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

July 11, 2011

Douglas L. Culp, Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-085-110624A** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 500 Moose Hill Road, Monroe, Connecticut.

Dear Mr. Culp:

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:

- The proposed coax and remote radio heads be installed in accordance with recommendations made in the Structural Analysis prepared by FDH Engineering dated June 16, 2011 and stamped by Christopher Murphy; and

- Following the installation of the proposed equipment, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the installation complied with the engineer's recommendations.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 June 21, 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.

CSC
CONNECTICUT SITING COUNCIL

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,

LRoberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Stephen Vavrek, First Selectman, Town of Monroe
SBA, Inc.

EM-CING-085-110624A

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 21, 2011

RECEIVED
JUN 24 2011
CONNECTICUT
SITING COUNCIL

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 telecommunications facility located at 500 Moose Hill Road Monroe, CT (owner SBA).

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

500 Moose Hill Road Monroe, CT
Site Number CT2203
Exempt Mod

Tower Owner/Manager: SBA

Equipment configuration: Monopole

Current and/or approved: Six PowerWave P7770 antennas @ 138 ft
Six PowerWave TMA's and Six PowerWave Diplexers @ 138 ft
Twelve runs 1 1/4 inch coax to 138 ft
Equipment Shelter

Planned Modifications: Retain existing PowerWave P7770 Antenna's, TMA's and Diplexers @ 138 ft
Retain all Coax Cabling
Install three PowerWave P65-16 antennas or equivalent @ 138 ft
Install six remote radio heads Ericsson RRUS-11 @ 138 ft
Install one Raycap Fiber Power Connector/ Surge Suppressor – DC6-48-60-18-8F @ 138 ft
Install one fiber and two DC power cables @ 138 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 57 % 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 58.9 % of the standard.

Existing

Other Users							49.06
AT&T UMTS	138	1900 Band	1	500	0.0094	1.0000	0.94
AT&T UMTS	138	800 Band	1	500	0.0094	0.5867	1.61
AT&T GSM	138	800Band	4	296	0.0224	0.5867	3.81
AT&T GSM	138	1900 Band	2	427	0.0161	1.0000	1.61
Total							**57.0%**

* 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^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users							49.06
AT&T UMTS	138	800 Band	1	500	0.0094	0.5867	1.61
AT&T UMTS	138	1900 Band	1	500	0.0094	1.0000	0.94
AT&T GSM	138	1900 Band	2	427	0.0161	1.0000	1.61
AT&T GSM	138	880 - 894	4	296	0.0224	0.5867	3.81
AT&T LTE	138	740 - 746	1	500	0.0094	0.4933	1.91
Total							**58.9%**

* 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. (FDH Engineering dated 6-16-11).

NEW CINGULAR WIRELESS PCS, LLC
WIRELESS COMMUNICATIONS FACILITY CT2203
MONROE - MOOSE HILL ROAD

500 MOOSE HILL ROAD
MONROE, CONNECTICUT

PROJECT SUMMARY

SITE NUMBER:	CT2203
SITE NAME:	MONROE – MOOSE HILL ROAD
SITE ADDRESS:	500 MOOSE HILL ROAD MONROE, CT 06468
STRUCTURE OWNER:	SBA
APPLICANT:	NEW CINGULAR WIRELESS PCS, LLC 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067
CONTACT:	MICHAEL D. FOLEY (203) 414-1184
COORDINATES:	41° 19' 15.44"N 73° 12' 5.13"W
HORIZONTAL DATUM:	NAD 83
ENGINEER:	CHA, INC. 2139 SILAS DEANE HIGHWAY SUITE 212 ROCKY HILL, CT 06067
CONTACT:	PAUL LUSITANI (860) 257-4557

DRIVING DIRECTIONS

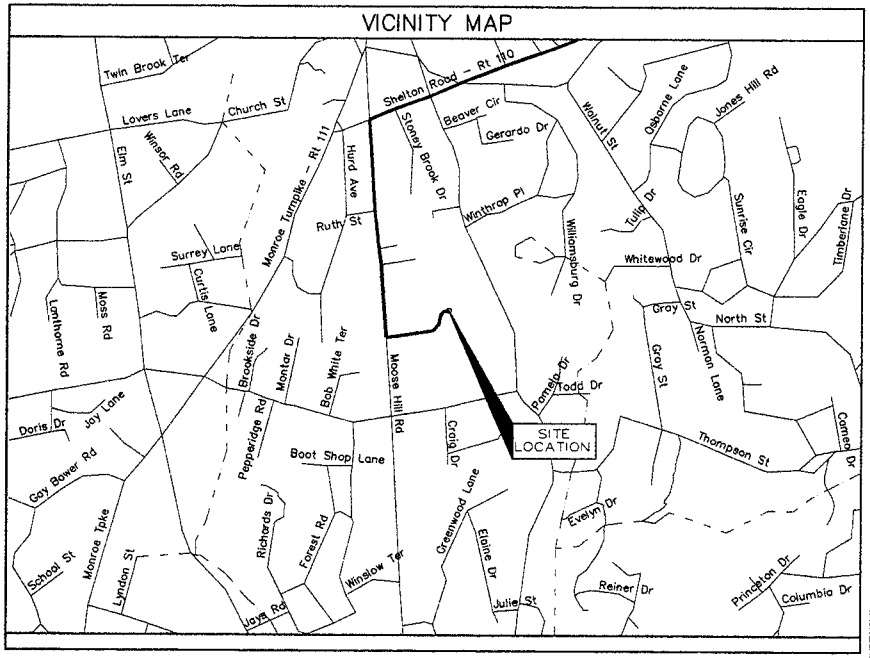
FROM HARTFORD:

1. MERGE ONTO CT-15 S
2. TAKE EXIT 58 FOR CONNECTICUT 34/DERBY
3. TURN RIGHT AT DERBY AVE/DERBY TURNPIKE.
4. CONTINUE ONTO NEW HAVEN AVE
5. CONTINUE ONTO OLD NEW HAVEN AVE
6. CONTINUE ONTO NEW HAVEN AVE
7. CONTINUE ONTO DERBY AVE
8. TURN LEFT AT MAIN ST
9. TURN LEFT AT BRIDGE ST
10. TURN RIGHT AT HOWE AVE
11. CONTINUE ONTO CT-110 N/LEAVENWORTH RD
12. TURN LEFT AT MOOSE HILL RD
13. AT 0.4 MILES MAKE LEFT INTO 472 B'NAI ISREAL
14. CONTINUE STRAIGHT TO MONOPOLE

PROJECT DESCRIPTION

THIS PROJECT ADDS THREE ANTENNAS, SIX RRH, SURGE ARRESTORS, AND A RADIO CABINET TO AN EXISTING TELECOMMUNICATIONS SITE

VICINITY MAP



APRIL 08, 2011

SHEET INDEX

SHEET NO:	SHEET TITLE	REVISION HISTORY NO:	REVISION HISTORY DATE
T01	TITLE SHEET	1	04 / 08 / 11
C01	COMPOUND PLAN	1	04 / 08 / 11
C02	SHELTER PLAN	1	04 / 08 / 11
C03	ELEVATION AND ANTENNA PLAN	1	04 / 08 / 11
C04	STRUCTURAL DETAILS	1	04 / 08 / 11
E01	GROUNDING DETAILS & PLUMBING DIAGRAM	1	04 / 08 / 11
GN01	GENERAL NOTES	1	04 / 08 / 11

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

CALL before you DIG
FOR CT 1-800-922-4455

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA
2139 Silas Deane Highway, Suite 212 · Rocky Hill, CT 06067-2336
Metro (860) 257-4557 · www.chacompanies.com

CHA PROJECT NO:
22702 – 1014 – 43000

NO.	SUBMITTAL		
0	03/14/11	ISSUED FOR REVIEW	
	BY: TAO	CHK: PAL	APP'D: JPS
1	04/08/11	ISSUED FOR CONSTRUCTION	
	BY: TAO	CHK: PAL	APP'D: JPS

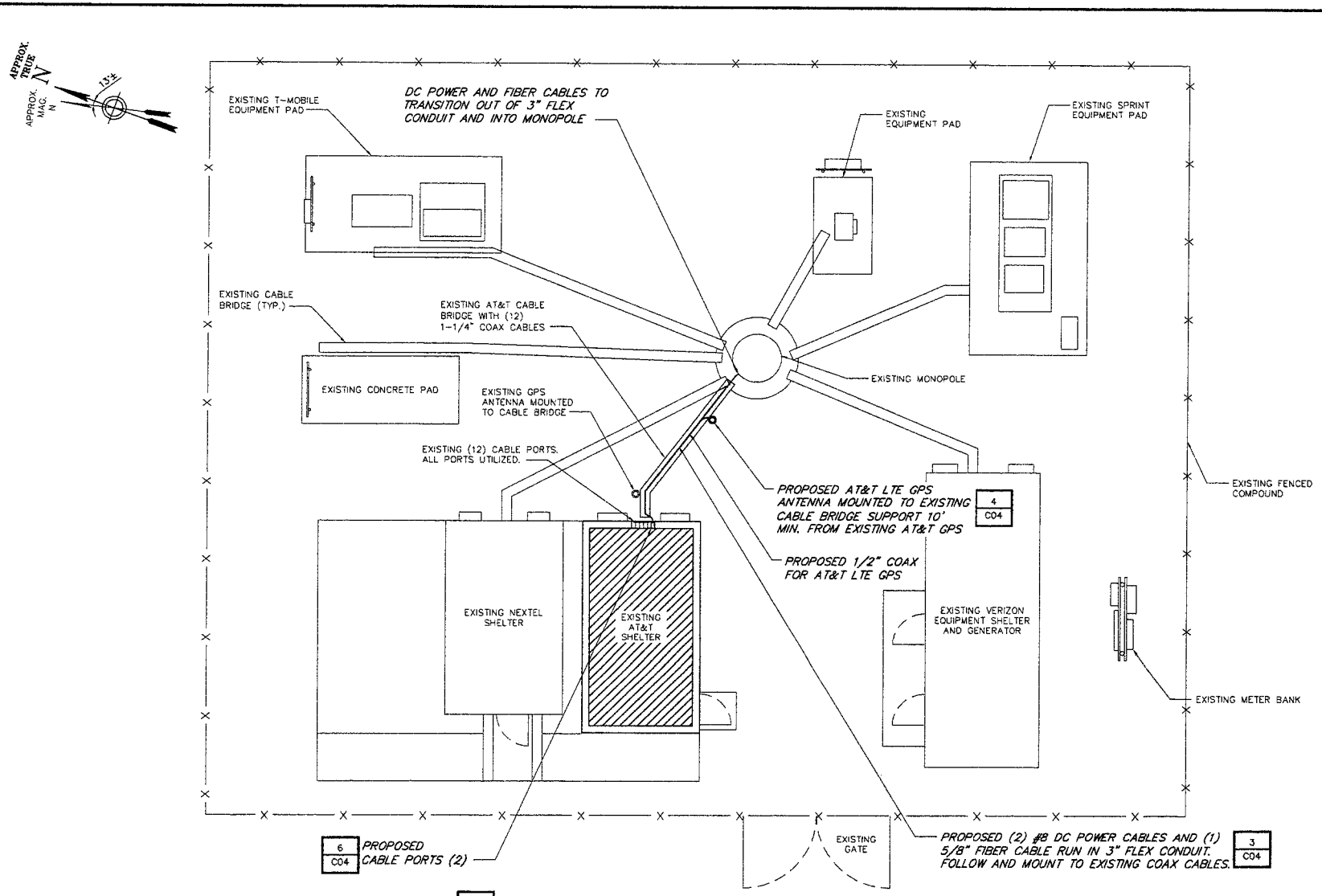
STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
CT2203
SITE NAME:
MONROE–MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T01



1 C01 SITE PLAN

GRAPHIC SCALE

10 0 5 10

IN FEET

NOTE:
1. PLANS BASED ON A SITE VISIT BY CHA ON MARCH 08, 2011, AND DRAWINGS PREPARED BY PSG ENGINEERING, LTD., LAST DATED 08/19/05.

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA

2139 Silas Deane Highway, Suite 212 - Rocky Hill, CT 06067-2338
Main: (860) 257-4057 - www.chacompanies.com

CHA PROJECT NO:
22702 - 1014 - 43000

NO.	SUBMITTAL		
0	03/14/11	ISSUED FOR REVIEW	
	BY: TAD	CHK: PAL	APP'D: JPS
1	04/08/11	ISSUED FOR CONSTRUCTION	
	BY: TAD	CHK: PAL	APP'D: JPS

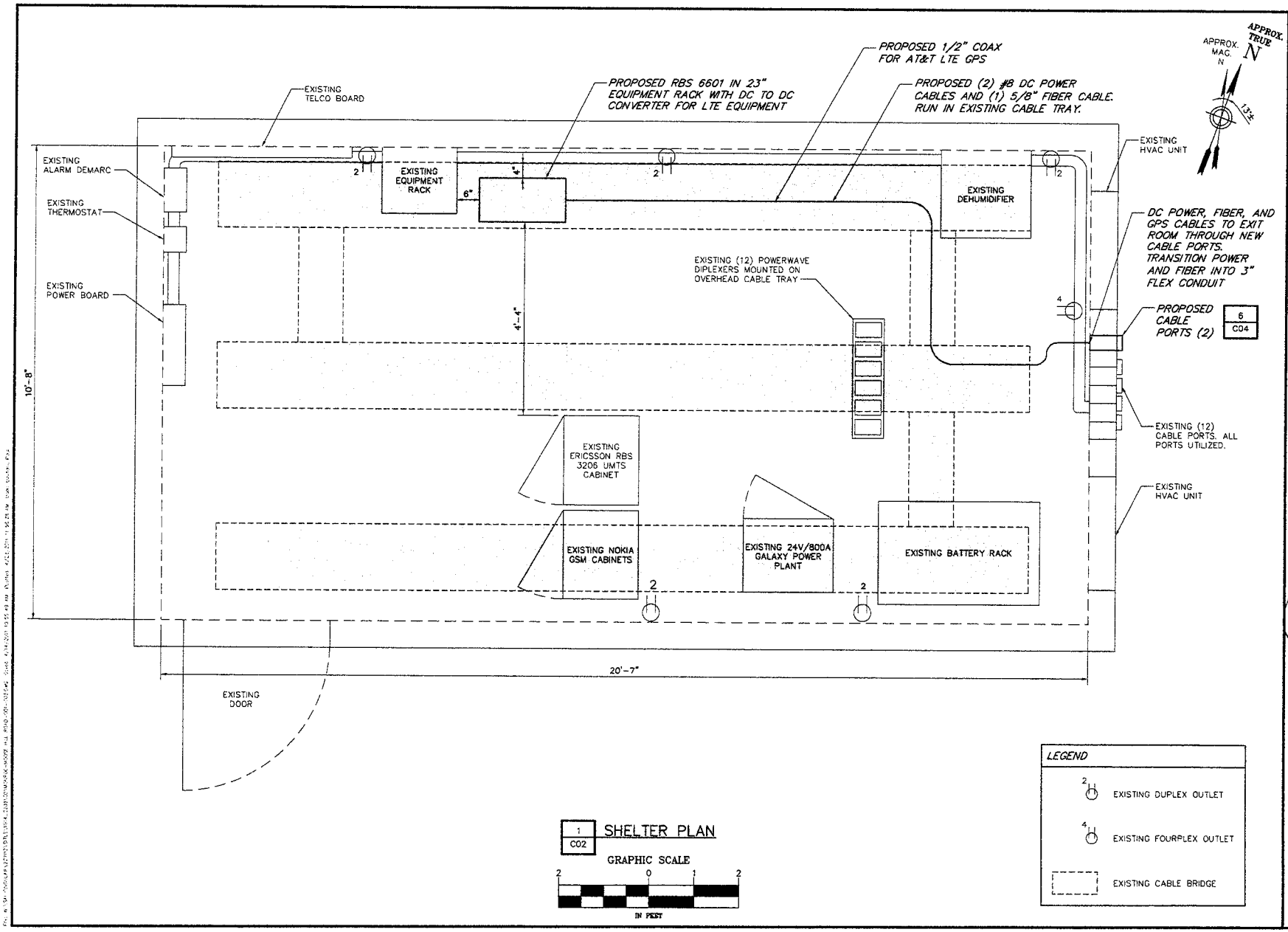
STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
CT2203
SITE NAME:
MONROE-MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
C01



1 C02 SHELTER PLAN

GRAPHIC SCALE

2 0 1 2

IN FEET

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA

2139 Silas Deane Highway, Suite 212 · Rocky Hill, CT 06067-2336
Metro (860) 257-4657 · www.chacompanies.com

CHA PROJECT NO:
22702 – 1014 – 43000

NO.	SUBMITTAL		
0	03/14/11	ISSUED FOR REVIEW	
	BY: TAO	CHK: PAL	APP'D: JPS
1	04/08/11	ISSUED FOR CONSTRUCTION	
	BY: TAO	CHK: PAL	APP'D: JPS

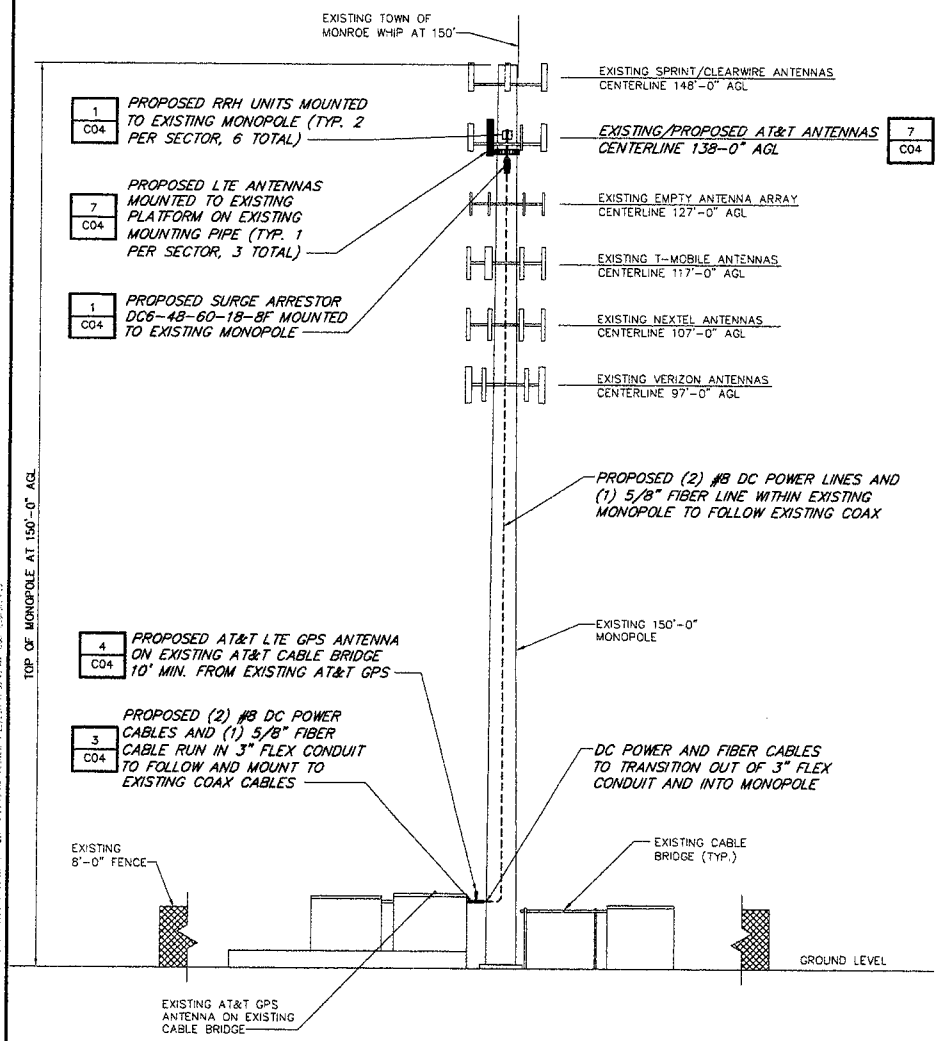
STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
CT2203
SITE NAME:
MONROE–MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
SHELTER PLAN

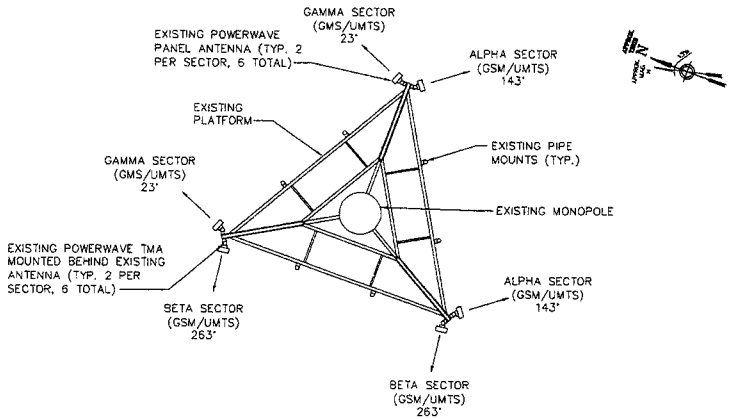
SHEET NUMBER
C02



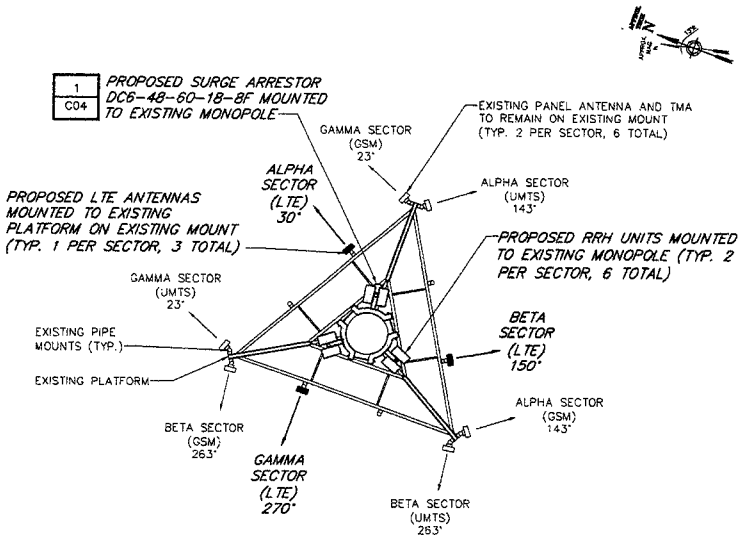
1 C03 TOWER ELEVATION
SCALE: 1" = 10' FULL SIZE
1" = 20' 11 X 17

GRAPHIC SCALE
20 0 10 20
IN FEET

NOTE:
A STRUCTURAL ANALYSIS OF THE EXISTING TOWER HAS NOT BEEN PERFORMED. AN ANALYSIS OF THE EXISTING STRUCTURE MUST BE PERFORMED PRIOR TO CONSTRUCTION TO CONFIRM STRUCTURE IS CAPABLE OF SUPPORTING PROPOSED LOADS.



EXISTING



PROPOSED

NOTE:
REFER TO FINAL RFDS FOR FINAL SECTOR CONFIGURATIONS.

2 C03 ANTENNA PLANS
SCALE: N.T.S.

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA
2139 Silas Deane Highway, Suite 212 · Rocky Hill, CT 06067-2336
Metro (860) 257-4057 · www.chacompanies.com

CHA PROJECT NO:
22702 - 1014 - 43000

NO.	SUBMITTAL		
0	03/14/11	ISSUED FOR REVIEW	
	BY: TAO	CHK: PAL	APP'D: JPS
1	04/08/11	ISSUED FOR CONSTRUCTION	
	BY: TAO	CHK: PAL	APP'D: JPS

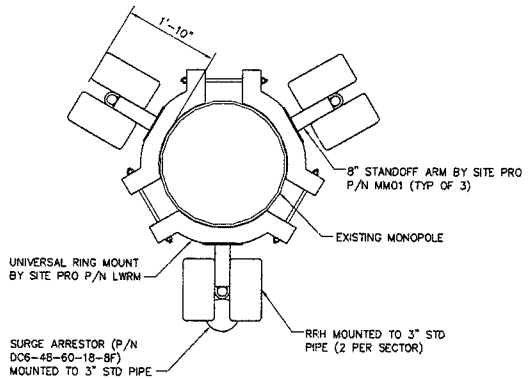
STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

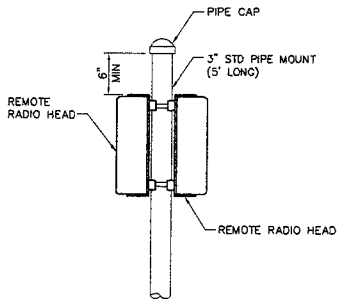
SITE ID:
CT2203
SITE NAME:
MONROE-MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
ELEVATION AND ANTENNA PLAN

SHEET NUMBER
C03



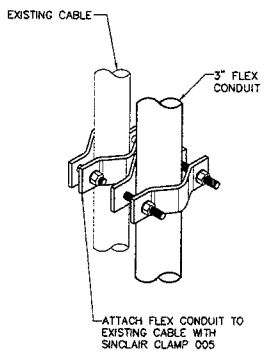
PLAN



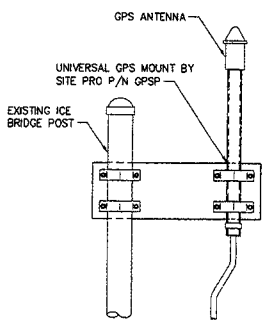
NOTE:

REMOTE RADIO HEAD MOUNTING BRACKET AND HARDWARE TO BE PROVIDED BY MANUFACTURER.

2 / C04 RRH MOUNTING DETAIL
SCALE: NTS



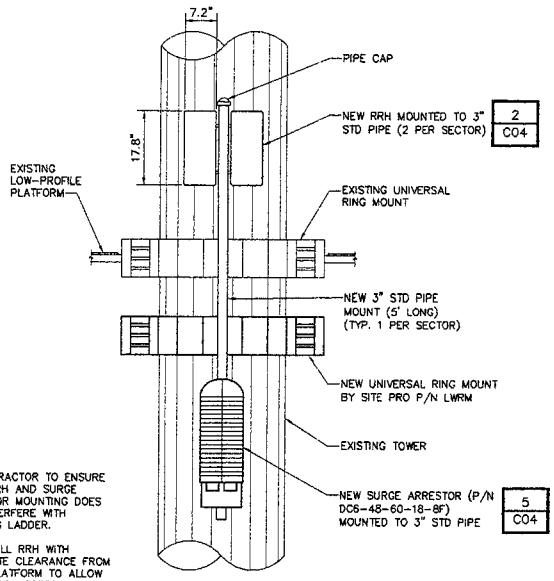
3 / C04 FLEX CONDUIT DETAIL
SCALE: NTS



NOTE:

1. THE WEIGHT OF THE ANTENNA MOUNT IS 6.5 LBS.

4 / C04 GPS MOUNTING DETAIL
SCALE: NTS

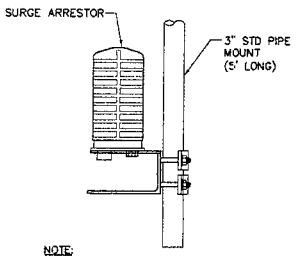


NOTE:
1. CONTRACTOR TO ENSURE THAT RRH AND SURGE ARRESTOR MOUNTING DOES NOT INTERFERE WITH CLIMBING LADDER.

2. INSTALL RRH WITH ADEQUATE CLEARANCE FROM AT&T PLATFORM TO ALLOW ROOM FOR ACCESS.

ELEVATION

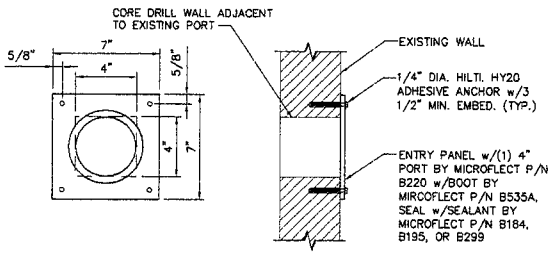
1 / C04 RRH/SURGE ARRESTOR MOUNTING DETAIL
SCALE: NTS



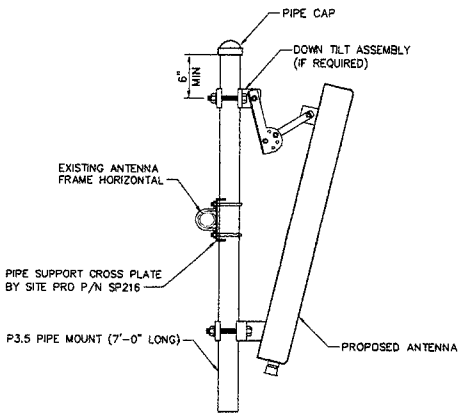
NOTE:

SURGE ARRESTOR MOUNTING BRACKET AND HARDWARE TO BE PROVIDED BY MANUFACTURER.

5 / C04 SURGE ARRESTOR MOUNTING DETAIL
SCALE: NTS



6 / C04 PORT PANEL DETAIL
SCALE: NTS



NOTE:

1. MOUNT ANTENNA IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURE.

2. USE EXISTING PIPE MOUNT IF AVAILABLE.

7 / C04 TYPICAL ANTENNA MOUNTING DETAIL
SCALE: NTS

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA
2139 Silas Deane Highway, Suite 212 · Rocky Hill, CT 06067-2338
Main: (860) 257-4557 · www.chacompanies.com

CHA PROJECT NO:
22702 – 1014 – 43000

NO.	SUBMITTAL	
0	03/14/11	ISSUED FOR REVIEW
	BY: TAO	CHK: PAL / APP'D: JPS
1	04/06/11	ISSUED FOR CONSTRUCTION
	BY: TAO	CHK: PAL / APP'D: JPS

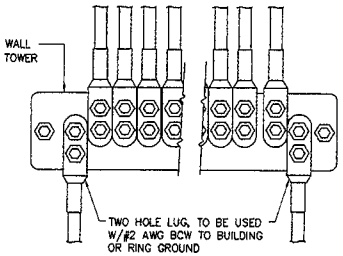
STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
CT2203
SITE NAME:
MONROE–MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

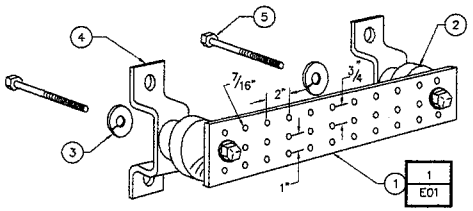
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
C04



1 E01 GROUND WIRE INSTALLATION TO GROUND BAR

NO SCALE

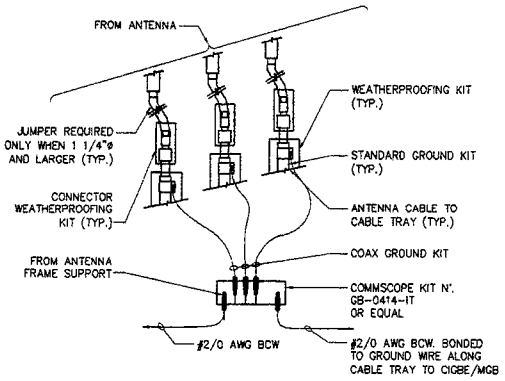


LEGEND

1 – COPPER GROUND BAR. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2 – INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4. (NOT TO BE USED ON BARS PHYSICALLY ATTACHED TO TOWER.)
3 – 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
4 – WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056
5 – 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

2 E01 GROUND BAR

NO SCALE

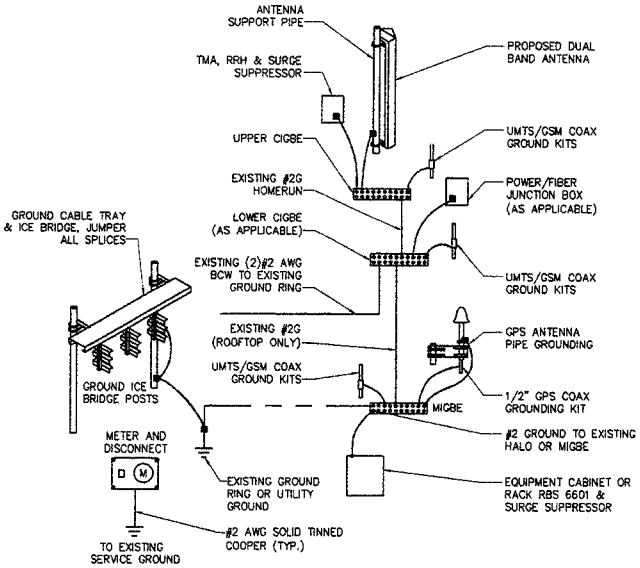


NOTE:

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

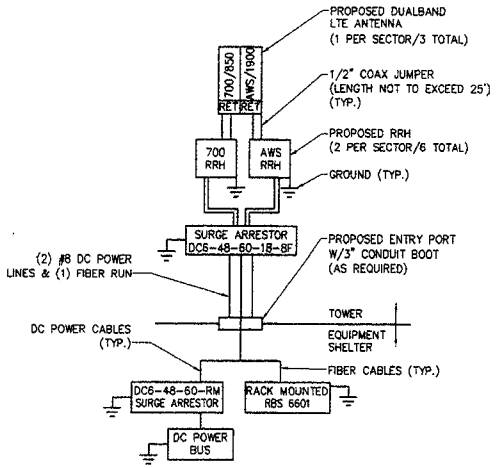
3 E01 GROUND WIRE TO GROUND BAR CONNECTION DETAIL

NO SCALE



4 E01 GROUNDING RISER DIAGRAM

NO SCALE



NOTES:

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

5 E01 PLUMBING DIAGRAM

NO SCALE

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA

2136 Silas Deane Highway, Suite 212 · Rocky Hill, CT 06067-2336
Metro (860) 257-4857 · www.chacompanies.com

CHA PROJECT NO:
22702 – 1014 – 43000

NO.	SUBMITTAL		
0	03/14/11	ISSUED FOR REVIEW	
	BY: TAO	CHK: PAL	APP'D: JPS
1	04/08/11	ISSUED FOR CONSTRUCTION	
	BY: TAO	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
CT2203
SITE NAME:
MONROE–MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
GROUNDING DETAILS & PLUMBING DIAGRAM

SHEET NUMBER
E01

GROUNDING SYSTEM NOTES:

1. CONDUCTOR USED FOR CELLULAR GROUNDING SYSTEM
   EGR – #2 AWG ANNEALED SOLID TINNED BARE COPPER.
   INTER-BUS EXTENSION (FROM IGR TO EGR) – #2 AWG ANNEALED SOLID TINNED BARE COPPER.
   EXTERNAL BOND CONNECTIONS TO EGR – #2 AWG ANNEALED SOLID TINNED BARE COPPER.
   TOWER BOND CONNECTION TO EGR – #2 AWG SOLID COPPER.

2. MINIMUM BENDING RADIUS
   EGR #2: 2'-0" NOMINAL AND 8" MINIMUM.
   CELLULAR GROUNDING CONDUCTOR SHALL BE AS STRAIGHT AS POSSIBLE WITH MINIMUM 8" RADIUS.

3. CONNECTIONS (MECHANICAL)
   COMPRESSION LUG CONNECTOR – 15 TON COMPRESSION, 2 HOLE, LONG BARREL, ELECTRO TINNED PLATED, HIGH CONDUCTIVITY COPPER, 600V RATED. USE 1/4" DIA. BOLT, 3/4" SPACING LUGS TO BOND OBJECTS PROM IGR.
   CONNECTOR SHALL BE BURNDY "HYLUG SERIES" OR EQUAL.

   EXOTHERMIC WELD LUG CONNECTOR – 2 HOLE OFFSET, ELECTRO TINNED PLATED, HIGH CONDUCTIVITY COPPER. 600V. USE ½" DIA. BOLT, 1-3/4" SPACING LUGS. CONNECTOR SHALL BE CADWELD CONNECTION STYLE (CABLE TO SURFACE) TYPE "1A". EXOTHERMIC WELD TO LUG AS REQUIRED.

   "C" TAP COMPRESSION CONNECTOR – HIGH CONDUCTIVITY COPPER FOR MAIN-BRANCH TAPPING. CONNECTOR SHALL BE BURNDY "HYTAP" SERIES OR EQUAL.

   USE MATCHING MANUFACTURER TOOL AND DIE FOR COMPRESSION CONNECTION. APPLY ANTI-OXIDANT CONDUCTIVITY ENHANCER COMPOUND ON SURFACES THAT ARE COMPRESSED. SURFACES INTENDED TO BE CONNECTED WITH MECHANICAL CONNECTORS SHALL BE BARE METAL TO BARE METAL. PRIME AND PAINT OVER BONDED AREA TO PREVENT CORROSION.

4. CONNECTIONS BELOW GRADE (EXOTHERMIC)
   PROVIDE CADWELD CONNECTIONS – STYLE AND TYPE AS REQUIRED.

5. WHEN BONDING #2 TO #2
   EXTERIOR OF SHELTER – USE EXOTHERMIC WELD CONNECTION.

6. WHEN BONDING #2 TO FENCE POST
   USE EXOTHERMIC WELD "CADWELD TYPE VS" CONNECTION TO FENCE POST STEEL SURFACE. TEST WELD FOR POSSIBLE BURN THROUGH. PATCH WELDED AREA WITH GALVANIZED COATING AS REQUIRED FOR PROPER WELDED PERMANENT BOND. REFER TO MANUFACTURER'S REQUIREMENTS FOR DETAILS.

SECTION 16050 GROUNDING

1.01 ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL SYSTEM AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

1.02 GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL INSPECTOR HAVING JURISDICTION.

1.03 ELECTRICAL AC SERVICE GROUNDED SYSTEM – GROUNDING AT MAIN SERVICE OVERCURRENT PROTECTION DEVICE.

   A. THE GROUNDED CONDUCTOR (NEUTRAL) OF THE INCOMING SERVICE FEEDERS (LINE SIDE OF THE METER SOCKET) SHALL TERMINATE INTO THE MAIN OVERCURRENT DEVICE ENCLOSURE SOLID NEUTRAL BAR WHICH IS INSULATED FROM THE ENCLOSURE.

   B. THE GROUNDING ELECTRODE CONDUCTOR SHALL EXTEND CONTINUOUSLY WITHOUT SPLICES OR JOINTS FROM THE MAIN OVERCURRENT DEVICES SOLID NEUTRAL BAR TO THE MAIN SWITCHBOARD GROUND TERMINAL.

   C. THE MAIN SERVICE OVERCURRENT PROTECTION DEVICE ENCLOSURE'S EQUIPMENT GROUND BAR KIT SHALL BE LUGGED TO THE ENCLOSURE WITH THE SURFACES BETWEEN THEM BARE METAL TO BARE METAL. PROVIDE BONDING JUMPER BETWEEN EQUIPMENT GROUND BAR AND SOLID NEUTRAL. BONDING JUMPER CONDUCTOR SIZE SHALL BE THE SAME AS THE GROUNDING ELECTRODE CONDUCTOR. CONDUITS TERMINATING INTO THE MAIN OVERCURRENT DEVICE ENCLOSURE SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH #10 AWG BARE COPPER WHICH IN TURN IS TERMINATED INTO THE EQUIPMENT GROUND BAR KIT.

1.04 CELLULAR GROUNDING SYSTEM:

   PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS. INCLUDING BUT NOT LIMITED TO:

   -GROUND BARS
   -EXTERIOR GROUNDING RING
   -ANTENNA GROUND CONNECTIONS AND PLATES

1.05 CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY THE AT&T CONSTRUCTION REPRESENTATIVE AND LOCAL AUTHORITY HAVING JURISDICTION WHO WILL MAKE A VISUAL INSPECTION OF THE GROUNDING GRID, RODS AND CONNECTIONS OF THE EXTERIOR GROUNDING SYSTEMS.

SECTION 16120 CONDUCTORS

1.01 ALL CONDUCTORS SHALL BE THE TYPE THWN (INTERIOR) AND XHHW (EXTERIOR), 75 DEGREES C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING SOLDERLESS PRESSURE CONNECTORS, ACCEPTABLE. #12 AWG SHALL BE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZES. CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

   120 / 240 VAC – 1 PHASE, 3 WIRE SYSTEM

PHASE:	COLOR:
A	BLACK
B	RED
N	CONTINUOUS WHITE
G	CONTINUOUS GREEN

1.02 MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130 RACEWAY

1.01 CONDUIT MATERIAL SHALL BE AS FOLLOWS:

   (1) GALVANIZED RIGID CONDUIT (GRC) – FEEDERS EXPOSED TO EXTERIOR & UNDERGROUND CONDUIT SWEEPS.

   (2) PVC CONDUIT – SERVICE CONDUITS AND WHERE SHOWN ON GROUNDING DETAILS.

GENERAL NOTES:

1. ALL DIMENSIONS TO, OF, AND IN EXISTING STRUCTURES SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
2. DO NOT CHANGE THE SIZE NOR SPACING OF STRUCTURAL ELEMENTS WITHOUT THE APPROVAL OF THE ENGINEER.
3. DETAILS SHOWN ARE TYPICAL AND APPLY TO SIMILAR CONDITIONS UNLESS NOTED OTHERWISE.
4. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
5. BRACE STRUCTURES AS REQUIRED FOR CONSTRUCTION AND WIND LOADS UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: (LATERAL BRACING MEMBERS, ANCHOR BOLTS, ETC.)
6. THE DESIGN IS BASED ON THE 2005 CONNECTICUT STATE BUILDING CODE (IBC 2003), 2005 CONNECTICUT SUPPLEMENT AND THE 2009 AMENDMENT TO THE 2005 CONNECTICUT SUPPLEMENT AND TIA/EIA-222-G.
7. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.
8. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER'S APPROVAL.
9. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
10. VERIFY SIZE AND LOCATION OF OPENINGS PRIOR TO BEGINNING WORK. FOR DIMENSIONS NOT SHOWN, SEE CIVIL DRAWINGS.
11. VERIFY SIZE AND LOCATION OF EQUIPMENT PADS WITH MECHANICAL AND/OR ELECTRICAL CONTRACTOR AND EQUIPMENT MANUFACTURER.
12. CONTRACTOR TO FOLLOW ALL STATE, LOCAL AND NATIONAL CODES AS APPLICABLE.

APPURTENANCE SUPPORT BRACKET NOTES:

1. DESIGN RESPONSIBILITY OF APPURTENANCE MOUNTING BRACKETS AND POLES AND ALL COMPONENTS THERE OF AND ATTACHMENT THERE TO SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER. MANUFACTURER SHALL PROVIDE TO THE ENGINEER FOR APPROVAL, DRAWINGS DETAILING ALL COMPONENTS OF THE ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, AND ALL OTHER PERTINENT DATA. ALL SUBMISSIONS SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CONNECTICUT.
2. BRACKETS SHALL BE DESIGNED TO SUPPORT CURRENT AND FUTURE PANEL ANTENNAS, REMOTE RADIO HEADS, SURGE ARRESTORS, AND COAXIAL CABLES AS SHOWN.

STEEL NOTES:

1. STRUCTURAL STEEL FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:
   A. WIDE FLANGE AND CHANNEL SHAPES – A992 GR 50 (50 KSI) UNLESS OTHERWISE NOTED
   B. ANGLES AND PLATES – ASTM A36 (36 KSI)
   C. STEEL PIPE – ASTM A53, GRADE B A500 GRADE B (35 KSI)
3. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM SPECIFICATION A123 UNLESS OTHERWISE NOTED. GALVANIZING SHALL BE PERFORMED AFTER SHOP FABRICATION TO THE GREATEST EXTENT POSSIBLE. ALL DINGS, SCRAPES, MARS AND WELDS IN THE GALVANIZED AREAS SHALL BE REPAIRED BY FIELD TOUCHUP PRIOR TO COMPLETION OF THE WORK USING ZRC COLD GALVANIZING COMPOUND OR APPROVED EQUAL.
4. CONNECTIONS:
   A. ALL BOLTS, NUTS AND WASHERS USED IN EXTERIOR APPLICATIONS SHALL BE GALVANIZED.

DESIGN LOADS:

THE FOLLOWING DESIGN LOADS WERE USED FOR THIS BUILDING BASED ON THE 2005 CONNECTICUT STATE BUILDING CODE (IBC 2003), 2005 CONNECTICUT SUPPLEMENT AND THE 2009 AMENDMENT TO THE 2005 CONNECTICUT SUPPLEMENT AND TIA/EIA-222-G:

ICE LOAD:
1/2" RADIAL ON ALL COMPONENTS AND CABLE

WIND DESIGN DATA:
BASIC WIND SPEED (3 SECOND GUST): 105 MPH
WIND IMPORTANCE FACTOR = 1.0
WIND EXPOSURE CATEGORY: B

EARTHQUAKE DESIGN DATA:
SEISMIC IMPORTANCE FACTOR, I: 1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS: SS=0.269 S1=0.064
SITE CLASS: D
SEISMIC DESIGN CATEGORY: B

at&t
Your world. Delivered.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

Drawing Copyright © 2011

CHA
2139 Silas Deane Highway, Suite 212 · Rocky Hill, CT 06067-2236
Main: (860) 257-4467 · www.chacompanies.com

CHA PROJECT NO:
22702 - 1014 - 43000

NO.	SUBMITTAL		
0	03/14/11	ISSUED FOR REVIEW	
	BY: TAC	CHK: PAL	APP'D: JPS
1	04/08/11	ISSUED FOR CONSTRUCTION	
	BY: TAC	CHK: PAL	APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBIECKI
No. 17827
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
CT2203
SITE NAME:
MONROE-MOOSE HILL RD
SITE ADDRESS:
500 MOOSE HILL ROAD
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN01

FDH Engineering, Inc., 2730 Rowland Rd. Raleigh, NC 27615, Ph. 919.755.1012, Fax 919.755.1031

Structural Analysis for SBA Network Services, Inc.

149 ft Monopole

SBA Site Name: Moosehill
SBA Site ID: CT13056-A

FDH Project Number 11-06183E S1

Prepared By:

Taylor LaForge
Project Engineer

Reviewed By:

Christopher M. Murphy, P.E.
President
CT PE License No. 25842

FDH Engineering, Inc.
2730 Rowland Rd.
Raleigh, NC 27615
(919) 755-1012
info@fdh-inc.com

June 16, 2011

Prepared pursuant to TIA/EIA-222-F June 1996 Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Monroe, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F.* Information pertaining to the existing/proposed antenna loading, current tower geometry, and member sizes was obtained from Sabre Communications Corporation (Job No. 02-03107 Revision A) Structural Design Report dated April 3, 2002, FDH, Inc. (Job No. 08-07121T Revised) TIA Inspection Report dated November 10, 2008, and SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standard is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the current and proposed antennas from AT&T at 139 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundations were designed and constructed to support the original design reactions (see Sabre Job No. 02-03107 Revision A), the foundation should have the necessary capacity to support both the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e. the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax should be installed inside the pole's shaft.
2. The proposed RRHs should be installed behind the proposed panel antennas.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from this layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 – Appurtenance Loading

Existing Loading:

Antenna No.	Antenna Elevation (ft)	Description	Coax and Lines [1]	Carrier	Mount Elevation (ft)	Mount Type
1	152.5	(1) Decibel DB404-B Dipole	(1) 7/8"	Town of Monroe	149	(1) Pipe Mount
2-12	147[2]	(6) Decibel 948F85T2E-M (3) Argus LLPX310R (1) Andrew VHLP2-11 Dish (1) Andrew VHLP800-11-DW1 Dish (3) Samsung U-RAS Flexible RRHs	(6) 1-5/8" (6) 5/16" (2) 1/2"	Sprint/ Clearwire	147	(1) 12.5' Low Profile Platform
13-18	139[3]	(6) Powerwave 7770 (6) Powerwave LGP13514 Diplexers (6) Powerwave LGP21401 TMAs	(12) 1-1/4"	AT&T	139	(1) 13' Low Profile Platform
---	---	---	---	---	128	(1) 12.5' Low Profile Platform
19-30	121	(9) EMS RR90-17-02DP (3) RFS APX16DWV-16DWVS-A20 (6) Powerwave LGP13901 TMAs (3) RFS ATMAA1412D-1A20 TMAs	(18) 1-5/8" (6) 7/8"	T-Mobile	121	(1) 13' Low Profile Platform
31-42	109	(12) Decibel DB844H90E-XY	(12) 7/8"	Nextel	109	(1) 14' Low Profile Platform
43-54	99[4]	(6) Antel LPA-80090/4CF (6) Antel LPA-185090/8CF	(12) 1-5/8"	Verizon	99	(1) 12.5' Low Profile Platform
55	64[5]	(1) Decibel 26OB GPS	(1) 1/2"	Sprint	64	(1) 3' Standoff

1. Coax installed inside the pole's shaft unless otherwise noted.
2. The (6) 1-5/8" coax for Sprint/Clearwire is installed on the outside of the pole's shaft in a single row.
3. The loading for AT&T at 139 ft will be altered. See the proposed loading below.
4. The coax for Verizon at 99 ft is installed on the outside of the pole's shaft double stacked.
5. The coax for Sprint at 64 ft is installed on the outside of the pole's shaft.

Proposed Loading:

Antenna No.	Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
1-9	139[1]	(6) Powerwave 7770 (3) Powerwave P65-16 (6) Powerwave LGP 21401 TMAs (6) Powerwave LGP 13519 Diplexers (6) Ericsson RRUS-11 RRHs (1) Raycap DC6-48-60-18-8F Surge Suppressor	(12) 1-1/4" (1) 0.393" (2) 0.645"	AT&T	139	(1) 13' Low Profile Platform

1. This represents the final configuration for AT&T at 139 ft. According to information provided by SBA, AT&T will add (3) Powerwave P65-16 antennas, (6) Ericsson RRUS-11 RRHs, (1) Raycap DC6-48-60-18-8F Surge Suppressor, (1) 0.393" Fiber Cable, and (2) 0.645" DC Cables at 139 ft.

RESULTS

Based on information obtained from the original design drawings, the yield strength of steel for individual members was as follows:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Flange Plate	60 ksi
Flange Bolts	Fu = 120 ksi
Base Plate	60 ksi
Anchor Bolts	75 ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information.

Table 3 – Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	149 - 129	Pole	TP28.82x24x0.1875	25.6	Pass
	129	Flange Bolts	(8) 1" ø w/ BC = 32.5"	50.1	Pass
	129	Flange Plate	36.25"ø PL x 1" thk.	45.2	Pass
L2	129 - 96	Pole	TP36.9x28.82x0.25	57.5	Pass
L3	96 - 47.25	Pole	TP48.15x35.237x0.3125	82.7	Pass
L4	47.25 - 0	Pole	TP58.91x46.0768x0.375	84.6	Pass
		Anchor Bolts	(16) 2.25" ø w/ BC = 66"	81.5	Pass
		Base Plate	64" Square PL x 3" thk.	65.1	Pass

Table 4 – Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	43 k	45 k
Shear	34 k	39 k
Moment	3,556 k-ft	4,184 k-ft

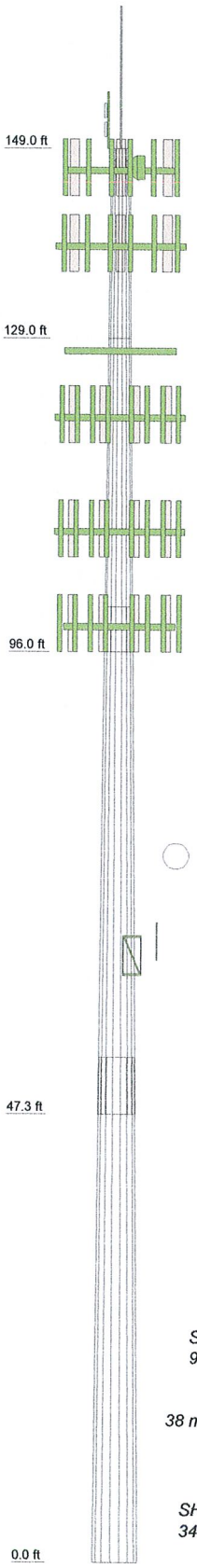
GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

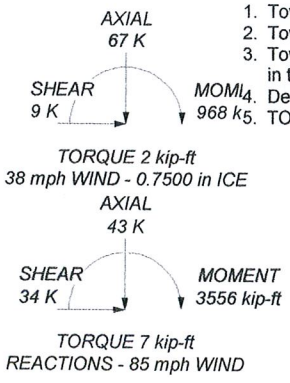
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusion are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX



Section	1	2	3	4
Length (ft)	20.00	33.00	53.50	53.25
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3125	0.3750
Socket Length (ft)		4.75	6.00	
Top Dia (in)	24.0000	28.8200	35.2370	46.0768
Bot Dia (in)	28.8200	36.9000	48.1500	58.9100
Grade	A572-65			
Weight (K)	1.1	2.9	7.5	11.2

Total Weight (K) 22.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1/2"x4' on 15' Pole	149	(2) Powerwave - 7770 w/ mount pipe (ATI)	139
Pipe Mount	149	(2) Powerwave - 7770 w/ mount pipe (ATI)	139
Decibel - DB404-B Dipole (Town of Monroe)	149	(4) Pipe Mount	128
Pipe Mount (Town of Monroe)	149	(4) Pipe Mount	128
(2) Decibel - 948F85T2E-M w/ mount pipe (Sprint)	147	(4) Pipe Mount	128
(2) Decibel - 948F85T2E-M w/ mount pipe (Sprint)	147	12.5' Low Profile Platform	128
(2) Decibel - 948F85T2E-M w/ mount pipe (Sprint)	147	RFS - APX16DWV-16DWVS-A20 w/ mount pipe (T-Mobile)	121
Argus LLPX310R w/ Mount Pipe (Sprint)	147	RFS - APX16DWV-16DWVS-A20 w/ mount pipe (T-Mobile)	121
Argus LLPX310R w/ Mount Pipe (Sprint)	147	RFS - APX16DWV-16DWVS-A20 w/ mount pipe (T-Mobile)	121
Argus LLPX310R w/ Mount Pipe (Sprint)	147	RFS - ATMAA1412D-1A20 TMA (T-Mobile)	121
U-RAS Flexible RRH ODU (Sprint)	147	RFS - ATMAA1412D-1A20 TMA (T-Mobile)	121
U-RAS Flexible RRH ODU (Sprint)	147	RFS - ATMAA1412D-1A20 TMA (T-Mobile)	121
U-RAS Flexible RRH ODU (Sprint)	147	(2) LGP13901 TMA (T-Mobile)	121
12.5' Low Profile Platform (Sprint)	147	13' Low Profile Platform (T-Mobile)	121
VHLP2-11 (Clearwire)	147	(3) RR90-17-02DP w/Mount Pipe (T-Mobile)	121
VHLP800-11-DW1 (Clearwire)	147	(3) RR90-17-02DP w/Mount Pipe (T-Mobile)	121
(2) Powerwave - 7770 w/ mount pipe (ATI)	139	(3) RR90-17-02DP w/Mount Pipe (T-Mobile)	121
(2) Powerwave - LGP21401 TMAs (ATI)	139	(2) LGP13901 TMA (T-Mobile)	121
(2) Powerwave - LGP21401 TMAs (ATI)	139	(2) LGP13901 TMA (T-Mobile)	121
(2) Powerwave - LGP21401 TMAs (ATI)	139	(4) DB844H90E-XY w/Mount Pipe (Nextel)	109
(2) Powerwave - LGP13514 Diplexers (ATI)	139	(4) DB844H90E-XY w/Mount Pipe (Nextel)	109
(2) Powerwave - LGP13514 Diplexers (ATI)	139	(4) DB844H90E-XY w/Mount Pipe (Nextel)	109
(2) Powerwave - LGP13514 Diplexers (ATI)	139	14' Low Profile Platform (Nextel)	109
Pipe Mount (ATI)	139	(2) LPA-185090/8CF w/Mount Pipe (Verizon)	99
Pipe Mount (ATI)	139	(2) LPA-185090/8CF w/Mount Pipe (Verizon)	99
Pipe Mount (ATI)	139	(2) LPA-80090/4CF w/Mount Pipe (Verizon)	99
13' Low Profile Platform (ATI)	139	(2) LPA-80090/4CF w/Mount Pipe (Verizon)	99
Powerwave - P65-16 w/ mount pipe (ATI)	139	12.5' Low Profile Platform (Verizon)	99
Powerwave - P65-16 w/ mount pipe (ATI)	139	(2) LPA-80090/4CF w/Mount Pipe (Verizon)	99
Powerwave - P65-16 w/ mount pipe (ATI)	139	(2) LPA-185090/8CF w/Mount Pipe (Verizon)	99
(2) Ericsson RRUS-11 RRH (ATI)	139	Decibel - 26OB GPS	64
(2) Ericsson RRUS-11 (ATI)	139	3' Standoff	64
(2) Ericsson RRUS-11 (ATI)	139		
Raycap - DC6-48-60-18-8F Surge Protection (ATI)	139		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 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 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 84.6%

FDH Engineering, PC.
2730 Rowland Road, Suite 100
Raleigh, NC 27615
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: Moosehill - CT13056-A			
Project: 11-06183E S1			
Client: SBA Network Services, Inc.	Drawn by: Sean O'Sullivan	App'd:	
Code: TIA/EIA-222-F	Date: 06/16/11	Scale: NTS	
Path: I:\Fdh-server\projects\2011 Projects\S - Z\sc\11-06183E\Moosehill - CT\S1 - SA ATT\Analysis\Moosehill CT Tower.eri		Dwg No. E-1	

P65-16-XLH-RR | Dual Broadband Antennas

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

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	698-894		1710-2170		
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 (Ω)	50			50	
VSWR	< 1.5:1			< 1.5:1	
Horizontal beam width, -3 dB (°)	66	65	60	63	63
Vertical beam width, -3 dB (°)	14.7	12.5	6.8	6.4	5.7
Electrical down tilt (°)	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 ±60° (dB)	< 2		< 2	< 2	< 2
First null fill (dB)			>-20	>-20	>-20
Vertical beam squint (°)	< 0.8	< 0.8	< 0.5	< 0.5	< 0.5
Front to back ratio (dB) 180°±30° copolar	>24	>24	> 30	>30	>28
Front to back ratio (dB) 180°±30° total power					
Cross polar discrimination (XPD) 0° (dB)	> 15	> 15	> 15	> 15	> 15
Cross polar discrimination (XPD) ±60° (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/.

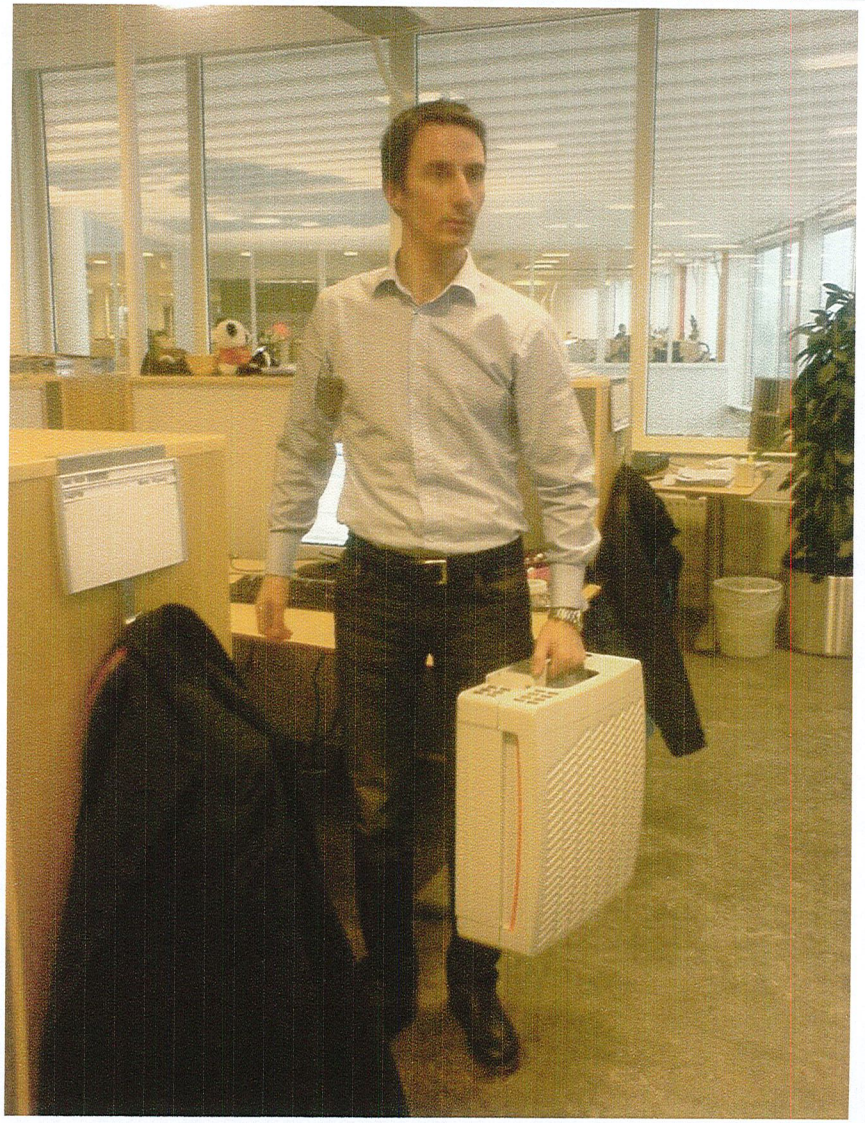
© Copyright 2011 Powerwave Technologies, Inc. All rights reserved.
All specifications are subject to change without notice. Please contact your Powerwave representative for complete performance data.

RRUS 11 – Dual PA RRU.

Technical Data

RBS6000

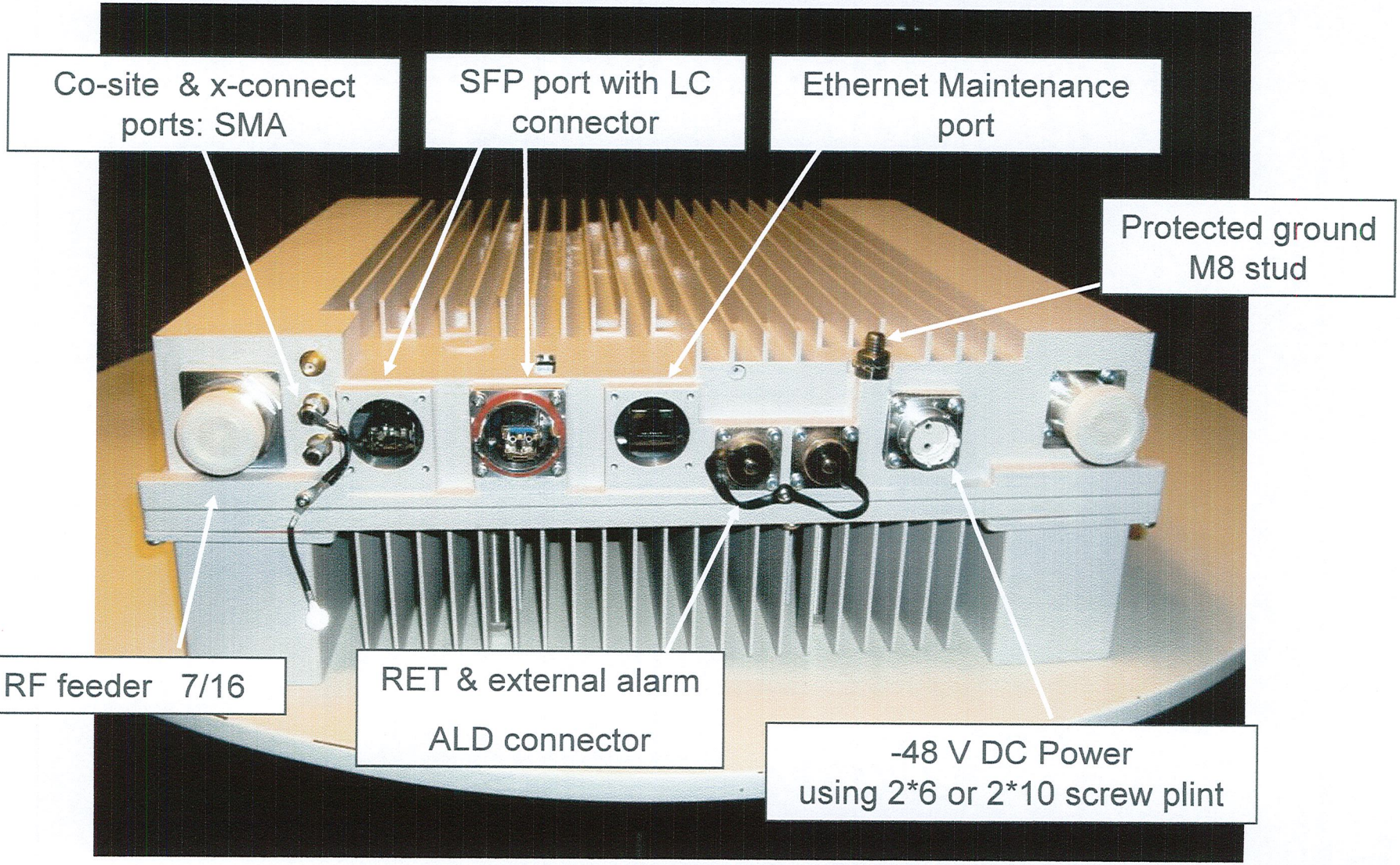
- Multi standard
- RF: 2x30 Watts
- Carrier BW: 1.4 – 20 MHz
- Alarms: 2
- Dimensions (with sunshield):
  - Width: 17.0 in
  - Height: 17.8 in
  - Depth: 7.2 in
  - Weight: 55 lbs (Band 12)
  - Weight: 50 lbs (Band 4)
- Temperature: -40 to +131 F
- Cooling: Self convection
- Power: -48 VDC
- Rec. fuse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



© Ericsson Inc 2010

RRUS-11 I/F

RBS6000



© Ericsson Inc 2010

POWER

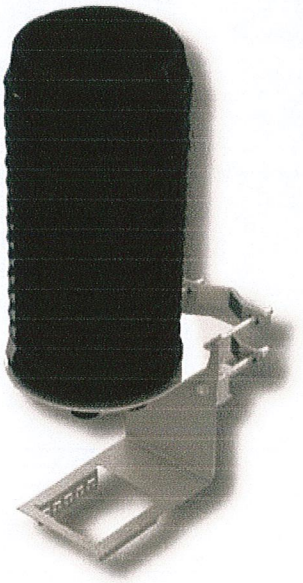
DC6-48-60-18-8F

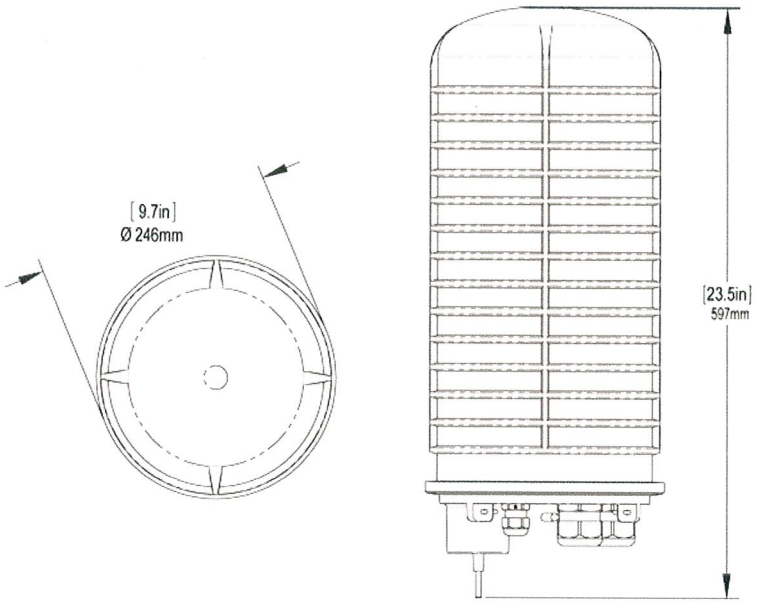
DC Surge Suppression Solution

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

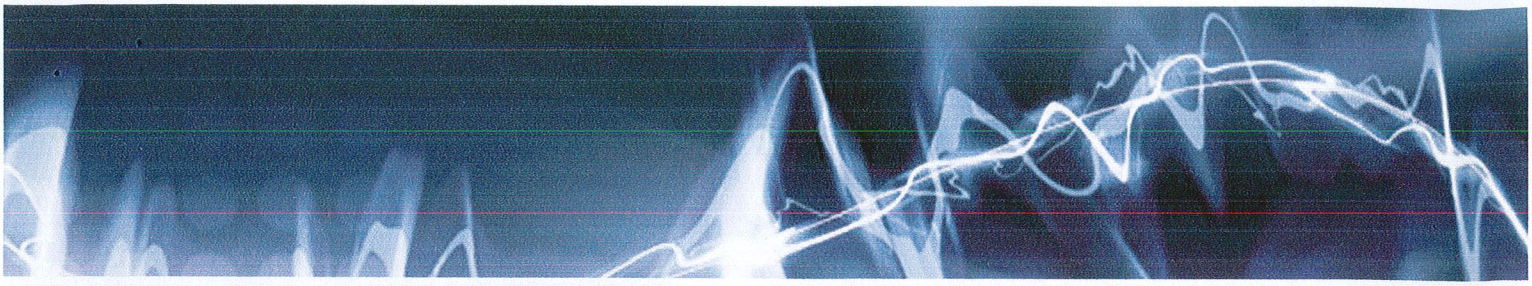
- Protects up to 6 Remote Radio Heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for Remote Radio Head protection.
- Includes fiber connections for up to 18 pairs of fiber.
- LED indicators on individual circuits provide visual indication of 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

Phone 208.777.1166 Toll Free 800.890.2569 Fax 208.777.4466 www.raycapsurgeprotection.com



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 µs
Maximum Discharge Current (I_{max}) per NEMA LS-1	60 kA 8/20 µs
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)

GS-07F-0435V

Certified to ISO 9001:2000

TÜV Rheinland of North America

Raycap

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

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 22, 2011

Honorable Steve Vavrek
1st Selectman, Monroe
Monroe Town Hall
7 Fan Hill Road
Monroe, CT 06468

Re: Telecommunications Facility – 500 Moose Hill Road Monroe, CT

Dear First Selectman Vavrek:

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