



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

Douglas L. Culp
Real Estate Consultant

HAND DELIVERED

February 10, 2011

Honorable Daniel F. Caruso, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

ORIGINAL
ORIGINAL

RECEIVED
FEB 10 2011
CONNECTICUT
SITING COUNCIL

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-communications facility located at 82 Lovely Street Farmington, CT (owner Verizon Wireless)

Dear Chairman Caruso and Members of the Council:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") capability, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

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

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

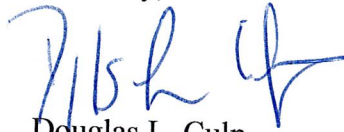
The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within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

1. The height of the overall structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

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

Sincerely,



Douglas L. Culp
Real Estate Consultant

Attachments

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

82 Lovely Street Farmington, CT
Site Number 1061
Exempt Mods – 5/94, 6/00 and 9/02

Tower Owner/Manager: AT&T Mobility

Equipment configuration: Monopole

Current and/or approved:

Three EMS panel antennas @ 102 ft
Six TMA's @ 100 ft
Nine runs (9) 1 1/4" Coax
Equipment Shelter

Planned Modifications:

Remove existing antennas and TMA's
Install six Powerwave P65-15XLH antennas (or equiv.) @ 102 ft
Install six Powerwave TMA's (TT19-08BP111-001) @ 100 ft

Power Density:

Calculations for current operations at the site indicate a cumulative radio frequency electromagnetic radiation power density, measured at the tower base, of approximately 25.8 % of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following AT&T's planned modifications would be approximately 39.7 % of the standard.

Existing

Other Users *							9.94
AT&T TDMA *	102	880 - 894	16	100	0.0553	0.5867	9.43
AT&T GSM *	102	1900 Band	2	427	0.0295	1.0000	2.95
AT&T GSM *	102	880 - 894	2	296	0.0205	0.5867	3.49
Total							25.8%

* Per CSC records.

Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm ²)	Standard Limits (mW/cm ²)	Percent of Limit
Other Users *							25.08
AT&T GSM	102	880 - 894	4	296	0.0409	0.5867	6.97
AT&T GSM	102	1900 Band	2	427	0.0295	1.0000	2.95
AT&T UMTS	102	1900 Band	1	500	0.0173	1.0000	1.73
AT&T UMTS	102	880 - 894	1	500	0.0173	0.5867	2.95
Total							39.7%


* Per CSC records.

Structural information:

The attached structural analysis (GPD Associates, 2/11) demonstrates that the tower and foundation have sufficient structural capacity to accommodate the proposed equipment modifications.

PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
 SITE ADDRESS: 82 LOVELY STREET
 FARMINGTON, CT 06098
 LATITUDE: 41.761389 N 41° 45' 41" N
 LONGITUDE: -72.897328 W -72° 53' 15.1" W
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES
 CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY
 NOC# 856-915-5600



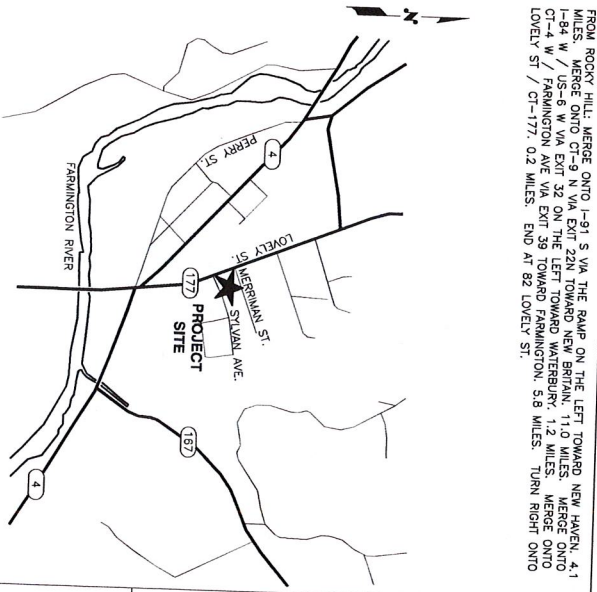
at&t

SITE NUMBER: CT1061
SITE NAME: UNIONVILLE

DRAWING INDEX

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T-1 GENERAL NOTES	1
GN-1 COMPOUND & EQUIPMENT PLAN	1
A-1 ANTENNA LAYOUT AND ELEVATION	1
G-1 GROUNDING, ONE-LINE DIAGRAM & DETAILS	1

VICINITY MAP





FROM ROCKY HILL: MERGE ONTO I-81 S. VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. 4.1 MILES. MERGE ONTO CT-9 N. VIA EXIT 22N TOWARD BURLINGTON. 11.0 MILES. MERGE ONTO I-84 W / US-6 W VIA EXIT 32 ON THE LEFT TOWARD WATERBURY. 1.2 MILES. MERGE ONTO CT-4 W / FARMINGTON AVE VIA EXIT 39 TOWARD FARMINGTON. 5.9 MILES. TURN RIGHT ONTO LOVELY ST / CT-177. 0.2 MILES. END AT 82 LOVELY ST.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T WIRELESS. ANY DUPLICATION OR REPRODUCTION OF THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF AT&T WIRELESS IS STRICTLY PROHIBITED. REPRODUCTION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSIBLE BY AT&T TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY SPECIAL ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T WIRELESS PROJECT MANAGER IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL BEFORE YOU DIG

CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT

NO.	DATE	ISSUED FOR	BY	CHK'D BY	DESIGNED BY	DRAWN BY	DATE	NO.	DATE	ISSUED FOR	BY	CHK'D BY	DESIGNED BY	DRAWN BY	DATE
1	10/28/11	CONSTRUCTION PLAN													
0	11/20/10	ISSUED FOR CONSTRUCTION													

SCALE: NOT SHOWN

AT&T
 TITLE SHEET
 (2ND SHEET)
 DRAWING NUMBER
 1061.01
 1-1



Hudson Design Group
 1400 GREGORY STREET
 N. ANDOVER, MA 01862
 TEL: 978.682.6553
 FAX: 978.682.9555



SIATD Communications
 22 KEELWADON DRIVE
 SALEM, NH 03079

SITE NUMBER: CT1061
 SITE NAME: UNIONVILLE
 82 LOVELY STREET
 FARMINGTON, CT 06098
 HARTFORD COUNTY



500 ENTERPRISE DRIVE, SUITE 3A
 ROCKY HILL, CT 06087

GROUNDING NOTES

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


GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR - SAI
SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
OWNER - AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO DETERMINE THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND STANDARDS. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND CONPLY WITH PUBLIC WORKS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY CARRIED OUT SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SEALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE KITTING LIST AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND TELECOM CABLES AS SHOWN ON THE POWER, GROUNDING AND/OR SHALL ADD NEW TRAYS. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENT, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP AND EXISTING FACILITY AS CORRAL CABLES AND OTHER ITEMS REMOVED FROM THE DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE 4000 PSI STRENGTH AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAIL, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (FY = 36 ksi) UNLESS OTHERWISE NOTED. ALL WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND WEATHER SHALL BE IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UNITS SPECIFICATIONS AND GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES.
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ANY DISCREPANCY OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN. ALL WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION, EQUIPMENT AND HIGH VOLTAGE SHALL BE PERFORMED BY WORKERS THAT COULD EXPOSE THE WORKER TO PERSONAL AND ENVIRONMENTAL DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY WITH JURISDICTION (A.H.J.) FOR THE LOCATION, THE EDITION OF THE A.H.J. ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN.
BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTNING CODE: REFER TO ELECTRICAL DRAWINGS
SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL
ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES, REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.


FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

ACI	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS	TBD	TO BE DETERMINED
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBR	TO BE REMOVED
BKS	BASE TRANSCIEVER STATION	NEW	PROPOSED NEW	TERR	TO BE REMOVED AND REPLACED
EG	EXISTING	N.T.S.	NOT TO SCALE	REF	REFERENCE
EGR	EQUIPMENT GROUND	REQD	REQUIRED	TYP	TYPICAL



Hudson Design Group
1401 OGDON DRIVE
SALISBURY, CT 06488
TEL: 860.553.6663
FAX: 860.553.6668



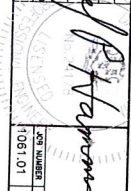
SAI
22 KEEMONDIN DRIVE
SALISBURY, NH 03079

SITE NUMBER: CT1061
SITE NAME: UNIONVILLE
82 LOVELY STREET
FARMINGTON, CT 06038
HARTFORD COUNTY

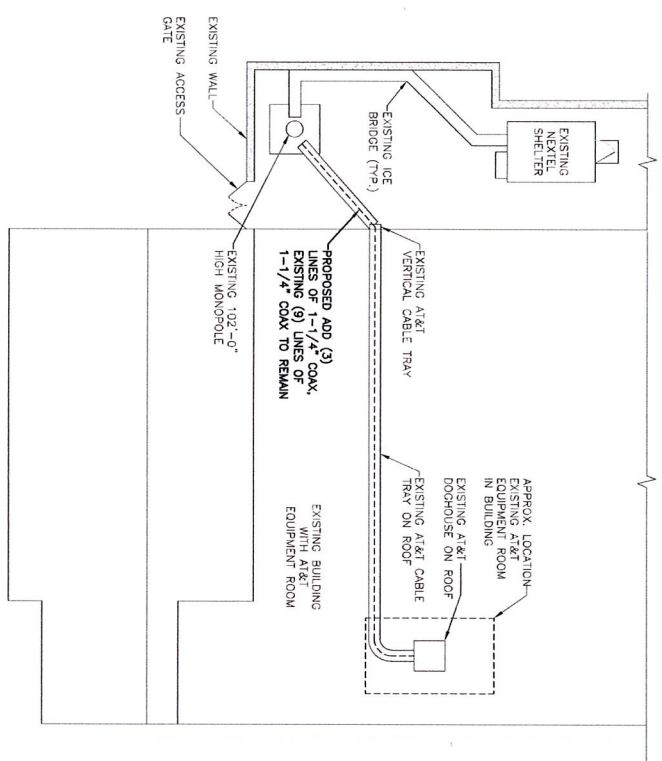


500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

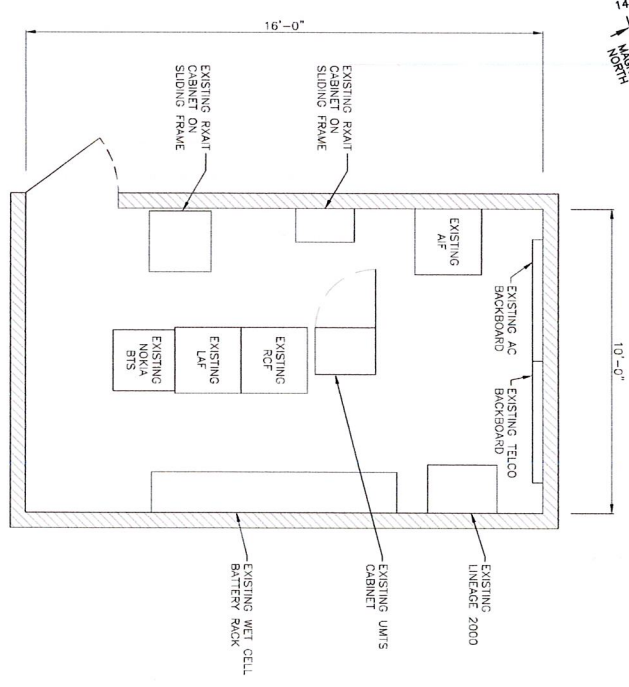
NO.	DATE	ISSUED FOR CONSTRUCTION	REVISIONS	DESIGNED BY: DC	DRAWN BY: JS	DATE	SCALE	NOT SHOWN
1	01/28/11	CONSTRUCTION TAIL						
0	12/03/10	ISSUED FOR CONSTRUCTION						



AT&T
GENERAL NOTES
(2ND CARRIER)
DRAWING NUMBER: NH-1
1



COMPOUND PLAN
 SCALE: 1/8"=1'-0"
 0 4'-0" 8'-0" 16'-0" 24'-0"



EQUIPMENT PLAN
 SCALE: 1/2"=1'-0"
 0 1'-0" 2'-0" 4'-0" 6'-0"

Hudson Design Group
 140 POND HILL
 BUILDING CENTER, SUITE 310
 N. MAIN ST., MA 01826
 TEL: (978) 251-6883
 FAX: (978) 251-6888

SIATD communications
 22 KEENEYON DRIVE
 SUELEN, NH 03075

SITE NUMBER: CT1061
SITE NAME: UNIONVILLE
 82 LOVELY STREET
 FARMINGTON, CT 06035
 HARTFORD COUNTY

at&t
 500 ENTERPRISE DRIVE, SUITE 3A
 ROCKY HILL, CT 06087

NO.	DATE	REVISIONS	DESIGNED BY	DRAWN BY
1	01/26/11	CONSTRUCTION PLAN	DC	JD
0	12/03/10	ISSUED FOR CONSTRUCTION	DC	JD

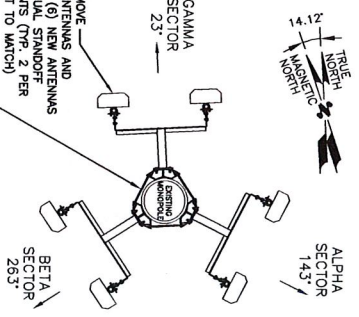
AT&T
 COMPOUND & EQUIPMENT PLAN
 (2ND CARRIER)
 DRAWING NUMBER: A-1
 JOB NUMBER: 1061.01
 REV: 1

RF TABLE

SECTOR NAME	ANTENNA MAKE & MODEL	ANTENNA COUNT	AZIMUTH CENTER	SLD DOWN TILT	MECHANICAL DOWN TILT	DUAL TIA COUNT	DUPLEXER COUNT
1 ALPHA	PS-15-XH-RR	2	143°	102°-0±	0*	0 EXIST. 1 PROP.	0 EXIST. 0 PROP.
2 BETA	PS-15-XH-RR	2	263°	102°-0±	0*	0 EXIST. 1 PROP.	0 EXIST. 0 PROP.
3 GAMMA	PS-15-XH-RR	2	23°	102°-0±	0*	0 EXIST. 1 PROP.	0 EXIST. 0 PROP.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:*
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



PROPOSED REMOVE EXISTING (3) ANTENNAS AND REPLACE WITH (6) NEW ANTENNAS ON NEW MOUNT (TYP. 2 PER SECTOR) (PAINT TO MATCH)

PROPOSED REMOVE EXISTING (3) ANTENNAS AND REPLACE WITH (6) NEW ANTENNAS ON NEW MOUNT (TYP. 2 PER SECTOR) (PAINT TO MATCH)

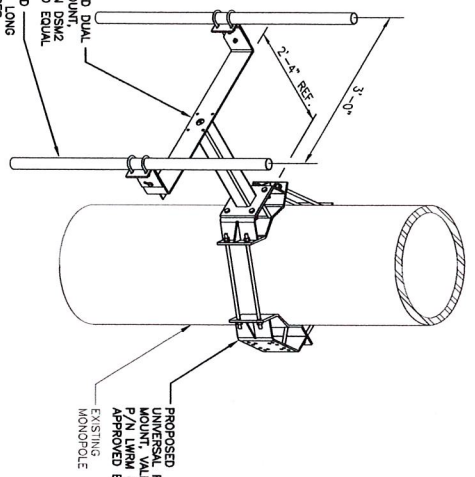
PROPOSED REMOVE EXISTING (3) ANTENNAS AND REPLACE WITH (6) NEW ANTENNAS ON NEW MOUNT (TYP. 2 PER SECTOR) (PAINT TO MATCH)

PROPOSED ADD (3) LINES OF 1 1/4" COAX EXISTING (3) LINES OF 1-1/4" COAX TO REMAIN

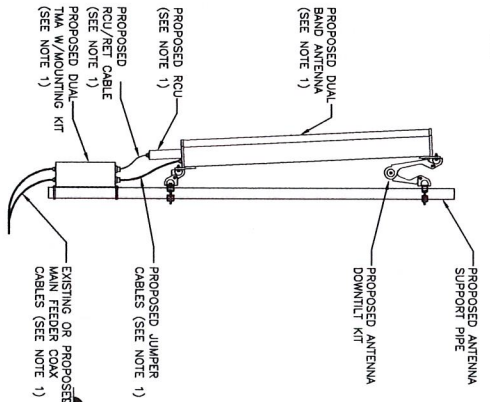
EXISTING NEXTEL ANTENNAS

TOP OF MONOPOLE & CENTER OF PROPOSED AT&T ANTENNAS
102°-0± SGL

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

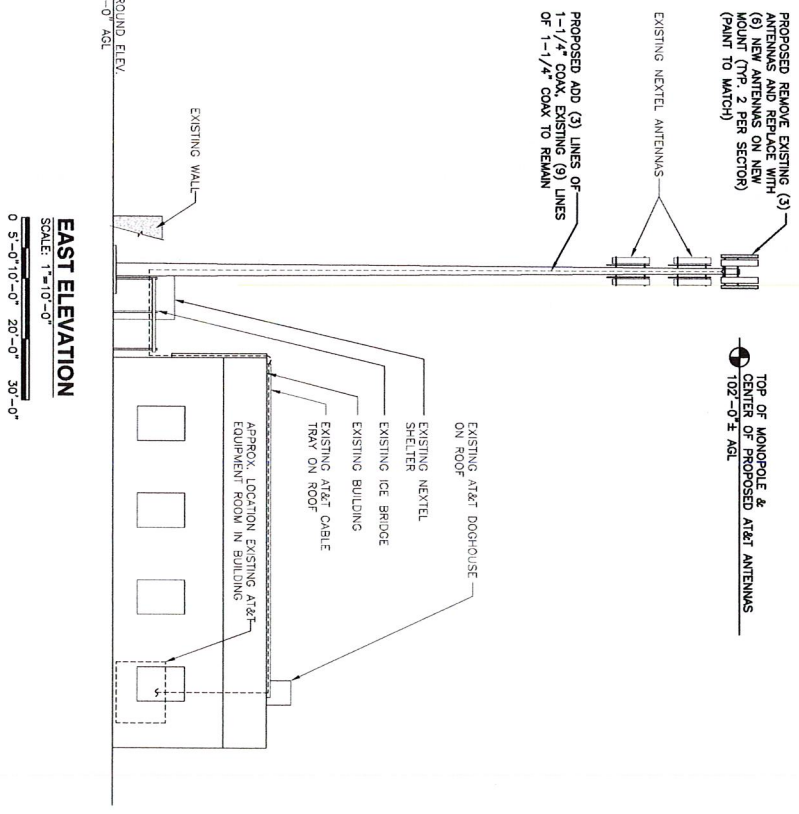


PROPOSED ANTENNA MOUNT DETAIL
SCALE: N.T.S.



NOTES:
1. REFER TO RF COUPLING & SECTOR SEPARATORS FOR MODEL, TYPE & QUANTITY REQUIRED PER SECTOR

PROPOSED ANTENNA DETAIL
SCALE: N.T.S.



EAST ELEVATION
SCALE: 1"=10'-0"
0'-5" 10'-0" 20'-0" 30'-0"

Hudson
Design Services
1000 STATE STREET
HARTFORD, CT 06103
TEL: 860.525.5555
FAX: 860.525.5555

SAT
communications
22 KENAWANTON DRIVE
SALEM, NH 03079

SITE NUMBER: CT1061
SITE NAME: UNIONVILLE
82 LOVELEY STREET
FARMINGTON, CT 06035
HARTFORD COUNTY

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

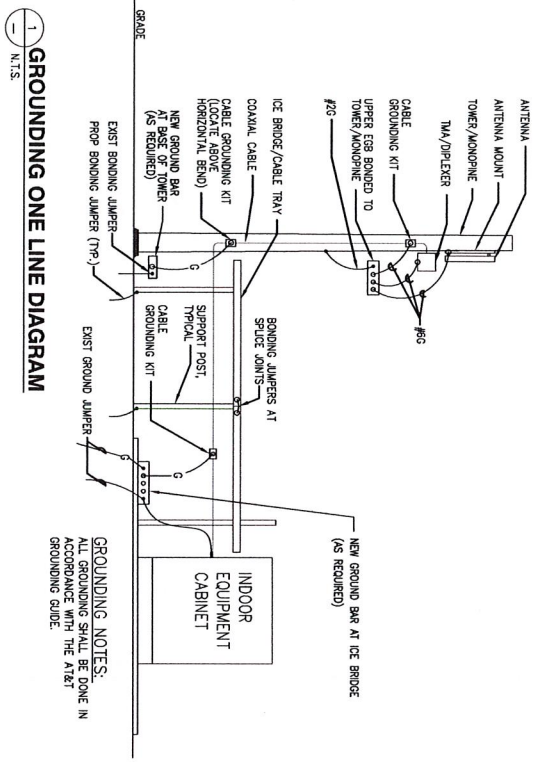
NO.	DATE	REVISIONS	DESIGNED BY:	DRAWN BY:
1	07/26/11	CONSTRUCTION PERM.	DC	JD
0	12/03/10	ISSUED FOR CONSTRUCTION	DC	DC

[Signature]
AT&T
ANTENNA LAYOUT AND ELEVATION
(2ND CARRIER)
A-2
1061.01
1

NO.	DATE	REVISIONS	DESIGNED BY	DRAWN BY	CHKD BY	APP'D BY
1	07/28/11	CONSTRUCTION PLAN	DC	DC	DC	DC
2	07/29/11	ISSUED FOR CONSTRUCTION	DC	DC	DC	DC

SCALE: NOT SHOWN

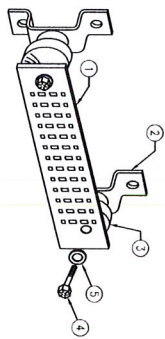
AT&T
GROUNDING, ONE-LINE DIAGRAM & DETAILS
(2ND CHARIER)
DRAWING NUMBER: G-1
REV: 1



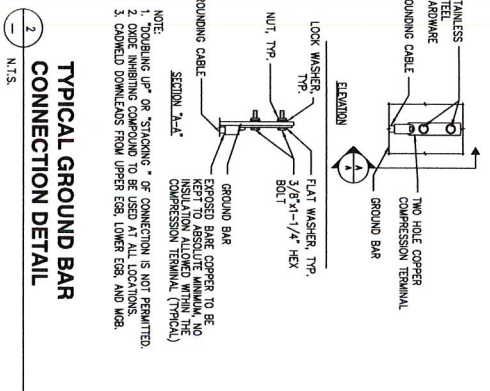
GROUNDING NOTES:
ALL GROUNDING SHALL BE DONE IN ACCORDANCE WITH THE AT&T GROUNDING GUIDE.

WIRELESS SOLUTIONS INC.

NO.	REQ.	PART NO.	DESCRIPTION
1	1	HUGB-0420-IS	SOLID GND. BAR (20" x 4" x 1/4")
2	2	---	WALL MFG. BRKT.
3	2	---	INSULATORS
4	4	---	5/8"-11x1" H.H.C.S.
5	4	---	5/8" LOCKWASHER



3 GROUND BAR - DETAIL
N.T.S.



NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OMEG IMBUSHING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CORNED DOWNLOADS FROM UPPER EGG, LOWER EGG, AND MGB.

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

- SECTION 7" - SURGE PROTECTORS**
CABLE ENTRY PORTS (HATCH PLATES) (42)
GENERATOR FRAMEWORK (IF AVAILABLE) (42)
TELECO GROUND BAR COMMON NEUTRAL/GROUND BOND (42)
449 POWER SUPPLY RETURN BAR (42)
RECIPIER FRAMES
- SECTION "X" - SURGE ABSORBERS**
INTERIOR GROUND RING (42)
EXTERNAL GROUND FIELD (BARED GROUND RING) (42)
METALLIC COLD WATER PIPE (IF AVAILABLE) (42)
BUILDING STEEL (IF AVAILABLE) (42)



Karen Couture
 Real Estate Consultant
 500 Enterprise Drive, Ste. 3-A
 Rocky Hill, CT 06067
 (860) 389-4924



GPD ASSOCIATES
 Kevin Clements
 12600 Deerfield Pkwy, Suite 2039
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 (678) 762-3305
kclements@gpdgroup.com

GPD# 2011007.04
 February 11, 2011

STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION: **Site USID:** 59358
 Site FA: 10035037
 Site Name: UNIONVILLE SBC CO
 AT&T Project: MOD-2nd Carrier Add 2011

SAI DESIGNATION: **Site Name:** CT 1061

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

SITE DATA: **82 Lovely Street, Unionville, CT 06085, Hartford County**
 Latitude 41° 45' 40.971" N, Longitude 72° 53' 15.097" W
 100' Monopole

Ms. Couture,

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

Elev. 102' (6) P65-15-XH-RR Antennas on (3) Dual Standoffs w/ (9) existing and (3) proposed 1-1/4" internal coax

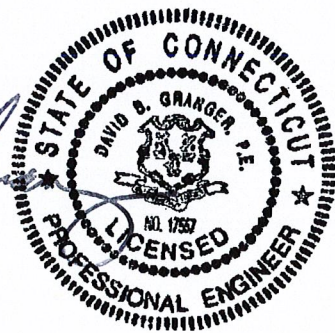
Elev. 99' (3) TT19-08BP111-001 Tower Mounted Amplifiers on the same mounts

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

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

Respectfully submitted,

David Granger, P.E.
 Connecticut #: 17557



SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T to SAI. This report was commissioned by Ms. Karen Couture of SAI.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Monopole	57.3%	Pass
Base Plate	79.9%	Pass
Anchor Rods	25.2%	Pass
Foundation	27.2%	Pass

ANALYSIS METHOD

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

DOCUMENTS PROVIDED

Document	Remarks	Source
Equipment Modification Form	Internal Modification Document	Siterra
Construction Drawings	RL Construction Drawings, dated 12/03/10	SAI
Tower Mapping	GPD Associates & STG, dated 2/18/2010	Siterra
Geotechnical Report	WEI, Project #: 2010-1010, dated 2/16/2010	Siterra
Foundation Exploration Report	WEI, Project #: 2010-1010, dated 2/16/2010	Siterra
Previous Analysis	GPD Job #: 2010261.35 Rev. 1, dated 2/24/10	Siterra

ASSUMPTIONS

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

1. The tower shaft sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified. In the case of absent foundation data, it is the tower owner's responsibility to insure that the foundation system is adequate to support the structure with its new reactions.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if any, are assumed to be as per data supplied/available, to have been properly installed and to be fully effective.
9. All proposed coax/ waveguide are assumed to be internal to the monopole.
10. All existing loading was obtained from the most recent structural analysis, by GPD Job #: 2010261.35 Rev. 1, dated 2/24/10, site photos, RL Construction Drawings, dated 12/03/10, and the provided internal modification document and is assumed to be accurate.
11. The proposed TMA's were assumed to be mounted at 99', below the proposed antennas, based on the RL Construction Drawings, dated 12/03/10.
12. The proposed TMA model is based on email correspondence with Karen Couture, dated 2/9/11.

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

DISCLAIMER OF WARRANTIES

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

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

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

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

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

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

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

APPENDIX A

Tower Analysis Summary Form

APPENDIX B

RISA Tower Output File

RISATower GPD Associates 520 South Main St. Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job CT1061 (59358) UNIONVILLE SBC CO	Page 1 of 2
	Project 2011007.04	Date 14:09:41 02/09/11
	Client SAI	Designed by mhoushell

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 0.5000 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 pole design is 1.333.

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

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight plf
						ft ² /ft		
LDF6-50A (1-1/4 FOAM)	C	No	Inside Pole	99.00 - 2.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	88.00 - 2.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	81.00 - 2.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
5/8" Step Bolts	C	No	CaAa (Out Of Face)	100.00 - 8.00	1	No Ice	0.04	1.00
						1/2" Ice	0.14	1.56
Safety Line 3/8	C	No	CaAa (Out Of Face)	100.00 - 8.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA}		Weight lb	
			Horz ft	Lateral ft			Front ft ²	Side ft ²		
Valmont Dual Standoff Mount	C	None			0.0000	99.00	No Ice	4.85	2.67	150.000
							1/2" Ice	4.96	3.22	180.000
(2) P65-15-XLH-RR w/ Mount Pipe	A	From Leg	2.76		23.0000	99.00	No Ice	6.13	4.27	59.250
			1.17				1/2" Ice	6.59	4.90	104.856
			3.00							
(2) P65-15-XLH-RR w/ Mount Pipe	B	From Leg	2.76		23.0000	99.00	No Ice	6.13	4.27	59.250
			1.17				1/2" Ice	6.59	4.90	104.856
			3.00							
(2) P65-15-XLH-RR w/ Mount Pipe	C	From Leg	2.76		23.0000	99.00	No Ice	6.13	4.27	59.250
			1.17				1/2" Ice	6.59	4.90	104.856
			3.00							
TT19-08BP111-001	A	From Leg	2.76		23.0000	99.00	No Ice	0.64	0.52	16.000
			1.17				1/2" Ice	0.76	0.62	21.800
			0.00							

RISA Tower GPD Associates 520 South Main St. Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job	CT1061 (59358) UNIONVILLE SBC CO	Page	2 of 2
	Project	2011007.04	Date	14:09:41 02/09/11
	Client	SAI	Designed by	mhoudeshell

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	lb
TT19-08BP111-001	B	From Leg	2.76	23.0000	99.00	No Ice	0.64	0.52	16.000
			1.17			1/2" Ice	0.76	0.62	21.800
			0.00						
TT19-08BP111-001	C	From Leg	2.76	23.0000	99.00	No Ice	0.64	0.52	16.000
			1.17			1/2" Ice	0.76	0.62	21.800
			0.00						
Ring Mount	C	None		0.0000	88.00	No Ice	2.50	2.50	150.000
						1/2" Ice	3.20	3.20	200.000
AP11-880/090/XP w/Mount Pipe	A	From Leg	0.87	30.0000	88.00	No Ice	5.81	4.17	43.150
			0.50			1/2" Ice	6.50	5.21	87.331
			0.00						
AP11-880/090/XP w/Mount Pipe	B	From Leg	0.87	30.0000	88.00	No Ice	5.81	4.17	43.150
			0.50			1/2" Ice	6.50	5.21	87.331
			0.00						
AP11-880/090/XP w/Mount Pipe	C	From Leg	0.87	30.0000	88.00	No Ice	5.81	4.17	43.150
			0.50			1/2" Ice	6.50	5.21	87.331
			0.00						
Ring Mount	C	None		0.0000	81.00	No Ice	2.50	2.50	150.000
						1/2" Ice	3.20	3.20	200.000
AP11-880/090/XP w/Mount Pipe	A	From Leg	0.87	30.0000	81.00	No Ice	5.81	4.17	43.150
			0.50			1/2" Ice	6.50	5.21	87.331
			0.00						
AP11-880/090/XP w/Mount Pipe	B	From Leg	0.87	30.0000	81.00	No Ice	5.81	4.17	43.150
			0.50			1/2" Ice	6.50	5.21	87.331
			0.00						
AP11-880/090/XP w/Mount Pipe	C	From Leg	0.87	30.0000	81.00	No Ice	5.81	4.17	43.150
			0.50			1/2" Ice	6.50	5.21	87.331
			0.00						

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
99.00	Valmont Dual Standoff Mount	35	17.669	1.4835	0.0002	19163
88.00	Ring Mount	35	14.289	1.4373	0.0002	8406
81.00	Ring Mount	35	12.218	1.3723	0.0002	5764

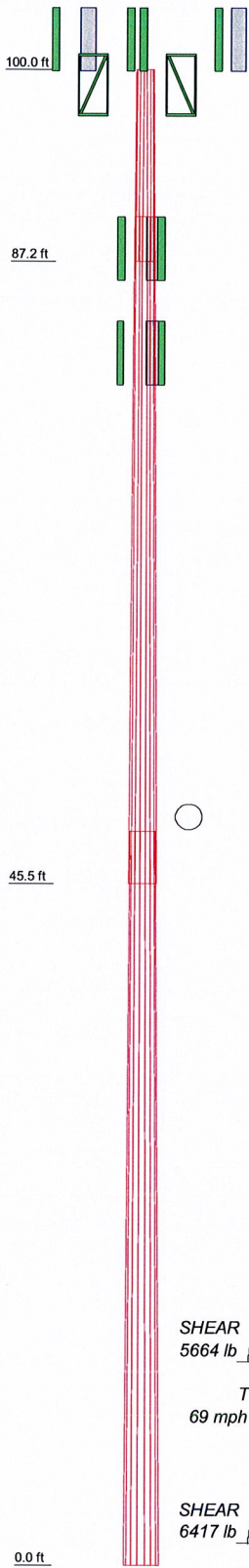
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
L1	100 - 87.1667	Pole	TP16.2634x14.4933x0.2188	1	-868.972	520799.079	11.2	Pass	
L2	87.1667 - 45.5	Pole	TP21.6355x15.4121x0.25	2	-3996.680	795758.311	51.0	Pass	
L3	45.5 - 0	Pole	TP27.4112x20.6478x0.3438	3	-9285.810	1417192.22	57.3	Pass	
							1		
							Summary		
							Pole (L3)	57.3	Pass
							RATING =	57.3	Pass

APPENDIX C

Tower Elevation Drawing

Section	1	2	3	
Length (ft)	12.83	44.67	49.00	
Number of Sides	18	18	18	
Thickness (in)	0.2188	0.2500	0.3438	
Socket Length (ft)	3.00	3.50		
Top Dia (in)	14.4833	15.4121	20.6478	
Bot Dia (in)	16.2634	21.6355	27.4112	
Grade		A572-60		
Weight (lb)	459.6	2203.9	4308.9	6972.5



DESIGNED APPURTENANCE LOADING

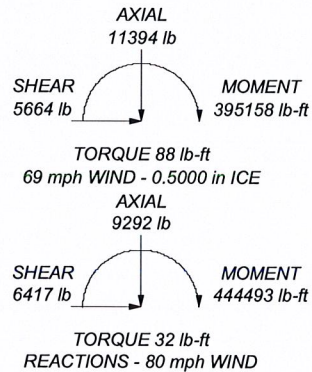
TYPE	ELEVATION	TYPE	ELEVATION
Valmont Dual Standoff Mount	99	AP11-880/090/XP w/Mount Pipe	88
(2) P65-15-XLH-RR w/ Mount Pipe	99	AP11-880/090/XP w/Mount Pipe	88
(2) P65-15-XLH-RR w/ Mount Pipe	99	AP11-880/090/XP w/Mount Pipe	88
(2) P65-15-XLH-RR w/ Mount Pipe	99	Ring Mount	81
TT19-08BP111-001	99	AP11-880/090/XP w/Mount Pipe	81
TT19-08BP111-001	99	AP11-880/090/XP w/Mount Pipe	81
TT19-08BP111-001	99	AP11-880/090/XP w/Mount Pipe	81
Ring Mount	88		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

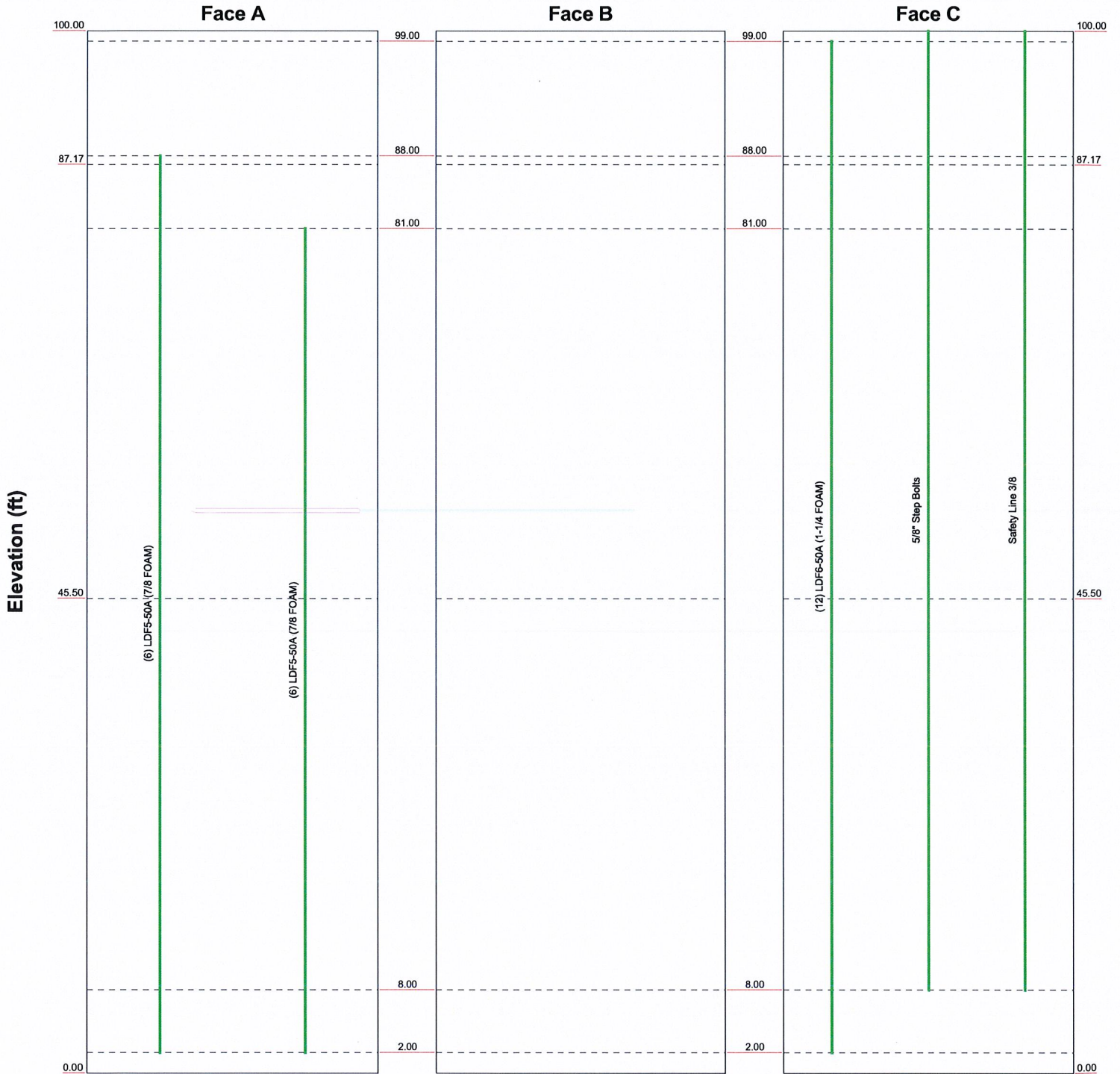
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 57.3%



GPD Associates 520 South Main St. Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-2101	Job: CT1061 (59358) UNIONVILLE SBC CO
	Project: 2011007.04
	Client: SAI
	Code: TIA/EIA-222-F
	Path: N:\2011\2011007\04\CT1061 Unionville (59358)\RISA\59358.er
Drawn by: mhoudeshell	App'd:
Date: 02/09/11	Scale: NTS
Dwg No: E-1	

Feedline Distribution Chart 0' - 100'

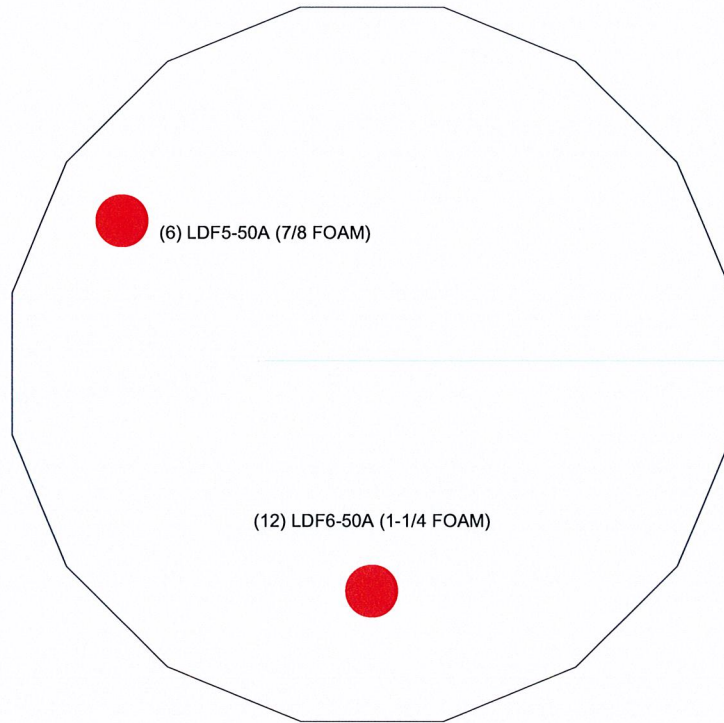
— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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Akron, OH 44311		Client: SAI	Drawn by: mhoudeshell
Phone: (330) 572-2100		Code: TIA/EIA-222-F	Date: 02/09/11
FAX: (330) 572-2101		Path: N:\2011\2011007\04\CT1061 Unionville (59358)\RISA\59358.er	Scale: NTS
			Dwg No. E-7

Feedline Plan

Round Flat App In Face App Out Face



GPD Associates		Job: CT1061 (59358) UNIONVILLE SBC CO	
520 South Main St. Suite 2531		Project: 2011007.04	
Akron, OH 44311	Client: SAI	Drawn by: mhoudeshell	App'd:
Phone: (330) 572-2100	Code: TIA/EIA-222-F	Date: 02/09/11	Scale: NTS
FAX: (330) 572-2101	Path: N:\2011\2011007\04\CT1061 Unionville (59358)\RISA\59358.dwg	Dwg No. E-7	

APPENDIX D

Anchor Rod & Base Plate Analysis

PAD DESIGN - Monopole
CT1061 (59358) UNIONVILLE SBC CO

2011007.04

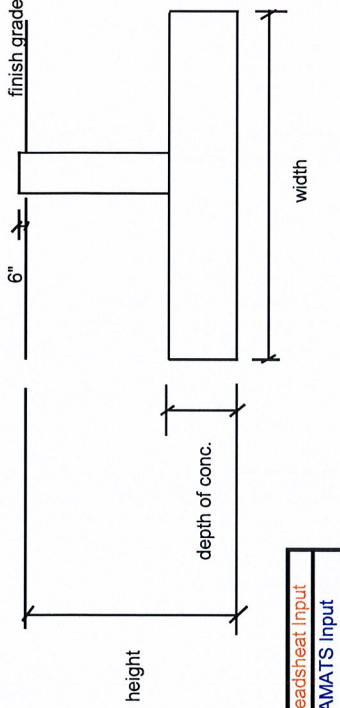
TOWER REACTIONS

total overturning moment = 444.493 Kip-ft
 total shear = 6.417 Kip
 axial = 9.292 Kip
 ground water table = Below ft

PAD DIMENSIONS

width = 17 ft
 height = 9.5 ft
 depth of conc = 4.5 ft
 γ_{soil} = 0.124 kcf
 γ_{conc} = 0.150 kcf

M_r = 3533.41 k-ft
 M_{ot} = 508.663 k-ft
 P = 383.547 k
 W_{wedge} = 15.21 k
 Allowable Bearing = 8.1 ksf



Spreadsheet Input
 PCAMATS Input

F.S. OVERTURNING = 6.94647034 ok > 1.5
 F.S. OVERTURNING / F.S. ALLOWABLE = 21.6%

LOAD PERPENDICULAR TO PAD

Q_{max} = P/A+M/S = 1.94835681
 Q_{min} = P/A-M/S = 0.70594769
 Q_{max} = P/A+M/S = 2.20719204
 Q_{min} = P/A-M/S = 0.44711246

M_x = 359.679
 M_y = 359.679
 e_x = 0.938
 e_y = 0.938
 e_x/W = 0.055 ok ($e/W < 1/6$)
 e_y/W = 0.055 ok ($e/W < 1/6$)

IF M/P > width/6

Q_{max} = 2.097 ksf
 Q_{min} = 0.000 ksf

Q_{max}/Q_{all} = 25.9% OK

IF $e/W > 1/6$
 Q_{all} = 2084.5 kips
 Q_{max} = 568.01 kips
 Q_{max}/Q_{all} = 27.2% OK

B_1 = 22.69 ft
 L_1 = 22.69 ft

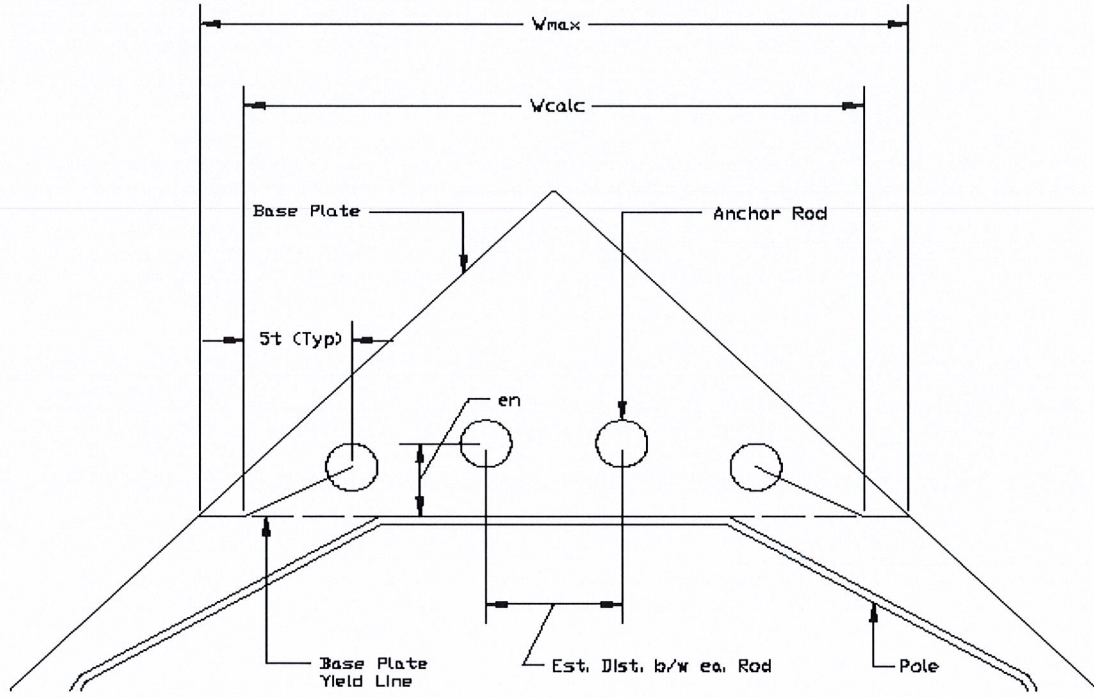
Foundation Capacity: 27.2% OK

Anchor Rod and Base Plate Stresses
CT1061 (59358) UNIONVILLE SBC CO
2011007.04

Overturning Moment =	444.49	k*ft
Axial Force =	9.29	k
Shear Force =	6.42	k

Anchor Rods		
Pole Diameter =	27.4112	in
Number of Rods =	8	
Type =	Upset Rod	
Rod Yield Strength (Fy) =	75	ksi
ASIF =	1.333	
Rod Circle =	53	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in ²
Max Tension on Rod =	49.11	kips
Max Compression on Rod =	51.44	kips
Allow. Rod Force =	195.00	kips
Anchor Rod Capacity =	25.2%	OK

Base Plate		
Plate Strength (Fy) =	50	ksi
Plate Thickness =	2.5	in
Plate Width =	48.5	in
Est. Dist. b/w ea. Rod =	6	in
W_{calc} =	31.000	in
W_{max} =	41.178	in
w =	31.00	in
S =	32.29	in ³
f_b =	39.96	ksi
F_b =	50	ksi
Base Plate Capacity =	79.9%	OK



APPENDIX E

Foundation Analysis

P65-15-XLH-RR

Dual Broadband Antennas

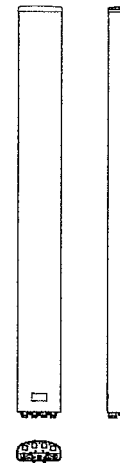
POLARIZATION: Dual linear $\pm 45^\circ$
 FREQUENCY (MHz): 698-894, 1710-2170
 HORIZONTAL BEAM WIDTH ($^\circ$): 65, 65
 GAIN (dBi/dBd): 14.7/12.6, 17.0/14.9
 TILT: 0-13, 0-9
 LENGTH: 51"

ELECTRICAL SPECIFICATIONS*

	698-894		1710-2170		
	698-806 14/11.9	806-894 14.7/12.6	1710-1880 16.4/14.3	1850-1990 16.7/14.6	1900-2170 17.0/14.9
Frequency range (MHz)	698-894		1710-2170		
Frequency band (MHz)	698-806 806-894		1710-1880 1850-1990 1900-2170		
Gain (dBi/dBd)	14/11.9 14.7/12.6		16.4/14.3 16.7/14.6 17.0/14.9		
Polarization	Dual Linear +/- 45		Dual Linear +/- 45		
Nominal Impedance (Ω)	50		50		
VSWR	< 1.5:1		< 1.5:1		
Horizontal beam width, -3 dB ($^\circ$)	73	63	65	61	60
Vertical beam width, -3 dB ($^\circ$)	17		7.5		
Electrical down tilt ($^\circ$)	0-13		0-9		
Side lobe suppression, vertical 1st upper (dB)	> 14		> 20		
Isolation between inputs (dB)	> 30		> 30		
Inter band Isolation (dB)	> 40		> 40		
Tracking, horizontal plane $\pm 60^\circ$ (dB)	< 2		< 2		
Vertical beam squint ($^\circ$)	< 1.25		< 0.5		
Front to back ratio (dB) $180^\circ \pm 30^\circ$ copolar	> 25		> 28		
Front to back ratio (dB) $180^\circ \pm 30^\circ$ total power	> 25		> 25		
Cross polar discrimination (XPD) 0° (dB)	> 15		> 15		
Cross polar discrimination (XPD) $\pm 60^\circ$ (dB)	> 10		> 10		
IM3, 2xTx@43dBm (dBc)	< -153		< -153		
Power handling, average per input (W)	500		300		
Power handling, average total (W)	1000		600		

MECHANICAL SPECIFICATIONS*

Connector	4 X 7/16 DIN Female, IP67
Connector position	Bottom
Dimensions, HxWxD, in (mm)	51" x 12" x 6" (1295 x 305 x 152)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, lbs (kg)	41 (19)
Weight, without brackets, lbs (kg)	30 (14)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.0 (N)	920
Maximum operational wind speed, mph (m/s)	100 (45)
Survival wind speed, mph (m/s)	150 (67)
Lightning protection	DC Ground
Operating Temperature	-40°C to +60°C
Radome material	PVC, IP55
Packet size, HxWxD, in (mm)	60" x 16" x 10" (1524 x 400 x 255)
Radome colour	Light Grey
Shipping weight, lbs (kg)	52 (24)
RET	iRET AISGv1.1, MET and AISGv2.0
Brackets	7256.00, 7454.00



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

ANTENNA PATTERNS*

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

TT19-08BP111-001

TMA Twin 1900 with 850 Bypass 12 dB AISG 1.1

ELECTRICAL SPECIFICATIONS

UL Frequency Range (MHz)	1850-1910 with 824-894 bypass
UL Rejection	>77 dB
UL Gain(dB)	12
UL Return Loss	>18
UL Noise Figure	<1.7 dB, Typical
UL Output 3rd Order Intercept Point(dBm)	>+23
UL Bypass Loss(dB)	2.5, Typical
UL Max Input Power (dBm)	+14 dBm
DL Frequency Range (MHz)	1930-1990 with 824-894 bypass
DL Return Loss	>18
DL Insertion Loss (dB)	850 MHz, <0.3; 1900 MHz, <0.5
Intermodulation	@ 2 x +43 dBm TX carriers, in receive band, <160 dBc, referred to antenna port
Input Voltage (V)	AISG Mode: 10-30; Current alarm mode: 8 -17
Alarm Functionality	AISG compatible or in case of no AISG command received, current alarm mode 170-190 mA
Power Consumption	<1.1W @12V
Power Handling, RMS	850: >57 dBm; 1900: >55 dBm
AISG Compatibility	AISG 1.1 fully upgradable to AISG 2.0 (AISG version only dependent on loaded SW version) TT19-08BP112-001 has AISG 2.0 loaded from factory

MECHANICAL SPECIFICATIONS

Dimension HxWxD mm(ft)	250x169x137 mm (9.9"x6.7"x5.4")
Weight(lbs)	<16
Colors	Off white (NCS 1502-R)
RF Connectors	DIN 7/16 female, long neck
Mounting Kit	Mounting kit for pole and wall is included

ENVIRONMENTAL SPECIFICATIONS

Temperature Range	-40° C to +65° C (-40° F to +149° F)
Operational	ETS 300 019-1-4
Transportation	ETS 300 019-1-2
Storage	ETS 300 019-1-1
Lightning Protection	3 kA 10/350 µs; 20 kA (Shield)
Housing	Aluminum
MTBF	>1 million hours per TMA
Ingress Protection	IP65 and IP68

APPROVAL AND TESTS

Safety	EN60950
EMC	3GPP: TS 25.113



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