

RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
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E-Mail: rschwartzman@cohenandwolf.com

July 24, 2014

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

**Re: Notice of Exempt Modification
Verizon Wireless/MetroPCS co-location
CTHA513A
15 Chamberlin Drive, Broad Brook, CT**

Dear Attorney Bachman:

This office represents MetroPCS Massachusetts LLC ("MetroPCS") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Verizon Wireless ("Verizon") owns the existing water tank telecommunications tower and related facility at 15 Chamberlin Drive, Broad Brook (East Windsor), Connecticut (Latitude 41.897886/Longitude -72.552056). MetroPCS intends to replace 3 existing antennas with 6 new antennas and related equipment at this existing telecommunications facility in Broad Brook (East Windsor) ("Broad Brook Facility"). Please accept this letter as notification, pursuant to R.C.S.A. §16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the First Selectman, Denise Manard, and the property owner, Crop Production Services, Inc.

The existing Broad Brook Facility consists of a 125 foot water tank tower.¹ MetroPCS plans to replace 3 existing antennas on pipe mounts with 6 new antennas on pipe mounts at a centerline of 106 feet. (See the plans revised to April 29, 2014 attached hereto as **Exhibit A**). MetroPCS will also replace a Nortel cabinet with a 6201 equipment cabinet, install a battery backup unit, reuse existing coax cables, and install fiber cables. The existing Broad Brook Facility is structurally capable of supporting MetroPCS' proposed modifications, as indicated in the structural analysis dated July 8, 2014, and attached hereto as **Exhibit B**.

¹ While the online docket for the Connecticut Siting Council does not provide a docket or petition number for approval of this structure, it does reference this structure in connection with a notices of intent captioned EM-SPRINT-047-0000306, EM-VER-047A-129-164-050316, EM-POCKET-047-090504, and EM-SPRINT-047-140530,

July 24, 2014
CTHA513A
Page 2

The planned modifications to the Broad Brook Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of the tower. MetroPCS' existing antennas are at a centerline of 106 feet; the replacement antennas will be installed at the same 106 foot level. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension on the site boundaries or lease area, as depicted on Sheet 2 of Exhibit A. MetroPCS' equipment will be located entirely within the existing compound area.

3. The proposed modification to the Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated July 21, 2014 MetroPCS' operations would add 1.042% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 26.712% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as **Exhibit C**.

For the foregoing reasons, MetroPCS respectfully submits that the proposed replacement antennas and equipment at the Broad Brook Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement of this exempt modification, MetroPCS shall commence construction approximately sixty days from the receipt of the Council's decision.

Sincerely,

Rachel A. Schwartzman, Esq.

cc: Town of Broad Brook, First Selectman Denise Manard
Verizon Wireless
Crop Production Services, Inc.
Sheldon J. Freinle, Northeast Site Solutions

EXHIBIT A



KEY MAP
N.T.S.



CONFIGURATION

5A

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.

SUBMITTALS	
LE REV A	04.29.14

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

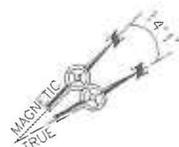
LEASE EXHIBIT
SITE NUMBER:
CTHA513A
SITE NAME:
CROP PRODUCTION BROADBROOK
WATERTANK
SITE ADDRESS:
15 CHAMBERLAIN ROAD
EAST WINDSOR CT 06016

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

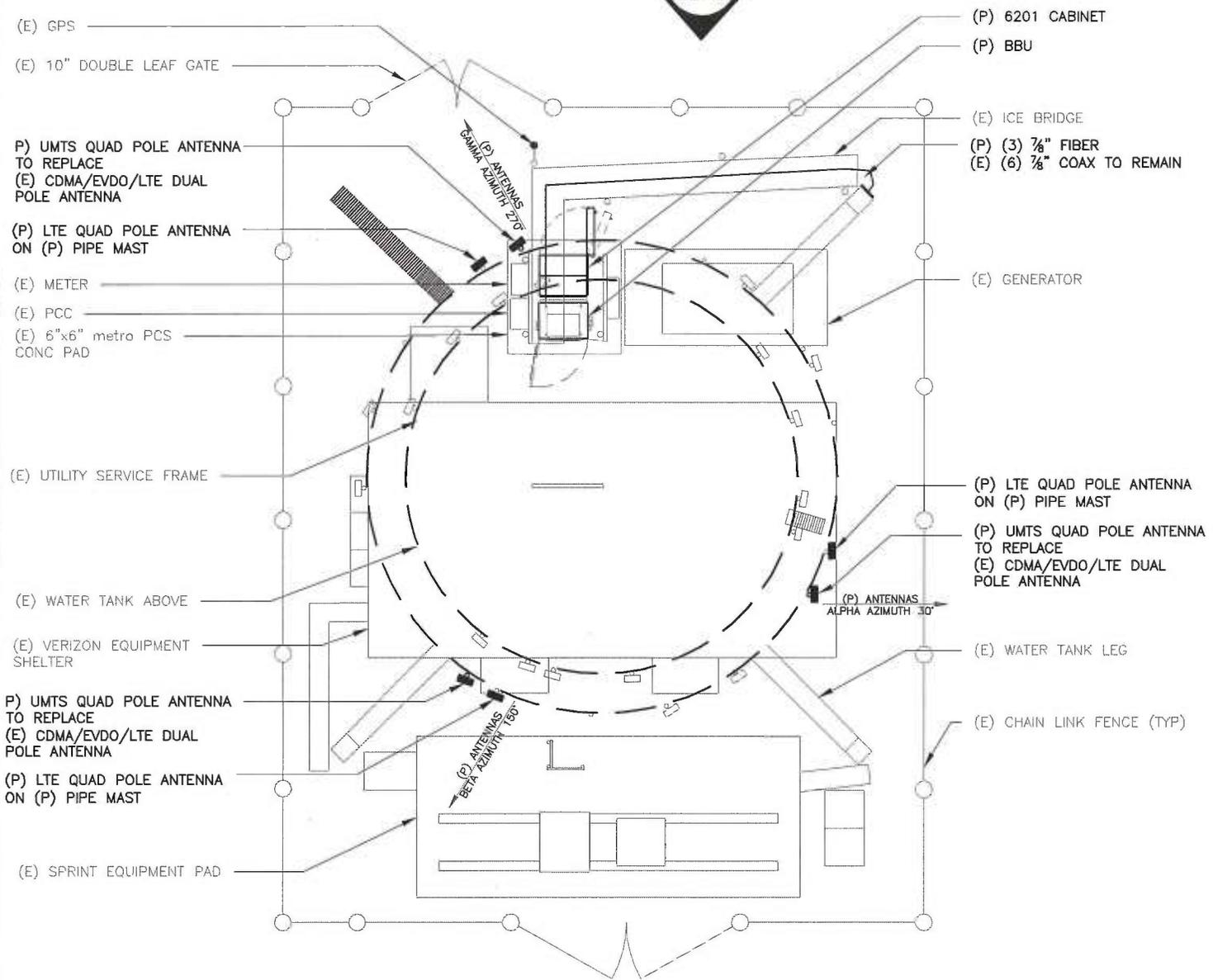
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PAGE 1 OF 5



1
LE-3



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SITE PLAN 1
N.T.S. LE-2

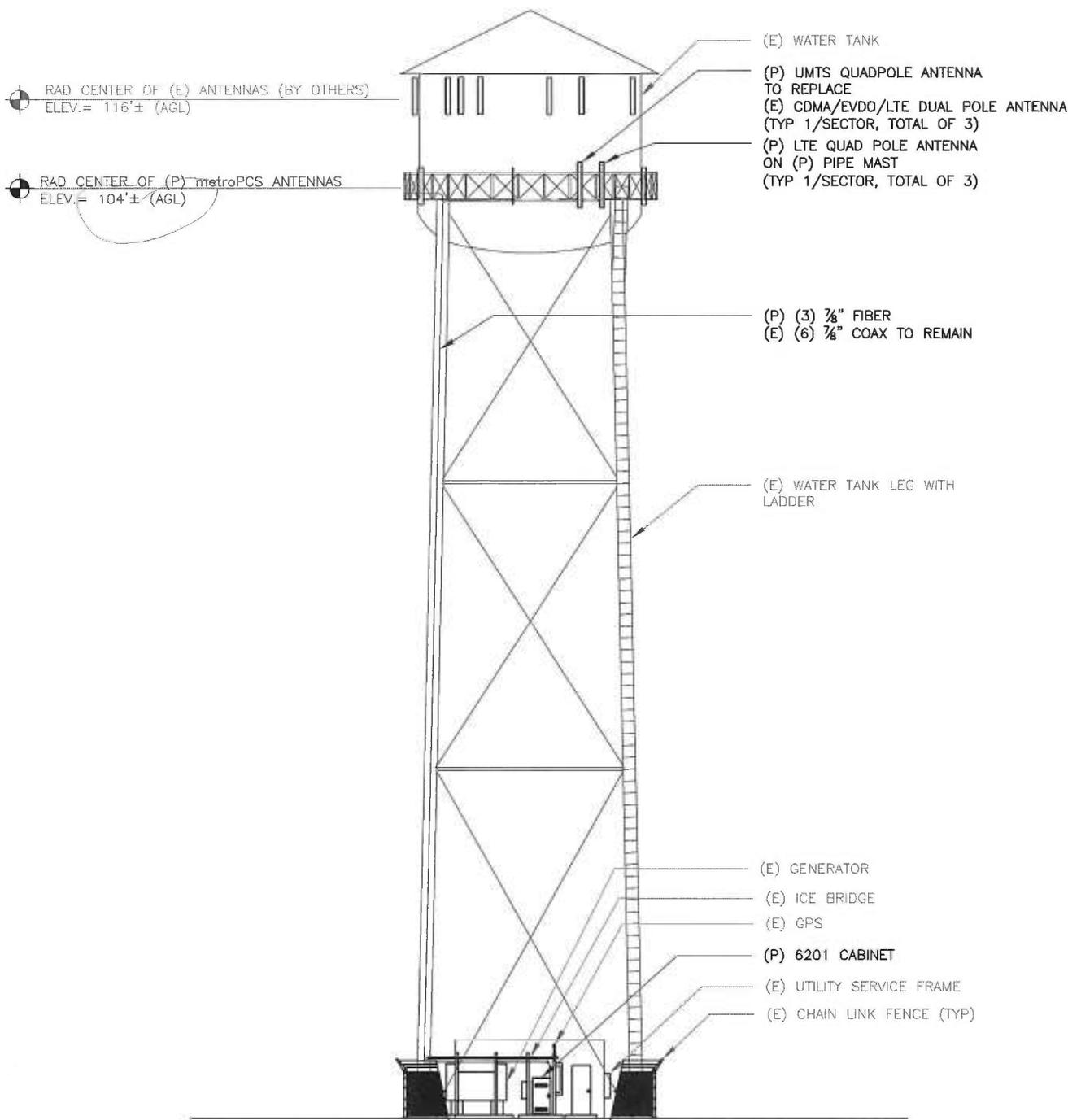
CONFIGURATION
5A

SUBMITTALS	
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Fax: 617-213-5056

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metroPCS.
metroPCS WIRELESS, INC.
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BLOOMFIELD, CT 06002



RAD CENTER OF (E) ANTENNAS (BY OTHERS)
ELEV. = 116'± (AGL)

RAD CENTER OF (P) metroPCS ANTENNAS
ELEV. = 104'± (AGL)

- (E) WATER TANK
- (P) UMTS QUADPOLE ANTENNA TO REPLACE
- (E) CDMA/EVDO/LTE DUAL POLE ANTENNA (TYP 1/SECTOR, TOTAL OF 3)
- (P) LTE QUAD POLE ANTENNA ON (P) PIPE MAST (TYP 1/SECTOR, TOTAL OF 3)

- (P) (3) 7/8" FIBER
- (E) (6) 7/8" COAX TO REMAIN

(E) WATER TANK LEG WITH LADDER

- (E) GENERATOR
- (E) ICE BRIDGE
- (E) GPS
- (P) 6201 CABINET
- (E) UTILITY SERVICE FRAME
- (E) CHAIN LINK FENCE (TYP)

ELEVATION

N.T.S.

1
LE-3

CONFIGURATION

5A

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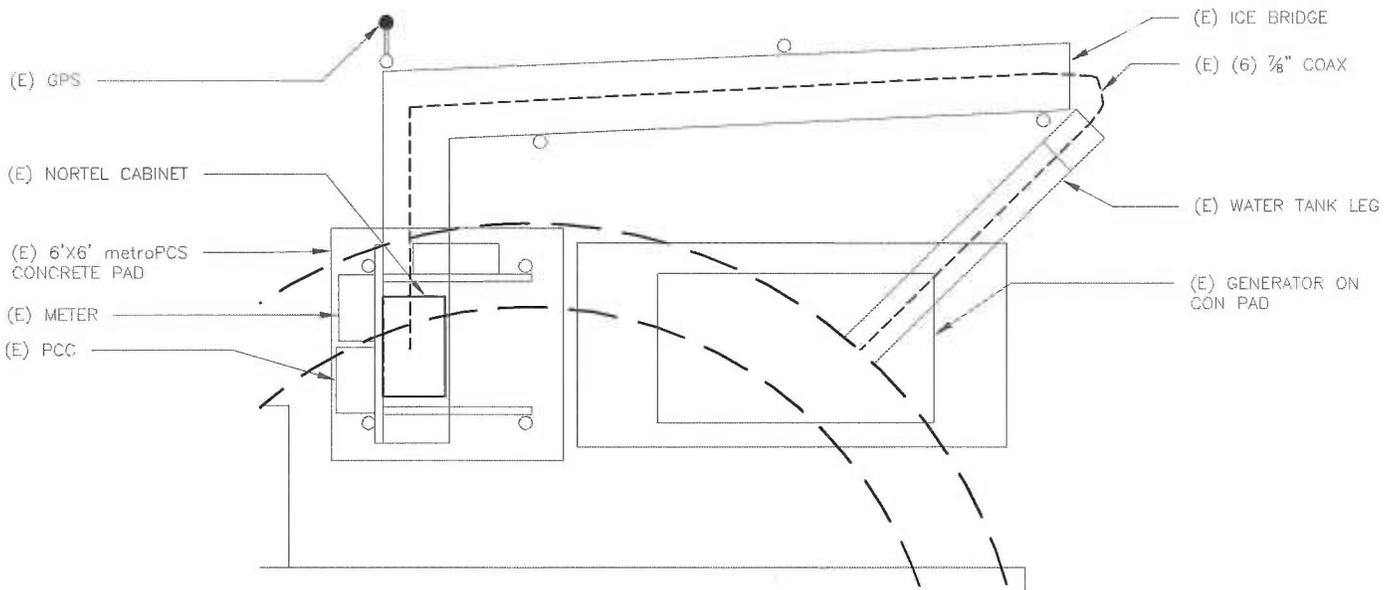
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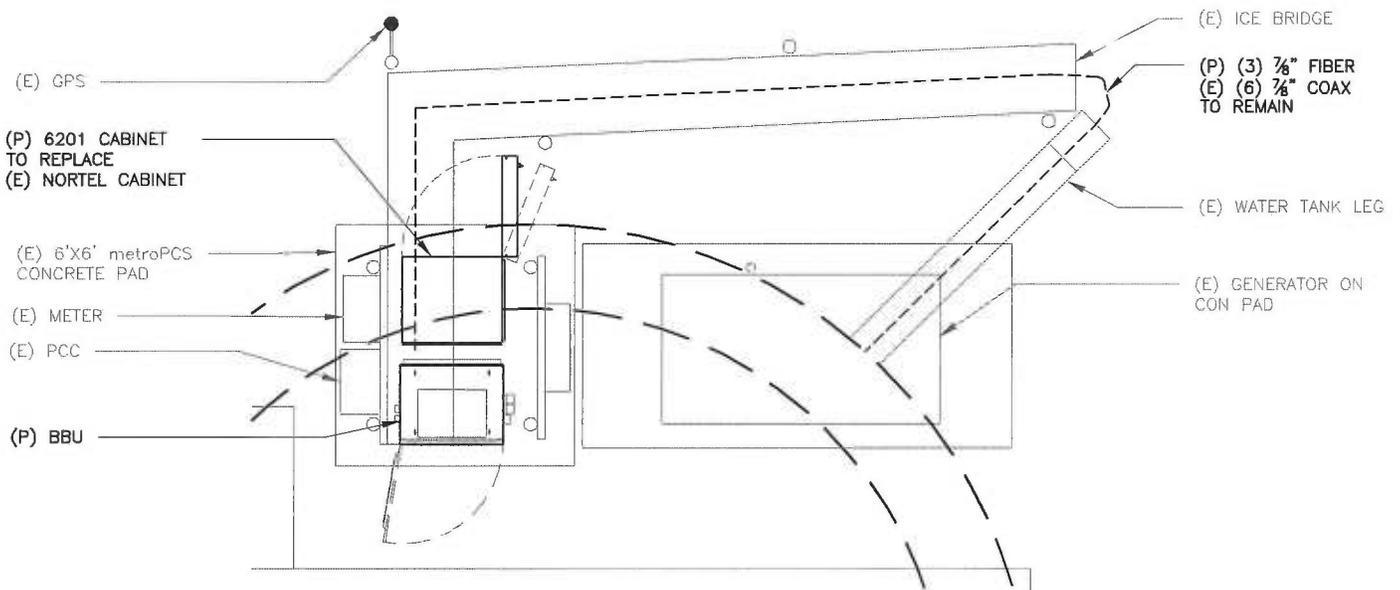
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PAGE 3 OF 5



EXISTING EQUIPMENT PLAN



PROPOSED EQUIPMENT PLAN

CONFIGURATION

5A

SUBMITTALS

LE REV A	04.22.14

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

LEASE EXHIBIT

SITE NUMBER:
 CTHA513A
 SITE NAME:
 CROP PRODUCTION BROADBROOK
 WATERTANK
 SITE ADDRESS:
 15 CHAMBERLAIN ROAD
 EAST WINDSOR CT 06016

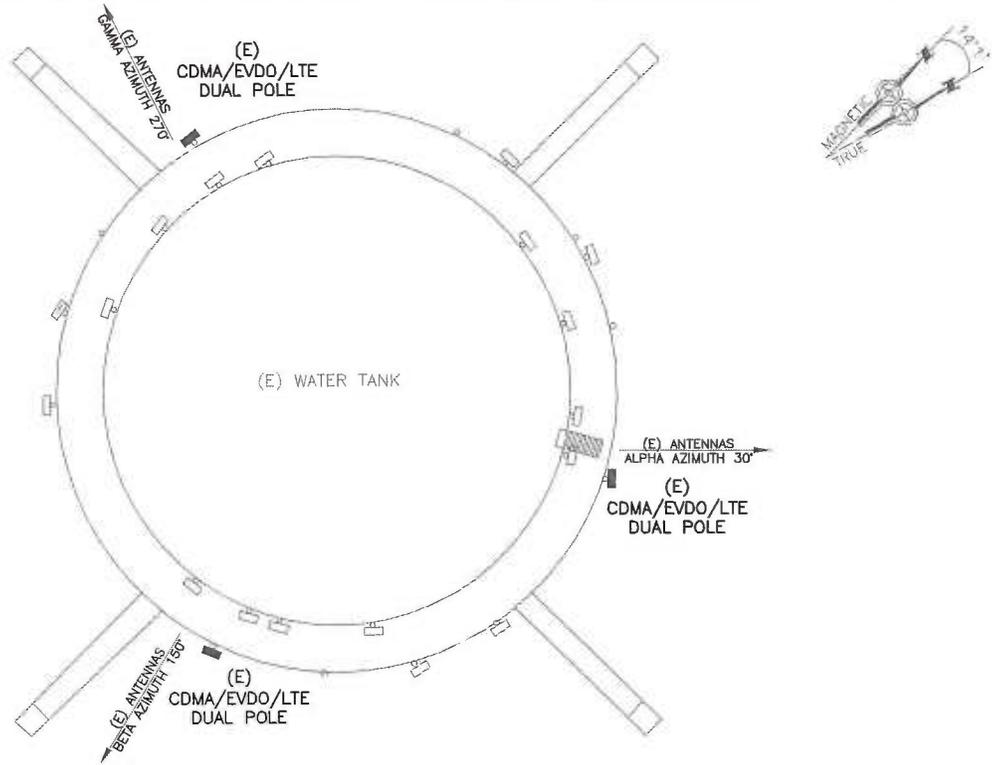
NORTHEAST SITE SOLUTIONS
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FOR
metroPCS.
 metroPCS WIRELESS, INC.
 35 GRIFFIN ROAD SOUTH.
 BLOOMFIELD, CT 06002

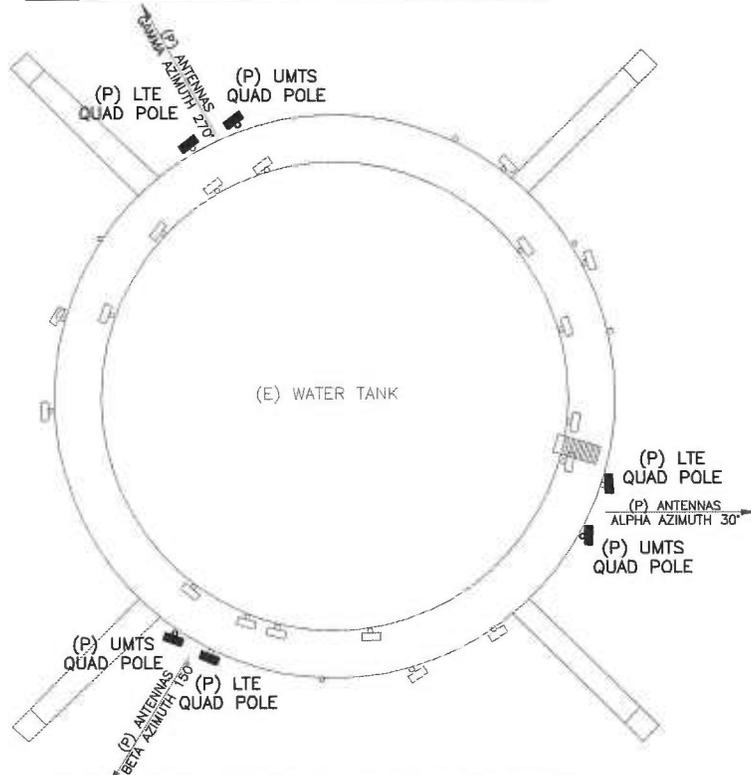
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PAGE 4 OF 5



EXISTING ANTENNA CONFIGURATION



PROPOSED ANTENNA CONFIGURATION

CONFIGURATION

5A

SUBMITTALS

LE REV A	04.22.14

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

LEASE EXHIBIT

SITE NUMBER:
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 SITE NAME:
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FOR
metroPCS.
 metroPCS WIRELESS, INC.
 35 GRIFFIN ROAD SOUTH.
 BLOOMFIELD, CT 06002

DRAWN BY: FG

CHECKED BY: SM

PAGE 5 OF 5

EXHIBIT B

July 8, 2014

Mr. Sheldon Freinle
Northeast Site Solutions
199 Brickyard Road
Farmington, CT 06032

Re: *Structural Evaluation Letter ~ MetroPCS Antenna Upgrade*
MetroPCS Site Ref ~ CTHA513A
Verizon Wireless Site Ref ~ Broadbrook
15 Chamberlain Road
East Windsor, CT 06016

Centek Project No. 14033.011

Dear Mr. Freinle,

Centek Engineering Inc., has reviewed the proposed MetroPCS antenna upgrade at the above referenced site. The purpose of the review is to determine the structural adequacy of existing 125-ft +/- tall AGL water tank structure to support the proposed modified antenna configuration. The existing installation consists of three (3) antennas pipe mounted to the existing water tank handrail. The review considered the effects of wind load, dead load, ice load and seismic forces in accordance with the 2005 Connecticut State Building Code as amended by the 2009 Connecticut State Supplement. **Three (3) proposed antenna pipe mounts, to match the existing MetroPCS antenna mounts, are required for the installation. (To be provided by others).**

The existing and proposed loads considered in this analysis consist of the following:

- Verizon (Existing/Reserved):
Antennas: Six (6) Antel LPA-80063-6CF panel antennas, six (6) Antel BXA-70063-6CF panel antennas, six (6) LPA-171063-12CF panel antennas, six (6) RRH's and one (1) RFS DB-T1-6Z-8AB-0Z main distribution box pipe mounted to the side of the water tank with a RAD center elevation of 116-ft +/- AGL.
Coax: Eighteen (18) 1-5/8-in dia. coaxial cables and one (1) 1-5/8-in dia. fiber cable vertically supported off the leg/face of the existing water tank structure.
- MISC (Existing)
GPS: One (1) GPS antenna mounted to the structure with a RAD center elevation of 35-ft +/- AGL and (1) GPS antenna mounted to the water tank leg with a RAD center elevation of 77-ft +/- AGL.
Coax Cables: Two (2) 1/2" dia. coax cables (estimated) vertically supported off the leg of the existing water tank structure.
- SPRINT (Existing):
Antennas: Three (3) RFS APXVSP18-C-A20 panel antennas, three (3) RFS APXVTM14-C-I20 panel antennas, three (3) TD-RRH8x20-25 Remote Radio Heads, three (3) 1900MHz 4X40W RRH's and three (3) 800MHz 2X50W RRH's pipe mounted to the existing water tank handrail with a RAD center elevation of 104-ft +/- AGL.
Coax Cables: Four (4) 1-1/4" dia. Hybriflex hybrid cables vertically supported off the leg of the existing water tank structure.

Structural Evaluation Letter ~ MetroPCS Antenna Upgrade
MetroPCS Site Ref ~ CIHA513A
Verizon Wireless Site Ref ~ Broadbrook
15 Chamberlain Road
East Windsor, CT 06016

- MetroPCS (Existing to Remain)
Coax Cables: Six (6) 1-5/8" dia. coaxial cables vertically supported off the leg of the existing water tank structure.
- MetroPCS (Existing to Remove)
Antennas: Three (3) RFS APXV18-206417S-C panel antennas pipe mounted to the existing water tank handrail with RAD center elevation of 106-ft +/- AGL.
- MetroPCS (Proposed)
Antennas: Six (6) Ericsson AIR 21 panel antennas pipe mounted to the existing water tank handrail with RAD center elevation of 106-ft +/- AGL. Three (3) proposed antenna pipe mounts, to match the existing MetroPCS antenna mounts, are required for the installation. (To be provided by others).
Coax Cables: Three (3) 7/8" dia. fiber cables vertically supported off the leg of the existing water tank structure.

The proposed antenna installation meets the requirements of the 2005 Connecticut State Building Code considering the basic wind speed (3-second gust) of 95 mph as required in Appendix K of the Connecticut supplement per Table 1609.3.1. Our findings are based on the assumption that the hosting structure, all structural members and appurtenances were properly designed, detailed, fabricated, installed and have been properly maintained since erection.

In conclusion, the proposed MetroPCS antenna upgrade will not negatively impact the structural integrity of the existing antenna support structure or host water tank. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:



Carlo F. Centore, PE
Principal ~ Structural Engineer



EXHIBIT C

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

Metro MobilePCS Existing Facility

Site ID: CTHA513A

Crop Production Broadbrook Water Tank
15 Chamberlain Road
East Windsor, CT 06016

July 21, 2014

EBI Project Number: 62143986

July 21, 2014

Metro MobilePCS USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CTHA513A - Crop Production Broadbrook Water Tank**

EBI Consulting was directed to analyze the proposed Metro MobilePCS facility located at 15 Chamberlain Road, East Windsor, CT, for the purpose of determining whether the emissions from the Proposed Metro MobilePCS 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is $567 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is $1000 \mu\text{W}/\text{cm}^2$. 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 Metro MobilePCS Wireless antenna facility located at 15 Chamberlain Road, East Windsor, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Metro MobilePCS 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 **106 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	CTHA513A_Crop Production Broadbrook Water Tank
Site Address	15 Chamberlain Road, East Windsor, CT 06016
Site Type	Water Tank

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 (dBi)	Antenna Height (ft)	Antenna 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	106	100	None	0	0	48.326044	1.73735	0.17373%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	0	0	-3.95	106	100	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	106	100	1-5/8"	0	0	24.163022	0.868675	0.08687%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	106	100	1-5/8"	0	0	24.163022	0.868675	0.08687%
Sector total Power Density Value:														0.347%			
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 (dBi)	Antenna Height (ft)	Antenna 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	106	100	None	0	0	48.326044	1.73735	0.17373%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	0	0	-3.95	106	100	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	106	100	1-5/8"	0	0	24.163022	0.868675	0.08687%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	106	100	1-5/8"	0	0	24.163022	0.868675	0.08687%
Sector total Power Density Value:														0.347%			
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 (dBi)	Antenna Height (ft)	Antenna 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	106	100	None	0	0	48.326044	1.73735	0.17373%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	0	0	-3.95	106	100	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	106	100	1-5/8"	0	0	24.163022	0.868675	0.08687%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	106	100	1-5/8"	0	0	24.163022	0.868675	0.08687%
Sector total Power Density Value:														0.347%			

Site Composite MPE %	
Carrier	MPE %
Metro MobilePCS	1.042%
Sprint	6.900%
Verizon Wireless	18.770%
Total Site MPE %	26.712%

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 Metro MobilePCS facility are **1.042%** (**0.347% 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 **26.712%** 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