



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso

Chairman

February 13, 2009

Jennifer Young Gaudet
HPC Development LLC
53 Lake Avenue Ext.
Danbury, CT 06811

RE: **EM-T-MOBILE-051-090113** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 281 Woodhouse Road, Fairfield, Connecticut.

Dear Mrs. Gaudet:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice January 12, 2009, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP/laf

c: The Honorable Kenneth A. Flatto, First Selectman, Town of Fairfield
Joseph E. Devonshuk, Town Planner, Town of Fairfield
Crown Castle USA, Inc.



CONNECTICUT SITING COUNCIL

Affirmative Action / Equal Opportunity Employer



EM-T-MOBILE-051-090113

January 12, 2009

ORIGINAL

RECEIVED
JAN 13 2009

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Mr. S. Derek Phelps, Executive Director

CONNECTICUT
SITING COUNCIL

Re: Omnipoint Communications, Inc. – exempt modification
281 Woodhouse Road, Fairfield, Connecticut

Dear Mr. Phelps:

This letter and attachments are submitted on behalf of Omnipoint Communications, Inc. (also referred to herein as “T-Mobile”). T-Mobile is enhancing the capabilities of its wireless system in Connecticut by implementing UMTS technology. In order to do so, T-Mobile will modify antenna and equipment configurations at a number of its existing 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 First Selectman of Fairfield.

T-Mobile plans to modify the existing facility at 281 Woodhouse Road, Fairfield (coordinates 41°11'47" N, -73°16'56" W). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included is a power density calculation reflecting the modification to T-Mobile's operations at the site.

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


1. The height of the overall structure will be unaffected. Both T-Mobile's existing and proposed antennas will be located with an approximate center line of 140' AGL on the approximately 170' tower. This height conforms to the records maintained by Crown Atlantic Company, the tower owner, and used in preparation of the structural analysis attached hereto; whereas the tower elevation attached hereto reflects earlier records. Three of the six existing antennas will be replaced. Existing TMAs also will be replaced. None of the modifications will extend the height of the tower.

Mr. S. Derek Phelps
January 12, 2009
Page 2

2. The proposed changes will not extend the site boundaries. T-Mobile will remove two cabinets and install one in their place on the existing concrete pad. Thus, there will be no effect on the site compound.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.
4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached power density calculation, T-Mobile's operations at the site will result in a power density of 5.2212%; the combined site operations will result in a total power density of 36.0612%.

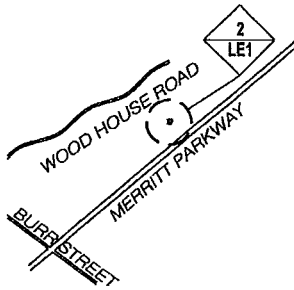
Please feel free to call me at (860) 798-7454 with questions concerning this matter.
Thank you for your consideration.

Respectfully yours,


Jennifer Young Gaudet

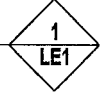
cc: Honorable Kenneth Flatto, First Selectman, Town of Fairfield
Moitrayee & Ranjan Ghosh (underlying property owners)

Attachments

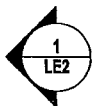
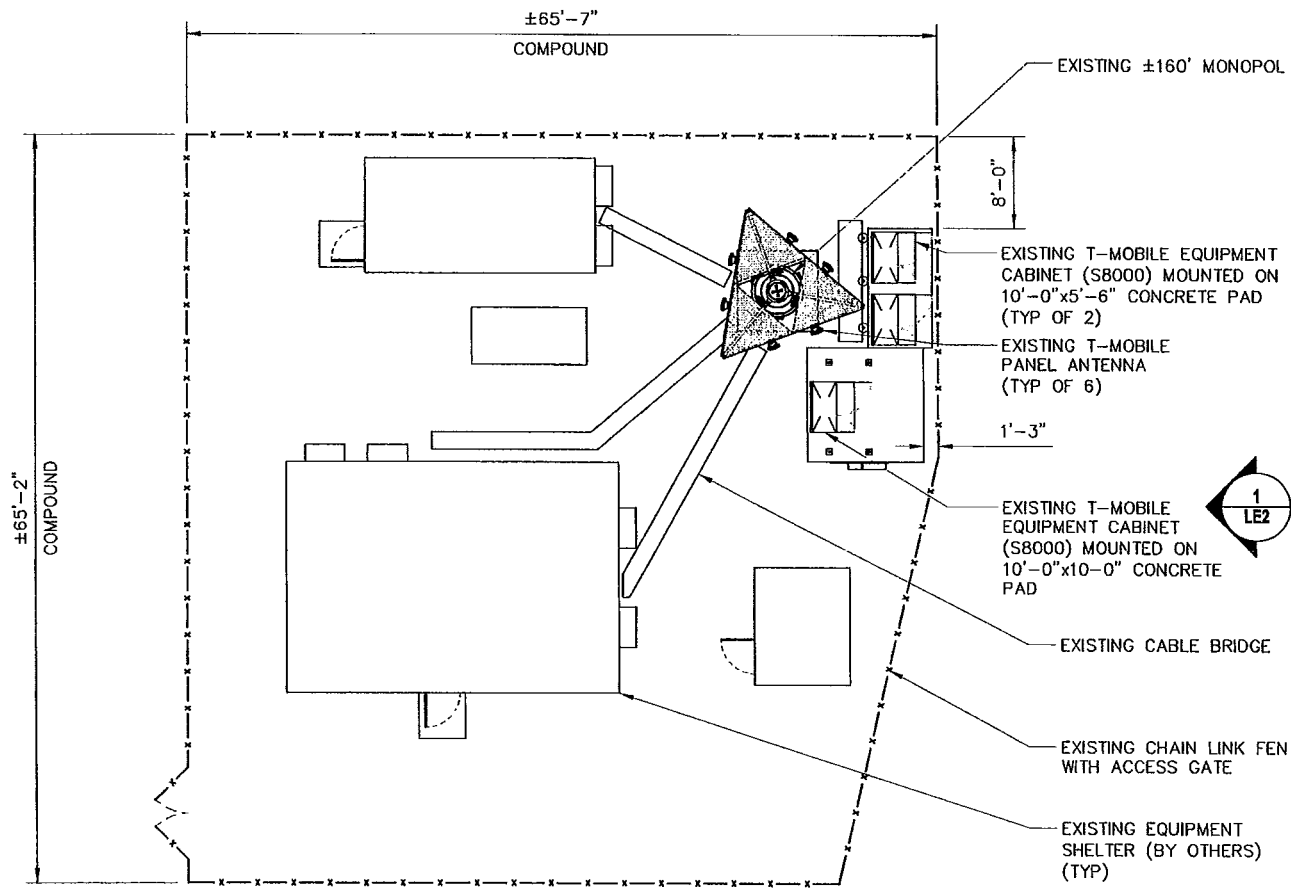


KEY PLAN

SCALE: NTS

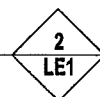


NOTE:
EXISTING ANTENNAS BY OTHERS
NOT SHOWN FOR CLARITY






EXISTING COMPOUND PLAN

SCALE: 1/16" = 1'-0"

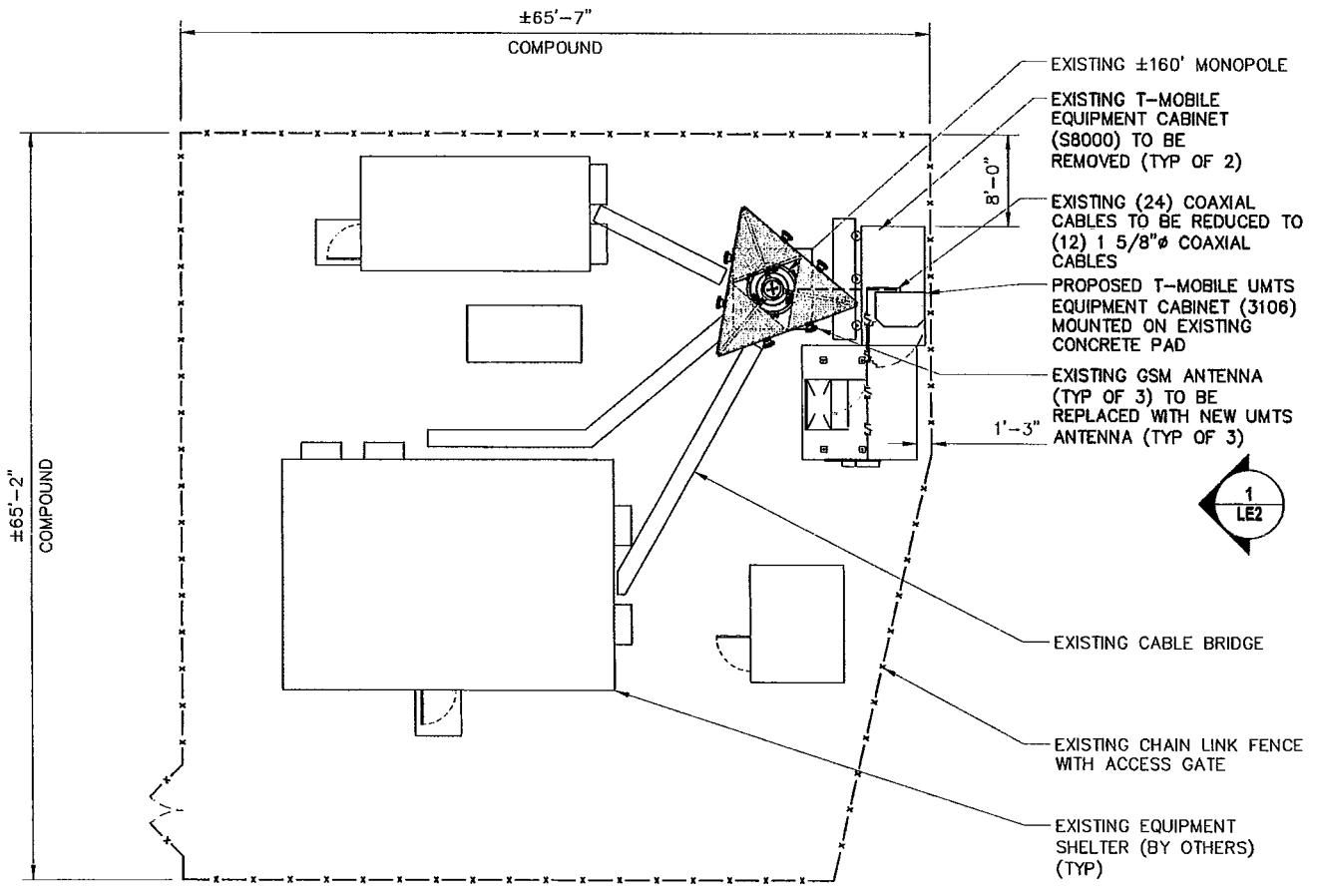


- NOTES:
- LEASE EXHIBITS ARE A CONCEPTUAL DESIGN OF LEASE AGREEMENT ONLY, ACTUAL CONSTRUCTION DOCUMENTS MAY VARY TO COMPLY WITH BUILDING CODES.
 - THE INFORMATION SHOWN IS TAKEN FROM A SURVEY PERFORMED BY "KMB DESIGN GROUP, LLC." DURING SITE VISIT.
 - ELECTRIC/ TELCO SERVICES SHALL BE CONFIRMED PRIOR TO CONSTRUCTION DOCUMENT PHASE.
 - 24 HR. 7 DAYS PER WEEK ACCESS IS REQUIRED FOR SERVICE TECHNICIAN.

	TITLE: KEY & COMPOUND PLAN		PROJECT: WOOD HOUSE RD			
	CLIENT: 		ADDRESS: 281 WOOD HOUSE RD FAIRFIELD, CT 000 FAIRFIELD COUNTY		2	12-02-08
SITE NO: CT11078B	KMB NO: 350.0004.006	DRAWN BY: JRB	CHECKED BY: 			
				LE1		

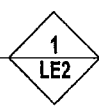





NOTE:
EXISTING ANTENNAS BY OTHERS
NOT SHOWN FOR CLARITY

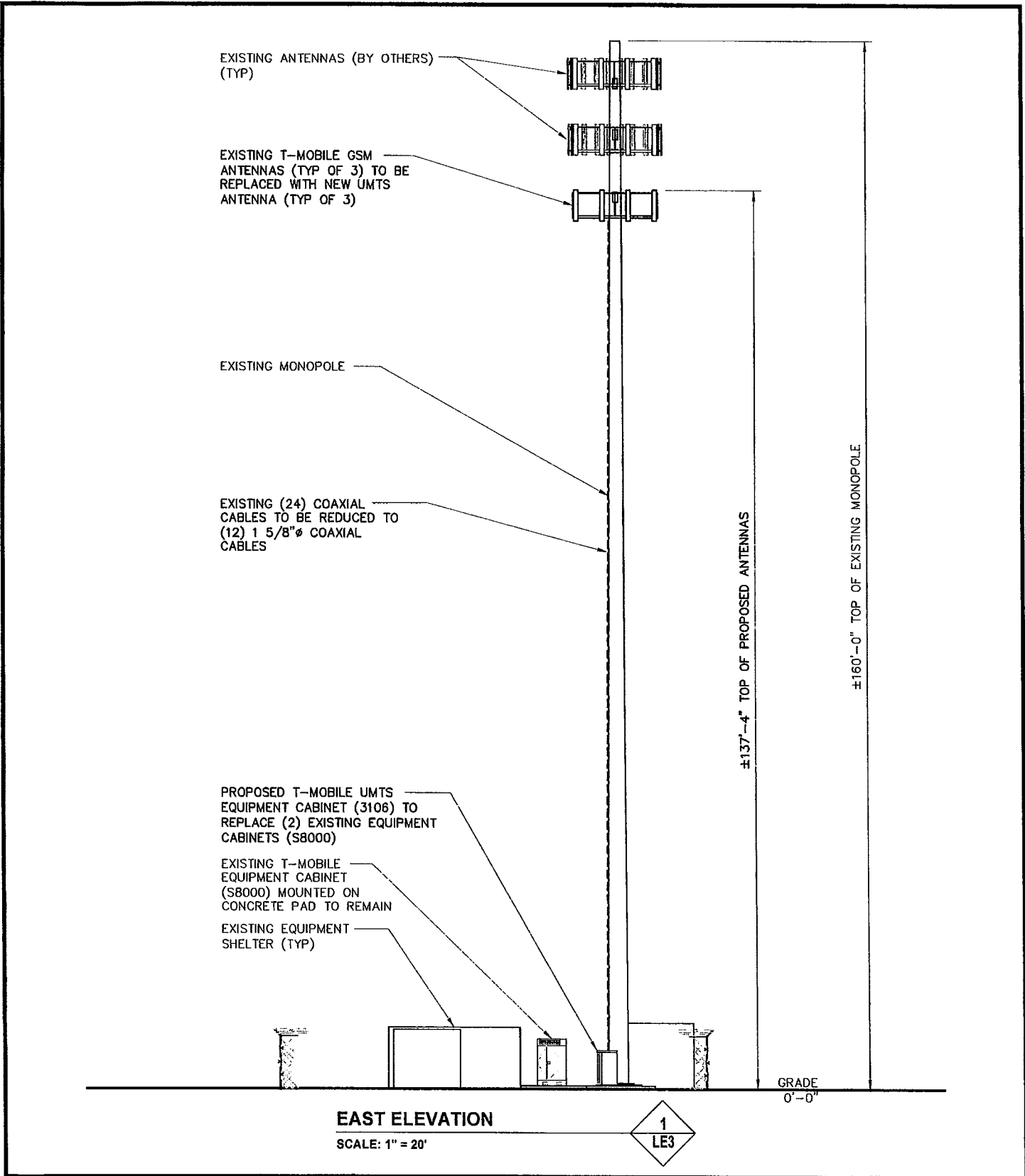


PROPOSED COMPOUND PLAN

SCALE: 1/16" = 1'-0"






	TITLE:	COMPOUND PLAN	PROJECT:	WOOD HOUSE RD				
	CLIENT:	 <small>COMMUNICATIONS, INC. ONE FAIRFIELD CTR 35 GILBERT ROAD SOUTH FAIRFIELD, CT 06424</small>	ADDRESS:	281 WOOD HOUSE RD FAIRFIELD, CT 000 FAIRFIELD COUNTY	2	12-02-08	KCD	
SITE NO:	CT11078B	KMB NO:	350.0004.006	DRAWN BY:	JRB	1	11-21-08	JLS
		CHECKED BY:				0	11-14-08	JRB
						LE2		



EAST ELEVATION

SCALE: 1" = 20'



 <p>KMB DESIGN GROUP www.kmbdg.com</p>	TITLE: ELEVATION		PROJECT: WOOD HOUSE RD					
	CLIENT: 		ADDRESS: 281 WOOD HOUSE RD FAIRFIELD, CT 000 FAIRFIELD COUNTY		2	12-02-08	KCD	
	KMB NO: 350.0004.006		DRAWN BY: JRB		CHECKED BY: 		1	11-21-08
SITE NO: CT11078B						0	11-14-08	JRB
				LE3				



Date: **December 23, 2008**

Michael McFadden
Crown Castle USA, Inc.
3530 Toringdon Way.
Suite 300
Charlotte, NC 28277
(704) 405-6612

PSG Engineering, Ltd.
1006 Thompson Highway
Richmond, Texas 77469
Phone: (281) 239-8490
Fax: (281) 239-8515

Subject: Structural Analysis Report

Carrier Designation

T-Mobile Co-Locate
Carrier Site Number: "CT11078"
Carrier Site Name: "Fairfield/MP X43/Burr 3"

Crown Castle Designation

Crown Castle BU Number: 806355
Crown Castle Site Name: BRG 126 943086
Crown Castle JDE Job Number: 113377

Engineering Firm Designation

PSG Engineering Project Number: 0801F211-A990171

Site Data

281 Woodhouse Road Fairfield, CT, Fairfield County
Latitude 41° 11' 45.3", Longitude -73° 16' 52.9"
171 Foot - Monopole Tower

Dear Mr. McFadden,

PSG Engineering, Ltd. is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 315255, in accordance with application 71523, revision 0.

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

LC1: Existing + Reserved + Proposed Equipment

Sufficient Capacity

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

The analysis has been performed in accordance with the TIA/EIA-222-F Standard for a fastest mile wind speed of 85 mph (105 mph 3-second gust).

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

Respectfully submitted,

Oscar Pedraza, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 – Proposed (P) Antenna and Cable Information

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

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity

4.1) Recommendations (if applicable)

5) APPENDIX A

RISA Tower Output

6) APPENDIX B

Base Level Drawing

1) INTRODUCTION

The tower superstructure analysis is based on original tower design by Engineered Endeavors Incorporated dated May 1, 1998 (TIA/EIA-222-F: 85 mph basic and 64 mph speed 1/2" radial ice). The tower substructure analysis is based on the original foundation design by Engineered Endeavors Incorporated dated May 21, 1998 and a geotechnical report by Tower Dr. Clarence Welti, P.E., P.C. dated May 15, 1998.

2) ANALYSIS CRITERIA

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

The following design criteria apply:

- Basic wind speed of 85 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 74 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Feedline torque is considered.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333

Table Legend
Proposed = (P)
Reserved = (R)

Table 1 – Proposed (P) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
140	3(P)	EMS Wireless	DR65-18-02DP	-	6(P)	*1 5/8
	3(P)	RFS/Celwave	APX16DWV-16DWV-S-E-A20		(Internal)	
	3(P)		ATMAA1412D-1A20		*6(P)	
	3(P)		ATMPP1412D-1CWA		(External)	

*Note: Proposed coax lines may be flush mounted to the pole exterior. The coax lines should not be stacked to avoid unnecessary wind loading.

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

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
165	3	EMS Wireless	DR90-17-02DP	Tri-Bracket (1)	6 (External)	1 5/8
158	CASE A					
	6	Antel	WPA-80090/4CF	Platform w/Handrail (1)	12 (Internal)	1 1/4
	6	Decibel	DB948F85T2E-M			
	**CASE B (Controlling Load Case)					
	6	Antel	WPA-80090/4CF	Platform w/Handrail (1)	12(R) (Internal)	1 5/8
150	6	Powerwave Technologies	7770.00	Platform w/Handrail (1)	12 (Internal)	1 5/8
	6		LGP2140X			
***140	***6+6(R)	***EMS Wireless	***RR90-17-02DP	Platform w/Handrail (1)	***18 (External)	***1 5/8
	***6	***Standard	***TMA		***6 (Internal)	
125	1+1(R)	Sinclair	SRL 420NHD-1	Single Standoff (1) Standoff T-Arm (2)	1+1(R) (Internal)	7/8

**Note: Controlling load case results shown in Table 5 and Appendix A.

***Note: Installed antennas, reserved antennas, TMAs coax lines will be removed and replaced with proposed loading. Installed mounts will remain to support proposed loads.

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
160	12	Swedcom	ALP 9212	Platform w/Handrail (1)	Not Available (Internal)	
148	12	Swedcom	ALP 11011	Platform w/Handrail (1)		
138	12	Swedcom	ALP 199015	Platform w/Handrail (1)		
128	12	Swedcom	ALP 9212	Platform w/Handrail (1)		
118	12	Swedcom	ALP 9212	Platform w/Handrail (1)		

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Tower Structural Mapping	Engineered Endeavors Incorporated	653293	Crown Site Data Manager
Foundation Structural Mapping		1098364	
Geotechnical Report		1099974	
CAD Level Drawing(s)	167',158',148',138' Level Drawing(s)	-	Crown CAD Dept.

3.1) Analysis Method

RISATower (Version 5.3.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222F or the local building code requirements. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity – LC1

Notes	Component	Elevation (ft)	% Capacity	Pass/Fail
RISA Tower Analysis Summary:(Monopole)				
			Summary	
Notes:	Component	Elevation	% Capacity	Pass/Fail
	L1	171.0 – 156.5	29.9	Pass
	L2	156.5 – 156	17.5	Pass
	L3	156 – 132.7	59.5	Pass
	L4	132.7 – 87.1	73.1	Pass
	L5	87.1 – 43.0	76.3	Pass
	L6	43.0 - 0	71.8	Pass
Individual Components:				
Notes:	Component	Elevation	% Capacity	Pass/Fail
	Base Plate	-	97.1	Pass
	Anchor Bolts	-	64.3	Pass
BASE FOUNDATION				
	Base Foundation (Compared w/ Design Loads)	-	81.7	Pass
Structure Rating (max from all components) =				97.1%

4.1) Recommendations (if applicable)

No modifications are necessary.

Technical Memo

To: HPC
From: Farid Marbough - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11078B
Date: January 11, 2009

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Monopole at 281 Wood House Road, Fairfield, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the (1940-1949.8), (2140-2145), (2110-2120)MHz frequency Band.
- 2) The antenna array consists of three sectors, with 2 antennas per sector.
- 3) The model number for GSM antenna is DR65-18-02DP.
- 3) The model number for UMTS antenna is APX16DWV-16DWV.
- 4) GSM antenna center line height is 140 ft.
- 4) UMTS antenna center line height is 140 ft.
- 5) The maximum transmit power from any GSM sector is 1967.34 Watts Effective Radiated Power (EIRP) assuming 8 channels per sector.
- 5) The maximum transmit power from any UMTS sector is 2305.95 Watts Effective Radiated Power (EIRP) assuming 2 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not change significantly with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Monopole at 281 Wood House Road, Fairfield, CT, is 0.05221 mW/cm². This value represents 5.221% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area. The combined Power Density from other carriers is 30.84%. The combined Power Density for the site is 36.061% of the M.P.E. standard.

Connecticut Market



Worst Case Power Density

Site: CT11078B
Site Address: 281 Wood House Road
Town: Fairfield
Tower Height: 160 ft.
Tower Style: Monopole

GSM Data		UMTS Data	
Base Station TX output	20 W	Base Station TX output	40 W
Number of channels	8	Number of channels	2
Antenna Model	DR65-18-02DP	Antenna Model	APX16DWW-16DWW
Cable Size	1 5/8 in.	Cable Size	1 5/8 in.
Cable Length	164 ft.	Cable Length	164 ft.
Antenna Height	140.0 ft.	Antenna Height	140.0 ft.
Ground Reflection	1.6	Ground Reflection	1.6
Frequency	1945.0 MHz	Frequency	2.1 GHz
Jumper & Connector loss	4.50 dB	Jumper & Connector loss	1.50 dB
Antenna Gain	17.3 dBi	Antenna Gain	18.0 dBi
Cable Loss per foot	0.0116 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.9024 dB	Total Cable Loss	1.9024 dB
Total Attenuation	6.4024 dB	Total Attenuation	3.4024 dB
Total EIRP per Channel (In Watts)	53.91 dBm 245.92 W	Total EIRP per Channel (In Watts)	60.62 dBm 1152.98 W
Total EIRP per Sector (In Watts)	62.94 dBm 1967.34 W	Total EIRP per Sector (In Watts)	63.63 dBm 2305.95 W
nsg	10.8976	nsg	14.5976
Power Density (S) = 0.024038 mW/cm ²		Power Density (S) = 0.028175 mW/cm ²	
T-Mobile Worst Case % MPE =		5.2212%	
Equation Used : $S = \frac{(1000(g_{rf})^2 (Power)^* 10^{(nsg/10)})}{4\pi (R)^2}$			
Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997			

Co-Location Total

Carrier	% of Standard
Verizon	5.3800 %
Cingular	5.1500 %
Sprint	
AT&T Wireless	
Nextel	
MetroPCS	
Other Antenna Systems	20.3100 %
Total Excluding T-Mobile	30.8400 %
T-Mobile	5.2212
Total % MPE for Site	36.0612%