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
www.ct.gov/csc

December 23, 2011

H. Karina Fournier, Real Estate Consultant
New Cingular Wireless PCS, LLC
960 Turnpike Street, Suite 28
Canton, MA 02021

RE: **EM-CING-015-111207** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 1320 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Ms. Fournier:

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 with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated December 6, 2011. 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. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Bill Finch, Mayor, City of Bridgeport
Michael Nidoh, Planning Director, City of Bridgeport
Remo Tartaglia

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
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December 8, 2011

The Honorable Bill Finch
Mayor
City of Bridgeport
City Hall Annex
999 Broad Street
Bridgeport, CT 06604

RE: **EM-CING-015-111207** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 1320 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Mayor Finch:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by December 22, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Michael Nidoh, Planning Director, City of Bridgeport

New Cingular Wireless PCS, LLC
960 Turnpike Street, Suite 28
Canton, MA 02021
Phone: (860) 796-3988
Fax: (617) 249-0819

Karina Fournier
Real Estate Consultant

December 7, 2011

Honorable Rudy Marconi
First Selectmen, Town of Ridgefield
45 Lyon Terrace
Bridgeport, CT 06604

Re: Request by New Cingular Wireless PCS, LLC for an Order Approving an exempt modification at 10 Catoonah Street Ridgefield, CT

Dear Mr. Finch:

New Cingular Wireless PCS, LLC ("AT&T") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 10 Catoonah Street Ridgefield, CT.

Pursuant to Connecticut General Statutes Section 16-50aa, Cingular has requested an order approving shared use of the tower from the Connecticut Siting Council.

The attached letter fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the Connecticut Siting Council, at (860) 827-2950.

Sincerely,

H. Karina Fournier
Real Estate Consultant

Enclosure

EM-CING-015-111207

New Cingular Wireless PCS, LLC
960 Turnpike Street, Suite 28
Canton, MA 02021
Phone: (860) 796-3988
Fax: (617) 249-0819

H. Karina Fournier
Real Estate Consultant

December 6, 2011

Honorable Robert Stein, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: Request by New Cingular Wireless PCS, LLC of an approval for an exempt modification application 1320 Chopsey Hill Road Bridgeport, CT

Dear Chairman Stein and Members of the Siting Council:

In order to accommodate technological changes, implement Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites.

Please accept this letter as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2).

LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations of the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The planned modifications to this facility fall within the activities explicitly provided for in R.C.S.A. §16-50j-72(b)(2).

1. The proposed modification will not result in any increase in the overall height of the existing structure.

2. The proposed modification will not affect ground-mounted equipment and will not require the extension of the site boundaries.

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

4. LTE will utilize additional radio frequencies newly licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully yours,

H. Karina Fournier
Real Estate Consultant

Enclosures

Exhibit 1

at&t

WIRELESS COMMUNICATIONS FACILITY

CT5093

BEARDSLEY

1320 CHOPSEY HILL ROAD

BRIDGEPORT, CT 06606

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

TO: 1320 CHOPSEY HILL ROAD, BRIDGEPORT, CT

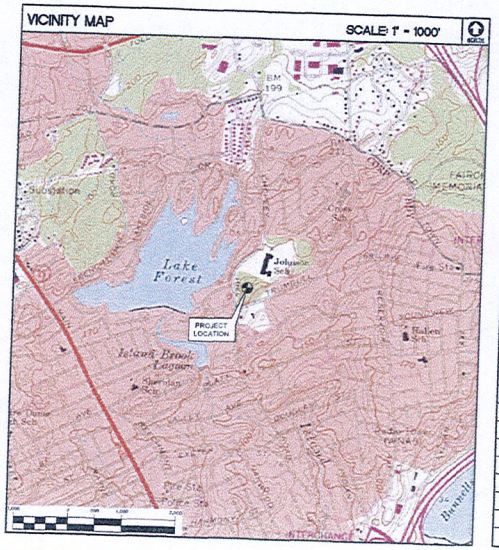
1. Start out going ne on enterprise drive toward capitol blvd;	0.4 mi.
2. turn left onto capitol blvd;	0.3 mi.
3. turn left onto west street;	0.3 mi.
4. merge onto i-91 s via ramp on the left toward new haven;	9.7 mi.
5. merge onto ct-15 s via exit 17.	30.2 mi.
6. merge onto ct-8 s via exit 52 toward bridgeport.	1.9 mi.
7. take the ct-127/white plains road exit, exit 7.	0.3 mi.
8. stay straight to go onto old town rd.	0.6 mi.
9. old town rd becomes trumbull ave.	0.8 mi.
10.turn right onto chopsey hill rd.	0.1 mi.
11.1320 chopsey hill rd is on the right.	

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2005 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES," 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER, AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS. COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO "EXTRA" WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK GENERALLY CONSISTS OF THE INSTALLATION OF ONE (1) LTE ANTENNA PER SECTOR FOR A TOTAL OF (3) LTE ANTENNAS TO THE EXISTING AT&T ANTENNA ARRAY. AN LTE BASEBAND EQUIPMENT UNIT (RBS) WILL BE INSTALLED WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
2. ADDITIONALLY, (2) REMOTE RADIO UNITS (RRUs) PER SECTOR WILL BE INSTALLED ADJACENT TO THE PROPOSED LTE ANTENNAS. SURGE ARRESTORS WILL BE INSTALLED AT BOTH AT&T RRU AND EQUIPMENT LOCATIONS. REFER TO THESE ACCOMPANYING DRAWINGS FOR FURTHER INFORMATION.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT5093
AT&T SITE NAME:	BEARDSLEY
SITE ADDRESS:	1320 CHOPSEY HILL ROAD BRIDGEPORT, CT 06606
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-13'-10" N LONGITUDE: 73°-12'-08" W GROUND ELEVATION: ±150' AMSL

SHEET INDEX

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C-2	LTE SYSTEM EQUIPMENT PLANS & DETAILS	1
E-1	ELECTRICAL DETAILS AND NOTES	1
E-2	ELECTRICAL DETAILS	1

DESIGNED BY:	CFC
DRAWN BY:	DEB
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY	
1	04/06/11	DEB	CFC	CONSTRUCTION
0	03/09/11	DEB	CFC	CONSTRUCTION - CLIENT REVIEW

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AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
SITE NUMBER: CT5093
SITE NAME: BEARDSLEY
1320 CHOPSEY HILL ROAD
BRIDGEPORT, CT 06606

DATE: 3/1/11
SCALE: AS NOTED
JOB NO. 11021.0041

TITLE SHEET

T-1

Sheet No. 1 of 5

STRUCTURAL SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:
   - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 90 MPH (FASTEST MILE), EQUIVALENT TO 110 MPH (3 SECOND GUST).
   - BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
   - BASIC WIND SPEED (OTHER STRUCTURE): 105 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMMENDMENT.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-95 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

GENERAL NOTES

1. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
2. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
4. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
5. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
6. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
7. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
8. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

EARTHWORK NOTES

1. COMPACTED GRAVEL FILL SHALL BE FURNISHED AND PLACED AS A FOUNDATION FOR STRUCTURES, WHERE SHOWN ON THE CONTRACT DRAWINGS OR DIRECTED BY THE ENGINEER.
2. CRUSHED STONE FILL SHALL BE PLACED IN 12" MAX. LIFTS AND CONSOLIDATED USING A HAND OPERATED VIBRATORY PLATE COMPACTOR WITH A MINIMUM OF 2 PASSES OF COMPACTOR PER LIFT.
3. COMPACTED GRAVEL FILL TO BE WELL GRADED BANK RUN GRAVEL MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
1 ½"	100
No. 4	40-70
No. 100	5-20
No. 200	4-8

4. CRUSHED STONE TO BE UNIFORMLY GRADED, CLEAN, HARD PROCESS AGGREGATE MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
1"	100
¾"	90-100
⅜"	0-15
#8	0-5

5. SELECT BACKFILL FOR FOUNDATION WALLS SHALL BE FREE OF ORGANIC MATERIAL, TOPSOIL, DEBRIS AND BOULDERS LARGER THAN 6".
6. GRAVEL AND GRANULAR FILL SHALL BE INSTALLED IN 8" MAX. LIFTS. COMPACTED TO 95% MIN. AT MAX. DRY DENSITY.
7. NON WOVEN GEOTEXTILE FOR SEPARATION PURPOSES SHALL BE MIRAFI 140N, OR ENGINEER APPROVED EQUAL.

FOUNDATION CONSTRUCTION NOTES

1. ALL FOOTINGS SHALL BE PLACED ON SUITABLE, COMPACTED SOIL HAVING ADEQUATE BEARING CAPACITY AND FREE OF ORGANIC CONTENT, CLAY, OR OTHER UNSUITABLE MATERIAL. ADDITIONAL EXCAVATION MAY BE REQUIRED BELOW FOOTING ELEVATIONS INDICATED IF UNSUITABLE MATERIAL IS ENCOUNTERED.
2. SUBGRADE PREPARATION: IF UNSUITABLE SOIL IS ENCOUNTERED, REMOVE ALL UNSUITABLE MATERIALS FROM BELOW PROPOSED STRUCTURE FOUNDATIONS AND COMPACT EXPOSED SOIL SURFACES. PLACE AND COMPACT APPROVED GRAVEL FILL. PLACEMENT OF ALL COMPACTED FILL MUST BE UNDER SUPERVISION OF AN APPROVED TESTING LABORATORY. FILL SHALL BE COMPACTED IN LAYERS NOT TO EXCEED 10" BEFORE COMPACTION. DETERMINE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557-70 AND MAKE ONE (1) FIELD DENSITY TEST IN ACCORDANCE WITH ASTM D2167-66 FOR EACH 50 CUBIC YARDS OF COMPACTED FILL. BUT NOT LESS THAN ONE (1) PER LAYER, TO INSURE COMPACTION TO 95% OF MAX. DRY DENSITY.
3. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS SHALL BE KEPT REASONABLY DRY AND PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.
4. WHERE GROUNDWATER IS ENCOUNTERED, DEWATERING SHALL BE ACCOMPLISHED CONTINUOUSLY AND COMPLETELY DURING FOUNDATION CONSTRUCTION. PROVIDE CRUSHED STONE AS REQUIRED TO STABILIZE FOOTING SUBGRADE.
5. ALL FOOTINGS ARE TO REST ON FIRM SOIL, REGARDLESS OF ELEVATIONS SHOWN ON THE DRAWINGS, BUT IN NO CASE MAY FOOTING ELEVATIONS BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN, UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER.

CONCRETE CONSTRUCTION NOTES

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:
   - ACI 211 – STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE.
   - ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
   - ACI 302 – GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION
   - ACI 304 – RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
   - ACI 306.1 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING
   - ACI 318 – BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
2. CONCRETE SHALL DEVELOP COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:

SLABS ON GRADE	4,000 PSI
ALL OTHER CONCRETE	3,000 PSI

   - PORTLAND CEMENT: ASTM C150, TYPE II, (540 LBS/CUBIC YARD)
   - AGGREGATE: ASTM C33, No. 67, TYPICAL
   - WATER: POTABLE WITH MAXIMUM WATER CEMENT RATIO OF .55
   - SLUMP: 3" TO 4"
   - ADMIXTURES: USE AIR ENTRAINING AGGENT CONFORMING TO ASTM C260 WITH 4 TO 6% TOTAL AIR. USE WATER REDUCING AGENT CONFORMING TO ASTM C494, TYPE A, IN ALL CONCRETE. CALCIUM CHLORIDE MAY NOT BE USED TO ACCELERATE THE CONCRETE SETTING TIME.
3. REINFORCING STEEL SHALL BE 60,000 PSI YIELD STRENGTH.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM- A-185.
5. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE AND LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
6. CONCRETE COVER OVER REINFORCING SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SHOWN:

BOTTOM OF FOOTINGS	3 INCHES
SURFACES NOT EXPOSED TO EARTH OR WEATHER	1-1/2 INCHES

7. NO STEEL WIRE, METAL FORM TIES, OR ANY OTHER METAL SHALL REMAIN WITHIN THE REQUIRED COVER OF ANY CONCRETE SURFACE.
8. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. SPLICES SHALL BE WELL STAGGERED. ADDITIONAL BARS AND SPECIAL BENDING DETAILS ARE REQUIRED AT INTERSECTING WALLS AND AT JOINTS. SUCH DETAILS SHALL COMPLY WITH ACI 315 RECOMMENDATIONS UNLESS OTHERWISE SHOWN.
9. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
10. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 1% CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
11. UNLESS OTHERWISE NOTED, ALL LAP SPLICES SHALL BE 48 BAR DIAMETERS.
12. SLAB ON GRADE FINISHES:

EXTERIOR SLAB:	NON-SLIP BROOM FINISH
INTERIOR SLAB:	STEEL TROWEL FINISH

GENERAL NOTES (REFERENCE)

CONTRACTOR TO REFER TO THE GENERAL NOTES ON SHEET T-1 FOR ADDITIONAL INFORMATION.

DESIGNED BY:	CFC
DRAWN BY:	DEB
CHK'D BY:	CFC

REV.	DATE	DRAWN BY	CHK'D BY
0	3/16/11	DEB	CFC
1	5/26/11	DEB	CFC

CONSTRUCTION – CLIENT REVIEW
CONSTRUCTION

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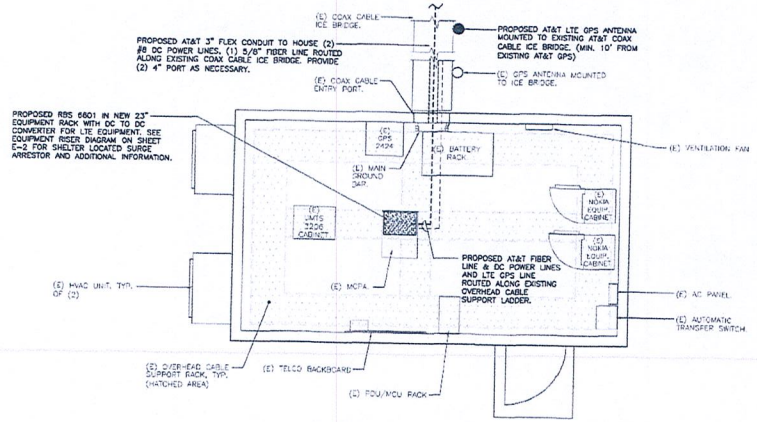
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
SITE NUMBER: CT5093
SITE NAME: BEARDSLEY
1320 CHOPSEY HILL ROAD
BRIDGEPORT, CT 06606

DATE:	3/1/11
SCALE:	AS NOTED
JOB NO.	11021.C041

NOTES AND SPECIFICATIONS

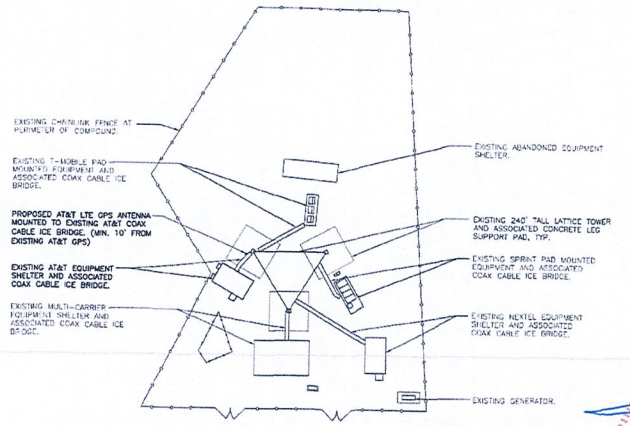
N-1

Sheet No. 2 of 8



3 / C-1 **EQUIPMENT SHELTER PLAN**
SCALE: 3/8" = 1'-0"

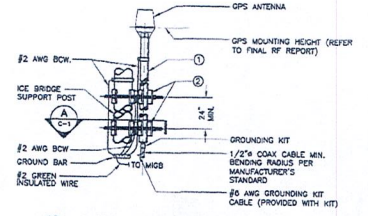
TRUE NORTH



1 / C-1 **COMPOUND PLAN**
SCALE: 1" = 30'

TRUE NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.



GPS ANTENNA MOUNTING BRACKET

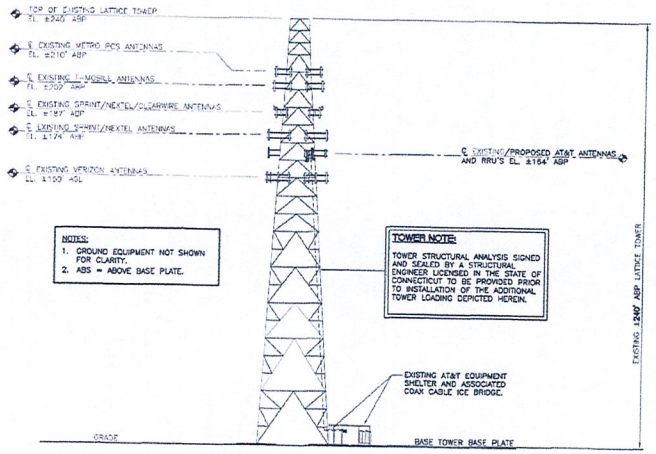
BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
①	2-1/2"ø SCH. 40 x 8'-0" LG. MAX SS OR GALV. PIPE	1
②	UNIVERSAL CLAMP SET.	2

A / C-1 **SECTION**
NOT TO SCALE

NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT AND COORDINATED WITH AT&T CONSTRUCTION MANAGER.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 2-1/2" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. ATTACH TO ICE BRIDGE POST NEAREST ANTENNA CABLE PORT AT EQUIPMENT.
4. PRIOR TO INSTALLATION CONTRACTOR SHALL TEST GPS LOCATION WITH HAND HELD AND MOVE GPS ANTENNA TO OTHER ICE BRIDGE POSTS AS REQUIRED TO ACHIEVE ADEQUATE SIGNAL. FAILURE TO ACHIEVE ADEQUATE SIGNAL WITH A HAND HELD GPS SHALL BE REPORTED TO CONSTRUCTION MANAGER AND ENGINEER TO DETERMINE ALTERNATE INSTALLATION LOCATION FOR GPS ANTENNA.

4 / C-1 **GPS GROUNDING/MOUNTING BRACKET DETAILS**
NOT TO SCALE



2 / C-1 **TOWER ELEVATION**
SCALE: 1" = 30'

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

DESIGNED BY:	CFC
DRAWN BY:	DEB
CHK'D BY:	CFC

BY	DATE	ISSUED BY/CHK'D BY
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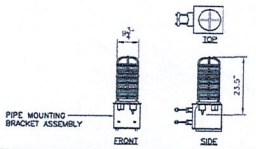
SITE NAME: BEARDSLEY
1320 CHOPSEY HILL ROAD
BRIDGEPORT, CT 06606

DATE:	3/1/11
SCALE:	AS NOTED
JOB NO.	11021.0041

PLANS AND ELEVATION

C-1

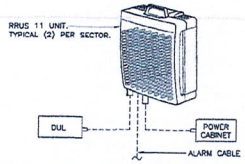
Sheet No. 2 of 5



SURGE ARRESTOR				
SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
TOWER	MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-18-8F	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUs.	20 LBS. (WITH-OUT MOUNT)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

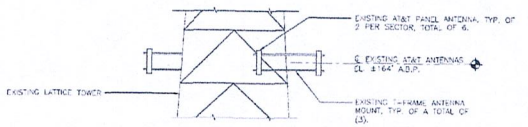
8 C-2 **SURGE ARRESTOR DETAIL**
NOT TO SCALE



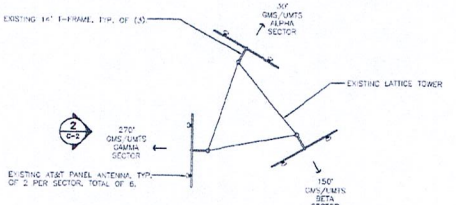
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERRICSON MODEL: RRUS 11	17.6"L x 17.3"W x 7.2"D	BAND 4: 44 LBS. BAND 12: 50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. SIDE: 0" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

7 C-2 **RRU DETAIL**
NOT TO SCALE

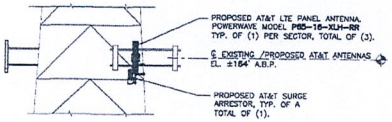


2 C-2 **EXISTING ANTENNA SECTOR ELEVATION**
SCALE: 1" = 10'- 0"

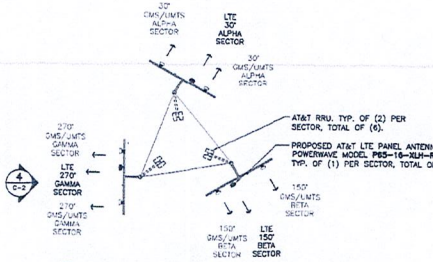


1 C-2 **EXISTING ANTENNA PLAN**
SCALE: 1" = 10'- 0"
NORTH

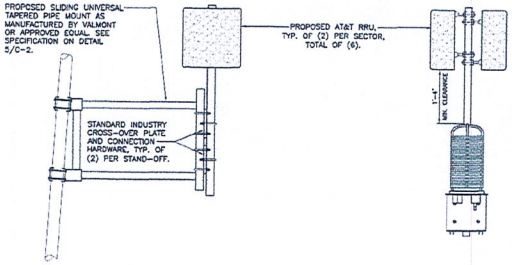
NOTE: ABS = ABOVE BASE PLATE.

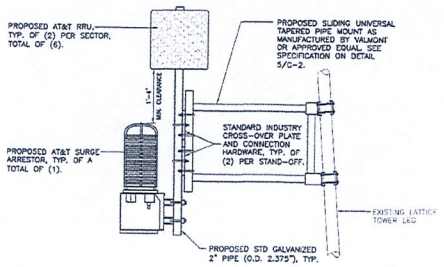


4 C-2 **PROPOSED ANTENNA SECTOR ELEVATION**
SCALE: 1" = 10'- 0"

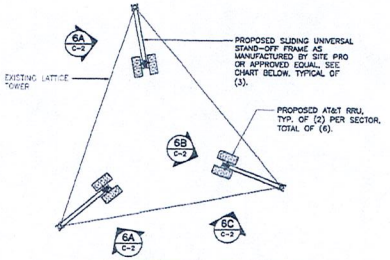


3 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 1" = 10'- 0"
NORTH





6A C-2 6B C-2 6C C-2 **RRU AND SURGE ARRESTOR MOUNTING DETAILS**
NOT TO SCALE



ULTIMATE STAND-OFF FRAME		
MAKE	PART #	STAND-OFF DISTANCE
SITE PRO	USF-3U	36"

- STAND-OFF FRAME WITH 3 1/2" OD PIPE.
- INCLUDES UNIVERSAL MOUNTING HARDWARE.
- ADJUST TO TAPER UP TO 6" IN 3/4" INCREMENTS.
- UNIVERSAL MOUNTING. ROUND LEGS FROM 1" TO 8" AND 60° ANGLE LEGS FROM 1 1/2" TO 8", 90° ANGLES 1 1/2" TO 6".

5 C-2 **PROPOSED RRU MOUNTING PLAN**
SCALE: 1/4" = 1'-0"

DESIGNED BY:	CFC
DRAWN BY:	DEB
CHK'D BY:	CFC

REV'S	DATE	DRAWN BY	CHK'D BY
0	02/08/11	TJD	CFC
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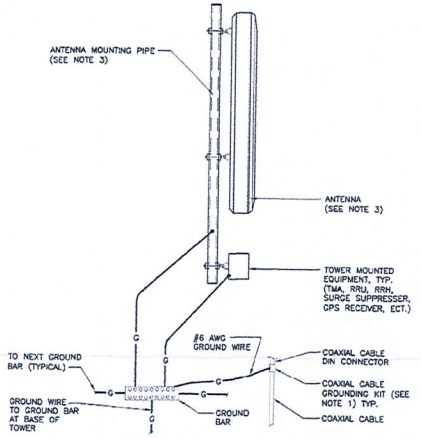
SITE NAME: BEARDSLEY
1320 CHOPSEY HILL ROAD
BRIDGEPORT, CT 06606

DATE: 3/1/11
SCALE: AS NOTED
JOB NO. 11021.CD41

LTE SYSTEM EQUIPMENT PLANS AND DETAILS

C-2

Sheet No. 4 of 8

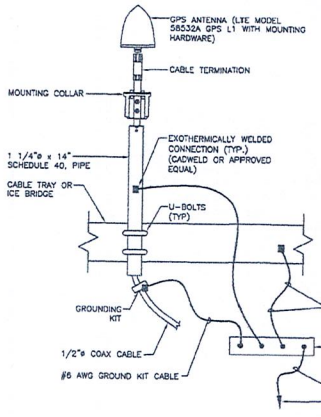


NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 E-1 TYPICAL ANTENNA GROUNDING DETAIL

NOT TO SCALE

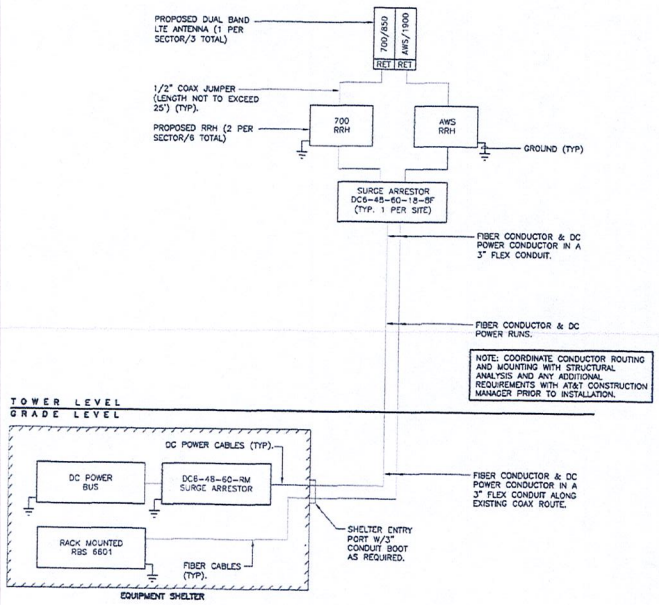


NOTE:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. ANTENNA MUST BE INSTALLED WITH UNOBSTRUCTED EXPOSURE TO SOUTHWESTERN SKY. VERIFY SATELLITE VISIBILITY WITH HANDHELD GPS AND RF ENGINEER PRIOR TO INSTALLATION.

3 E-1 GPS MOUNTED TO CABLE TRAY / ICE BRIDGE

NOT TO SCALE



NOTES:

1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURERS RECOMMENDATIONS.

2 E-1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16060).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

DESIGNED BY:	CKD
DRAWN BY:	TJB
CHK'D BY:	CKD

REV.	DATE	DRAWN BY	CHK'D BY
1	06/08/11	TJB	CKD
0	03/01/11	GTC	CKD

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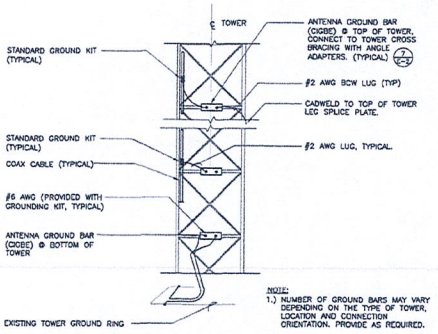
DATE:	3/1/11
SCALE:	AS NOTED
JOB NO.	11021.0041

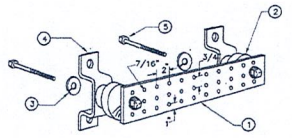
ELECTRICAL DETAILS AND NOTES

E-1

Sheet No. 5 of 5



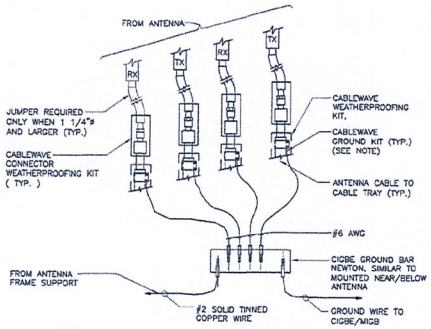
1 E-2 **ANTENNA CABLE GROUNDING - LATTICE**
NOT TO SCALE



LEGEND

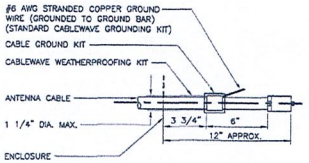
1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. 4. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

2 E-2 **GROUND BAR DETAIL**
NOT TO SCALE



NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

3 E-2 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE



NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

4 E-2 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

DESIGNED BY:	CKD
DRAWN BY:	TJB
CHK'D BY:	CKD

REV	DATE	DRAWN BY	CHK'D BY	
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BROOKFIELD, CT 06405

DATE: 3/1/11
SCALE: AS NOTED
JOB NO. 11021.C041

ELECTRICAL DETAILS

E-2

Sheet No. 5 of 6

Exhibit 2

CENTEK engineering

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Structural Analysis Report

240' Existing ROHN SSMW Lattice Tower

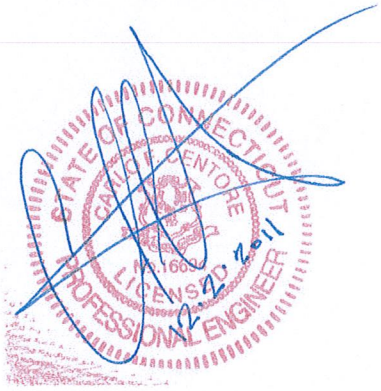
Proposed AT&T Mobility
LTE Antenna Installation

AT&T Site Ref: CT5093 - Beardsley

1280 Chopsey Hill Road
Bridgeport, CT

Centek Project No. 11107.CO18

Date: December 2, 2011



Prepared for:

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Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna installation proposed by AT&T Mobility on the existing self supporting lattice tower located in Bridgeport, Connecticut.

The host tower is a 240-ft three legged, tapered steel lattice tower originally designed and manufactured by UNR-ROHN. The tower geometry and structure member sizes were obtained from the manufacturer's original design drawings (UNR-ROHN file no. 23253DB); a previous structural analysis report prepared by Centek, project job no. 10001.CO78 marked Rev. 1, dated June 23, 2011 and a tower mapping report prepared by CSB Communication, LLC, dated August 18, 2010. Foundation information was taken from a dispersive wave propagation testing report prepared by FDH Engineering; project no. 10-12269E N1, dated January 17, 2011. Additional concrete mass was added to the foundation per the aforementioned Centek report.

Antenna and appurtenance inventory were obtained from the aforementioned Centek structural analysis report, CSB tower mapping report together with field verification conducted from grade by Centek personnel on November 9, 2011.

The tower is made of eleven (11) tapered vertical leg sections consisting of steel pipe conforming to ASTM A500-50. Diagonal and horizontal lateral support bracing consists of steel pipe and single angle sections, conforming to ASTM A500-50 and ASTM A36. All tower connections are bolted. The width of the tower face is 10.58-ft at the top and 40.25-ft at the base.

AT&T Mobility proposes the installation of three (3) panel antennas mounted on three (3) existing T-Frames and three (3) Remote Radio Units (RRU's) and one (1) surge arrestor mounted on a three (3) proposed standoff mounts. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing and proposed loads considered in the analysis consist of the following:

- UNKNOWN (Existing):
  Antenna: One (1) 16-ft Omni-directional whip antenna mounted on a 4-ft side arm with an elevation of ±248-ft above grade level.
  Coax Cable: One (1) 1-1/4" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ±242-ft above grade level.
  Coax Cable: None.

- NONE (Existing):
  Antenna: One (1) flash beacon light mounted with an elevation of ±240-ft above grade level.
  Cable: One (1) 1" ∅ rigid conduit routed on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) vacant 4-ft side arm with a RAD center elevation of ±238-ft above grade level.
  Coax Cable: None.
- UNKNOWN (Existing):
  Antenna: Two (2) 10-ft Omni-directional whip antennas mounted on 4-ft side arms with RAD center elevations of ±235-ft above grade level.
  Coax Cable: One (1) 1-1/4" ∅ and one (1) 7/8" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 10-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ±229-ft above grade level.
  Coax Cable: Two (2) 1-1/4" ∅ coax cables (disconnected).
- UNKNOWN (Existing):
  Antenna: One (1) 10-ft x3in vacant pipe mount with a RAD center elevation of ±229-ft above grade level.
- METROPCS (Existing):
  Antennas: Six (6) Kathrein 800-10504 panel antennas and six (6) RCU's mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±210-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- T-MOBILE (Existing):
  Antennas: Nine (9) RFS APX16PV-16PVL-X panel antennas and nine (9) TMA's mounted on three (3) 13-ft T-Frames with a RAD center elevation of ±202-ft above grade level.
  Coax Cables: Thirty (30) 1-5/8" ∅ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 4-ft Yagi antenna mounted on a 10-ftx2-1/2in ∅ pipe with a RAD center elevation of ±198-ft above grade level.
  Coax Cable: One (1) 7/8" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.

- SPRINT/NEXTEL/CLEARWIRE (EXISTING):
  Antennas: Six (6) EMS RR90-11-10DBL panel antennas, three (3) Argus LLPX310R panel antennas, three (3) Samsung RRU 's, one (1) 2-ft 6in ∅ and (2) 2-ft ∅ microwave dishes mounted on three (3) 6-ft T-Frames with a RAD center elevation of ±187-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ , four (4) 1/2"∅ coax cables and two (2) innerduct conduits running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 14-ft x2-1/2in ∅ vacant pipe mount with a RAD center elevation of ±185-ft above grade level.
- UNKNOWN (Existing):
  Antenna: One (1) 20-ft Omni-directional whip antenna mounted to one existing AT&T T-Frame with a RAD center elevation of ±176-ft above grade level.
  Coax Cable: Two (2) 1-1/4" ∅ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL (Existing):
  Antennas: Four (4) Allgon 7184.05 and two (2) Andrew DB950G40E-M panel antennas mounted on six (6) 14-ft x2-1/2" ∅ pipes with RAD center elevation of ±174-ft above grade level.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- SPRINT/NEXTEL (Existing):
  Antennas: Three (3) vacant 14-ft x2-1/2" and one (1) 10-ft x4" ∅ vacant pipes with RAD center elevations of ±174-ft above grade level.
- AT&T (Existing):
  Antennas: Six (6) Powerwave 7770 panel antennas and twelve (12) LGP21401 TMA's mounted on three (3) 14-ft T-Frames with a RAD center elevation of ±164-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on the leg of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing):
  Antennas: Three (3) Antel BXA-70063/6CF_2, four (4) Antel LPA80063/6CF, two (2) Andrew DB846F65AZXY, three (3) RYMSA MG D3-800T0 panels antennas and six (6) FD9R6004/2C-3L Diplexers mounted on three (3) existing 14-ft T-Frames with a RAD center elevation of ±150-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 10-ft Omni-directional whip antenna mounted on a 2-ft side arm with a RAD center elevation of ±141-ft above grade level.
  Coax Cable: One (1) 1/4" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.

- NONE (Existing):
  Antenna: Three (3) obstruction lights mounted with an elevation of ±140-ft above grade level.
  Cable: One (1) 1" ∅ rigid conduit routed on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (EXISTING):
  Antenna: One (1) 4-ft Yagi antenna mounted on a 2-ft side arm with a RAD center elevation of ±132-ft above grade level.
  Coax Cable: One (1) 1/4" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ±124-ft above grade level.
  Coax Cable: One (1) 7/8" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 12-ft Omni-directional whip antenna mounted on a 4-ft side arm with a RAD center elevation of ±114-ft above grade level.
  Coax Cable: One (1) 7/8" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 4-ft Yagi antenna mounted on a 2-ft side arm with a RAD center elevation of ±98-ft above grade level.
  Coax Cable: One (1) 1/4" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) vacant 2-ft side arm with a RAD center elevation of ±82-ft above grade level.
  Coax Cable: Two (2) 1/4" ∅ coax cables running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) GPS antenna mounted on one (1) 2-ft stand-off mount with a RAD center elevation of ±52-ft above grade level.
  Coax Cables: One (1) 1/2" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 0.8M satellite dish mounted on one (1) 2-ft stand-off mount with a RAD center elevation of ±22-ft above grade level.
  Coax Cables: One (1) 1/2" ∅ coax cable running on the face of the existing tower as specified in Section 3 of this report.

- **AT&T (Proposed):**
  Antennas: Three (3) Powerwave P65-16-XLH-RR panel antennas mounted on three (3) existing 14-ft T-Frames with a RAD center elevation of ±164-ft above grade level.
- **AT&T (Proposed):**
  Antennas: Six (6) Ericsson RRUS-11 and one (1) Raycap DC6-48-60-18-8F surge arrestor mounted to three (3) standoff mounts with a RAD center elevation of 164-ft above grade level.
  Coax Cables: One (1) fiber cable and two (2) dc control cables running within a 3" ∅ flex conduit on a leg of the existing tower.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- **All coax cables routed as specified in Section 3 of this report.**

Analysis

The existing tower was analyzed using a comprehensive computer program entitled RISATower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower legs, and the model assumes that the leg members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for 90 mph basic wind speed (fastest mile) with no ice and 75% reduction of wind force with ½ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice tower structure and its components.

Basic Wind Speed:	Fairfield County; v = 85 mph (fastest mile)	*[Section 16 of TIA/EIA-222-F-96]*
	Bridgeport; v = 110 mph (3 second gust) equivalent to v = 90 mph (fastest mile)	*[Appendix K of the 2009 CT Building Code Supplement]*
	Appendix K wind speed Controls	
Load Cases:	Load Case 1; 90 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation. This load case typically controls the design.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 2; 78 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 78 mph wind speed velocity represents 75% of the wind pressure generated by the 90 mph wind speed.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 3; Seismic – not checked	*[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type*

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software RISATower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

Calculated stresses were found to be within allowable limits. In Load Case 1, per RISATower "Section Capacity Table", this tower was found to be **92.9%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T13)	0'-0"- 30'-0"	56.3%	**PASS**
Diagonal (T9)	100'-0"- 120'-0"	92.9%	**PASS**
Horizontal (T8)	120'-0"-140'-0"	81.5%	**PASS**
Top Girt (T12)	30'-0"-60'-0"	78.7%	**PASS**

Foundation and Anchors

The existing foundation system consists of three (3) 22-ft square x 6-ft deep independent reinforced concrete pads, with additional concrete reinforcement, concentrically bearing on the existing sub grade. The existing foundation locations and dimensions were taken from the aforementioned FDH dispersive wave propagation testing report and the additional concrete reinforcement dimensions and locations were taken from the aforementioned Centek report. Allowable soil bearing pressure was assumed to be a minimum of 4,000 psf for the analysis. The tower legs are connected to the foundation with (12) 1.00"∅, ASTM A-354 Grade BC (Fy = 109ksi) anchor bolts per leg.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower reactions developed from the governing Load Case 1 were used in the verification of the foundation:

Load Effect	Original Tower Design Reactions [1]	Proposed Tower Reactions
Leg Shear	NA	56.0 kips
Leg Compression	452.80 kips	374.0 kips
Leg Tension	381.10 kips	299.0 kips
Base Moment	14355 ft-kips	11565 ft-kips
Base Shear	78.97 kips	94.0 kips

Notes:

1: Original tower design base reactions taken from original UNR-ROHN design drawing C880398, dated January 28, 1988 based on EIA-222-D-1986 with a design basic wind speed of 85mph (fastest mile).
2: Proposed reactions based on a basic wind speed of 90mph (fastest mile) and 78mph with ½" radial ice.
3: OM denotes Overturning Moment

- The anchor bolts were found to be within allowable limits.

Tower Section	Component	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	57.8%	**PASS**

- The foundation was found to be within allowable limits.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS)[4]	Proposed Loading (FS)[4]	Result
(3) Independent Reinf. Concrete Mat Foundations	Uplift	2.00	2.03	**PASS**

Note 4: FS denotes Factor of Safety

Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by Verizon Wireless. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Checked by:

Carlo F. Centore, PE
Principal ~ Structural Engineer

STATE OF CONNECTICUT
CARLO F. CENTORE
No.16694
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Jason R. Mead
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

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

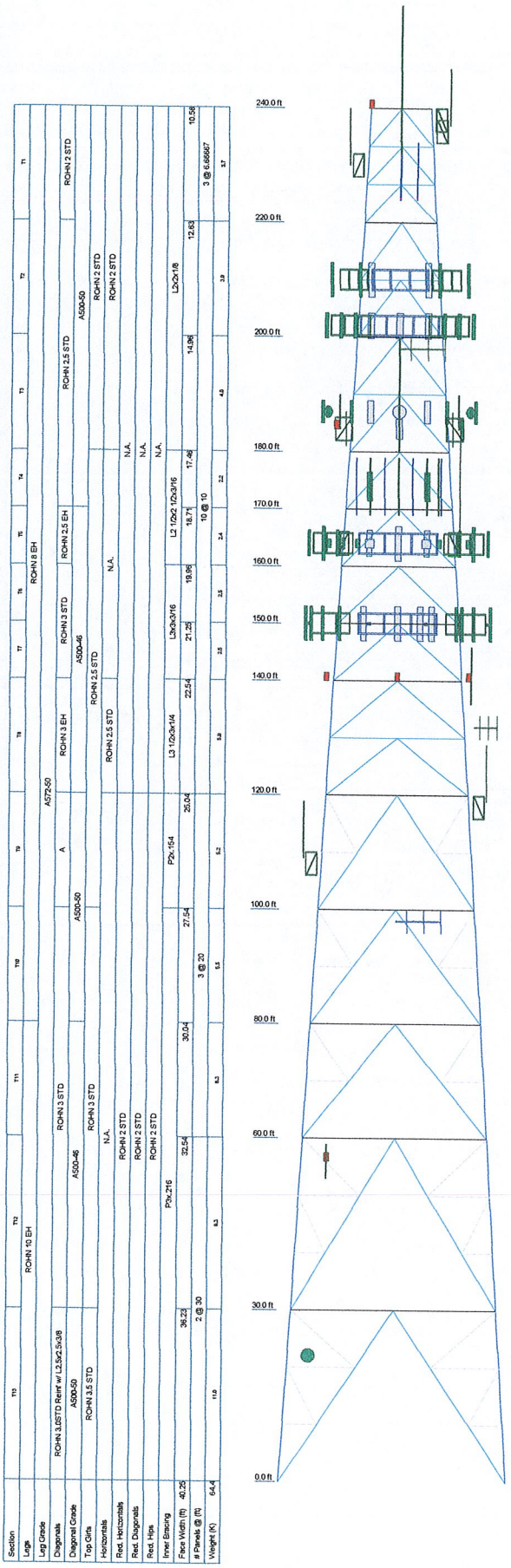
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

RISATower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, RISATower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

RISATower Features:

- RISATower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- RISATower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
16' x 2.5" Dia Omni (Unknown)	248	14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174
12' x 2" Dia Omni (Unknown)	242	14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174
Flash Beacon Lighting	240	14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174
Pirod 4' Side Mount Standoff (1) (Vacant)	238	14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174
8'x2 1/2" Pipe Mount	237	14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174
Pirod 4' Side Mount Standoff (1)	236	10'x2.5" Pipe Mount (Vacant)	174
10' x 3" Dia Omni (Unknown)	235	(2) DB950G40E-M (Sprint/Nextel)	174
10' x 3" Dia Omni (Unknown)	235	(2) 7184.05 (Sprint/Nextel)	174
Pirod 4' Side Mount Standoff (1)	230	(2) 7184.05 (Sprint/Nextel)	174
Pirod 4' Side Mount Standoff (1)	230	(4) LPG21401 TMA (ATI)	164
10'x2.5" Pipe Mount (Vacant)	229	(4) LPG21401 TMA (ATI)	164
10' x 3" Dia Omni (Unknown)	229	(4) LPG21401 TMA (ATI)	164
Pirod 4' Side Mount Standoff (1)	224	14-ft T-Frame Sector Mount (ATI)	164
(2) 800-10504 (Metro PCS)	210	14-ft T-Frame Sector Mount (ATI)	164
(2) 800-10504 (Metro PCS)	210	14-ft T-Frame Sector Mount (ATI)	164
(2) 800-10504 (Metro PCS)	210	P65-16-XLH-RR (ATI - Proposed)	164
(2) 860 10025 RCU (Metro PCS)	210	P65-16-XLH-RR (ATI - Proposed)	164
(2) 860 10025 RCU (Metro PCS)	210	P65-16-XLH-RR (ATI - Proposed)	164
(2) 860 10025 RCU (Metro PCS)	210	(2) RRUS-11 (ATI - Proposed)	164
10-ft T-Frame (Metro PCS)	210	(2) RRUS-11 (ATI - Proposed)	164
10-ft T-Frame (Metro PCS)	210	(2) RRUS-11 (ATI - Proposed)	164
10-ft T-Frame (Metro PCS)	210	DC6-48-60-18-8F Surge Arrestor (ATI - Proposed)	164
(3) APX16PV-16PVL-X (T-Mobile)	202	2-ft Stand Off (ATI - Proposed)	164
(3) APX16PV-16PVL-X (T-Mobile)	202	2-ft Stand Off (ATI - Proposed)	164
(3) APX16PV-16PVL-X (T-Mobile)	202	2-ft Stand Off (ATI - Proposed)	164
(2) G20057A1 TMA (T-Mobile)	202	(2) 7770.00 (ATI)	164
(2) G20057A1 TMA (T-Mobile)	202	(2) 7770.00 (ATI)	164
(2) G20057A1 TMA (T-Mobile)	202	(2) 7770.00 (ATI)	164
RFS TMA (T-Mobile)	202	DB846F65ZAXY (Verizon)	150
RFS TMA (T-Mobile)	202	LPA-80063/6CF (Verizon)	150
RFS TMA (T-Mobile)	202	MG D3-800T0 (Verizon)	150
13-ft T-Frame (T-Mobile)	202	BXA-70063/6CF (Verizon)	150
13-ft T-Frame (T-Mobile)	202	LPA-80063/6CF (Verizon)	150
13-ft T-Frame (T-Mobile)	202	LPA-80063/6CF (Verizon)	150
4-ft Yagi (Unknown)	198	MG D3-800T0 (Verizon)	150
10'x4" Pipe Mount ((Yagi mount))	195	BXA-70063/6CF (Verizon)	150
(2) RR90-11-10DBL (Sprint/Nextel)	187	LPA-80063/6CF (Verizon)	150
(2) RR90-11-10DBL (Sprint/Nextel)	187	(2) FD9R6004/2C-3L Diplexer (Verizon)	150
(2) RR90-11-10DBL (Sprint/Nextel)	187	(2) FD9R6004/2C-3L Diplexer (Verizon)	150
6'x4" Pipe Mount (Clearwire)	187	(2) FD9R6004/2C-3L Diplexer (Verizon)	150
6'x4" Pipe Mount (Clearwire)	187	14-ft T-Frame Sector Mount (Verizon)	150
6'x4" Pipe Mount (Clearwire)	187	14-ft T-Frame Sector Mount (Verizon)	150
Andrew 2' w/Radome (Clearwire)	187	14-ft T-Frame Sector Mount (Verizon)	150
Andrew 2' w/Radome (Clearwire)	187	DB846F65ZAXY (Verizon)	150
VHLP2.5-10W (Clearwire)	187	MG D3-800T0 (Verizon)	150
14' x 2-1/2" Pipe Mount (Vacant)	185	BXA-70063/6CF (Verizon)	150
RRU (Clearwire)	184	10' x 1" Dia Omni (Unknown)	141
RRU (Clearwire)	184	Obstruction Lights	140
RRU (Clearwire)	184	Obstruction Lights	140
6-ft T-Frame (Sprint/Nextel)	184	Obstruction Lights	140
6-ft T-Frame (Sprint/Nextel)	184	2' stand off (2 arms)	136
6-ft T-Frame (Sprint/Nextel)	184	2' stand off (2 arms)	132
6'x4" Pipe Mount (Sprint/Nextel)	184	4-ft Yagi (Unknown)	132
6'x4" Pipe Mount (Sprint/Nextel)	184	12' x 1-1/2" Dia Omni (Unknown)	124
6'x4" Pipe Mount (Sprint/Nextel)	184	Pirod 4' Side Mount Standoff (1)	118
LLPX310R (Clearwire)	184	12' x 2" Dia Omni (Unknown)	114
LLPX310R (Clearwire)	184	Pirod 4' Side Mount Standoff (1)	108
LLPX310R (Clearwire)	184	4-ft Yagi (Unknown)	98
20' x 3" Dia Omni (Unknown)	176	2' stand off (2 arms)	98
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174	2' stand off (2 arms) (Vacant)	82
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174	GPS (Unknown)	56
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174	5'0"x3" Pipe Mount	56
14' x 2-1/2" Pipe Mount (Sprint/Nextel)	174	0.6M Satellite Dish (Unknown)	22

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD Reinf w/ L2x2x1/4		

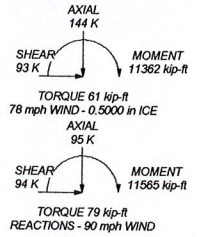
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A500-46	46 ksi	62 ksi
A500-50	50 ksi	62 ksi			

TOWER DESIGN NOTES

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 78 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 50 mph wind.
4. Weld together tower sections have flange connections.
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. TOWER RATING: 92.9%

MAX. CORNER REACTIONS AT BASE:
DOWN: 374 K
UPLIFT: -299 K
SHEAR: 56 K



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63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: *11107.CO18 - CT5093 Beardsley*			
Project: *240-ft ROHN Lattice - 1280 Chopsey Hill Road, Bridgeport, CT*			
Client: AT&T Mobility	Drawn by: TJL	App'd:	
Code: TIA/EIA-222-F	Date: 12/02/11	Scale: NTS	
Path:		Dwg No. E-1	

Exhibit 3

C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

at&t

CT5093

1330 Chopsey Hill Rd, Bridgeport, CT 06606

October 26, 2011

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the existing lattice tower located at 1330 Chopsey Hill Rd in Bridgeport, CT. Verizon, Sprint/Nextel, T-Mobile, Clearwire, MetroPCS and other local carriers also have antennas mounted on the tower. The coordinates of the tower are 41-13-10.36 N, 73-12-4.64 W.

AT&T is proposing the following modifications:

1) Install three 700 MHz LTE antennas (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. All information for Verizon, Sprint/Nextel, T-Mobile, Clearwire, MetroPCS and other local carriers comes directly from the current CSC database. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
Marcus	217	450	5	100	0.0038	0.3000	1.27%
Marcus	217	450	5	100	0.0038	0.3000	1.27%
Marcus	237	5800	1	0	0.0000	1.0000	0.00%
Red Star	217	44	1	150	0.0011	0.2000	0.57%
Metrocall	239	75	1	150	0.0009	0.2000	0.47%
Metrocall	240	930	1	3500	0.0218	0.6200	3.52%
Clinton Tower	223	930	1	3500	0.0253	0.6200	4.08%
AAT	235	930	1	3500	0.0228	0.6200	3.68%
BAM/Verizon	151	874.5	20	100	0.0315	0.5830	5.41%
Nextel	187	851	8	100	0.0082	0.5673	1.45%
Clearwire	187	2496	2	153	0.0031	1.0000	0.31%
Clearwire	187	11000	1	211	0.0022	1.0000	0.22%
Sprint CDMA	187	1962.5	11	411	0.0465	1.0000	4.65%
Sprint/Nextel	187	2657	3	562	0.0173	1.0000	1.73%
Sprint/Nextel	180	19500	2	4074	0.0904	1.0000	9.04%
Sprint/Nextel	180	22500	2	1097	0.0243	1.0000	2.43%
Sprint/Nextel	180	22500	2	692	0.0154	1.0000	1.54%
T-Mobile	200	1945	8	134	0.0096	1.0000	0.96%
T-Mobile	200	2100	2	559	0.0100	1.0000	1.00%
MetroPCS	195	2310	7	735	0.0487	1.0000	4.87%
AT&T UMTS	165	880	1	500	0.0066	0.5867	0.11%
AT&T UMTS	165	1900	1	500	0.0066	1.0000	0.07%
AT&T LTE	165	734	1	500	0.0066	0.4893	0.13%
AT&T GSM	165	1900	1	427	0.0056	1.0000	0.06%
						Total	**48.86%**

Table 1: Carrier Information[1]

[1] Calculated values for AT&T include a -10 dB off-beam loss factor. Antenna specifics for Verizon, Sprint/Nextel, T-Mobile, Clearwire, MetroPCS and other local carriers were unavailable and therefore do not include any off-beam loss factor.

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 48.86% of the FCC limit.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Daniel L. Goulet
C Squared Systems, LLC

October 26, 2011
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[2]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[3]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[2] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[3] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

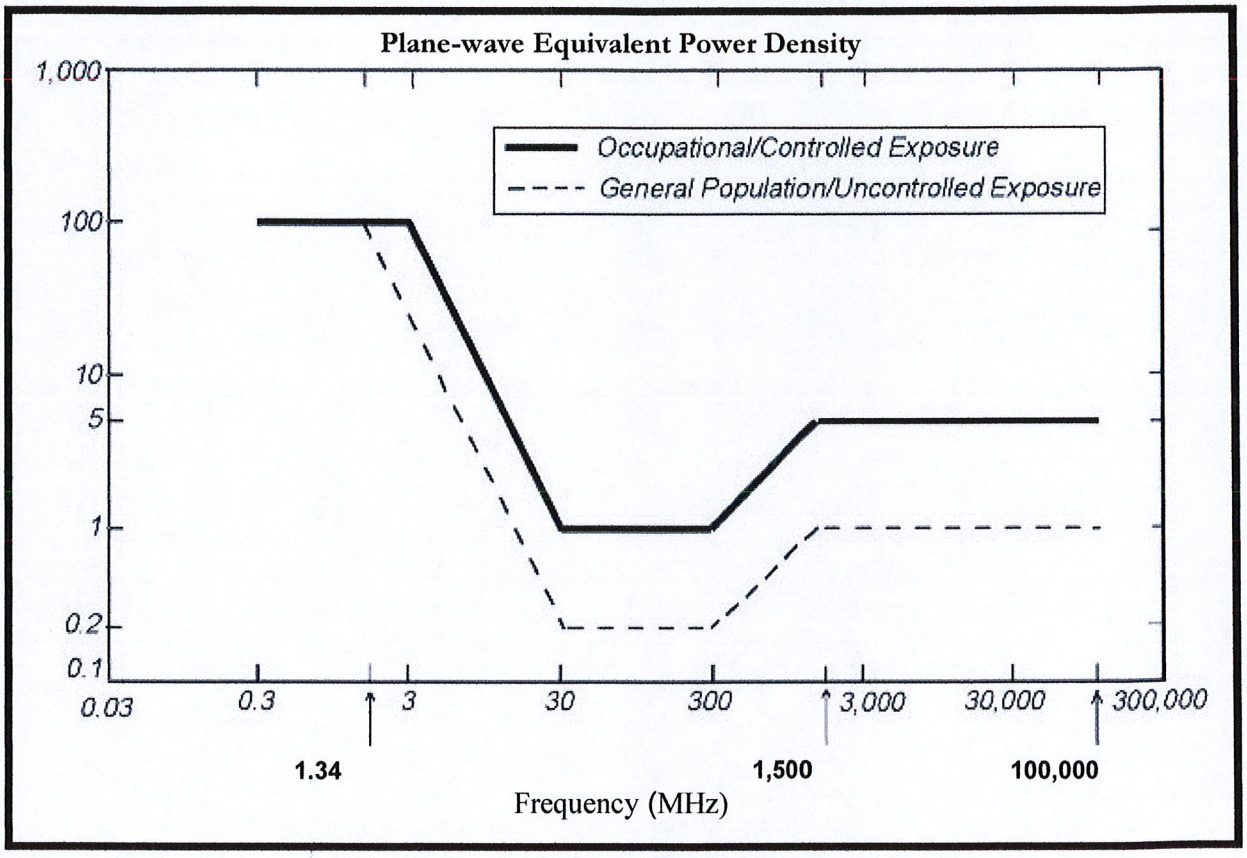
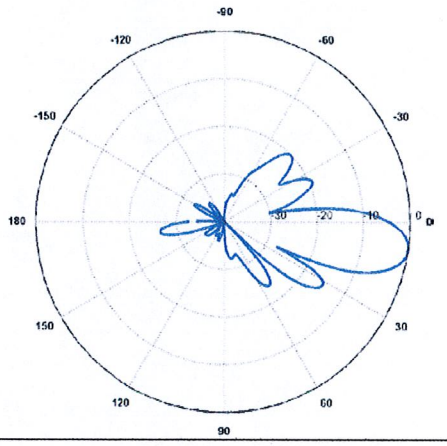
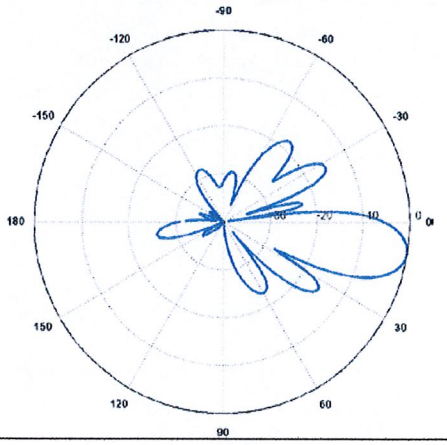


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T's Antenna Model Data Sheets and Electrical Patterns

700 MHz Manufacturer: Powerwave Model #: P65-16-XLH-RR Frequency Band: 698-894 MHz Gain: 12.7 dBd Vertical Beamwidth: 14.7 deg Horizontal Beamwidth: 73 deg Polarization: Dual Linear ± 45 deg Size L x W x D: 72" x 12" x 6"	
850 MHz Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 824-896 MHz Gain: 11.4 dBd Vertical Beamwidth: 15 deg Horizontal Beamwidth: 85 deg Polarization: Dual Linear ± 45 deg Size L x W x D: 55.4" x 11" x 4.9"	
1900 MHz Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 1850-1990 MHz Gain: 13.4 dBd Vertical Beamwidth: 7 deg Horizontal Beamwidth: 90 deg Polarization: Dual Linear ± 45 deg Size L x W x D: 72" x 12" x 6"