachments:

1. Drawing S-01, Revision 0, dated 08/16/2007.
2. Drawing S-02, Revision 0, dated 08/16/2007.
3. Drawing S-03, Revision 0, dated 08/16/2007.



Seman Engineering Solutions, LLC	
PROJECT NUMBER	CT11044E
PHONE NUMBER (203) 268-4888, FAX NUMBER (203) 268-1861, ADDRESS: 1078 N. 250th Avenue, Easton, New York 12052	SITE LOCATION
DATE	08/15/2007
REVISIONS	NONE
DRWING NO.	KRC
DATE	08/15/2007
ISSUE FOR CONSTRUCTION	
REV #	DATE
DESCRIPTION	
CLIENT	T-MOBILE
DRAWING DESCRIPTION	MONOPOLE REINFORCEMENT DRAWINGS
SHEET NUMBER	S-01

REFER TO PIROD DRAWING # 204150-B
DATED 08/28/1998 FOR ADDITIONAL
INFORMATION

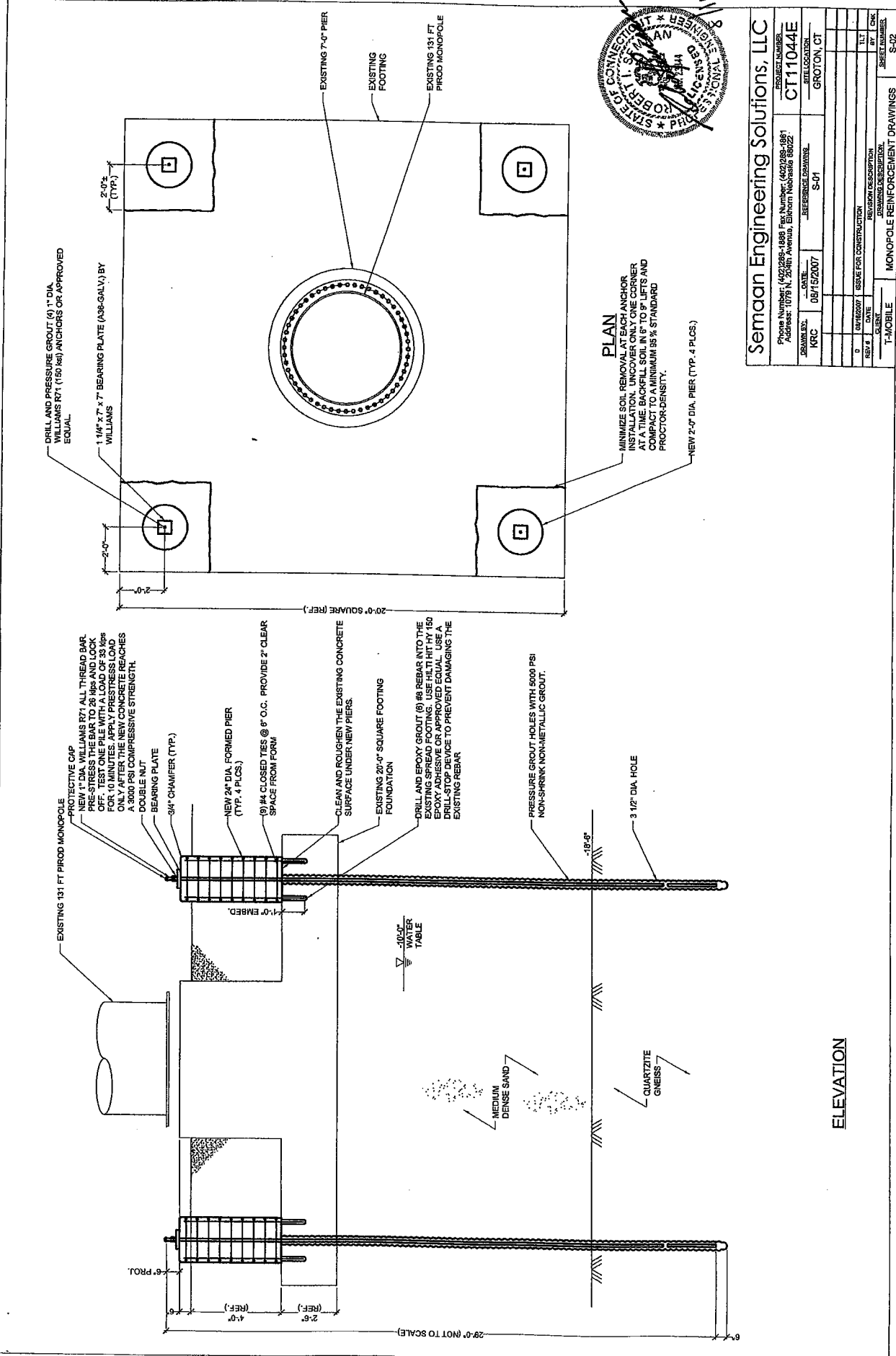
SEE SHEET S-02 FOR
FOUNDATION MODIFICATIONS

MONOPOLE ELEVATION
NOT TO SCALE

GENERAL NOTES:
1. SEE SHEET S-03 FOR NOTES AND SPECIFICATIONS



10/11/07



DRILL AND PRESSURE GROUT (4) 1" DIA. WILLIAMS R71 (150 MPa) ANCHORS OR APPROVED EQUAL.
1 1/4" x 7" x 7" BEARING PLATE (A36-GALV.) BY WILLIAMS (TYP.)

PROTECTIVE CAP
NEW 1" DIA. WILLIAMS R71 ALL THREAD BAR. PRE-STRESS THE BAR TO 28 MPa AND LOCK OFF. TEST ONE PILE WITH A LOAD OF 33 kips FOR 10 MINUTES. APPLY PRESTRESS LOAD ONLY AFTER THE NEW CONCRETE REACHES 80% OF ITS COMPRESSIVE STRENGTH.
BEARING PLATE
DOUBLE END
3/4" CHAMFER (TYP.)

NEW 24" DIA. FORMED PIER (TYP. 4 PLCS.)
(9) #4 CLOSED TIES @ 6" O.C. PROVIDE 2" CLEAR SPACE FROM FORM

CLEAN AND ROUGHEN THE EXISTING CONCRETE SURFACE UNDER NEW PIERS.
EXISTING 20'-0" SQUARE FOOTING FOUNDATION

DRILL AND EPOXY GROUT (6) #8 REBAR INTO THE EXISTING SPREAD FOOTING. USE HILT HIT HY 150 EPOXY ADHESIVE OR APPROVED EQUAL. USE A DRILL-STOP DEVICE TO PREVENT DAMAGING THE EXISTING REBAR

PRESSURE GROUT HOLES WITH 5000 PSI NON-SHRINK NON-METALLIC GROUT.

PLAN
MINIMIZE SOIL REMOVAL AT EACH ANCHOR INSTALLATION. UNCOVER ONLY ONE CORNER AT A TIME. BACKFILL SOIL IN 6" TO 9" LIFTS AND COMPACT TO A MINIMUM 95% STANDARD PROCTOR DENSITY.

NEW 2'-0" DIA. PIER (TYP. 4 PLCS.)

ELEVATION

Semaan Engineering Solutions, LLC	
Phone Number: (402)285-1885 Fax Number: (402)285-1881	PROJECT NUMBER: CT11044E
Address: 1079 N. 284th Avenue, Elkhorn Nebraska 68022	SITE LOCATION: GROTON, CT
DRAWN BY: KRC	DATE: 08/15/2007
SCALE: S-01	REFERENCE DRAWING:
DESIGNED BY: KRC	DATE:
CHECKED BY: KRC	DATE:
ISSUED FOR CONSTRUCTION	DATE:
DESIGNATION: REINFORCEMENT	DATE:
PREPARED BY: SEMAAN ENGINEERING SOLUTIONS, LLC	DATE:
T-MOBILE	MONOPOLE REINFORCEMENT DRAWINGS
SHEET NUMBER: S-02	

NOTES AND SPECIFICATIONS

1. ALL MODIFICATIONS OUTLINED IN THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE ENR/TA REV. F CODE.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS PRIOR TO FABRICATION. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR THE PROPER FIT AND CLEARANCE IN THE FIELD. CONTACT SEMAAN ENGINEERING IF ANY DISCREPANCIES EXIST.
3. THE CONTRACTOR SHALL SUBMIT A STRUCTURAL ANALYSIS FOR THIS SITE DATED 09/16/2007 FOR THE PROPOSED CONSTRUCTION. SEMAAN ENGINEERING SOLUTIONS ANALYSIS FOR THIS SITE DATED 09/16/2007 FOR THE PROPOSED CONSTRUCTION IS ATTACHED TO THESE DRAWINGS. ANY CHANGES TO THE ANALYSIS MUST BE APPROVED BY SEMAAN ENGINEERING. ANALYSIS ARE ADDED TO OR REMOVED FROM THE STRUCTURE UNLESS APPROVED IN WRITING BY SEMAAN ENGINEERING. THE PROPOSED LOADS SHALL NOT BE ADDED TO THE STRUCTURE UNTIL ALL MODIFICATIONS ARE MADE AND APPROVED BY THE WELDING INSPECTOR.
5. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION THE CONTRACTOR SHALL SUPERVISE AND CONDUCT. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ONSITE SAFETY ASSOCIATED WITH THE WORK TO BE PERFORMED. ALL SAFETY REQUIREMENTS AS DICTATED BY OSHA AND THE LOCAL JURISDICTION'S SHALL BE FOLLOWED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ITS OWN PERSONNEL, AS WELL AS THE PUBLIC AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PROTECTION OF THE PROPERTY IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL USE THE PRECAUTIONARY MEANS NECESSARY FOR ADEQUATE PROTECTION.
8. THE CONTRACTOR SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION, NINTH EDITION, FOR THE STEEL CONSTRUCTION.
9. ALL STEEL COMPONENTS SHALL BE GALVANIZED UNLESS NOTED OTHERWISE. ALL CHANNELS, CS AND LARGER SHALL CONFORM TO A572 GRADE 50. ALL CHANNELS AND SMALLER SHALL CONFORM TO A572 GRADE 65.
10. SHOP DRAWINGS SHALL BE SUBMITTED TO SES FOR APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS SHALL INCLUDE ALL FABRICATED STEEL ASSEMBLIES INCLUDING MONOPOLETOWER EXTENSIONS.
11. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 AND AS FOLLOWS, UNLESS NOTED OTHERWISE.
 - A. GALVANIZING SHALL BE PERFORMED AFTER SHOP FABRICATION AND WELDINGS TO THE GREATEST EXTENT POSSIBLE.
 - B. ALL DINGS, SCRAPES, MARKS AND WELDS IN THE GALVANIZED AREA SHALL BE COATED WITH A ZINC-RICH PAINT, APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - C. IF THE STRUCTURE WAS ORIGINALLY PAINTED, AFTER ZINC-RICH PAINT IS DRY, OVERCOAT WITH AN APPROPRIATE PAINT TO MATCH THE ORIGINAL PAINT.
12. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON DRAWINGS. CONNECTIONS SHALL BE CONSTRUCTED AS FOLLOWS:
 - A. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES.
 - B. THE WELDING SHALL CONFORM TO AISC AND AWS D11.1 LATEST EDITION.
 - C. THE WELDING SHALL CONFORM TO THE MANUFACTURER'S MATERIALS, METHODS AND POSITIONS TO BE USED AND SHOULD HAVE EXPERIENCE WELDING GALVANIZED MATERIALS.
 - D. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE D2.4 IN THE AISC MANUAL OF STEEL CONSTRUCTION, NINTH EDITION.
 - E. ALL EXISTING GALVANIZING IN WELD AREAS SHALL GROUND OFF PRIOR TO WELDING.
 - F. ALL BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
 - G. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - H. ALL BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
 - I. ALL WELDS SHALL BE REPAIRABLE SUBJECT TO MEET THE ACCEPTANCE CRITERIA OF AWS D11.1 REPAIR ALL WELDS AS NECESSARY.
 - J. ALL WELDS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
13. THE NEW ROCK ANCHORS SHALL BE INSTALLED PER THE MANUFACTURERS INSTALLATION PROCEDURE.
 1. USE COMPRESSED AIR TO BLOW ANY REMAINING DEBRIS OUT OF THE NEWLY DRILLED HOLES.
 2. THE NEW ROCK ANCHORS SHALL BE INSTALLED PER THE MANUFACTURERS INSTALLATION PROCEDURE.
 3. GROUP THE NEW ROCK ANCHORS IN PLACE PER THE MANUFACTURERS INSTRUCTIONS.
 4. PROVIDE A HYDRAULIC JACK SHALL BE USED TO VERIFY THE PRETENSION. THE PRETENSION SHALL BE VERIFIED BY PLATES IN PLACE. A HYDRAULIC JACK SHALL BE USED TO VERIFY THE PRETENSION.
 5. ONCE THE PRETENSION LOAD VALUE HAS BEEN OBTAINED, TIGHTEN THE NUTS AGAINST THE BEARING PLATE TO A "SNUG-TIGHT" CONDITION.
 6. THE CONTRACTOR SHALL INSTALL AND TEST ONE ANCHOR TO VERIFY ITS CAPACITY BEFORE INSTALLING THE REMAINING ANCHORS.
 7. PROVIDE A "SNUG-TIGHT" CONDITION AS DEFINED BY AISC.
 8. THE CONTRACTOR SHALL VERIFY THAT DRILLING CLEARANCE IS ADEQUATE PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER IF A CLEARANCE PROBLEM EXISTS.

CONCRETE CONSTRUCTION

1. ALL CONCRETE SHALL CONFORM TO THE SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 301.
2. ALL CONCRETE SHALL BE MADE WITH STONE AGGREGATE & SHALL DEVELOP 4000 psi MIN. COMPRESSIVE STRENGTH IN 28 DAYS. CONCRETE MIX DESIGN: 6 1/2 SACKS OF CEMENT MINIMUM PER CUBIC YARD, 3 3/4" MAXIMUM AGGREGATE.
3. YIELD STRENGTH SHALL BE HIGH STRENGTH DEFORMED BARS, GRADE 60, ASTM A615, WITH 60,000 psi MINIMUM YIELD STRENGTH.
4. REINFORCING PROTECTION: CONCRETE POURED AGAINST EARTH.
5. ALL BAR LENGTHS ARE NOT DRAWN TO SCALE. NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AS AUTHORIZED BY THE STRUCTURAL ENGINEER. LAP SPLICES, WHERE PERMITTED, SHALL BE A MINIMUM OF 40 BAR DIAMETERS UNLESS NOTED.
6. DETAIL BARS IN ACCORDANCE WITH ACI DETAILING MANUAL & ACI BUILDING CODE REQUIREMENTS FOR REINFORCING.
7. PROVIDE ALL NECESSARIES NECESSARY TO SUPPORT REINFORCING AT THE POSITIONS SHOWN ON THE PLANS.
8. BACKFILL AND COMPACT SOIL TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D 698. THE COMPACTED SOIL SHALL PROVIDE A MINIMUM UNIT WEIGHT OF 120 POUNDS PER CUBIC FOOT FOR THE FILL MATERIAL ON TOP OF THE DEADMAN ANCHORS.
9. ORIENT NEW ANCHORS IN LINE WITH EXISTING ANCHORS.
10. ANCHOR RODS TO PASS THROUGH CENTROID OF BLOCK.

CONTINUOUS STRUCTURE INSPECTION AND MAINTENANCE

CONTINUOUS ANNUAL INSPECTION OF THE STRUCTURE AND THE ADDED REINFORCING SHALL BE IMPLEMENTED BY THE OWNER. ANY FUTURE CORROSION OR OTHER DETERIORATION OF THE STRUCTURE OR ITS REINFORCING WILL BE THE RESPONSIBILITY OF THE OWNER. ANY DEFECTS SHALL BE REPAIRED TO ENSURE THE STRUCTURAL INTEGRITY FOR THE LIFE OF THE STRUCTURE.



Semaan Engineering Solutions, LLC	
Phone Number: 402/289-1868 Fax Number: 402/289-1861	PROJECT NUMBER: CT11044E
Address: 1079 N. 204th Avenue, Elkhorn Nebraska 68022	REGISTRATION: GROTON, CT
ISSUED: 08/15/2007	REVISIONS DRAWING: S-01, S-02
REVISED: 08/15/2007	ISSUE FOR CONSTRUCTION
DESIGNED BY: CKC	REVISION DESCRIPTION
CHECKED BY: CKC	DATE
DATE	DATE
CLIENT: T-MOBILE	DRAWING DESCRIPTION: MONOPOLE REINFORCEMENT DRAWINGS
SHEET NUMBER: S-03	

**CINGULAR WIRELESS
Equipment Modification**

6 Progress Avenue, Seymour, CT
Site Number 5633
Former AT&T site
Exempt Modification 7/11/02

Tower Owner/Manager: EMAC Communications

Equipment configuration: Self Supporting Lattice

Current and/or approved: Three Allgon 7250 antennas @ 160 ft c.l.
Six runs 1 5/8 inch coax

Planned Modifications: Remove all three existing antennas
Install 3 Powerwave 7770 antennas (or equivalent) @ 160 ft
Install six TMA's @ 160 ft

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 14.8 % of the standard.

Existing

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
Other Users *							11.04
Cingular GSM *	160	1900 Band	4	250	0.0140	1.0000	1.40
Total							12.4%

* Per CSC Records

Proposed

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
Other Users *							11.04
Cingular GSM	160	1900 Band	3	611	0.0257	1.0000	2.57
Cingular UMIS	160	880 - 894	1	500	0.0070	0.5867	1.20
Total							14.8%

* Per CSC Records

Structural information:

The attached structural analysis demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed modifications. (Malouf Engineering Intl, dated 7/19/07)



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

September 14, 2007

Honorable Robert J. Koskelowski
1st Selectman, Town of Seymour
Town Hall, 1 First Street
Seymour, CT 06483-2817

Re: Telecommunications Facility – 6 Progress Avenue, Seymour

Dear Mr. Koskelowski:

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

Rigorous Structural Analysis Report



at&t Seymour East Site # 5633

EMAC Communications Seymour_CT Site
60 Progress Avenue, Seymour, CT 06483.

July 19, 2007

MEI PROJECT ID: CT00815S-07V0

MALOUF ENGINEERING INTL., INC.



STRUCTURAL CONSULTANTS

17950 PRESTON ROAD, SUITE 720 ■ DALLAS, TEXAS 75252-5635 ■ TEL. 972 -783-2578 FAX 972-783-2583
www.maloufengineering.com





July 19, 2007

RIGOROUS STRUCTURAL ANALYSIS

Structure:	280 ft SST	PiRod / U28x280
Client/ Site Name /#:	AT&T	Seymour East # 5633
Owner/Site Name /#:	EMAC Communications	Seymour CT
MEI Project ID:	CT00815S-07V0	
Location:	60 Progress Avenue, Seymour, CT 06483	New Haven County FCC # 1209826
	LAT	41-23-29.4 N LON 73-3-11.9 W

EXECUTIVE SUMMARY:

Malouf Engineering Int'l (MEI), as requested, has performed a rigorous structural analysis of the above-mentioned structure to assess the impact of the changed condition as noted in Table 1.

Based on the stress analysis performed, the existing structure is **in conformance** with the ANSI/TIA **222-F** Standard for the loading considered under the criteria listed and referenced in the report sections.

*The installation of the proposed changed condition of the AT&T (6) LGP Allgon 7770 panel antennas, and (12) Powerwave LGP 21401 TMA's, (6) RCU/RET's at Elev. 160 ft c.l. onto exist mounts with (18) 1-5/8" Coaxes (includes the proposed and future panels & related appurtenances) **is structurally acceptable.***

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please contact us.

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Krishna Manda, PE
Project Engineer

Reviewed & Approved by:

E. Mark Malouf, PE
Connecticut #17715
972-783-2578 ext. 106
mmalouf@maloufengineering.com

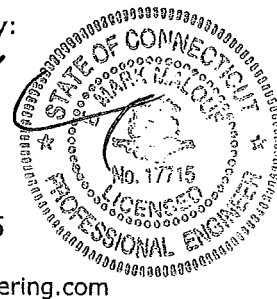


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1. INTRODUCTION & SCOPE

A rigorous structural analysis was performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. Derek Creaser, Hudson Design Group, LLC., on behalf of AT&T to determine the acceptance of the proposed changed conditions in conformance with the ANSI/TIA-222-F Standard, "Structural Standard for Antenna Supporting Structures and Antennas".

The scope of this independent analysis is to determine the overall stability and the adequacy of structural members, foundations, and member connections, as available and stated. This analysis considers the structure to have been properly installed and maintained with no structural defects. Installation procedures and related loading are not with the scope of this analysis and should be performed and evaluated by a competent person of the erection contractor.

The different report sections detail the applicable information used in this evaluation, relating to the tower data, the appurtenances configuration and the wind and ice loading considered.

2. SOURCE OF DATA

The following information has been used in this evaluation as source data that accurately represent the existing structure and the related appurtenances:

	Source	Information	Reference
STRUCTURE			
Tower	Hudson D. G. - Mr. Derek Creaser	Tower Original Drawings, including modification design	PiROD Engineering File #A-116966 / -1 Dated 7/03/02
Foundation	Hudson D. G. - Mr. Derek Creaser	Foundation Original Drawings, including modification design	PiROD Engineering File #A-116966 / -1 Dated 7/03/02
Material Grade	Available from supplied documents - refer to Appendix.		
CURRENT APPURTENANCES			
	Hudson D. G. - Mr. Derek Creaser	Previous Analysis Report & Photos	PiROD #A-116966 / PR-2002-05-050 Dated 6/20/2002
CHANGED CONDITION			
	Hudson D. G. - Mr. Derek Creaser	Cingular RF Data Sheet	Dated 4/26/2007

Background Information:

Based on available information, the following is known regarding this structure:

DESIGNER / FABRICATOR	PiROD
DESIGN CRITERIA	TIA/EIA 222-F - 85/74 Mph + 0" /1/2" ICE
PRIOR STRUCTURAL MODIFICATIONS	Modified by Pirod, Ref. #PR-2002-05-050 Dated 6/20/2002 & 7/03/02

3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

CODE / STANDARD	ANSI/TIA-222-F-1996 Standard / IBC 2003	
LOADING CASES	<i>Full Wind:</i>	85 Mph (with No Radial Ice)
	<i>Iced Case:</i>	73.6 Mph + 1/2" Radial Ice
	<i>Service:</i>	50 Mph

Appurtenances Configuration

The following appurtenances configuration has been considered:

Table 1: Proposed Changed Condition Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
160	AT&T	3	LGP Allgon 7770 Panels	[on exist T-Frame mounts]	12	1-5/8"
		6	Powerwave LGP 21401			
		2	RCU/RET			

Table 2: Current and Reserved/Future Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
280		1	Lightning Rod			
280	EMAC	1	5ft Omni	9-Arm Halo Mount	1	1-5/8"
		1	Dipole (DB420)		1	1-5/8"
250	T-Mobile	6	EMS RR90-17-02DP	(3) 15' T-Frame Mounts	12	1-5/8"
		6	EMS RR90-17-02DP		12	1-5/8"
235	EMAC	1	5ft Dipole	9-Arm Halo Mount	1	1-5/8"
		1	Dipole (DB420)		1	1-5/8"
200	EMAC	9	DB980	(3) 10' LP T-Frames	9	1-5/8"
190	EMAC	9	DB980	(3) 10' LP T-Frames	9	1-5/8"
180	EMAC	9	DB980	(3) 10' LP T-Frames	9	1-5/8"
170	Sprint PCS	6	DB980H-90	(3) 15' T-Frame Mounts	6	1-5/8"
		3	DB980H-90		3	1-5/8"
160	AT&T	3	Allgon 7770 (Fut.)	(3) 15' T-Frame Mounts	6	1-5/8"
		6	Powerwave LGP 21401 (Fut)			
		4	RCU/RET (Fut)			

Notes:

1. Please note appurtenances not listed above are to be removed/not present as per data supplied.
2. (I) = internal; (E) = External; (FZ) = Within Face Zone & (OFZ) = Outside Face Zone - as per TIA-222-G.
3. The above antennas, mounts, and lines represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please refer to Appendix 2 for EPA wind areas used in the calculations. Please contact MEI if any discrepancies are found.

4. ANALYSIS PROCEDURE

The subject structure is analyzed for feasibility of the installation of the proposed changed condition previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, RISATower (ver. 5.02), a commercially available program developed by C-Concepts, WI and now maintained by RISA Technologies. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead and temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure.

Assumptions

This engineering study is based on the theoretical capacity of the members and is not a condition assessment of the structure. This analysis is based on information supplied, and therefore, its results are based on and as accurate as that supplied data. MEI has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural stress analysis:

- This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities ('as-new' condition).
- The tower member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
- Some assumptions are made regarding antennas and mounts sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type & industry practice.
- The top platform, if applicable, is considered adequate to support the loading. No actual analysis of the platform itself is performed, with the analysis being limited to analyzing the pole and its foundation.
- The soil parameters are as per data supplied or as assumed and stated in the calculations. Refer to the Appendix. If no data is available, the foundation system is assumed to support the structure with its new reactions.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report. All guy cable assemblies, as applicable, are assumed to develop the rated breaking strength of the wire.
- *All prior structural modifications, if any, are assumed to be as per data supplied/available, and to have been properly installed and to be fully effective.*

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalidated, MEI should be contacted to review any contradictory information to determine its effect.

5. ANALYSIS RESULTS

The results of the structural stress analysis based on data available and with the previous listed criteria, indicated the following:

Table 3: Stress Analysis Results

Member Type	Maximum Stress Ratio	Controlling Location / Component	Pass/Fail	Comment
LEGS	82.1%	Elev. 40-60ft	Pass	
DIAGONALS	82.1%	Elev. 0-20ft	Pass	
HORIZONTAL	41.7%	Elev. 160-180ft	Pass	
FOUNDATION	81.4%	OT stability	Pass	

Notes:

1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
2. Refer to the Appendix 2 for more details on the member loads.
3. A maximum stress ratio between 100% to 105% may be considered as *Acceptable* according to industry standard practice.

6. FINDINGS & RECOMMENDATIONS

- Based on the rigorous stress analysis results, the subject structure is **rated at 82.1%** of its support capacity (controlling component: legs) with the proposed changed condition considered. Please refer to Table 3 and to Appendix 2 for more details of the analysis results.
- Based on the stress analysis performed, the existing structure is **in conformance** with the ANSI/TIA **222-F** Standard for the loading considered under the criteria listed and referenced in the report sections.
- ***The installation of the proposed changed condition of the AT&T (6) LGP Allgon 7770 panel antennas, and (12) Powerwave LGP 21401 TMA's, (6) RCU/RET's at Elev. 160 ft c.l. onto exist mounts with (18) 1-5/8" Coaxes (includes the proposed and future panels & related appurtenances) is structurally acceptable.***
- This structure is near its maximum support capacity for the appurtenances and loading criteria considered. Therefore, no changes to the configuration considered should be made without performing a new proper evaluation.

Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.

7. REPORT DISCLAIMER

The engineering services rendered by Malouf Engineering International, Inc. ('MEI') in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.

The analysis performed and the conclusions contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following:

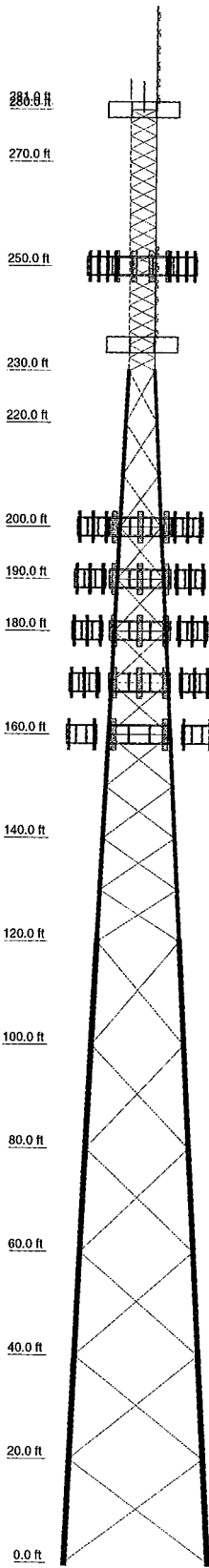
1. Proper alignment and plumbness.
2. Correct guy tensions, as applicable.
3. Correct bolt tightness or slip jacking of sleeved connections.
4. No significant deterioration or damage to any structural component.

Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae. MALOUF ENGINEERING INTERNATIONAL, INC. Assumes no obligation to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will MALOUF ENGINEERING INTERNATIONAL, INC. Have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of MALOUF ENGINEERING INTERNATIONAL, INC., if any, pursuant to this Report shall be limited to the total funds actually received by MALOUF ENGINEERING INTERNATIONAL, INC. For preparation of this Report.

Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. To prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of MALOUF ENGINEERING INTERNATIONAL, INC., Customer has informed MALOUF ENGINEERING INTERNATIONAL, INC. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by MALOUF ENGINEERING INTERNATIONAL, INC. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. MALOUF ENGINEERING INTERNATIONAL, INC. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16
Legs	SR 2	SR 2	SR 2 1/2	B			Pirod 105218			Pirod 105219	Pirod 105220	Pirod 112743	Pirod 112744	Pirod 112745	Pirod 112745	Pirod 112740
Leg Grade										A572-50	A36					
Diagonals							L3x3x3/16			L3 1/2x3 1/2x5/16				2L3 1/2x3 1/2x5/16		
Diagonal Grade																
Top Girts	SR 7/8	SR 7/8														
Horizontals																
Face Width (ft)																
# Panels @ (ft)																
Weight (K)																



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4' w/Pipe	280	10ft T-Frames (3)	190
5ft Omni	280	(3) DB980H120A-M w/Mount Pipe	180
DB420	280	(3) DB980H120A-M w/Mount Pipe	180
9-Arm Halo Mount	280	(3) DB980H120A-M w/Mount Pipe	180
(4) RR90-17-02DP w/Mount Pipe	250	10ft T-Frames (3)	180
(4) RR90-17-02DP w/Mount Pipe	250	(3) DB980H90A-M w/Mount Pipe	170
(4) RR90-17-02DP w/Mount Pipe	250	(3) DB980H90A-M w/Mount Pipe	170
15ft T-Frames (3)	250	(3) DB980H90A-M w/Mount Pipe	170
5ft Dipole	235	15ft T-Frames (3)	170
DB420	235	(2) 7770 w/ Pipe Mount	160
9-Arm Halo Mount	235	(2) 7770 w/ Pipe Mount	160
(3) DB980H120A-M w/Mount Pipe	200	(2) 7770 w/ Pipe Mount	160
(3) DB980H120A-M w/Mount Pipe	200	(4) TMA	160
(3) DB980H120A-M w/Mount Pipe	200	(4) TMA	160
10ft T-Frames (3)	200	(4) TMA	160
(3) DB980H120A-M w/Mount Pipe	190	(6) RET Unit	160
(3) DB980H120A-M w/Mount Pipe	190	15ft T-Frames (3)	160
(3) DB980H120A-M w/Mount Pipe	190		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1 3/4	C	L2 1/2x2 1/2x3/16
B	Pirod 105245	D	L3 1/2x3 1/2x5/16

MATERIAL STRENGTH

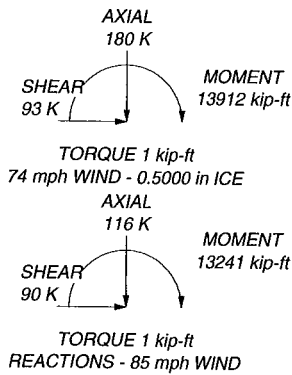
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 82.1%

MAX. CORNER REACTIONS AT BASE:

DOWN: 634 K
 UPLIFT: -497 K
 SHEAR: 64 K



 Malouf Engineering Int'l, Inc. 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583	Job: 280FT SST / SEYMOUR EAST SITE# 5633 Project: CT008155-07V0 Client: HUDSON DESIGN GROUP / AT&T Code: TIA/EIA-222-F Path:	Drawn by: L.Nguyen Date: 07/19/07 Scale: NTS Dwg No. E-1
	Consulting Engineers	

**CINGULAR WIRELESS
Equipment Modification**

Shuttle Meadow Road, Southington, CT
 Site Number 1004
 Former Cingular Tower; now managed by American Tower
 CSC Docket 40 approved 5/15/84
 Exempt mods approved 7/15/92, 7/11/02, and 12/12/06

Tower Owner/Manager: American Tower

Equipment configuration: Monopole

Current and/or approved: Nine CSS DUO4-8670 @ 153 ft c.l.
 Six runs 7/8 inch coax and three runs 1 5/8 inch coax
 Six TMA's / three diplexers at 153 ft

Planned Modifications: Remove three CSS antennas
 Install 3 Powerwave 7770 antennas (or equivalent) @ 153 ft.
 Remove all three runs 1 5/8 inch coax
 Install six runs 7/8 inch coax (total of 12)
 Install three diplexers @ 153 ft (total of 6)

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 7.1 % 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 5.7 % of the standard.

Existing

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
Other Users *							0.00
Cingular TDMA *	152	880 - 894	16	100	0.0249	0.5867	4.24
Cingular GSM *	152	880 - 894	2	296	0.0092	0.5867	1.57
Cingular GSM *	152	1900 Band	2	427	0.0133	1.0000	1.33
Total							7.1%

* Per CSC Records

Proposed

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
Other Users							0.00
Cingular GSM	153	880 - 894	4	296	0.0182	0.5867	3.10
Cingular GSM	153	1900 Band	2	427	0.0131	1.0000	1.31
Cingular UMTS	153	880 - 894	1	500	0.0077	0.5867	1.31
Total							5.7%

Structural information:

The attached structural analysis and structural modification plans (American Tower, dated 5/23/07 and 5/29/07, respectively) demonstrate that the tower and foundation will have sufficient structural capacity once the structural modifications are implemented. Cingular will have the structural upgrade performed prior to tower equipment modifications and respectfully requests conditional approval for the proposed modifications.



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

September 14, 2007

John Weichsel, Town Manager
Town of Southington
Town Office Bldg., 75 Main St.
Southington, CT 06489

Re: Telecommunications Facility – Shuttle Meadow Road, Southington

Dear Mr. Weichsel:

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

AMERICAN TOWER CORPORATION

8505 FREEPORT PARKWAY
SUITE 135
IRVING, TX 75063
PHONE: (972) 999-8900 / FAX: (972) 999-8940

302475 - STTN - SOUTHTON, CT

#1004

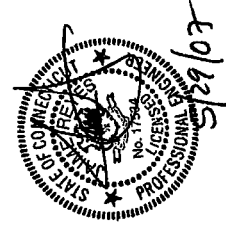
PROJECT DESCRIPTION:

"THE MODIFICATIONS PRESENTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 40480332 DATED MAY 23, 2007. SATISFACTORY COMPLETION OF THE WORK INDICATED ON THESE DRAWINGS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED."

AS-BUILT SIGN-OFF	
DESCRIPTION	SIGNATURE
CONTRACTOR NAME	
CONTRACTOR REPRESENTATIVE (PRINT NAME)	
CONTRACTOR REPRESENTATIVE (SIGNATURE)	
REDEVELOPMENT P.M. (PRINT NAME)	
REDEVELOPMENT P.M. (SIGNATURE)	

PROJECT SUMMARY

CUSTOMER: CINGULAR WIRELESS
SITE NUMBER: 302475
SITE NAME: STTN - SOUTHTON, CT
SITE ADDRESS: SHUTTLE MEADOW ROAD
SOUTHTON, CT 06489
PROPERTY OWNER: AMERICAN TOWER CORPORATION
ATC JOB NUMBER: 40480332
DATE: 5/25/07
REVISION: 0



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.

DRAWING INDEX	
DRAWING NUMBER	DRAWING TITLE
RCM	BILL OF MATERIALS (1 PAGE)
IGN	IBC GENERAL NOTES
A-1	FLANGE REINFORCEMENT AND WELDMENT DETAILS

FABRICATION DRAWING INDEX	
DRAWING NUMBER	DRAWING TITLE
F-1	302475-1 DETAILS

GENERAL

1. ALL METHODS, MATERIALS AND WORKMANSHIP SHALL FOLLOW THE DICTATES OF GOOD CONSTRUCTION PRACTICE.
2. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
4. ANY SUBSTITUTIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

5. ANY MANUFACTURED DESIGN ELEMENTS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.

6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.

7. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.

8. CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DEPRY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

9) FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.

10) ALL FIELD CUT SURFACES SHALL BE SEPARATED WITH ZINC GALVANITE COLD GALVANIZING COMPOUND PER ASTM A760 AND MANUFACTURERS RECOMMENDATIONS.

APPLICABLE CODES AND STANDARDS

1. ANSITIA/IEA: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES; 222-F EDITION.
2. 2003 INTERNATIONAL BUILDING CODE, IBC 2003.
3. ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 318-99.
4. CRSI: CONCRETE REINFORCING STEEL INSTITUTE, MANUAL OF STANDARD PRACTICE, LATEST EDITION.
5. AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
6. AWS: AMERICAN WELDING SOCIETY D1.1, STRUCTURAL WELDING CODE, LATEST EDITION.

STRUCTURAL STEEL

1. ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
2. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B95.
3. ALL U-BOLTS SHALL BE ASTM A307 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.

WELDING

1. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
2. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, U.N.O.
3. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
4. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZINC GALVANITE COLD GALVANIZING COMPOUND PER ASTM A760 AND MANUFACTURERS RECOMMENDATIONS.

PAINT

1. AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 707480-1K.

BOLT TIGHTENING PROCEDURE

1. TIGHTEN FLANGE BOLTS BY AISC - TURN OF THE NUT METHOD, USING THE CHART BELOW:

BOLT LENGTHS UP TO AND INCLUDING FOUR DIA.	
3/4" BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8" BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1" BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8" BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4" BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2" BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIA. BUT NOT EXCEEDING 8 DIA.

3/4" BOLTS 4.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8" BOLTS 4.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1" BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8" BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4" BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2" BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

2. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(9)(1) OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:


*FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(6)(1) THROUGH 8(6)(4).

8(6)(1) TURN-OF-THE-NUT TIGHTENING.
BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8 (c), UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

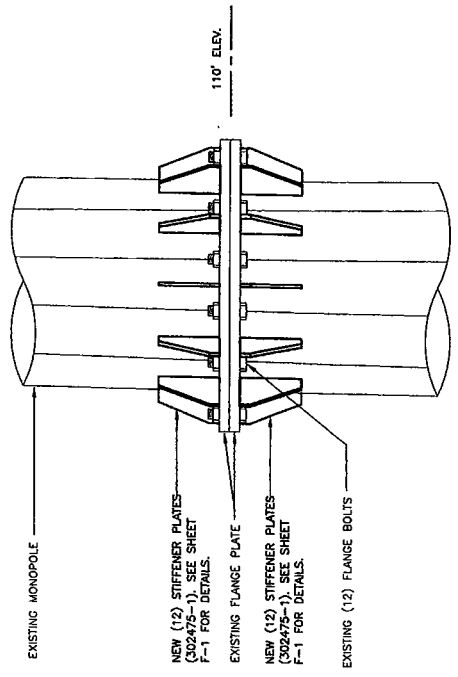
3. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8 (c) OF THE SPECIFICATION.

SPECIAL INSPECTION

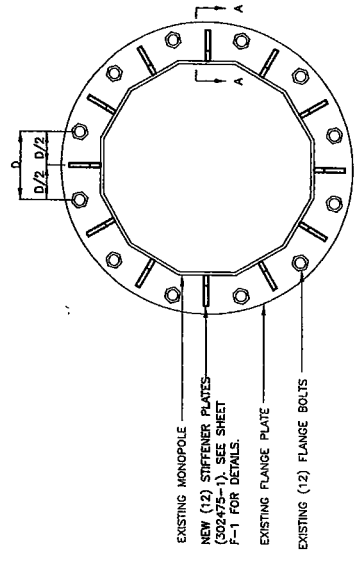
1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH IBC 2003, SECTION 1704 AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
 - a) STRUCTURAL WELDING
 - b) HIGH STRENGTH BOLTS
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER IN ACCORDANCE WITH IBC 2003, SECTION 1704. UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT THE SPECIAL INSPECTIONS.

 STRUCTURAL STEEL ENGINEERING & CONSTRUCTION 5050 PREPACT PARKWAY SUITE 135 BRYN MAWR, PA 19003 (610) 526-2940 FAX (610) 526-2940	NO. _____	DATE _____
	DESCRIPTION BY _____	FIRST ISSUE SK. 5/25/07
SITE NUMBER: 302475		
SITE NAME: STIN - SOUTHWINGTON, CT		
SHUTTLE MEADOW ROAD SOUTHWINGTON, CT 06489		
DRAWN BY: SK	CHECKED BY: AP	DATE DRAWN: 5/25/07
AEC JOB NO.: 40480332	SHEET TITLE:	
IBC GENERAL NOTES		
SHEET NUMBER: 1	REV. #	N.T.S. 1

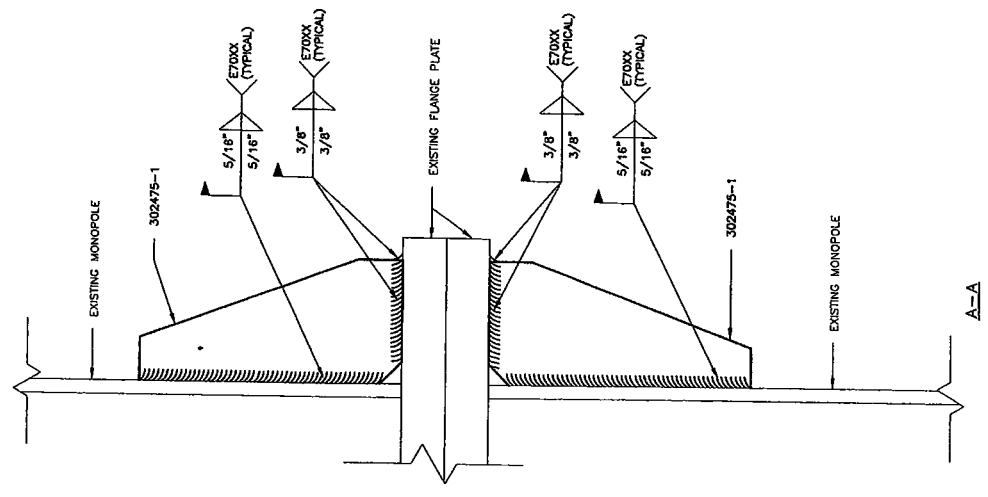
BASIC WIND SPEED: 80 MPH (FASTEST MALE) / THIS IS IN CONFORMANCE WITH THE IBC 2003;
 SECTION 16091.1 EXCEPTION (5) AND SECTION 3108.4
 RADIAL ICE: 65.28 MPH (FASTEST) W/ 1/2" ICE
 CODE: 10A/EA-222-F / IBC 2003



ELEVATION VIEW



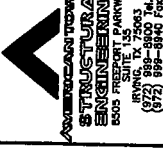
PLAN VIEW



<p>STRUCTURAL ENGINEERING 8500 FREEDOM PARKWAY SUITE 135 (978) 999-8700 (978) 999-8940 Fax</p> <p><small>THIS OFFICE HAS THE AUTHORITY TO SIGN AND SEAL THE DRAWINGS AND SPECIFICATIONS AS AUTHORIZED BY STATE LICENSE NO. 0000000000. THE ENGINEER'S RESPONSIBILITY IS TO THE CLIENT AND TO THE PUBLIC. THE ENGINEER'S LIABILITY IS LIMITED TO THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT OR FOR THE ACCURACY OF THE INFORMATION PROVIDED BY OTHER PROFESSIONALS. THE ENGINEER'S LIABILITY IS LIMITED TO THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT OR FOR THE ACCURACY OF THE INFORMATION PROVIDED BY OTHER PROFESSIONALS.</small></p>	REV. DESCRIPTION BY DATE 1 FIRST ISSUE SK 5/25/07 2 3 4 5 6	SITE NUMBER: 302475 SITE NAME: STIN - SOUTHWINGTON, CT SITE ADDRESS: SHUTTLE MEADOW ROAD SOUTHWINGTON, CT 06489	DRAWN BY: SK CHECKED BY: AP DATE DRAWN: 5/25/07 AEC JOB NO.: 40480332 SHEET TITLE: FLANGE PLATE REINFORCEMENT AND WELDMENT DETAILS	SHEET NUMBER: A-1 REV. #
---	---	---	--	---------------------------------------

ELEVATION AND PLAN VIEW OF FLANGE PLATE REINFORCEMENT

N.T.S. 1



STRUCTURAL ENGINEERING
 6005 PARKWAY
 SUITE 105
 FRYING, NY 12504
 (812) 898-8140 FAX

THIS DRAWING IS THE PROPERTY OF STRUCTURAL ENGINEERING. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, REPRODUCED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF STRUCTURAL ENGINEERING. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION IS STRICTLY PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND AGENCIES OF JURISDICTION. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND AGENCIES OF JURISDICTION.

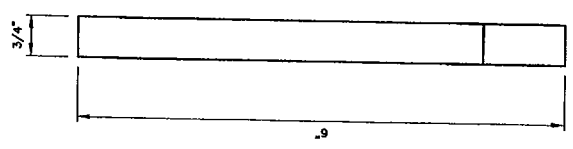
REV. DESCRIPTION BY DATE
 1. FIRST ISSUE SK 5/25/07

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302475
 SITE NAME:
STIN - SOUTHLINGTON, CT
 SITE ADDRESS:
 SHUTTLE MEADOW ROAD
 SOUTHLINGTON, CT 06488

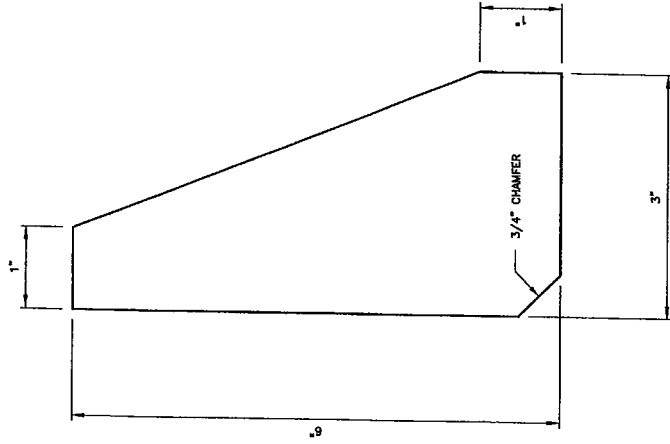
DRAWN BY: SK
 CHECKED BY: AP
 DATE DRAWN: 5/25/07
 CIP JOB NO: 40480332
 SHEET TITLE:

302475-1
 DETAILS

SHEET NUMBER:
F-1



SIDE VIEW



FRONT VIEW

PL 3/4" X 3" X 6" A572-GR 50

N.T.S. 1

302475-1



AMERICAN TOWER™
CORPORATION

Structural Analysis Report

Structure : 150 ft. ITT Meyer Monopole
ATC Site Name : Sttn - Southington, CT
ATC Site Number : 302475
Proposed Carrier : Cingular Wireless
Carrier Site Name : Southington
Carrier Site Number : 1004
County : Hartford
Eng. Number : 40480321
Date : May 23, 2007
Usage : 98.4% (Pole Shaft)
133.0% (Flanges @ 110 ft. elevation)

Submitted by:
Adam Ponder
Project Engineer

Reviewed by:

American Tower Engineering Services
8505 Freepoint Parkway
Suite 135
Irving, TX 75063
Phone: 972-999-8900



Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 150 ft. monopole located at Sttn - Southington, CT, Hartford County (ATC site #302475). The tower was originally designed and manufactured by ITT Meyer as a Type "B" pole per AT&T Specification AT-8935 dated April 13, 1984.

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition. A 5% overstress is allowed in the existing structural members to account for program variances.

Basic Wind Speed: 80.0 mph (Fastest Mile) / this is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4

Radial Ice: 69.28 mph (Fastest Mile) w/ 1/2" ice

Code: TIA/EIA-222-F / IBC 2003

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
153.0	1	10' Omni	Platform with Rails	(3) 1-5/8"	Abandoned
152.0	6	ADC 850-1900 TTA's		-	Cingular Wireless
	6	CSS DUO4-8670		(6) 7/8"	
	3	Powerwave LGP13519		-	

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
152.0	3	Powerwave 7770.00	Existing Platform with Rails	(6) 7/8"	Cingular
	3	Powerwave LGP13519		-	
38.5	1	GPS	(1) 18" Standoff Mount	(1) 1/2"	

All transmission lines are to be installed on the inside of the pole shaft.

Results

The existing 150 ft. ITT Meyer monopole with the existing and the proposed antennas **is not** structurally acceptable per TIA/EIA-222-F and the IBC 2003. The following structural elements are overstressed:

- Flange plates at the 110 ft. elevation: Overstressed by 33.0%

The maximum structure usage is: 133.0%.

Additional exit and/or entry ports may be required to accommodate the running of the proposed lines to the proposed antennas. These additional ports **may not** be installed without installation drawings providing the location, size and welding requirements of each port. To ensure compliance with all conditions of this structural analysis, port installation drawings shall be provided by American Tower's Engineering Department under a subsequent project.

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	1,197.00	1,488.53	124.4
Shear (kips)	13.10	15.14	115.6

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Modifications

We recommend the following tower modifications:

- Add stiffener plates (65 ksi yield) between the existing flange bolts to both the upper and lower flanges at the 110 ft. elevation – 24 stiffeners required.

The final design and details of the required modifications will be a separate scope of work under a subsequent project.

Eng. Number 40480321

May 23, 2007

Page 3

Conclusion

Based on the analysis results, the structure **does not** meet the requirements per TIA/EIA-222-F and the IBC 2003. The tower and foundation can support the existing and proposed equipment after the modifications listed above are completed.

If you have any questions or require additional information, please call (972) 999-8900.

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

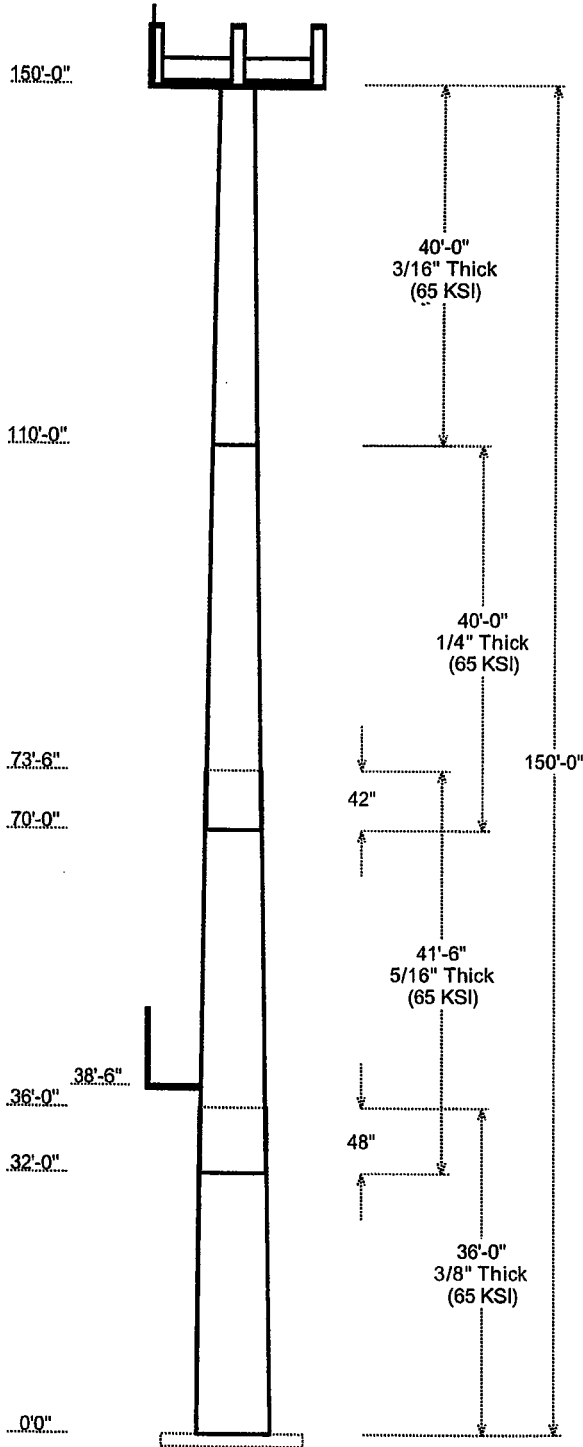
- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore, assume that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Engineering Services is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Copyright Semaan Engineering Solutions, Inc



Job Information	
Pole : 302475	Code: TIA/EIA-222 Rev F
Description : 150' ITT Meyer Type "B" Monopole	
Client : Cingular Wireless	
Location : Sittn - Southington, CT	
Shape : 12 Sides	Base Elev (ft): 0.00
Height : 150.00 (ft)	Taper: 0.150830(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)	
		Across Top	Flats Bottom					
1	36.000	30.57	36.00	0.375	0.000	0.150830	65	
2	41.500	25.53	31.79	0.313 Slip Joint	48.000	0.150830	65	
3	40.000	20.53	26.56	0.250 Slip Joint	42.000	0.150830	65	
4	40.000	14.50	20.53	0.188 Butt Joint	0.000	0.150830	65	

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	152.000	3	Powerwave 13519
150.000	152.000	3	Powerwave 13519
150.000	152.000	6	ADC 850-1900
150.000	152.000	3	Powerwave 7770.00
150.000	152.000	6	CSS DUO4-8670
150.000	158.000	1	10' Omni
150.000	150.000	1	12 Ft. Platform w/ Rails
38.500	38.750	1	GPS
38.500	38.500	1	18" Standoff Mount

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	38.500	1/2" Coax	No
0.000	150.0	1 5/8" Coax	No
0.000	150.0	7/8" Coax	No
0.000	150.0	7/8" Coax	No

Load Cases	
No Ice	80.00 mph Wind with No Ice
Ice	69.28 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions			
Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
No Ice	1488.53	15.14	16.54
Ice	1240.15	12.15	20.27
Twist/Sway	583.44	5.92	16.58

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Twist/Sway	0.00	0.000	0.000

**CINGULAR WIRELESS
Equipment Modification**

41 Manitock Hill Road, Waterford, CT
Site Number 5220
Former AT&T site
Exempt Modification 3/21/02

Tower Owner/Manager: Crown Castle

Equipment configuration: Self Supporting Lattice

Current and/or approved: Three Allgon 7250 antennas @ 97 ft c.l.
Six runs 1 5/8 inch coax

Planned Modifications: Remove all three existing antennas
Install 3 Powerwave 7770 antennas (or equivalent) @ 97 ft
Install six TMA's @ 97 ft c.l.
Install additional 6 x 6 ft concrete slab for cabinets
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 38.3 % 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 45.2 % of the standard.

Existing

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
Other Users *							34.49
Cingular GSM *	97	1900 Band	4	250	0.0382	1.0000	3.82
Total							38.3%

* Per CSC Records

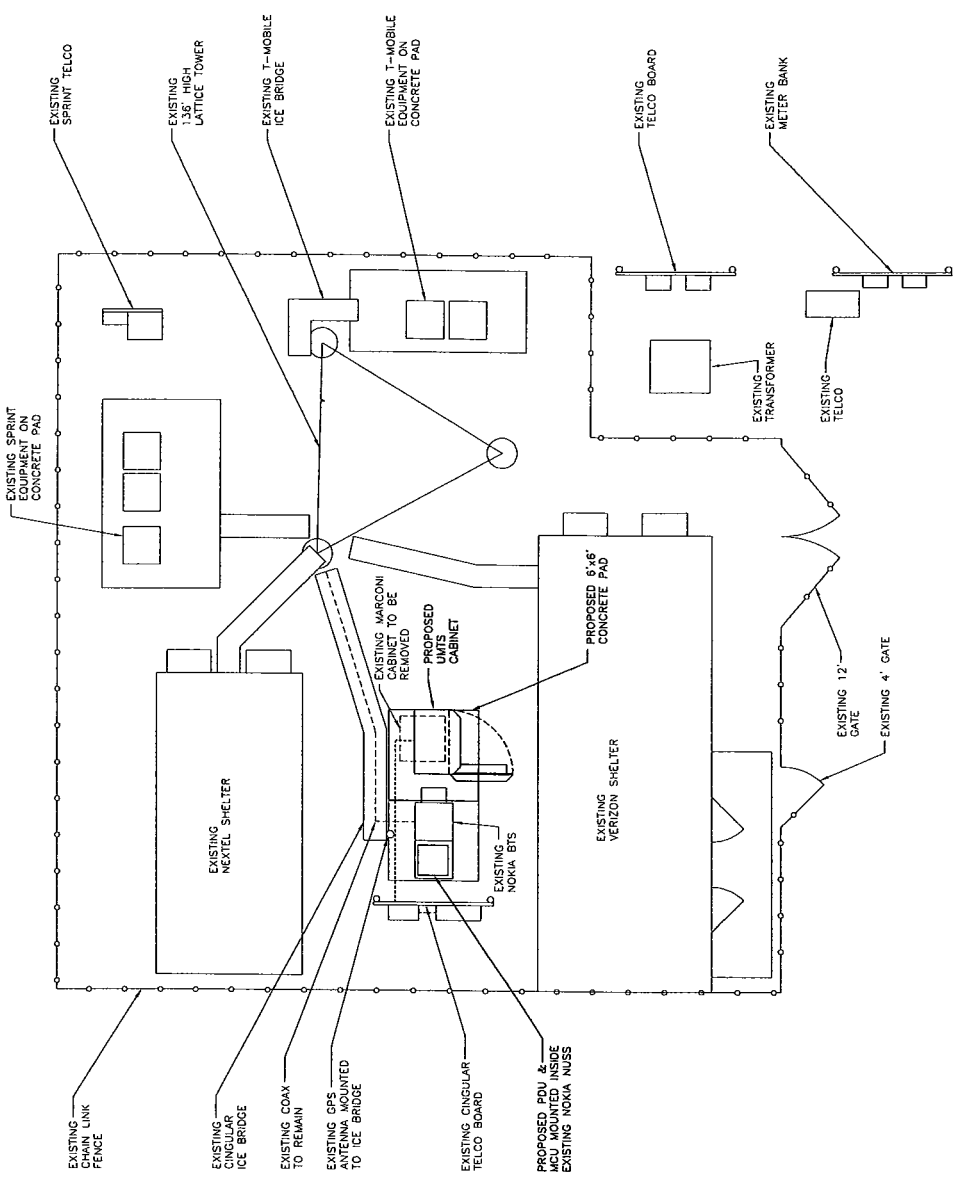
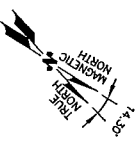
Proposed

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
Other Users *							34.49
Cingular GSM	97	1900 Band	3	654	0.0750	1.0000	7.50
Cingular UMTS	97	880 - 894	1	500	0.0191	0.5867	3.26
Total							45.2%

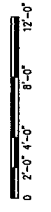
* Per CSC Records

Structural information:

The attached structural analysis demonstrates that the tower and foundation are at present structurally insufficient to accommodate the proposed equipment modifications. (Vertical Structures, dated 7/6/07) However Section 4.1 of the analysis states four structural modifications which will eliminate the over-stressed condition. Cingular will perform the recommended structural repairs prior to moving forward with the proposed equipment modifications. For this reason, Cingular respectfully requests conditional approval for the proposed modifications.



**COMPOUND PLAN
OUTDOOR UMS**
SCALE: 1/4"=1'-0"



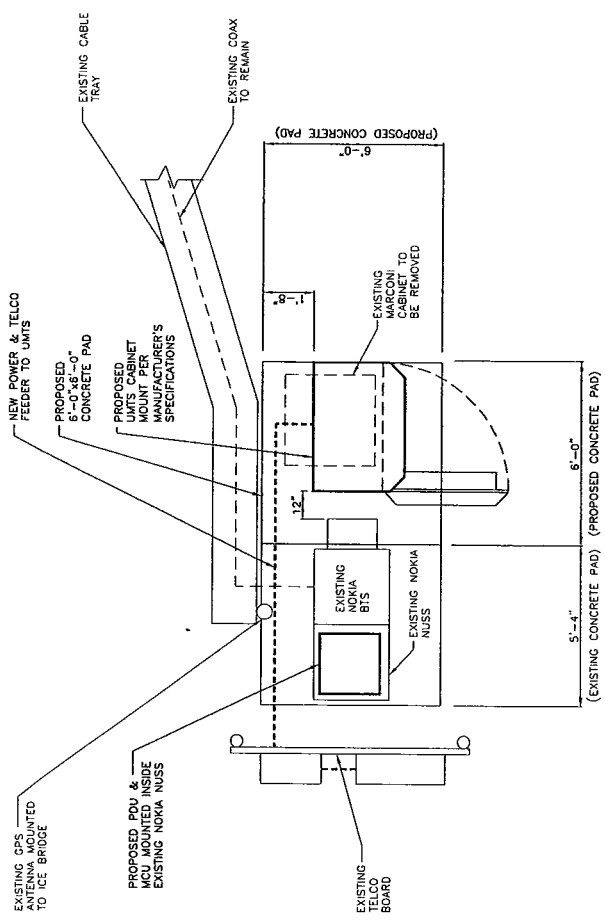
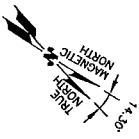
NO.	DATE	REVISIONS	DESIGNED BY: NC	DRAWN BY: NC	JOB NUMBER	5220.01
1	08/27/07	CONSTRUCTION FINAL				
0	08/15/07	ISSUED FOR CONSTRUCTION				
SCALE: NOT SHOWN						

cingular WIRELESS
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06867

SITE NUMBER: 5220
SITE NAME: WATERFORD CENTRAL
41 MANTOCK HILL RD
WATERFORD, CT 06395
NEW LONDON COUNTY

SIAD communications
184 ROCKINGHAM ROAD, UNIT A
LONDONDERRY, NH 03053

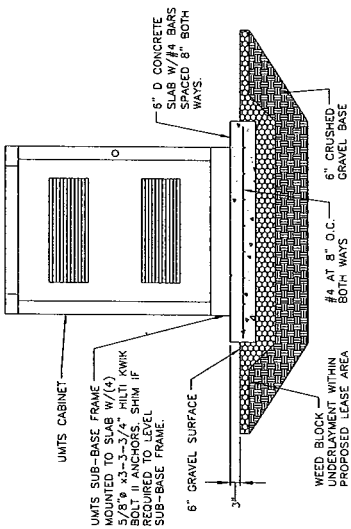
Hudson Design Group
416 CEDARWOOD DR.
N. ANDOVER, MA 01845
TEL: 978.353.5553
FAX: 978.353.5584



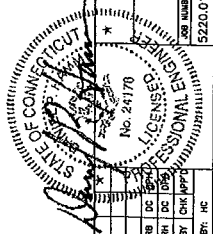
EQUIPMENT PLAN
OUTDOOR UNITS
SCALE: 1/2"=1'-0"



NEW CONC. PAD NOTES:
 - REMOVE W/ #4 @ 8\"/>



SECTION AT EQUIPMENT PAD
N.T.S.



500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06867

SITE NUMBER: 5220
SITE NAME: WATERFORD CENTRAL
41 MANTOCK HILL RD
WATERFORD, CT 06385
NEW LONDON COUNTY

SIAD
communications
184 ROCKINGHAM ROAD, UNIT A
LONDONDERRY, NH 03053

Hudson
Design Group
44 HECWOOD DR.
N. ANDOVER, MA 01854
TEL: 978.533.5553
FAX: 978.335.5554

NO.	DATE	BY	CHK'D BY	DESIGNED BY	DRAWN BY	SCALE
1	09/27/07	CONSTRUCTION FINAL	RB DC			
0	08/15/07	ISSUED FOR CONSTRUCTION	RB DC			
REVISIONS						
SCALE: NOT SHOWN						
JOB NUMBER: 5220.01						
DRAWING NUMBER: A-1						
EQUIPMENT PLAN UNITS (OUTDOOR)						
CINGULAR WIRELESS						



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

September 14, 2007

Honorable Daniel M. Steward
1st Selectman, Town of Waterford
Town Hall, 15 Rope Ferry Road
Waterford, Connecticut 06385-2806

Re: Telecommunications Facility – 41 Manitock Hill Road, Waterford

Dear Mr. Steward:

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



July 6, 2007

Benjamin Goodhart
Crown Castle International
9105 Monroe Road, Suite 150
Charlotte, NC 28270
(704) 321-3845

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
(859) 624-8360
kmeehan@verticalstructures.com

Subject: Structural Analysis Report

Carrier Designation

**Cingular Change-Out
Carrier Site Number: 5220
Carrier Site Name: Waterford-Mantiock Hill Road**

Crown Castle Designation

**Crown Castle BU Number: 876338
Crown Castle Site Name: Waterford
Crown Castle JDE Job Number: 89013**

Engineering Firm Designation

Vertical Structures Project Number: 2007-004-078

Site Data

**41 Mantiock Hill Road, Waterford, CT, New London County
Latitude 41°-21'-18.0", Longitude -72°-9'-3.6".
136' PiRod Self-Supporting Tower**

Dear Mr. Goodhart,

Vertical Structures 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 243623, and Application Number 45867, Revision 1. The purpose of the analysis is to determine the suitability of the tower for the following load case:

Load Case 1 (LC1): Proposed Equipment (Table 1) + Existing/Reserved Equipment (Table 2)

Based on our analysis we have determined the tower superstructure and foundation are insufficient for LC1. This analysis has been performed in accordance with the TIA/EIA-222-F standard and local code requirements based upon a 100 MPH basic "fastest mile" wind speed, equivalent to a 120 MPH basic "3-second gust" wind speed per IBC Table 1609.3.1.

Vertical Structures appreciates 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,

Kyle Meehan
Project Engineer

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RISA Tower Output

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Additional Calculations

1.) INTRODUCTION

The 136' self-supporting tower was designed and manufactured by PiRod in 1999 for Sprint PCS. The three (3) sided tower is constructed of truss legs with angle x-bracing from 0' to 90' and solid rod legs with solid rod x-bracing from 90' up to 136'. The tower is founded on 23' square by 3'-3" thick mat foundation bearing 6' below grade.

2.) ANALYSIS CRITERIA

The Waterford tower was analyzed in accordance with the current EIA-222-F publication, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." The proposed, existing, and reserved antennas, cables and mounts considered in this analysis are listed in Tables 1 and 2. Applied forces in this study were derived from a 100 MPH basic "fastest mile" wind speed with no ice and a reduced 87 MPH basic "fastest mile" wind speed with a 1/2" of radial ice accumulation. The tower was originally designed for a 90 MPH basic "fastest mile" wind speed with no ice and a reduced 78 MPH basic "fastest mile" wind speed with 1/2" of radial ice accumulation. The original design loads are listed in Table 3. All cables are assumed to be routed in accordance with the drawing in Appendix B.

Table 1 – Proposed Antenna and Cable Information

Mount Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model	Number Of Feed Lines	Feed Line Size (inches)
97	3 + 9*	Powerwave Technologies	7770.00		(3*) 12' T-Frames	6 + 6*	1 5/8
	6		LGP21401 TMA				

*Indicates reserved equipment.

Table 2 – Existing and Reserved Antenna and Cable Information

Mount Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model	Number Of Feed Lines	Feed Line Size (inches)
137	9**	EMS Wireless	FV65-14-00NA2	PiRod	16' Low Profile Platform	9**	1 5/8
127	12	Swedcom	ALP 9212	PiRod	(3) 15' T-Frames	12*	1 5/8
117	6 + 3*	EMS Wireless	RR90-17-02DP	PiRod	(3) 15' T-Frames	14 + 4*	1 5/8
	6		TMA				
107	6	Decibel	DB844H90E-XY		(3) 12' T-Frames	12	1 5/8
	6		48" x 12" Panel				
97	3***	Allgon	7250		(3) Mount Pipes	6	1 1/4
80	1		GPS Antenna		Leg Mounted	1	1/2
72	1		GPS Antenna		Leg Mounted	1	1/2

*Indicates reserved equipment.

**Indicates MLA loading.

***Indicates antennas and cables to be removed. Existing mounts to be reused.

Table 3 – Design Antenna and Cable Information

Mount Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount Manufacturer	Mount Model	Number Of Feed Lines	Feed Line Size (inches)
136	12	Allgon	7184	PiRod	16' Low Profile Platform	12	1 5/8
127	12	Swedcom	ALP9212	PiRod	(3) T-Frames	12	1 5/8
117	12	Swedcom	ALP9212	PiRod	(3) T-Frames	12	1 5/8
102	2	Decibel	DB810	PiRod	(2) 6'-8" Rigid Sidearms	2	1 5/8
80	2		GPS Antenna			2	1/2

3.) ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Online Application	Cingular Change-Out Revision #1	45867	CCI iSite
Tower Drawing	PiRod Drawing No. 204676-B	1441523	CCI iSite
Foundation Drawing	PiRod Drawing No. 204676-B	1610804	CCI iSite
Geotechnical Report	SEA Consultants Project No. 99034.01-A	N/A	On File

3.1) Analysis Methods

RISA Tower (Version 5.0), a commercially available analysis software package, 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-222-F 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 manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and any referenced drawings.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222-F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and Vertical Structures 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)

Notes	Component	Elevation (feet)	% Capacity	Pass/Fail
RISA Tower Analysis Summary:				
	Leg (T3)	110 – 90	161.9	Fail X
	Diagonal (T4)	90 – 80	159.2	Fail X
	Horizontal (T3)	110 – 90	47.0	Pass
	Top Girt (T3)	110	32.3	Pass
1	Bottom Girt (T3)	90	100.6	Pass
	Bolt Checks	90 – 80	143.7	Fail X
Additional Component Analysis Summary:				
2	Anchor Bolts (Tension)		77.9	Pass
2	Tower Foundation (Compared to Allowable Loads)		160.6	Fail X
Structure Rating =			161.9	Fail X

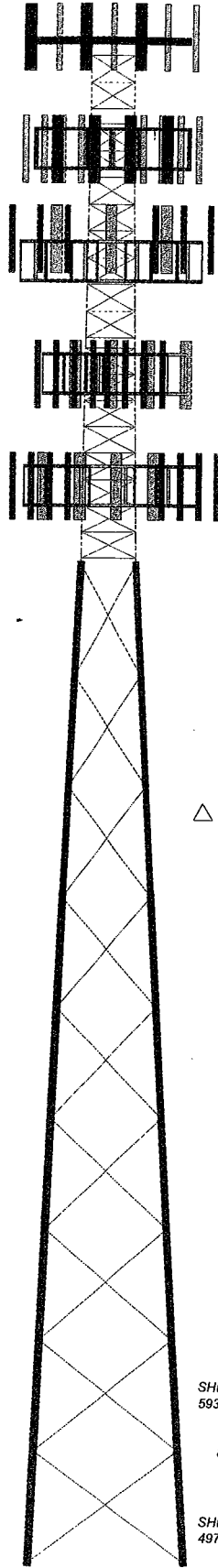
- 1) Indicates an overstress of less than 5% and is considered acceptable based on the analysis procedure used.
 2) Indicates calculations supporting % capacity are included in Appendix C.

4.1) Required Modifications

Results indicate that the tower superstructure and foundation are insufficient to accommodate LC1. Modifications (A) through (D) are required to remedy the deficiencies identified in this analysis. If requested, Vertical Structures will supply the construction drawings and material necessary to make the required modifications.

- (A) Reinforce the legs between 110' and 0'.
- (B) Reinforce the diagonals between 90' and 60'.
- (C) Reinforce the leg splice connection at 40' and 20'.
- (D) Reinforce the foundation.

Section	17	18	19	20	21	22	23	24	25	26	27
Legs	Prod 105213	Prod 105218	Prod 105217	Prod 105244	Prod 105217	Prod 105217	Prod 105217	Prod 105217	Prod 105217	Prod 105217	Prod 105217
Leg Cleads	L3x3x3/16	L3x3x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16	L3 1/2x2 1/2x3/16
Diagonals	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36	A36
Top Girts	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Bottom Girts	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Horizontals	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Face Width (ft)	14	14	14	14	14	14	14	14	14	14	14
# Panels @ (ft)	11	11	11	11	11	11	11	11	11	11	11
Weight (lb) 15571.1	2784.3	2784.3	2168.7	980.3	2168.7	2168.7	1637	1637	1637	1637	1637



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Prod 16'-6" Low Profile Platform (VSI)	137	(3) RR90-17-02DP w/Mount Pipe	117
(3) FV65-14-00NA2 w/Mount Pipe	137	(2) Generic TMA	117
(3) FV65-14-00NA2 w/Mount Pipe	137	(2) Generic TMA	117
(3) FV65-14-00NA2 w/Mount Pipe	137	(2) Generic TMA	117
Prod 15' T-Frame Sector Mount (1) (VSI)	127	12' Pipe Frame w/ 2 Horizontal Plates	107
Prod 15' T-Frame Sector Mount (1) (VSI)	127	12' Pipe Frame w/ 2 Horizontal Plates	107
Prod 15' T-Frame Sector Mount (1) (VSI)	127	12' Pipe Frame w/ 2 Horizontal Plates	107
Prod 15' T-Frame Sector Mount (1) (VSI)	127	(2) DB844H90E-XY w/Mount Pipe	107
Prod 15' T-Frame Sector Mount (1) (VSI)	127	(2) DB844H90E-XY w/Mount Pipe	107
Prod 4' Face Mount Support (2"x1" Channels) (VSI)	127	(2) 48"x18"x12" Panel w/ Mount Pipe	107
Prod 4' Face Mount Support (2"x1" Channels) (VSI)	127	(2) 48"x18"x12" Panel w/ Mount Pipe	107
Prod 4' Face Mount Support (2"x1" Channels) (VSI)	127	(2) 48"x18"x12" Panel w/ Mount Pipe	107
Prod 4' Face Mount Support (2"x1" Channels) (VSI)	127	Prod 12' T-Frame Sector Mount (1) (VSI) (Cingular)	97
Prod 4' Face Mount Support (2"x1" Channels) (VSI)	127	Prod 12' T-Frame Sector Mount (1) (VSI) (Cingular)	97
(4) ALP 9212-N w/Mount Pipe	127	Prod 12' T-Frame Sector Mount (1) (VSI) (Cingular)	97
(4) ALP 9212-N w/Mount Pipe	127	Prod 12' T-Frame Sector Mount (1) (VSI) (Cingular)	97
(4) ALP 9212-N w/Mount Pipe	127	Prod 12' T-Frame Sector Mount (1) (VSI) (Cingular)	97
Prod 15' T-Frame Sector Mount (1) (VSI)	117	(4) 7770.00 w/ Mount Pipe (Cingular)	97
Prod 15' T-Frame Sector Mount (1) (VSI)	117	(4) 7770.00 w/ Mount Pipe (Cingular)	97
Prod 15' T-Frame Sector Mount (1) (VSI)	117	(4) 7770.00 w/ Mount Pipe (Cingular)	97
Prod 15' T-Frame Sector Mount (1) (VSI)	117	(2) LGP21401 TMA (Cingular)	97
(3) RR90-17-02DP w/Mount Pipe	117	(2) LGP21401 TMA (Cingular)	97
(3) RR90-17-02DP w/Mount Pipe	117	(2) LGP21401 TMA (Cingular)	97
		GPS Antenna w/ Mount	80
		GPS Antenna w/ Mount	72

MATERIAL STRENGTH

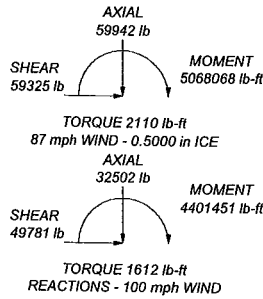
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for a 100 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 87 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 161.9%

MAX. CORNER REACTIONS AT BASE:

DOWN: 437987 lb
 UPLIFT: -378369 lb
 SHEAR: 39165 lb



TORQUE 1612 lb-ft
 REACTIONS - 100 mph WIND

Vertical Structures 308 Spangler Drive, Suite E Richmond, KY 40475 Phone: (859) 624-8360 FAX: (859) 624-8369	Job:	Waterford, CT BU#876338		
	Project:	Vertical Structures Job #2007-004-078		
	Client:	Crown Castle	Drawn by:	Dmitriy Albul
	Code:	TIA/EIA-222-F	Date:	07/06/07
	Path:		Scale:	NTS

Dwg No. E-1