COHEN and WOLF P.C.
ATTORNEYS AT LAW

RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
Writer's Direct Dial: (203) 337-4110
E-Mail: rschwartzman@cohenandwolf.com

August 20, 2014

VIA Overnight Mail
And Electronic Mail

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: Request of MetroPCS Massachusetts, LLC for an Order to Approve the Shared Use of an Existing Tower at 250 Silas Deane Hwy, Wethersfield, CT

Dear Attorney Bachman:

This office represents MetroPCS Massachusetts, LLC, a Delaware limited liability company ("MetroPCS") and has been retained to file tower sharing requests with the Connecticut Siting Council on its behalf.

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50ad, as amended, MetroPCS requests an order from the Connecticut Siting Council ("Council") to approve the shared use of an existing telecommunications tower, owned by the Town of Wethersfield ("Wethersfield"), at 250 Silas Deane Hwy, Wethersfield, Connecticut. MetroPCS requests that the Council find that the proposed shared use of the Wethersfield tower satisfies the criteria of C.G.S § 16-50aa and issue an order approving the proposed shared use. A copy of this letter is being sent to Mayor Paul Montinieri, Town Manager Jeff Bridges, and the Town of Wethersfield, the owner of the property where the tower is located.

Background

The existing Wethersfield facility consists of a 120-foot monopole tower within a fenced compound. The tower is currently being shared by T-Mobile, Nextel, Verizon Wireless, and the Town of Wethersfield. The wireless carriers' equipment cabinets and shelters are located within a fenced facility compound.

MetroPCS is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. MetroPCS and the Town of

Wethersfield have agreed to the proposed shared use of the 250 Silas Deane Hwy tower pursuant to mutually acceptable terms and conditions, and Wethersfield Town Manager Jeff Bridges has authorized MetroPCS to apply for all necessary permits and approvals that may be required to share the existing tower. (See Owner's authorization letter included in Attachment 1).

MetroPCS proposes to install a total of six (6) antennas on T-arm mounts at a centerline of 105 feet. MetroPCS further proposes to install the following: a 10' x 16' concrete pad within its lease area, a battery backup unit, a 6201 equipment cabinet, a 12' GPS, a 8' ice bridge, PPS, and fiber cable. Included in Attachment 2 are MetroPCS' project plans showing the location of all site improvements.

C.G.S. § I 6-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such shared use." MetroPCS respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing tower is structurally capable of supporting MetroPCS' antennas. The proposed shared use of this tower is, therefore, technically feasible. A Structural Analysis verifying the structural integrity of the tower, and its ability to support MetroPCS' antennas and related equipment is included in Attachment 3. Also included in Attachment 3 is a letter from Atlantis Group confirming that the modifications referenced on page 4 of the Structural Analysis (Project No. 12124.CO38 (rev. 1)), required to accommodate MetroPCS' shared use, were completed.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue orders approving the shared use of an existing tower such as the Wethersfield tower in Wethersfield. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the

Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Wethersfield tower would have a minimal environmental effect, for the following reasons:

1. The proposed installation of six (6) antennas at the 105-foot centerline on the existing 120-foot tower would have an insignificant incremental visual impact on the area around the existing tower. MetroPCS' shelter would be located within the limits of the existing gravel facility compound. MetroPCS' shared use of this tower would therefore, not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Noise associated with the equipment shelter's air conditioning ("A/C") units was evaluated for compliance with State and/or local noise standards. According to the Noise Compliance Study included in Attachment 4 ("Study"), noise from the shelter's A/C units will not exceed State and/or local noise limits. Noise associated with MetroPCS' emergency back-up generator is exempt from State and local noise standards.

3. Operation of MetroPCS' antennas at this site would not exceed the RF emissions standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 5 of the filing are Far Field Approximation tables for MetroPCS' antennas at each of its licensed operating frequencies. These tables demonstrate that MetroPCS' proposed facility will operate well within the FCC limits.

4. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the Wethersfield facility other than periodic (monthly) maintenance visits to the cell site.

The proposed use of this 250 Silas Deane Hwy facility would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, MetroPCS and the Town of Wethersfield have entered into a lease for the shared use of the existing tower on mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (See Attachment 1).

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting MetroPCS' full array of six (6) antennas and related equipment. MetroPCS is not aware of any public safety concerns relative to the proposed sharing of the existing Wethersfield tower. In fact, the provision of new and improved wireless service through shared use of the existing tower is expected to enhance the safety and welfare of area residents and members of the general public traveling through Wethersfield.

Conclusion

For the reasons discussed above, the proposed shared use of the existing Wethersfield tower at 250 Silas Deane Highway in Wethersfield satisfies the criteria stated in C.G.S. § 16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use of the Wethersfield tower.

Thank you for your consideration of this matter.

Very truly yours,

Rachel Schwartzman

RAS/lcc
Enclosures

COHEN and WOLF P.C. ATTORNEYS AT LAW

cc: Town of Wethersfield, Mayor Paul Montinieri
Town of Wethersfield
Sheldon J. Freincle, Northeast Site Solutions

ATTACHMENT 1

Town of Wethersfield

505 SILAS DEANE HIGHWAY
WETHERFIELD, CONNECTICUT 06109

Steven Lattarulo, Chief Building Official
Wethersfield Town Hall
505 Silas Deane Highway
Wethersfield, CT 06109

July 24, 2014

Re: 250 Silas Deane Highway
Wethersfield, CT
T-Mobile Site CTHA507A

Mr. Lattarulo:

Please accept this letter as authorization on behalf of the Town of Wethersfield for T-Mobile to apply for any required regulatory permits (including Connecticut Siting Council acknowledgement) for its co-location and improvements at above-referenced telecommunications facility.

Jeff Bridges,
Town Manager

ATTACHMENT 2

KEY PLAN

N.T.S.

CONFIGURATION

5A

SUBMITTALS	
LE REV A	05.06.14
LE REV 0	05.28.14

ATLANTIS GROUP
1340 Centre Street
Suite 212
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CTHA507A
SITE NAME:
TOW OF WETHERSFIELD
MONOPOLE
SITE ADDRESS:
250 SILAS DEANE HWY
WETHERSFIELD, CT

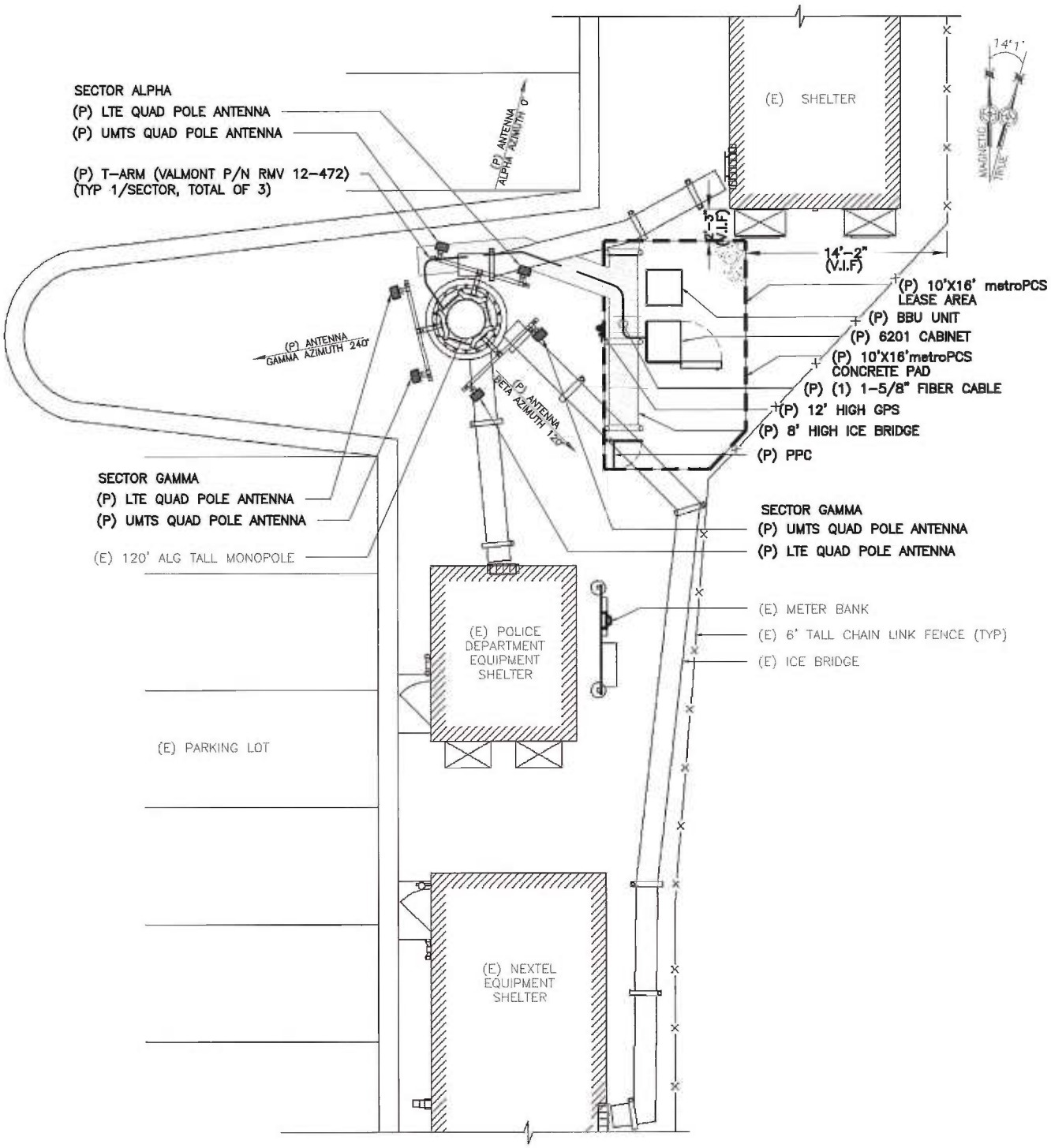
NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

FOR

metroPCS.

metroPCS WIRELESS, INC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

DRAWN BY: FG | CHECKED BY: SM



ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

SITE PLAN

SCALE: 1":10'.

1 / LE-2

CONFIGURATION

5A

SUBMITTALS	
LE REV A	05.06.14
LE REV 0	05.28.14

ATLANTIS GROUP
1340 Centre Street
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Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

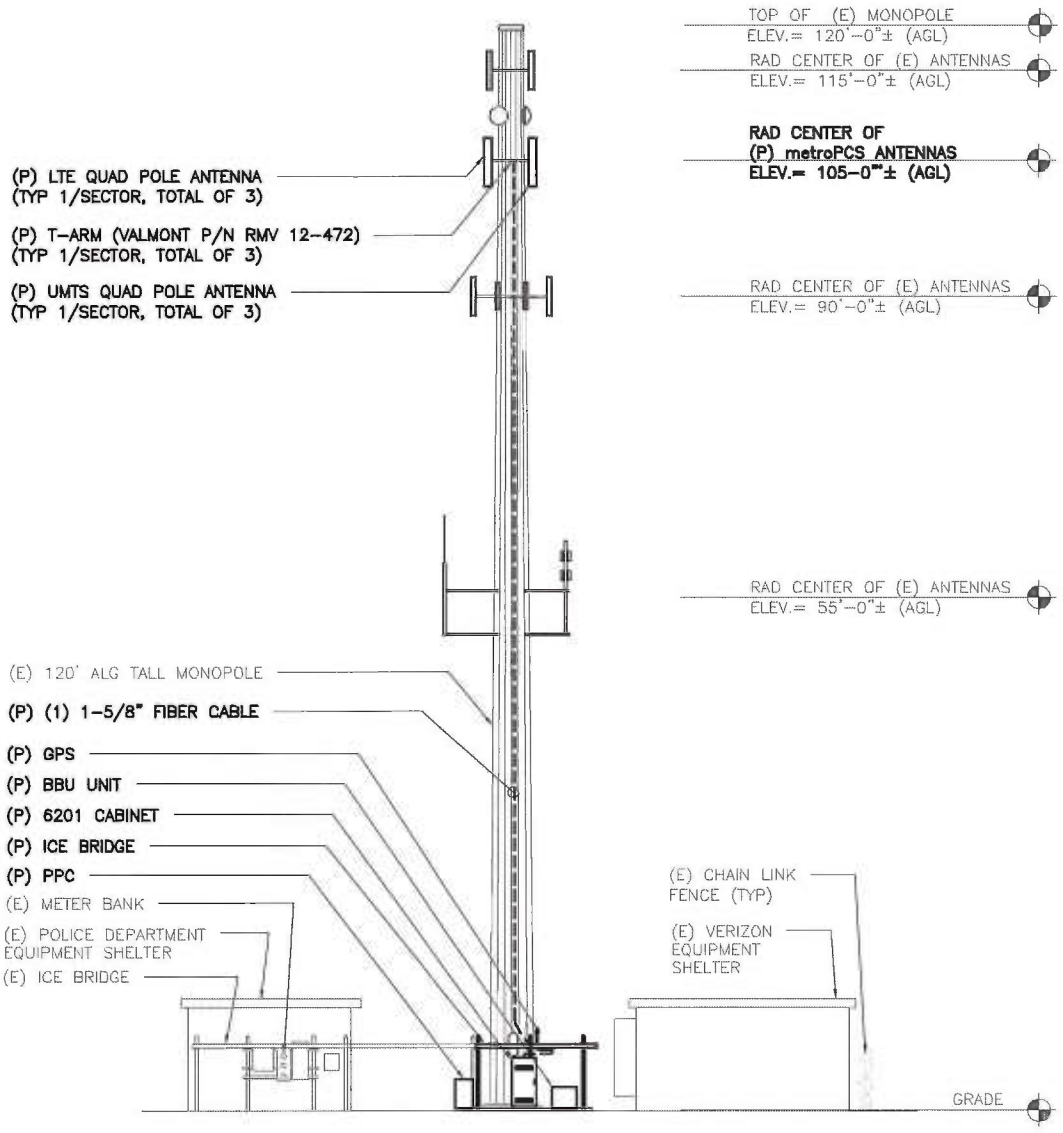
LEASE EXHIBIT

SITE NUMBER:
CTHA507A
SITE NAME:
TOW OF WETHERSFIELD
MONOPOLE
SITE ADDRESS:
250 SILAS DEANE HWY
WETHERSFIELD, CT

NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

FOR
metroPCS.
metroPCS WIRELESS, INC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

DRAWN BY: FG | CHECKED BY: SM



ELEVATION

SCALE : 1" : 20'

1 / LE-3

CONFIGURATION

5A

SUBMITTALS	
LE REV A	05.06.14
LE REV 0	05.28.14

ATLANTIS GROUP
1340 Centre Street
Suite 212
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CTHA507A
SITE NAME:
TOW OF WETHERSFIELD MONOPOLE
SITE ADDRESS:
250 SILAS DEANE HWY
WETHERSFIELD, CT

NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237
FOR
metroPCS.
metroPCS WIRELESS, INC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

DRAWN BY: FG | CHECKED BY: SM

ATTACHMENT 3

STRUCTURAL ANALYSIS REPORT
MONOPOLE

Prepared For:

metroPCS
Unlimit Yourself.

35 Griffin Road South
Bloomfield, CT 06002

Tower Rating

Tower:	**Pass (82.9 %)**
Foundation:	**Pass (75.0 %)**

Atlantis Group, Inc.
6-9-2014

06/11/2014

CT Professional Engineer
License No: 26725

Site ID: CTHA507A
Site Name: Town of Wethersfield Monopole
250 Silas Deane Hwy
Wethersfield, CT 06109

Prepared By:
Atlantis Group, Inc.
1340 Centre Street, Suite 212
Newton, Massachusetts 02459
Phone: 617-965-0789, Fax: 617-213-3123

CONTENTS

1340 Centre Street, Suite 212
Newton, Massachusetts 02459
Phone: 617-965-0789
Fax: 617-213-3123

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 120 feet high monopole tower, located at 250 Silas Deane Hwy, Wethersfield, CT 06109, for the alteration and addition of wireless telecommunication appurtenances proposed by Metro PCS.

The structural analysis of the site is based on the following documents provided to us:

1. Structural Analysis Report prepared by Centek Engineering, Inc. for Verizon Wireless, Centek project No. 12124.CO38 (rev. 1), dated 02/15/2013.
2. Existing and proposed antenna information provided by Metro PCS.

1.1 STRUCTURE

The monopole tower is a 120 feet high, tower manufactured by Rohn. Five tapered, 18-sided sections range in diameter from 16" at the top and 36" at the base. The tower has been previously reinforced. Please refer to the tower elevation drawing in Appendix A, for details about the tower geometry.

2.0 EXISTING AND PROPOSED CONFIGURATION

Antennas and Appurtenances:

The analysis is based on the following existing and proposed appurtenances:

Proposed Configuration of metroPCS Appurtenances:

Sector	RAD Center (ft.)	Antenna & TMA		Mount	Feed Lines
Alpha	105	Ericsson Antenna	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P	(1) T-Arm	(1) 1-5/8" fiber
Beta	105	Ericsson Antenna	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P	(1) T-Arm	
Gamma	105	Ericsson Antenna	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P	(1) T-Arm	

Existing and Remaining Appurtenances by Others:

RAD Center (ft.) Carrier	Antenna & TMA	Mount	Feed Lines
117 Nextel	(6) RV65-12-00DBL	(3) T-Arms	(12) 1-5/8"
110 Town	(1) 2-ft dish (1) RRH	(1) 2"Sch. 40 x 6 ft	(2) 1/2"
90 Verizon	(3) BXA-80063/8CF (3) BXA-185063/8CF (3) BXA-171063/8CF (3) BXA-70063/6CF (6) FD9R6004/2C-3L Diplexers (3) AWS RRH	(3) T-Arms	(24) 1-5/8"
54 Town	(1) 1"ODx5' Omni (1) PD1142-1 (1) DB404 (2) DB583	(3) 4' Side Mount Standoffs	(2) 1/2"

3.0 CODES AND LOADING

The tower was analyzed per ANSI/TIA-222-F as referenced by the 2005 Connecticut Building Code with 2011 Supplement, which is the adopted building code. The following wind loading was used in compliance with the standard for Hartford County, CT.

- Basic wind speed 80 mph (W) without ice [fastest-mile speed equivalent to 95 mph 3-second gust].
- Basic wind speed 69 mph (W_i) with 1/2" radial ice.

The following load combinations were used with wind blowing at every direction hitting the tower in 30° increments.

- D + W
- D + I + W_i

D: Dead Load of structure and appurtenances
W: Wind Load, without ice
W_i: Wind Load with ice
I: Ice Gravity Load

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Atlantis Group and is assumed to be current and correct. Unless otherwise noted, the structure and the foundation system are assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Atlantis Group will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

Contractor should inspect the condition of the existing structure, mounts and connections and notify Atlantis Group for any discrepancies and deficiencies before proceeding with the construction.

The evaluation results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Atlantis Group to generate an additional structural evaluation.

5.0 ANALYSIS and ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear 3-Dimensional finite element program, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

Tower member sizes, geometry and existing antenna loading are based on a structural analysis dated February 2013 and may not be up to date. We recommend a tower mapping to document that all information provided is accurate and that all members and connections are in good condition.

6.0 RESULTS and CONCLUSION

Based on an analysis per ANSI/TIA-222-F, the existing tower is found to have **adequate** structural capacity for the proposed changes by metroPCS. For the aforementioned load combinations and as a maximum, the tower will be stressed to **82.9%** of capacity. According to the 2013 analysis, the tower foundation has adequate capacity to support the proposed tower reactions.

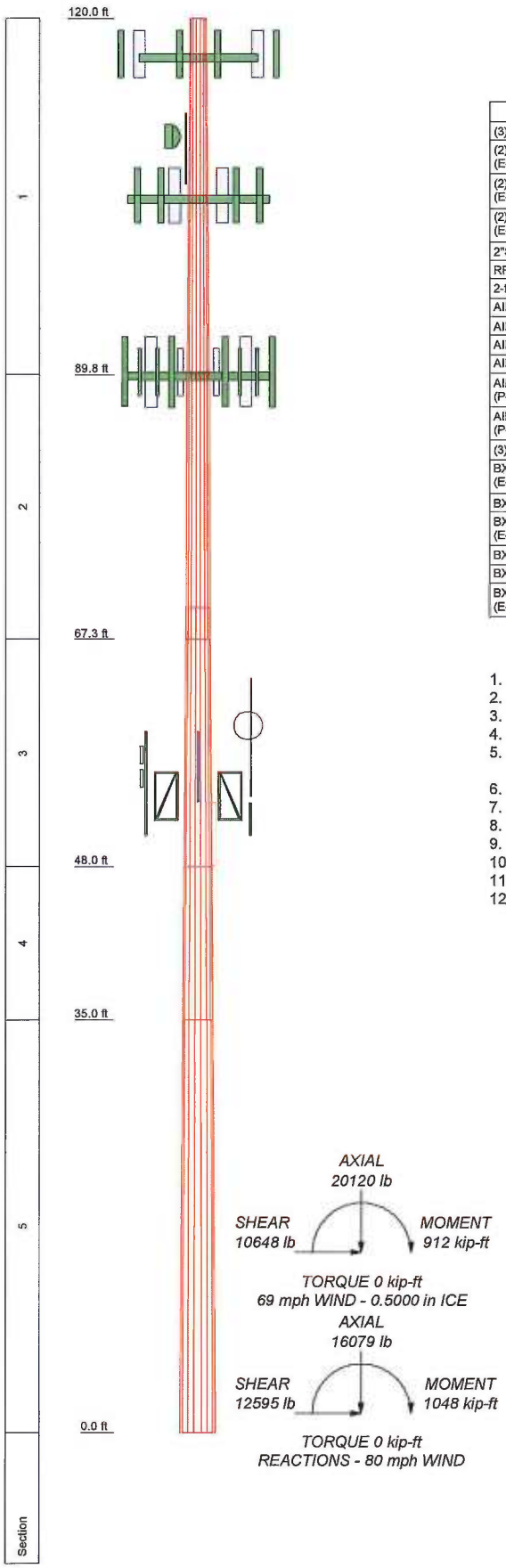
Therefore, the proposed additions and alterations by metroPCS can be implemented with the conditions outlined in this report.

Should you have any questions or need any clarifications about this report, please contact us at (617) 965-0789.

Sincerely,
Atlantis Group, Inc.

06/11/2014

APPENDIX A
CALCULATIONS



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) T-Arms (E-Nextel)	117	BXA-171063/8CF w. mtg pipe (E-VZW-Alpha)	90
(2) RV65-12-00DBL w/Mount Pipe (E-Nextel-Alpha)	117	BXA-171063/8CF w. mtg pipe (E-VZW-Beta)	90
(2) RV65-12-00DBL w/Mount Pipe (E-Nextel-Beta)	117	BXA-171063/8CF w. mtg pipe (E-VZW-Gamma)	90
(2) RV65-12-00DBL w/Mount Pipe (E-Nextel-Gamma)	117	BXA-70063/6CF w. Mtg Pipe (E-VZW-Alpha)	90
2"Sch40 x 6ft (E-Town)	110	BXA-70063/6CF w. Mtg Pipe (E-VZW-Beta)	90
RRH (E-Town)	110	BXA-70063/6CF w. Mtg Pipe (E-VZW-Gamma)	90
2-ft dish (E-Town)	110	(2) FD9R6004/2C-3L Diplexer (E-VZW-Alpha)	90
AIR21 B2A/B4P w. MtgPipe (P-mPCS-Alpha)	105	(2) FD9R6004/2C-3L Diplexer (E-VZW-Beta)	90
AIR21 B4A/B2P w. MtgPipe (P-mPCS-Alpha)	105	(2) FD9R6004/2C-3L Diplexer (E-VZW-Gamma)	90
AIR21 B2A/B4P w. MtgPipe (P-mPCS-Beta)	105	AWS RRH (E-VZW-Alpha)	90
AIR21 B4A/B2P w. MtgPipe (P-mPCS-Beta)	105	AWS RRH (E-VZW-Beta)	90
AIR21 B2A/B4P w. MtgPipe (P-mPCS-Gamma)	105	AWS RRH (E-VZW-Gamma)	90
AIR21 B4A/B2P w. MtgPipe (P-mPCS-Gamma)	105	(3) T-Arms (E-VZW)	90
(3) 12' T-Arms (P-mPCS)	105	Pirod 4' Side Mount Standoff (E-Town-Beta)	54
BXA-80063/6CF w/Mount Pipe (E-VZW-Alpha)	90	Pirod 4' Side Mount Standoff (E-Town-Gamma)	54
BXA-80063/6CF w/Mount Pipe (E-VZW-Beta)	90	1"ODx5' Omni (E-Town)	54
BXA-80063/6CF w/Mount Pipe (E-VZW-Gamma)	90	PD1142-1 (E-Town)	54
BXA-185063/8CF w. MtgPipe (E-VZW-Alpha)	90	DB583 (E-Town)	54
BXA-185063/8CF w. MtgPipe (E-VZW-Beta)	90	DB404 (E-Town)	54
BXA-185063/8CF w. MtgPipe (E-VZW-Gamma)	90	DB583 (E-Town)	54
		Pirod 4' Side Mount Standoff (E-Town-Alpha)	54

TOWER DESIGN NOTES

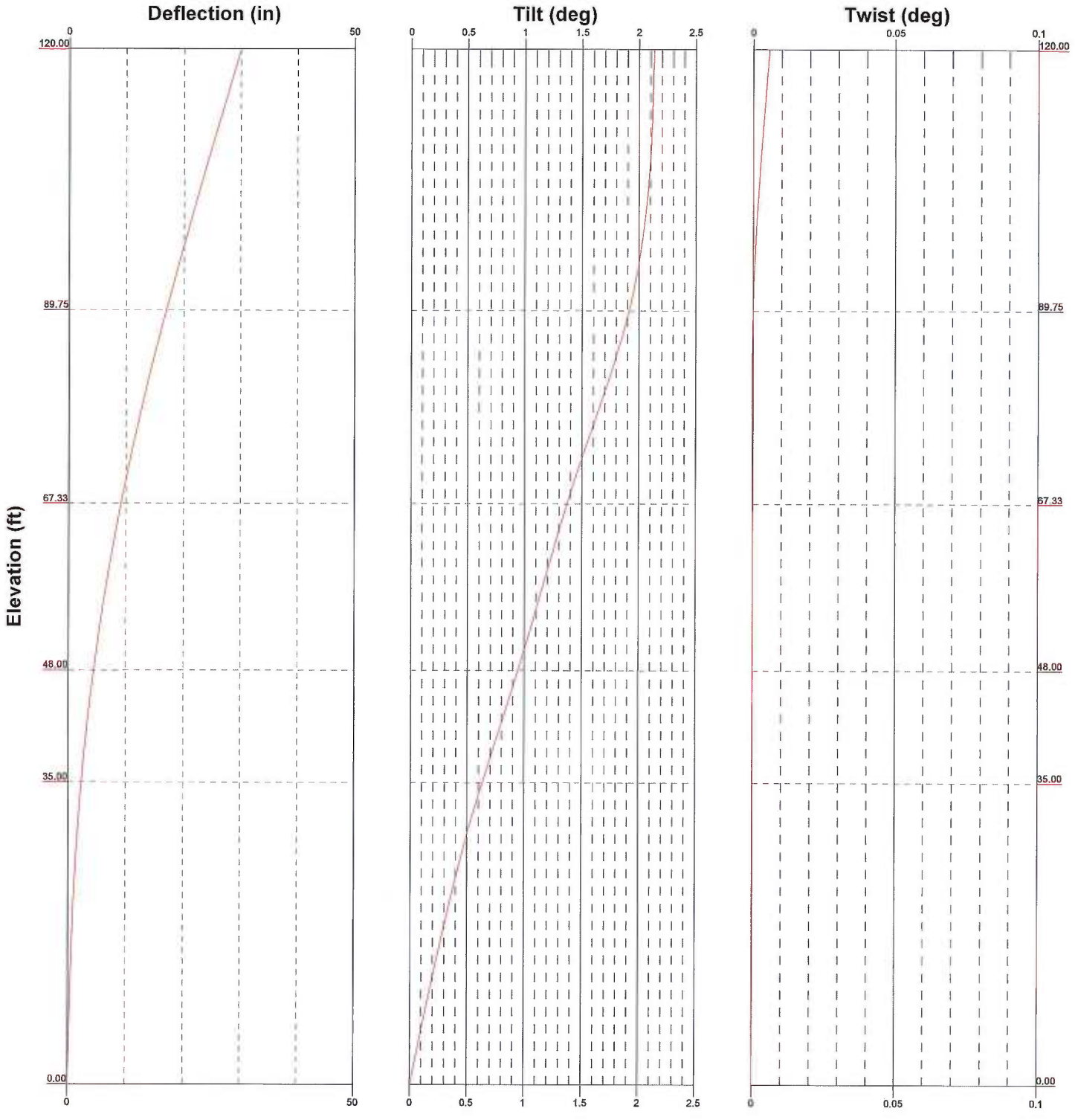
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
6. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
7. Welds are fabricated with ER-70S-6 electrodes.
8. Pole sections 3 and 4 - equivalent thickness of 0.275" used to account for stiffened section.
9. Pole section 5 - equivalent thickness of 0.364" used to account for stiffened section.
10. Includes monopole reinforcement design prepared by Structural Components, LLC, dated 03/25/11.
11. metroPCS appurtenances indicated as (P)roposed and (E)xisting. All others are existing.
12. TOWER RATING: 82.9%

ATLANTIS GROUP
Atlantis Group, Inc.
1340 Centre Street, Suite 212
Newton, MA 02459
Phone: (617) 965-0789
FAX: (617) 213-3123

Job: ***120' MONOPOLE ANALYSIS***		
Project: ***Town of Wethersfield Monopole***		
Client: metroPCS	Drawn by: DJH	App'd:
Code: TIA/EIA-222-F	Date: 06/09/14	Scale: NTS
Path: Y:\Atlantis_Group\MetroPCS\CTHA507A-HFC139889\mx\Town of Wethersfield Monopole.eri		Dwg No. E-1

TIA/EIA-222-F - Service - 50 mph

Maximum Values



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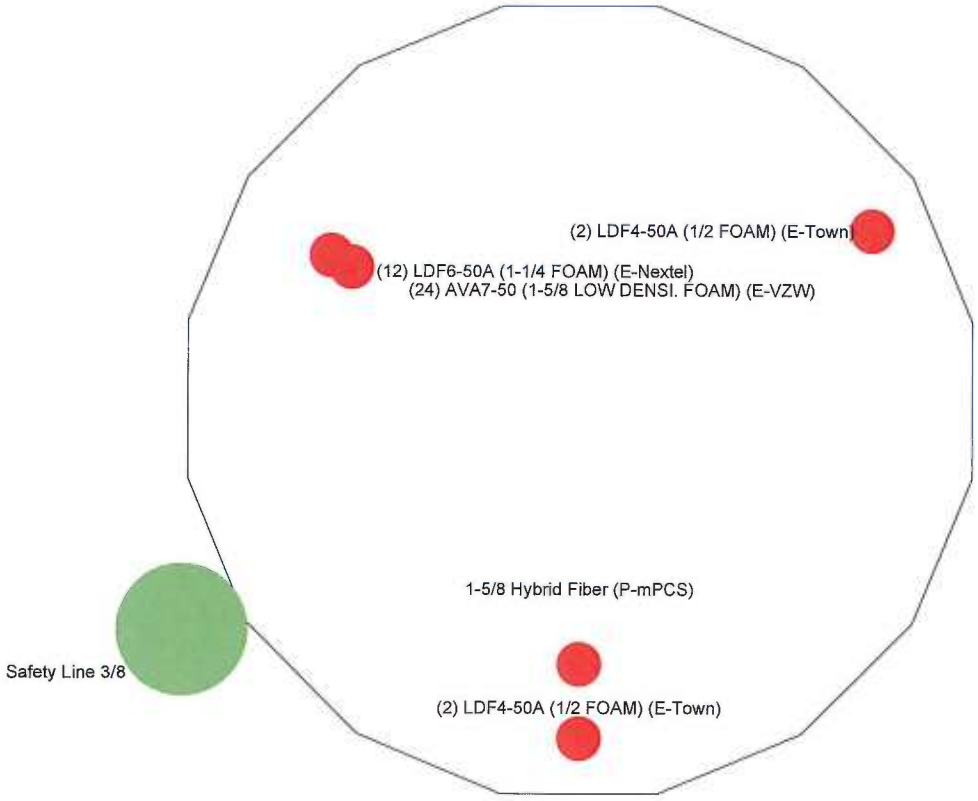
Project: ***Town of Wethersfield Monopole***		
Client: metroPCS	Drawn by: DJH	App'd:
Code: TIA/EIA-222-F	Date: 06/09/14	Scale: NTS
Path: Y:\Atlantis Group\MetroPCS\CTHA507A-HFC139BNpx\Town of Wethersfield Monopole.er		Dwg No. E-5

Feed Line Plan

_____ Round _____ Flat _____ App In Face _____ App Out Face



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Job: ***120' MONOPOLE ANALYSIS***		
Project: ***Town of Wethersfield Monopole***		
Client: metroPCS	Drawn by: DJH	App'd:
Code: TIA/EIA-222-F	Date: 06/09/14	Scale: NTS
Path: Y:\Atlantis Group\MetroPCS\CTHA507A-HFC139BVtnx\Town of Wethersfield Monopole.en		Dwg No. E-7

tnxTower	Job	Page
	120' MONOPOLE ANALYSIS	1 of 3
Atlantis Group, Inc. 1340 Centre Street, Suite 212 Newton, MA 02459 Phone: (617) 965-0789 FAX: (617) 213-3123	**Project** Town of Wethersfield Monopole	**Date** 10:17:48 06/09/14
	Client metroPCS	**Designed by** DJH

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 89.75	30.09	29	2.13	0.00
L2	89.75 - 67.33	17.01	29	1.91	0.00
L3	70 - 48	10.00	29	1.43	0.00
L4	48 - 35	4.45	29	0.95	0.00
L5	35 - 0	2.31	29	0.63	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
117.00	(3) T-Arms	29	28.74	2.13	0.00	19983
110.00	2-ft dish	29	25.60	2.11	0.00	9991
105.00	(3) 12' T-Arms	29	23.40	2.09	0.00	6660
90.00	(3) T-Arms	29	17.11	1.92	0.00	3354
54.00	Pirod 4' Side Mount Standoff	29	5.73	1.08	0.00	2453

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual / Allowable Ratio Bolt Tension lb	Actual / Allowable Ratio Bolt Compression lb	Actual / Allowable Ratio Plate Stress ksi	Actual / Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
2.2500	12	2.2500	98495 131211 0.75	101173 217810 0.46	38.17 45.00 0.85		Plate	0.85 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	120 - 89.75 (1)	30.25	120.00	192.2	4.04	12.5568	-6769	50735	0.133
L2	89.75 - 67.33 (2)	22.42	120.00	170.6	5.13	14.1521	-5852	72633	0.081
L3	67.33 - 48 (3)	22.00	120.00	147.7	6.84	23.9658	-8573	163977	0.052
L4	48 - 35 (4)	13.00	120.00	135.7	8.11	26.0939	-10190	211650	0.048
L5	35 - 0 (5)	35.00	120.00	113.8	11.53	41.1716	-16070	474524	0.034

Pole Bending Design Data

Section No.	Elevation ft	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	120 - 89.75 (1)	93.49	-17.18	39.00	0.440	0.00	0.00	39.00	0.000
L2	89.75 - 67.33 (2)	276.42	-39.94	39.00	1.024	0.00	0.00	39.00	0.000
L3	67.33 - 48 (3)	492.42	-36.47	39.00	0.935	0.00	0.00	39.00	0.000
L4	48 - 35 (4)	633.39	-39.54	39.00	1.014	0.00	0.00	39.00	0.000
L5	35 - 0 (5)	1048.26	-34.83	39.00	0.893	0.00	0.00	39.00	0.000

tnxTower	Job	Page
	120' MONOPOLE ANALYSIS	3 of 3
Atlantis Group, Inc. 1340 Centre Street, Suite 212 Newton, MA 02459 Phone: (617) 965-0789 FAX: (617) 213-3123	**Project** Town of Wethersfield Monopole	**Date** 10:17:48 06/09/14
	Client metroPCS	**Designed by** DJH

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 89.75 (1)	0.133	0.440	0.000	0.574 ✔	1.333	H1-3 ✔
L2	89.75 - 67.33 (2)	0.081	1.024	0.000	1.105 ✔	1.333	H1-3 ✔
L3	67.33 - 48 (3)	0.052	0.935	0.000	0.987 ✔	1.333	H1-3 ✔
L4	48 - 35 (4)	0.048	1.014	0.000	1.062 ✔	1.333	H1-3 ✔
L5	35 - 0 (5)	0.034	0.893	0.000	0.927 ✔	1.333	H1-3 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	120 - 89.75	Pole	1	-6769	67630	43.0	Pass
L2	89.75 - 67.33	Pole	2	-5852	96820	82.9	Pass
L3	67.33 - 48	Pole	3	-8573	218581	74.1	Pass
L4	48 - 35	Pole	4	-10190	282129	79.7	Pass
L5	35 - 0	Pole	5	-16070	632540	69.5	Pass
						Summary	
					Pole (L2)	82.9	Pass
					Base Plate	63.6	Pass
					RATING =	**82.9**	**Pass**

Foundation Check

	Tower Reaction	Allowable	% Capacity
Moment (kip-ft)	1048	1397	75.0%

ATTACHMENT 4

HMB

HMB Acoustics LLC 3 Cherry Tree Lane, Avon, CT 06001 860-677-5955

August 11, 2014

Chuck Regulbuto
New Business Development Director
Northeast Site Solutions
199 Brickyard Road
Farmington, CT.

Subject: Acoustical Evaluation - MetroPCS # CTHA507A

Dear Mr. Regulbuto:

The 6101 Battery Cabinet and the 6201 Radio Cabinet will be located at the Wethersfield Police Station - 250 Silas Deane Highway, Wethersfield, CT.

The combined noise level from the 6101 Battery Cabinet and the 6201 Radio Cabinet (each one set on a concrete pad) was calculated as part of an acoustical evaluation.

The noise level was then projected to each property line in the North - South - East - West direction. The resultant noise level was compared to the State of CT. Noise Regulation and to The Town of Wethersfield Noise Control Ordinance. Each regulation utilizes the dBA scale. The dBA scale is used because it closely approximates the response characteristic of the human ear to loudness, and is the scale most commonly used in the measurement of community noise.

Noise Standards - Allowable Noise Levels @ Receptor's Property Lines
State of CT Noise Regulations
Business Zone (Class "B")
A Class "B" Emitter to a Class "B" Receptor is allowed a noise level of 62 dBA for both the daytime and nighttime.

A Class "B" Emitter to a Class "A" Residential Receptor is allowed a noise level of 55 dBA (day) and 45 dBA (night).

Town of Wethersfield Noise Control Ordinance
General Business Zone (GB
A "GB" Emitter to a "GB" Receptor is allowed a noise level of 66 dBA for both the daytime and nighttime.

A "GB" Emitter to a Residential Receptor is allowed a noise level of 61 dBA (day) and 51 dBA (night).

The table below compares the combined effect of the 6101 Battery Cabinet and the 6201 Radio Cabinet at each property line direction.

	dBA Level			
	GB Receptors			Residential Receptor
Emitter	North	South	West	East
6101 Battery Cabinet & 6201 Radio Cabinet	32	29	26	38

The dBA levels take into account the acoustical shielding effect provided by other structures on the property.

I found that both the 6101 Battery Cabinet and the 6201 Radio Cabinet meet the conditions for compliance as set forth in the State of CT Noise Regulations and The Town of Wethersfield Noise Control Ordinance.

Allan Smardin
HMB Acoustics LLC

ATTACHMENT 5

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile / MetroPCS Existing Facility

Site ID: CTHA507A

Town of Wethersfield Monopole
250 Silas Deane Highway
Wethersfield, CT 06109

June 26, 2014

EBI Project Number: 62143639

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

June 26, 2014

MetroPCS / T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CTHA507A - Town of Wethersfield Monopole**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 250 Silas Deane Highway, Wethersfield, CT, for the purpose of determining whether the emissions from the Proposed MetroPCS / T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (μW/cm2). The general population exposure limit for the cellular band is 567 μW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 μW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed MetroPCS / T-Mobile Wireless antenna facility located at 250 Silas Deane Highway, Wethersfield, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since MetroPCS / T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (1935.000 MHz—to 1945.000 MHz) were considered for each sector of the proposed installation.
2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation 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.
5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
6) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications.

7) The antenna mounting height centerline of the proposed antennas is **105 feet** above ground level (AGL).
8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

Site ID	CTHA507A - Town of Wethersfield Monopole
Site Addresss	250 Silas Deane Highway, Wethersfield, CT 06109
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	105	99	None	0	0	48.326044	1.772625	0.17726%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	105	99	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	105	99	1-5/8"	0	0	24.163022	0.886312	0.08863%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	105	99	1-5/8"	0	0	24.163022	0.886312	0.08863%
														Sector total Power Density Value:			0.355%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	105	99	None	0	0	48.326044	1.772625	0.17726%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	105	99	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	105	99	1-5/8"	0	0	24.163022	0.886312	0.08863%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	105	99	1-5/8"	0	0	24.163022	0.886312	0.08863%
														Sector total Power Density Value:			0.355%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	105	99	None	0	0	48.326044	1.772625	0.17726%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	105	99	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	105	99	1-5/8"	0	0	24.163022	0.886312	0.08863%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	105	99	1-5/8"	0	0	24.163022	0.886312	0.08863%
														Sector total Power Density Value:			0.355%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.064%
Verizon Wireless	49.990%
MetroPCS (Existing)	7.110%
Town of Wethersfield	10.740%
Nextel	5.560%
Total Site MPE %	74.464%

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the MetroPCS / T-Mobile facility are **1.064% (0.355% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **74.464%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803