COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

PLEASE REPLY TO:
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

March 11, 2015

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Radio Communications Corporation/T-Mobile equipment upgrade
T-Mobile Site ID CT11193A
24 Rockdale Road, West Haven CT

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Radio Communications Corporation owns the existing telecommunications tower and related facility at 24 Rockdale Road, West Haven Connecticut (latitude 41.290701/ longitude -72.967606). T-Mobile intends to replace three (3) antennas and add related equipment at this existing facility in West Haven ("West Haven Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Mayor, Scott D. Jackson. Radio Communications Corporation is also the property owner.

The existing West Haven Facility consists of a 180 foot tower.[1] T-Mobile plans to replace three (3) antennas and add three (3) RRU's (remote radio units) mounted on the tower at a centerline of 135 feet. (See the plans revised to February 27, 2015 attached hereto as Exhibit A). The existing West Haven Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated February 24, 2015 and attached hereto as Exhibit B.

[1] While the online docket for the Connecticut Siting Council does not provide a docket or petition number for approval of this structure, it does reference this structure in connection with notices of intent captioned EM-VER-156-140714, EM-METROPCS-156-121231A-MA, EM-VER-156-121123, and EM-T-MOBILE-156-120904.

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

1 . The proposed modification will not increase the height of the tower. T-Mobile's replacement antennas and additional equipment will be installed at the 135 foot level. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2 . T-Mobile does not propose to modify the compound area and therefore will not require an extension of the site boundaries.

3 . The proposed modification to the Facility will not increase the noise levels at the existing facility by six decibels or more.

4 . The operation of the replacement and additional antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated March 4, 2015 T-Mobile's operations would add 7.25% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 93.30% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the West Haven Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Julie D. K

Julie D. Kohler, Esq.

cc: Mayor Scott D. Jackson, City of West Haven
Radio Communications Corporation
Elizabeth Jamieson, Transcend Wireless

EXHIBIT A

SITE NAME: ORANGE/RT-1

24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

SITE NUMBER: CT11193A

L700 - 702CU CONFIGURATION

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. 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 T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

1. STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY HUDSON DESIGN ON BEHALF OF T-MOBILE ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING TOWER PLATFORM, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T-MOBILE MODERNIZATION EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.
2. HUDSON DESIGN ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION:	BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	24 ROCKDALE ROAD WEST HAVEN, CT 06516
LATITUDE:	41° 17' 26.52" N
LONGITUDE:	72° 58' 3.3954" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS NOT PERMITTED
SECTOR B:	ACCESS NOT PERMITTED
SECTOR C:	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

CALL
BEFORE YOU DIG
CALL TOLL FREE 800-922-4455
OR CALL 811
UNDERGROUND SERVICE ALERT

DRAWING INDEX

		REV
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & ELEVATION PLAN	2
A-2	ANTENNA PLAN & DETAILS	2
G-1	GROUNDING DETAILS	2

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

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

STATE OF CONNECTICUT
DANIEL HAMM
LICENSED
PROFESSIONAL ENGINEER

APPROVALS

CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH411A
DRAWN BY:	AS
CHECKED BY:	DR

2	02/27/15	ISSUED FOR REVIEW
1	08/11/14	ISSUED FOR REVIEW
0	08/01/14	ISSUED FOR REVIEW

SITE NUMBER: CT11193A
SITE NAME: ORANGE/ RT-1
24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

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) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR – TRANSCEND WIRELESS
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

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

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

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

BUILDING CODE: IBC 2003 W/ 2005 CT SUPPLEMENT + 2009 AMENDMENT
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

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

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

ABBREVIATIONS

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

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

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

STATE OF CONNECTICUT
DANIEL HAMM
LICENSED
PROFESSIONAL ENGINEER

APPROVALS

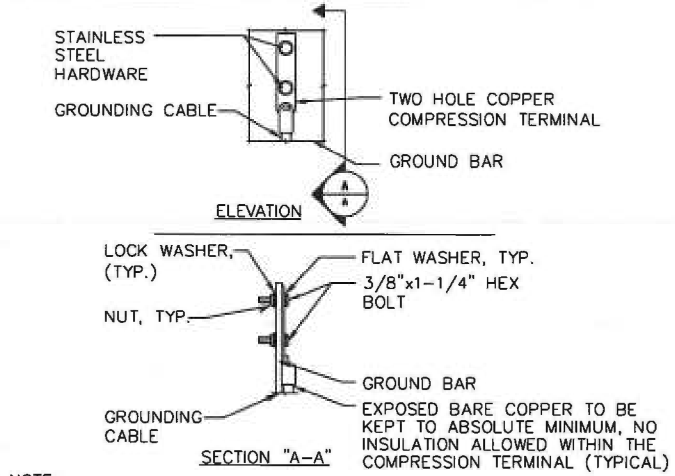
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH411A
DRAWN BY:	AS
CHECKED BY:	DR

2	02/27/15	ISSUED FOR REVIEW
1	08/11/14	ISSUED FOR REVIEW
0	08/01/14	ISSUED FOR REVIEW

SITE NUMBER: CT11193A
SITE NAME:
ORANGE/ RT-1
24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

SHEET TITLE
GENERAL NOTES

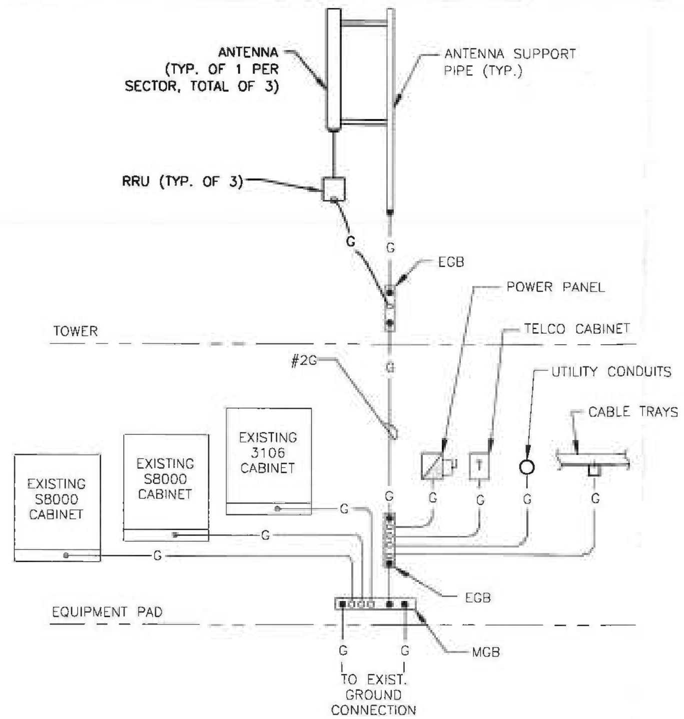
SHEET NUMBER
GN-1



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

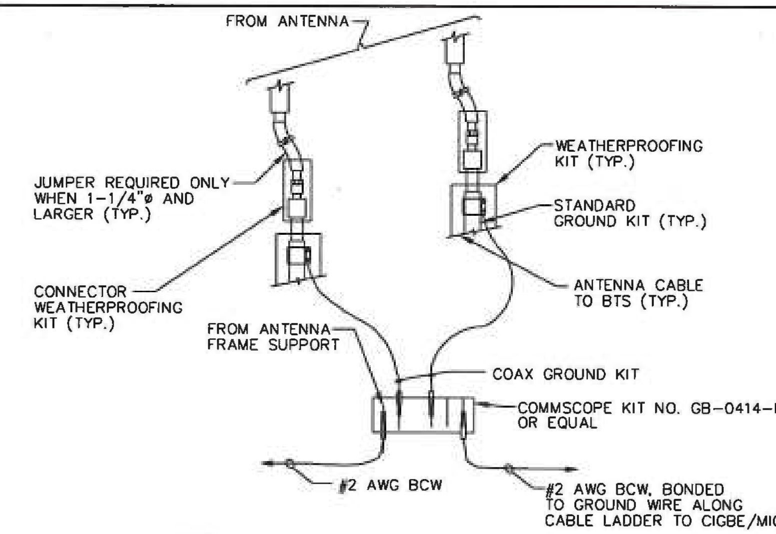
1 G-1 TYPICAL GROUND BAR CONNECTION DETAIL

N.T.S.



2 G-1 GROUNDING RISER DIAGRAM

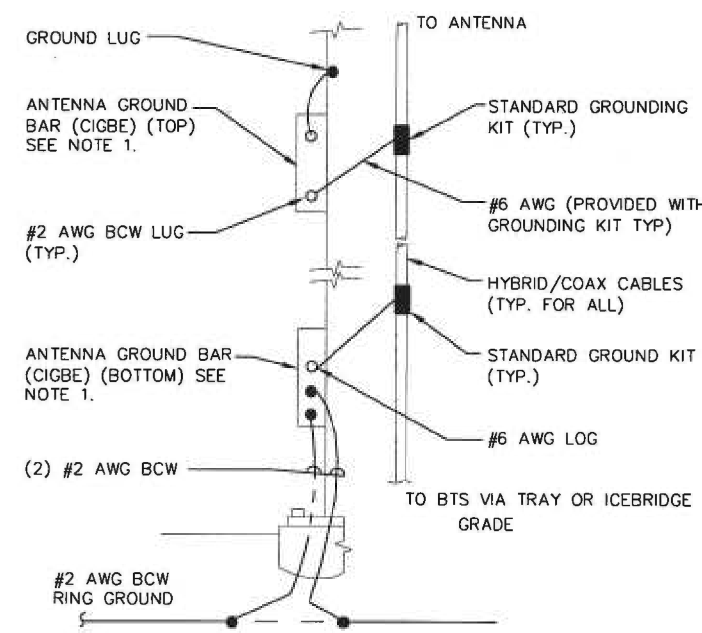
N.T.S.



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

3 G-1 GROUND WIRE TO GROUND BAR CONNECTION DETAIL

N.T.S.



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

5 G-1 ANTENNA CABLE GROUNDING

N.T.S.

ELECTRICAL & GROUNDING NOTES (CONT.):

16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND): (GROUNDING ELECTRODE RING OR BUILDING STEEL): NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

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

STATE OF CONNECTICUT ★ DANIEL HAMM ★ 24 LICENSED PROFESSIONAL ENGINEER

APPROVALS

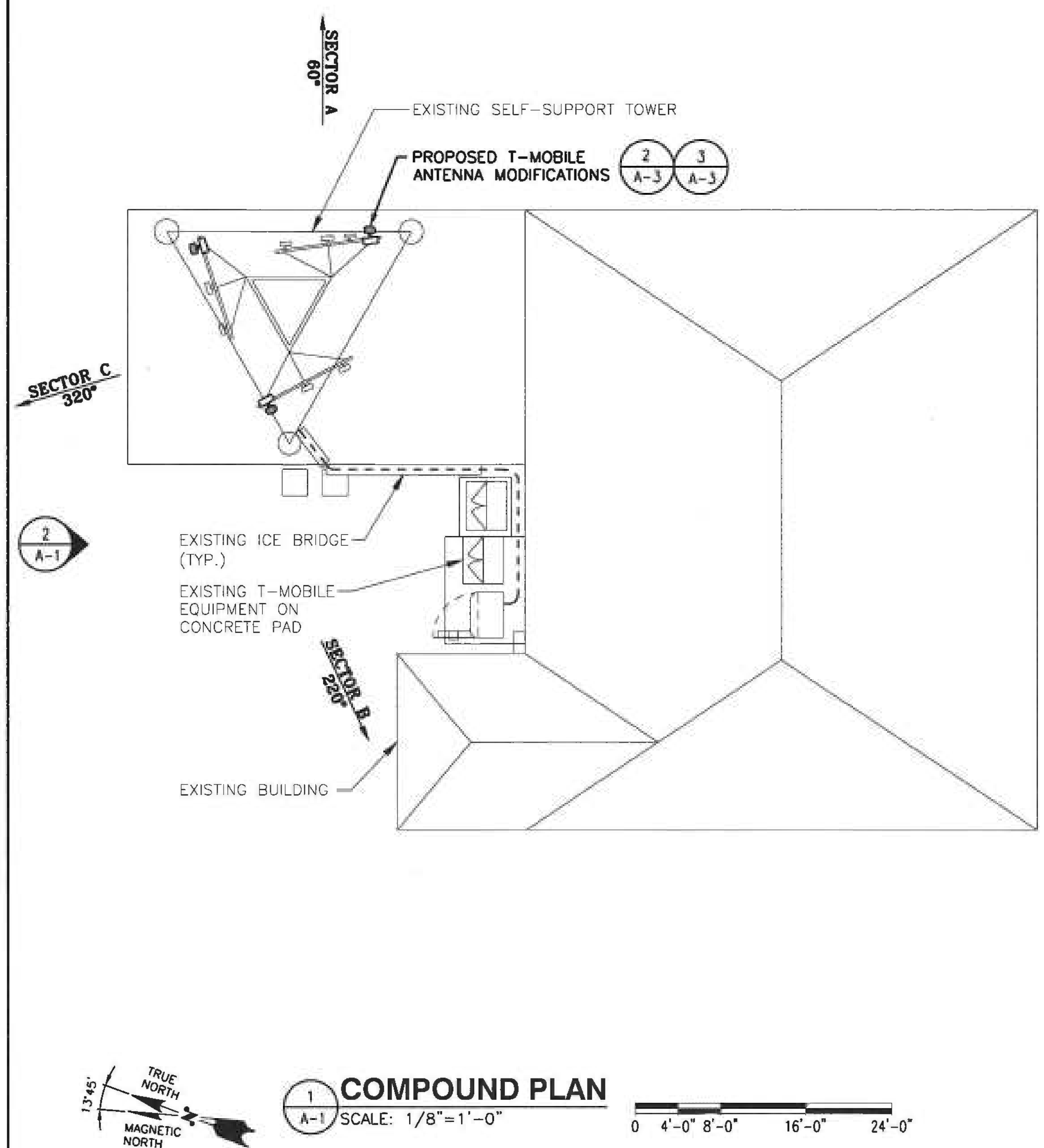
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH411A
DRAWN BY:	AS
CHECKED BY:	DR

2	02/27/15	ISSUED FOR REVIEW
1	08/11/14	ISSUED FOR REVIEW
0	08/01/14	ISSUED FOR REVIEW

SITE NUMBER: CT11193A
SITE NAME:
ORANGE/ RT-1
24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

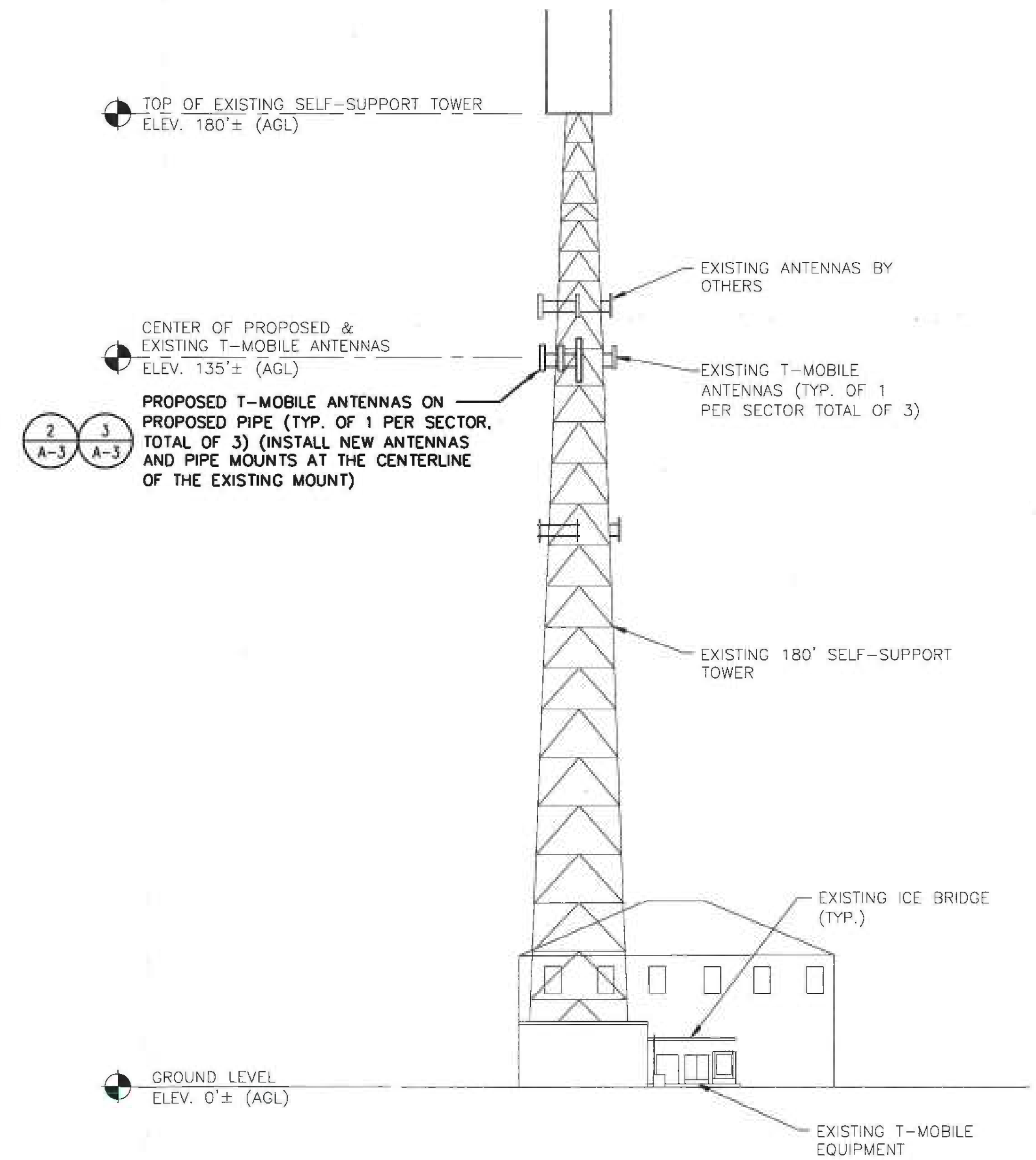
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-1



1 A-1 **COMPOUND PLAN**
SCALE: 1/8"=1'-0"

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



2 A-1 **ELEVATION**
SCALE: 1/16"=1'-0"

0 8'-0" 16'-0" 32'-0" 48'-0"

NOTE:

GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS BY: KM CONSULTING ENGINEERS, INC.DATED: FEBRUARY 24, 2015 AND EQUIPMENT INSTALLATION RECOMMENDATIONS PRIOR TO COMMENCING CONSTRUCTION

L700 - 702CU CONFIGURATION

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

STATE OF CONNECTICUT
DANIEL HAMM
24178
LICENSED
PROFESSIONAL ENGINEER

APPROVALS

CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH411A
DRAWN BY:	AS
CHECKED BY:	DR

2	02/27/15	ISSUED FOR REVIEW
1	08/11/14	ISSUED FOR REVIEW
0	08/01/14	ISSUED FOR REVIEW

SITE NUMBER: CT11193A

SITE NAME:
ORANGE/ RT-1

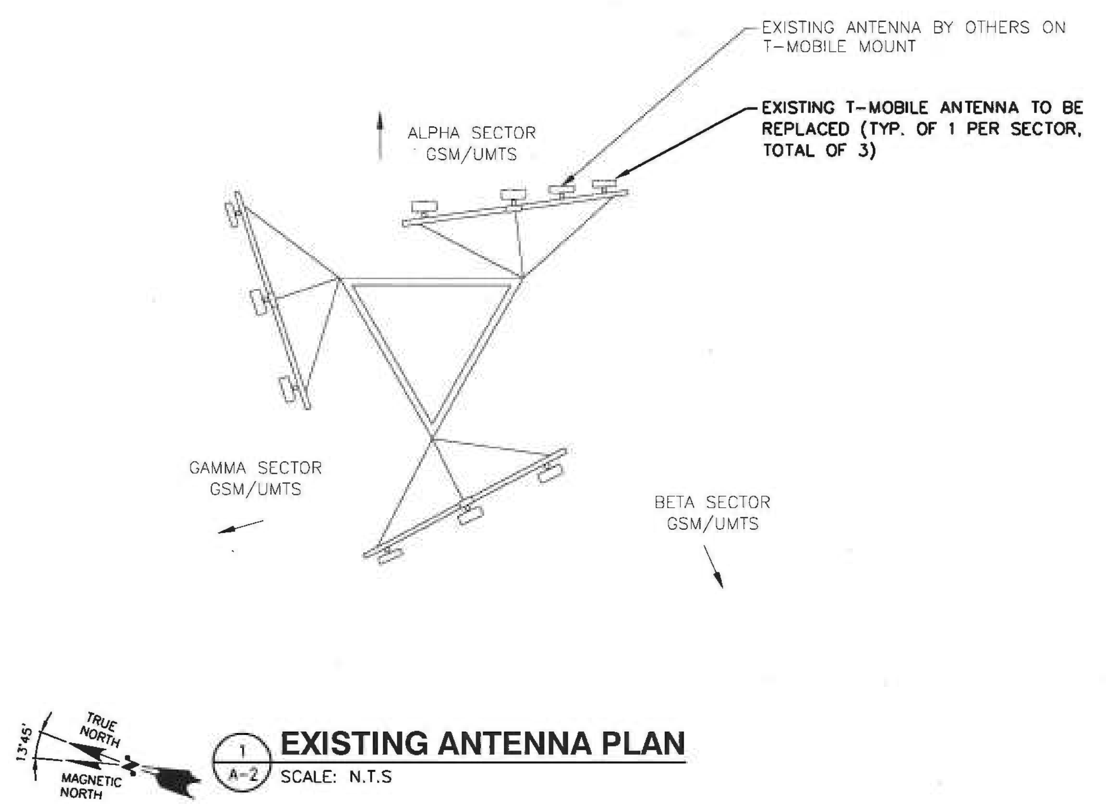
24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

SHEET TITLE

COMPOUND PLAN & ELEVATION

SHEET NUMBER

A-1

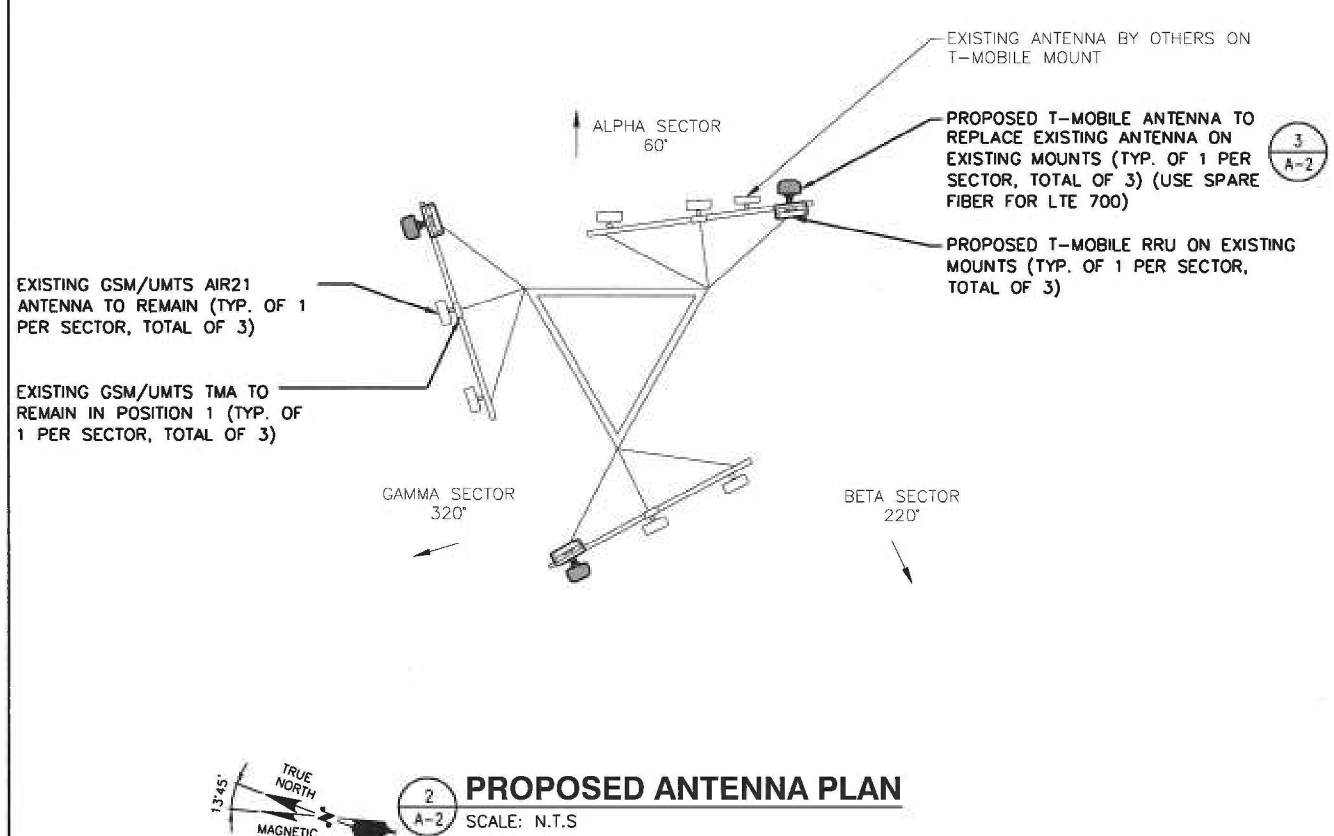


EXISTING ANTENNA PLAN

1 A-2 SCALE: N.T.S

NOTE:

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



PROPOSED ANTENNA PLAN

2 A-2 SCALE: N.T.S

NOTE:

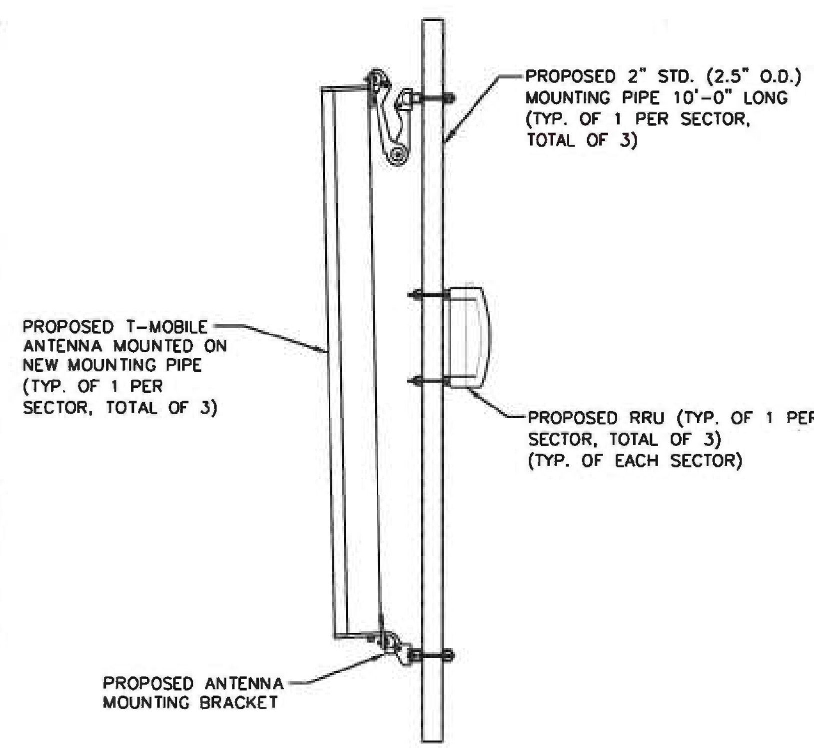
GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS BY: KM CONSULTING ENGINEERS, INC.DATED: FEBRUARY 24, 2015 AND EQUIPMENT INSTALLATION RECOMMENDATIONS PRIOR TO COMMENCING CONSTRUCTION

EXISTING ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	RFS	APX16PV_16PVL	55.9X13X3.15
BETA:	RFS	APX16PV_16PVL	55.9X13X3.15
GAMMA:	RFS	APX16PV_16PVL	55.9X13X3.15

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	MODEL#	SIZE (INCHES)
ALPHA:	COMMSCOPE	LNX-6515DS-VTM	96.4x11.9x7.1
BETA:	COMMSCOPE	LNX-6515DS-VTM	96.4X11.9X7.1
GAMMA:	COMMSCOPE	LNX-6515DS-VTM	96.4X11.9X7.1



ANTENNA MOUNT (TYP.)

3 A-2 SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

STATE OF CONNECTICUT ★ DANIEL HAMM ★ 24178 LICENSED PROFESSIONAL ENGINEER

APPROVALS

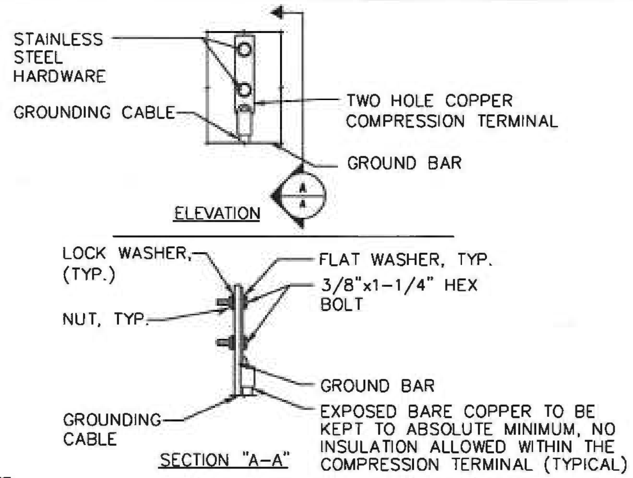
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH411A
DRAWN BY:	AS
CHECKED BY:	DR

2	02/27/15	ISSUED FOR REVIEW
1	08/11/14	ISSUED FOR REVIEW
0	08/01/14	ISSUED FOR REVIEW

SITE NUMBER: CT11193A
SITE NAME:
ORANGE/ RT-1
24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

SHEET TITLE
ANTENNA PLAN & DETAILS

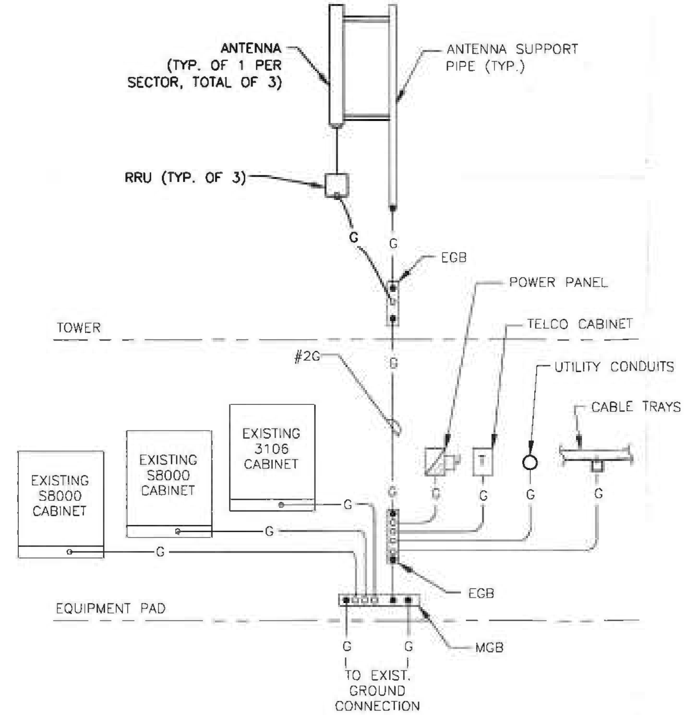
SHEET NUMBER
A-2



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

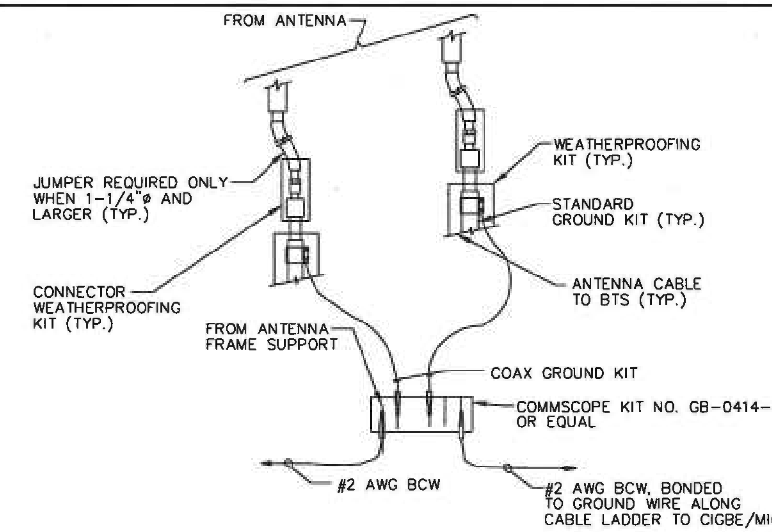
TYPICAL GROUND BAR CONNECTION DETAIL

1 G-1 N.T.S.



GROUNDING RISER DIAGRAM

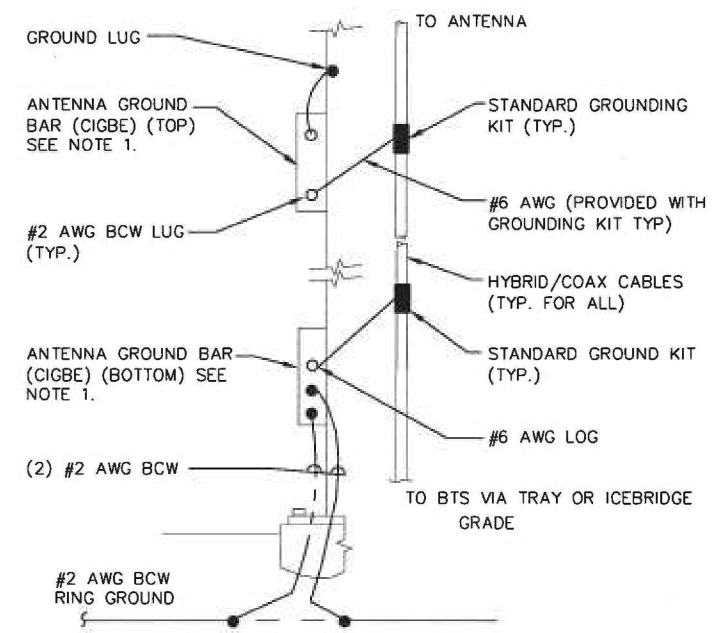
2 G-1 N.T.S.



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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

3 G-1 N.T.S.



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER. ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

ANTENNA CABLE GROUNDING

5 G-1 N.T.S.

ELECTRICAL & GROUNDING NOTES (CONT.):

16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
23. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

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

STATE OF CONNECTICUT
DANIEL HAMM
LICENSED PROFESSIONAL ENGINEER

APPROVALS

CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING/SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE
PROJECT NO:	CTNH411A
DRAWN BY:	AS
CHECKED BY:	DR

2	02/27/15	ISSUED FOR REVIEW
1	08/11/14	ISSUED FOR REVIEW
0	08/01/14	ISSUED FOR REVIEW

SITE NUMBER: CT11193A
SITE NAME:
ORANGE/ RT-1
24 ROCKDALE ROAD
WEST HAVEN, CT 06516
LITCHFIELD COUNTY

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-1

EXHIBIT B

STRUCTURAL ANALYSIS REPORT

For

T-Mobile

Transcend Wireless
10 Industrial Ave, Suite 3
Mahwah, NJ 07430

West Haven
KM No. 140910.01

180' Self Support Tower
West Haven, CT

Prepared By:

KM CONSULTING ENGINEERS, INC.

32 West Upper Ferry Rd, Ewing, NJ 08628
Ph: (609) 538-0400 www.kmengr.com

February 24, 2015

Prepared to EIA/TIA-222-F June 1996
Structural Standards for Antenna Supporting
Structures and Antennas

Transcend Wireless
West Haven

TABLE OF CONTENTS

Load Case No. 1: Existing tower superstructure with existing inventory and proposed T-Mobile installation.

1.0 EXECUTIVE SUMMARY

Structure

Tower Manager:	Radio Communications, Inc.
Location:	24 Rockdale Road West Haven, CT 06516
Manufacturer:	Rohn

Equipment

Existing tower inventory plus the proposed installation are detailed in Section 2.0 "Tower Inventory."

Synopsis

Load Case No. 1: The existing tower superstructure with the current inventory and proposed T-Mobile installation.

The tower superstructure and foundation have sufficient capacity and therefore meet the current EIA/TIA-222-F standards. The tower superstructure is rated at 86.9% and the base foundation is rated at 83.8%.

2.0 TOWER INVENTORY

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Dipole	191	BXA-171063-8BF (Verizon)	144.5
10' Whip	183.5	ALU RH_2X40-AWS RRH (Verizon)	144.5
10' Dipole	183	ALU RH_2X40-AWS RRH (Verizon)	144.5
10' Whip	182.5	ALU RH_2X40-AWS RRH (Verizon)	144.5
6' Yagi	182	BXA-80063-6BF (Verizon)	144.5
PG1N0F-0090-310	182	BXA-171063-12BF (Verizon)	144.5
16' Whip	182	BXA-80063-6BF (Verizon)	144.5
6' Yagi	182	Stand-Off T-Frame (Verizon)	143.5
21' Whip	182	Stand-Off T-Frame (Verizon)	143.5
21' Whip	181.5	Stand-Off T-Frame (Verizon)	143.5
21' Whip	181.5	(2) Ericsson AIR21 Antenna (T-Mobile)	135.5 - 135
20' Dipole	181.5	(2) Ericsson AIR21 Antenna (T-Mobile)	135.5 - 135
14' Inverted Whip	180 - 166	(2) Ericsson AIR21 Antenna (T-Mobile)	135.5 - 135
Top Platform	180	Stand-Off T-Frame (T-Mobile)	135 - 134
10' Inverted Whip	180 - 170	LNX-6515DS-VTM (T-Mobile)	135
TMA	180	LNX-6515DS-VTM (T-Mobile)	135
TMA	180	LNX-6515DS-VTM (T-Mobile)	135
(2) Scala Panels	175.5	Stand-Off T-Frame (T-Mobile)	135 - 134
Raycap (Verizon)	148.5	Stand-Off T-Frame (T-Mobile)	135 - 134
BXA-70063-6CF (Verizon)	144.5	RRUS11 (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	RRUS11 (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	RRUS11 (T-Mobile)	135
BXA-80063-6BF (Verizon)	144.5	Empty Mount	103
BXA-171063-8BF (Verizon)	144.5	2' yagi	102.5
BXA-171063-8BF (Verizon)	144.5	GPS	59.5
BXA-171063-8BF (Verizon)	144.5	(2) GPS	18
BXA-171063-8BF (Verizon)	144.5	(2) GPS	17.67

Proposed T-Mobile Loading:

*(3) LNX-6515DS-VTM panel antennas @ 135' AGL
*(3) RRUS11_B12 @ 135' AGL
*Removal of (3) existing APX16PV-16PVL panel antennas @ 135' AGL
*Existing coax lines and remaining antennas to remain

3.0 COMMENTARY

Our scope of work is to determine if the existing structure is capable of withstanding the additional stresses/forces imposed by the installation of the proposed T-Mobile equipment noted in the tower inventory.

Tower structure information and foundation information was obtained from previous structural analyses by KMCE. The tower has been reinforced as per KMCE drawings in November 1997, July 2002, January 2009, August 2012, and December 2014. The existing tower inventory was determined from a tower climb and mapping completed on February 16, 2015. The proposed loading was obtained from a T-Mobile RFDS dated 7/18/14.

The following report will provide analytical calculations and commentary regarding the capacity of the proposed tower and subsequent recommendations.

4.0 ANALYSIS PROCEDURE

KM Consulting Engineers, Inc. carried out their structural analysis by correlating field inspection and tower member data into proprietary software designed specifically for communication tower analysis.

These programs run in conjunction with the guidelines set down in the EIA/TIA-222-F (1996) Standard entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures."

The existing tower is analyzed by placing wind forces on the structure in 30° positional increments around the tower (ie. wind pressure directly onto the tower corners, faces and parallel to the faces). This enables the user to "create" a three-dimensional representation, yielding results for worst case scenarios. In effect, the production of these results allows the user to study the structural integrity of the tower when influenced by wind forces from any direction.

The proceeding report includes analysis for the tower with the addition of antennas in the scenarios stated. For clarity, the analysis shall include worst case loadings and a typical elevation view with maximum foundation loads tabulated.

Should the client require to be furnished with a full copy of our analysis, we will gladly do so (approximately 80 pages).

Codes and Standards

ACI - American Concrete Institute - *Building Code Requirements for Structural Concrete (ACI 318-05)*, 2005

AISC - American Institute of Steel Construction - *Manual of Steel Construction, Allowable Stress Design*, 14^{th} edition, 2010

TIA - Telecommunications Industry Association – *EIA/TIA-222-F Structural Standards Steel Antenna Towers and Antenna Supporting Structures, 1996*

IBC 2003- International Building Code

5.0 TOWER ANALYSIS RESULTS

The tower was analyzed for the inventory detailed in Section 2.0 "Tower Inventory".

Structural wind speed is in accordance with EIA/TIA-222-F (1996) listing applicable to New Haven, CT: 85 MPH (fastest mile), no ice and 74 MPH (fastest mile), ½" radial ice.

All allowable capacities have been calculated to comply with the permitted EIA allowable increases (for wind). All bolts loaded in shear assume the threads **are included** in the shear plane.

Load Case No. 1: Proposed T-Mobile addition of (3) LNX-6515DS-VTM panel antennas, (3) RRUS11_B12s, and removal of (3) existing APX16PV-16PVL panel antennas. Existing coax lines and remaining antennas will remain.

The tower superstructure and foundation have sufficient capacity and therefore meet the current EIA/TIA-222-F standards. The tower superstructure is rated at 86.9% and the base foundation is rated at 83.8%.

Foundation Capacities		
Actual Uplift	Allowable Uplift	% Use
214.32 kips	255.75 kips	83.8%

6.0 RECOMMENDATIONS

Further to our calculations, we conclude that the tower superstructure and base foundation have adequate capacity and therefore meet the current EIA/TIA-222-F design standards.

Please do not hesitate to contact our office with any questions or concerns regarding this report.

Sincerely,
KM CONSULTING ENGINEERS, INC

Domenic Aversa, EIT
Project Manager

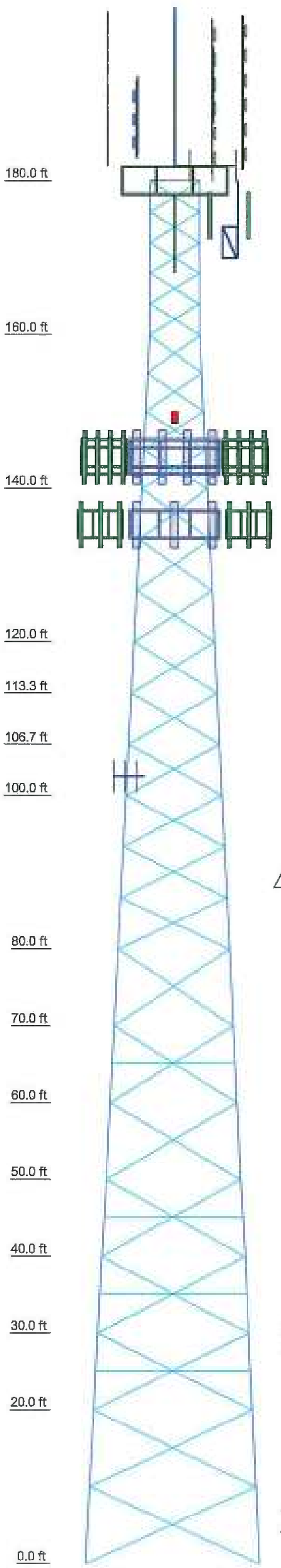
Reviewed and Approved by:

Michael L. Bohlinger, PE
Principal
CT License No. 20405

7.0 APPENDIX

LOAD CASE 1

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14
Legs	ROHN 2 STD (GR)	A	B	C			D	E	ROHN 5 X-STR (GR) w/ 5/8" Cable					F
Leg Grade	A572-50													
Diagonals	L1 1/2x1 1/2x1/8	L1 3/4x1 3/4x1/8	G	H			L3x3x1/4		L3 1/2x3 1/2x1/4			I		4x4x1/4 w/ sch 40
Diagonal Grade	A572-50													
Top Girts	L3x3x1/4			N.A.										
Sec. Horizontals	N.A.								J	N.A.	L3 1/2x3 1/2x1/4			N.A.
Face Width (ft)	6.5	6.6	8.625	10.85	11.325	12	12.675	14.7	15.7125	16.725	17.7375	18.75	19.7625	20.775 / 22.8
# Panels @ (ft)	5 @ 4	4 @ 5	9 @ 6.66667						8 @ 10					
Weight (lb) 28620.1	808.2	890.1	1635.6	637.1	547.6	712.7	2898.0	1378.2	1780.1	1561.2	1908.1	2168.1	2216.3	9793.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Dipole	191	BXA-171063-8BF (Verizon)	144.5
10' Whip	183.5	ALU RH_2X40-AWS RRH (Verizon)	144.5
10' Dipole	183	ALU RH_2X40-AWS RRH (Verizon)	144.5
10' Whip	182.5	ALU RH_2X40-AWS RRH (Verizon)	144.5
6' Yagi	182	BXA-80063-6BF (Verizon)	144.5
PG1N0F-0090-310	182	BXA-171063-12BF (Verizon)	144.5
16' Whip	182	BXA-80063-6BF (Verizon)	144.5
6' Yagi	182	Stand-Off T-Frame (Verizon)	143.5
21' Whip	182	Stand-Off T-Frame (Verizon)	143.5
21' Whip	181.5	Stand-Off T-Frame (Verizon)	143.5
21' Whip	181.5	(2) Ericsson AIR21 Antenna (T-Mobile)	135.5 - 135
20' Dipole	181.5	(2) Ericsson AIR21 Antenna (T-Mobile)	135.5 - 135
14' Inverted Whip	180 - 166	(2) Ericsson AIR21 Antenna (T-Mobile)	135.5 - 135
Top Platform	180	Stand-Off T-Frame (T-Mobile)	135 - 134
10' Inverted Whip	180 - 170	LNX-6515DS-VTM (T-Mobile)	135
TMA	180	LNX-6515DS-VTM (T-Mobile)	135
TMA	180	LNX-6515DS-VTM (T-Mobile)	135
(2) Scala Panels	175.5	Stand-Off T-Frame (T-Mobile)	135 - 134
Raycap (Verizon)	148.5	Stand-Off T-Frame (T-Mobile)	135 - 134
BXA-70063-6CF (Verizon)	144.5	RRUS11 (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	RRUS11 (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	RRUS11 (T-Mobile)	135
BXA-80063-6BF (Verizon)	144.5	Empty Mount	103
BXA-171063-8BF (Verizon)	144.5	2' yagi	102.5
BXA-171063-8BF (Verizon)	144.5	GPS	59.5
BXA-171063-8BF (Verizon)	144.5	(2) GPS	18
BXA-171063-8BF (Verizon)	144.5	(2) GPS	17.67

SYMBOL LIST

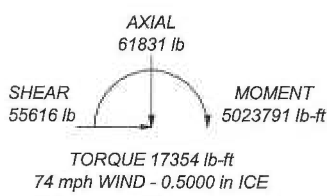
MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD (GR) w/ 5/8" Cable	F	ROHN 6 EH (GR) w/ 5/8" Cable (GR)
B	ROHN 2.5 X-STR (GR) w/ 5/8" Cable	G	L2x2x1/8 w/1.5" sch 40 pipe
C	ROHN 3 X-STR (GR) w/ 5/8" Cable	H	L2 1/2x2 1/2x3/16
D	ROHN 4 X-STR (GR) w/ 5/8" Cable	I	L3.5x3.5x1/4 w/ 2x1/4 plate
E	ROHN 5 STD (GR) w/ 5/8" Cable	J	L3 1/2x3 1/2x1/4

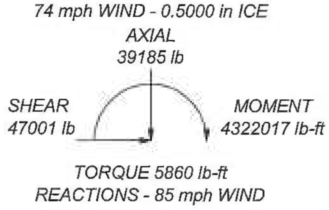
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 60 mph wind.
4. Grouted pipe f'c is 8 ksi
5. Tower legs have 5/8" diameter stainless steel cable(40K tension) in grouted leg.
6. TOWER RATING: 86.9%





MAX. CORNER REACTIONS AT BASE:
DOWN: 275038 lb
SHEAR: 30176 lb

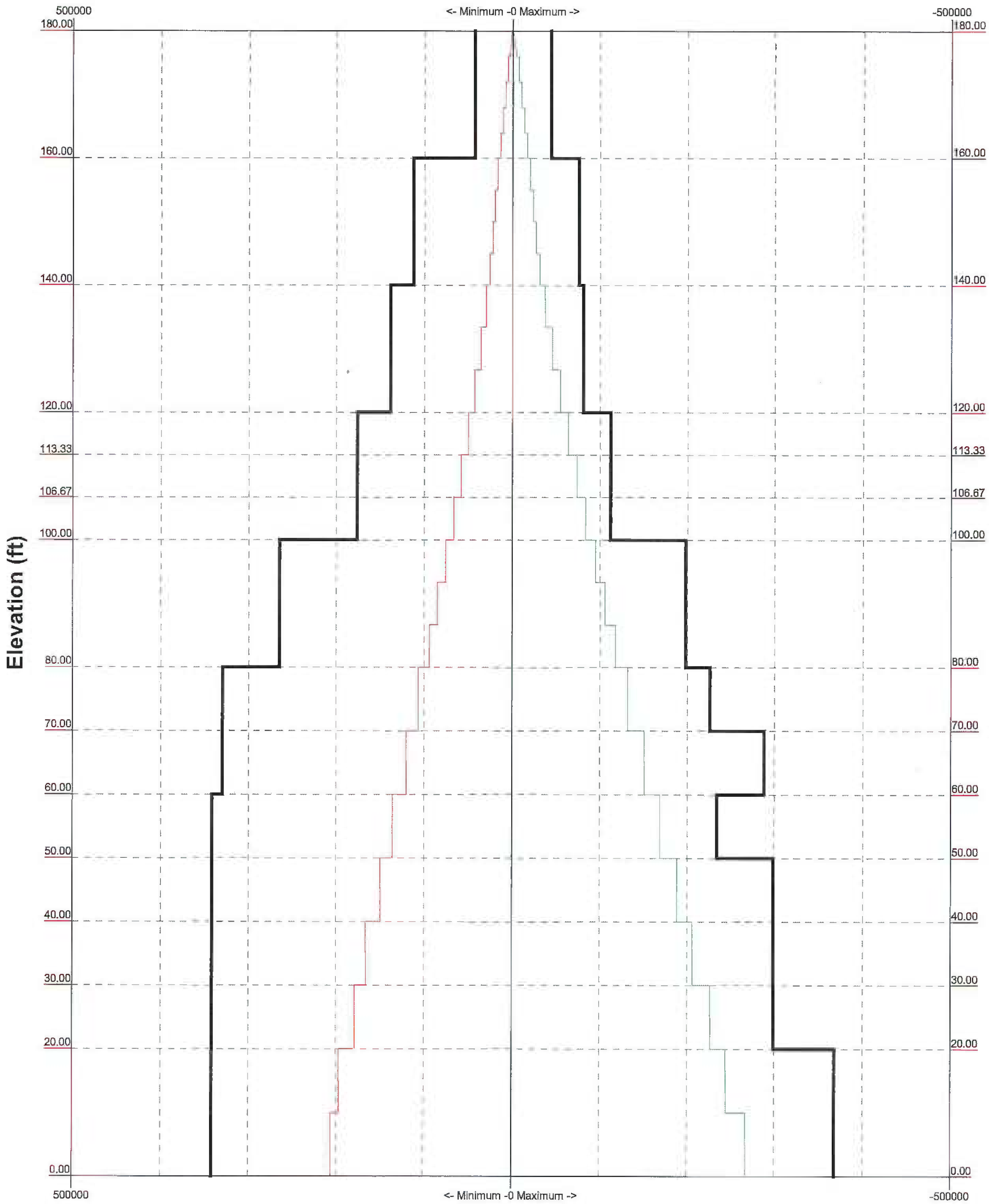
UPLIFT: -214320 lb
SHEAR: 31834 lb

KM Consulting Engineers, Inc.	Job: West Haven LC1		
9 Forest Lane	Project: 180 ft. Self Support Tower		
Ewing, NJ 08628	Client: Transcend Wireless	Drawn by: Domenic Aversa	App'd:
Phone: (609) 538-0400	Code: TIA/EIA-222-F	Date: 02/24/15	Scale: NTS
FAX:	Path: K:\Transcend Wireless\West Haven\Engineering\West Haven LC2.eri		Dwg No. E-1

Consulting Engineers

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

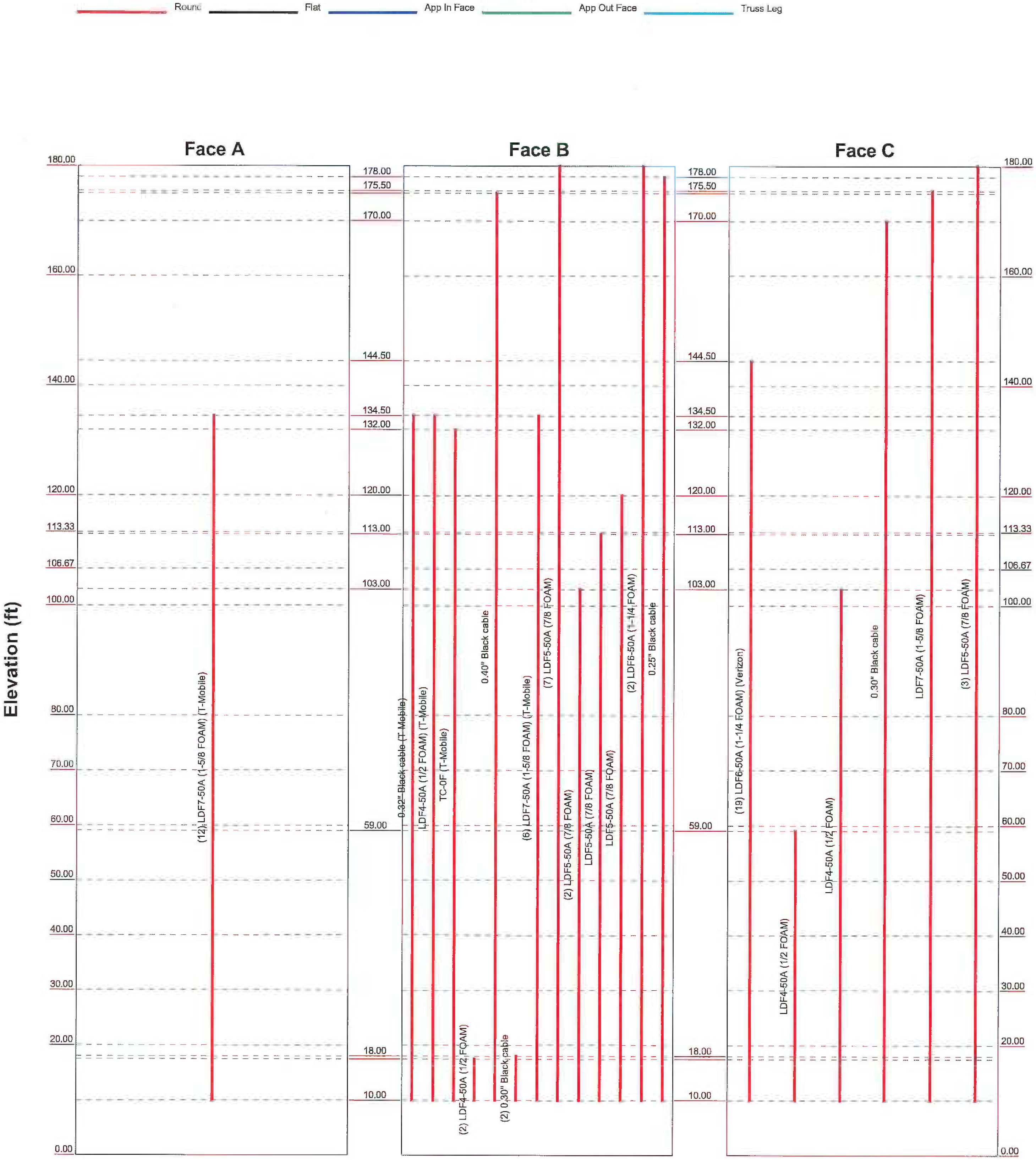
Leg Capacity ——— Leg Compression (lb)



KM Consulting Engineers, Inc.	Job: West Haven LC1		
9 Forest Lane	Project: *180 ft. Self Support Tower*		
Ewing, NJ 08628	Client: Transcend Wireless	Drawn by: Domenic Aversa	App'd:
Phone: (609) 538-0400	Code: TIA/EIA-222-F	Date: 02/24/15	Scale: NTS
FAX:	Path: K:\Transcend Wireless\West Haven\Engineering\West Haven LC2.eri		Dwg No. E-3

Consulting Engineers

Feed Line Distribution Chart
0' - 180'



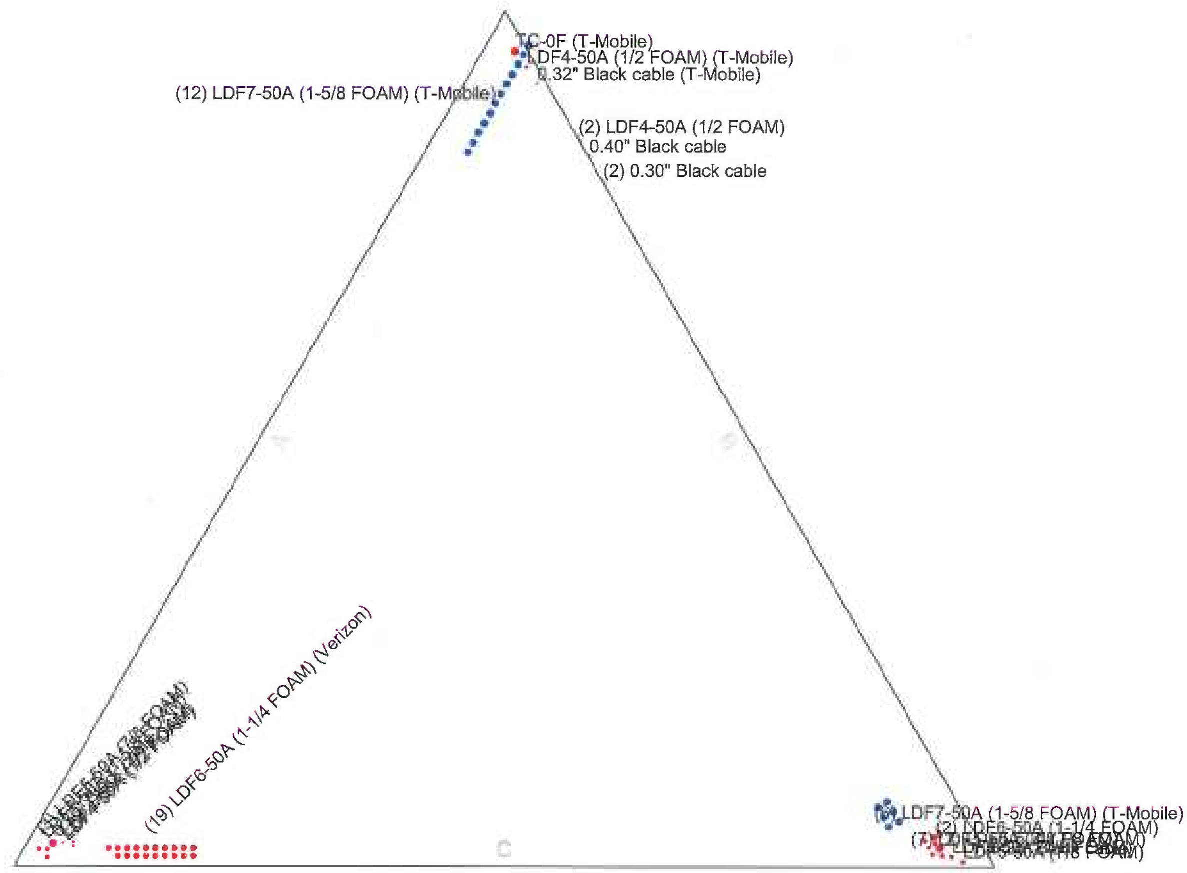
KM Consulting Engineers, Inc.
9 Forest Lane
Ewing, NJ 08628
Phone: (609) 538-0400
FAX:

Consulting Engineers

Job: **West Haven LC1**		
Project: **180 ft. Self Support Tower**		
Client: Transcend Wireless	Drawn by: Domenic Aversa	App'd:
Code: TIA/EIA-222-F	Date: 02/24/15	Scale: NTS
Path: K:\Transcend Wireless\West Haven\Engineering\West Haven LC2.eri		Dwg No. E-7

Feed Line Plan

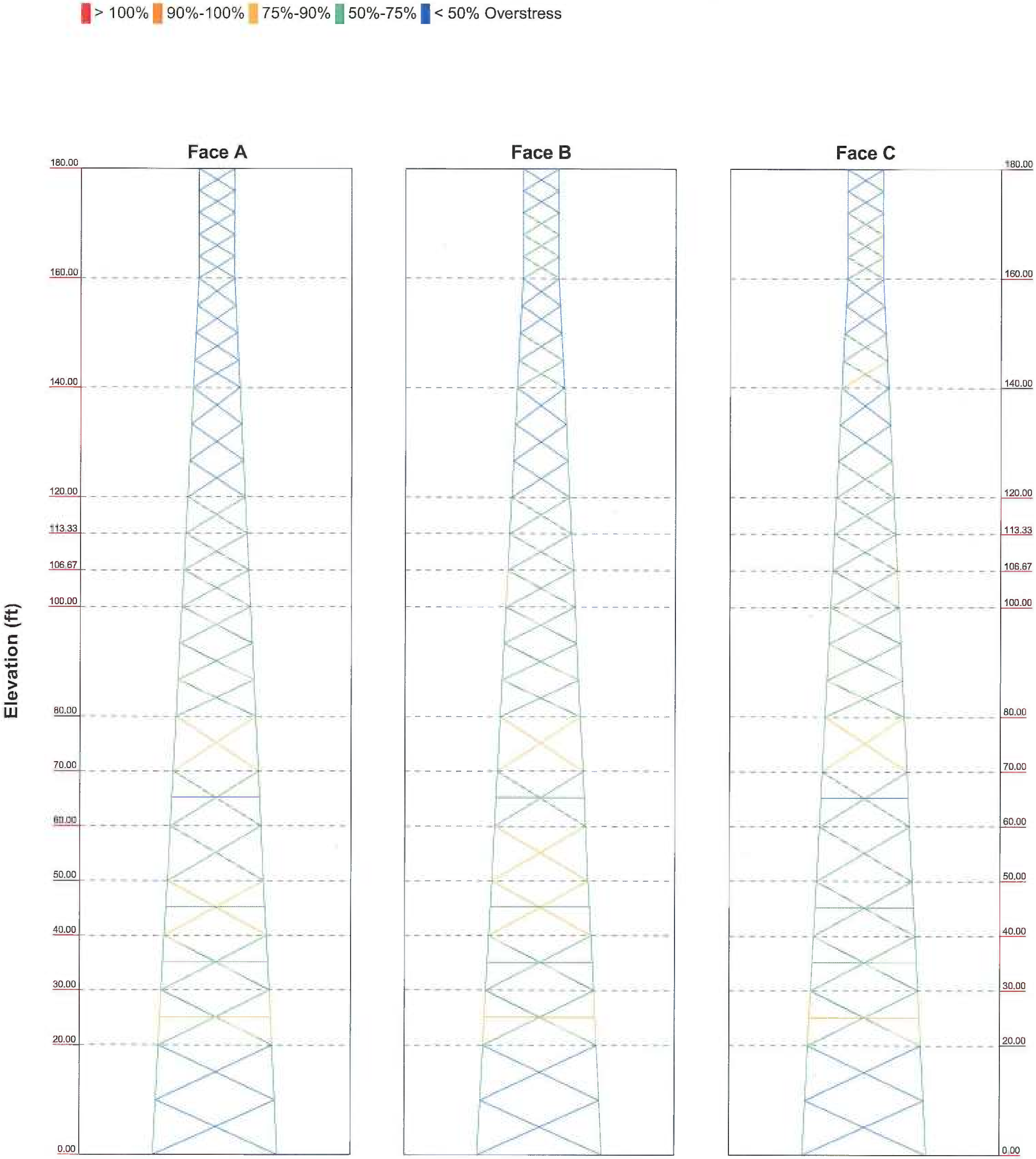
Round Flat App In Face App Out Face



KM Consulting Engineers, Inc. 9 Forest Lane Ewing, NJ 08628 Phone: (609) 538-0400 FAX:	Job: ***West Haven LC1***			
	Project: ***180 ft. Self Support Tower***			
	Client: Transcend Wireless	Drawn by: Domenic Aversa	App'd:	
	Code: TIA/EIA-222-F	Date: 02/24/15	Scale: NTS	
	Path: K:\Transcend Wireless\West Haven\Engineering\West Haven LC2.eri		Dwg No. E-7	

Consulting Engineers

Stress Distribution Chart
0' - 180'



KM Consulting Engineers, Inc.	Job: West Haven LC1				
9 Forest Lane	Project: *180 ft. Self Support Tower*				
Ewing, NJ 08628	Client: Transcend Wireless	Drawn by: Domenic Aversa		App'd:	
Phone: (609) 538-0400	Code: TIA/EIA-222-F	Date: 02/24/15		Scale: NTS	
FAX:	Path: K:\Transcend Wireless\West Haven\Engineering\West Haven LC2.eri			Dwg No. E-8	

Consulting Engineers

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 2 STD (GR)	2	-16957.70	44248.53	38.3	Pass
		Diagonal	L1 1/2x1 1/2x1/8	7	-2383.90	3699.43	64.4	Pass
		Top Girt	L3x3x1/4	4	-353.85	18407.26	1.9	Pass
T2	160 - 140	Leg	ROHN 2.5 STD (GR) w/ 5/8" Cable	38	-31802.10	75875.29	41.9	Pass
		Diagonal	L1 3/4x1 3/4x1/8	40	-2740.35	3588.40	76.4	Pass
T3	140 - 120	Leg	ROHN 2.5 X-STR (GR) w/ 5/8" Cable	65	-55039.00	80983.88	68.0	Pass
		Diagonal	L2x2x1/8 w/1.5" sch 40 pipe	67	-4627.95	9168.83	50.5	Pass
T4	120 - 113.333	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	86	-64119.90	111684.20	57.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	88	-5054.15	8571.20	59.0	Pass
T5	113.333 - 106.667	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	95	-74085.50	111684.20	66.3	Pass
		Diagonal	L2 1/2x2 1/2x3/16	100	-5430.92	7969.54	68.1	Pass
T6	106.667 - 100	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	104	-84131.50	111684.34	75.3	Pass
		Diagonal	L3x3x1/4	109	-6100.25	15788.45	38.6 55.5 (b)	Pass
T7	100 - 80	Leg	ROHN 4 X-STR (GR) w/ 5/8" Cable	113	-118245.00	197826.52	59.8	Pass
		Diagonal	L3x3x1/4	118	-7119.90	13085.70	54.4 69.1 (b)	Pass
T8	80 - 70	Leg	ROHN 5 STD (GR) w/ 5/8" Cable	134	-132238.00	225763.54	58.6	Pass
		Diagonal	L3x3x1/4	139	-8987.45	10338.35	86.9	Pass
T9	70 - 60	Leg	ROHN 5 STD (GR) w/ 5/8" Cable	143	-151144.00	288153.27	52.5	Pass
		Diagonal	L3 1/2x3 1/2x1/4	148	-8983.61	14587.02	61.6	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	151	-2625.36	6964.79	37.7	Pass
T10	60 - 50	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	155	-168997.00	233978.81	72.2	Pass
		Diagonal	L3 1/2x3 1/2x1/4	160	-10374.00	13547.55	76.6	Pass
T11	50 - 40	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	164	-188694.00	298831.93	63.1	Pass
		Diagonal	L3 1/2x3 1/2x1/4	169	-9789.75	12601.98	77.7	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	172	-3277.88	5687.71	57.6	Pass
T12	40 - 30	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	176	-206470.00	298913.24	69.1	Pass
		Diagonal	L3.5x3.5x1/4 w/ 2x1/4 plate	181	-11834.10	27391.02	43.2 68.9 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	184	-3666.34	5181.64	70.8	Pass
T13	30 - 20	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	188	-227255.00	298986.56	76.0	Pass
		Diagonal	L3.5x3.5x1/4 w/ 2x1/4 plate	193	-10279.80	25251.15	40.7 72.1 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	196	-3948.01	4742.48	83.2	Pass
T14	20 - 0	Leg	ROHN 6 EH (GR) w/ 5/8" Cable (GR)	200	-267570.00	367955.97	72.7	Pass
		Diagonal	4x4x1/4 w/ sch 40	211	-14092.10	68391.03	20.6 42.8 (b)	Pass
							Summary	
						Leg (T13)	76.0	Pass
						Diagonal (T8)	86.9	Pass
						Secondary Horizontal (T13)	83.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
						Top Girt (T1)	1.9	Pass
						Bolt Checks	72.1	Pass
						RATING =	**86.9**	**Pass**

Program Version 6.1.3.1 - 7/25/2013 File:K:/Transcend Wireless/West Haven/Engineering/West Haven LC2.eri

EXHIBIT C

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11193A

Orange / Rt 1
24 Rockdale Road
West Haven, CT 06516

March 4, 2015

EBI Project Number: 6215001322

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	93.30 %

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

EBI Consulting
environmental | engineering | due diligence

March 4, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11193A – Orange / Rt 1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **24 Rockdale Road, West Haven, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile 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 is 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS bands 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 T-Mobile Wireless antenna facility located at **24 Rockdale Road, West Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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) 2 GSM 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

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) 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.

6) 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.

7) The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P** has a maximum gain of **15.9 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. 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.

8) The antenna mounting height centerline of the proposed antennas is **135 feet** above ground level (AGL).

9) 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.

EBI Consulting

environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	135	Height (AGL):	135	Height (AGL):	135
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	1.01	Antenna B1 MPE%	1.01	Antenna C1 MPE%	1.01
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	135	Height (AGL):	135	Height (AGL):	135
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	1.01	Antenna B2 MPE%	1.01	Antenna C2 MPE%	1.01
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	135	Height (AGL):	135	Height (AGL):	135
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.40	Antenna B3 MPE%	0.40	Antenna C3 MPE%	0.40

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**7.25**
Antenna 1	1.51 %
Antenna 2	1.51 %
Antenna 3	1.51 %
Antenna 4	1.50 %
Antenna 5	1.48 %
Antenna 6	1.47 %
Antenna 7	1.47 %
Antenna 8	1.47 %
Antenna 9	1.47 %
Antenna 10	1.50 %
Antenna 11	1.47 %
Antenna 12	1.48 %
Antenna 13	4.20 %
Antenna 14	5.13 %
Antenna 15	5.13 %
Antenna 16	5.13 %
Antenna 17	5.07%
Antenna 18	8.27%
Antenna 19	2.27%
Antenna 20	0.59%
TV Ch 28	10.75%
Verizon Wireless	2%
Site Total MPE %:	**93.30 %**

T-Mobile Sector 1 Total:	2.42 %
T-Mobile Sector 2 Total:	2.42 %
T-Mobile Sector 3 Total:	2.42 %
Site Total:	93.30 %

EBI Consulting
environmental | engineering | due diligence

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 T-Mobile 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:

T-Mobile Sector	Power Density Value (%)
Sector 1:	2.42 %
Sector 2:	2.42 %
Sector 3 :	2.42 %
T-Mobile Total:	7.25 %
Site Total:	93.30 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **93.30%** 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

EBI Consulting
21 B Street
Burlington, MA 01803