smartlink

May 9, 2014

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re:	**Notice of Exempt Modification – Antenna Swap**
Property Address:	**1 Burwell Road, West Haven, CT 06516 (the "Property")**
Applicant:	**New Cingular Wireless PCS, LLC ("AT&T")**

Dear Ms. Bachman:

AT&T dba New Cingular Wireless PCS, LLC currently maintains nine (9) wireless telecommunication antennas, all at the 154 foot level on and existing 155 foot tower at the above referenced address. The tower is owned by American Towers Corporation. The Council approved AT&T's/New Cingular Wireless use of the tower in the following prior decisions; Dockets No. EM-AT&T-156-990920, EM-CING-156-070815, EM-CING-156-060717, EM-CING-156-120615 and EM-CING-156-130531. AT&T now intends to replace three (3) KMW AM-X-CD-14-00T-RET panel antennas and three (3) Powerwave 7770 panel antennas with model CCI HPA-65R-BUU-H6 and add an additional three (3) CCI HPA-65R-BUU-H6 while retaining three (3) Powerwave 7770 (for a total of twelve panel antennas) at the 154 foot level. Included in Attachment 1 are specifications for the replacement antennas.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to Edward M. O'Brien, Mayor for the town of West Haven, CT. A copy of this letter is also being sent to American Tower Corporation the owner of the property where the tower is located.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in height of the existing tower. AT&T's replacement antennas will be installed at the 154 foot level of the 155 foot tower.

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p: 508.954.7702 • adam.braillard@smartlinkllc.com
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2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the General Power Density table included in Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Attachment 3).

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b)(2).

Sincerely,

Adam F. Braillard

cc: American Tower Corporation, 10 Presidential Way, Woburn, MA 01801
Edward M. O'Brien, City Hall, 355 Main Street, 3rd Floor, West Haven, CT 06516

33 Boston Post Road West, Marlborough, Massachusetts 01752
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PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING TOWER:
- NEW SECTOR FRAMES TO REPLACE EXISTING SECTOR FRAMES
- NEW AT&T ANTENNAS: (3) ANTENNAS PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (9) ANTENNAS
- NEW AT&T RRU'S: (5) RRU'S PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (15) RRU'S
- NEW AT&T SURGE SUPPRESSOR: (2) RAYCAP SURGE SUPPRESSORS
- NEW AT&T TMA'S: (3) CCI TMA'S

ITEMS TO BE INSTALLED AT AT&T EQUIPMENT AREA:
- (1) (850) RXAIT & (1) 850 LLC IN PROPOSED 23" RACK
- (1) GE INFINITY DC POWER PLANT
- (6) NEW AT&T DIPLEXERS TO REPLACE EXISTING (12) DIPLEXERS

ITEMS TO REMAIN:
(3) GSM/UMTS ANTENNAS, (3) RRU'S, & (1) SURGE SUPPRESSOR TO BE RELOCATED TO NEW SECTOR FRAMES

SITE ADDRESS:	204 BURWELL ST WEST HAVEN, CT 06516		
LATITUDE: LONGITUDE:	41.2953 N −72.9733 W	41° 17' 43.19" N 72° 58' 23.88" W	
USID:	5803		
TOWER MANAGER:	AMERICAN TOWER CORPORATION 116 HUNTINGTON AVE. 11TH FLOOR BOSTON, MA 02116	PROPERTY OWNER:	BURWELL, RODNEY T. 1/2 HOLLIS, JOANNE B. 4302 S. RIMVIEW WAY BOISE, ID 83716
TYPE OF SITE:	LATTICE TOWER/INDOOR EQUIPMENT		
TOWER HEIGHT: RAD CENTER:	155'−0"± 154'−0"±		
CURRENT USE:	TELECOMMUNICATIONS FACILITY		
PROPOSED USE:	TELECOMMUNICATIONS FACILITY		

FA NUMBER: 10035024
SITE NUMBER: CT2064
SITE NAME:
WEST HAVEN-BURWELL ST

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: SMARTLINK, LLC
ADDRESS: 1997 ANNAPOLIS EXCHANGE PARKWAY, SUITE 200
CITY, STATE, ZIP: ANNAPOLIS, MD 21401
CONTACT: TIM BOYCE
PHONE: (980) 333−3640
E−MAIL: tboyce@smartlinkllc.com

SITE ACQUISITION
COMPANY: SMARTLINK, LLC
ADDRESS: 33 BOSTON POST ROAD WEST, SUITE 210
CITY, STATE, ZIP: MARLBOROUGH, MA 01752
CONTACT: TODD OLIVER
PHONE: (774) 369−3618
E−MAIL: todd.oliver@smartlinkllc.com

ENGINEERING
COMPANY: HUDSON DESIGN GROUP, LLC.
ADDRESS: 1600 OSGOOD STREET BUILDING 20 NORTH, SUITE 3090
CITY, STATE, ZIP: NORTH ANDOVER, MA 01845
CONTACT: DANIEL P. HAMM, PE
PHONE: (978) 557−5553 X222
E−MAIL: daniel.hamm@hudsondesigngroupllc.com

RF ENGINEER
COMPANY: AT&T MOBILITY −NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD SUITE 550 13 AND 14
CITY, STATE, ZIP: FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: (508) 596−7146
E−MAIL: cs6970@att.com

CONSTRUCTION MANAGER
COMPANY: SMARTLINK, LLC.
ADDRESS: 33 BOSTON POST ROAD WEST SUITE 210
CITY, STATE, ZIP: MARLBOROUGH, MA 01752
CONTACT: JERRY BRUNO
PHONE: (508) 920−7349
E−MAIL: jerry.bruno@smartlinkllc.com

DRAWING INDEX

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VICINITY MAP

DIRECTIONS TO SITE:
DEPART RT−30 W / COCHITUATE RD TOWARD BURR ST. 0.3 MI. TURN BACK ON RT−30 E / COCHITUATE RD. 0.3 MI. TAKE RAMP RIGHT FOR I−90 WEST TOWARD WORCESTER / SPRINGFIELD. TOLL ROAD. 38.9 MI. AT EXIT 9, TAKE RAMP RIGHT FOR I−84 TOWARD NEW YORK CITY / HARTFORD. STOP FOR TOLL BOOTH. ENTERING CONNECTICUT. 41.7 MI. AT EXIT 57, TAKE RAMP LEFT FOR CT−15 SOUTH TOWARD CHARTER OAK BRIDGE / NY CITY. 1.1 MI. KEEP STRAIGHT ONTO US−5 S / CT−15 S. 0.8 MI. AT EXIT 86, TAKE RAMP RIGHT FOR I−91 S TOWARD NEW HAVEN / NY CITY. 36.6 MI. AT EXIT 1, TAKE RAMP RIGHT FOR CT−34 WEST TOWARD DOWNTOWN / NEW HAVEN. 1.1 MI. TAKE RAMP FOR CT−34 W / N FRONTAGE RD. 1.2 MI. TURN RIGHT ONTO CT−10 / CT−34 / ELLA T GRASSO BLVD. 0.2 MI. TURN LEFT ONTO CT−34 / DERBY AVE. 0.5 MI. KEEP STRAIGHT ONTO CT−34 W / DERBY AVE. 0.9 MI. TURN LEFT ONTO PLAINFIELD AVE. 0.6 MI. TURN RIGHT ONTO BURWELL RD, AND THEN IMMEDIATELY TURN LEFT ONTO BARWELLHILL RD. 0.1 MI. THE SITE WILL BE ON YOUR RIGHT.

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION 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 ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC 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 REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS & AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT & MAY IMPOSE CHANGES OR MODIFICATIONS.

DISCIPLINE:	SIGNATURE:	DATE:
SMARTLINK SITE ACQUISITION:		
SMARTLINK CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

72 HOURS
BEFORE YOU DIG
CALL TOLL FREE 800−922−4455

UNDERGROUND SERVICE ALERT

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
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AT&T

TITLE SHEET
(LTE−2C)

JOB NUMBER	DRAWING NUMBER	REV
2064.01	T−1	0

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 AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA 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 WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT 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 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION 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 – SMARTLINK
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON 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 ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT 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 SCALED 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 BILL OF MATERIALS 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 T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, 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 MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S 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 AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH 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. ALL DIMENSIONS 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 COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY 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 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.
BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING 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

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

Hudson Design Group LLC
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SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SG

AT&T

GENERAL NOTES
(LTE-2C)

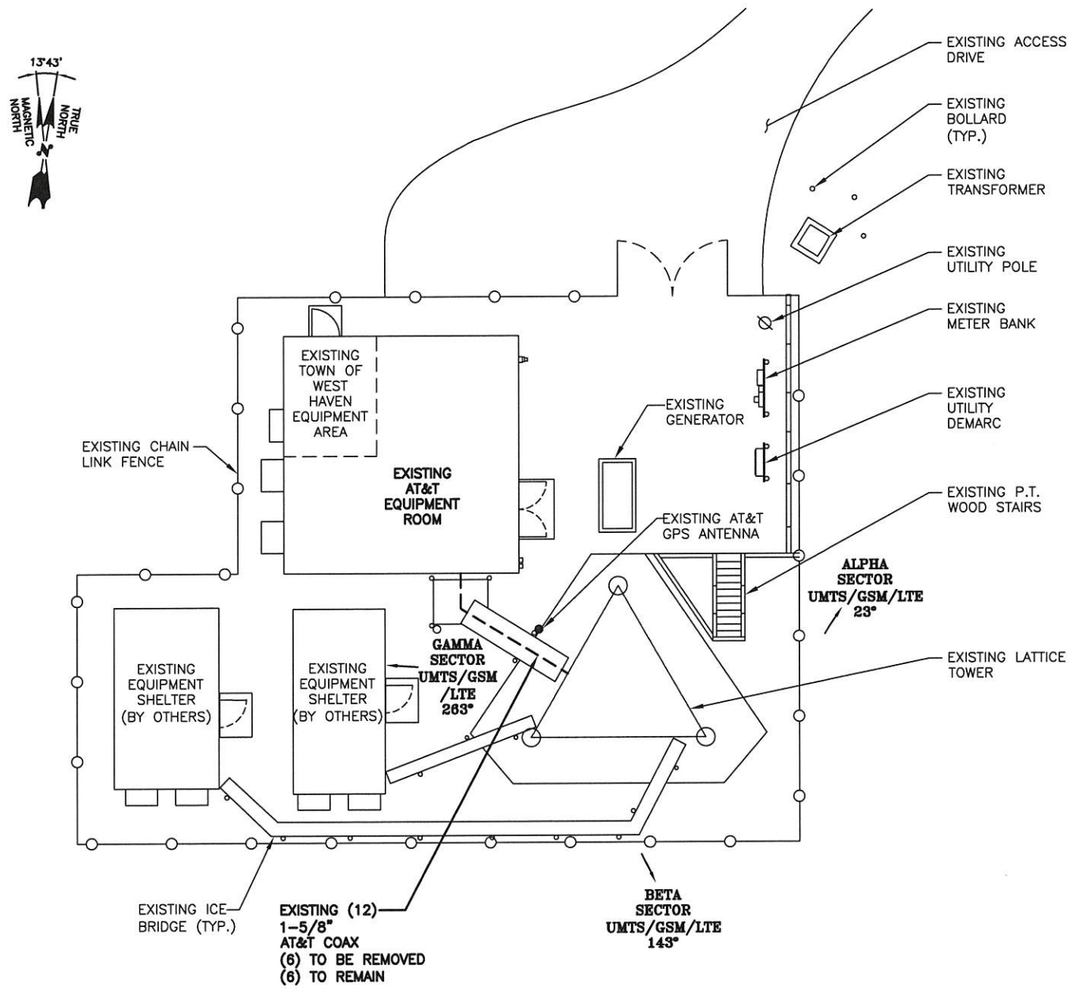
JOB NUMBER	DRAWING NUMBER	REV
2064.01	GN-1	0

NOTE:

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

NOTE:

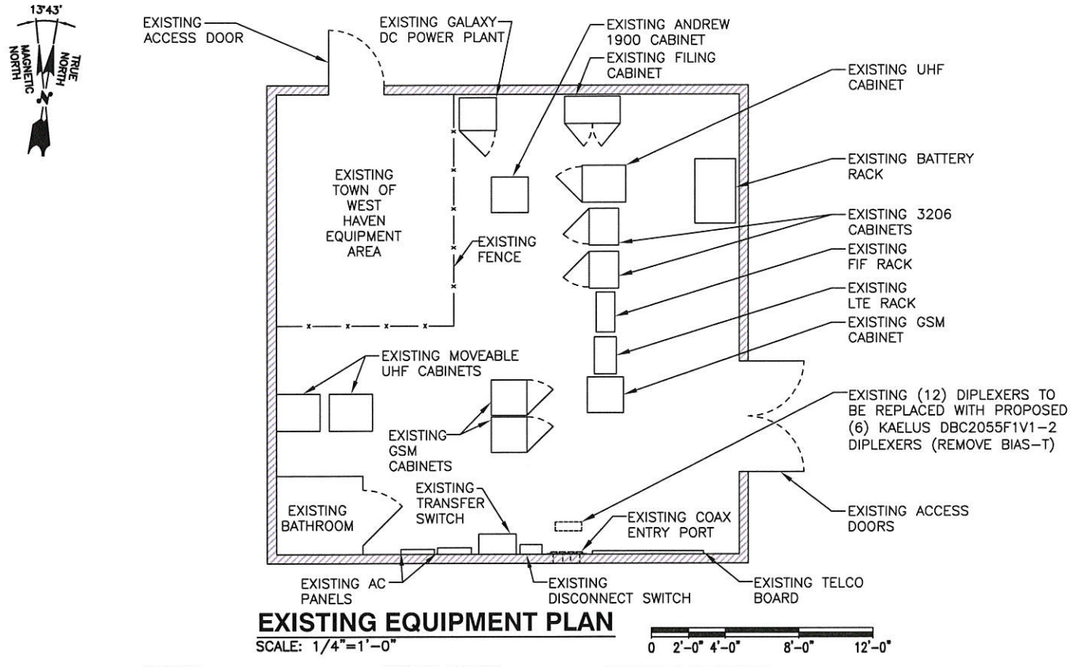
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



COMPOUND PLAN

SCALE: 1/8"=1'-0"

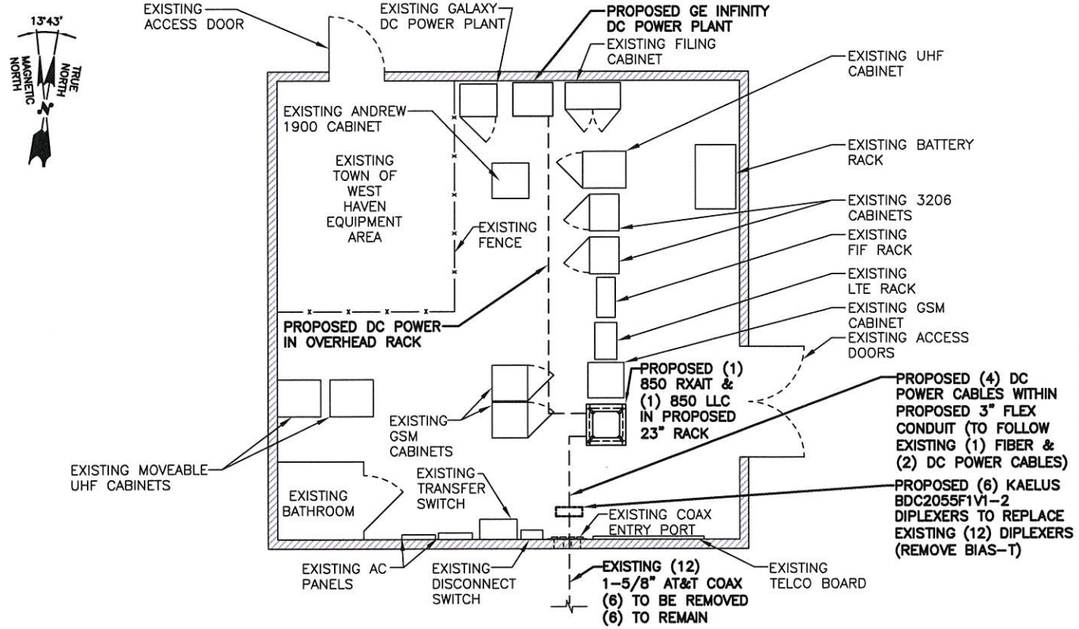
0 4'-0" 8'-0" 16'-0" 24'-0"



EXISTING EQUIPMENT PLAN

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

0 2'-0" 4'-0" 8'-0" 12'-0"



PROPOSED EQUIPMENT PLAN

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

0 2'-0" 4'-0" 8'-0" 12'-0"

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SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SG

AT&T

COMPOUND & EQUIPMENT PLAN
(LTE-2C)

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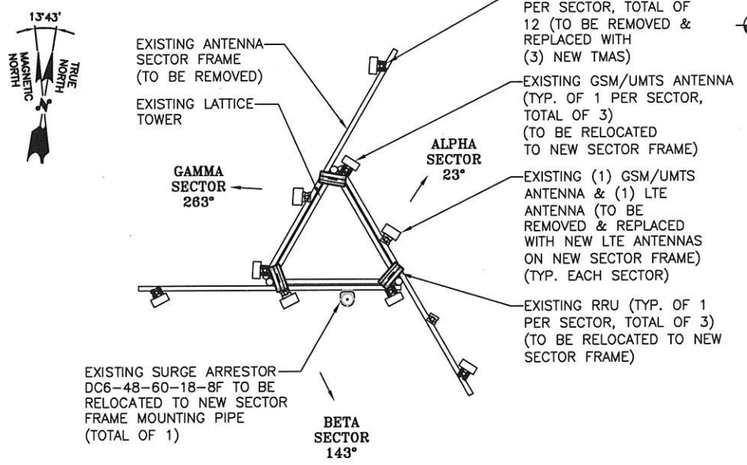
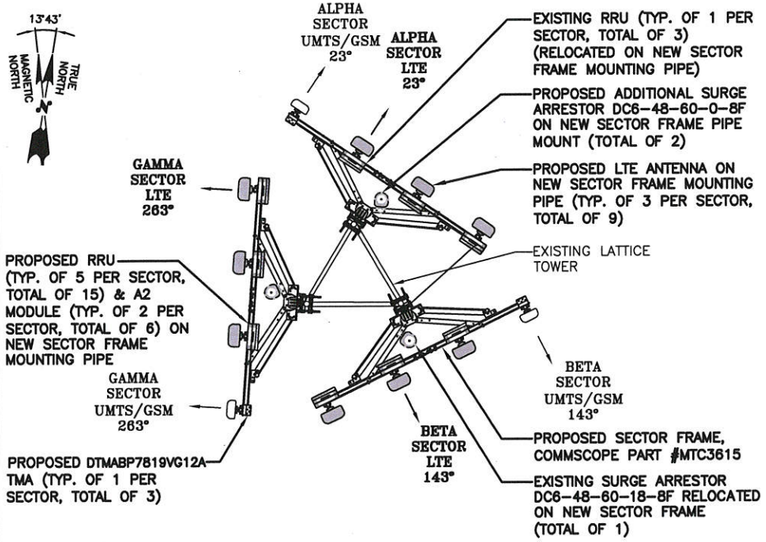


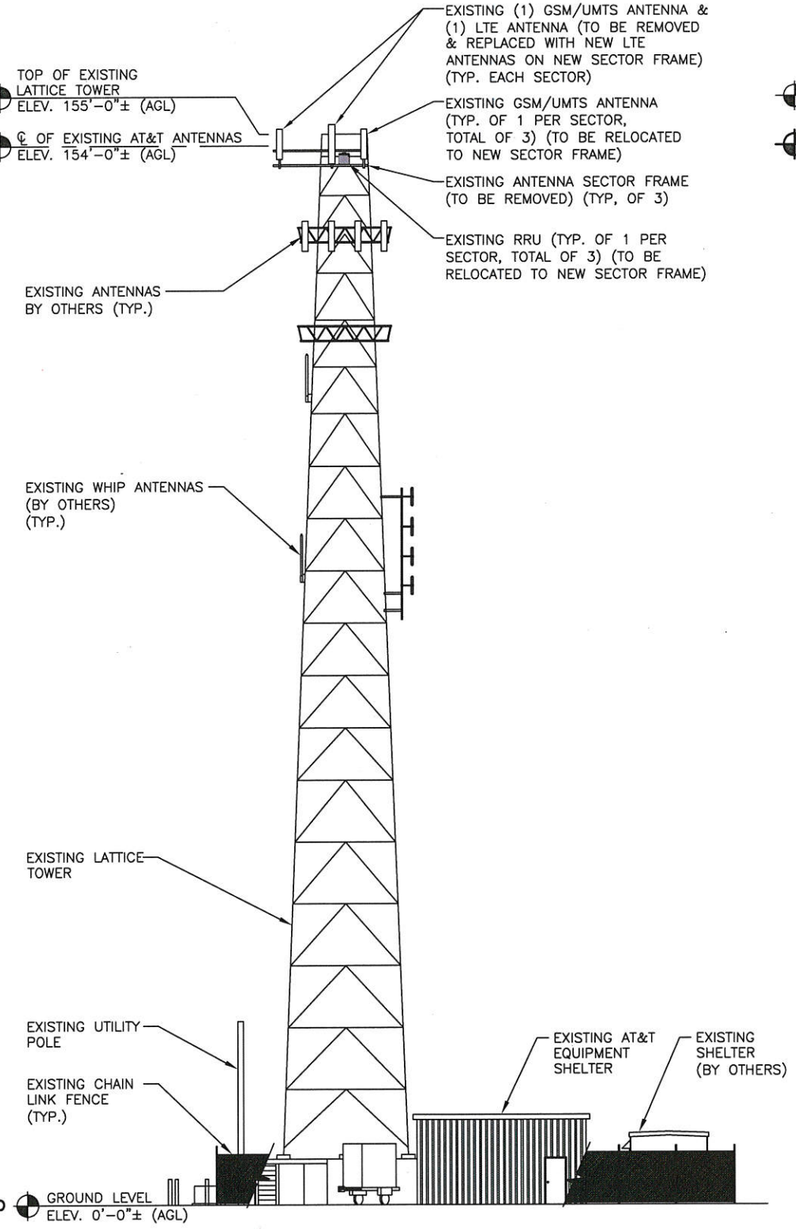
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

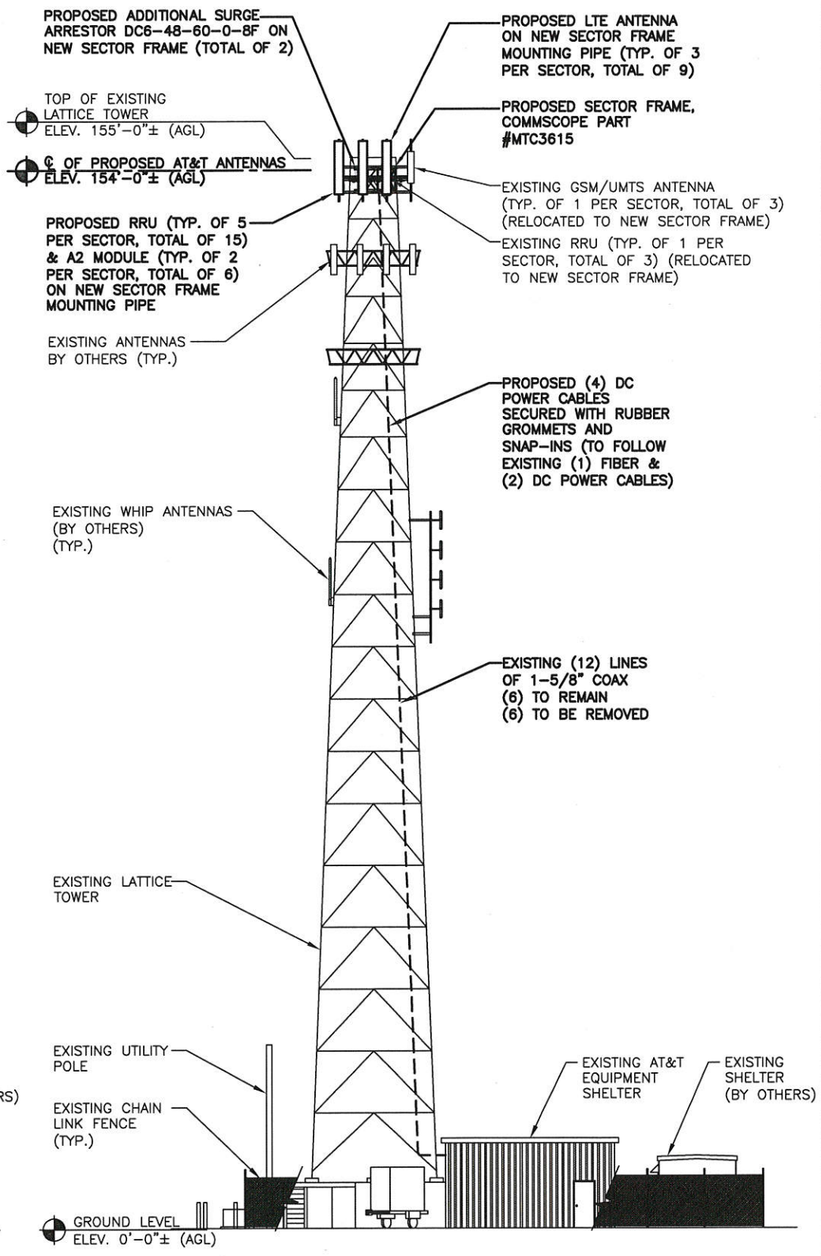
SCALE: N.T.S.



EXISTING NORTHEAST ELEVATION

SCALE: 3/32"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"



PROPOSED NORTHEAST ELEVATION

SCALE: 3/32"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

smartlink
1997 ANNAPOLIS EXCHANGE PKWY
SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CT2064
SITE NAME: WEST HAVEN-BURWELL ST
204 BURWELL ST
WEST HAVEN, CT 06516
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

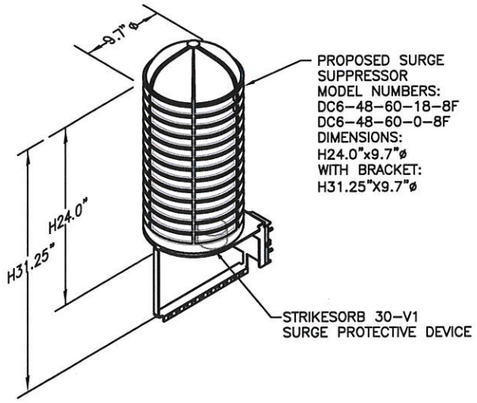
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	04/10/14	ISSUED FOR REVIEW	SG	TH	DPH
A	03/07/14	ISSUED FOR REVIEW	SG	TH	DPH

SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SG

AT&T

ANTENNA LAYOUT AND ELEVATION (LTE-2C)

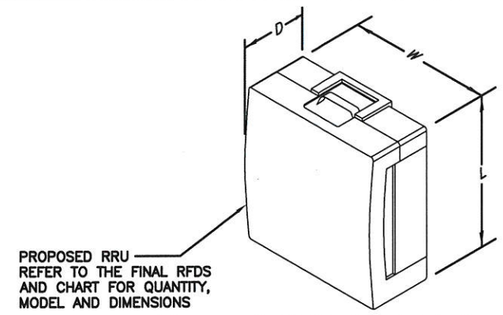
JOB NUMBER	DRAWING NUMBER	REV
2064.01	A-2	0



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.



	L	W	D
RRUS – 11	19.7"	17.0"	7.2"
RRUS – 12	20.4"	18.5"	7.5"
RRUS – 32	26.7"	12.1"	6.7"
RRUS – E2	20"	20.4"	9.5"
LTE – A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRU DETAIL

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

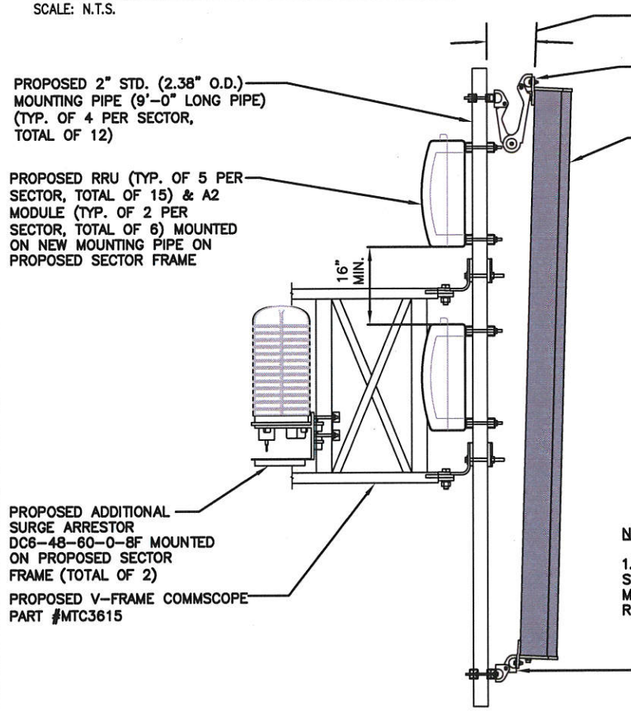
SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	POWERWAVE	7770	55x11x5
	KMW	AM-X-CD-16-65-00T-RET	72x11.8x5.9
	POWERWAVE	7770	55X11X5
BETA:	POWERWAVE	7770	55X11X5
	KMW	AM-X-CD-16-65-00T-RET	72X11.8X5.9
	POWERWAVE	7770	55X11X5
GAMMA:	POWERWAVE	7770	55X11X5
	KMW	AM-X-CD-16-65-00T-RET	72X11.8X5.9
	POWERWAVE	7770	55X11X5

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	POWERWAVE	7770	55X11X5
	CCI	HPA-65R-BUU-H6-K	72x14.8X9
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
BETA:	POWERWAVE	7770	55X11X5
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
GAMMA:	POWERWAVE	7770	55X11X5
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
	CCI	HPA-65R-BUU-H6-K	72X14.8X9
	CCI	HPA-65R-BUU-H6-K	72X14.8X9

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	ERICSSON	RRUS-12	20.4X18.5X7.4
	ERICSSON	RRUS-12	20.4X18.5X7.4
	ERICSSON	RRUS-11	19.69X16.97X7.17
	ERICSSON	RRUS-11	19.69X16.97X7.17
	ERICSSON	RRUS-E2	20.4X18.5X7.4
	ERISSSON	RRUS-32	26.7X12.1X6.7
	ERICSSON	A2 MODULE	16.4X15.2X3.4
	ERICSSON	A2 MODULE	16.4X15.2X3.4
BETA:	ERICSSON	RRUS-12	20.4X18.5X7.4
	ERICSSON	RRUS-12	20.4X18.5X7.4
	ERICSSON	RRUS-11	19.69X16.97X7.17
	ERICSSON	RRUS-11	19.69X16.97X7.17
	ERICSSON	RRUS-E2	20.4X18.5X7.4
	ERISSSON	RRUS-32	26.7X12.1X6.7
	ERICSSON	A2 MODULE	16.4X15.2X3.4
	ERICSSON	A2 MODULE	16.4X15.2X3.4
GAMMA:	ERICSSON	RRUS-12	20.4X18.5X7.4
	ERICSSON	RRUS-12	20.4X18.5X7.4
	ERICSSON	RRUS-11	19.69X16.97X7.17
	ERICSSON	RRUS-11	19.69X16.97X7.17
	ERICSSON	RRUS-E2	20.4X18.5X7.4
	ERISSSON	RRUS-32	26.7X12.1X6.7
	ERICSSON	A2 MODULE	16.4X15.2X3.4
	ERICSSON	A2 MODULE	16.4X15.2X3.4

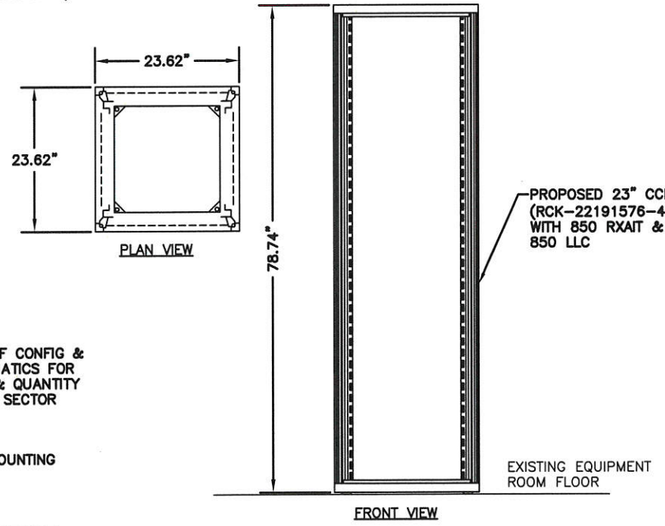


NOTES:

1. REFER TO RF CONFIG & SECTOR SCHEMATICS FOR MODEL, TYPE & QUANTITY REQUIRED PER SECTOR

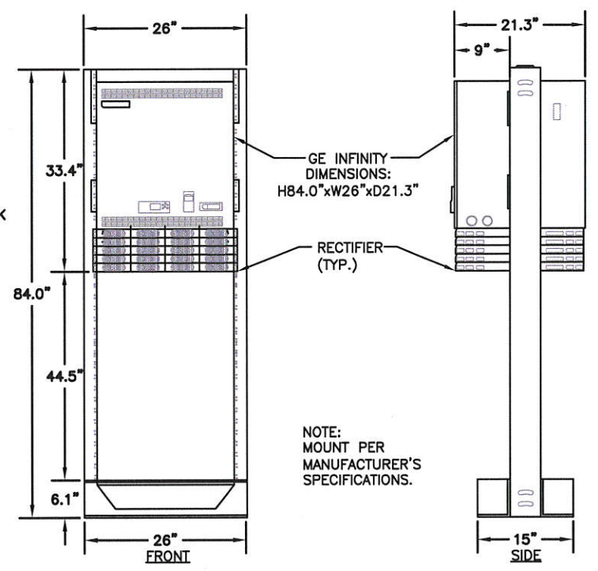
PROPOSED LTE ANTENNA, RRU, & SURGE ARRESTOR MOUNTING DETAIL

SCALE: N.T.S.



PROPOSED EQUIPMENT RACK DETAIL

SCALE: N.T.S.



GE INFINITY POWER PLANT

SCALE: N.T.S.

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.

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
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1997 ANNAPOLIS EXCHANGE PKWY
SUITE 200
ANNAPOLIS, MD 21401

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at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

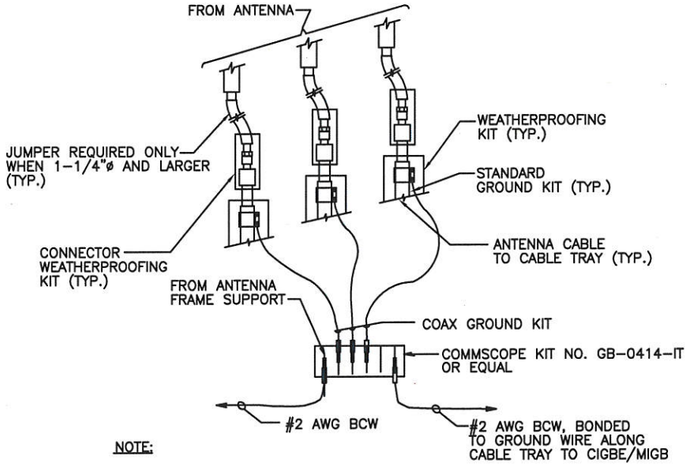
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	04/10/14	ISSUED FOR REVIEW	SG	TH	DPH
A	03/07/14	ISSUED FOR REVIEW	SG	TH	DPH

SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SG

AT&T

DETAILS
(LTE-2C)

JOB NUMBER	DRAWING NUMBER	REV
2064.01	A-3	0

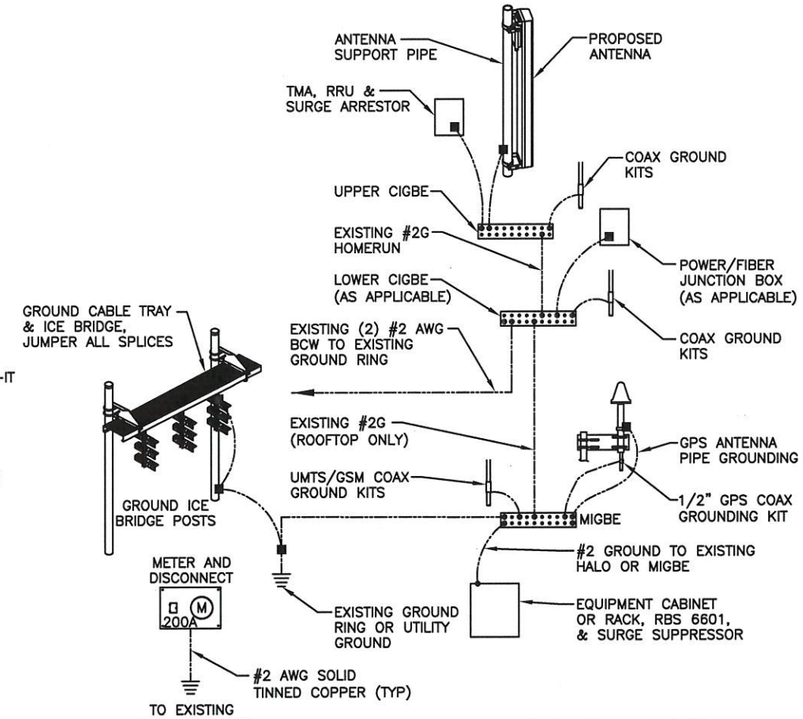


NOTE:

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

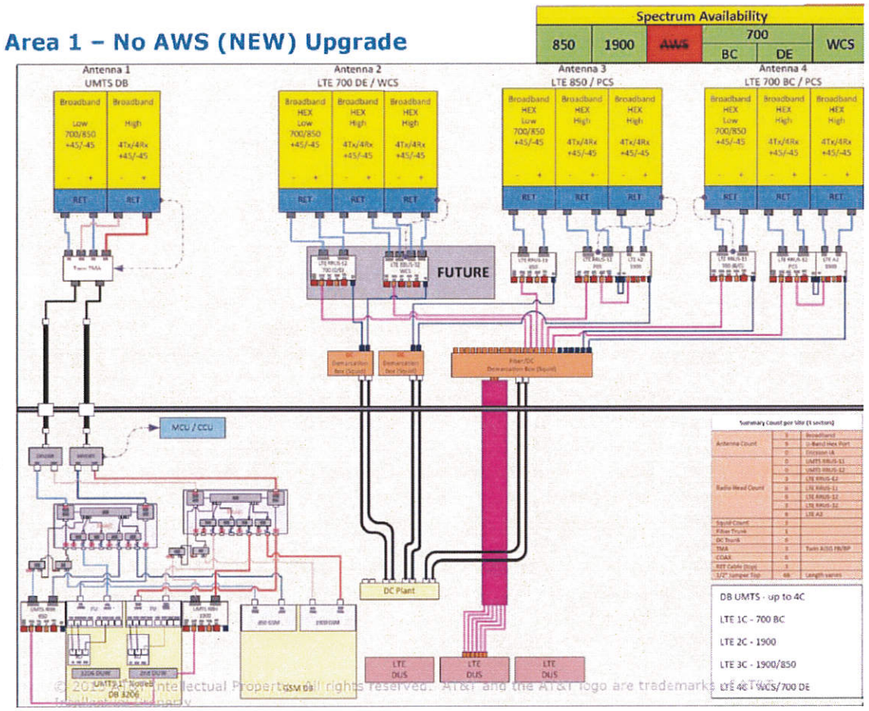
1 GROUND WIRE TO GROUND BAR CONNECTION DETAIL

N.T.S.



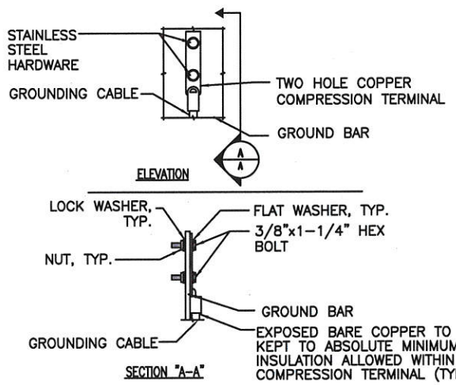
2 GROUNDING RISER DIAGRAM

N.T.S.



3 PLUMBING DIAGRAM

N.T.S.



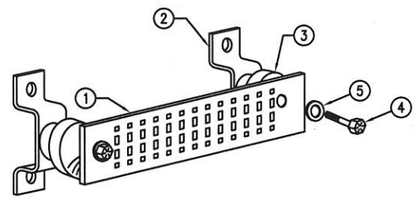
NOTE:

1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

4 TYPICAL GROUND BAR CONNECTION DETAIL

N.T.S.

WIRELESS SOLUTIONS INC.			
NO.	REQ.	PART NO.	DESCRIPTION
1	1	HLGB-0420-IS	SOLID GND. BAR (20"x4"x1/4")
2	2	———	WALL MTG. BRKT.
3	2	———	INSULATORS
4	4	———	5/8"-11x1" H.H.C.S.
5	4	———	5/8 LOCKWASHER



5 GROUND BAR - DETAIL

N.T.S.

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

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
–48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

smartlink
1997 ANNAPOLIS EXCHANGE PKWY
SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CT2064
SITE NAME: WEST HAVEN-BURWELL ST
204 BURWELL ST
WEST HAVEN, CT 06516
NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	04/10/14	ISSUED FOR REVIEW	SG	TH	DPH
A	03/07/14	ISSUED FOR REVIEW	SG	TH	DPH

SCALE: AS SHOWN | DESIGNED BY: TH | DRAWN BY: SG

AT&T

PLUMBING DIAGRAM & DETAILS (LTE-2C)

JOB NUMBER	DRAWING NUMBER	REV
2064.01	G-1	0

sitesafe
rf compliance experts

200 North Glebe Road, Suite 1000
Arlington, VA 22203-3728

Todd Oliver
Smartlink, LLC
Market Manager, NE
33 Boston Post Road, Suite 210
Marlborough, MA 01752

Reference: Smartlink LLC Site, West Haven-Burwell St, 204 Burwell St, West Haven, CT

Date: 24 April 2014

1. This letter will address the additional RF impact that adding AT&T LTE antennas to the referenced site. Attached are two documents which cover the modeled RF emissions from the site.

2. The first report, "RF Emissions Compliance Report," for the site complied by Sitesafe, uses the antenna patterns for the antennas at the site to calculate the General Public Maximum Permissible Exposure (MPE) on the ground. The total MPE of all the carriers is 1.846% (based on the General Public MPE) based on this modeling, with AT&T antennas emitting a maximum of 0.557% of the General Public MPE on the ground.

3. The second attachment has the calculations, used by the Connecticut Siting Council, which assumes the maximum antenna gain transmits in a spherical pattern where the worst case results would be at the base of the tower. That calculation, based on the existing antennas, gives a result of 31.35% of the General Public MPE, with the AT&T antennas emitting 13.55% of the General Public MPE on the ground, using the modeling predictions used by Connecticut Siting Council.

4. In either case, the site is compliant with FCC guidelines. If you have any questions regarding this site, the compliance report, please contact me at 719-434-0700 or dcotton@sitesafe.com.

David C. Cotton, Jr.
Licensed Professional Engineer (Electrical)
State of Connecticut, PEN.0027481
Date: 2014-April-24

Director, RF Compliance

Attachment 1

RF EMISSIONS COMPLIANCE REPORT

Smartlink on behalf of AT&T Mobility, LLC

AT&T Mobility, LLC Site FA: 10035024
AT&T Mobility, LLC Site ID: CT2064
AT&T Mobility, LLC Site Name: West Haven-Burwell Street
204 Burwell Street
West Haven, CT
4/22/2014

Report Status:

AT&T Mobility, LLC Is Compliant

Prepared By:

Sitesafe, Inc.

200 North Glebe Road, Suite 1000

Arlington, VA 22203

Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
AT&T Mobility, LLC
West Haven, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, Inc. in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by AT&T Mobility, LLC (See attached Site Summary and Carrier documents), and that AT&T Mobility, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "West Haven-Burwell Street" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 0.557% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 1.846% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Note: Sitesafe has used data obtained from the "Connecticut Siting Council" to create this report. The manufacturer antenna patterns for AT&T Mobility, LLC were used to determine the RF emissions from the AT&T Mobility, LLC antennas. Generic antennas were used for the other carriers on the tower, as this information was not available, or provided at the time the study was conducted. Sitesafe has conducted FCC research on this site, and was updated in this report with the appropriate FCC call signs and Maximum ERP values. Sitesafe has also referenced the AT&T Mobility, LLC construction diagram for this site. The Omni directional antennas were scaled off of the AT&T Mobility, LLC construction drawing.

The following documents below were the primary sources of data used to create this report. The primary document was the "Connecticut Siting Council" document. The AT&T Mobility, LLC construction diagram was referenced when appropriate.

Connecticut Siting Council: AlphaExMPowDens 4-16-14

AT&T Mobility, LLC Construction Diagram: 10035024.AE201.140410 (CT2064) Hudson Rev0

AT&T Mobility, LLC (Proposed)
West Haven-Burwell Street
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.204 %
AT&T Mobility, LLC	0.175 %
AT&T Mobility, LLC (Proposed/Future)	0 %
AT&T Mobility, LLC (Proposed/Future)	0 %
AT&T Mobility, LLC (Proposed/Future)	0 %
AT&T Mobility, LLC (Proposed/Future)	0 %
AT&T Mobility, LLC (Proposed)	0.178 %
Clearwire	0.152 %
Sprint-Nextel	0.463 %
WNHN695 - City of West Haven/Location 2 (Police)	0.185 %
WPDV959 - Southern Connecticut Gas Company/Location 2	0.259 %
WPYQ261 - Southern Connecticut Gas Company/Location 3	0.23 %
Composite Site MPE:	1.846 %

Attachment 2

West Haven - 1 Burwell Rd

Power Density Calculations

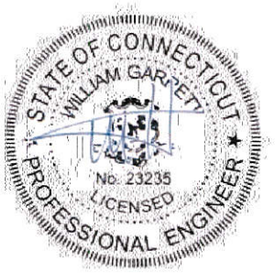
Control Number	Site	Carrier	#Channels	ERP/Ch	Ant Ht	Power Density (mW/c	MHz	S	%MPE	Site Total
EM-CING-156-120615	West Haven - 1 Burwell Road	AT&T UMTS	2	565	154	0.0171	880	0.5867	2.92%	
EM-CING-156-120615	West Haven - 1 Burwell Road	AT&T UMTS	2	875	154	0.0265	1900	1.0000	2.65%	
EM-CING-156-120615	West Haven - 1 Burwell Road	AT&T GSM	1	283	154	0.0043	880	0.5867	0.73%	
EM-CING-156-120615	West Haven - 1 Burwell Road	AT&T GSM	4	525	154	0.0318	1900	1.0000	3.18%	
EM-CING-156-120615	West Haven - 1 Burwell Road	AT&T LTE	1	1313	154	0.0199	734	0.4893	4.07%	
EM-SCLP-156-931210	West Haven - Burwell Road	SoCT Gas				0.0142		0.2000	7.10%	
EM-SCLP-156-931210	West Haven - Burwell Road	SoCT Gas				0.0104		0.3010	3.46%	
EM-SCLP-156-931210	West Haven - Burwell Road	WHvn Police	1	150	88	0.0008	460	0.3067	0.26%	
EM-Sprint-Nextel-156-071228	West Haven - Burwell Road	Sprint Nextel iDEN	12	100	140	0.0220	851	0.5673	3.88%	
EM-Sprint-Nextel-156-071228	West Haven - Burwell Road	Sprint Nextel WiMAX	3	562	140	0.0309	2657	1.0000	3.09%	**31.35%**

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**155 ft Self Supported Tower**
ATC Site Name	:	**Wshn - West Haven, CT**
ATC Site Number	:	**302505**
Engineering Number	:	**56776321**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**West Haven-Burwell St**
Carrier Site Number	:	**CTL02064/FA#10035024**
Site Location	:	**204 Burwell Street** **West Haven, CT 06516-1105** **41.295333,-72.973300**
County	:	**New Haven**
Date	:	**February 27, 2014**
Max Usage	:	**87%**
Result	:	**Pass**

Eric Bosko, E.I.



Feb 27 2014 2:52 PM

AMERICAN TOWER®
CORPORATION

Eng. Number 56776321
February 27, 2014

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 155 ft self supported tower to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Stainless Report #2940-3, dated August 14, 1981
Foundation Drawing	Mapping by TEP Project #03290, dated July 28, 2003
Geotechnical Report	GEOServices Project #21-07254, dated November 28, 2007
Modifications	SpectraSite Dwg #CT-0041-E1, dated August 08, 2003 ATC Project #53874032, dated July 23, 2013

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Mount Elev.[1] (ft)	Qty.	Antenna	Mount Type	Lines	Carrier
154.0	3	CCI DTMABP7819VG12A	Sector Frames	(2) 0.78" 8 AWG 6 (12) 1 5/8" Coax (1) 3" Conduit (1) 0.39" Cable	AT&T Mobility
	1	Raycap DC6-48-60-18-8F			
	3	Diplexer / Coupler			
	6	Ericsson RRUS-11			
140.0	3	72" x 12" Panel	Sector Frames	(12) 1 5/8" Coax	Sprint Nextel
	9	48" x 12" Panel			
123.0	-	-	Empty Sector Frames	-	-
103.0	1	Decibel DB636	Stand-Off	(1) 7/8" Coax	City of West Haven
80.0	1	Antel BCD-87010_	Side Arm	(1) 1/2" Coax	USA Mobility
	1	Decibel DB224		(1) 7/8" Coax	S. Conecticut Gas
70.0	1	Andrew ASPR766P	Side Arm	(1) 7/8" Coax (1) 1/2" Coax	
	1	5' Yagi			

Proposed Equipment

Elevation[1] (ft)		Qty.	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
154.0	154.0	3	Ericsson RRUS E2 B29	Sector Frames	-	AT&T Mobility
		9	CCI HPA-33R-BUU-H6-K			
		3	Ericsson RRUS-32			
		6	Ericsson RRUS 12 w/ S.S.			
		6	Ericsson RRUS A2			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	87%	Pass
Diagonals	77%	Pass
Horizontals	57%	Pass
Anchor Bolts	20%	Pass
Leg Bolts	61%	Pass

Foundations

Reaction Component	Analysis Reactions
Uplift (Kips)	205.7
Axial (Kips)	236.7
Shear (Kips)	21.9

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
154.0	0.238	0.246	0.446

***Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

AMERICAN TOWER®
CORPORATION

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

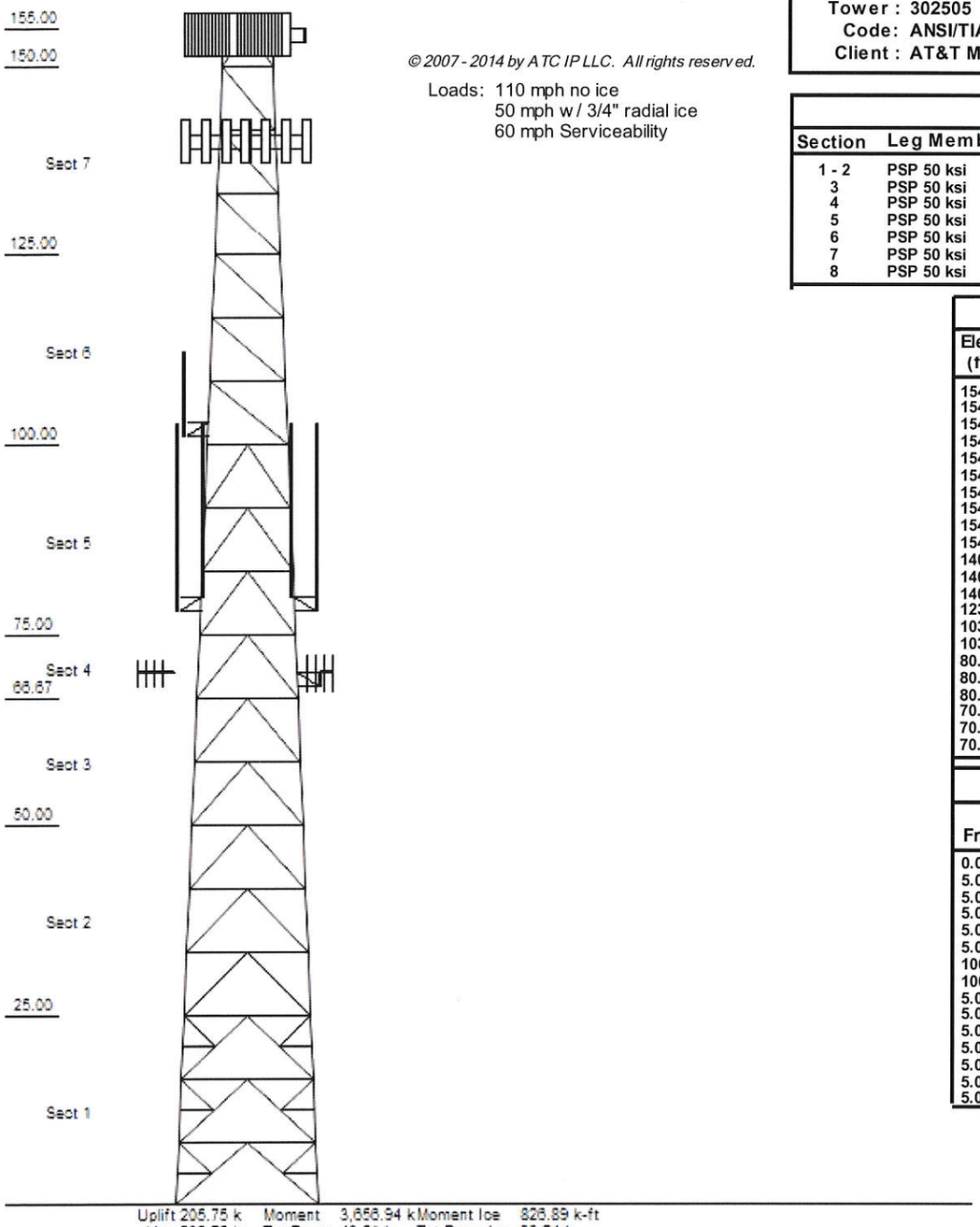
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Tower Services, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Loads: 110 mph no ice
50 mph w / 3/4" radial ice
60 mph Serviceability

Job Information

Tower : 302505	Location : Wshn - West Haven, CT		
Code: ANSI/TIA-222 Rev G	Shape : Triangle	Base Width : 19.00 ft	
Client : AT&T Mobility		Top Width : 7.00 ft	

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1 - 2	PSP 50 ksi	5" OD x .500"	PSP 36 ksi STLSS 3" OD X0.25"	DAL 36 ksi 3X2.5X0.25
3	PSP 50 ksi	5" OD x .500"	PSP 36 ksi STLSS 2.75" OD	SAE 36 ksi 3X3X0.25
4	PSP 50 ksi	5" OD x .500"	PSP 36 ksi STLSS 2.75" OD	DAL 36 ksi 3X2.5X0.25
5	PSP 50 ksi	5" OD x .300"	PSP 36 ksi STLSS 2.75" OD	DAL 36 ksi 3X2.5X0.25
6	PSP 50 ksi	STLSS 5" OD	PSP 36 ksi STLSS 3" OD X0.25"	DAL 36 ksi 3X2.5X0.25
7	PSP 50 ksi	STLSS 5" OD	PSP 36 ksi STLSS 2.75" OD	SAE 36 ksi 3X3X0.25
8	PSP 50 ksi	STLSS 5" OD	DAL 36 ksi 2.5X2X0.1875	CHN 36 ksi C4 x 5.4

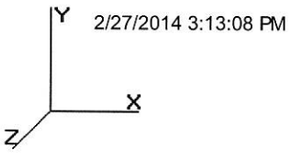
Discrete Appurtenance

Elev (ft)	Type	Qty	Description
154.00	Panel	3	Ericsson RRUS E2 B29
154.00	Panel	9	CCI HPA-33R-BUU-H6-K
154.00	Panel	3	Ericsson RRUS-32
154.00	Panel	6	Ericsson RRUS 12 w/ S.S.
154.00	Panel	6	Ericsson RRUS A2
154.00	Panel	3	CCI DTMABP7819VG12A
154.00	Panel	1	Ravcap DC6-48-60-18-8F
154.00	Panel	3	Diplexer / Coupler
154.00	Panel	6	Ericsson RRUS-11
154.00	Mounting Frame	3	Flat Light Sector Frame
140.00	Panel	3	72" x 12" Panel
140.00	Panel	9	48" x 12" Panel
140.00	Mounting Frame	3	Flat Light Sector Frame
123.00	Mounting Frame	3	Empty Round Sector Frame
103.00	Straight Arm	1	Stand-Off
103.00	Whip	1	Decibel DB636
80.00	Whip	1	Antel BCD-87010
80.00	Straight Arm	1	Flat Side Arm
80.00	Whip	1	Decibel DB224
70.00	Yagi	1	Andrew ASPR766P
70.00	Straight Arm	1	Flat Side Arm
70.00	Yagi	1	5' Yagi

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	155.00	1	Climbing Ladder
5.000	154.00	1	Waveguide
5.000	154.00	1	3" Conduit
5.000	154.00	12	1 5/8" Coax
5.000	154.00	2	0.78" 8 AWG 6
5.000	154.00	1	0.39" Cable
100.000	140.00	1	Waveguide
100.000	140.00	12	1 5/8" Coax
5.000	103.00	1	7/8" Coax
5.000	100.00	1	Waveguide
5.000	100.00	12	1 5/8" Coax
5.000	80.000	1	7/8" Coax
5.000	80.000	1	1/2" Coax
5.000	70.000	1	7/8" Coax
5.000	70.000	1	1/2" Coax

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Section Forces

LoadCase 1.2D + 1.6W Normal

110.00 mph Normal to Face with No Ice

Gust Response Factor : 0.85
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	29.35	4.54	4.17	0.00	0.23	2.48	1.00	1.00	0.00	6.48	6.53	0.00	691.3	0.0	642.70	241.71	884.41
7	137.5	28.50	5.44	28.52	0.00	0.16	2.73	1.00	1.00	0.00	18.81	56.37	0.00	3,031.6	0.0	1,990.62	2,032.9	4,023.60
6	112.5	26.91	6.94	30.31	0.00	0.14	2.80	1.00	1.00	0.00	21.13	67.38	0.00	4,166.3	0.0	2,163.55	2,298.4	4,462.03
5	87.50	25.05	8.27	34.67	0.00	0.14	2.81	1.00	1.00	0.00	24.95	70.09	0.00	5,631.0	0.0	2,392.64	2,090.6	4,483.24
4	70.83	23.58	3.09	11.74	0.00	0.13	2.85	1.00	1.00	0.00	8.72	24.80	0.00	2,226.2	0.0	796.85	689.12	1,485.96
3	58.33	22.31	6.68	23.79	0.00	0.12	2.87	1.00	1.00	0.00	18.08	51.03	0.00	3,958.8	0.0	1,573.61	1,335.2	2,908.81
2	37.50	19.66	11.25	37.86	0.00	0.12	2.89	1.00	1.00	0.00	29.57	76.54	0.00	7,764.9	0.0	2,281.88	1,765.2	4,047.15
1	12.50	18.43	12.75	51.90	0.00	0.14	2.81	1.00	1.00	0.00	39.26	61.65	0.00	8,603.2	0.0	2,762.28	1,331.3	4,093.68
														36,073.2	0.0			26,388.88

LoadCase 1.2D + 1.6W 60 deg

110.00 mph 60 deg with No Ice

Gust Response Factor : 0.85
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	29.35	4.54	4.17	0.00	0.23	2.48	0.80	1.00	0.00	5.57	6.53	0.00	691.3	0.0	552.70	241.71	794.41
7	137.5	28.50	5.44	28.52	0.00	0.16	2.73	0.80	1.00	0.00	17.73	56.37	0.00	3,031.6	0.0	1,875.54	2,032.9	3,908.53
6	112.5	26.91	6.94	30.31	0.00	0.14	2.80	0.80	1.00	0.00	19.75	67.38	0.00	4,166.3	0.0	2,021.50	2,298.4	4,319.99
5	87.50	25.05	8.27	34.67	0.00	0.14	2.81	0.80	1.00	0.00	23.30	70.09	0.00	5,631.0	0.0	2,234.13	2,090.6	4,324.73
4	70.83	23.58	3.09	11.74	0.00	0.13	2.85	0.80	1.00	0.00	8.11	24.80	0.00	2,226.2	0.0	740.42	689.12	1,429.54
3	58.33	22.31	6.68	23.79	0.00	0.12	2.87	0.80	1.00	0.00	16.74	51.03	0.00	3,958.8	0.0	1,457.35	1,335.2	2,792.55
2	37.50	19.66	11.25	37.86	0.00	0.12	2.89	0.80	1.00	0.00	27.32	76.54	0.00	7,764.9	0.0	2,108.24	1,765.2	3,873.51
1	12.50	18.43	12.75	51.90	0.00	0.14	2.81	0.80	1.00	0.00	36.71	61.65	0.00	8,603.2	0.0	2,582.87	1,331.3	3,914.26
														36,073.2	0.0			25,357.50

LoadCase 1.2D + 1.6W 90 deg

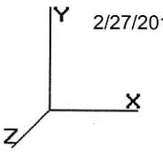
110.00 mph 90 deg with No Ice

Gust Response Factor : 0.85
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	29.35	4.54	4.17	0.00	0.23	2.48	0.85	1.00	0.00	5.80	6.53	0.00	691.3	0.0	575.20	241.71	816.91
7	137.5	28.50	5.44	28.52	0.00	0.16	2.73	0.85	1.00	0.00	18.00	56.37	0.00	3,031.6	0.0	1,904.31	2,032.9	3,937.29
6	112.5	26.91	6.94	30.31	0.00	0.14	2.80	0.85	1.00	0.00	20.09	67.38	0.00	4,166.3	0.0	2,057.01	2,298.4	4,355.50
5	87.50	25.05	8.27	34.67	0.00	0.14	2.81	0.85	1.00	0.00	23.71	70.09	0.00	5,631.0	0.0	2,273.76	2,090.6	4,364.36
4	70.83	23.58	3.09	11.74	0.00	0.13	2.85	0.85	1.00	0.00	8.26	24.80	0.00	2,226.2	0.0	754.53	689.12	1,443.65

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Section Forces

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
3	58.33	22.31	6.68	23.79	0.00	0.12	2.87	0.85	1.00	0.00	17.07	51.03	0.00	3,958.8	0.0	1,486.42	1,335.2	2,821.61
2	37.50	19.66	11.25	37.86	0.00	0.12	2.89	0.85	1.00	0.00	27.88	76.54	0.00	7,764.9	0.0	2,151.65	1,765.2	3,916.92
1	12.50	18.43	12.75	51.90	0.00	0.14	2.81	0.85	1.00	0.00	37.35	61.65	0.00	8,603.2	0.0	2,627.72	1,331.3	3,959.11
														36,073.2	0.0			25,615.35

LoadCase 0.9D + 1.6W Normal

110.00 mph Normal to Face with No Ice (Reduced DL)

Gust Response Factor : 0.85
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	29.35	4.54	4.17	0.00	0.23	2.48	1.00	1.00	0.00	6.48	6.53	0.00	518.5	0.0	642.70	241.71	884.41
7	137.5	28.50	5.44	28.52	0.00	0.16	2.73	1.00	1.00	0.00	18.81	56.37	0.00	2,273.7	0.0	1,990.62	2,032.9	4,023.60
6	112.5	26.91	6.94	30.31	0.00	0.14	2.80	1.00	1.00	0.00	21.13	67.38	0.00	3,124.7	0.0	2,163.55	2,298.4	4,462.03
5	87.50	25.05	8.27	34.67	0.00	0.14	2.81	1.00	1.00	0.00	24.95	70.09	0.00	4,223.2	0.0	2,392.64	2,090.6	4,483.24
4	70.83	23.58	3.09	11.74	0.00	0.13	2.85	1.00	1.00	0.00	8.72	24.80	0.00	1,669.6	0.0	796.85	689.12	1,485.96
3	58.33	22.31	6.68	23.79	0.00	0.12	2.87	1.00	1.00	0.00	18.08	51.03	0.00	2,969.1	0.0	1,573.61	1,335.2	2,908.81
2	37.50	19.66	11.25	37.86	0.00	0.12	2.89	1.00	1.00	0.00	29.57	76.54	0.00	5,823.7	0.0	2,281.88	1,765.2	4,047.15
1	12.50	18.43	12.75	51.90	0.00	0.14	2.81	1.00	1.00	0.00	39.26	61.65	0.00	6,452.4	0.0	2,762.28	1,331.3	4,093.68
														27,054.9	0.0			26,388.88

LoadCase 0.9D + 1.6W 60 deg

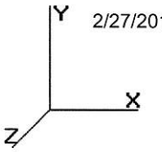
110.00 mph 60 deg with No Ice (Reduced DL)

Gust Response Factor : 0.85
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	29.35	4.54	4.17	0.00	0.23	2.48	0.80	1.00	0.00	5.57	6.53	0.00	518.5	0.0	552.70	241.71	794.41
7	137.5	28.50	5.44	28.52	0.00	0.16	2.73	0.80	1.00	0.00	17.73	56.37	0.00	2,273.7	0.0	1,875.54	2,032.9	3,908.53
6	112.5	26.91	6.94	30.31	0.00	0.14	2.80	0.80	1.00	0.00	19.75	67.38	0.00	3,124.7	0.0	2,021.50	2,298.4	4,319.99
5	87.50	25.05	8.27	34.67	0.00	0.14	2.81	0.80	1.00	0.00	23.30	70.09	0.00	4,223.2	0.0	2,234.13	2,090.6	4,324.73
4	70.83	23.58	3.09	11.74	0.00	0.13	2.85	0.80	1.00	0.00	8.11	24.80	0.00	1,669.6	0.0	740.42	689.12	1,429.54
3	58.33	22.31	6.68	23.79	0.00	0.12	2.87	0.80	1.00	0.00	16.74	51.03	0.00	2,969.1	0.0	1,457.35	1,335.2	2,792.55
2	37.50	19.66	11.25	37.86	0.00	0.12	2.89	0.80	1.00	0.00	27.32	76.54	0.00	5,823.7	0.0	2,108.24	1,765.2	3,873.51
1	12.50	18.43	12.75	51.90	0.00	0.14	2.81	0.80	1.00	0.00	36.71	61.65	0.00	6,452.4	0.0	2,582.87	1,331.3	3,914.26
														27,054.9	0.0			25,357.50

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Section Forces

LoadCase 0.9D + 1.6W 90 deg

110.00 mph 90 deg with No Ice (Reduced DL)

Gust Response Factor : 0.85
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	29.35	4.54	4.17	0.00	0.23	2.48	0.85	1.00	0.00	5.80	6.53	0.00	518.5	0.0	575.20	241.71	816.91
7	137.5	28.50	5.44	28.52	0.00	0.16	2.73	0.85	1.00	0.00	18.00	56.37	0.00	2,273.7	0.0	1,904.31	2,032.9	3,937.29
6	112.5	26.91	6.94	30.31	0.00	0.14	2.80	0.85	1.00	0.00	20.09	67.38	0.00	3,124.7	0.0	2,057.01	2,298.4	4,355.50
5	87.50	25.05	8.27	34.67	0.00	0.14	2.81	0.85	1.00	0.00	23.71	70.09	0.00	4,223.2	0.0	2,273.76	2,090.6	4,364.36
4	70.83	23.58	3.09	11.74	0.00	0.13	2.85	0.85	1.00	0.00	8.26	24.80	0.00	1,669.6	0.0	754.53	689.12	1,443.65
3	58.33	22.31	6.68	23.79	0.00	0.12	2.87	0.85	1.00	0.00	17.07	51.03	0.00	2,969.1	0.0	1,486.42	1,335.2	2,821.61
2	37.50	19.66	11.25	37.86	0.00	0.12	2.89	0.85	1.00	0.00	27.88	76.54	0.00	5,823.7	0.0	2,151.65	1,765.2	3,916.92
1	12.50	18.43	12.75	51.90	0.00	0.14	2.81	0.85	1.00	0.00	37.35	61.65	0.00	6,452.4	0.0	2,627.72	1,331.3	3,959.11
														27,054.9	0.0			25,615.35

LoadCase 1.2D + 1.0Di + 1.0Wi Normal

50.00 mph Normal with 0.75 in Radial Ice

Gust Response Factor : 0.85
Dead Load Factor : 1.20
Wind Load Factor : 1.00
Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	6.06	4.54	12.68	8.51	0.45	1.98	1.00	1.00	1.75	12.87	8.86	6.12	1,933.5	1,242.2	131.35	59.07	190.42
7	137.5	5.89	5.44	59.58	31.06	0.30	2.30	1.00	1.00	1.73	41.27	79.44	36.04	8,027.3	4,995.7	474.93	528.01	1,002.94
6	112.5	5.56	6.94	63.69	33.38	0.26	2.40	1.00	1.00	1.70	44.61	95.64	36.18	10,246.7	6,080.5	505.14	582.62	1,087.76
5	87.50	5.17	8.27	75.26	40.59	0.26	2.40	1.00	1.00	1.65	52.81	97.65	44.10	13,321.3	7,690.3	557.10	580.59	1,137.69
4	70.83	4.87	3.09	25.57	13.83	0.25	2.45	1.00	1.00	1.62	18.10	33.79	19.79	4,928.5	2,702.3	183.80	207.61	391.41
3	58.33	4.61	6.68	51.78	28.00	0.23	2.49	1.00	1.00	1.59	36.94	68.67	44.11	8,850.2	4,891.3	360.00	415.83	775.83
2	37.50	4.06	11.25	80.17	42.31	0.22	2.53	1.00	1.00	1.52	57.89	101.86	63.30	16,079.5	8,314.7	506.21	541.63	1,047.84
1	12.50	3.81	12.75	92.15	40.25	0.23	2.51	1.00	1.00	1.36	66.43	79.80	46.51	16,985.4	8,382.2	540.61	386.32	926.92
														80,372.3	44,299.1			6,560.81

LoadCase 1.2D + 1.0Di + 1.0Wi 60 deg

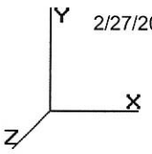
50.00 mph 60 deg with 0.75 in Radial Ice

Gust Response Factor : 0.85
Dead Load Factor : 1.20
Wind Load Factor : 1.00
Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	6.06	4.54	12.68	8.51	0.45	1.98	0.80	1.00	1.75	11.97	8.86	6.12	1,933.5	1,242.2	122.09	59.07	181.16
7	137.5	5.89	5.44	59.58	31.06	0.30	2.30	0.80	1.00	1.73	40.18	79.44	36.04	8,027.3	4,995.7	462.41	528.01	990.42
6	112.5	5.56	6.94	63.69	33.38	0.26	2.40	0.80	1.00	1.70	43.22	95.64	36.18	10,246.7	6,080.5	489.43	582.62	1,072.05
5	87.50	5.17	8.27	75.26	40.59	0.26	2.40	0.80	1.00	1.65	51.16	97.65	44.10	13,321.3	7,690.3	539.66	580.59	1,120.25
4	70.83	4.87	3.09	25.57	13.83	0.25	2.45	0.80	1.00	1.62	17.49	33.79	19.79	4,928.5	2,702.3	177.53	207.61	385.14

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Section Forces

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
3	58.33	4.61	6.68	51.78	28.00	0.23	2.49	0.80	1.00	1.59	35.61	68.67	44.11	8,850.2	4,891.3	346.99	415.83	762.82
2	37.50	4.06	11.25	80.17	42.31	0.22	2.53	0.80	1.00	1.52	55.64	101.86	63.30	16,079.5	8,314.7	486.53	541.63	1,028.16
1	12.50	3.81	12.75	92.15	40.25	0.23	2.51	0.80	1.00	1.36	63.88	79.80	46.51	16,985.4	8,382.2	519.86	386.32	906.17
														80,372.3	44,299.1			6,446.17

LoadCase 1.2D + 1.0Di + 1.0Wi 90 deg — 50.00 mph 90 deg with 0.75 in Radial Ice

Gust Response Factor : 0.85
Dead Load Factor : 1.20
Wind Load Factor : 1.00
Ice Dead Load Factor : 1.00
Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

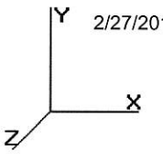
Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	6.06	4.54	12.68	8.51	0.45	1.98	0.85	1.00	1.75	12.19	8.86	6.12	1,933.5	1,242.2	124.40	59.07	183.47
7	137.5	5.89	5.44	59.58	31.06	0.30	2.30	0.85	1.00	1.73	40.46	79.44	36.04	8,027.3	4,995.7	465.54	528.01	993.55
6	112.5	5.56	6.94	63.69	33.38	0.26	2.40	0.85	1.00	1.70	43.57	95.64	36.18	10,246.7	6,080.5	493.36	582.62	1,075.98
5	87.50	5.17	8.27	75.26	40.59	0.26	2.40	0.85	1.00	1.65	51.57	97.65	44.10	13,321.3	7,690.3	544.02	580.59	1,124.61
4	70.83	4.87	3.09	25.57	13.83	0.25	2.45	0.85	1.00	1.62	17.64	33.79	19.79	4,928.5	2,702.3	179.10	207.61	386.71
3	58.33	4.61	6.68	51.78	28.00	0.23	2.49	0.85	1.00	1.59	35.94	68.67	44.11	8,850.2	4,891.3	350.24	415.83	766.07
2	37.50	4.06	11.25	80.17	42.31	0.22	2.53	0.85	1.00	1.52	56.20	101.86	63.30	16,079.5	8,314.7	491.45	541.63	1,033.08
1	12.50	3.81	12.75	92.15	40.25	0.23	2.51	0.85	1.00	1.36	64.51	79.80	46.51	16,985.4	8,382.2	525.04	386.32	911.36
														80,372.3	44,299.1			6,474.83

LoadCase 1.0D + 1.0W Service Normal — Serviceability - 60.00 Wind Normal

Gust Response Factor : 0.85
Dead Load Factor : 1.00
Wind Load Factor : 1.00
Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	8.73	4.54	4.17	0.00	0.23	2.48	1.00	1.00	0.00	6.96	6.53	0.00	576.1	0.0	128.35	41.36	169.72
7	137.5	8.48	5.44	28.52	0.00	0.16	2.73	1.00	1.00	0.00	21.82	56.37	0.00	2,526.3	0.0	429.34	355.41	784.75
6	112.5	8.01	6.94	30.31	0.00	0.14	2.80	1.00	1.00	0.00	24.30	67.38	0.00	3,471.9	0.0	462.53	404.38	866.92
5	87.50	7.45	8.27	34.67	0.00	0.14	2.81	1.00	1.00	0.00	28.16	70.09	0.00	4,692.5	0.0	502.03	388.75	890.78
4	70.83	7.02	3.09	11.74	0.00	0.13	2.85	1.00	1.00	0.00	9.82	24.80	0.00	1,855.2	0.0	166.74	128.14	294.88
3	58.33	6.64	6.68	23.79	0.00	0.12	2.87	1.00	1.00	0.00	20.29	51.03	0.00	3,299.0	0.0	328.51	248.28	576.79
2	37.50	5.85	11.25	37.86	0.00	0.12	2.89	1.00	1.00	0.00	32.93	76.54	0.00	6,470.7	0.0	472.57	328.25	800.82
1	12.50	5.48	12.75	51.90	0.00	0.14	2.81	1.00	1.00	0.00	42.44	61.65	0.00	7,169.3	0.0	555.33	247.57	802.90
														30,061.0	0.0			5,187.56

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Section Forces

LoadCase 1.0D + 1.0W Service 60 deg — **Serviceability - 60.00 Wind 60 deg**

Gust Response Factor : 0.85
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	8.73	4.54	4.17	0.00	0.23	2.48	0.80	1.00	0.00	6.05	6.53	0.00	576.1	0.0	111.62	41.36	152.98
7	137.5	8.48	5.44	28.52	0.00	0.16	2.73	0.80	1.00	0.00	20.73	56.37	0.00	2,526.3	0.0	407.94	355.41	763.36
6	112.5	8.01	6.94	30.31	0.00	0.14	2.80	0.80	1.00	0.00	22.91	67.38	0.00	3,471.9	0.0	436.12	404.38	840.50
5	87.50	7.45	8.27	34.67	0.00	0.14	2.81	0.80	1.00	0.00	26.50	70.09	0.00	4,692.5	0.0	472.55	388.75	861.30
4	70.83	7.02	3.09	11.74	0.00	0.13	2.85	0.80	1.00	0.00	9.20	24.80	0.00	1,855.2	0.0	156.25	128.14	284.39
3	58.33	6.64	6.68	23.79	0.00	0.12	2.87	0.80	1.00	0.00	18.96	51.03	0.00	3,299.0	0.0	306.89	248.28	555.17
2	37.50	5.85	11.25	37.86	0.00	0.12	2.89	0.80	1.00	0.00	30.68	76.54	0.00	6,470.7	0.0	440.28	328.25	768.53
1	12.50	5.48	12.75	51.90	0.00	0.14	2.81	0.80	1.00	0.00	39.89	61.65	0.00	7,169.3	0.0	521.96	247.57	769.54
														30,061.0	0.0			4,995.77

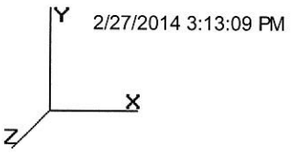
LoadCase 1.0D + 1.0W Service 90 deg — **Serviceability - 60.00 Wind 90 deg**

Gust Response Factor : 0.85
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
8	152.5	8.73	4.54	4.17	0.00	0.23	2.48	0.85	1.00	0.00	6.28	6.53	0.00	576.1	0.0	115.80	41.36	157.17
7	137.5	8.48	5.44	28.52	0.00	0.16	2.73	0.85	1.00	0.00	21.00	56.37	0.00	2,526.3	0.0	413.29	355.41	768.71
6	112.5	8.01	6.94	30.31	0.00	0.14	2.80	0.85	1.00	0.00	23.26	67.38	0.00	3,471.9	0.0	442.72	404.38	847.11
5	87.50	7.45	8.27	34.67	0.00	0.14	2.81	0.85	1.00	0.00	26.92	70.09	0.00	4,692.5	0.0	479.92	388.75	868.67
4	70.83	7.02	3.09	11.74	0.00	0.13	2.85	0.85	1.00	0.00	9.35	24.80	0.00	1,855.2	0.0	158.87	128.14	287.01
3	58.33	6.64	6.68	23.79	0.00	0.12	2.87	0.85	1.00	0.00	19.29	51.03	0.00	3,299.0	0.0	312.30	248.28	560.58
2	37.50	5.85	11.25	37.86	0.00	0.12	2.89	0.85	1.00	0.00	31.24	76.54	0.00	6,470.7	0.0	448.35	328.25	776.61
1	12.50	5.48	12.75	51.90	0.00	0.14	2.81	0.85	1.00	0.00	40.53	61.65	0.00	7,169.3	0.0	530.30	247.57	777.88
														30,061.0	0.0			5,043.72

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Tower Loading

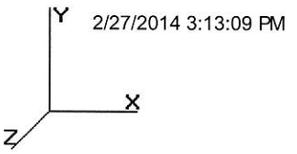
Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (ft)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
154.0	Ericsson RRUS E2 B29	3	60.00	3.150	155.58	3.866	1.700	18.50	7.500	0.80	0.67	0.000
154.0	CCI HPA-33R-BUU-H6-K	9	79.40	14.290	409.36	15.840	6.000	23.30	9.000	0.80	0.73	0.000
154.0	Ericsson RRUS-32	3	77.00	3.310	190.76	4.105	2.490	13.30	9.500	0.80	0.67	0.000
154.0	Ericsson RRUS 12 w/ S.S.	6	57.90	3.150	153.00	3.866	1.700	18.50	7.400	0.80	0.67	0.000
154.0	Ericsson RRUS A2	6	15.00	1.600	61.66	2.138	1.070	15.00	3.500	0.80	0.50	0.000
154.0	CCI DTMABP7819VG12A	3	19.20	1.370	63.34	1.866	1.190	11.50	4.200	0.80	0.50	0.000
154.0	Raycap DC6-48-60-18-8F	1	31.80	1.280	124.94	2.854	2.000	11.00	11.00	0.80	1.00	0.000
154.0	Diplexer / Coupler	3	5.00	0.700	28.98	0.965	1.000	6.000	3.000	0.80	0.50	0.000
154.0	Ericsson RRUS-11	6	55.00	3.790	160.37	4.579	2.080	18.20	6.700	0.80	0.67	0.000
154.0	Flat Light Sector Frame	3	400.00	17.900	702.07	33.045	0.000	0.000	0.000	0.75	0.75	0.000
140.0	72" x 12" Panel	3	45.00	8.130	234.67	9.417	6.000	12.00	6.000	0.80	0.66	0.000
140.0	48" x 12" Panel	9	30.00	5.070	161.91	6.043	4.000	12.00	6.000	0.80	0.65	0.000
140.0	Flat Light Sector Frame	3	400.00	17.900	698.96	32.889	0.000	0.000	0.000	0.75	0.75	0.000
123.0	Empty Round Sector Frame	3	300.00	14.400	658.14	30.516	0.000	0.000	0.000	0.75	0.75	0.000
103.0	Stand-Off	1	75.00	2.500	109.73	3.740	0.000	0.000	0.000	1.00	1.00	0.000
103.0	Decibel DB636	1	30.00	2.820	146.79	5.358	9.400	3.000	3.000	1.00	1.00	4.700
80.00	Antel BCD-87010_	1	26.50	2.900	152.42	6.539	11.16	2.600	2.600	1.00	1.00	5.590
80.00	Flat Side Arm	1	150.00	6.300	219.45	8.634	0.000	0.000	0.000	1.00	1.00	0.000
80.00	Decibel DB224	1	38.00	6.050	317.59	14.681	23.00	3.000	3.000	1.00	1.00	11.50
70.00	Andrew ASPR766P	1	1.80	0.930	38.09	2.535	1.000	30.00	0.000	1.00	1.00	0.000
70.00	Flat Side Arm	1	150.00	6.300	216.69	8.541	0.000	0.000	0.000	1.00	1.00	0.000
70.00	5' Yagi	1	20.00	7.290	213.61	25.432	5.000	60.00	3.000	1.00	1.00	0.000
	Totals	69	6193.70		17128.41					Number of Appurtenances : 22		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	155.0	Climbing Ladder	1	1.00	6.90	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
5.00	154.0	0.39" Cable	1	0.39	0.07	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	154.0	0.78" 8 AWG 6	2	0.78	0.59	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	154.0	1 5/8" Coax	12	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
5.00	154.0	3" Conduit	1	3.50	7.58	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	154.0	Waveguide	1	1.00	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
100.0	140.0	1 5/8" Coax	12	1.98	0.82	50	3	Block	0.00	N	0.00	1.00	0.00
100.0	140.0	Waveguide	1	1.00	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	103.0	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	100.0	1 5/8" Coax	12	1.98	0.82	50	Lin App	Block	0.00	N	0.00	1.00	0.00
5.00	100.0	Waveguide	1	1.00	6.00	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
5.00	80.00	1/2" Coax	1	0.63	0.15	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	80.00	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	70.00	1/2" Coax	1	0.63	0.15	0	3	Individual	0.00	N	1.00	1.00	0.00
5.00	70.00	7/8" Coax	1	1.09	0.33	0	3	Individual	0.00	N	1.00	1.00	0.00

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Force/Stress Summary

Section: 1 1 Bot Elev (ft): 0.00 Height (ft): 25.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	-225.17	1.2D + 1.6W	8.34	50	50	50	31.3	50.0	296.21	0	0	0.00	0.00	76	Member X
HORIZ DAL - 3X2.5X0.25	-6.81	1.2D + 1.6W 90	9.167	100	67	50	122.9	36.0	38.47	4	2	49.72	69.60	17	Member Y
DIAG PSP - STLSS 3" OD X0	-9.72	1.2D + 1.6W 90	12.63	50	50	50	77.7	36.0	50.93	1	1	0.00	27.84	19	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	195.91	0.9D + 1.6W 60	50	65	318.15	0	0	0.00	0.00	61	Member
HORIZ DAL - 3X2.5X0.25	6.96	1.2D + 1.6W 90	36	58	73.57	4	2	49.72	55.68	13	Bolt Shear
DIAG PSP - STLSS 3" OD X0	9.17	0.9D + 1.6W 90	36	58	69.98	1	1	0.00	16.97	54	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	174.73	0.9D + 1.6W 60	0.00	0	0	
Top Compression	200.40	1.2D + 1.6W	0.00	0		
Bot Tension	206.73	0.9D + 1.6W 60	1025.70	20	6	1 3/4 A325
Bot Compression	237.08	1.2D + 1.6W	0.00	0		

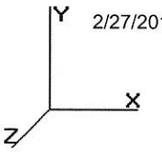
Section: 2 2 Bot Elev (ft): 25.00 Height (ft): 25.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	-188.34	1.2D + 1.6W	8.34	100	100	100	62.5	50.0	239.05	0	0	0.00	0.00	78	Member X
HORIZ DAL - 3X2.5X0.25	-6.44	1.2D + 1.6W 90	8.167	100	67	50	110.7	36.0	44.69	4	2	49.72	69.60	14	Member Y
DIAG PSP - STLSS 3" OD X0	-9.75	1.2D + 1.6W 90	11.90	100	100	100	146.4	36.0	22.78	1	1	0.00	27.84	42	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	164.45	0.9D + 1.6W 60	50	65	318.15	0	0	0.00	0.00	51	Member
HORIZ DAL - 3X2.5X0.25	6.61	1.2D + 1.6W 90	36	58	73.57	4	2	49.72	55.68	13	Bolt Shear
DIAG PSP - STLSS 3" OD X0	9.20	0.9D + 1.6W 90	36	58	69.98	1	1	0.00	16.97	54	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	142.02	0.9D + 1.6W 60	0.00	0	0	
Top Compression	162.20	1.2D + 1.6W	0.00	0		
Bot Tension	174.73	0.9D + 1.6W 60	436.16	40	8	1 A325
Bot Compression	200.40	1.2D + 1.6W	0.00	0		

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Force/Stress Summary

Section: 3 3 (bot 2 bays) Bot Elev (ft): 50.00 Height (ft): 16.667

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	-149.63	1.2D + 1.6W	8.34	100	100	100	62.5	50.0	239.05	0	0	0.00	0.00	62	Member X
HORIZ SAE - 3X3X0.25	-5.98	0.9D + 1.6W 90	7.167	100	67	67	108.7	36.0	25.06	2	1	24.86	34.80	24	Bolt Shear
DIAG PSP - STLSS 2.75" OD	-9.56	1.2D + 1.6W 90	11.21	100	100	100	147.9	36.0	14.98	1	1	0.00	20.04	63	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	131.08	0.9D + 1.6W 60	50	65	318.15	0	0	0.00	0.00	41	Member
HORIZ SAE - 3X3X0.25	6.06	1.2D + 1.6W 90	36	58	40.86	2	1	24.86	27.84	24	Bolt Shear
DIAG PSP - STLSS 2.75" OD	9.11	1.2D + 1.6W 90	36	58	46.98	1	1	0.00	12.21	74	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	119.03	0.9D + 1.6W 60	0.00	0	0	
Top Compression	136.07	1.2D + 1.6W	0.00	0		
Bot Tension	142.02	0.9D + 1.6W 60	240.80	59	8	3/4 A325
Bot Compression	162.20	1.2D + 1.6W	0.00	0		

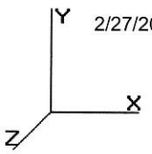
Section: 4 3 (top bay) Bot Elev (ft): 66.67 Height (ft): 8.333

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	-123.46	1.2D + 1.6W	8.34	100	100	100	62.5	50.0	239.05	0	0	0.00	0.00	51	Member X
HORIZ DAL - 3X2.5X0.25	-5.47	0.9D + 1.6W 90	6.500	100	67	50	87.1	36.0	57.13	4	2	49.72	69.60	11	Bolt Shear
DIAG PSP - STLSS 2.75" OD	-9.31	1.2D + 1.6W 90	10.77	100	100	100	142.1	36.0	16.22	1	1	0.00	20.04	57	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .500"	106.36	1.2D + 1.6W 60	50	65	318.15	0	0	0.00	0.00	33	Member
HORIZ DAL - 3X2.5X0.25	5.56	1.2D + 1.6W 90	36	58	73.57	4	2	49.72	55.68	11	Bolt Shear
DIAG PSP - STLSS 2.75" OD	8.83	1.2D + 1.6W 90	36	58	46.98	1	1	0.00	12.21	72	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	107.59	0.9D + 1.6W 60	0.00	0	0	
Top Compression	123.08	1.2D + 1.6W	0.00	0		
Bot Tension	119.03	0.9D + 1.6W 60	0.00	0		
Bot Compression	136.07	1.2D + 1.6W	0.00	0		

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Force/Stress Summary

Section: 5 4 Bot Elev (ft): 75.00 Height (ft): 25.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .300"	-110.06	1.2D + 1.6W	8.34	100	100	100	60.1	50.0	153.05	0	0	0.00	0.00	71	Member X
HORIZ DAL - 3X2.5X0.25	-8.20	1.2D + 1.6W	5.500	100	67	50	73.7	36.0	64.00	4	2	49.72	69.60	16	Bolt Shear
DIAG PSP - STLSS 2.75" OD	-9.10	1.2D + 1.6W 90	10.57	100	100	100	139.4	36.0	16.86	1	1	0.00	20.04	53	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - 5" OD x .300"	96.31	0.9D + 1.6W 60	50	65	199.35	0	0	0.00	0.00	48	Member
HORIZ DAL - 3X2.5X0.25	8.97	1.2D + 1.6W 90	36	58	73.57	4	2	49.72	55.68	18	Bolt Shear
DIAG PSP - STLSS 2.75" OD	8.70	1.2D + 1.6W 90	36	58	46.98	1	1	0.00	12.21	71	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	72.86	0.9D + 1.6W 60	0.00	0	0	
Top Compression	83.48	1.2D + 1.6W	0.00	0		
Bot Tension	107.59	0.9D + 1.6W 60	240.80	45	8	3/4 A325
Bot Compression	123.08	1.2D + 1.6W	0.00	0		

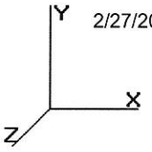
Section: 6 5 Bot Elev (ft): 100.0 Height (ft): 25.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - STLSS 5" OD X0	-77.19	1.2D + 1.6W	8.34	100	100	100	58.6	50.0	87.89	0	0	0.00	0.00	87	Member X
HORIZ DAL - 3X2.5X0.25	-8.02	1.2D + 1.6W	10.33	100	100	50	160.7	36.0	23.00	4	2	49.72	69.60	34	Member Y
DIAG PSP - STLSS 3" OD X0	-11.44	1.2D + 1.6W 90	13.53	100	100	100	166.4	36.0	17.61	1	1	0.00	27.84	64	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - STLSS 5" OD X0	67.35	0.9D + 1.6W 60	50	65	112.95	0	0	0.00	0.00	59	Member
HORIZ DAL - 3X2.5X0.25	8.78	1.2D + 1.6W 90	36	58	73.57	4	2	49.72	55.68	17	Bolt Shear
DIAG PSP - STLSS 3" OD X0	10.11	1.2D + 1.6W	36	58	69.98	1	1	0.00	16.97	59	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	36.45	0.9D + 1.6W 60	0.00	0	0	
Top Compression	44.01	1.2D + 1.6W	0.00	0		
Bot Tension	72.86	0.9D + 1.6W 60	120.40	61	4	3/4 A325
Bot Compression	83.48	1.2D + 1.6W	0.00	0		

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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Force/Stress Summary

Section: 7 6 — Bot Elev (ft): 125.0 — Height (ft): 25.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - STLSS 5" OD X0	-37.28	1.2D + 1.6W	8.34	100	100	100	58.6	50.0	87.89	0	0	0.00	0.00	42	Member X
HORIZ SAE - 3X3X0.25	-6.53	1.2D + 1.6W	8.333	100	100	100	168.9	36.0	11.40	2	1	24.86	34.80	57	Member Z
DIAG PSP - STLSS 2.75" OD	-10.14	1.2D + 1.6W 90	12.02	100	100	100	158.6	36.0	13.03	1	1	0.00	20.04	77	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - STLSS 5" OD X0	30.55	1.2D + 1.6W 60	50	65	112.95	0	0	0.00	0.00	27	Member
HORIZ SAE - 3X3X0.25	6.98	1.2D + 1.6W 90	36	58	40.86	2	1	24.86	27.84	28	Bolt Shear
DIAG PSP - STLSS 2.75" OD	8.91	1.2D + 1.6W	36	58	46.98	1	1	0.00	12.21	72	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	3.23	0.9D + 1.6W 60	0.00	0	0	
Top Compression	6.62	1.2D + 1.6W	0.00	0		
Bot Tension	36.45	0.9D + 1.6W 60	120.40	30	4	3/4 A325
Bot Compression	44.01	1.2D + 1.6W	0.00	0		

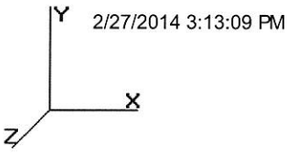
Section: 8 7 — Bot Elev (ft): 150.0 — Height (ft): 5.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	phi Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG PSP - STLSS 5" OD X0	-3.70	1.2D + 1.0Di +	5.00	100	100	100	35.1	50.0	103.22	0	0	0.00	0.00	3	Member X
HORIZ CHN - C4 x 5.4	-1.75	1.2D + 1.6W	3.500	100	100	100	100.2	36.0	30.38	2	2	24.86	44.36	7	Bolt Shear
DIAG DAL - 2.5X2X0.1875	-3.42	1.2D + 1.6W 90	6.103	100	100	50	116.8	36.0	25.58	2	2	24.86	26.10	13	Bolt Shear

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Fu (ksi)	phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00	0	
HORIZ CHN - C4 x 5.4	2.20	1.2D + 1.6W 60	36	58	36.28	2	2	24.86	35.49	8	Bolt Shear
DIAG DAL - 2.5X2X0.1875	3.31	0.9D + 1.6W 90	36	58	43.68	2	2	24.86	15.66	21	Bolt Bear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	3.70	1.2D + 1.0Di +	0.00	0		
Bot Tension	3.23	0.9D + 1.6W 60	120.40	3	4	3/4 A325
Bot Compression	6.62	1.2D + 1.6W	0.00	0		

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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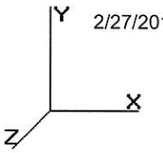
Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
1.0D + 1.0W Service 90 deg	1b	-2.40	-24.16	-0.98	
	1a	-3.90	48.32	1.85	
	1	-0.70	12.09	-0.87	
1.0D + 1.0W Service 60 deg	1b	-2.66	-29.55	-1.54	
	1a	-2.76	32.87	0.90	
	1	-0.60	32.93	-2.84	
1.0D + 1.0W Service Normal	1b	-0.69	-9.23	-1.12	
	1a	0.69	-9.23	-1.12	
	1	0.00	54.71	-4.91	
1.2D + 1.0Di + 1.0Wi 90 deg	1b	-1.95	-10.14	-0.62	
	1a	-5.71	75.96	2.80	
	1	-0.87	32.91	-2.17	
1.2D + 1.0Di + 1.0Wi 60 deg	1b	-2.28	-16.70	-1.32	
	1a	-4.33	57.67	1.64	
	1	-0.75	57.77	-4.57	
1.2D + 1.0Di + 1.0Wi Normal	1b	0.15	7.79	-0.79	
	1a	-0.15	7.79	-0.79	
	1	0.00	83.17	-7.04	
0.9D + 1.6W 90 deg	1b	-15.65	-177.72	-6.91	
	1a	-16.87	199.48	7.70	
	1	-3.60	10.88	-0.79	
0.9D + 1.6W 60 deg	1b	-17.00	-205.75	-9.81	
	1a	-11.00	119.03	2.82	
	1	-3.06	119.34	-10.94	
0.9D + 1.6W Normal	1b	-6.78	-100.11	-7.64	
	1a	6.78	-100.11	-7.64	
	1	0.00	232.85	-21.61	
1.2D + 1.6W 90 deg	1b	-15.42	-174.33	-6.79	
	1a	-17.10	203.33	7.83	
	1	-3.60	14.50	-1.05	
1.2D + 1.6W 60 deg	1b	-16.78	-202.39	-9.68	
	1a	-11.22	122.79	2.95	
	1	-3.06	123.10	-11.20	
1.2D + 1.6W Normal	1b	-6.55	-96.62	-7.51	
	1a	6.55	-96.62	-7.51	
	1	0.00	236.75	-21.88	

Max Uplift:	205.75 (kip)	Moment:	3,656.94 (kip-ft)	1.2D + 1.6W Normal
Max Down:	236.75 (kip)	Total Down:	43.51 (kip)	
Max Shear:	21.88 (kip)	Total Shear:	36.89 (kip)	

Site Number:	**302505**
Location:	**Wshn - West Haven, CT**
Code:	**ANSI/TIA-222 Rev G**
Struct Class :	**II**
Exposure :	**B**
Topo :	**1**



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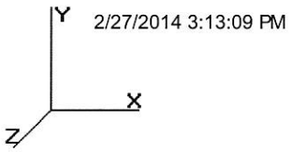
Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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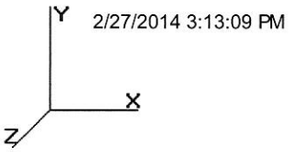
Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
Serviceability - 60.00 Wind 60 deg	66.67	0.0389	0.0631	0.0677
	83.33	0.0596	0.0831	0.0803
	100.00	0.0853	0.1098	0.1034
	125.00	0.1395	0.1795	0.1477
	141.67	0.1828	0.2278	0.1604
	155.00	0.2268	0.2460	0.4323
Serviceability - 60.00 Wind 90 deg	66.67	0.0391	0.0533	0.0675
	83.33	0.0598	0.0702	0.0774
	100.00	0.0857	0.0941	0.1040
	125.00	0.1405	0.1567	0.1478
	141.67	0.1840	0.2002	0.1746
	155.00	0.2367	0.2165	0.4457
Serviceability - 60.00 Wind Normal	66.67	0.0398	0.0420	0.0684
	83.33	0.0609	0.0551	0.0882
	100.00	0.0873	0.0672	0.1072
	125.00	0.1427	0.0964	0.1464
	141.67	0.1868	0.1169	0.1924
	155.00	0.2375	0.1246	0.3789
110.00 mph 60 deg with No Ice (Reduced DL)	66.67	0.2026	0.1760	0.3469
	83.33	0.3106	0.2327	0.4104
	100.00	0.4452	0.3144	0.5289
	125.00	0.7225	0.5303	0.7464
	141.67	0.9469	0.6798	0.7963
	155.00	1.1612	0.7481	1.4895
110.00 mph 60 deg with No Ice	66.67	0.2029	0.1808	0.3477
	83.33	0.3111	0.2389	0.4114
	100.00	0.4459	0.3223	0.5297
	125.00	0.7242	0.5426	0.7492
	141.67	0.9492	0.6951	0.7989
	155.00	1.1644	0.7648	1.5087
110.00 mph 90 deg with No Ice (Reduced DL)	66.67	0.2036	0.1716	0.3473
	83.33	0.3121	0.2274	0.3970
	100.00	0.4471	0.3136	0.5280
	125.00	0.7265	0.5441	0.7513
	141.67	0.9520	0.7046	0.8601
	155.00	1.1997	0.7717	1.7096
110.00 mph 90 deg with No Ice	66.67	0.2039	0.1780	0.3481
	83.33	0.3125	0.2358	0.3982
	100.00	0.4478	0.3244	0.5300
	125.00	0.7283	0.5609	0.7544
	141.67	0.9545	0.7255	0.8636
	155.00	1.2042	0.7945	1.7360
110.00 mph Normal to Face with No Ice (Reduced	66.67	0.2075	0.2581	0.3587
	83.33	0.3180	0.3383	0.4639
	100.00	0.4559	0.4158	0.5572
	125.00	0.7400	0.6030	0.7620
	141.67	0.9690	0.7337	0.9122
	155.00	1.2194	0.7827	1.6589

Site Number: 302505
Location: Wshn - West Haven, CT
Code: ANSI/TIA-222 Rev G
Struct Class : II
Exposure : B
Topo : 1



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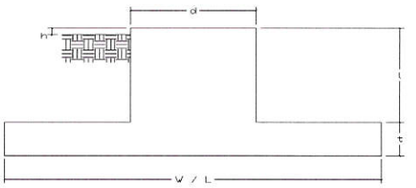
110.00 mph Normal to Face with No Ice	66.67	0.2078	0.2646	0.3595
	83.33	0.3185	0.3468	0.4649
	100.00	0.4566	0.4267	0.5591
	125.00	0.7418	0.6200	0.7649
	141.67	0.9714	0.7549	0.9167
	155.00	1.2242	0.8054	1.6866
50.00 mph 60 deg with 0.75 in Radial Ice	66.67	0.0476	0.0652	0.0794
	83.33	0.0717	0.0860	0.0921
	100.00	0.1013	0.1157	0.1216
	125.00	0.1649	0.1938	0.1731
	141.67	0.2149	0.2481	0.1925
	155.00	0.2694	0.2691	0.5457
50.00 mph 90 deg with 0.75 in Radial Ice	66.67	0.0475	0.0427	0.0780
	83.33	0.0716	0.0566	0.0864
	100.00	0.1013	0.0791	0.1214
	125.00	0.1664	0.1397	0.1721
	141.67	0.2168	0.1821	0.2052
	155.00	0.2743	0.1985	0.5254
50.00 mph Normal with 0.75 in Radial Ice	66.67	0.0475	0.0516	0.0801
	83.33	0.0720	0.0676	0.1049
	100.00	0.1022	0.0808	0.1264
	125.00	0.1680	0.1125	0.1702
	141.67	0.2185	0.1349	0.2266
	155.00	0.2786	0.1439	0.4979
	155.00	0.0000	0.0000	0.0000

Site Name:	Wshn - West Haven, CT	*Program Last Updated:*	*11/15/2012*
Site Number:	302505		
Engineering Number:	56776321		
Engineer:	E. Bosko		
Date:	02/27/14		
Tower Type:	SST w/3 Legs		



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Mapping	
Compression/Leg:	236.8	k
Uplift/Leg:	205.8	k
Total Shear:	23.9	k
Moment:	3656.9	k-ft
Tower + Appurtenance Weight:	43.5	k
Depth to Base of Foundation (l + t - h):	4.54	ft
Diameter of Pier (d):	3.50	ft
Height of Pier above Ground (h):	3.21	
Width of Pad (W):	23.00	ft
Length of Pad (L):	23.00	ft
Thickness of Pad (t):	4.00	ft
Tower Leg Center to Center:	19.00	ft
Number of Tower Legs:	3.0	(1 if MP or GT)
Tower Center from Mat Center:	0.00	ft
Depth Below Ground Surface to Water Table:	99.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil Above Water Table:	100.0	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	50.0	pcf
Friction Angle of Uplift:	15.0	Degrees
Ultimate Coefficient of Shear Friction:	0.30	
Ultimate Compressive Bearing Pressure:	9000.0	psf
Ultimate Passive Pressure on Pad Face:	0.0	psf
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9	
ϕ_{Soil}:	0.75	

Overturning Moment Usage

Design OTM:	3842.1	k-ft
OTM Resistance:	4242.9	k-ft
Design OTM / OTM Resistance:	0.91	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	3752	psf
Factored Nominal Bearing Pressure:	6750	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.56	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety

Total Factored Sliding Resistance:	89.3	k
Sliding Design / Sliding Resistance:	0.27	Result: OK