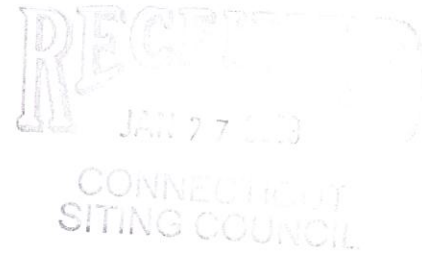


CARRIE L. LARSON
90 State House Square
Hartford, CT 06103-3702
p (860) 424-4312
f (860) 424-4370
clarson@pullcom.com

January 26, 2009

Via Federal Express

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



Re: Re: TS- POCKET-132-090108
Environmental Services, Inc. Telecommunications Facility
90 Brookfield Street, South Windsor, Connecticut

Dear Mr. Phelps:

Please be advised that Pullman & Comley, LLC represents Youghiogheny Communications-Northeast, LLC, doing business as Pocket Communications ("Pocket") in the above-referenced matter. On January 7, 2009, Pocket submitted a tower sharing application for an existing telecommunications facility, located at 90 Brookfield Street in the Town of South Windsor ("Facility"). Specifically, Pocket proposes to install three flush mount antennas on the tower at the ninety foot level (90') AGL, and a small equipment cabinet, mounted on the wall of an existing building, immediately east of the tower and contained within a six foot by six foot (6'-0" x 6'-0") lease area (see application for details).

Pocket inadvertently left out language regarding the need for additional structural work on the tower. Pocket apologizes for this omission and hereby assures the Council that all necessary modifications will be made to insure the structural integrity and proper capacity for the tower. To that end, attached are proposed Structural Modification Drawings which detail the leg reinforcement and associated work necessary to bring the tower into full structural compliance. Pocket represents that it will undertake this work. In addition, Pocket will supply the Council with a new structural report, demonstrating the tower's structural compliance, once those modifications are complete.

If there are any further questions, please let us know.

Respectfully Submitted,



Carrie L. Larson

Enclosures
cc: Michael Perrone

Structural Modification

Drawings

TS-POCKET-132-090108

Pocket Site HFCT1508A

90 Brookfield Street

South Windsor, Connecticut

TECHNICAL SPECIFICATION NOTES

GENERAL

- STRUCTURAL MODIFICATIONS HAVE BEEN DESIGNED IN CONFORMANCE WITH ANS/ASTM 722-F STANDARD SPECIFICATIONS FOR LOADING SPECIFIED ON SHEET 501.
- ALL DIMENSIONS AND DETAILS SHOWN HAVE BEEN OBTAINED FROM ORIGINAL DESIGN DRAWINGS VALKONT-FIROD FILE #A-108216, DWG # 116320-8 DATED 03/11/91. MEI HAS NOT PERFORMED A FIELD INSPECTION. THEREFORE, ALL SITE DIMENSIONS SHOULD BE VERIFIED PRIOR TO FABRICATION OF ANY MATERIAL OR FIELD PROVISION FOR ADAPTATION SHOULD BE MADE.
- THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK, THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FUTURE FIELD PROBLEMS. BID PRICE TO INCLUDE ALL RELATED COSTS TO FAMILIARIZE WITH ACTUAL SITE CONDITIONS AND FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER FIT AND CLEARANCES.
- ALL WORK SHALL BE PERFORMED AND INSTALLED BY A TOWER CONTRACTOR WITH MIN. 5 YEARS EXPERIENCE IN SIMILAR WORK. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH ACCEPTED CONSTRUCTION AND INDUSTRY PRACTICE.
- ALL PERMITS, LICENSES, APPROVALS, AND OTHER REQUIREMENTS FOR CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AMPLE NOTICE TO BUILDING INSPECTION DEPARTMENT TO SCHEDULE ANY REQUIRED INSPECTIONS.
- CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- CONTRACTOR SHALL SUBMIT TO ENGINEER ANY INTENT TO DEVIATE FROM PLANS AND DETAILS FOR APPROVAL PRIOR TO START OF ANY WORK. CONTACT THE ENGINEER OF RECORD CONCERNING ANY CHANGES, DISCREPANCIES OR MODIFICATIONS THAT MAY BE REQUIRED DUE TO THE EXISTING CONDITIONS AND SHALL NEED TO BE RESOLVED BEFORE PROCEEDING WITH THE WORK. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- PHOTOGRAPHS SHALL BE TAKEN OF OVERALL SITE COMPOUND AND STRUCTURE PRIOR TO THE CONSTRUCTION, DURING CONSTRUCTION AND AFTER CONSTRUCTION INCLUDING BUT NOT LIMITED TO ALL REINFORCED AREAS. A CLOSE-OUT REPORT WITH PHOTOS IS TO BE SUBMITTED TO THE ENGINEER OF RECORD WITHIN REASONABLE TIME AFTER COMPLETION OF WORK.
- SCOPE OF MODIFICATIONS LISTED ARE STRUCTURAL RELATED MODIFICATIONS BASED ON PRIOR ANALYSIS RESULTS. EXISTING STRUCTURE IS ASSUMED TO BE IN GOOD CONDITION AND FREE FROM STRUCTURAL DEFECTS. ALL MAINTENANCE TYPE WORK IS ASSUMED COMPLETED.
- REFER TO OWNER SPECIFICATIONS FOR NEW MEMBERS PAINT REQUIREMENTS IF ANY, OTHERWISE PAINT NEW STEEL MEMBERS WITH A FINISH COAT OF ACRYLIC PAINT, INTL. ORANGE OR WHITE, TO MATCH EXISTING PAINT BANDS AT THAT ELEVATION & IN ACCORDANCE WITH FAA ADVISORY CIRCULAR AC 707460-3K.

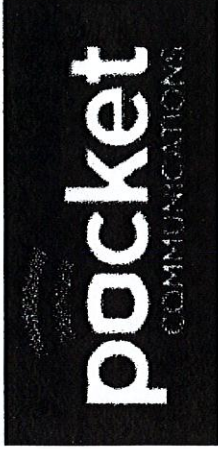
FIELD INSTALLATION

- ALL INSTALLATION PROCEDURES, SAFEGUARDS AND MEANS AND METHODS OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE REVIEWED/PERFORMED BY A COMPETENT PROFESSIONAL EXPERIENCED IN SIMILAR WORK.
- MINIMUM RECOMMENDED WEATHER CONDITION THAT SHOULD BE OBSERVED TO INSURE A SAFE INSTALLATION SHALL BE: WINDS NOT EXCEED 15 MPH AT GROUND LEVEL, NO THUNDERSTORMS FORECASTED, AND WITH TOWER STEEL TEMPERATURE BETWEEN 20 ° F & 95 ° F, FOLLOW ALL APPLICABLE OSHA SAFETY GUIDELINES.
- TOWER SHALL BE PROPERLY BRACED AND CARE SHALL BE TAKEN IN THE REMOVAL AND REPLACEMENT OF ANY TOWER MEMBER IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES.
- ALL PRECAUTIONS AND EFFORTS SHALL BE TAKEN TO INSURE THE TOWER STABILITY DURING THE MODIFICATIONS WORK. BRACING FRAMES WITH CAPACITY MATCHING MEMBERS BEING WORKED ON SHALL BE REQUIRED.
- ANY STRUCTURAL MEMBER THAT HAS DAMAGED GALVANIZED SURFACES SHALL BE CLEANED AND TOUCHED UP WITH TWO COATS OF ZINC-RICH PAINT (ZRC PREFERRED).
- THE TRANSMISSION LINES SHALL BE INSTALLED WITH REDUCED WIND EXPOSURE AND LOCATED AS SHOWN IN THE SUPPLIED DRAWINGS AND SHOULD BE ATTACHED TO PROPER SUPPORTS AS SPECIFIED BY OTHERS.
- IN AREAS TO BE MODIFIED, ANY MOUNTS, BRACKETS, CLAMPS, TRANS. LINES AND/OR ATTACHED LANSOVS SHALL BE REMOVED AND THEN REPLACED AFTER THE COMPLETION OF THE WORK. CONTACT OWNER TO COORDINATE THIS ACTION AS REQUIRED.

- FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES. ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG FIT UNTIL THE SECTION IS FULLY COMPACTED, AND THEN TIGHTENED ADDITIONALLY IN ACCORDANCE WITH THE AISC "TURN-OF-THE-NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
- BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG FIT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1/2 TURN BEYOND SNUG TIGHT.
- UPON COMPLETION OF ALL WORK, THE SITE SHALL BE CLEANED OF ALL DEBRIS AS REQUIRED. ANY SURPLUS MATERIALS NOT REQUIRED FROM THE SITE SHALL BE HEARTY STORED IN AN AREA DESIGNATED BY THE OWNER REPRESENTATIVE.

STEEL / FABRICATION

- ALL STEEL FABRICATION AND INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL AND SPECIFICATIONS "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- DRAWINGS SHOW RELATED DETAILS BUT ARE NOT SHOP DRAWINGS. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH AISC DETAILING REQUIREMENTS. DIMENSIONAL TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A7 REQUIREMENTS.
- ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) STANDARDS AND SPECIFICATIONS, AWS/AWS D1.1-Best carbon.
- ALL ELECTRODES SHALL BE LOW HYDROGEN, MATCHING FILLER METAL, IN ACCORDANCE WITH AWS D1.1, UNLESS NOTED OTHERWISE.
- BASE MATERIAL SHALL BE CORRECTLY PREHEATED BEFORE WELDING AND POSTHEATED AFTER WELDING IN ACCORDANCE WITH THE AWS SPECIFICATIONS. ALL WELDS SHALL BE CHECKED WITH MAGNETIC PARTICLE PROCESS (MAGNIFLUX) AND ALL SUSPICIOUS MATERIAL SHALL BE CHECKED BY ULTRASONIC.
- NEW STEEL ANGLE, CHANNEL AND PLATE MEMBERS UNLESS NOTED OTHERWISE SHALL CONFORM TO ASTM A36 (36 KSI MIN. YIELD STRENGTH) STEEL SPECIFICATIONS.
- ALL STEEL SOLID ROD MEMBERS SHALL CONFORM TO ASTM A572 Gr.50 - 50 KSI MIN. YIELD STRENGTH - STEEL SPECIFICATIONS OR APPROVED EQUIVALENT.
- NEW STEEL THREADED RODS FASTENERS, UNLESS NOTED OTHERWISE, SHALL CONFORM TO ASTM A-449 OR ASTM A-193 GR.87 (120 KSI MIN. TENSILE STRESS) STEEL SPECIFICATIONS.
- THE FINISHED DIAMETER OF BOLT HOLES SHALL NOT BE MORE THAN 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER UNLESS OTHERWISE NOTED.
- MATERIAL MAY BE CUT BY SHEARING, SAWING, OR CUTTING WITH A ROUTER OR GAS CUT. MATERIAL GREATER THAN 1/2" THICKNESS SHALL NOT BE SHEARED.
- CUT EDGES SHALL BE TRUE AND SMOOTH, AND FREE FROM EXCESSIVE BURRS AND RAGGED BREAKS. SHEARED EDGES OF THICK PLATES SHALL BE PLANED TO A DEPTH OF 1/4". RE-ENTRANT CUTS SHALL BE AVOIDED. IF USED, THEY SHALL BE FILLETED BY DRILLING PRIOR TO CUTTING.
- DIMENSIONAL TOLERANCES, AS INDICATED IN THE AISC CODE OF STANDARD PRACTICE SHALL BE CAREFULLY FOLLOWED DURING FABRICATION.
- PRIOR TO GALVANIZING, ALL FABRICATED STEEL SHALL BE THOROUGHLY SHOP INSPECTED AND QUANTITIES COUNTED ACCORDING TO THE BEST QUALITY CONTROL AND INSPECTION METHODS.
- ALL BOLTS, WASHERS AND LOCKWASERS SHALL BE NEW DOMESTIC HIGH STRENGTH GALVANIZED BOLTS OTHERWISE.
- ANY BOLT REMOVED FROM EXISTING TOWER STRUCTURE SHALL BE REPLACED WITH A NEW DOMESTIC ASTM A325 HIGH STRENGTH BOLT OF EQUAL DIAMETER SIZE UNLESS NOTED OTHERWISE.
- ALL BOLTS SHALL BE TIGHTENED USING TURN-OF-THE-NUT METHOD.
- ALL BOLT HOLES EDGE DISTANCES SHALL BE 1.12" UNLESS OTHERWISE NOTED.
- ALL STEEL SHALL BE HOT DIPPED GALVANIZED PER ASTM A133 SPECIFICATIONS AFTER FABRICATION.
- ALL STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED FOR ACCURATE FIT OF MODIFICATION MEMBER.
- AFTER ANY FIELD HOLE PUNCHING/DRILLING, OR CUTTING HAS BEEN COMPLETED, OR FOR ANY DAMAGED STRUCTURAL MEMBER, TOUCH UP ALL BARE MATERIAL AND WELDED AREAS WITH TWO COATS OF ZRC OR SIMILAR MATERIAL TO RESTORE THE GALVANIZED PROTECTION ON THE MEMBERS.



SOUTH WINDSOR SITE POCKET COMMUNICATION SITE #HFCT1508A

90 BROOKFIELD STREET
SOUTH WINDSOR, CONNECTICUT 06074

DRAWING INDEX

TITLE SHEET AND TECHNICAL SPECIFICATION NOTES	MEI PROJECT ID	SHEET NUMBER	REV.
	CT013135-08-V1	T01	0



SOUTH WINDSOR SITE
POCKET COMMUNICATION SITE #HFCT1508A
90 BROOKFIELD STREET
SOUTH WINDSOR, CONNECTICUT 06074

1750 PRESHO ROAD SUITE 770
DALLAS, TEXAS 75252-5635
972-783-2578 (loc. 2883)
www.meiengineering.com

STRUCTURAL CONSULTANTS



ALL SIZES SHOWN ARE BASED ON DRAWING SIZE OF 11" x 17"

NO.	DATE	REVISIONS
0	10/27/08	ISSUED FOR CONSTRUCTION
1		
2		
3		
4		
5		

FORCE 3 COMMUNICATIONS / POCKET COMMUNICATIONS			
TITLE SHEET AND TECHNICAL SPECIFICATION NOTES			
MEI PROJECT ID	SHEET NUMBER	REV.	
CT013135-08-V1	T01	0	

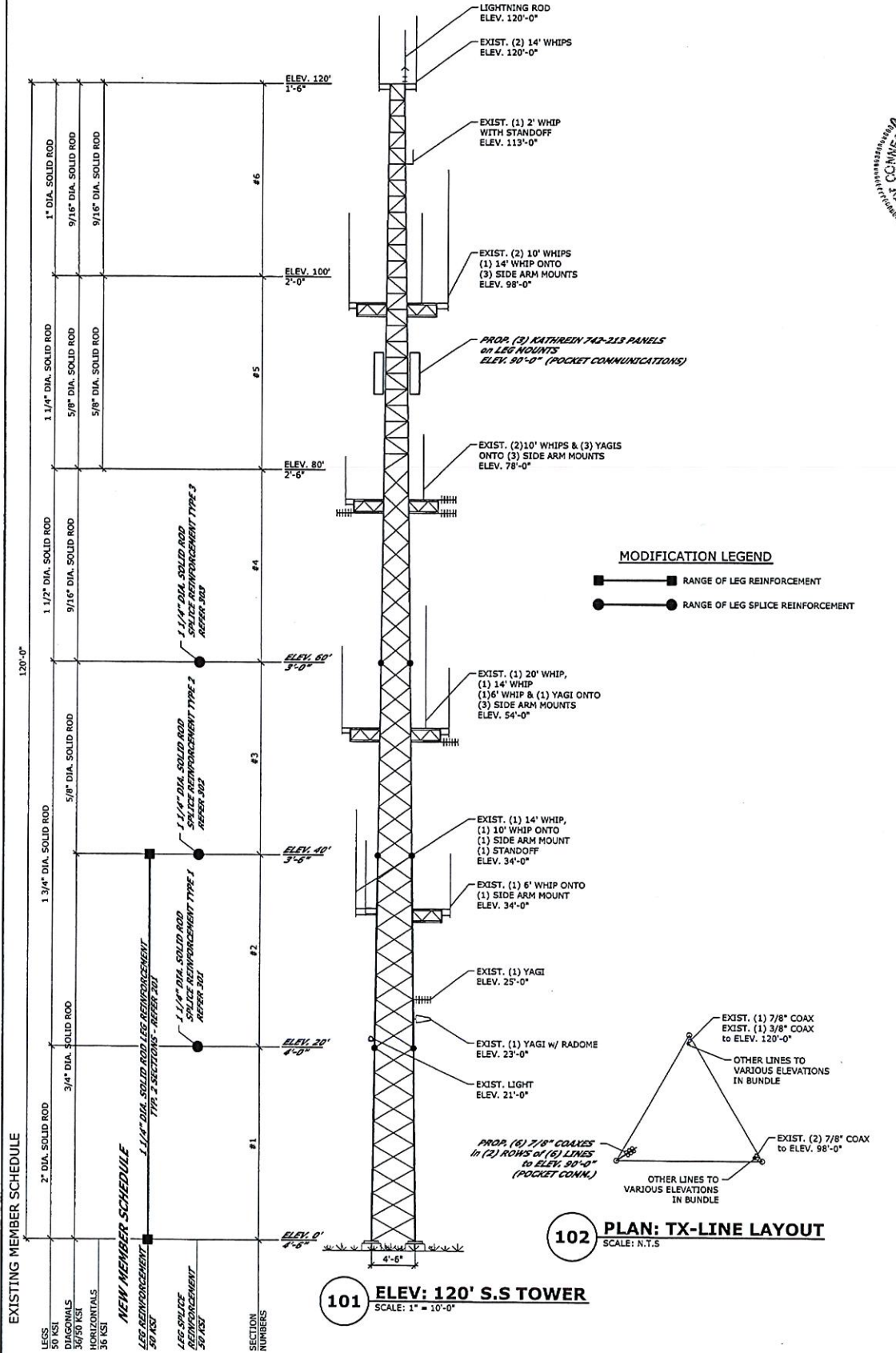


REFER SHEET T01 FOR TECH. SPEC. NOTES

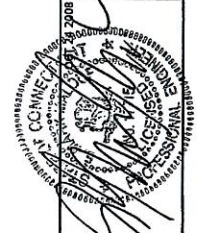
ELEVATION (FT.)	SECTION NUMBER	LEG BOLTS (QTY./DIA.)
0-20	1	(2) 1.5" *
20-40	2	(5) 0.625"
40-60	3	(4) 0.625"
60-80	4	(4) 0.625"
80-100	5	(3) 0.562"
100-120	6	(3) 0.5"

NOTE: ALL BOLTS A325N, UNLESS NOTED OTHERWISE
 (*) BASE ANCHOR BOLTS

TOWER HEIGHT & TYPE:	120' SELF-SUPPORTING TOWER
SITE NAME:	SOUTH WINDSOR SITE #HFCT1508A
SITE LOCATION:	SOUTH WINDSOR, CONNECTICUT
TOWER MANUF. / MODEL:	PIROD / U4.5 x 120'
ORIGINAL DESIGN CRITERIA:	TIA/EIA-222-D - 80 / 69 MPH + 0' / 1/2" ICE
ANALYSIS CRITERIA:	TIA-222-F - 80 / 69 MPH + 0' / 1/2" ICE
SITE SPECIFICATIONS:	



FOR P3 COMMUNICATIONS / POCKET COMMUNICATIONS
 TOWER MODIFICATION SCHEDULE
 SHEET NUMBER: **S01**
 REV. 0
 PROJECT ID: CT01313S-08-V1



ALL SIZES SHOWN ARE BASED ON DRAWING SIZE OF 11" x 17"

NO.	DATE	ISSUED FOR	CONSTRUCTION	REV.	BY	CHKD.

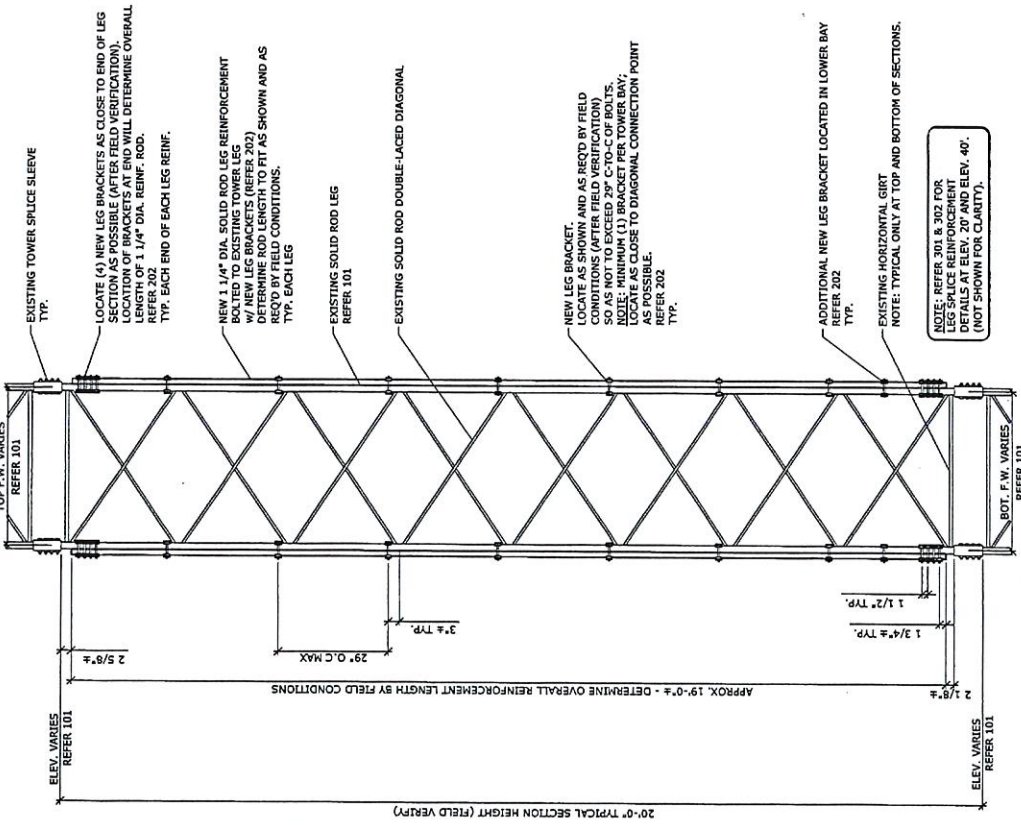


SOUTH WINDSOR SITE
POCKET COMMUNICATION SITE #HFCT1508A
 90 BROOKFIELD STREET
 SOUTH WINDSOR, CONNECTICUT 06074

17950 PRESTON ROAD SUITE 720
 DALLAS, TEXAS 75259-5635
 972-783-2578 (fax: 2883)
 www.mhfiengineering.com



REFER SHEET 101 FOR TECH. NOTES



EXISTING TOWER SPLICE SLEEVE TYP.

LOCATE (4) NEW LEG BRACKETS AS CLOSE TO END OF LEG SECTION AS POSSIBLE (AFTER FIELD VERIFICATION). LOCATION OF BRACKETS AT END WILL DETERMINE OVERALL LENGTH OF 1 1/4" DIA. REINF. ROD. REFER 202 TYP. EACH END OF EACH LEG REINF.

NEW 1 1/4" DIA. SOLID ROD LEG REINFORCEMENT BOLTED TO EXISTING TOWER LEG W/ NEW LEG BRACKETS (REFER 202) DETERMINE FIELD LENGTH TO FIT AS SHOWN AND AS PER FIELD CONDITIONS. TYP. EACH LEG

EXISTING SOLID ROD LEG REFER 101

EXISTING SOLID ROD DOUBLE-LACED DIAGONAL

NEW LEG BRACKET, LOCATE AS SHOWN. THIS IS BORED BY FIELD CONDITIONS. THE BRACKET SHALL BE BOLTED TO THE TOWER LEG SO AS NOT TO EXCEED 29" C-TO-C OF BOLTS. NOTE: MINIMUM (1) BRACKET PER TOWER BAY; LOCATE AS CLOSE TO DIAGONAL CONNECTION POINT AS POSSIBLE. REFER 202 TYP.

ADDITIONAL NEW LEG BRACKET LOCATED IN LOWER BAY REFER 202 TYP.

EXISTING HORIZONTAL GIRT NOTE: TYPICAL ONLY AT TOP AND BOTTOM OF SECTIONS.

NOTE: REFER 301 & 302 FOR LEG SPLICE REINFORCEMENT (SEE ELEV. 40'. NOT SHOWN FOR CLARITY).

TOP F.W. VARIES REFER 101

BOT. F.W. VARIES REFER 101

APPROX. 19'-0" ± - DETERMINE OVERALL REINFORCEMENT LENGTH BY FIELD CONDITIONS

ELEV. VARIES REFER 101

ELEV. VARIES REFER 101

2 5/8" ±

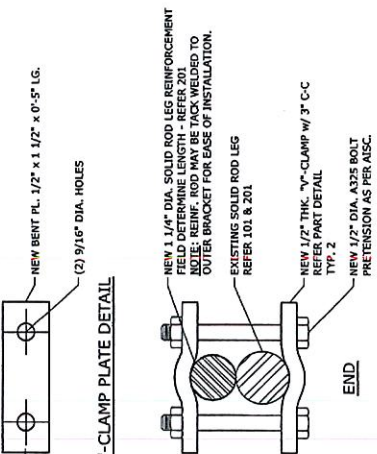
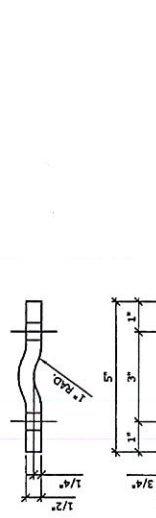
2 1/8" ±

29" O.C. MAX

3" ± TYP.

1 3/4" ± TYP.

1 1/2" TYP.



202 DETAIL: NEW LEG REINFORCEMENT BRACKET (APPROX. 16 REQ'D PER REINF. LENGTH) SCALE: 3" = 1'-0"

201 ELEVATION: TYPICAL NEW LEG REINFORCEMENT (1 SECTION SHOWN - 2 SECTIONS TOTAL) SCALE: 3/8" = 1'-0"

FORCE 3 COMMUNICATIONS / POCKET COMMUNICATIONS

LEG REINFORCEMENT DETAILS

MEI PROJECT ID	SHEET NUMBER	REV.
CT01313S-08-V1	502	0



ALL NOTES SHOWN ARE BASED ON DRAWING SIZE OF 11" x 17"

NO.	DATE	ISSUED FOR	CONSTRUCTION	OR	UN	MM	REVISIONS
0	10/24/08						(UNREPLACED)

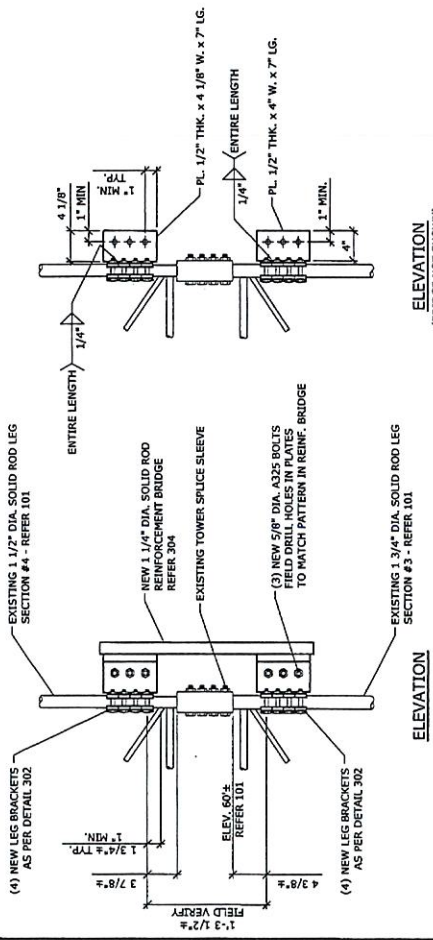


SOUTH WINDSOR SITE
POCKET COMMUNICATION SITE #HFCT1508A
 90 BROOKFIELD STREET
 SOUTH WINDSOR, CONNECTICUT 06074

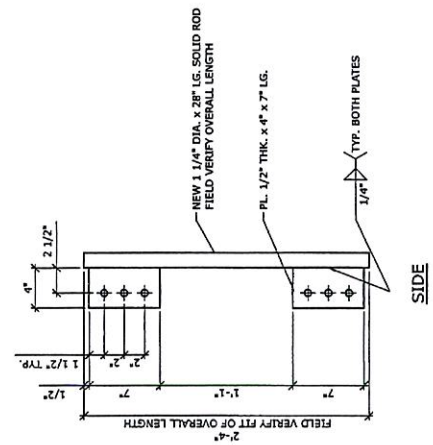
WALCOE ENGINEERING INTERNATIONAL, INC.
 17850 PRESTON ROAD, SUITE 700
 DALLAS, TEXAS 75232-5635
 972-783-2578 (loc. 2583)
 www.mobilengineering.com

STRUCTURAL CONSULTANTS

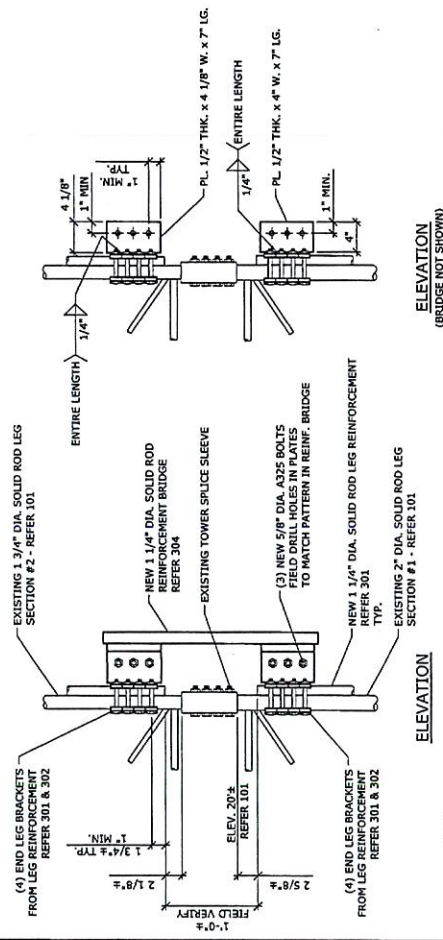
REFER SHEET T01 FOR TECH. SPEC. NOTES



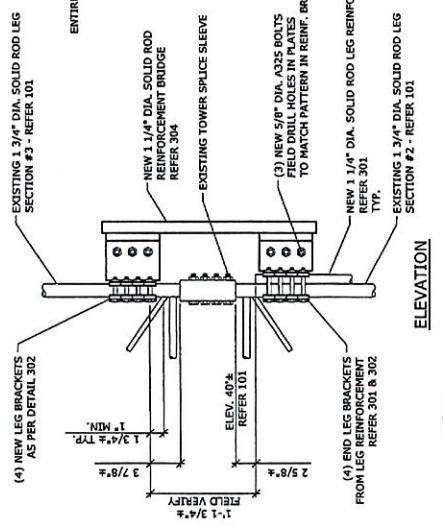
303 DETAIL: LEG SPLICE REINFORCEMENT AT ELEV. 60'
SCALE: 3/4" = 1'-0"
(1 LEG SHOWN - TYP. 3 LEGS)



304 DETAIL: LEG SPLICE REINFORCEMENT BRIDGE
SCALE: 1" = 1'-0"
(3 REQ' PER SPLICE REINFORCEMENT LEVEL - 9 REQ'D TOTAL)



301 DETAIL: LEG SPLICE REINFORCEMENT AT ELEV. 20'
SCALE: 3/4" = 1'-0"
(1 LEG SHOWN - TYP. 3 LEGS)



302 DETAIL: LEG SPLICE REINFORCEMENT AT ELEV. 40'
SCALE: 3/4" = 1'-0"
(1 LEG SHOWN - TYP. 3 LEGS)



TOP

SIDE

ELEVATION
(BRIDGE NOT SHOWN)

ELEVATION
(BRIDGE NOT SHOWN)

ELEVATION
(BRIDGE NOT SHOWN)

ELEVATION
(BRIDGE NOT SHOWN)

ELEVATION
(BRIDGE NOT SHOWN)

ELEVATION
(BRIDGE NOT SHOWN)

REFER 101 FOR NEW AND EXISTING MEMBER SIZES AND SCHEDULES.

		SOUTH WINDSOR SITE POCKET COMMUNICATION SITE #HFCT1508A 90 BROOKFIELD STREET SOUTH WINDSOR, CONNECTICUT 06074		POCKET COMMUNICATIONS	
1750 PRESTON ROAD SUITE 710 DALLAS, TEXAS 75252-5635 972-783-2578 (fax: 2583) www.modulengineering.com		ALL SIZES SHOWN ARE BASED ON ROUNDED SIZE OF 1/16" INCREMENTS UNLESS OTHERWISE NOTED		FORCE 3 COMMUNICATIONS / POCKET COMMUNICATIONS LEG SPLICE REINFORCEMENT DETAILS	
STRUCTURAL CONSULTANTS		REVISIONS 0 10/24/08 ISSUED FOR CONSTRUCTION 1 11/11/08		MEI PROJECT ID CT01313S-08-V1	
SHEET NUMBER 503		SHEET NUMBER 503		REV.	



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

Internet: ct.gov/csc

Daniel F. Caruso
Chairman
March 3, 2009

Carrie L. Larson, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702

RE: **TS-POCKET-132-090108** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications request for an order to approve tower sharing at an existing telecommunications facility located at 90 Brookfield Street, South Windsor, Connecticut.

Dear Attorney Larson:

At a public meeting held February 19, 2009, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

- The tower shall be modified per the drawings dated October 24, 2008 and sealed by E. Mark Malouf, P.E. prior to the antenna installation;
- A post-construction tower rating of not more than 100 percent shall be achieved; and
- A signed letter from a Professional Engineer shall be submitted to the Council to certify that the modifications have been properly completed and a post-construction tower rating of not more than 100 percent has been achieved.

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. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.



Daniel F. Caruso
Chairman

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

Internet: ct.gov/csc

January 15, 2009

The Honorable Matthew Streeter
Mayor
Town of South Windsor
Town Hall
1540 Sullivan Avenue
South Windsor, CT 06074-2786

RE: **TS-POCKET-132-090108** – Youghiogheny Communications-Northeast, LLC d/b/a Pocket Communications request for an order to approve tower sharing at an existing telecommunications facility located at 90 Brookfield Street, South Windsor, Connecticut.

Dear Mayor Streeter:

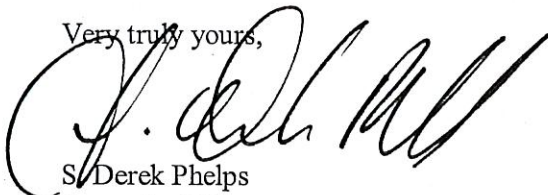
The Connecticut Siting Council (Council) received this request for tower sharing, pursuant to Connecticut General Statutes § 16-50aa.

The Council will consider this item at the next meeting scheduled for February 19, 2009, at 2:00 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by February 18, 2009.

Thank you for your cooperation and consideration.

Very truly yours,



S/ Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Tower Sharing

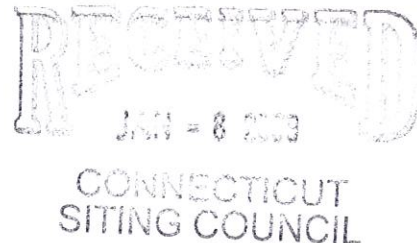
c: Marcia Banach, Director of Planning, Town of South Windsor

ORIGINAL

January 7, 2009

Via Federal Express

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



Re: Tower Sharing Application
Environmental Services, Inc. Telecommunications Facility
90 Brookfield Street, South Windsor, Connecticut

Dear Mr. Phelps:

Youghioghney Communications-Northeast, LLC, doing business as Pocket Communications ("Pocket"), intends to install antennas and appurtenant equipment at the existing 120-foot lattice tower facility owned by Environmental Services, Inc. and located at 90 Brookfield Street, South Windsor, 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 a request for tower sharing 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 Matthew B. Galligan, Town Manager, Town of South Windsor.

The existing Facility consists of a 120-foot self-supporting lattice tower capable of supporting multiple carriers within a fenced compound. The coordinates for the Facility are **Lat: 41°-51'-16" and Long: 72°-34'-16"**. The tower is located in the northwestern portion of South Windsor, approximately 180 feet east of Brookfield Street, roughly 2,00 feet north of Sullivan Avenue (Route 194) and roughly 1.5 miles east of John Fitch Boulevard (Route 5) (see Site Map, attached as Exhibit A). Pocket proposes to install three APXV18-206517-C flush mount antennas on the tower at the ninety foot level (90') AGL, and a Nortel CDMA Micro BTS 3231 cabinet, mounted on the wall of an existing building, immediately east of the tower and contained within a six foot by six foot (6'-0" x 6'-0") lease area. A small GPS antenna will be mounted to an ice bridge which will run from the lease area to the tower. Utilities will be run via a proposed underground conduit from existing utility sources at the Facility (See Design Drawings and Equipment Specifications, attached as Exhibits B and C respectively).

Page 2

For the following reasons, the proposed tower sharing on the Brookfield Street Facility meet the criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. The proposed tower sharing 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 tower sharing 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 13.03% 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 South Windsor Facility constitutes a tower sharing under R.C.S.A. Section 16-50j-72(b)(2).

Respectfully Submitted,



Carrie L. Larson

cc: Matthew B. Galligan, Town Manager
Environmental Services, Inc., underlying property owner

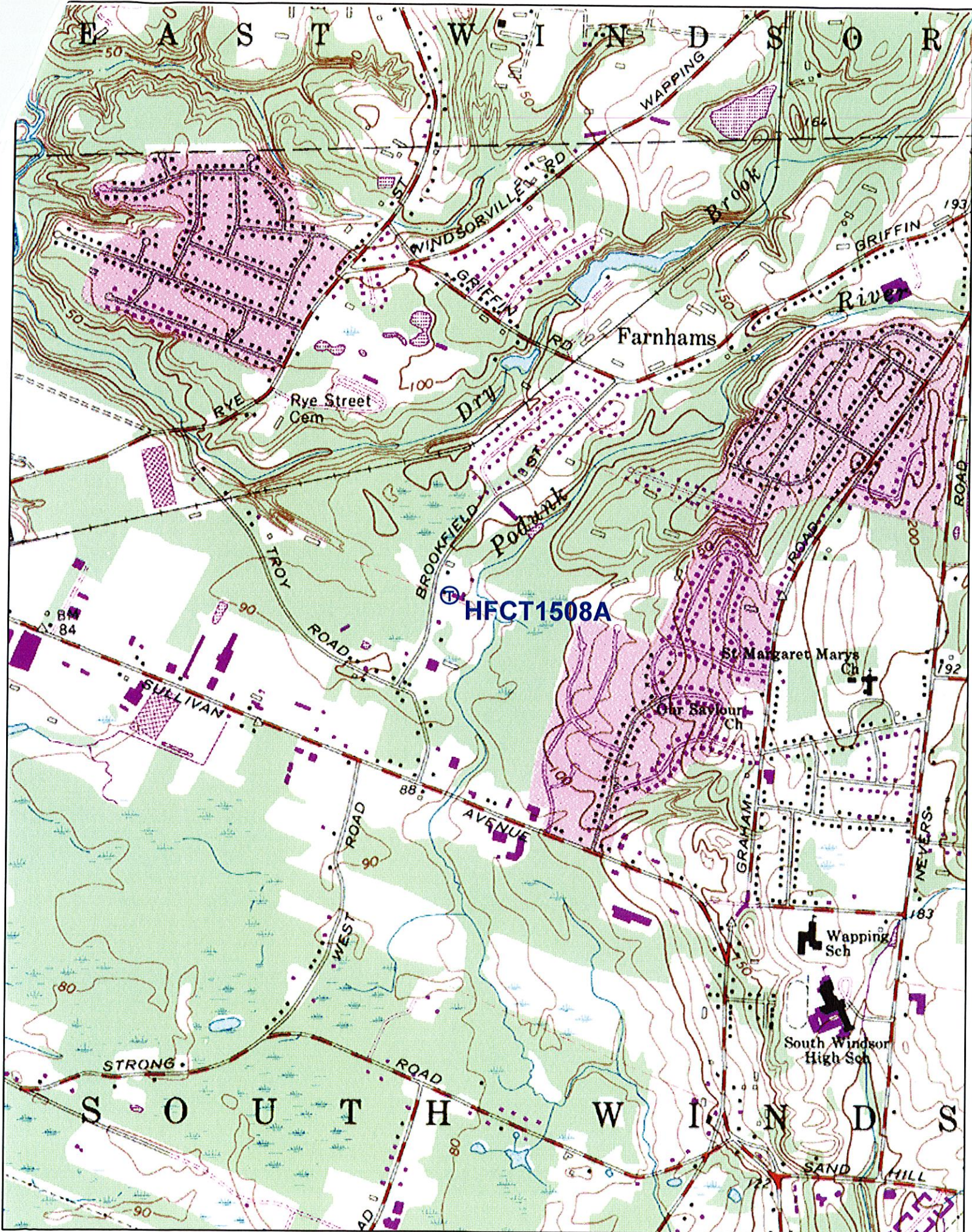
Exhibit A

Site Map

Pocket Site HFCT1508A

90 Brookfield Street

South Windsor, Connecticut



HFCT1508A

Exhibit B

Design Drawings

Pocket Site HFCT1508A

90 Brookfield Street

South Windsor, Connecticut



HFCT1508 90 BROOKFIELD STREET 120' LATTICE TOWER

PROJECT INFORMATION

TOWER OWNER:
ENVIRONMENTAL SERVICES
90 BROOKFIELD STREET
SOUTH WINDSOR, CT 06074

OWNER SITE ID#:
N/A

APPLICANT:
YOUHOCHERY COMMUNICATIONS-
NORTHEAST LLC
2819 NW LOOP 410
SAN ANTONIO, TX 78230

SITE ADDRESS:
90 BROOKFIELD STREET
SOUTH WINDSOR, CT 06074

COUNTY:
HARTFORD

LATITUDE:
41.8944°

LONGITUDE:
-72.5708°

STRUCTURE HEIGHT:
120' AGL

ZONING CLASSIFICATION:
N/A

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

POWER COMPANY:
CL&P
1-860-947-2121

TELEPHONE COMPANY:
AT&T
1-888-727-8388

DESIGN FIRM:
URS CORPORATION A/E
505 CONGRESS AVE SUITE 3B
ROCKY HILL, CT 06067
PHONE: 860-529-8862

DRAWING INDEX

TITLE SHEET	A
01	A
02	A
03	A
04	A
05	A
06	A

STRUCTURAL REVIEW

A TOWER ANALYSIS HAS NOT BEEN PERFORMED FOR THE PREPARATION OF THESE PLANS. AS OF THE ISSUANCE OF THESE PLANS, THE TOWER HAS NOT BEEN EVALUATED FOR RESONANCE. UNDER NO CIRCUMSTANCES SHALL COAX CABLES AND EQUIPMENT, NO WORK SHALL OCCUR ON THIS TOWER PRIOR TO THE ISSUANCE OF A PASSING STRUCTURAL TOWER ANALYSIS. A COPY OF THE TOWER ANALYSIS SHALL BE PROVIDED TO THE CLIENT FOR REVIEW AND ALL REINFORCEMENT (IF REQUIRED) SHALL BE PROVIDED PRIOR TO ANY WORK UNDER THIS CONTRACT BEING PERFORMED.

APPROVALS

REAL ESTATE _____
RF _____
OPS/CONSTRUCTION _____
LEGAL/COMPLIANCE _____
NET DESIGN _____

LOCATION MAP



DRIVING DIRECTIONS

FROM HARTFORD:
TAKE I-91 NORTH AND MERGE ONTO I-291 E VIA EXIT 35A TOWARD MANCHESTER. TAKE THE US-5 N EXIT. EXIT 4. TURN LEFT ONTO JOHN FITCH BLVD N/US-5 N. TURN RIGHT ONTO SULLIVAN AVE/CT-194. TURN LEFT ONTO TROY RD. TURN RIGHT ONTO BROOKFIELD ST. END AT 90 BROOKFIELD STREET.

APPLICABLE BUILDING CODES AND STANDARDS

CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

- 2003 INTERNATIONAL BUILDING CODE
- 2003 INTERNATIONAL PLUMBING CODE
- 2003 INTERNATIONAL MECHANICAL CODE
- 2003 INTERNATIONAL ELECTRICAL CODE
- 2005 NATIONAL ELECTRICAL CODE
- CONNECTICUT STATE FIRE-SAFETY CODE

CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST APPROVED EDITION OF THE FOLLOWING STANDARDS:

- AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
- TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARD FOR STRUCTURAL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES
- TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING SYSTEM RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELECORDIA GR-1275 GENERAL INSTALLATION REQUIREMENTS

TELECORDIA GR-1503 COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING REQUIREMENTS FOR CONSTRUCTION. THESE OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. THESE REQUIREMENTS SHALL GOVERN. LOCAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

SITE NOTES

- THIS SITE IS UNMANNED AND IS RESTRICTED TO OUTDOOR EQUIPMENT. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
- 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 SERVICED ONLY BY POCKET COMMUNICATIONS EMPLOYEES. THIS FACILITY WILL IS EXEMPT FROM THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) APPENDIX B, SECTION 4.11.5(8).
- NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
- NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.
- POCKET COMMUNICATIONS MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.



HFCT1508, 90 BROOKFIELD STREET
Pocket SMART WIRELESS

5-123
DATE: 12/18/08
PROJECT NO: PC1053/26923973
DRAWING NO: 01



URS CORPORATION
100 WATER STREET
PO BOX 1000
ROCKY HILL, CT 06067

DATE: 12/18/08
USER: JCF
PROJECT NO: PC1053/26923973
DRAWING NO: 01

CONSTRUCTION NOTES

1. FIELD VERIFICATION: CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, POCKET COMMUNICATIONS ANTENNA MOUNT LOCATION AND ANTENNAS TO BE INSTALLED.
2. COORDINATE ALL WORK AND PROCEDURES WITH POCKET COMMUNICATIONS.
3. GRAVEL SURFACE IN AREAS OF COMPOUND THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED TO ORIGINAL CONDITION BY CONTRACTOR.

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
OWNER - GENERAL CONTRACTOR (CONSTRUCTION)
OEM - ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS AND TO THE CONTRACTOR THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE DRAWING. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL NECESSARY PERMITS AND OBTAIN ALL NECESSARY ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

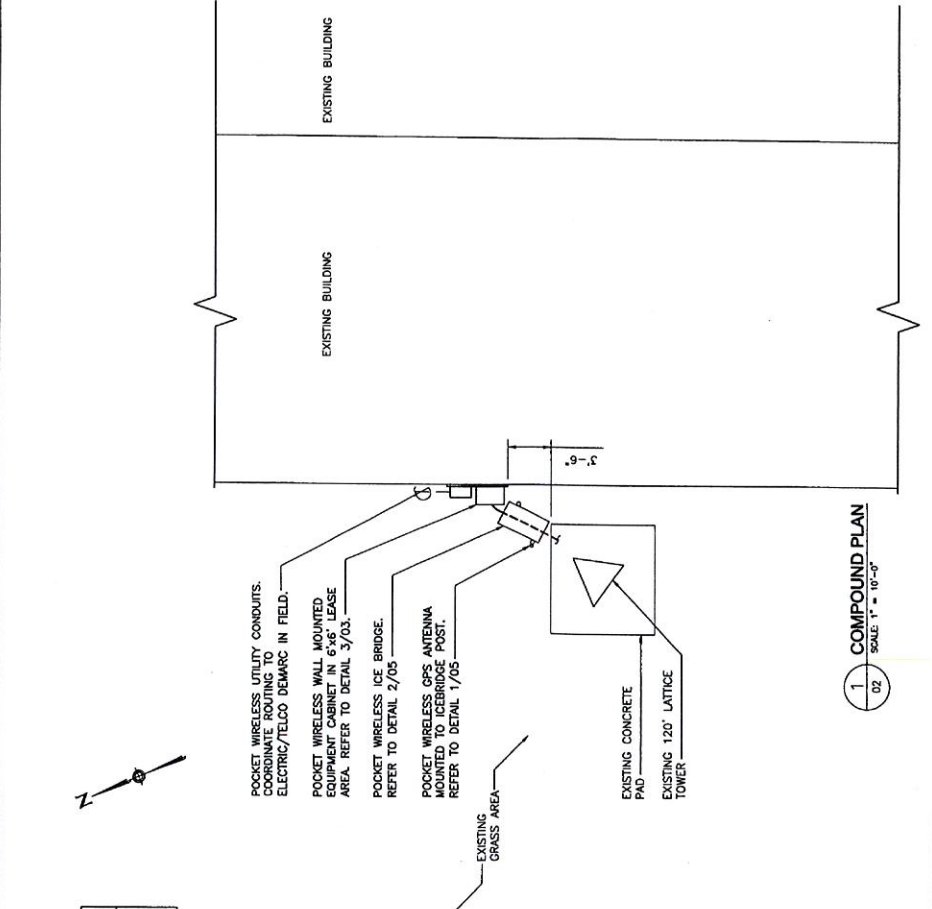
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE APPLICABLE APURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. CONTRACTOR SHALL DETERMINE ACTUAL LOCATION OF ALL UTILITIES AND GROUNDING CABLES AS SHOWN ON THE SITE PLAN.

8. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
9. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
10. CONTRACTOR TO OBTAIN REQUIRED NOTICE TO PROCEED DOCUMENTS FROM THE TOWER OWNER BEFORE COMMENCING CONSTRUCTION.

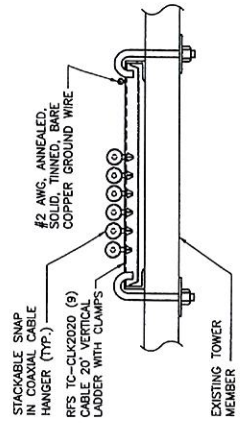
NOTE:
REFER TO DRAWING 06 FOR
ADDITIONAL UTILITY INFORMATION

SITE PLAN INFORMATION

THIS SITE PLAN DRAWING WAS COMPILED FROM DATA PROVIDED BY GRAPEVINE SOLUTIONS AND AVAILABLE EXISTING DRAWINGS OF THE SUBJECT AREA.



1
02
COMPOUND PLAN
SCALE: 1" = 10'-0"



2
02
VERTICAL CABLE LADDER DETAIL
SCALE: N.T.S.

NO.	DATE	REVISIONS
A	12/18/08	ISSUED FOR REVIEW

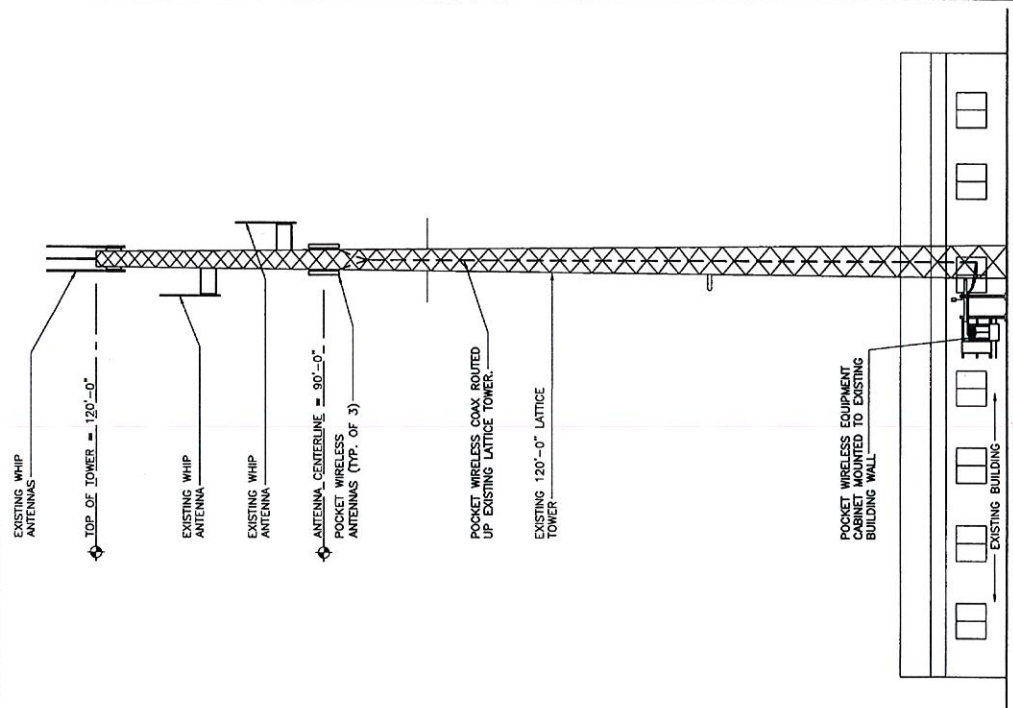
POCKET WIRELESS
HFC11508, 90 BROOKFIELD STREET
SITE PLAN, DETAILS AND NOTES



URS CORPORATION
400 WATERVILLE AVENUE
ROCKY HILL, CT 06067
PROJECT NO. 12/18/08
DRAWING NO. PC1053/26923973
DRAWING NUMBER

02

A TOWER ANALYSIS HAS NOT BEEN PERFORMED FOR THE PREPARATION OF THESE PLANS. AS OF THE ISSUANCE OF THESE DRAWINGS, THE EXISTING TOWER HAS NOT BEEN EVALUATED FOR REINFORCEMENT/ADDITION OF ANTENNAS, COAX CABLES AND EQUIPMENT. NO WORK SHALL OCCUR ON THIS TOWER PRIOR TO THE ISSUANCE OF A PASSING STRUCTURAL TOWER ANALYSIS. A COPY OF THE TOWER ANALYSIS SHALL BE FORWARDED TO URS CORPORATION. ALL REINFORCEMENT (IF REQUIRED) SHALL BE PERFORMED PRIOR TO ANY WORK UNDER THIS CONTRACT BEING PERFORMED.



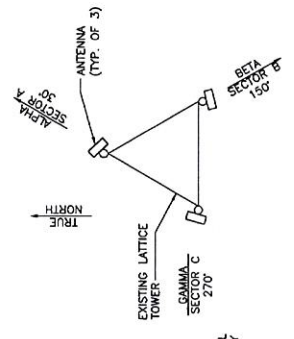
1 TOWER ELEVATION
SCALE: 1/16" = 1'-0"
03

ANTENNA KEY

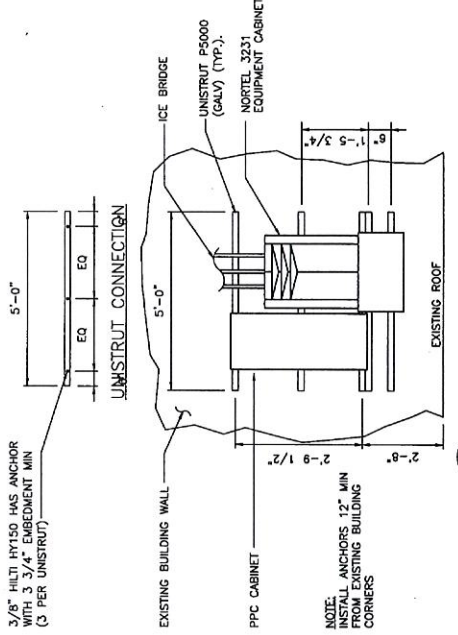
# ANTENNAS PER SECTOR	ANTENNA NUMBER	COAX COLOR CODE	ANTENNA VENDOR	MODEL NUMBER	C/H AZIMUTH	C/H HEIGHT	MECHANICAL DOWNTILT*	ELECTRICAL DOWNTILT*	COAX SIZE	CABLES PER ANTENNA	COAX MANUFACTURER
1	A-1	(1) RED BAND	RFS	APXV18-2065175-C	30°	90'-0"	0°	0°	1 5/8"	2 @ 110'	RFS
1	B-1	(1) BLUE BAND	RFS	APXV18-2065175-C	150°	90'-0"	0°	0°	1 5/8"	2 @ 110'	RFS
1	C-1	(1) GREEN BAND	RFS	APXV18-2065175-C	270°	90'-0"	0°	0°	1 5/8"	2 @ 110'	RFS
1	-	-	NORTEL	NTGB01MA	-	10'-0"	-	-	LMR400	1 @ 15'	ANDREW

*REFER TO RFDS ANTENNA SHEET FOR FINAL TILT AND AZIMUTHS

- TOWER NOTES:**
- FOR DETAILED TOWER INFORMATION, REFER TO TOWER ERECTION DRAWINGS BY OTHERS. THE TOWER SHOWN ON THESE DRAWINGS IS FOR GENERAL CONFIGURATION PURPOSES ONLY.
 - ANTENNA CONFIGURATION IS SUBJECT TO CHANGE. VERIFY ANTENNA HEIGHT, DOWN-TILT, AND AZIMUTH WITH PROJECT MANAGER PRIOR TO CONSTRUCTION.
- ANTENNA NOTES:**
- ALL COAX SHALL BE COLOR CODED AT CABINET AND AT THE EQUIPMENT CABINET.
 - (2) COLOR BANDS DENOTES TRANSMIT TRANSMITS TO BE CONNECTED TO THE +45 PORTS OF THE ANTENNAS.
 - PRIOR TO ORDERING ANY ANTENNAS OR COAX, CONTACT SHAW-WALKER POCKET'S CONSTRUCTION MANAGER FOR APPROVAL FOR MATERIALS LISTED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THIS COORDINATION.



2 ANTENNA SECTOR PLAN
SCALE: N.T.S.
03



NOTE:
INSTALL ANCHORS 12" MIN FROM EXISTING BUILDING CORNERS

3 CABINET SUPPORT FRAME
SCALE: N.T.S.
03

NO.	DATE	ISSUED FOR REVIEW	REVISIONS
1	12/18/08		

POCKET
SHAW-WALKER

HFC1508, 90 BROOKFIELD STREET
ROCKY HILL, CT 06067

TOWER ELEVATION, ANTENNA PLAN AND DETAILS

THIS DOCUMENT IS THE PROPERTY OF URS CORPORATION. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF URS CORPORATION.

URS

1500 WASHINGTON AVENUE
ROCKY HILL, CT 06067
PH: 860.261.0000
WWW.URS.COM

PROJECT NO: UCF
SHEET NO: BAL
DATE: 12/18/08
JOB NO: 1500
PC: 1055/36923973
DRAWING NUMBER

03

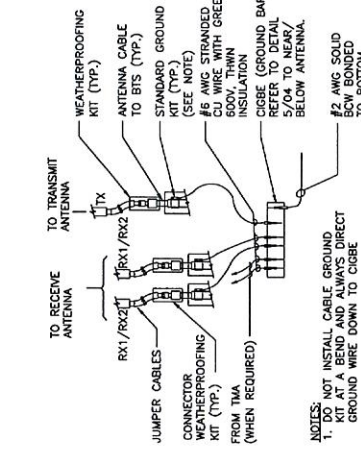
NO.	DATE	REVISIONS
1	12/19/08	ISSUED FOR REVIEW
2		
3		
4		
5		
6		
7		
8		
9		
10		

PROJECT: HFC11508, 90 BROOKFIELD STREET
 DRAWING NO: 04
 SHEET: GROUNDING DETAILS

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF URS CORPORATION. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF URS CORPORATION.

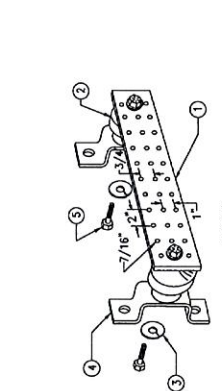
URS
 200 WATERBURY DRIVE
 WATSONVILLE, CA 95076
 PROJECT NO. JCF
 DATE: 12/19/08
 DRAWING NO. G-1053/98923973
 SHEET NUMBER

04



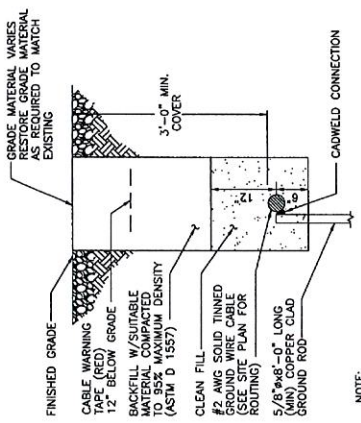
NOTES:
 1. DO NOT INSTALL CABLE GROUND DIRECT TO BOTTOM GROUND BAR.
 2. #2 AWG SOLID BCW BONDED TO BOTTOM GROUND BAR.

4 CONNECTION OF GROUND WIRE TO GROUND BAR
 SCALE: N.T.S.



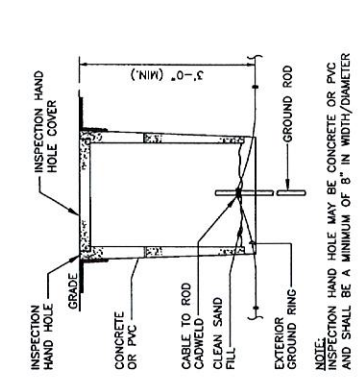
LEGEND
 1- COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3081-4 OR EQUAL
 3- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR EQUAL
 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR EQUAL
 5- 5/8"-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR EQUAL

5 MASTER/EQUIPMENT GROUND BAR DETAIL
 SCALE: N.T.S.



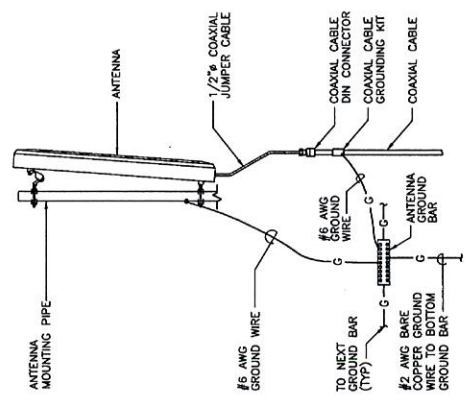
NOTE:
 1. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
 2. CADWELD GROUND ROD TO GROUND RING AFTER GROUND ROD HAS BEEN DRIVEN INTO PLACE.

6 EGR DETAIL
 SCALE: N.T.S.

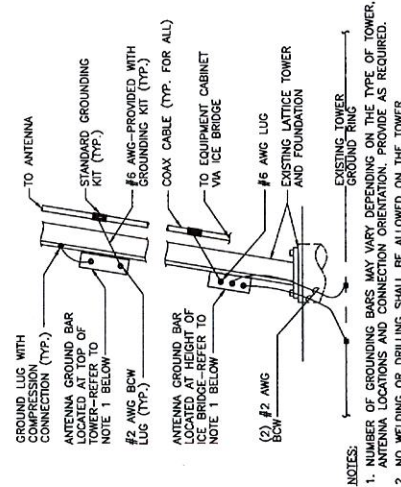


NOTE:
 INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 8" IN WIDTH/DIAMETER

7 GROUND ROD WITH INSPECTION HANDHOLE
 SCALE: N.T.S.

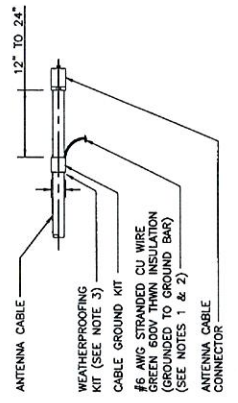


1 TYPICAL ANTENNA GROUNDING DETAIL
 SCALE: N.T.S.



NOTES:
 1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
 2. NO WELDING OR DRILLING SHALL BE ALLOWED ON THE TOWER.
 3. DO NOT INSTALL ANTENNA GROUND KIT ON CABLE BEND (TYP.)

2 LATTICE TOWER - ANTENNA CABLE GROUNDING
 SCALE: N.T.S.



NOTE:
 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 CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE
 SCALE: N.T.S.

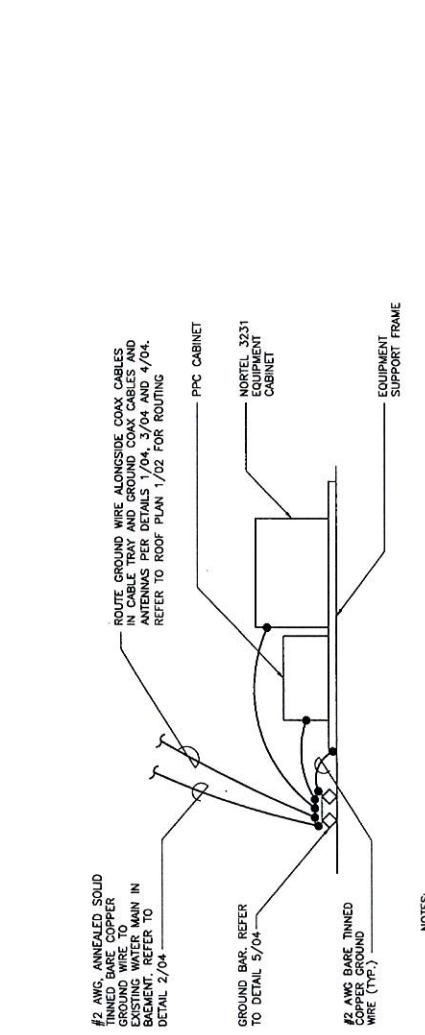
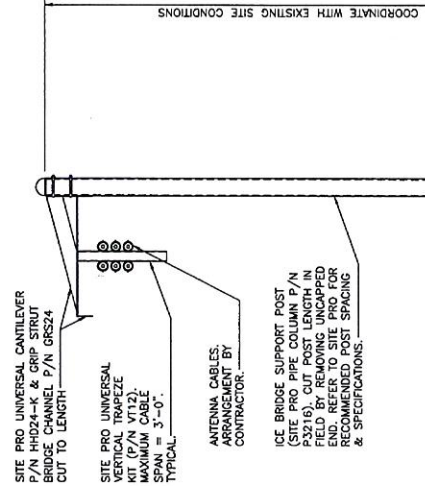
NO.	DATE	REVISIONS
1	12/19/08	REVISED FOR REVIEW
BY		
DATE		

SHEET
 HFC1508, 90 BROOKFIELD STREET
POCKET
 SMART WIRELESS

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY AND UNCLASSIFIED. IT IS THE PROPERTY OF SMART WIRELESS. THIS DOCUMENT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

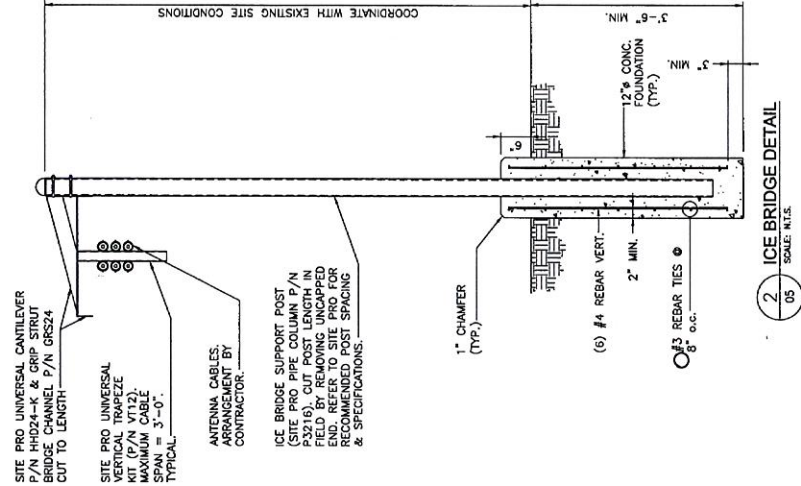
URS
 500 ENTERPRISE DRIVE
 ROCKY HILL, CT 06067
 PROJECT NO. JCF
 DATE: 12/19/08
 USER AND NUMBER: P1055/3512373
 DRAWING NUMBER:

05

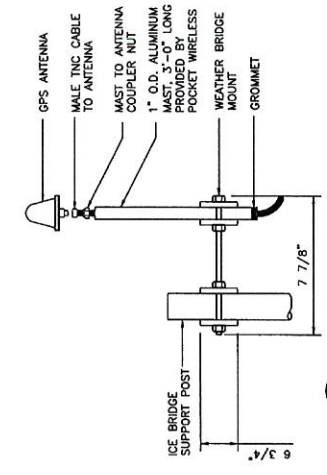


NOTES:
 1. SEE SHEET 02 FOR EQUIPMENT ORIENTATION AND LOCATION.

3
 EQUIPMENT GROUNDING PLAN
 SCALE: N.T.S.



2
 ICE BRIDGE DETAIL
 SCALE: N.T.S.



1
 GPS MOUNTING DETAIL
 SCALE: N.T.S.

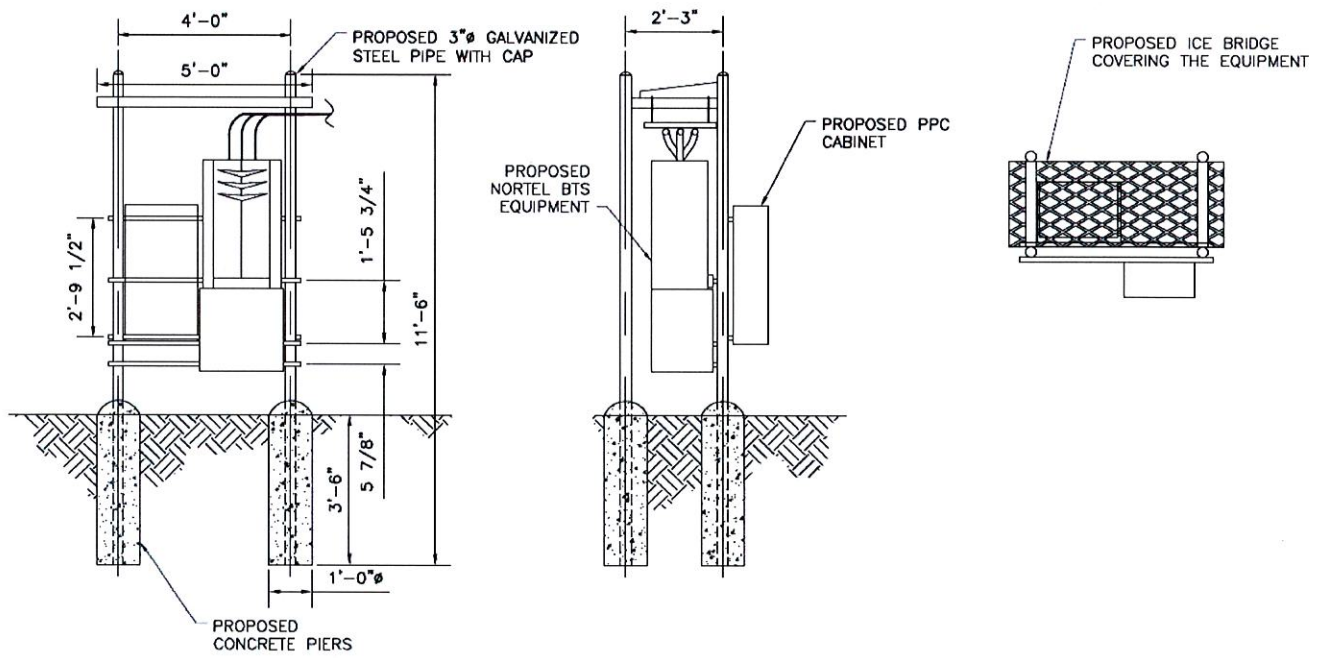
Exhibit C

Equipment Specifications

Pocket Site HFCT1508A

90 Brookfield Street

South Windsor, Connecticut



Pocket/Youghiogheny Communications - Northeast, LLC
 Rack Detail



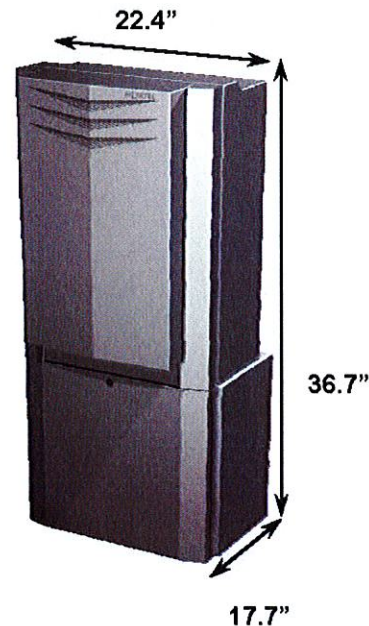
CDMA BTS 3231 AWS 1.7/2.1 GHz (Outdoor/Indoor)

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

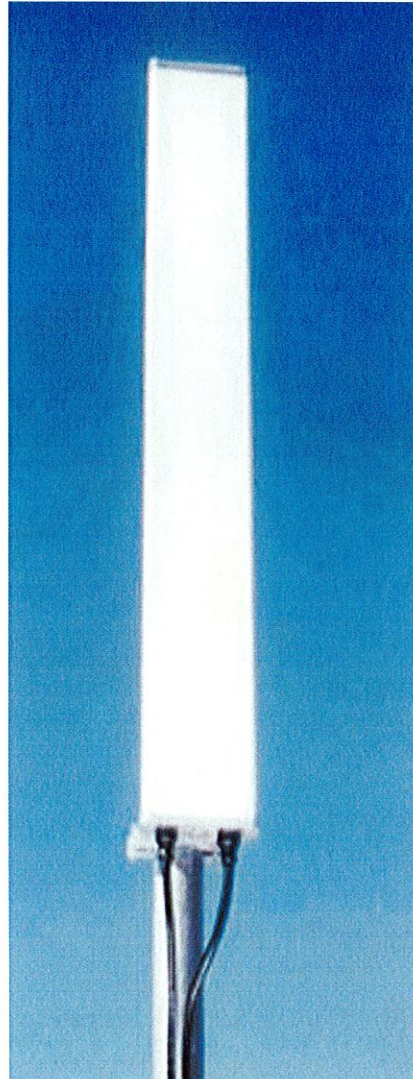
to transport to hard to reach locations such as the top of a high rise building.





Product Description

This variable tilt antenna provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features null fill and a wide downtilt range with optional remote tilt.



Features/Benefits

- Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.
- High Suppression of all Upper Sidelobes (Typically <-20dB).
- Optional remote tilt - can be retrofitted.
- Broadband design.
- Dual polarization.
- Low profile for low visual impact.

Technical Features

Frequency Band	3G/UMTS (Single, Broad, Dual and Triple-Band)
Horizontal Pattern	Directional
Antenna Type	Panel Dual Polarized
Electrical Down Tilt Option	Variable



Gain, dBi (dBd)	18.8 (16.7) , 19.0 (16.9)
Frequency Range, MHz	1710-1900, 1900-2170
Connector Type	(2) 7-16 DIN Female
Connector Location	Bottom
Mount Type	Downtilt
Electrical Downtilt, deg	0-10
Horizontal Beamwidth, deg	67 , 63
Mounting Hardware	APM40-2
Rated Wind Speed, km/h (mph)	160 (100)
VSWR	< 1.5:1
Vertical Beamwidth, deg	5.0 , 4.6
Upper Sidelobe Suppression, dB	>17 , >18 all (Typically >20)
Polarization	Dual pol +/-45°
Front-To-Back Ratio, dB	>30
Maximum Power Input, W	300
Isolation between Ports, dB	>30
Lightning Protection	Direct Ground
3rd Order IMP @ 2 x 43 dBm, dBc	>150
7th Order IMP @ 2x46 dBm, dBc	>170
Impedance, Ohms	50
Overall Length, m (ft)	1.85 (6.06)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)
Dimensions - HxWxD, mm (in)	1850 x 175 x 80 (72.0 x 6.8 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	12 (26.4)
Weight w/ Mtg Hardware, kg (lb)	14.8 (32.5)
Radiating Element Material	Brass
Radome Color	Light Grey RAL7035
Radome Material	Fiberglass
Mounting Hardware Material	Diecasted Aluminum
Reflector Material	Aluminum
Max Wind Loading Area, m ² (ft ²)	0.31 (3.3)
Survival Wind Speed, km/h (mph)	200 (125)
Maximum Thrust @ Rated Wind, N (lbf)	558 (125)
Front Thrust @ Rated Wind, N (lbf)	558 (125)
Shipping Weight, kg (lb)	18.3 (39.8)
Packing Dimensions, HxWxD, mm (in)	2021 x 260 x 200 (79.5 x 10.2 x 7.8)
Packing Dimensions - HxWxD, m (ft)	2.0 x 0.26 x 0.2 (6.6 x 0.85 x 0.65)

Notes

For additional mounting information please click "External Document Link" below.

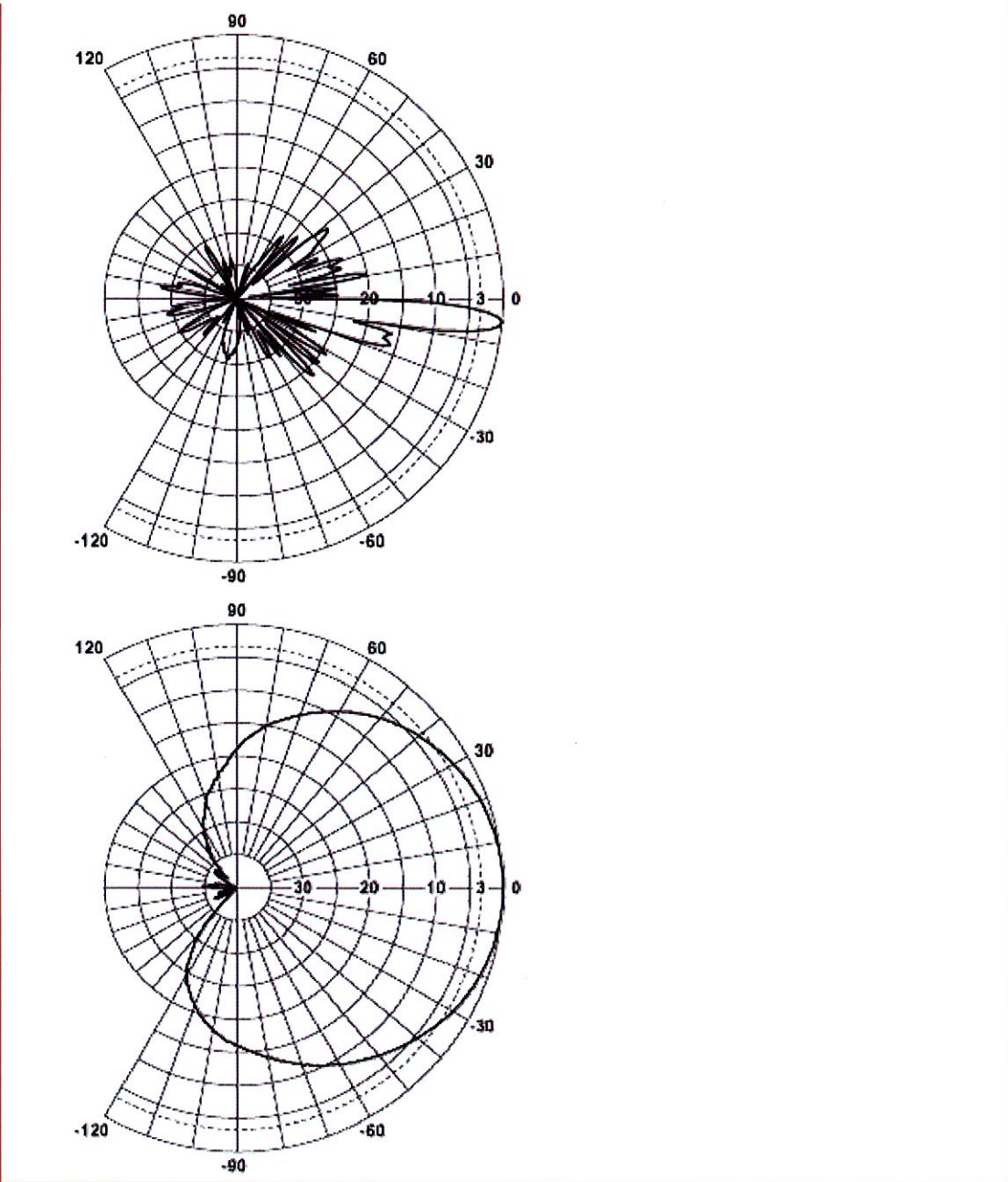


Exhibit D

Power Density Calculations

Pocket Site HFCT1508A

90 Brookfield Street

South Windsor, Connecticut

Radio Frequency Field Survey



HFCT 1508A



90 Brookfield St
South Windsor, CT



920 Candia Road
Manchester, NH 03109
(603) 657-9702
support@csquaredsystems.com

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Introduction

At the request of Pocket, radio frequency measurements were made in the vicinity of the wireless facility located on 90 Brookfield St, South Windsor, CT on October 30, 2008. The coordinates of the tower according to GPS are N 41° 51' 16.57", W 72° 34' 13.27". The results of the measurements as well as the calculated values for the proposed Pocket antennas are presented in this report.

Survey measurements are expressed as a percentage of the Maximum Permissible Exposure (MPE) limits as listed in the FCC OET Bulletin 65. OET Bulletin 65 was prepared to provide assistance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to radio frequency fields adopted by the Federal Communications Commission. Measurement results expressed in this report are for uncontrolled public access. The FCC's guidelines establish separate exposure limits for "general population/uncontrolled exposure," and for "occupational/controlled exposure."

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).

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 microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is $579 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS band is $1000 \mu\text{W}/\text{cm}^2$. 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.

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.

Measurement Procedures

Frequencies from 300 KHz to 50 GHz were measured using the Narda A8722D probe in conjunction with the 8718B survey meter. The A8722D probe is “shaped” such that in a mixed signal environment (i.e.: more than one frequency band is used in a particular location) it accurately measures the percent of MPE.

From FCC OET Bulletin No. 65 - Edition 97-01 – “A useful characteristic of broadband probes used in multiple-frequency RF environments is a frequency-dependent response that corresponds to the variation in MPE limits with frequency. Broadband probes having such a "shaped" response permit direct assessment of compliance at sites where RF fields result from antennas transmitting over a wide range of frequencies. Such probes can express the composite RF field as a percentage of the applicable MPEs”.

Probe Description – As suggested in FCC OET Bulletin No. 65 - Edition 97-01, the response of the measurement instrument should be essentially isotropic, (i.e., independent of orientation or rotation angle of the probe). For this reason, the Narda A8722 Isotropic probe was used for these measurements.

Sampling Description: At each measurement location, a spatially averaged measurement is collected over the height of an average human body. The 8718B survey meter performs a time average measurement while the user slowly moves the probe over a distance range of 0 cm to 200 cm (about 6 feet) above ground level. The results recorded at each measurement location include both average and peak values over the spatial distance.

Instrumentation Information: A summary of specifications for the equipment used is provided in the table below.

Manufacturer	Narda Microwave			
Probe	A8722D, Serial Number 07030			
Calibration Date	11/26/2007			
Calibration Interval	12 Months			
Meter	8718B, Serial Number 06028			
Calibration Date	11/26/2007			
Calibration Interval	24 Months			
Probe Specifications	Freq Range	Field Measured	Standard	Measurement Range
	300 KHz-50 GHz	E	FCC 1997	0.3 – 300 % of Controlled

Table 1: Instrumentation Information

Instrument Measurement Uncertainty: The total measurement uncertainty of the NARDA measurement probe and meter is no greater than ± 3 dB. The factors which contribute to this include the probe’s frequency response deviation, calibration uncertainty, ellipse ratio, and isotropic response. Every effort is taken to reduce the overall uncertainty during measurement collection including rotating the probe about the axis of the handle and pointing the probe directly at the likely highest source of emissions.

Calculations

All calculations were based on the following information supplied by Pocket.

Power Assumptions				
Pocket AWS	2130-2133.75 MHz	3 Channels	631W ERP	1893W Total ERP

Table 2: Proposed Pocket Antenna Information

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 to rad center of antenna

Off Beam Loss is determined by the selected antenna patterns

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 more conservative (higher) than the actual signal levels will be from the finished installation.

Results

Results, both measured and predicted, and a description of each survey location are detailed in the table presented below. Measurements were performed on October 30, 2008 between the hours of 1:00 PM and 3:30 PM.

Measurement locations are portrayed in the photos below. An aerial view showing the referenced measurement locations with respect to the surrounding area is shown in Figure 1.

Predicted results were estimated by calculating the %MPE of the proposed Pocket antennas given the mounting height of the antennas, the number of transmitters, and the max ERP for each sector. This predicted %MPE value was then added to each measured value to estimate a total %MPE value at the given distance from the base of the tower. An analysis of the antenna patterns was conducted to determine whether each individual measurement point would fall within the main beam of the transmitting antenna given the mounting heights of the antennas, antenna pattern and the distance between tower and measurement point. The results are detailed in Table 3 below.

Measurement Point	Latitude	Longitude	Distance from Tower (ft)	Measured %MPE	Predicted %MPE	Total %MPE
1	N 41°51' 16.5	W 72° 34' 13.3	16	0.00%	13.03%	13.03%
2	N 41°51' 16.9	W 72° 34' 13.3	17	1.15%	11.49%	12.64%
3	N 41°51' 17.1	W 72° 34' 13.1	91	1.05%	9.47%	10.52%
4	N 41°51' 18.1	W 72° 34' 13.2	33	1.40%	3.28%	4.68%
5	N 41°51' 18.1	W 72° 34' 12.0	171	2.00%	2.56%	4.56%
6	N 41°51' 17.8	W 72° 34' 10.8	254	2.30%	1.81%	4.11%
7	N 41°51' 17.9	W 72° 34' 10.3	339	2.15%	1.39%	3.54%
8	N 41°51' 17.7	W 72° 34' 9.60	425	1.40%	1.08%	2.48%
9	N 41°51' 17.2	W 72° 34' 8.90	529	0.30%	0.87%	1.17%
10	N 41°51' 16.4	W 72° 34' 9.50	680	0.40%	1.18%	1.58%
11	N 41°51' 15.5	W 72° 34' 9.60	116	0.15%	1.10%	1.25%
12	N 41°51' 15.1	W 72° 34' 7.50	169	0.40%	0.48%	0.88%
13	N 41°51' 13.9	W 72° 34' 9.40	111	0.55%	0.64%	1.19%
14	N 41°51' 15.7	W 72° 34' 10.9	360	1.15%	2.21%	3.36%
15	N 41°51' 16.1	W 72° 34' 12.4	496	1.55%	7.18%	8.73%
16	N 41°51' 17.0	W 72° 34' 14.7	435	0.70%	4.88%	5.58%
17	N 41°51' 17.0	W 72° 34' 14.8	538	1.15%	4.53%	5.68%
18	N 41°51' 20.8	W 72° 34' 14.6	247	2.80%	0.53%	3.33%
19	N 41°51' 28.0	W 72° 34' 6.50	404	1.40%	0.07%	1.47%
20	N 41°51' 37.8	W 72° 33' 52.8	506	0.95%	0.02%	0.97%
21	N 41°51' 7.10	W 72° 34' 21.6	215	1.40%	0.08%	1.48%
22	N 41°51' 10.9	W 72° 34' 33.2	365	1.80%	0.04%	1.84%
23	N 41°51' 20.0	W 72° 34' 41.5	575	1.80%	0.02%	1.82%
24	N 41°51' 27.2	W 72° 34' 46.5	771	1.90%	0.01%	1.91%
25	N 41°50' 56.7	W 72° 34' 17.7	979	1.65%	0.03%	1.68%
26	N 41°50' 52.2	W 72° 34' 7.40	976	1.30%	0.02%	1.32%
27	N 41°50' 57.6	W 72° 34' 27.3	685	1.30%	0.02%	1.32%
28	N 41°51' 04.0	W 72° 34' 44.5	801	2.00%	0.01%	2.01%

Table 3: Measured and Calculated Results



Figure 1: Aerial View with Measurement Locations



Figure 2: Tower Location

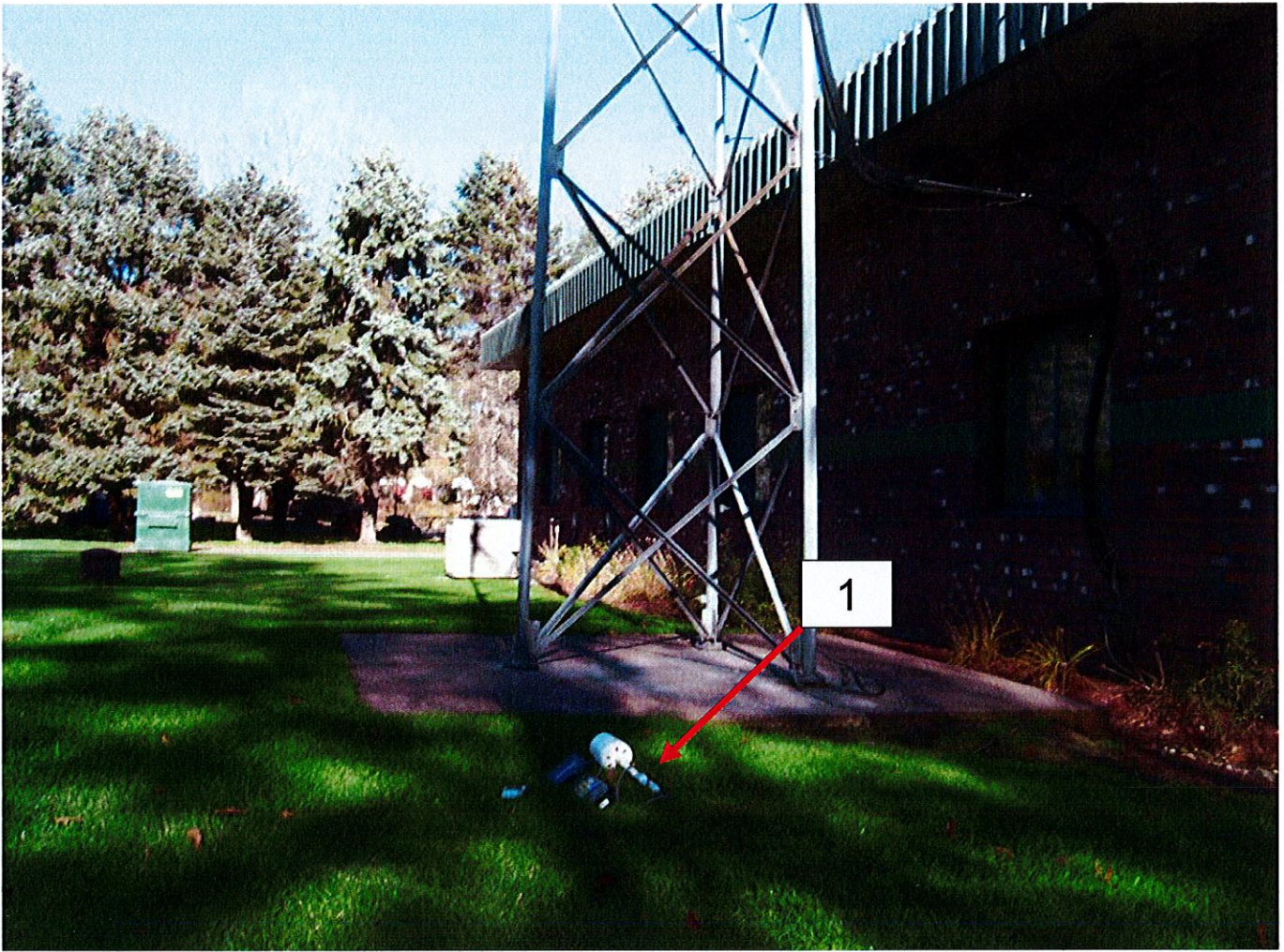


Figure 3: Measurement Location 1

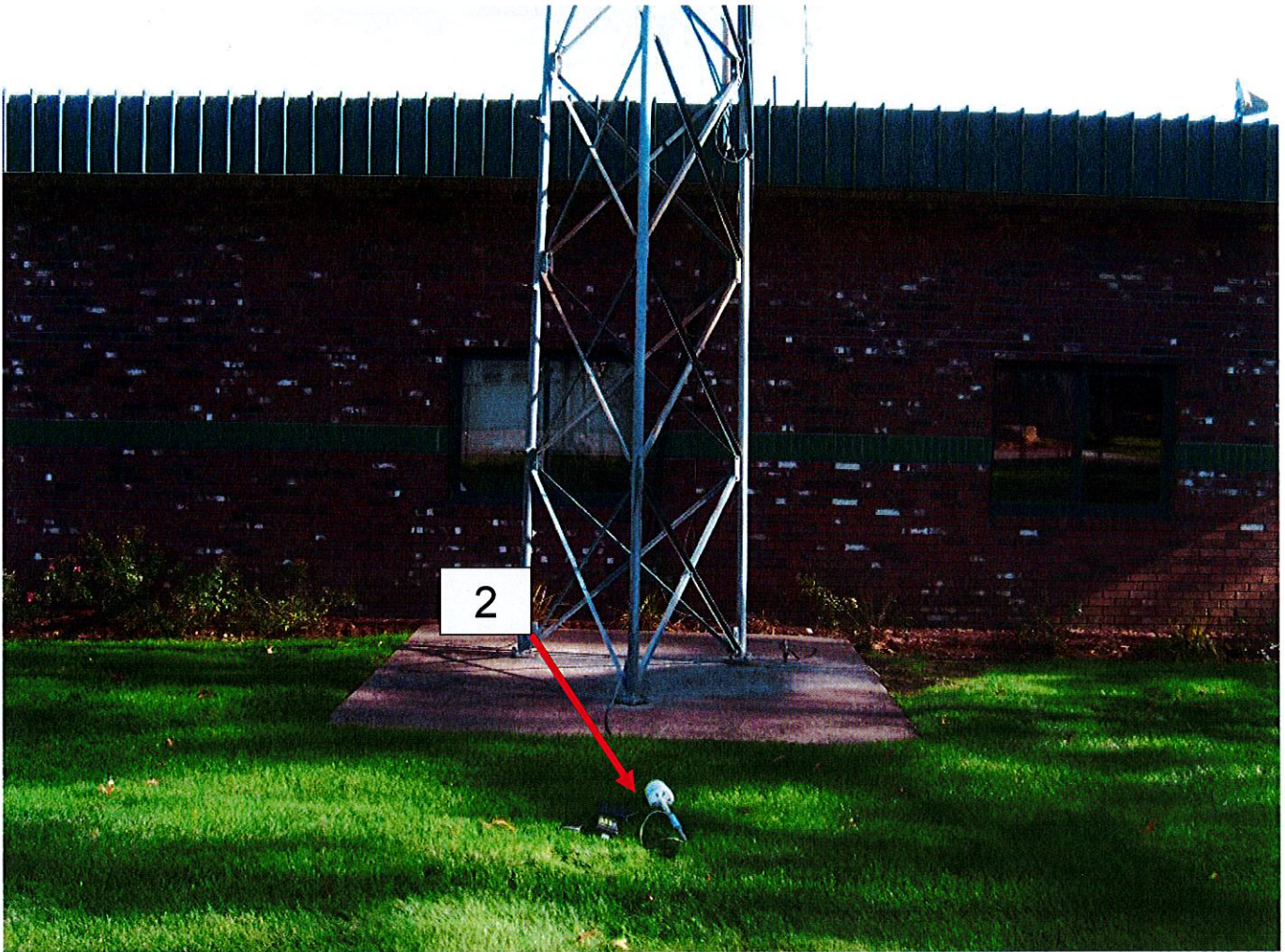


Figure 4: Measurement Location 2

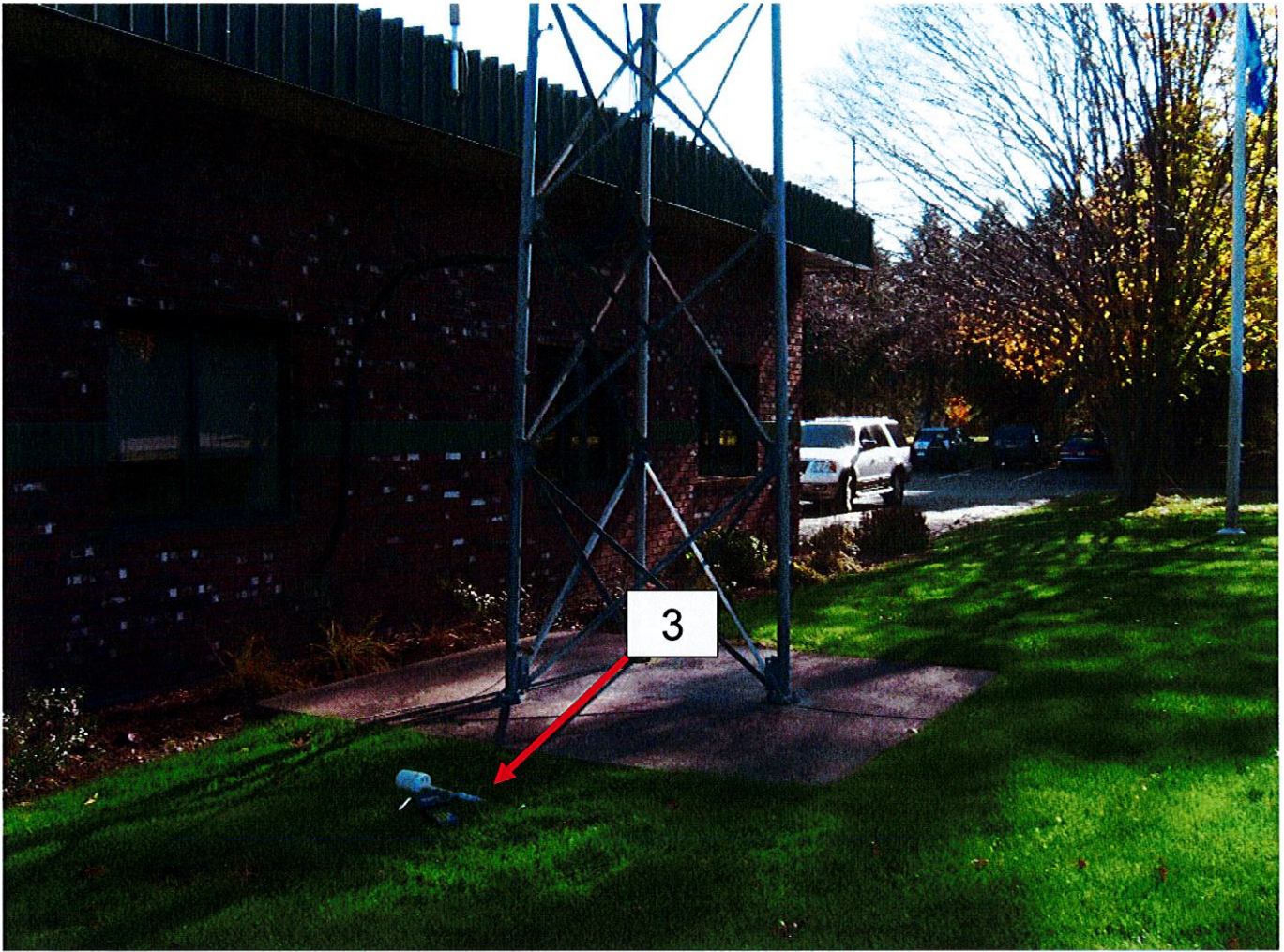


Figure 5: Measurement Location 3

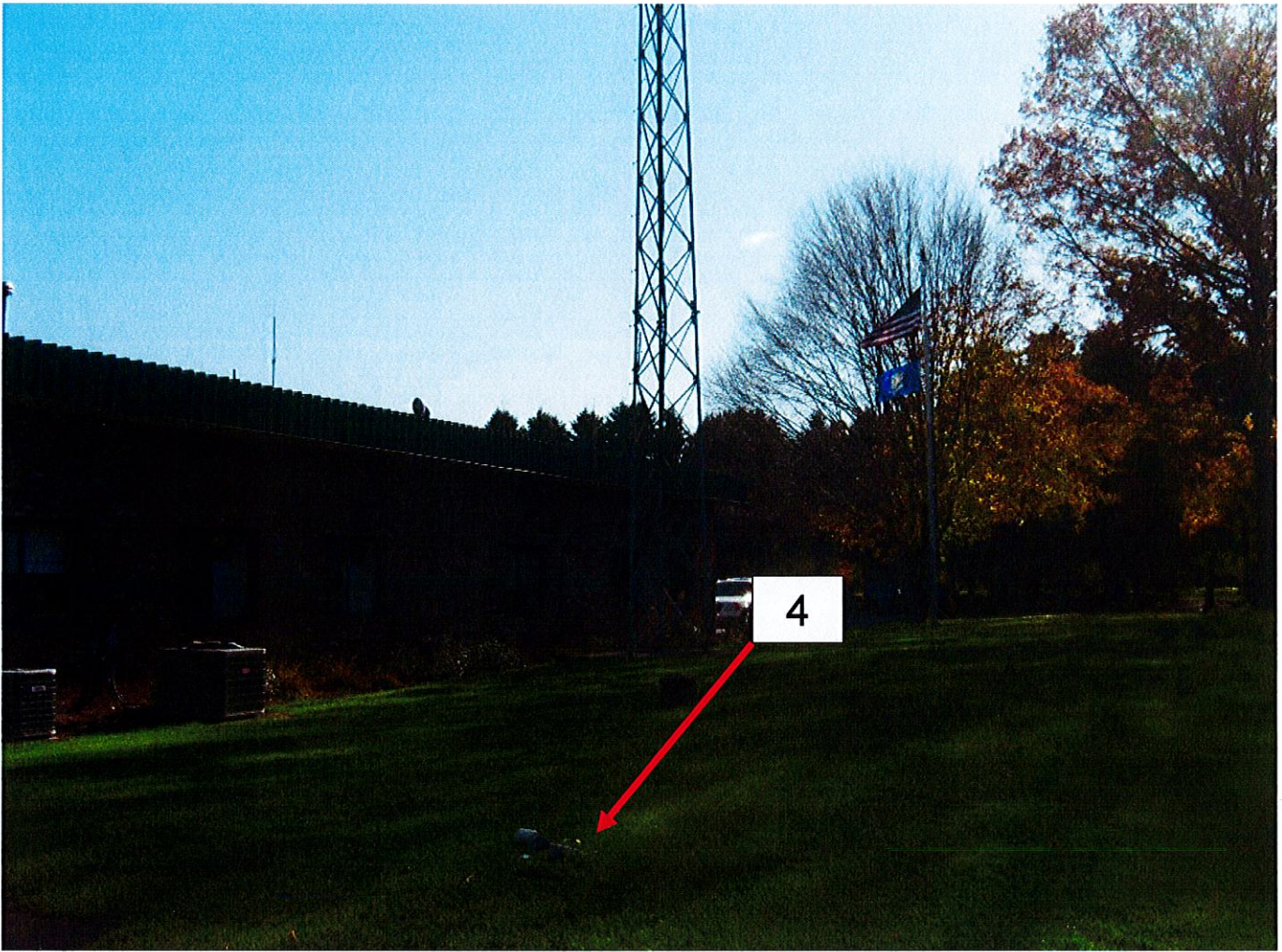


Figure 6: Measurement Location 4

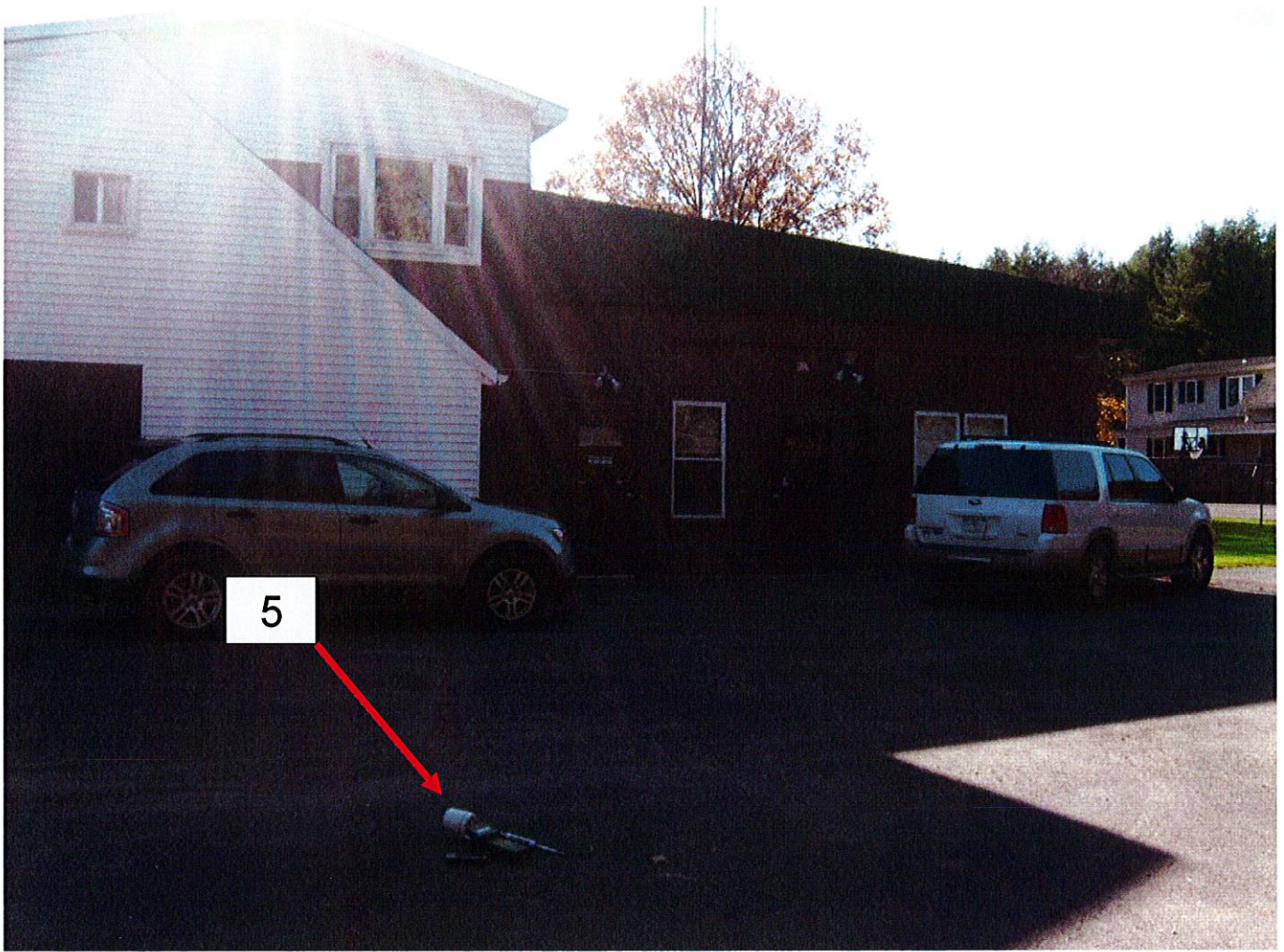


Figure 7: Measurement Location 5

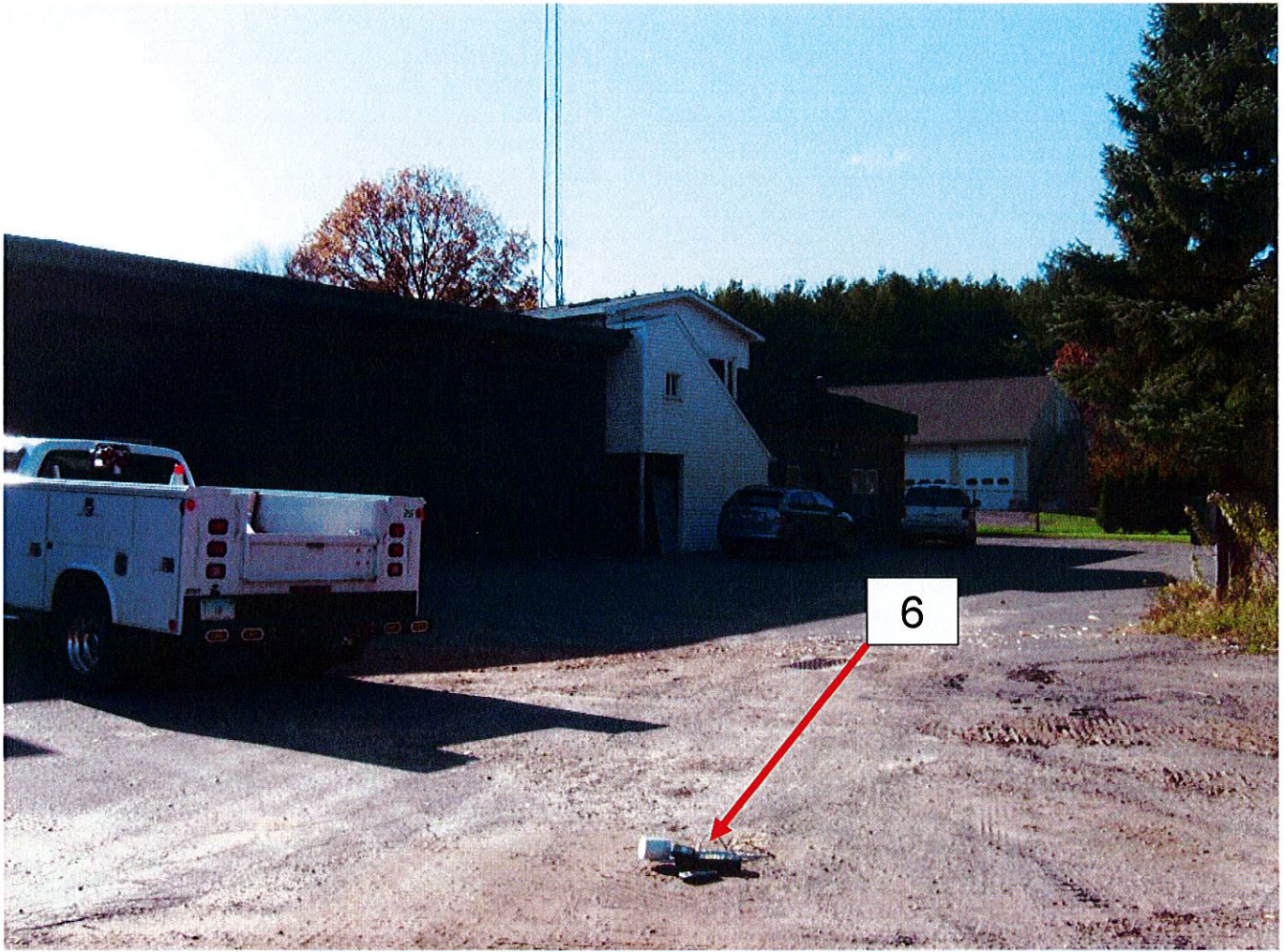


Figure 8: Measurement Location 6

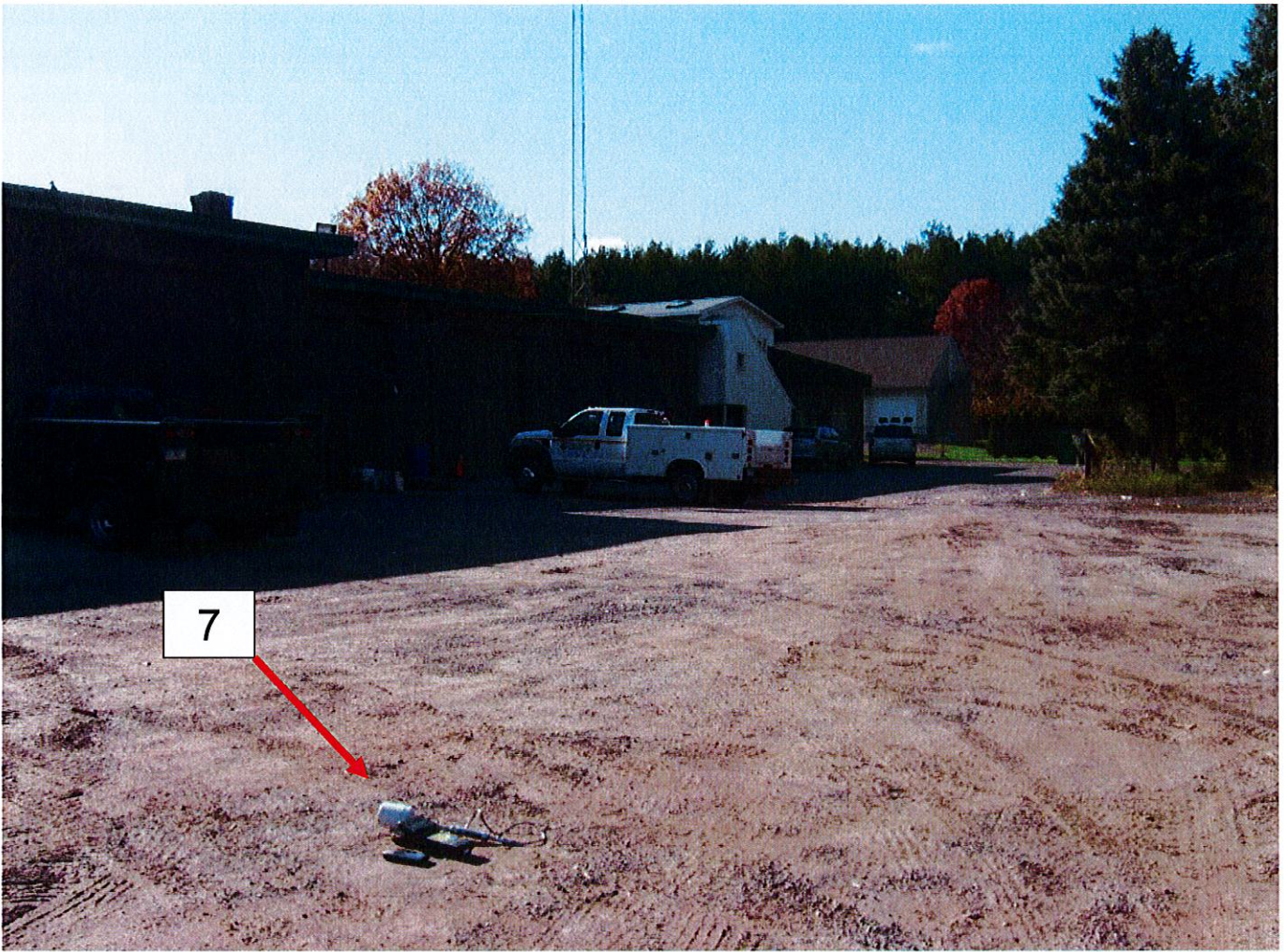


Figure 9: Measurement Location 7

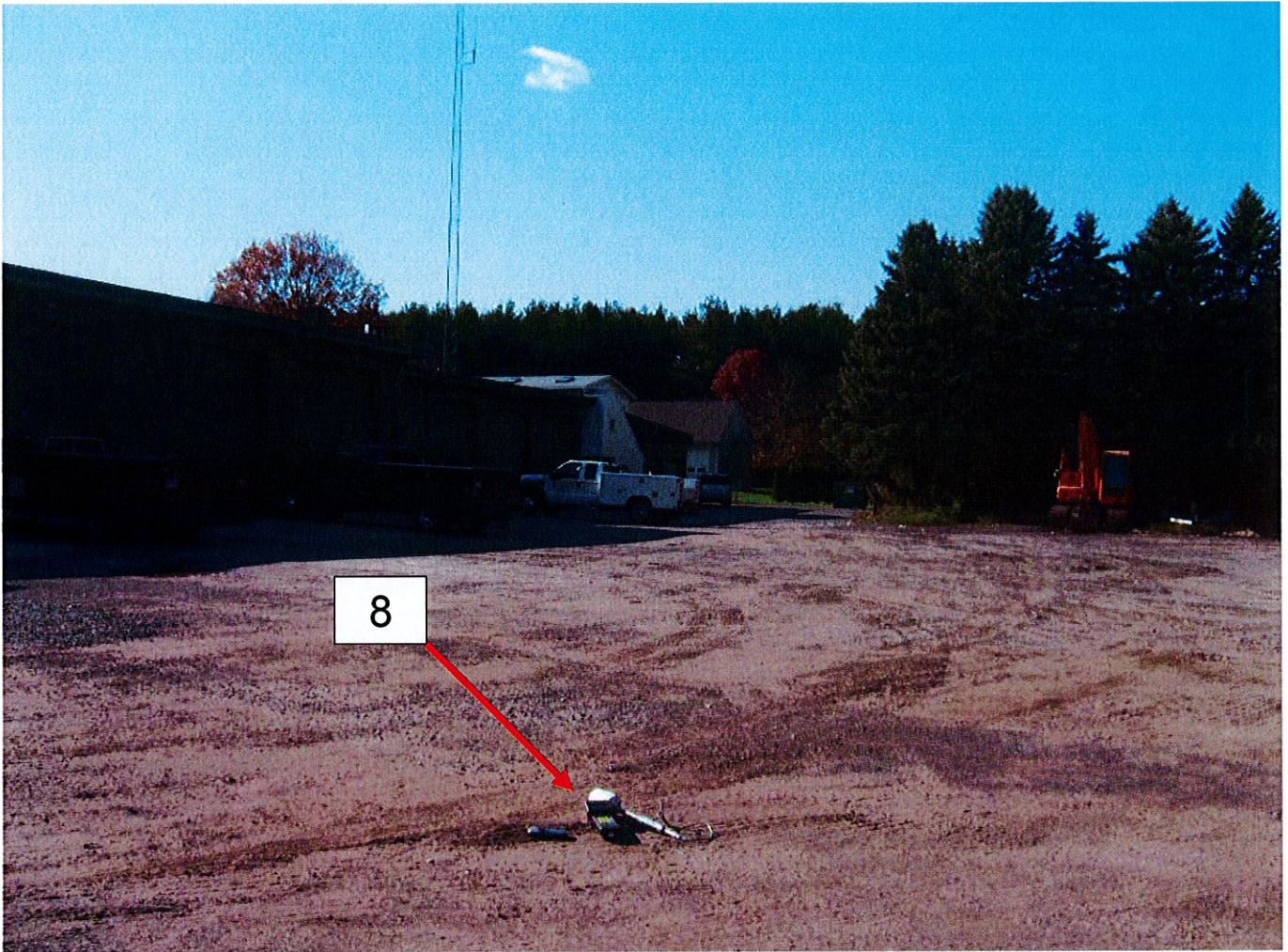


Figure 10: Measurement Location 8

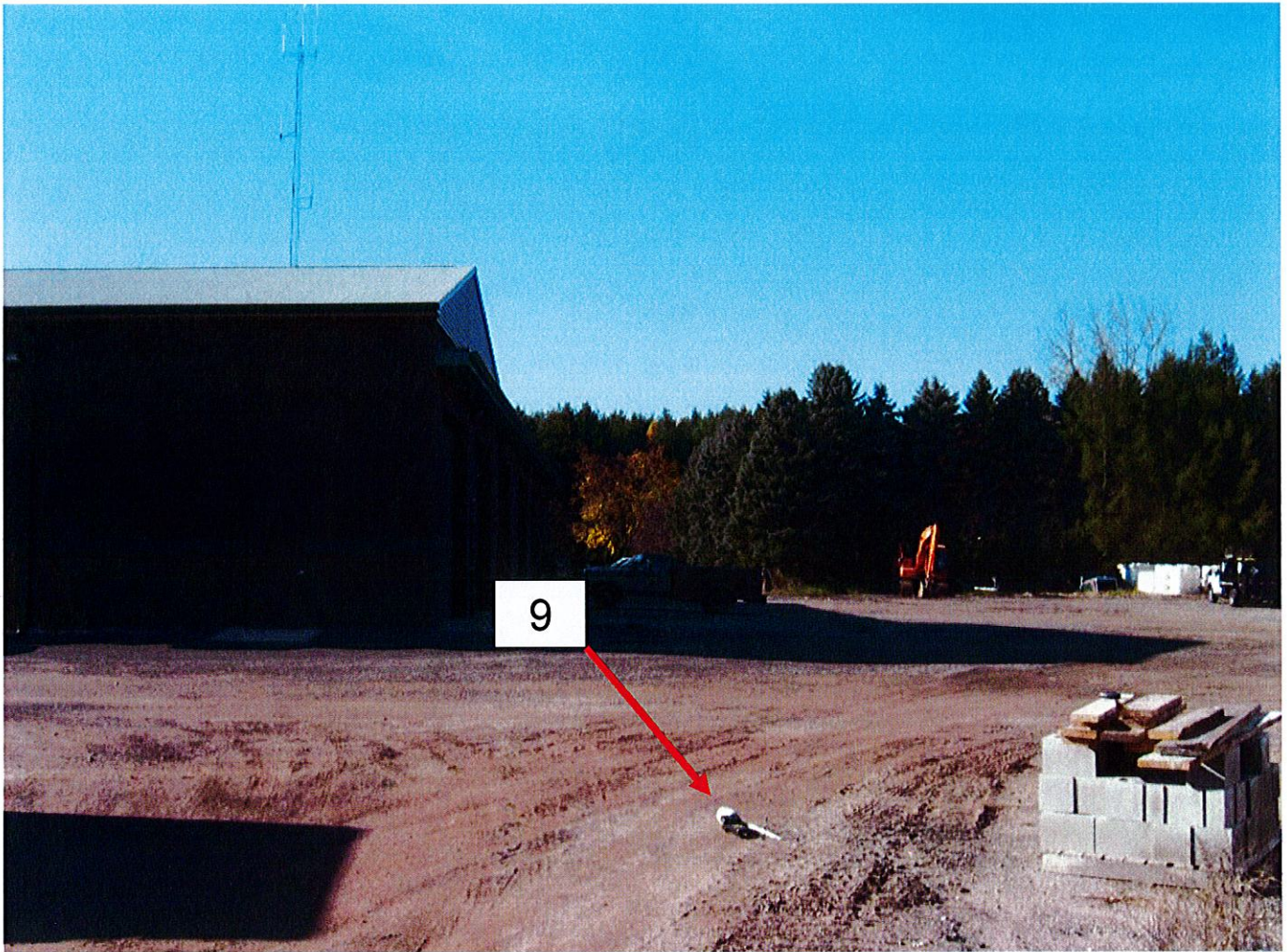


Figure 11: Measurement Location 9

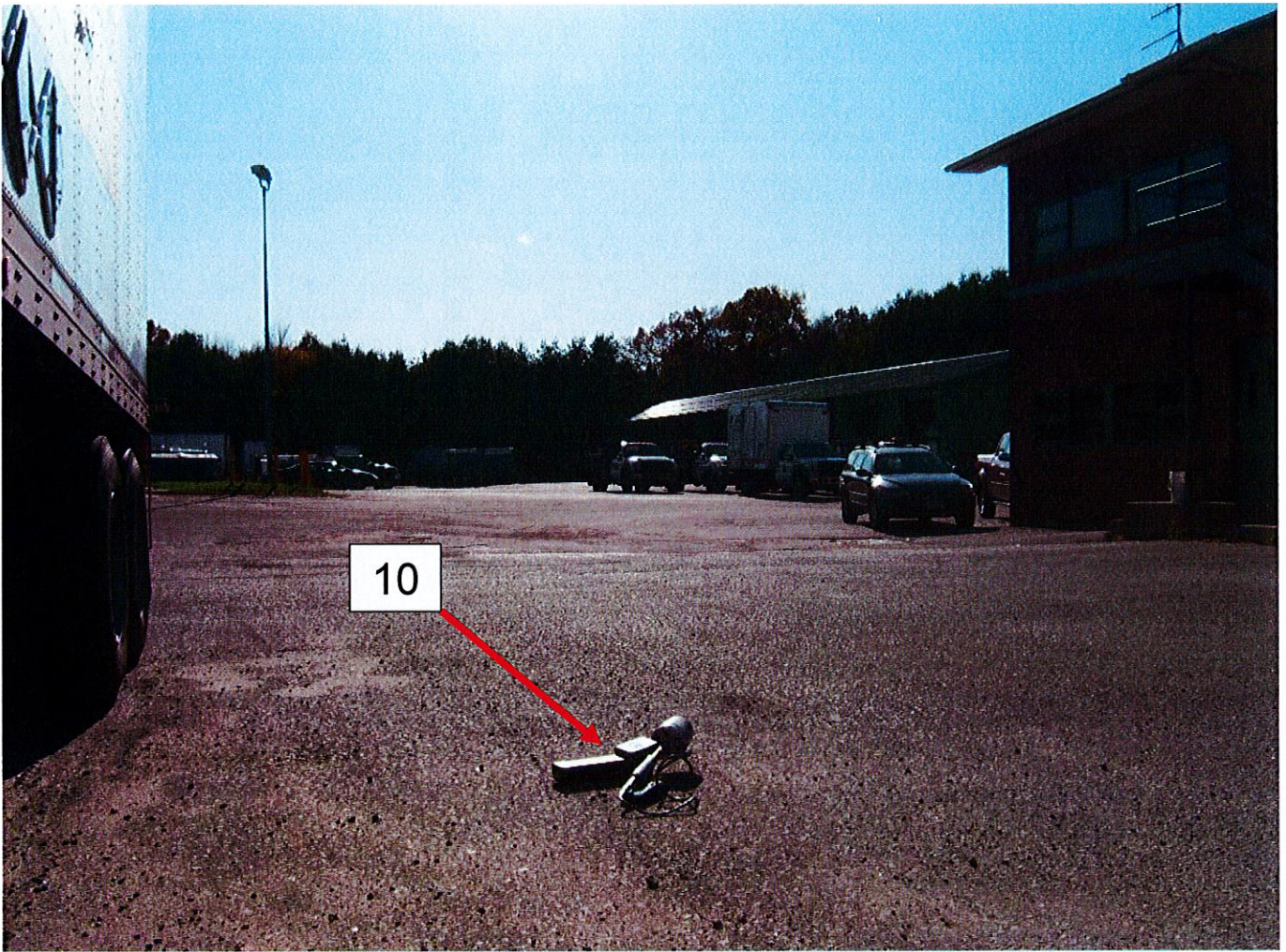


Figure 12: Measurement Location 10



Figure 13: Measurement Location 11

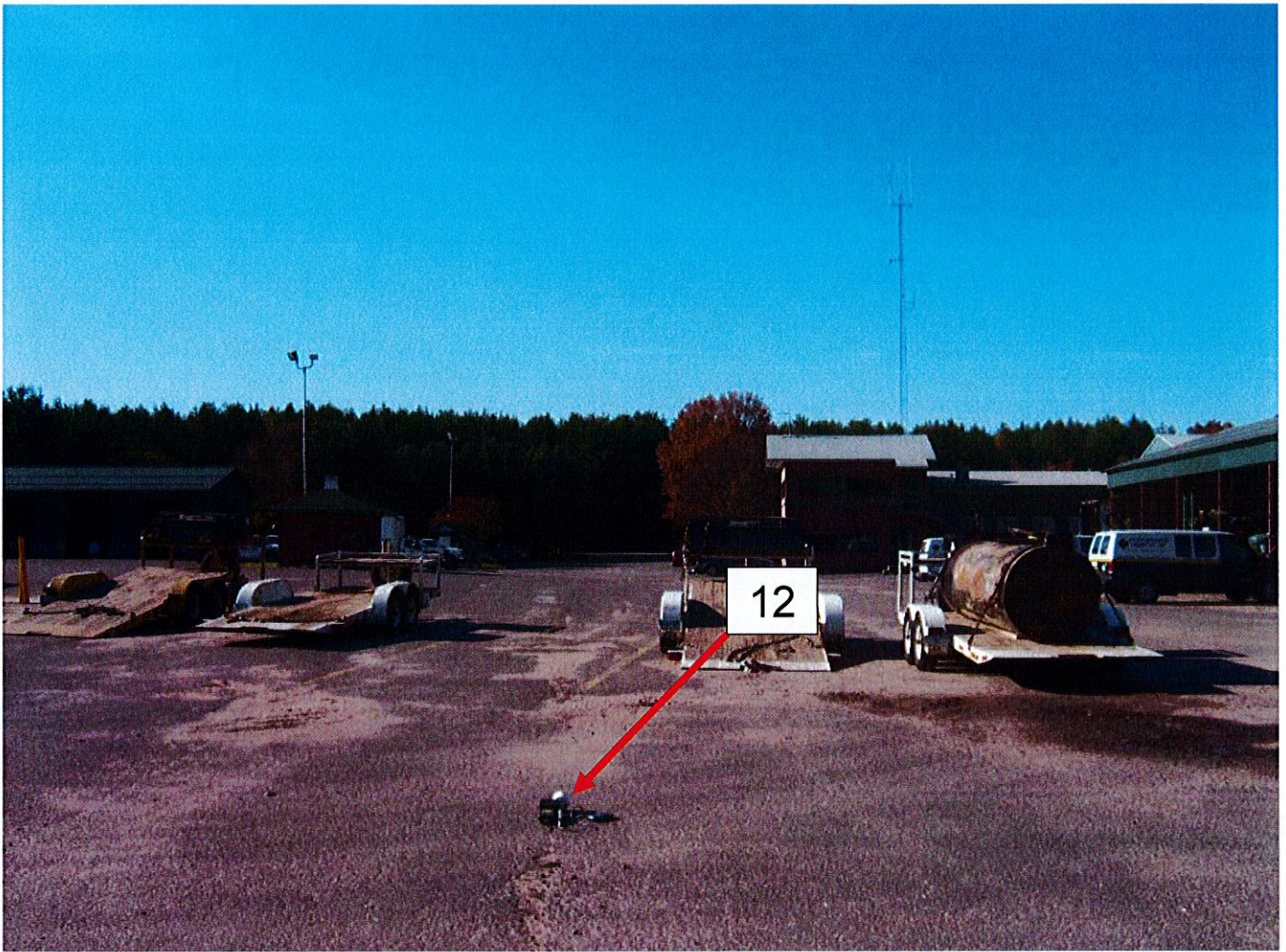


Figure 14: Measurement Location 12



Figure 15: Measurement Location 13

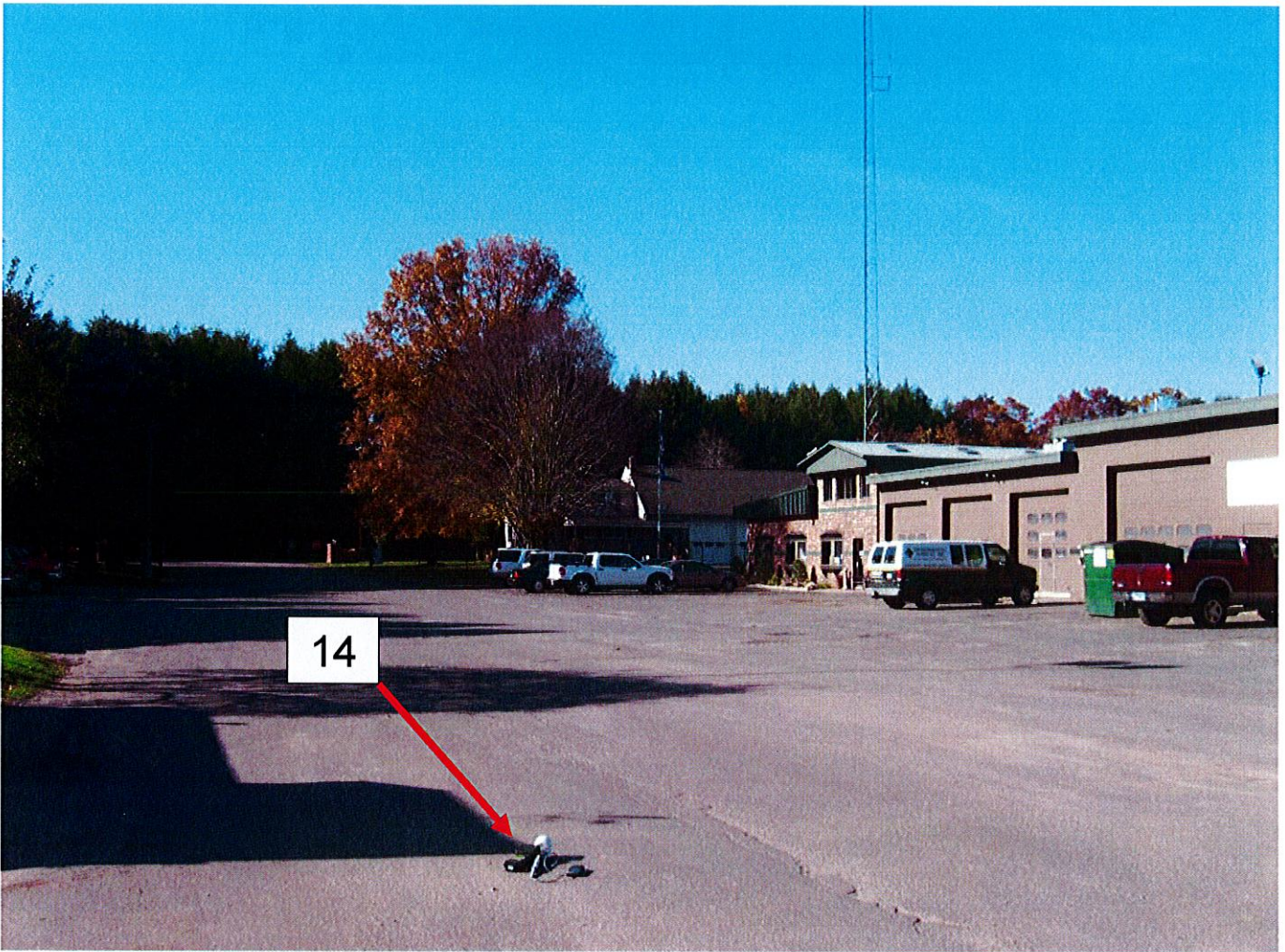


Figure 16: Measurement Location 14



Figure 17: Measurement Location 15

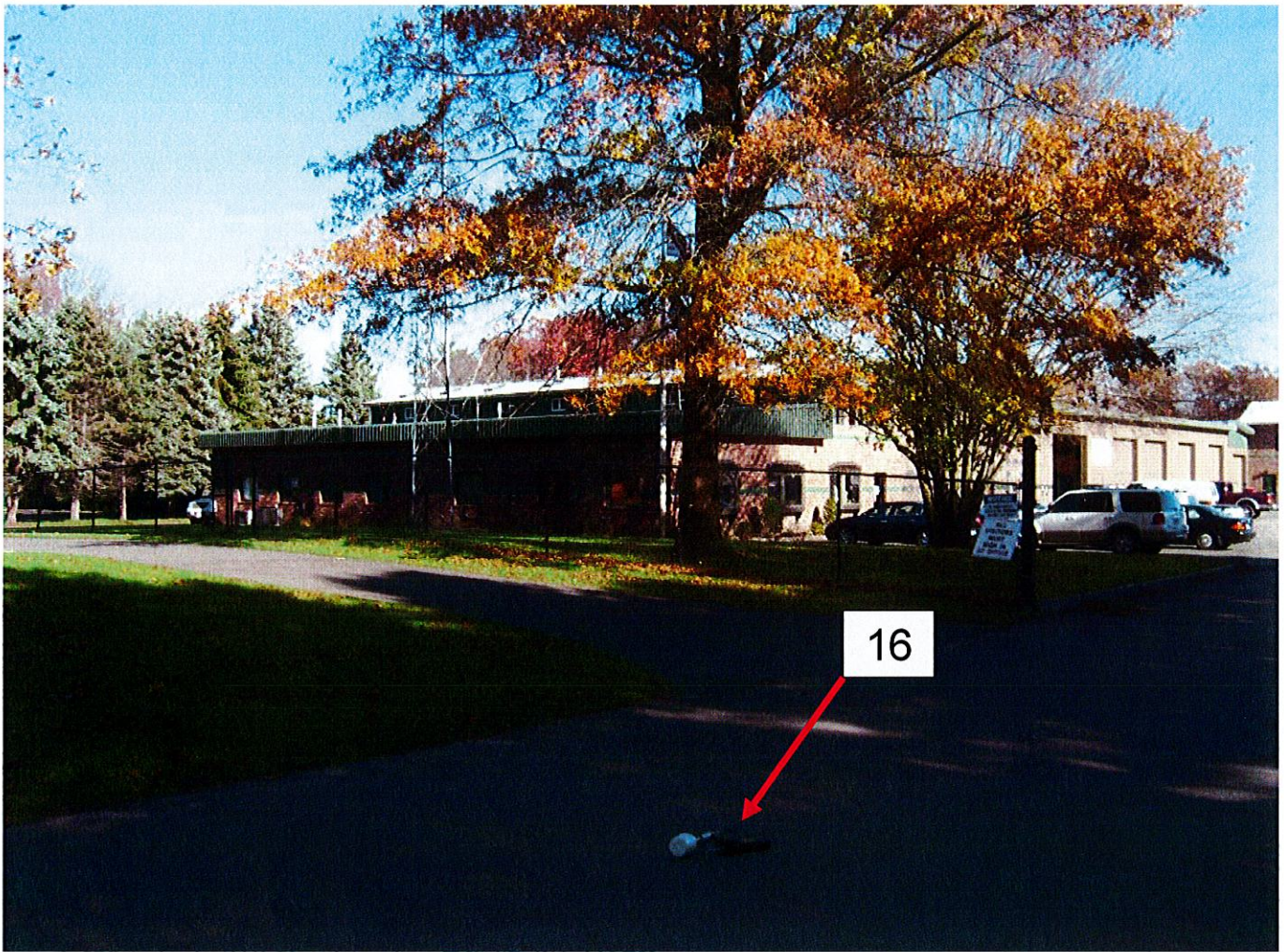


Figure 18: Measurement Location 16



Figure 19: Measurement Location 17

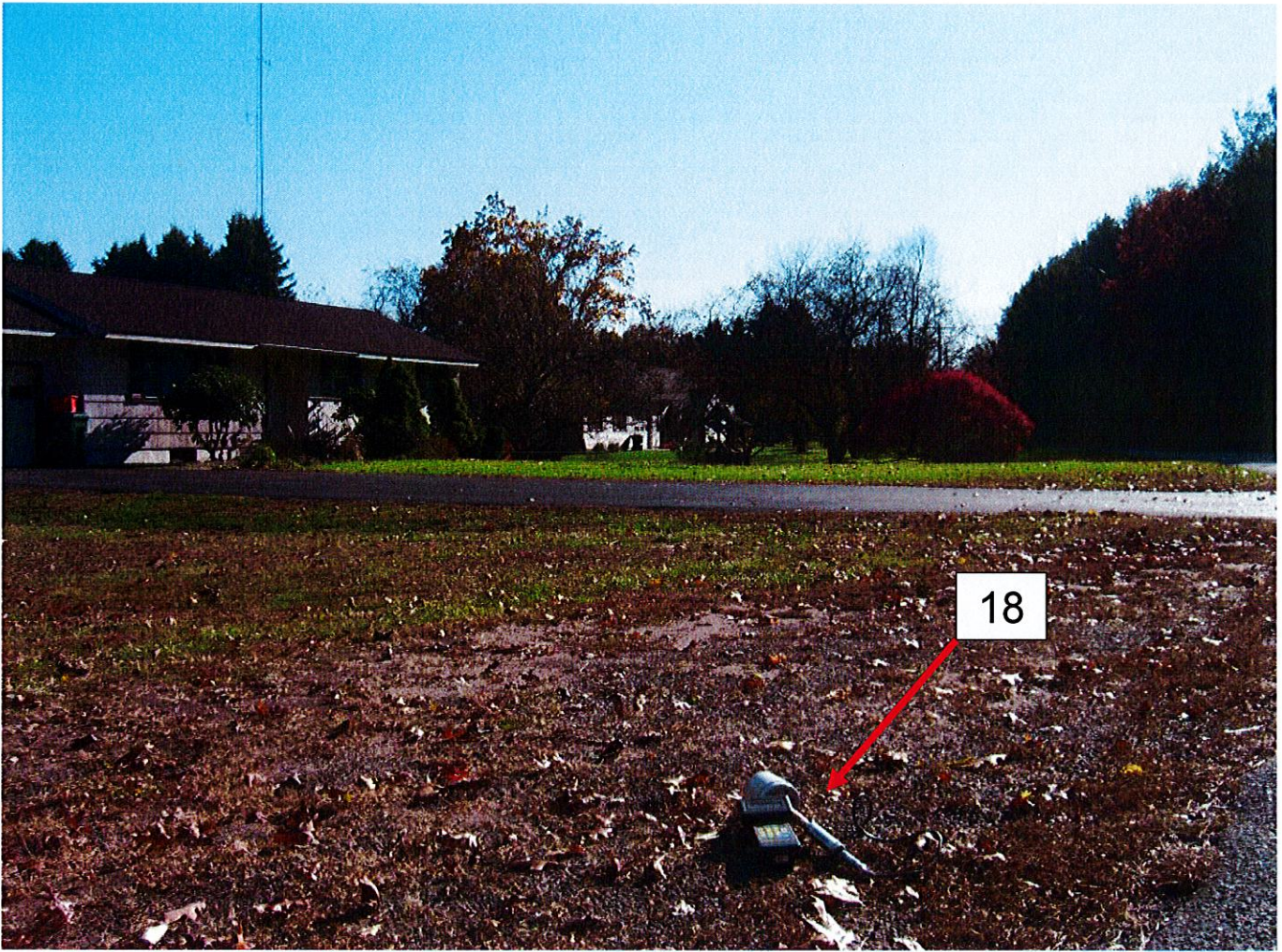


Figure 20: Measurement Location 18

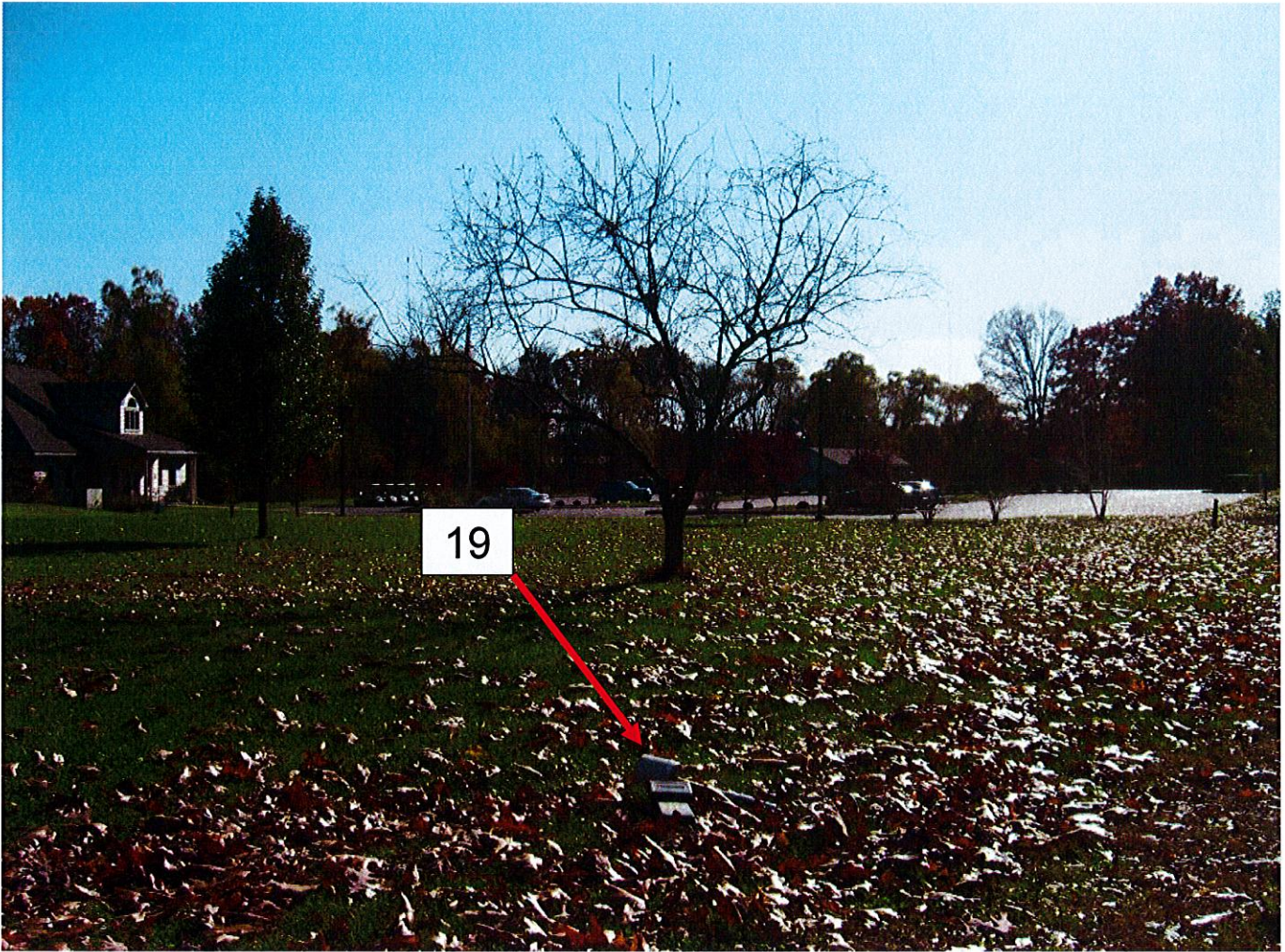


Figure 21: Measurement Location 19

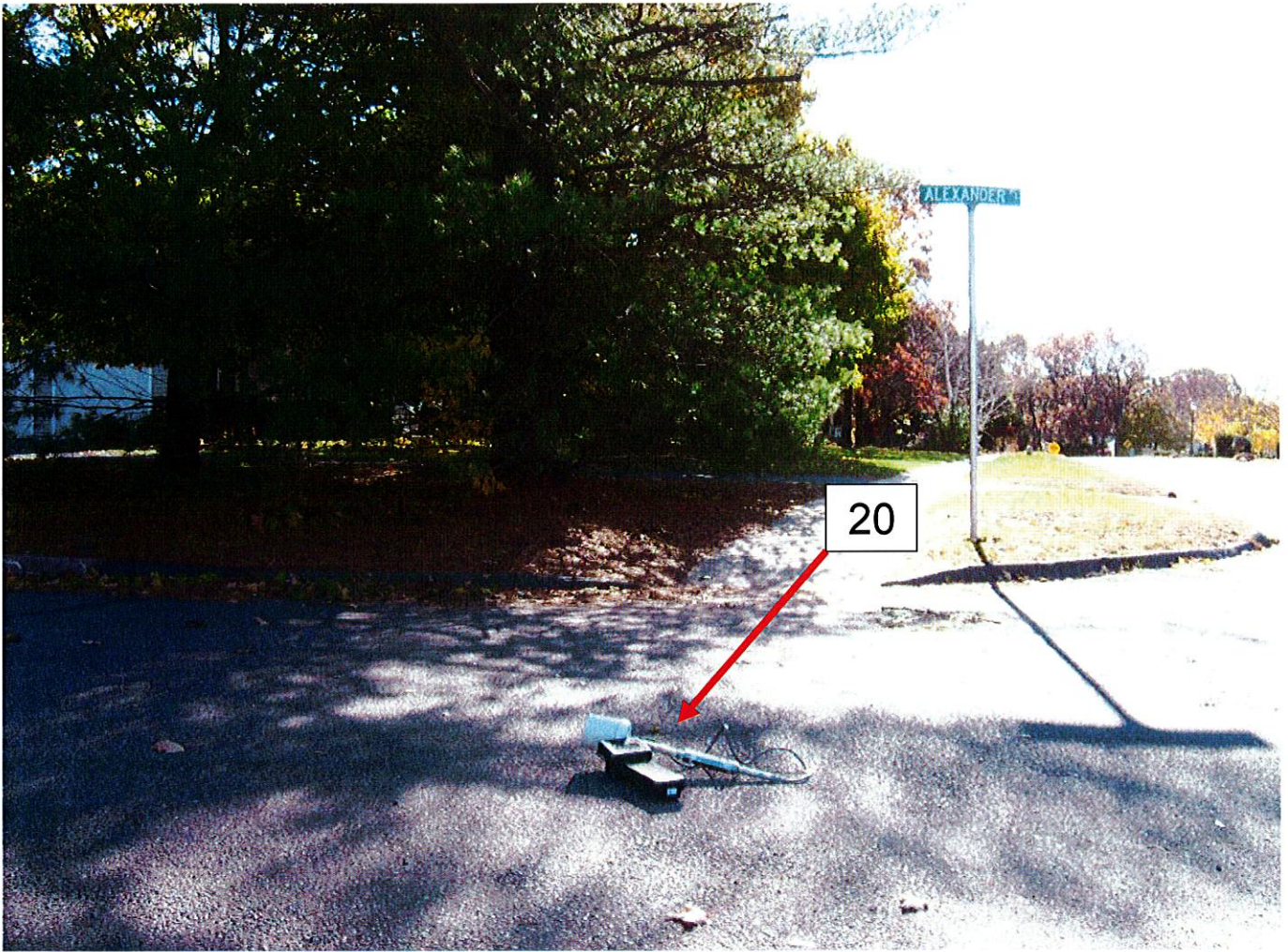


Figure 22: Measurement Location 20

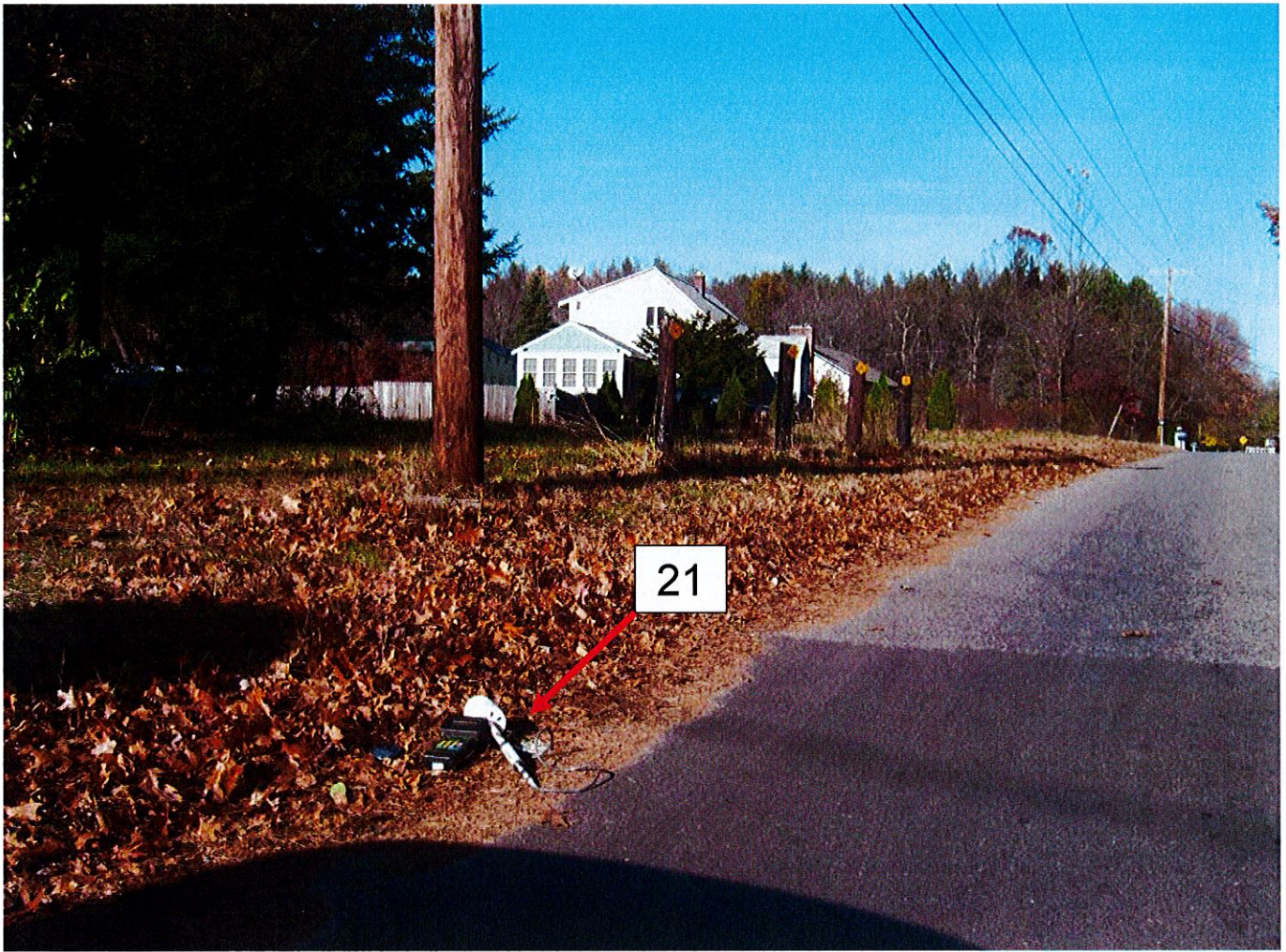


Figure 23: Measurement Location 21



Figure 24: Measurement Location 22

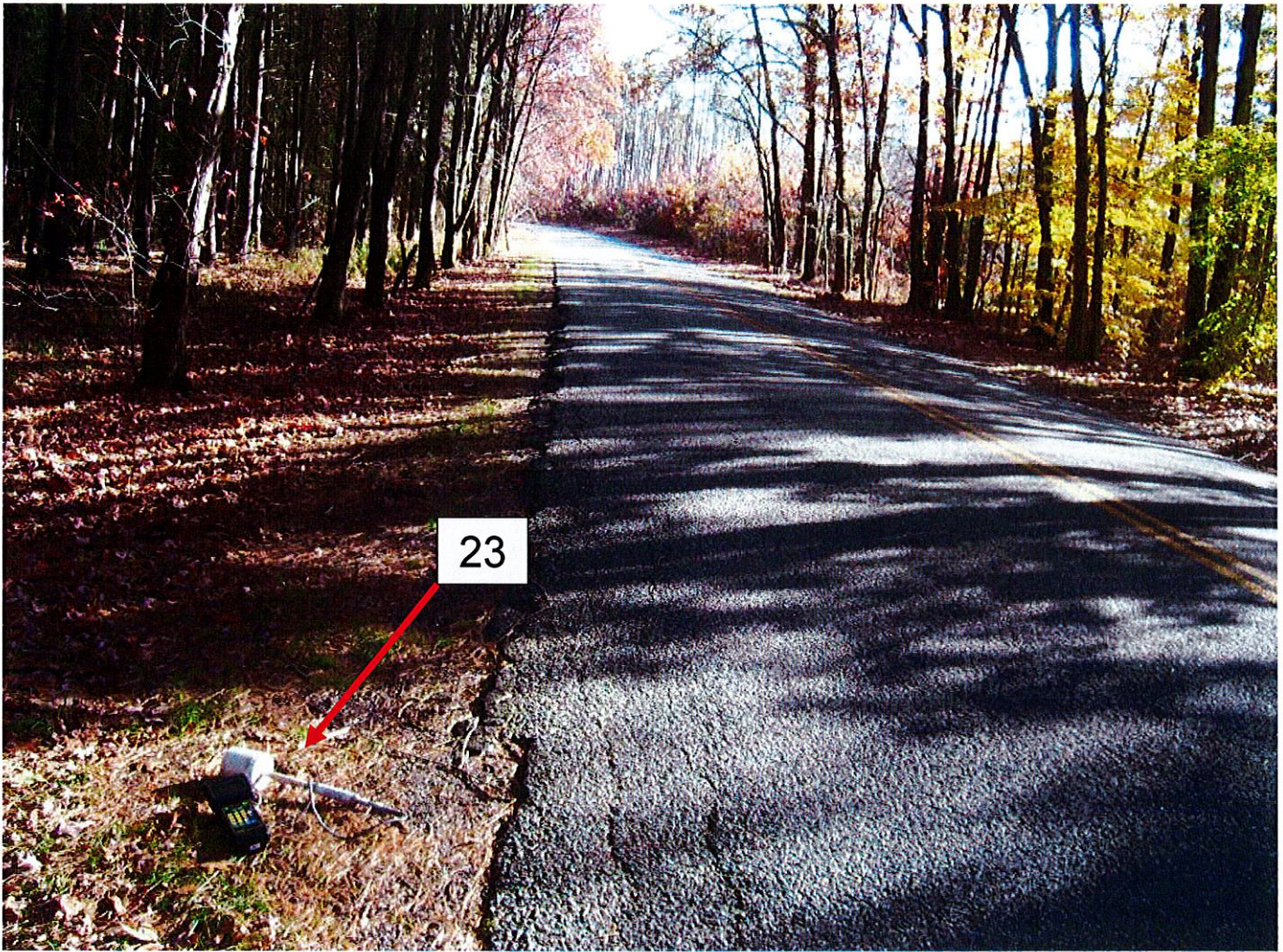


Figure 25: Measurement Location 23



Figure 26: Measurement Location 24



Figure 27: Measurement Location 25

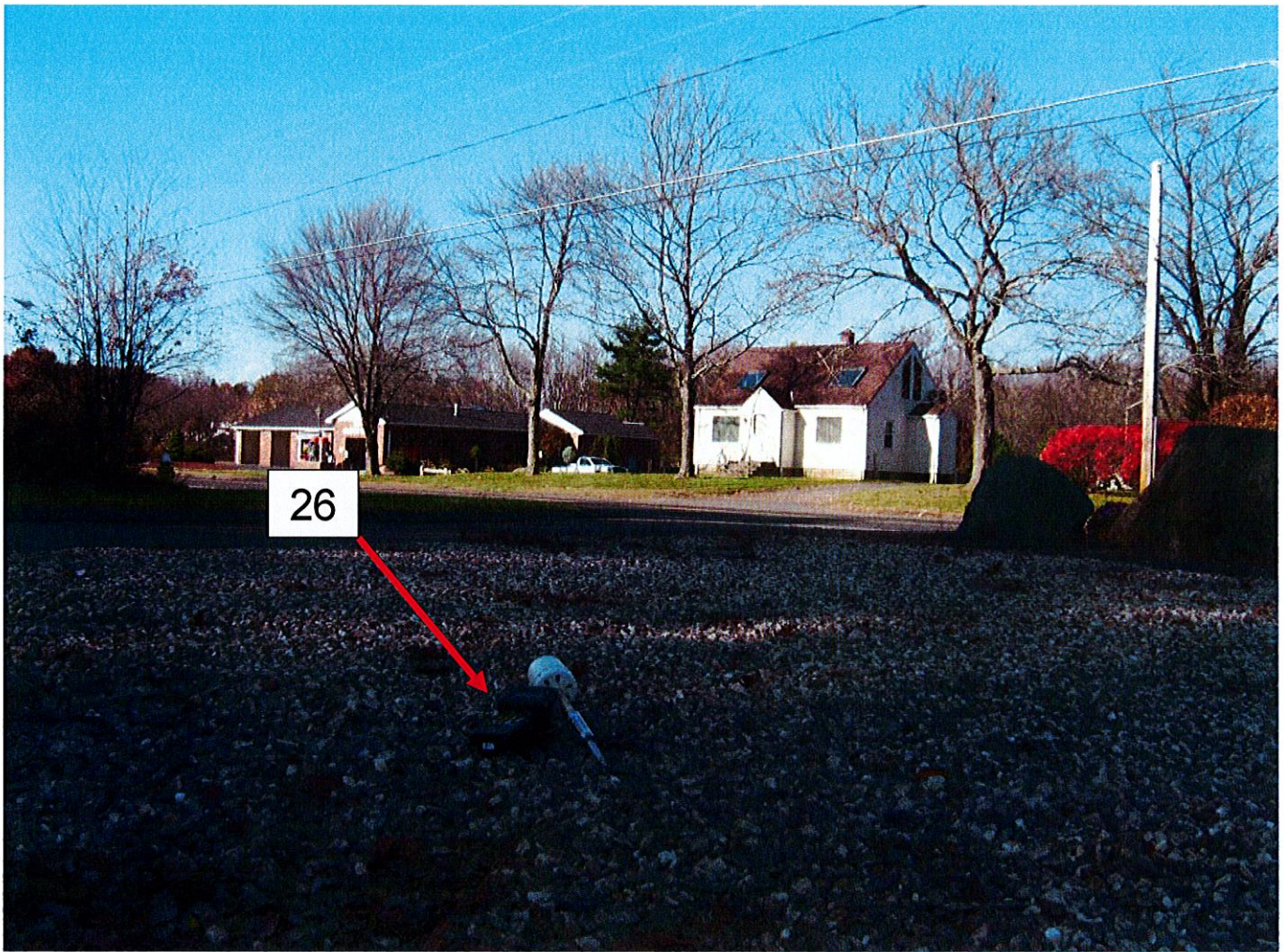


Figure 28: Measurement Location 26



Figure 29: Measurement Location 27



Figure 30: Measurement Location 28

Conclusion

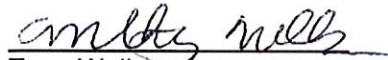
Publicly accessible areas in the vicinity of the wireless tower located at 90 Brookfield Ave, South Windsor, CT were surveyed and found to be within the mandated General Population/Uncontrolled limits for Maximum Permissible Exposure, as delineated in the Federal Communications Commission's Radio Frequency exposure rules published in 47 CFR 1.1307(b)(1)-(b)(3).

The maximum power density at the locations measured was predicted to be 13.03% MPE, after the addition of the Pocket Wireless antennas.

The above analysis shows that the proposed configuration will not substantially increase power density in the vicinity and that the site will be well within FCC limits.

Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The measurements were obtained with properly calibrated equipment using techniques in compliance with ANSI/IEEE Std. C95.3, ANSI/IEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.


Tony Wells
C Squared Systems

11/03/2008
Date

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

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

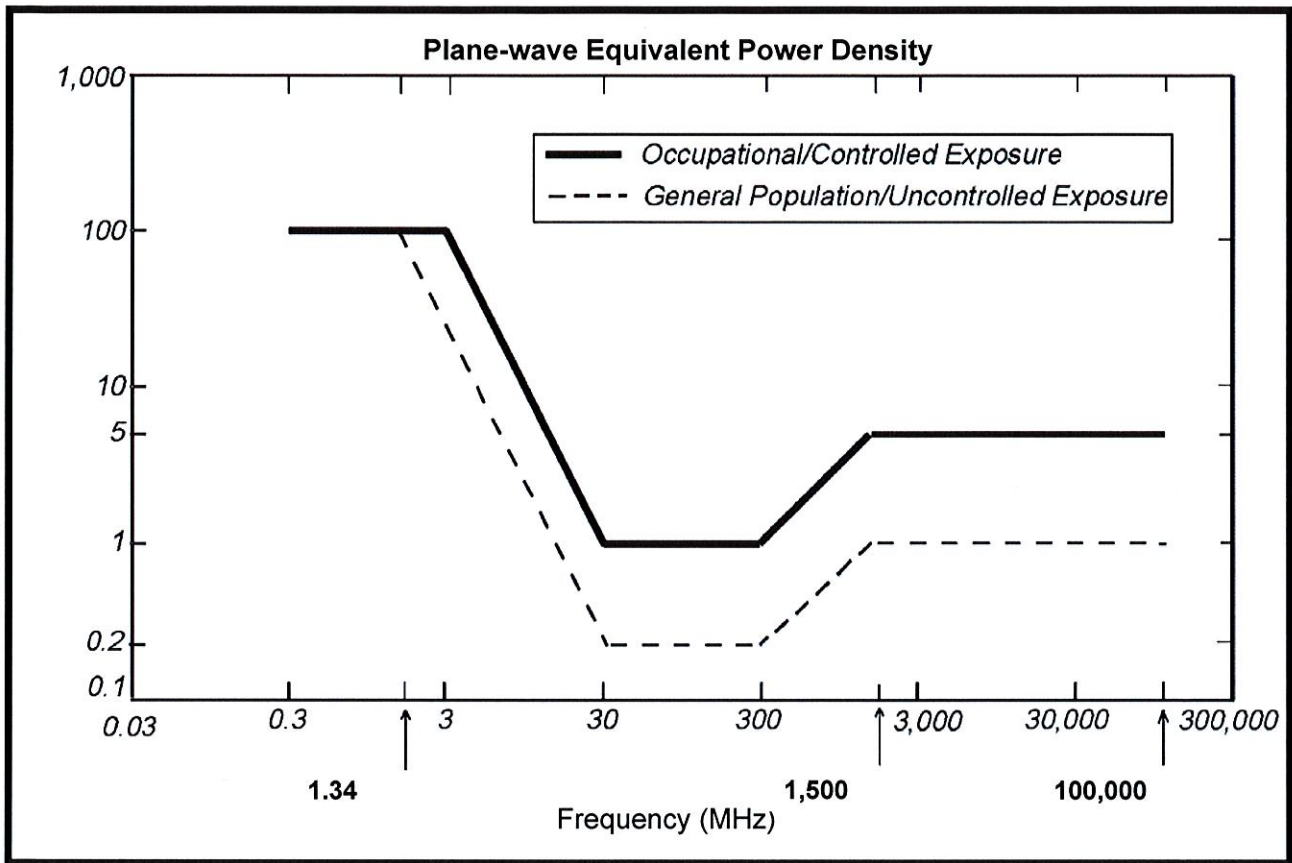
(B) Limits for General Population/Uncontrolled Exposure

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 HFCT1508A

90 Brookfield Street

South Windsor, Connecticut

Structural Analysis Report



Pocket Comm. - S. Windsor Site #HFCT1508A

Owner: Environmental Services, Inc.
South Windsor, Connecticut

September 19, 2008

MEI PROJECT ID: CT01313S-08V0

MALOUF ENGINEERING INTL., INC.



STRUCTURAL CONSULTANTS

17950 PRESTON ROAD, SUITE 720 ■ DALLAS, TEXAS 75252-5635 ■ TEL. 972 -783-2578 FAX 972-783-2583
www.maloufengineering.com





September 19, 2008

Bobby Carter
 FORCE 3 COMMUNICATIONS
 Columbia, SC

STRUCTURAL ANALYSIS

Structure/Make/Model:	120 ft Self-Supporting	Pi-Rod / U4.5 x 120'	
Client/Site Name/#:	Force 3 Comm. / Pocket Comm.	South Windsor	#HFCT1508A
Owner/Site Name/#:	Environmental Services, Inc.		
MEI Project ID:	CT01313S-08V0		
Location:	90 Brookfield St South Windsor, CT 06074	Hartford County FCC # N/A	
	LAT	41-51-15.84 N	LON 72-34-14.16 W

EXECUTIVE SUMMARY:

Malouf Engineering Int'l (MEI), as requested, has performed a structural analysis of the above mentioned structure to assess the impact of the changed condition as noted in Table 1.

Based on the stress analysis performed, the existing structure **is NOT in conformance** with the ANSI/TIA **222-F** Standard for the loading considered under the criteria listed and referenced in the report sections – tower rated at 139.1%.

The installation of the proposed condition of the Pocket Communications adding (3) Kathrein 742-213 Panel Antennas, leg mounted at Elev. 90 ft c.l. fed with (6) 7/8" Tx-Lines (2 rows of 3 ea.) is structurally NOT acceptable.

The tower will require strengthening modifications to about 3 leg sections in order to properly support the proposed loading considered.

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please contact us.

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Reviewed & Approved by:

Krishna Manda, PE
 Project Engineer


 E Mark Malouf, PE
 Connecticut #17715
 972-783-2578 ext. 106
 mmalouf@maloufengineering.com

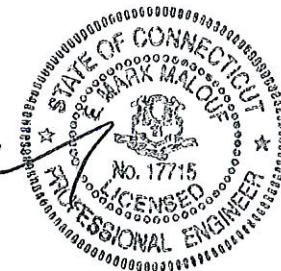


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1. INTRODUCTION & SCOPE

A structural analysis was performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. Bobby Carter, Force 3 Comm., LLC on behalf of Pocket Communications, to determine the acceptance of the proposed changed conditions in conformance with the ANSI/TIA-222-F Standard, "Structural Standard for Antenna Supporting Structures and Antennas".

The scope of this independent analysis is to determine the overall stability and the adequacy of structural members, foundations, and member connections, as available and stated. This analysis considers the structure to have been properly installed and maintained with no structural defects. Installation procedures and related loading are not with the scope of this analysis and should be performed and evaluated by a competent person of the erection contractor.

The different report sections detail the applicable information used in this evaluation, relating to the tower data, the appurtenances configuration and the wind and ice loading considered.

2. SOURCE OF DATA

The following information has been used in this evaluation as source data that accurately represent the existing structure and the related appurtenances:

	Source	Information	Reference
STRUCTURE			
Tower	MEI Acquired	Original Design Drawings as purchased from Valmont PiRod	Pi-Rod File#A-108216, DWG#116320-B Dated 03/11/1991
Foundation	MEI Acquired	Original Design Drawings as purchased from Valmont PiRod	Pi-Rod File#A-108216, DWG#116320-B Dated 03/11/1991
Material Grade	Available from supplied documents noted above-refer to Appendix		
CURRENT APPURTENANCES			
	Force 3 Comm. / Mr. Bobby Carter	As per recent Photos	Best estimated from photos made available dated 08/20/2008
CHANGED CONDITION			
	Force 3 Comm. / Mr. Bobby Carter	E-mail Instructions	Dated 08/20/2008

Background Information:

Based on available information, the following is known regarding this structure:

DESIGNER / FABRICATOR	Pi-Rod / U4.5
DESIGN CRITERIA	TIA/EIA-222-D -80/69 Mph+0/1/2" Ice
PRIOR STRUCTURAL MODIFICATIONS	Not Known

3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

CODE / STANDARD	ANSI/TIA-222-F-96 Standard	
LOADING CASES	<i>Full Wind:</i>	80 Mph (fastest-mile) – with No Radial Ice
	<i>Iced Case:</i>	69.28 Mph (fastest-mile) + 0.5" Radial Ice
	<i>Service:</i>	50 Mph

Appurtenances Configuration

The following appurtenances configuration has been considered:

Table 1: Proposed Changed Condition Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
90	Pocket	3	742-213 Panel Antennas	Leg Mounted	6	7/8" - stacked 2 rows of 3 on inside of leg

Table 2: Current and Reserved/Future Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
120		1	Lightning Rod			
		2	14' Whip antennas	Leg Mounted	1	7/8"
		1	2' Whip antenna	(1) Standoff	1	3/8"
98		2	10' Whips antenna	(3) Sidearm Mounts	2	7/8"
		1	14' Whip antenna		1	3/8"
78		2	10' Whip antennas	(3) Sidearm Mounts	2	3/8"
		3	Yagi antennas		3	3/8"
54		1	Yagi antenna	(3) Sidearm Mounts	1	3/8"
		1	20' Whip antenna		1	3/8"
		1	14' Omni antenna		1	3/8"
		1	6' Whip antenna		1	3/8"
34		1	6' Whip antenna	(1) Sidearm Mount	1	3/8"
		1	14' Whip antenna	(1) Sidearm Mount	1	3/8"
		1	10' Whip antenna	(1) Standoff Mount	1	3/8"
25		1	Yagi antenna		1	3/8"
23		1	Yagi w/ Radome		1	3/8"
21		1	Light			

Notes:

1. Please note appurtenances not listed above are to be removed/not present as per data supplied.
2. (I) = internal; (E) = External; (FZ) = Within Face Zone & (OFZ) = Outside Face Zone - as per TIA-222.
3. The above antennas, mounts, and lines represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please refer to Appendix 2 for EPA wind areas used in the calculations. Please contact MEI if any discrepancies are found.

4. ANALYSIS PROCEDURE

The subject structure is analyzed for feasibility of the installation of the proposed changed condition previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, RISATower (ver. 5.2.1.0), a commercially available program developed by C-Concepts, WI and now maintained by RISA Technologies. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead and temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure.

Assumptions

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

- This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities ('as-new' condition).
- The tower member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
- Some assumptions are made regarding antennas and mounts sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type & industry practice.
- Mounts/Platforms are considered adequate to support the loading. No actual analysis of the platform/mount itself is performed, with the analysis being limited to analyzing the structure.
- The soil parameters are as per data supplied or as assumed and stated in the calculations. Refer to the Appendix. If no data is available, the foundation system is assumed to support the structure with its new reactions.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report. All guy cable assemblies, as applicable, are assumed to develop the rated breaking strength of the wire.
- All prior structural modifications, if any, are assumed to be as per data supplied/available, and to have been properly installed and to be fully effective.

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalidated, MEI should be contacted to review any contradictory information to determine its effect.

5. ANALYSIS RESULTS

The results of the structural stress analysis based on data available and with the previous listed criteria, indicated the following:

Table 3: Stress Analysis Results

Component Type	Maximum Stress Ratio	Controlling Elev. (ft) / Component	Pass/Fail	Comment
LEGS	108.3%	80 - 60	Fail	
	101.2%	60 - 40	Acceptable	
	139.1%	40 - 20	Fail	
DIAGONALS	69.0%	60 - 40	Pass	
HORIZONTALS	35.3%	40 - 20	Pass	
FOUNDATION	64.0%	Bearing	Pass	

Notes:

1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
2. Refer to the Appendix 2 for more details on the member loads.
3. A maximum stress ratio between 100% and 105% may be considered as *Acceptable* according to industry standard practice.

6. FINDINGS & RECOMMENDATIONS

- Based on the rigorous stress analysis results, the subject structure is **rated at 139.1%** of its support capacity (controlling component: Legs) with the proposed changed condition considered. Please refer to Table 3 and to Appendix 2 for more details of the analysis results.
- Based on the stress analysis performed, the existing structure **is NOT in conformance** with the ANSI/TIA **222-F** Standard for the loading considered under the criteria listed and referenced in the report sections.
- ***The installation of the proposed condition of the Pocket Communications adding (3) Kathrein 742-213 Panel Antennas, leg mounted at Elev. 90 ft c.l. fed with (6) 7/8" Tx-Lines (2 rows of 3 ea.) is structurally NOT acceptable.***
- This tower is above its maximum support capacity for the appurtenances and loading criteria considered.
- Based on the analysis results and possible modification investigation, this structure would require the following estimated modifications in order to meet the previously noted requirements with the proposed changed condition:
 1. Modify leg members at elevations overstressed - about 3 sections- by additional strengthening and/or by bracing, as required.
- The preliminary structural modification cost can be approximately estimated to vary between \$9,000 to \$14,000 which would include design, labor and materials

Modification Design is Not within the scope of this report. The tower reinforcement design and detailing can be performed by MEI under a new consulting agreement.

7. REPORT DISCLAIMER

The engineering services rendered by Malouf Engineering International, Inc. ('MEI') in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.

The analysis performed and the conclusions contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following:

1. Proper alignment and plumbness.
2. Correct guy tensions, as applicable.
3. Correct bolt tightness or slip jacking of sleeved connections.
4. No significant deterioration or damage to any structural component.

Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae. MALOUF ENGINEERING INTERNATIONAL, INC. Assumes no obligation to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will MALOUF ENGINEERING INTERNATIONAL, INC. Have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of MALOUF ENGINEERING INTERNATIONAL, INC., if any, pursuant to this Report shall be limited to the total funds actually received by MALOUF ENGINEERING INTERNATIONAL, INC. For preparation of this Report.

Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. To prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of MALOUF ENGINEERING INTERNATIONAL, INC., Customer has informed MALOUF ENGINEERING INTERNATIONAL, INC. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by MALOUF ENGINEERING INTERNATIONAL, INC. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. MALOUF ENGINEERING INTERNATIONAL, INC. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.

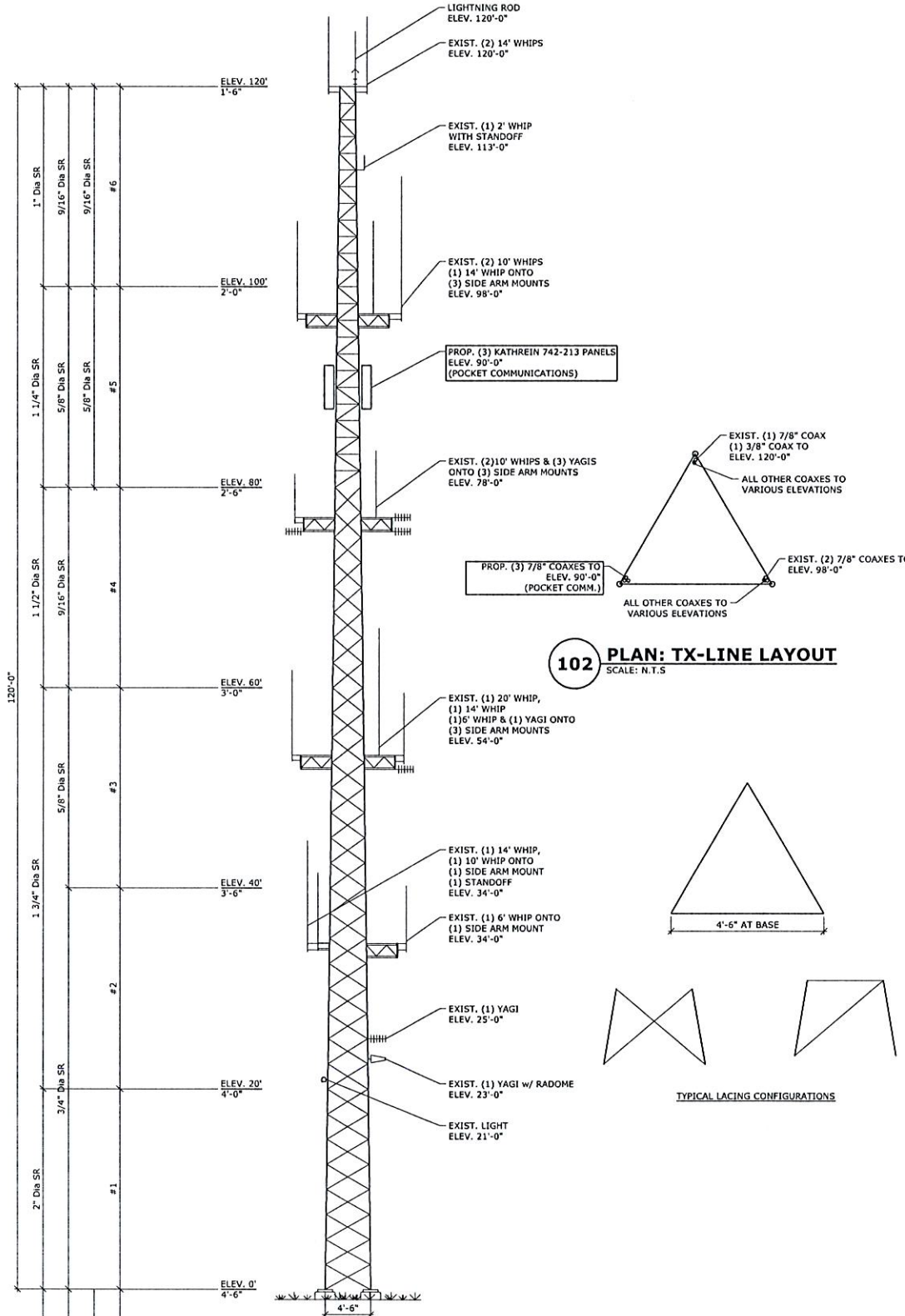
APPENDIX 1 - TOWER DRAWING

ELEVATION (FT.)	SECTION NUMBER	LEG BOLTS (QTY./DIA.)	DIAG. BOLTS (QTY./DIA.)
0-20	1	(2) 1.5"	N/A
20-40	2	(5) 0.625"	N/A
40-60	3	(4) 0.625"	N/A
60-80	4	(4) 0.625"	N/A
80-100	5	(3) 0.562"	N/A
100-120	6	(3) 0.5"	N/A

NOTE: ALL BOLTS A325N
*ANCHOR BOLTS

TOWER HEIGHT & TYPE:	120' SELF-SUPPORTING
SITE NAME:	SOUTH WINDSOR SITE #HFCT1508A
SITE LOCATION:	SOUTH WINDSOR, HARTFORD CO., CT
TOWER MANUF. / MODEL:	PI-ROD / U4.5 X 120'
ORIGINAL DESIGN CRITERIA:	TIA/EIA-222-D-80/69.3 MPH + 0/0.5" ICE
ANALYSIS CRITERIA:	ANSI/EIA 222-F-80/69.3 MPH + 0/0.5" ICE
SITE SPECIFICATIONS:	

TOWER DOES NOT MEET THE REQUIREMENTS OF TIA/EIA-222-F



101 ELEV: 120' S.S. TOWER
SCALE: 1" = 10'-0"

102 PLAN: TX-LINE LAYOUT
SCALE: N.T.S.

ALL SCALES SHOWN ARE BASED ON DRAWING SIZE OF 11" x 17"

NO.	DATE	ISSUED FOR CONSTRUCTION	BY	CHK	APP
0	08/19/08				



**SOUTH WINDSOR SITE
SITE #HFCT1508A**
90 BROOKFIELD STREET
SOUTH WINDSOR, HARTFORD CO., CT 06074

17950 PRESTON ROAD SUITE 700
DALLAS, TEXAS 75252-5635
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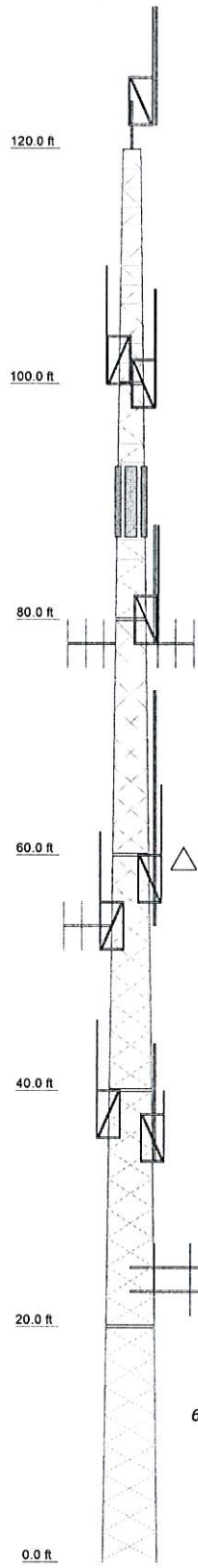
FORCE 3 COMM./ POCKET COMM.

TOWER ELEVATION AND SECTION

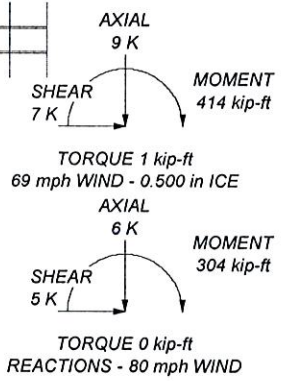
MEI PROJECT ID	SHEET NUMBER	REV
CT013135-08V0	S01	0

APPENDIX 2 - ANALYSIS PRINTOUT & GRAPHICS

Section	T1	T2	T3	T4	T5	T6	
Legs	SR 1	SR 1 1/4	SR 1 1/2	SR 1 3/4	SR 1 3/4	SR 2	
Diagonals	SR 9/16	SR 5/8	SR 9/16	SR 5/8	SR 5/8	SR 3/4	
Diagonal Grade			A36	A572-50	A572-50	A572-50	
Top Girts	SR 9/16	SR 5/8	SR 9/16	SR 5/8	SR 5/8	N.A.	
Bottom Girts	SR 9/16	SR 5/8	SR 9/16	SR 5/8	SR 5/8	N.A.	
Horizontals	SR 9/16	SR 5/8	SR 5/8	N.A.	N.A.	N.A.	
Face Width (ft)	1.5	Z	2.5	3	3.5	4	
# Panels @ (ft)		24 @ 1.64583			32 @ 2.46875		
Weight (K)	0.3	0.4	0.5	0.7	0.8	1.0	3.8



MAX. CORNER REACTIONS AT BASE:
 DOWN: 109 K
 UPLIFT: -102 K
 SHEAR: 4 K



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	120	Yagi	78
PD458-1	120	(3) Side Arm Mounts	78
PD458-1	120	PD200	54
2' Omni + Standoff	113	14' Omni	54
10' Omni	98	Yagi	54
10' Omni	98	6' Omni	54
PD458-1	98	(3) Side Arm Mounts	54
(3) Side Arm Mounts	98	6' Omni	34
742-213 Panel (Pocket Comm.)	90	PD458-1	34
742-213 Panel (Pocket Comm.)	90	10' Omni	34
742-213 Panel (Pocket Comm.)	90	(2) Side Arm Mounts + (1) Standoff	34
10' Omni	78	Yagi	25
10' Omni	78	Yagi w/ Radome	23
Yagi	78	Light	21
Yagi	78		

MATERIAL STRENGTH

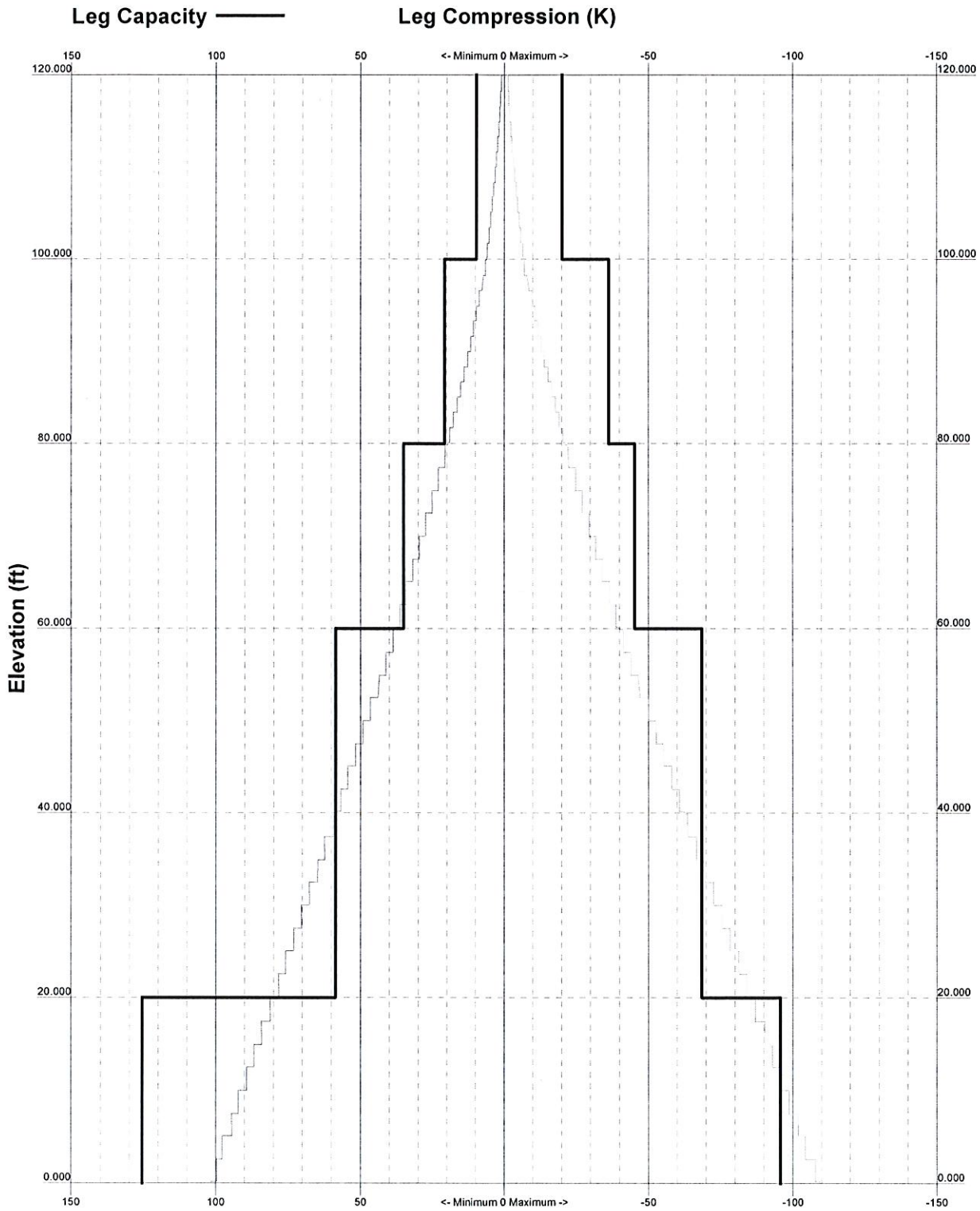
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

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: 136.2%

<p>Malouf Engineering Int'l Inc. 17950 Preston Road, Suite #720 Dallas, Texas 75252-5635 Phone: (972) 783-2578 FAX: (972) 783-2583</p>	Job: 120ft SST, South Windsor Site #HFCT1508A, CT
	Project: CT01313S-08V0
	Client: Force 3 Comm. / Pocket Communications Drawn by: MM App'd:
	Code: TIA/EIA-222-F Date: 09/19/08 Scale: NTS
	Path: E:\Projects\2007\HFCT1508A\120ft SST HFCT1508A\120ft SST HFCT1508A.dwg Dwg No. E-1

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



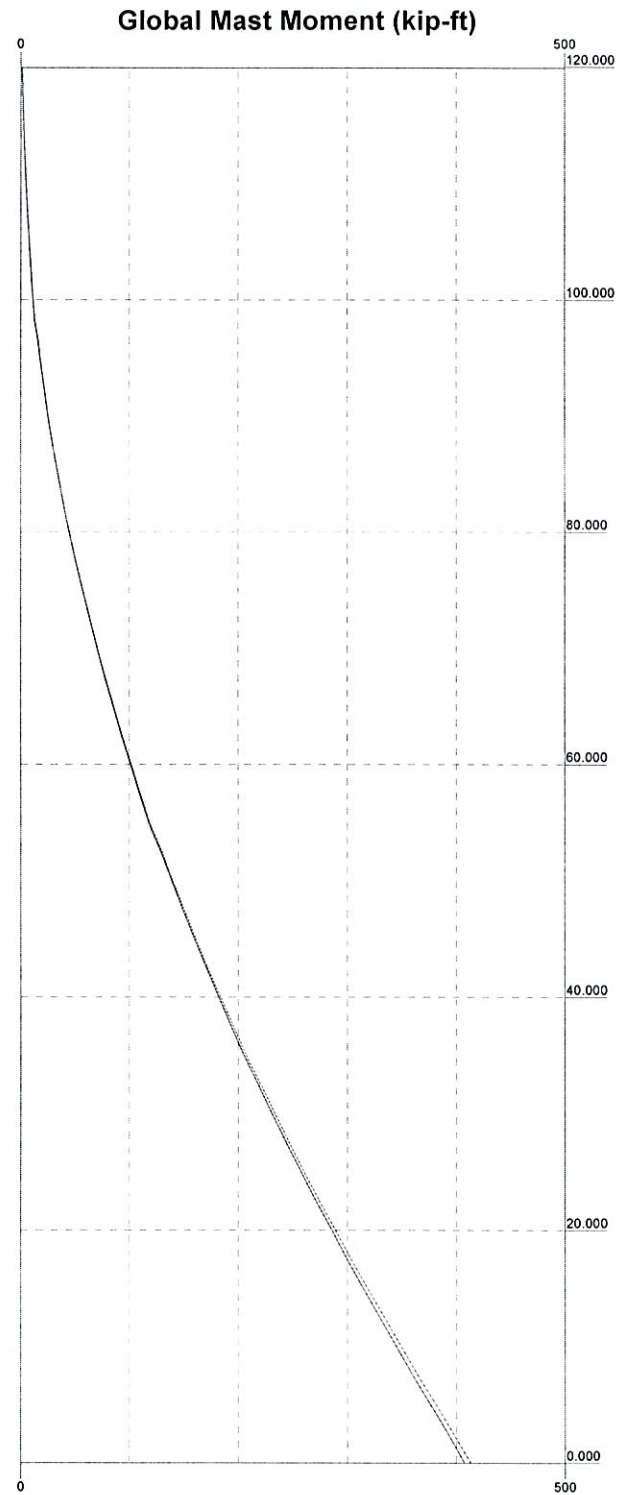
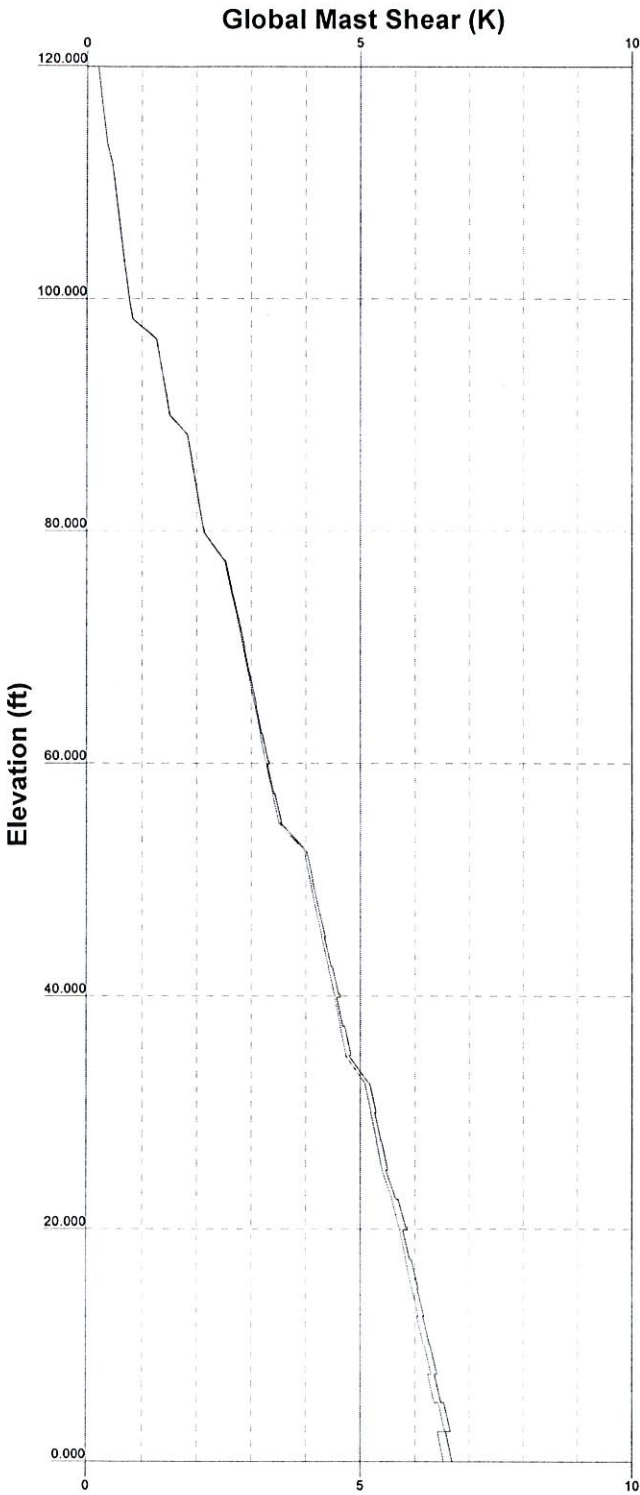
	Malouf Engineering Int'l Inc. 17950 Preston Road, Suite #720 Dallas, Texas 75252-5635 Phone: (972) 783-2578 FAX: (972) 783-2583			Job: 120ft SST, South Windsor Site #HFCT1508A, CT Project: CT01313S-08V0	
	Client: Force 3 Comm. / Pocket Communications		Drawn by: MM	App'd:	
	Code: TIA/EIA-222-F		Date: 09/19/08	Scale: NTS	
	Path:		Dwg No. E-3		E:\Work\2007\2007-09\CT01313S-08V0\F05-HFCT1508A\CT01313S-08V0-F05-HFCT1508A-2008-09-19\CT01313S-08V0.dwg

Vx

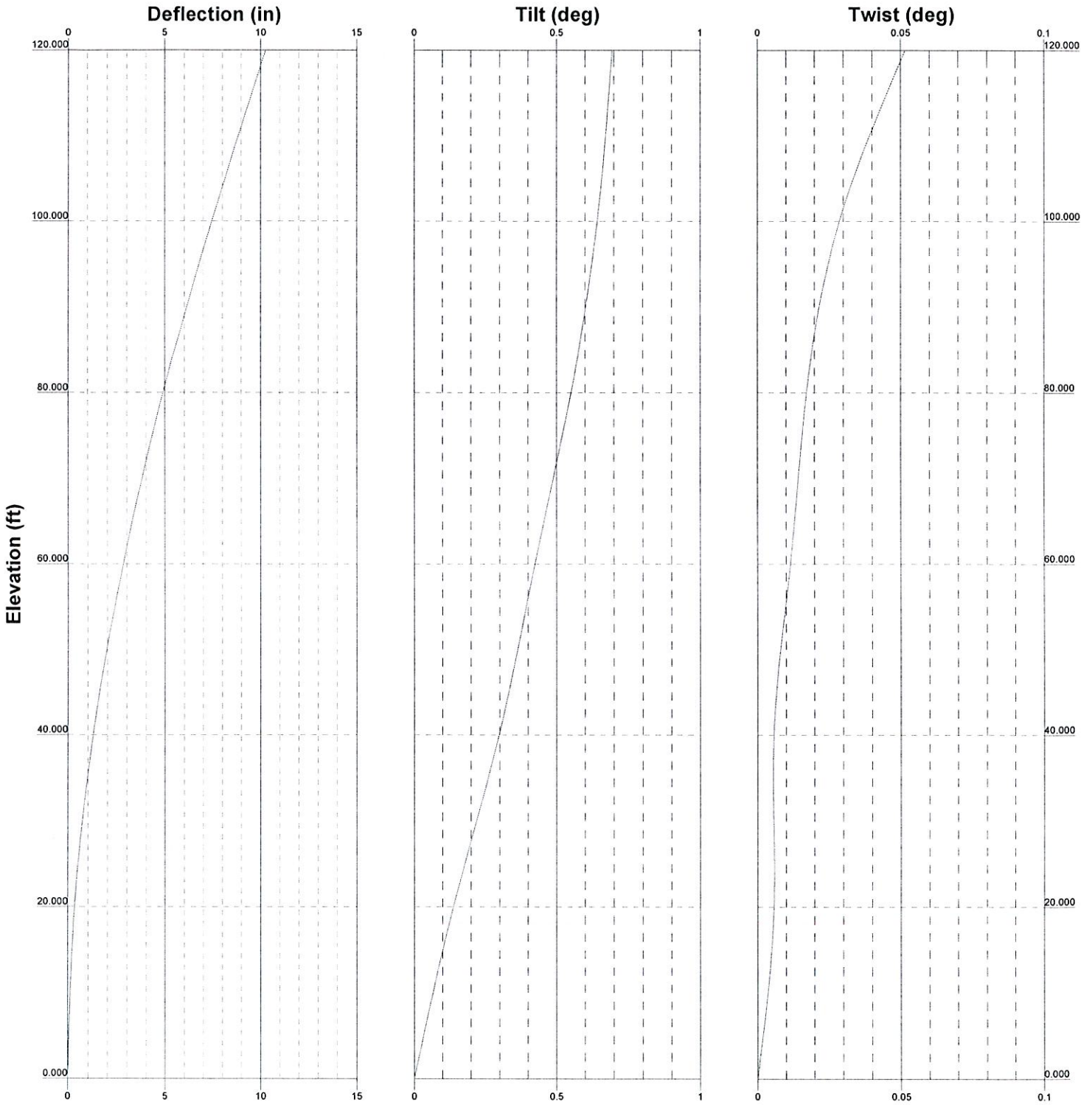
Vz

Mx

Mz



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	Project: CT01313S-08V0		
	Client: Force 3 Comm. / Pocket Communications	Drawn by: MM	App'd:
	Code: TIA/EIA-222-F	Date: 09/19/08	Scale: NTS
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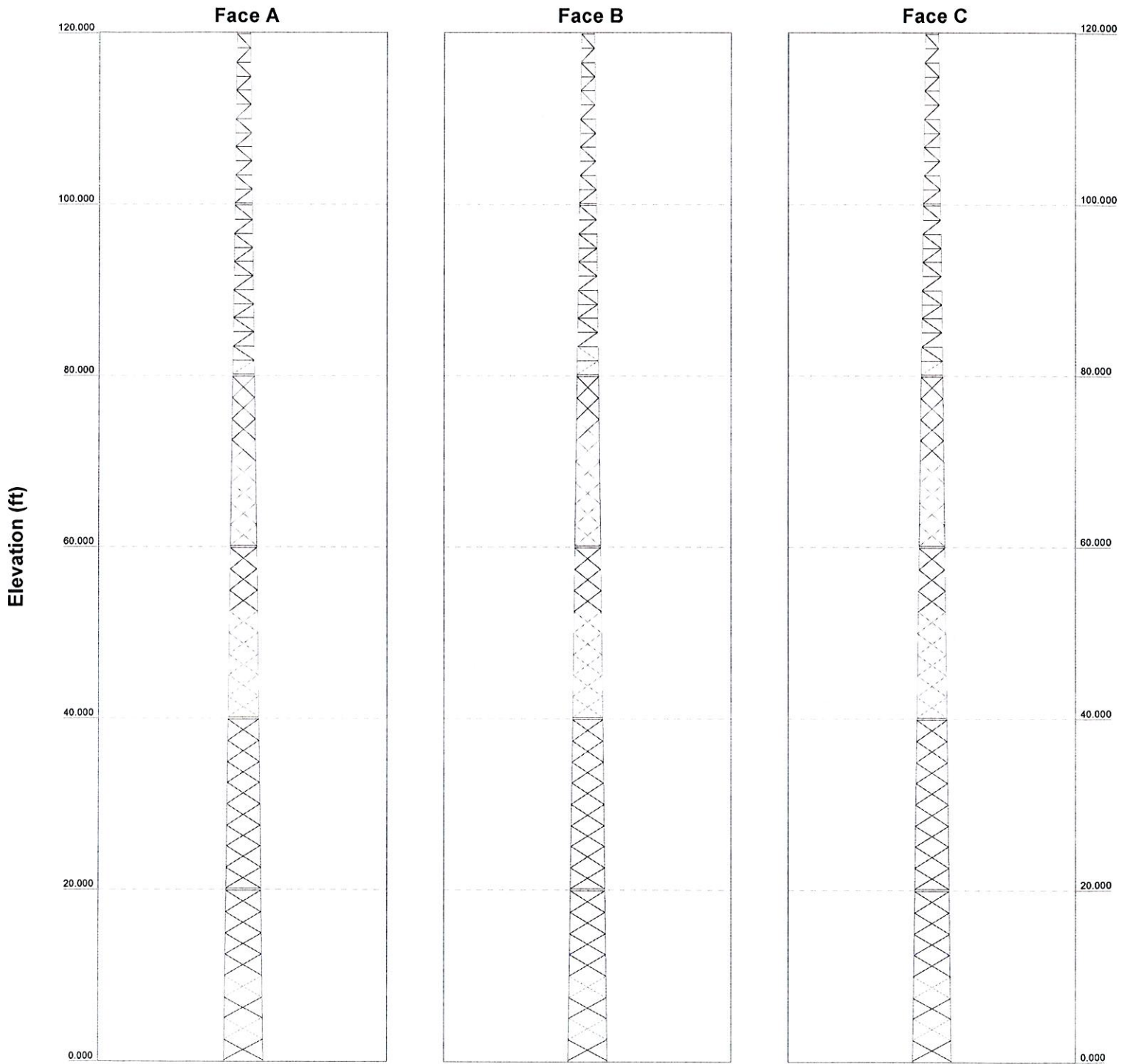


 <p>Malouf Engineering Int'l Inc. 17950 Preston Road, Suite #720 Dallas, Texas 75252-5635 Phone: (972) 783-2578 FAX: (972) 783-2583</p>	Job: 120ft SST, South Windsor Site #HFCT1508A, CT		
	Project: CT01313S-08V0		
	Client: Force 3 Comm. / Pocket Communications	Drawn by: MM	App'd:
	Code: TIA/EIA-222-F	Date: 09/19/08	Scale: NTS
Path:		Dwg No. E-5	

Stress Distribution Chart

0' - 120'

> 100%
 90%-100%
 75%-90%
 50%-75%
 < 50% Overstress



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	Project: CT01313S-08V0		
	Client: Force 3 Comm. / Pocket Communications	Drawn by: MM	App'd:
	Code: TIA/EIA-222-F	Date: 09/19/08	Scale: NTS
	Path:		Dwg No. E-8

RISATower Malouf Engineering Int'l Inc. 17950 Preston Road, Suite #720 Dallas, Texas 75252-5635 Phone: (972) 783-2578 FAX: (972) 783-2583	Job 120ft SST, South Windsor Site #HFCT1508A, CT	Page 1 of 7
	Project CT01313S-08V0	Date 23:26:27 09/19/08
	Client Force 3 Comm. / Pocket Communications	Designed by MM

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 120.000 ft above the ground line.

The base of the tower is set at an elevation of 0.000 ft above the ground line.

The face width of the tower is 1.500 ft at the top and 4.500 ft at the base.

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.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

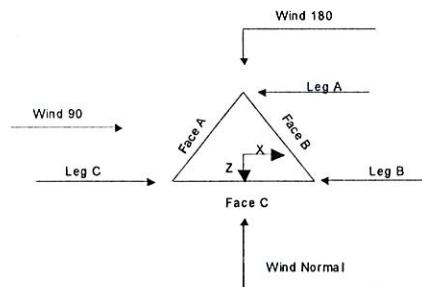
Pressures are calculated at each section.

Stress ratio used in tower member design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

RISATower Malouf Engineering Int'l Inc. 17950 Preston Road, Suite #720 Dallas, Texas 75252-5635 Phone: (972) 783-2578 FAX: (972) 783-2583	Job 120ft SST, South Windsor Site #HFCT1508A, CT	Page 2 of 7
	Project CT01313S-08V0	Date 23:26:27 09/19/08
	Client Force 3 Comm. / Pocket Communications	Designed by MM

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	120.000-100.000			1.500	1	20.000
T2	100.000-80.000			2.000	1	20.000
T3	80.000-60.000			2.500	1	20.000
T4	60.000-40.000			3.000	1	20.000
T5	40.000-20.000			3.500	1	20.000
T6	20.000-0.000			4.000	1	20.000

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	120.000-100.000	1.646	K Brace Left	No	Yes	1.500	1.500
T2	100.000-80.000	1.646	K Brace Left	No	Yes	1.500	1.500
T3	80.000-60.000	2.469	X Brace	No	No	1.500	1.500
T4	60.000-40.000	2.469	X Brace	No	No	1.500	1.500
T5	40.000-20.000	2.469	X Brace	No	No	1.500	1.500
T6	20.000-0.000	2.469	X Brace	No	No	1.500	1.500

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 120.000-100.000	Solid Round	1	A572-50 (50 ksi)	Solid Round	9/16	A36 (36 ksi)
T2 100.000-80.000	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 80.000-60.000	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	9/16	A36 (36 ksi)
T4 60.000-40.000	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 40.000-20.000	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T6 20.000-0.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
ft						
T1 120.000-100.000	Solid Round	9/16	A36 (36 ksi)	Solid Round	9/16	A36 (36 ksi)
T2 100.000-80.000	Solid Round	5/8	A36 (36 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 80.000-60.000	Solid Round	9/16	A36 (36 ksi)	Solid Round	9/16	A36 (36 ksi)
T4 60.000-40.000	Solid Round	5/8	A36 (36 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 40.000-20.000	Solid Round	5/8	A36 (36 ksi)	Solid Round	5/8	A36 (36 ksi)

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Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T6 20.000-0.000	Solid Round	5/8	(36 ksi) A36 (36 ksi)	Solid Round		(36 ksi) A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 120.000-100.000	None	Solid Round		A36 (36 ksi)	Solid Round	9/16	A36 (36 ksi)
T2 100.000-80.000	None	Solid Round		A36 (36 ksi)	Solid Round	5/8	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 120.000-100.000	Sleeve DS	0.500	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 100.000-80.000	Sleeve DS	0.563	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 80.000-60.000	Sleeve DS	0.625	4	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4 60.000-40.000	Sleeve DS	0.625	4	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5 40.000-20.000	Sleeve DS	0.625	5	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6 20.000-0.000	Flange	1.500	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
7/8 LDF2-50 (3/8 FOAM)	B	No	Ar (Leg)	120.000 - 0.000	1	1	0.250	1.110		0.001
7/8 LDF2-50 (3/8 FOAM)	B	No	Ar (Leg)	113.000 - 0.000	1	1	0.440	0.000		0.000
7/8 LDF2-50 (3/8 FOAM)	A	No	Ar (Leg)	98.000 - 0.000	2	2	0.250	1.110		0.001
7/8 LDF2-50 (3/8 FOAM)	A	No	Ar (Leg)	78.000 - 0.000	5	5	0.440	0.000		0.000
7/8 LDF2-50 (3/8 FOAM)	A	No	Ar (Leg)	54.000 - 0.000	4	4	0.440	0.000		0.000
7/8 LDF2-50 (3/8 FOAM)	B	No	Ar (Leg)	34.000 - 0.000	3	3	0.440	0.000		0.000
7/8 LDF2-50 (3/8 FOAM)	B	No	Ar (Leg)	25.000 - 0.000	1	1	0.440	0.000		0.000
7/8 LDF2-50 (3/8 FOAM)	B	No	Ar (Leg)	23.000 - 0.000	1	1	0.440	0.000		0.000
7/8 LDF2-50 (3/8 FOAM)	C	No	Ar (Leg)	90.000 - 0.000	3	2	1.390	1.110		0.001
(Pocket) LDF2-50 (3/8 FOAM)	B	No	Ar (Leg)	120.000 - 0.000	1	1	0.440	0.000		0.000

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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight	
			Horz	Lateral						
			Vert							
			ft	ft	°	ft	ft ²	ft ²	K	
Lightning Rod	A	From Leg	0.000		0.0000	120.000	No Ice	0.250	0.250	0.005
			0.000				1/2" Ice	0.350	0.350	0.009
			2.000							
PD458-1	A	From Leg	0.000		0.0000	120.000	No Ice	2.880	2.880	0.024
			0.000				1/2" Ice	4.345	4.345	0.046
			7.000							
PD458-1	B	From Leg	0.000		0.0000	120.000	No Ice	2.880	2.880	0.024
			0.000				1/2" Ice	4.345	4.345	0.046
			7.000							
2' Omni + Standoff	A	From Leg	0.000		0.0000	113.000	No Ice	1.500	1.500	0.120
			0.000				1/2" Ice	2.250	2.250	0.180
			0.000							
10' Omni	A	From Leg	0.000		0.0000	98.000	No Ice	2.000	2.000	0.010
			0.000				1/2" Ice	3.030	3.030	0.025
			5.000							
10' Omni	B	From Leg	0.000		0.0000	98.000	No Ice	2.000	2.000	0.010
			0.000				1/2" Ice	3.030	3.030	0.025
			5.000							
PD458-1	C	From Leg	0.000		0.0000	98.000	No Ice	2.880	2.880	0.024
			0.000				1/2" Ice	4.345	4.345	0.046
			7.000							
(3) Side Arm Mounts	C	None			0.0000	98.000	No Ice	5.500	5.500	0.225
							1/2" Ice	7.700	7.700	0.350
742-213 Panel (Pocket Comm.)	A	From Leg	0.000		0.0000	90.000	No Ice	5.135	2.869	0.022
			0.000				1/2" Ice	5.609	3.483	0.047
			0.000							
742-213 Panel (Pocket Comm.)	B	From Leg	0.000		0.0000	90.000	No Ice	5.135	2.869	0.022
			0.000				1/2" Ice	5.609	3.483	0.047
			0.000							
742-213 Panel (Pocket Comm.)	C	From Leg	0.000		0.0000	90.000	No Ice	5.135	2.869	0.022
			0.000				1/2" Ice	5.609	3.483	0.047
			0.000							
10' Omni	A	From Leg	0.000		0.0000	78.000	No Ice	2.000	2.000	0.010
			0.000				1/2" Ice	3.030	3.030	0.025
			5.000							
10' Omni	B	From Leg	0.000		0.0000	78.000	No Ice	2.000	2.000	0.010
			0.000				1/2" Ice	3.030	3.030	0.025
			5.000							
Yagi	B	From Leg	0.000		0.0000	78.000	No Ice	0.240	0.240	0.003
			0.000				1/2" Ice	0.432	0.432	0.004
			0.000							
Yagi	C	From Leg	0.000		0.0000	78.000	No Ice	0.240	0.240	0.003
			0.000				1/2" Ice	0.432	0.432	0.004
			0.000							
Yagi	C	From Leg	0.000		0.0000	78.000	No Ice	0.240	0.240	0.003
			0.000				1/2" Ice	0.432	0.432	0.004
			0.000							
(3) Side Arm Mounts	C	None			0.0000	78.000	No Ice	5.500	5.500	0.225
							1/2" Ice	7.700	7.700	0.350
PD200	A	From Leg	0.000		0.0000	54.000	No Ice	4.950	4.950	0.020
			0.000				1/2" Ice	7.059	7.059	0.057
			10.000							

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight K	
14' Omni	B	From Leg	0.000 0.000 7.000	0.0000	54.000	No Ice 1/2" Ice	2.700 3.375	2.700 3.375	0.010 0.025
Yagi	C	From Leg	0.000 0.000 0.000	0.0000	54.000	No Ice 1/2" Ice	0.240 0.432	0.240 0.432	0.003 0.004
6' Omni	C	From Leg	0.000 0.000 3.000	0.0000	54.000	No Ice 1/2" Ice	1.200 1.800	1.200 1.800	0.008 0.012
(3) Side Arm Mounts	C	None		0.0000	54.000	No Ice 1/2" Ice	5.500 7.700	5.500 7.700	0.225 0.350
6' Omni	B	From Leg	0.000 0.000 3.000	0.0000	34.000	No Ice 1/2" Ice	1.200 1.800	1.200 1.800	0.008 0.012
PD458-1	C	From Leg	0.000 0.000 7.000	0.0000	34.000	No Ice 1/2" Ice	2.880 4.345	2.880 4.345	0.024 0.046
10' Omni	A	From Leg	0.000 0.000 5.000	0.0000	34.000	No Ice 1/2" Ice	2.000 3.030	2.000 3.030	0.010 0.025
(2) Side Arm Mounts + (1) Standoff	A	None		0.0000	34.000	No Ice 1/2" Ice	5.500 7.700	5.500 7.700	0.225 0.350
Yagi	A	From Leg	2.000 0.000 0.000	0.0000	25.000	No Ice 1/2" Ice	0.240 0.432	0.240 0.432	0.003 0.004
Yagi w/ Radome	A	From Leg	2.000 0.000 0.000	0.0000	23.000	No Ice 1/2" Ice	2.780 5.004	2.780 5.004	0.016 0.021
Light	B	From Leg	0.500 0.000 0.000	0.0000	21.000	No Ice 1/2" Ice	1.500 2.250	1.500 2.250	0.015 0.022

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp

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Comb. No.	Description
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	23	108.963	2.971	-1.770
	Max. H _x	23	108.963	2.971	-1.770
	Max. H _y	17	-101.535	-3.820	2.264
	Min. Vert	17	-101.535	-3.820	2.264
	Min. H _x	17	-101.535	-3.820	2.264
	Min. H _z	23	108.963	2.971	-1.770
Leg B	Max. Vert	19	108.984	-2.963	-1.785
	Max. H _x	25	-101.514	3.810	2.280
	Max. H _y	25	-101.514	3.810	2.280
	Min. Vert	25	-101.514	3.810	2.280
	Min. H _x	19	108.984	-2.963	-1.785
	Min. H _z	19	108.984	-2.963	-1.785
Leg A	Max. Vert	15	109.104	0.017	3.459
	Max. H _x	24	2.929	0.541	-0.522
	Max. H _z	15	109.104	0.017	3.459
	Min. Vert	21	-101.394	-0.019	-4.439
	Min. H _x	18	2.929	-0.541	-0.522
	Min. H _z	21	-101.394	-0.019	-4.439

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	120 - 100	10.262	27	0.6925	0.0527
T2	100 - 80	7.437	27	0.6420	0.0292
T3	80 - 60	4.895	27	0.5488	0.0192
T4	60 - 40	2.814	27	0.4259	0.0136
T5	40 - 20	1.263	27	0.2984	0.0082
T6	20 - 0	0.318	27	0.1398	0.0046

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Critical Deflections and Radius of Curvature - Service Wind

Elevation <i>ft</i>	Appurtenance	Gov. Load Comb.	Deflection <i>in</i>	Tilt <i>°</i>	Twist <i>°</i>	Radius of Curvature <i>ft</i>
120.000	Lightning Rod	27	10.262	0.6925	0.0527	63133
113.000	2' Omni + Standoff	27	9.258	0.6777	0.0434	45095
98.000	10' Omni	27	7.166	0.6348	0.0276	14961
90.000	742-213 Panel	27	6.117	0.6011	0.0228	12204
78.000	10' Omni	27	4.664	0.5372	0.0186	9871
54.000	PD200	27	2.291	0.3894	0.0119	8807
34.000	6' Omni	27	0.909	0.2525	0.0070	7478
25.000	Yagi	27	0.489	0.1795	0.0055	6479
23.000	Yagi w/ Radome	27	0.415	0.1634	0.0051	6315
21.000	Light	27	0.349	0.1475	0.0048	6290

Section Capacity Table

Section No.	Elevation <i>ft</i>	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	120 - 100	Leg	1	1	6.181	9.752	63.4	Pass
T2	100 - 80	Leg	1 1/4	79	19.680	20.787	94.7	Pass
T3	80 - 60	Leg	1 1/2	157	37.682	35.153	107.2	Fail X
T4	60 - 40	Leg	1 3/4	214	58.294	58.590	99.5	Pass
T5	40 - 20	Leg	1 3/4	271	79.816	58.590	136.2	Fail X
T6	20 - 0	Leg	2	330	-109.140	95.665	114.1	Fail X
T1	120 - 100	Diagonal	9/16	11	-0.656	2.285	28.7	Pass
T2	100 - 80	Diagonal	5/8	89	-1.462	2.605	56.1	Pass
T3	80 - 60	Diagonal	9/16	168	-1.172	1.791	65.5	Pass
T4	60 - 40	Diagonal	5/8	225	-1.496	2.247	66.6	Pass
T5	40 - 20	Diagonal	3/4	282	-1.751	3.826	45.8	Pass
T6	20 - 0	Diagonal	3/4	342	-2.024	3.284	61.6	Pass
T1	120 - 100	Horizontal	9/16	56	-0.052	4.520	1.1	Pass
T2	100 - 80	Horizontal	5/8	121	-0.125	4.473	2.8	Pass
T1	120 - 100	Top Girt	9/16	5	0.141	7.155	2.0	Pass
T2	100 - 80	Top Girt	5/8	83	-0.233	5.199	4.5	Pass
T3	80 - 60	Top Girt	9/16	162	-0.132	2.451	5.4	Pass
T4	60 - 40	Top Girt	5/8	217	-0.018	2.588	0.7	Pass
T5	40 - 20	Top Girt	5/8	274	-0.097	1.875	5.2	Pass
T6	20 - 0	Top Girt	5/8	331	-0.161	1.436	11.2	Pass
T1	120 - 100	Bottom Girt	9/16	8	-0.200	3.672	5.4	Pass
T2	100 - 80	Bottom Girt	5/8	86	-0.498	3.691	13.5	Pass
T3	80 - 60	Bottom Girt	9/16	163	-0.319	1.681	19.0	Pass
T4	60 - 40	Bottom Girt	5/8	220	-0.438	1.882	23.3	Pass
T5	40 - 20	Bottom Girt	5/8	277	-0.483	1.425	33.9	Pass
Summary								
Leg (T5)							136.2	Fail X
Diagonal (T4)							66.6	Pass
Horizontal (T2)							2.8	Pass
Top Girt (T6)							11.2	Pass
Bottom Girt (T5)							33.9	Pass
Bolt Checks							99.7	Pass
RATING =							136.2	Fail X

***** FOUNDATION ANALYSIS PROGRAM *****
* Spread Footing Analysis *
* (c) 1999, Malouf Engineering Intl., Inc. *

MEI JOB NUMBER = CT01313S-0RVO
DESCRIPTION = 120' SST / FOUNDATION CHECK
SITE NAME = SOUTH WINDSOR SITE # HFCT1508A, CT
CLIENT NAME = FORCE 3 COMM. / POCKET COMM.
CHECK CODE = TIA/EIA-222-REV-F
TIME/DATE/FILE = 22:53:50 / 09-19-2008 / CT01313S.dat

INPUT DATA

* LOADS *
COMPRESSION FORCE (1 PEDESTAL) = 9.000 KIPS
UPLIFT FORCE (1 PEDESTAL) = .000 KIPS
SHEAR FORCE (1 PEDESTAL) = 7.000 KIPS
MOMENT = 414.000 KIP-FT
ECCENTRICITY OF AXIAL LOADS = .000 FT

* FOOTING DIMENSIONS AND PROPERTIES *

DEPTH OF FOOTING = 6.000 FT
FOOTING DIMENSIONS (L X B) = 14.000 x 14.000 FT
THICKNESS OF FOOTING = 3.000 FT (FOOTING HAS NO TOE)
NUMBER OF PEDESTALS / TYPE = 1 / TRIANGULAR
PEDESTAL DIAMETER = 4.500 FT
EXTENSION ABOVE GRADE = .500 FT
CONCRETE DENSITY = .150 KCF
GROUNDWATER LEVEL BELOW BOTTOM OF FOUNDATION

* FACTOR OF SAFETY VALUES *

F.O.S. BEARING PRESSURE = 2.000
F.O.S. CONCRETE WEIGHT = 1.500 / 1.500
F.O.S. SOIL WEIGHT = 2.000 / 1.500
F.O.S. UPLIFT = 2.000

* SOIL PROPERTIES *

ULTIMATE BEARING CAPACITY = 4.000 KSF
SOIL DENSITY = .100 KCF
INTERNAL ANGLE OF FRICTION = 28.000 DEG
SOIL COHESION (FOR UPLIFT) = .000 KSF (PAD PERIMETER)
PASSIVE PRESSURE = .277 KCF (Kp= 2.77)
DEPTH NEGLECTED FOR PASSIVE PR. = 1.500 FT
BASE SOIL/CONCRETE FRICTION = .050

*** COMMENTS ***

-FOUNDATION DATA FROM PI-ROD DWGS, REF. FILE #A-108216 DATED 3/11/1991.
-GEO-TECHNICAL REPORT IS NOT MADE AVAILABLE. ASSUMED SOIL PARAMETERS AS
PER FOUNDATION NOTES ON PIROD DWG.

RESULTS

VOL./WT. OF SOIL ABOVE = 540.3 FT3 / 54.029 KIPS (FOR OVERTURNING)
VOL./WT. OF SOIL WEDGE = 33.5 FT3 / 3.350 KIPS (FOR OVERTURNING)
VOL./WT. OF PEDESTAL(S) = 142.0 FT3 / 14.198 KIPS (FOR OVERTURNING)
VOL./WT. OF FOOTING = 55.7 FT3 / 8.350 KIPS
588.0 FT3 / 88.200 KIPS
TOTAL RESISTING MOMENT = 1202.4 KIP-FT
TOTAL OVERTURNING MOMENT = 459.5 KIP-FT
F.O.S. OVERTURNING = 2.617 > 1.500 (OK) R= .573

SOIL PRESSURES (KSF) = 1.856 GROSS / .617 IN-SITU / .000 PMIN
FRICTION RESISTANCE(ALLW) = .000 KIPS (SKF= .000KSF)
TOTAL DOWNLOAD CAPACITY = 2.000 KSF > 1.239 KSF (OK) R= .620
SOIL SHEAR CAPACITY = 34.90 (PASSIVE) + 3.67 (FRICTION)
38.6 KIPS > 7.0 KIPS (OK) R= .181
UPLIFT CAPACITY = 98.5 KIPS > .0 KIPS (OK) R= .000
PUNCHING CHECK (WIDE BEAM) = 93.1 PSI > 9.6 PSI (OK) R= .103
(2-WAY) = 186.2 PSI > 2.4 PSI (OK) R= .013

REINFORCEMENT CHECK (CIRCULAR PEDESTAL) L= 3.50' DIA= 54.0" FC= 3000 PSI

FACTORED MOMENT LOAD = 633.39 KIP-FT
FACTORED COMPRESSION LOAD = 15.60 KIPS (ECC=584.66")
REINFD. COMPR. CAPACITY = 33.09 KIPS (COMPR. & MOMENT: TENSION CONTROLS)
REQUIRED STEEL AREA = 6.28 IN2 (COMPR. AND MOMENT)
REQUIRED STEEL AREA = 11.45 IN2 (ACI MIN.= 0.005A)
TOTAL BAR AREA PROVIDED = 14.14 IN2 (18 x NO. 8 BARS) / FY= 60.KSI, C= 3.0"
THE TOTAL BAR AREA PROVIDED IS SUFFICIENT.
VERT. BAR CLEAR SPACING = 7.38 IN

REINFORCEMENT CHECK (FOOTING) W= 14.00' THK=36.00" FC= 3000 PSI

FACTORED MOMENT LOAD = 401.71 KIP-FT (UPLIFT)
FACTORED MOMENT LOAD = 663.72 KIP-FT (DOWNLOAD)
REQUIRED STEEL AREA = 4.06 IN2 (DUE TO MAXIMUM MOMENT)
REQUIRED STEEL AREA = 10.89 IN2 (ACI MIN. = 0.0018Bd)
TOTAL BAR AREA PROVIDED = 11.78 IN2 (15 x NO. 8 BARS) / FY= 60.KSI, C= 3.0"
THE TOTAL BAR AREA PROVIDED IS SUFFICIENT.
BAR SPACING C/C (3" COVER) = 11.57 IN