July 23, 2014

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

Re:	**Notice of Exempt Modification**
	Proposal to Add Three (3) Remote Radio Heads
Property Address:	**1210 Highland Avenue, Torrington, CT 06790 (the "Property")**
Applicant:	**New Cingular Wireless PCS, LLC ("AT&T")**

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 260-foot Self Support tower location on the Property, owned by SBA Properties, Inc. (the "Tower"). AT&T's facility consists of nine (9) wireless telecommunication antennas at a height of 242-feet.

The Connecticut Siting Council (the "Council) approved AT&T's use of the tower in the following prior decisions; EM-AT&T-064-143-148-020225, EM-AT&T-"UNIVERSAL"-030221, EM-CING-143-050914 and EM-CING-143-050914. In its decision dated February 8, 2013, (the "Decision"), the Council approved AT&T to install six (6) Remote Radio Heads ("RRUs"), but AT&T installed only three (3) RRUs. AT&T now intends to install the remaining RRUs to complete the installation. This exempt modification application is necessary because the Decision is over one year old. Please refer to Tab 1 for further specifications of the RRUs.

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 the Mayor of Torrington, CT. A copy of this letter is also being sent to SBA Properties, Inc..

The planned modifications to AT&T's 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 the height of the Tower. AT&T's new RRUs will be installed at the 242-foot level of the 260-foot Self Support.

33 Boston Post Road West, Marlborough, Massachusetts 01752
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www.smartlinkllc.com

smartlink

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 RF emissions calculation for AT&T's modified facility was provided in the application which led to the - Decision. See Tab 2 attached.
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 Tab 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:
SBA Properties, Inc
5900 Broken Sound Parkway NW 2nd Floor
Boca Raton FL 33487-2797

Town of Torrington
140 Main Street,
Torrington, CT 06790

33 Boston Post Road West, Marlborough, Massachusetts 01752
p: 508.954.7702 • adam.braillard@smartlinkllc.com
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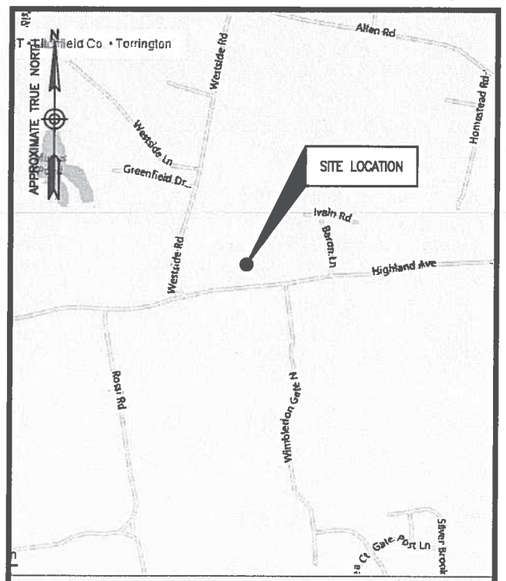
TAB 1

at&t Mobility

SITE NAME: TORRINGTON HIGHLAND AVE.
SITE NUMBER: CT1253
1210 HIGHLAND AVE,
TORRINGTON, CT 06790



VICINITY MAP

N.T.S.

DIRECTIONS FROM 500 ENTERPRISE DRIVE, ROCKY HILL, CT:

HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. TAKE RAMP LEFT FOR I-91 S. AT EXIT 18, TAKE RAMP RIGHT FOR I-691 WEST TOWARD WATERBURY/MERIDEN. AT EXIT 1, TAKE RAMP LEFT FOR I-84 WEST TOWARD WATERBURY/DANBURY. AT EXIT 20, TAKE RAMP RIGHT FOR CT-8 NORTH TOWARD TORRINGTON. AT EXIT 44, TAKE RAMP RIGHT FOR CT-202 WEST TOWARD DOWNTOWN TORRINGTON. TURN LEFT ONTO US-202/E MAIN ST. TURN RIGHT ONTO MAIN ST, AND THEN TURN LEFT ONTO WATER ST. TURN LEFT ONTO CHURCH ST. ROAD NAME CHANGES TO HIGHLAND AVE. THE SITE WILL BE ON THE RIGHT.

SITE COORDINATES:
LATITUDE: N 41° 48' 9.421"
LONGITUDE: W 73° 9' 48.225"
(PER AT&T EXISTING PLANS)

ELEVATION DATA
GRADE ELEVATION AT TOWER = 1220'± A.M.S.L.
(PER AT&T EXISTING PLANS)

ANTENNA ELEVATION (TO TOP OF ANTENNA)
ALPHA SECTOR: 245'-0"± A.G.L.
BETA SECTOR: 244'-4"± A.G.L.
GAMMA SECTOR: 244'-4"± A.G.L.

SITE INFORMATION

- ADD (1) NEW RRUS PER SECTOR FOR A TOTAL OF (3) NEW RRUS.

PROJECT DESCRIPTION

SITE NAME:
TORRINGTON HIGHLAND AVE

SITE NUMBER:
CT1253

LOCATION:
1210 HIGHLAND AVE,
TORRINGTON, CT 06790

APPLICANT/LESSEE:
AT&T MOBILITY
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CONNECTICUT 06067

PROJECT INFORMATION

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	SITE PLAN & EQUIPMENT PLANS
C-2	ANTENNA LAYOUTS & ELEVATIONS
C-3	CONSTRUCTION DETAILS & ANTENNA SCHEDULE
E-1	GROUNDING NOTES & DETAILS

SHEET INDEX

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

smartlink
1997 ANNAPOLIS EXCHANGE PARKWAY
SUITE 200
ANNAPOLIS, MD 21401

CT1253
TORRINGTON
HIGHLAND AVE

CONSTRUCTION DRAWINGS

0	07/16/14	ISSUED AS FINAL

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710

ROBERT J. FOLEY, P.E.
CT LICENSE No. PEN.0029056

DRAWN BY:	JC
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50063024
JOB NUMBER:	50063034
SITE ADDRESS:	

1210 HIGHLAND AVE,
TORRINGTON, CT 06790

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   PROJECT MANAGEMENT – SMARTLINK
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 PROJECT MANAGEMENT.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR 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.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR 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 CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR 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. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
16. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH LAND LORD. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
17. 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.

SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:
   A) FALL PROTECTION
   B) CONFINED SPACE
   C) ELECTRICAL SAFETY
   D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
11. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.8.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT,
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
   FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAWSET/REDHEAD OR APPROVED EQUAL.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
4. COMPACTED SUBBASE SHALL BE UNIFORM & LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.
5. AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
   CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
3. CABLE LADDER RACK:
   CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
11. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL.) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
13. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 8 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
15. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
16. ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
17. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
19. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
20. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
21. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
22. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
23. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
24. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
25. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
29. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
30. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
31. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
32. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

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DRAWN BY:	JC
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50063024
JOB NUMBER:	50063034
SITE ADDRESS:	

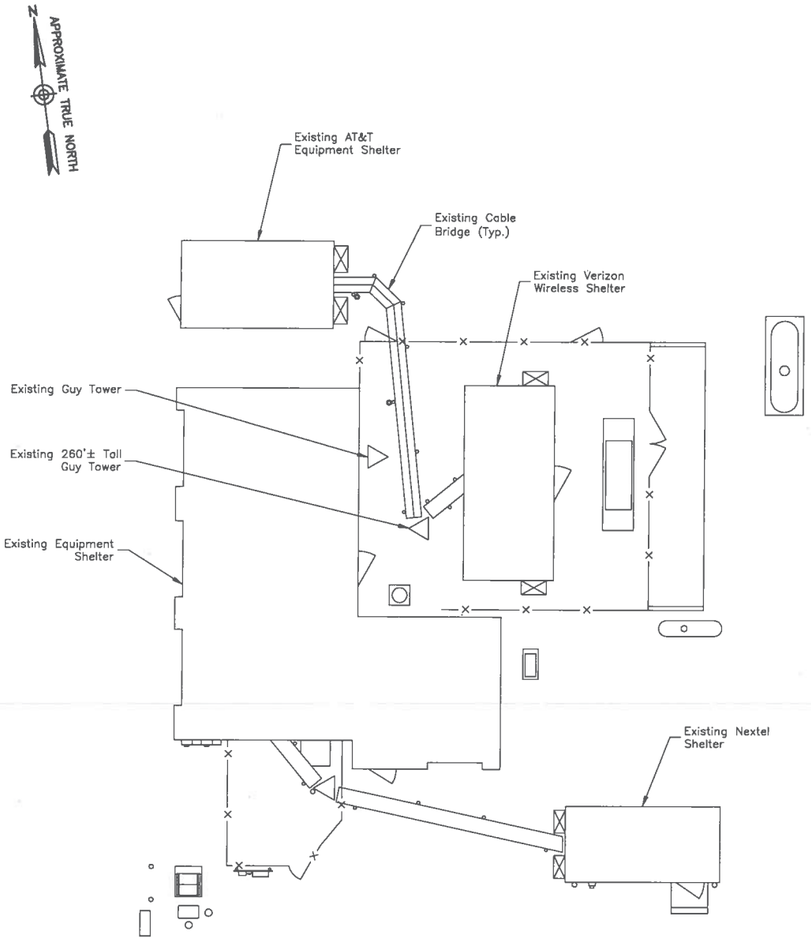
1210 HIGHLAND AVE,
TORRINGTON, CT 06790

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

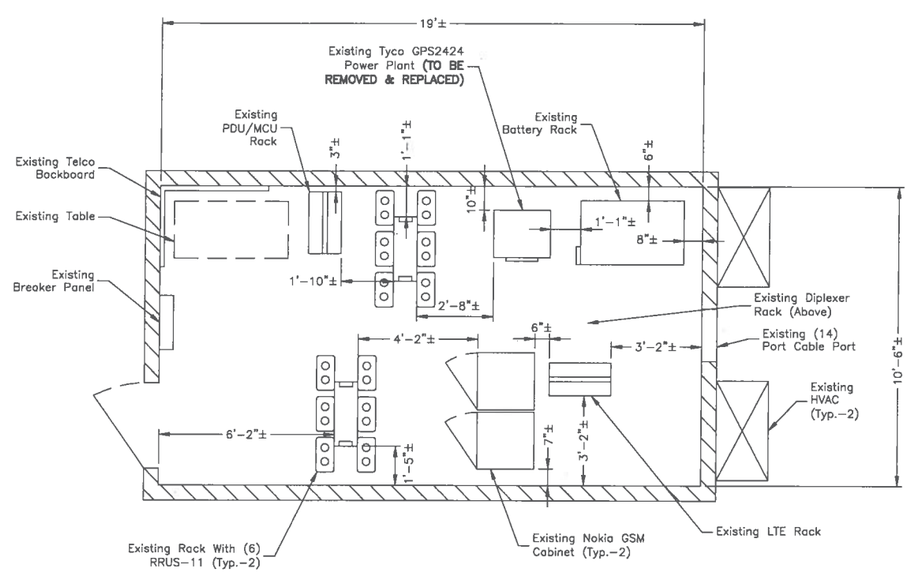
G–1



SITE PLAN 1

SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

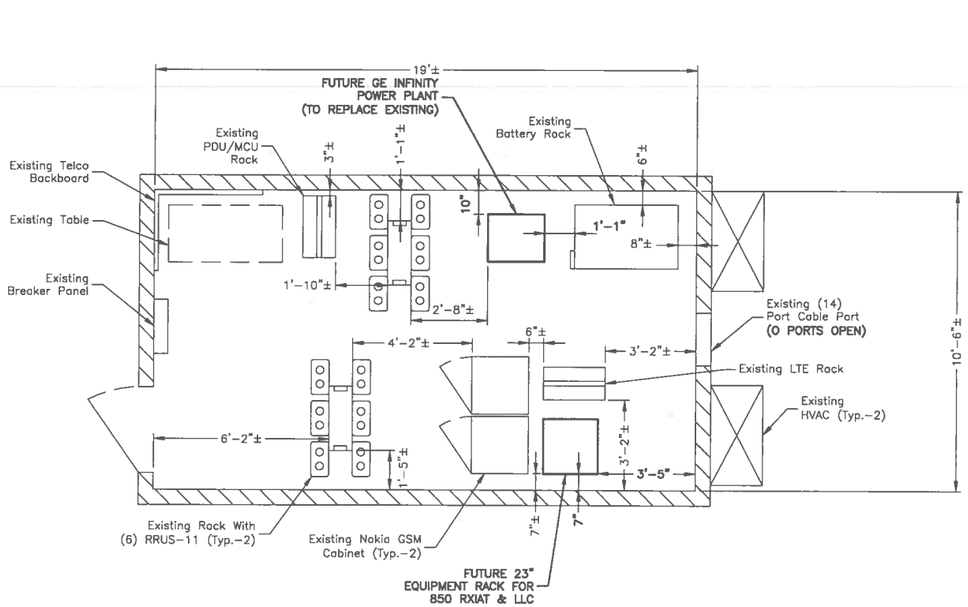
0' 10' 20'



EXISTING EQUIPMENT PLAN 2

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'



PROPOSED EQUIPMENT PLAN 3

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. MOUNT ALL ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS BY OTHERS.
3. NOT ALL INFORMATION IS SHOWN FOR CLARITY.

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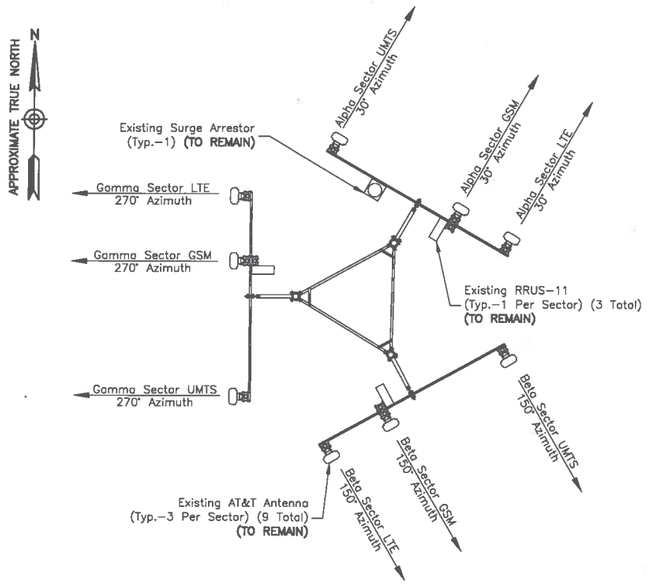
TORRINGTON, CT 06790

SHEET TITLE

SITE PLAN &
EQUIPMENT PLANS

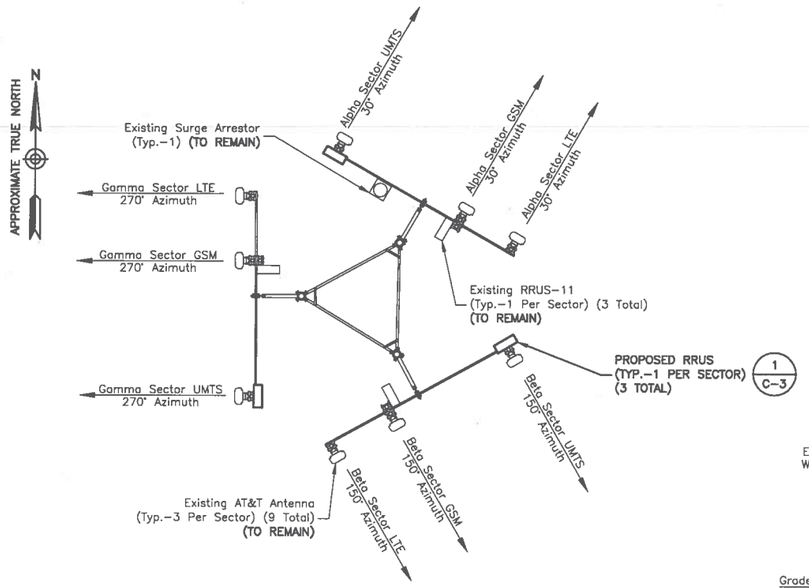
SHEET NUMBER

C-1



EXISTING ANTENNA LAYOUT (1)

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT (2)

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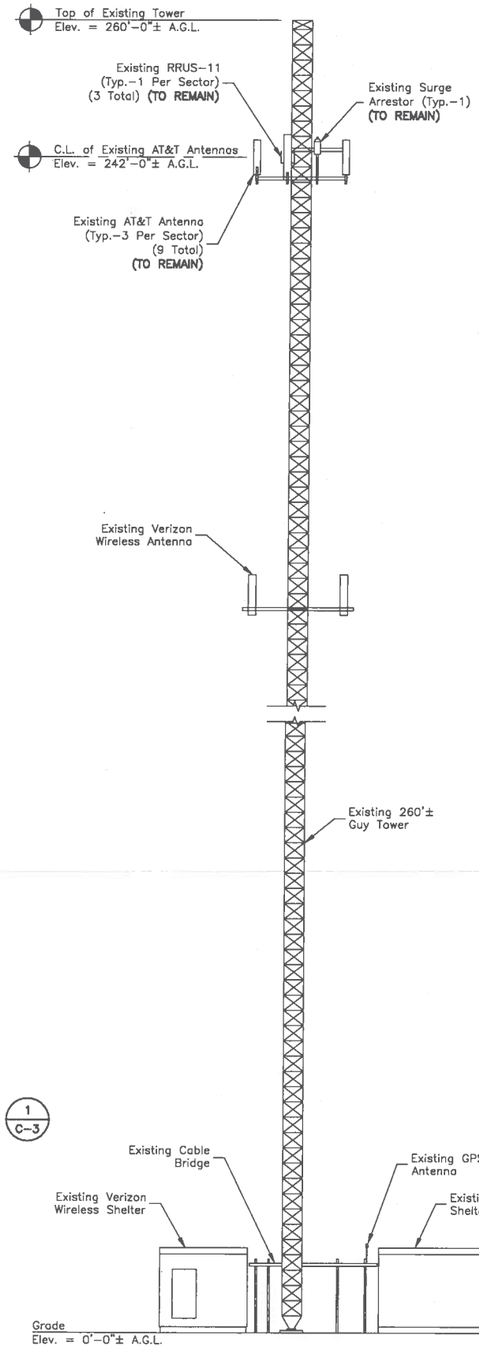
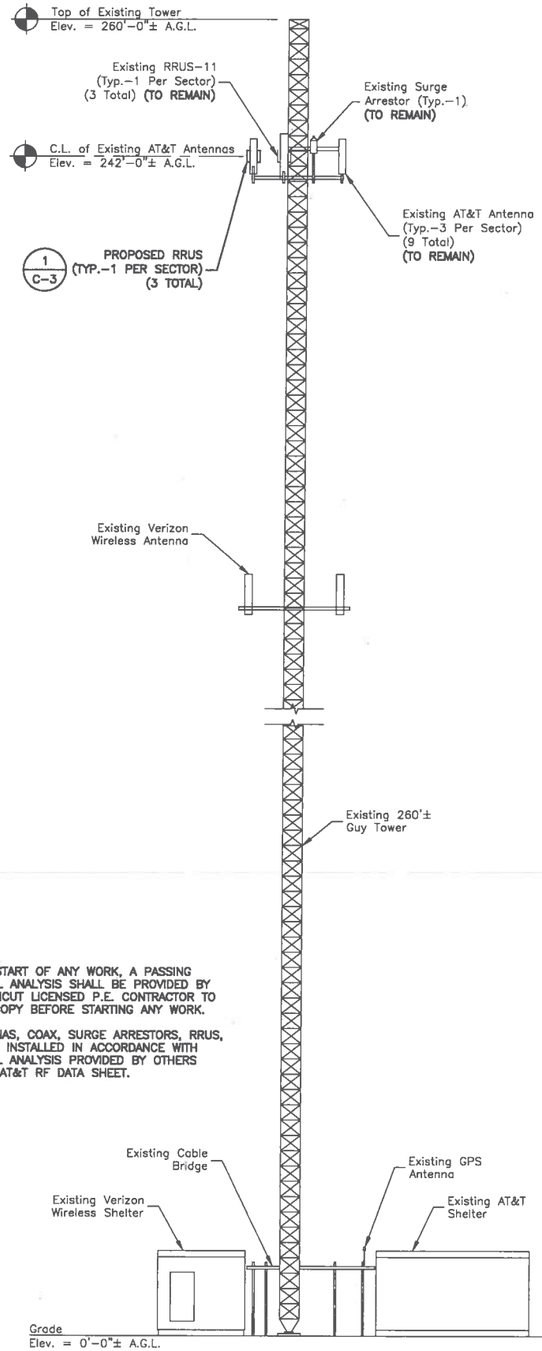


EXISTING NORTH ELEVATION (3)

HORIZONTAL SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'



PROPOSED NORTH ELEVATION (4)

HORIZONTAL SCALE: 1"=20' FOR 11"x17"
1"=10' FOR 22"x34"

0' 10' 20'

NOTES:

1. PRIOR TO START OF ANY WORK, A PASSING STRUCTURAL ANALYSIS SHALL BE PROVIDED BY A CONNECTICUT LICENSED P.E. CONTRACTOR TO OBTAIN A COPY BEFORE STARTING ANY WORK.
2. ALL ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC. TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY OTHERS AND FINAL AT&T RF DATA SHEET.

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TORRINGTON, CT 06790

SHEET TITLE

ANTENNA LAYOUTS
& ELEVATIONS

SHEET NUMBER

C–2

EXISTING ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	POWERWAVE	7770	55x11x5
	KMW	AM-X-CD-16-65-00T-RET	54.0x12.6x7.87
	POWERWAVE	7770	55x11x5
BETA:	POWERWAVE	7770	55x11x5
	KATHREIN	800 10764	55.2x11.8x6.0
	POWERWAVE	7770	55x11x5
GAMMA:	POWERWAVE	7770	55x11x5
	KMW	AM-X-CD-16-65-00T-RET	54.0x12.6x7.87
	POWERWAVE	7770	55x11x5

PROPOSED ANTENNA SCHEDULE

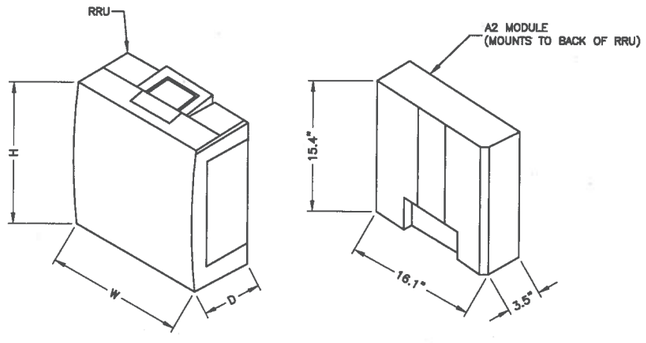
SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	POWERWAVE	7770	55x11x5
	KMW	AM-X-CD-16-65-00T-RET	54.0x12.6x7.87
	POWERWAVE	7770	55x11x5
BETA:	POWERWAVE	7770	55x11x5
	KATHREIN	800 10764	55.2x11.8x6.0
	POWERWAVE	7770	55x11x5
GAMMA:	POWERWAVE	7770	55x11x5
	KMW	AM-X-CD-16-65-00T-RET	54.0x12.6x7.87
	POWERWAVE	7770	55x11x5

EXISTING RRUS SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	ERICSSON	RRUS-11	19.7x17.0x7.2
BETA:	ERICSSON	RRUS-11	19.7x17.0x7.2
GAMMA:	ERICSSON	RRUS-11	19.7x17.0x7.2

PROPOSED RRUS SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-11	19.7x17.0x7.2
BETA:	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-11	19.7x17.0x7.2
GAMMA:	ERICSSON	RRUS-11	19.7x17.0x7.2
	ERICSSON	RRUS-11	19.7x17.0x7.2



RRU MODEL & DIMENSIONS

ERICSSON MODEL #	DIMENSIONS (HxWxD)
RRUS-11	19.7"x17.0"x7.2"
RRUS-12	20.4"x18.5"x7.5"
RRUS-E2	20.4"x18.5"x7.5"
RRUS-32	29.9"x13.3"x6.7"

NOTES:

1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

RRU & A2 MODULE (1)
SCALE: N.T.S.

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1210 HIGHLAND AVE,
TORRINGTON, CT 06790

SHEET TITLE

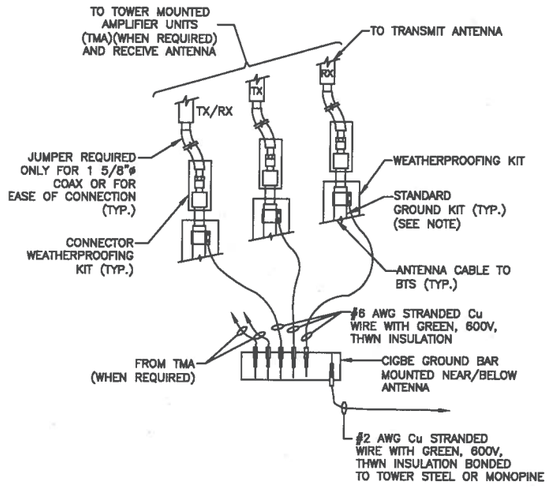
ANTENNA SCHEDULE &
CONSTRUCTION DETAILS

SHEET NUMBER

C-3

GROUNDING NOTES:

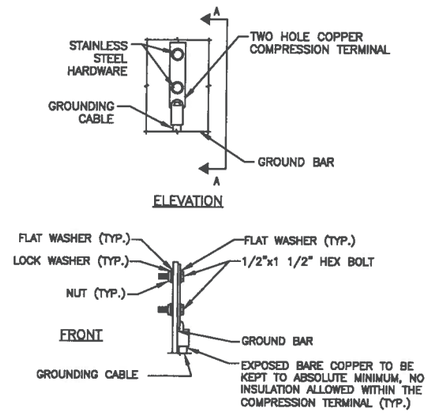
1. THE CONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ). THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE CONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE ENGINEER 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. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY THE ENGINEER IN WRITING.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
6. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
7. 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 TRANSMISSION EQUIPMENT.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF 8 INCHES.
11. EACH INTERIOR TRANSMISSION CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH 6 AWG STRANDED, GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRE UNLESS NOTED OTHERWISE IN THE DETAILS. EACH OUTDOOR CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
12. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE 2 AWG SOLID TIN-PLATED COPPER UNLESS OTHERWISE INDICATED.
13. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE. CONNECTIONS TO ABOVE GRADE UNITS SHALL BE MADE WITH EXOTHERMIC WELDS WHERE PRACTICAL OR WITH 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM SMARTLINK'S MARKET REPRESENTATIVE.
14. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
15. ALL WIRE TO WIRE GROUND CONNECTIONS TO THE INTERIOR GROUND RING SHALL BE FORMED USING HIGH PRESS CRIMPS OR SPLIT BOLT CONNECTORS WHERE INDICATED IN THE DETAILS.
16. ON ROOFTOP SITES WHERE EXOTHERMIC WELDS ARE A FIRE HAZARD COPPER COMPRESSION CAP CONNECTORS MAY BE USED FOR WIRE TO WIRE CONNECTORS. 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
17. COAX BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR USING TWO-HOLE MECHANICAL TYPE BRASS CONNECTORS AND STAINLESS STEEL HARDWARE.
18. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
19. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
20. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
21. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER GROUND CONDUCTOR. DURING EXCAVATION FOR NEW GROUND CONDUCTORS, IF EXISTING GROUND CONDUCTORS ARE ENCOUNTERED, BOND EXISTING GROUND CONDUCTORS TO NEW CONDUCTORS.
22. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT WITH LISTED BONDING FITTINGS.



NOTE:

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

CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) — 1



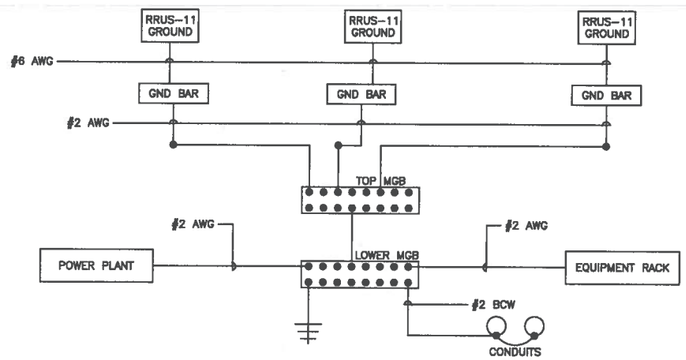
SECTION 'A-A'

NOTES:

1. DOUBLING UP OR STACKING OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL — 2

SCALE: N.T.S.



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE.
3. SCHEMATIC GROUNDING DIAGRAM IS TYPICAL FOR EACH SECTOR.
4. GROUND ALL EQUIPMENT PER MANUFACTURER RECOMMENDATIONS.

SCHEMATIC GROUNDING DIAGRAM — 3

SCALE: N.T.S.

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TORRINGTON, CT 06790

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

TAB 2

Control Number	Site	Carrier	#Channels	ERP/Ch
EM-Marcus-143-020214	Torrington - 1210 Highland Avenue	Marcus	1	100
EM-VER-143-121204	Torrington - 1210 Highland Avenue	Verizon PCS	11	211
EM-VER-143-121204	Torrington - 1210 Highland Avenue	Verizon cellular	9	231
EM-VER-143-121204	Torrington - 1210 Highland Avenue	Verizon AWS	1	1750
EM-VER-143-121204	Torrington - 1210 Highland Avenue	Verizon LTE	1	768
EM-CING-143-130122	Torrington - 1210 Highland Avenue	AT&T UMTS	2	565
EM-CING-143-130122	Torrington - 1210 Highland Avenue	AT&T UMTS	2	875
EM-CING-143-130122	Torrington - 1210 Highland Avenue	AT&T GSM	1	283
EM-CING-143-130122	Torrington - 1210 Highland Avenue	AT&T GSM	4	525
EM-CING-143-130122	Torrington - 1210 Highland Avenue	AT&T LTE	1	1615

tions

Ant Ht	Power Den	MHz	S	%MPE	Site Total
100	0.0036	5800	1.0000	25.50%	Results of field measurements AT&T took of s
200	0.0209	1970	1.0000	2.09%	
200	0.0187	869	0.5793	3.23%	
200	0.0157	2145	1.0000	1.57%	
200	0.0069	698	0.4653	1.48%	
245	0.0068	880	0.5867	1.15%	
245	0.0105	1900	1.0000	1.05%	
245	0.0017	880	0.5867	0.29%	
245	0.0126	1900	1.0000	1.26%	
245	0.0097	734	0.4893	1.98%	39.60%

ite on 2/8/2002

TAB 3

Structural Analysis for SBA Network Services, Inc.

260' Guyed Tower

SBA Site Name: Torrington 2
SBA Site ID: CT02303-A
AT&T Site ID: CT1253
AT&T Site Name: Torrington Highland Avenue

FDH Project Number 12-08779E S1 (R1)

Analysis Results

Tower Components	111.6%	Insufficient
Foundation	68.1%	Sufficient

Prepared By:

Daniel Chang, EI
Project Engineer

Reviewed By:

Christopher M Murphy, PE
President
CT PE License No. 25842

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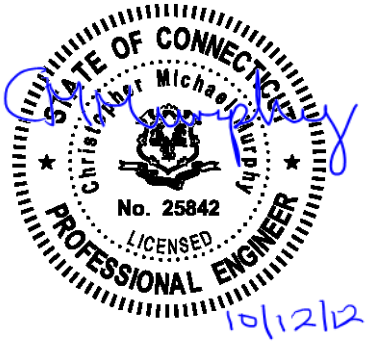

October 12, 2012

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut Building Code

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EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the existing guyed tower located in Torrington, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and *2005 Connecticut Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, the member sizes, and foundation dimensions was obtained from:

- PiRod, Inc. (File No. A-107657) original design drawings dated September 23, 1996
- All-Points Technology Corporation, P.C. (Project No. CT122160) structural analysis report dated January 21, 2002
- FDH Engineering, Inc. (Project No. 05-0827E) Modification Drawings for a 260' Guyed Tower dated August 29, 2005
- FDH, Inc. (Job No. 12-07062T T1) TIA Inspection Report dated July 25, 2012
- FDH Engineering, Inc. (Project No. 12-08779E G1) Geotechnical Evaluation of Subsurface Conditions dated October 8, 2012
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* is 80 mph without ice and 28 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from AT&T in place at 245 ft, the tower does not meet the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code*. However, provided the foundations were constructed per the original design drawings (see PiRod File No. A-107657) and based on the given soil parameters (see FDH Project No. 12-08779E G1), the foundations should have the necessary capacity to support both the proposed and existing loading. For a more detailed description of the analysis of the tower, see the Results section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. Coax lines must be installed as shown in Figure 1.
2. The existing TMAs and diplexers should be installed directly behind the proposed and existing panel antennas.
3. Reinforcement of the tower legs is required to support the existing and proposed loading. See the Results section of this report for locations.
4. Reinforcement of the tower diagonals is required to support the existing and proposed loading. See the Results section of this report for locations.

We would anticipate the construction cost for a turnkey design/build modification project of this nature to range in price from approximately $10,000 to $20,000 (which should include the engineering design fees, inspection fees, and construction fees).

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in Table 1. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Coax No.	Carrier	Mount Elevation (ft)	Mount Type
264	(1) Antel 11.5' x 2.5" omni	(1) 1-5/8"	39	---	258	(3) 10' Standoffs
269.5	(1) Telewave 21' x 2.5" omni	(1) 1-5/8"	38	---		
268.5	(1) 21' x 2.4" omni					
259	(1) 4" x 13.75" x 3" TMA					
251	(1) 14' x 2.5" omni (inverted)	(1) 7/8"	28	---		
266.5	(1) Radio Labs SRL480 omni	(1) 7/8" (1) 1/2"	29,32	---		
255	(1) 24" x 20" x 11" TMA				255	Direct
245	(6) Powerwave 7770 w/ Mount Pipe (6) Powerwave LGP13519 TMAs (12) Powerwave LGP21401 TMAs	(12) 1-5/8"	15-26	AT&T	242.5	(3) 12.5' T-Frames
228.5	(1) 14' x 2.4" omni	(1) 1-5/8"	27	---	221.5	(1) 4.5' Standoff
226	(1) 11.5' x 2.4" omni	(1) 1-1/4"	44	---	226	(1) 13.5' x 2.4" Pipe Mount
225.5	(1) Celwave 458-2 Omni	(1) 1-1/4"	37	---	218	(3) 10' Standoffs
224.5	(1) 11.5' x 2.4" omni	---	---	---		
223	(1) Antel BCD 8706 NE omni	(1) 1-1/4"	47	Page Net		
222.5	(1) 7.5' x 2.4" omni	(1) 1-1/4"	30	---		
212	(1) Decibel 11.5' x 3" omni (inverted)	(1) 1-1/4"	46	---		
211.5	(1) Decibel 11' x 3" omni (inverted)	(1) 1-1/4" (1) 7/8"	11-12	---		
211	(1) Decibel 11' x 3" omni (inverted)	(2) 1-1/4"	9-10	Metro Comm		
209.5	(1) Decibel 14' x 3" omni (inverted)	(1) 7/8"	31	---		
203	(1) Decibel 731DG85V1EXM (2) 14" x 9" x 2.5" TMAs	---	---	---	203	(1) 63" x 2.4" Pipe Mount
202	(2) Clear Comm 7.5" x 4" x 4" TMAs					
199	(3) Antel BXA-80063/4CF w/ Mount Pipe (3) Antel BXA-185063/8CF w/ Mount Pipe	(12) 1-5/8"	3-8, 48-53	Verizon	198	(3) 10' T-Frames
183	(1) Andrew 11.5' x 3" omni	(1) 7/8"	45	---	177.5	(1) 48" Standoff
184	(1) Andrew PG1N0F-0090-310 omni	(1) 7/8"	36	---	178.5	(1) 27" Standoff
174.5	(1) 6.5" x 20.5" x 4.5" TMA				174.5	Direct
180	(1) Radio Labs SRL 6139 dipole	(1) 7/8"	41	---	175.5	(1) 36" Standoff
179.5	(1) 8' x 1" omni	(1) 1-1/4"	40			
174	(1) Scala 9 Element Yagi (27" x 7")	---	---	---		
174.5	(1) 22" x .75" GPS	(1) 1/2"	1	---	173.5	(1) 17" Standoff
173	(1) 13.5' x 1.8" omni	(1) 7/8"	14	---	167	(1) 72" Standoff
163.5	(1) Andrew 11'2" x 3" omni	(1) 1-1/4"	43	---	158.5	(1) 15" Standoff
166.5	(1) 8' x 1" omni	(1) 7/8"	42	Torrington PD	162.5	(1) 18" Standoff
147	(1) 11.5' x 2.4" omni	(1) 7/8"	35	American Mess	141.5	(1) 32" Standoff
118.5	(1) Shivley 20' x 2.5' 3 Bay FM	(1) 1-5/8"	13	WZBC 97.3	118.5	(4) 16" Standoffs
84.5	(1) Shivley 4' x 2.5' 1-Bay FM	(1) 7/8"	33	WAPJ 89.8	83.5	(1) 20" Standoff
66.5	(1) 12.5" x 9" TMA	(1) 1/2"	34	Marcus Comm.	66.5	Direct
64.5	(1) Radiowaves SP2-2.4NS Dish				64.5	Direct

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Coax No.	Carrier	Mount Elevation (ft)	Mount Type
245	(6) Powerwave 7770 w/ Mount Pipe (2) KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe (1) Kathrein 800 10764 w/ Mount Pipe (12) Powerwave LGP21401 TMAs (6) Ericsson RRUS-11 RRUs (1) Andrew ABT-DF-DMADBH Surge Arrestor (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8" (1) 7/16" Fiber Cable[1] (2) 3/4" DC Power[1]	15-26, 54	AT&T	242.5	(3) 12.5' T-Frames

1. Coax installed inside 3" Flex Conduit

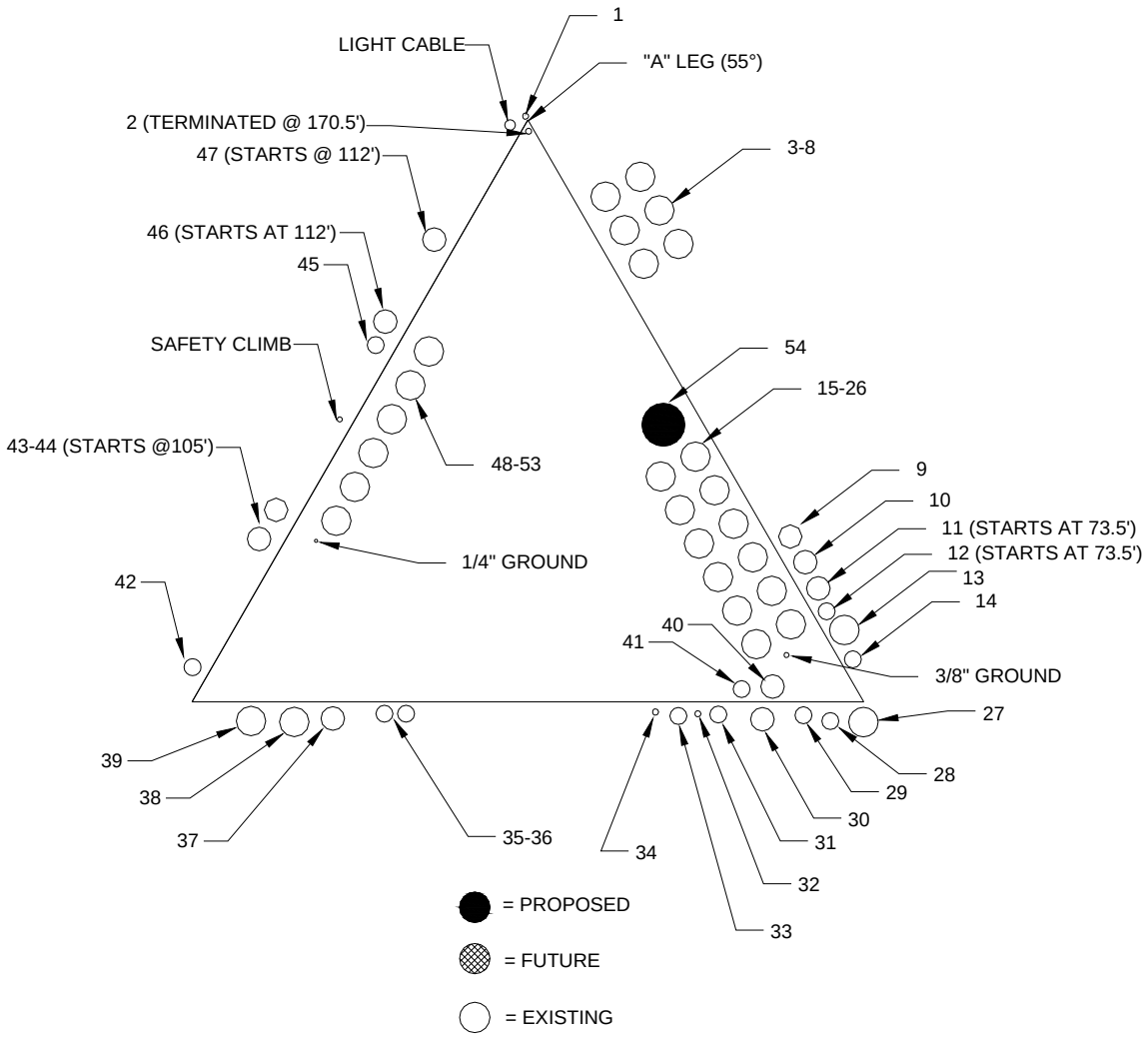


Figure 1 – Coax Layout

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 ksi
Bracing	50 ksi & 36 ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. Table 4 displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the Appendix for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
T1	260 - 257	Leg	1 1/2	5.6	Pass
		Diagonal	9/16	18.9	Pass
		Top Girt	3/4	0.8	Pass
T2	257 - 254.667	Leg	1 1/2	8.6	Pass
		Diagonal	9/16	47.8	Pass
T3	254.667 - 252.333	Leg	1 1/2	13.0	Pass
		Diagonal	9/16	46.7	Pass
T4	252.333 - 250	Leg	1 1/2	17.0	Pass
		Diagonal	9/16	50.4	Pass
T5	250 - 247.667	Leg	1 1/2	21.8	Pass
		Diagonal	9/16	47.6	Pass
		Top Girt	3/4	3.0	Pass
T6	247.667 - 245.333	Leg	1 1/2	26.2	Pass
		Diagonal	9/16	60.0	Pass
T7	245.333 - 243	Leg	1 1/2	41.3	Pass
		Diagonal	9/16	78.3	Pass
		Top Girt	C3x6	12.3	Pass
T8	243 - 240	Leg	1 1/2	56.0	Pass
		Diagonal	9/16	106.6	Fail
		Top Girt	C3x6	24.0	Pass
		Bottom Girt	3/4	87.9	Pass
T9	240 - 220	Leg	1 1/2	55.8	Pass
		Diagonal	9/16	56.2	Pass
		Top Girt	3/4	39.3	Pass
		Bottom Girt	3/4	2.8	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
		Mid Girt	3/4	1.2	Pass
		Guy A@239.333	5/8	79.7	Pass
		Guy B@239.333	5/8	79.5	Pass
		Guy C@239.333	5/8	79.5	Pass
T10	220 - 200	Leg	1 1/2	80.2	Pass
		Diagonal	9/16	84.2	Pass
		Top Girt	3/4	1.9	Pass
		Bottom Girt	3/4	23.7	Pass
		Mid Girt	3/4	3.5	Pass
T11	200 - 197	Leg	1 1/2	94.7	Pass
		Diagonal	9/16	81.7	Pass
		Top Girt	3/4	71.2	Pass
T12	197 - 194.667	Leg	1 1/2	111.6	Fail
		Diagonal	9/16	68.5	Pass
		Top Girt	C3x6	28.3	Pass
T13	194.667 - 192.333	Leg	1 1/2	110.5	Fail
		Diagonal	9/16	68.5	Pass
		Top Girt	C3x6	21.9	Pass
		Guy A@194.667	1/2	73.0	Pass
		Guy B@194.667	1/2	72.0	Pass
		Guy C@194.667	1/2	73.2	Pass
		Torque Arm Top@194.667	L3x3x1/2	8.9	Pass
		Torque Arm Bottom@194.667	L3x3x1/2	12.4	Pass
T14	192.333 - 190	Leg	1 1/2	97.4	Pass
		Diagonal	9/16	74.3	Pass
		Top Girt	C3x6	24.0	Pass
T15	190 - 187.667	Leg	1 1/2	81.6	Pass
		Diagonal	9/16	86.2	Pass
		Top Girt	3/4	64.3	Pass
T16	187.667 - 185.333	Leg	1 1/2	74.6	Pass
		Diagonal	9/16	71.4	Pass
T17	185.333 - 183	Leg	1 1/2	67.7	Pass
		Diagonal	9/16	65.1	Pass
T18	183 - 180	Leg	1 1/2	66.3	Pass
		Diagonal	9/16	91.2	Pass
		Bottom Girt	3/4	17.6	Pass
T19	180 - 160	Leg	1 1/2	72.4	Pass
		Diagonal	9/16	93.7	Pass
		Top Girt	3/4	19.5	Pass
		Bottom Girt	3/4	0.7	Pass
		Mid Girt	3/4	1.1	Pass
T20	160 - 140	Leg	1 1/2	77.7	Pass
		Diagonal	9/16	66.9	Pass
		Top Girt	3/4	1.5	Pass
		Bottom Girt	3/4	15.1	Pass
		Mid Girt	3/4	1.1	Pass
T21	140 - 120	Leg	1 1/2	91.8	Pass
		Diagonal	9/16	72.4	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
		Top Girt	3/4	27.0	Pass
		Bottom Girt	3/4	10.4	Pass
		Mid Girt	3/4	2.4	Pass
		Guy A@139.333	1/2	76.5	Pass
		Guy B@139.333	1/2	76.4	Pass
		Guy C@139.333	1/2	76.6	Pass
T22	120 - 100	Leg	1 1/2	96.9	Pass
		Diagonal	9/16	58.6	Pass
		Top Girt	3/4	6.9	Pass
		Bottom Girt	3/4	8.1	Pass
		Mid Girt	3/4	1.3	Pass
T23	100 - 80	Leg	1 3/4	68.6	Pass
		Diagonal	5/8	88.8	Pass
		Top Girt	3/4	10.2	Pass
		Bottom Girt	3/4	23.4	Pass
		Mid Girt	3/4	2.0	Pass
T24	80 - 60	Leg	1 3/4	83.6	Pass
		Diagonal	5/8	91.5	Pass
		Top Girt	3/4	26.4	Pass
		Bottom Girt	3/4	21.8	Pass
		Mid Girt	3/4	47.5	Pass
		Guy A@70	1/2	56.8	Pass
		Guy B@70	1/2	55.6	Pass
		Guy C@70	1/2	56.8	Pass
		Torque Arm Top@70	L3x3x1/2	6.9	Pass
		Torque Arm Bottom@70	L3x3x1/2	7.3	Pass
T25	60 - 40	Leg	1 3/4	82.4	Pass
		Diagonal	5/8	64.4	Pass
		Top Girt	3/4	18.4	Pass
		Bottom Girt	3/4	7.0	Pass
		Mid Girt	3/4	2.3	Pass
T26	40 - 20	Leg	1 3/4	85.5	Pass
		Diagonal	5/8	27.6	Pass
		Top Girt	3/4	5.8	Pass
		Bottom Girt	3/4	1.5	Pass
		Mid Girt	3/4	2.4	Pass
T27	20 - 5.33334	Leg	1 3/4	87.6	Pass
		Diagonal	5/8	24.2	Pass
		Top Girt	3/4	3.5	Pass
		Mid Girt	3/4	5.2	Pass
T28	5.33334 - 0	Leg	1 3/4	89.4	Pass
		Diagonal	5/8	12.6	Pass
		Top Girt	3/4	63.3	Pass

* Capacities include 1/3 allowable stress increase for wind per *TIA/EIA-222-F*.

Table 4 - Maximum Base Reactions

	Current Analysis* *(TIA/EIA-222-F)*		Original Design *(TIA/EIA-222-F)*	
Reaction	Horizontal	Vertical	Horizontal	Vertical
Tower Base	2 k	142 k	4 k	87 k
Anchor	47 k	36 k	52 k	38 k

*Foundation adequate based on independent analysis.

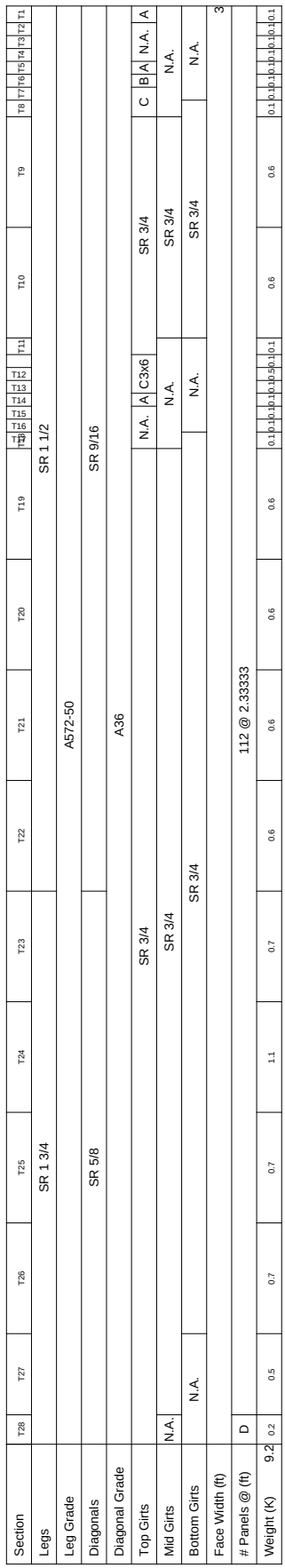
GENERAL COMMENTS

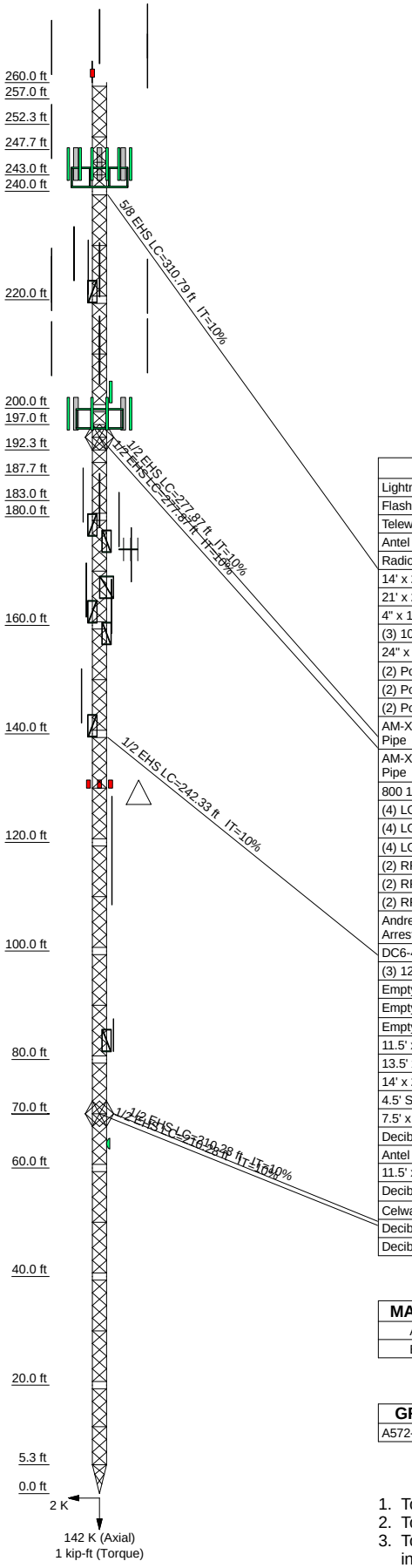
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

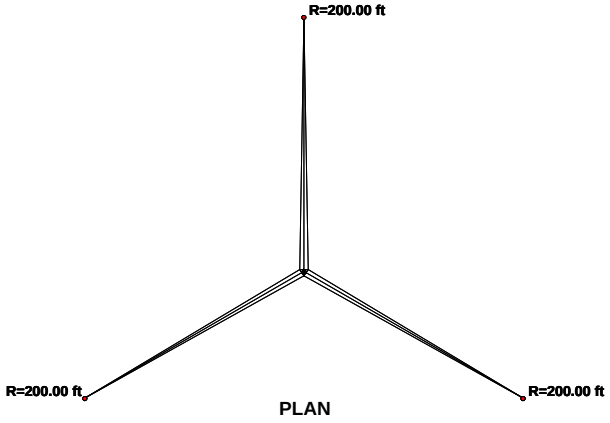
LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX







DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	260	(3) 10' Standoffs	218
Flash Beacon Lighting	260	731DG85V1EXM w/ Mount Pipe	203
Telewave 21' x 2.5" omni	258	(2) Clear Comm 7.5" x 4" x 4" TMA	203
Antel 11.5' x 2.5" omni	258	(2) 14" x 9" x 2.5" TMA	203
Radio Labs SRL480 omni	258	BXA-80063/4CF w/ Mount Pipe	198
14' x 2.5" omni	258	BXA-80063/4CF w/ Mount Pipe	198
21' x 2.4" omni	258	BXA-80063/4CF w/ Mount Pipe	198
4" x 13.75" x 3" TMA	258	BXA-185063/8CF w/ Mount Pipe	198
(3) 10' Standoffs	258	BXA-185063/8CF w/ Mount Pipe	198
24" x 20" x 11" TMA	255	BXA-185063/8CF w/ Mount Pipe	198
(2) Powerwave 7770 w/ Mount Pipe	242.5	(3) 10' T-Frames	198
(2) Powerwave 7770 w/ Mount Pipe	242.5	Empty Mount Pipe	198
(2) Powerwave 7770 w/ Mount Pipe	242.5	Empty Mount Pipe	198
AM-X-CD-16-65-00T-RET w/ Mount Pipe	242.5	Empty Mount Pipe	198
AM-X-CD-16-65-00T-RET w/ Mount Pipe	242.5	PG1N0F-0090-310	178.5
800 10764 w/ Mount Pipe	242.5	27" Standoff	178.5
(4) LGP21401 TMA	242.5	Andrew 11.5' x 3" omni	177.5
(4) LGP21401 TMA	242.5	48" Standoff	177.5
(4) LGP21401 TMA	242.5	Scala 9 Element Yagi (27" x 7")	175.5
(2) RRUS-11	242.5	8' x 1" omni	175.5
(2) RRUS-11	242.5	Radio Labs SRL 6139	175.5
(2) RRUS-11	242.5	36" Standoff	175.5
Andrew ABT-DF-DMADBH Surge Arrestor	242.5	6.5" x 20.5" x 4.5" TMA	174.5
DC6-48-60-18-8F Surge Arrestor	242.5	22" x .75" GPS	173.5
(3) 12.5' T-Frames	242.5	17" Standoff	173.5
Empty Mount Pipe	242.5	13.5' x 1.8" omni	167
Empty Mount Pipe	242.5	72" Standoff	167
Empty Mount Pipe	242.5	8' x 1" omni	162.5
11.5' x 2.4" omni	226	18" Standoff	162.5
13.5' x 2.4" Pipe Mount	226	Andrew 11'2" x 3" omni	158.5
14' x 2.4" omni	221.5	15" Standoff	158.5
4.5' Standoff	221.5	11.5' x 2.4" omni	141.5
7.5' x 2.4" omni	218	15" Standoff	141.5
Decibel 11' x 3" omni	218	Sidemarker	130
Antel BCD 8706 NE omni	218	Sidemarker	130
11.5' x 2.4" omni	218	Sidemarker	130
Decibel 11' x 3" omni	218	Shivley 20' x 2.5' 3 Bay FM	118.5
Celwave 458-2 Omni	218	(4) 16" Standoffs	118.5
Decibel 14' x 3" omni	218	Shivley 4' x 2.5' 1-Bay FM	83.5
Decibel 11.5' x 3" omni	218	20" Standoff	83.5
		12.5" x 9" TMA	66.5
		Radiowaves SP2-2.4NS Dish	64.5

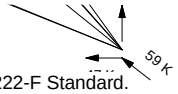
SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 3/4	C	C3x6
B	N.A.	D	3 @ 1.77778

MATERIAL STRENGTH

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

TOWER DESIGN NOTES



1. Tower is located in Litchfield 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 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 111.6%

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job:	Torrington 2 CT02303-A		
Project:	12-08779E S1 (R1)		
Client: SBA Network Services	Drawn by: Daniel Chang	App'd:	
Code: TIA/EIA-222-F	Date: 10/12/12	Scale: NTS	
Path: \\FDH-SERVER\Projects\2012 Projects\08 - August\12-08779E\Torrington 2, CT\S1- SA, ATT\Analysis\R1\Torrington 2.eri		Dwg No. E-1	