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EM-POCKET-052-080911

ORIGINAL

September 10, 2008

Via Federal Express

S. Derek Phelps, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Crown Castle Telecommunications Facility
130 Birdseye Road, Farmington, Connecticut

Dear Mr. Phelps:

Youghiogheny Communications-Northeast, LLC, doing business as Pocket Communications ("Pocket"), intends to install antennas and appurtenant equipment at the existing 140-foot monopole facility owned by Crown Castle, USA, Inc. and located at 130 Birdseye Road, Farmington, Connecticut ("Facility"). Pocket Communications provides prepaid, flat rate wireless voice and data services to more than a quarter of a million subscribers. Pocket is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation. This installation constitutes an exempt modification pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes Section 16-50g et. seq. (PUESA), and Section 16-50j-72(b)(2) of the Regulations of the Connecticut State Agencies adopted pursuant to PUESA. In accordance with R.C.S.A. Section 16-50j-73, a copy of this notice has been sent to Kathleen Eagen, Farmington Town Manager.

The existing Facility consists of a 140-foot self-supporting monopole tower capable of supporting multiple carriers within a fenced compound. The coordinates for the Facility are **Lat: 41°-42'-57"** and **Long: 72°– 48'-39".** The tower is located about 700 feet east of Birdseye Road, roughly 2,600 feet due west of Route 6, and 3,300 feet due west of Interstate 84. The Facility is in the eastern portion of Farmington, roughly a mile northwest of the New Britain town line (see Site Map, attached as Exhibit A). The tower currently supports T-Mobile antennas at the one hundred foot level (100') centerline AGL (above ground level), Verizon antennas at the one hundred ten foot level (110') AGL, Nextel antennas at the one hundred twenty foot level (120') AGL, AT&T antennas at the one hundred thirty foot level (130') AGL and Sprint antennas at the one hundred thirty nine foot level (139') AGL. Pocket proposes to install three Kathrein 742-213 flush mount antennas on the tower at the ninety foot centerline (90') AGL, and a Nortel CDMA Micro BTS 3231 cabinet, mounted on an "H-Frame," contained

within a six foot by six foot (6'-0" x 6'-0") lease area. A small GPS antenna will be mounted to the ice bridge which will run from the lease area to the tower. Utilities will be run via a proposed underground conduit from an existing utility backboard and transformer just east of the compound (See Design Drawings and Equipment Specifications, attached as Exhibits B and C respectively).

For the following reasons, the proposed modifications to the Birdseye Road Facility meet the exempt modification criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. The proposed modification will not increase the height of the tower as Pocket's antennas will be installed at a center line height of approximately 90 feet .

2. The installation of Pocket's equipment and shelter will not require an extension of the site boundaries.

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

4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. The worst-case RF power density calculations for the proposed Pocket antennas would be 28.34% of the FCC standard (see general power density calculations table, attached as Exhibit D).

   Also attached, Exhibit E, is a structural analysis confirming that the tower can support the existing and proposed antennas and associated equipment.

For the foregoing reasons, Pocket respectfully submits that the proposed antenna installation and equipment at the Farmington Facility constitutes an exempt modification under R.C.S.A. Section 16-50j-72(b)(2)

Respectfully Submitted,

Carrie L. Larson

cc: Kathleen Eagen, Farmington Town Manager.
Media Park Realty Inc., underlying property owner.

Exhibit A

Site Map

Pocket Site NHCT0371E

130 Birdseye Road, Farmington, Connecticut

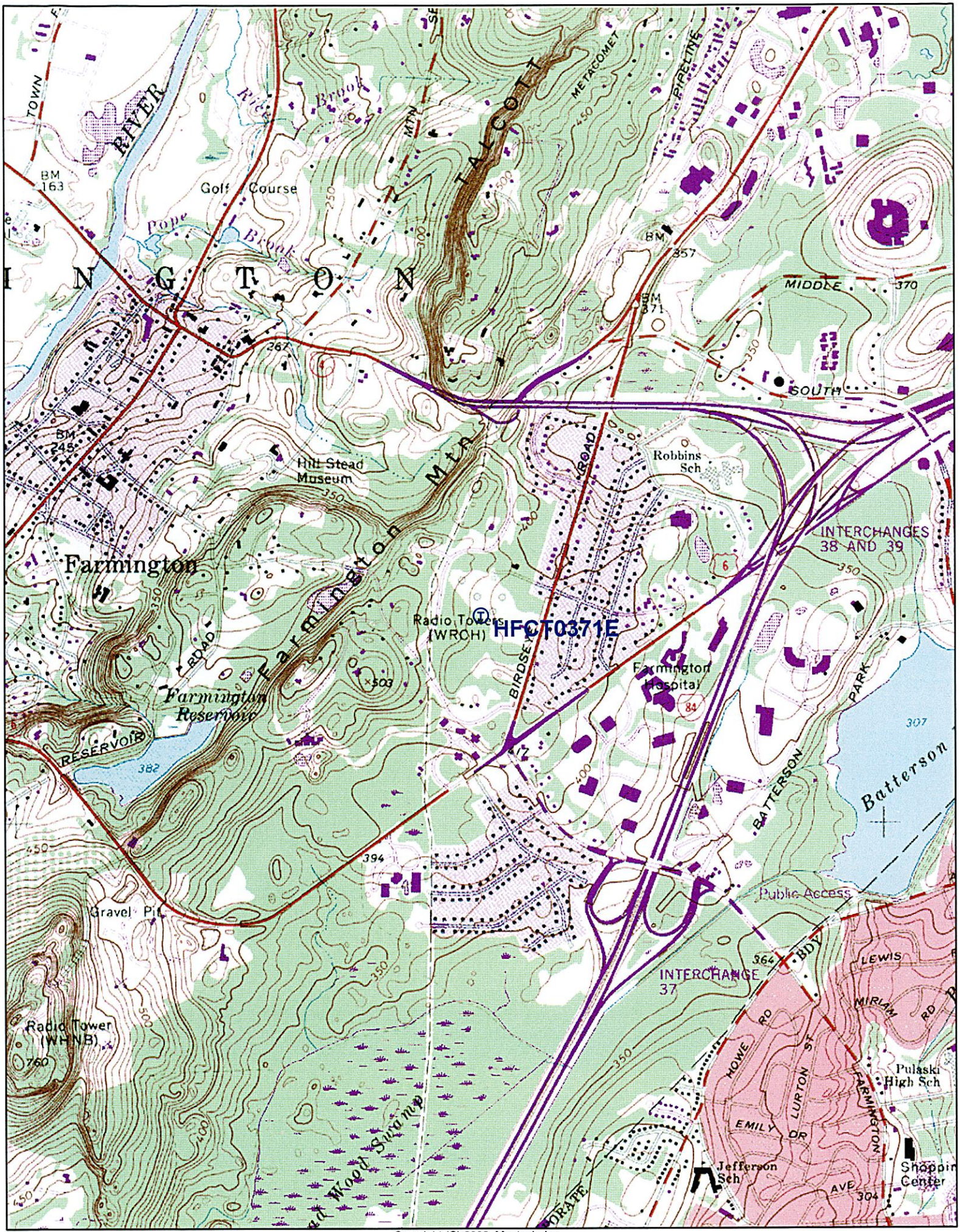


Exhibit B

Design Drawings

Pocket Site NHCT0371E

130 Birdseye Road, Farmington, Connecticut

pocket™
COMMUNICATIONS

WIRELESS COMMUNICATIONS FACILITY

HFCT0371E

EAST FARMINGTON

130A BIRDSEYE ROAD

FARMINGTON, CT

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES."
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF POCKET COMMUNICATIONS DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO "EXTRA" WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.

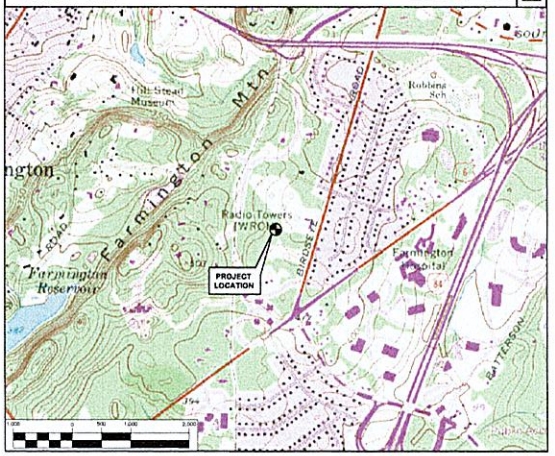
DRIVING DIRECTIONS

FROM HARTFORD, CT:

I-84 WEST TO EXIT 37, EXIT ONTO FIENEMANN ROAD. TURN LEFT, GO TO STOP LIGHT & STAY STRAIGHT ON ROAD THROUGH LIGHT. NOW YOU WILL BE ON BIRDSEYE ROAD. THEN 1/2 MILE TO MONOPOLE ON THE LEFT. BEHIND CONNECTICUT SCHOOL OF BROADCASTING

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NUMBER:	HFCT0371E
SITE NAME:	EAST FARMINGTON
SITE ADDRESS:	130A BIRDSEYE ROAD FARMINGTON, CT
APPLICANT:	YOUGHIOGHENY COMMUNICATIONS-NORTHEAST LLC 2819 NW LOOP 410 SAN ANTONIO, TX 78230
CONTACT PERSON:	JASON D'AMICO – PROGRAM MANAGER GRAPEVINE SOLUTIONS PRODUCT MANAGEMENT (860) 209-0104
TOWER COORDINATES:	LATITUDE: 41°-42'-57" LONGITUDE: 72°-48'-38" COORDINATES BASED ON CONNECTICUT SITING COUNCIL DATABASE, LAST UPDATED JUNE 26, 2008.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
C-1	COMPOUND PLAN	0
C-2	COMPOUND ELEVATION	0
C-3	ANTENNA AND COAX DETAILS	0
C-4	GPS DETAIL	0
C-5	EQUIPMENT CABINET SUPPORT DETAILS	0
C-6	ICE BRIDGE DETAIL AND NOTES	0
E-1	SUPPRESSOR DETAIL AND ELECTRICAL NOTES	0
E-2	SINGLE LINE DIAGRAM AND NOTES	0
E-3	PANEL AND BURIED CONDUIT DETAIL	0
E-4	ANTENNA CABLE GROUNDING DETAIL	0
E-5	GROUNDING DETAILS	0
E-6	GROUNDING DETAILS	0
E-7	GROUNDING RISER	0

GENERAL NOTES

1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY POCKET COMMUNICATIONS.
2. ALL POCKET COMMUNICATIONS SAFETY PROCEDURES MUST BE ADHERED TO.
3. ANTENNA SYSTEM SWEEP TESTING PER LATEST POCKET COMMUNICATIONS DOCUMENT.

PROJECT SCOPE

1. THE PROPOSED SCOPE OF WORK GENERALLY ENTAILS THE INSTALLATION OF CLUSTER MOUNT TELECOMMUNICATIONS ANTENNAS, COAX, ICE BRIDGE AND RADIO CABINET INCLUDING THE NECESSARY UTILITIES.
2. A TOTAL OF THREE (3) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE CLUSTER MOUNTED TO THE EXISTING 140' MONOPOLE TOWER AT A RAD CENTER ELEVATION OF 90' ABOVE THE EXISTING TOWER BASE PLATE.
3. ELECTRIC AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND TO THE PROPOSED EQUIPMENT FROM AN EXISTING UTILITY BACKBOARD LOCATED ADJACENT TO THE FENCED COMPOUND.

PROJECT INFORMATION

1. THIS SITE IS UNMANNED AND HAS RESTRICTED ACCESS TO OUTDOOR EQUIPMENT. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
2. POCKET COMMUNICATIONS CERTIFIES THAT THIS TELEPHONE EQUIPMENT FACILITY WILL BE SERVICED ONLY BY POCKET COMMUNICATIONS EMPLOYEES AND THE WORK ASSOCIATED WITH ANY EQUIPMENT CANNOT BE PERFORMED BY HANDICAPPED PERSONS. THIS FACILITY WILL BE FREQUENTED ONLY BY SERVICE PERSONNEL FOR MAINTENANCE AND REPAIR SERVICES ONLY. THIS FACILITY IS EXEMPT FROM THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), APPENDIX B, SECTION 4.11.(5)(a).
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.
6. POCKET COMMUNICATIONS MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.

REV	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	9/2/08	DEB	CFC	ISSUED FOR REVIEW

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

PROFESSIONAL ENGINEER SEAL

REVIEW SET
NOT FOR CONSTRUCTION

pocket COMMUNICATIONS

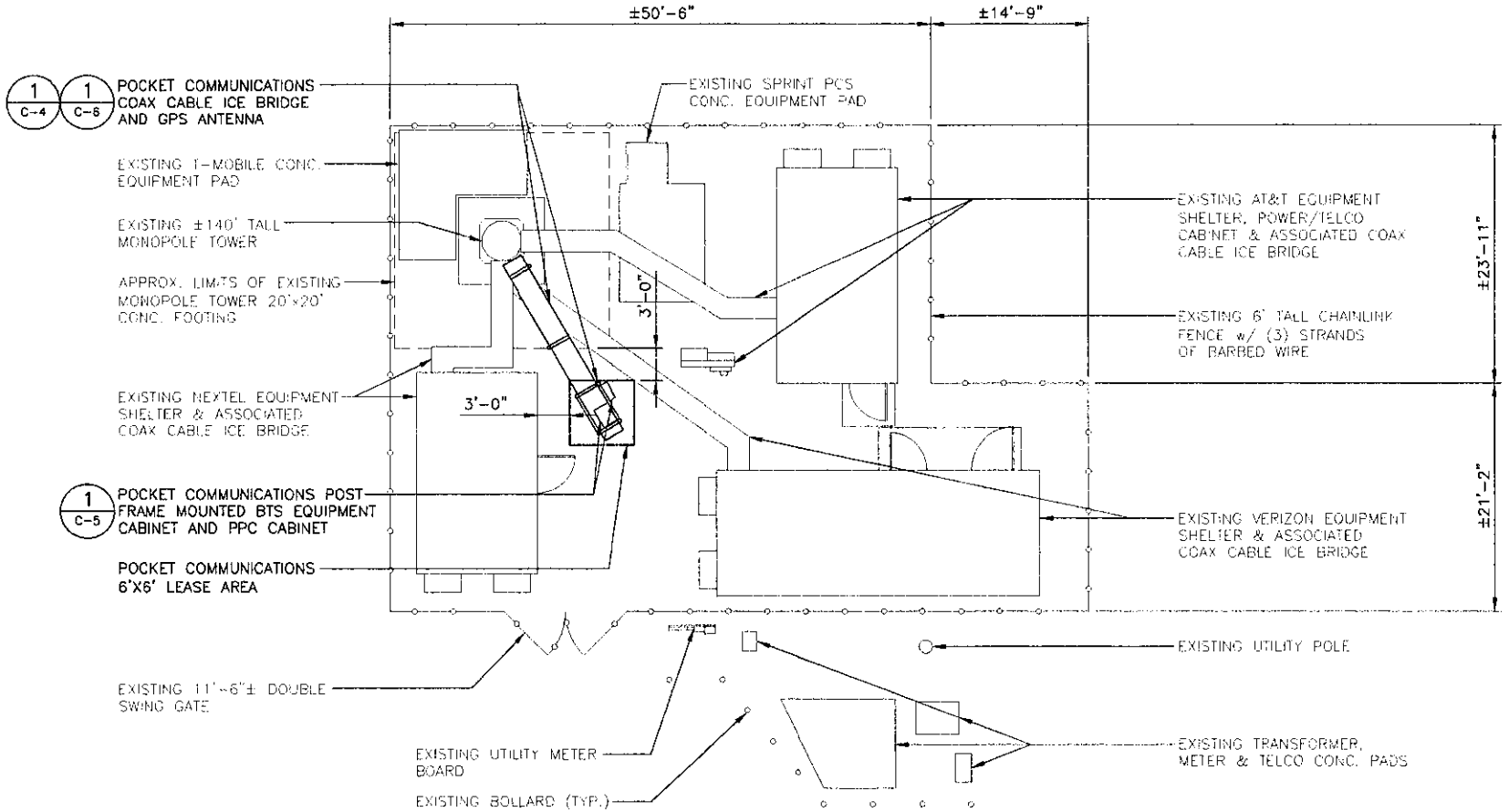
NATSOMMI

POCKET COMMUNICATIONS
HFCT0371E
EAST FARMINGTON
130A BIRDSEYE ROAD
FARMINGTON, CT

DATE: 08/22/08
SCALE: AS SHOWN
JOB NO. 08117.C002

TITLE SHEET

SHEET NO.
T-1
Sheet No. 1 of 14



1 C-1 **COMPOUND PLAN**

SCALE: 1" = 10'

TRUE NORTH

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

1 inch = 10 ft.

DESIGNED BY:	CFC
DRAWN BY:	DCB
CHK'D BY:	CTC

REV	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	8/22/08	DCB	CFC	ISSUED FOR REVIEW

REVIEW SET

pocket COMMUNICATIONS

NATIONAL PARK SERVICE

POCKET COMMUNICATIONS

HFCT03371E

EAST FARMINGTON

130A BIRDSEYE ROAD

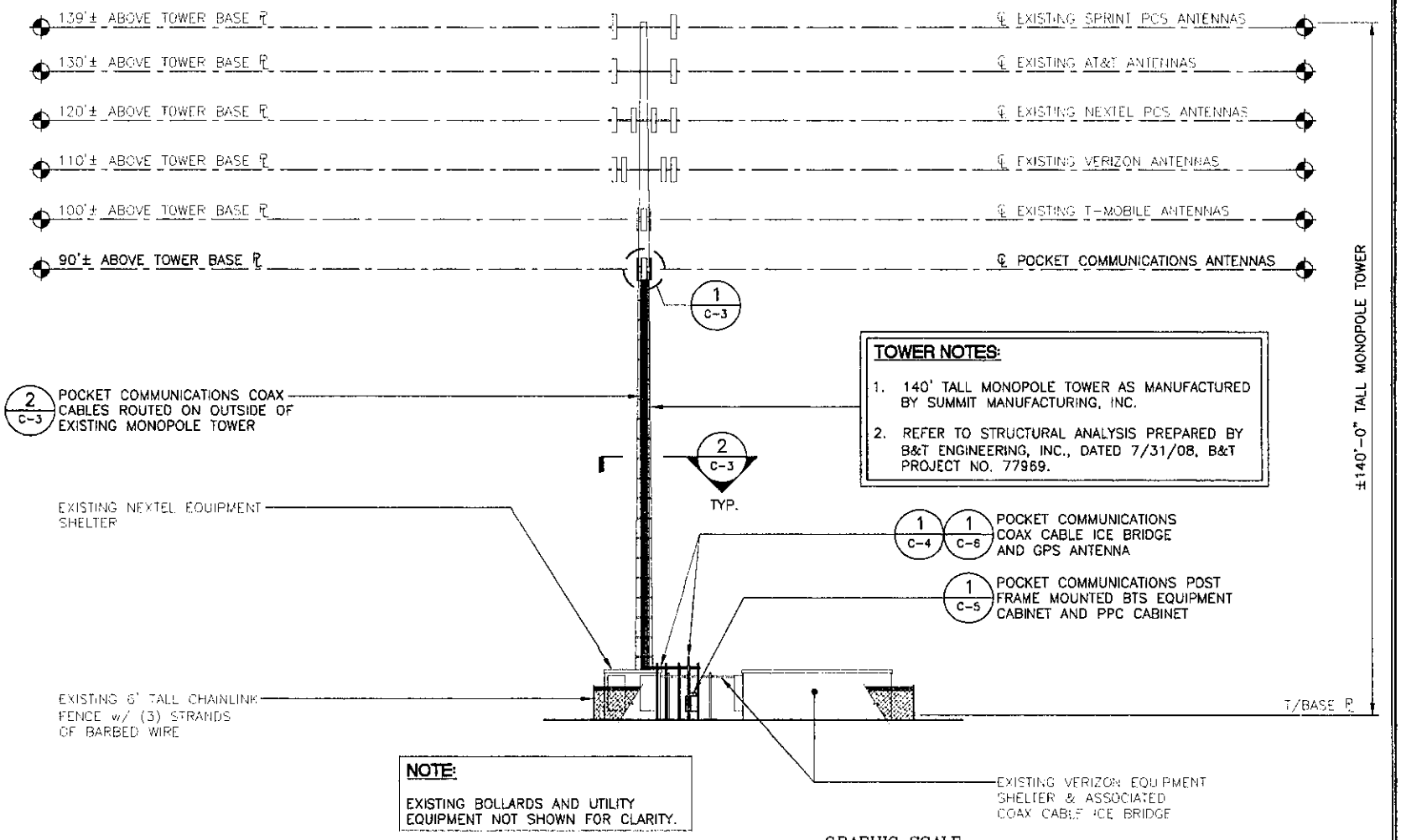
FARMINGTON, CT

DATE:	08/22/08
SCALE:	AS SHOWN
JOB NO.	08117.0002

COMPOUND PLAN

SHEET NO.

C-1



1 C-2 **SOUTHEAST ELEVATION**
SCALE: 1" = 20'

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

REV'S	DATE	DRAWN BY	CHK'D BY	ISSUED FOR REVIEW
0	8/7/08	DEB	CFC	

REVIEW SET

pocket COMMUNICATIONS

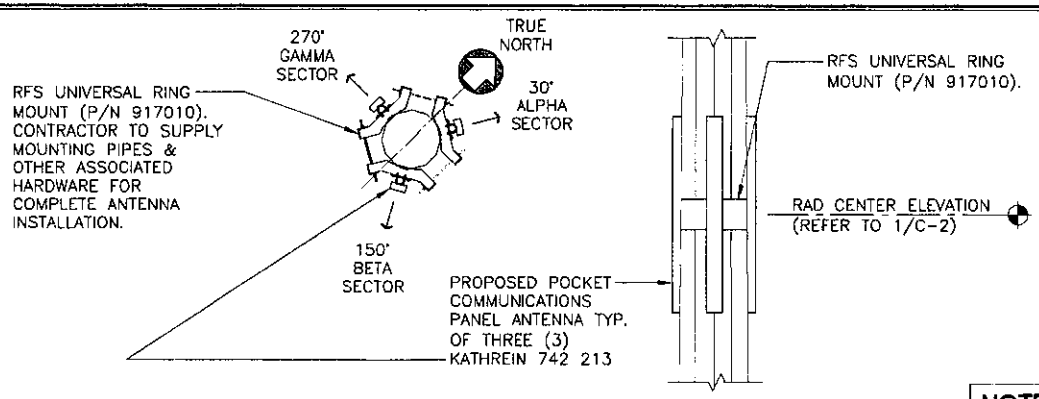
NATIONAL GRID

POCKET COMMUNICATIONS
HFCT0371E
EAST FARMINGTON
130A BIRDSEYE ROAD
FARMINGTON, CT

DATE: 08/22/08
SCALE: AS SHOWN
JOB NO. 05117.0002

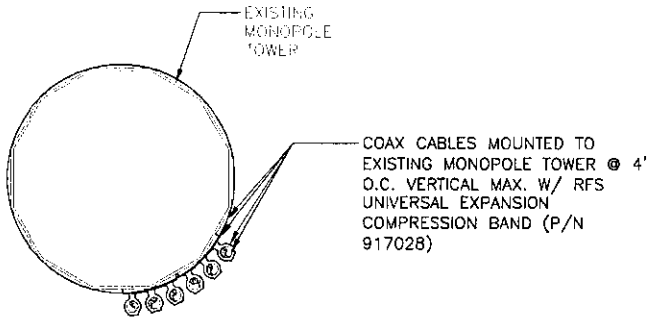
COMPOUND ELEVATION

SHEET NO. C-2



PLAN VIEW

TYPICAL SECTOR ELEVATION



NOTE:

1. VERIFY COMPATABILITY OF THIS COAX MOUNTING DETAIL AND COAX ROUTING REQUIREMENTS WITH TOWER STRUCTURAL ANALYSIS REPORT PRIOR TO INSTALLATION OF COAX.

1 / C-3 **ANTENNA MOUNTING CONFIGURATION**
NOT TO SCALE

2 / C-3 **VERTICAL COAX MOUNTING CONFIGURATION DETAIL**
NOT TO SCALE

TRUE NORTH

ANTENNA KEY

	# ANTENNAS PER SECTOR	ANTENNA NUMBER	COAX COLOR CODE	ANTENNA VENDOR	MODEL NUMBER	AZIMUTH	C/L HEIGHT	MECHANICAL DOWNTILT	COAX SIZE	# COAX PER ANTENNA	COAX MODEL NUMBER
ALPHA FACE	1	A-1	(1)-RED BAND	KATHREIN	742 213	30°	90'-0"	0°	1 5/8"	2	COMMSCOPE
BETA FACE	1	B-1	(1)-GREEN BAND	KATHREIN	742 213	150°	90'-0"	0°	1 5/8"	2	COMMSCOPE
GAMMA FACE	1	C-1	(1)-BROWN BAND	KATHREIN	742 213	270°	90'-0"	0°	1 5/8"	2	COMMSCOPE

TOWER NOTES:

1. FOR DETAILED TOWER INFORMATION, REFER TO TOWER ERECTION DRAWINGS BY OTHERS. THE TOWER ON SHEET C-2 IS SHOWN GENERAL CONFIGURATION PURPOSES ONLY.
2. ANTENNA CONFIGURATION IS SUBJECT TO CHANGE. VERIFY ANTENNA HEIGHT, DOWN-TILT, AND AZIMUTH WITH PROJECT MANAGER PRIOR TO CONSTRUCTION.
3. THE TOWER STRUCTURAL SHALL BE REVISED TO REFLECT ANY REVISION IN ANTENNA OR COAX CONFIGURATION.

ANTENNA NOTES:

1. ALL COAX SHALL BE COLOR CODED AT (2) PLACES EACH: AT ANTENNA AND AT CABINET.
2. (2) COLOR BANDS DENOTES TRANSMIT.
3. PRIOR TO ORDERING ANY ANTENNAS OR COAX, CONTRACTOR SHALL CONTACT POCKET COMMUNICATIONS CONSTRUCTION MANAGER AND OBTAIN APPROVAL FOR MATERIALS LISTED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THIS COORDINATION.

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

REV	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	9/22/06	DEB	CFC	ISSUED FOR REVIEW

REVIEW SET

pocket COMMUNICATIONS

NATIONWIDE

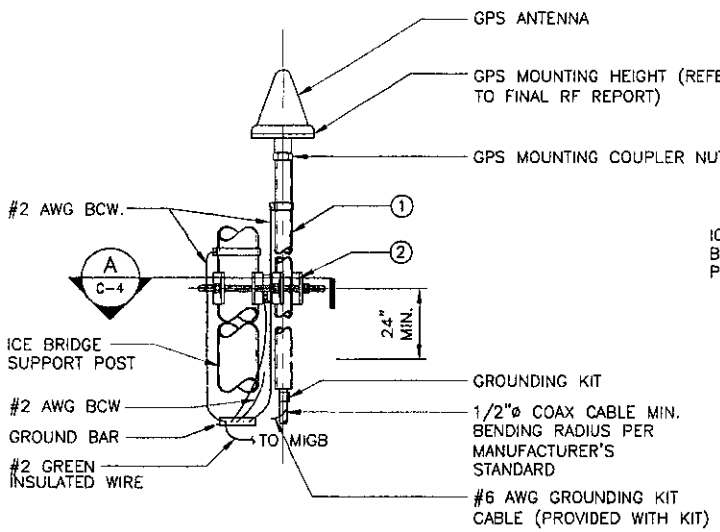
POCKET COMMUNICATIONS

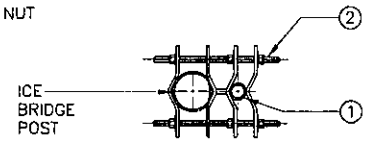
HFCT0371E
EAST FARMINGTON
130A BIRDSEYE ROAD
FARMINGTON, CT

DATE: 08/22/06
SCALE: AS SHOWN
JOB NO: 08117.C002

ANTENNA AND COAX DETAILS

SHEET NO.
C-3





A / C-4 SECTION
NOT TO SCALE

GPS ANTENNA MOUNTING BRACKET

BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
1	1"ø O.D. x 3'-0" LG. ALUMINUM MOUNTING PIPE	1
2	UNIVERSAL CLAMP SET.	1

NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. GPS ANTENNA LOCATION MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. CONFIRM WITH HANDHELD GPS PRIOR TO ESTABLISHING FINAL LOCATION OF GPS ANTENNAS.
3. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A 1" OUTSIDE DIAMETER ALUMINUM PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

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

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

REV	DATE	DRAWN BY	CHK'D BY	ISSUED FOR REVIEW
0	9/2/08	DCB	CFC	

REVIEW SET

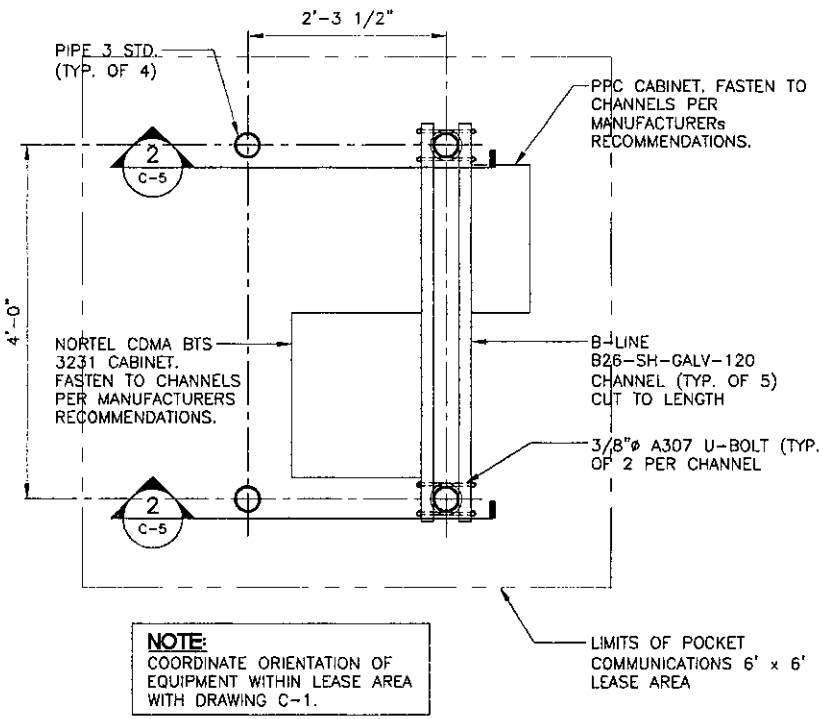
pocket COMMUNICATIONS

POCKET COMMUNICATIONS
HFCT0371E
EAST FARMINGTON
130A BIRDSEYE ROAD
FARMINGTON, CT

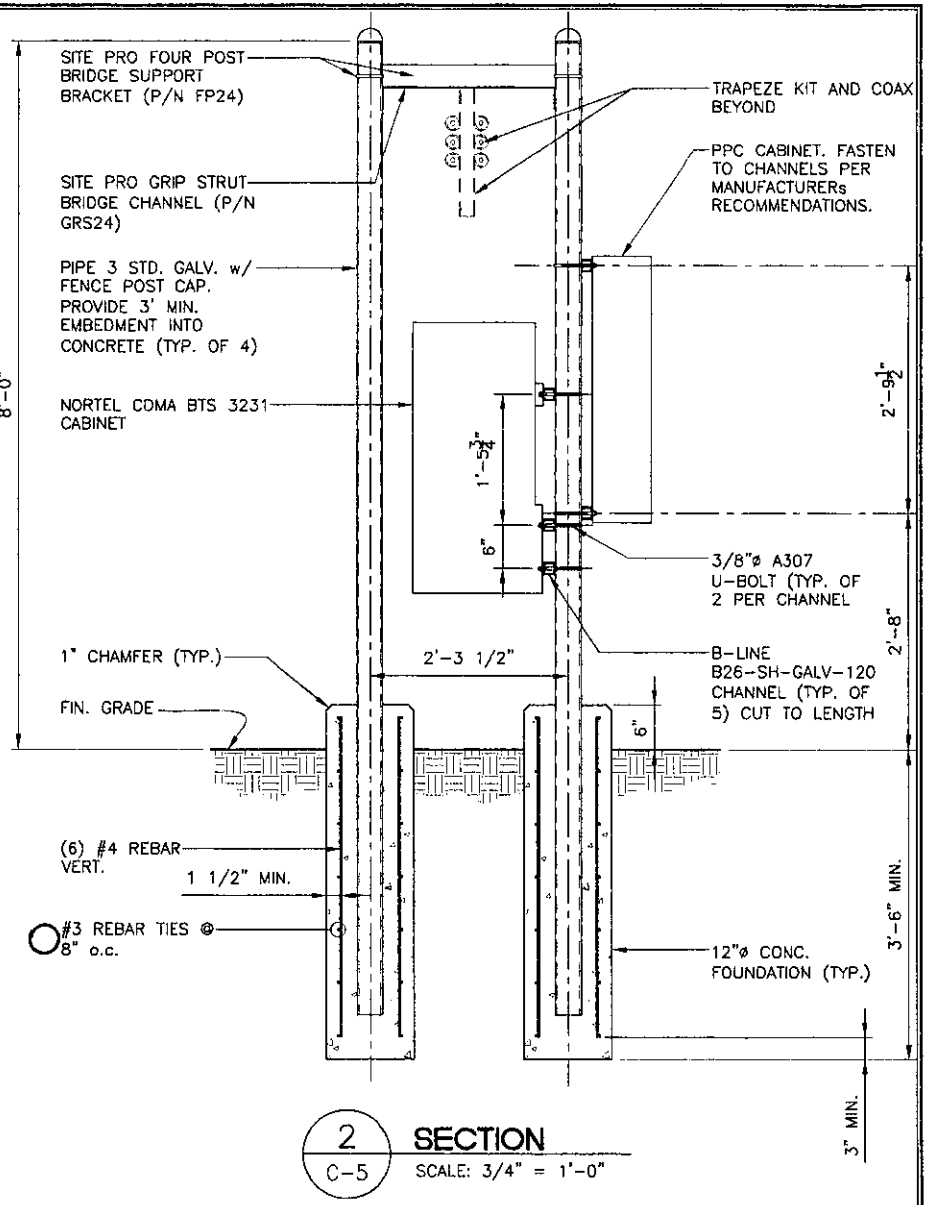
DATE: 08/22/08
SCALE: AS SHOWN
JOB NO.: 08117.0002

GPS DETAIL

SHEET NO.
C-4



1 / C-5 **EQUIP. CABINET SUPPORT FRAME PLAN**
SCALE: 3/4" = 1'-0"



2 / C-5 **SECTION**
SCALE: 3/4" = 1'-0"

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

REV	DATE	DRAWN BY	CHK'D BY	ISSUED FOR / DESCRIPTION
0	9/22/08	DEB	CFC	REVIEW SET

REVIEW SET

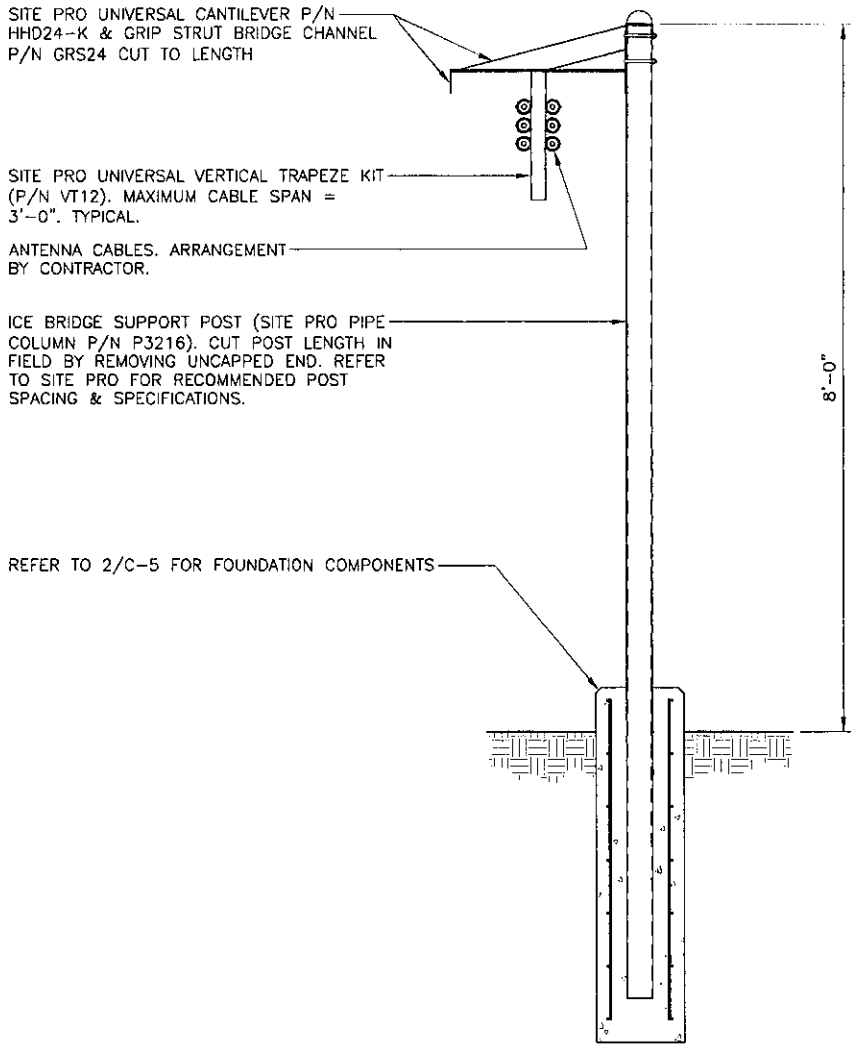
pocket COMMUNICATIONS

POCKET COMMUNICATIONS
HFCT0371E
EAST FARMINGTON
130A BIRDSEYE ROAD
FARMINGTON, CT

DATE: 08/22/08
SCALE: AS SHOWN
JOB NO. 08117.0002

EQUIPMENT CABINET SUPPORT DETAILS

SHEET NO.
C-5



1 / C-6 **ICE BRIDGE DETAIL**

SCALE: 3/4" = 1'-0"

GENERAL NOTES:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
5. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
6. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
7. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
8. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
9. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT SHOP DRAWINGS.
10. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
11. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318.
12. ALL CONCRETE SHALL BE NORMAL WEIGHT, 6% AIR ENTRAINED WITH A MAXIMUM SLUMP OF 4", AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
13. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED BARS.
14. PROVIDE 1 1/2 IN. MINIMUM COVER FOR REINFORCING STEEL UNLESS OTHERWISE NOTED ON THE DRAWINGS.
15. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD) AND SHALL CONFORM TO ASTM A36, (FY = 36 KSI).
16. ALL STEEL PIPE SHALL CONFORM TO ASTM A53, (FY = 35 KSI).
17. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
18. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".

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CHK'D BY:	CFC

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EAST FARMINGTON
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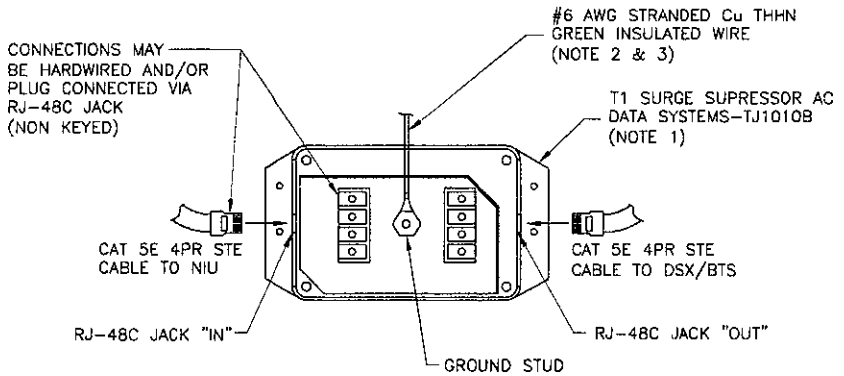
ICE BRIDGE DETAIL AND NOTES

SHEET NO.
C-6



1 / E-1 **T1 SURGE SUPPRESSOR**

NOT TO SCALE

NOTES:

1. MOUNT T1-TVSS UNIT ON EQUIPMENT FRAME. USE APPROPRIATE STAINLESS STEEL BOLTS WITH FLAT WASHERS AND A LOCK WASHER ON THE NUT SIDE. THE TVSS MAY BE LOCATED ON THE TELCO BACKBOARD. REFER TO MANUFACTURERS INSTRUCTIONS.
2. ATTACH RING TERMINAL FROM SUPPLIED GROUND CONDUCTOR TO TVSS GROUND STUD. SECURELY FASTEN WITH SUPPLIED WASHER AND NUT. REFER TO MANUFACTURERS INSTRUCTIONS. FOR PROPER PERFORMANCE, THE GROUND CONDUCTOR LENGTH SHOULD BE LIMITED WITH NO SHARP BENDS ON COILS.
3. WHEN TVSS IS MOUNTED ON EQUIPMENT FRAME, BOND THE GROUND CONDUCTOR TO THE EQUIPMENT FRAME GROUND. ENSURE PROPER GROUNDING SURFACES. WHEN TVSS IS MOUNTED ON THE TELCO BACKBOARD, BOND THE GROUND CONDUCTOR TO THE TELCO BOARD GROUND BAR OR NEAREST GROUND BAR.

ELECTRICAL NOTES:

1. ALL ELECTRICAL AND GROUNDING WORK TO BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC, AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL VERIFY ROUTING AND LENGTHS PRIOR TO CONSTRUCTION.
3. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
5. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
6. CONTRACTOR SHALL PROVIDE 100 AMP, SINGLE PHASE, 120/240 VAC, 60 HZ SERVICE FOR SITE.
7. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELCO CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
8. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY AC OR TELCO PANEL MANUFACTURER.
9. ALL SERVICE EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE NEC, UTILITY COMPANY AND LOCAL CODE REQUIREMENTS.
10. CONTRACTOR SHALL INSTALL SUFFICIENT LENGTHS OF LFMC INCLUDING ALL CONDUIT FITTINGS (NUTS, REDUCING BUSHINGS, ELBOWS, COUPLINGS, ETC.) NECESSARY FOR CONNECTION FROM IMC CONDUIT TO THE POWER CABINET.
11. CONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY.
12. CONTRACTOR SHALL VERIFY THAT THE MAIN BONDING JUMPER AND GROUNDING ELECTRODE CONDUCTOR IS INSTALLED PROPERLY IN MAIN DISCONNECT SWITCH.

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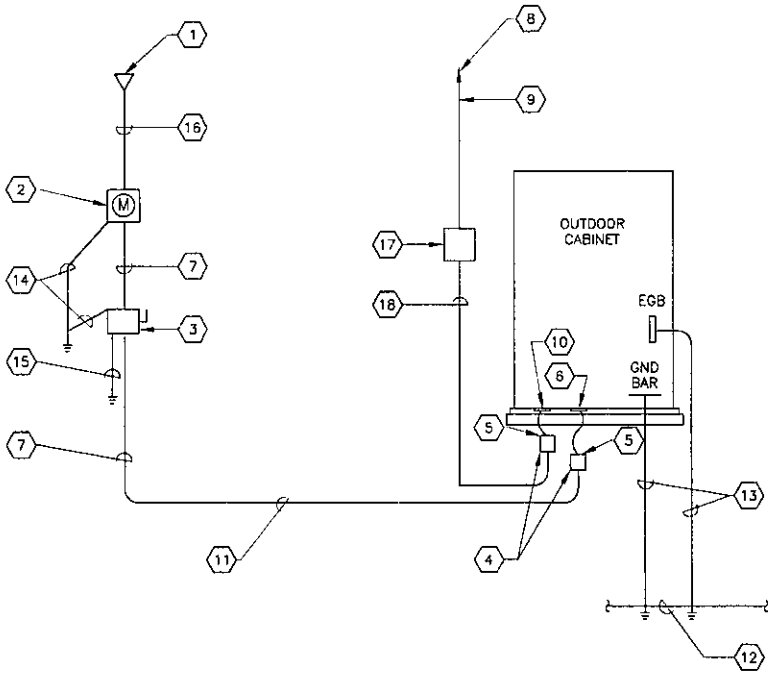
SUPPRESSOR DETAIL AND ELECTRICAL NOTES

SHEET NO.
E-1



1 / E-2

POWER, TELCO, + GROUND SINGLE LINE DIAGRAM

NOT TO SCALE

REFERENCE NOTES:

1. ELECTRICAL DEMARCATION POINT 120/208V OR 240V, 1ø, 3W. ELECTRICAL CONTRACTOR TO COORDINATE WITH LOCAL POWER FOR SERVICE TO METER.
2. CONTRACTOR TO SUPPLY AND INSTALL A 100A, 120/208/240V 1ø, 3W METER BASE. METER BASE TO BE NEMA 3R RATED AND ACCEPTABLE TO LOCAL UTILITY. PROVIDE WITH MECHANICALLY ATTACHED ENGRAVED IDENTIFICATION LABEL INDICATING "POCKET COMMUNICATIONS METER".
3. MAIN DISCONNECT SWITCH. CONTRACTOR TO SUPPLY AND INSTALL NEMA 3R 100A FUSIBLE DISCONNECT SWITCH WITH LOCKABLE HANDLE. PROVIDE WITH 100A FUSES, AIC RATING TO BE PER LOCAL UTILITY REQUIREMENTS. PROVIDE WITH MECHANICALLY ATTACHED ENGRAVED IDENTIFICATION LABEL INDICATING "POCKET COMMUNICATIONS SERVICE DISCONNECT".
4. WEATHER TIGHT JUNCTION BOX (IF REQUIRED). SIZE TO NEC CODE FOR APPLICATION.
5. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT W/W WEATHER TIGHT FITTINGS AND SUPPORTS. SIZE AND CONTENTS TO MATCH ASSOCIATED USE (POWER OR TELCO).
6. UTILITY POWER ENTRY INTO CABINET. COORDINATE TERMINATION WITH CABINET MANUFACTURER.
7. CONTRACTOR TO SUPPLY AND INSTALL 1 1/2" GRC. AFG AND PVC 36" BFG C/W (3) #1 AWG THHN & (1) #6 GRND FOR UTILITY SERVICE. (INSTALL EXPANSION COUPLINGS AT EACH END OF RUN ABOVE GRADE).
8. TELCO DEMARCATION POINT. ELECTRICAL CONTRACTOR TO COORDINATE WITH LOCAL TELCO FOR SERVICE TO TELCOBOX OR CABINET.
9. CONTRACTOR TO SUPPLY AND INSTALL (1) 2" GRC AFG AND PVC 36" BFG C/W PULL CORDS AND T1 CABLE FOR TELCO SERVICE TO CABINET TERMINATION POINT. VERIFY WITH TELCO REQUIREMENTS (INSTALL EXPANSION COUPLINGS AT EACH END OF RUN ABOVE GRADE).
10. TELCO SERVICE ENTRY INTO CABINET. COORDINATE TERMINATION IN WITH CABINET MANUFACTURER.
11. CONTRACTOR TO ARRANGE AND PAY FOR UNDERGROUND UTILITY LOCATION SURVEYS FOR ALL TRENCHING. REUSE NATIVE BACKFILL AND RETURN TO ORIGINAL CONDITION. INSTALL 6" WIDE METALLIC LINED RED PLASTIC MARKER TAPE 8" ABOVE ALL BURIED CONDUIT.
12. BURIED GROUND RING.
13. (1) #2 SOLID BARE TINNED CU GROUNDING ELECTRODE CONDUCTOR BONDED TO 5/8"X10' COPPER CLAD STEEL GROUNDING ELECTRODES. LOCATE GROUNDING ELECTRODE ADJACENT TO "CABINET". BOND GROUNDING ELECTRODE SYSTEM TO CABINET GROUND RING.
14. #2 AWG GND.
15. #2 AWG SERVICE GROUND.
16. TO UTILITY SOURCE PER UTILITY REQUIREMENTS (COORDINATE WITH ELECTRIC UTILITY).
17. NEMA 3R TELCO BOX.
18. 2" PVC (RGS ABOVE GROUND) W/PULL STRING AND T1 CABLE.

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CHK'D BY:	CPC

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NATIONAL GRID

POCKET COMMUNICATIONS

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EAST FARMINGTON
130A BIRDSEYE ROAD
FARMINGTON, CT

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JOB NO.	05117.C002

SINGLE LINE DIAGRAM AND NOTES

SHEET NO.
E-2

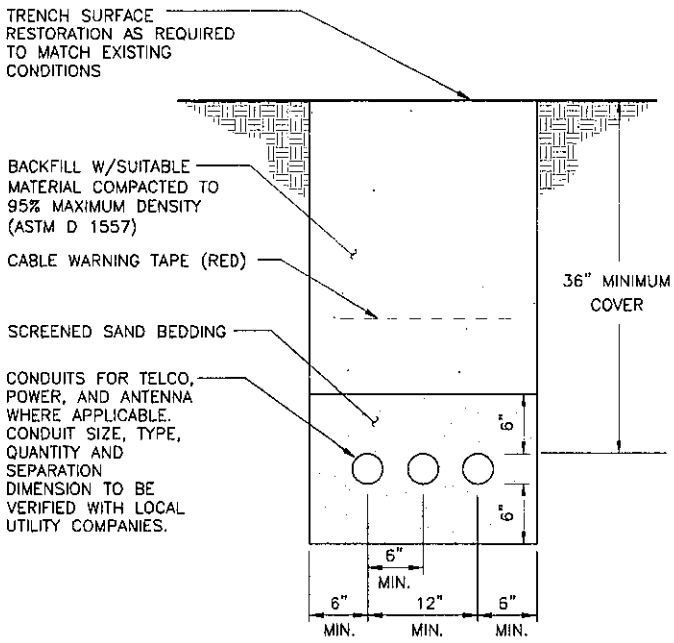
PANEL "SSC"								
LOAD DESCRIPTION	LOAD (kVA)	BRKR. SIZE	CKT. NO.	PHASE A B	CKT. NO.	BRKR. SIZE	LOAD (kVA)	LOAD DESCRIPTION
BTS CABINET	2.5	30/2	1		2	30/2	2.2	TVSS
	2.5		3		4		2.2	
LIGHTING	.9	10/1	5		6	–	–	SPACE
SPACE	–	–	7		8	–	–	SPACE
SPACE	–	–	9		10	–	–	SPACE
SPACE	–	–	11		12	–	–	SPACE
SPACE	–	–	13		14	–	–	SPACE
SPACE	–	–	15		16	–	–	SPACE
SPACE	–	–	17		18	–	–	SPACE
SPACE	–	–	19		20	–	–	SPACE
SPACE	–	–	21		22	–	–	SPACE
SPACE	–	–	23		24	–	–	SPACE
LOAD SUB–TOTAL	5.6	LOAD SUB–TOTAL		10.3 kVA			4.4	LOAD SUB–TOTAL

100A MCB, 120/240V, 1ø, 3W (65,000 AIC MIN)		
TOTAL CONNECTED LOAD	10.3 KW	
25% OF LARGEST CONT. LOAD	1250 W	
TOTAL LOADS	11.5 KW	48 AMPS
NOTE: ALL NON–OPTIONAL BREAKERS PROVIDED BY SSC MFR		

NOTE:

CIRCUIT BREAKER SIZES SHOWN ARE TYPICAL. REFER TO EQUIPMENT MANUFACTURING SPECIFICATIONS FOR SITE SPECIFIC CIRCUIT BREAKER REQUIREMENTS.

1 / E–3 **PANEL SCHEDULE**
NOT TO SCALE



NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

2 / E–3 **BURIED CONDUIT DETAIL**
NOT TO SCALE

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

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0	07/27/08	DEB	ISSUED FOR REVIEW

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HFCT03371E
EAST FARMINGTON
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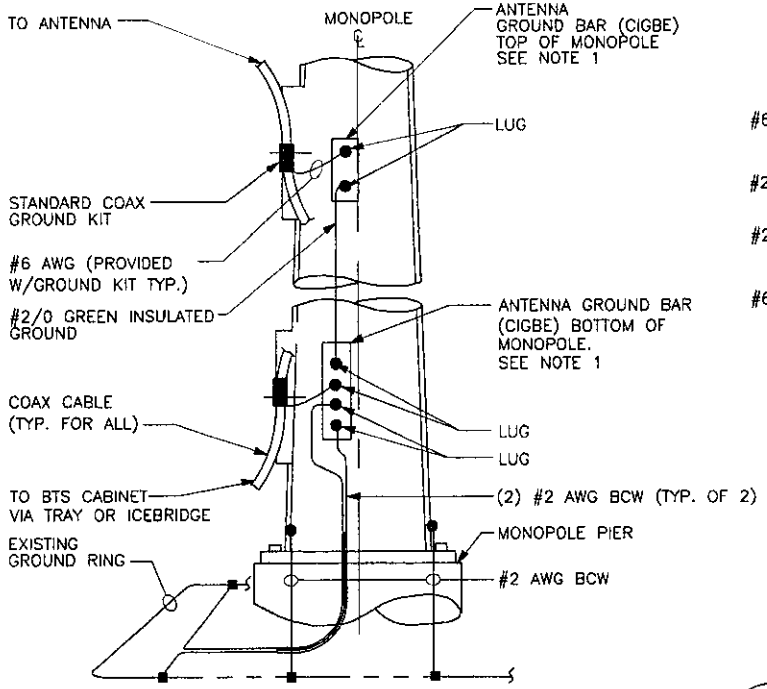
PANEL AND BURIED CONDUIT DETAIL

SHEET NO. E-3

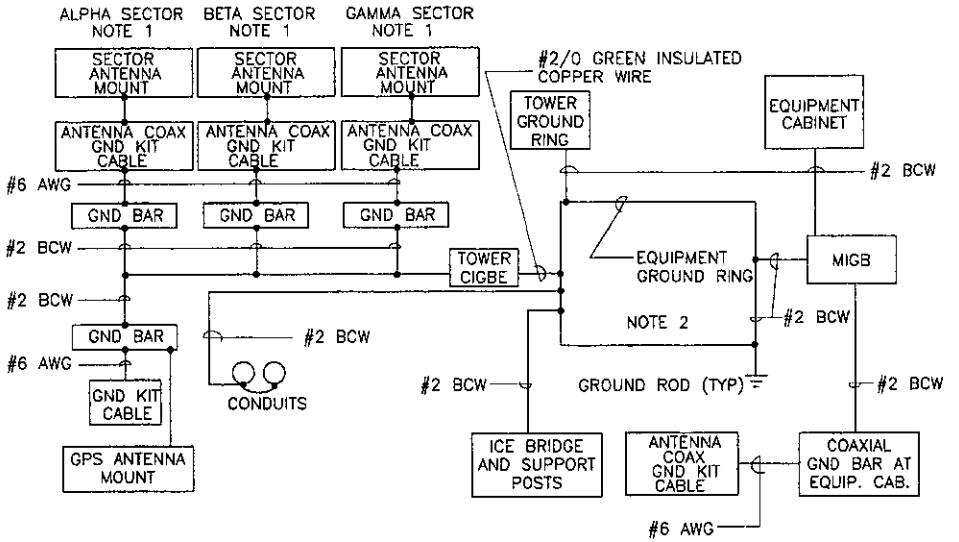


NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

1 / E-4 ANTENNA CABLE GROUNDING DETAIL

NOT TO SCALE



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE AND ANY OTHER ELEMENTS REQUIRING A GROUND CONNECTION (TMA'S, ETC.) TO GROUND BAR.
2. FOR GROUNDING CONNECTION & DETAILS, SEE LAYOUT DRAWINGS.

2 / E-4 SCHEMATIC DIAGRAM - GROUNDING SYSTEM

NOT TO SCALE

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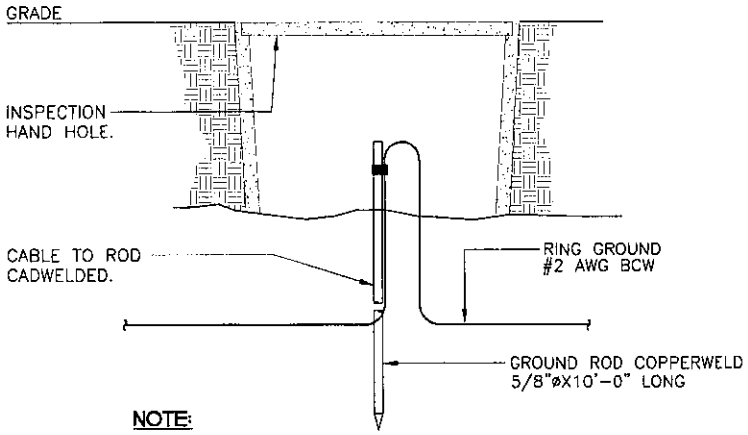
ANTENNA CABLE GROUNDING DETAIL

SHEET NO.
E-4

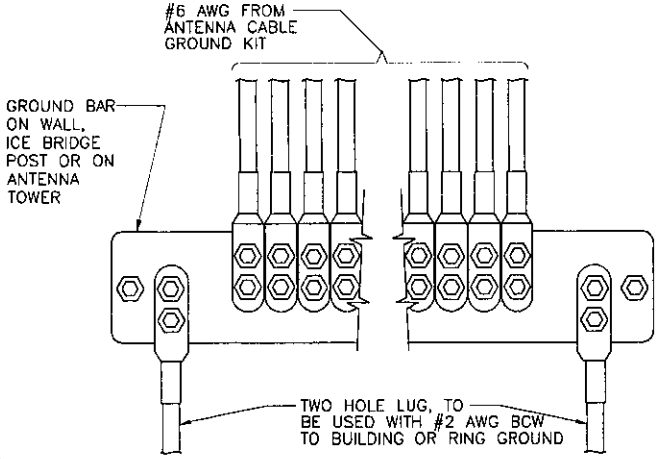


NOTE:

1. INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 12" DIA X 18" DEEP.

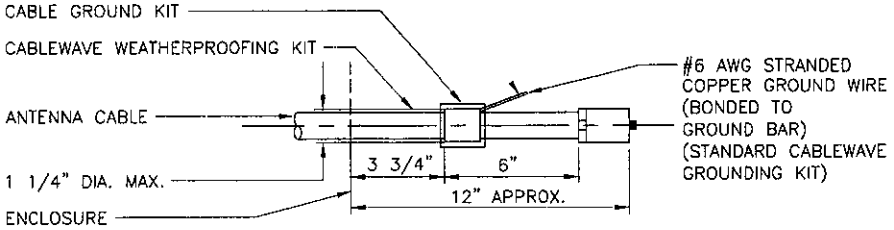
1 E-5 GROUND ROD WITH ACCESS DETAIL

NOT TO SCALE



2 E-5 INSTALLATION OF GROUND WIRE TO GROUND BAR

NOT TO SCALE

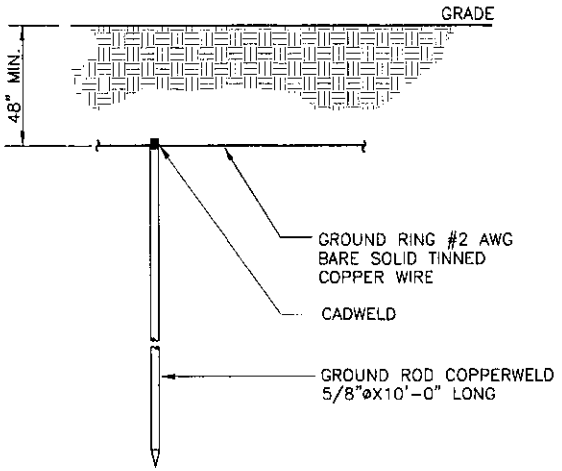


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

3 E-5 CABLE GROUNDING ANTENNA DETAIL

NOT TO SCALE



4 E-5 GROUND ROD DETAIL

NOT TO SCALE

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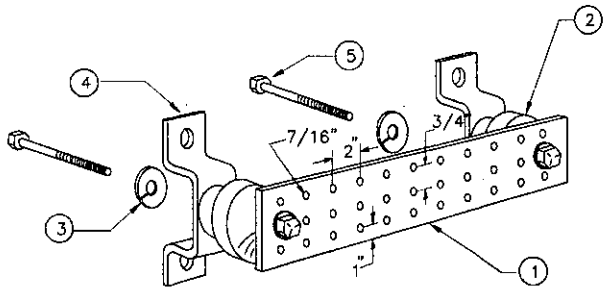
GROUNDING DETAILS

SHEET NO.
E-5

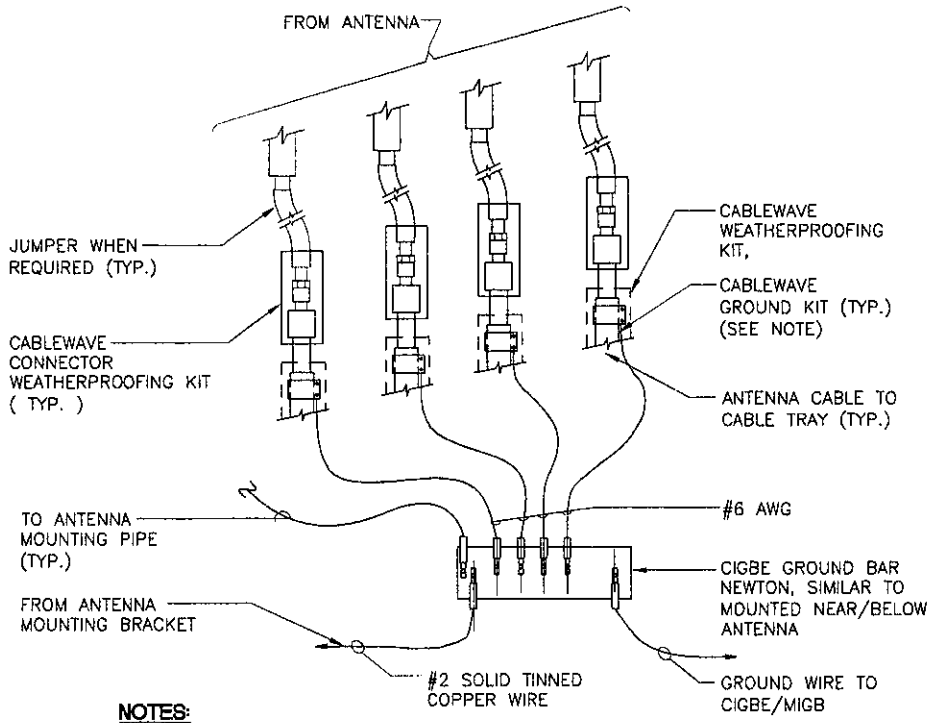


NOTES:

1. TINNED COPPER GROUND BAR, 1/4"X 4"X 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
3. 5/8" LOCK WASHERS, 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
6. LABEL "DO NOT DISCONNECT".
7. SECTOR CIGBE GROUND BAR TO BE SIZED FOR (4) ANTENNAS AND (4) BRACKETS OR MASTS. ALL OTHER GROUND BARS SHALL BE SIZED TO ACCOMMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY.

1 / E-6 **GROUND BAR DETAIL**

NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.
2. QTY OF CABLES FROM ANTENNA AS REQUIRED BY OWNER.

2 / E-6 **CONNECTION OF GROUND WIRES TO GROUND BAR**

NOT TO SCALE

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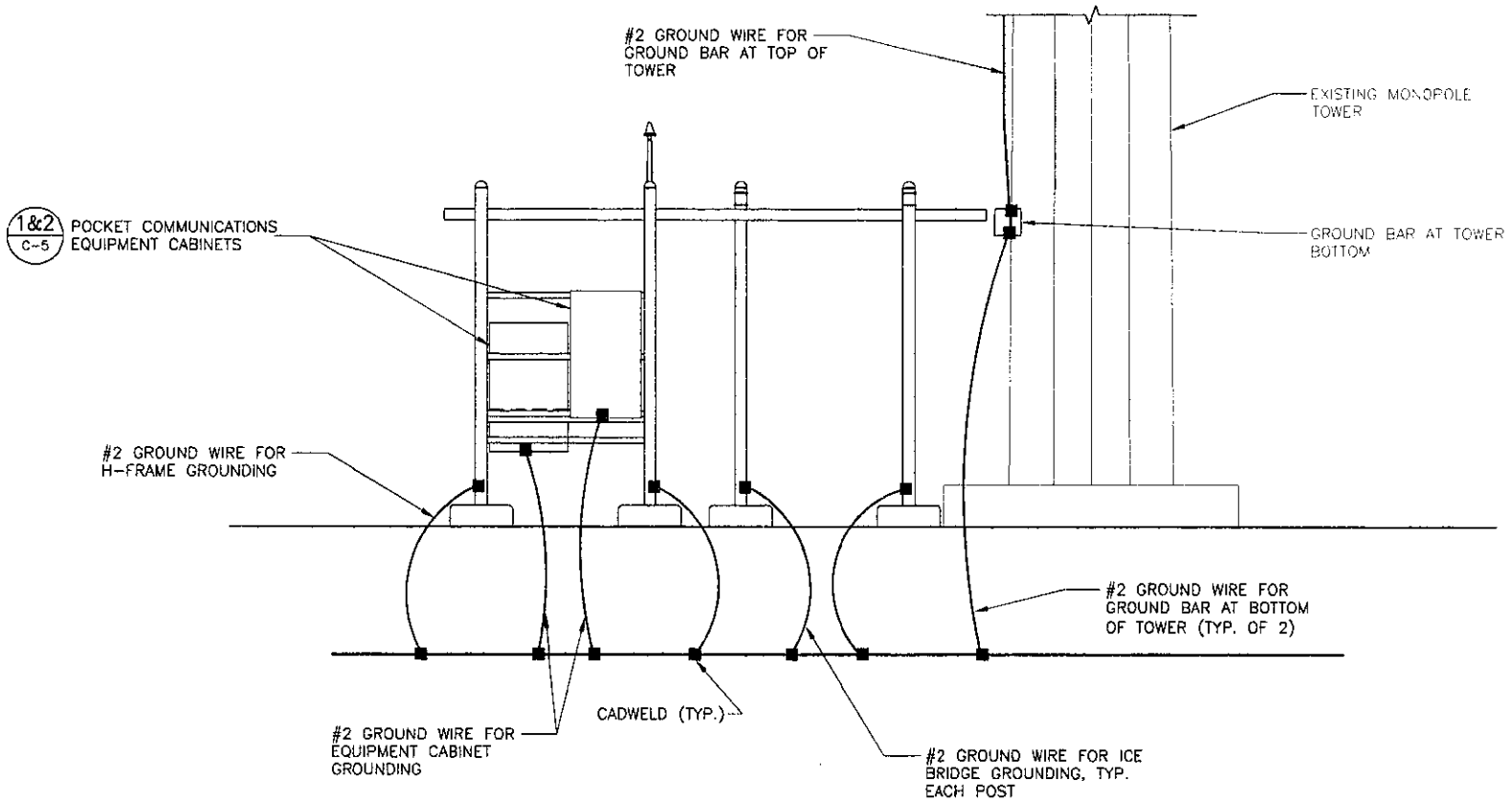
GROUNDING DETAILS

SHEET NO.
E-6



1 / E-7 **GROUNDING RISER**

NOT TO SCALE

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CHK'D BY: CTC

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GROUNDING RISER

SHEET NO.
E-7
Sheet No. 13 of 13

Exhibit C

Equipment Specifications

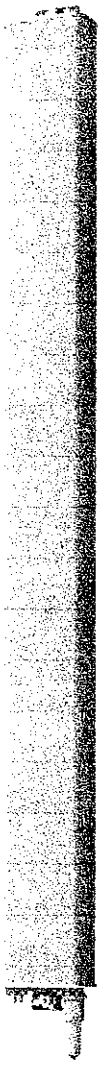
Pocket Site NHCT0371E

130 Birdseye Road, Farmington, Connecticut

KATHREIN
SCALA DIVISION

742 213

65° Panel Antenna

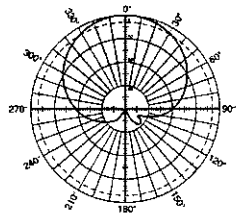


Kathrein's X-polarized adjustable electrical downtilt antennas offer the wireless carrier the ability to tailor polarization diversity sites for optimum performance. Using variable downtilt, only a few models need be procured to accommodate the needs of widely varying conditions. Remotely controlled downtilt is available as a retrofitable option.

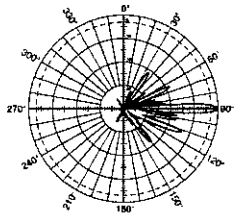
- 0-6° downtilt range.
- UV resistant pulltruded fiberglass radome.
- DC Grounded metallic parts for impulse suppression.
- No moving electrical connections.
- Wideband vector dipole technology.
- Optional remote downtilt Control.
- Will accomodate future 3G / UMTS applications.

General specifications:

Frequency range	1710–2170 MHz
VSWR	< 1.5:1
Impedance	50 ohms
Intermodulation (2x20w)	IM3: <-150 dBc
Polarization	+45° and -45°
Front-to-back ratio (180°±30°)	>30 dB (co-polar) >25 dB (total power)
Maximum input power	300 watts per input (at 50°C)
Electrical downtilt continuously adjustable	0–6 degrees
Connector	2 x 7/16 DIN female
Isolation	>30 dB
Cross polar ratio Main direction 0° Sector ±60°	 25 dB (typical) >10 dB
Weight	22 lb (10 kg)
Dimensions	76.5 x 6.1 x 2.7 inches (1942 x 155 x 69 mm)
Equivalent flat plate area	4.62 ft² (0.429 m²)
Wind survival rating*	120 mph (200 kph)
Shipping dimensions	87.2 x 6.8 x 3.6 inches (2214 x 172 x 92 mm)
Shipping weight	24.3 lb (11 kg)
Mounting	Fixed and tilt mount options are available for 2 to 4.6 inch (50 to 115 mm) OD masts.
See reverse for order information.	



Horizontal pattern
±45°- polarization



Vertical pattern
±45°- polarization

Specifications:	**1710–1880 MHz**	**1850–1990 MHz**	**1920–2170 MHz**
Gain	19 dBi	19.2 dBi	19.5 dBi
+45° and -45° polarization horizontal beamwidth	67° (half-power)	65° (half-power)	63° (half-power)
+45° and -45° polarization vertical beamwidth	4.7° (half-power)	4.5° (half-power)	4.3° (half-power)
Vertical Pattern–sidelobe suppression for first side-lobe above main beam	0° 2° 4° 6°T 18 17 15 15 dB	0° 2° 4° 6°T 18 18 17 15 dB	0° 2° 4° 6°T 18 18 17 15 dB

10642-H
936.2074/h

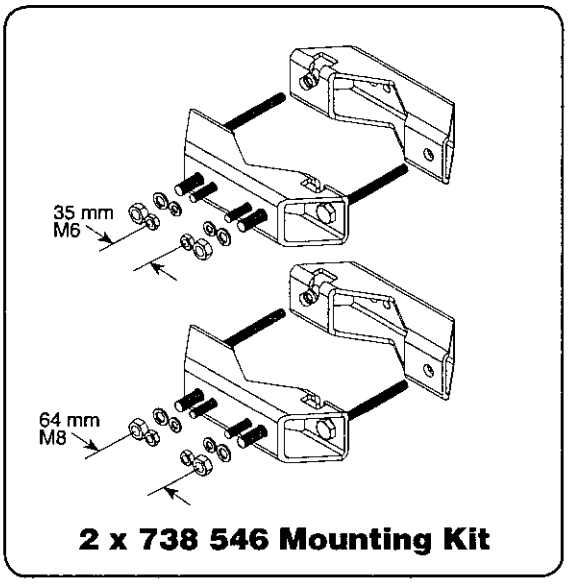
*Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

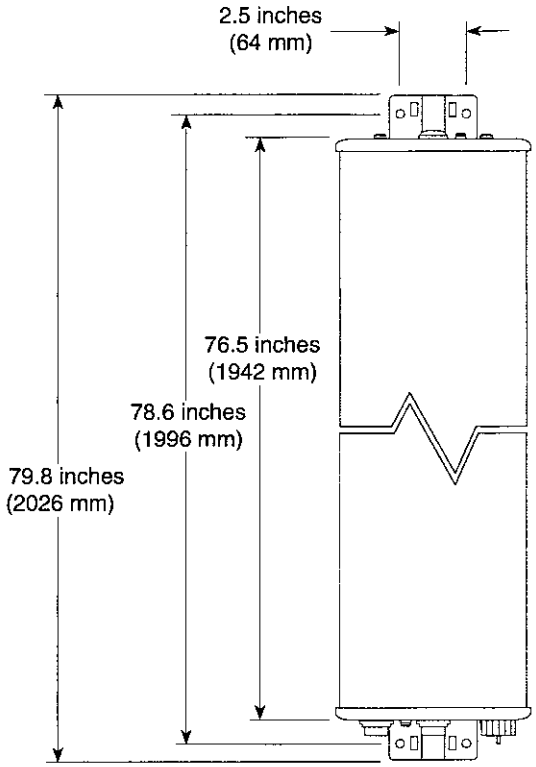
KATHREIN
SCALA DIVISION

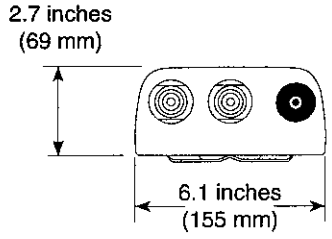
742 213

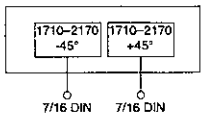
65° Panel Antenna



2 x 738 546 Mounting Kit







Mounting Options:

Model	Description
2 x 738 546	Mounting Kit for 2 to 4.6 inch (50 to 115 mm) OD mast.
737 978	Tilt Kit for use with the above mounting kit, 0–11 degrees downtilt angle. (requires 2 x 738 546 Mounting Kit)
742 263	Three-panel Sector Mounting Kit (120 deg. ea.) for 3.5 inch (89 mm) OD mast.

Order Information:

Model	Description
742 213	Antenna with 7/16 DIN connectors 0°–6° adjustable electrical downtilt

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

CDMA BTS 3231 AWS 1.7/2.1 GHz (Outdoor/Indoor)

CDMA BTS 3231

Industry's Highest Capacity AWS Micro BTS

The CDMA BTS 3231 is the latest extension to Nortel Networks BTS (Base Transceiver Station) portfolio providing the ideal solution for urban, sub-urban and rural deployments. The CDMA BTS 3231 is a 3-carrier, 3-sector outdoor/indoor BTS operating at the AWS band of 1.7/2.1 GHz supporting IS-95, 1XRTT and 1xEV-DO simultaneously. BTS 3231 provides flexible deployments solutions including floor, rack, and wall mount options. The power consumption of BTS3231 is industry leading consuming only 630W for 3C3S. The BTS 3231 is also very light at 240lbs making it easy to transport to hard to reach locations such as the top of a high rise building.

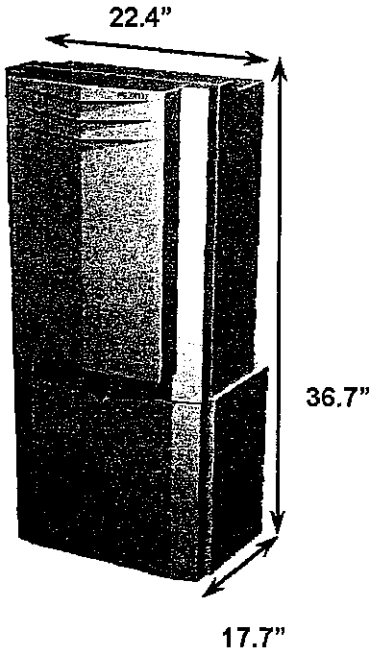


Exhibit D

Power Density Calculations

Pocket Site NHCT0371E

130 Birdseye Road, Farmington, Connecticut

C Squared Systems, LLC
920 Candia Road
Manchester, NH 03109
Phone: (603) 657 9702
E-mail:
support@csquaredsystems.com

Calculated Radio Frequency Emissions

CT-0371E

130 Birdseye Road, Farmington, CT

Table of Contents

List of Tables

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed Pocket antennas to be installed on the existing tower at 130 Birdseye Road, Farmington, CT.

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are much more conservative (higher) than the actual signal levels will be from the finished installation.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (mW/cm^2). The number of mW/cm^2 emitted is called the power density. The general population exposure limit for the cellular band is 0.567-0.593 mW/cm^2, and the general population exposure limit for the PCS/AWS band is 1.0 mW/cm^2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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.

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 (through training), 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."

The FCC describes exposure to radio frequency (RF) energy in terms of percentage of maximum permissible exposure (MPE) with 100% being the maximum allowed. Rather than the FCC presenting the user specification in terms of complex power density figures over a specified surface area, this MPE measure is particularly useful, and even more so when considering that power density limits actually vary by frequency because of the different absorptive properties of the human body at different frequencies.

MPE limits are specified as time-averaged exposure limits. This means that exposure can be averaged over 30 minutes for general population / uncontrolled exposure (or 6 minutes for occupational / controlled exposure). However, for the case of exposure of the general public, time averaging is usually not applied because of uncertainties over exact exposure conditions and difficulty in controlling time of exposure. Therefore, the typical conservative approach is to assume that any RF exposure to the general public will be continuous.

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.

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 limits for Maximum Permissible Exposure (MPE) for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP), the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit. As shown in these excerpts, each frequency band has different exposure limits, requiring power density to be reported as a percent of Maximum Permissible Exposure (MPE) when dealing with carriers transmitting in different frequency bands.

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:

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna

V = Vertical Distance from bottom of antenna

Off Beam Loss is determined by the selected antenna patterns

4. Calculation Results

Table 1 below outlines the power assumptions used to compute the power density.

Carrier	Operating Frequency (MHz)	Antenna Height (Feet)	Number of Trans.	Effective Radiated Power (ERP) Per Transmitter (Watts)	Total ERP (Watts)
Nextel	851	120	9	100	900
Sprint	1957.5	140	11	122	1342
Verizon	869	110	9	200	1800
Verizon	1900	110	3	200	600
T-Mobile	1935	100	8	189	1512
Cingular GSM	1900	131	2	646	1292
Cingular UMTS	880	131	1	500	500
Pocket	2130-2133.75	90	3	631	1,893

Table 1: Proposed Carrier Information

The calculated result for the cumulative %MPE is 28.34%.

Please note that for distances of 100 feet or less, a nominal 10 dB of attenuation due to antenna pattern is assumed. Also, as noted in the introduction, 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 installation.

5. Conclusion

The above analysis verifies that emissions from the proposed site will be well 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 transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at the base of the tower is 28.34% of the FCC limit.

Please note that for distances of 100 feet or less, a nominal 10 dB of attenuation due to antenna pattern is assumed. Also, as noted in the introduction, 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 installation.

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/IEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

August 26, 2008
Date

Daniel l. Goulet
C Squared Systems, LLC

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

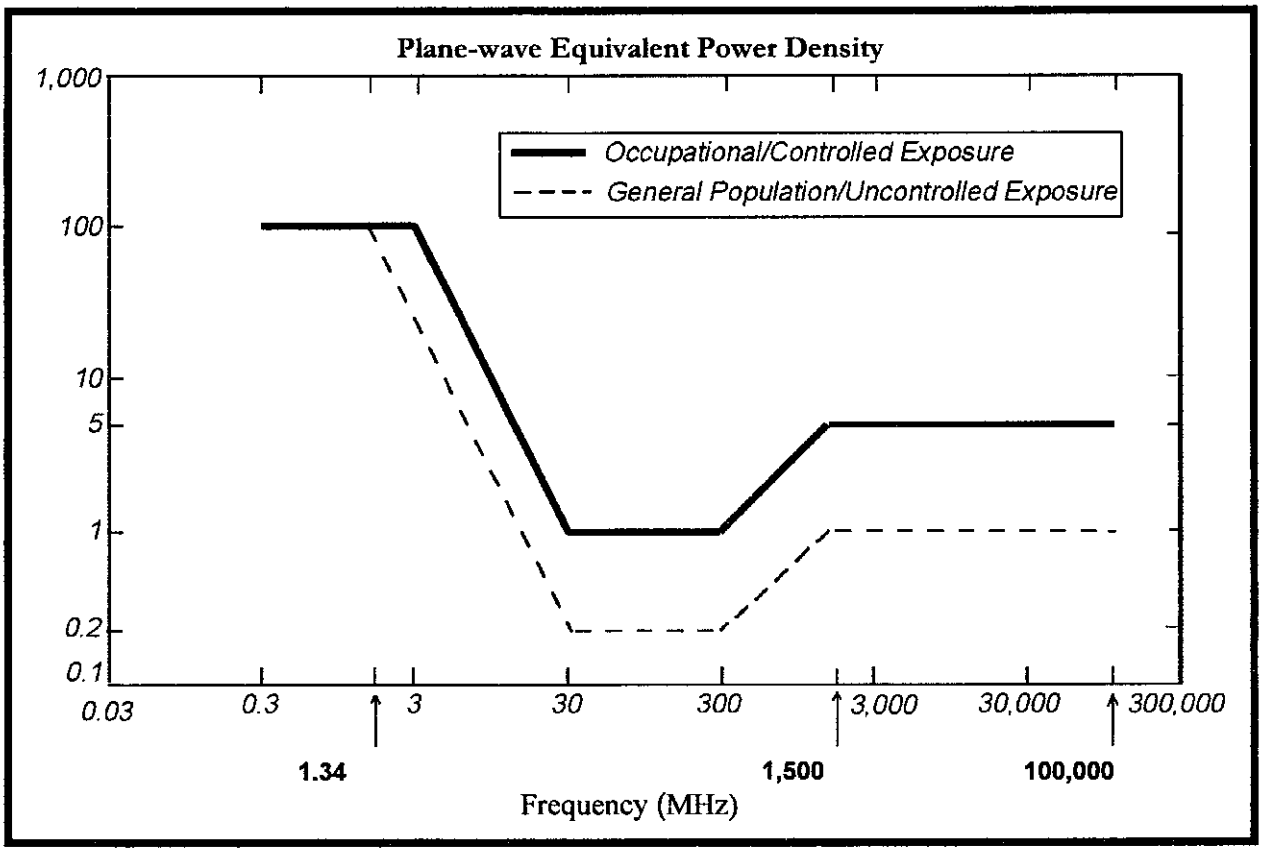
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure

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

NOTE 1: 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.
NOTE 2: 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 can not exercise control over their exposure.



• FCC Limits for Maximum Permissible Exposure (MPE)

Exhibit E

Structural Analysis

Pocket Site NHCT0371E

130 Birdseye Road, Farmington, Connecticut

July 31, 2008

Ms. Veronica Harris
Crown Castle USA Inc.
1200 MacArthur Blvd
Mahwah, NJ 07430

B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
ctuttle@btengineering.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	**Youghiogheny Co-Locate**	
	Carrier Site Number:	*CT-0371E*
	Carrier Site Name:	*N/A*
Crown Castle Designation:	**Crown Castle BU Number:**	*876335*
	Crown Castle Site Name:	*East Farmington*
	Crown Castle JDE Job Number:	*108553*
Engineering Firm Designation:	**B&T Engineering Project Number:**	***77969***
Site Data:	**3 A Birdseye Road, Farmington, CT, Hartford County**	
	Latitude *41°-42'-56.58"*, Longitude *-72°-48'-39.08"*	
	140 Foot – Monopole Tower	

Dear Ms. Harris,

B&T Engineering is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the aforementioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 297272, in accordance with Application 67286, Revision 2.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut Building Code based upon a wind speed of 80 mph fastest mile.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at B&T Engineering appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA, Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

STATE OF CONNECTICUT ★ CHAD TUTTLE ★ No. 23924 LICENSED PROFESSIONAL ENGINEER 7/31/08

Jerod Dotson
Project Engineer

Chad E. Tuttle, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

The subject structure is a 140 foot tapered monopole manufactured by Summit Manufacturing, Inc.

2) ANALYSIS CRITERIA

Specific code

- TIA/EIA-222-F – 80 mph fastest mile wind speed
- Connecticut Building Code – 100 mph 3-second gust

The controlling wind loads for this analysis were derived from TIA/EIA-222-F therefore the tower was analyzed for a fastest mile wind speed of 80 mph with no ice and 69 mph with ½" of radial ice.

Table 1 – Proposed Antenna and Cable Information

Center Line Elev. (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
90	3	Kathrein	742-213	(3) Flush Mounts	6	1 5/8

Table 2 – Existing and Reserved Antenna and Cable Information

Center Line Elev. (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
139#	6 9 (MLA)	Decibel --	DB980H90A-M 6' x 1'x 6" Panel	LP Platform	6 9 (MLA)	1 5/8 1 5/8
130	3 6	Powerwave	7770.00 LGP21401 TMA	(3) T-Arms	9	7/8
120	12	Swedcom	ALP 9212-N	LP Platform	12	1 1/4
110	6 6	Antel	LPD-6513 LPA 185063/12CF	LP Platform	12	1 5/8
100##	3 6	Celwave Remec	APX16PV-16PVL-E S20057A1 TMA	Flush Mounts	6 12 (SLA)	7/8 1 5/8
72	1	Lucent	KS24019-L112A	Standoff	1	1/2
51	1	--	GPS	Standoff	1	1/2

*Refer to Cable Routing Drawing in Appendix B for Feedline Placement.
Structural Analysis performed using MLA loading rather than existing.
Structural Analysis performed using existing antennas and SLA feedlines.

Table 3 – Design Antenna and Cable Information

Center Line Elev. (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount	Number of Feed Lines	Feed Line Size (in)
Information Not Available						

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Tower Manufacturer Drawings	Summit Manufacturing, Inc	Crown Doc ID# 1615361	Crown OTG
Foundation Drawings	Summit Manufacturing, Inc	Crown Doc ID# 1440555	Crown OTG
Geotech Report	Dr. Clarence Welti Geotechnical Engineering	Crown Doc ID# 1850446	Crown OTG
Antenna Configuration	Crown CAD Package	Date: 07/28/08	Crown OTG

3.1) Analysis Method

RISA Tower (version 5.2.0.1), a commercially available analysis software package, 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 TIA/EIA-222-F or the local building code requirements. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. This structural analysis **does not** include a grouted base plate.
2. Tower and structures were built in accordance with the manufacturer's specifications.
3. The tower and structures have been maintained in accordance with manufacturer's specifications.
4. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
5. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222-F.

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

Slab Size

Program: Pad and Pedestal Date: 7/31/2008
File Name: 77969
Location: East Farmington(BU# 876335), CT

INPUT **Bold Values Only are Input**

20.00	**Length, L (ft.)**	**Conc. Unit Weight**	**0.15** kcf
20.00	**Width, B (ft.)**	**Soil Unit Weight**	**0.1** kcf
4.00	**Thickness, T (ft)**		
0.50	**Height of Pier Above Grade, (ft.)**		
9.00	**Depth to Base, D (ft.)**		
1.00	**Round Pedestal =0, Else Square Pedestal**		
8.00	**Pedestal Diameter or Width, (ft.)**		
30.00	**Phi Angle, (deg.)**	0.5236 Phi in Radians	
0.00	**Cohesion, c (ksf)**		
3000	**Conc. f'c, (psi)**		
1.30	**USD Load Factor**		
12.00	**Net Allow Bearing Stress, include Code Increase when approp., (ksf)**		
1.50	**Allow O.T. Factor of Safety**		
2391	**Tower O.T. Moment, (ft.-kips)**	O.T. Moment @ fdn Bas	2628.50 ft.-kips
29	**Leg Download, kips**		
0	**Leg Uplift, kips**		
25	**Leg Shear, kips**		

Check of Punching Shear

43.50	d, top of conc. To middle of bottom rebar mat, (in.)
558.00	Bo, The circumference at d/2 from face of pier, (in.)
37.7	Factored Leg Download, (kips)
4520.3	Phi*Vn, Conc. 2-way Shear Resistance, (kips)

Check of One Way Shear Shear

293.0	Factored Shear at Face of Pier
972.1	Phi*Vn, Conc. 1-way Shear Resistance, (kips)

Mat Thickness is acceptable

72.30 Concrete Volume (c.y.)

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity – LC1

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	140 - 91.75	Pole	TP25.89x16x0.25	1	-8.945	964.748	85.7	Pass
L2	91.75 - 77.1667	Pole	TP28.38x24.724x0.313	2	-11.909	1468.259	86.7	Pass
L3	77.1667 - 46.5	Pole	TP34.67x28.38x0.313	3	-16.616	1749.029	104.0	OK
L4	46.5 - 0	Pole	TP43.58x33.122x0.375	4	-28.423	2712.162	101.3	OK
							Summary	
						Pole (L3)	104.0	OK
						RATING =	**104.0**	**OK**

Individual Components:				
Notes:	**Component**	**Elevation**	**% Capacity**	**Pass/Fail**
1	Base Plate	Base	74.5	Pass
1	Anchor Rods	Base	95.2	Pass
1	Base Foundation	Base	71.4	Pass
Structure Rating (max from all components) =				**104.0 %**

*Notes:

1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity listed.
2) Capacities up to 105% are considered acceptable based on analysis procedures used.
3) The percent capacities shown above (excluding foundations) include the 1/3 increase in allowable stresses as allowed by TIA/EIA-222-F.

4.1) Recommendations

N/A

Program: Pad and Pedestal
File Name: 77969
Location: East Farmington(BU# 876335), CT

Check Net Vert. Soil Pressure Eccentricity = 5.37 > 3.33 ft. (L/6)

Vert. Loads in kips

29.00	Tower	RESULTANT IS OUTSIDE MIDDLE THIRD OF THE PAD
168.00	Soil	L-PRIME= 13.90
292.80	Conc	
489.80	Sum of the Verticals, (kips)	

0.00	Net q-min. (ksf)			
2.62	Net q-max, (ksf))	Status:	OK	**21.9%**
2.10	O.T. Factor of Safety	Status:	OK	**71.4%**
2.42	q-Bottom Design, (ksf)	The Net q-max minus the opposing effect of conc DW		
1.10	q-TopDesign, (ksf)	Deadweight TO BE USED FOR CONCRETE SLAB DESIGN of top mat reinforcing steel		

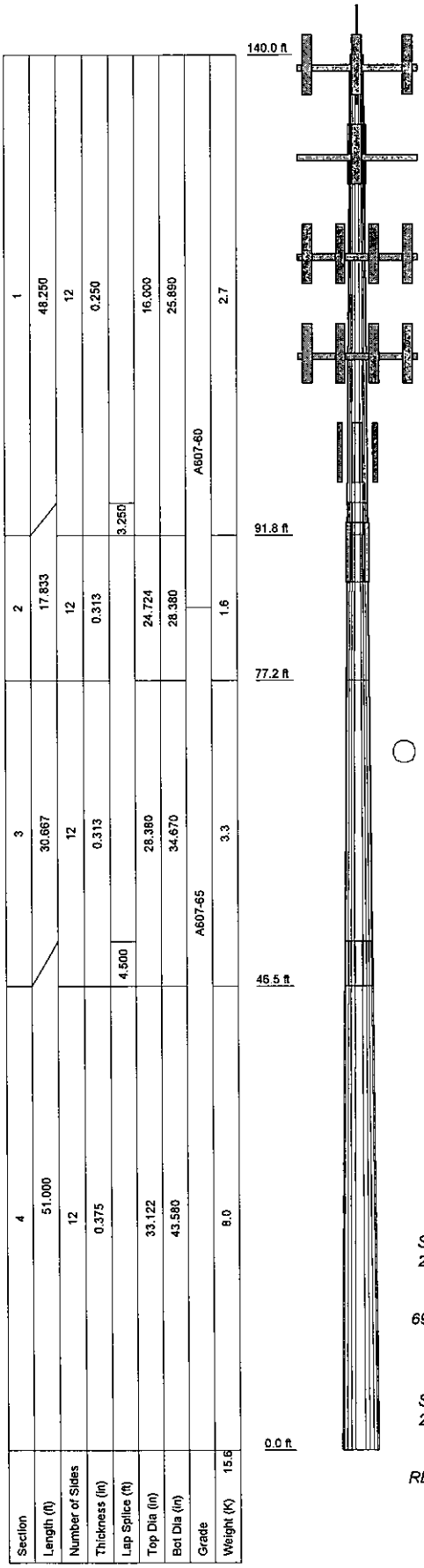
Conservatively assume maximum moment at the pier centerline with maximum mat edge distance

Pier Design, Max Moment =	30342	in.-kips
Pad Bottom Design, Moment Arm:	6.00	ft.
Pad Bottom Design, Max Moment:	2617	in.-kips
Pad Top Design, Moment Arm:	6.00	ft.
Pad Top Design, Max Moment:	1188	in.-kips

Use the above moments in the Pier, Pad Bottom & Top design sheets
in this Workbook to determine reinforcing steel requirements.

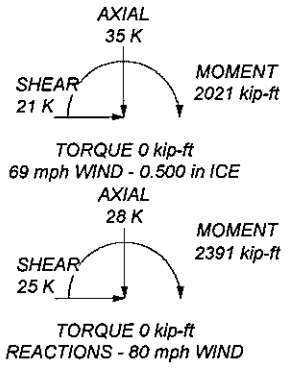
APPENDIX A

RISA TOWER OUTPUT



Section	1	2	3	4
Length (ft)	48.250	17.833	30.667	51.000
Number of Sides	12	12	12	12
Thickness (in)	0.250	0.313	0.313	0.375
Lap Splice (ft)	3.250		4.500	
Top Dia (in)	16.000	24.724	28.380	33.122
Bot Dia (in)	25.890	28.380	34.670	43.580
Grade	A607-60	A607-60	A607-65	A607-65
Weight (K)	2.7	1.6	3.3	8.0

15.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod (E)	140	(2) LPA-185063/12CF (E)	110
(3) MLA ANTENNA (6' x 1' x 0.5' 35 LB) (MLA)	139	(2) LPA-185063/12CF (E)	110
		(2) LPA-185063/12CF (E)	110
(3) MLA ANTENNA (6' x 1' x 0.5' 35 LB) (MLA)	139	Low Profile Platform (E)	110
		APX16PV-16PVL-E (E)	100
(3) MLA ANTENNA (6' x 1' x 0.5' 35 LB) (MLA)	139	APX16PV-16PVL-E (E)	100
		APX16PV-16PVL-E (E)	100
Low Profile Platform (E)	139	Flush Mount (E)	100
7770.00 (E)	130	Flush Mount (E)	100
7770.00 (E)	130	Flush Mount (E)	100
7770.00 (E)	130	(2) Remec S20057A1 TMA (E)	100
(2) LGP21401 (E)	130	(2) Remec S20057A1 TMA (E)	100
(2) LGP21401 (E)	130	(2) Remec S20057A1 TMA (E)	100
(2) LGP21401 (E)	130	742 213 (P)	90
(3) T-Arms (E)	130	742 213 (P)	90
(4) ALP 9212-N (E)	120	742 213 (P)	90
(4) ALP 9212-N (E)	120	(3) Flush Mounts (P)	90
(4) ALP 9212-N (E)	120	KS24019-L112A (E)	72
Low Profile Platform (E)	120	2' Standoff (E)	70
(2) LPD-6513 (E)	110	GPS (E)	51
(2) LPD-6513 (E)	110	2' Standoff (E)	51
(2) LPD-6513 (E)	110		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

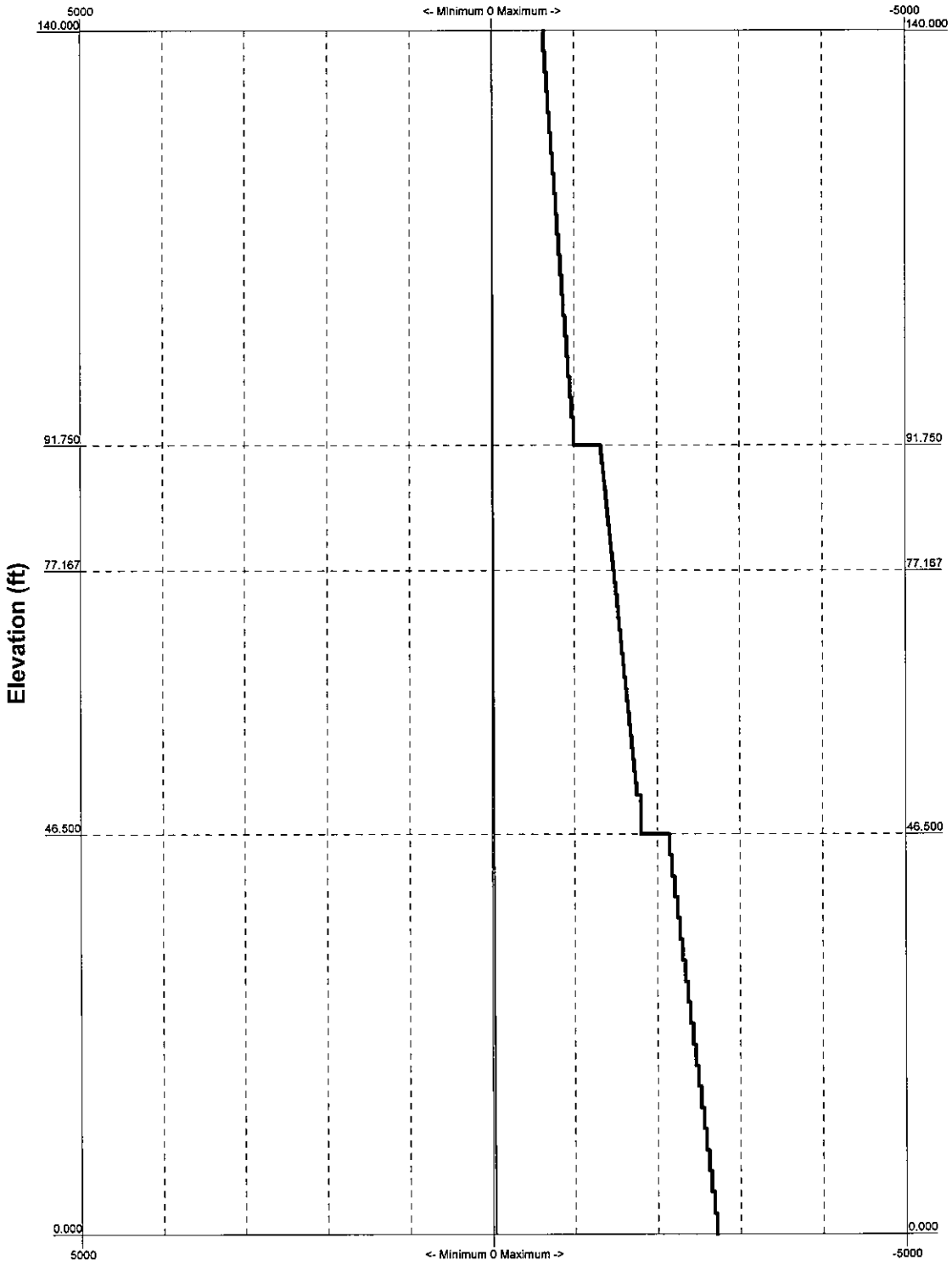
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 104%

B&T Engineering
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 77969 - East Farmington, CT (BU# 876335)			
Project: 140' Summit Monopole / App ID: 67286; Rev: 2			
Client: Crown Castle USA, Inc.	Drawn by: jdotson	App'd:	
Code: TIA/EIA-222-F	Date: 07/31/08	Scale: NTS	
Path:		Dwg No. E-1	

TIA/EIA-222-F - 80 mph/69 mph 0.500 in Ice

Leg Capacity ——— **Leg Compression (K)**



B&T Engineering
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

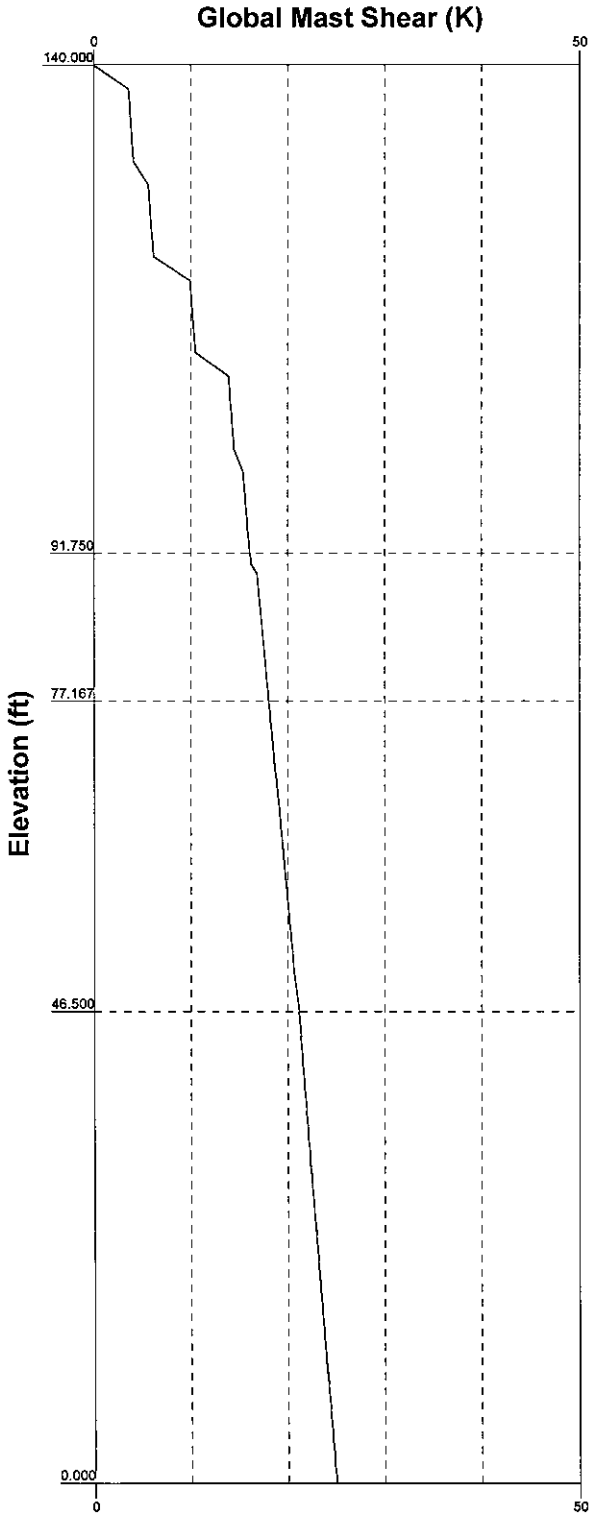
Job: *77969 - East Farmington, CT (BU# 876335)*			
Project: *140' Summit Monopole / App ID: 67286; Rev: 2*			
Client: Crown Castle USA, Inc.	Drawn by: jdotson	App'd:	
Code: TIA/EIA-222-F	Date: 07/31/08	Scale: NTS	
Path:		Dwg No. E-3	

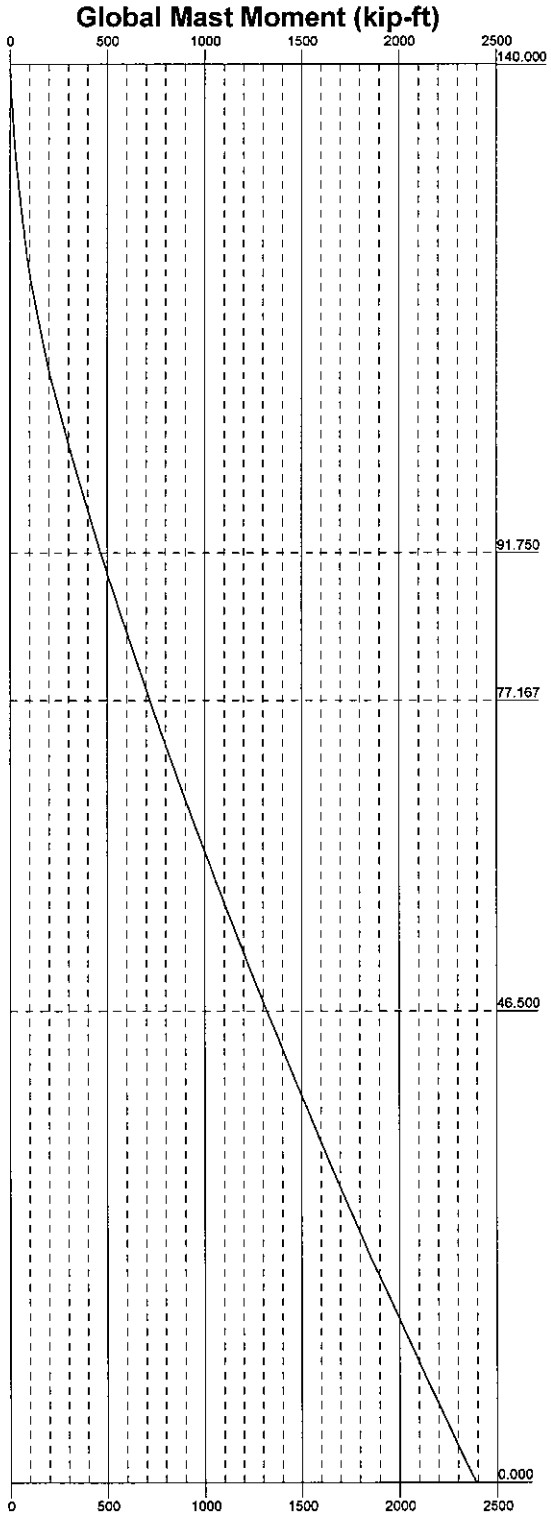
TIA/EIA-222-F - 80 mph/69 mph 0.500 in Ice

Vx ---------- Vz

Maximum Values

Mx ---------- Mz





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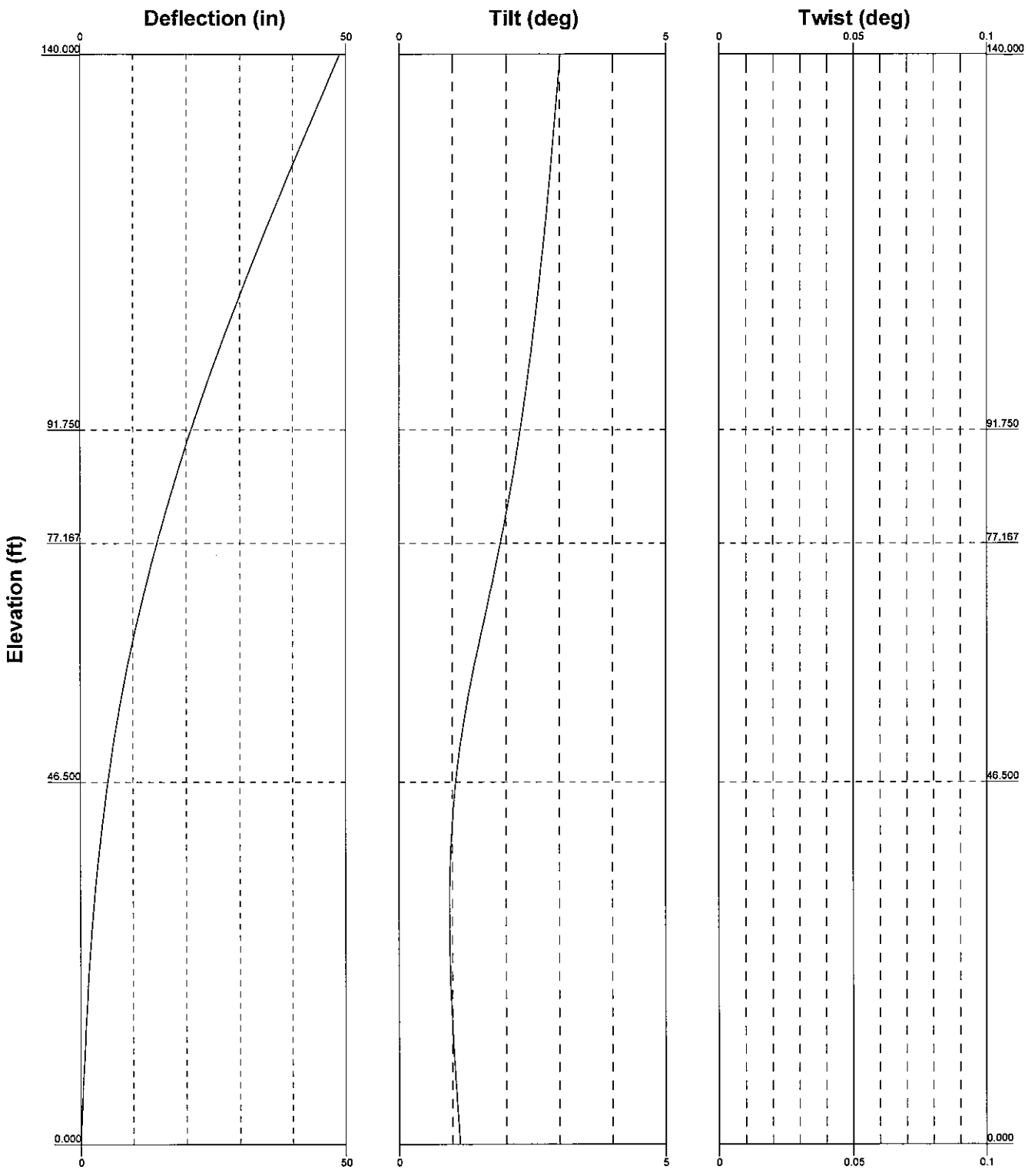
Job: *77969 - East Farmington, CT (BU# 876335)*			
Project: *140' Summit Monopole / App ID: 67286; Rev: 2*			
Client: Crown Castle USA, Inc.	Drawn by: jdotson	App'd:	
Code: TIA/EIA-222-F	Date: 07/31/08	Scale: NTS	
Path:		Dwg No. E-4	

TIA/EIA-222-F - Service - 50 mph

Maximum Values



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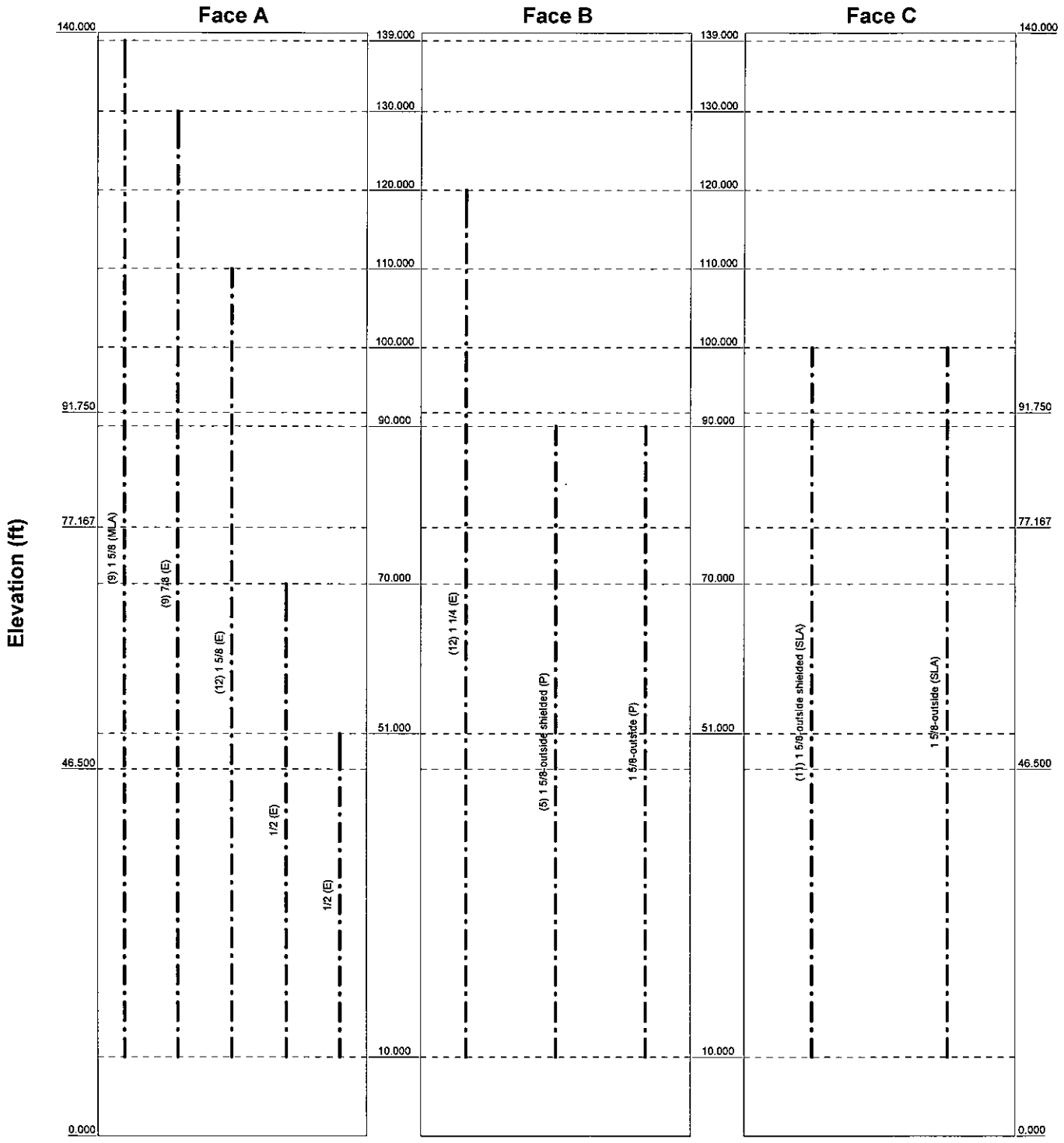
Job: *77969 - East Farmington, CT (BU# 876335)*			
Project: *140' Summit Monopole / App ID: 67286; Rev: 2*			
Client: Crown Castle USA, Inc.	Drawn by: jdotson	App'd:	
Code: TIA/EIA-222-F	Date: 07/31/08	Scale: NTS	
Path:		Dwg No. E-5	

Feedline Distribution Chart
0' - 140'

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



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Job: *77969 - East Farmington, CT (BU# 876335)*			
Project: *140' Summit Monopole / App ID: 67286; Rev: 2*			
Client: Crown Castle USA, Inc.	Drawn by: jdotson	App'd:	
Code: TIA/EIA-222-F	Date: 07/31/08	Scale: NTS	
Path:		Dwg No. E-7	

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 Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.500 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	140.000-91.750	48.250	3.250	12	16.000	25.890	0.250	1.000	A607-60 (60 ksi)
L2	91.750-77.167	17.833	0.000	12	24.724	28.380	0.313	1.250	A607-65 (65 ksi)
L3	77.167-46.500	30.667	4.500	12	28.380	34.670	0.313	1.250	A607-65 (65 ksi)
L4	46.500-0.000	51.000		12	33.122	43.580	0.375	1.500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.564	12.679	401.443	5.638	8.288	48.437	813.432	6.240	3.618	14.472
	26.803	20.640	1731.952	9.179	13.411	129.144	3509.405	10.158	6.269	25.074
L2	26.286	24.564	1868.385	8.739	12.807	145.888	3785.855	12.090	5.788	18.523
	29.381	28.243	2839.900	10.048	14.701	193.179	5754.407	13.900	6.768	21.659
L3	29.381	28.243	2839.900	10.048	14.701	193.179	5754.407	13.900	6.768	21.659
	35.893	34.572	5209.026	12.300	17.959	290.050	10554.899	17.015	8.454	27.053
L4	35.246	39.542	5412.378	11.723	17.157	315.458	10966.945	19.461	7.872	20.991
	45.117	52.170	12430.114	15.467	22.574	550.628	25186.781	25.677	10.674	28.465

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 140.000-91.750				1	1	1		
L2 91.750-77.167				1	1	1		
L3 77.167-46.500				1	1	1		
L4 46.500-0.000				1	1	1		

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 klf
1 5/8 (MLA) **	A	No	Inside Pole	139.000 - 10.000	9	No Ice 1/2" Ice	0.000 0.000	0.001 0.001
7/8 (E) **	A	No	Inside Pole	130.000 - 10.000	9	No Ice 1/2" Ice	0.000 0.000	0.001 0.001
1 1/4 (E) **	B	No	Inside Pole	120.000 - 10.000	12	No Ice 1/2" Ice	0.000 0.000	0.001 0.001
1 5/8 (E) **	A	No	Inside Pole	110.000 - 10.000	12	No Ice 1/2" Ice	0.000 0.000	0.001 0.001
1 5/8-outside shielded (SLA)	C	No	Inside Pole	100.000 - 10.000	11	No Ice 1/2" Ice	0.000 0.000	0.001 0.001
1 5/8-outside (SLA) **	C	No	CaAa (Out Of Face)	100.000 - 10.000	1	No Ice 1/2" Ice	0.198 0.298	0.001 0.003
1 5/8-outside shielded (P)	B	No	Inside Pole	90.000 - 10.000	5	No Ice 1/2" Ice	0.000 0.000	0.001 0.001
1 5/8-outside (P) **	B	No	CaAa (Out Of Face)	90.000 - 10.000	1	No Ice 1/2" Ice	0.198 0.298	0.001 0.003
1/2 (E)	A	No	Inside Pole	70.000 - 10.000	1	No Ice 1/2" Ice	0.000 0.000	0.000 0.000
1/2 (E)	A	No	Inside Pole	51.000 - 10.000	1	No Ice 1/2" Ice	0.000 0.000	0.000 0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	140.000-91.750	A	0.000	0.000	0.000	0.000	0.856
		B	0.000	0.000	0.000	0.000	0.224
		C	0.000	0.000	0.000	1.634	0.103
L2	91.750-77.167	A	0.000	0.000	0.000	0.000	0.389
		B	0.000	0.000	0.000	2.541	0.196
		C	0.000	0.000	0.000	2.887	0.182
L3	77.167-46.500	A	0.000	0.000	0.000	0.000	0.826
		B	0.000	0.000	0.000	6.072	0.434
		C	0.000	0.000	0.000	6.072	0.383
L4	46.500-0.000	A	0.000	0.000	0.000	0.000	0.993
		B	0.000	0.000	0.000	7.227	0.517
		C	0.000	0.000	0.000	7.227	0.456

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	140.000-91.750	A	0.500	0.000	0.000	0.000	0.000	0.856
		B		0.000	0.000	0.000	0.000	0.224
		C		0.000	0.000	0.000	2.458	0.115
L2	91.750-77.167	A	0.500	0.000	0.000	0.000	0.000	0.389
		B		0.000	0.000	0.000	3.824	0.215
		C		0.000	0.000	0.000	4.346	0.204
L3	77.167-46.500	A	0.500	0.000	0.000	0.000	0.000	0.826
		B		0.000	0.000	0.000	9.139	0.481
		C		0.000	0.000	0.000	9.139	0.429
L4	46.500-0.000	A	0.500	0.000	0.000	0.000	0.000	0.993
		B		0.000	0.000	0.000	10.877	0.572
		C		0.000	0.000	0.000	10.877	0.511

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	140.000-91.750	-0.052	0.030	-0.073	0.042
L2	91.750-77.167	-0.025	0.240	-0.034	0.327
L3	77.167-46.500	0.000	0.258	0.000	0.355
L4	46.500-0.000	0.000	0.207	0.000	0.292

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod (E) **	C	None			0.000	140.000	No Ice	0.500	0.500	0.100
							1/2" Ice	0.750	0.750	0.200
(3) MLA ANTENNA (6' x 1' x 0.5' 35 LB) (MLA)	C	From Face	0.000	0.000	0.000	139.000	No Ice	8.400	4.700	0.035
			0.000				1/2" Ice	8.949	5.147	0.082
(3) MLA ANTENNA (6' x 1' x 0.5' 35 LB) (MLA)	B	From Face	0.000	0.000	0.000	139.000	No Ice	8.400	4.700	0.035
			0.000				1/2" Ice	8.949	5.147	0.082
(3) MLA ANTENNA (6' x 1' x 0.5' 35 LB) (MLA)	A	From Face	0.000	0.000	0.000	139.000	No Ice	8.400	4.700	0.035
			0.000				1/2" Ice	8.949	5.147	0.082
Low Profile Platform (E) **	C	None			0.000	139.000	No Ice	17.000	17.000	1.500
							1/2" Ice	20.000	20.000	2.000
7770.00 (E)	C	From Face	0.000	0.000	0.000	130.000	No Ice	5.882	2.928	0.035
			0.000				1/2" Ice	6.314	3.273	0.068
7770.00 (E)	B	From Face	0.000	0.000	0.000	130.000	No Ice	5.882	2.928	0.035
			0.000				1/2" Ice	6.314	3.273	0.068
7770.00 (E)	A	From Face	0.000	0.000	0.000	130.000	No Ice	5.882	2.928	0.035
			0.000				1/2" Ice	6.314	3.273	0.068
(2) LGP21401 (E)	C	From Face	0.000	0.000	0.000	130.000	No Ice	0.500	0.233	0.014
			0.000				1/2" Ice	0.700	0.313	0.021
(2) LGP21401 (E)	B	From Face	0.000	0.000	0.000	130.000	No Ice	0.500	0.233	0.014
			0.000				1/2" Ice	0.700	0.313	0.021
(2) LGP21401 (E)	A	From Face	0.000	0.000	0.000	130.000	No Ice	0.500	0.233	0.014
			0.000				1/2" Ice	0.700	0.313	0.021
(3) T-Arms (E) **	C	None			0.000	130.000	No Ice	15.000	15.000	0.900
							1/2" Ice	18.000	18.000	1.200
(4) ALP 9212-N (E)	C	From Face	0.000	0.000	0.000	120.000	No Ice	5.784	5.784	0.017
			0.000				1/2" Ice	6.199	6.199	0.062
(4) ALP 9212-N (E)	B	From Face	0.000	0.000	0.000	120.000	No Ice	5.784	5.784	0.017
			0.000				1/2" Ice	6.199	6.199	0.062
(4) ALP 9212-N (E)	A	From Face	0.000	0.000	0.000	120.000	No Ice	5.784	5.784	0.017
			0.000				1/2" Ice	6.199	6.199	0.062
Low Profile Platform (E) **	C	None			0.000	120.000	No Ice	15.000	15.000	1.500
							1/2" Ice	18.000	18.000	2.000
(2) LPD-6513 (E)	C	From Face	0.000	0.000	0.000	110.000	No Ice	6.415	5.149	0.028
			0.000				1/2" Ice	6.816	5.532	0.051
(2) LPD-6513 (E)	B	From Face	0.000	0.000	0.000	110.000	No Ice	6.415	5.149	0.028
			0.000				1/2" Ice	6.816	5.532	0.051

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) LPD-6513	A	From Face	0.000	0.000	0.000	110.000	No Ice	6.415	5.149	0.028
(E)			0.000				1/2" Ice	6.816	5.532	0.051
			0.000							
(2) LPA-185063/12CF	C	From Face	0.000	0.000	0.000	110.000	No Ice	4.972	4.511	0.014
(E)			0.000				1/2" Ice	5.417	4.952	0.046
			0.000							
(2) LPA-185063/12CF	B	From Face	0.000	0.000	0.000	110.000	No Ice	4.972	4.511	0.014
(E)			0.000				1/2" Ice	5.417	4.952	0.046
			0.000							
(2) LPA-185063/12CF	A	From Face	0.000	0.000	0.000	110.000	No Ice	4.972	4.511	0.014
(E)			0.000				1/2" Ice	5.417	4.952	0.046
			0.000							
Low Profile Platform	C	None			0.000	110.000	No Ice	15.000	15.000	1.500
(E)							1/2" Ice	18.000	18.000	2.000
**										
APX16PV-16PVL-E	C	From Leg	1.000	0.000	0.000	100.000	No Ice	6.699	2.003	0.040
(E)			0.000				1/2" Ice	7.131	2.326	0.071
			0.000							
APX16PV-16PVL-E	B	From Leg	1.000	0.000	0.000	100.000	No Ice	6.699	2.003	0.040
(E)			0.000				1/2" Ice	7.131	2.326	0.071
			0.000							
APX16PV-16PVL-E	A	From Leg	1.000	0.000	0.000	100.000	No Ice	6.699	2.003	0.040
(E)			0.000				1/2" Ice	7.131	2.326	0.071
			0.000							
Flush Mount	C	From Leg	0.000	0.000	0.000	100.000	No Ice	1.000	1.000	0.100
(E)			0.000				1/2" Ice	2.000	2.000	0.150
			0.000							
Flush Mount	B	From Leg	0.000	0.000	0.000	100.000	No Ice	1.000	1.000	0.100
(E)			0.000				1/2" Ice	2.000	2.000	0.150
			0.000							
Flush Mount	A	From Leg	0.000	0.000	0.000	100.000	No Ice	1.000	1.000	0.100
(E)			0.000				1/2" Ice	2.000	2.000	0.150
			0.000							
(2) Remec S20057A1 TMA	C	From Leg	0.000	0.000	0.000	100.000	No Ice	0.400	0.410	0.011
(E)			0.000				1/2" Ice	0.700	0.510	0.016
			0.000							
(2) Remec S20057A1 TMA	B	From Leg	0.000	0.000	0.000	100.000	No Ice	0.400	0.410	0.011
(E)			0.000				1/2" Ice	0.700	0.510	0.016
			0.000							
(2) Remec S20057A1 TMA	A	From Leg	0.000	0.000	0.000	100.000	No Ice	0.400	0.410	0.011
(E)			0.000				1/2" Ice	0.700	0.510	0.016
			0.000							
**										
742 213	C	From Leg	0.000	0.000	0.000	90.000	No Ice	5.135	2.869	0.022
(P)			0.000				1/2" Ice	5.609	3.483	0.047
			0.000							
742 213	B	From Leg	0.000	0.000	0.000	90.000	No Ice	5.135	2.869	0.022
(P)			0.000				1/2" Ice	5.609	3.483	0.047
			0.000							
742 213	A	From Leg	0.000	0.000	0.000	90.000	No Ice	5.135	2.869	0.022
(P)			0.000				1/2" Ice	5.609	3.483	0.047
			0.000							
(3) Flush Mounts	C	None			0.000	90.000	No Ice	2.000	2.000	0.100
(P)							1/2" Ice	4.000	4.000	0.180
**										
KS24019-L112A	A	From Leg	0.000	0.000	0.000	72.000	No Ice	0.100	0.100	0.005
(E)			0.000				1/2" Ice	0.180	0.180	0.006

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000						
2' Standoff	A	From Leg	0.000	0.000	70.000	No Ice	2.000	2.000	0.100
(E)			0.000			1/2" Ice	4.000	4.000	0.180
			0.000						
GPS	A	From Leg	0.000	0.000	51.000	No Ice	0.100	0.100	0.005
(E)			0.000			1/2" Ice	0.180	0.180	0.006
			0.000						
2' Standoff	A	From Leg	0.000	0.000	51.000	No Ice	2.000	2.000	0.100
(E)			0.000			1/2" Ice	4.000	4.000	0.180
			0.000						

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	140 - 91.75 (1)	TP25.89x16x0.25	48.250	0.000	0.0	36.0000	20.104	-8.945	723.742	0.012
L2	91.75 - 77.1667 (2)	TP28.38x24.724x0.313	17.833	0.000	0.0	39.0000	28.243	-11.909	1101.470	0.011
L3	77.1667 - 46.5 (3)	TP34.67x28.38x0.313	30.667	0.000	0.0	39.0000	33.644	-16.616	1312.100	0.013
L4	46.5 - 0 (4)	H1-3 (1.39 CR) - 3 TP43.58x33.122x0.375 H1-3 (1.35 CR) - 4	51.000	0.000	0.0	39.0000	52.170	-28.423	2034.630	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	140 - 91.75 (1)	TP25.89x16x0.25	415.253	-40.6815	36.0000	1.130	0.000	0.0000	36.0000	0.000
L2	91.75 - 77.1667 (2)	TP28.38x24.724x0.313	719.081	-44.6682	39.0000	1.145	0.000	0.0000	39.0000	0.000
L3	77.1667 - 46.5 (3)	TP34.67x28.38x0.313	1225.358	-53.5467	39.0000	1.373	0.000	0.0000	39.0000	0.000
L4	46.5 - 0 (4)	TP43.58x33.122x0.375	2391.175	-52.1116	39.0000	1.336	0.000	0.0000	39.0000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	140 - 91.75 (1)	TP25.89x16x0.25	0.012	1.130	0.000	1.142 ✓	1.333	H1-3 ✓
L2	91.75 - 77.1667 (2)	TP28.38x24.724x0.313	0.011	1.145	0.000	1.156 ✓	1.333	H1-3 ✓
L3	77.1667 - 46.5 (3)	TP34.67x28.38x0.313	0.013	1.373	0.000	**1.386** ✗	1.333	H1-3 ✗
L4	46.5 - 0 (4)	TP43.58x33.122x0.375	0.014	1.336	0.000	**1.350** ✗	1.333	H1-3 ✗

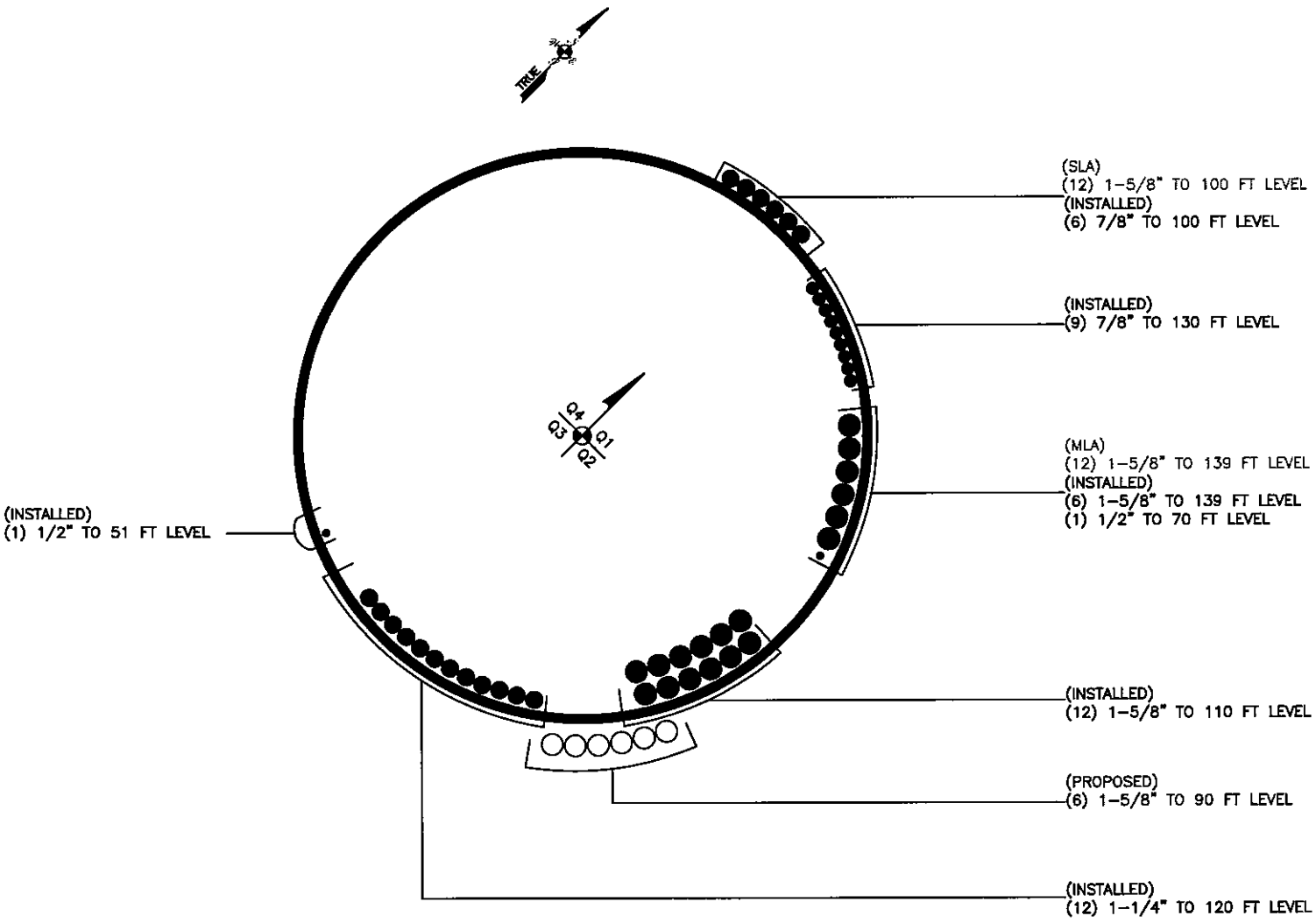
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	140 - 91.75	Pole	TP25.89x16x0.25	1	-8.945	964.748	85.7	Pass
L2	91.75 - 77.1667	Pole	TP28.38x24.724x0.313	2	-11.909	1468.259	86.7	Pass
L3	77.1667 - 46.5	Pole	TP34.67x28.38x0.313	3	-16.616	1749.029	104.0	Fail ✗
L4	46.5 - 0	Pole	TP43.58x33.122x0.375	4	-28.423	2712.162	101.3	Fail ✗
							Summary	
						Pole (L3)	104.0	Fail ✗
						RATING =	**104.0**	**Fail** ✗

Program Version 5.2.0.1

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876335

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT	**77969 - East Farmington, CT (BU 876335)**		
SUBJECT	**Base Plate Analysis**		
DATE	**07/31/08**	BY	**CT/jr**

B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Base Plate / Anchor Bolt Check - Square Plate No Stiffeners

Input:

Tower Reactions:

Moment:	**2391 k-ft**
Axial:	**29.0 kips**
Shear:	**25.0 kips**

Allowable Stress Increase

Stress Incr.:	**1.33**

Pole Information:

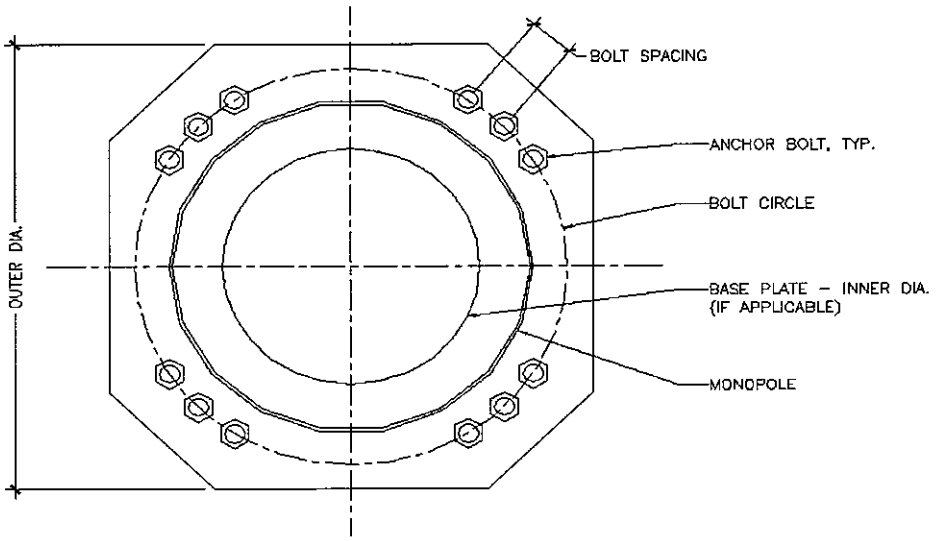
Outer Dia.:	**43.58 in**

Bolt Information:

# of Bolts:	**12**	
Bolt diameter:	**2.25 in**	
Bolt Grade:	**A615 GR75**	
Bolt Fy:	**75 ksi**	
Bolt Circle dia:	**51.00 in**	
Clustered?	**Y**	Y/N
Spacing:	**6.00 in**	Only if Clustered

Plate Information:

Thickness:	**3.00 in**	
Plate Fy:	**50 ksi**	
Outer Dia.:	**49.50 in**	
Inner Dia.:	**24.00 in**	
Grouted?	**N**	
Grout Height:	**2.00 in**	If Grouted



Anchor Bolt Check:

	Actual	Allowable	Stress Ratio	Result
Tension:	185.1 k	194.4 k	**95.2%**	**PASS**
Compression	189.9 k	238.0 k	**79.8%**	**PASS**

Base Plate Check:

Plate Moment:	1473.03 k-in	
Eff. Width at Pole:	26.42 in	
S plate	39.64 in^3	
Actual Stress:	37.16 ksi	
Allowable Stress:	49.88 ksi	Result
Stress Ratio:	**74.5%**	**PASS**

Slab Size

Program: Pad and Pedestal Date: 7/31/2008
File Name: 77969
Location: East Farmington(BU# 876335), CT

INPUT **Bold Values Only are Input**

20.00	**Length, L (ft.)**	**Conc. Unit Weight**	**0.15** kcf
20.00	**Width, B (ft.)**	**Soil Unit Weight**	**0.1** kcf
4.00	**Thickness, T (ft)**		
0.50	**Height of Pier Above Grade, (ft.)**		
9.00	**Depth to Base, D (ft.)**		
1.00	**Round Pedestal =0, Else Square Pedestal**		
8.00	**Pedestal Diameter or Width, (ft.)**		
30.00	**Phi Angle, (deg.)**	0.5236 Phi in Radians	
0.00	**Cohesion, c (ksf)**		
3000	**Conc. f'c, (psi)**		
1.30	**USD Load Factor**		
12.00	**Net Allow Bearing Stress, include Code Increase when approp., (ksf)**		
1.50	**Allow O.T. Factor of Safety**		
2391	**Tower O.T. Moment, (ft.-kips)**	O.T. Moment @ fdn Bas	2628.50 ft.-kips
29	**Leg Download, kips**		
0	**Leg Uplift, kips**		
25	**Leg Shear, kips**		

Check of Punching Shear

43.50	d, top of conc. To middle of bottom rebar mat, (in.)
558.00	Bo, The circumference at d/2 from face of pier, (in.)
37.7	Factored Leg Download, (kips)
4520.3	Phi*Vn, Conc. 2-way Shear Resistance, (kips)

Check of One Way Shear Shear

293.0	Factored Shear at Face of Pier
972.1	Phi*Vn, Conc. 1-way Shear Resistance, (kips)

Mat Thickness is acceptable

72.30 Concrete Volume (c.y.)

Program: Pad and Pedestal
File Name: 77969
Location: East Farmington(BU# 876335), CT

Check Net Vert. Soil Pressure Eccentricity = 5.37 > 3.33 ft. (L/6)

Vert. Loads in kips

29.00	Tower	RESULTANT IS OUTSIDE MIDDLE THIRD OF THE PAD
168.00	Soil	L-PRIME= 13.90
292.80	Conc	
489.80	Sum of the Verticals, (kips)	

0.00	Net q-min. (ksf)			
2.62	Net q-max, (ksf))	Status:	OK	**21.9%**
2.10	O.T. Factor of Safety	Status:	OK	**71.4%**
2.42	q-Bottom Design, (ksf)	The Net q-max minus the opposing effect of conc DW		
1.10	q-TopDesign, (ksf)	Deadweight TO BE USED FOR CONCRETE SLAB DESIGN of top mat reinforcing steel		

Conservatively assume maximum moment at the pier centerline with maximum mat edge distance

Pier Design, Max Moment =	30342	in.-kips
Pad Bottom Design, Moment Arm:	6.00	ft.
Pad Bottom Design, Max Moment:	2617	in.-kips
Pad Top Design, Moment Arm:	6.00	ft.
Pad Top Design, Max Moment:	1188	in.-kips

Use the above moments in the Pier, Pad Bottom & Top design sheets
in this Workbook to determine reinforcing steel requirements.