20 Commercial St
Branford, CT 06405
Phone: (203) 208-0806
Fax: (203) 488-4820

July 8, 2015

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Melanie Bachman, Executive Director

Re: Notice of Exempt Modification Application
555 Main Street
Stamford, CT 06901

Dear Ms. Bachman,

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), enclosed for filing are an original and two (2) copies of AT&T's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of $625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By: David Bass

Name: David Bass
Vertical Development LLC

CC:

Mayor David Martin Stamford Government Center 888 Washington Blvd., 10th Floor Stamford, CT 06901	Frontier Communications Attn.: Elisssa McOmber Elissa.McOmber@FTR.com

siting.council@ct.gov

Notice of Exempt Modification
Stamford Central
555 Main Street
Stamford, CT 06901

New Cingular Wireless PCS, LLC ("AT&T") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with AT&T's planned modification of antennas and associated equipment on an existing self support tower located on a rooftop with an address of 555 Main Street, in the City of Stamford, Connecticut. More particularly, AT&T plans to upgrade this site by adding LTE technology to its facilities. The proposed modifications will not increase the tower height, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

To better meet the growing voice and data demands of its wireless customers, AT&T is upgrading their network nationwide to include LTE technology, which will provide faster service and better overall performance. Pursuant to the LTE technology upgrade at this site, AT&T will modify existing panel antennas and install RRHs and related equipment.

The existing self support tower is located on a rooftop with an address of 555 Main Street, in the City of Stamford, Connecticut (lat. 41° 03' 12.47", long. -73° 32' 08.4") and is owned by Frontier Communications. AT&T currently has nine (9) panel antennas (three (3) per sector) with a centerline of 235' AGL installed on the tower. AT&T's base station equipment is located within the building. A site plan depicting this is attached.

AT&T will remove (6) antennas and three (3) RRUs, and reuse three (3) Powerwave 7777.00 panel antennas (1 per sector) (3) existing RRUS 11 (1 per sector), three (3) TMAs and one (1) DC6 Surge Suppressor. AT&T will add six (6) CCI OPA-65R-LCUU-H4 antennas (2 per sector), three (3) RRUs-32 (1 per sector), three (3) RRUs-12 (1 per sector), three (3) Ericsson A2 Modules (1 per sector), one (1) new DC6 Surge Suppressor, two (2) new fiber trunks and four (4) DC Trunks.

The height of the tower will not be increased and all antennas, surge suppressors, and RRHs will be installed at the 235' AGL.

The compound's boundaries will not need to be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it is already a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the tower site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by EBI Consulting concludes that the proposed final configuration (including other carriers on the tower) will emit 10.51% of the allowable FCC established general public limits sampled at the ground level (see page 1 and

the 6th page of Radio Frequency Emissions Analysis Report Evaluation of Human Exposure Potential to Non-Ionizing Emissions (the "MPE" Assessment) dated July 7, 2015). Emissions values for additional carriers were based upon values listed in Connecticut Siting Council active database (see the 1st and 6th page of the MPE Assessment dated July 7, 2015). The information used in the report was analyzed as a percentage of current Maximum Permissible Exposure (%MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1 (see the 2nd page of the MPE Assessment).

The proposed modifications will not impair the structural integrity of the facility. Malouf Engineering Intl., Inc., performed a structural analysis of the tower to verify that it can support the proposed loading. The structure and foundation were found to meet the specified TIA requirements and deemed adequate to support the existing and proposed loading, and was rated at 93.7% (see pages 2, 8 and 9 of the Structural Analysis Report dated June 24, 2015) after proper installation of the recommended structural strengthening modifications as outlined in the Structural Analysis and Modification Design Drawings.

In conclusion, AT&T's proposed modifications do not constitute a modification subject to the Council's review because AT&T will not change the height of the tower, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards, and will not impair the structural integrity of the facility. Therefore, AT&T respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.

PROJECT INFORMATION

SCOPE OF WORK:

- AT&T ANTENNAS: (2) EXISTING AT&T ANTENNAS TO BE REMOVED PER SECTOR (6) TOTAL; (2) NEW LTE ANTENNA PER SECTOR, (6) TOTAL; (3) EXISTING UMTS/GSM ANTENNAS & TMAs TO BE RE-USED (1 PER SECTOR)
- AT&T RRUs: (1) EXISTING RRUS-12 TO BE REMOVED PER SECTOR, (3) TOTAL, (1) NEW RRUs-12 PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs-12; (1) NEW RRUS WITH A2 MODULE PER SECTOR, (3) TOTAL; (1) NEW RRUS-32 PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUS-32; (1) EXISTING RRU PER SECTOR TO BE REUSED, FOR A TOTAL OF (3) EXISTING RRUs.
- (1) NEW AT&T DC6 SURGE SUPPRESSOR; (1) EXISTING DC6 TO BE REUSED.
- (2) NEW FIBER TRUNK AND (4) DC TRUNKS TO BE ADDED

SITE ADDRESS:	555 MAIN STREET STAMFORD, CT 06901	
LATITUDE:	41.8140481	41° 48' 50.573116"N
LONGITUDE:	-72.2594431	72° 15' 33.99516"W
USID:	60403	
TOWER OWNER:	AT&T TOWERS - ASG (925) 823-6227	
TYPE OF SITE:	SELF SUPPOR TOWER/INDOOR EQUIPMENT	
RAD CENTER:	235'-0"±	
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY	
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY	

at&t MOBILITY

FA CODE: 10034983
SITE NUMBER: CT2118
SITE NAME: STAMFORD CENTRAL

PROJECT TEAM

CLIENT REPRESENTATIVE

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET, BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ZONING:

COMPANY: VERTICAL DEVELOPMENT, LLC
ADDRESS: 20 COMMERCIAL STREET, BRANFORD, CT 06405
CONTACT: DAVID BASS
PHONE: 203-826-5857
EMAIL: dbass@verticaldevelopmentllc.com

ENGINEERING:

COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 4 SECOND AVENUE, SUITE 204, DENVILLE, NJ 07834
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:

COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

DRAWING INDEX

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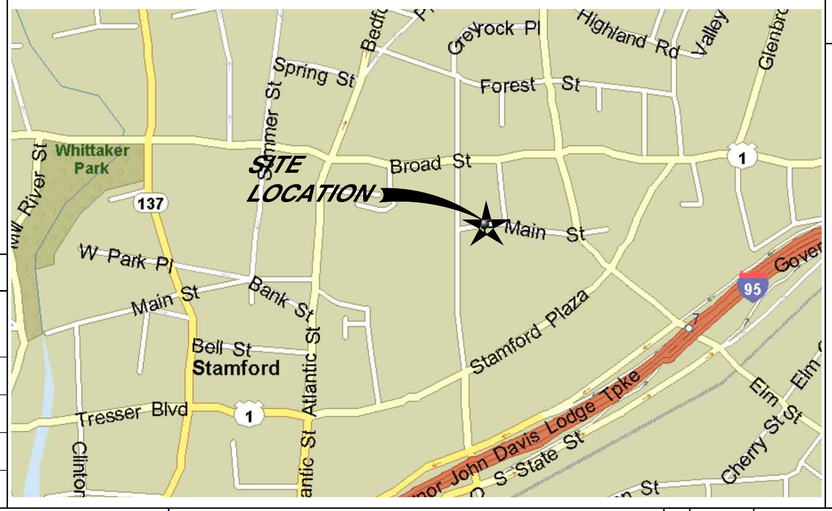
APPROVALS

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

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

VICINITY MAP

1. DEPART 550 COCHITUATE RD, TOWN OF FRAMINGHAM, MA 01701 ON SR-30 [COCHITUATE RD] (WEST). 2. BEAR LEFT (SOUTH) ONTO SR-126 [CONCORD ST], TURN LEFT (SOUTH) ONTO CONCORD ST. 3. TURN RIGHT (WEST) ONTO SR-9 [WORCESTER RD], MERGE ONTO SR-30 [SR-9]. 4. KEEP STRAIGHT ONTO SR-9 [WORCESTER RD], TURN RIGHT ONTO RAMP KEEP LEFT TO STAY ON RAMP *TOLL ROAD*. 5. MERGE ONTO I-90 [MASS PIKE], AT EXIT 9, TAKE RAMP (RIGHT) ONTO I-84 ENTERING CONNECTICUT. 6. AT EXIT 57, TAKE RAMP (LEFT) ONTO SR-15, ROAD NAME CHANGES TO US-5 [SR-15]. 7. AT EXIT 86, TAKE RAMP (RIGHT) ONTO I-91AT EXIT 1, TAKE RAMP (LEFT) ONTO I-95 [GOVERNOR JOHN DAVIS LODGE TPKE]. 8. AT EXIT 8, TURN RIGHT ONTO RAMP, TURN RIGHT (NORTH-WEST) ONTO ELM ST. 9. BEAR LEFT (WEST) ONTO E MAIN ST [MAIN ST] ARRIVE 555 E MAIN ST, STAMFORD, CT 06901.



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.

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 STOP - CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES
TWO WORKING DAYS NOTICE PRIOR TO
ANY EARTH MOVING ACTIVITIES BY
CALLING 800-922-4455 OR DIAL 811

COM-EX Consultants
4 SECOND AVENUE
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FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
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SITE NUMBER: CT5322
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555 MAIN STREET
STAMFORD, CT 06901
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/11/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

SEAL: STATE OF CONNECTICUT, NICHOLAS D. BARILE, 20869, PROFESSIONAL ENGINEER, CT 20869

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
14203-EMP	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. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

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 WITH STAINLESS STEEL HARDWARE 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 AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. 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.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – EMPIRE TELECOM
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY CHA FOR AT&T DATED (04/20/11). CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.

3. 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.

4. 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.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED 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 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. ROUTING OF TRENCHING SHALL BE APPROVED BY 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 OFF 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 HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING 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). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "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 MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. 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.
    - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
    - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
    - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

21. 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, THIRTEENTH EDITION
    - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
    - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
    - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
    - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
    - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
    - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

22. 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.

23. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY HUDSON DESIGN GROUP FOR AT&T DATED 5/27/11. CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5322
SITE NAME: STAMFORD CENTRAL

555 MAIN STREET
STAMFORD, CT 06901
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/11/15	ISSUED AS FINAL	GR	NDB	NDB

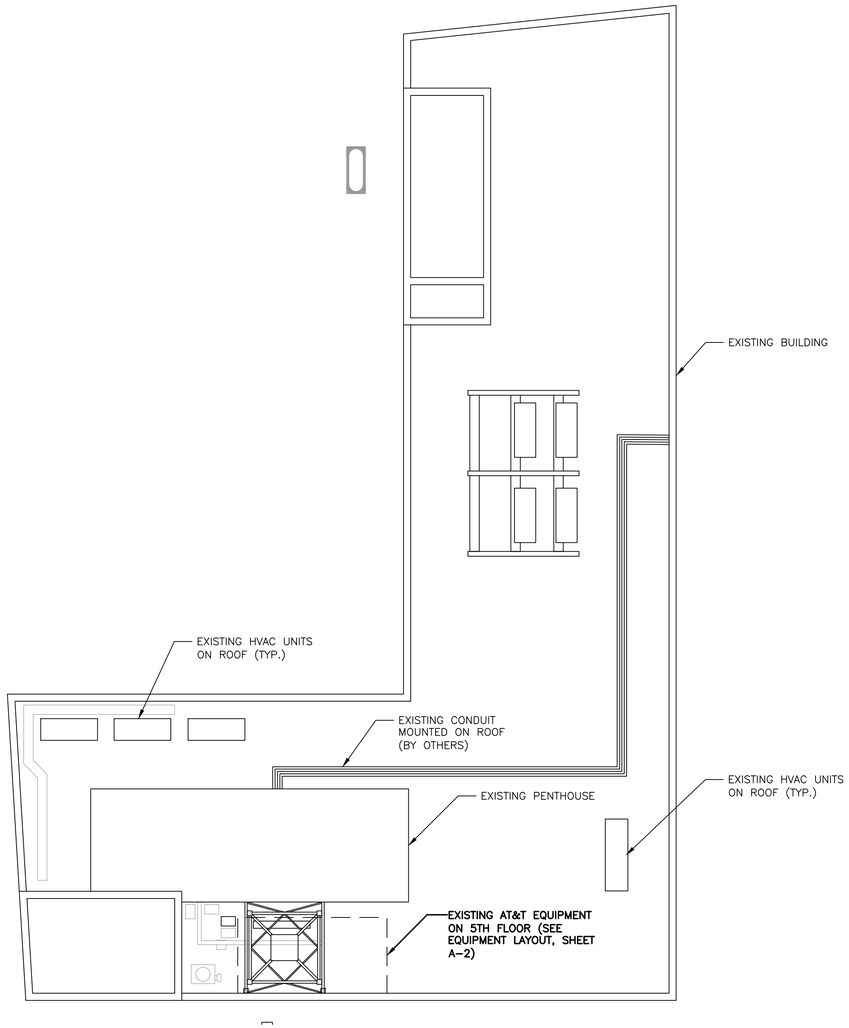
SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARTOLOMEO
PROFESSIONAL ENGINEER
CT PROFESSIONAL ENGINEER 28643

AT&T

DRAWING TITLE:
GROUNDING NOTES & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
14203-EMP	GN-1	0



NORTH

ROOFTOP PLAN

SCALE: 1/16" = 1'-0"

GRAPHIC SCALE

12 0 6 12 24 48

(IN FEET)

3/32" = 1 Foot

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5322
SITE NAME: STAMFORD CENTRAL

555 MAIN STREET
STAMFORD, CT 06901
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/11/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

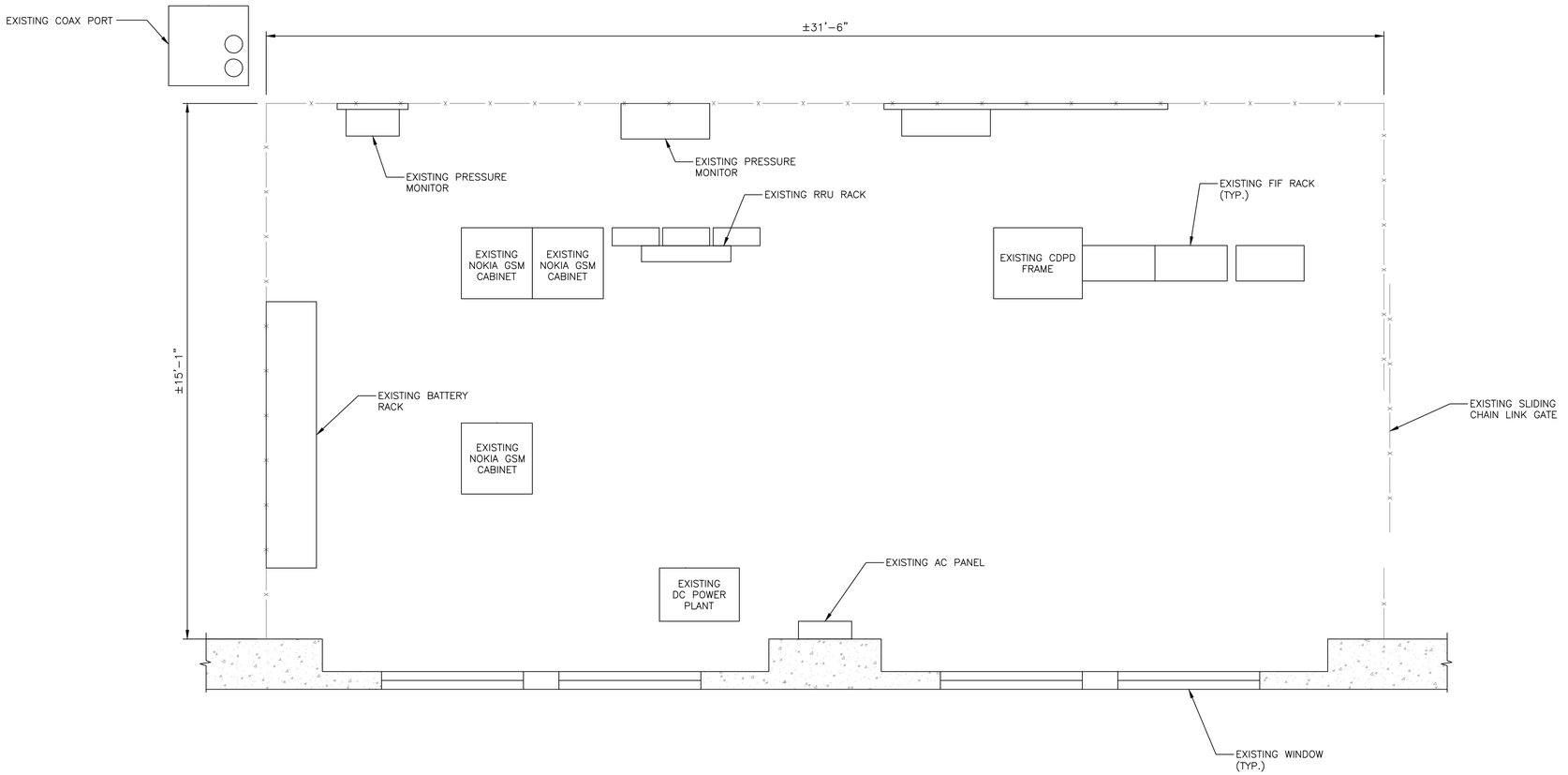
SEAL:

STATE OF CONNECTICUT
DOUGLAS G. BARTLETT
LICENSED PROFESSIONAL ENGINEER
PRINCIPAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
14203-EMP	A-1	0



NOTE:
NO GROUND EQUIPMENT CHANGES ARE PROPOSED UNDER THIS SCOPE OF WORK. EXISTING GROUND EQUIPMENT CONFIGURATION TO REMAIN.

NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1/2" = 1'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5322
SITE NAME: STAMFORD CENTRAL

555 MAIN STREET
STAMFORD, CT 06901
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/11/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BARBER
LICENSED PROFESSIONAL ENGINEER
PRINCIPAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
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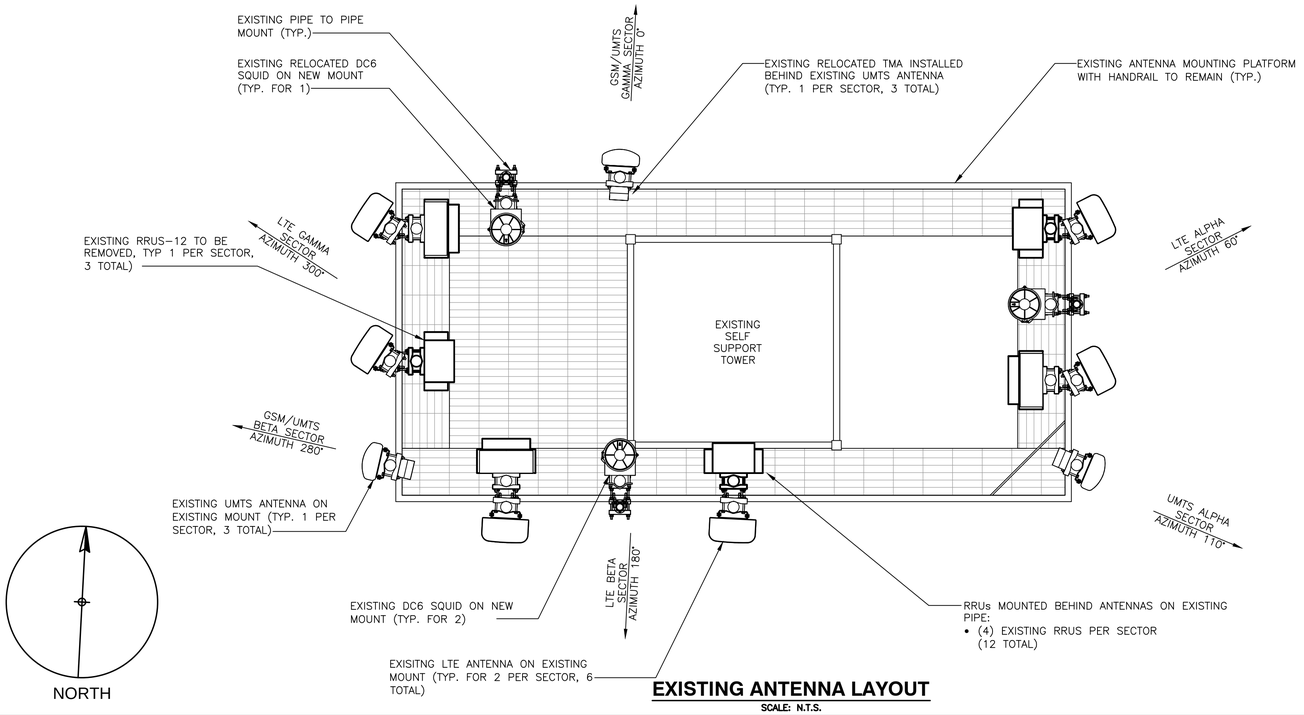
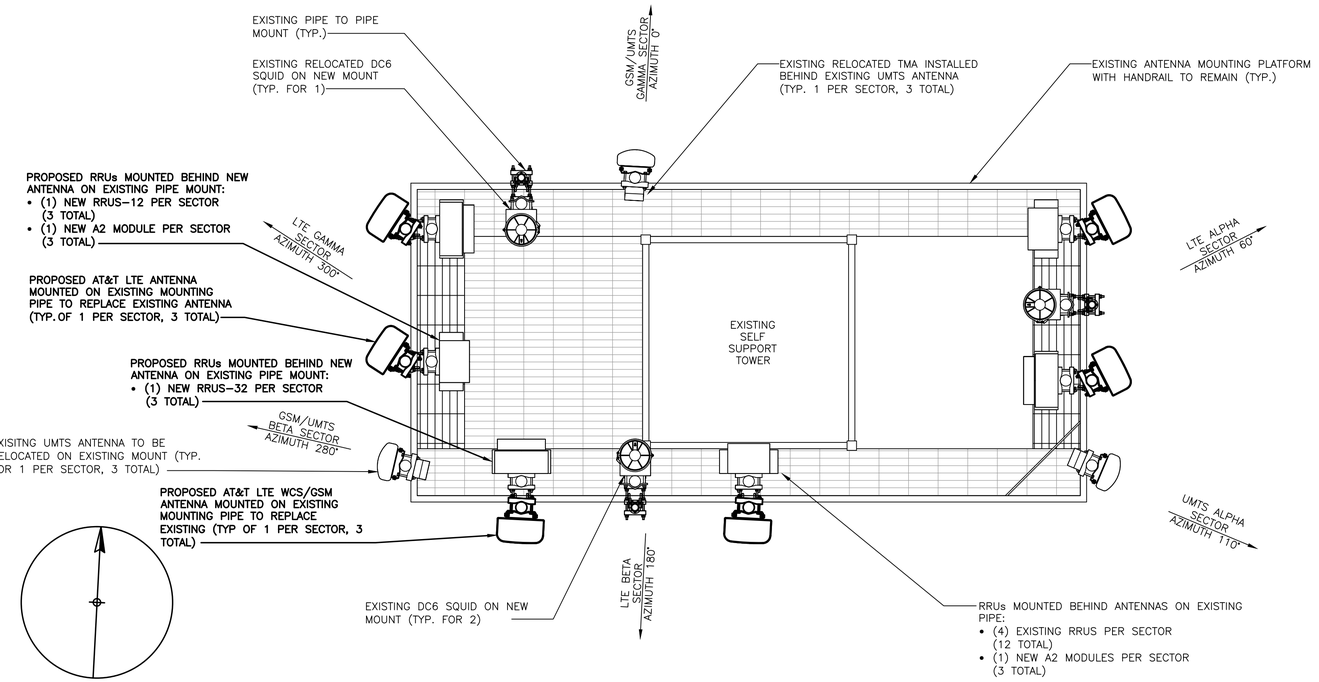
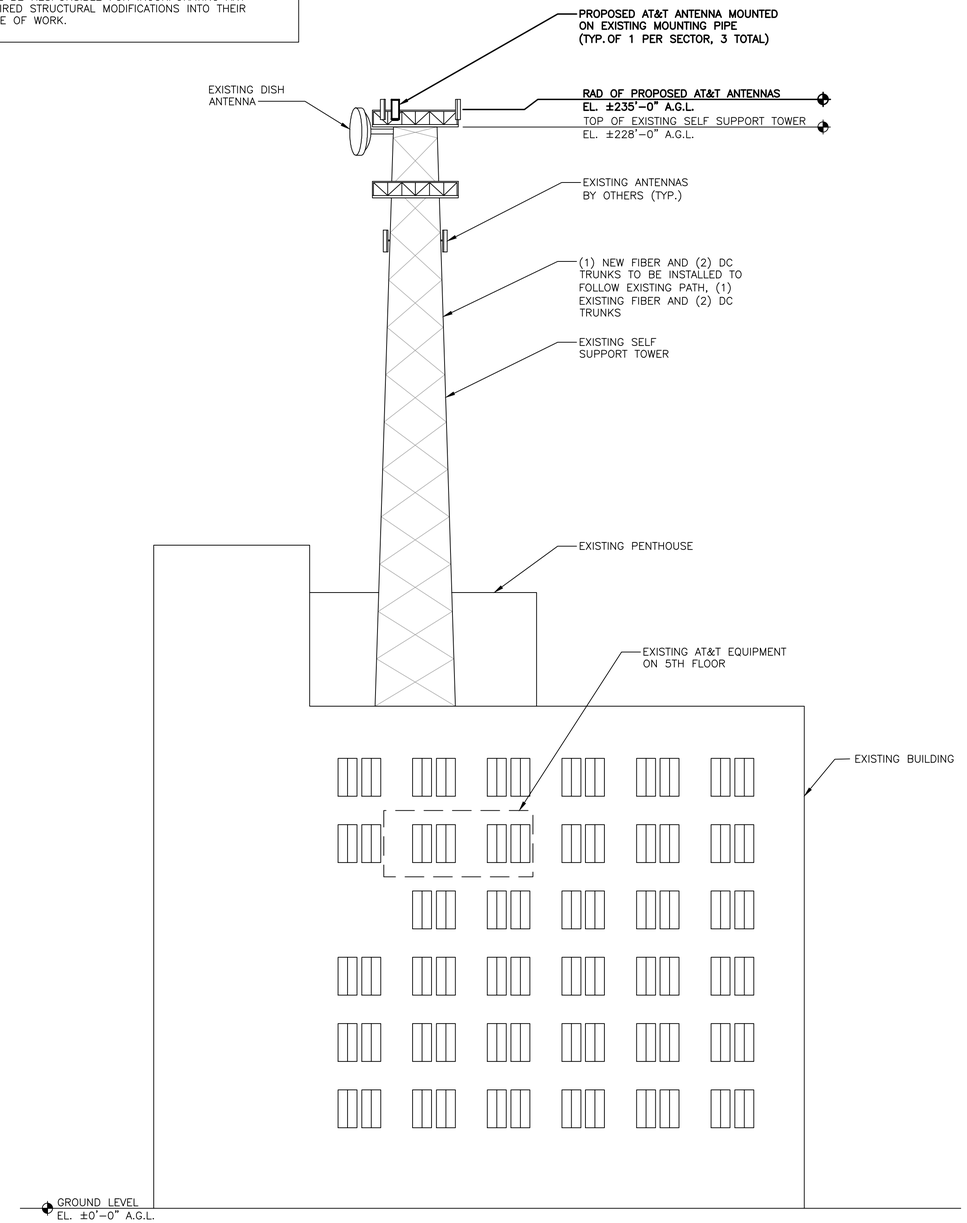


EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.



TOWER ELEVATION

SCALE: NTS

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FAX: 862.209.4301

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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/11/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

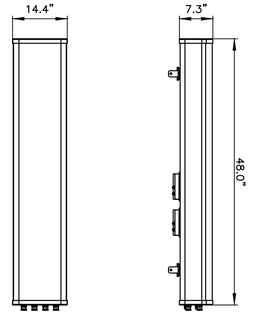
SEAL:
STATE OF CONNECTICUT — NICHOLAS B. BARBIERI — LICENSED PROFESSIONAL ENGINEER — CT LICENSE NO. 28643

PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATION

JOB NUMBER	DRAWING NUMBER	REV
14203-EMP	A-3	0



FRONT VIEW

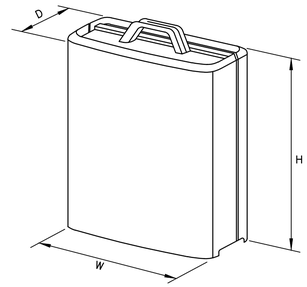
SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H4
WEIGHT	57.0 LBS

ANTENNA DETAIL

SCALE: N.T.S.

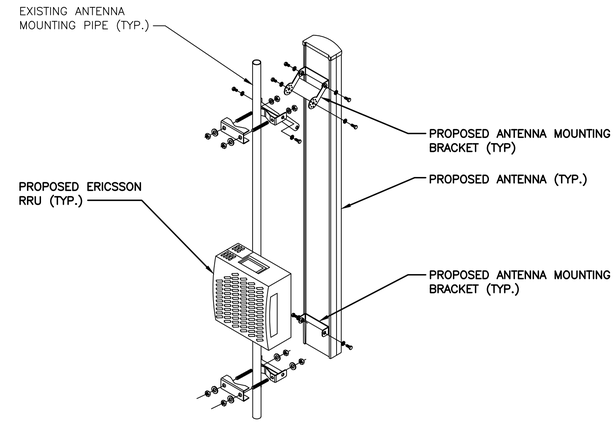


MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-12	20.4" x 18.5" x 7.5"	58 LBS
RRUS-32	29.9" x 13.3" x 9.5"	77 LBS
A2 MODULE	16.4" x 15.2" x 3.4"	22 LBS

*DENOTES EXISTING.

RRUS DETAIL

SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KMW	AM-X-CD-14-65-00T-RET	48"x11.8"x5.9"
	A2	–	–	–
	A3	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
	A4	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
BETA	B1	KMW	AM-X-CD-14-65-00T-RET	48"x11.8"x5.9"
	B2	–	–	–
	B3	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
	B4	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
GAMMA	G1	KMW	AM-X-CD-14-65-00T-RET	48"x11.8"x5.9"
	G2	–	–	–
	G3	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
	G4	POWERWAVE	P65-15-XLH-RR	51"x12"x6"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	**CCI**	**OPA-65R-LCUU-H4**	48"x11.8"x5.9"
	A2	–	–	–
	A3	**CCI**	**OPA-65R-LCUU-H4**	**48"x14.4"x7.3**
	A4	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
BETA	B1	**CCI**	**OPA-65R-LCUU-H4**	48"x11.8"x5.9"
	B2	–	–	–
	B3	**CCI**	**OPA-65R-LCUU-H4**	**48"x14.4"x7.3**
	B4	POWERWAVE	P65-15-XLH-RR	51"x12"x6"
GAMMA	G1	**CCI**	**OPA-65R-LCUU-H4**	48"x11.8"x5.9"
	G2	–	–	–
	G3	**CCI**	**OPA-65R-LCUU-H4**	**48"x14.4"x7.3**
	G4	POWERWAVE	P65-15-XLH-RR	51"x12"x6"

PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	**RRUS-12**	**20.4"X18.5"X7.5"**	**A2 MODULE**	**18.4"x15.2"x3.4"**
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
BETA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	**RRUS-12**	**20.4"X18.5"X7.5"**	**A2 MODULE**	**18.4"X15.2"X3.4"**
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
GAMMA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	**RRUS-12**	**20.4"X18.5"X7.5"**	**A2 MODULE**	**18.4"x15.2"x3.4"**
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		

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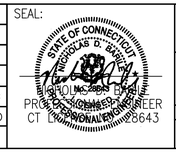
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/11/15	ISSUED AS FINAL	GR	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

SEAL:

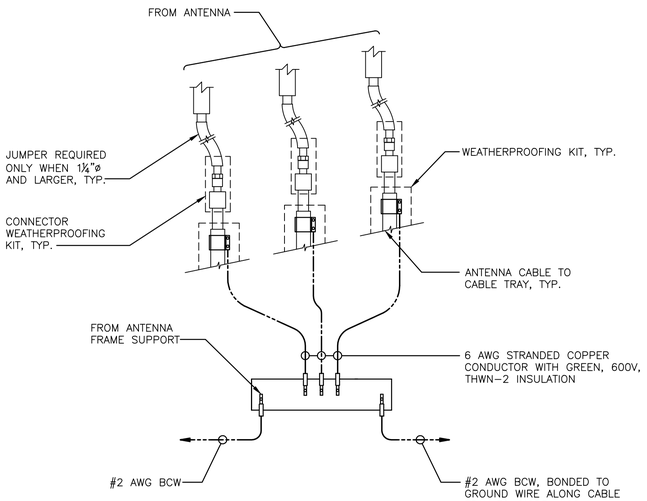


PROFESSIONAL ENGINEER
CT LICENSE NO. 18643

AT&T

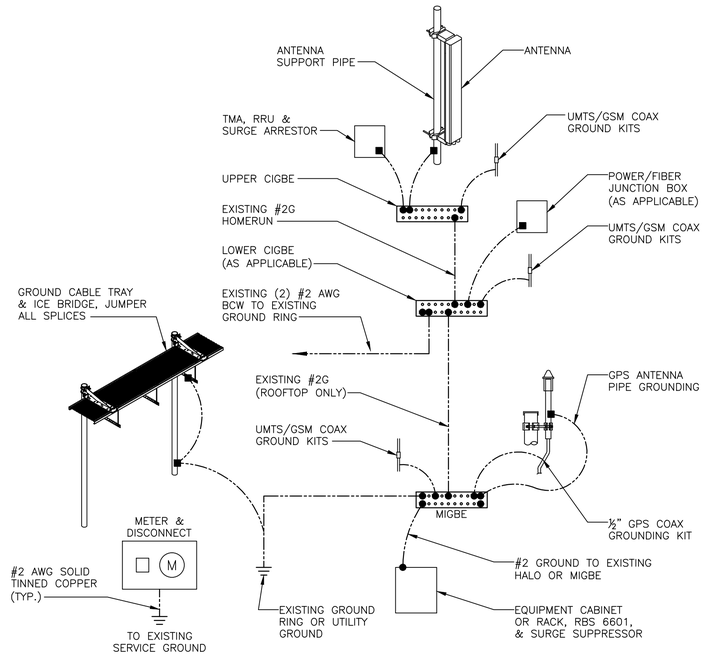
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14203-EMP	A-4	0



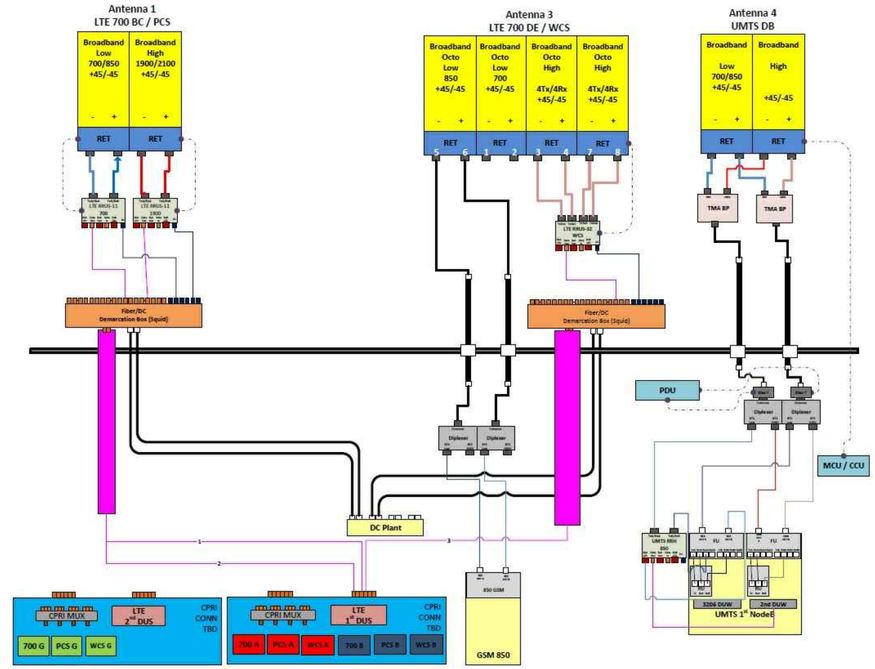
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



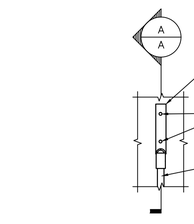
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

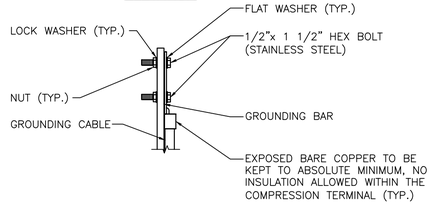


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



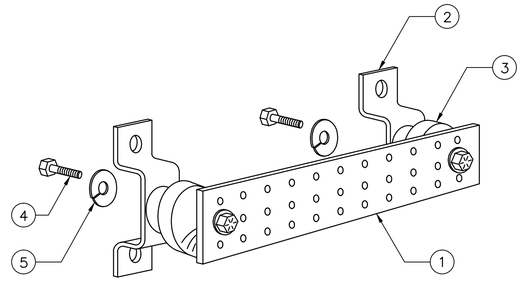
SECTION "A–A"

NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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)

GROUND BAR DETAIL

SCALE: N.T.S.

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SCALE: AS SHOWN | DESIGNED BY: CJT | DRAWN BY: AM

SEAL:

AT&T

DRAWING TITLE:

GROUNDING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
14203-EMP	G-1	0

Structural Analysis Report

AT&T – Stamford Central SBC CO #CT2118 / FA #10034983
Owner: Frontier Communications - Stamford #1 Co Site
Stamford, Connecticut

June 24, 2015

MEI PROJECT ID: CT02768S-15V2

MALOUF ENGINEERING INTL., INC.
STRUCTURAL CONSULTANTS

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

PROFESSIONAL MEMBER
ACEC MEMBER

MALOUF ENGINEERING INTL., INC.

STRUCTURAL CONSULTANTS

June 24, 2015

Mr. Miguel Nobre
Vertical Resources
Auburn, MA 01501

STRUCTURAL ANALYSIS

Structure/Make/Model:	125 ft **Self-Supporting Tower** (onto 106.5ft Rooftop)		Not Known / Not Known	
Client/Site Name/#:	**Vertical Resources / AT&T**		**Stamford Central SBC CO #CT2118 FA #10034983**	
Owner/Site Name/#:	Frontier Communications		Stamford #1 Co	
MEI Project ID:	**CT02768S-15V2**			
Location:	555 Main St Stamford, CT 06901		Fairfield County FCC #1046319	
	LAT	41-03-12.47 N	LON	73-32-8.4 W

EXECUTIVE SUMMARY:

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

Based on the stress analysis performed, the existing structure **is in conformance** with the Int'l Building Code (IBC) / ANSI/TIA **222-F** Standard for the loading considered under the criteria listed and referenced in the report sections **after proper installation of the recommended structural strengthening modifications outlined** – tower rated at 93.7% - Legs.

The addition of the proposed changed condition as noted in Table 1 is structurally acceptable after proper installation of the proposed strengthening modifications. Please refer to modification drawings for details.

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

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Luan Nguyen, PE
Sr. Project Engineer

Reviewed & Approved by:

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

TABLE OF CONTENTS

Separate Attachment:

Modification Design Drawings

1. INTRODUCTION & SCOPE

A structural analysis and modification design were performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. Miguel Nobre, Vertical Resources, on behalf of AT&T, to determine the acceptance of the proposed changed conditions in conformance with the IBC / ANSI/TIA-222-F Standard, "*Structural Standards for Steel Antenna Towers and Antenna Supporting Structures*".

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

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

2. SOURCE OF DATA

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

	Source	Information	Reference
STRUCTURE			
Tower	MEI Records	Previous Structural Analysis	ID CT02768S-15V0 Dated 04/27/2015
Base Support	Tower is on a building rooftop – building members to be reviewed by others.		
Material Grade	Not available from supplied documents-Assumed based on typical towers of this type-refer to Appendix		
CURRENT APPURTENANCES			
	MEI Records	Previous Structural Analysis	ID CT02768S-15V0 Dated 04/27/2015
CHANGED CONDITION			
	Vertical Resources / Mr. Miguel Nobre	E-mail Instructions	Dated 06/10/2015
		AT&T Collo Application	Dated 03/31/2015

Background Information:

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

DESIGNER / FABRICATOR	Not Known / Not Known
ORIGINAL DESIGN CRITERIA	TIA/EIA 222-Unknown
PRIOR STRUCTURAL MODIFICATIONS	Mods as per MEI CT02768S-11V1

3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

CODE / STANDARD	2005 CT State Building Code / 2003 Int'l Building Code / ANSI/TIA-222-F-96 Standard	
LOADING CASES	*Full Wind*:	85 Mph (fastest-mile) – with No Radial Ice
	Iced Case:	73.61 Mph (fastest-mile) + 0.5" Radial Ice
	Service:	50 Mph

Appurtenances Configuration

The following appurtenances configuration is denoted by the *summation of Tables 1 & 2*:

Table 1: Proposed Changed Condition Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
235	**AT&T**	6	OPA-65R-LCUU-H4 Panel Antennas	[Existing Mounts]	2	0.75" DC Power Trunk Cables
		3	RRUS-12 w/ A2 Backpacks			
		3	RRUS-32 Boxes		1	0.625" Fiber Trunk Cable-(FZ)
		1	Raycap DC6-48-60-18-8F DC Surge Box			
203	*T-Mobile*	*3*	*LNX-6515DS-VTM Panel Antennas*	*[Existing Mounts]*		*No New Lines*
		3	*RRUS-11 B12 Boxes*			
To Be Removed (See Below)						
235	**AT&T**	3	P65-15-XLH-RR Panel Antennas			
		3	AM-X-CD-14-65-00T-RET Panel Ants.			
		6	LGP21401 TMAs			
		3	RRUS-11 Boxes			
203	*T-Mobile*	*3*	*APX16DWV-16DWVS Panel Antennas*			
		3	*10"T x 9.5"W x 3.5"D TMAs*			

Table 2: Current and Reserved/Future Appurtenances

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
245.17		2	Top Small Beacons	13ft T-Beam Mount	1	1-1/4" R.C.
244.5		1	Top Lightning Rod			
235	AT&T	3	P65-15-XLH-RR Panel Antennas	Top Square Platform Mount	12	1-5/8"
		6	LGP21401 TMAs		2	0.75" DCPower Trunk Cables
		3	RRUS-11 Boxes			
233	AT&T	1	Raycap DC6-48-60-18-8F DC Surge Box		1	0.625" Fiber Trunk Cable
					1	RET Cable-(FZ)
231.5				Unused I-Beam Mount		
229	AT&T	1	1.5ft (2-Elem) Yagi Antenna	[Onto Platform]	1	1/2"-(FZ)
223.5		1	10ft Dia. HP Dish (Az. 210°±)	Dish Pipe Mount-DA Face	2	EW90-(FZ)
221.5	[Unused]				2	3/8"-(FZ)
221		1	1ft Dia. HP Dish (Windstar 43029) (Az. 210°±)	Dish Pipe Mount-BC Face	1	3/8"-(FZ)
216.5				(2) 4'Lx6'W Rest Platforms		
209.5	T-Mobile	6	AIR21 B2A B4P Panel Antennas	(3) Sector Frame Mounts	12	1-5/8"
		6	KRY 112 71/2 TMAs		1	Huber-Suhner 1.25" TC-OF Cable-(FZ)
203	T-Mobile			(3) Sector Frame Mounts		
201.5	T-Mobile [Unused]				18	1-5/8"-(FZ)
132	AT&T	1	4ft (7-Elem) Yagi Antenna	2ft Sidearm Mount	1	1/2"-(FZ)

Notes:

1. **Tower Base elevation is at 106.5ft Above Ground Level - All above elevations are measured from AGL.**
2. Please note appurtenances not listed above are to be removed/not present as per data supplied.
3. (I) = Internal; (E) = External; (FZ) = Within Face Zone; (OFZ) = Outside Face Zone - as per TIA-222.
4. The above appurtenances represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please contact MEI if any discrepancies are found.

4. ANALYSIS PROCEDURE

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

Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, tnxTower (ver. 6.1.3.1), a commercially available program by Tower Numerics Inc. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead and temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure.

Assumptions

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

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

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

5. ANALYSIS RESULTS

The structure will require structural strengthening as follows: (Refer to the attached drawings for details.)

STRUCTURAL STRENGTHENING REQUIRED	
1	Add new Internal Hip Bracing angle members bolted onto existing members from Elevations: 6.25' – 12.5' and 30' – 35' (2 bays total). Lengths to be field determined.
2	Add new Sub-bracing angle members bolted onto existing members from Elevations: 0' – 6.25' and 25' – 30' (2 bays total). Lengths to be field determined.
3	Perform Maintenance work as required & applicable to bring the structure into good operational condition.
4	*Field determination/verification and/or field adaptation is recommended.*

Prior to implementation of the changed conditions and modifications, the data designated on the design documents requiring field verification shall be validated. Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.

Table 3: Stress Analysis Results – AFTER PROPER INSTALLATION OF MODS

Component Type	Maximum Stress Ratio	Controlling Elev. (ft) / Component	Pass/Fail	Comment
LEGS	**93.7%**	**131.5 - 119**	**Pass**	
DIAGONALS	84.8%	161.5 - 151.5	**Pass**	
HORIZONTALS / GIRTS	52.2%	141.5 - 131.5	**Pass**	
SECONDARY HORIZONTALS	79.3%	151.5 - 141.5	**Pass**	
BRACINGS	67.7%	131.5 - 119	**Pass**	
BASE SUPPORT	N/A	-	**-**	Tower is on top of building. Scope is limited to tower. Building members to be reviewed by others.

Table 4: Serviceability Requirements

	Maximum Value	TIA Requirement (10dB)	Pass/Fail	Comment
TWIST/SWAY	0.1764 Deg.	4.425 Deg.	**Pass**	1ft HP Dish (Windstar 43029) Elev. 221.00ft
	0.1783 Deg.	0.2957 Deg.	**Pass**	10 FT HP DISH Elev. 223.50ft

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

6. FINDINGS & RECOMMENDATIONS

- Based on the stress analysis results, the subject structure is **rated at 93.7%** of its support capacity (controlling component: Leg) with the proposed changed condition considered after strengthening. Please refer to Table 3 and to Appendix 1 for more details of the analysis results.

- Based on the stress analysis performed, the existing structure **is in conformance** with the IBC / ANSI/TIA **222-F** Standard for the loading considered under the criteria listed and referenced in the report sections **after proper installation of the recommended structural strengthening modifications outlined**.

- Please note that the tower is mounted on top of a building rooftop. Building rooftop is to be evaluated by others to determine its adequacy for the new base loads (not within scope). Refer to Appendix for tower base reactions.

- ***The addition of the proposed changed condition as noted in Table 1 is structurally acceptable after proper installation of the proposed strengthening modifications.*** Please refer to modification drawings for details.

- This structure would be near its maximum support capacity for the appurtenances and loading criteria considered, after its modification. Therefore, no changes to the configuration considered should be made without performing a new proper evaluation.

Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.

7. REPORT DISCLAIMER

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

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

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

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

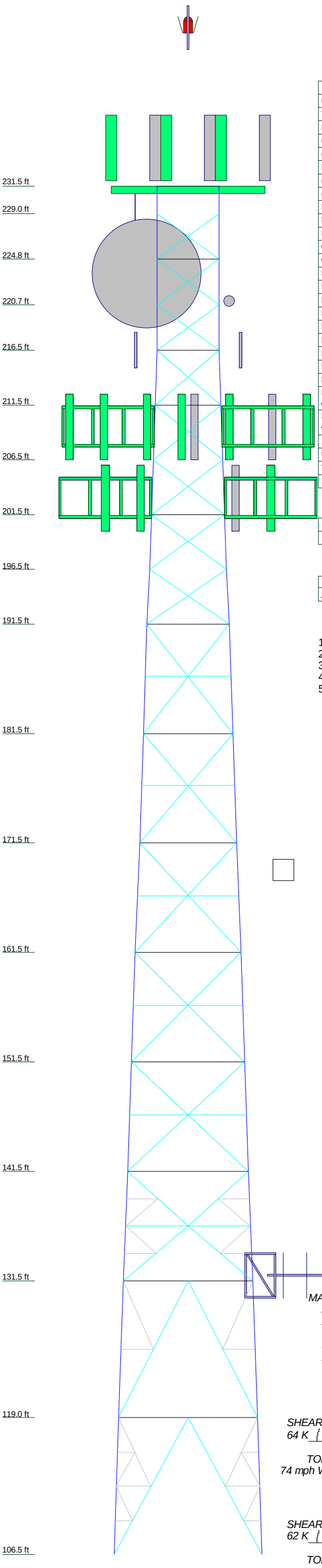
Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. to prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and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

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

APPENDIX 1 - ANALYSIS PRINTOUT & GRAPHICS

AFTER NOTED MODIFICATIONS

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	
Legs	L4x4x3/8				L5x5x1/2						L6x6x5/8			L6x6x3/4		L6x6x7/8		
Leg Grade											A36							
Diagonals	2L2 1/2x2 1/2x1/4x3/8				L2 1/2x2x1/4						L3x3x1/4					2L2 1/2x2 1/2x1/4x3/8		
Diagonal Grade											A36							
Top Girts	2L2 1/2x2 1/2x1/4x3/8										L2 1/2x2 1/2x1/4							
Horizontals	N.A.	N.A.	A	N.A.	C7x9.8	L2 1/2x2x1/4	N.A.	B	N.A.	N.A.		L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x1/4	L2 1/2x2x1/4	L2 1/2x2x1/4	N.A.		
Sec. Horizontals										N.A.								
Red. Horizontals										N.A.		L2 1/2x2x3/16						
Red. Diagonals										N.A.		L2 1/2x2x3/16						
Red. Sub-Horizs										N.A.							L2 1/2x2x3/16	
Red. Sub-Diags										N.A.							L2 1/2x2x3/16	
Inner Bracing										N.A.		L2 1/2x2 1/2x3/16		L2x2 1/2x3/16		L3x3x3/16		
Face Width (ft)	13.5833	5.60417				5.96685	6.32954		6.69223	7.05492	7.41761	8.14298	8.86836	9.59373	10.3191	11.0445	11.7699	12.6766
# Panels @ (ft)		1 @ 2.5		3 @ 4.1667		5 @ 5							5 @ 10				1 @ 12.4999	
Weight (K)	25.4	0.4	0.6	0.7	0.6	0.8	0.7	0.6	0.7	0.6	0.9	1.8	1.9	1.9	2.3	2.6	3.5	4.0



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) TOP SMALL BEACONS (E)	245.17	PIPE DISH MOUNT (E)	223.5
TOP LIGHTNING ROD (E)	244.5	10 FT HP DISH (E)	223.5
P65-15-XLH-RR w/ Pipe Mount (ATI / E)	235	PIPE DISH MOUNT (E)	221
(2) LGP21401 TMA'S (ATI / E)	235	1 FT HP DISH (WINDSTAR 43029) (E)	221
(2) OPA-65R-LCUU-H4 w/ Pipe Mounts (ATI / P)	235	4'Lx6'W REST PLATFORM (E)	216.5
P65-15-XLH-RR w/ Pipe Mount (ATI / E)	235	4'Lx6'W REST PLATFORM (E)	216.5
(2) OPA-65R-LCUU-H4 w/ Pipe Mounts (ATI / P)	235	(2) AIR21 B2A B4P w/ pipe Mount (T-MOBILE / E)	209.5
(2) LGP21401 TMA'S (ATI / E)	235	(2) KRY 112 71/2 (T-MOBILE / E)	209.5
RRUS-11 (ATI / E)	235	(2) KRY 112 71/2 (T-MOBILE / E)	209.5
RRUS-11 (ATI / E)	235	(2) KRY 112 71/2 (T-MOBILE / E)	209.5
P65-15-XLH-RR w/ Pipe Mount (ATI / E)	235	SECTOR FRAME MOUNT (T-MOBILE / E)	209.5
OPA-65R-LCUU-H4 w/ Pipe Mounts (ATI / P)	235	SECTOR FRAME MOUNT (T-MOBILE / E)	209.5
OPA-65R-LCUU-H4 w/ Pipe Mounts (ATI / P)	235	SECTOR FRAME MOUNT (T-MOBILE / E)	209.5
LGP21401 TMA'S (ATI / E)	235	(2) AIR21 B2A B4P w/ pipe Mount (T-MOBILE / E)	209.5
LGP21401 TMA'S (ATI / E)	235	(2) AIR21 B2A B4P w/ pipe Mount (T-MOBILE / E)	209.5
RRUS-11 (ATI / E)	235	10"T x 9.5"W x 3.5"D TMA's (T-MOBILE / E)	203
RRUS-12 w/ A2 Backpack (ATI / P)	235	LNX-6515DS-VTM w/ Pipe Mnt. (T-MOBILE / P)	203
RRUS-12 w/ A2 Backpack (ATI / P)	235	LNX-6515DS-VTM w/ Pipe Mnt. (T-MOBILE / P)	203
RRUS-12 w/ A2 Backpack (ATI / P)	235	LNX-6515DS-VTM w/ Pipe Mnt. (T-MOBILE / P)	203
RRUS-32 (ATI / P)	235	RRUS-11 B12 (T-MOBILE / P)	203
RRUS-32 (ATI / P)	235	RRUS-11 B12 (T-MOBILE / P)	203
RRUS-32 (ATI / P)	235	RRUS-11 B12 (T-MOBILE / P)	203
RAYCAP DC6-48-60-18-8F DC SURGE BOX (ATI / E)	233	SECTOR FRAME MOUNT (T-MOBILE / E)	203
RAYCAP DC6-48-60-18-8F DC SURGE BOX (ATI / P)	233	SECTOR FRAME MOUNT (T-MOBILE / E)	203
13' T BEAM MOUNT (E)	231.5	SECTOR FRAME MOUNT (T-MOBILE / E)	203
UNUSED I-BEAM MOUNT (ATI / E)	231.5	10"T x 9.5"W x 3.5"D TMA's (T-MOBILE / E)	203
TOP SQUARE PLATFORM MOUNT (ATI / E)	231.5	10"T x 9.5"W x 3.5"D TMA's (T-MOBILE / E)	203
1.5'x2-ELEMENT YAGI AND MOUNT (ATI / E)	229	4'x7-ELEMENT YAGI (ATI / E)	132
		2FT SIDEARM MOUNT (ATI / E)	132

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	C8x11.5	B	L2 1/2x2 1/2x1/4

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 93.7%

MAX. CORNER REACTIONS AT BASE:
DOWN: 262 K
SHEAR: 24 K

UPLIFT: -232 K
SHEAR: 22 K

AXIAL
75 K

SHEAR 64 K *MOMENT 4677 kip-ft*

TORQUE 21 kip-ft
74 mph WIND - 0.5000 in ICE

AXIAL
48 K

SHEAR 62 K *MOMENT 4686 kip-ft*

TORQUE 24 kip-ft
REACTIONS - 85 mph WIND

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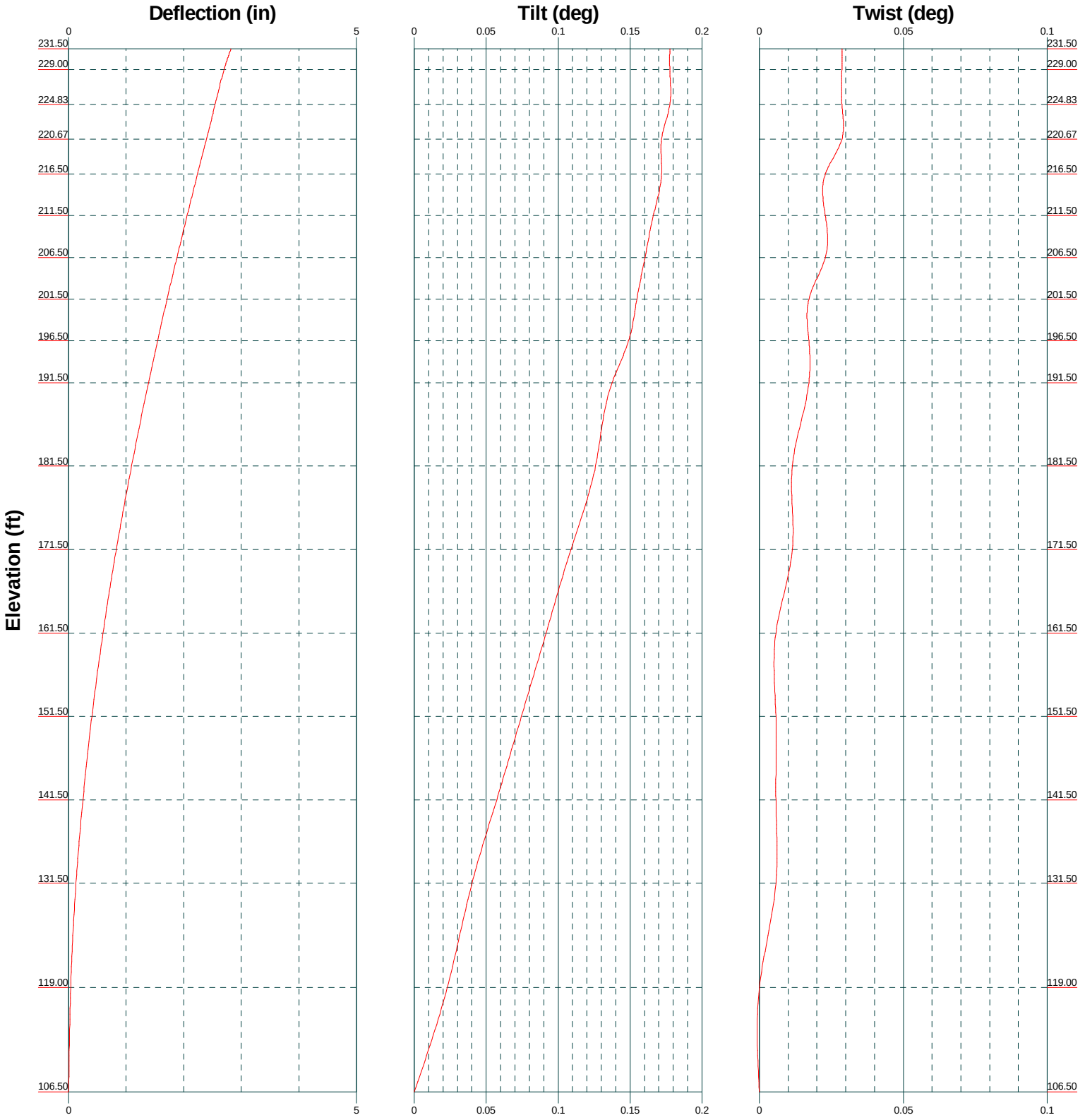
Malouf Engineering Int'l, Inc.
17950 Preston Road, Suite #720
Dallas, TX 75252
Phone: (972) 783-2578
FAX: (972) 783-2583

Job:	***125 FT SST, STAMFORD CENTRAL SITE #CT2118***		
Project:	***CT02768S-15V2***		
Client: VERTICAL RESOURCES GROUP / AT&T	Drawn by: LNguyen	App'd:	
Code: TIA/EIA-222-F	Date: 06/25/15	Scale: NTS	
Path: D:\MEIProjects\15 DATA\SS\CT02768S-15V2\CT02768S-15V2-M3-UPDATED.eri		Dwg No. E-1	

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

Maximum Values



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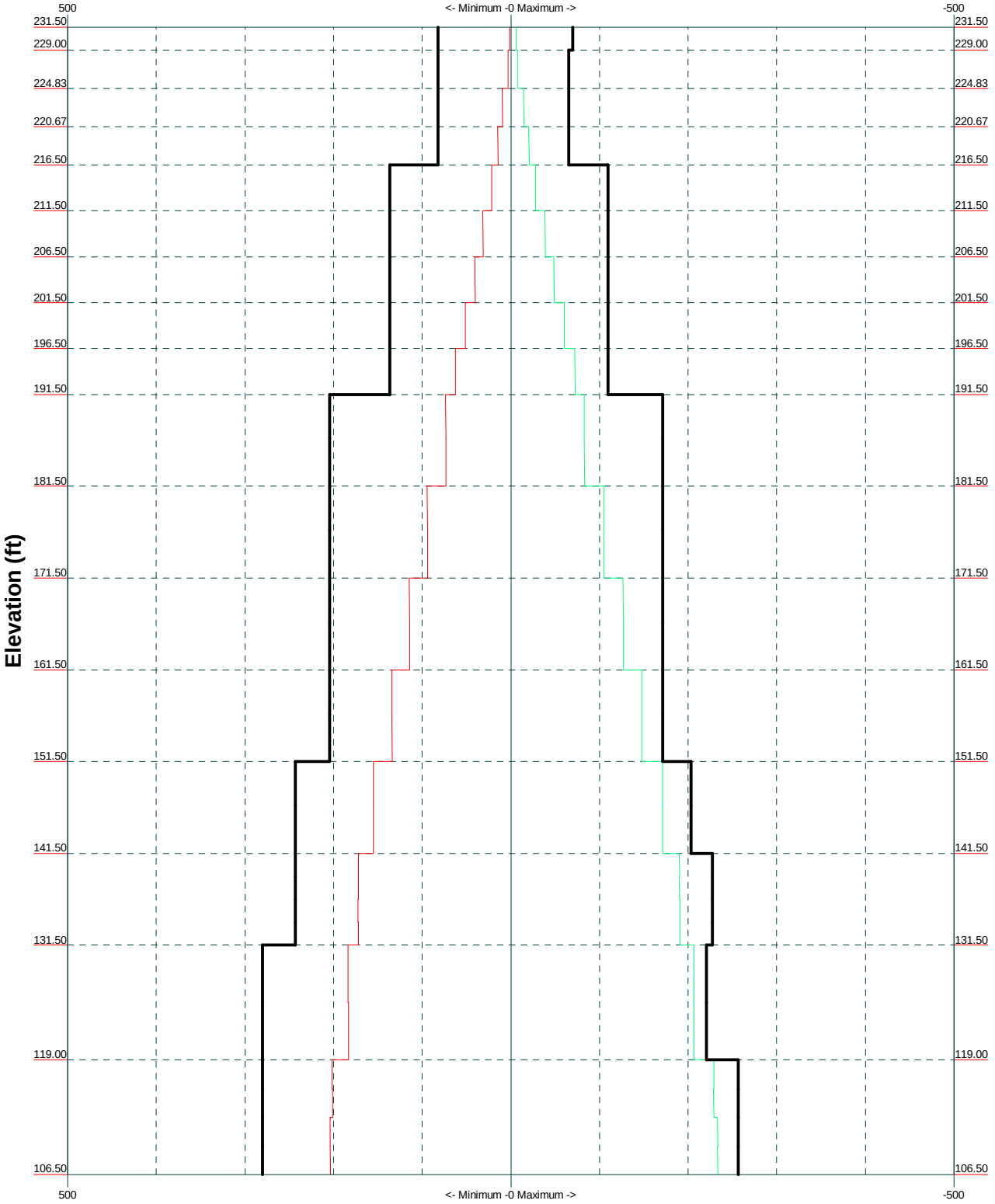
Code: TIA/EIA-222-F	Date: 06/25/15	Scale: NTS	
Path: D:\MEIProjects\15 DATA\SS\CT02768S-15V2\CT02768S-15V2-M3-UPDATED.eri		Dwg No. E-5	

TIA/EIA-222-F - 85 mph/74 mph 0.5000 in Ice

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



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Project: ***CT02768S-15V2***			
Client: VERTICAL RESOURCES GROUP / AT&T		Drawn by: LNguyen	App'd:
Code: TIA/EIA-222-F		Date: 06/25/15	Scale: NTS
Path: D:\MEIProjects\15 DATA\SS\CT02768S-15V2\CT02768S-15V2-M3-UPDATED.eri			Dwg No. E-3

Tower Input Data

The main tower is a 4x free standing tower with an overall height of 231.50 ft above the ground line.
The base of the tower is set at an elevation of 106.50 ft above the ground line.
The face width of the tower is 5.60 ft at the top and 13.58 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Placement ft	Total Number
Safety Line 3/8 (E)	231.50 - 106.50	1
Climbing Ladder (E)	231.50 - 106.50	1
W/G LADDER "A" (E)	212.50 - 106.50	1
W/G LADDER "B" (E)	206.50 - 106.50	1
W/G LADDER "C" (E)	200.50 - 106.50	1
1 1/4" Rigid Conduit (E)	231.50 - 106.50	1
0.625" Fiber Trunk Cable (AT&T / E+P)	231.50 - 106.50	2
0.75" DC Power Trunk Cable (AT&T / E+P)	231.50 - 106.50	4
1 5/8 (AT&T / E)	231.50 - 106.50	12
0.30 (AT&T / E)	231.50 - 106.50	1
1/2 (E)	229.00 - 106.50	1
EW90 (E)	223.50 - 106.50	2
3/8 (E (UNUSED))	221.50 - 106.50	2
3/8 (E)	221.00 - 106.50	1
1 5/8 (T-MOBILE / E)	209.50 - 106.50	12
Huber-Suhner 1.25" TC-OF Cable (T-MOBILE / E)	209.50 - 106.50	1
1 5/8 (T-MOBILE / E (UNUSED))	201.50 - 106.50	6
1 5/8 (T-MOBILE / E (UNUSED))	201.50 - 106.50	12
1/2 (E)	132.00 - 106.50	1

Feed Line/Linear Appurtenances - Entered As Area

Description	Placement ft	Total Number
MISCELLANEOUS (E)	231.50 - 106.50	2
MISCELLANEOUS	231.50 - 106.50	1
WEIGHT (E)		

Discrete Tower Loads

Description	Placement	Weight
	ft	K
(2) TOP SMALL BEACONS	245.17	0.06
(E)		0.09
TOP LIGHTNING ROD	244.50	0.05
(E)		0.07
13' T BEAM MOUNT	231.50	0.10
(E)		0.15
P65-15-XLH-RR w/ Pipe	235.00	0.07
Mount		0.12
(AT&T / E)		
(2) LGP21401 TMA'S	235.00	0.02
(AT&T / E)		0.03
(2) OPA-65R-LCUU-H4 w/	235.00	0.08
Pipe Mounts		0.13
(AT&T / P)		
P65-15-XLH-RR w/ Pipe	235.00	0.07
Mount		0.12
(AT&T / E)		
(2) OPA-65R-LCUU-H4 w/	235.00	0.08
Pipe Mounts		0.13
(AT&T / P)		
(2) LGP21401 TMA'S	235.00	0.02
(AT&T / E)		0.03
RRUS-11	235.00	0.05
(AT&T / E)		0.07
RRUS-11	235.00	0.05
(AT&T / E)		0.07
RAYCAP DC6-48-60-18-8F	233.00	0.03
DC SURGE BOX		0.06
(AT&T / E)		
P65-15-XLH-RR w/ Pipe	235.00	0.07
Mount		0.12
(AT&T / E)		
OPA-65R-LCUU-H4 w/ Pipe	235.00	0.08
Mounts		0.13
(AT&T / P)		
OPA-65R-LCUU-H4 w/ Pipe	235.00	0.08
Mounts		0.13
(AT&T / P)		
LGP21401 TMA'S	235.00	0.02
(AT&T / E)		0.03
LGP21401 TMA'S	235.00	0.02
(AT&T / E)		0.03
RRUS-11	235.00	0.05
(AT&T / E)		0.07
RRUS-12 w/ A2 Backpack	235.00	0.08
(AT&T / P)		0.11
RRUS-12 w/ A2 Backpack	235.00	0.08
(AT&T / P)		0.11
RRUS-12 w/ A2 Backpack	235.00	0.08
(AT&T / P)		0.11
RAYCAP DC6-48-60-18-8F	233.00	0.03
DC SURGE BOX		0.06
(AT&T / P)		
RRUS-32	235.00	0.08
(AT&T / P)		0.10
RRUS-32	235.00	0.08

Description	Placement	Weight
	ft	K
(AT&T / P)		0.10
RRUS-32	235.00	0.08
(AT&T / P)		0.10
UNUSED I-BEAM MOUNT	231.50	0.10
(AT&T / E)		0.15
1.5'x2-ELEMENT YAGI	229.00	0.07
AND MOUNT		0.13
(AT&T / E)		
TOP SQUARE PLATFORM	231.50	5.50
MOUNT		7.50
(AT&T / E)		
PIPE DISH MOUNT	223.50	0.15
(E)		0.23
PIPE DISH MOUNT	221.00	0.07
(E)		0.10
4'Lx6'W REST PLATFORM	216.50	0.75
(E)		1.25
4'Lx6'W REST PLATFORM	216.50	0.75
(E)		1.25
(2) AIR21 B2A B4P w/ pipe	209.50	0.13
Mount		0.18
(T-MOBILE / E)		
(2) AIR21 B2A B4P w/ pipe	209.50	0.13
Mount		0.18
(T-MOBILE / E)		
(2) AIR21 B2A B4P w/ pipe	209.50	0.13
Mount		0.18
(T-MOBILE / E)		
(2) KRY 112 71/2	209.50	0.01
(T-MOBILE / E)		0.02
(2) KRY 112 71/2	209.50	0.01
(T-MOBILE / E)		0.02
(2) KRY 112 71/2	209.50	0.01
(T-MOBILE / E)		0.02
SECTOR FRAME MOUNT	209.50	0.40
(T-MOBILE / E)		0.60
SECTOR FRAME MOUNT	209.50	0.40
(T-MOBILE / E)		0.60
SECTOR FRAME MOUNT	209.50	0.40
(T-MOBILE / E)		0.60
10"T x 9.5"W x 3.5"D TMA's	203.00	0.02
(T-MOBILE / E)		0.03
10"T x 9.5"W x 3.5"D TMA's	203.00	0.02
(T-MOBILE / E)		0.03
10"T x 9.5"W x 3.5"D TMA's	203.00	0.02
(T-MOBILE / E)		0.03
LNX-6515DS-VTM w/ Pipe	203.00	0.09
Mnt.		0.18
(T-MOBILE / P)		
LNX-6515DS-VTM w/ Pipe	203.00	0.09
Mnt.		0.18
(T-MOBILE / P)		
LNX-6515DS-VTM w/ Pipe	203.00	0.09
Mnt.		0.18
(T-MOBILE / P)		
RRUS-11 B12	203.00	0.05

Description	Placement	Weight
	ft	K
(T-MOBILE / P)		0.07
RRUS-11 B12	203.00	0.05
(T-MOBILE / P)		0.07
RRUS-11 B12	203.00	0.05
(T-MOBILE / P)		0.07
SECTOR FRAME MOUNT	203.00	0.40
(T-MOBILE / E)		0.60
SECTOR FRAME MOUNT	203.00	0.40
(T-MOBILE / E)		0.60
SECTOR FRAME MOUNT	203.00	0.40

Description	Placement	Weight
	ft	K
(T-MOBILE / E)		0.60
4'x7-ELEMENT YAGI	132.00	0.03
(AT&T / E)		0.04
2FT SIDEARM MOUNT	132.00	0.10
(AT&T / E)		0.15

Dishes

Description	Dish Type	Elevation	Outside Diameter	Weight
		ft	ft	K
10 FT HP DISH	Paraboloid	223.50	10.00	0.40
(E)	w/Shroud (HP)			0.81
1 FT HP DISH	Paraboloid	221.00	1.00	0.03
(WINDSTAR 43029)	w/Shroud (HP)			0.04
(E)				

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg D	Max. Vert	16	258.49	16.24	-16.93
	Max. H_x	16	258.49	16.24	-16.93
	Max. H_z	3	-232.29	-14.84	15.81
	Min. Vert	3	-232.29	-14.84	15.81
	Min. H_x	12	-225.17	-14.98	15.79
	Min. H_z	16	258.49	16.24	-16.93
Leg C	Max. Vert	14	249.47	-16.30	-16.05
	Max. H_x	18	-214.31	14.89	14.74
	Max. H_z	18	-214.31	14.89	14.74
	Min. Vert	9	-217.13	14.66	14.45
	Min. H_x	14	249.47	-16.30	-16.05
	Min. H_z	14	249.47	-16.30	-16.05
Leg B	Max. Vert	12	261.71	-17.13	16.38
	Max. H_x	16	-221.93	15.49	-14.94
	Max. H_z	12	261.71	-17.13	16.38
	Min. Vert	7	-227.77	15.42	-14.78
	Min. H_x	12	261.71	-17.13	16.38
	Min. H_z	16	-221.93	15.49	-14.94
Leg A	Max. Vert	18	250.92	16.02	16.36
	Max. H_x	18	250.92	16.02	16.36
	Max. H_z	18	250.92	16.02	16.36
	Min. Vert	5	-216.43	-14.29	-14.82
	Min. H_x	14	-212.84	-14.60	-14.99
	Min. H_z	14	-212.84	-14.60	-14.99

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	231.5 - 229	2.821	20	0.1784	0.0306
T2	229 - 224.833	2.700	20	0.1780	0.0270
T3	224.833 - 220.667	2.545	20	0.1770	0.0268
T4	220.667 - 216.5	2.392	20	0.1742	0.0261
T5	216.5 - 211.5	2.240	20	0.1701	0.0251
T6	211.5 - 206.5	2.059	20	0.1661	0.0231
T7	206.5 - 201.5	1.882	20	0.1606	0.0210
T8	201.5 - 196.5	1.710	20	0.1542	0.0189
T9	196.5 - 191.5	1.545	20	0.1462	0.0167
T10	191.5 - 181.5	1.388	20	0.1372	0.0149
T11	181.5 - 171.5	1.094	20	0.1244	0.0117
T12	171.5 - 161.5	0.829	20	0.1093	0.0093
T13	161.5 - 151.5	0.598	20	0.0922	0.0073
T14	151.5 - 141.5	0.405	20	0.0736	0.0057
T15	141.5 - 131.5	0.249	20	0.0568	0.0043
T16	131.5 - 119	0.128	20	0.0393	0.0033
T17	119 - 106.5	0.037	20	0.0201	0.0015

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
245.17	(2) TOP SMALL BEACONS	20	2.821	0.1784	0.0306	8111
244.50	TOP LIGHTNING ROD	20	2.821	0.1784	0.0306	8111
235.00	P65-15-XLH-RR w/ Pipe Mount	20	2.821	0.1784	0.0306	8111
233.00	RAYCAP DC6-48-60-18-8F DC SURGE BOX	20	2.821	0.1784	0.0306	8111
231.50	13' T BEAM MOUNT	20	2.821	0.1784	0.0306	8111
229.00	1.5'x2-ELEMENT YAGI AND MOUNT	20	2.700	0.1780	0.0270	8111
223.50	10 FT HP DISH	20	2.497	0.1763 (3 dB) 0.2957	0.0267 (3 dB) 0.2957	114717
221.00	1 FT HP DISH (WINDSTAR 43029)	20	2.404	0.1745	0.0261	284636
216.50	4'Lx6'W REST PLATFORM	20	2.240	0.1701	0.0251	174663
209.50	(2) AIR21 B2A B4P w/ pipe Mount	20	1.988	0.1641	0.0222	56628
203.00	10"T x 9.5"W x 3.5"D TMA's	20	1.761	0.1562	0.0195	48308
132.00	4'x7-ELEMENT YAGI	20	0.133	0.0402	0.0033	28077

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	231.5 - 229	Leg	L4x4x3/8	4	-4.54	69.70	87.6	Pass
T2	229 - 224.833	Leg	L4x4x3/8	12	-7.58	65.17	11.6	Pass
T3	224.833 - 220.667	Leg	L4x4x3/8	21	-14.95	65.17	22.9	Pass
T4	220.667 - 216.5	Leg	L4x4x3/8	37	-20.76	65.17	31.9	Pass
T5	216.5 - 211.5	Leg	L5x5x1/2	51	-27.66	109.68	25.2	Pass
T6	211.5 - 206.5	Leg	L5x5x1/2	67	-38.91	109.68	35.5	Pass
T7	206.5 - 201.5	Leg	L5x5x1/2	83	-49.26	109.68	44.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
T8	201.5 - 196.5	Leg	L5x5x1/2	95	-60.49	109.68	55.2	Pass
T9	196.5 - 191.5	Leg	L5x5x1/2	111	-72.39	109.68	66.0	Pass
T10	191.5 - 181.5	Leg	L6x6x5/8	123	-83.06	171.13	48.5	Pass
T11	181.5 - 171.5	Leg	L6x6x5/8	148	-105.30	171.31	61.5	Pass
T12	171.5 - 161.5	Leg	L6x6x5/8	168	-126.92	171.45	74.0	Pass
T13	161.5 - 151.5	Leg	L6x6x5/8	193	-147.98	171.58	86.2	Pass
T14	151.5 - 141.5	Leg	L6x6x3/4	213	-171.56	203.35	84.4	Pass
T15	141.5 - 131.5	Leg	L6x6x3/4	238	-190.92	227.69	83.9	Pass
T16	131.5 - 119	Leg	L6x6x7/8	306	-206.87	220.76	93.7	Pass
T17	119 - 106.5	Leg	L6x6x7/8	347	-233.39	256.70	90.9	Pass
T2	229 - 224.833	Diagonal	2L2 1/2x2x1/4x3/8	20	-3.50	47.46	7.4	Pass
T3	224.833 - 220.667	Diagonal	2L2 1/2x2x1/4x3/8	35	-4.18	47.46	8.8	Pass
T4	220.667 - 216.5	Diagonal	2L2 1/2x2x1/4x3/8	47	-5.41	42.32	12.8	Pass
T5	216.5 - 211.5	Diagonal	L2 1/2x2x1/4	63	-5.65	16.13	35.0	Pass
T6	211.5 - 206.5	Diagonal	L2 1/2x2x1/4	79	-5.90	15.52	38.0	Pass
T7	206.5 - 201.5	Diagonal	L2 1/2x2x1/4	91	-6.78	14.88	45.5	Pass
T8	201.5 - 196.5	Diagonal	L2 1/2x2x1/4	107	-7.34	14.20	51.7	Pass
T9	196.5 - 191.5	Diagonal	L2 1/2x2x1/4	119	-7.35	13.49	54.5	Pass
T10	191.5 - 181.5	Diagonal	L3x3x1/4	138	-12.23	18.16	67.3	Pass
T11	181.5 - 171.5	Diagonal	L3x3x1/4	158	-12.34	17.25	71.5	Pass
T12	171.5 - 161.5	Diagonal	L3x3x1/4	183	-12.73	16.34	77.9	Pass
T13	161.5 - 151.5	Diagonal	L3x3x1/4	203	-13.11	15.46	84.8	Pass
T14	151.5 - 141.5	Diagonal	L3x3x1/4	228	-12.33	14.61	84.4	Pass
T15	141.5 - 131.5	Diagonal	L3x3x1/4	260	-14.72	25.96	56.7 59.5 (b)	Pass
T16	131.5 - 119	Diagonal	2L2 1/2x2 1/2x1/4x3/8	340	-18.69	36.15	51.7	Pass
T17	119 - 106.5	Diagonal	2L2 1/2x2 1/2x1/4x3/8	407	-18.60	49.40	37.6	Pass
T15	141.5 - 131.5	Horizontal	L2 1/2x2x1/4	251	-2.87	6.80	42.1	Pass
T10	191.5 - 181.5	Secondary Horizontal	L2 1/2x2x1/4	143	-1.25	5.74	21.7	Pass
T11	181.5 - 171.5	Secondary Horizontal	L2 1/2x2x1/4	164	-1.58	4.88	32.4	Pass
T12	171.5 - 161.5	Secondary Horizontal	L2 1/2x2x3/16	188	-1.91	3.26	58.5	Pass
T13	161.5 - 151.5	Secondary Horizontal	L2 1/2x2 1/2x1/4	208	-2.22	5.51	40.3	Pass
T14	151.5 - 141.5	Secondary Horizontal	L2 1/2x2x1/4	233	-2.58	3.25	79.3	Pass
T1	231.5 - 229	Top Girt	C8x11.5	8	-0.55	45.47	18.0	Pass
T3	224.833 - 220.667	Top Girt	L2 1/2x2 1/2x1/4	25	-0.94	16.58	5.7	Pass
T5	216.5 - 211.5	Top Girt	C7x9.8	53	-1.01	44.01	2.3 3.7 (b)	Pass
T6	211.5 - 206.5	Top Girt	L2 1/2x2x1/4	69	-0.84	11.61	7.2	Pass
T8	201.5 - 196.5	Top Girt	L2 1/2x2 1/2x1/4	97	-0.72	13.26	5.5	Pass
T10	191.5 - 181.5	Top Girt	L2 1/2x2 1/2x1/4	127	3.51	28.16	12.5 14.2 (b)	Pass
T11	181.5 - 171.5	Top Girt	L2 1/2x2 1/2x1/4	150	-5.12	17.20	29.8	Pass
T12	171.5 - 161.5	Top Girt	L2 1/2x2 1/2x1/4	172	7.22	28.16	25.6 29.2 (b)	Pass
T13	161.5 - 151.5	Top Girt	L2 1/2x2 1/2x1/4	195	-6.23	14.22	43.8	Pass
T14	151.5 - 141.5	Top Girt	L2 1/2x2 1/2x1/4	215	-5.73	21.28	26.9 30.0 (b)	Pass
T15	141.5 - 131.5	Top Girt	L2 1/2x2 1/2x1/4	240	-6.04	11.58	52.2	Pass
T16	131.5 - 119	Top Girt	2L2 1/2x2 1/2x1/4x3/8	311	-9.34	40.29	23.2	Pass
T17	119 - 106.5	Top Girt	2L2 1/2x2 1/2x1/4x3/8	352	-8.73	36.94	23.6	Pass
T15	141.5 - 131.5	Redund Horz 1 Bracing	L2 1/2x2x3/16	286	-2.87	14.46	19.8	Pass
T16	131.5 - 119	Redund Horz 1 Bracing	L2 1/2x2x3/16	327	-3.11	14.29	21.7	Pass
T17	119 - 106.5	Redund Horz 1 Bracing	L2 1/2x2x3/16	389	-3.50	13.76	25.5	Pass
T15	141.5 - 131.5	Redund Diag 1 Bracing	L2 1/2x2x3/16	291	-1.94	12.65	15.3	Pass
T16	131.5 - 119	Redund Diag 1	L2 1/2x2x3/16	328	-3.60	5.32	67.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T17	119 - 106.5	Bracing Redund Diag 1 Bracing	L2 1/2x2x3/16	360	5.23	23.29	22.4	Pass
T15	141.5 - 131.5	Redund Hip 1 Bracing	L2x2x1/4	303	-0.03	12.17	0.2	Pass
T16	131.5 - 119	Redund Hip 1 Bracing	L2x2x1/4	344	-0.14	11.45	1.2	Pass
T17	119 - 106.5	Redund Hip 1 Bracing	L2x2x1/4	402	-0.18	9.87	1.9	Pass
T17	119 - 106.5	Redund Hip Diagonal Bracing	L2x2x1/4	419	-0.12	2.18	5.3	Pass
T17	119 - 106.5	Redund Sub Horz Bracing	L2 1/2x2x3/16	365	-3.90	20.91	18.6	Pass
T17	119 - 106.5	Redund Sub Diagonal Bracing	L2 1/2x2x3/16	394	-4.64	15.91	29.2	Pass
T10	191.5 - 181.5	Inner Bracing	L2 1/2x2 1/2x3/16	133	-0.04	5.55	0.7	Pass
T12	171.5 - 161.5	Inner Bracing	L2 1/2x2 1/2x3/16	178	-0.08	3.88	2.2	Pass
T14	151.5 - 141.5	Inner Bracing	L2x2 1/2x3/16	223	-0.09	1.91	4.5	Pass
T16	131.5 - 119	Inner Bracing	L3x3x3/16	316	-0.14	3.86	3.5	Pass
T17	119 - 106.5	Inner Bracing	L3x3x3/16	357	-0.13	3.33	3.9	Pass
						Summary		
						Leg (T16)	93.7	Pass
						Diagonal (T13)	84.8	Pass
						Horizontal (T15)	42.1	Pass
						Secondary Horizontal (T14)	79.3	Pass
						Top Girt (T15)	52.2	Pass
						Redund Horz 1 Bracing (T17)	25.5	Pass
						Redund Diag 1 Bracing (T16)	67.7	Pass
						Redund Hip 1 Bracing (T17)	1.9	Pass
						Redund Hip Diagonal Bracing (T17)	5.3	Pass
						Redund Sub Horz Bracing (T17)	18.6	Pass
						Redund Sub Diagonal Bracing (T17)	29.2	Pass
						Inner Bracing (T14)	4.5	Pass
						Bolt Checks	64.5	Pass
						RATING =	**93.7**	**Pass**

APPENDIX 2 – SOURCE / CHANGED CONDITION

From: Vertical Resources Group [mailto:mnobre@verticalresourcesgrp.com]
Sent: Wednesday, June 10, 2015 1:00 PM
To: 'Mark Malouf'
Subject: New Analysis Request site CT2118

Mark Empire would want to pass the analysis of this tower through us.
Here is the scoop.
Previous MEI analysis: MEI Project CT02768S-15V1 dated May 12, 2015
Existing AT&T Loading:
60' (3) KMW AMXCD146500TRET panels
60' (6) Powerwave P6515XLHRR panels
60' (12) Powerwave LGP21401 TMA
60' (6) Ericsson RRUS-11 Remote Radio Heads
60' (1) Raycap DC6-48-60-18-8F

Proposed Final Loading Configuration:
60' (3) Powerwave P6515XLHRR panels
60' (6) CCI OPA-65R-LCUU-H4 panels
60' (6) Powerwave LGP21401 TMA
60' (3) Ericsson RRUS-11 Remote Radio Heads
60' (3) Ericsson RRUS-12 Remote Radio Heads
60' (3) Ericsson A2 modules attached to back of RRUS-12
60' (3) Ericsson RRUS-32 Remote Radio Heads
60' (1) Raycap DC6-48-60-18-8F existing
60' (1) Raycap DC6-48-60-18-8F proposed

…

Thanks Mark

Miguel Nobre
Vertical Resources Group
489 Washington Street
Auburn, MA 01501
P: 508-981-9590
F: 508-519-8939

Tower / Radio Information - Call Sign information needs to be tied to a specific antenna(s). Adjust letters as needed.

A	Call Sign	WPWV368
	Class of Station	LTE 700 Mhz
	Emission Type	
	Transmit Frequency	734-746
	Output Power (watts)	250
	Transmitter ERP (dBm)	53.98
	Receive Frequency	716-728

B	Call Sign	KNLG502
	Class of Station	LTE 1900 Mhz
	Emission Type	
	Transmit Frequency	1985-1990, 1905-1910
	Output Power (watts)	250
	Transmitter ERP (dBm)	53.98
	Receive Frequency	1930-1945, 1850-1865

C	Call Sign	KNKA259
	Class of Station	800Mhz UMTS
	Emission Type	
	Transmit Frequency	890-891, 845-846
	Output Power (watts)	250
	Transmitter ERP (dBm)	53.98
	Receive Frequency	869-879, 824,834

Please attach frequency coordination data (PCN)

D	Call Sign	KNLB297
	Class of Station	LTE 2300
	Emission Type	
	Transmit Frequency	2345-2360,
	Output Power (watts)	250
	Transmitter ERP (dBm)	53.98
	Receive Frequency	2305-2320

E	Call Sign	KNLB312
	Class of Station	
	Emission Type	
	Transmit Frequency	2350-2355
	Output Power (watts)	250
	Transmitter ERP (dBm)	53.98
	Receive Frequency	2305-2310

F	Call Sign	KNLB204
	Class of Station	
	Emission Type	
	Transmit Frequency	2310-2315
	Output Power (watts)	250
	Transmitter ERP (dBm)	53.98
	Receive Frequency	2355-2360

Coax / Waveguide / Cable Information	
Type:	andrew
Size:	1 5/8"
Length:	275
# of runs:	12
Type:	DC Trunk line
Size:	3/4"
Length:	275
# of runs:	4
Type:	Fiber trunk
Size:	5/8"
Length:	275
# of runs:	2
Type:	
Size:	
Length:	
# of runs:	

	Antenna & Ancillary Equipment Information		**Check one**					**Heights** - Above Ground Level (feet)			**Notes:** (including removals, ice shields, etc.)
#	Make	Model	Existing	Proposed	Size / Dimensions	Weight	Azimuth	RAD Center	Attachment	Tip	
A	CCI Products	OPA-65R-LCUU-H4		x	48 x 14.4 x 7.3	57	60	235	235	238	
B	CCI Products	OPA-65R-LCUU-H4		x	48 x 14.4 x 7.3	57	60	235	235	238	
C	CCI Products	OPA-65R-LCUU-H4		x	48 x 14.4 x 7.3	57	180	235	235	238	
D	CCI Products	OPA-65R-LCUU-H4		x	48 x 14.4 x 7.3	57	180	235	235	238	
E	CCI Products	OPA-65R-LCUU-H4		x	48 x 14.4 x 7.3	57	300	235	235	238	
F	CCI Products	OPA-65R-LCUU-H4		x	48 x 14.4 x 7.3	57	300	235	235	238	
	Power wave	P65-15-XLH-RR	x		51 x 12 x6	51	110	235	235	238	
	Power wave	P65-15-XLH-RR	x		52 x 12 x6	51	280	235	235	238	
	Power wave	P65-15-XLH-RR	x		53 x 12 x6	51	0	235	235	238	
	Power wave	P65-15-XLH-RR	x		54 x 12 x6	51	110	235	235	238	removing
	Power wave	P65-15-XLH-RR	x		55 x 12 x6	51	280	235	235	238	removing
	Power wave	P65-15-XLH-RR	x		56 x 12 x6	51	0	235	235	238	removing
	KMW	AM-X-CD-14-65-OOT-RET	x		48 x 11.8 x 5.9	36.4	60	235	235	238	removing
	KMW	AM-X-CD-14-65-OOT-RET	x		48 x 11.8 x 5.9	36.4	180	235	235	238	removing
	KMW	AM-X-CD-14-65-OOT-RET	x		48 x 11.8 x 5.9	36.4	300	235	235	238	removing
	Power wave	LGP 21401	x		6 x8 x2	7.7lbs					12 total 4 per sector (TMA)
	Ericsson	RRUS-11	x		17 x 17 x 6	50 lbs ea	60/180/300	235	235		3 radio heads 1 per sector
	Ericsson	RRUS-12	x		17 x 17 x 6	50 lbs ea	60/180/300	235	235		3 radio heads being removed
	Ericsson	RRUS-12		x	17 x 17 x 6	50 lbs ea	60/180/300	235	235		3 new radio heads
	Ericsson	A-2 module		x	12 x 12 x 4	20lbs ea	60/180/300	235	235		attached to back of RRUS-12
	Ericsson	RRUS-32		x	17 x 17 x 6	77 lbs ea	60/180/300	235	235		3 new radio heads
	RAYCAP	Squid	x			25lbs		232	232		fiber and DC junction box
	RAYCAP	Squid		x		25lbs		232	232		new fiber and DC junction box

TECHNICAL SPECIFICATION NOTES

STRUCTURAL STRENGTHENING REQUIRED

- ADD NEW INTERNAL HIP BRACING ANGLE MEMBERS BOLTED ONTO EXISTING MEMBERS FROM ELEVATIONS: 6.25' - 12.5' & 30' - 35' (2 BAYS TOTAL). LENGTHS TO BE FIELD DETERMINED.
- ADD NEW SUB-BRACING ANGLE MEMBERS BOLTED ONTO EXISTING MEMBERS FROM ELEVATIONS: 0' - 6.25' & 25' - 30' (2 BAYS TOTAL). LENGTHS TO BE FIELD DETERMINED.
- PERFORM MAINTENANCE WORK AS REQUIRED & APPLICABLE TO BRING THE STRUCTURE INTO GOOD OPERATIONAL CONDITION.
- FIELD DETERMINATION/VERIFICATION IS STRONGLY RECOMMENDED.

GENERAL

1. STRUCTURAL MODIFICATIONS HAVE BEEN DESIGNED IN CONFORMANCE WITH ANSI/TIA/222-F STANDARD SPECIFICATIONS FOR LOADING SPECIFIED ON SHEET S01.
2. ALL DIMENSIONS AND DETAILS SHOWN HAVE BEEN OBTAINED FROM LIMITED FIELD MAPPING BY MEI WITH NO ORIGINAL DESIGN DRAWINGS AVAILABLE. THEREFORE, ACTUAL SITE DIMENSIONS SHOULD BE DETERMINED / VERIFIED PRIOR TO FABRICATION OF ANY MATERIAL OR PROVISION FOR FIELD ADAPTATION SHOULD BE MADE. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER AND SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
3. THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK, THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FUTURE FIELD PROBLEMS. BID PRICE TO INCLUDE ALL RELATED COSTS TO FAMILIARIZE WITH ACTUAL SITE CONDITIONS AND FIELD DETERMINATIONS/VERIFICATION OF NOTED DIMENSIONS. MATERIAL QUANTITIES AND LENGTH ARE FOR BIDDING PURPOSE - CONTRACTOR TO BE RESPONSIBLE FOR PROPER FIT AND CLEARANCES.
4. ALL WORK SHALL BE PERFORMED AND INSTALLED BY A TOWER CONTRACTOR WITH MIN. 5 YEARS EXPERIENCE IN SIMILAR WORK. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH ACCEPTED CONSTRUCTION AND INDUSTRY PRACTICE.
5. ALL PERMITS, LICENSES, APPROVALS, AND OTHER REQUIREMENTS FOR CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AMPLE NOTICE TO BUILDING INSPECTION DEPARTMENT TO SCHEDULE ANY REQUIRED INSPECTIONS.
6. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILTY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
7. CONTRACTOR SHALL SUBMIT TO ENGINEER ANY INTENT TO DEVIATE FROM PLANS AND DETAILS FOR APPROVAL PRIOR TO START OF ANY WORK. CONTACT THE ENGINEER OF RECORD CONCERNING ANY CHANGES, DISCREPANCIES &/OR MODIFICATIONS THAT MAY BE REQUIRED DUE TO THE EXISTING CONDITIONS AND SHALL NEED TO BE RESOLVED BEFORE PROCEEDING WITH THE WORK. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION
8. PHOTOGRAPHS SHALL BE TAKEN OF OVERALL SITE COMPOUND AND STRUCTURE PRIOR TO THE CONSTRUCTION, DURING CONSTRUCTION AND AFTER CONSTRUCTION INCLUDING BUT NOT LIMITED TO ALL REINFORCED AREAS. A CLOSE-OUT REPORT WITH PHOTOS IS TO BE SUBMITTED TO THE ENGINEER OF RECORD WITHIN REASONABLE TIME AFTER COMPLETION OF WORK.
9. SCOPE OF MODIFICATIONS LISTED ARE STRUCTURAL RELATED MODIFICATIONS BASED ON PRIOR ANALYSIS RESULTS. EXISTING STRUCTURE IS ASSUMED TO BE IN GOOD CONDITION AND FREE FROM STRUCTURAL DEFECTS. ALL MAINTENANCE TYPE WORK IS ASSUMED COMPLETED.
10. REFER TO OWNER SPECIFICATIONS FOR NEW MEMBERS PAINT REQUIREMENTS IF ANY, OTHERWISE PAINT NEW STEEL MEMBERS WITH A FINISH COAT OF ACRYLIC PAINT TO MATCH EXISTING PAINT AT THAT ELEVATION & IN ACCORDANCE WITH FAA ADVISORY CIRCULAR AC 70/7460-JK.

FIELD INSTALLATION

11. ALL INSTALLATION PROCEDURES, SAFEGUARDS AND MEANS AND METHODS OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA REQUIREMENTS AND NATE GUIDELINES. ALL ERECTION STRESSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REVIEWED/PERFORMED BY A COMPETENT PROFESSIONAL EXPERIENCED IN SIMILAR WORK.
12. MINIMUM RECOMMENDED WEATHER CONDITION THAT SHOULD BE OBSERVED TO INSURE A SAFE WORKING CONDITION SHALL BE: WIND SPEED NOT TO EXCEED 10-15 MPH AT GROUND LEVEL, NO THUNDERSTORMS FORECASTED, AND WITH TOWER STEEL TEMPERATURE BETWEEN 20 F & 95 F. FOLLOW ALL APPLICABLE OSHA SAFETY GUIDELINES.
13. TOWER SHALL BE PROPERLY BRACED AND CARE SHALL BE TAKEN IN THE REMOVAL AND REPLACEMENT OF ANY TOWER MEMBER IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES.
14. ALL PRECAUTIONS AND EFFORTS SHALL BE TAKEN TO INSURE THE TOWER STABILITY DURING THE MODIFICATIONS WORK. BRACING FRAMES WITH CAPACITY MATCHING MEMBERS BEING WORKED ON SHALL BE REQUIRED.
15. ANY STRUCTURAL MEMBER THAT HAS DAMAGED GALVANIZED SURFACES SHALL BE CLEANED AND TOUCHED UP WITH TWO COATS OF ZINC-RICH PAINT (ZRC PREFERRED).
16. IN AREAS TO BE MODIFIED, ANY MOUNTS, BRACKETS, CLAMPS, TRANS. LINES AND/OR MISCELLANEOUS HARDWARE INTERFERING WITH THE INSTALLATION OF THE MODIFICATIONS SHALL BE RE-WORKED OR TEMPORARILY MOVED AND THEN REPLACED AFTER THE COMPLETION OF THE WORK. CONTACT OWNER TO COORDINATE THIS ACTION AS REQUIRED.
17. FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES. ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG FIT UNTIL THE SECTION IS FULLY COMPACTED, AND THEN TIGHTENED ADDITIONALLY IN ACCORDANCE WITH THE AISC "TURN-OF-THE-NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
18. BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG FIT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1/2 TURN BEYOND SNUG TIGHT.
19. UPON COMPLETION OF ALL WORK, THE SITE SHALL BE CLEANED OF ALL DEBRIS AS REQUIRED. ANY SURPLUS MATERIALS NOT REMOVED FROM THE SITE SHALL BE NEATLY STORED IN AN AREA DESIGNATED BY THE OWNER REPRESENTATIVE.

STEEL / FABRICATION

20. ALL STEEL FABRICATION AND INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL AND SPECIFICATIONS "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
21. DRAWINGS SHOW RELATED DETAILS BUT ARE NOT SHOP DRAWINGS. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH AISC DETAILING REQUIREMENTS. DIMENSIONAL TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A7 REQUIREMENTS.
22. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (A.W.S.) STANDARDS AND SPECIFICATIONS, ANSI/AWS D1.1-LATEST EDITION.
23. ALL ELECTRODES SHALL BE LOW HYDROGEN, MATCHING FILLER METAL, IN ACCORDANCE WITH AWS D1.1, UNLESS NOTED OTHERWISE.
24. BASE MATERIAL SHALL BE CORRECTLY PREHEATED BEFORE WELDING AND POSTHEATED AFTER WELDING IN ACCORDANCE WITH THE AWS SPECIFICATIONS. ALL WELDS SHALL BE CHECKED WITH MAGNETIC PARTICLE PROCESS (MAGNFLUX) AND ALL SUSPICIOUS MATERIAL SHALL BE CHECKED BY ULTRASONIC.
25. NEW STEEL MATERIAL SHALL CONFORM TO THE FOLLOWING ASTM STEEL SPECIFICATIONS UNLESS NOTED OTHERWISE:

MATERIAL	ASTM SPECS	MIN. YIELD STRENGTH - KSI
ANGLES, GUSSET PLATES	A36	36.0
BOLTS - 1/2" DIA. & GREATER	A325 TYPE X	85.0 (1" DIA. & LESS)
BOLTS - 1/2" DIA.	SAE J429 GRADE 5 TYPE X	85.0
BOLTS - 3/8" DIA.	A307 OR SAE J429 GRADE 5	
U-BOLTS	A193 B7, A449 OR SAE J429 (GR. 5 - 1/2" DIA. & GR. 8 - 5/8" DIA.)	

26. THE FINISHED DIAMETER OF BOLT HOLES SHALL NOT BE MORE THAN 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER UNLESS OTHERWISE NOTED.
27. MATERIAL MAY BE CUT BY SHEARING, SAWING, OR CUTTING WITH A ROUTER OR GAS CUT. MATERIAL GREATER THAN 1/2" THICKNESS SHALL NOT BE SHEARED.
28. CUT EDGES SHALL BE TRUE AND SMOOTH, AND FREE FROM EXCESSIVE BURRS AND RAGGED BREAKS. SHEARED EDGES OF THICK PLATES SHALL BE PLANED TO A DEPTH OF 1/4". RE-ENTRANT CUTS SHALL BE AVOIDED. IF USED, THEY SHALL BE FILLETED BY DRILLING PRIOR TO CUTTING.
29. DIMENSIONAL TOLERANCES, AS INDICATED IN THE AISC CODE OF STANDARD PRACTICE SHALL BE CAREFULLY FOLLOWED DURING FABRICATION.
30. PRIOR TO GALVANIZING, ALL FABRICATED STEEL SHALL BE THOROUGHLY SHOP INSPECTED AND QUANTITIES COUNTED ACCORDING TO THE BEST QUALITY CONTROL AND INSPECTION METHODS.
31. ANY BOLT REMOVED FROM EXISTING TOWER STRUCTURE SHALL BE REPLACED WITH A NEW DOMESTIC ASTM A325 HIGH STRENGTH BOLT OF EQUAL DIAMETER SIZE UNLESS NOTED OTHERWISE.
32. ALL BOLTS SHALL BE TIGHTENED USING TURN-OF-THE-NUT METHOD.
33. ALL BOLT HOLES EDGE DISTANCES SHALL BE 1 1/2" UNLESS OTHERWISE NOTED.
34. ALL STEEL SHALL BE HOT DIPPED GALVANIZED PER ASTM A123 SPECIFICATIONS AFTER FABRICATION.
35. ALL STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A153.
36. FIELD PUNCH / DRILL HOLES AS REQUIRED FOR ACCURATE FIT OF MODIFICATION MEMBER.
37. AFTER ANY FIELD HOLE PUNCHING/DRILLING, OR CUTTING HAS BEEN COMPLETED, OR FOR ANY DAMAGED STRUCTURAL MEMBER, TOUCH UP ALL BARE MATERIAL AND WELDED AREAS WITH TWO COATS OF ZRC OR SIMILAR MATERIAL TO RESTORE THE GALVANIZED PROTECTION ON THE MEMBERS.

at&t

STAMFORD - CENTRAL SBC CO #CT2118 / FA #10034983 FCC ASR #1046319

555 MAIN STREET, STAMFORD, CT 06901
LAT: 41-03-12.47 N - LON: 73-32-8.4 W

OWNER: FRONTIER COMMUNICATIONS (STAMFORD #1 Co)

DRAWING INDEX

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NO.	DATE	REVISIONS	DRAWN	ENG'D.	APP'D.
0	06/25/15	ISSUED FOR CONSTRUCTION	REP	LKN	MM

STATE OF CONNECTICUT · STEVE MARK MALOUF · No. 17706 · PROFESSIONAL ENGINEER
JUN 25, 2015

VERTICAL RESOURCES / AT&T

TITLE SHEET & TECH. SPEC. NOTES

MEI PROJECT ID	SHEET NUMBER	REV.
CT02768S-15V2	**T01**	0

POST-MODIFICATION INSPECTION NOTES

GENERAL

THE POST-MODIFICATION INSPECTION (PMI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS PERFORMED IN ACCORDANCE WITH THE MODIFICATION DESIGN DRAWINGS BY THE ENGINEER OF RECORD (EOR).

ALL PMI'S SHALL BE CONDUCTED BY A QUALIFIED TOWER INSPECTION VENDOR (QTIV) THAT IS APPROVED TO PERFORM ELEVATED WORK AND HAS QUALIFIED RELATED EXPERIENCE.

TO ENSURE THAT THE REQUIREMENTS OF THE PMI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE PMI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS APPROVAL IS RECEIVED TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE PMI CHECKLIST
- WORK WITH THE PMI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE PMI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PMI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A PMI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE PMI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND PMI INSPECTOR ON-SITE DURING THE PMI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL PMI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE PMI CAREFULLY TO ENDURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE PMI INSPECTOR IS ON SITE.

CORRECTION OF FAILING PMI'S

IF THE POST-MODIFICATION INSTALLATION WOULD FAIL THE PMI ("FAILED MI"), THE GC SHALL WORK TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT PMI.
- OR, WITH OWNER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION

REQUIRED PHOTOS

BETWEEN THE GC AND THE PMI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE PMI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
  - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION.
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION AND TORQUE
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
- FINAL IN-FIELD CONDITION

SPECIAL INSPECTION & PMI CHECKLIST

REQ'D	REPORT ITEM	BRIEF DESCRIPTION
	PRE-CONSTRUCTION	
X	MI CHECKLIST	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT
X	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR CERTIFIED WELD INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PREFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTER ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	NDE REPORT OF MONOPOLE BASE PLATE	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
	CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FOUNDATION INSPECTIONS	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONCRETE COMP. STRENGTH AND SLUM TESTS	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	POST INSTALLED ANCHOR ROD VERIFICATION	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH ACI318-11 AND MANUFACTURERS REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	BASE PLATE GROUT VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT VERIFIES THAT THE GROUT WAS INSTALLED IN ACCORDANCE WITH MEI ENG-PRC-10012 FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	EARTHWORK: LIFT AND DENSITY	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED IN ACCORDANCE WITH ENG-BUL-10149.
N/A	GUY WIRE TENSION REPORT	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT TO THE MI INSPECTOR INDICATING THE TEMPERATURE AND TENSION IN EVERY GUY CABLE AS PART OF PLUMB AND TENSION PROCEDURE FOR INCLUSION IN THE MI REPORT.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
	POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OF RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING	POST-INSTALLED ANCHOR RODS SHALL BE TESTED IN ACCORDANCE WITH MANUF. REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTES: X DENOTES A DOCUMENT NEEDED FOR THE MI REPORT N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

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125' S.S. TOWER - ONTO ROOFTOP
STAMFORD - CENTRAL SBC CO #CT2118 / FA #10034983
555 MAIN STREET, STAMFORD, CT 06901
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at&t

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0	06/25/15	ISSUED FOR CONSTRUCTION	REP	LKN	MM

JUN 25, 2015
STATE OF CONNECTICUT · MARK MALOUF · LICENSED PROFESSIONAL ENGINEER

VERTICAL RESOURCES / AT&T

POST-MODIFICATION INSPECTION NOTES & CHECKLIST

MEI PROJECT ID	SHEET NUMBER	REV.
CT02768S-15V2	**T02**	0

REFER SHEET T01 FOR TECH. SPEC. NOTES

REFER 501 FOR SCHEMATIC TRANSMISSION LINE LAYOUT.

*NOTE:
REWORK ALL EXISTING APPURTENANCES OR Tx-LINES WHICH MAY INTERFERE WITH THE NEW STRENGTHENING MODIFICATIONS.

TOWER HEIGHT & TYPE:	125' SELF-SUPPORTING TOWER
SITE NAME:	STAMFORD - CENTRAL SBC CO #CT2118 / FA #10034983
SITE LOCATION:	STAMFORD, FAIRFIELD CO., CT
TOWER MANUF. / MODEL:	UNKNOWN / UNKNOWN
ORIGINAL DESIGN CRITERIA:	TIA/EIA-222- UNKNOWN
ANALYSIS CRITERIA:	TIA/EIA 222-F - 85/74 MPH + 0/.50" ICE

MODIFICATION LEGEND

RANGE OF NEW SUB-BRACES W/ INTERNALS

RANGE OF NEW INTERNAL HIP HORIZONTALS

EXIST.
(2) TOP SMALL BEACONS
ELEV. 245' ± A.G.L.

EXIST.
TOP LIGHTNING ROD
ONTO 13' T-BEAM MOUNT
ELEV. 244'-6" ± A.G.L.

EXIST.
(3) P65-15-XLH-RR PANEL ANTENNAS
(3) RRUS-11 BOXES
(6) LGP21401 TMA'S
(1) RAYCAP DC6-48-60-18-8F DC SURGE BOX
ONTO TOP SQUARE PLATFORM MOUNT
ELEV. 235' ± A.G.L. (AT&T)

PROPOSED
(6) OPA-65R-LCUU-H4 PANEL ANTENNAS
(3) RRUS-12 W/ A2 BACKPACKS
(3) RRUS-32 BOXES
(1) RAYCAP DC6-48-60-18-8F DC SURGE BOX
ONTO TOP SQUARE PLATFORM MOUNT
ELEV. 235' ± A.G.L. (AT&T)

EXIST.
13' T BEAM MOUNT
UNUSED PIPE MOUNT
ELEV. 231'-6" ± A.G.L.

EXIST. 1.5'X2-ELEMENT YAGI AND MOUNT
ELEV. 229' ± A.G.L. (AT&T)

SLOPE CHANGE

EXIST. 1FT HP DISH (WINDSTAR 43029)
AZ. 210° ± ELEV. 221' ± A.G.L.

(2) 4'LX6'W REST PLATFORM
ELEV. 216'-6" ± A.G.L.

EXIST. 10 FT HP DISH
AZ. 210° ± ELEV. 223'-6" ± A.G.L.

EXIST.
(6) AIR21 B2A B4P PANEL ANTENNAS
(6) KRY 112 71/2 TMA'S
ONTO (3) 10' SECTOR FRAME MOUNTS
ELEV. 209'-6" ± A.G.L. (T-MOBILE)

PROPOSED
(3) LNX-6515DS-VTM PANEL ANTENNAS
(3) RRUS-11 B12 RRH'S
ONTO EXIST. (3) 10FT SECTOR FRAME MOUNTS
ELEV. 203' ± A.G.L. (T-MOBILE)

REMOVE EXISTING
(3) P65-15-XLH-RR PANEL ANTENNAS
(3) AM-X-CD-14-65-00T-RET W/ PANEL ANTS
(3) RRUS-11 BOXES
(6) LGP21401 TMA'S
ELEV. 235' ± (AT&T) A.G.L.

REMOVE EXISTING
(3) APX16DWV-16DWVS PANEL ANTENNAS
(3) 10"T X 9.5"W X 3.5"D TMA'S
ELEV. 203' ± A.G.L. (T-MOBILE)

4'X7-ELEMENT YAGI
ONTO 2FT SIDEARM MOUNT
ELEV. 132' ± A.G.L.

TOP OF EXIST. ROOFTOP STRUCTURE
ELEV. 106'-6" ± A.G.L.

13'-7"

ELEV. 125'
5'-7 1/4"

ELEV. 110'
5'-7 1/4"

ELEV. 85' ±
7'-5 1/32"

ELEV. 65' ±
8'-10 13/32"

ELEV. 55' ±
9'-7 1/8"

ELEV. 45' ±
10'-3 13/16"

125'-0"

EXISTING MEMBER SCHEDULE

SECTION NUMBERS	LEGS	DIAGONALS	HORIZONTALS	BRACE #1	BRACE #2	NEW MEMBER SCHEDULE	NEW SUB-BRACES W/ INTERNALS	NEW INTERNAL HIP HORIZONTALS
#6	L4x4x3/8	2L2 1/2x2x1/4x3/8						
#5	L5x5x1/2	L2 1/2x2x1/4						
#4	L6x6x5/8	L3x3x1/4	L2 1/2x2 1/2x1/4	L2 1/2x2x1/4				
#3				L2 1/2x2x3/16	L2 1/2x2x3/16			
#2	L6x6x3/4	2L2 1/2x2 1/2x1/4x3/8	2L2 1/2x2 1/2x1/4x3/8	L2 1/2x2x1/4		ADD SUB-BRACES W/ INTERNALS TYPE 1 REFER 301 (1 BAY)	ADD SUB-BRACES W/ INTERNALS REFER 301 (1 BAY)	ADD INTERNAL HIP HORIZ. REFER 401 (1 BAY)
#1	L6x6x7/8	2L2 1/2x2 1/2x1/4x3/8	2L2 1/2x2 1/2x1/4x3/8	L2 1/2x2x3/16	L2 1/2x2x3/16	ADD SUB-BRACES W/ INTERNALS TYPE 1 REFER 201 (1 BAY)	ADD SUB-BRACES W/ INTERNALS REFER 201 (1 BAY)	ADD INTERNAL HIP HORIZ. REFER 401 (1 BAY)

ELEV. 35' ±

ELEV. 30' ±

ELEV. 25' ±
11'-9 1/4"

ELEV. 12'-6" ±
12'-8 1/8"

ELEV. 6'-3" ±

ELEV. 0'
106'-6" A.G.L.
TOP OF
BASE PLATE

TYPICAL LACING CONFIGURATIONS

LEG
DIAGONAL
HORIZONTAL
BRACE #2
BRACE #1

INNER BRACING
CONFIG. VARIES

13'-7" AT BASE

TOWER SECTION

101 **ELEVATION: 125' SELF-SUPPORTING TOWER**
SCALE: 1" = 10'-0"

VERTICAL RESOURCES / AT&T

TOWER MODIFICATION SCHEDULE

MEI PROJECT ID: CT02768S-15V2 | SHEET NUMBER: S01 | REV.: 0

NO.	DATE	REVISIONS
0	06/25/15	ISSUED FOR CONSTRUCTION

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

DRAWN: REP | CHK'D: LKN | APP'D: MM

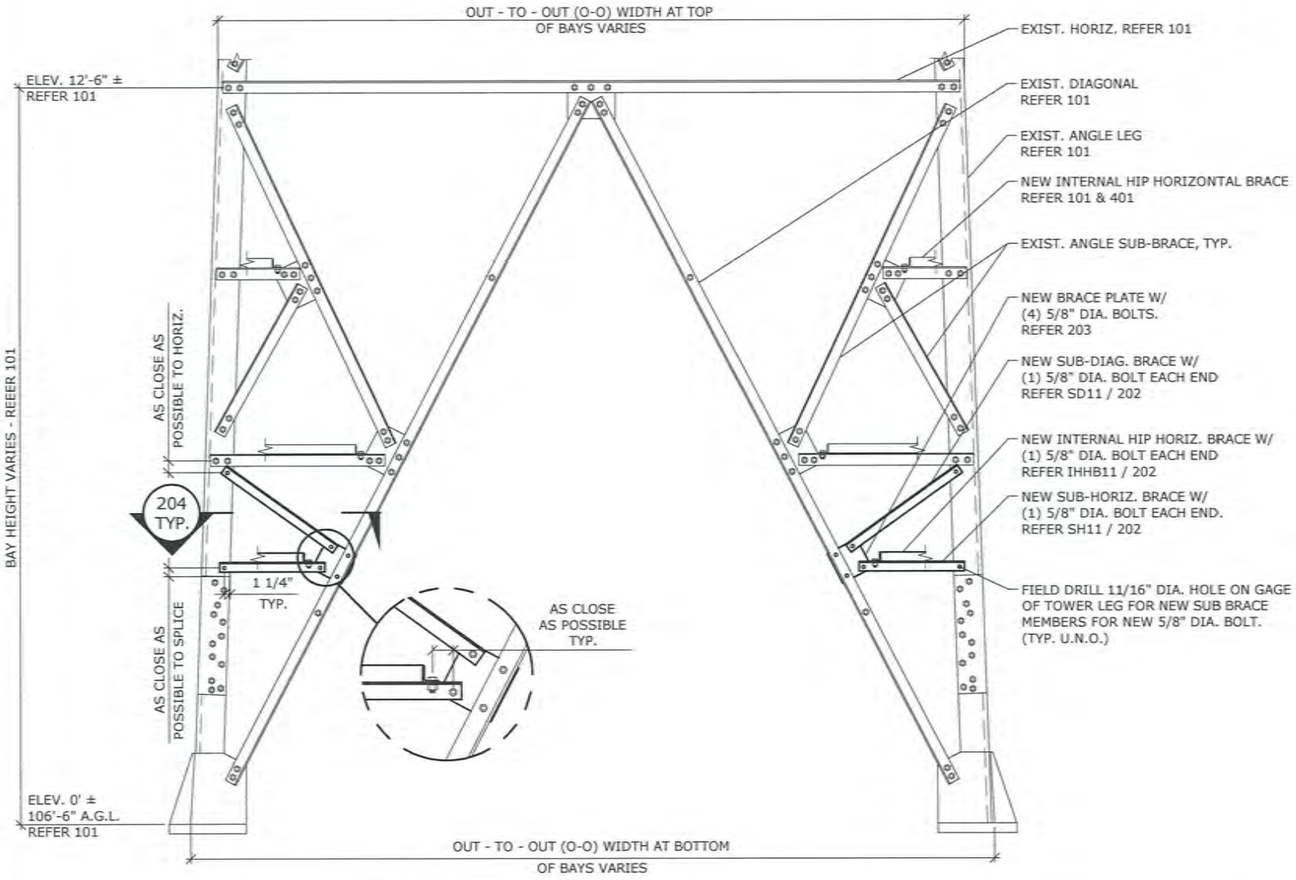
STATE OF CONNECTICUT | LICENSED PROFESSIONAL ENGINEER | JOHN F. MALOUF | 25, 2015

at&t

125' S.S. TOWER - ONTO ROOFTOP
STAMFORD - CENTRAL SBC CO #CT2118 / FA #10034983
555 MAIN STREET, STAMFORD, CT 06901
LAT: 41-03-12.47 N - LON: 73-32-8.4 W

MALOUF ENGINEERING INTERNATIONAL, INC.
17950 PRESTON ROAD SUITE 720
DALLAS, TEXAS 75252-5635
972-783-2578 (fax: 2583)
www.maloufengineering.com
STRUCTURAL CONSULTANTS

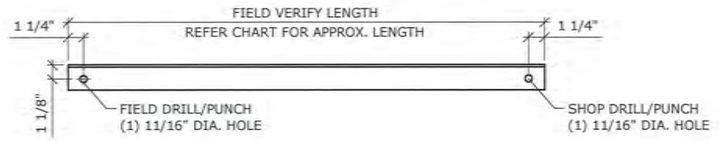
REFER SHEET T01 FOR TECH. SPEC. NOTES



TYPICAL ALL FOUR FACES

201 ELEVATION: NEW SUB BRACES TYPE 1

SCALE: NOT TO SCALE (1 BAY SHOWN - 1 BAY TOTAL)



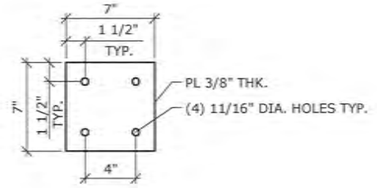
NEW ANGLE BRACE MEMBER CHART

SECTION	BAY	ANGLE SIZE & LENGTH (*)	MK. BRACE	QTY.
#1	1	L 2" x 2" x 1/4" x 1'-10 5/16"± LG.	SH11	8
#1	1	L 2" x 2" x 1/4" x 2'-5"± LG.	SD11	8
#1	1	L 2" x 2" x 1/4" x 2'-4"± LG.	IHHB11	4

(*) LENGTH PROVIDED FOR BIDDING PURPOSES ONLY.
FIELD VERIFY LENGTHS OR PROVIDE FIELD ADAPTATION.

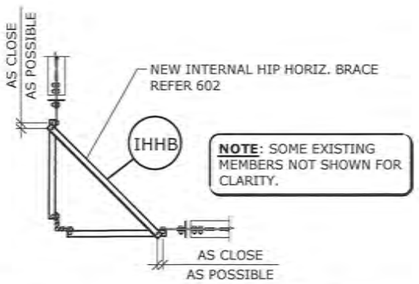
202 DETAIL: ANGLE BRACE MEMBER SCHEDULE

SCALE: NOT TO SCALE



203 DETAIL: NEW BRACE PLATE

SCALE: 1" = 1'-0" (8 REQ'D TOTAL)



204 SECTION: NEW INT. BR.

SCALE: NOT TO SCALE

REFER 101 FOR NEW AND EXIST. MEMBER SIZES AND SCHEDULES.

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0	06/25/15	ISSUED FOR CONSTRUCTION	REP	LKN	MM

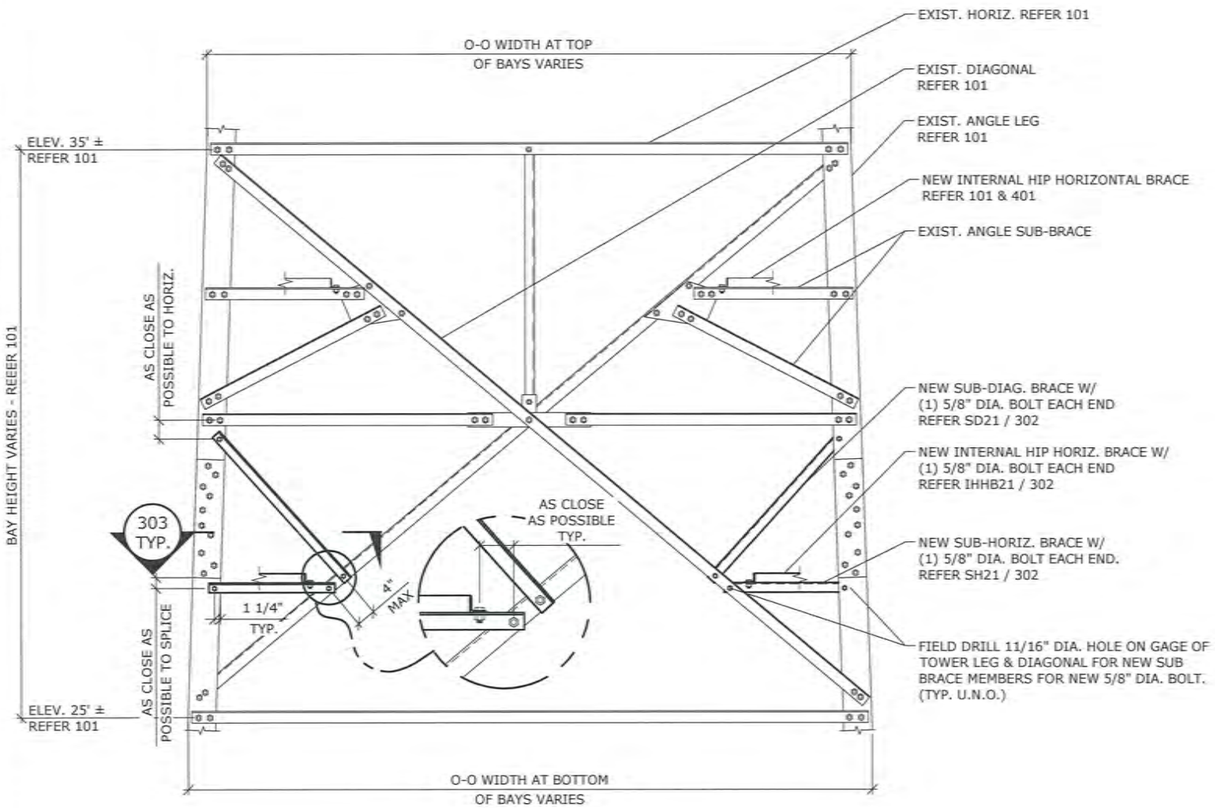
STATE OF CONNECTICUT
MARK MALOUF
LICENSED
PROFESSIONAL ENGINEER
JUN 25, 2015

VERTICAL RESOURCES / AT&T

NEW SUB-BRACES TYPE 1 DETAILS

MEI PROJECT ID	SHEET NUMBER	REV.
CT02768S-15V2	**S02**	0

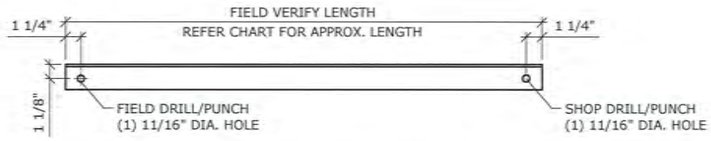
REFER SHEET T01 FOR TECH. SPEC. NOTES



TYPICAL ALL FOUR FACES

301 ELEVATION: NEW SUB BRACES TYPE 2

SCALE: NOT TO SCALE (1 BAY SHOWN - 1 BAY TOTAL)

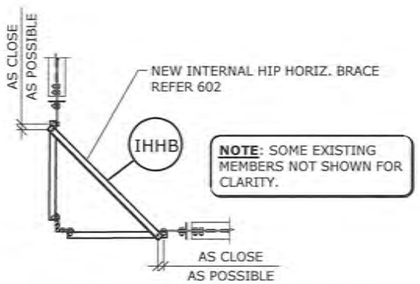


NEW ANGLE BRACE MEMBER CHART				
SECTION	BAY	ANGLE SIZE & LENGTH (*)	MK. BRACE	QTY.
#2	1	L 2" x 2" x 1/4" x 2'-4"± LG.	SH21	8
#2	1	L 2" x 2" x 1/4" x 3'-5 1/2"± LG.	SD21	8
#2	1	L 2" x 2" x 1/4" x 2'-8 7/16"± LG.	IHHB21	4

(*) LENGTH PROVIDED FOR BIDDING PURPOSES ONLY. FIELD VERIFY LENGTHS OR PROVIDE FIELD ADAPTATION.

302 DETAIL: ANGLE BRACE MEMBER SCHEDULE

SCALE: NOT TO SCALE



303 SECTION: NEW INT. BR.

SCALE: NOT TO SCALE

REFER 101 FOR NEW AND EXIST. MEMBER SIZES AND SCHEDULES.

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JUN 25, 2015
STATE OF CONNECTICUT
MARK MALOUF
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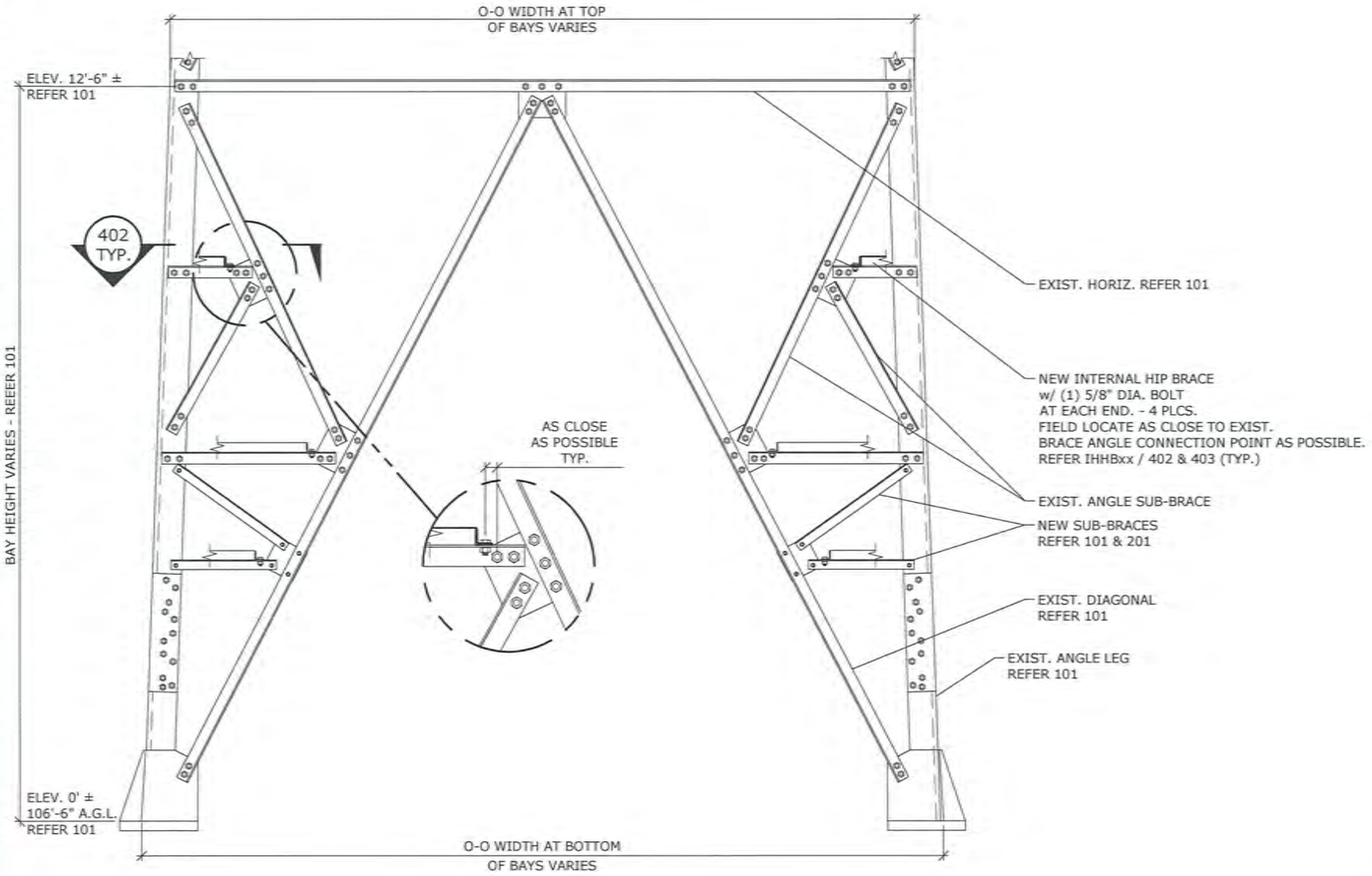
PROFESSIONAL ENGINEER

VERTICAL RESOURCES / AT&T

NEW SUB-BRACES TYPE 2 DETAILS

MEI PROJECT ID	SHEET NUMBER	REV.
CT02768S-15V2	**S03**	0

REFER SHEET T01 FOR TECH. SPEC. NOTES



TYPICAL ALL FOUR FACES

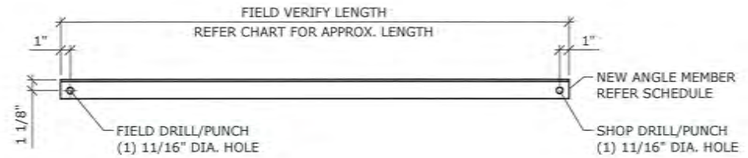
401 ELEVATION: NEW DIAGONAL HIP BRACING

SCALE: NOT TO SCALE

(1 BAY SHOWN - 2 BAYS TOTAL)

NOTE:
SECTION #1 SHOWN
SECTION #2 SIMILAR
REFER 101 & 301 FOR BAY CONFIGURATION

REFER 101 FOR NEW AND EXIST. MEMBER SIZES AND SCHEDULES.

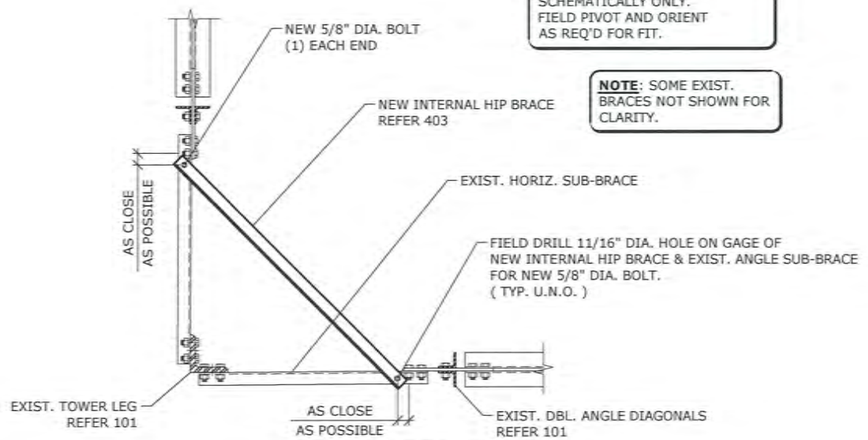


NEW INTERNAL HIP BRACE MEMBER SCHEDULE					
SECTION	BAY	ELEV.	INT. BRACE ANGLE SIZE & LENGTH (*)	MK. INT. BR.	QTY
#2	1	32'-7" ±	L 2" x 2" x 1/4" x 2'-11 5/16"± LG.	IHHB32	4
#1	1	9'-4" ±	L 2" x 2" x 1/4" x 1'-7"± LG.	IHHB12	4

(*) LENGTH APPROX. FOR BIDDING PURPOSES ONLY; FIELD VERIFY / DETERMINE ACTUAL LENGTH..

403 DETAIL: INTERNAL HIP BRACE

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



SYM. ABOUT TOWER AXIS

402 SECTION: TYPICAL NEW INTERNAL HIP BRACING

SCALE: NOT TO SCALE

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at&t

NO.	DATE	REVISIONS	DRAWN	ENG'D.	APP'D.
0	06/25/15	ISSUED FOR CONSTRUCTION	REP	LKN	MM

STATE OF CONNECTICUT · MARK MALOUF · No. 17715 · LICENSED PROFESSIONAL ENGINEER
JUN 25, 2015

VERTICAL RESOURCES / AT&T

INTERNAL HIP BRACE DETAILS

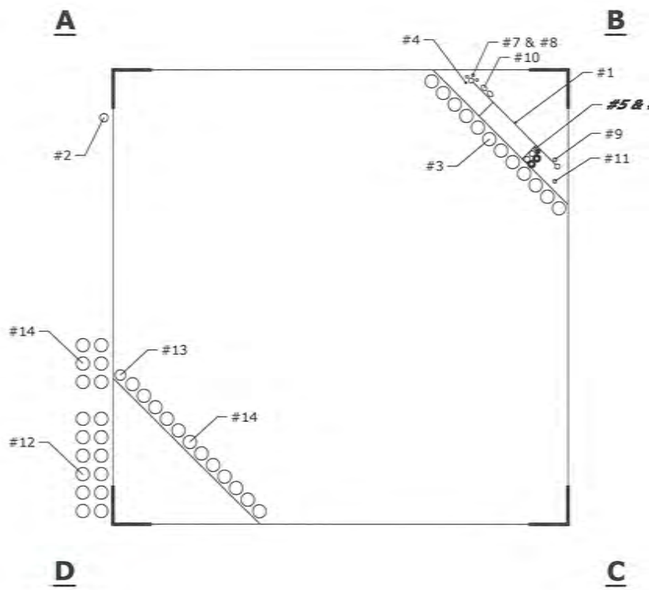
MEI PROJECT ID	SHEET NUMBER	REV.
CT02768S-15V2	**S04**	0

REFER SHEET T01 FOR TECH. SPEC. NOTES

No.	QTY.	DESCRIPTION	ELEV.	TENANT
1	1	Safety Climb & Climbing Ladder	235'	E
2	1	1 1/4" Rigid Conduit	235'	E
3	12	1 5/8	235'	AT&T / E
4	1	0.30	235'	AT&T / E
5	4	0.75" DC POWER TRUNK CABLES	235'	AT&T / E + P
6	2	0.625" FIBER TRUNK CABLE	235'	AT&T / E + P
7	2	3/8 (UNUSED)	221'	E
8	1	3/8	221'	E
9	1	1/2	229'	AT&T / E
10	2	EW90	223'	E
11	1	1/2	132'	E
12	12	1 5/8	209'	T-MOBILE / E
13	1	HUBER-SUHNER 1.25" TC-OF CABLE	209'	T-MOBILE / E
14	18	1 5/8 (UNUSED)	203'	T-MOBILE / E

LEGEND:

E = EXISTING — #X
P = PROPOSED — #X
F = FUTURE — #X
R = REMOVE — #X
TO RELOCATE



501 PLAN: SCHEMATIC Tx-LINE LAYOUT

SCALE: NOT TO SCALE

NOTE:
1. Tx LINE LAYOUT IS SCHEMATIC ONLY, BASED UPON MEI MAPPING DATED 4/6/2015.
2. NEW BRACKET SUPPORT SPECIFICATION BY OTHERS.
3. ELEVATIONS SHOWN ARE ABOVE GROUND LEVEL.

REFER 101 FOR NEW AND EXISTING MEMBER SIZES AND SCHEDULES.

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JUN 25, 2015
STATE OF CONNECTICUT — LUKE K. MALOUF — No. 21715 — LICENSED PROFESSIONAL ENGINEER

VERTICAL RESOURCES / AT&T
SCHEMATIC TxLINE LAYOUT

MEI PROJECT ID	SHEET NUMBER	REV.
CT02768S-15V2	**S05**	0

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT2118

Stamford Central
555 Main Street
Stamford, CT 06901

July 7, 2015

EBI Project Number: 6215003896

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	10.51 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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July 7, 2015

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 01701

Emissions Analysis for Site: **CT2118 – Stamford Central**

EBI Consulting was directed to analyze the proposed AT&T facility located at **555 Main Street, Stamford, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band and the 850 MHz band is 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively, and the general population exposure limit for the 1900 MHz (PCS) and 2300 MHz (WCS) band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **555 Main Street, Stamford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 4 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 4 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts.

6) 2 LTE channel (WCS Band - 2300 MHz) was considered for each sector of the proposed installation. This channel has a transmit power of 60 Watts.

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **CCI OPA-65R-LCUU-H4** for 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) channels and the **Powerwave P65-15-XLH-RR** for 850 MHz and 1900 MHz (PCS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **CCI OPA-65R-LCUU-H4** has a maximum gain of **10.6 dBd** at its main lobe at 700 MHz, a maximum gain of **11.2 dBd** at its main lobe at 850 MHz, a maximum gain of **13.6 dBd** at its main lobe at 1900 MHz and a maximum gain of **14.7 dBd** at its main lobe at 2300 MHz. The **Powerwave P65-15-XLH-RR** has a maximum gain of **12.6 dBd** at its main lobe at 850 MHz and a maximum gain of **14.6 dBd** at its main lobe at 1900 MHz The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **235 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	CCI OPA-65R-LCUU-H4	Make / Model:	CCI OPA-65R-LCUU-H4	Make / Model:	CCI OPA-65R-LCUU-H4
Gain:	10.6 / 13.6 dBd	Gain:	10.6 / 13.6 dBd	Gain:	10.6 / 13.6 dBd
Height (AGL):	235 feet	Height (AGL):	235 feet	Height (AGL):	235 feet
Frequency Bands	700 MHz / 1900 MHz(PCS)	Frequency Bands	700 MHz / 1900 MHz(PCS)	Frequency Bands	700 MHz / 1900 MHz(PCS)
Channel Count	4	Channel Count	4	# PCS Channels:	4
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	4,126.82	ERP (W):	4,126.82	ERP (W):	4,126.82
Antenna A1 MPE%	**0.39**	Antenna B1 MPE%	**0.39**	Antenna C1 MPE%	**0.39**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-LCUU-H4	Make / Model:	CCI OPA-65R-LCUU-H4	Make / Model:	CCI OPA-65R-LCUU-H4
Gain:	11.2 / 14.7 dBd	Gain:	11.2 / 14.7 dBd	Gain:	11.2 / 14.7 dBd
Height (AGL):	235 feet	Height (AGL):	235 feet	Height (AGL):	235 feet
Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	1,359.90	ERP (W):	1,359.90	ERP (W):	1,359.90
Antenna A2 MPE%	**0.43**	Antenna B2 MPE%	**0.43**	Antenna C2 MPE%	**0.43**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave P65-15-XLH-RR	Make / Model:	Powerwave P65-15-XLH-RR	Make / Model:	Powerwave P65-15-XLH-RR
Gain:	12.6 / 14.6 dBd	Gain:	12.6 / 14.6 dBd	Gain:	12.6 / 14.6 dBd
Height (AGL):	235 feet	Height (AGL):	235 feet	Height (AGL):	235 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power:	240	Total TX Power:	240	Total TX Power:	240
ERP (W):	3,172.53	ERP (W):	3,172.53	ERP (W):	3,172.53
Antenna A3 MPE%	**0.50**	Antenna A3 MPE%	**0.50**	Antenna A3 MPE%	**0.50**

Site Composite MPE%	
Carrier	**MPE%**
AT&T	**3.98 %**
T-Mobile	0.08 %
Winstar Wireless	0.71 %
PageNet	1.44 %
Broadcast Video	4.30 %
Site Total MPE %:	**10.51 %**

AT&T Sector 1 Total:	1.33 %
AT&T Sector 2 Total:	1.33 %
AT&T Sector 3 Total:	1.33 %
Site Total:	**10.51 %**

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	1.33 %
Sector 2:	1.33 %
Sector 3 :	1.33 %
AT&T Total:	**3.98 %**
Site Total:	**10.51%**
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.51 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

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