Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

March 11, 2016

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

RE: **Notice of Exempt Modification for T-Mobile / L700 Crown Site BU: 881535**
T-Mobile Site ID: CT11961A
425 Indian Ledge Park Road, Trumbull, CT 06611
Latitude: 41° 16' 23.81" / Longitude: -73° 12' 47.18"

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 145 foot level of the existing 195 foot monopole at 425 Indian Ledge Park Road in Trumbull, CT. The Tower Owner is Crown Castle and the Property Owner is the Town of Trumbull. T-Mobile now intends to replace all antennas with six (6) new antennas, keep all coax, add one (1) Hybrid cable, replace all TMA with three (3) new TMA, add six (6) RRU. Ground changes: Remove one (1) cabinet, any other ground changes will occur within existing ground space. Final configuration: six (6) antennas, twelve (12) coax, one (1) Hybrid, three (3) TMA, six (6) RRU and one (1) cabinet. These antennas would be installed at the 145 foot level of the tower.

Please be advised I have included an email from Gail Andreyka with the zoning department at the Town of Trumbull indicating they no longer have the original zoning approval on file as well as an email from myself indicating the same. Please use both emails to replace the zoning approval requirement.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Timothy M. Herbst, First Selectman for the Town of Trumbull for both the town Mayor notification and the Property Owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Kimberly Myl.

Sincerely,

Kimberly Myl
Real Estate Specialist
Crown Castle
1200 MacArthur Boulevard, Suite 200
Mahwah, New Jersey 07430
201-236-9069
kimberly.myl@crowncastle.com

Attachments:

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 Timothy M. Herbst, First Selectman for the Town of Trumbull
Town Hall – 2nd Floor
5866 Main Street
Trumbull, CT 06611

Hanlon, Dashanna

From: Myl, Kimberly
Sent: Friday, March 11, 2016 9:34 AM
To: siting.council@ct.gov
Subject: Existing Telecommunications Tower - 425 Indian Ledge Park Road, Trumbull (Crown: 881535 / T-Mobile CT11961A)

Good Morning,
Please be advised per the below email from the Town of Trumbull and on behalf of Crown Castle the Tower Owner, neither party have the original zoning approval on file. Please use this email notification to replace that requirement. Please let me know if you have any questions or need additional information. Thank you in advance.

KIMBERLY MYL
Real Estate Specialist
T: (201) 236-9069 | M: (201) 993-3697

CROWN CASTLE
1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

From: Gail Andreyka [mailto:gandreyka@trumbull-ct.gov]
Sent: Tuesday, March 08, 2016 9:48 AM
To: Myl, Kimberly
Cc: Douglas Wenz
Subject: RE: Zoning Approval - Telecommunications Tower 425 Indian Ledge Park Road

Hi Kim,

We cannot locate the zoning approval. They never came to Planning & Zoning with an application as far as we know. If you have any further questions, please contact Doug Wenz 203-452-5052.

Thank you,

Gail Andreyka

From: Myl, Kimberly [mailto:Kimberly.Myl@crowncastle.com]
Sent: Monday, February 29, 2016 12:45 PM
To: Gail Andreyka
Subject: Zoning Approval - Telecommunications Tower 425 Indian Ledge Park Road

Good Afternoon Gail,
I have another existing telecommunications facility that I will need a copy of the original zoning resolution to submit into the CSC. Can you kindly forward this over to me so I can submit on behalf of T-Mobile, one of our tenants. If you do not have this document, kindly reply stating that the township does not have this on record and I can use your email in place of this requirement. Please call or email me if you have any questions or need additional information. Thank you in advance.

KIMBERLY MYL
Real Estate Specialist
T: (201) 236-9069 | M: (201) 993-3697

CROWN CASTLE
1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CT11961A
CROWN CASTLE BU #: 881535
SITE NAME: TRUMBULL TOWER
425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611
FAIRFIELD COUNTY

VICINITY MAP

FROM BLOOMFIELD, CT:

HEAD NORTHEAST ON GRIFFIN RD S TOWARD W NEWBERRY RD. TURN RIGHT ONTO DAY HILL RD. USE THE RIGHT LANE TO MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD. MERGE ONTO I-91 S. TAKE EXIT 17 TO MERGE ONTO CT-15 S/WILBUR CROSS PKWY. TAKE EXIT 49 TO MERGE ONTO CT-25 N. TURN LEFT ONTO MAIN ST. TURN LEFT ONTO WHITNEY AVE. TURN RIGHT ONTO INDIAN LEDGE PARK RD. SITE WILL BE STRAIGHT AHEAD.

ENGINEER
DEWBERRY ENGINEERS INC.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054

CONTACT: BRYAN HUFF
PHONE #: (973) 576-0147

CONSTRUCTION
CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

CONTACT: PATRICIA PELON
PHONE #: (518) 373-3507

CONSULTANT TEAM

SITE NAME:
TRUMBULL TOWER

SITE NUMBER:
CT11961A

TOWER OWNER:
CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

APPLICANT/DEVELOPER:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

COORDINATES:
LATITUDE: 41°-16'-23.81" N (NAD83)
LONGITUDE: 72°-12'-47.18" W (NAD83)
(PER CROWN CASTLE)

CONFIGURATION
701D_WU21

PROJECT SUMMARY

SITE ADDRESS:
425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611
FAIRFIELD COUNTY

PROJECT DIRECTORY

- REMOVE AND REPLACE (3) EXISTING ANTENNAS WITH (6) NEW ANTENNAS.
- REMOVE AND REPLACE (6) EXISTING TMA'S WITH (3) NEW TMA'S.
- INSTALL (6) NEW RRU'S.
- INSTALL (1) NEW HYBRID CABLE.
- REMOVE (1) EXISTING EQUIPMENT CABINET AT GRADE.

SCOPE OF WORK

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

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

SHT. NO.	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

SHEET INDEX

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

CT11961A
TRUMBULL TOWER

CONSTRUCTION DRAWINGS

A	03/08/16	ISSUED FOR REVIEW

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

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50078119

SITE ADDRESS:
425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611
FAIRFIELD COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

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 FOLLOWNG 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 FOLLOWNG 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.

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CROWN CASTLE
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CT11961A
TRUMBULL TOWER

CONSTRUCTION DRAWINGS

A	03/08/16	ISSUED FOR REVIEW

Dewberry
Dewberry Engineers Inc.
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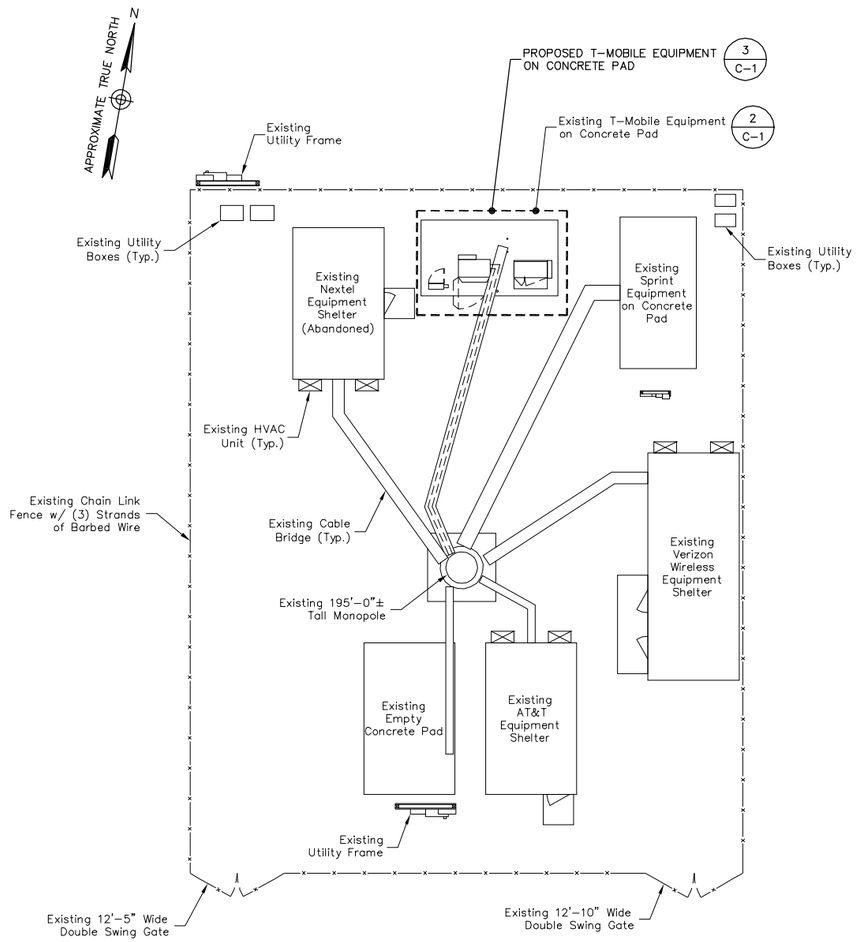
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50078119

SITE ADDRESS:
425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611
FAIRFIELD COUNTY

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
G-1

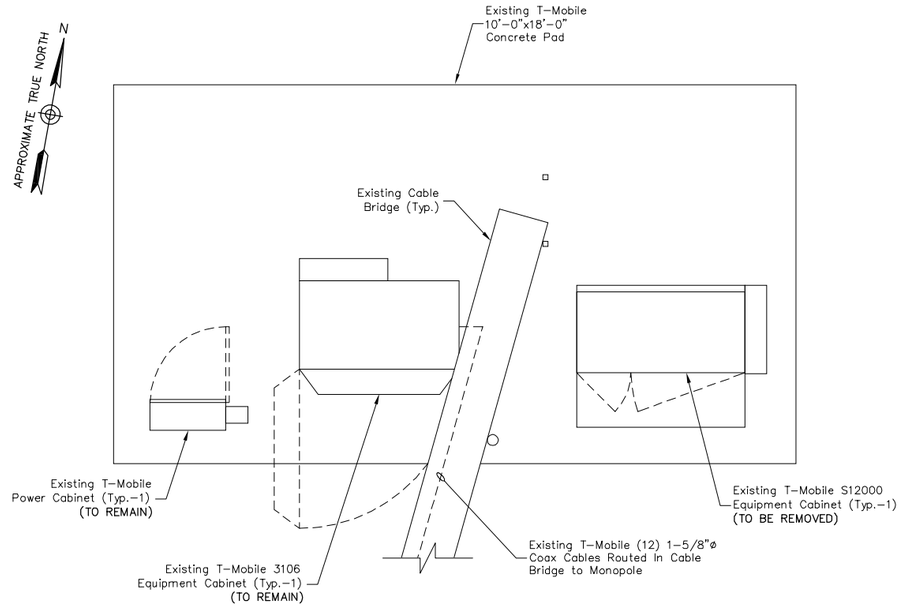


COMPOUND PLAN

1

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

0' 10' 20'

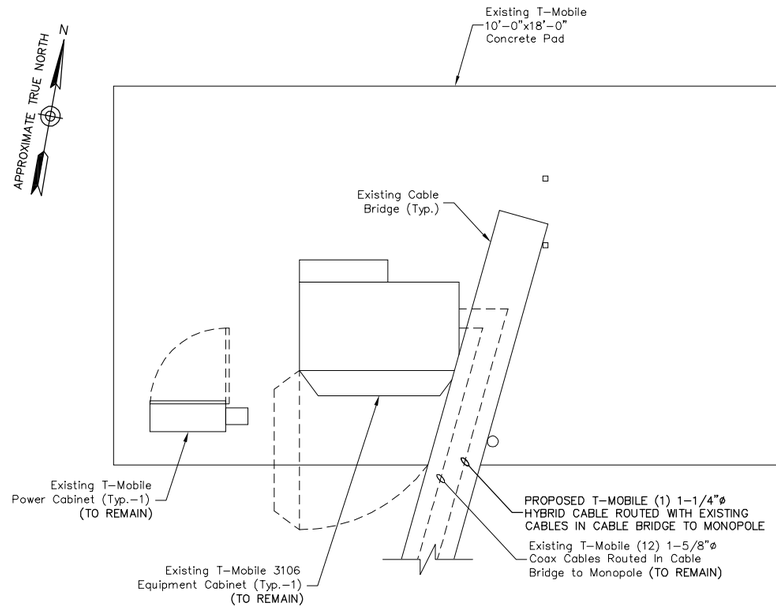


EXISTING EQUIPMENT PLAN

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 ARROW SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, RRU'S, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY CROWN CASTLE DATED FEBRUARY 22, 2016.

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BLOOMFIELD, CT 06002

CROWN CASTLE

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TRUMBULL TOWER

CONSTRUCTION DRAWINGS

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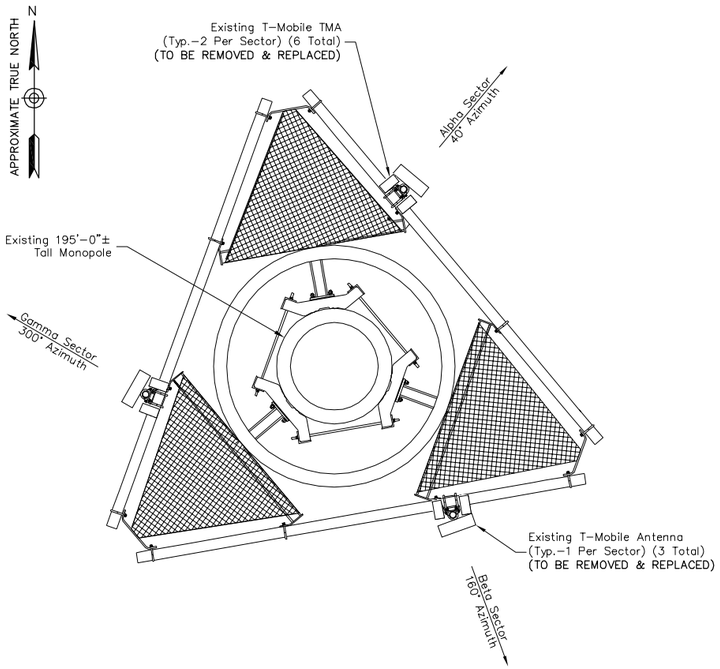
FAIRFIELD COUNTY

SHEET TITLE

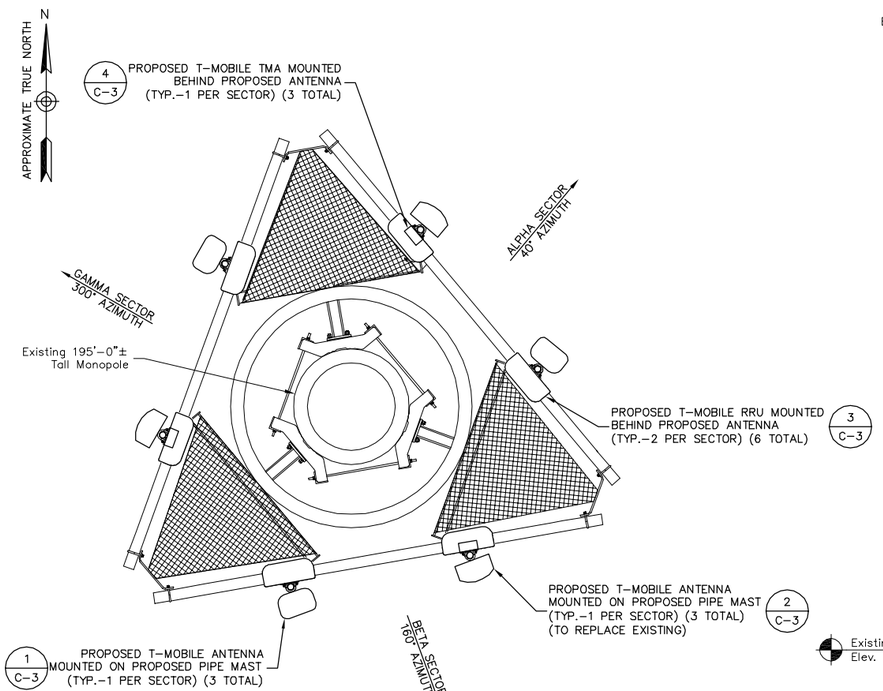
COMPOUND PLAN & EQUIPMENT PLANS

SHEET NUMBER

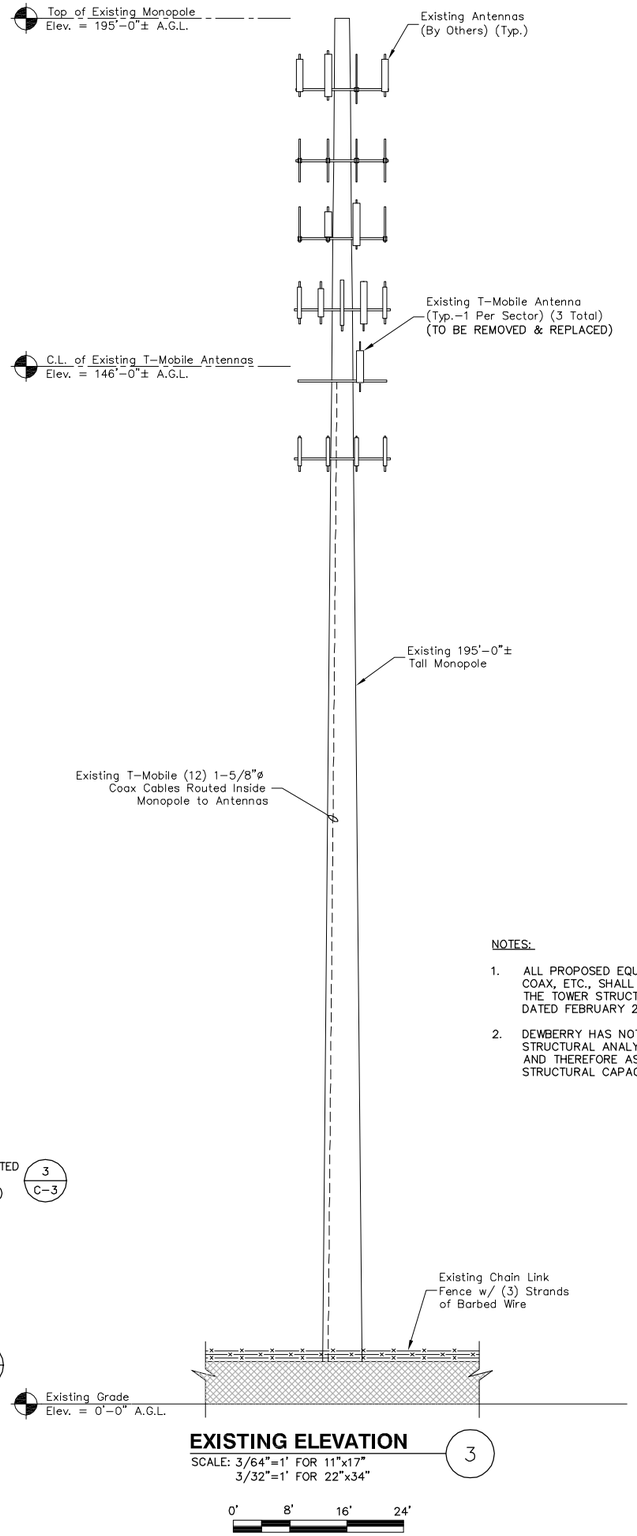
C-1



EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S.

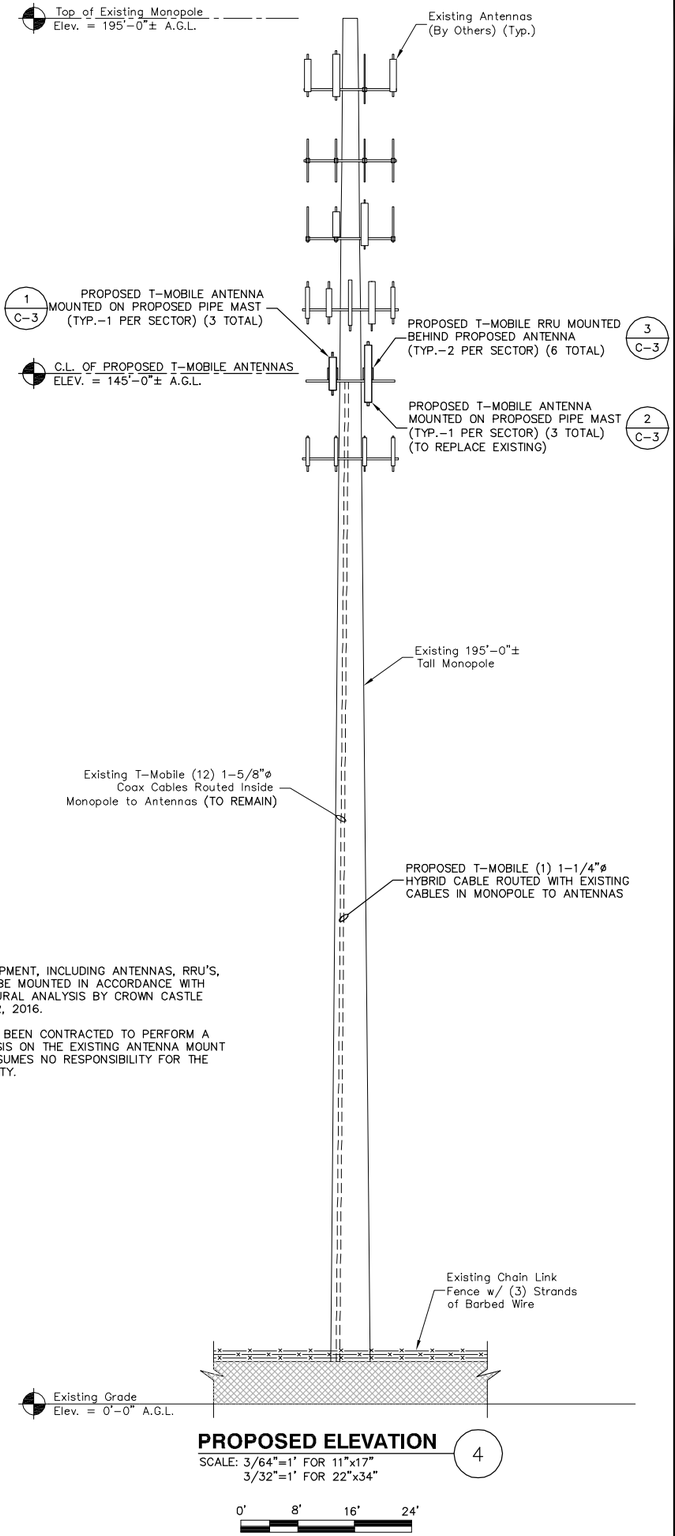


PROPOSED ANTENNA LAYOUT 2
SCALE: N.T.S.



EXISTING ELEVATION 3
SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'



PROPOSED ELEVATION 4
SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, RRU'S, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY CROWN CASTLE DATED FEBRUARY 22, 2016.
2. DEWBERRY HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THE EXISTING ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY.

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TRUMBULL TOWER

CONSTRUCTION DRAWINGS

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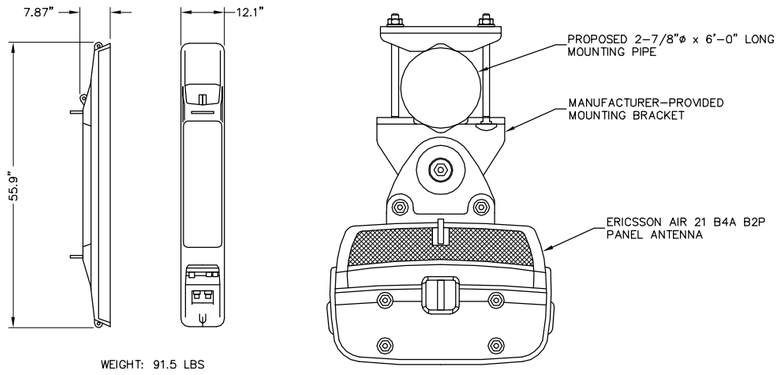
TRUMBULL, CT 06611
FAIRFIELD COUNTY

SHEET TITLE
ANTENNA LAYOUTS & ELEVATIONS

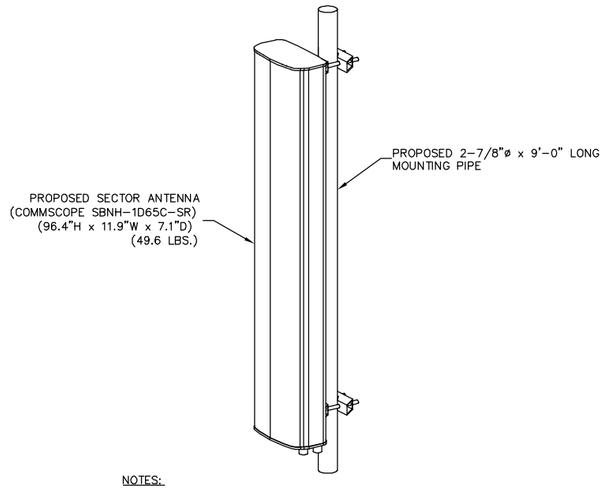
SHEET NUMBER
C-2



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.

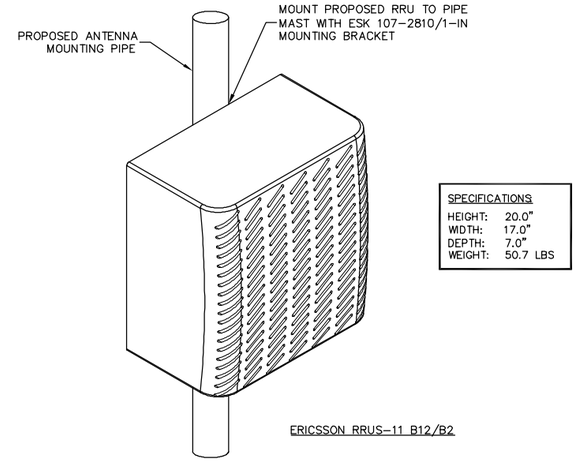
ANTENNA DETAIL 1
SCALE: N.T.S.



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.

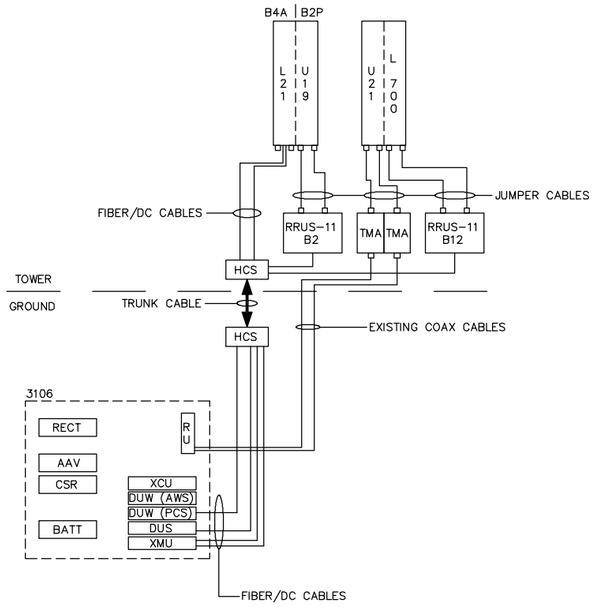
ISOMETRIC ANTENNA DETAIL 2
SCALE: N.T.S.



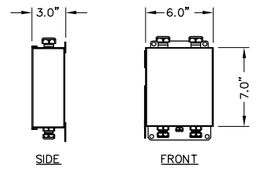
RRU NOTES:

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.

RRUS-11 - REMOTE RADIO UNIT 3
SCALE: N.T.S.



SITE CONFIGURATION 701D_WU21 5
SCALE: N.T.S.



ERICSSON KRY 112 144/1

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.

DUAL-PORT TMA DETAIL 4
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS		COAX		HYBRID	COAX/HYBRID LENGTH	TMA	RRU
	EXISTING	PROPOSED	EXISTING	PROPOSED	PROPOSED		PROPOSED	PROPOSED
ALPHA	EMS DR65-18-00DPL2Q	COMMSCOPE SBNH-1D65C-SR	(4) 1-5/8"ø	–	(1) 1-1/4"ø	195'-0"	(1) KRY 112 144/1	(1) RRUS-11 B12
	–	ERICSSON AIR 21 B4A B2P					–	(1) RRUS-11 B2
BETA	EMS DR65-18-00DPL2Q	COMMSCOPE SBNH-1D65C-SR	(4) 1-5/8"ø	–		195'-0"	(1) KRY 112 144/1	(1) RRUS-11 B12
	–	ERICSSON AIR 21 B4A B2P					–	(1) RRUS-11 B2
GAMMA	EMS DR65-18-00DPL2Q	COMMSCOPE SBNH-1D65C-SR	(4) 1-5/8"ø	–		195'-0"	(1) KRY 112 144/1	(1) RRUS-11 B12
	–	ERICSSON AIR 21 B4A B2P					–	(1) RRUS-11 B2

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CROWN CASTLE

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CT11961A
TRUMBULL TOWER

CONSTRUCTION DRAWINGS

A	03/08/16	ISSUED FOR REVIEW

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JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50078119

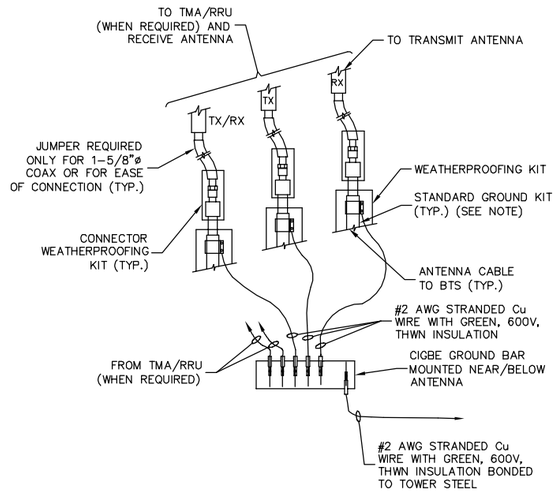
SITE ADDRESS:
425 INDIAN LEDGE PARK ROAD
TRUMBULL, CT 06611
FAIRFIELD COUNTY

SHEET TITLE
CONSTRUCTION DETAILS

SHEET NUMBER
C-3

GROUNDING NOTES:

1. THE CONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ). THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE CONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE ENGINEER FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY THE ENGINEER IN WRITING.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
6. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
7. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO TRANSMISSION EQUIPMENT.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF 8 INCHES.
11. EACH INTERIOR TRANSMISSION CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH 6 AWG STRANDED, GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRE UNLESS NOTED OTHERWISE IN THE DETAILS. EACH OUTDOOR CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
12. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE 2 AWG SOLID TIN-PLATED COPPER UNLESS OTHERWISE INDICATED.
13. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE. CONNECTIONS TO ABOVE GRADE UNITS SHALL BE MADE WITH EXOTHERMIC WELDS WHERE PRACTICAL OR WITH 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM 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.

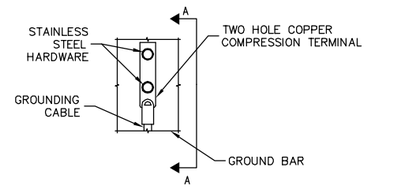


NOTE:

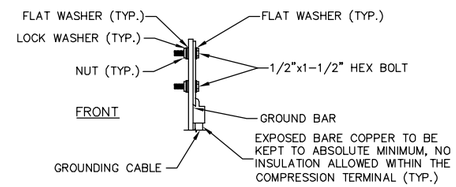
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

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

SCALE: N.T.S.



ELEVATION



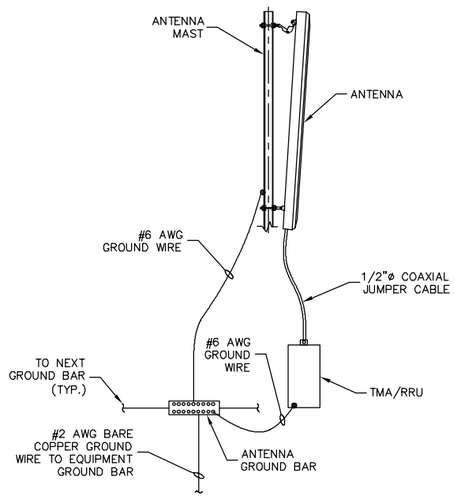
SECTION 'A-A'

NOTES:

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

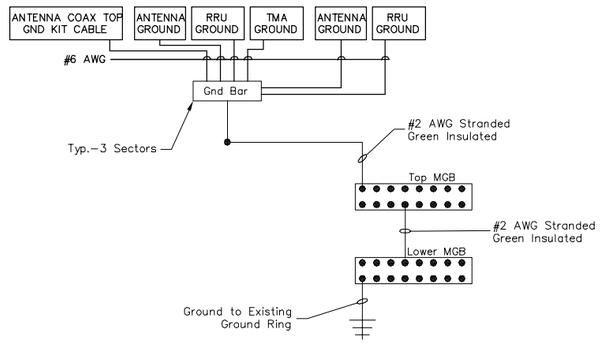
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL — 2

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL — 3

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 — 4

SCALE: N.T.S.

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PROJECT NUMBER:	50066258
JOB NUMBER:	50078119
SITE ADDRESS:	

425 INDIAN LEDGE
PARK ROAD
TRUMBULL, CT 06611
FAIRFIELD COUNTY

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

Date: **February 22, 2016**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11961A
	Carrier Site Name:	CT961/ Indian Ledge Prk
Crown Castle Designation:	**Crown Castle BU Number:**	881535
	Crown Castle Site Name:	TRUMBULL TOWER
	Crown Castle JDE Job Number:	365818
	Crown Castle Work Order Number:	1193413
	Crown Castle Application Number:	333698 Rev. 4
Engineering Firm Designation:	**Crown Castle Project Number:**	1193413
Site Data:	**425 Indian Ledge Park Rd, Trumbull, Fairfield County, CT**	
	Latitude *41° 16' 23.81"*, Longitude *-73° 12' 47.18"*	
	195 Foot - Monopole Tower	

Dear Charles McGuirt,

Crown Castle 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 1193413, in accordance with application 333698, 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 I and Table II 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.

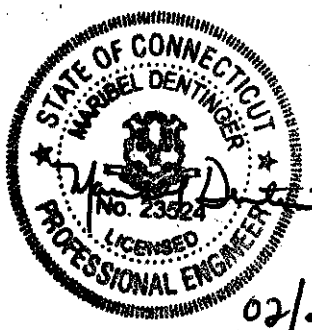
All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Crown Castle* 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.

Structural analysis prepared by: Alexander Greguric, E.I.T. / RAA

Respectfully submitted by:

Maribel Dentinger, P.E.
Sr. Project Engineer



02/22/16

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1) INTRODUCTION

This tower is a 195 ft Monopole tower designed by Engineered Endeavors, Inc. in July of 2001. 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
144.0	145.0	3	commscope	SBNH-1D65C-SR w/ Mount Pipe	1	1-1/4	-
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
		3	ericsson	RRUS 11 B12			
		3	ericsson	RRUS 11 B2			

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
185.0	187.0	6	powerwave technologies	7770.00 w/ Mount Pipe	12 2 1	1-1/4 5/8 3/8	1
		3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe			
	185.0	6	ericsson	RRUS-11			
		12	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 601-1]			
174.0	174.0	1	tower mounts	Platform Mount [LP 601-1]	-	-	4
164.0	166.0	3	argus technologies	LLPX310R w/ Mount Pipe	6 2 3	5/16 1/2 1-1/4	1
		1	dragonwave	A-ANT-23G-2-C			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
	164.0	3	alcatel lucent	1900MHz RRH (65MHz)			
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		9	rfs celwave	ACU-A20-N			
		3	samsung telecommunications	FDD_R6_RRH			
		1	tower mounts	Platform Mount [LP 601-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
154.0	155.0	3	alcatel lucent	RRH2x40-AWS	19	1-5/8	1
		3	antel	BXA-70063/6CF w/ Mount Pipe			
		2	antel	LPA-4016 w/ Mount Pipe			
		4	decibel	DB844G65ZAXY w/ Mount Pipe			
		3	kathrein	742 213 w/ Mount Pipe			
		1	rfs celwave	DB-B1-6C-8AB-0Z			
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe			
	154.0	1	tower mounts	Platform Mount [LP 601-1]			
144.0	146.0	3	ems wireless	DR65-18-00DPL2Q w/ Mount Pipe	-	-	2
	144.0	3	ericsson	KRY 112 144/1			
		3	ericsson	KRY 112 89/5			
		1	tower mounts	Platform Mount [LP 601-1]	12	1-5/8	1
134.0	135.0	12	decibel	DB844H90E-XY w/ Mount Pipe	9 6	1-1/4 1-5/8	3
	134.0	1	tower mounts	Platform Mount [LP 303-1]			

Notes:
1) Existing Equipment
2) Equipment to be removed; not considered in analysis
3) Abandoned equipment; considered in analysis
4) Empty mount; considered in analysis

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)
195	195	2	Generic	Omni Whip Antenna	-	-
185	185	12	Allgon	7120.16	-	-
175	175	12	Allgon	7120.16	-	-
165	165	12	Allgon	7120.16	-	-
155	155	12	Allgon	7120.16	-	-
145	145	12	Allgon	7120.16	-	-
135	135	12	Allgon	7120.16	-	-
125	125	12	Allgon	7120.16	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	1406210	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors Inc.	1405798	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors Inc.	1405789	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle 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	195 - 157.648	Pole	TP33.875x25x0.25	1	-7.24	1340.68	26.4	Pass
L2	157.648 - 117.083	Pole	TP42.9063x32.2501x0.3125	2	-19.04	2125.19	74.0	Pass
L3	117.083 - 81.0938	Pole	TP50.75x40.9017x0.375	3	-28.99	3017.43	88.0	Pass
L4	81.0938 - 40.0391	Pole	TP59.6563x48.3897x0.5	4	-45.00	4726.30	78.6	Pass
L5	40.0391 - 0	Pole	TP68x56.7861x0.5	5	-67.71	5568.98	86.2	Pass
							Summary	
						Pole (L3)	88.0	Pass
						Rating =	88.0	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	86.6	Pass
1	Base Plate	0	81.7	Pass
1	Base Foundation (Structure)	0	72.8	Pass
1	Base Foundation (Soil Interaction)	0	81.8	Pass

Structure Rating (max from all components) =	88%

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

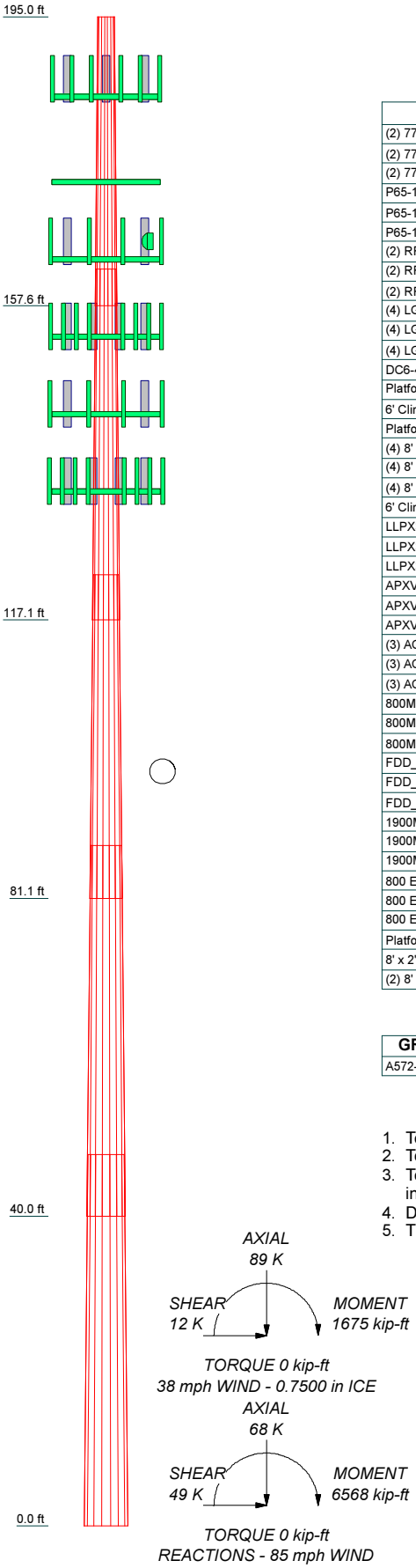
4.1) Recommendations

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	1	2	3	4	5	
Length (ft)	37'4-3/16"	45'3-19/32"	41'10-3/16"	47'10-13/16"	47'11-7/8"	
Number of Sides	18	18	18	18	18	
Thickness (in)	0.2500	0.3125	0.3750	0.5000	0.5000	
Socket Length (ft)	4'8-3/4"	5'10-5/16"	6'10-3/32"	7'11-13/32"		
Top Dia (in)	25.0000	32.2501	40.9017	48.3897	56.7861	
Bot Dia (in)	33.8750	42.9063	50.7500	59.6563	68.0000	
Grade			A572-65			
Weight (K)	2.9	5.7	7.7	13.8	16.0	46.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) 7770.00 w/ Mount Pipe	185	8' x 2" Mount Pipe	164
(2) 7770.00 w/ Mount Pipe	185	A-ANT-23G-2-C	164
(2) 7770.00 w/ Mount Pipe	185	742 213 w/ Mount Pipe	154
P65-16-XLH-RR w/ Mount Pipe	185	742 213 w/ Mount Pipe	154
P65-16-XLH-RR w/ Mount Pipe	185	MG D3-800TV w/ Mount Pipe	154
P65-16-XLH-RR w/ Mount Pipe	185	MG D3-800TV w/ Mount Pipe	154
(2) RRUS-11	185	MG D3-800TV w/ Mount Pipe	154
(2) RRUS-11	185	BXA-70063/6CF w/ Mount Pipe	154
(2) RRUS-11	185	BXA-70063/6CF w/ Mount Pipe	154
(4) LGP21401	185	BXA-70063/6CF w/ Mount Pipe	154
(4) LGP21401	185	(2) DB844G65ZAXY w/ Mount Pipe	154
(4) LGP21401	185	(2) DB844G65ZAXY w/ Mount Pipe	154
DC6-48-60-18-8F	185	(2) LPA-4016 w/ Mount Pipe	154
Platform Mount [LP 601-1]	185	RRH2x40-AWS	154
6' Climbing Ladder (Flat)	183	RRH2x40-AWS	154
Platform Mount [LP 601-1]	174	RRH2x40-AWS	154
(4) 8' x 2" Mount Pipe	174	DB-B1-6C-8AB-0Z	154
(4) 8' x 2" Mount Pipe	174	Platform Mount [LP 601-1]	154
(4) 8' x 2" Mount Pipe	174	742 213 w/ Mount Pipe	154
6' Climbing Ladder (Flat)	172	6' Climbing Ladder (Flat)	152
LLPX310R w/ Mount Pipe	164	SBNH-1D65C-SR w/ Mount Pipe	144
LLPX310R w/ Mount Pipe	164	SBNH-1D65C-SR w/ Mount Pipe	144
LLPX310R w/ Mount Pipe	164	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	144
APXVSPP18-C-A20 w/ Mount Pipe	164		
APXVSPP18-C-A20 w/ Mount Pipe	164	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	144
APXVSPP18-C-A20 w/ Mount Pipe	164		
(3) ACU-A20-N	164	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	144
(3) ACU-A20-N	164		
(3) ACU-A20-N	164	RRUS 11 B2	144
800MHZ RRH	164	RRUS 11 B2	144
800MHZ RRH	164	RRUS 11 B2	144
800MHZ RRH	164	RRUS 11 B12	144
FDD_R6_RRH	164	RRUS 11 B12	144
FDD_R6_RRH	164	RRUS 11 B12	144
FDD_R6_RRH	164	KRY 112 144/1	144
1900MHz RRH (65MHz)	164	KRY 112 144/1	144
1900MHz RRH (65MHz)	164	KRY 112 144/1	144
1900MHz RRH (65MHz)	164	Platform Mount [LP 601-1]	144
800 EXTERNAL NOTCH FILTER	164	SBNH-1D65C-SR w/ Mount Pipe	144
800 EXTERNAL NOTCH FILTER	164	6' Climbing Ladder (Flat)	142
800 EXTERNAL NOTCH FILTER	164	(4) DB844H90E-XY w/ Mount Pipe	134
Platform Mount [LP 601-1]	164	(4) DB844H90E-XY w/ Mount Pipe	134
8' x 2" Mount Pipe	164	Platform Mount [LP 303-1]	134
(2) 8' x 2" Mount Pipe	164	(4) DB844H90E-XY w/ Mount Pipe	134

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 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. TOWER RATING: 88%

CROWN CASTLE
The Foundation for a Wireless World

Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX: (724) 416-2257

Job: **BU# 881535**			
Project:			
Client: Crown Castle	Drawn by: RAshworth	App'd:	
Code: TIA/EIA-222-F	Date: 02/22/16	Scale: NTS	
Path: C:\Users\rashworth\Desktop\881535 WO 1193413\QA\881535.en		Dwg No. E-1	

Tower Input Data

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

6) Tower is located in Fairfield County, Connecticut.
7) Basic wind speed of 85 mph.
8) Nominal ice thickness of 0.7500 in.
9) Ice thickness is considered to increase with height.
10) Ice density of 56 pcf.
11) A wind speed of 38 mph is used in combination with ice.
12) Temperature drop of 50 °F.
13) Deflections calculated using a wind speed of 50 mph.
14) A non-linear (P-delta) analysis was used.
15) Pressures are calculated at each section.
16) Stress ratio used in pole design is 1.333.
17) 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		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
√	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	195'-157'7-13/16"	37'4-3/16"	4'8-3/4"	18	25.0000	33.8750	0.2500	1.0000	A572-65 (65 ksi)
L2	157'7-13/16"-117'31/32"	45'3-19/32"	5'10-5/16"	18	32.2501	42.9063	0.3125	1.2500	A572-65 (65 ksi)
L3	117'31/32"-81'1-3/32"	41'10-3/16"	6'10-3/32"	18	40.9017	50.7500	0.3750	1.5000	A572-65 (65 ksi)
L4	81'1-3/32"-40'15/32"	47'10-13/16"	7'11-13/32"	18	48.3897	59.6563	0.5000	2.0000	A572-65 (65 ksi)
L5	40'15/32"-0'	47'11-7/8"		18	56.7861	68.0000	0.5000	2.0000	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	25.3857	19.6391	1519.8824	8.7863	12.7000	119.6758	3041.7647	9.8214	3.9600	15.84
	34.3976	26.6814	3811.2835	11.9369	17.2085	221.4768	7627.5821	13.3433	5.5220	22.088
L2	33.8785	31.6781	4082.2570	11.3378	16.3830	249.1758	8169.8856	15.8421	5.1260	16.403
	43.5681	42.2477	9683.4926	15.1208	21.7964	444.2708	19379.7271	21.1279	7.0015	22.405
L3	42.9339	48.2369	10009.1818	14.3870	20.7781	481.7190	20031.5339	24.1230	6.5387	17.437
	51.5329	59.9588	19222.9846	17.8831	25.7810	745.6260	38471.2633	29.9851	8.2720	22.059
L4	50.7708	76.0009	22021.1308	17.0008	24.5819	895.8253	44071.2376	38.0077	7.6366	15.273
	60.5765	93.8810	41506.5163	21.0005	30.3054	1369.6091	83067.6479	46.9494	9.6195	19.239
L5	59.5486	89.3261	35753.5209	19.9816	28.8474	1239.4036	71554.0872	44.6715	9.1144	18.229
	69.0490	107.1225	61663.1484	23.9625	34.5440	1785.0610	123407.4348	53.5714	11.0880	22.176

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	Double Angle Stitch Bolt Spacing Redundants in
L1 195'-157'7-13/16"				1	1	1			
L2 157'7-13/16"-117'31/32"				1	1	1			
L3 117'31/32"-81'1-3/32"				1	1	1			
L4 81'1-3/32"-40'15/32"				1	1	1			
L5 40'15/32"-0'				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 plf
***										

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 plf
LDF6-50A(1-1/4")	C	No	Inside Pole	185' - 0'	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66
						4" Ice	0.00	0.66
FB-L98B-002-75000(3/8")	C	No	Inside Pole	185' - 0'	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
						2" Ice	0.00	0.06
						4" Ice	0.00	0.06
WR-VG82ST-BRDA(5/8)	C	No	Inside Pole	185' - 0'	2	No Ice	0.00	0.31
						1/2" Ice	0.00	0.31
						1" Ice	0.00	0.31

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						2" Ice	0.00	0.31
						4" Ice	0.00	0.31
2" Rigid Conduit	C	No	Inside Pole	185' - 0'	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80
***								
HB114-1-0813U4-M5J(1-1/4")	B	No	Inside Pole	164' - 0'	3	No Ice	0.00	1.20
						1/2" Ice	0.00	1.20
						1" Ice	0.00	1.20
						2" Ice	0.00	1.20
						4" Ice	0.00	1.20
9207(5/16")	B	No	Inside Pole	164' - 0'	6	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60
						2" Ice	0.00	0.60
						4" Ice	0.00	0.60
2" Rigid Conduit	B	No	Inside Pole	164' - 0'	2	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80
FSJ4-50B(1/2")	B	No	Inside Pole	164' - 0'	2	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
						2" Ice	0.00	0.14
						4" Ice	0.00	0.14
***								
AL7-50(1-5/8")	B	No	Inside Pole	154' - 0'	3	No Ice	0.00	0.52
						1/2" Ice	0.00	0.52
						1" Ice	0.00	0.52
						2" Ice	0.00	0.52
						4" Ice	0.00	0.52
HB158-1-08U8-S8J18(1-5/8")	B	No	Inside Pole	154' - 0'	1	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
						2" Ice	0.00	1.30
						4" Ice	0.00	1.30
HJ7-50A(1-5/8")	B	No	Inside Pole	154' - 0'	8	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
						2" Ice	0.00	1.04
						4" Ice	0.00	1.04
HJ7-50A(1-5/8")	B	No	CaAa (Out Of Face)	154' - 0'	2	No Ice	0.20	1.04
						1/2" Ice	0.30	2.55
						1" Ice	0.40	4.68
						2" Ice	0.60	10.76
						4" Ice	1.00	30.26
HJ7-50A(1-5/8")	B	No	CaAa (Out Of Face)	154' - 0'	5	No Ice	0.00	1.04
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
						2" Ice	0.00	0.00
						4" Ice	0.00	0.00
***								
LDF7-50A(1-5/8")	A	No	Inside Pole	144' - 0'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
MLE Hybrid 3Power/6Fiber RL 2(1-1/4")	A	No	Inside Pole	144' - 0'	1	No Ice	0.00	0.68
						1/2" Ice	0.00	0.68
						1" Ice	0.00	0.68
						2" Ice	0.00	0.68
						4" Ice	0.00	0.68
LDF6-50A(1-1/4")	A	No	Inside Pole	134' - 0'	9	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
						2" Ice	0.00	0.66

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						4" Ice	0.00	0.66
LDF7-50A(1-5/8")	A	No	Inside Pole	134' - 0'	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
***								

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	195'-157'7-13/16"	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.31
L2	157'7-13/16"-117'31/32"	A	0.000	0.000	0.000	0.000	0.47
		B	0.000	0.000	0.000	14.619	1.21
		C	0.000	0.000	0.000	0.000	0.46
L3	117'31/32"-81'1-3/32"	A	0.000	0.000	0.000	0.000	0.77
		B	0.000	0.000	0.000	14.252	1.14
		C	0.000	0.000	0.000	0.000	0.41
L4	81'1-3/32"-40'15/32"	A	0.000	0.000	0.000	0.000	0.88
		B	0.000	0.000	0.000	16.258	1.29
		C	0.000	0.000	0.000	0.000	0.47
L5	40'15/32"-0'	A	0.000	0.000	0.000	0.000	0.86
		B	0.000	0.000	0.000	15.855	1.26
		C	0.000	0.000	0.000	0.000	0.46

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	195'-157'7-13/16"	A	0.917	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.31
L2	157'7-13/16"-117'31/32"	A	0.889	0.000	0.000	0.000	0.000	0.47
		B		0.000	0.000	0.000	28.154	1.26
		C		0.000	0.000	0.000	0.000	0.46
L3	117'31/32"-81'1-3/32"	A	0.855	0.000	0.000	0.000	0.000	0.77
		B		0.000	0.000	0.000	27.057	1.18
		C		0.000	0.000	0.000	0.000	0.41
L4	81'1-3/32"-40'15/32"	A	0.807	0.000	0.000	0.000	0.000	0.88
		B		0.000	0.000	0.000	30.306	1.33
		C		0.000	0.000	0.000	0.000	0.47
L5	40'15/32"-0'	A	0.750	0.000	0.000	0.000	0.000	0.86
		B		0.000	0.000	0.000	28.773	1.28
		C		0.000	0.000	0.000	0.000	0.46

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	195'-157'7-13/16"	0.0000	0.0000	0.0000	0.0000
L2	157'7-13/16"-117'31/32"	0.4252	0.2455	0.7199	0.4156
L3	117'31/32"-81'1-	0.4667	0.2695	0.7926	0.4576

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L4	3/32" 81'1-3/32"-40'15/32"	0.4734	0.2733	0.8040	0.4642
L5	40'15/32"-0'	0.4785	0.2763	0.8036	0.4640

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.64 9.29 9.91 11.18 13.83	6.36 7.54 8.43 10.24 14.10	0.08 0.14 0.22 0.39 0.89
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.64 9.29 9.91 11.18 13.83	6.36 7.54 8.43 10.24 14.10	0.08 0.14 0.22 0.39 0.89
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.64 9.29 9.91 11.18 13.83	6.36 7.54 8.43 10.24 14.10	0.08 0.14 0.22 0.39 0.89
(2) RRUS-11	A	From Leg	4.00 0' 0'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.25 3.49 3.74 4.27 5.43	1.37 1.55 1.74 2.14 3.04	0.05 0.07 0.09 0.15 0.31
(2) RRUS-11	B	From Leg	4.00 0' 0'	0.0000	185'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.25 3.49 3.74 4.27 5.43	1.37 1.55 1.74 2.14 3.04	0.05 0.07 0.09 0.15 0.31
(2) RRUS-11	C	From Leg	4.00 0' 0'	0.0000	185'	No Ice 1/2" Ice	3.25 3.49 3.74	1.37 1.55 1.74	0.05 0.07 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(4) LGP21401	A	From Leg	4.00 0' 0'	0.0000	185'	No Ice	1.29	0.23	0.01
						1/2" Ice	1.45	0.31	0.02
						1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(4) LGP21401	B	From Leg	4.00 0' 0'	0.0000	185'	No Ice	1.29	0.23	0.01
						1/2" Ice	1.45	0.31	0.02
						1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
(4) LGP21401	C	From Leg	4.00 0' 0'	0.0000	185'	No Ice	1.29	0.23	0.01
						1/2" Ice	1.45	0.31	0.02
						1" Ice	1.61	0.40	0.03
						2" Ice	1.97	0.61	0.05
						4" Ice	2.79	1.12	0.14
DC6-48-60-18-8F	A	From Leg	4.00 0' 0'	0.0000	185'	No Ice	1.27	1.27	0.02
						1/2" Ice	1.46	1.46	0.04
						1" Ice	1.66	1.66	0.05
						2" Ice	2.09	2.09	0.10
						4" Ice	3.10	3.10	0.21
Platform Mount [LP 601-1]	C	None		0.0000	185'	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
						2" Ice	48.95	48.95	2.69
						4" Ice	69.43	69.43	4.26
***									
6' Climbing Ladder (Flat)	C	From Leg	2.00 0' 0'	0.0000	183'	No Ice	5.84	5.84	0.05
						1/2" Ice	10.30	10.30	0.07
						1" Ice	14.76	14.76	0.09
						2" Ice	23.67	23.67	0.14
						4" Ice	41.49	41.49	0.23
***									
Platform Mount [LP 601-1]	C	None		0.0000	174'	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
						2" Ice	48.95	48.95	2.69
						4" Ice	69.43	69.43	4.26
(4) 8' x 2" Mount Pipe	A	From Leg	4.00 0' 1'	0.0000	174'	No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
						4" Ice	6.50	6.50	0.30
(4) 8' x 2" Mount Pipe	B	From Leg	4.00 0' 1'	0.0000	174'	No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
						4" Ice	6.50	6.50	0.30
(4) 8' x 2" Mount Pipe	C	From Leg	4.00 0' 1'	0.0000	174'	No Ice	1.90	1.90	0.03
						1/2" Ice	2.73	2.73	0.04
						1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
						4" Ice	6.50	6.50	0.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
6' Climbing Ladder (Flat)	C	From Leg	2.00 0' 0'	0.0000	172'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.84 10.30 14.76 23.67 41.49	5.84 10.30 14.76 23.67 41.49	0.05 0.07 0.09 0.14 0.23
***									
LLPX310R w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.07 5.48 5.91 6.79 8.70	2.98 3.53 4.09 5.31 8.13	0.05 0.08 0.13 0.23 0.54
LLPX310R w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.07 5.48 5.91 6.79 8.70	2.98 3.53 4.09 5.31 8.13	0.05 0.08 0.13 0.23 0.54
LLPX310R w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.07 5.48 5.91 6.79 8.70	2.98 3.53 4.09 5.31 8.13	0.05 0.08 0.13 0.23 0.54
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0' 2'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0' 2'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0' 2'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
(3) ACU-A20-N	A	From Leg	4.00 0' 0'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
(3) ACU-A20-N	B	From Leg	4.00 0' 0'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
(3) ACU-A20-N	C	From Leg	4.00 0' 0'	0.0000	164'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
800MHZ RRH	A	From Leg	4.00 0' 0'	0.0000	164'	No Ice 1/2" Ice Ice	2.49 2.71 2.93	2.07 2.27 2.48	0.05 0.07 0.10

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
						1" Ice	3.41	2.93	0.16
						2" Ice	4.46	3.93	0.32
						4" Ice			
800MHZ RRH	B	From Leg	4.00	0.0000	164'	No Ice	2.49	2.07	0.05
			0'			1/2"	2.71	2.27	0.07
			0'			Ice	2.93	2.48	0.10
						1" Ice	3.41	2.93	0.16
						2" Ice	4.46	3.93	0.32
						4" Ice			
800MHZ RRH	C	From Leg	4.00	0.0000	164'	No Ice	2.49	2.07	0.05
			0'			1/2"	2.71	2.27	0.07
			0'			Ice	2.93	2.48	0.10
						1" Ice	3.41	2.93	0.16
						2" Ice	4.46	3.93	0.32
						4" Ice			
FDD_R6_RRH	A	From Leg	4.00	0.0000	164'	No Ice	1.79	0.78	0.03
			0'			1/2"	1.97	0.92	0.04
			0'			Ice	2.16	1.07	0.06
						1" Ice	2.57	1.39	0.09
						2" Ice	3.49	2.14	0.20
						4" Ice			
FDD_R6_RRH	B	From Leg	4.00	0.0000	164'	No Ice	1.79	0.78	0.03
			0'			1/2"	1.97	0.92	0.04
			0'			Ice	2.16	1.07	0.06
						1" Ice	2.57	1.39	0.09
						2" Ice	3.49	2.14	0.20
						4" Ice			
FDD_R6_RRH	C	From Leg	4.00	0.0000	164'	No Ice	1.79	0.78	0.03
			0'			1/2"	1.97	0.92	0.04
			0'			Ice	2.16	1.07	0.06
						1" Ice	2.57	1.39	0.09
						2" Ice	3.49	2.14	0.20
						4" Ice			
1900MHz RRH (65MHz)	A	From Leg	4.00	0.0000	164'	No Ice	2.70	2.77	0.06
			0'			1/2"	2.94	3.01	0.08
			0'			Ice	3.18	3.26	0.11
						1" Ice	3.70	3.78	0.18
						2" Ice	4.85	4.93	0.35
						4" Ice			
1900MHz RRH (65MHz)	B	From Leg	4.00	0.0000	164'	No Ice	2.70	2.77	0.06
			0'			1/2"	2.94	3.01	0.08
			0'			Ice	3.18	3.26	0.11
						1" Ice	3.70	3.78	0.18
						2" Ice	4.85	4.93	0.35
						4" Ice			
1900MHz RRH (65MHz)	C	From Leg	4.00	0.0000	164'	No Ice	2.70	2.77	0.06
			0'			1/2"	2.94	3.01	0.08
			0'			Ice	3.18	3.26	0.11
						1" Ice	3.70	3.78	0.18
						2" Ice	4.85	4.93	0.35
						4" Ice			
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00	0.0000	164'	No Ice	0.77	0.37	0.01
			0'			1/2"	0.89	0.46	0.02
			0'			Ice	1.02	0.56	0.02
						1" Ice	1.30	0.79	0.04
						2" Ice	1.97	1.34	0.11
						4" Ice			
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.0000	164'	No Ice	0.77	0.37	0.01
			0'			1/2"	0.89	0.46	0.02
			0'			Ice	1.02	0.56	0.02
						1" Ice	1.30	0.79	0.04
						2" Ice	1.97	1.34	0.11
						4" Ice			
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.0000	164'	No Ice	0.77	0.37	0.01
			0'			1/2"	0.89	0.46	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			Ice	1.02	0.56	0.02
						1" Ice	1.30	0.79	0.04
						2" Ice	1.97	1.34	0.11
						4" Ice			
Platform Mount [LP 601-1]	C	None		0.0000	164'	No Ice	28.47	28.47	1.12
						1/2"	33.59	33.59	1.51
						Ice	38.71	38.71	1.91
						1" Ice	48.95	48.95	2.69
						2" Ice	69.43	69.43	4.26
						4" Ice			
8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	164'	No Ice	1.90	1.90	0.03
			0'			1/2"	2.73	2.73	0.04
			2'			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice	6.50	6.50	0.30
						4" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	164'	No Ice	1.90	1.90	0.03
			0'			1/2"	2.73	2.73	0.04
			2'			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice	6.50	6.50	0.30
						4" Ice			
8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	164'	No Ice	1.90	1.90	0.03
			0'			1/2"	2.73	2.73	0.04
			2'			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice	6.50	6.50	0.30
						4" Ice			
***									
742 213 w/ Mount Pipe	A	From Leg	4.00	0.0000	154'	No Ice	5.37	4.62	0.05
			0'			1/2"	5.95	6.00	0.09
			1'			Ice	6.50	6.98	0.15
						1" Ice	7.61	8.85	0.28
						2" Ice	9.93	12.79	0.68
						4" Ice			
742 213 w/ Mount Pipe	B	From Leg	4.00	0.0000	154'	No Ice	5.37	4.62	0.05
			0'			1/2"	5.95	6.00	0.09
			1'			Ice	6.50	6.98	0.15
						1" Ice	7.61	8.85	0.28
						2" Ice	9.93	12.79	0.68
						4" Ice			
742 213 w/ Mount Pipe	C	From Leg	4.00	0.0000	154'	No Ice	5.37	4.62	0.05
			0'			1/2"	5.95	6.00	0.09
			1'			Ice	6.50	6.98	0.15
						1" Ice	7.61	8.85	0.28
						2" Ice	9.93	12.79	0.68
						4" Ice			
MG D3-800TV w/ Mount Pipe	A	From Leg	4.00	0.0000	154'	No Ice	3.57	3.42	0.04
			0'			1/2"	3.98	4.12	0.07
			1'			Ice	4.39	4.78	0.11
						1" Ice	5.33	6.16	0.21
						2" Ice	7.34	9.18	0.52
						4" Ice			
MG D3-800TV w/ Mount Pipe	B	From Leg	4.00	0.0000	154'	No Ice	3.57	3.42	0.04
			0'			1/2"	3.98	4.12	0.07
			1'			Ice	4.39	4.78	0.11
						1" Ice	5.33	6.16	0.21
						2" Ice	7.34	9.18	0.52
						4" Ice			
MG D3-800TV w/ Mount Pipe	C	From Leg	4.00	0.0000	154'	No Ice	3.57	3.42	0.04
			0'			1/2"	3.98	4.12	0.07
			1'			Ice	4.39	4.78	0.11
						1" Ice	5.33	6.16	0.21
						2" Ice	7.34	9.18	0.52
						4" Ice			

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
BXA-70063/6CF w/ Mount Pipe	A	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.98 8.62 9.23 10.47 13.08	5.70 6.85 7.71 9.50 13.26	0.04 0.10 0.17 0.33 0.80
BXA-70063/6CF w/ Mount Pipe	B	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.98 8.62 9.23 10.47 13.08	5.70 6.85 7.71 9.50 13.26	0.04 0.10 0.17 0.33 0.80
BXA-70063/6CF w/ Mount Pipe	C	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.98 8.62 9.23 10.47 13.08	5.70 6.85 7.71 9.50 13.26	0.04 0.10 0.17 0.33 0.80
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.90 5.35 5.80 6.73 8.73	4.92 5.60 6.28 7.71 10.83	0.03 0.08 0.13 0.26 0.62
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.90 5.35 5.80 6.73 8.73	4.92 5.60 6.28 7.71 10.83	0.03 0.08 0.13 0.26 0.62
(2) LPA-4016 w/ Mount Pipe	B	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.06 8.44 11.82 18.58 32.10	6.03 6.06 6.09 6.15 6.27	0.04 0.08 0.12 0.19 0.34
RRH2x40-AWS	A	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.52 2.75 2.99 3.50 4.61	1.59 1.80 2.01 2.46 3.48	0.04 0.06 0.08 0.13 0.28
RRH2x40-AWS	B	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.52 2.75 2.99 3.50 4.61	1.59 1.80 2.01 2.46 3.48	0.04 0.06 0.08 0.13 0.28
RRH2x40-AWS	C	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.52 2.75 2.99 3.50 4.61	1.59 1.80 2.01 2.46 3.48	0.04 0.06 0.08 0.13 0.28
DB-B1-6C-8AB-0Z	C	From Leg	4.00 0' 1'	0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.60 5.92 6.24 6.91 8.37	2.33 2.56 2.79 3.28 4.37	0.04 0.08 0.12 0.21 0.45
Platform Mount [LP 601-1]	C	None		0.0000	154'	No Ice 1/2" Ice 1" Ice 2" Ice	28.47 33.59 38.71 48.95 69.43	28.47 33.59 38.71 48.95 69.43	1.12 1.51 1.91 2.69 4.26

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice			
***									
6' Climbing Ladder (Flat)	A	From Leg	2.00 0' 0'	0.0000	152'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.84 10.30 14.76 23.67 41.49	5.84 10.30 14.76 23.67 41.49	0.05 0.07 0.09 0.14 0.23
***									
SBNH-1D65C-SR w/ Mount Pipe	A	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
SBNH-1D65C-SR w/ Mount Pipe	B	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
SBNH-1D65C-SR w/ Mount Pipe	C	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	11.68 12.40 13.14 14.60 17.87	9.84 11.37 12.91 15.27 20.14	0.08 0.17 0.27 0.51 1.15
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
RRUS 11 B2	A	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B2	B	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B2	C	From Leg	4.00 0' 1'	0.0000	144'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.31 3.55 3.80 4.33 5.50	1.36 1.54 1.73 2.13 3.04	0.05 0.07 0.10 0.15 0.31
RRUS 11 B12	A	From Leg	4.00 0'	0.0000	144'	No Ice 1/2"	3.31 3.55	1.36 1.54	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1'			Ice	3.80	1.73	0.10
						1" Ice	4.33	2.13	0.15
						2" Ice	5.50	3.04	0.31
						4" Ice			
RRUS 11 B12	B	From Leg	4.00	0.0000	144'	No Ice	3.31	1.36	0.05
			0'			1/2"	3.55	1.54	0.07
			1'			Ice	3.80	1.73	0.10
						1" Ice	4.33	2.13	0.15
						2" Ice	5.50	3.04	0.31
						4" Ice			
RRUS 11 B12	C	From Leg	4.00	0.0000	144'	No Ice	3.31	1.36	0.05
			0'			1/2"	3.55	1.54	0.07
			1'			Ice	3.80	1.73	0.10
						1" Ice	4.33	2.13	0.15
						2" Ice	5.50	3.04	0.31
						4" Ice			
KRY 112 144/1	A	From Leg	4.00	0.0000	144'	No Ice	0.41	0.20	0.01
			0'			1/2"	0.50	0.27	0.01
			1'			Ice	0.59	0.35	0.02
						1" Ice	0.81	0.53	0.03
						2" Ice	1.36	1.00	0.08
						4" Ice			
KRY 112 144/1	B	From Leg	4.00	0.0000	144'	No Ice	0.41	0.20	0.01
			0'			1/2"	0.50	0.27	0.01
			1'			Ice	0.59	0.35	0.02
						1" Ice	0.81	0.53	0.03
						2" Ice	1.36	1.00	0.08
						4" Ice			
KRY 112 144/1	C	From Leg	4.00	0.0000	144'	No Ice	0.41	0.20	0.01
			0'			1/2"	0.50	0.27	0.01
			1'			Ice	0.59	0.35	0.02
						1" Ice	0.81	0.53	0.03
						2" Ice	1.36	1.00	0.08
						4" Ice			
Platform Mount [LP 601-1]	C	None		0.0000	144'	No Ice	28.47	28.47	1.12
						1/2"	33.59	33.59	1.51
						Ice	38.71	38.71	1.91
						1" Ice	48.95	48.95	2.69
						2" Ice	69.43	69.43	4.26
						4" Ice			
***									
6' Climbing Ladder (Flat)	A	From Leg	2.00	0.0000	142'	No Ice	5.84	5.84	0.05
			0'			1/2"	10.30	10.30	0.07
			0'			Ice	14.76	14.76	0.09
						1" Ice	23.67	23.67	0.14
						2" Ice	41.49	41.49	0.23
						4" Ice			
***									
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00	0.0000	134'	No Ice	3.30	4.92	0.03
			0'			1/2"	3.69	5.60	0.07
			1'			Ice	4.12	6.28	0.12
						1" Ice	5.01	7.71	0.23
						2" Ice	6.92	10.83	0.56
						4" Ice			
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00	0.0000	134'	No Ice	3.30	4.92	0.03
			0'			1/2"	3.69	5.60	0.07
			1'			Ice	4.12	6.28	0.12
						1" Ice	5.01	7.71	0.23
						2" Ice	6.92	10.83	0.56
						4" Ice			
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.00	0.0000	134'	No Ice	3.30	4.92	0.03
			0'			1/2"	3.69	5.60	0.07
			1'			Ice	4.12	6.28	0.12
						1" Ice	5.01	7.71	0.23
						2" Ice	6.92	10.83	0.56

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount [LP 303-1]	C	None		0.0000	134'	4" Ice No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	14.66 18.87 23.08 31.50 48.34	14.66 18.87 23.08 31.50 48.34	1.25 1.48 1.71 2.18 3.10
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
A-ANT-23G-2-C	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0' 2'	40.0000		164'	2.17	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.72 4.01 4.30 4.88 6.04	0.01 0.03 0.05 0.09 0.18
***											

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
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

Comb. No.	Description
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	195 - 157.648	Pole	Max Tension	5	0.00	0.00	0.00
			Max. Compression	14	-14.99	0.01	-0.32
			Max. Mx	11	-7.25	231.14	0.22
			Max. My	8	-7.24	-0.07	-231.42
			Max. Vy	5	16.64	-230.98	-0.28
			Max. Vx	2	-16.74	0.22	231.29
			Max. Torque	13			1.73
L2	157.648 - 117.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-35.07	0.29	-0.14
			Max. Mx	5	-19.05	-1310.80	0.77
			Max. My	2	-19.04	-1.65	1313.88
			Max. Vy	5	35.33	-1310.80	0.77
			Max. Vx	2	-35.40	-1.65	1313.88
			Max. Torque	5			-1.59
L3	117.083 - 81.0938	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-46.46	-0.19	-0.42
			Max. Mx	5	-29.00	-2624.40	2.30
			Max. My	2	-29.00	-4.26	2629.32
			Max. Vy	5	39.62	-2624.40	2.30
			Max. Vx	2	-39.69	-4.26	2629.32
			Max. Torque	22			-0.59
L4	81.0938 - 40.0391	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-64.34	-0.82	-0.78
			Max. Mx	5	-45.01	-4305.63	3.99
			Max. My	2	-45.01	-7.32	4312.49
			Max. Vy	5	44.36	-4305.63	3.99
			Max. Vx	2	-44.43	-7.32	4312.49
			Max. Torque	22			-0.52
L5	40.0391 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-89.27	-1.65	-1.26
			Max. Mx	5	-67.71	-6551.52	5.92
			Max. My	2	-67.71	-11.06	6560.49
			Max. Vy	5	49.04	-6551.52	5.92
			Max. Vx	2	-49.11	-11.06	6560.49
			Max. Torque	3			-0.44

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	19	89.27	-10.38	-6.00
	Max. H_x	11	67.74	49.00	-0.02
	Max. H_z	2	67.74	-0.06	49.07

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M_x	2	6560.49	-0.06	49.07
	Max. M_z	5	6551.52	-49.00	0.05
	Max. Torsion	10	0.41	42.46	-24.61
	Min. Vert	1	67.74	0.00	0.00
	Min. H_x	5	67.74	-49.00	0.05
	Min. H_z	8	67.74	0.07	-49.02
	Min. M_x	8	-6554.40	0.07	-49.02
	Min. M_z	11	-6547.46	49.00	-0.02
	Min. Torsion	3	-0.44	-24.52	42.56

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	67.74	0.00	0.00	1.18	-1.89	0.00
Dead+Wind 0 deg - No Ice	67.74	0.06	-49.07	-6560.49	-11.06	0.41
Dead+Wind 30 deg - No Ice	67.74	24.52	-42.56	-5691.84	-3278.29	0.44
Dead+Wind 60 deg - No Ice	67.74	42.47	-24.60	-3289.62	-5678.35	0.33
Dead+Wind 90 deg - No Ice	67.74	49.00	-0.05	-5.92	-6551.52	0.04
Dead+Wind 120 deg - No Ice	67.74	42.37	24.47	3272.74	-5663.59	-0.19
Dead+Wind 150 deg - No Ice	67.74	24.42	42.41	5669.88	-3264.53	-0.14
Dead+Wind 180 deg - No Ice	67.74	-0.07	49.02	6554.40	9.36	-0.24
Dead+Wind 210 deg - No Ice	67.74	-24.53	42.52	5687.63	3277.09	-0.34
Dead+Wind 240 deg - No Ice	67.74	-42.46	24.61	3294.35	5674.29	-0.41
Dead+Wind 270 deg - No Ice	67.74	-49.00	0.02	3.81	6547.46	0.12
Dead+Wind 300 deg - No Ice	67.74	-42.39	-24.51	-3276.38	5663.62	0.34
Dead+Wind 330 deg - No Ice	67.74	-24.44	-42.46	-5675.34	3263.51	0.33
Dead+Ice+Temp	89.27	0.00	0.00	1.26	-1.65	0.00
Dead+Wind 0 deg+Ice+Temp	89.27	-0.04	-11.93	-1661.32	5.31	-0.28
Dead+Wind 30 deg+Ice+Temp	89.27	5.94	-10.31	-1436.42	-829.13	-0.33
Dead+Wind 60 deg+Ice+Temp	89.27	10.35	-5.93	-824.41	-1444.30	-0.30
Dead+Wind 90 deg+Ice+Temp	89.27	11.97	0.04	8.77	-1671.57	-0.21
Dead+Wind 120 deg+Ice+Temp	89.27	10.38	6.00	838.37	-1450.00	-0.05
Dead+Wind 150 deg+Ice+Temp	89.27	6.02	10.34	1442.56	-841.71	0.18
Dead+Wind 180 deg+Ice+Temp	89.27	0.04	11.91	1662.02	-8.19	0.31
Dead+Wind 210 deg+Ice+Temp	89.27	-5.94	10.31	1437.54	826.36	0.35
Dead+Wind 240 deg+Ice+Temp	89.27	-10.35	5.93	827.58	1440.87	0.28
Dead+Wind 270 deg+Ice+Temp	89.27	-11.97	-0.05	-7.16	1668.14	0.25
Dead+Wind 300 deg+Ice+Temp	89.27	-10.39	-6.01	-837.11	1447.51	0.08
Dead+Wind 330 deg+Ice+Temp	89.27	-6.02	-10.35	-1441.72	838.98	-0.14
Dead+Wind 0 deg - Service	67.74	0.02	-16.98	-2271.80	-5.10	0.14
Dead+Wind 30 deg - Service	67.74	8.48	-14.73	-1970.90	-1136.89	0.15
Dead+Wind 60 deg - Service	67.74	14.69	-8.51	-1138.75	-1968.28	0.11
Dead+Wind 90 deg - Service	67.74	16.96	-0.02	-1.26	-2270.75	0.01
Dead+Wind 120 deg - Service	67.74	14.66	8.47	1134.49	-1963.16	-0.07
Dead+Wind 150 deg - Service	67.74	8.45	14.68	1964.86	-1132.12	-0.05
Dead+Wind 180 deg - Service	67.74	-0.03	16.96	2271.27	1.97	-0.08
Dead+Wind 210 deg - Service	67.74	-8.49	14.71	1971.03	1133.93	-0.12

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 240 deg-Service	67.74	-14.69	8.52	1141.98	1964.33	-0.14
Dead+Wind 270 deg-Service	67.74	-16.96	0.01	2.12	2266.79	0.04
Dead+Wind 300 deg-Service	67.74	-14.67	-8.48	-1134.16	1960.63	0.12
Dead+Wind 330 deg-Service	67.74	-8.46	-14.69	-1965.17	1129.22	0.11

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-67.74	0.00	0.00	67.74	0.00	0.000%
2	0.06	-67.74	-49.07	-0.06	67.74	49.07	0.000%
3	24.52	-67.74	-42.56	-24.52	67.74	42.56	0.000%
4	42.47	-67.74	-24.60	-42.47	67.74	24.60	0.000%
5	49.00	-67.74	-0.05	-49.00	67.74	0.05	0.000%
6	42.37	-67.74	24.47	-42.37	67.74	-24.47	0.000%
7	24.42	-67.74	42.41	-24.42	67.74	-42.41	0.000%
8	-0.07	-67.74	49.02	0.07	67.74	-49.02	0.000%
9	-24.53	-67.74	42.52	24.53	67.74	-42.52	0.000%
10	-42.46	-67.74	24.61	42.46	67.74	-24.61	0.000%
11	-49.00	-67.74	0.02	49.00	67.74	-0.02	0.000%
12	-42.39	-67.74	-24.51	42.39	67.74	24.51	0.000%
13	-24.44	-67.74	-42.46	24.44	67.74	42.46	0.000%
14	0.00	-89.27	0.00	0.00	89.27	0.00	0.000%
15	-0.04	-89.27	-11.93	0.04	89.27	11.93	0.000%
16	5.94	-89.27	-10.31	-5.94	89.27	10.31	0.000%
17	10.35	-89.27	-5.93	-10.35	89.27	5.93	0.000%
18	11.97	-89.27	0.04	-11.97	89.27	-0.04	0.000%
19	10.38	-89.27	6.00	-10.38	89.27	-6.00	0.000%
20	6.02	-89.27	10.34	-6.02	89.27	-10.34	0.000%
21	0.04	-89.27	11.91	-0.04	89.27	-11.91	0.000%
22	-5.94	-89.27	10.31	5.94	89.27	-10.31	0.000%
23	-10.35	-89.27	5.93	10.35	89.27	-5.93	0.000%
24	-11.97	-89.27	-0.05	11.97	89.27	0.05	0.000%
25	-10.39	-89.27	-6.01	10.39	89.27	6.01	0.000%
26	-6.02	-89.27	-10.35	6.02	89.27	10.35	0.000%
27	0.02	-67.74	-16.98	-0.02	67.74	16.98	0.000%
28	8.48	-67.74	-14.73	-8.48	67.74	14.73	0.000%
29	14.69	-67.74	-8.51	-14.69	67.74	8.51	0.000%
30	16.96	-67.74	-0.02	-16.96	67.74	0.02	0.000%
31	14.66	-67.74	8.47	-14.66	67.74	-8.47	0.000%
32	8.45	-67.74	14.68	-8.45	67.74	-14.68	0.000%
33	-0.03	-67.74	16.96	0.03	67.74	-16.96	0.000%
34	-8.49	-67.74	14.71	8.49	67.74	-14.71	0.000%
35	-14.69	-67.74	8.52	14.69	67.74	-8.52	0.000%
36	-16.96	-67.74	0.01	16.96	67.74	-0.01	0.000%
37	-14.67	-67.74	-8.48	14.67	67.74	8.48	0.000%
38	-8.46	-67.74	-14.69	8.46	67.74	14.69	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	0.00020277
3	Yes	5	0.00000001	0.00057999
4	Yes	5	0.00000001	0.00058039
5	Yes	4	0.00000001	0.00019354

6	Yes	5	0.00000001	0.00057656
7	Yes	5	0.00000001	0.00057452
8	Yes	4	0.00000001	0.00024684
9	Yes	5	0.00000001	0.00058041
10	Yes	5	0.00000001	0.00058133
11	Yes	4	0.00000001	0.00018803
12	Yes	5	0.00000001	0.00057808
13	Yes	5	0.00000001	0.00057693
14	Yes	4	0.00000001	0.00000001
15	Yes	5	0.00000001	0.00017855
16	Yes	5	0.00000001	0.00021688
17	Yes	5	0.00000001	0.00021858
18	Yes	5	0.00000001	0.00017935
19	Yes	5	0.00000001	0.00022067
20	Yes	5	0.00000001	0.00021957
21	Yes	5	0.00000001	0.00017857
22	Yes	5	0.00000001	0.00021845
23	Yes	5	0.00000001	0.00021764
24	Yes	5	0.00000001	0.00017924
25	Yes	5	0.00000001	0.00022038
26	Yes	5	0.00000001	0.00022043
27	Yes	4	0.00000001	0.00009208
28	Yes	5	0.00000001	0.00004583
29	Yes	5	0.00000001	0.00004584
30	Yes	4	0.00000001	0.00009129
31	Yes	5	0.00000001	0.00004548
32	Yes	5	0.00000001	0.00004516
33	Yes	4	0.00000001	0.00009377
34	Yes	5	0.00000001	0.00004590
35	Yes	5	0.00000001	0.00004599
36	Yes	4	0.00000001	0.00009131
37	Yes	5	0.00000001	0.00004557
38	Yes	5	0.00000001	0.00004543

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	195 - 157.648	43.171	28	1.8635	0.0015
L2	162.383 - 117.083	30.583	28	1.7838	0.0005
L3	122.948 - 81.0938	17.204	28	1.3821	0.0002
L4	87.9375 - 40.0391	8.617	28	0.9193	0.0001
L5	47.9896 - 0	2.610	28	0.4903	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185'	(2) 7770.00 w/ Mount Pipe	28	39.255	1.8540	0.0012	34072
183'	6' Climbing Ladder (Flat)	28	38.475	1.8513	0.0011	28393
174'	Platform Mount [LP 601-1]	28	34.990	1.8324	0.0008	16224
172'	6' Climbing Ladder (Flat)	28	34.222	1.8263	0.0008	14813
166'	A-ANT-23G-2-C	28	31.941	1.8026	0.0006	11746
164'	LLPX310R w/ Mount Pipe	28	31.188	1.7927	0.0005	10965
154'	742 213 w/ Mount Pipe	28	27.496	1.7256	0.0003	7873
152'	6' Climbing Ladder (Flat)	28	26.775	1.7089	0.0003	7436
144'	SBNH-1D65C-SR w/ Mount Pipe	28	23.957	1.6331	0.0002	6084
142'	6' Climbing Ladder (Flat)	28	23.271	1.6121	0.0002	5819
134'	(4) DB844H90E-XY w/ Mount	28	20.614	1.5212	0.0002	4957

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
	Pipe					

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	195 - 157.648	124.355	3	5.3742	0.0044
L2	162.383 - 117.083	88.130	3	5.1442	0.0020
L3	122.948 - 81.0938	49.612	3	3.9867	0.0009
L4	87.9375 - 40.0391	24.861	3	2.6527	0.0004
L5	47.9896 - 0	7.533	3	1.4152	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
185'	(2) 7770.00 w/ Mount Pipe	3	113.087	5.3467	0.0034	12034
183'	6' Climbing Ladder (Flat)	3	110.843	5.3389	0.0032	10028
174'	Platform Mount [LP 601-1]	3	100.813	5.2845	0.0024	5728
172'	6' Climbing Ladder (Flat)	3	98.605	5.2670	0.0024	5230
166'	A-ANT-23G-2-C	3	92.039	5.1986	0.0021	4146
164'	LLPX310R w/ Mount Pipe	3	89.873	5.1699	0.0020	3869
154'	742 213 w/ Mount Pipe	3	79.247	4.9765	0.0016	2771
152'	6' Climbing Ladder (Flat)	3	77.170	4.9285	0.0016	2616
144'	SBNH-1D65C-SR w/ Mount Pipe	3	69.057	4.7101	0.0013	2137
142'	6' Climbing Ladder (Flat)	3	67.083	4.6496	0.0013	2044
134'	(4) DB844H90E-XY w/ Mount Pipe	3	59.434	4.3877	0.0011	1738

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
L1	195 - 157.648 (1)	TP33.875x25x0.25	37'4-3/16"	0'	0.0	39.000	25.7888	-7.24	1005.76	0.007
L2	157.648 - 117.083 (2)	TP42.9063x32.2501x0.3125	45'3-19/32"	0'	0.0	39.000	40.8793	-19.04	1594.29	0.012
L3	117.083 - 81.0938 (3)	TP50.75x40.9017x0.375	41'10-3/16"	0'	0.0	39.000	58.0421	-28.99	2263.64	0.013
L4	81.0938 - 40.0391 (4)	TP59.6563x48.3897x0.5	47'10-13/16"	0'	0.0	39.000	90.9131	-45.00	3545.61	0.013
L5	40.0391 - 0 (5)	TP68x56.7861x0.5	47'11-7/8"	0'	0.0	39.000	107.1220	-67.71	4177.78	0.016

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	195 - 157.648 (1)	TP33.875x25x0.25	231.42	13.425	39.000	0.344	0.00	0.000	39.000	0.000
L2	157.648 - 117.083 (2)	TP42.9063x32.2501x0.3125	1314.92	37.943	39.000	0.973	0.00	0.000	39.000	0.000
L3	117.083 - 81.0938 (3)	TP50.75x40.9017x0.375	2632.28	45.219	39.000	1.159	0.00	0.000	39.000	0.000
L4	81.0938 - 40.0391 (4)	TP59.6563x48.3897x0.5	4317.69	40.351	39.000	1.035	0.00	0.000	39.000	0.000
L5	40.0391 - 0 (5)	TP68x56.7861x0.5	6568.42	44.156	39.000	1.132	0.00	0.000	39.000	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	195 - 157.648 (1)	TP33.875x25x0.25	16.69	0.647	26.000	0.050	0.90	0.025	26.000	0.001
L2	157.648 - 117.083 (2)	TP42.9063x32.2501x0.3125	35.45	0.867	26.000	0.067	0.26	0.004	26.000	0.000
L3	117.083 - 81.0938 (3)	TP50.75x40.9017x0.375	39.74	0.685	26.000	0.053	0.06	0.001	26.000	0.000
L4	81.0938 - 40.0391 (4)	TP59.6563x48.3897x0.5	44.48	0.489	26.000	0.038	0.17	0.001	26.000	0.000
L5	40.0391 - 0 (5)	TP68x56.7861x0.5	49.16	0.459	26.000	0.035	0.44	0.001	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	195 - 157.648 (1)	0.007	0.344	0.000	0.050	0.001	0.352 ✔	1.333	H1-3+VT ✔
L2	157.648 - 117.083 (2)	0.012	0.973	0.000	0.067	0.000	0.986 ✔	1.333	H1-3+VT ✔
L3	117.083 - 81.0938 (3)	0.013	1.159	0.000	0.053	0.000	1.173 ✔	1.333	H1-3+VT ✔
L4	81.0938 - 40.0391 (4)	0.013	1.035	0.000	0.038	0.000	1.048 ✔	1.333	H1-3+VT ✔
L5	40.0391 - 0 (5)	0.016	1.132	0.000	0.035	0.000	1.149 ✔	1.333	H1-3+VT ✔

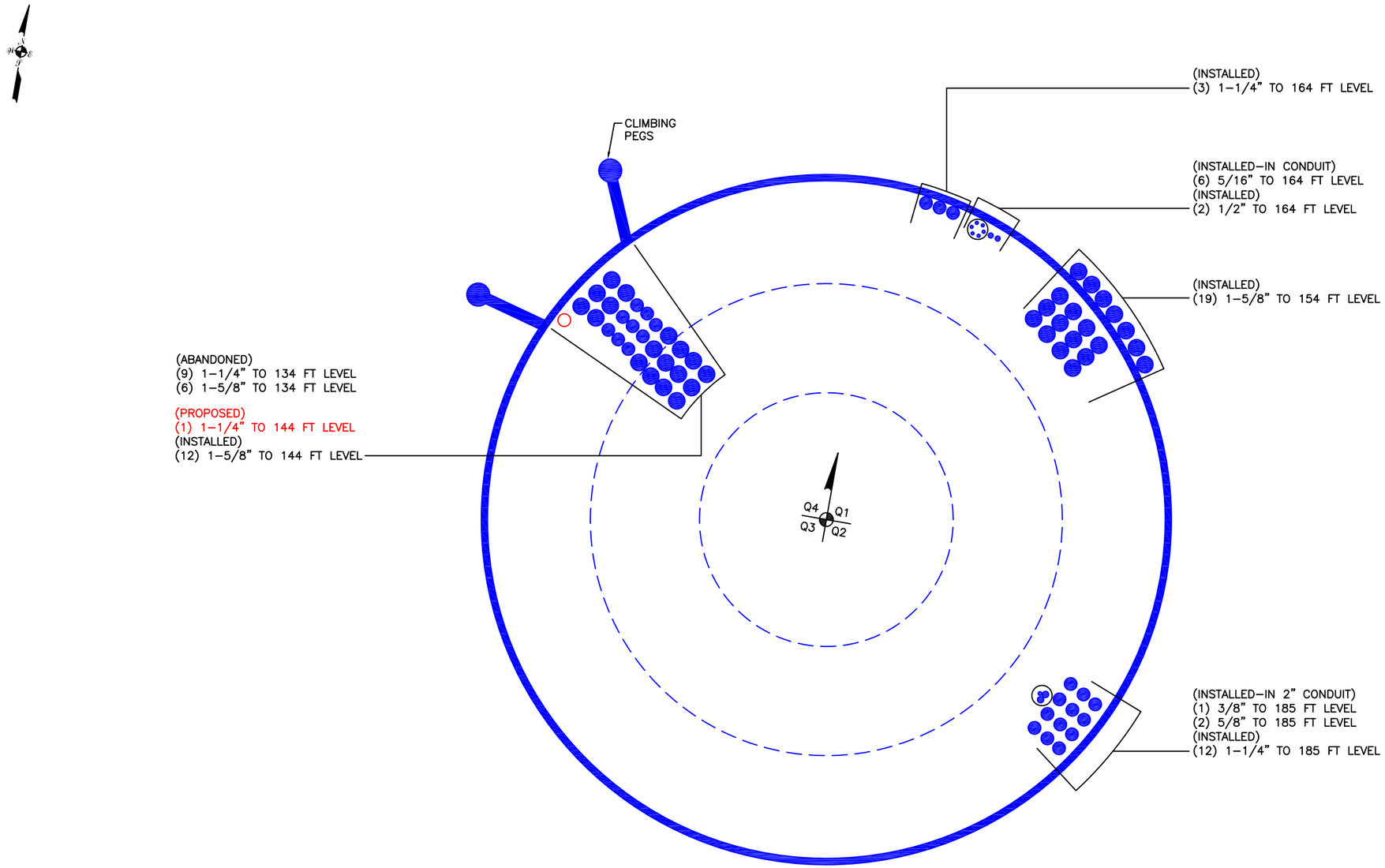
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	195 - 157.648	Pole	TP33.875x25x0.25	1	-7.24	1340.68	26.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L2	157.648 - 117.083	Pole	TP42.9063x32.2501x0.3125	2	-19.04	2125.19	74.0	Pass
L3	117.083 - 81.0938	Pole	TP50.75x40.9017x0.375	3	-28.99	3017.43	88.0	Pass
L4	81.0938 - 40.0391	Pole	TP59.6563x48.3897x0.5	4	-45.00	4726.30	78.6	Pass
L5	40.0391 - 0	Pole	TP68x56.7861x0.5	5	-67.71	5568.98	86.2	Pass
							Summary	
						Pole (L3)	88.0	Pass
						RATING =	**88.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 881535 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#: *881535*
Site Name: *TRUMBULL TOWER*
App #: *333698 Rev. 4*

Pole Manufacturer:	*Other*

Reactions		
Moment:	6568	ft-kips
Axial:	68	kips
Shear:	49	kips

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	76.5	in

Anchor Rod Results

Maximum Rod Tension:	168.9 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	86.6% **Pass**	Fty*ASIF

Plate Data		
Diam:	82.5	in
Thick:	2.5	in
Grade:	60	ksi
Single-Rod B-eff:	8.99	in

Base Plate Results Flexural Check

Base Plate Stress:	49.0 ksi	Rigid
Allowable Plate Stress:	60.0 ksi	Service ASD
Base Plate Stress Ratio:	81.7% **Pass**	0.75*Fy*ASIF
		Y.L. Length: 35.05

Stiffener Data (Welding at both sides)		
Config:	0	*
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

n/a

Stiffener Results

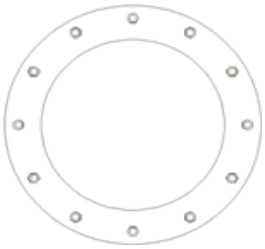
Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	68	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Monopole Pier and Pad Foundation

BU # : 881535
Site Name: TRUMBULL TOWER
App. Number: 333698 Rev. 4

TIA-222 Revision: F

Design Reactions

Shear, **S**:	49	kips
Moment, **M**:	6568	ft-kips
Tower Height, **H**:	195	ft
Tower Weight, **Wt**:	68	kips
Base Diameter, **BD**:	5.67	ft

Foundation Dimensions

Depth, **D**:	7	ft
Pad Width, **W**:	29	ft
Neglected Depth, **N**:	3.333	ft
Thickness, **T**:	3.00	ft
Pier Diameter, **Pd**:	9.00	ft
Ext. Above Grade, **E**:	1.00	ft
BP Dist. Above Pier:	3	in.
Clear Cover, **Cc**:	5.8	in

Soil Properties

Soil Unit Weight, **γ**:	0.125	kcf
Ult. Bearing Capacity, Bc:	12.0	ksf
Angle of Friction, **Φ**:	34	deg
Cohesion, **Co**:	0.000	ksf
Passive Pressure, **Pp**:	0.000	ksf
Base Friction, **μ**:	0.60	

Material Properties

Rebar Yield Strength, **Fy**:	60000	psi
Concrete Strength, **F'c**:	4000	psi
Concrete Unit Weight, **δc**:	0.150	kcf
Seismic Zone, **z**:	1	

Rebar Properties

Pier Rebar Size, **Sp**:	8	
Pier Rebar Quanity, **mp**:	54	58
Pad Rebar Size, **Spad**:	8	
Pad Rebar Quanity, **mpad**:	55	25
Pier Tie Size, **St**:	4	3
Tie Quanity, **mt**:	10	6

Design Checks

	Capacity/ Availability	Demand/ Limits	Check
Req'd Pier Diam.(ft)	9	7.6667	**OK**
Overturning (ft-kips)	8026.58	6568.00	**81.8%**
Shear Capacity (kips)	289.79	49.00	**16.9%**
Bearing (ksf)	9.00	3.85	**42.8%**
Pad Shear - 1-way (kips)	982.17	714.80	**72.8%**
Pad Shear - 2-way (kips)	2442.75	187.64	**7.7%**
Pad Moment Capacity (k-ft)	5601.46	2851.48	**50.9%**

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: CT11961A

CT961/ Indian Ledge Park
Indian Ledge Park Road
Trumbull, CT 06611

March 8, 2016

EBI Project Number: 6216001351

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	11.58 %

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

EBI Consulting
environmental | engineering | due diligence

March 8, 2016

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

Emissions Analysis for Site: **CT11961A – CT961/ Indian Ledge Park**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **Indian Ledge Park Road, Trumbull, 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 approximately 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 **Indian Ledge Park Road, Trumbull, 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 / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

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

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

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

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

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

7) The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope SBNH=1D65C-SR** for 700 MHz and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P** has a maximum gain of **15.9 dBd** at their main lobe at 1900 MHz (PCS) and 2100 MHz (AWS). The **Commscope SBNH=1D65C-SR** has a maximum gain of **15.3 dBd** at its main lobe at 2100 MHz (AWS) and **13.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **145 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:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	145	Height (AGL):	145	Height (AGL):	145
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	**0.87**	Antenna B1 MPE%	**0.87**	Antenna C1 MPE%	**0.87**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope SBNH-1D65C-SR	Make / Model:	Commscope SBNH-1D65C-SR	Make / Model:	Commscope SBNH-1D65C-SR
Gain:	15.3 / 13.6 dBd	Gain:	15.3 / 13.6 dBd	Gain:	15.3 / 13.6 dBd
Height (AGL):	145	Height (AGL):	145	Height (AGL):	145
Frequency Bands	2100 MHz(AWS) / 700 MHz	Frequency Bands	2100 MHz(AWS) / 700 MHz	Frequency Bands	2100 MHz(AWS) / 700 MHz
Channel Count	3	Channel Count	3	Channel Count	3
Total TX Power(W):	150	Total TX Power(W):	150	Total TX Power(W):	150
ERP (W):	4,753.39	ERP (W):	4,753.39	ERP (W):	4,753.39
Antenna A2 MPE%	**1.03**	Antenna B2 MPE%	**1.03**	Antenna C2 MPE%	**1.03**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.90 %**
Town Antennas	4.80 %
AT&T	0.87 %
Sprint	0.82 %
Clearwire	0.07 %
Verizon Wireless	2.66 %
Nextel	0.46 %
Site Total MPE %:	**11.58 %**

T-Mobile Sector 1 Total:	1.90 %
T-Mobile Sector 2 Total:	1.90 %
T-Mobile Sector 3 Total:	1.90 %
Site Total:	11.58 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**2033.07**	**145**	**7.57**	**2100**	**1000**	**0.76 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**1167.71**	**145**	**4.34**	**1900**	**1000**	**0.43 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**1167.71**	**145**	**4.34**	**2100**	**1000**	**0.43 %**
T-Mobile 700 MHz LTE	**1**	**687.26**	**145**	**1.28**	**700**	**467**	**0.27 %**
						Total:	**1.90%**

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Summary

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

The anticipated maximum composite contributions from the 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:	1.90 %
Sector 2:	1.90 %
Sector 3 :	1.90 %
T-Mobile Per Sector Maximum:	1.90 %
Site Total:	11.58 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.58%** 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.

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