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

Daniel F. Caruso
Chairman

April 30, 2009

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

RE: **EM-T-MOBILE-155-090330** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 1030 New Britain Avenue, West Hartford, 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 dated March 27, 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 Scott Slifka, Mayor, Town of West Hartford
Barry M. Feldman, Town Manager, Town of West Hartford
Mila Limson, Town Planner, Town of West Hartford
Hirschfeld Communications LLC

HPC DEVELOPMENT LLC

EM-T-MOBILE-155-090330

March 27, 2009

ORIGINAL

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

Re: Omnipoint Communications, Inc. – exempt modification
1030 New Britain Avenue, West Hartford, 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 Mayor of West Hartford.

T-Mobile plans to modify the existing facility at 1030 New Britain Avenue, West Hartford owned by Hirschfeld Communications LLC (listed previously as the company's affiliate Ten Thirty Tower Company) (coordinates 41°43'50" N, -72°43'27" 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 at an approximate center line of 167' AGL on the approximately 180' tower. T-Mobile will remove two antennas in one sector from the existing total of eight, and will add three UMTS antennas, for a total of three per sector. T-Mobile also will replace three existing TMAs and add three TMAs, for a total of six.

Up to four additional coaxial cables also will be added. The proposed modifications will not extend the height of the tower.

2. The proposed changes will not extend the site boundaries. T-Mobile will install one additional cabinet on the existing concrete pad near the base of the tower. 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 3.3409%; the combined site operations will result in a total power density of 6.4009%.

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

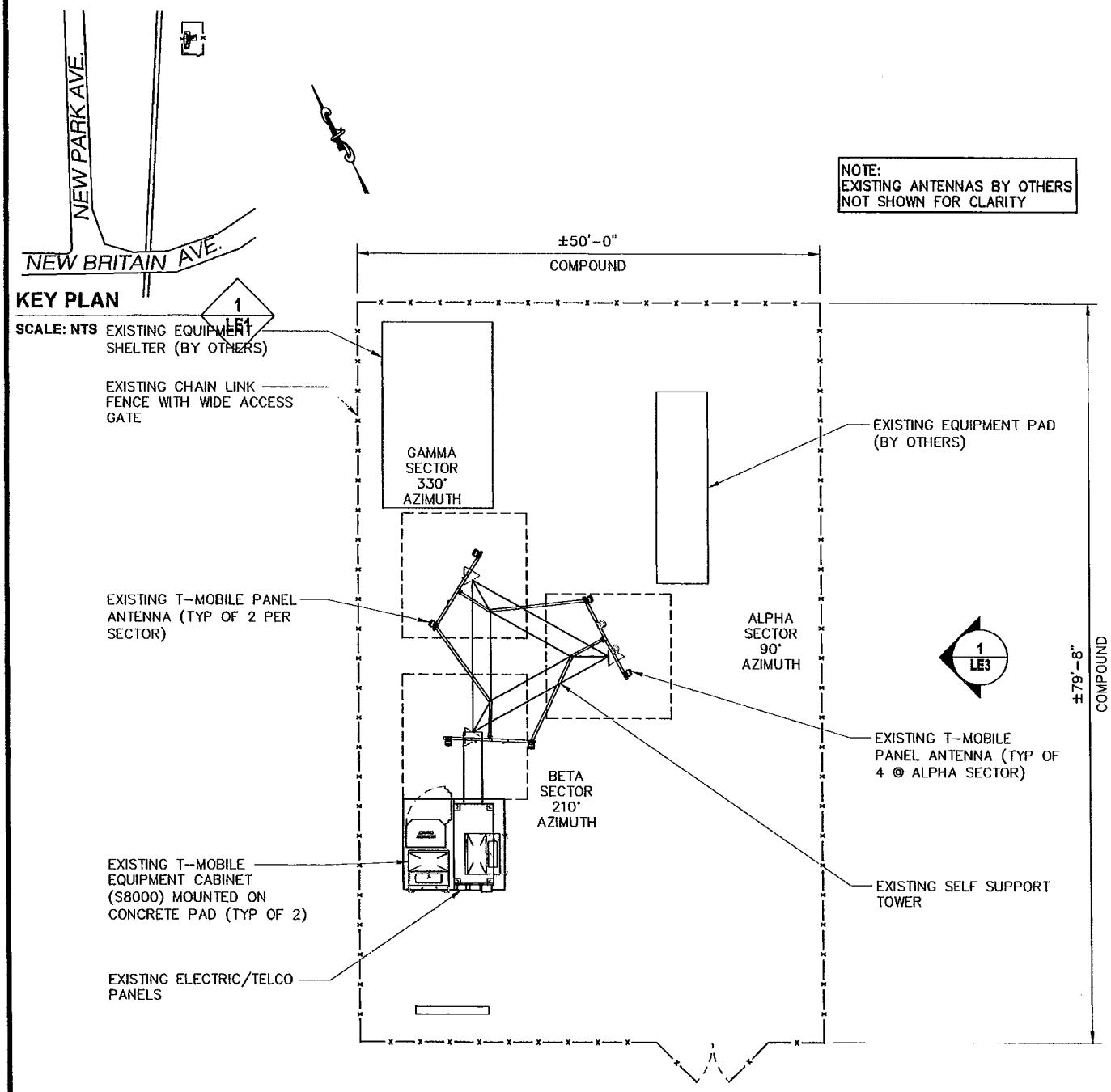
Respectfully yours,

Jennifer Young Gaudet

Jennifer Young Gaudet

cc: Honorable Scott Slifka, Mayor, Town of West Hartford
Ten Thirty Building Company, LLC (underlying property owner)

Attachments



EXISTING COMPOUND PLAN

2
LE1

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

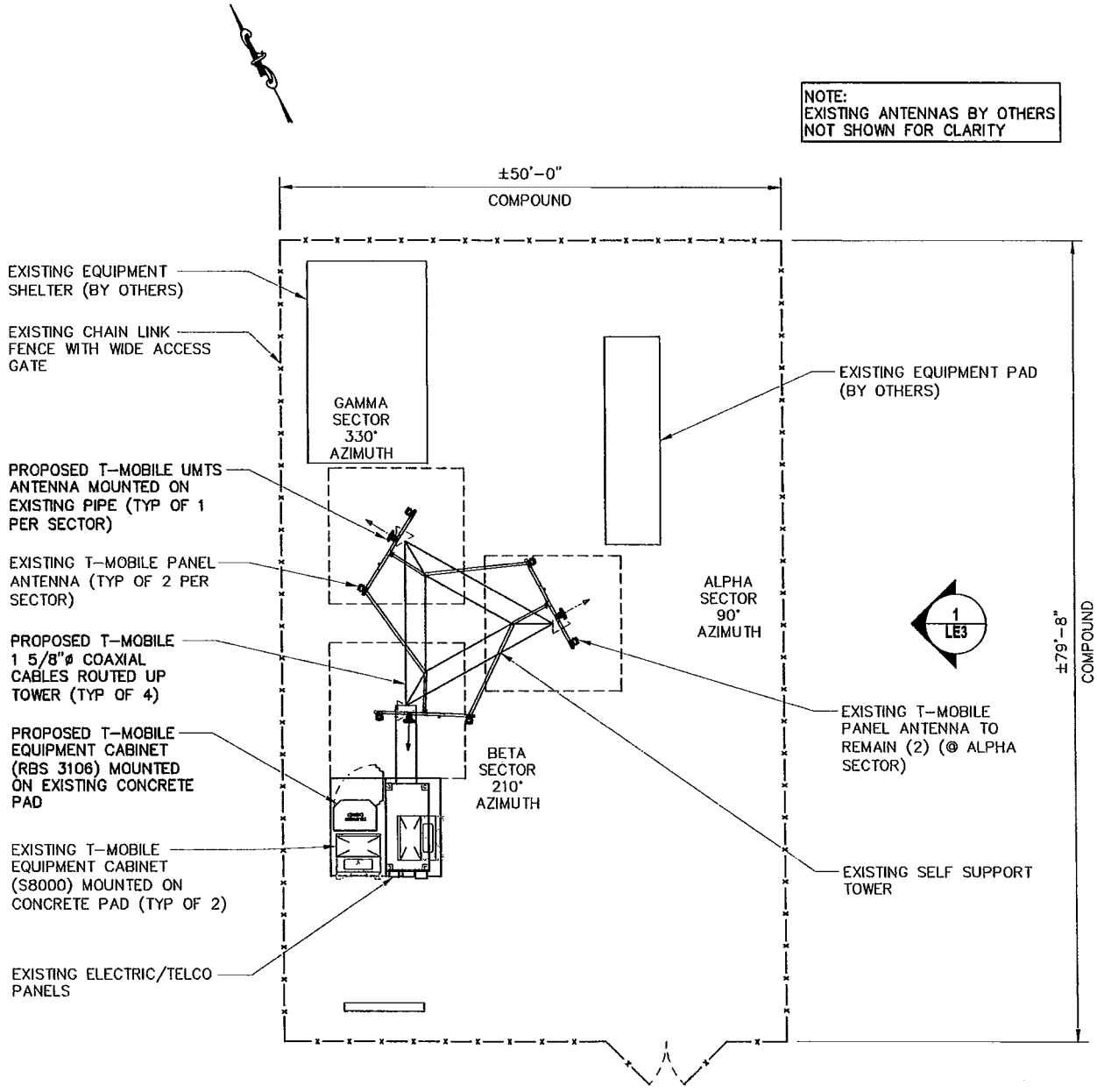
NOTES:
1. LEASE EXHIBITS ARE A CONCEPTUAL DESIGN OF LEASE AGREEMENT ONLY. ACTUAL CONSTRUCTION DOCUMENTS MAY VARY TO COMPLY WITH BUILDING CODES.
2. THE INFORMATION SHOWN IS TAKEN FROM A SURVEY PERFORMED BY "KMB DESIGN GROUP, LLC." DURING SITE VISIT.
3. ELECTRIC/ TELCO SERVICES SHALL BE CONFIRMED PRIOR TO CONSTRUCTION DOCUMENT PHASE.
4. 24 HR. 7 DAYS PER WEEK ACCESS IS REQUIRED FOR SERVICE TECHNICIAN.

KMB DESIGN GROUP
www.kmbdg.com

TITLE:	KEY & COMPOUND PLAN
CLIENT:	Omnipoint COMMUNICATIONS, INC. dba T-MOBILE USA 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
PROJECT:	NEW BRITAIN AVENUE
ADDRESS:	1030 NEW BRITAIN AVENUE WEST HARTFORD, CT 06110 FAIRFIELD COUNTY
SITE NO:	CT11170C
KMB NO:	350.0004.044
DRAWN BY:	CCR
CHECKED BY:	

3	3-18-09	JLS
2	12-16-08	JLS
1	12-9-08	CCR
0	12-3-08	CCR

LE1



PROPOSED COMPOUND PLAN

1
LE2

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

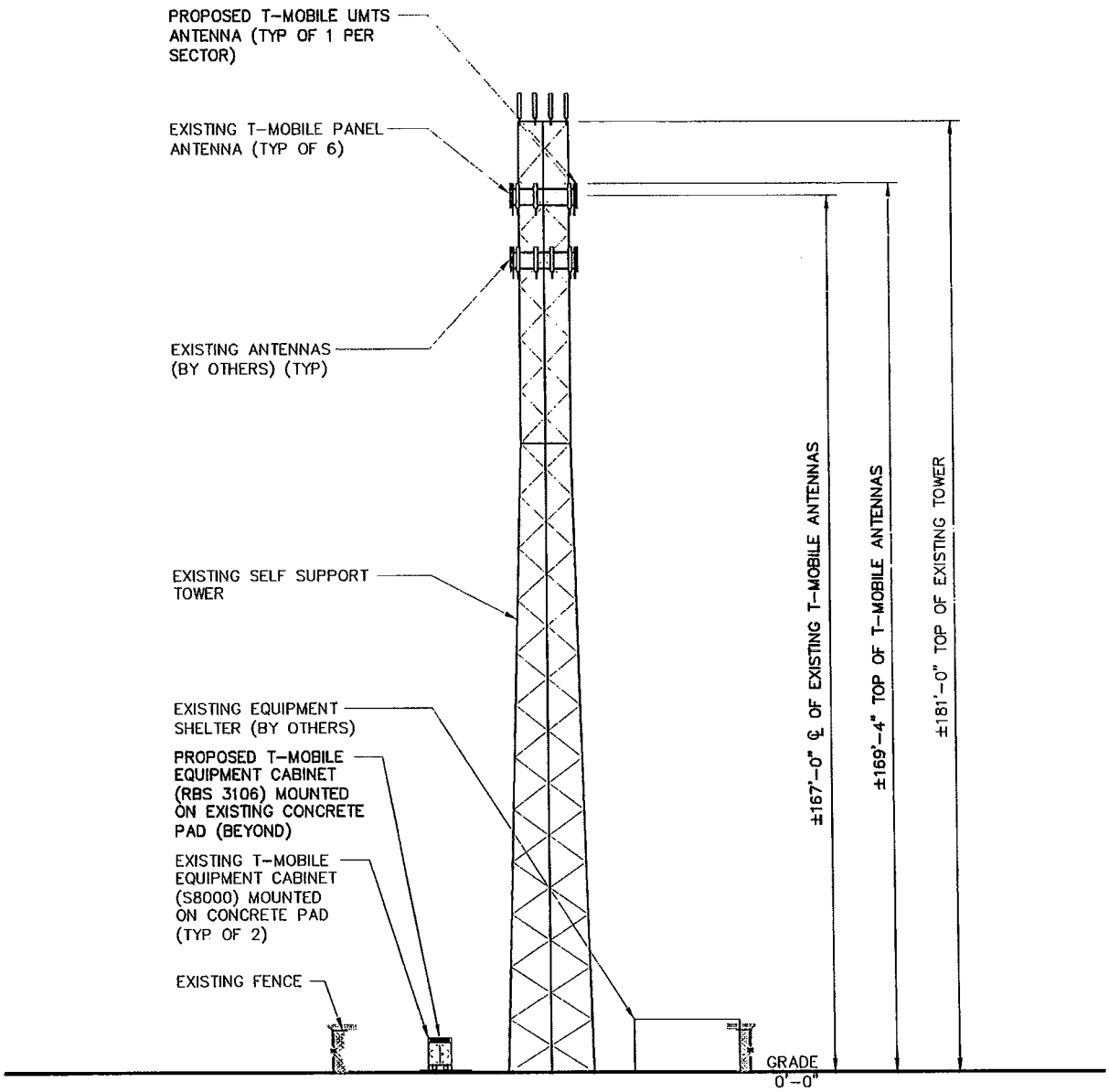
KMB DESIGN GROUP
www.kmbdg.com

TITLE:	COMPOUND PLAN
CLIENT:	Omnipoint COMMUNICATIONS, INC. dba T-MOBILE USA 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
PROJECT:	NEW BRITAIN AVENUE
ADDRESS:	1030 NEW BRITAIN AVENUE WEST HARTFORD, CT 06110 FAIRFIELD COUNTY

3	3-18-09	JLS
2	12-16-08	JLS
1	12-9-08	CCR
0	12-3-08	CCR

SITE NO:	KMB NO:	DRAWN BY:	CHECKED BY:
CT11170C	350.0004.044	CCR	

LE2



SOUTHEAST ELEVATION

SCALE: 1/32" = 1'-0"

1
LE3

KMB DESIGN GROUP
www.kmbdg.com

TITLE: ELEVATION	PROJECT: NEW BRITAIN AVENUE	3	3-18-09	JLS
CLIENT: Omnipoint COMMUNICATIONS, INC. d/b/a T-MOBILE USA 31 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002		2	12-16-08	JLS
	ADDRESS: 1030 NEW BRITAIN AVENUE WEST HARTFORD, CT 06110 FAIRFIELD COUNTY	1	12-9-08	CCR
		0	12-3-08	CCR
SITE NO: CT11170C	KMB NO: 350.0004.044 / DRAWN BY: CCR / CHECKED BY:		LE3	

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215

Structural Analysis Report

PJF Project No.: **64109-0001-R1**

Structure: Existing 180-ft Self-Supporting Tower

Manufacturer: PiRod, Inc.
Location: West Hartford, Connecticut
Site Number: CT11170

Prepared For:

Hirschfeld Communications, LLC

1030 New Britain Ave.
West Hartford, CT 06110

March 16, 2009

Analyzed by:
Justin B. Ruh E.I.T.
Structural Engineer
jruh@pjfweb.com

Reviewed by:
Kevin P. Bauman, P.E.
Department Manager
kbauman@pjfweb.com

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215

Executive Summary

Design Standard:
Paul J. Ford and Company has analyzed the existing West Hartford tower in accordance with the Telecommunications Industry Association Standard TIA/EIA-222-F for the following design wind velocities:

80 mph Basic Wind Velocity without ice
69 mph Basic Wind Velocity with 0.5" radial ice
50 mph (Operational) Basic Wind Velocity without ice

Section 3108.4 of the International Building Code states: "Towers shall be designed to resist wind loads in accordance with TIA/EIA-222."

Antenna Loads:
The existing 180-ft self-supporting tower was analyzed for the antenna and coax loading as shown on page 3 of this report.

Stresses:
When the existing tower is analyzed in accordance with the above mentioned code requirements to support the proposed antenna load it is stressed to 85.6% of its safe capacity. The tower meets the minimum code requirements as it now stands.

Twist and Sway:
At the operational wind velocity noted above, the twist is 0.041 degrees and the sway is 0.392 degrees for the microwave antenna at an elevation of 145-ft.

Existing Foundations:
We were not able to calculate the capacity of the existing foundations without a site-specific geotechnical report and the original drawings indicating the size of the foundations below grade. However, the foundation loads indicated in our structural analysis are less than the design reactions noted on the original drawings. If the existing foundations were properly designed and constructed when the tower was originally constructed then they should be adequate to support the revised foundation loads indicated in our structural analysis.

Tower History:
From the physical appearance of the West Hartford self-supporting tower, we believe that it was most likely constructed by PiRod, Inc. Paul J. Ford and Company was not supplied with the original drawings. Tower properties were assumed from CMX analysis dated 08/27/2008 (CMX# 080282301).

Project Description:
Hirschfeld Communications, LLC has asked Paul J. Ford and Company to provide a structural analysis of the existing 180-ft self-supporting tower located in West Hartford, Connecticut. In this analysis, we considered the existing and proposed antenna as shown in the table below.

Proposed Antenna and Feedline Loading:
Our structural analysis was completed considering the following antenna and feedline loading:

Status	Elev.	Antenna	Coax
Proposed	180	(6) Powerwave7770.00	(12) 1 5/8"
		(6) Powerwave LGP 21401	
		(6) Powerwave 21903	
Existing	180	(1) 13' LP Platform	
Proposed	167	(6) RR90-17-02DP	(18) 1 5/8"
		(3) APXV18-206517	
		(6) TMA	
Existing	167	(3) 13' T-Frames	
Existing	154	(12) DB844H90T6-XY	(12) 1 5/8"
		(3) 13' T-Frames	
Existing	145	(6) Dapa 48010	(9) 1 5/8"
		(3) 2' Dishes	
		(3) 742 213	(6) 1 5/8"

Note: The antenna feedlines are assumed to be on 3 legs on t-brackets with no more than (27) coax on any one leg. All coax was assumed to be stacked in 2 rows.

Structural Analysis:
Our structural analysis of this tower was completed according to the recommendations of the "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", TIA/EIA-222-F. This standard recommends a minimum basic design wind velocity of 80 mph (measured at 33-ft above grade) for Hartford County. If ice accumulation is considered, this standard allows a reduced design wind velocity of 69 mph with simultaneous 0.5" solid radial ice accumulation. The self-supporting tower was analyzed as a three-dimensional space truss using finite element software.

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215

Assumptions:

- Tower member sizes and dimensions were obtained from a CMX analysis dated 08/27/2008 (CMX# 080282301).

Results:

Our structural analysis of the existing West Hartford tower indicates that the leg from elevations 100-ft to 80-ft are stressed to 85.6% of their safe capacity. These are the structural components that control the capacity of the tower.

We were not able to calculate the capacity of the existing foundations without a site-specific geotechnical report and the original drawings indicating the size of the foundations below grade, however, the original foundation loads are indicated on the existing drawings. A comparison of these loads follows:

Foundation	Vector	Original Design Load (K)	PJF Calculated Load (K)	Ratio (Percent)
Base	Compression	295.5	255	86.3
	Uplift	263.4	209	79.3
	Shear	27.7	23	83.0

Conclusion:

Paul J. Ford and Company performed a structural analysis of the existing West Hartford tower in accordance with the Telecommunications Industry Association Standard TIA/EIA-222-F. Our analysis indicates that the tower is adequate as it now stands to safely support the proposed antenna loading without the need for any modifications.

We were not able to calculate the capacity of the existing foundations without a site-specific geotechnical report and the original drawings indicating the size of the foundations below grade. However, the foundation loads indicated in our structural analysis are less than the design reactions noted on the original drawings. If the existing foundations were properly designed and constructed when the tower was originally constructed then they should be adequate to support the revised foundation loads indicated in our structural analysis.

We hope that this analysis satisfies your current needs. If you have any questions concerning our analysis, or if we can be of further service to you, please feel free to contact us at (614) 221-6679.

Sincerely,
Paul J. Ford and Company

Justin B. Ruh E.I.T.
Structural Engineer

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

1) Paul J. Ford and Company has not performed a site visit to verify the tower member sizes or the antenna/coax loading. We were provided with the original tower manufacturers drawings. If the existing conditions are not as represented on these drawings, we should be contacted immediately to evaluate the significance of the deviation.

2) No allowance was made for any damaged, missing, or rusted members. The analysis of this tower assumes that no physical deterioration has occurred in any of the structural components of the tower and that all the tower members have the same load carrying capacity as the day the tower was erected.

3) It is not possible to have all the very detailed information to perform a very thorough analysis of every structural sub-component of an existing tower. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members of the tower. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc.

4) The structural integrity of the existing tower foundation can only be verified if exact foundation sizes and soil conditions are known. Paul J. Ford and Company will not accept any responsibility for the adequacy of the existing foundations unless the foundation sizes and a soils report are provided.

5) It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

6) This tower has been analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association Standard TIA/EIA-222-F. If the owner or local or state agencies require a higher design wind load, Paul J. Ford and Company should be made aware of this requirement.

7) The attached sketches are a schematic representation of the tower that we have analyzed. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions and for the proper fit and clearance in the field.

8) Miscellaneous items such as antenna mounts etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: HPC
From: Farid Marbouh - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11170C
Date: March 20, 2009

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Self Support Tower at 1030 New Britain Avenue, West Hartford, 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 (1935-1944.8), (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 RR90-17-02DP.
3) The model number of the UMTS antenna is APXV18-206517S.
4) GSM antenna center line height is167 ft.
4) UMTS antenna center line height is167 ft.
5) The maximum transmit power from any GSM sector is 1486.35 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2460.88 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 antenna installation on a Self Support Tower at 1030 New Britain Avenue, West Hartford, CT, is 0.03341 mW/cm^2. This value represents 3.341% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) 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 3.06%. The combined Power Density for the site is 6.401% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	**CT11170C**
Site Address:	**1030 New Britain Avenue**
Town:	**West Hartford**
Tower Height:	**180 ft.**
Tower Style:	**Self Support Tower**

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	RR90-17-02DP	Antenna Model	APXV18-206517S
Cable Size	1 5/8 in.	Cable Size	1 5/8 in.
Cable Length	200 ft.	Cable Length	200 ft.
Antenna Height	167.0 ft.	Antenna Height	167.0 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	16.5 dBi	Antenna Gain	18.7 dBi
Cable Loss per foot	0.0116 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	2.3200 dB	Total Cable Loss	2.3200 dB
Total Attenuation	6.8200 dB	Total Attenuation	3.8200 dB
Total EIRP per Channel	52.69 dBm	Total EIRP per Channel	60.90 dBm
(In Watts)	185.79 W	(In Watts)	1230.44 W
Total EIRP per Sector	61.72 dBm	Total EIRP per Sector	63.91 dBm
(In Watts)	1486.35 W	(In Watts)	2460.88 W
nsg	9.6800	nsg	14.8800
Power Density (S) =	0.012580 mW/cm^2	Power Density (S) =	0.020829 mW/cm^2

T-Mobile Worst Case % MPE = 3.3409%

Equation Used :

$$S = \frac{(1000)(grf)^2 (Power) * 10^{(nsg/10)}}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	% of Standard
Verizon	
Cingular	0.5500 %
Sprint	
AT&T Wireless	
Nextel	2.5100 %
MetroPCS	
Other Antenna Systems	
Total Excluding T-Mobile	**3.0600 %**
T-Mobile	3.3409
Total % MPE for Site	**6.4009%**