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

November 25, 2011

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

RE: **EM-CING-085-111107** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 88 Main Street, Monroe, Connecticut.

Dear Ms. Fournier:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated November 3, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts LRB

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Stephen Vavrek, First Selectman, Town of Monroe
Hans Fiedler, T-Mobile
Julie M. Kohler, Esq., Cohen and Wolf

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

H. Karina Fournier
Real Estate Consultant

November 18, 2011

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

Re: Request by New Cingular Wireless PCS, LLC for an Order Approving Shared Use of an Existing Tower located at 88 Main Street Monroe, CT

Dear Chairman Stein and Members of the Council:

Pursuant to Connecticut General Statutes Section 16-50aa, Cingular has requested an order approving shared use of the tower from the Connecticut Siting Council. The request should have been for an exempt modification pursuant to R.C.S.A 16-50j-73.

Please accept this letter as a request for the proper review. If you have any questions please contact me at 860-796-3988.

Sincerely,

H. Karina Fournier
Real Estate Consultant

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

November 10, 2011

The Honorable Stephen Vavrek
First Selectman
Town of Monroe
Town Hall
7 Fan Hill Road
Monroe, CT 06468-1800

RE: **EM-CING-085-111107** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 88 Main Street, Monroe, Connecticut.

Dear First Selectman Vavrek:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by November 25, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts MAB

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

EM-CING-085-111107

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

Karina Fournier
Real Estate Consultant

November 3, 2011

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

Re: Request by New Cingular Wireless PCS, LLC for an Order Approving Shared Use of an Existing tower at 88 Main Street Monroe, CT.

Dear Chairman Stein and Members of the Council:

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

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

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

The changes to the facility do not constitute modifications as defined in Connecticut General Statues ("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. 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 contact me at 860-796-3988 with questions concerning this matter. Thank you for your consideration.

Sincerely,

H. Karina Fournier
Real Estate Consultant

Attachments

Exhibit 1

NEW CINGULAR WIRELESS PCS, LLC
WIRELESS COMMUNICATIONS FACILITY CT5189
MONROE - SOUTH

88 MAIN STREET
MONROE, CONNECTICUT

PROJECT SUMMARY

SITE NUMBER:	CT5189
SITE NAME:	MONROE - SOUTH
SITE ADDRESS:	88 MAIN STREET MONROE, CT 06468
STRUCTURE OWNER:	T-MOBILE
APPLICANT:	NEW CINGULAR WIRELESS PCS, LLC 500 ENTERPRISE DRIVE ROCKY HILL, CT 06067
CONTACT:	MICHAEL D. FOLEY (203) 414-1184
COORDINATES:	41° 18' 5.95"N 73° 15' 2.81"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

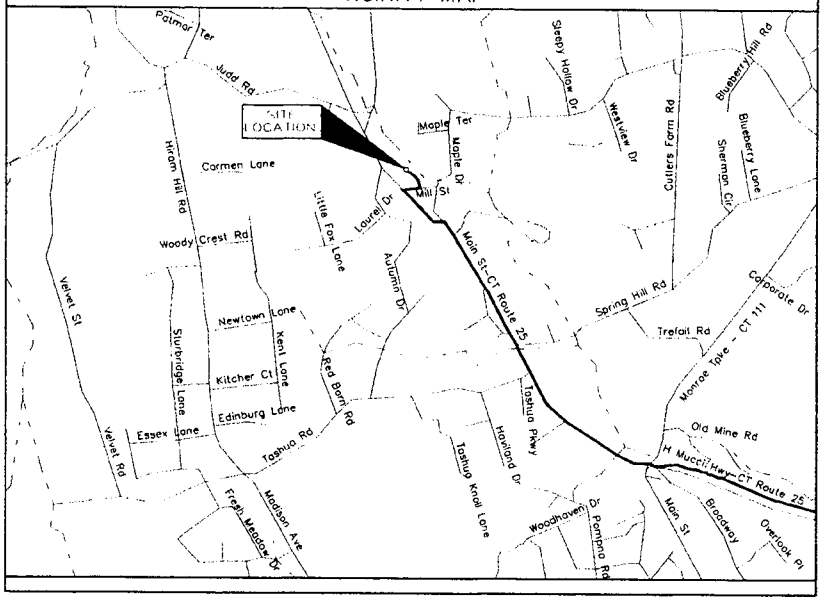
FROM HARTFORD

1. TURN LEFT TO MERGE ONTO I-91 S
2. TAKE EXIT 17 FOR CT-15 S/W CROSS PKWY
3. MERGE ONTO CT-15 S
4. TAKE EXIT 49 TO MERGE ONTO CT-25 N (MAIN ST)
5. SHARP RIGHT AT MILL ST
6. FOLLOW MILL STREET FOR APPROXIMATELY 200 FT, DESTINATION WILL BE ON THE LEFT BEHIND THE FIRE DEPARTMENT

PROJECT DESCRIPTION

THIS PROJECT ADDS THREE ANTENNAS, (6) RRH, SURGE ARRESTORS, AND A RADIO CABINET TO AN EXISTING TELECOMMUNICATIONS SITE

VICINITY MAP



MAY 25, 2011

SHEET INDEX

SHEET NO:	SHEET TITLE	REVISION HISTORY NO:	REVISION HISTORY DATE
T01	TITLE SHEET	1	05 / 25 / 11
C01	COMPOUND PLAN	1	05 / 25 / 11
C02	EQUIPMENT PLAN	1	05 / 25 / 11
C03	ELEVATION AND ANTENNA PLAN	1	05 / 25 / 11
C04	STRUCTURAL DETAILS	1	05 / 25 / 11
C05	STRUCTURAL DETAILS	1	05 / 25 / 11
E01	GROUNDING DETAILS & PLUMBING DIAGRAM	1	05 / 25 / 11
GN01	GENERAL NOTES	1	05 / 25 / 11
GN02	GENERAL NOTES	1	05 / 25 / 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

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NEW CINGULAR WIRELESS PCS, LLC
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Main: (860) 257-4557 · www.chaconnecticut.com

CHA PROJECT NO.
22702 - 1031 - 43000

NO.	SUBMITTAL	
0	03/22/11	ISSUED FOR REVIEW
	BY: TAD	CHK: PAL / APPD: JPS
1	05/25/11	ISSUED FOR CONSTRUCTION
	BY: JDM	CHK: PAL / APPD: JPS

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

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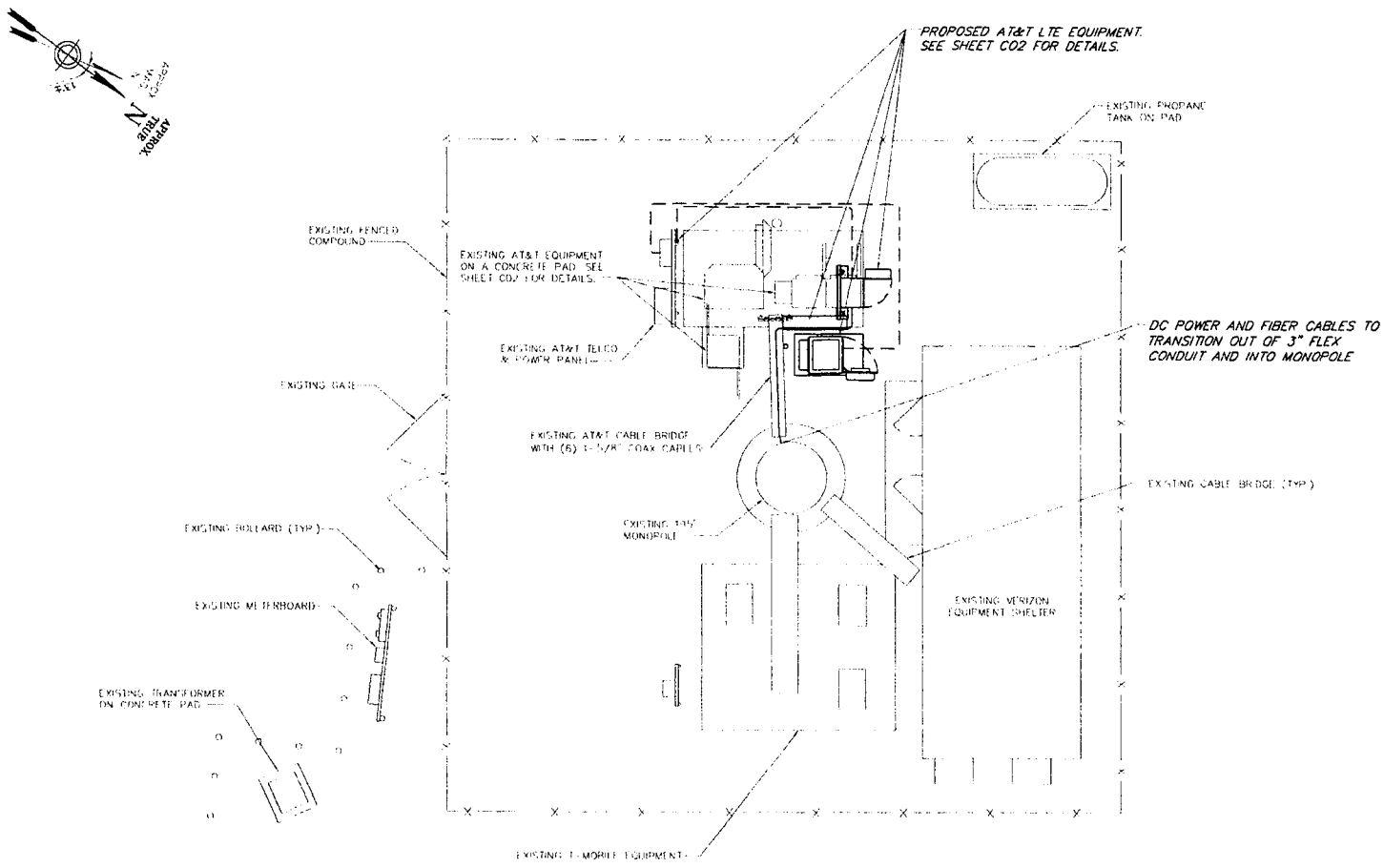
SITE ID:
CT5189
SITE NAME:
MONROE-SOUTH
SITE ADDRESS:
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T01



1 / C01 SITE PLAN

GRAPHIC SCALE

8 0 4 8

IN FEET

NOTE:
1. PLANS BASED ON A SITE VISIT BY CHA ON MARCH 08, 2011, AND DRAWINGS PREPARED BY HUDSON DESIGN GROUP, LLC., LAST DATED 06/05/08.

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500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

CHA

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Main: (860) 257-4057 · www.chacompanies.com

CHA PROJECT NO.
22702 - 1031 - 43000

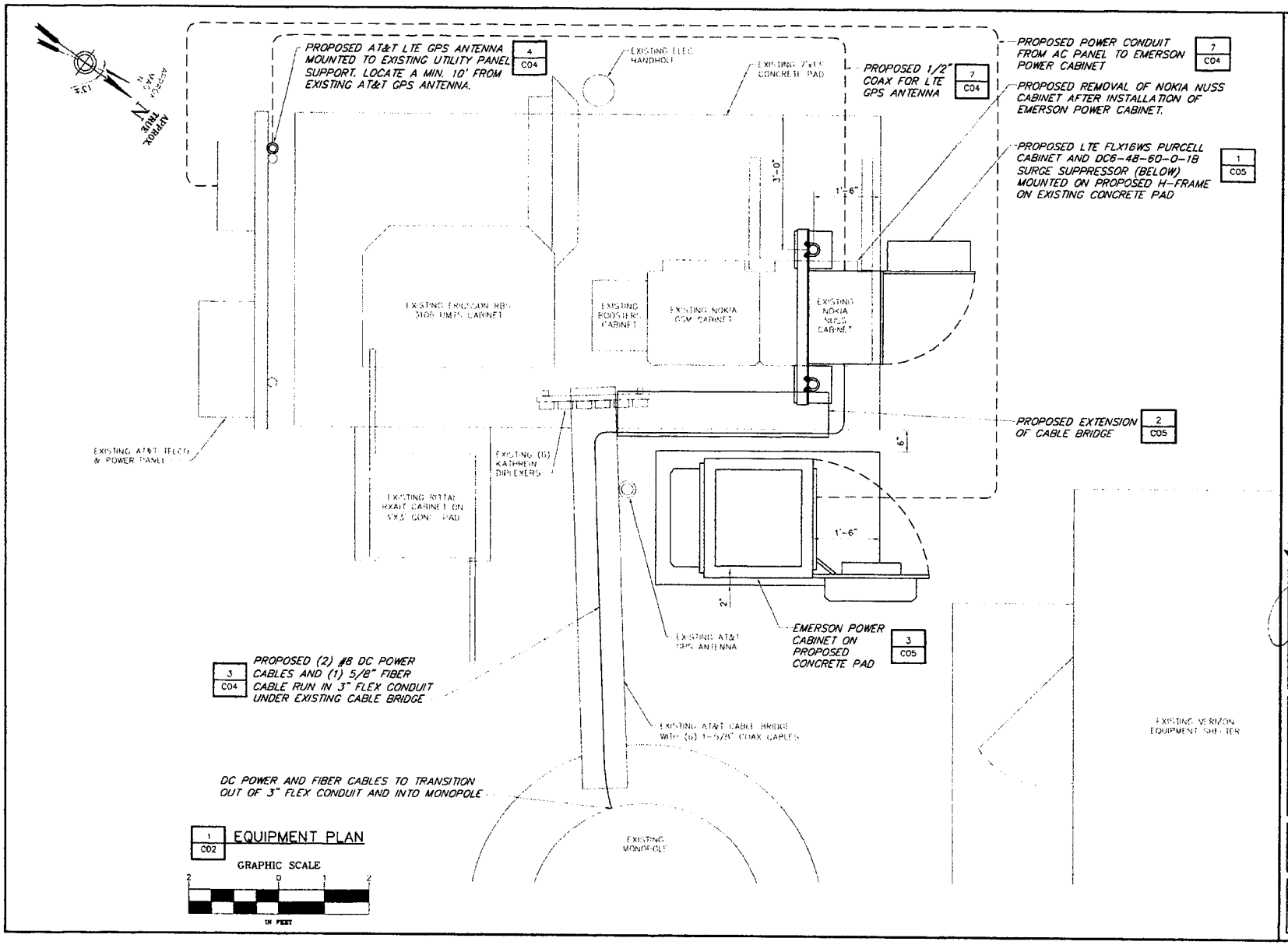
NO.	SUBMITTAL	
D	03/23/11	ISSUED FOR REVIEW
	BY: TAD	CHK: PAL / APP'D: JPS
C	05/25/11	ISSUED FOR CONSTRUCTION
	BY: JDM	CHK: PAL / APP'D: JPS

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

SITE ID:
CT5189
SITE NAME:
MONROE-SOUTH
SITE ADDRESS:
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
C01



1 C02 EQUIPMENT PLAN

GRAPHIC SCALE

2 0 1 2

IN FEET

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NO.	SUBMITTAL	
0	03/22/11	ISSUED FOR REVIEW
	BY: TAD	CHK: PAL APP'D: JPS
1	04/25/11	ISSUED FOR CONSTRUCTION
	BY: KAP	CHK: PAL APP'D: JPS

STATE OF CONNECTICUT
JOHN P. SOBIESKI, JR.
No. 17827
LICENSED PROFESSIONAL ENGINEER

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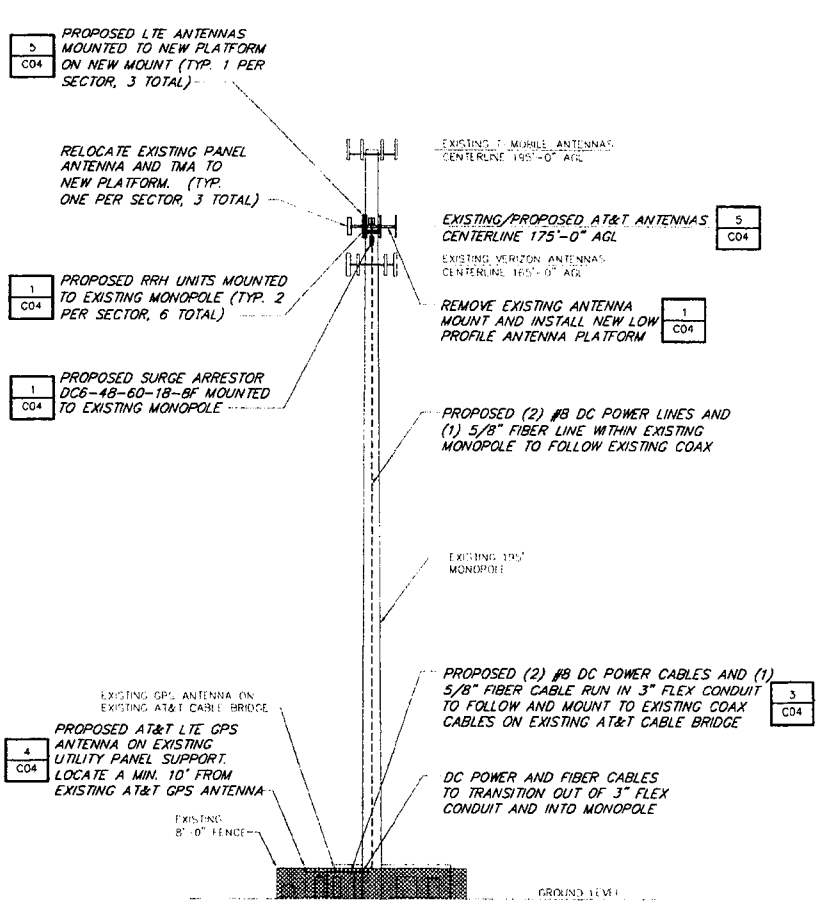
SITE ID:
CT5189
SITE NAME:
MONROE-SOUTH
SITE ADDRESS:
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
EQUIPMENT PLAN

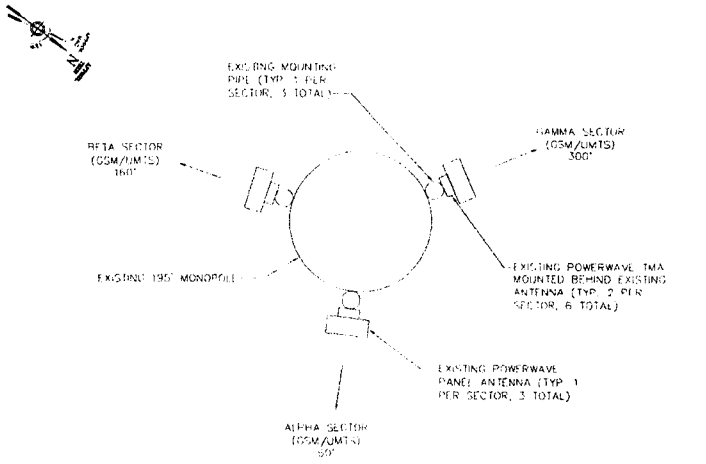
SHEET NUMBER
C02



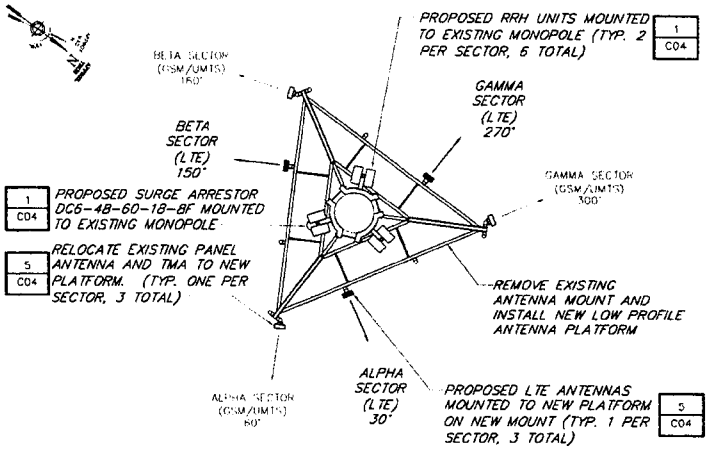
1 C03 TOWER ELEVATION
SCALE: 1" = 15' FULL SIZE
1" = 30' 11 X 17

GRAPHIC SCALE
30 0 15 30
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

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

NOTE:
REFER TO FINAL RFDS FOR FINAL SECTOR CONFIGURATIONS.

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CHA PROJECT NO.
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NO.	SUBMITTAL	
0	03/22/11	ISSUED FOR REVIEW
	BY: TAO	CHK: JAL / APP'D: JPS
1	05/25/11	ISSUED FOR CONSTRUCTION
	BY: JDM	CHK: JAL / APP'D: JPS

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

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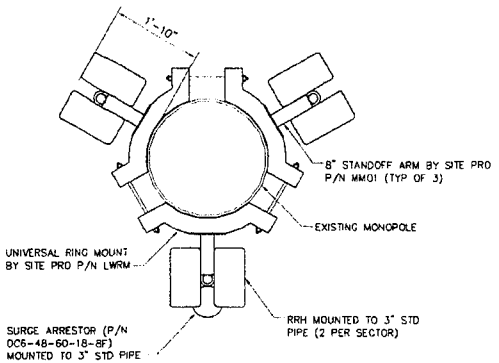
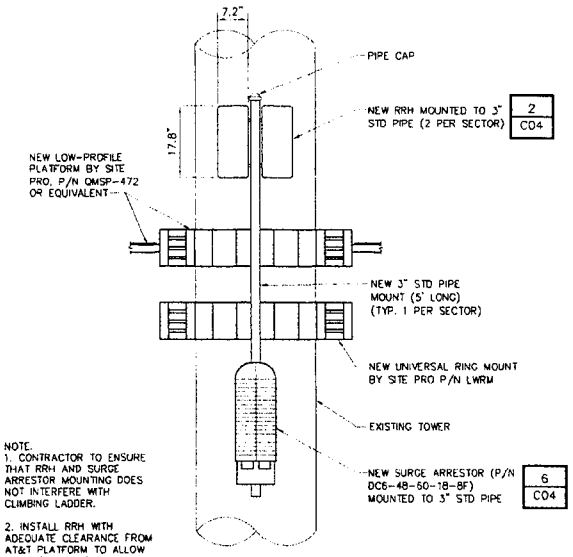
SITE ADDRESS:
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
ELEVATION AND ANTENNA PLAN

SHEET NUMBER
C03



PLAN

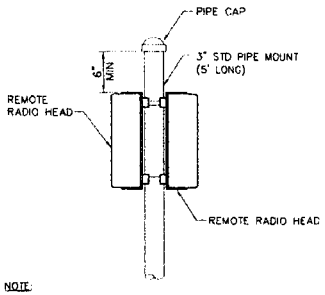


NOTE.
1. CONTRACTOR TO ENSURE THAT RRH AND SURGE ARRESTOR MOUNTING DOES NOT INTERFERE WITH CLIMBING LADDER.

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

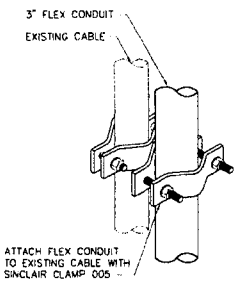
ELEVATION

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

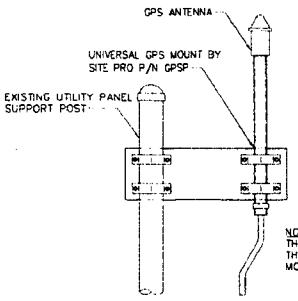


NOTE:
REMOTE RADIO HEAD MOUNTING BRACKET AND HARDWARE TO BE PROVIDED BY MANUFACTURER.

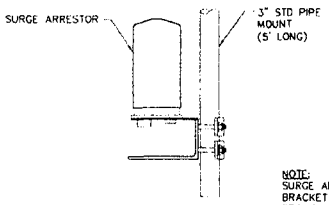
2 / C04 RRH MOUNTING DETAIL
SCALE: NTS



3 / C04 FLEX CONDUIT DETAIL
SCALE: NTS

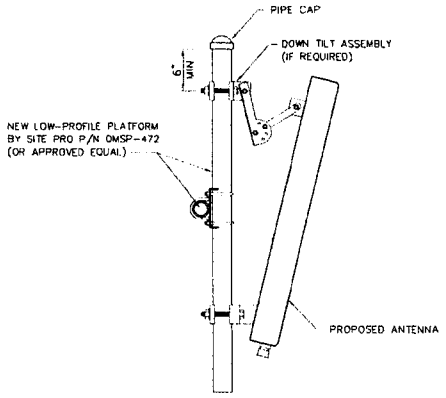


4 / C04 GPS MOUNTING DETAIL
SCALE: NTS



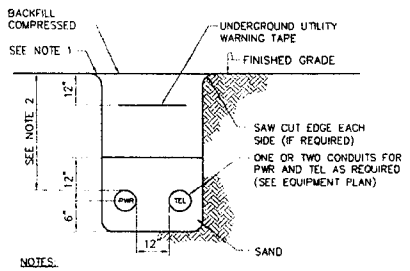
NOTE:
SURGE ARRESTOR MOUNTING BRACKET AND HARDWARE TO BE PROVIDED BY MANUFACTURER.

6 / C04 SURGE ARRESTOR MOUNTING DETAIL
SCALE: NTS



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

5 / C04 TYPICAL ANTENNA MOUNTING DETAIL
SCALE: NTS



NOTES.
1. REPLACE EXISTING SURFACE CONDITIONS IN KIND TO INCLUDE, BUT NOT LIMITED TO, CONCRETE, CRUSHED STONE, SELECT GRAVEL, ASPHALT, TOPSOIL AND GRASS.
2. 36" MIN. COVER.

7 / C04 UNDERGROUND CONDUITS
SCALE: NTS

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STATE OF CONNECTICUT
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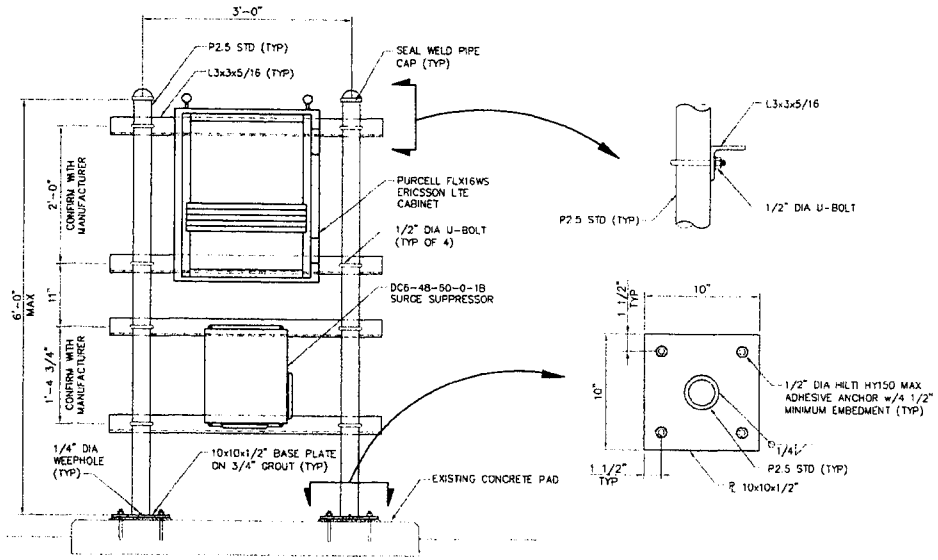
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

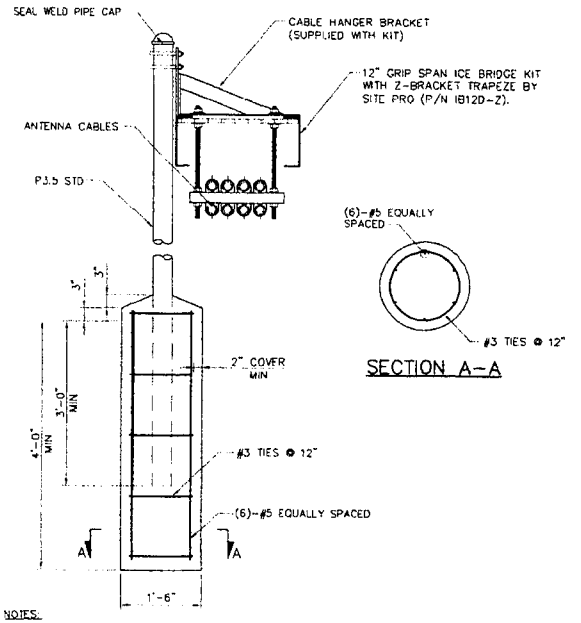
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
C04



1 C05 PURCELL AND SURGE ARRESTOR MOUNTING DETAIL

SCALE: NTS

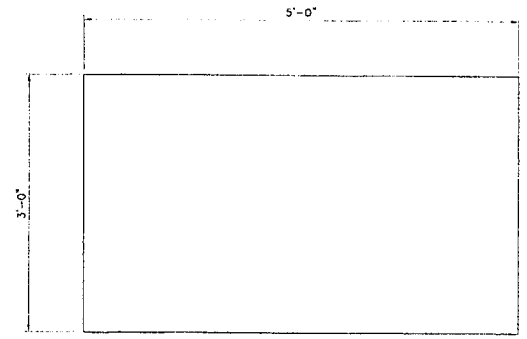


NOTES:

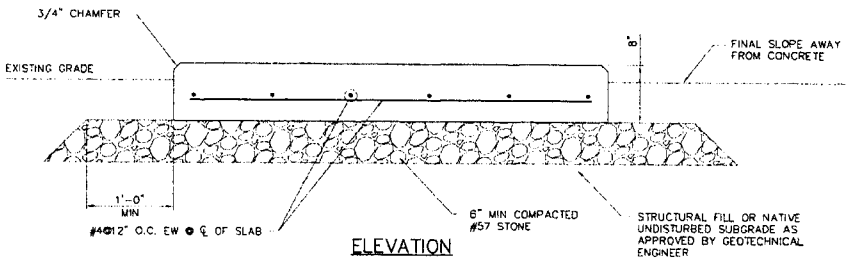
1. USE SITE PRO PARTS OR APPROVED EQUAL.
2. SUPPORT POSTS SHALL BE LOCATED ON ALTERNATING SIDES OF ICE BRIDGE SPACED NO MORE THAN 6'-0".
3. ANY SPLICES OR CANTILEVERED SECTIONS OF THE ICE BRIDGE SHALL BE LOCATED WITHIN 2'-0" OF A SUPPORT POST.

2 C05 ICE BRIDGE SUPPORT POST DETAIL

SCALE: NTS



PLAN



ELEVATION

3 C05 CONCRETE PAD DETAIL

SCALE: NTS

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500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

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Main: (860) 257-4057 · www.chacompanies.com

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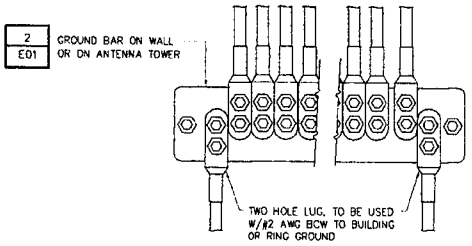
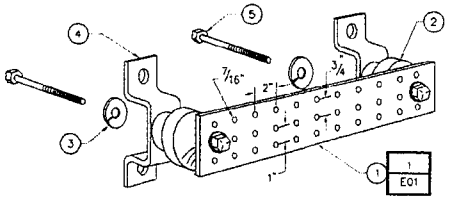
STRUCTURAL DETAILS

SHEET NUMBER
C05



1 E01 GROUND WIRE INSTALLATION TO GROUND BAR

NO SCALE

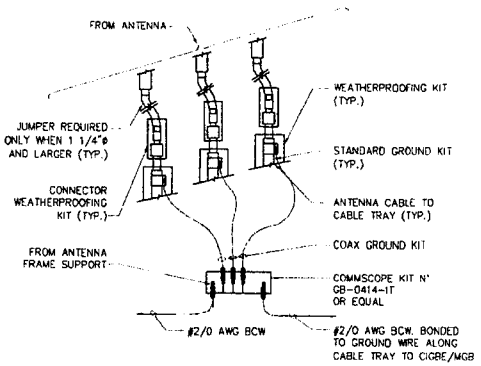


LEGEND

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-6036
5 - 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

2 E01 GROUND BAR

NO SCALE

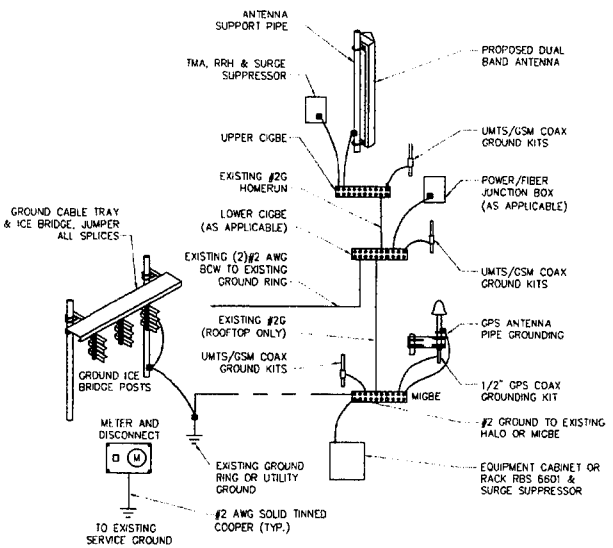


NOTE:

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

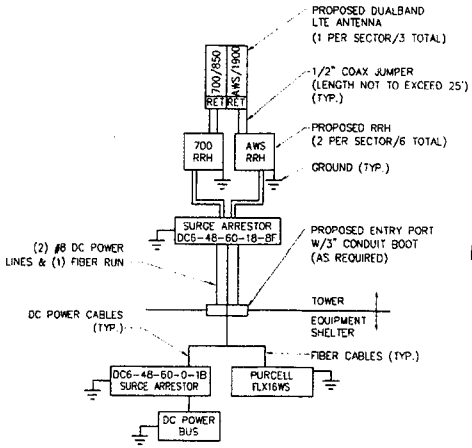
3 E01 GROUND WIRE TO GROUND BAR CONNECTION DETAIL

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

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CHA PROJECT NO.
22702 - 1031 - 43000

NO	SUBMITTAL		
0	03/22/11	ISSUED FOR REVIEW	
	BY: TAC	CHK: PAL	APP'D: JDK
	05/25/11	ISSUED FOR CONSTRUCTION	
	BY: JDK	CHK: PAL	APP'D: JDK

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

SITE ID:
CT5189
SITE NAME:
MONROE-SOUTH
SITE ADDRESS:
88 MAIN STREET
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 FROM 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-F.
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-F

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

WIND DESIGN DATA:
BASIC WIND SPEED (3 SECOND GUST): 85 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

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

CHA
2139 Silas Deane Highway, Suite 212 Rocky Hill, CT 06067-2338

CHA PROJECT NO:
22702 – 1031 – 43000

NO	SUBMITTAL	
2	03/22/11	ISSUED FOR REVIEW
	BY: AO	CHK: PAL APPD: JPS
1	03/25/11	ISSUED FOR CONSTRUCTION
	BY: JDM	CHK: PAL APPD: JPS

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

SITE ID:
CT5189
SITE NAME:
MONROE-SOUTH
SITE ADDRESS:
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN01

FOUNDATION AND SOIL PREPARATION NOTES:

1. BEAR ALL FOOTINGS ON COMPACTED STRUCTURAL FILL OR NATIVE UNDISTURBED SOIL AS APPROVED BY THE GEOTECHNICAL ENGINEER. SOIL BEARING SURFACES, PREVIOUSLY ACCEPTED BY OWNER'S REPRESENTATIVE, WHICH ARE ALLOWED TO BECOME SATURATED, FROZEN OR DISTURBED SHALL BE REWORKED TO SATISFACTION OF OWNER'S REPRESENTATIVE.
2. BEAR ALL CONCRETE PADS AND SLABS ON GRADE ON A 6" LAYER OF ASTM #57 STONE. SUBGRADE BELOW STONE LAYER SHALL BE COMPACTED STRUCTURAL FILL OR NATIVE UNDISTURBED SOIL AS APPROVED BY THE GEOTECHNICAL ENGINEER. SOIL BEARING SURFACES, PREVIOUSLY ACCEPTED BY OWNER'S REPRESENTATIVE, WHICH ARE ALLOWED TO BECOME SATURATED, FROZEN OR DISTURBED SHALL BE REWORKED TO SATISFACTION OF OWNER'S REPRESENTATIVE.
3. DO NOT PLACE CONCRETE IN WATER OR ON FROZEN GROUND.
4. DO NOT ALLOW CONCRETE SUBBASE TO FREEZE DURING CONCRETE SETTING AND CURING PERIOD OR FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT.
5. STRUCTURAL FILL AND BACKFILL: SOUND, DURABLE, SAND, GRAVEL, STONE, OR BLENDS OF THESE MATERIALS, FREE FROM ORGANIC, FROZEN OR OTHER DELETERIOUS MATERIALS, AND MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE	PERCENT PASSING
4"	100"
No. 40	0 - 70
No. 200	0 - 10

a. FINES PASSING NO. 200 SHALL BE NON-PLASTIC.
b. PARTICLE SIZE ANALYSIS SHALL SHOWN NO GAP GRADING

6. THE SOIL BENEATH STRUCTURES AND PADS AND 5 FEET AROUND THEIR PERIMETER SHALL BE TREATED AS FOLLOWS:
   A. STRIP THE AREA OF ALL VEGETATION AND REMOVE ALL ORGANICS.
   B. PERFORM ANY CUT OPERATIONS.
   C. PROOF ROLL THE SITE WITH A TANDEM AXLE LOADED DUMP TRUCK IN TWO DIRECTIONS. ANY AREAS WHICH ARE NOTED TO RUT OR PUMP EXCESSIVELY SHALL BE UNDERCUT BY 12" AND BACKFILLED WITH COMPACTED STRUCTURAL FILL ACCORDING TO THE COMPACTION REQUIREMENTS NOTED BELOW.
   D. THE FILL REQUIRED TO RAISE THE SUBGRADE BENEATH THE FLOOR SLAB SHALL BE EITHER IMPORTED STRUCTURAL FILL OR ON SITE MATERIAL MEETING THE REQUIREMENTS OF STRUCTURAL FILL. THE STRUCTURAL FILL SHALL HAVE A PLASTICITY INDEX BETWEEN 4 AND 12 AND A LIQUID LIMIT LESS THAN 40. PLACE ALL FILL (ON SITE OR SELECT) FILL IN 8-INCH LIFTS AND COMPACT TO AT LEAST 95% OF THE STANDARD PROCTOR DENSITY AT A MOISTURE CONTENT WITHIN -3 AND +3 PERCENTAGE POINTS OF OPTIMUM.
   E. EACH LIFT SHALL BE TESTED FOR MOISTURE CONTENT AND IN PLACE DENSITY AT A RATE OF ONE TEST PER 3,000 SQUARE FEET (MIN OF THREE PER LIFT).
   F. ALL CONCRETE PADS AND SLABS-ON-GRADE SHALL BEAR ON A BASE COURSE OF CLEAN, COMPACTED ASTM #57 STONE A MINIMUM OF 6" THICK.
7. CONTRACTOR SHALL FINISH GRADE SITE LEVEL WITH EXISTING, 5 FEET BEYOND PROPOSED PADS AND STRUCTURES, THEN TAPER TO EXISTING GRADE, IF REQUIRED, AT A MAXIMUM SLOPE OF 3:1.

CAST-IN-PLACE CONCRETE NOTES:

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING APPLICABLE CODES: ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
2. MIX DESIGN SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE. PREPARE AND SUBMIT MIX DESIGNS IN ACCORDANCE WITH ACI 211, "PROPORTIONING CONCRETE MIXTURES", AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE."
3. ALL CONCRETE SHALL HAVE A 28 DAY DESIGN COMPRESSIVE STRENGTH OF 4,000 PSI, A MINIMUM OF 564 POUNDS OF ASTM C-150 TYPE I PORTLAND CEMENT PER CUBIC YARD. 4% TO 8% AIR CONTENT USING ASTM C-260 AIR ENTRAINING AGENT AS REQUIRED. 6" +/- 2" SLUMP PRIOR TO THE ADDITION OF ASTM C-494 (TYPE F OR G) WATER REDUCING AGENT. 20% OF CLASS F FLYASH MAY BE USED WITH THE PRIOR APPROVAL OF THE ENGINEER AND THE CONCRETE FINISHER/CONTRACTOR
4. CONCRETE AGGREGATE SHALL MEET ASTM C 33 SPECIFICATIONS AND SHALL HAVE A MAXIMUM SIZE OF 3/4"
5. CONCRETE SHALL HAVE A MAXIMUM WATER TO CEMENT RATIO OF 0.45. ADDITION OF WATER AT THE JOB SITE IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
6. IF THE AIR TEMPERATURE IS GREATER THAN 90 DEGREES WITHIN 24 HOURS AFTER PLACEMENT, HOT WEATHER CONCRETE PROCEDURES PER ACI 305R SHALL BE USED. THE CONTRACTOR SHALL SUBMIT A PROCEDURE TO THE ENGINEER FOR APPROVAL. THESE PROCEDURES MAY INCLUDE THE FOLLOWING:
   A. PLACING THE CONCRETE IN THE EARLY MORNING HOURS
   B. THE USE OF EVAPORATION REDUCER (SEE BELOW)
   C. THE USE OF MISTING AS A CURING METHOD
   D. THE USE OF WET BLANKETS AS A CURING METHOD
   E. THE USE OF A RETARDING ADMIXTURE (NOT PREFERABLE)
7. COLD WEATHER CONCRETING SHALL BE PERFORMED PER ACI 306R REQUIRMENTS
8. FOUR 4X8 CONCRETE CYLINDERS SHALL BE MADE FOR EVERY 75 CUBIC YARDS OR EACH DAYS POUR, TO BE TESTED AT 7, 28, 28 AND ONE TO HOLD. THE CONCRETE SLUMP, TEMPERATURE, AND AIR CONTENT SHALL BE MEASURED EVERY TIME A SET OF FOUR CYLINDERS IS MADE.
9. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE AMERICAN CONCRETE INSTITUTE STANDARDS "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318) AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301). SPLICES IN REINFORCEMENT SHALL MEET CLASS B TENSION LAP REQUIREMENTS UNLESS NOTED OTHERWISE.
10. COVER FOR ALL REINFORCEMENT SHALL MEET THE COVERAGE REQUIREMENTS AS SHOWN IN THE LATEST ACI 318, AS NOTED BELOW OR AS SHOWN ON THE DETAILS. COVER DIMENSIONS SHOWN ON THE DETAILS CONTROL OVER THE ACI 318 OR THOSE NOTED BELOW.
    A. AGAINST FORMED SURFACES: 1 1/2"
    B. AGAINST EARTH: 3"
    C. BETWEEN REBAR: 1 1/2"
    D. TOP OF SLAB ON GRADE: 1 1/2"
11. REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO ASTM A-615, GRADE 60. #4 REINFORCING BARS, AND SMALLER, SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED IN THE FIELD. REINFORCEMENT GREATER THAN A #4 BAR MAY BE BENT IN THE FIELD WITH HEAT UNLESS NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER OTHERWISE.
12. REINFORCING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315.
13. REINFORCING SPLICES SHALL BE CLASS 'B' AND ALL HOOKS SHALL BE STANDARD, UNO. DO NOT WELD REINFORCING
14. PROVIDE 3/4" x 3/4" CHAMFER AT ALL EXPOSED CORNERS UNLESS NOTED OTHERWISE.
15. NO HOLES OR OPENINGS ARE PERMITTED THROUGH CONCRETE SLABS OR WALLS EXCEPT AS FOLLOWS:
    A. WHERE SHOWN AND AS DETAILED ON DRAWINGS.
    B. MISCELLANEOUS HOLES THROUGH SLABS OR WALLS WHICH DO NOT DISPLACE MORE THAN ONE BAR. THESE DO NOT REQUIRE ADDITIONAL REINFORCEMENT.
16. LOCATE ADDITIONAL CONSTRUCTION JOINTS REQUIRED TO FACILITATE CONSTRUCTION AS ACCEPTABLE TO ENGINEER. LOCATE WALL CONSTRUCTION JOINTS AT MASONRY CONTROL JOINTS WHERE POSSIBLE. PLACE REINFORCEMENT CONTINUOUSLY THROUGH JOINT. DETAIL JOINT AND SHOW ON SHOP DRAWINGS.
17. CAST CONCRETE ON SLOPED SURFACES BEGINNING AT LOWEST ELEVATION AND CONTINUING MONOLITHICALLY TOWARD HIGHER ELEVATIONS UNTIL INTENDED POUR IS COMPLETED.
18. PLACE CONCRETE IN A UNIFORM MANNER TO PREVENT THE FORMATION OF COLD JOINTS AND OTHER PLANES OF WEAKNESS. VIBRATE THE CONCRETE TO FULLY EMBED REINFORCING. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE THROUGH CHUTES OR FORMWORK.
19. REINFORCING BARS, BAR SUPPORTS, AND SPACERS SHALL BE DETAILED AND PROVIDED IN ACCORDANCE WITH THE LATEST ACI DETAILING MANUAL. USE WIRE-BAR SUPPORTS COMPLYING WITH CRSI SPECIFICATONS. SUPPORTS SHALL NOT BE PLACED FURTHER THAN 4 FEET APART. DAYTON/RICHMOND PRODUCTS (800-745-3703) OR EQUAL UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS:
    A. AT SLABS-ON-GRADE: (SLAB THICKNESS MINUS 1 1/2 INCHES) HIGH, TYPE R21, OR TYPE BBP USE SUPPORTS WITH SAND PLATES OR HORIZONTAL RUNNERS WHERE BASE MATERIAL WILL NOT SUPPORT CHAIR LEGS. CONCRETE BLOCK OR CLAY MASONRY MAY NOT BE USED.
    B. FOR EXPOSED TO VIEW CONCRETE SURFACES WHERE LEGS OF SUPPORTS ARE IN CONTACT WITH THE FORMS, PROVIDE SUPPORTS WITH LEGS THAT ARE PLASTIC PROTECTED (CRSI, CLASS 1) OR STAINLESS STEEL PROTECTED (CRSI, CLASS 2).
20. USE ONE OF THE FOLLOWING SEALERS ON ALL INTERIOR EXPOSED CONCRETE SURFACES:
    A. SEAL HARD BY L&M
    B. EUCO DIAMOND HARD BY EUCLID
21. DEGUSSA CONFILM OR EUCOBAR EVAPORATION REDUCERS SHALL BE USED AFTER EACH FINISHING OPERATION ON THE CAST IN PLACE CONCRETE FLOOR SLAB UNLESS PRIOR APPROVAL FROM THE ENGINEER HAS BEEN OBTAINED TO NOT USE THIS PRODUCT.
22. SAWCUTS IN CONCRETE SLABS SHALL BE MADE AS SOON AS THE CONCRETE IS OF SUFFICIENT STRENGTH TO SAW WITHOUT RAVELING THE AGGREGATE. ANY TIME LAPSE GREATER THAN 8 HOURS AFTER PLACING THE CONCRETE SHALL BE PERMITTED ONLY IF APPROVED BY THE ENGINEER. FILL ALL INTERIOR JOINTS WITH ARDEX MM-80 JOINT COMPOUND. FILL ALL EXTERIOR JOINTS WITH ARDEX ARDISEAL RAPID.
23. ADHESIVE ANCHORS WITH REBAR OR THREADED RODS, SHALL BE AS NOTED BELOW. INSTALL ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, WHICH INCLUDES CLEANING THE HOLE WITH AIR AND USING A MANUFACTURER APPROVED DISPENSING TOOL WITH MIXING NOZZLE.
    A. INTO CONCRETE OR GROUTED CMU: HILTI HIT 150 MAX OR SIMPSON SET HIGH
    B. IF THIS PROJECT IS IN SEISMIC ZONE D (SEE THE DESIGN LOAD NOTE SECTION), USE ONLY HILTI HIT- RE 500SD.
24. NO PIPING OR CONDUITS SHALL BE INSTALLED IN ANY CONCRETE WITHOUT THE APPROVAL OF THE ENGINEER. IN GENERAL, IF APPROVED BY THE ENGINEER, ANY PIPING OR CONDUITS MUST BE LOCATED IN THE MIDDLE OF THE SLAB AND NOT BE OVER ONE INCH IN DIAMETER
25. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, PIPING, GROUNDS, AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT. VERIFY SIZE AND LOCATION OF ALL OPENINGS.
26. ALL PIPING AND DUCT PENETRATIONS THROUGH NEW STRUCTURAL SLABS ARE TO BE SLEEVED OR CHASED. NO CORING OF SLAB IS PERMITTED. ALL PIPING THROUGH EXISTING STRUCTURAL SLABS MAY BE CORED IF APPROVED BY ENGINEER.

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CHA
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CHA PROJECT NO.
22702 - 1031 - 43000

NO	SUBMITTAL		
0	03/22/11	ISSUED FOR REVIEW	
	BY TAG	CHK PAL	APP'D JPS
1	03/25/11	ISSUED FOR CONSTRUCTION	
	BY JOM	CHK PAL	APP'D JPS

STATE OF CONNECTICUT · JOHN P. SOBIECH · 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:
CT5189
SITE NAME:
MONROE-SOUTH
SITE ADDRESS:
88 MAIN STREET
MONROE, CT
06468
FAIRFIELD COUNTY

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN02

Exhibit 2

GPD GROUP

STRUCTURAL ANALYSIS REPORT

APPROVED
By Aaron T. Chandler at 2:57 pm, Aug 01, 2011

T-Mobile

SITE NUMBER: CT11215A
SITE NAME: MONROE – 1/RT 25

SITE ADDRES: 88 MAIN STREET
MONROE, CT 06468

NEW ANTENNA INSTALLATION BY:

at&t
Your world. Delivered.

ON AN EXISTING
195' MONOPOLE

August 1, 2011

2011194.66

MONOPOLE

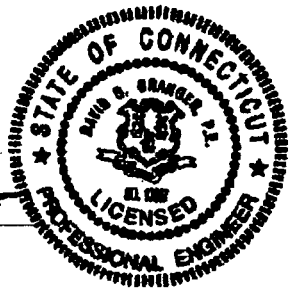
STRUCTURAL ANALYSIS REPORT

CT11215A MONROE – 1/RT 25
88 Main Street
Monroe, CT 06468
GPD Project #: 2011194.66

New Antenna Installation
Existing 195 ft Monopole

For:
T-Mobile
Bellevue, Washington

Prepared By:



David B Granger, P.E.
Registered Professional Engineer
Connecticut #: 17557

August 1, 2011

Glaus, Pyle, Schomer, Burns, and DeHaven, Inc. dba GPD Group ENGINEERS • ARCHITECTS • PLANNERS
520 South Main Street • Suite 2531 • Akron • Ohio • 44311-1010 • Tel: 330-572-2100 • Fax: 330-572-2101

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

The purpose of this analysis is to verify whether the design for the existing tower is structurally capable of carrying the new antenna and coax loads as specified by AT&T to T-Mobile. This report was commissioned by Ms. Margaret Anderson of T-Mobile.

The design for the existing structure meets the requirements of TIA/EIA-222-F for a fastest-mile wind speed of 85 mph with 1/2" radial ice (w/ 25% wind load reduction) for the proposed loading configuration.

The foundation reactions, with the proposed loading, were found to be less than the capacity of the existing foundation design. Therefore the existing foundation is adequate for the proposed loading, assuming it was properly constructed according to original design.

Section Results

Monopole	% Capacity	Result
157.5' – 195'	37.1%	Pass
116.75' – 157.5'	66.5%	Pass
77' – 116.75'	73.5%	Pass
38' – 77'	85.1%	Pass
0' – 38'	80.4%	Pass
Base Plate	71.0%	Pass
Anchor Rods	77.1%	Pass
Foundation	**% Capacity**	**Result**
Structure	79.3%	Pass
Soil Interaction	60.4%	Pass
Tower Rating:	**85.1%**	

TOWER DESCRIPTION

The existing 195' monopole is located in Monroe, Connecticut. It was originally designed for Voicestream Wireless by Paul J Ford & Company of Columbus, Ohio. The original design load for the tower was for an 85 mph basic wind speed with 1/2" radial ice (w/ 25% wind load reduction) in accordance with TIA/EIA-222-F. The tower was originally designed to hold the following:

Original Configuration

Elevation	Antennas
Elev. 195'	(1) 5/8" Lightning Rod
Elev. 195'	(12) EMS RR90-17-00DP PCS Antennas, on (3) 14' T-Arm Mounts, w/ internal coax
Elev. 185'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 175'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 165'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 155'	(12) EMS RR90-17-00DP PCS Antennas, on (1) 14' LP Platform, w/ internal coax
Elev. 140'	(2) 10' Whip Antennas, on (2) 6' Side Arm Mounts, w/ internal coax
Elev. 120'	(2) 10' Whip Antennas, on (2) 6' Side Arm Mounts, w/ internal coax

The monopole has five major sections connected by slip joints. It has 18 sides and is evenly tapered from 61.60" (flat-flat) at the base to 26.00" (flat-flat) at the top. The structure is galvanized and has no tower lighting.

All structural information was provided by T-Mobile in the form of the original tower and foundation drawings by PJF (Design #: 29201-0505, dated May 11, 2001). Geotechnical information provided in the form of a soils report by Jaworski Geotech, Inc (Project #: 01129G, dated February 15, 2001). Previous structural analysis report provided by Semaan Engineering Solutions (dated April 4, 2002). The proposed antenna information was provided by T-Mobile. This analysis and report are based solely on this information.

TOWER MATERIALS

Data on steel strength was available from the information provided. The following table details the steel strength used in the analysis.

Monopole	ASTM A607 (65 KSI Yield Strength)
Base Plate	ASTM A572 (55 KSI Yield Strength)
Anchor Rods	ASTM A615 (75 KSI Yield Strength)

TOWER LOADING

The following data shows the major loading that the tower supports. The proposed antenna information was provided by T-Mobile.

Proposed Configuration

Elevation	Carrier	Antennas
195'	T-Mobile	(12) Andrew TMBXX-6516-R2M Antennas, (6) Andrew ETW190VS12UB TMAs, & (1) 4' HP MW Dish on (3) 14' T-Arm Mounts, w/ (25) 1 5/8" internal coax
175'	**AT&T**	**(3) Powerwave 7770 Antennas,** **(3) Powerwave 65-16-XLH-RR Antennas,** **(6) Powerwave LGP-21401 TMAs,** **(6) Ericsson RRUS-11 RRHs, & (1) Raycap DC6-48-60-18-8F** **on a 13' Low Profile Platform, w/ (12) 1 5/8" internal coax,** **(1) internal LTE fiber cable, & (2) internal LTE DC cables**
165'	Verizon	(12) Decibel DB844G65ZA-XY Antennas on a 15' Low Profile Platform, w/ (12) 1 5/8" internal coax

Note: - **BOLD** type indicates the proposed carrier's final reserved configuration.

ANALYSIS

The purpose of this structural analysis review is to determine if the design for the existing tower is in conformance to the latest TIA/EIA-222-F standard requirements. RISA Tower (Version v5.4.2.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/TIA/EIA-222-F and all local building code requirements. Selected output from the analysis is included in Appendix 1.

The current requirements of TIA/EIA-222-F are for a fastest-mile wind speed of 85 mph with 1/2" of radial ice. A 25% reduction in wind load is allowed when wind and ice are applied simultaneously. TIA/EIA-222-F requires towers within Fairfield County, Connecticut be analyzed with a 85 mph fastest-mile wind speed.

ANALYSIS FASTEST-MILE WIND SPEED:	85 MPH
RADIAL ICE:	1/2"

The tower and foundations are assumed, for the purpose of this analysis, to have been properly fabricated, constructed, maintained, and to be in good condition with no structural defects. This is not a condition assessment of the tower and has been provided without the benefit of recent detailed tower photos, a detailed tower mapping, or a GPD Group site visit. This analysis assumes all antennas and coax have been installed in a neat and orderly fashion. Proposed antennas are assumed to be installed on standard sized mounts. The existing/proposed mounts are assumed to have been verified by the carrier to support the existing/proposed loading for the required various load cases.

CONCLUSIONS AND RECOMMENDATIONS

Based on the computer structural analysis results, the design for the existing 195' monopole meets the requirements of TIA/EIA-222-F for a fastest-mile wind speed of 85 mph with 1/2" radial ice (w/ 25% wind load reduction) for the proposed loading configuration.

The foundation reactions, with the proposed loading, were found to be less than the capacity of the existing foundation design. Therefore, the existing foundation is adequate, assuming it was properly constructed according to original design.

Summary of Findings

Monopole	Satisfactory
Base Plate	Satisfactory
Anchor Rods	Satisfactory
Foundation	Satisfactory

Therefore, based on our analysis results, the design for the existing structure is structurally satisfactory for the proposed loading configuration.

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.

APPENDICES

1. RISA Analysis Printout

2. Tower Elevation Drawing and Coax Placement

3. Anchor Rod and Base Plate Calculations

4. Foundation Analysis

RISA ANALYSIS PRINTOUT

RISATower	Job: CT11215A MONROE - 1/RT 25	Page: 1 of 5
GPD Group 520 South Main St. Suite 2531 Akron,OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Project: 2011194.66	Date: 08:38:01 08/01/11
	Client: T-Mobile Towers	Designed by: ewells

Tower Input Data

There is a pole section.
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 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	195.00 - 8.00	25	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	175.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
3/8" Fiber Cable	C	No	Inside Pole	175.00 - 8.00	1	No Ice	0.00	0.10
						1/2" Ice	0.00	0.10
7/8" DC Power Cable	C	No	Inside Pole	175.00 - 8.00	2	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	165.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
5/8"x4' Lightning Rod	C	None			0.0000	195.00	No Ice	0.01	0.01	30.00
							1/2" Ice	0.05	0.05	30.30
14' T-Arm	A	From Leg	1.93	-0.52	-15.0000	195.00	No Ice	5.80	3.33	336.00
				0.00			1/2" Ice	9.71	5.58	412.00
14' T-Arm	B	From Face	1.00	1.73	60.0000	195.00	No Ice	5.80	3.33	336.00
				0.00			1/2" Ice	9.71	5.58	412.00
14' T-Arm	C	From Face	1.93	-15.0000		195.00	No Ice	5.80	3.33	336.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
			-0.52 0.00			1/2" Ice	9.71	5.58	412.00
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	A	From Leg	3.86 -1.04 0.00	-15.0000	195.00	No Ice 1/2" Ice	7.32 8.00	5.48 6.58	60.15 115.58
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	B	From Face	2.00 3.46 0.00	60.0000	195.00	No Ice 1/2" Ice	7.32 8.00	5.48 6.58	60.15 115.58
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	C	From Face	3.86 -1.04 0.00	-15.0000	195.00	No Ice 1/2" Ice	7.32 8.00	5.48 6.58	60.15 115.58
(2) ETW190VS12UB	A	From Leg	3.86 -1.04 0.00	-15.0000	195.00	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
(2) ETW190VS12UB	B	From Leg	2.00 3.46 0.00	60.0000	195.00	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
(2) ETW190VS12UB	C	From Face	3.86 -1.04 0.00	-15.0000	195.00	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
4.5" Dia x 4' Dish Mount	B	From Face	0.50 0.00 0.00	0.0000	195.00	No Ice 1/2" Ice	1.32 1.58	1.32 1.58	43.20 56.19
PiROD 13' Low Profile Platform	C	None		0.0000	175.00	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1300.00 1765.00
7770.00 w/ 2"x96" Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	6.69 7.48	4.83 6.00	64.20 114.71
7770.00 w/ 2"x96" Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	6.69 7.48	4.83 6.00	64.20 114.71
7770.00 w/ 2"x96" Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	6.69 7.48	4.83 6.00	64.20 114.71
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	A	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.69 9.32	6.71 7.74	104.53 171.37
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	B	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.69 9.32	6.71 7.74	104.53 171.37
P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	C	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	8.69 9.32	6.71 7.74	104.53 171.37
(2) LGP21401	A	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
(2) LGP21401	B	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
(2) LGP21401	C	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	14.10 21.26
(2) RRUS-11	A	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.42 4.71	1.63 1.84	55.00 80.77
(2) RRUS-11	B	From Centroid-Fa	4.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.42 4.71	1.63 1.84	55.00 80.77

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
		ce	0.00						
(2) RRUS-11	C	From Centroid-Face	4.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	4.42 4.71	1.63 1.84	55.00 80.77
DC6-48-60-18-8F	C	None		0.0000	175.00	No Ice 1/2" Ice	2.22 2.44	2.22 2.44	20.00 39.25
PiROD 15' Low Profile Platform	C	None		0.0000	165.00	No Ice 1/2" Ice	17.30 22.10	17.30 22.10	1500.00 2030.00
(4) DB844G65ZAXY w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.90 5.35	4.92 5.60	34.25 78.27
(4) DB844G65ZAXY w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.90 5.35	4.92 5.60	34.25 78.27
(4) DB844G65ZAXY w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.90 5.35	4.92 5.60	34.25 78.27

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
4' HP	B	Paraboloid w/Shroud (HP)	From Face	0.50 0.00 0.00	0.0000		195.00	4.00	No Ice 1/2" Ice	12.57 13.10	50.00 130.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	4' HP	32	65.304	2.9071	0.0335	29947
175.00	PiROD 13' Low Profile Platform	32	53.278	2.7978	0.0223	7485
165.00	PiROD 15' Low Profile Platform	32	47.466	2.7128	0.0176	4993

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	195 - 157.5 (1)	TP33.351x26x0.25	37.50	0.00	0.0	39.000	25.6046	-8009.93	998578.00	0.008
L2	157.5 - 116.75 (2)	TP40.839x32.0179x0.3125	45.00	0.00	0.0	39.000	39.1765	-14852.00	1527880.00	0.010
L3	116.75 - 77 (3)	TP48.006x39.1849x0.375	45.00	0.00	0.0	39.000	55.2929	-24212.50	2156420.00	0.011
L4	77 - 38 (4)	TP54.901x46.0798x0.375	45.00	0.00	0.0	39.000	63.2663	-35034.90	2467390.00	0.014
L5	38 - 0 (5)	TP61.6x52.7788x0.4375	45.00	0.00	0.0	39.000	84.9318	-50835.20	3312340.00	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	195 - 157.5 (1)	TP33.351x26x0.25	322060.83	18.954	39.000	0.486	0.00	0.000	39.000	0.000
L2	157.5 - 116.75 (2)	TP40.839x32.0179x0.3125	1087525.00	34.180	39.000	0.876	0.00	0.000	39.000	0.000
L3	116.75 - 77 (3)	TP48.006x39.1849x0.375	1994866.67	37.776	39.000	0.969	0.00	0.000	39.000	0.000
L4	77 - 38 (4)	TP54.901x46.0798x0.375	3023358.33	43.686	39.000	1.120	0.00	0.000	39.000	0.000
L5	38 - 0 (5)	TP61.6x52.7788x0.4375	4400333.33	41.166	39.000	1.056	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V lb	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T lb-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	195 - 157.5 (1)	TP33.351x26x0.25	17289.00	0.675	26.000	0.052	5396.37	0.155	26.000	0.006
L2	157.5 - 116.75 (2)	TP40.839x32.0179x0.3125	21242.70	0.542	26.000	0.042	5382.98	0.083	26.000	0.003
L3	116.75 - 77 (3)	TP48.006x39.1849x0.375	25234.60	0.456	26.000	0.035	5369.58	0.050	26.000	0.002
L4	77 - 38 (4)	TP54.901x46.0798x0.375	28755.70	0.455	26.000	0.035	5359.95	0.038	26.000	0.001
L5	38 - 0 (5)	TP61.6x52.7788x0.4375	32351.70	0.381	26.000	0.029	5356.19	0.024	26.000	0.001

RISATower	Job	Page
	CT11215A MONROE - 1/RT 25	5 of 5
GPD Group 520 South Main St. Suite 2531 Akron,OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Project 2011194.66	Date 08:38:01 08/01/11
	Client T-Mobile Towers	Designed by ewells

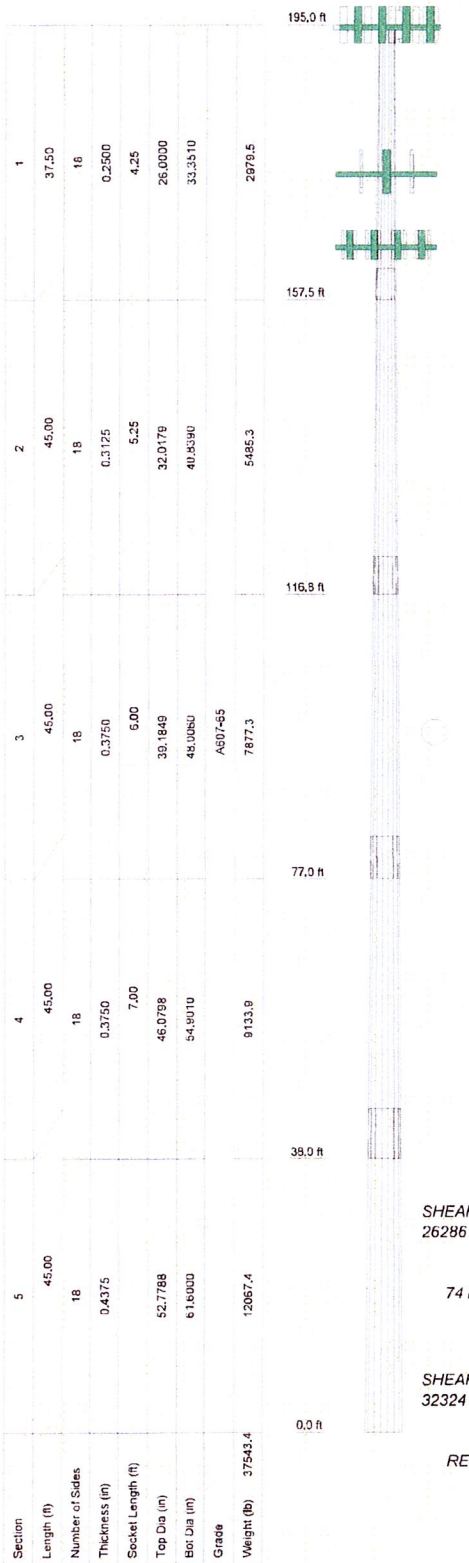
Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	195 - 157.5 (1)	0.008	0.486	0.000	0.052	0.006	0.495 ✓	1.333	H1-3+VT ✓
L2	157.5 - 116.75 (2)	0.010	0.876	0.000	0.042	0.003	0.887 ✓	1.333	H1-3+VT ✓
L3	116.75 - 77 (3)	0.011	0.969	0.000	0.035	0.002	0.980 ✓	1.333	H1-3+VT ✓
L4	77 - 38 (4)	0.014	1.120	0.000	0.035	0.001	1.135 ✓	1.333	H1-3+VT ✓
L5	38 - 0 (5)	0.015	1.056	0.000	0.029	0.001	1.071 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	195 - 157.5	Pole	TP33.351x26x0.25	1	-8009.93	1331104.42	37.1	Pass
L2	157.5 - 116.75	Pole	TP40.839x32.0179x0.3125	2	-14852.00	2036663.96	66.5	Pass
L3	116.75 - 77	Pole	TP48.006x39.1849x0.375	3	-24212.50	2874507.74	73.5	Pass
L4	77 - 38	Pole	TP54.901x46.0798x0.375	4	-35034.90	3289030.73	85.1	Pass
L5	38 - 0	Pole	TP61.6x52.7788x0.4375	5	-50835.20	4415349.04	80.4	Pass
							Summary	
						Pole (L4)	85.1	Pass
						RATING =	**85.1**	**Pass**

TOWER ELEVATION DRAWING AND COAX PLACEMENT



Section	1	2	3	4	5
Length (ft)	37.50	45.00	45.00	45.00	45.00
Number of Sides	16	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.3750	0.4375
Socket Length (ft)	4.25	5.25	6.00	7.00	
Top Dia (in)	26.0000	32.0179	39.1849	46.0798	52.7788
Bot Dia (in)	33.3510	40.8390	48.0060	54.9010	61.6000
Grade			A607-65		
Weight (lb) 37543.4	2979.5	5485.3	7877.3	9133.9	12067.4

AXIAL
59303 lb

SHEAR
26286 lb

MOMENT
3705296 lb-ft

TORQUE 6214 lb-ft
74 mph WIND - 0.5000 in ICE

AXIAL
50853 lb

SHEAR
32324 lb

MOMENT
4400333 lb-ft

TORQUE 6715 lb-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5/8"x4' Lightning Rod	195	P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	175
14' T-Arm	195	P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	175
14' T-Arm	195		
14' T-Arm	195	P65-16-XLH-RR w/ 2-1/2" x 84" mount pipe	175
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	195	(2) LGP21401	175
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	195	(2) LGP21401	175
(4) TMBXX-6516-R2M w/ (2"x84") Mount Pipe	195	(2) LGP21401	175
(2) ETW190VS12UB	195	(2) RRUS-11	175
(2) ETW190VS12UB	195	(2) RRUS-11	175
(2) ETW190VS12UB	195	DC6-48-60-18-8F	175
4.5" Dia x 4' Dish Mount	195	PiROD 13' Low Profile Platform	175
4' HP	195	(4) DB844G65ZAXY w/ Mount Pipe	165
7770.00 w/ 2"x96" Mount Pipe	175	(4) DB844G65ZAXY w/ Mount Pipe	165
7770.00 w/ 2"x96" Mount Pipe	175	(4) DB844G65ZAXY w/ Mount Pipe	165
7770.00 w/ 2"x96" Mount Pipe	175	PiROD 15' Low Profile Platform	165

MATERIAL STRENGTH

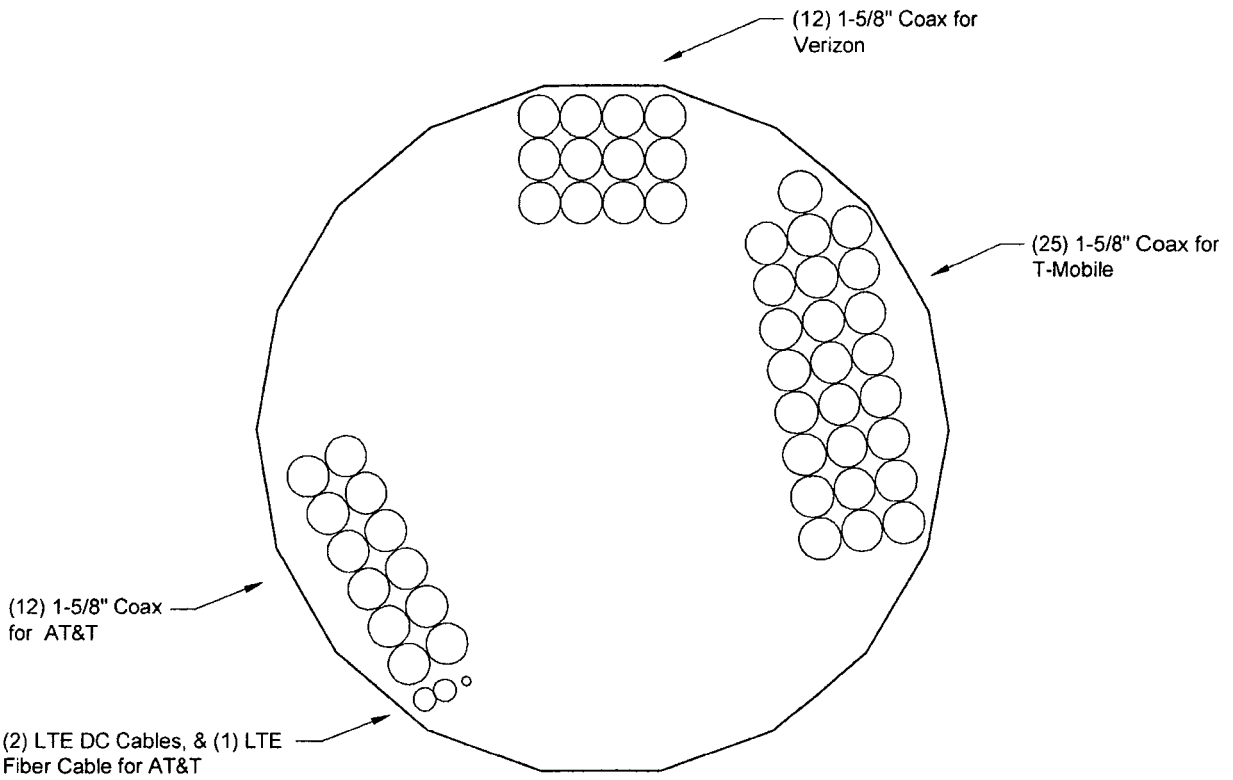
GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

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 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 85.1%

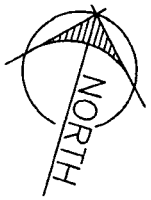
GPD Group
520 South Main St. Suite 2531
Akron, OH 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job:	CT11215A MONROE - 1/RT 25
Project:	2011194.66
Client:	T-Mobile Towers
Drawn by:	ewells
App'd:	
Code:	TIA/EIA-222-F
Date:	08/01/11
Scale:	NTS
Path:	C:\Users\ewells\Desktop\RISA\CT11215A MONROE - 1RT 25.eri
Dwg No.	E-1



COAX PLACEMENT

NOT TO SCALE



GPD GROUP
520 South Main Street, Suite 2531
Akron, Ohio 44311
330-572-2100 Fax 330-572-2101

CT11215A MONROE – 1/RT 25

JOB NO. 2011194.66
DATE 8/1/2011
DRAWN BY EJW

ANCHOR ROD AND BASE PLATE CALCULATIONS

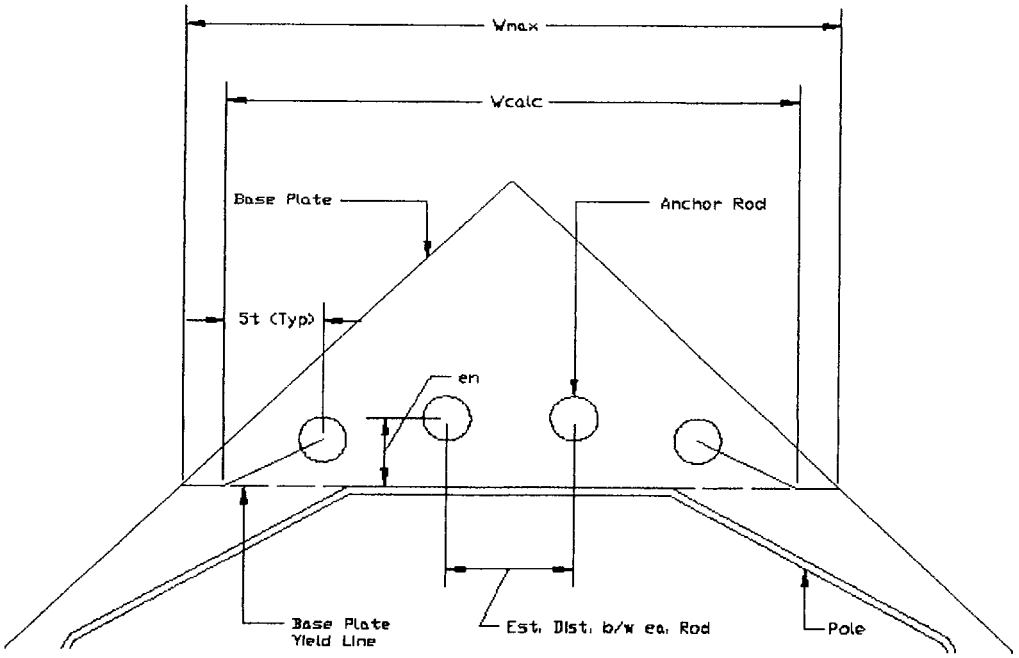
Anchor Rod and Base Plate Stresses
CT11215A MONROE - 1/RT 25
2011194.66

Overturning Moment =	4400.33	k*ft
Axial Force =	50.85	k
Shear Force =	32.32	k

Acceptable Stress Ratio =	105.0%

Anchor Rods		
Pole Diameter =	61.6	in
Number of Rods =	20	
Type =	Upset Rod	
Rod Yield Strength (Fy) =	75	ksi
ASIF =	1.333	
Rod Circle =	69	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in^2
Max Tension on Rod =	150.43	kips
Max Compression on Rod =	155.52	kips
Allow. Rod Force =	195.00	kips
Anchor Rod Capacity =	**77.1%**	**OK**

Base Plate		
Plate Strength (Fy) =	55	ksi
Plate Thickness =	3	in
Plate Width =	68	in
Est. Dist. b/w ea. Rod =	6	in
w_{calc} =	53.548	in
w_{max} =	34.567	in
w =	34.57	in
S =	51.85	in^3
fb =	39.07	ksi
Fb =	55	ksi
Base Plate Capacity =	**71.0%**	**OK**



FOUNDATION ANALYSIS

CAISSON ANALYSIS WORKSHEET

Client:	T-Mobile Towers	Job No.:	2011194.66		
Site ID:	CT11215A	Sheet No:	1	Of	1
Site Name:	MONROE - 1/RT 25	Made By:	ewells	Date:	8/1/2011
Location:	Fairfield County, Connecticut	Chk'd By:		Date:	
Loading Type:	Wind	Code:	F		

FOUNDATION DATA

Diameter =	8	ft
Length =	37.5	ft
Rebar Size =	#11	
# of bars =	28	
Tie Size =	#5	
Clear Cover =	4	inches
Edge to Bar Center =	5.33	inches
f'c =	4.5	ksi

RISA Reactions (Service)

Moment =	4400.333	ft-k
Axial =	50.853	kips
Shear =	32.324	kips

LPILE TYPE 2 ANALYSIS FOR REINFORCING CAPACITY

Mn =	111619.70	in-k
Mn =	9301.64	ft-k
Load Factor =	1.3	
ϕ (flexure) =	0.9	
ϕMn =	8371.48	ft-k

MOMENT FROM CAISSON PROGRAM USING ADJUSTED S.F. AND ACTUAL CAISSON LENGTH

Moment = 5109.2 ft-k (max. moment along caisson)

REINFORCING STEEL CAPACITY

$$\text{Capacity} = \frac{\text{LF*Moment from Caisson}}{\phi\text{Mn}} = \frac{6641.96 \text{ ft-k}}{8371.48 \text{ ft-k}} = 79.3\% \quad \text{O.K.}$$

SOIL CAPACITY FROM CAISSON PROGRAM USING ADDITIONAL SAFETY FACTORS

ADDITIONAL SAFETY FACTOR FROM CAISSON = 3.31

$$\text{Capacity} = \frac{\text{Safety Factor of 2}}{\text{Additional Safety Factor}} = \frac{2.00}{3.31} = 60.4\% \quad \text{O.K.}$$

CAISSON Version 4.46 Mon Aug 01 08:45:57 2011
U.W. Short Course - 1998

```
**************************************************************************
*                                                                        *
*  PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*
*                                                                        *
**************************************************************************
```

*** ANALYSIS IDENTIFICATION : CT11215A MONROE - 1/RT 25
NOTES : 2011194.66

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.50 STEEL STRENGTH (ksi) = 60.00
DIAMETER (ft) = 8.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	C	3.00	0.00	120.0	0.0		
2	C	0.50	3.00	57.6	0.0		
3	C	9.50	3.50	57.6	0.0		
4	S	23.00	13.00	52.6		3.537	34.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 4400.3 VERTICAL (k) = 50.9 SHEAR (k) = 32.3
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 3.31

*** CALCULATED PIER LENGTH (ft) = 37.500

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	0.50	3.00	120.0	0.0		0.00	2.00
C	3.50	0.50	57.6	0.0		0.00	3.75
C	4.00	9.50	57.6	0.0		0.00	8.75
S	13.50	14.70	52.6		3.537	1650.32	21.57
S	28.20	9.30	52.6		3.537	-1542.85	33.04

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	WITH THE ADDITIONAL SAFETY FACTOR MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	WITHOUT ADDITIONAL SAFETY FACTOR MOMENT (ft-k)
0.00	107.5	15391.3	32.5	4649.9
3.75	107.5	15794.3	32.5	4771.7
7.50	107.5	16197.4	32.5	4893.5
11.25	107.5	16600.4	32.5	5015.2
15.00	-16.7	16911.5	-5.1	5109.2
18.75	-371.2	16203.6	-112.2	4895.4
22.50	-788.5	14048.6	-238.2	4244.3
26.25	-1268.6	10211.1	-383.3	3084.9
30.00	-1274.2	4935.1	-384.9	1491.0

33.75	-668.5	1273.0	-202.0	384.6
37.50	0.0	0.0	0.0	0.0

*** TOTAL REINFORCEMENT PCT = 0.46 REINFORCEMENT AREA (in^2) = 33.30
*** USABLE AXIAL CAP. (k) = 50.9 USABLE MOMENT CAP. (ft-k) = 6065.3

*** US Standard Re-Bars (Select one of the following):

167	BARS #4	(AREA = 0.20 in^2	DIA = 0.500 in)	AT SPACING (in) =		1.62
108	BARS #5	(AREA = 0.31 in^2	DIA = 0.625 in)	AT SPACING (in) =		2.50
76	BARS #6	(AREA = 0.44 in^2	DIA = 0.750 in)	AT SPACING (in) =		3.55
56	BARS #7	(AREA = 0.60 in^2	DIA = 0.875 in)	AT SPACING (in) =		4.82
43	BARS #8	(AREA = 0.79 in^2	DIA = 1.000 in)	AT SPACING (in) =		6.28
34	BARS #9	(AREA = 1.00 in^2	DIA = 1.128 in)	AT SPACING (in) =		7.95
27	BARS #10	(AREA = 1.27 in^2	DIA = 1.270 in)	AT SPACING (in) =		10.01
22	BARS #11	(AREA = 1.56 in^2	DIA = 1.410 in)	AT SPACING (in) =		12.28
15	BARS #14	(AREA = 2.25 in^2	DIA = 1.693 in)	AT SPACING (in) =		18.01

*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 1011.7

LPILE Plus for Windows, Version 5.0 (5.0.39)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This program is licensed to:

ewells
GPD Group

Path to file locations: C:\Documents and Settings\ewells\Desktop\
Name of input data file: MONROE 1RT 25.lpd
Name of output file: MONROE 1RT 25.lpo
Name of plot output file: MONROE 1RT 25.lpp
Name of runtime file: MONROE 1RT 25.lpr

Time and Date of Analysis

Date: August 1, 2011 Time: 8:48:12

Problem Title

CT11215A MONROE - 1/RT 25

Program Options

Units Used in Computations - US Customary Units: Inches, Pounds

Basic Program Options:

Analysis Type 2:
- Computation of Ultimate Bending Moment of Cross Section (Section Design)

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Number of sections = 1

Pile Section No. 1

The sectional shape is a circular drilled shaft (bored pile).

Outside Diameter	=	96.0000	in
Material Properties:			
Compressive Strength of Concrete	=	4.500	kip/in**2
Yield Stress of Reinforcement	=	60.	kip/in**2
Modulus of Elasticity of Reinforcement	=	29000.	kip/in**2
Number of Reinforcing Bars	=	28	
Area of Single Bar	=	1.56000	in**2
Number of Rows of Reinforcing Bars	=	15	
Area of Steel	=	43.680	in**2
Area of Shaft	=	7238.229	in**2
Percentage of Steel Reinforcement	=	.603	percent
Cover Thickness (edge to bar center)	=	5.330	in
Unfactored Axial Squash Load Capacity	=	30139.95	kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement in**2	Distance to Centroidal Axis in
1	1.560	42.670
2	3.120	41.600
3	3.120	38.444
4	3.120	33.361
5	3.120	26.604
6	3.120	18.514
7	3.120	9.495
8	3.120	0.000
9	3.120	-9.495
10	3.120	-18.514
11	3.120	-26.604
12	3.120	-33.361
13	3.120	-38.444
14	3.120	-41.600
15	1.560	-42.670

Axial Thrust Force = 50853.00 lbs

Unfactored (Nominal) Moment Capacity at Concrete Strain of 0.003 = 111619.69613 in-kip

The analysis ended normally.

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

Calculated Radio Frequency Emissions

CT5189

88 Main St, Monroe, CT 06468

October 26, 2011

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the existing lattice tower located at 88 Main St in Monroe, CT. Verizon and T-Mobile also have antennas mounted on the tower. The coordinates of the tower are 41-18-5.95 N, 73-15-2.81 W.

AT&T is proposing the following modifications:

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

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

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

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

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

3. RF Exposure Prediction Methods

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

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

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

4. Calculation Results

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

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
Verizon	165	880	9	200	0.0238	0.5867	4.05%
Verizon	165	1900	3	285	0.0113	1.0000	1.13%
T-Mobile GSM	195	1945	8	126	0.0095	1.0000	0.95%
T-Mobile UMTS	195	2100	2	589	0.0111	1.0000	1.11%
AT&T UMTS	175	880	1	500	0.0059	0.5867	0.10%
AT&T UMTS	175	1900	1	500	0.0059	1.0000	0.06%
AT&T LTE	175	734	1	500	0.0059	0.4893	0.12%
AT&T GSM	175	880	3	296	0.0104	0.5867	0.18%
AT&T GSM	175	1900	1	427	0.0050	1.0000	0.05%
						Total	**7.76%**

Table 1: Carrier Information[1]

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the existing facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 7.76% of the FCC limit.

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

6. Statement of Certification

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

Daniel L. Goulet
C Squared Systems, LLC

October 26, 2011
Date

[1] Calculated values for AT&T include a -10 dB off-beam loss factor. Antenna specifics for Verizon and T-Mobile were unavailable and therefore do not include any off-beam loss factor.

Attachment A: References

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

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

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

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

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

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

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

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

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

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

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

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

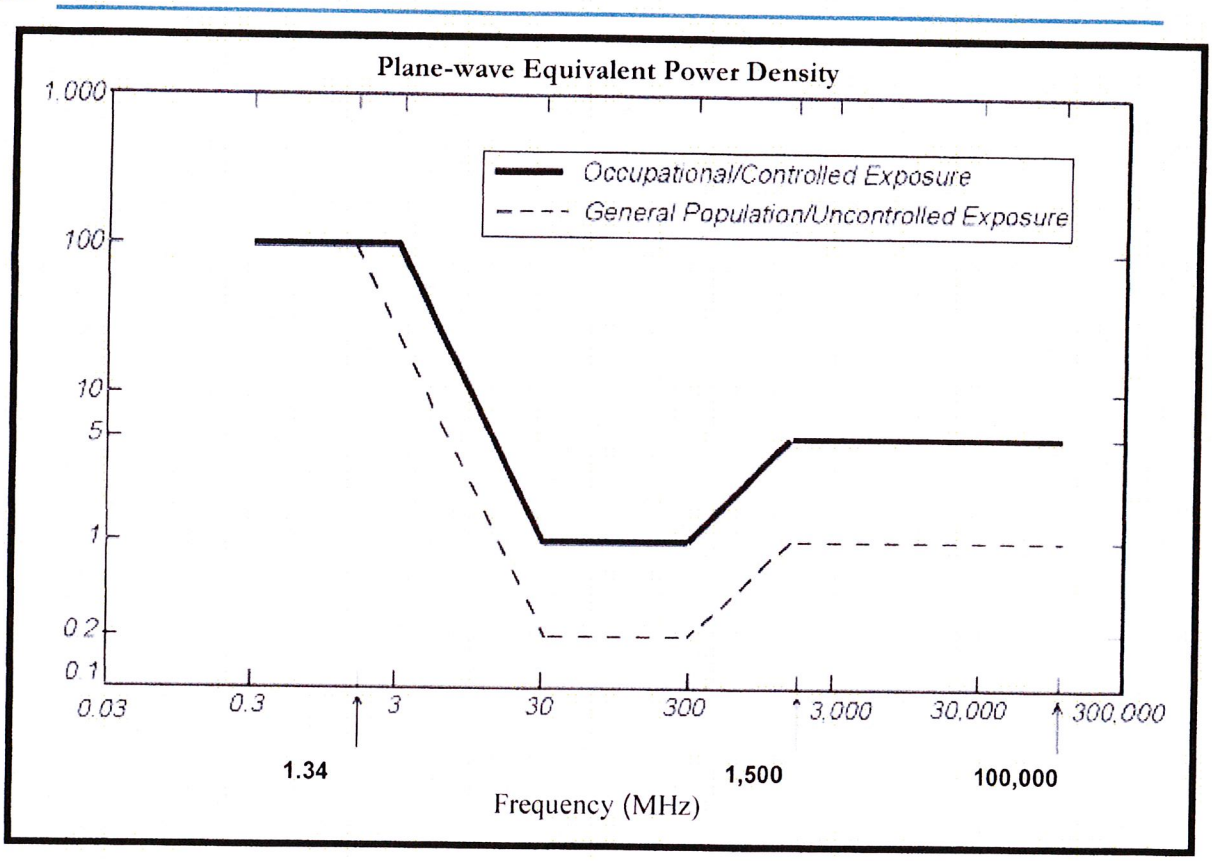
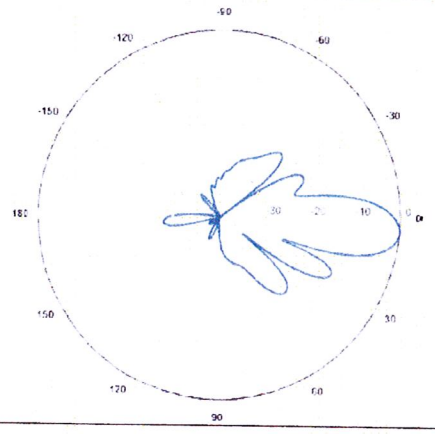


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

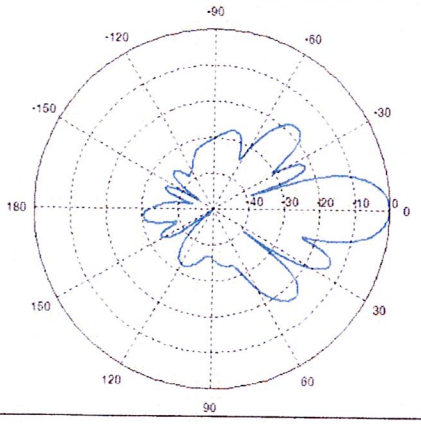
700 MHz

Manufacturer:	Powerwave
Model #:	P65-16-XLH-RR
Frequency Band:	698-894 MHz
Gain:	12.7 dBd
Vertical Beamwidth:	14.7 deg
Horizontal Beamwidth:	73 deg
Polarization:	Dual Linear ± 45 deg
Size L x W x D:	72" x 12" x 6"



850 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	824-896 MHz
Gain:	11.4 dBd
Vertical Beamwidth:	15 deg
Horizontal Beamwidth:	85 deg
Polarization:	Dual Linear ± 45 deg
Size L x W x D:	55.4" x 11" x 4.9"



1900 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	1850-1990 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	7 deg
Horizontal Beamwidth:	90 deg
Polarization:	Dual Linear ± 45 deg
Size L x W x D:	72" x 12" x 6"