



New Cingular Wireless PCS, LLC  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 463-5511  
Fax: (860) 513-7190

**Douglas L. Culp**  
Real Estate Consultant

HAND DELIVERED

June 27, 2011

Ms. Linda Roberts  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051



Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-communications facility located at 1323 King Street Greenwich, CT (owner Town of Greenwich) – Bruce Memorial GC.

Dear Ms. Roberts:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) and/or 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 and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile (“GSM”) communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

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 at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

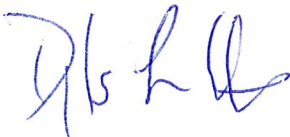
The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within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

1. The height of the overall structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. Moreover, 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).

Please feel free to call me at (860) 463-5511 with questions concerning this matter. Thank you for your consideration.

Sincerely,



Douglas L. Culp  
Real Estate Consultant

Attachments

**NEW CINGULAR WIRELESS PCS, LLC  
Equipment Modification**

1323 King Street Greenwich, CT (Bruce Memorial GC)  
Site Number CT2347  
Exempt Mod

**Tower Owner/Manager:** Town of Greenwich

**Equipment configuration:** SSLT

**Current and/or approved:** Six PowerWave antennas @ 88 ft  
Twelve PowerWave TMA's @ 88 ft  
Twelve runs 1 5/8 inch coax to 88 ft  
Equipment Shelter

**Planned Modifications:** Retain existing PowerWave P7770 Antenna's, TMA's @ 88 ft  
Retain all Coax Cabling  
Install three PowerWave P65-16 antennas or equivalent @ 88 ft  
Install six remote radio heads Ericsson RRUS-11 @ 85 ft  
Install one RayCap Fiber and DC Power Connector – DC6-48-60-18-8F @ 85 ft  
Install one fiber and two DC power cables @ 85 ft

**Power Density:**

Worst-case calculations for existing wireless operations at the site, using standard parameters for other carriers, indicate a radio frequency electromagnetic radiation power density, measured at ground level beside the Tower, of approximately 38.3% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 43 % of the standard.

**Existing**

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users							14.69
AT&T UMTS	88	1900 Band	1	500	0.0232	1.0000	2.32
AT&T UMTS	88	800 Band	1	500	0.0232	0.5867	3.96
AT&T GSM	88	800Band	4	296	0.0550	0.5867	9.37
AT&T UMTS	88	1900 Band	4	427	0.0793	1.0000	7.93
<b>Total</b>							<b>38.3%</b>

\* Data for other users are from Siting Council records.

## Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
Other Users							14.69
AT&T UMTS	88	800 Band	1	500	0.0232	0.5867	3.96
AT&T UMTS	88	1900 Band	1	500	0.0232	1.0000	2.32
AT&T GSM	88	880 - 894	4	296	0.0550	0.5867	9.37
AT&T GSM	88	1900 Band	4	427	0.0793	1.0000	7.93
AT&T LTE	88	740 - 746	1	500	0.0232	0.4933	4.71
<b>Total</b>							<b>43.0%</b>

\* Data for other users are from Siting Council records

### Structural information:

The attached structural analysis demonstrates that the monopole and foundation have adequate structural capacity to accommodate the proposed modifications. (GPD Group dated 6-22-11).



**PROJECT INFORMATION**

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS  
 SITE ADDRESS: 1323 KING STREET GREENWICH, CT 06831  
 LATITUDE: 41.074414° N 41° 04' 27.89" N  
 LONGITUDE: -73.697181° W -73° 41' 49.85" W  
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES  
 CURRENT USE: TELECOMMUNICATIONS FACILITY  
 PROPOSED USE: TELECOMMUNICATIONS FACILITY  
 NOC# 888-915-5600



**SITE NUMBER: CT2347**  
**SITE NAME: GREENWICH - KING STREET**

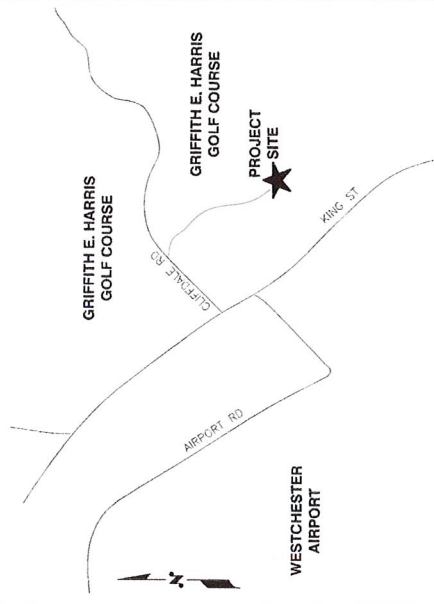
**DRAWING INDEX**

**REV**

T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	ANTENNA LAYOUT AND ELEVATION	1
A-3	DETAILS	1
G-1	PLUMBING DIAGRAM & DETAILS	1

**VICINITY MAP**

DIRECTION TO SITE:  
 START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI, TURN LEFT ONTO CAPITOL BLVD. 0.3 MI, TURN LEFT ONTO WEST ST. 0.3 MI, MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. 9.7 MI, MERGE ONTO CT-15 S VIA EXIT 17 61.2 MI, TAKE THE RIGHT HAND EXIT EXIT 28 0.1 MI, TURN RIGHT ONTO ROUND HILL RD. 0.0 MI, TURN LEFT ONTO ROUND HILL RD. 0.1 MI, TURN RIGHT ONTO CLIFFDALE RD. 0.4 MI, TURN LEFT ONTO CLIFFDALE RD., MAKE A LEFT ONTO GRIFFITH E. HARRIS GOLF COURSE - FOLLOW TO THE END, THE TELE-COMM. TOWER WILL BE ON YOUR LEFT.



**GENERAL NOTES**

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. NO USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. ANY REPRODUCTION OR USE OF THIS DOCUMENT FOR ANY PURPOSES OTHER THAN THAT AUTHORIZED BY AT&T IS STRICTLY PROHIBITED. ANY REPRODUCTION OR USE OF THIS DOCUMENT FOR ANY PURPOSES OTHER THAN THAT AUTHORIZED BY AT&T IS STRICTLY PROHIBITED. ANY REPRODUCTION OR USE OF THIS DOCUMENT FOR ANY PURPOSES OTHER THAN THAT AUTHORIZED BY AT&T IS STRICTLY PROHIBITED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY TO BE ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

72 HOURS



BEFORE YOU DIG

CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT



100 GLEASON STREET  
 SUITE 200  
 FAIRFIELD, CT 06424  
 TEL: (781) 853-5533  
 FAX: (781) 244-5584



22 KEEWAYIN DRIVE  
 SALEM, NH 03079

SITE NUMBER: CT2347  
 SITE NAME: GREENWICH-KING STREET  
 1323 KING STREET  
 GREENWICH, CT 06831  
 FAIRFIELD COUNTY

at&t  
 500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06867

NO.	DATE	REVISIONS	DESIGNED BY: DC	DRAWN BY: HC	SCALE: AS SHOWN
1	03/31/11	ISSUED FOR CONSTRUCTION	DC	DC	DC
0	03/29/11	ISSUED FOR REVIEW	DC	DC	DC
TITLE SHEET (LIE) DRAWING NUMBER: 2347.01 T-1					

**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELECOMMUNICATIONS AND LOCAL JURISDICTIONAL CODES AND ORDINANCES. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GESS) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BITS EQUIPMENT.
5. EACH BITS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES. 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BITS 2 AWG STRANDED COPPER FOR OUTDOOR BITS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTI-OXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING 10 FT. OR MORE OPEN TO THE GROUND SHALL HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR - SA  
SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
OWNER - AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE BIDDING PROPOSALS IN ACCORDANCE WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY REGULATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "FITTINGS LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY THE CONTRACTOR. ALL OTHER FITTINGS, MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND T&E PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH ABC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (F<sub>y</sub> = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (F<sub>y</sub> = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND WEATHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UMITS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES".
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE SCHEDULED IN ADVANCE. ANY MAINTENANCE WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE KEPT IN MIND. HIGH VOLTAGE ELECTRICAL EQUIPMENT IS PRESENT. RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:  
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED SHALL BE THE LATEST EDITION.  
BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS  
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS  
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS  
SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:  
AMERICAN CONCRETE INSTITUTE (ACI) 318: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;  
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)  
MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;  
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL  
ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES: REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.  
FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL METHODS OF CONSTRUCTION OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS**

ACR	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MIN	MINIMUM	TBD	TO BE DETERMINED
BCW	BASE COPPER WIRE	PROPOSED	NEW	TBR	TO BE REMOVED
BITS	BASE TRANSEIVER STATION	N.T.S.	NOT TO SCALE	TBR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF.	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ.	REQUIRED		

JOB NUMBER: 2347.01		DESIGNED BY: HC	DATE: 02/25/11	ISSUED FOR CONSTRUCTION	NO. 1
JOB NUMBER: 2347.01		DESIGNED BY: DC	DATE: 02/25/11	ISSUED FOR REVIEW	NO. 2
JOB NUMBER: 2347.01		DESIGNED BY: HC	DATE: 02/25/11	ISSUED FOR CONSTRUCTION	NO. 1
JOB NUMBER: 2347.01		DESIGNED BY: DC	DATE: 02/25/11	ISSUED FOR REVIEW	NO. 2
JOB NUMBER: 2347.01		DESIGNED BY: HC	DATE: 02/25/11	ISSUED FOR CONSTRUCTION	NO. 1
JOB NUMBER: 2347.01		DESIGNED BY: DC	DATE: 02/25/11	ISSUED FOR REVIEW	NO. 2

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

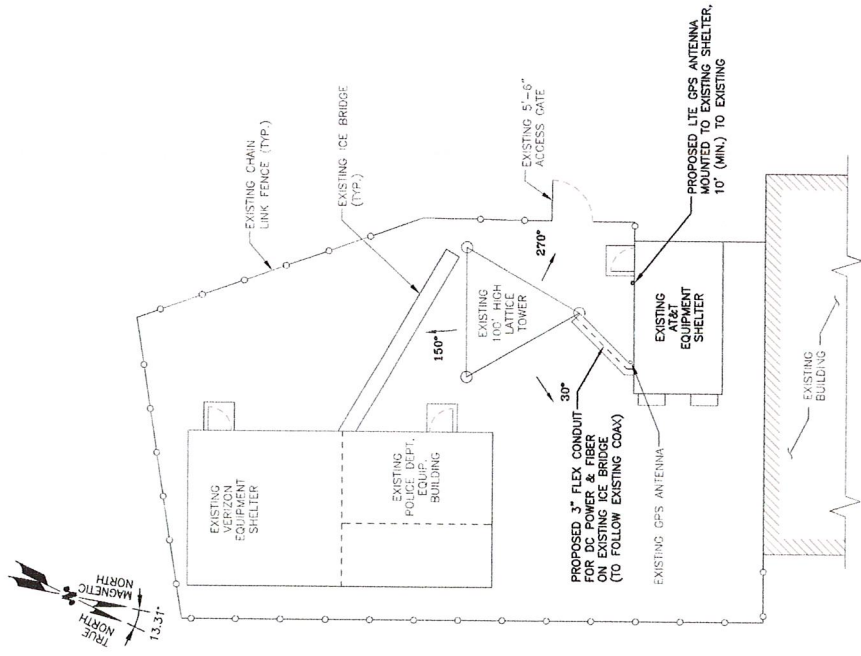
**SIAD**  
communications

**Hudson**  
Design Group LLC  
100 CALVERT STREET  
5 BLDG 20 NORTH APT 2101  
FALLSBORO, MA 01934  
TEL: 978-355-5533  
FAX: 978-355-5551

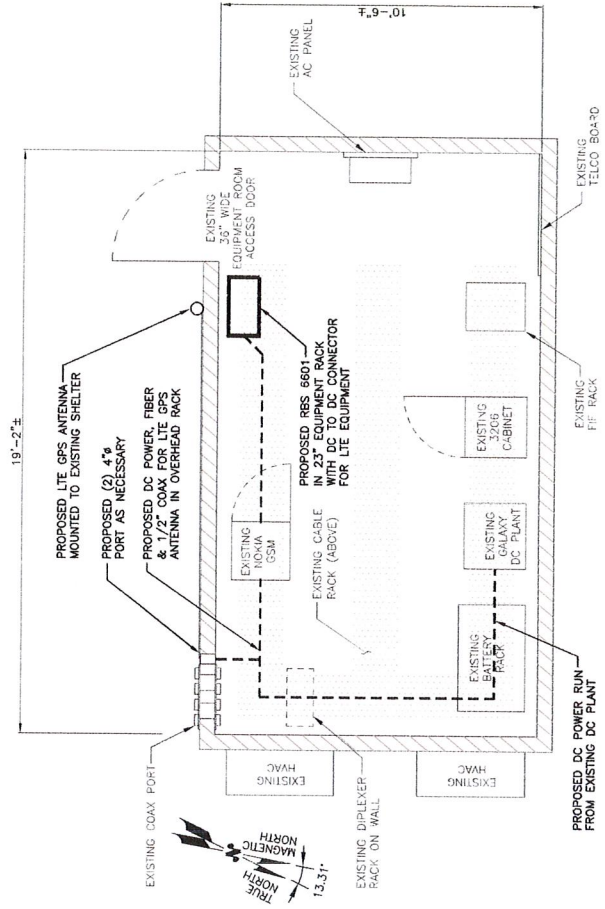
**SCALE:** AS SHOWN

**GENERAL NOTES**  
(LIE)  
DRAWING NUMBER: CN-1

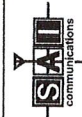




**COMPOUND PLAN**  
SCALE: 1/8"=1'-0"



**EQUIPMENT PLAN**  
SCALE: 1/2"=1'-0"



**SITE NUMBER: CT2347**  
**SITE NAME: GREENWICH-KING STREET**  
1323 KING STREET  
GREENWICH, CT 06831  
FAIRFIELD COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP
1	03/21/11	ISSUED FOR CONSTRUCTION	HC	DC	DPH
0	03/26/11	ISSUED FOR REVIEW	HC	DC	DPH

NO.	DATE	REVISIONS	BY	CHK	APP
2347.01		ISSUED FOR CONSTRUCTION	HC	DC	DPH

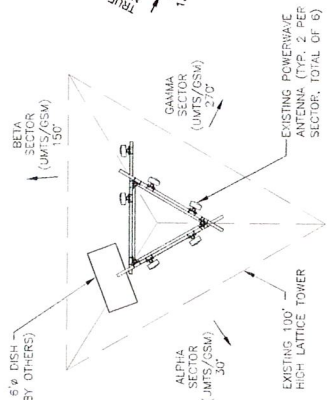
SCALE: AS SHOWN  
DESIGNED BY: DC  
DRAWN BY: HC

AT&T  
COMPOUND & EQUIPMENT PLANS  
(LIE)  
DRAWING NUMBER  
A-1

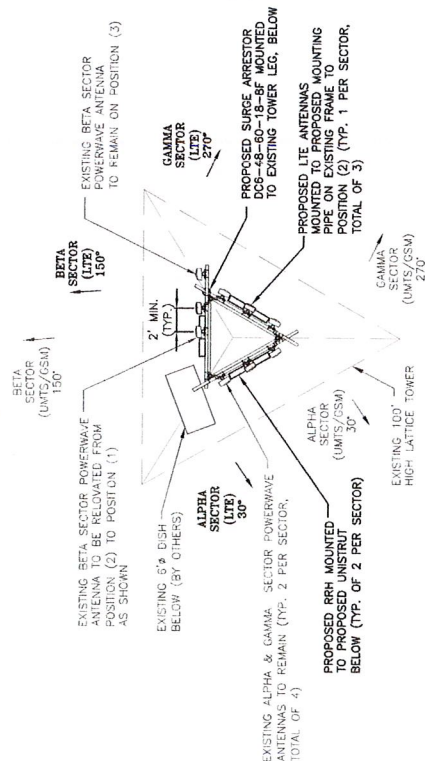
**Hudson Design Group**  
1000 WASHINGTON STREET  
SUITE 200  
ROCKY HILL, CT 06067  
TEL: 878-94-5500  
FAX: 878-94-5526

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED ANTENNAS HAS BEEN DETERMINED PRIOR TO CONSTRUCTION.

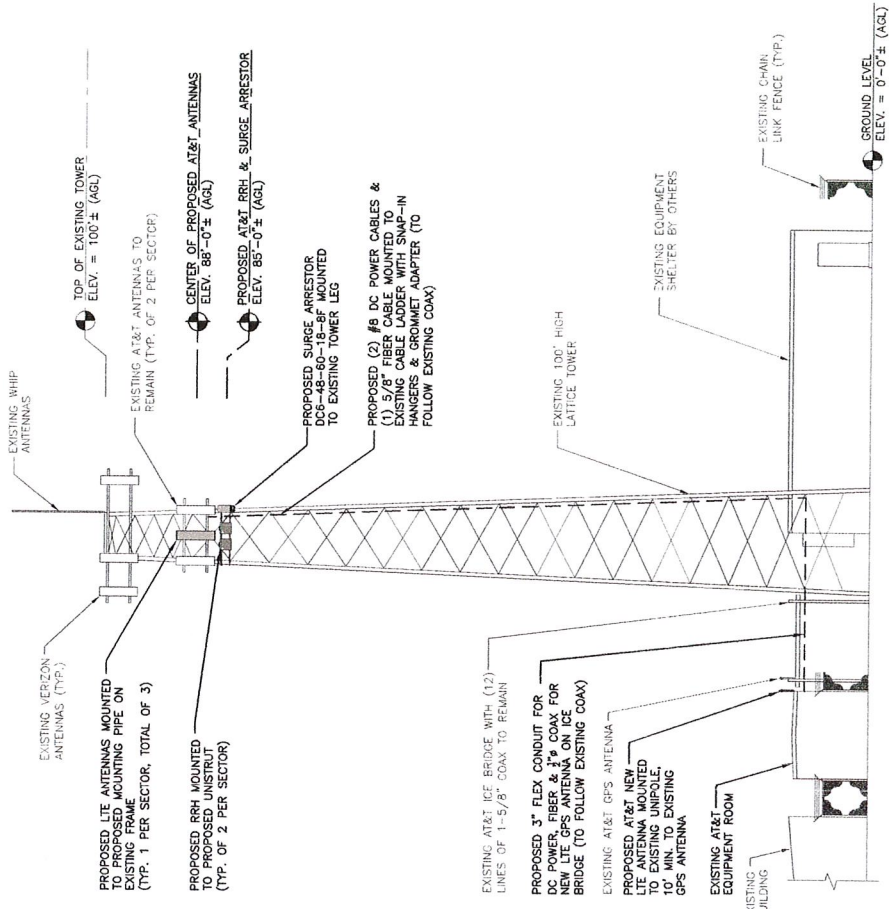
**\*NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION



**EXISTING ANTENNA PLAN**  
SCALE: N.T.S.



**PROPOSED ANTENNA PLAN**  
SCALE: N.T.S.



**WEST ELEVATION**  
SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

**Hudson**  
Design Group, LLC  
480 WOODS DRIVE  
BALDWIN, MA 01830  
TEL: (978) 527-5333  
FAX: (978) 528-5586

**SIAD**  
communications

22 KEERWAYDIN DRIVE  
SALEM, NH 03079

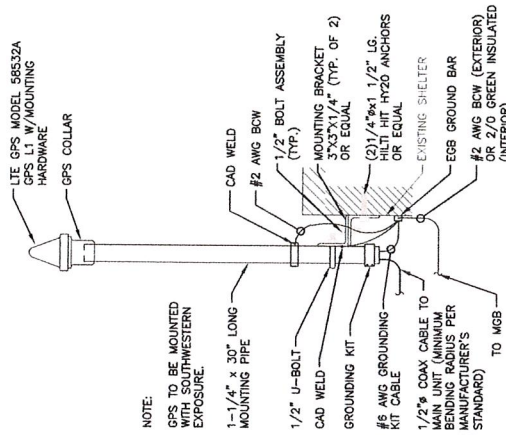
**SITE NUMBER: CT2347**  
**SITE NAME: GREENWICH-KING STREET**  
1323 KING STREET  
GREENWICH, CT 06831  
FAIRFIELD COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067



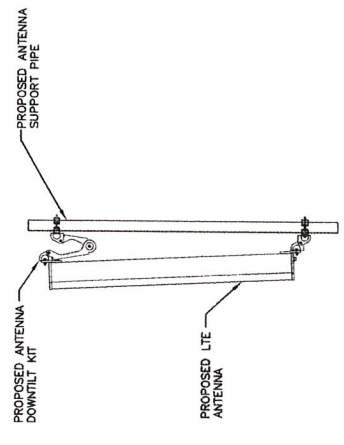
NO.	DATE	REVISIONS	DESIGNED BY: DC	DRAWN BY: HC	SCALE: AS SHOWN
1	03/23/11	ISSUED FOR CONSTRUCTION	HC	DC	DPH
0	03/29/11	ISSUED FOR REVIEW	HC	DC	DPH

AT&T  
ANTENNA LAYOUT AND ELEVATION  
(LIE)  
JOB NUMBER: 2347.01  
DRAWING NUMBER: A-2

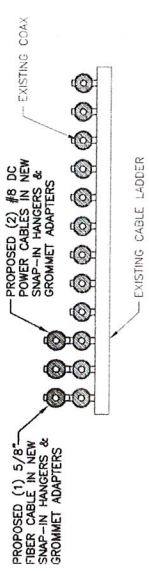
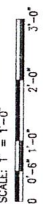


NOTE:  
GPS TO BE MOUNTED WITH SOUTH-WESTERN EXPOSURE.

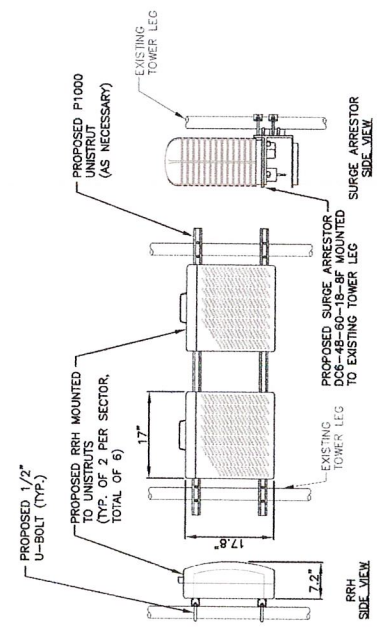
**GPS MOUNTED TO WALL**  
SCALE: N.T.S.



**PROPOSED ANTENNA DETAIL**  
SCALE: 1" = 1'-0"



**CABLE MOUNTING DETAIL**  
SCALE: N.T.S.



**PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL**  
SCALE: N.T.S.



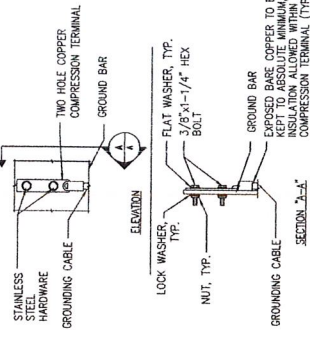
22 KEEWAYTON DRIVE  
 SALEM, NH 03079

SITE NUMBER: CT2347  
 SITE NAME: GREENWICH-KING STREET  
 1323 KING STREET  
 GREENWICH, CT 06831  
 FAIRFIELD COUNTY



NO.	DATE	REVISIONS	DESIGNED BY: DC	DRAWN BY: HC	JOB NUMBER	2347.01
1	03/31/13	ISSUED FOR CONSTRUCTION	HC	DC	DC	DC
0	03/29/13	ISSUED FOR REVIEW	HC	DC	DC	DC
SCALE: AS SHOWN			DRAWING NUMBER: A-3			
AT&T			DETAILS (LTE)			

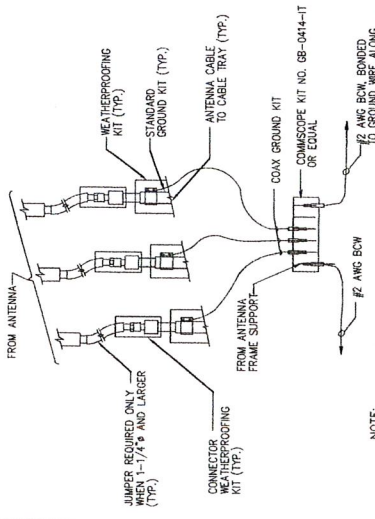




**TYPICAL GROUND BAR CONNECTION DETAIL**  
SECTION "A-A"

NOTE:  
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.  
2. OIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.  
3. CABLED DOWNLEADS FROM UPPER EGR, LOWER EGR, AND MGB.

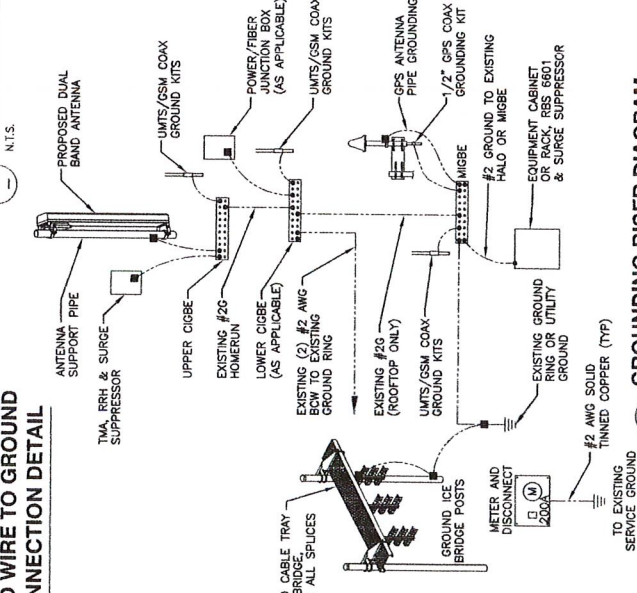
2 N.T.S.



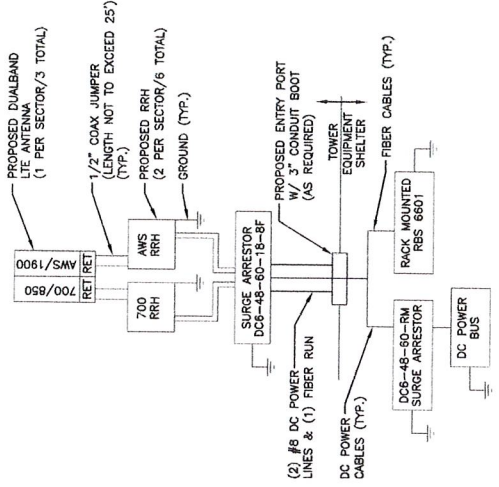
**GROUND WIRE TO GROUND BAR CONNECTION DETAIL**  
SECTION "B-B"

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

1 N.T.S.



4 N.T.S.



**LTE PLUMBING DIAGRAM**  
SECTION "P"

NOTES:  
1. CONTRACTOR TO CONFIRM ALL PARTS.  
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

3 N.T.S.

WIRELESS SOLUTIONS INC.	
NO.	DESCRIPTION
1	HUGE-0420-IS SOLID GND. BAR (20"x4"x1/4")
2	WALL MTE. BRKT.
3	INSULATORS
4	5/8"-11x1" H.H.C.S.
5	5/8" LOCKWASHER

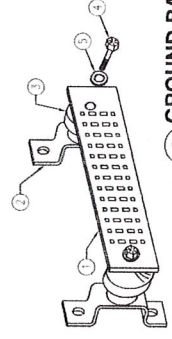
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PROTECTORS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELEC GROUND BAR COMMON NEUTRAL/GROUND BOND (#2)
- 24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



5 N.T.S.

Hudson Design Group  
100 WASHINGTON STREET  
NEWTON, MASSACHUSETTS 02459  
TEL: (781) 552-5233  
FAX: (781) 552-5238

SIATU Communications  
22 KEEMAYON DRIVE  
SALEM, NH 03079

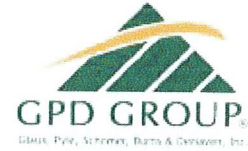
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 08067

SITE NUMBER: CT2347  
SITE NAME: GREENWICH-KING STREET  
1323 KING STREET  
GREENWICH, CT 06831  
FAIRFIELD COUNTY

AT&T  
PLUMBING DIAGRAM & DETAILS  
(LTE)  
DRAWING NUMBER  
2347.01  
G-1



Derek Creaser  
 Hudson Design Group LLC  
 1600 Osgood St., Bldg 20N, Suite 2-101  
 North Andover, MA 01845  
 (617) 306-3034



Jason Cheronis  
 520 South Main St., Suite 2531  
 Akron, OH 44311  
 (330) 572-2137  
[jcheronis@gpdgroup.com](mailto:jcheronis@gpdgroup.com)

GPD# 2011147.13  
 June 22, 2011

**STRUCTURAL ANALYSIS REPORT**

**AT&T DESIGNATION:**      **Site USID:**      **88306**  
    **Site FA:**      **10050949**  
    **Site Name:**      **GREENWICH – KING STREET**

**HDG DESIGNATION:**      **Site ID:**      **CT2347**

**ANALYSIS CRITERIA:**      **Codes:**      **TIA/EIA-222-F & 2003 IBC**  
                                 **85-mph with 0" ice**  
                                 **74-mph with 1/2" ice**

**SITE DATA:**                              **1323 King Street, Greenwich, CT 06831, Fairfield County**  
                                 **Latitude 41° 4' 27.861" N, Longitude 73° 41' 49.847" W**  
                                 **100' ROHN Self Support**

Mr. Creaser,

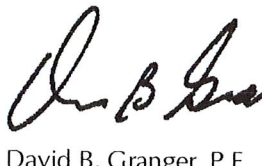
GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

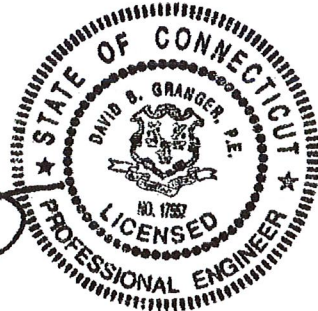
- Elev. 88'    (3) Powerwave P65-16-XLH-RR Antenna on (3) existing 12' Frames w/ (2) #8 DC Power Cables & (1) 5/8" Fiber Cable
- Elev. 85'    (6) Ericsson RRUS-11 RRUs on Unistrut Frames  
                  (1) Raycap DC6-48-60-18-8F Surge Arrestor mounted to the tower leg

Based on our analysis we have determined the designs of the tower and its foundation are sufficient for the proposed, existing, and reserved loadings as referenced in Appendix A.

We at GPD appreciate the opportunity of providing our continuing professional services to you and Hudson Design Group. If you have any questions please do not hesitate to call.

Respectfully submitted,

  
 David B. Granger, P.E.  
 Connecticut # 17557



## SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T to Hudson Design Group. This report was commissioned by Mr. Derek Creaser of Hudson Design Group.

The proposed power and fiber cables shall be installed on top of the existing AT&T coax in one row for the analysis results to be valid. See Appendix C for the proposed coax layout.

### TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	52.5%	Pass
Diagonals	50.2%	Pass
Horizontals	27.9%	Pass
Connection Bolts	24.7%	Pass
Anchor Rods	31.9%	Pass
Foundation	37.3%	Pass

## ANALYSIS METHOD

RISA Tower (Version 5.4.2.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is based solely on this information and is being provided without the benefit of a detailed site visit.

### DOCUMENTS PROVIDED

Document	Remarks	Source
RFDS	AT&T RFDS Version 4, dated 4/6/2011	HDG
Construction Drawings	HDG & SAI Job #: 2347.01, dated 3/31/2011	HDG
Tower Drawings	ROHN File #: 29307JC, dated 4/23/1993	GPD
Foundation Drawings	ROHN File #: 29307JC, dated 5/17/1993	GPD
Previous Structural Analysis	Walker Engineering, Inc., dated 4/5/2006	Siterra

## ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. All existing loading was obtained from the previous structural analysis by Walker Engineering, Inc., dated 4/5/2006, the RFDS, the construction drawings and site photos, and is assumed to be accurate.
9. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
10. The proposed power and fiber cables shall be installed on top of the existing AT&T coax in one row for the analysis results to be valid. See Appendix C for the proposed coax layout.
11. Loading interpreted from photos is accurate to  $\pm 5'$  AGL, antenna size accurate to  $\pm 3.3$  sf, and coax equal to the number of existing antennas without reserve.

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

## DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

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

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

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

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.



## APPENDIX A

### Tower Analysis Summary Form



## APPENDIX B

### RISA Tower Output File

<b>RISATower</b>  <b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722	<b>Job</b> CT2347 (88306) GREENWICH - KING STREET	<b>Page</b> 1 of 5
	<b>Project</b> 2011147.13	<b>Date</b> 07:59:09 06/22/11
	<b>Client</b> Hudson Design Group	<b>Designed by</b> jhershberger

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 100.00 ft above the ground line.  
The base of the tower is set at an elevation of 0.00 ft above the ground line.  
The face width of the tower is 8.50 ft at the top and 17.46 ft at the base.  
This tower is designed using the TIA/EIA-222-F standard.  
The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Basic wind speed of 85 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 74 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 50 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333.
- Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

## Options

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>Add IBC .6D+W Combination</li> </ul> | <ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>√ Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>SR Members Have Cut Ends</li> <li>√ Sort Capacity Reports By Component</li> <li>√ Triangulate Diamond Inner Bracing</li> </ul> | <ul style="list-style-type: none"> <li>Treat Feedline Bundles As Cylinder</li> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feedline Torque</li> <li>√ Include Angle Block Shear Check</li> <li style="padding-left: 20px;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul> |
|--|--|---|

## Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM)	A	Yes	Ar (CfAe)	88.00 - 8.00	0.0000	-0.3	12	12	1.0000	1.9800		0.82
DC Power Cable	A	Yes	Ar (CfAe)	88.00 - 8.00	3.0000	-0.375	2	2	1.0000	0.8750		0.60
5/8" Fiber Cable	A	Yes	Ar (CfAe)	88.00 - 8.00	3.0000	-0.36	1	1	1.0000	0.6300		0.15
LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAe)	100.00 - 8.00	0.0000	0.35	1	1	1.0000	1.0900		0.33
LDF5-50A (7/8 FOAM)	C	Yes	Ar (CfAe)	98.00 - 8.00	0.0000	0.29	9	9	1.0000	1.0900		0.33



<p><b>RISATower</b></p> <p><b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722</p>	<p><b>Job</b></p> <p>CT2347 (88306) GREENWICH - KING STREET</p>	<p><b>Page</b></p> <p>2 of 5</p>
	<p><b>Project</b></p> <p>2011147.13</p>	<p><b>Date</b></p> <p>07:59:09 06/22/11</p>
	<p><b>Client</b></p> <p>Hudson Design Group</p>	<p><b>Designed by</b></p> <p>jhersberger</p>

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
EW90	C	Yes	Af (CfAe)	84.00 - 8.00	0.0000	0.37	1	1	1.0000	0.9869	3.2550	0.32
EW90	C	Yes	Af (CfAe)	70.00 - 8.00	0.0000	0.38	1	1	1.0000	0.9869	3.2550	0.32
Safety Line 3/8	C	No	Ar (Leg)	100.00 - 8.00	0.0000	-0.025	1	1	1.0000	0.3750		0.22
Feedline Ladder (Af)	A	Yes	Af (CfAe)	88.00 - 8.00	0.0000	-0.29	1	1	1.0000	3.0000	12.0000	8.40
Feedline Ladder (Af)	C	Yes	Af (CfAe)	100.00 - 8.00	0.0000	0.3	1	1	1.0000	3.0000	12.0000	8.40
Climbing Pegs	A	No	Ar (Leg)	100.00 - 8.00	0.0000	0	1	1	0.2500	0.1500		0.31
Climbing Pegs	B	No	Ar (Leg)	100.00 - 8.00	0.0000	0	1	1	0.2500	0.1500		0.31
Climbing Pegs	C	No	Ar (Leg)	100.00 - 8.00	0.0000	0	1	1	0.2500	0.1500		0.31

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	Clear Spacing	Width or Diameter	Perimeter	Weight
						ft <sup>2</sup>	ft <sup>2</sup>		lb
Pipe Mount 4'x2.875"	C	From Leg	0.00 0.00 2.00	0.0000	100.00	No Ice 1/2" Ice	0.97 1.22	0.97 1.22	24.100 32.729
8' Omni	C	From Leg	0.00 0.00 4.00	0.0000	100.00	No Ice 1/2" Ice	1.60 2.42	1.60 2.42	20.000 32.446
Pirod 12' Lt. Wt. T-Frame	A	From Leg	2.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	9.68 14.42	7.94 11.73	307.680 441.960
Pirod 12' Lt. Wt. T-Frame	B	From Leg	2.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	9.68 14.42	7.94 11.73	307.680 441.960
Pipe Mount 6'x2.375"	A	From Leg	4.00 -2.00 0.00	0.0000	98.00	No Ice 1/2" Ice	1.43 1.92	1.43 1.92	26.100 36.927
48"x7"x3" Panel w/ 2"x 6' Mount Pipe	A	From Leg	4.00 2.00 0.00	0.0000	98.00	No Ice 1/2" Ice	3.74 4.27	3.13 3.92	31.900 63.509
(2) DB844H90 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	3.30 3.69	4.92 5.60	28.250 65.802
(2) 48"x4"x8.5" Panel w/ 2"x 6' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	2.56 3.03	5.39 6.26	31.900 67.900
(2) DB844H90 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	3.30 3.69	4.92 5.60	28.250 65.802
(2) 12' Pipe	A	From Face	0.00 0.00 0.00	0.0000	88.00	No Ice 1/2" Ice	4.20 5.16	0.01 0.04	60.000 69.000
(2) 12' Pipe	B	From Face	0.00 0.00 0.00	0.0000	88.00	No Ice 1/2" Ice	4.20 5.16	0.01 0.04	60.000 69.000
(2) 12' Pipe	C	From Face	0.00 0.00 0.00	0.0000	88.00	No Ice 1/2" Ice	4.20 5.16	0.01 0.04	60.000 69.000
(2) 7770.00 w/Mount Pipe	A	From Face	1.00	0.0000	88.00	No Ice	6.58	4.94	75.530



<b>RISA Tower</b>  <b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722	<b>Job</b>	CT2347 (88306) GREENWICH - KING STREET	<b>Page</b>	3 of 5
	<b>Project</b>	2011147.13	<b>Date</b>	07:59:09 06/22/11
	<b>Client</b>	Hudson Design Group	<b>Designed by</b>	jhershberger

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>1</sub> Front	C <sub>A</sub> A <sub>1</sub> Side	Weight
			Horz	Lateral					
			0.00			1/2" Ice	7.21	5.86	127.722
(2) 7770.00 w/Mount Pipe	B	From Face	0.00						
			1.00		0.0000	88.00	No Ice	6.58	4.94
			0.00			1/2" Ice	7.21	5.86	127.722
(2) 7770.00 w/Mount Pipe	C	From Face	0.00						
			1.00		0.0000	88.00	No Ice	6.58	4.94
			0.00			1/2" Ice	7.21	5.86	127.722
(4) LGP21401	A	From Face	0.00						
			1.00		0.0000	88.00	No Ice	0.00	1.29
			0.00			1/2" Ice	0.00	1.45	21.263
(4) LGP21401	B	From Face	0.00						
			1.00		0.0000	88.00	No Ice	0.00	1.29
			0.00			1/2" Ice	0.00	1.45	21.263
(4) LGP21401	C	From Face	0.00						
			1.00		0.0000	88.00	No Ice	0.00	1.29
			0.00			1/2" Ice	0.00	1.45	21.263
P65-16-XLH-RR w/ Mount Pipe	A	From Face	0.00						
			1.00		0.0000	88.00	No Ice	8.64	6.36
			0.00			1/2" Ice	9.29	7.54	89.550
P65-16-XLH-RR w/ Mount Pipe	B	From Face	0.00						
			1.00		0.0000	88.00	No Ice	8.64	6.36
			0.00			1/2" Ice	9.29	7.54	152.500
P65-16-XLH-RR w/ Mount Pipe	C	From Face	0.00						
			1.00		0.0000	88.00	No Ice	8.64	6.36
			0.00			1/2" Ice	9.29	7.54	152.500
(2) RRUS 11	A	From Face	0.00						
			0.50		0.0000	85.00	No Ice	2.94	1.25
			0.00			1/2" Ice	3.17	1.41	55.000
(2) RRUS 11	B	From Face	0.00						
			0.50		0.0000	85.00	No Ice	2.94	1.25
			0.00			1/2" Ice	3.17	1.41	55.000
(2) RRUS 11	C	From Face	0.00						
			0.50		0.0000	85.00	No Ice	2.94	1.25
			0.00			1/2" Ice	3.17	1.41	55.000
DC6-48-60-18-8F Surge Suppression Unit	C	From Leg	0.00						
			0.50		0.0000	85.00	No Ice	1.47	1.47
			0.00			1/2" Ice	1.67	1.67	32.800
P1000 Unistrut (9' Long)	A	From Face	0.00						
			0.00		0.0000	85.00	No Ice	1.71	0.03
			0.70			1/2" Ice	2.42	0.05	17.100
P1000 Unistrut (9' Long)	B	From Face	0.00						
			0.00		0.0000	85.00	No Ice	1.71	0.03
			0.70			1/2" Ice	2.42	0.05	17.100
P1000 Unistrut (9' Long)	C	From Face	0.00						
			0.00		0.0000	85.00	No Ice	1.71	0.03
			0.70			1/2" Ice	2.42	0.05	17.100
P1000 Unistrut (9' Long)	A	From Face	0.00						
			0.00		0.0000	85.00	No Ice	1.71	0.03
			-0.70			1/2" Ice	2.42	0.05	17.100
P1000 Unistrut (9' Long)	B	From Face	0.00						
			0.00		0.0000	85.00	No Ice	1.71	0.03
			-0.70			1/2" Ice	2.42	0.05	17.100
P1000 Unistrut (9' Long)	C	From Face	0.00						
			0.00		0.0000	85.00	No Ice	1.71	0.03
			-0.70			1/2" Ice	2.42	0.05	17.100
Pipe Mount 3'x4.5"	B	From Leg	0.00						
			0.00		0.0000	84.00	No Ice	0.93	0.93

<b>RISATower</b>  <b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722	<b>Job</b> CT2347 (88306) GREENWICH - KING STREET	<b>Page</b> 4 of 5
	<b>Project</b> 2011147.13	<b>Date</b> 07:59:09 06/22/11
	<b>Client</b> Hudson Design Group	<b>Designed by</b> jhershberger

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>A</sub> A <sub>Front</sub>	C <sub>A</sub> A <sub>Side</sub>	Weight
			Horz	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb
			0.00			1/2" Ice	1.13	1.13	42.333
Pipe Mount 3'x4.5"	B	From Leg	0.00		0.0000	No Ice	0.93	0.93	32.400
			0.00			1/2" Ice	1.13	1.13	42.333

### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Vert							
				ft	ft	°	°	ft	ft	ft <sup>2</sup>	lb	
4 FT DISH	B	Paraboloid w/Shroud (HP)	From Leg	1.00		0.0000		84.00	4.00	No Ice 1/2" Ice	12.56 13.09	170.000 237.189
4 FT DISH	B	Paraboloid w/Shroud (HP)	From Leg	1.00		0.0000		70.00	4.00	No Ice 1/2" Ice	12.56 13.09	170.000 237.189

### Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
100.00	Pipe Mount 4'x2.875"	35	0.888	0.0683	0.0114	711609
98.00	Pirod 12' Lt. Wt. T-Frame	35	0.858	0.0682	0.0112	711609
88.00	(2) 12' Pipe	35	0.710	0.0676	0.0100	296504
85.00	(2) RRUS 11	35	0.666	0.0672	0.0101	237203
84.00	4 FT DISH	35	0.652	0.0671	0.0102	222260
70.00	4 FT DISH	35	0.452	0.0609	0.0116	83164

### Bolt Design Data

Section No.	Elevation	Component Type	Bolt Grade	Bolt Size	Number Of Bolts	Maximum Load per Bolt	Allowable Load	Ratio	Allowable Ratio	Criteria	
								Load			
	ft			in		lb	lb	Allowable			
T1	100	Leg	A325N	0.7500	4	626.712	19438.000	0.032	✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	1374.030	6442.720	0.213	✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1142.720	6442.720	0.177	✓	1.333	Bolt Shear
		Top Girt	A325N	0.6250	2	299.376	6442.720	0.046	✓	1.333	Bolt Shear
T2	80	Leg	A325N	0.8750	4	4119.760	26458.100	0.156	✓	1.333	Bolt Tension

<b>RISATower</b>  <b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722	<b>Job</b> CT2347 (88306) GREENWICH - KING STREET	<b>Page</b> 5 of 5
	<b>Project</b> 2011147.13	<b>Date</b> 07:59:09 06/22/11
	<b>Client</b> Hudson Design Group	<b>Designed by</b> jhershberger

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load Allowable	Allowable Ratio	Criteria
T3	60	Diagonal	A325N	0.6250	3	1433.540	6442.720	0.223 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1323.990	6442.720	0.206 ✓	1.333	Bolt Shear
		Leg	A325N	0.8750	4	7758.000	26458.100	0.293 ✓	1.333	Bolt Tension
T4	40	Diagonal	A325N	0.6250	3	1611.970	6442.720	0.250 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1639.410	6442.720	0.254 ✓	1.333	Bolt Shear
		Leg	A325N	1.0000	4	10658.100	34557.500	0.308 ✓	1.333	Bolt Tension
T5	20	Diagonal	A325N	0.6250	3	2101.090	6442.720	0.326 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1908.690	6442.720	0.296 ✓	1.333	Bolt Shear
		Leg	A354-BC	1.0000	4	13783.500	32397.699	0.425 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	2118.170	6442.720	0.329 ✓	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2071.810	6442.720	0.322 ✓	1.333	Bolt Shear

### Section Capacity Table

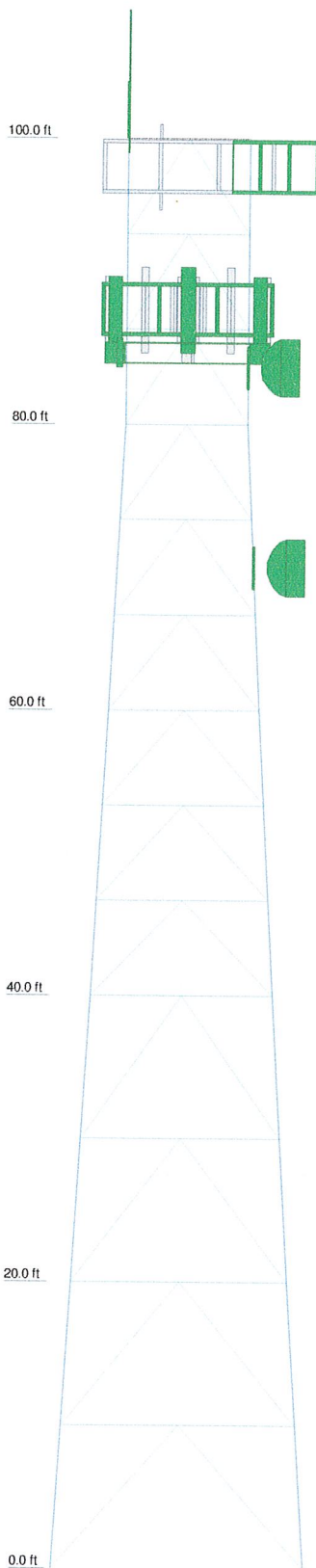
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail	
T1	100 - 80	Leg	ROHN 2.5 STD	2	-5659.810	41136.912	13.8	Pass	
T2	80 - 60	Leg	ROHN 3 STD	40	-22617.500	62814.290	36.0	Pass	
T3	60 - 40	Leg	ROHN 3.5 STD	79	-41731.898	81171.834	51.4	Pass	
T4	40 - 20	Leg	ROHN 4 EH	118	-57758.000	109989.293	52.5	Pass	
T5	20 - 0	Leg	ROHN 5 X-STR	145	-75548.000	177370.306	42.6	Pass	
T1	100 - 80	Diagonal	ROHN 2 STD	12	-4122.090	15541.047	26.5	Pass	
T2	80 - 60	Diagonal	ROHN 2 STD	44	-4300.630	13425.709	32.0	Pass	
T3	60 - 40	Diagonal	ROHN 2 STD	84	-4835.920	11512.561	42.0	Pass	
T4	40 - 20	Diagonal	ROHN 2.5 STD	123	-6303.270	14254.302	44.2	Pass	
T5	20 - 0	Diagonal	ROHN 2.5 STD	150	-6354.500	12653.702	50.2	Pass	
T1	100 - 80	Horizontal	ROHN 1.5 STD	10	-2256.220	20287.992	11.1	Pass	
T2	80 - 60	Horizontal	ROHN 1.5 STD	43	-2597.760	17443.370	14.9	Pass	
T3	60 - 40	Horizontal	ROHN 2 STD	82	-3266.450	24718.484	13.2	Pass	
T4	40 - 20	Horizontal	ROHN 2 STD	121	-3817.380	20305.189	18.8	Pass	
T5	20 - 0	Horizontal	ROHN 2 STD	148	-4143.610	14849.752	27.9	Pass	
T1	100 - 80	Top Girt	ROHN 1.5 STD	5	-598.751	20344.912	2.9	Pass	
T1	100 - 80	Inner Bracing	L2x2x1/8	38	-10.371	5858.535	0.2	Pass	
T2	80 - 60	Inner Bracing	L2x2x1/8	52	-3.904	4316.334	0.2	Pass	
T3	60 - 40	Inner Bracing	L2x2x1/8	91	-4.710	2966.858	0.2	Pass	
T4	40 - 20	Inner Bracing	L2x2x1/8	132	-5.795	2225.337	0.3	Pass	
T5	20 - 0	Inner Bracing	L2 1/2x2 1/2x3/16	157	-6.194	4651.797	0.2	Pass	
							Summary		
							Leg (T4)	52.5	Pass
							Diagonal (T5)	50.2	Pass
							Horizontal (T5)	27.9	Pass
							Top Girt (T1)	2.9	Pass
							Inner Bracing (T4)	0.3	Pass
							Bolt Checks	31.9	Pass
							<b>RATING =</b>	<b>52.5</b>	<b>Pass</b>

## APPENDIX C

### Tower Elevation Drawings



Section	T5	T4	T3	T2	T1
Legs	ROHN 5 X-STR	ROHN 4 EH	ROHN 3.5 STD	ROHN 3 STD	ROHN 2.5 STD
Leg Grade			A572-50		
Diagonals	ROHN 2.5 STD		A572-50	ROHN 2 STD	
Diagonal Grade					
Top Girts		N.A.			ROHN 1.5 STD
Horizontals		ROHN 2 STD		ROHN 1.5 STD	
Inner Bracing					
Face Width (ft)	14.9583	12.625	10.5833	8.54167	8.5
# Panels @ (ft)	4 @ 10			9 @ 6.66667	
Weight (lb)	2776.8	2220.1	1871.2	1361.7	1187.4
	L2 1/2x2 1/2x3/16	L2x2x1/8			



### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Pipe Mount 4"x2.875"	100	P65-16-XLH-RR w/ Mount Pipe	88
8' Omni	100	P65-16-XLH-RR w/ Mount Pipe	88
Pirod 12' Lt. Wt. T-Frame	98	P65-16-XLH-RR w/ Mount Pipe	88
Pirod 12' Lt. Wt. T-Frame	98	(2) RRUS 11	85
Pipe Mount 6"x2.375"	98	(2) RRUS 11	85
48"x7"x3" Panel w/ 2"x 6" Mount Pipe	98	(2) RRUS 11	85
(2) DB844H90 w/ Mount Pipe	98	DC6-48-60-18-8F Surge Suppression Unit	85
(2) 48"x4"x8.5" Panel w/ 2"x 6" Mount Pipe	98	P1000 Unistrut (9' Long)	85
(2) DB844H90 w/ Mount Pipe	98	P1000 Unistrut (9' Long)	85
(2) 12' Pipe	88	P1000 Unistrut (9' Long)	85
(2) 12' Pipe	88	P1000 Unistrut (9' Long)	85
(2) 12' Pipe	88	P1000 Unistrut (9' Long)	85
(2) 12' Pipe	88	P1000 Unistrut (9' Long)	85
(2) 7770.00 w/Mount Pipe	88	P1000 Unistrut (9' Long)	85
(2) 7770.00 w/Mount Pipe	88	Pipe Mount 3'x4.5"	84
(2) 7770.00 w/Mount Pipe	88	4 FT DISH	84
(4) LGP21401	88	Pipe Mount 3'x4.5"	70
(4) LGP21401	88	4 FT DISH	70
(4) LGP21401	88		

### MATERIAL STRENGTH

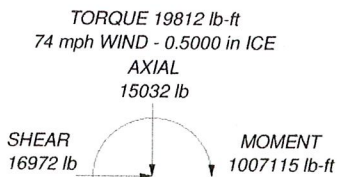
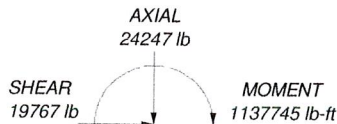
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

### TOWER DESIGN NOTES


1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 52.5%

#### MAX. CORNER REACTIONS AT BASE:

DOWN: 83323 lb  
 UPLIFT: -60869 lb  
 SHEAR: 11725 lb



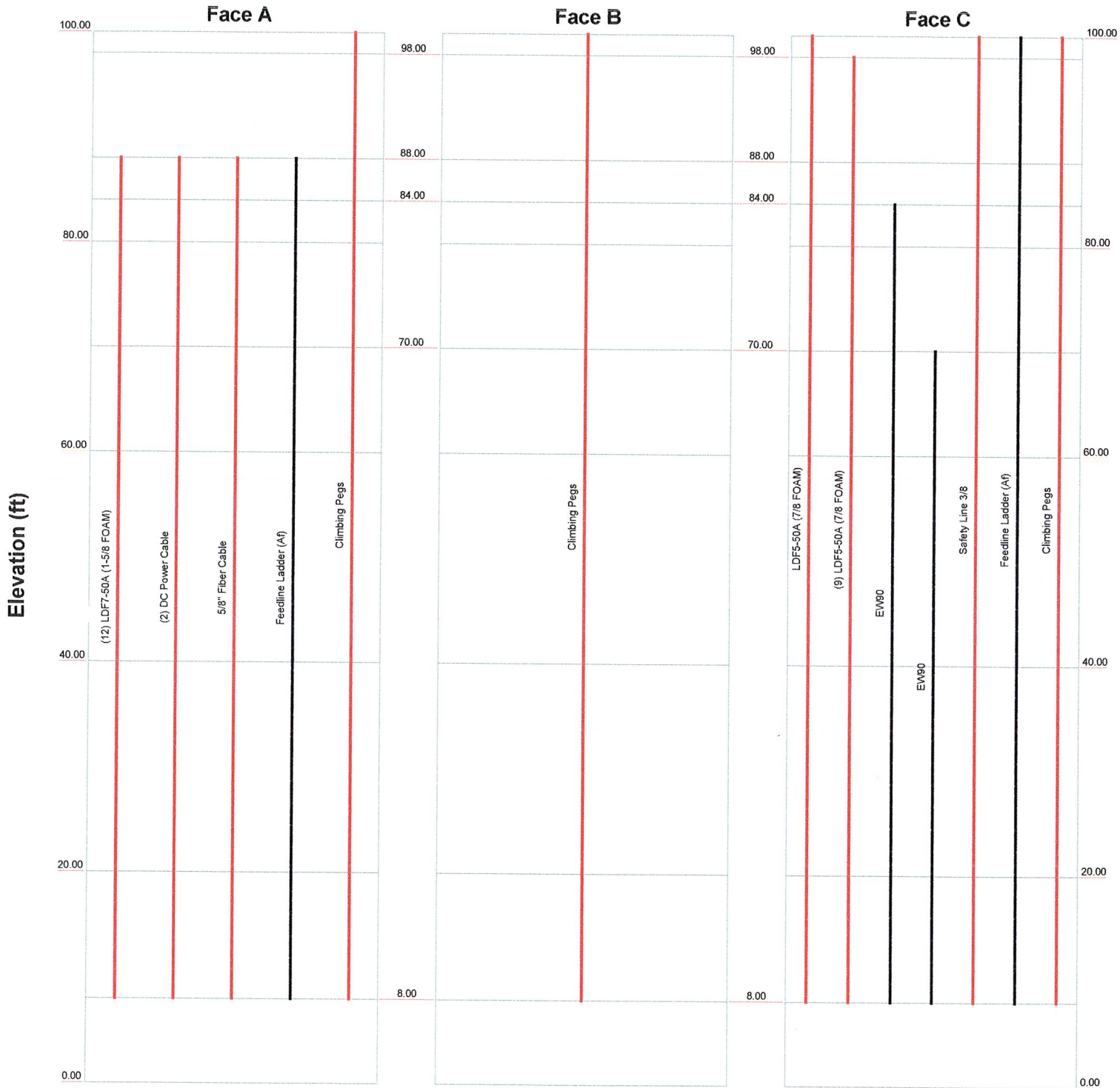
TORQUE 19812 lb-ft  
 74 mph WIND - 0.5000 in ICE  
 TORQUE 16097 lb-ft  
 REACTIONS - 85 mph WIND

 <b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722	<b>Job: CT2347 (88306) GREENWICH - KING STREET</b> Project: 2011147.13
	Client: Hudson Design Group Code: TIA/EIA-222-F Path: N:\2011\2011147\13 CT2347\RSA88306.dwg

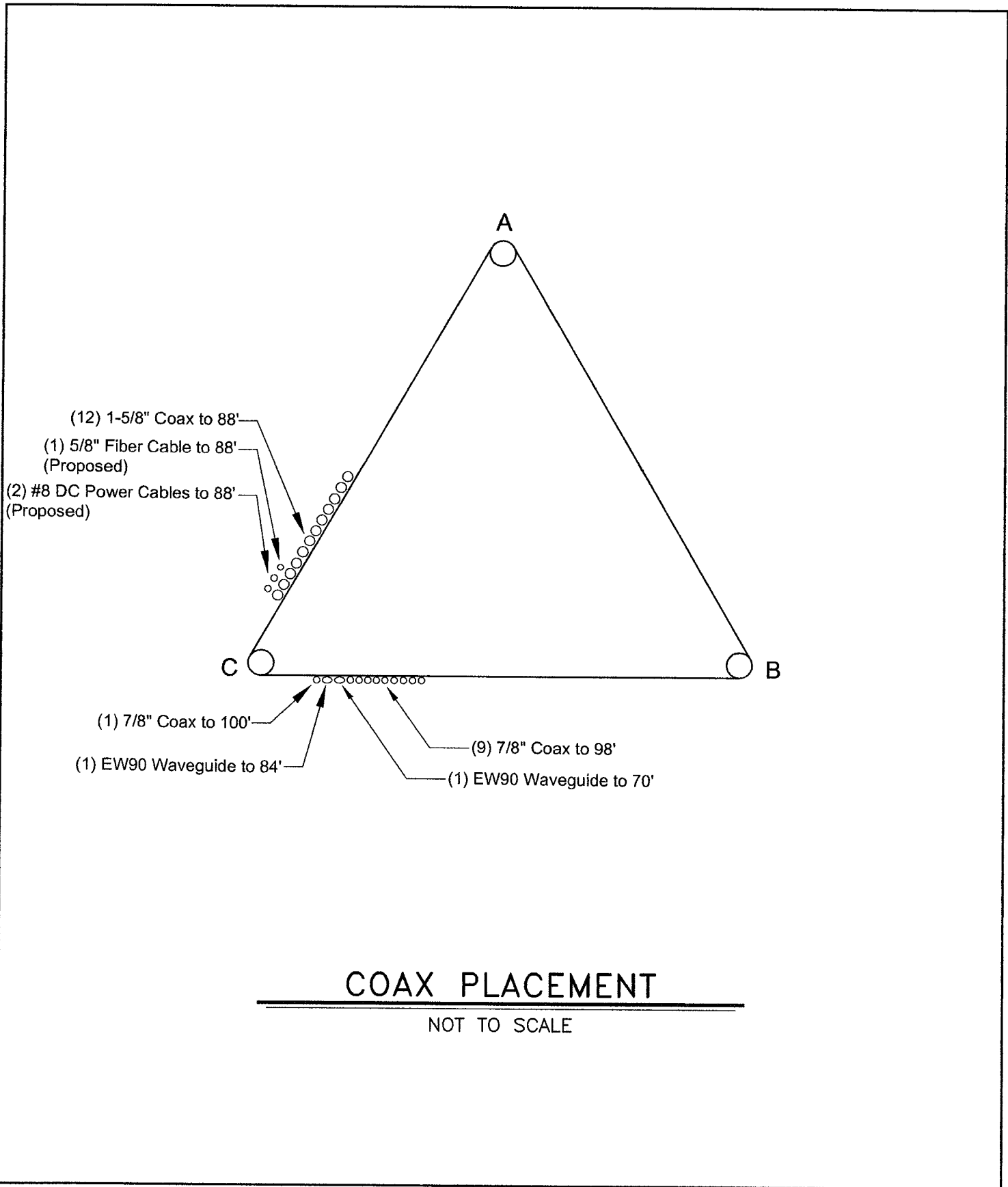


# Feedline Distribution Chart 0' - 100'

— Round   
 — Flat   
 — App In Face   
 — App Out Face   
 — Truss Leg



<p><b>GPD Group</b> 520 S. Main St., Suite 2531 Akron, OH 44311 Phone: (330)-572-2100 FAX: (330)-572-3722</p>	<b>Job: CT2347 (88306) GREENWICH - KING STREET</b>		
	Project: 2011147.13		
	Client: Hudson Design Group	Drawn by: jhershberger	App'd:
	Code: TIA/EIA-222-F	Date: 06/22/11	Scale: NTS
	Path: N:\2011\2011147\13 CT2347\RSA\88306.dwg		Dwg No. E-7



## COAX PLACEMENT

NOT TO SCALE

SHEET  
1 OF 1

CT2347 (88306) Greenwich – King Street  
Hudson Design Group

JOB NO.  
2011147.13  
DATE  
6/22/11

**GPD GROUP**

**ENGINEERS • ARCHITECTS • PLANNERS**

520 South Main Street • Suite 2531 • Akron Ohio 44311-1010 • Tel: 330-572-2100 • Fax: 330-572-2101

## APPENDIX D

### Foundation Analysis



**Mat Foundation Analysis**  
**CT2347 (88306) GREENWICH - KING STREET**  
**2011147.13**

General Info	
Code	TIA/EIA-222-F (ASD)
Bearing On	Soil
Foundation Type	SS Pad
Pier Type	Round
Reinforcing Known	Yes
Max Capacity	1.05

Tower Reactions	
Moment, M	1137.7 k-ft
Axial, P	24.2 k
Shear, V	19.8 k

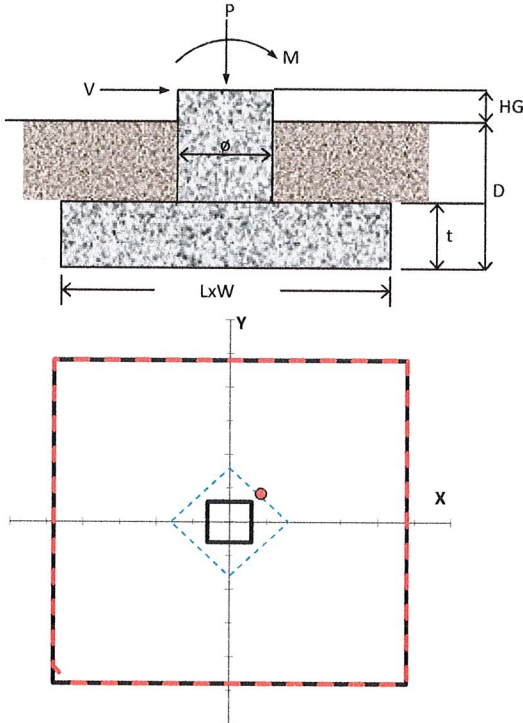
Pad & Pier Geometry	
Pier Diameter, $\phi$	3 ft
Pad Length, L	24 ft
Pad Width, W	24 ft
Pad Thickness, t	4 ft
Depth, D	6.5 ft
Height Above Grade, HG	0.5 ft

Pad & Pier Reinforcing	
Rebar Fy	60 ksi
Concrete Fc'	3 ksi
Clear Cover	3 in
Reinforced Top & Bottom?	Yes
Pad Reinforcing Size	# 7
Pad Quantity Per Layer	25
Pier Rebar Size	# 8
Pier Quantity of Rebar	12

Soil Properties	
Soil Type	Granular
Soil Unit Weight	100 pcf
Angle of Friction, $\phi$	0 °
Bearing Type	Gross
Ultimate Bearing	12 ksf
Water Table Depth	4 ft
Frost Depth	3.33 ft

Bearing Summary			Load Case
Qxmax	1.30	ksf	1D+1W
Qymax	1.30	ksf	1D+1W
Qmax @ 45°	1.53	ksf	1D+1W
Q <sub>(all) Gross</sub>	6.00	ksf	
<b>Controlling Capacity</b>	<b>25.4%</b>	<b>Pass</b>	

Overturning Summary (Required FS=1.5)			Load Case
FS(ot)x	4.03	≥1.5	1D+1W
FS(ot)y	4.03	≥1.5	1D+1W
<b>Controlling Capacity</b>	<b>37.3%</b>	<b>Pass</b>	





## APPENDIX E

### Referenced RFDS





Section IA - NEW PROPOSED BAND COUNTS										
ALPHA (OR OMM)	BETA	GAMA	DELTA	EPSILON	PSI	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS
UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS
UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS	UMTS 850 BBS
Section IA - CURRENT SECTOR CELL INFORMATION - ALPHA (OR OMM)										
Section IB - CURRENT SECTOR CELL INFORMATION - BETA										
Section IC - CURRENT SECTOR CELL INFORMATION - GAMMA										
Section ID - CURRENT SECTOR CELL INFORMATION - DELTA										
Section IE - CURRENT SECTOR CELL INFORMATION - EPSILON										
Section IF - CURRENT SECTOR CELL INFORMATION - PSI										
Section IA - CURRENT SECTOR CELL INFORMATION - ALPHA (OR OMM)										
Section IB - CURRENT SECTOR CELL INFORMATION - BETA										
Section IC - CURRENT SECTOR CELL INFORMATION - GAMMA										
Section ID - CURRENT SECTOR CELL INFORMATION - DELTA										
Section IE - CURRENT SECTOR CELL INFORMATION - EPSILON										
Section IF - CURRENT SECTOR CELL INFORMATION - PSI										

ANTENNA CONFIG (FROM BACK)	ANTENNA 1	ANTENNA 2	ANTENNA 3	ANTENNA 4	ANTENNA 5
ANTENNA 1	ANTENNA 2	ANTENNA 3	ANTENNA 4	ANTENNA 5	ANTENNA 6
ANTENNA 1	ANTENNA 2	ANTENNA 3	ANTENNA 4	ANTENNA 5	ANTENNA 6
ANTENNA 1	ANTENNA 2	ANTENNA 3	ANTENNA 4	ANTENNA 5	ANTENNA 6
2 / Powerwave / LSP 2180 (Dual Band - LSP 1E104 (1900 AND 850 Bypass TMA)	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180
2 / Powerwave / LSP 2180 (Dual Band - LSP 1E104 (1900 AND 850 Bypass TMA)	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180
2 / Powerwave / LSP 2180 (Dual Band - LSP 1E104 (1900 AND 850 Bypass TMA)	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180
2 / Powerwave / LSP 2180 (Dual Band - LSP 1E104 (1900 AND 850 Bypass TMA)	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180
2 / Powerwave / LSP 2180 (Dual Band - LSP 1E104 (1900 AND 850 Bypass TMA)	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180	2 / Powerwave / LSP 2180























## P65-16-XLH-RR

## Dual Broadband Antennas

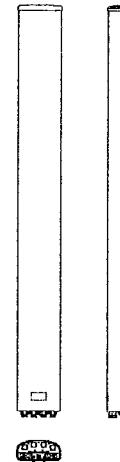
POLARIZATION: Dual linear  $\pm 45^\circ$   
 FREQUENCY (MHz): 698-894, 1710-2170  
 HORIZONTAL BEAM WIDTH ( $^\circ$ ): 65, 65  
 GAIN (dBi/dBd): 15.5/13.4 17.5/15.4  
 TILT: 1-12, 0-8  
 LENGTH: 72"

## ELECTRICAL SPECIFICATIONS\*

	698-894		1710-2170		
	698-806	806-894	1710-1880	1850-1990	1900-2170
Frequency range (MHz)					
Frequency band (MHz)	698-806	806-894	1710-1880	1850-1990	1900-2170
Gain (dBi/dBd)	14.8/12.7	15.5/13.4	16.9/14.8	17.2/15.1	17.5/15.4
Polarization	Dual Linear +/- 45		Dual Linear +/- 45		
Nominal Impedance ( $\Omega$ )	50		50		
VSWR	< 1.5:1		< 1.5:1		
Horizontal beam width, -3 dB ( $^\circ$ )	66	65	60	63	63
Vertical beam width, -3 dB ( $^\circ$ )	14.7	12.5	6.8	6.4	5.7
Electrical down tilt ( $^\circ$ )	1 to 12		0 to 8		
Side lobe suppression, vertical 1st upper (dB)	> 16	> 16	> 16		
	> 16	> 16			
Isolation between inputs (dB)	> 30	> 30	> 30	> 30	
Inter band Isolation (dB)	> 40		> 40		
Tracking, horizontal plane $\pm 60^\circ$ (dB)	< 2		< 2	< 2	< 2
First null fill (dB)			> -20	> -20	> -20
Vertical beam squint ( $^\circ$ )	< 0.8	< 0.8	< 0.5	< 0.5	< 0.5
Front to back ratio (dB) $180^\circ \pm 30^\circ$ copolar	> 24	> 24	> 30	> 30	> 28
Front to back ratio (dB) $180^\circ \pm 30^\circ$ total power					
Cross polar discrimination (XPD) $0^\circ$ (dB)	> 15	> 15	> 15	> 15	> 15
Cross polar discrimination (XPD) $\pm 60^\circ$ (dB)	> 10	> 10	> 10	> 10	> 10
Far field coupling					
IM3, 2xTx@43dBm (dBc)	< -153		< -153		
IM7, 2xTx@43dBm (dBc)					
Power handling, average per input (W)	500		250		
Power handling, average total (W)	1000		500		

## MECHANICAL SPECIFICATIONS\*

Connector	4 X 7/16 DIN Female, IP67
Connector position	Bottom
Dimensions, HxWxD, mm (ft)	72" x 12" x 6" (1829 x 305 x 152)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, kg (lbs)	29 (64)
Weight, without brackets, kg (lbs)	24 (53)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.6 (N)	1380
Maximum operational wind speed, m/s (mph)	100 (45)
Survival wind speed, m/s (mph)	150 (67)
Lightning protection	DC Ground
Operating Temperature	-40C to +60C
Radome material	PVC, IP55
Packet size, HxWxD, mm (ft)	87" x 16" x 10" (2225 x 400 x 225)
Radome colour	Light Grey
Shipping weight, kg (lbs)	34 (75)
RET	iRET AISGv1.1, MET and AISGv2.0
Brackets	7256.00, 7454.00A



\*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

## ANTENNA PATTERNS\*

For detailed patterns visit <http://www.powerwave.com/rpa/>.

# RRUS 11 – Dual PA RRU.

## Technical Data

- > Multi standard
- > RF: 2x30 Watts
- > Carrier BW: 1.4 – 20 MHz
- > Alarms: 2
- > Dimensions (with sunshield):
  - Width: 17.0 in
  - Height: 17.8 in
  - Depth: 7.2 in
  - Weight: 55 lbs (Band 12)
  - Weight: 50 lbs (Band 4)
- > Temperature: -40 to +131 F
- > Cooling: Self convection
- > Power: -48 VDC
- > Rec. fuse size 20 Amp
  - Rec. DC cable:
    - > 6 mm<sup>2</sup> up to 60 meters
    - > 10 mm<sup>2</sup> over 60 meters
    - > Shielded
- > Power Cons: 200 Watts typ.

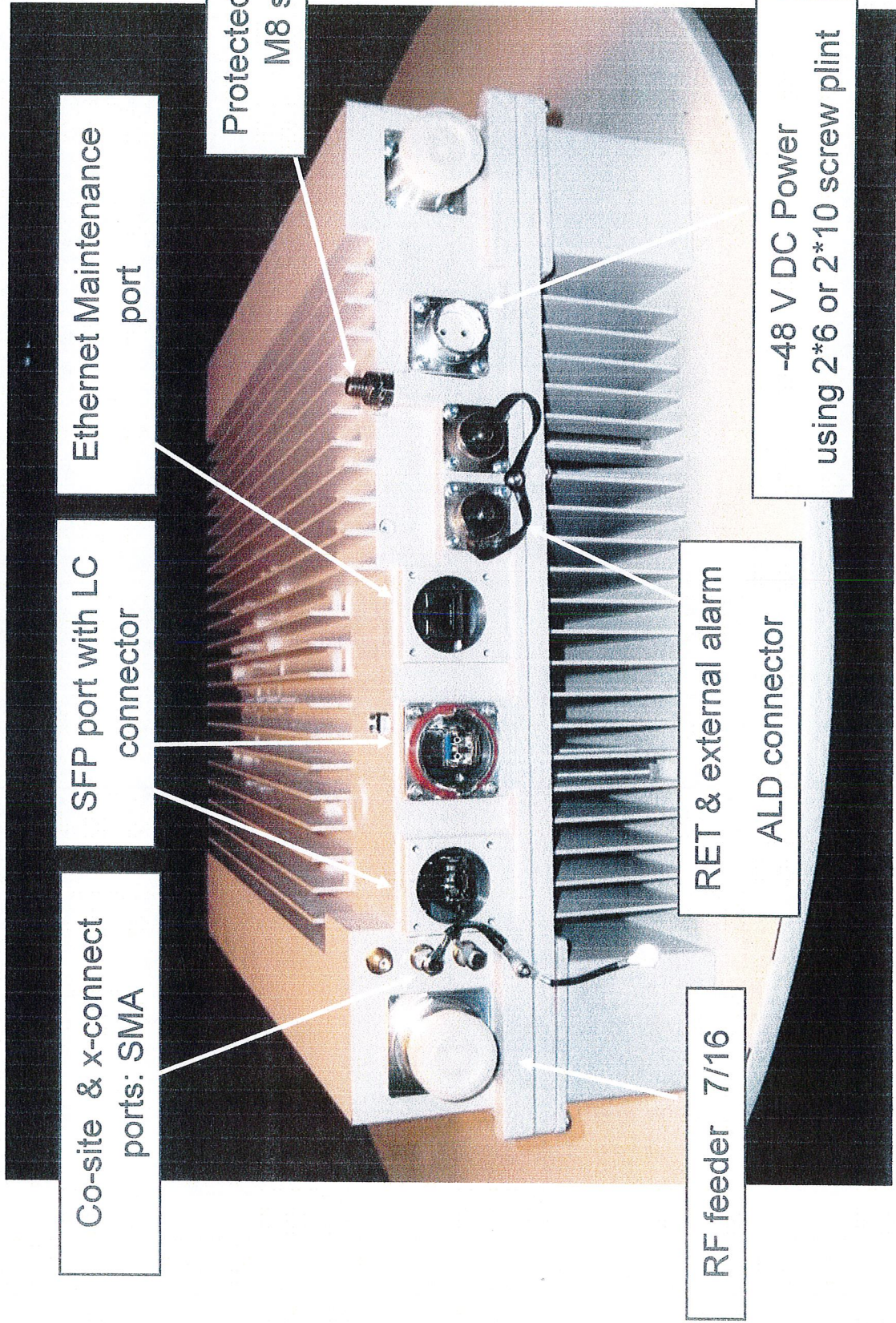




# RRUS-11 I/F



RBS6000





# POWER

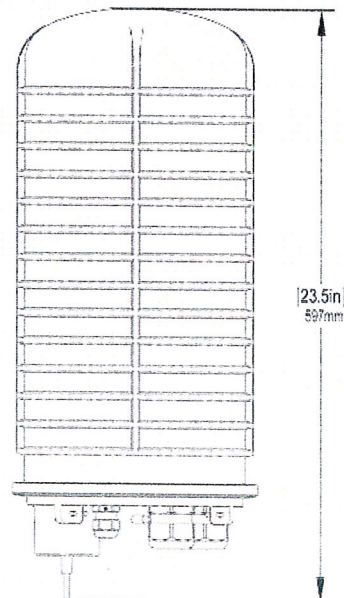
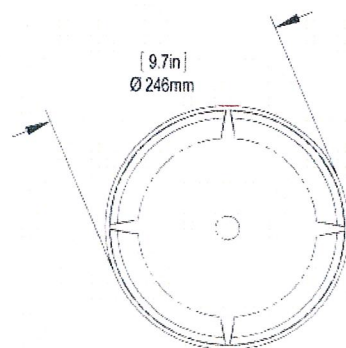
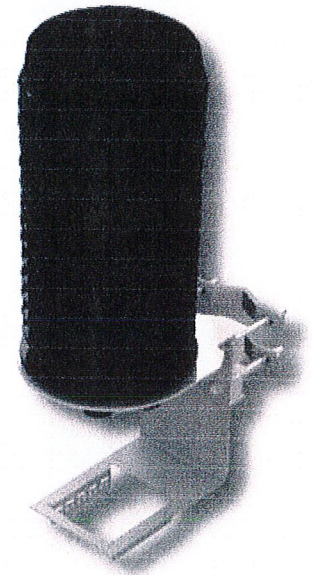
## DC6-48-60-18-8F

### DC Surge Suppression Solution

The DC6-48-60-18 is a dual chambered, DC surge suppression system for use in multi-circuit, Distributed Antenna Systems. The system will protect up to 6 Remote Radio Heads from voltage surges and lightning, and connect up to 18 fiber pairs. The system is enclosed in a NEMA 4 rated, waterproof enclosure.

#### FEATURES

- Protects up to 6 Remote Radio Heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for Remote Radio Head protection.
- Includes fiber connections for up to 18 pairs of fiber.
- LED indicators on individual circuits provide visual indication of suppressor status.
- Form 'C' relays allow for remote monitoring of the suppressor status.
- Patented Strikesorb technology provides over 60 kA of surge current capacity per circuit.
- Strikesorb suppression modules are fully recognized to UL 1449-3rd Edition Safety Standard, meeting all intermediate and high current fault requirements to facilitate use in OEM applications.
- Raycap recommends that DC protection system be installed within 2 meters or 6 feet of the radio.
- Dome design is lightweight and aerodynamic providing maximum flexibility for installation on top of towers.



**Raycap**



# DC6-48-60-18-8F

## DC Power Surge Protection

Electrical Specifications	
Model Number	DC6-48-60-18-8F
Nominal Operating Voltage	48 VDC
Nominal Discharge Current ( $I_n$ )	20 kA 8/20 $\mu$ s
Maximum Discharge Current ( $I_{max}$ ) per NEMA LS-1	60 kA 8/20 $\mu$ s
Maximum Continuous Operating Voltage ( $U_c$ )	75 VDC
Voltage Protection Rating	400 V

Mechanical Specifications	
Suppression Connection Method	Compression lug, #2-#14 AWG Copper, #2-#12 Aluminum
Fiber Connection Method	LC-LC Single mode duplex
Environmental Rating	IP 68, 7m 72hrs
Operating Temperature	-40° C to + 80° C
Storage Temperature	-70° C to + 80° C
Cold Temperature Cycling	IEC 61300-2-22e -30° C to + 60° C 200 hrs @ 5 psi
Resistance to Aggressive Materials	CEI IEC 61073-2 including acids and bases
UV Protection	ISO 4892-2 Method A Xenon-Arc 2160 hrs
Weight	20 lbs without Mounting Bracket

### STANDARDS

Strikesorb modules are compliant to the following Surge Protection Device (SPD) Standards:

- ANSI/UL 1449 - 3rd Edition
- IEEE C62.41
- NEMA LS-1, IEC 61643-1:2005 2nd Edition:2005
- IEC 61643-12
- EN 61643-11:2002 (including A11:2007)



**Raycap**

G02-00-068 REV 050610



GS-07F-0435V



Certified to  
ISO 9001:2000



TUV Rheinland  
of North America

Raycap, Inc. 806 W. Clearwater Loop • Post Falls • Idaho • 83854 • USA  
Phone 208.777.1166 • Toll Free 800.890.2569 • Fax 208.777.4466 • [www.raycapsurgeprotection.com](http://www.raycapsurgeprotection.com)





**New Cingular Wireless PCS, LLC**  
500 Enterprise Drive  
Rocky Hill, Connecticut 06067-3900  
Phone: (860) 463-5511  
Fax: (860) 513-7190

**Douglas L. Culp**  
Real Estate Consultant

June 27, 2011

Honorable Peter Tesei  
1<sup>st</sup> Selectman, Town of Greenwich  
Greenwich Town Hall  
101 Field Point Road  
Greenwich, CT 06830

Re: Telecommunications Facility – 1323 King Street Greenwich, CT (Bruce Memorial GC)

Dear Selectman Tesei:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) and Long Term Evolution (“LTE”) capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“AT&T”) will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review AT&T’s proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes Cingular’s proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council’s procedures; please call me at (860) 463-5511 or Ms. Linda Roberts, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Douglas L. Culp  
Real Estate Consultant

Enclosure