Crown Castle
3530 Toringdon Way Suite 300
Charlotte NC 28277

Tel (704) 405-6600

June 2, 2015

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

RE: **T-Mobile-Exempt Modification - Crown Site BU: 842862**
T-Mobile Site ID: CT11623B
Located at: 259 Commerce Street, New Haven, CT 06512

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of T-Mobile. T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement their 700MHz technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Honorable Joseph Maturo Jr., Mayor for the Town of East Haven and Stephen Viglione, Property Owners.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **259 Commerce Street, East Haven, CT 06512**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile's operations at the site (Exhibit-3).

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

1. The proposed modifications will not result in an increase in the height of the existing tower. T-Mobile's replacement antennas will be located at the same elevation on the existing tower.

2. There will be no proposed modifications to the ground and no extension of boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for T-Mobile's modified facility is included as Exhibit-3.

5. A Structural Modification Report confirming that the tower and foundation can support T-Mobile's proposed modifications is included as Exhibit-2.

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

Sincerely,

Jerry Feathers
Real Estate Specialist

Enclosure

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Joseph Maturo Jr., Mayor
Town of East Haven
250 Main Street
East Haven, CT 06512

cc: Stephen Viglione
259 Commerce Street
East Haven, CT 06512

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CT11623B
CROWN CASTLE BU #: 842862
SITE NAME: EAST HAVEN SOUTH
259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SITE INFORMATION

KEY MAP

N.T.S.

DIRECTIONS: (FROM PARSIPPANY):

DEPART SYLVAN WAY TOWARD CENTURY DR. TURN RIGHT ONTO US-202/LITTLETON RD. KEEP RIGHT ONTO LITTLETON RD. TAKE RAMP LEFT AND FOLLOW SIGNS FOR I-80 EAST. TAKE RAMP LEFT FOR I-95 NORTH TOWARD G WASHINGTON B/NEW YORK. KEEP LEFT TO STAY ON I-95 N. AT EXIT 51, TAKE RAMP RIGHT FOR FRONTAGE RD TOWARD EAST HAVEN. KEEP STRAIGHT ONTO US-1 N. TURN RIGHT ONTO CT-142/HEMINGWAY AVE. KEEP STRAIGHT ONTO COE AVE. TURN RIGHT ONTO CT-337/SILVER SANDS RD. TURN RIGHT ONTO COMMERCE ST. SITE WILL BE ON THE LEFT.

PROJECT INFORMATION

T-MOBILE SITE #:	CT11623B
CROWN CASTLE BU #:	842862
SITE ADDRESS:	259 COMMERCE STREET EAST HAVEN, CT 06512 NEW HAVEN COUNTY
LATITUDE:	41°-15'-22.9" N
LONGITUDE:	72°-52'-32.8" W
TOWER OWNER:	CROWN CASTLE 3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065
CONTACT:	PATRICIA PELON (518) 373-3507
APPLICANT:	T-MOBILE NORTHEAST, LLC 4 SYLVAN WAY PARSIPPANY, NJ 07054
CONTACT:	PHONE #: (973) 397-4800 FAX #: (973) 292-8893
ENGINEER:	DEWBERRY ENGINEERS INC. 600 PARSIPPANY ROAD, SUITE 301 PARSIPPANY, NJ 07054
CONTACT:	BRYAN HUFF (973) 576-0147
SCOPE OF WORK:	REMOVE AND REPLACE EXISTING ANTENNA MOUNT WITH A NEW ANTENNA PLATFORM, INSTALL (3) NEW ANTENNAS, INSTALL (3) NEW BIAS TEES, INSTALL (6) NEW LINES OF COAX, INSTALL (1) NEW EQUIPMENT CABINET AT GRADE

CONFIGURATION
704E

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	COMPOUND PLAN & EQUIPMENT PLANS
C-2	ANTENNA LAYOUTS & ELEVATIONS
C-3	CONSTRUCTION DETAILS
E-1	GROUNDING NOTES & DETAILS

APPROVALS

T-MOBILE	DATE
OWNER/ LANDLORD	DATE
RF ENGINEER	DATE
ZONING	DATE
CONSTRUCTION	DATE

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

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4800
FAX: (973) 292-8893

EAST HAVEN SOUTH

CT11623B

259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SEAL

STATE OF CONNECTICUT · PROFESSIONAL ENGINEER · LICENSED
CONNECTICUT LICENSE NO. 0023222

SCALE

AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	06/01/15	RA	ISSUED AS FINAL
B	05/20/15	RA	ISSUED FOR REVIEW
A	11/17/14	JC	ISSUED FOR REVIEW

REVISIONS

DRAWN BY	JC
CHECKED BY	BSH
APPROVED BY	GHN
DATE	11/12/14

TITLE

TITLE SHEET

PROJECT NO. 50066258/50070374

T-1

SHEET NO.

1 2 3 4 5

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   PROJECT MANAGEMENT – CROWN CASTLE
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T-MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF PROJECT MANAGEMENT.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
16. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
17. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH........3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER ....2 IN.
   #5 AND SMALLER & WWF.........1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL ....3/4 IN.
   BEAMS AND COLUMNS..............1 1/2 IN.

5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
   FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
   CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
3. CABLE LADDER RACK:
   CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.
4. GROUNDING OF ALL EQUIPMENT AND ANTENNAS IS NOT CONSIDERED PART OF THE SCOPE OF THIS PROJECT AND IS THE RESPONSIBILITY OF THE OWNER AND CONTRACTOR AT THE TIME OF CONSTRUCTION. ALL EQUIPMENT AND ANTENNAS TO BE INSTALLED AND GROUNDED IN ACCORDANCE WITH GOVERNING BUILDING CODE, MANUFACTURER RECOMMENDATIONS AND OWNER SPECIFICATIONS.

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

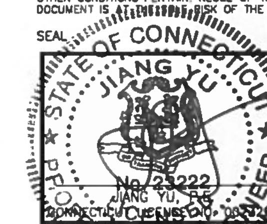
T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4800
FAX: (973) 292-8893

EAST HAVEN SOUTH

CT11623B

259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SEAL



SCALE
AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	08/01/15	RA	ISSUED AS FINAL
B	05/20/15	RA	ISSUED FOR REVIEW
A	11/17/14	JC	ISSUED FOR REVIEW

REVISIONS

DRAWN BY JC
CHECKED BY BSH
APPROVED BY GHN
DATE 11/12/14

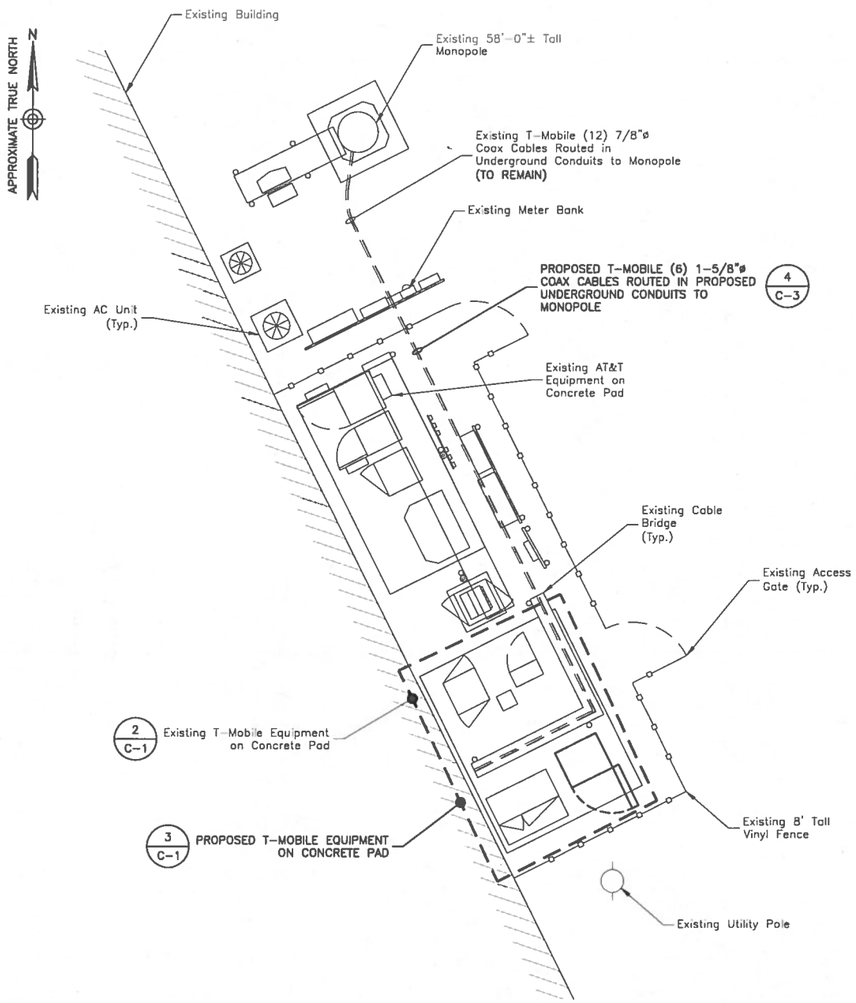
TITLE

GENERAL NOTES

PROJECT NO. 50066258/50070374

G - 1

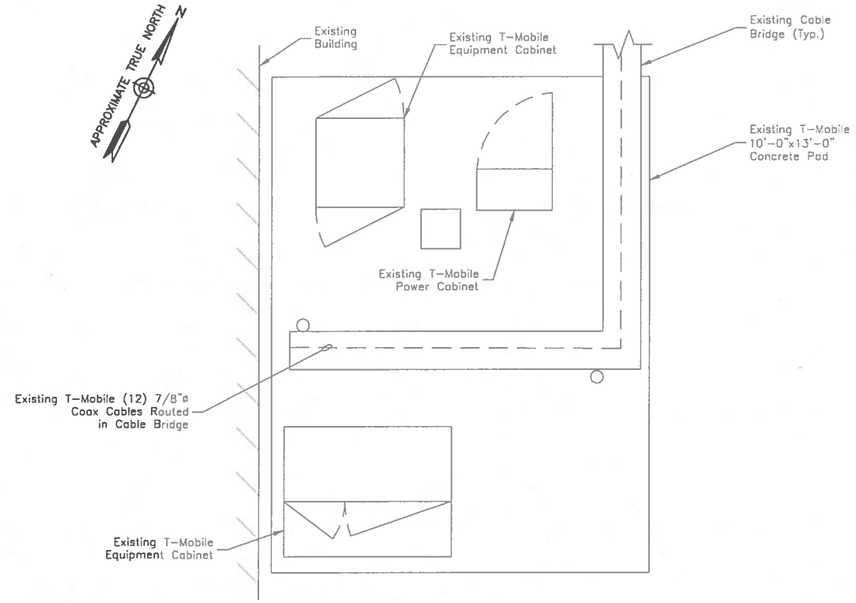
SHEET NO.



COMPOUND PLAN 1

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

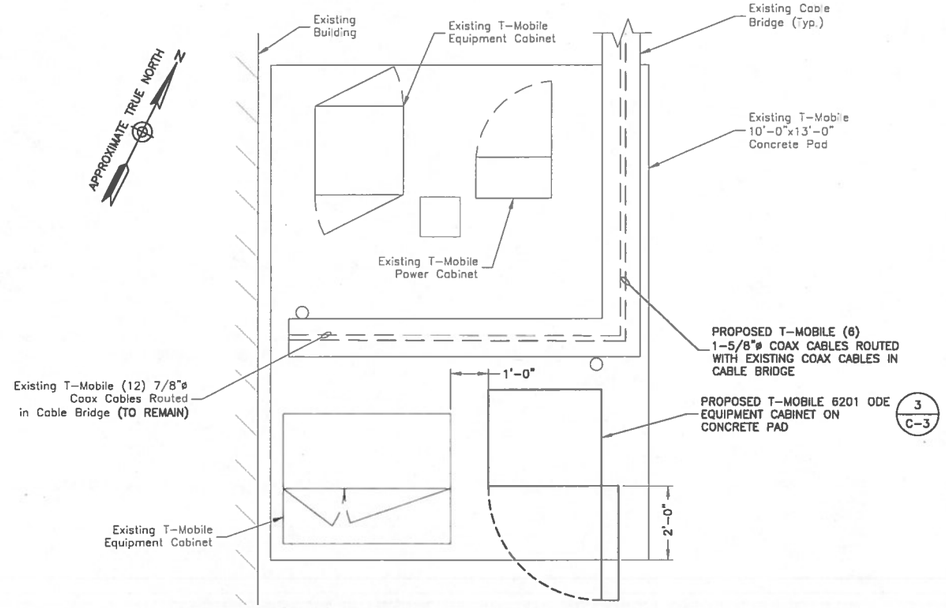
0' 5' 10'



EXISTING EQUIPMENT PLAN 2

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'



PROPOSED EQUIPMENT PLAN 3

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY B+T GROUP DATED MAY 4, 2015.

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

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4000
FAX: (973) 292-8883

EAST HAVEN SOUTH

CT11623B

259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SEAL

SCALE
AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	08/01/15	RA	ISSUED AS FINAL
B	05/20/15	RA	ISSUED FOR REVIEW
A	11/17/14	JC	ISSUED FOR REVIEW

REVISIONS

DRAWN BY JC
CHECKED BY BSH
APPROVED BY GHN
DATE 11/12/14

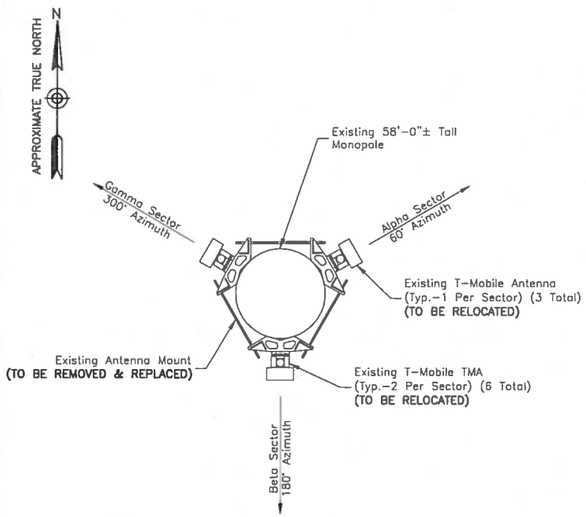
TITLE

COMPOUND PLAN & EQUIPMENT PLANS

PROJECT NO. 50066258/50070374

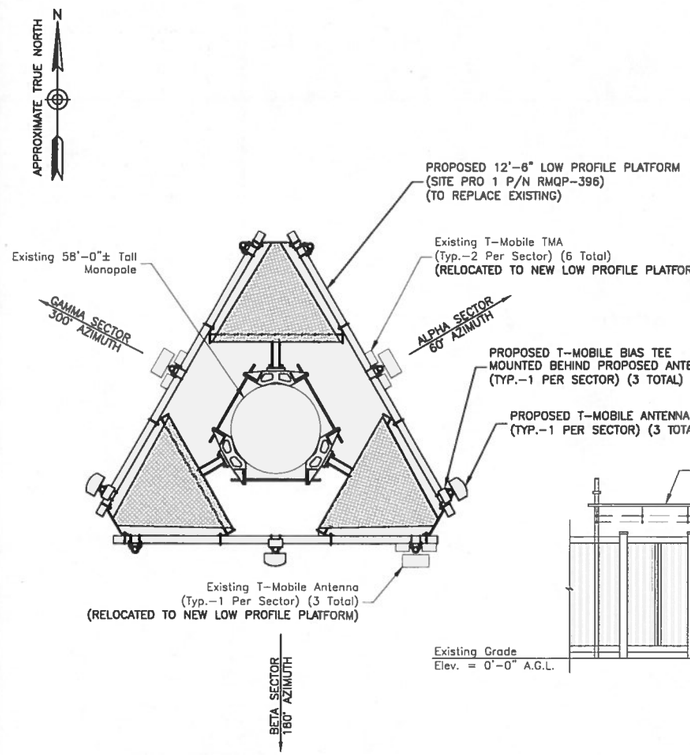
C - 1

SHEET NO.



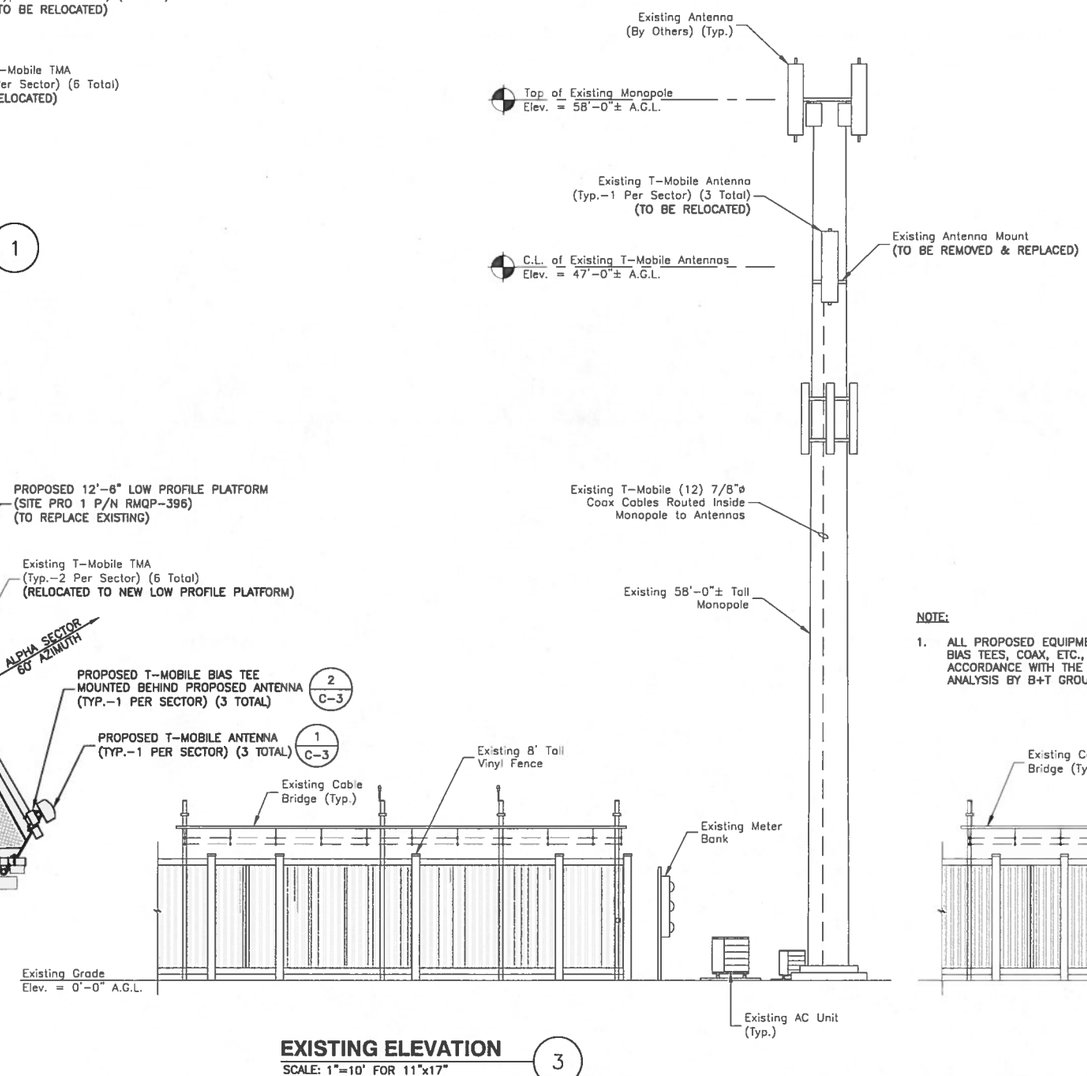
EXISTING ANTENNA LAYOUT (1)

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT (2)

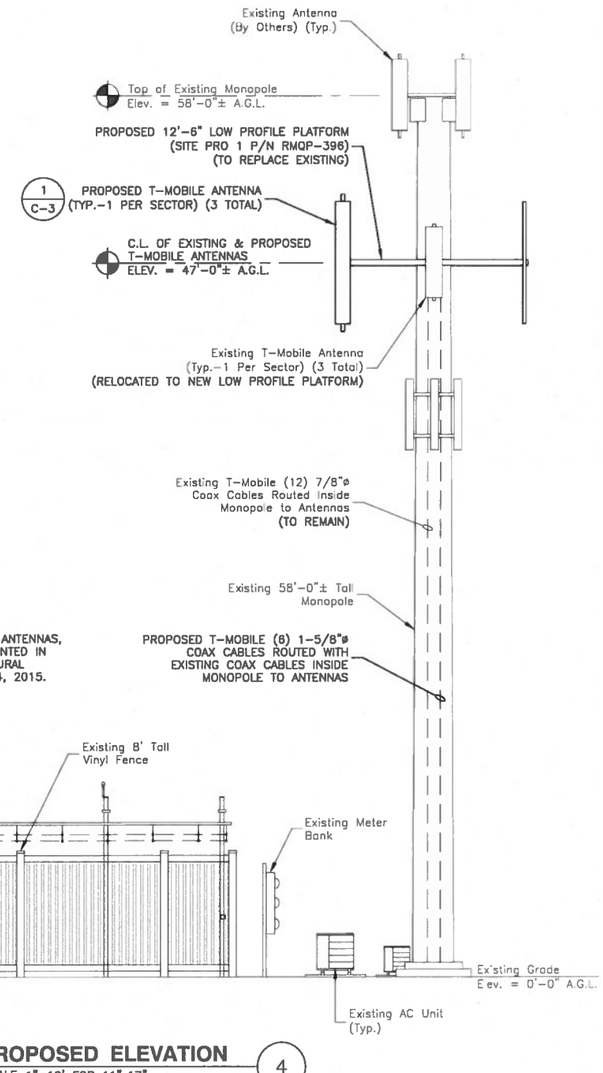
SCALE: N.T.S.



EXISTING ELEVATION (3)

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

0' 5' 10'



NOTE:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEES, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY B+T GROUP DATED MAY 4, 2015.

PROPOSED ELEVATION (4)

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

0' 5' 10'

Dewberry®

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

T··Mobile·

T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4900
FAX: (973) 292-8833

EAST HAVEN SOUTH

CT11623B

259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SEAL

SCALE

AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	06/01/15	RA	ISSUED AS FINAL
B	05/20/15	RA	ISSUED FOR REVIEW
A	11/17/14	JC	ISSUED FOR REVIEW

REVISIONS

DRAWN BY JC
CHECKED BY BSH
APPROVED BY GHN
DATE 11/12/14

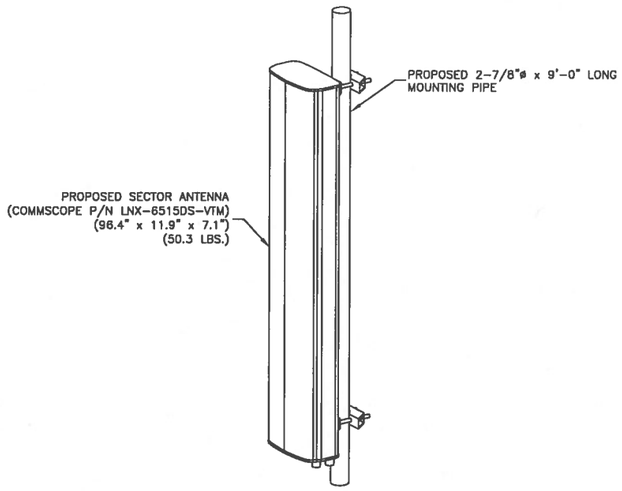
TITLE

ANTENNA LAYOUTS & ELEVATIONS

PROJECT NO. 50066258/50070374

C - 2

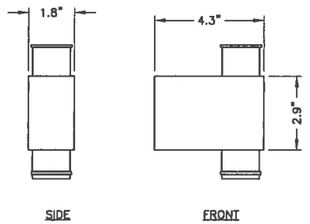
SHEET NO.



NOTES:

1. MOUNT ANTENNAS PER MANUFACTURER'S RECOMMENDATIONS.
2. GROUND ANTENNAS AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND T-MOBILE STANDARDS.
3. CONFIRM REQUIRED ANTENNAS WITH THE LATEST RFDS.

ISOMETRIC ANTENNA DETAIL (1)
SCALE: N.T.S.

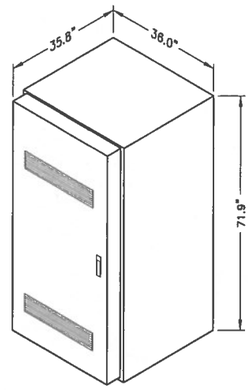


ANDREW ATBT-BOTTOM-24V

NOTES:

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

BIAS TEE DETAIL (2)
SCALE: N.T.S.



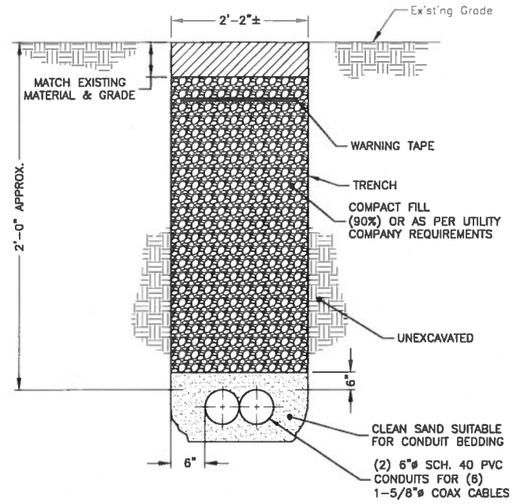
COMMSCOPE ODE6201 OUTDOOR ENCLOSURE

MATERIAL:	ANCHOR:
CONCRETE	3/8"ø HILTI KWIK BOLT 3 W/2-1/2" MIN. EMBED.
STRUCTURAL STEEL	1/2"ø STRUCTURAL BOLTS

NOTE:

1. CONTRACTOR SHALL ANCHOR CABINET IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

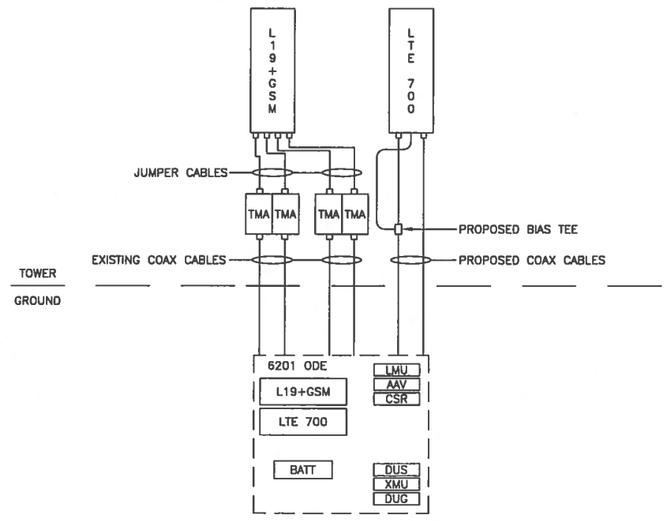
6201 OUTDOOR CABINET DETAIL (3)
SCALE: N.T.S.



TRENCH NOTES:

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL.
2. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE, CONTRACTOR SHALL HAND DIG U/G TRENCHING.

COAX CABLES TRENCH BURIED CONDUIT (4)
SCALE: N.T.S.



SITE CONFIGURATION 704E (5)
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS		COAX		COAX LENGTH
	EXISTING	PROPOSED	EXISTING	PROPOSED	
ALPHA	RFS APX16DWV-16DWVS-C	EXISTING TO REMAIN	(4) 7/8"ø	(2) 1-5/8"ø	97'-0"
	–	COMMSCOPE LNX-6515DS-VTM			
BETA	RFS APX16DWV-16DWVS-C	EXISTING TO REMAIN	(4) 7/8"ø	(2) 1-5/8"ø	97'-0"
	–	COMMSCOPE LNX-6515DS-VTM			
GAMMA	–	COMMSCOPE LNX-6515DS-VTM	(4) 7/8"ø	(2) 1-5/8"ø	97'-0"
	RFS APX16DWV-16DWVS-C	EXISTING TO REMAIN			

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

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4000
FAX: (973) 252-6883

EAST HAVEN SOUTH

CT11623B

259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SEAL

STATE OF CONNECTICUT · JIANG YU · No. 23222 · PROFESSIONAL ENGINEER

SCALE
AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	08/01/15	RA	ISSUED AS FINAL
B	05/20/15	RA	ISSUED FOR REVIEW
A	11/17/14	JC	ISSUED FOR REVIEW

REVISIONS

DRAWN BY JC
CHECKED BY BSH
APPROVED BY GHN
DATE 11/12/14

TITLE

CONSTRUCTION DETAILS

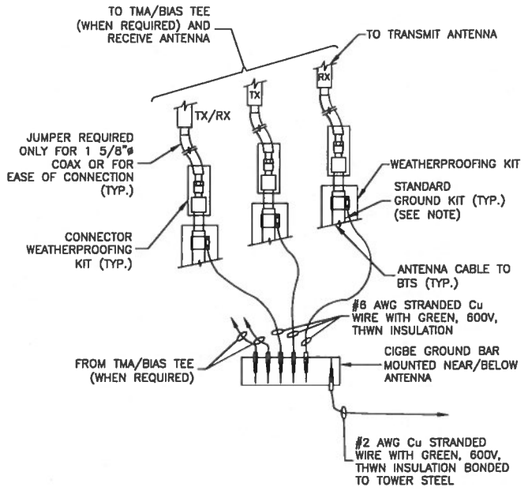
PROJECT NO. 50086258/50070374

C - 3

SHEET NO.

GROUNDING NOTES:

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

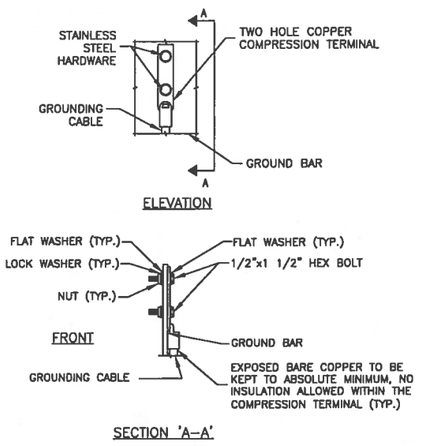


NOTE:

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

CONNECTION OF GROUND WIRES TO GROUNDING BAR (CIGBE) 1

SCALE: N.T.S.

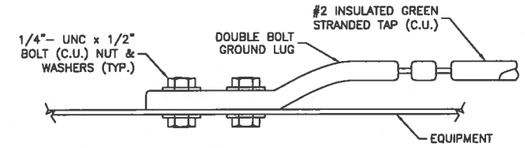


NOTES:

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

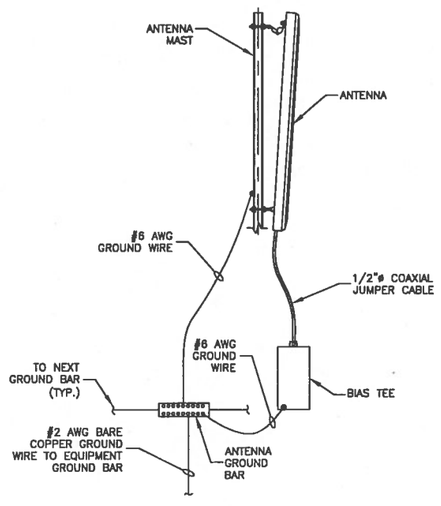
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 2

SCALE: N.T.S.



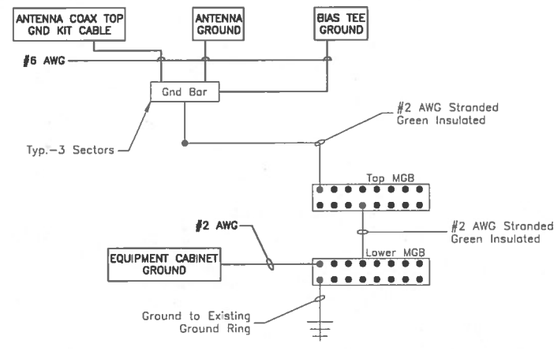
CONNECTION TO EQUIPMENT DETAIL 3

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL 4

SCALE: N.T.S



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE.
3. SCHEMATIC GROUNDING DIAGRAM IS TYPICAL FOR EACH SECTOR.
4. VERIFY EXISTING GROUND SYSTEM IS INSTALLED PER T-MOBILE STANDARDS.

SCHEMATIC GROUNDING DIAGRAM 5

SCALE: N.T.S.

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

T-Mobile
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054
PHONE: (973) 397-4800
FAX: (973) 292-8893

EAST HAVEN SOUTH

CT11623B

259 COMMERCE STREET
EAST HAVEN, CT 06512
NEW HAVEN COUNTY

SEAL

SCALE

AS SHOWN

REV.	DATE	BY	DESCRIPTION
0	08/01/15	RA	ISSUED AS FINAL
B	05/20/15	RA	ISSUED FOR REVIEW
A	11/17/14	JC	ISSUED FOR REVIEW

REVISIONS

DRAWN BY JC
CHECKED BY BSH
APPROVED BY GHN
DATE 11/12/14

TITLE

GROUNDING NOTES & DETAILS

PROJECT NO. 50066258/50070374

E - 1

SHEET NO.

May 04, 2015

Charles Trask
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(980) 209-8228

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11623B
	Carrier Site Name:	CT623/E.Haven ATT_MP
Crown Castle Designation:	**Crown Castle BU Number:**	842862
	Crown Castle Site Name:	East Haven South
	Crown Castle JDE Job Number:	331408
	Crown Castle Work Order Number:	1052506
	Crown Castle Application Number:	292286 Rev. 4
Engineering Firm Designation:	**B+T Group Project Number:**	98372.001.01
Site Data:	**259 Commerce Street, East Haven, New Haven County, CT** **Latitude *41° 15' 22.9"*, Longitude *-72° 52' 32.8"*** **58 Foot - Monopole Tower**	

Dear Charles Trask,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 782326, in accordance with application 292286, revision 4.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

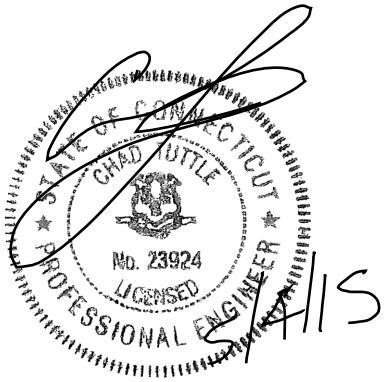
LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 85 mph fastest mile.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:
B+T Engineering, Inc.



Tapan Pandey, E.I.T.
Project Engineer

Chad E. Tuttle, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 58 ft. Monopole tower designed by FWT, Inc. in September of 2003. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
47.0	47.0	3	Commscope	ATBT-BOTTOM-24V	6	1-5/8	--
		3	Commscope	LNX-6515DS-VTM			
		1	--	Site Pro - RMQP-396 w/ handrail kit			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
58.0	58.0	6	Kathrein	860 10025	6 2 1	7/8 3/4 3/8	1
		3	KMW Comm.	AM-X-CD-16-65-00T-RET			
		6	Powerwave Tech.	LGP 21403			
		1	--	T-Arm Mount [TA 702-3]			
	57.0	3	Ericsson	RRUS 11			
		3	Kathrein	800 10121			
		1	Raycap	DC6-48-60-18-8F			
56.0	56.0	1	--	Side Arm Mount[SO102-3]	--	--	1
47.0	47.0	6	Ericsson	1900 MHZ G	12	7/8	1
		3	Rfs Celwave	APX16DWV-16DWVS-C			
		1	**--**	**Pipe Mount [PM 601-3]**	**--**	**--**	**2**
37.0	37.0	3	Rfs Celwave	APXV18-206517S-C	6	1-5/8	1
		1	--	Pipe Mount [PM 602-3]			

Notes:
1) Existing Equipment
2) Equipment To Be Removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
57.0	57.0	1	Generic	10' L.P Sectored Mount	--	--
		9	Generic	6'x1'x3" Panel Antenna		
52.0	52.0	2	Generic	4' STD Dish	--	--
47.0	47.0	1	Generic	10' L.P Sectored Mount	--	--

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		9	Generic	6'x1'x3" Panel Antenna		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	T-Mobile Co-Locate Rev# 4	292286	CCI Sites
Tower Manufacturer Drawing	FWT Inc., Job No.J030902001	4291655	CCI Sites
Foundation Drawing	FWT Inc., Job No.J030902001	4529325	CCI Sites
Geotech Report	Jaworski Geotech Inc., Project No.03368G	4291659	CCI Sites
Antenna Configuration	Crown CAD Package	Date:04/29/2015	CCI Sites

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-1.303	567.072	5.6	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-7.249	899.526	67.1	Pass
							Summary	
						Pole (L2)	67.1	Pass
						RATING =	67.1	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	60.0	Pass
1	Base Plate	Base	63.1	Pass
1	Base Foundation(Structure)	Base	30.9	Pass
1	Base Foundation (Soil Interaction)	Base	43.5	Pass

Structure Rating (max from all components) =	**67.1%**

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity consumed.

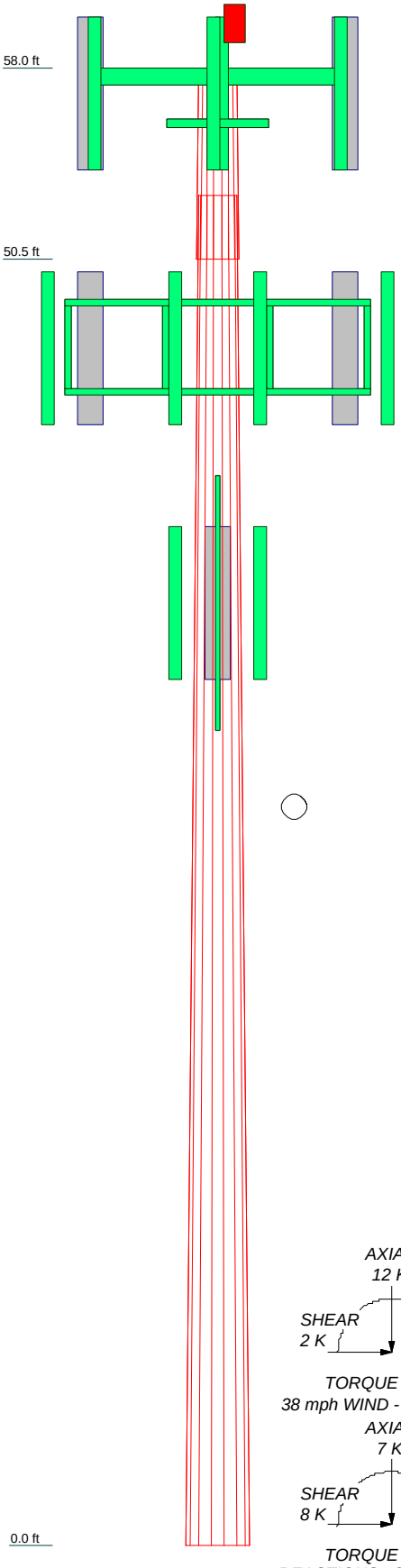
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	7.500	18	0.188	2.500	17.393	19.078	A572-65	0.3
2	53.000	18	0.188		18.141	30.050		2.6
								2.8



DESIGNED APPURTENANCE LOADING

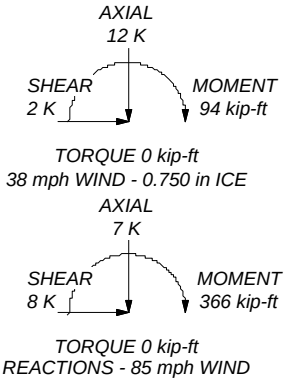
TYPE	ELEVATION	TYPE	ELEVATION
Obstruction Lights (E)	58	6' x 2" Mount Pipe (E-For TME)	58
800 10121 w/ Mount Pipe (E)	58	T-Arm Mount [TA 702-3] (E)	58
800 10121 w/ Mount Pipe (E)	58	Side Arm Mount [SO 102-3) (E)	56
800 10121 w/ Mount Pipe (E)	58	APX16DWV-16DWVS-C (E)	47
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	58	APX16DWV-16DWVS-C (E)	47
		APX16DWV-16DWVS-C (E)	47
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	58	(2) 1900 MHZ G (E)	47
		(2) 1900 MHZ G (E)	47
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	58	(2) 1900 MHZ G (E)	47
RRUS 11 (E)	58	LNX-6515DS-VTM (P)	47
RRUS 11 (E)	58	LNX-6515DS-VTM (P)	47
RRUS 11 (E)	58	LNX-6515DS-VTM (P)	47
(2) LGP 21403 (E)	58	ATBT-BOTTOM-24V (P)	47
(2) LGP 21403 (E)	58	ATBT-BOTTOM-24V (P)	47
(2) LGP 21403 (E)	58	ATBT-BOTTOM-24V (P)	47
(2) 860 10025 (E)	58	Platform Mount [LP 301-1] (P-4 M. Pipes Included per sector)	47
(2) 860 10025 (E)	58	APXV18-206517S-C (E)	37
(2) 860 10025 (E)	58	APXV18-206517S-C (E)	37
DC6-48-60-18-8F (E)	58	APXV18-206517S-C (E)	37
6' x 2" Mount Pipe (E-For TME)	58	Pipe Mount [PM 602-3] (E)	37
6' x 2" Mount Pipe (E-For TME)	58		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven 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 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. RE: Feedline Distribution Chart for transmission lines distribution.
6. TOWER RATING: 67.1%



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	98372.001.01 - EAST HAVEN SOUTH, CT (BU# 842862		
Project:			
Client: Crown Castle	Drawn by: T. Pandey	App'd:	
Code: TIA/EIA-222-F	Date: 05/04/15	Scale: NTS	
Path: S:\Projects\Crown Castle\98000\98372_842862_East Haven South\Engineering\tnxTower\98372_001_EAST HAVEN SOUTH_CT.eri		Dwg No. E-1	

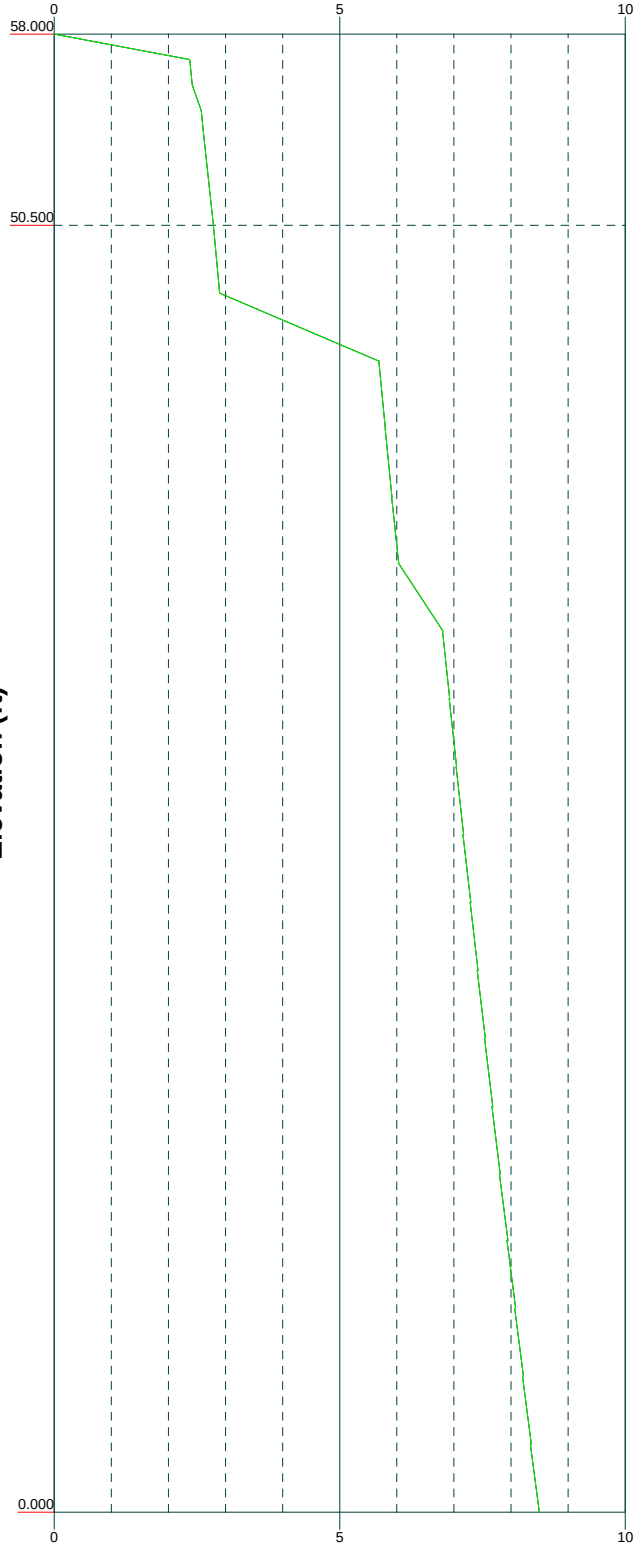
TIA/EIA-222-F - 85 mph/38 mph 0.750 in Ice

Vx Vz

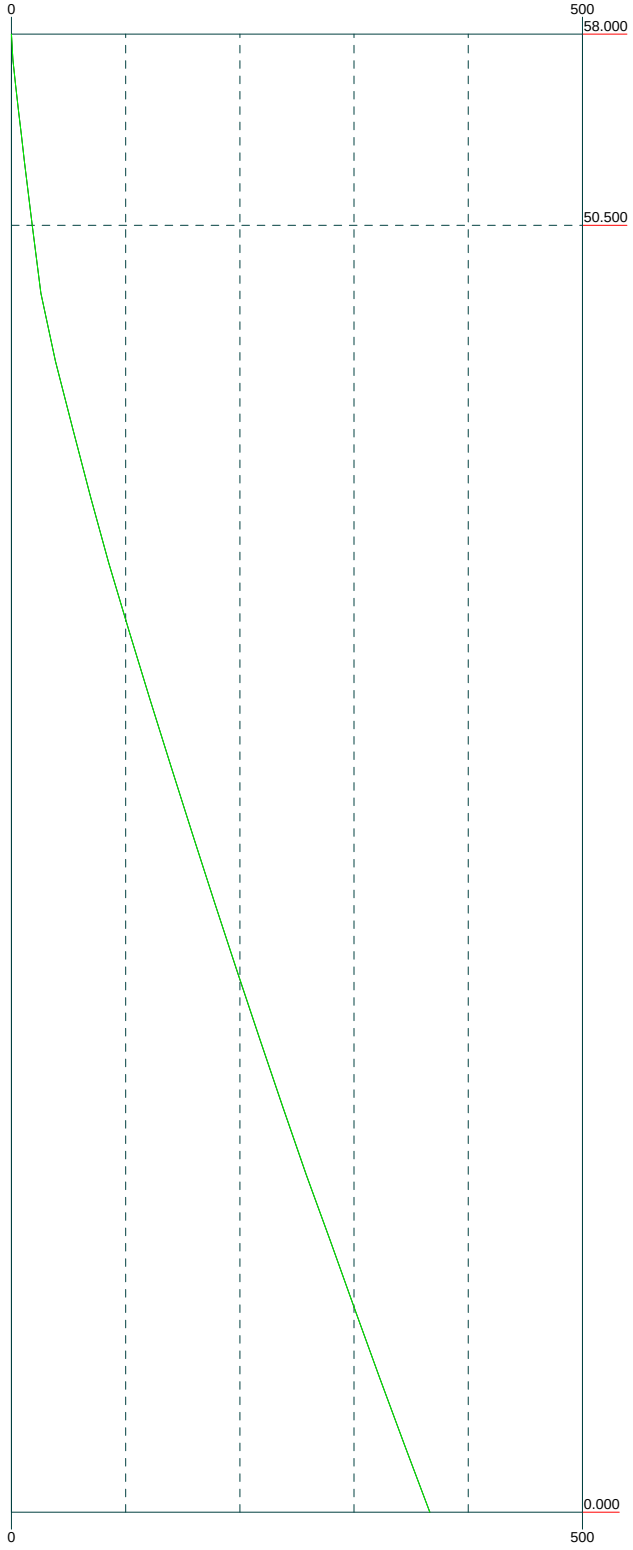
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)

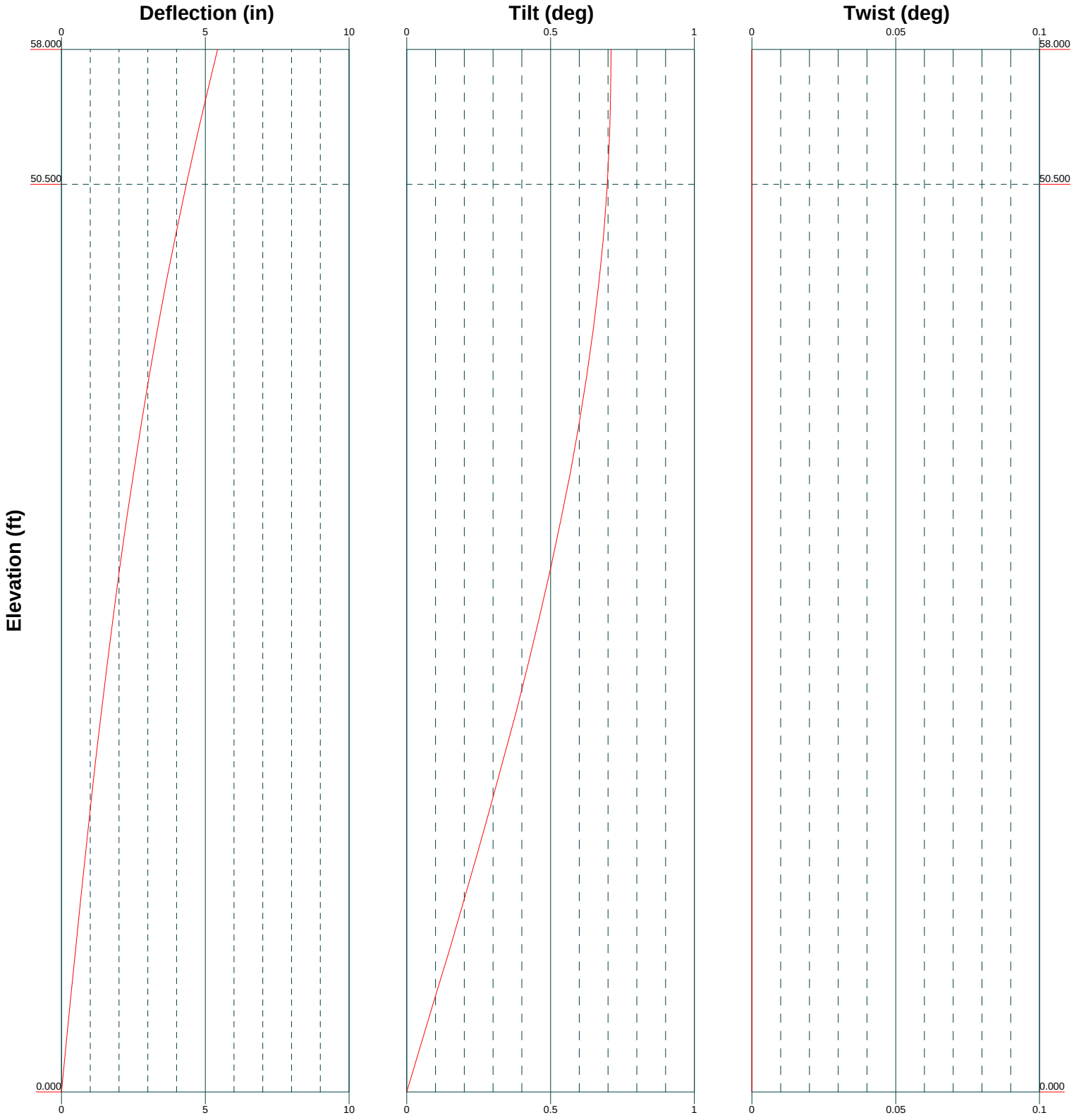


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 98372.001.01 - EAST HAVEN SOUTH, CT (BU# 842862			
Project:			
Client: Crown Castle	Drawn by: T. Pandey	App'd:	
Code: TIA/EIA-222-F	Date: 05/04/15	Scale: NTS	
Path: S:\Projects\Crown Castle\98000\98372_842862_East Haven South\Engineering\tnxTower\98372_001_EAST HAVEN SOUTH_CT.eri		Dwg No. E-4	

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

Maximum Values

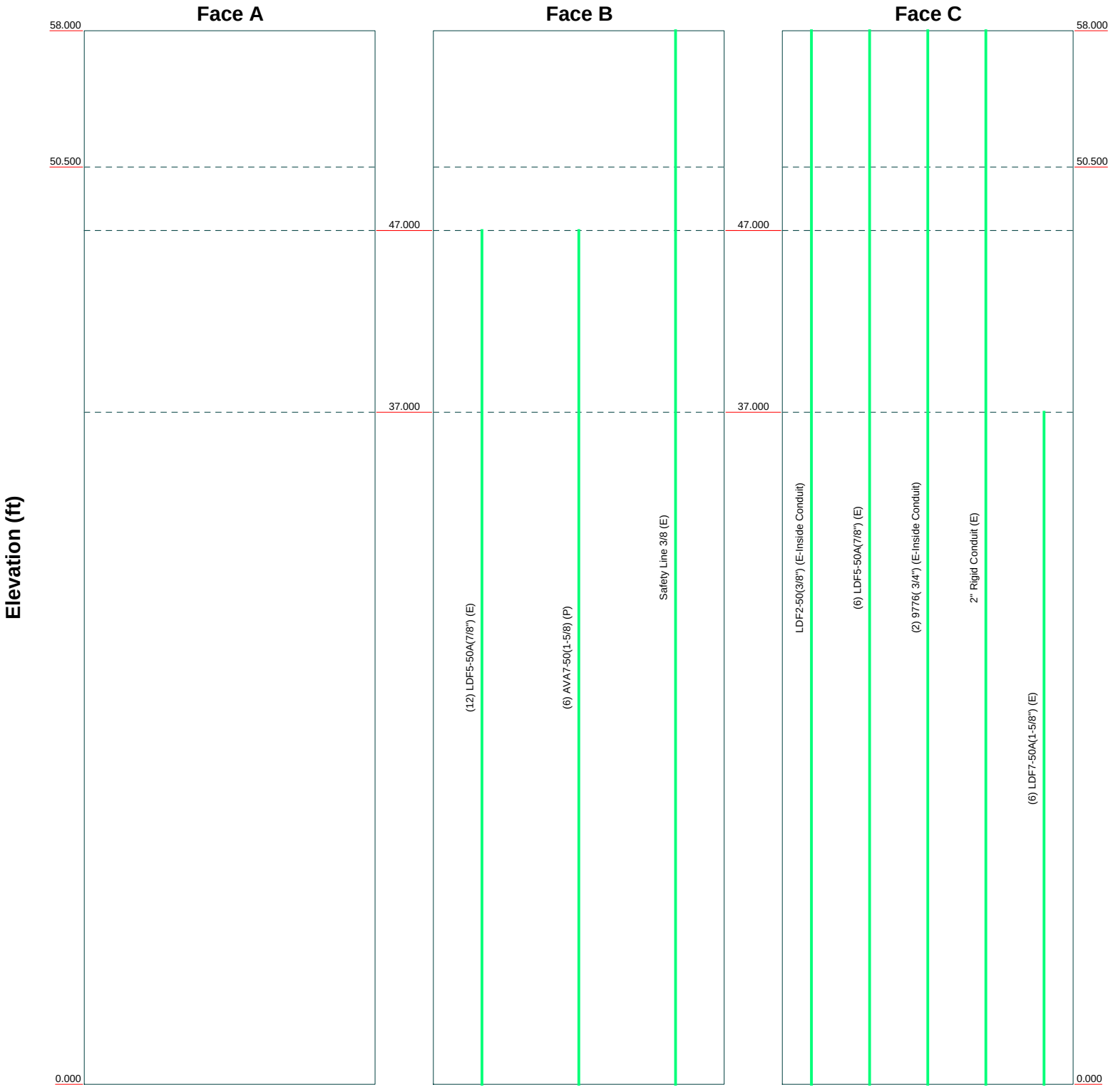


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***98372.001.01 - EAST HAVEN SOUTH, CT (BU# 842862***		
Project:			
Client: Crown Castle		Drawn by: T. Pandey	App'd:
Code: TIA/EIA-222-F		Date: 05/04/15	Scale: NTS
Path: S:\Projects\Crown Castle\98000\98372_842862_East Haven South\Engineering\tnxTower\98372_001_EAST HAVEN SOUTH_CT.eri			Dwg No. E-5

Feed Line Distribution Chart
0' - 58'

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



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***98372.001.01 - EAST HAVEN SOUTH, CT (BU# 842862***		
Project:			
Client: Crown Castle		Drawn by: T. Pandey	App'd:
Code: TIA/EIA-222-F		Date: 05/04/15	Scale: NTS
Path: S:\Projects\Crown Castle\98000\98372_842862_East Haven South\Engineering\tnxTower\98372_001_EAST HAVEN SOUTH_CT.eri			Dwg No. E-7

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
RE: Feedline Distribution Chart for transmission lines distribution..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios		Use Clear Spans For KL/r		SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
√	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Include Angle Block Shear Check
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends	√	Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	58.000-50.500	7.500	2.500	18	17.393	19.078	0.188	0.750	A572-65 (65 ksi)
L2	50.500-0.000	53.000		18	18.141	30.050	0.188	0.750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	17.661	10.239	382.955	6.108	8.836	43.342	766.414	5.121	2.731	14.566
	19.372	11.242	506.846	6.706	9.692	52.297	1014.359	5.622	3.028	16.148
L2	18.992	10.685	435.128	6.374	9.216	47.215	870.829	5.343	2.863	15.269
	30.514	17.772	2002.277	10.601	15.265	131.164	4007.188	8.888	4.959	26.447

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 58.000-50.500				1	1	1		
L2 50.500-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
@										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF2-50(3/8") (E-Inside Conduit)	C	No	CaAa (Out Of Face)	58.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.001 0.002 0.006 0.022
LDF5-50A(7/8") (E)	C	No	Inside Pole	58.000 - 0.000	6	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000
9776(3/4") (E-Inside Conduit)	C	No	CaAa (Out Of Face)	58.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.001 0.002 0.007 0.023
2" Rigid Conduit (E)	C	No	CaAa (Out Of Face)	58.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.200 0.300 0.400 0.600 1.000	0.003 0.004 0.006 0.013 0.032
@ LDF5-50A(7/8") (E)	B	No	Inside Pole	47.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
AVA7-50(1-5/8) (P)	B	No	Inside Pole	47.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
@								
LDF7-50A(1-5/8") (E)	C	No	Inside Pole	37.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
@								
Safety Line 3/8 (E)	B	No	CaAa (Out Of Face)	58.000 - 0.000	1	No Ice	0.037	0.000
						1/2" Ice	0.137	0.001
						1" Ice	0.238	0.001
						2" Ice	0.437	0.002
						4" Ice	0.838	0.004
@								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.281	0.002
		C	0.000	0.000	0.000	1.500	0.041
L2	50.500-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	1.894	0.395
		C	0.000	0.000	0.000	10.100	0.459

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	58.000-50.500	A	0.796	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	1.475	0.008
		C		0.000	0.000	0.000	2.694	0.095
L2	50.500-0.000	A	0.750	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	9.933	0.437
		C		0.000	0.000	0.000	18.140	0.822

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	58.000-50.500	-0.183	0.154	-0.145	0.287

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L2	50.500-0.000	-0.189	0.159	-0.158	0.311

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Obstruction Lights	B	From Leg	0.000	0.000	0.000	58.000	No Ice	0.790	0.790	0.029
(E)			0.000				1/2" Ice	1.040	1.040	0.039
			1.000				1" Ice	1.320	1.320	0.053
							2" Ice	1.980	1.980	0.090
							4" Ice	3.590	3.590	0.213
@										
800 10121 w/ Mount Pipe	A	From Leg	2.000	0.000	0.000	58.000	No Ice	5.685	4.600	0.066
(E)			0.000				1/2" Ice	6.182	5.351	0.114
			-1.000				1" Ice	6.676	6.046	0.168
							2" Ice	7.695	7.526	0.298
							4" Ice	9.858	10.832	0.675
800 10121 w/ Mount Pipe	B	From Leg	2.000	0.000	0.000	58.000	No Ice	5.685	4.600	0.066
(E)			0.000				1/2" Ice	6.182	5.351	0.114
			-1.000				1" Ice	6.676	6.046	0.168
							2" Ice	7.695	7.526	0.298
							4" Ice	9.858	10.832	0.675
800 10121 w/ Mount Pipe	C	From Leg	2.000	0.000	0.000	58.000	No Ice	5.685	4.600	0.066
(E)			0.000				1/2" Ice	6.182	5.351	0.114
			-1.000				1" Ice	6.676	6.046	0.168
							2" Ice	7.695	7.526	0.298
							4" Ice	9.858	10.832	0.675
AM-X-CD-16-65-00T-RET	A	From Leg	2.000	0.000	0.000	58.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000				1/2" Ice	9.149	7.479	0.139
(E)			0.000				1" Ice	9.767	8.368	0.212
							2" Ice	11.031	10.179	0.385
							4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET	B	From Leg	2.000	0.000	0.000	58.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000				1/2" Ice	9.149	7.479	0.139
(E)			0.000				1" Ice	9.767	8.368	0.212
							2" Ice	11.031	10.179	0.385
							4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET	C	From Leg	2.000	0.000	0.000	58.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000				1/2" Ice	9.149	7.479	0.139
(E)			0.000				1" Ice	9.767	8.368	0.212
							2" Ice	11.031	10.179	0.385
							4" Ice	13.679	14.024	0.874
RRUS 11	A	From Leg	2.000	0.000	0.000	58.000	No Ice	3.249	1.373	0.048
(E)			0.000				1/2" Ice	3.491	1.551	0.068
			-1.000				1" Ice	3.741	1.738	0.092
							2" Ice	4.268	2.138	0.150
							4" Ice	5.426	3.042	0.310
RRUS 11	B	From Leg	2.000	0.000	0.000	58.000	No Ice	3.249	1.373	0.048
(E)			0.000				1/2" Ice	3.491	1.551	0.068
			-1.000				1" Ice	3.741	1.738	0.092
							2" Ice	4.268	2.138	0.150

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	5.426	3.042	0.310
RRUS 11	C	From Leg	2.000	0.000	58.000	No Ice	3.249	1.373	0.048
(E)			0.000			1/2" Ice	3.491	1.551	0.068
			-1.000			1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
(2) LGP 21403	A	From Leg	2.000	0.000	58.000	No Ice	1.288	0.364	0.014
(E)			0.000			1/2" Ice	1.445	0.479	0.021
			0.000			1" Ice	1.611	0.602	0.030
						2" Ice	1.969	0.874	0.055
						4" Ice	2.788	1.522	0.135
(2) LGP 21403	B	From Leg	2.000	0.000	58.000	No Ice	1.288	0.364	0.014
(E)			0.000			1/2" Ice	1.445	0.479	0.021
			0.000			1" Ice	1.611	0.602	0.030
						2" Ice	1.969	0.874	0.055
						4" Ice	2.788	1.522	0.135
(2) LGP 21403	C	From Leg	2.000	0.000	58.000	No Ice	1.288	0.364	0.014
(E)			0.000			1/2" Ice	1.445	0.479	0.021
			0.000			1" Ice	1.611	0.602	0.030
						2" Ice	1.969	0.874	0.055
						4" Ice	2.788	1.522	0.135
(2) 860 10025	A	From Leg	2.000	0.000	58.000	No Ice	0.163	0.136	0.001
(E)			0.000			1/2" Ice	0.229	0.199	0.003
			0.000			1" Ice	0.302	0.270	0.005
						2" Ice	0.476	0.439	0.014
						4" Ice	0.927	0.879	0.051
(2) 860 10025	B	From Leg	2.000	0.000	58.000	No Ice	0.163	0.136	0.001
(E)			0.000			1/2" Ice	0.229	0.199	0.003
			0.000			1" Ice	0.302	0.270	0.005
						2" Ice	0.476	0.439	0.014
						4" Ice	0.927	0.879	0.051
(2) 860 10025	C	From Leg	2.000	0.000	58.000	No Ice	0.163	0.136	0.001
(E)			0.000			1/2" Ice	0.229	0.199	0.003
			0.000			1" Ice	0.302	0.270	0.005
						2" Ice	0.476	0.439	0.014
						4" Ice	0.927	0.879	0.051
DC6-48-60-18-8F	A	From Leg	2.000	0.000	58.000	No Ice	1.467	1.467	0.019
(E)			0.000			1/2" Ice	1.667	1.667	0.037
			-1.000			1" Ice	1.878	1.878	0.057
						2" Ice	2.333	2.333	0.105
						4" Ice	3.378	3.378	0.239
6' x 2" Mount Pipe	A	From Leg	1.000	0.000	58.000	No Ice	1.425	1.425	0.022
(E-For TME)			0.000			1/2" Ice	1.925	1.925	0.033
			-2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe	B	From Leg	1.000	0.000	58.000	No Ice	1.425	1.425	0.022
(E-For TME)			0.000			1/2" Ice	1.925	1.925	0.033
			-2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe	C	From Leg	1.000	0.000	58.000	No Ice	1.425	1.425	0.022
(E-For TME)			0.000			1/2" Ice	1.925	1.925	0.033
			-2.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
Side Arm Mount [SO 102-3)	C	None		0.000	56.000	No Ice	3.000	3.000	0.081

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)							1/2" Ice	3.480	3.480	0.111
							1" Ice	3.960	3.960	0.141
							2" Ice	4.920	4.920	0.201
							4" Ice	6.840	6.840	0.321
T-Arm Mount [TA 702-3]	C	None			0.000	58.000	No Ice	5.640	5.640	0.339
(E)							1/2" Ice	6.550	6.550	0.429
							1" Ice	7.460	7.460	0.519
							2" Ice	9.280	9.280	0.699
							4" Ice	12.920	12.920	1.059
@										
APX16DWV-16DWVS-C	A	From Leg	4.000		0.000	47.000	No Ice	7.228	2.150	0.041
(E)			0.000				1/2" Ice	7.681	2.490	0.074
			0.000				1" Ice	8.143	2.837	0.113
							2" Ice	9.091	3.554	0.205
							4" Ice	11.093	5.077	0.457
APX16DWV-16DWVS-C	B	From Leg	4.000		0.000	47.000	No Ice	7.228	2.150	0.041
(E)			0.000				1/2" Ice	7.681	2.490	0.074
			0.000				1" Ice	8.143	2.837	0.113
							2" Ice	9.091	3.554	0.205
							4" Ice	11.093	5.077	0.457
APX16DWV-16DWVS-C	C	From Leg	4.000		0.000	47.000	No Ice	7.228	2.150	0.041
(E)			0.000				1/2" Ice	7.681	2.490	0.074
			0.000				1" Ice	8.143	2.837	0.113
							2" Ice	9.091	3.554	0.205
							4" Ice	11.093	5.077	0.457
(2) 1900 MHZ G	A	From Leg	4.000		0.000	47.000	No Ice	0.272	0.506	0.018
(E)			0.000				1/2" Ice	0.348	0.620	0.024
			0.000				1" Ice	0.432	0.743	0.032
							2" Ice	0.627	1.015	0.055
							4" Ice	1.119	1.664	0.129
(2) 1900 MHZ G	B	From Leg	4.000		0.000	47.000	No Ice	0.272	0.506	0.018
(E)			0.000				1/2" Ice	0.348	0.620	0.024
			0.000				1" Ice	0.432	0.743	0.032
							2" Ice	0.627	1.015	0.055
							4" Ice	1.119	1.664	0.129
(2) 1900 MHZ G	C	From Leg	4.000		0.000	47.000	No Ice	0.272	0.506	0.018
(E)			0.000				1/2" Ice	0.348	0.620	0.024
			0.000				1" Ice	0.432	0.743	0.032
							2" Ice	0.627	1.015	0.055
							4" Ice	1.119	1.664	0.129
LNX-6515DS-VTM	A	From Leg	4.000		0.000	47.000	No Ice	11.445	7.696	0.050
(P)			0.000				1/2" Ice	12.064	8.289	0.116
			0.000				1" Ice	12.689	8.889	0.190
							2" Ice	14.030	10.111	0.361
							4" Ice	17.045	12.644	0.803
LNX-6515DS-VTM	B	From Leg	4.000		0.000	47.000	No Ice	11.445	7.696	0.050
(P)			0.000				1/2" Ice	12.064	8.289	0.116
			0.000				1" Ice	12.689	8.889	0.190
							2" Ice	14.030	10.111	0.361
							4" Ice	17.045	12.644	0.803
LNX-6515DS-VTM	C	From Leg	4.000		0.000	47.000	No Ice	11.445	7.696	0.050
(P)			0.000				1/2" Ice	12.064	8.289	0.116
			0.000				1" Ice	12.689	8.889	0.190
							2" Ice	14.030	10.111	0.361
							4" Ice	17.045	12.644	0.803
ATBT-BOTTOM-24V	A	From Leg	4.000		0.000	47.000	No Ice	0.121	0.075	0.003
(P)			0.000				1/2" Ice	0.172	0.119	0.004

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	0.232	0.172	0.006
						2" Ice	0.377	0.303	0.013
						4" Ice	0.771	0.668	0.045
ATBT-BOTTOM-24V (P)	B	From Leg	4.000 0.000 0.000	0.000	47.000	No Ice 1/2" Ice 1" Ice	0.121 0.172 0.232	0.075 0.119 0.172	0.003 0.004 0.006
						2" Ice	0.377	0.303	0.013
						4" Ice	0.771	0.668	0.045
ATBT-BOTTOM-24V (P)	C	From Leg	4.000 0.000 0.000	0.000	47.000	No Ice 1/2" Ice 1" Ice	0.121 0.172 0.232	0.075 0.119 0.172	0.003 0.004 0.006
						2" Ice	0.377	0.303	0.013
						4" Ice	0.771	0.668	0.045
Platform Mount [LP 301-1] (P-4 M. Pipes Included per sector)	C	None		0.000	47.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	30.100 40.800 51.500 72.900 115.700	30.100 40.800 51.500 72.900 115.700	1.589 2.029 2.470 3.351 5.114
@									
APXV18-206517S-C (E)	A	From Leg	1.000 0.000 0.000	0.000	37.000	No Ice 1/2" Ice 1" Ice	5.167 5.618 6.077	3.038 3.469 3.909	0.026 0.053 0.085
						2" Ice	7.017	4.809	0.167
						4" Ice	9.122	6.700	0.404
APXV18-206517S-C (E)	B	From Leg	1.000 0.000 0.000	0.000	37.000	No Ice 1/2" Ice 1" Ice	5.167 5.618 6.077	3.038 3.469 3.909	0.026 0.053 0.085
						2" Ice	7.017	4.809	0.167
						4" Ice	9.122	6.700	0.404
APXV18-206517S-C (E)	C	From Leg	1.000 0.000 0.000	0.000	37.000	No Ice 1/2" Ice 1" Ice	5.167 5.618 6.077	3.038 3.469 3.909	0.026 0.053 0.085
						2" Ice	7.017	4.809	0.167
						4" Ice	9.122	6.700	0.404
Pipe Mount [PM 602-3] (E)	C	None		0.000	37.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.680 9.500 11.320 14.960 22.240	7.680 9.500 11.320 14.960 22.240	0.279 0.353 0.427 0.576 0.873
@									

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice

Comb. No.	Description
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	58 - 50.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-2.600	0.002	0.093
			Max. Mx	5	-1.303	-11.399	0.030
			Max. My	2	-1.303	-0.007	11.426
			Max. Vy	11	-2.667	11.384	0.030
			Max. Vx	8	2.667	-0.007	-11.358
			Max. Torque	11			-0.136
L2	50.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-11.662	0.445	-0.219
			Max. Mx	11	-7.249	366.407	-0.065
			Max. My	8	-7.249	0.145	-366.327
			Max. Vy	11	-8.496	366.407	-0.065
			Max. Vx	8	8.496	0.145	-366.327
			Max. Torque	11			-0.133

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	23	11.662	1.842	-1.064
	Max. H_x	11	7.260	8.487	0.000
	Max. H_z	2	7.260	0.000	8.487
	Max. M_x	2	366.196	0.000	8.487
	Max. M_z	5	366.116	-8.487	0.000
	Max. Torsion	5	0.099	-8.487	0.000
	Min. Vert	1	7.260	0.000	0.000
	Min. H_x	5	7.260	-8.487	0.000
	Min. H_z	8	7.260	0.000	-8.487
	Min. M_x	8	-366.327	0.000	-8.487
	Min. M_z	11	-366.407	8.487	0.000
	Min. Torsion	11	-0.099	8.487	0.000

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	7.260	0.000	0.000	0.065	0.143	0.000
Dead+Wind 0 deg - No Ice	7.260	0.000	-8.487	-366.196	0.145	-0.025
Dead+Wind 30 deg - No Ice	7.260	4.244	-7.350	-317.126	-182.985	-0.072
Dead+Wind 60 deg - No Ice	7.260	7.350	-4.244	-183.065	-317.046	-0.099
Dead+Wind 90 deg - No Ice	7.260	8.487	0.000	0.065	-366.116	-0.099
Dead+Wind 120 deg - No Ice	7.260	7.350	4.244	183.196	-317.046	-0.073
Dead+Wind 150 deg - No Ice	7.260	4.244	7.350	317.257	-182.985	-0.028
Dead+Wind 180 deg - No Ice	7.260	0.000	8.487	366.327	0.145	0.025
Dead+Wind 210 deg - No Ice	7.260	-4.244	7.350	317.257	183.276	0.072
Dead+Wind 240 deg - No Ice	7.260	-7.350	4.244	183.196	317.337	0.099
Dead+Wind 270 deg - No Ice	7.260	-8.487	0.000	0.065	366.407	0.099
Dead+Wind 300 deg - No Ice	7.260	-7.350	-4.244	-183.065	317.337	0.073
Dead+Wind 330 deg - No Ice	7.260	-4.244	-7.350	-317.126	183.276	0.028
Dead+Ice+Temp	11.662	0.000	0.000	0.219	0.445	0.000
Dead+Wind 0 deg+Ice+Temp	11.662	0.000	-2.127	-92.784	0.457	-0.004
Dead+Wind 30 deg+Ice+Temp	11.662	1.064	-1.842	-80.323	-46.047	-0.010
Dead+Wind 60 deg+Ice+Temp	11.662	1.842	-1.064	-46.280	-80.090	-0.014
Dead+Wind 90 deg+Ice+Temp	11.662	2.127	0.000	0.223	-92.551	-0.014
Dead+Wind 120 deg+Ice+Temp	11.662	1.842	1.064	46.727	-80.090	-0.010
Dead+Wind 150 deg+Ice+Temp	11.662	1.064	1.842	80.770	-46.047	-0.004
Dead+Wind 180 deg+Ice+Temp	11.662	0.000	2.127	93.231	0.457	0.004
Dead+Wind 210 deg+Ice+Temp	11.662	-1.064	1.842	80.770	46.960	0.010
Dead+Wind 240 deg+Ice+Temp	11.662	-1.842	1.064	46.727	81.003	0.014
Dead+Wind 270 deg+Ice+Temp	11.662	-2.127	0.000	0.223	93.464	0.014
Dead+Wind 300 deg+Ice+Temp	11.662	-1.842	-1.064	-46.280	81.003	0.010
Dead+Wind 330 deg+Ice+Temp	11.662	-1.064	-1.842	-80.323	46.960	0.004
Dead+Wind 0 deg - Service	7.260	0.000	-2.937	-126.697	0.146	-0.009
Dead+Wind 30 deg - Service	7.260	1.468	-2.543	-109.714	-63.236	-0.025
Dead+Wind 60 deg - Service	7.260	2.543	-1.468	-63.316	-109.634	-0.034
Dead+Wind 90 deg - Service	7.260	2.937	0.000	0.065	-126.617	-0.034
Dead+Wind 120 deg - Service	7.260	2.543	1.468	63.447	-109.634	-0.025
Dead+Wind 150 deg - Service	7.260	1.468	2.543	109.845	-63.236	-0.010
Dead+Wind 180 deg - Service	7.260	0.000	2.937	126.828	0.146	0.009
Dead+Wind 210 deg - Service	7.260	-1.468	2.543	109.845	63.527	0.025
Dead+Wind 240 deg - Service	7.260	-2.543	1.468	63.447	109.925	0.034
Dead+Wind 270 deg - Service	7.260	-2.937	0.000	0.065	126.908	0.034

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 300 deg - Service	7.260	-2.543	-1.468	-63.316	109.925	0.025
Dead+Wind 330 deg - Service	7.260	-1.468	-2.543	-109.714	63.527	0.010

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-7.260	0.000	0.000	7.260	0.000	0.000%
2	0.000	-7.260	-8.487	0.000	7.260	8.487	0.000%
3	4.244	-7.260	-7.350	-4.244	7.260	7.350	0.000%
4	7.350	-7.260	-4.244	-7.350	7.260	4.244	0.000%
5	8.487	-7.260	0.000	-8.487	7.260	0.000	0.000%
6	7.350	-7.260	4.244	-7.350	7.260	-4.244	0.000%
7	4.244	-7.260	7.350	-4.244	7.260	-7.350	0.000%
8	0.000	-7.260	8.487	0.000	7.260	-8.487	0.000%
9	-4.244	-7.260	7.350	4.244	7.260	-7.350	0.000%
10	-7.350	-7.260	4.244	7.350	7.260	-4.244	0.000%
11	-8.487	-7.260	0.000	8.487	7.260	0.000	0.000%
12	-7.350	-7.260	-4.244	7.350	7.260	4.244	0.000%
13	-4.244	-7.260	-7.350	4.244	7.260	7.350	0.000%
14	0.000	-11.662	0.000	0.000	11.662	0.000	0.000%
15	0.000	-11.662	-2.127	0.000	11.662	2.127	0.000%
16	1.064	-11.662	-1.842	-1.064	11.662	1.842	0.000%
17	1.842	-11.662	-1.064	-1.842	11.662	1.064	0.000%
18	2.127	-11.662	0.000	-2.127	11.662	0.000	0.000%
19	1.842	-11.662	1.064	-1.842	11.662	-1.064	0.000%
20	1.064	-11.662	1.842	-1.064	11.662	-1.842	0.000%
21	0.000	-11.662	2.127	0.000	11.662	-2.127	0.000%
22	-1.064	-11.662	1.842	1.064	11.662	-1.842	0.000%
23	-1.842	-11.662	1.064	1.842	11.662	-1.064	0.000%
24	-2.127	-11.662	0.000	2.127	11.662	0.000	0.000%
25	-1.842	-11.662	-1.064	1.842	11.662	1.064	0.000%
26	-1.064	-11.662	-1.842	1.064	11.662	1.842	0.000%
27	0.000	-7.260	-2.937	0.000	7.260	2.937	0.000%
28	1.468	-7.260	-2.543	-1.468	7.260	2.543	0.000%
29	2.543	-7.260	-1.468	-2.543	7.260	1.468	0.000%
30	2.937	-7.260	0.000	-2.937	7.260	0.000	0.000%
31	2.543	-7.260	1.468	-2.543	7.260	-1.468	0.000%
32	1.468	-7.260	2.543	-1.468	7.260	-2.543	0.000%
33	0.000	-7.260	2.937	0.000	7.260	-2.937	0.000%
34	-1.468	-7.260	2.543	1.468	7.260	-2.543	0.000%
35	-2.543	-7.260	1.468	2.543	7.260	-1.468	0.000%
36	-2.937	-7.260	0.000	2.937	7.260	0.000	0.000%
37	-2.543	-7.260	-1.468	2.543	7.260	1.468	0.000%
38	-1.468	-7.260	-2.543	1.468	7.260	2.543	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001

3	Yes	4	0.00000001	0.00035519
4	Yes	4	0.00000001	0.00037821
5	Yes	4	0.00000001	0.00003274
6	Yes	4	0.00000001	0.00034952
7	Yes	4	0.00000001	0.00037195
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00037212
10	Yes	4	0.00000001	0.00035027
11	Yes	4	0.00000001	0.00003277
12	Yes	4	0.00000001	0.00037908
13	Yes	4	0.00000001	0.00035546
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00016841
16	Yes	4	0.00000001	0.00018278
17	Yes	4	0.00000001	0.00018298
18	Yes	4	0.00000001	0.00016786
19	Yes	4	0.00000001	0.00018301
20	Yes	4	0.00000001	0.00018355
21	Yes	4	0.00000001	0.00016898
22	Yes	4	0.00000001	0.00018496
23	Yes	4	0.00000001	0.00018481
24	Yes	4	0.00000001	0.00016966
25	Yes	4	0.00000001	0.00018482
26	Yes	4	0.00000001	0.00018421
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00002763
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00002781
38	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	58 - 50.5	5.427	36	0.708	0.001
L2	53 - 0	4.687	36	0.703	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.000	Obstruction Lights	36	5.427	0.708	0.001	4766
56.000	Side Arm Mount [SO 102-3)	36	5.127	0.707	0.001	4766
47.000	APX16DWV-16DWVS-C	35	3.884	0.679	0.001	4394
37.000	APXV18-206517S-C	35	2.756	0.596	0.000	5581

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	58 - 50.5	15.665	11	2.045	0.003
L2	53 - 0	13.530	11	2.028	0.002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.000	Obstruction Lights	11	15.665	2.045	0.003	1654
56.000	Side Arm Mount [SO 102-3)	11	14.799	2.041	0.003	1654
47.000	APX16DWV-16DWVS-C	11	11.210	1.960	0.002	1525
37.000	APXV18-206517S-C	11	7.956	1.720	0.001	1936

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	7.500	0.000	0.0	39.000	10.908	-1.303	425.410	0.003
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	53.000	0.000	0.0	37.971	17.772	-7.249	674.813	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	11.426	2.786	39.000	0.071	0.000	0.000	39.000	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	366.420	33.523	37.971	0.883	0.000	0.000	37.971	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	58 - 50.5 (1)	TP19.078x17.393x0.188	2.667	0.244	26.000	0.019	0.016	0.002	26.000	0.000
L2	50.5 - 0 (2)	TP30.05x18.141x0.188	8.496	0.478	26.000	0.037	0.099	0.004	26.000	0.000

Pole Interaction Design Data

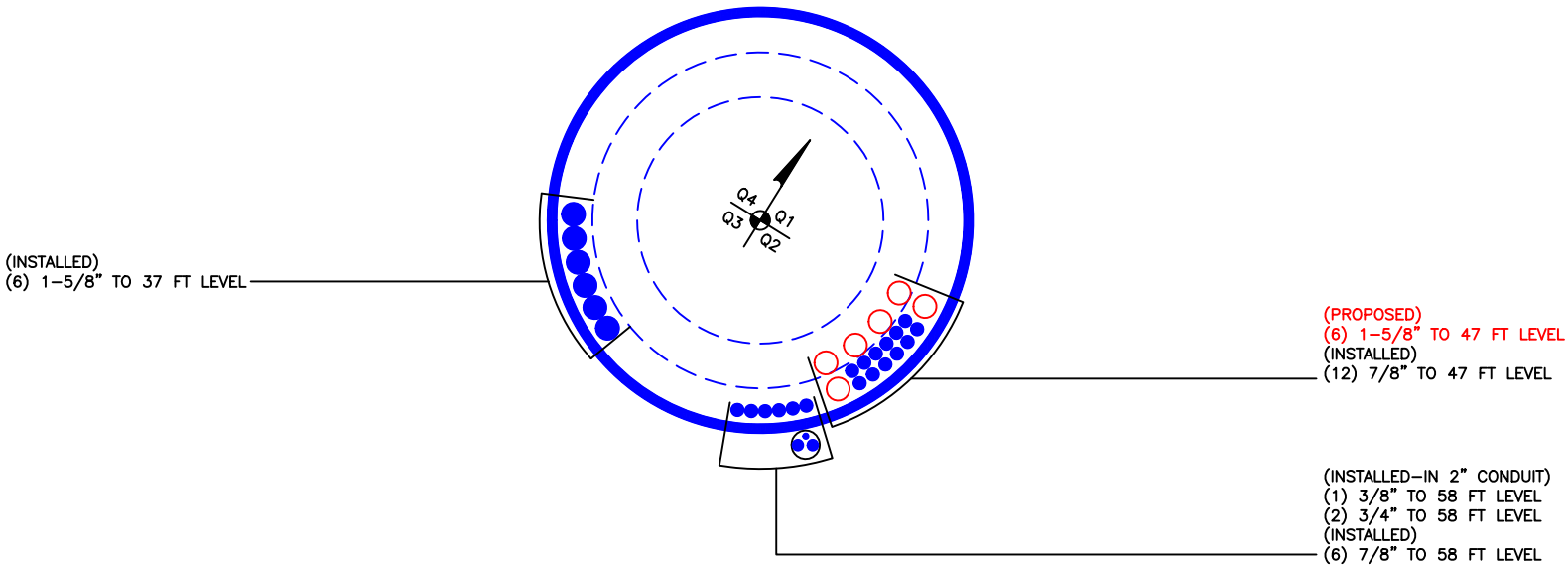
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	58 - 50.5 (1)	0.003	0.071	0.000	0.019	0.000	0.075 ✔	1.333	H1-3+VT ✔
L2	50.5 - 0 (2)	0.011	0.883	0.000	0.037	0.000	0.894 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	58 - 50.5	Pole	TP19.078x17.393x0.188	1	-1.303	567.072	5.6	Pass
L2	50.5 - 0	Pole	TP30.05x18.141x0.188	2	-7.249	899.526	67.1	Pass
							Summary	
						Pole (L2)	67.1	Pass
						RATING =	67.1	Pass

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842862

APPENDIX C

ADDITIONAL CALCULATIONS

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *842862*
Site Name: *EAST HAVEN SOUTH, CT*
App #: *292286 Rev # 4*

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	4	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	37	in

Plate Data		
W=Side:	33	in
Thick:	2	in
Grade:	60	ksi
Clip Distance:	3	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	30.05	in
Thick:	0.1875	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor		
ASD ASIF:	1.333	

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	366	ft-kips
Unfactored Axial, P:	7	kips
Unfactored Shear, V:	8	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	117.0 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	60.0% **Pass**

Base Plate Results Flexural Check

Base Plate Stress:	37.8 ksi
Allowable PL Bending Stress:	60.0 ksi
Base Plate Stress Ratio:	63.1% **Pass**

PL Ref. Data	
Yield Line (in):	16.62
Max PL Length:	16.62

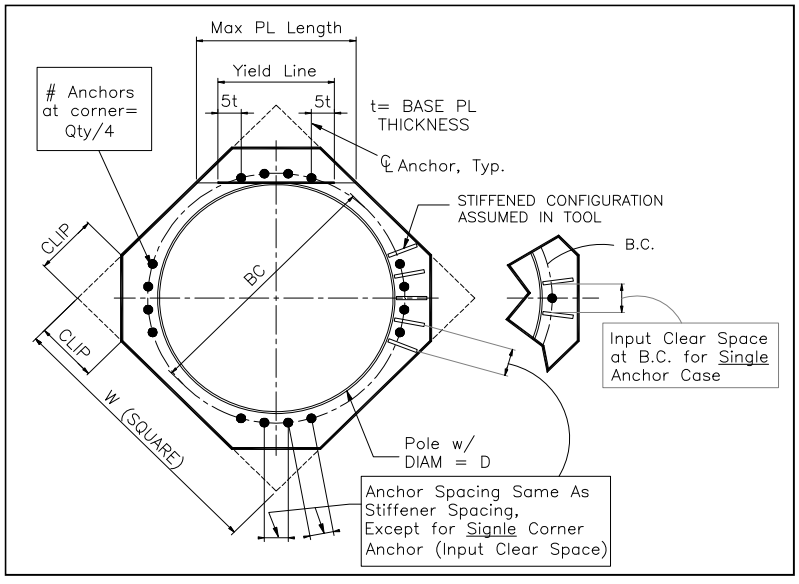
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check:	N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

PROJECT	**842862 - EAST HAVEN SOUTH, CT**				
SUBJECT	**Foundation Analysis**				
DATE	**05/04/15**	PAGE	1	OF	1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Monopole Pad & Pier Foundation Analysis

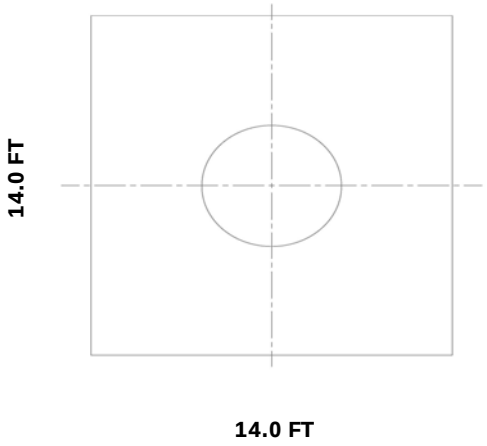
Rev. Type: F

Design Loads:

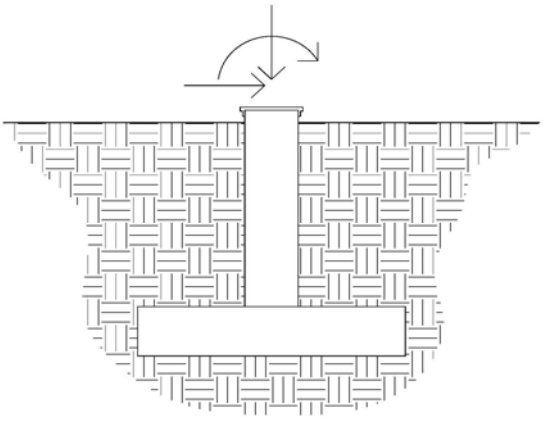
	Input unfactored loads	
Shear:	8.0	kips
Moment:	366.0	ft-kips
Tower Height:	58.0	ft
Tower Weight:	7.0	kips

Pad & Pier Dimensions / Properties:

Pole Diameter at Base:	30.05	in
Bearing Depth:	6.5	ft
Pad Width:	14.0	ft
Neglected Depth:	3.3	ft
Thickness:	2.5	ft
Pier Diameter:	5.0	ft
Pier Height Above Grade:	0.5	ft
BP Dist. Above Pier:	3.0	in
Clear Cover:	3.0	in
Pier Rebar Size:	9	
Pier Rebar Quanity:	15	
Pad Rebar Size:	8	
Pad Rebar Quanity:	13	
Pier Tie Size:	4	
Tie Quanity:	14	
Rebar Yield Strength:	60000	psi
Concrete Strength:	3000	psi
Concrete Unit Weight:	0.15	kcf



Elevation Overview



Soil Data:

	Allowable Values	
Soil Unit Weight:	0.120	kcf
Ult. Bearing Capacity:	10.780	ksf
Angle of Friction:	30.000	deg
Cohesion:	0.000	ksf
Passive Pressure:	0.000	ksf
Base Friction:	0.400	

Summary of Results

Req'd Pier Diam.	OK
Overturning	43.5%
Shear Capacity	18.8%
Bearing	25.0%
Pad Shear - 1-way	21.2%
Pad Shear - 2-way	3.0%
Pad Moment Capacity	11.8%
Pier Moment Capacity	30.9%

** Notes:

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: CT11623B

CT623/E.Haven ATT_MP
259 Commerce Street
East Haven, CT 06512

May 13, 2015

EBI Project Number: 6215002881

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	95.53 %

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

EBI Consulting
environmental | engineering | due diligence

May 13, 2015

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

Emissions Analysis for Site: **CT11623B – CT623/E.Haven ATT_MP**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **259 Commerce Street, East 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 **259 Commerce Street, East 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 **RFS APX16DWV-16DWVS-C-A20** 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 **RFS APX16DWV-16DWVS-C-A20** has a maximum gain of **16.3 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 **47 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.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-C-A20	Make / Model:	RFS APX16DWV-16DWVS-C-A20	Make / Model:	RFS APX16DWV-16DWVS-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	47	Height (AGL):	47	Height (AGL):	47
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	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	10,237.91	ERP (W):	10,237.91	ERP (W):	10,237.91
Antenna A1 MPE%	21.90	Antenna B1 MPE%	21.90	Antenna C1 MPE%	21.90
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
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):	47	Height (AGL):	47	Height (AGL):	47
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 A2 MPE%	3.96	Antenna B2 MPE%	3.96	Antenna C2 MPE%	3.96

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**77.57**
AT&T	10.88 %
MetroPCS	7.08 %
Site Total MPE %:	**95.53 %**

T-Mobile Sector 1 Total:	25.86 %
T-Mobile Sector 2 Total:	25.86 %
T-Mobile Sector 3 Total:	25.86 %
Site Total:	95.53 %

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:	25.86 %
Sector 2:	25.86 %
Sector 3 :	25.86 %
T-Mobile Total:	77.57 %
Site Total:	95.53 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **95.53%** 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