Crown Castle
3530 Toringdon Way Suite 300
Charlotte NC 28277

Tel (704) 405-6600

March 30, 2015

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

RE: **T-Mobile-Exempt Modification - Crown Site BU: 806353**
T-Mobile Site ID: CT11119A
Located at: 128 Mather Street, Wilton, CT 06897

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of T-Mobile. T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement their 700MHz technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mr. William F. Brennan, First Selectman for the Town of Wilton. The Town of Wilton is also the Property Owner.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **128 Mather Street, Wilton, CT 06897**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile's operations at the site (Exhibit-3).

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

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

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

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

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

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

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

Sincerely,

Jerry Feathers
Real Estate Specialist

Enclosure

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

cc: Mr. William F. Brennan, First Selectman
Wilton Town Hall
238 Danbury Rd
Wilton, CT 06897

cc: Town of Wilton
Finance Department
238 Danbury Rd
Wilton, CT 06897

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CT11119A
CROWN CASTLE BU #: 806353
SITE NAME: BRG 124 943066
128 MATHER STREET
WILTON, CT 06897
FAIRFIELD COUNTY

VICINITY MAP

FROM PARSIPPANY, NJ:

DEPART SYLVAN WAY TOWARD CENTURY DR. TURN RIGHT ONTO US-202/LITTLETON RD. CONTINUE ONTO LITTLETON ROAD AND GET ON RAMP TO I-287 N. TAKE THE I-87 S/I-287/NEW YORK THRUWAY EXIT TOWARD TAPPAN ZEE BRIDGE. MERGE ONTO I-287 E/I-87 S. FOLLOW SIGNS FOR WHITE PLAINS/RYE. MERGE ONTO I-95 N. TAKE EXIT 15 FOR US-7 TOWARD NORWALK/DANBURY. CONTINUE ONTO US-7 N. TURN LEFT ONTO MAIN AVE. CONTINUE ONTO US-7 N/DANBURY RD. TURN RIGHT ONTO HONEY HILL RD. TURN LEFT ONTO MATHER ST. SITE WILL BE ON THE RIGHT.

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

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

CONSTRUCTION
CROWN CASTLE
500 WEST CUMMINGS PARK, SUITE 3600
WOBURN, MA 01801

CONTACT: WARREN KELLEHER
PHONE #: (781) 970-0055

CONSULTANT TEAM

SITE NAME:
BRG 124 943066

SITE NUMBER:
CT11119A

TOWER OWNER:
CROWN CASTLE
500 WEST CUMMINGS PARK, SUITE 3600
WOBURN, MA 01801

APPLICANT/DEVELOPER:
T-MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

COORDINATES:
LATITUDE: 41°-14'-18.34" N (NAD83)
LONGITUDE: 73°-25'-26.44" W (NAD83)
(PER CROWN CASTLE)

CONFIGURATION
702Cu

PROJECT SUMMARY

SITE ADDRESS:
128 MATHER STREET
WILTON, CT 06897
FAIRFIELD COUNTY

PROJECT DIRECTORY

- REMOVE AND REPLACE EXISTING ANTENNA MOUNTS WITH A NEW ANTENNA MOUNT
- INSTALL (3) NEW ANTENNAS ON A NEW MOUNT.
- INSTALL (3) NEW RRU'S ON A NEW MOUNT.

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
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
500 WEST CUMMINGS PARK, SUITE 3600
WOBURN, MA 01801

CT11119A
BRG 124 943066

CONSTRUCTION DRAWINGS

0	03/27/15	ISSUED AS FINAL
A	03/25/15	ISSUED FOR REVIEW

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

STATE OF CONNECTICUT
JIANG LU
No. 23222
LICENSED PROFESSIONAL ENGINEER
CONNECTICUT LICENSE NO. 23222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50071478
SITE ADDRESS:	

128 MATHER STREET
WILTON, CT 06897
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 FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.

   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.

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

STRUCTURAL STEEL NOTES:

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

CONSTRUCTION NOTES:

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

T-Mobile
T MOBILE NORTHEAST LLC
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
CROWN CASTLE
500 WEST CUMMINGS PARK, SUITE 3600
WOBURN, MA 01801

CT11119A
BRG 124 943066

CONSTRUCTION DRAWINGS		
0	03/27/15	ISSUED AS FINAL
A	03/25/15	ISSUED FOR REVIEW

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

STATE OF CONNECTICUT
JIANG YI
No. 23222
LICENSED
PROFESSIONAL ENGINEER
CONNECTICUT REGISTRATION NO. 0023222

DRAWN BY:	RA
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50071478
SITE ADDRESS:	

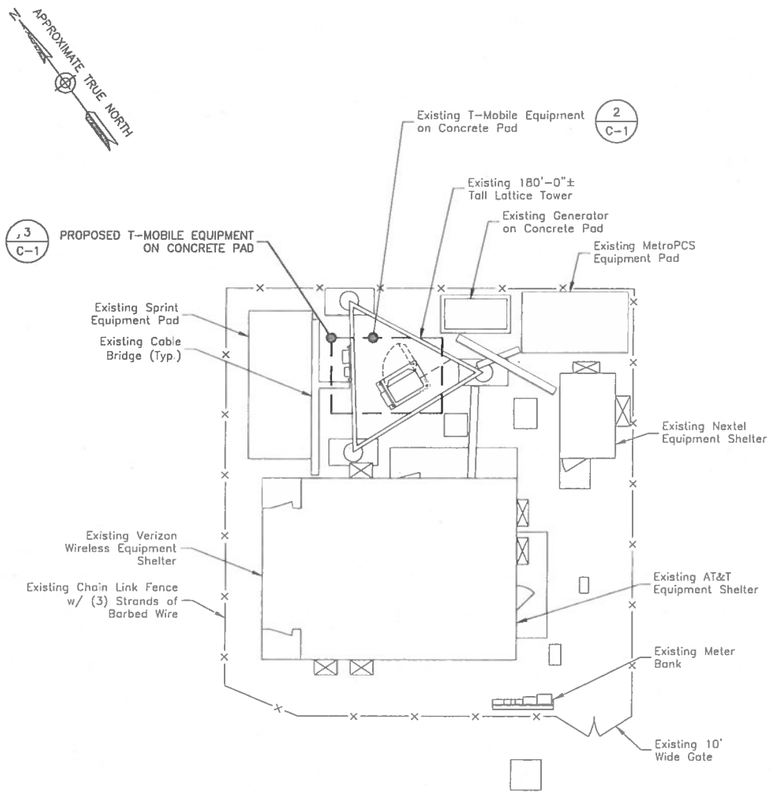
128 MATHER STREET
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

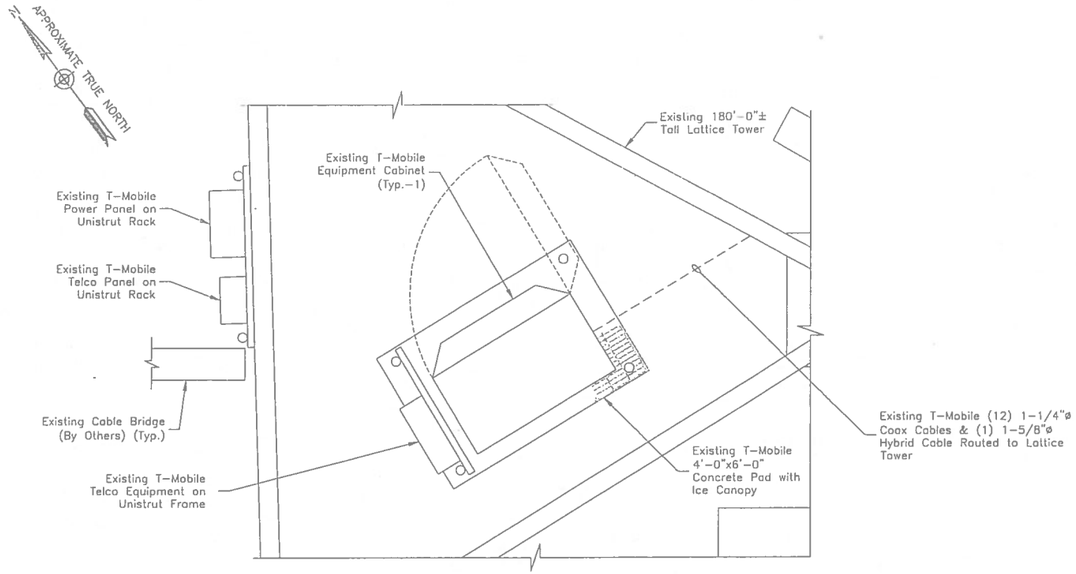
G–1



COMPOUND PLAN 1

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

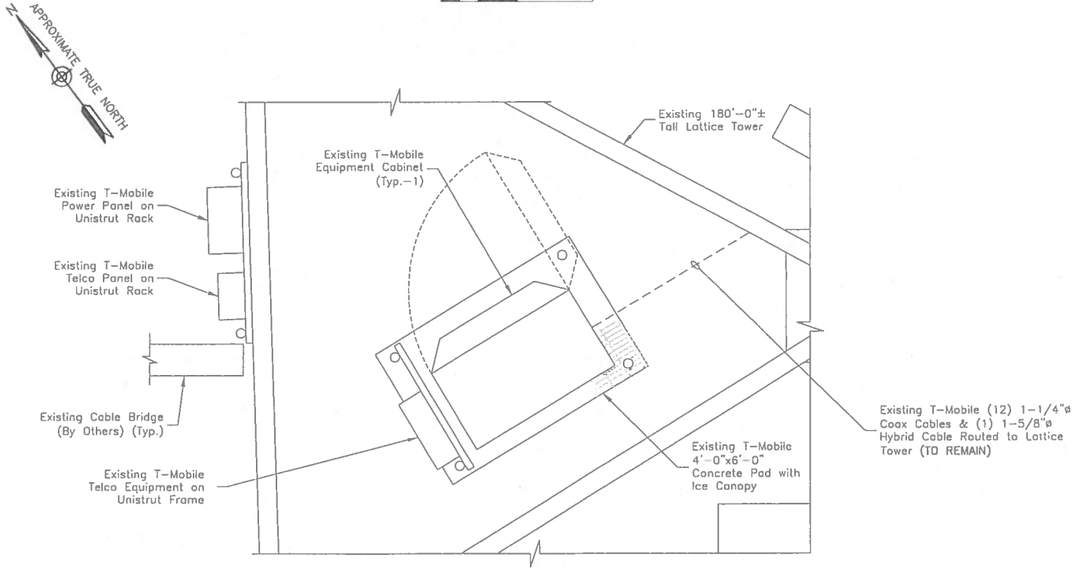
0' 10' 20'



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 PAUL J FORD AND COMPANY DATED MARCH 3, 2015.

NOTE:

1. NO EQUIPMENT IS PROPOSED AT GRADE.

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CT11119A
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STATE OF CONNECTICUT
JIANG YU
No. 23222
LICENSED
PROFESSIONAL ENGINEER

CONNECTICUT LICENSE NO. 0023222

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128 MATHER STREET
WILTON, CT 06897
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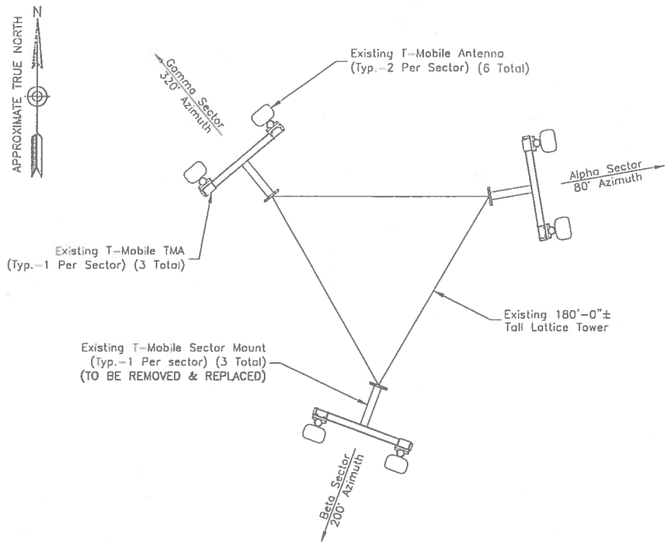
SHEET TITLE

COMPOUND PLAN & EQUIPMENT PLANS

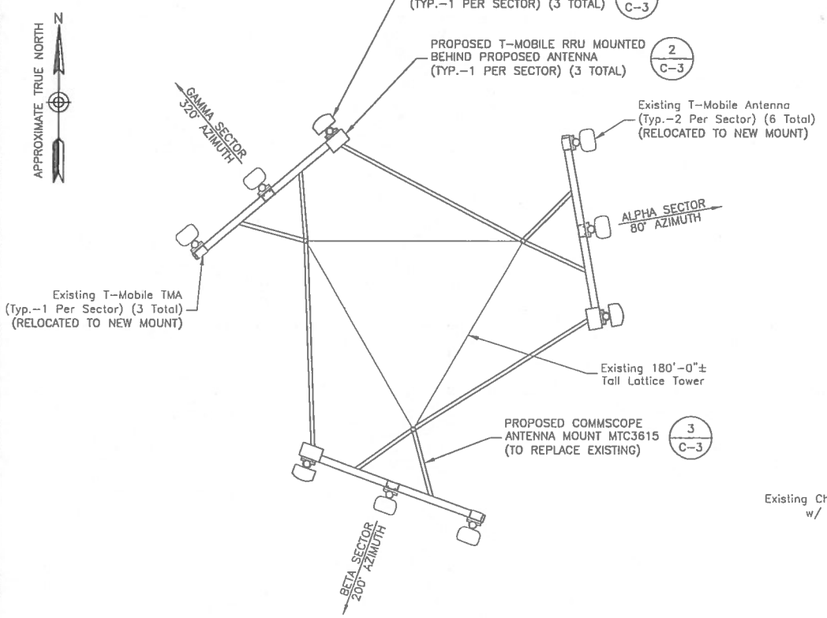
SHEET NUMBER

C-1



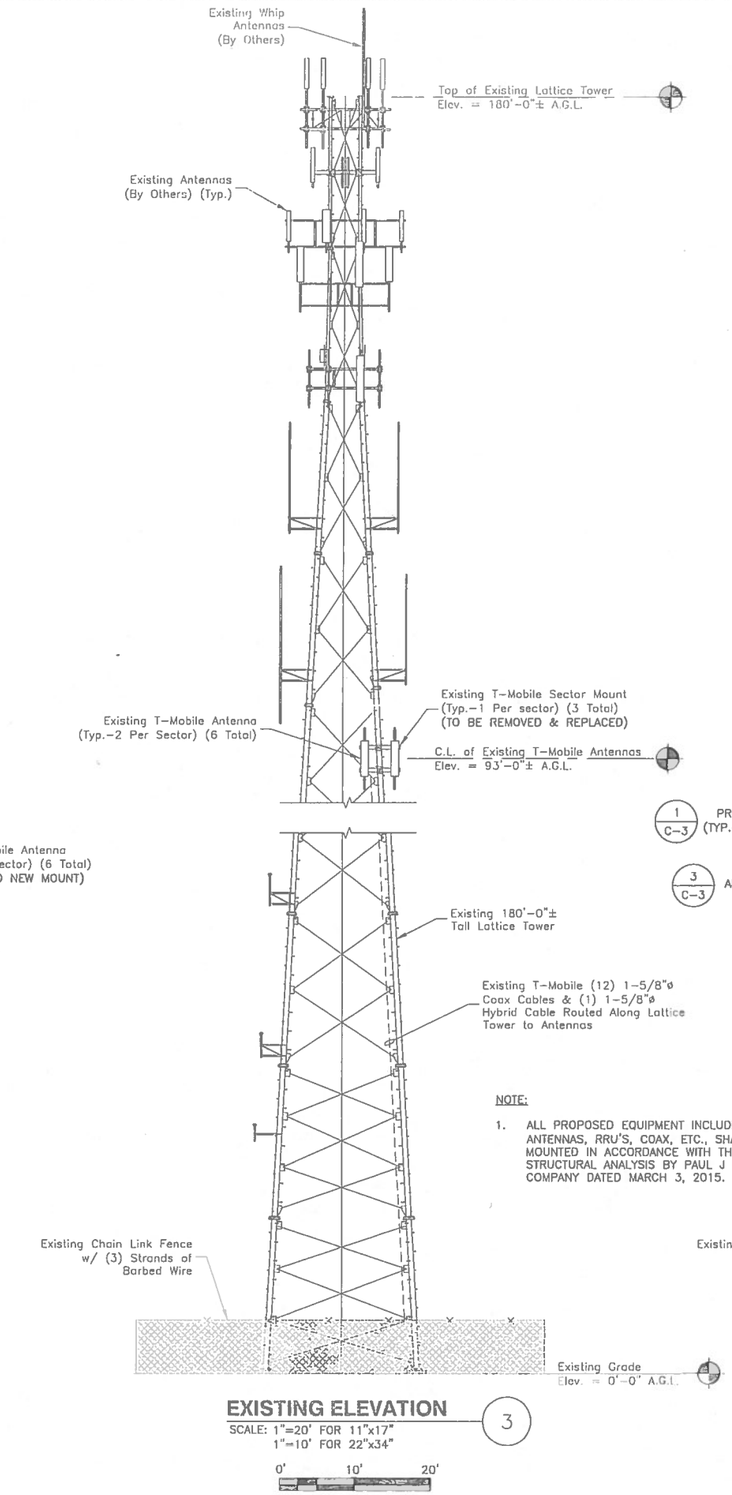
EXISTING ANTENNA LAYOUT (1)

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT (2)

SCALE: N.T.S.



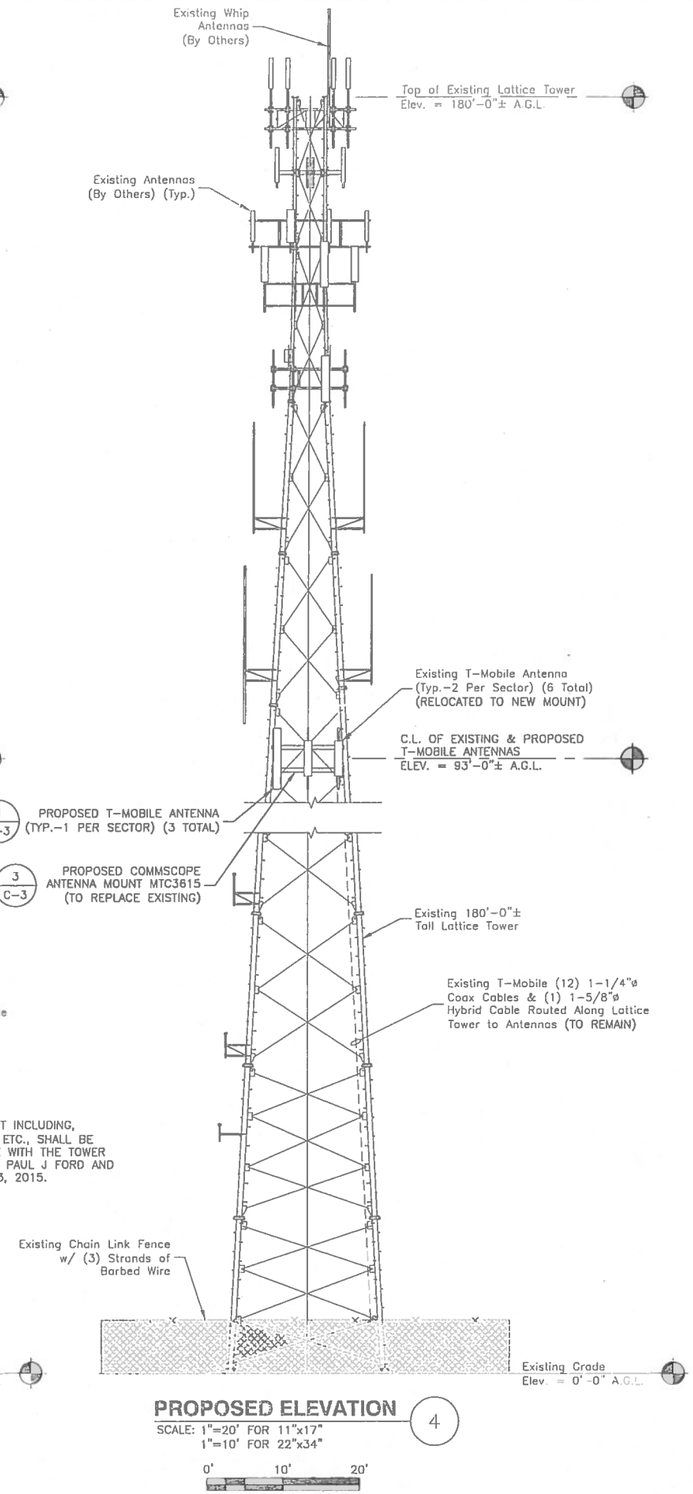
NOTE:

1. ALL PROPOSED EQUIPMENT INCLUDING, ANTENNAS, RRU'S, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY PAUL J FORD AND COMPANY DATED MARCH 3, 2015.

EXISTING ELEVATION (3)

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

0' 10' 20'



PROPOSED ELEVATION (4)

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

0' 10' 20'

T-Mobile

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CT11119A
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REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50071478
SITE ADDRESS:	

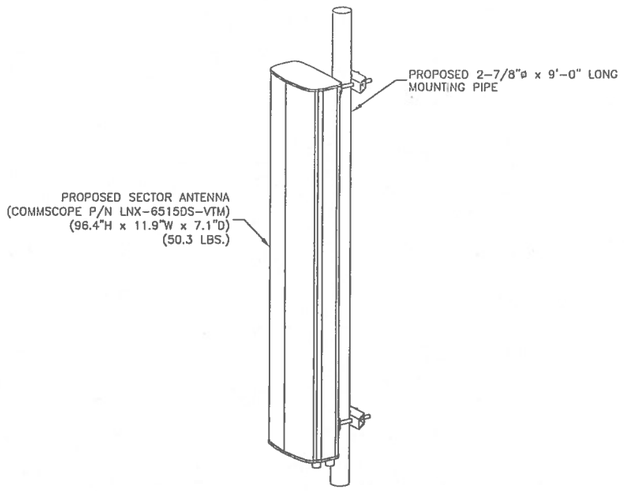
128 MATHER STREET
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE

ANTENNA LAYOUTS & ELEVATIONS

SHEET NUMBER

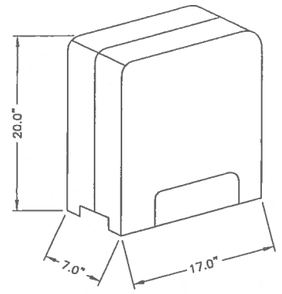
C-2



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.

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



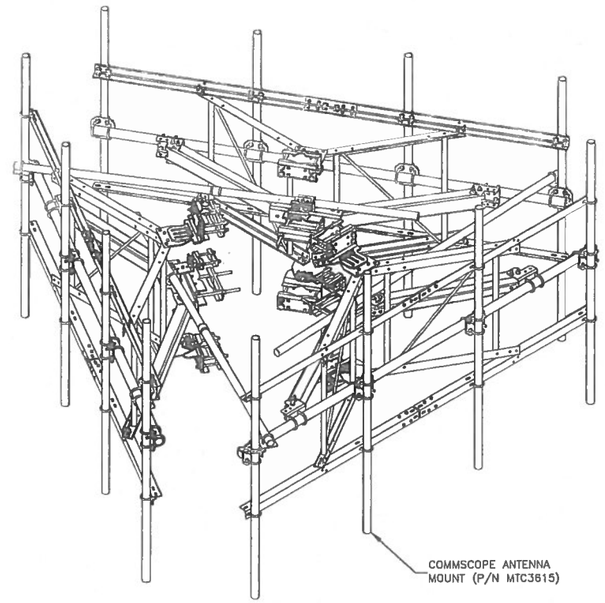
SPECIFICATIONS:	
HEIGHT:	20.0"
WIDTH:	17.0"
DEPTH:	7.0"
WEIGHT:	50.7 LBS

ERICSSON RRUS-11 B12

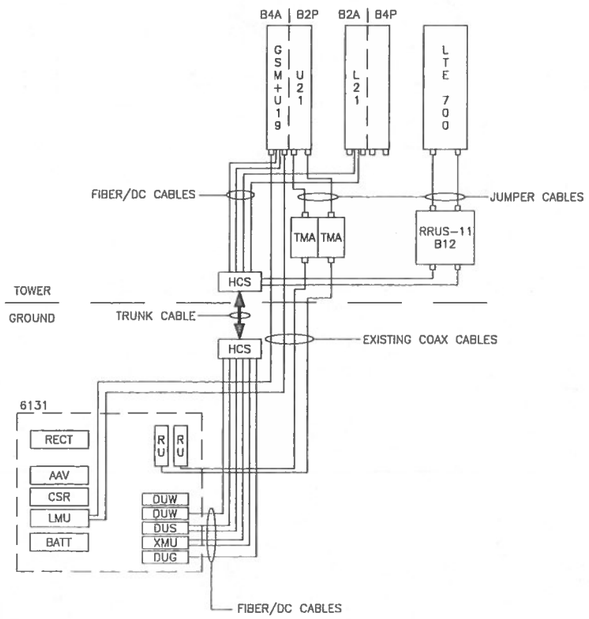
RRU NOTES:

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 2
SCALE: N.T.S.



ANTENNA MOUNT DETAIL 3
SCALE: N.T.S.



SITE CONFIGURATION 702Cu 4
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS		COAX		COAX/HCS LENGTH	EXISTING HCS
	EXISTING	PROPOSED	EXISTING	PROPOSED		
ALPHA	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN	(4) 1-1/4"ø	–	143'-0"	(1) 1-5/8"ø @ 143'-0"
	–	COMMSCOPE LNX-6515DS-VTM				
	ERICSSON AIR21 B4A B2P	EXISTING TO REMAIN				
BETA	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN	(4) 1-1/4"ø	–	143'-0"	
	–	COMMSCOPE LNX-6515DS-VTM				
	ERICSSON AIR21 B4A B2P	EXISTING TO REMAIN				
GAMMA	ERICSSON AIR21 B2A B4P	EXISTING TO REMAIN	(4) 1-1/4"ø	–	143'-0"	
	–	COMMSCOPE LNX-6515DS-VTM				
	ERICSSON AIR21 B4A B2P	EXISTING TO REMAIN				

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SITE ADDRESS:	

128 MATHER STREET
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE

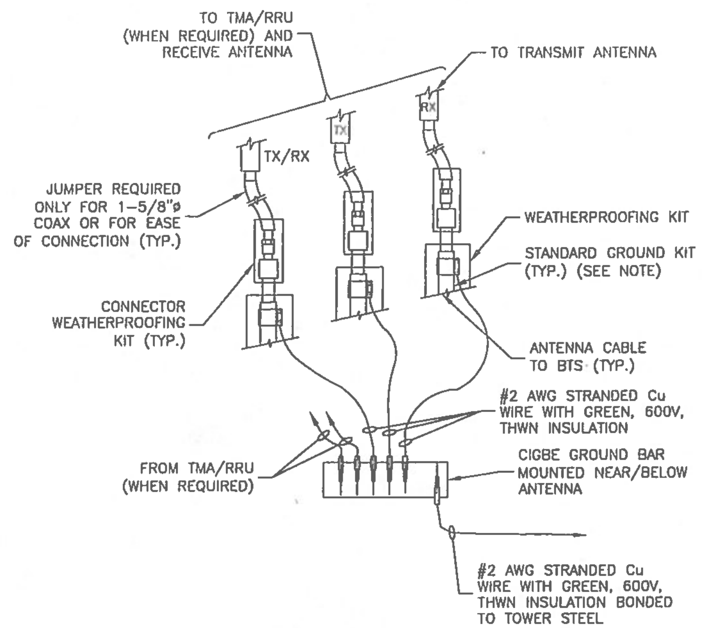
CONSTRUCTION DETAILS

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.

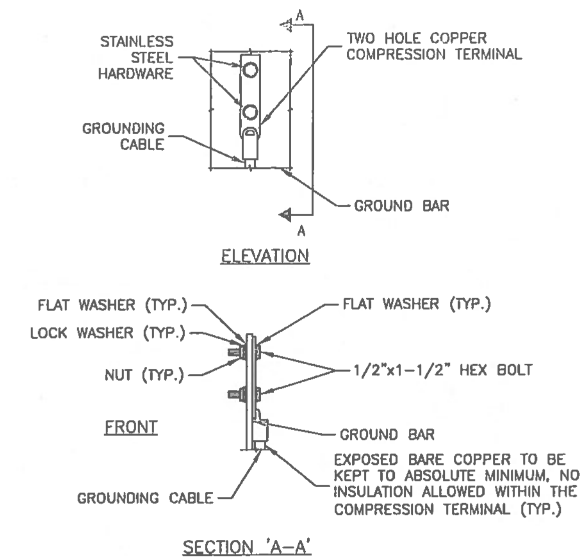


NOTE:

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.

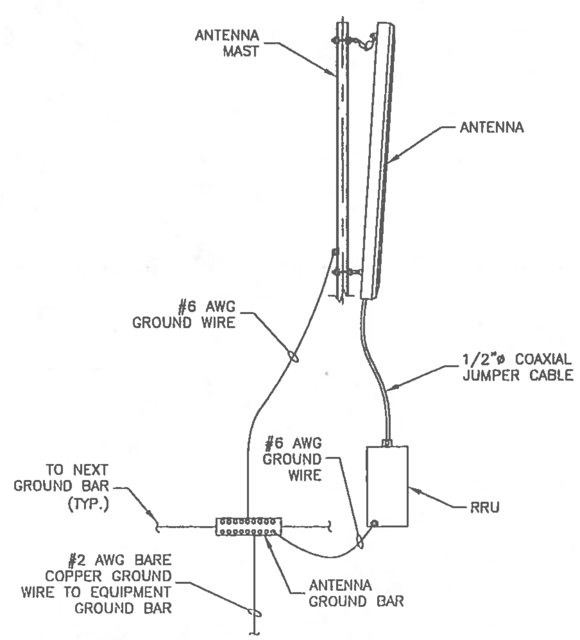


NOTES:

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

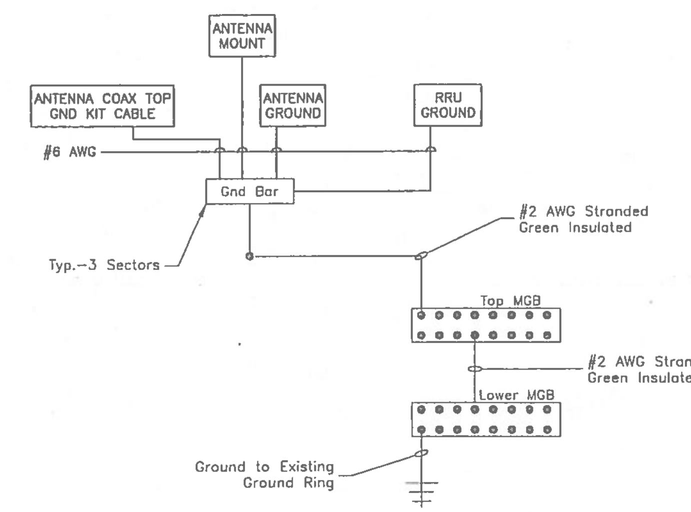
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL (2)

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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STATE OF CONNECTICUT — JIANG YU — LICENSED PROFESSIONAL ENGINEER

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

DRAWN BY:	RA
REVIEWED BY:	BSH
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PROJECT NUMBER:	50066258
JOB NUMBER:	50071478
SITE ADDRESS:	

128 MATHER STREET
WILTON, CT 06897
FAIRFIELD COUNTY

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **March 03, 2015**

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

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
614.221.6679

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11119A
	Carrier Site Name:	Wilton/ Mountain Rd.& Bra
Crown Castle Designation:	**Crown Castle BU Number:**	806353
	Crown Castle Site Name:	BRG 124 943066
	Crown Castle JDE Job Number:	322289
	Crown Castle Work Order Number:	1012176
	Crown Castle Application Number:	282660 Rev. 4
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37515-0813.001.8700
Site Data:	**128 MATHER STREET, WILTON, Fairfield County, CT**	
	Latitude *41° 14' 18.34"*, Longitude *-73° 25' 26.44"*	
	180 Foot - Self Support Tower	

Dear Charles McGuirt,

Paul J Ford and Company 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 759750, in accordance with application 282660, 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:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut Building Code based upon 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.

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

Respectfully submitted by:

Charles J. Weir, E.I.
Structural Designer

STATE OF CONNECTICUT
JOSEPH PACHICARAH JACOBS
No. PEN 22731
LICENSED
PROFESSIONAL ENGINEER

tnxTower Report - version 6.1.4.1

MAR 0 3 2015

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **March 03, 2015**

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

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
614.221.6679

Subject: Structural Analysis Report

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11119A
	Carrier Site Name:	Wilton/ Mountain Rd.& Bra
Crown Castle Designation:	**Crown Castle BU Number:**	806353
	Crown Castle Site Name:	BRG 124 943066
	Crown Castle JDE Job Number:	322289
	Crown Castle Work Order Number:	1012176
	Crown Castle Application Number:	282660 Rev. 4
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37515-0813.001.8700
Site Data:	**128 MATHER STREET, WILTON, Fairfield County, CT** **Latitude *41° 14' 18.34"*, Longitude *-73° 25' 26.44"*** **180 Foot - Self Support Tower**	

Dear Charles McGuirt,

Paul J Ford and Company 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 759750, in accordance with application 282660, 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:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut Building Code based upon 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.

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

Respectfully submitted by:

Charles J. Weir, E.I.
Structural Designer

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1) INTRODUCTION

This tower is a 180 ft Self Support tower designed by FWT INC. in May of 1988. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E.

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)
93.0	93.0	3	Commscope	LNX-6515DS-VTM w/ Mount Pipe	-	-
		3	Ericsson	RRUS 11 B12		
		1	-	Sector Mount [SM 1306-3]		

Table 2 - Existing and Reserved 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
178.0	184.0	1	RFS Celwave	PD10017	2	7/8	1
177.0	183.0	12	Decibel	DB844H90E-XY w/ Mount Pipe	12	1-1/4	3
	177.0	1	-	Sector Mount [SM 307-3]			
170.0	171.0	3	Kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1
	170.0	3	Kathrein	860 10025			
		1	-	Side Arm Mount [SO 103-3]			
162.0	163.0	3	Alcatel Lucent	RRH2X40-AWS	7	1-5/8	2
		3	Kathrein	742 213 w/ Mount Pipe			
		1	RFS Celwave	DB-T1-6Z-8AB-0Z			
		6	RFS Celwave	APL868013-42T0 w/ Mount Pipe	6	1-5/8	1
		3	RFS Celwave	APX75-866512-CT2 w/ Mount Pipe			
		3	Rymsa Wireless	MG D3-800Tx w/ Mount Pipe			
	162.0	6	RFS Celwave	FD9R6004/2C-3L			
		1	-	Sector Mount [SM 602-3]			
154.0	158.0	6	Ericsson	RRUS-11	12 2 1	1-5/8 5/8 3/8	1
		6	Powerwave Technologies	7770.00 w/ Mount Pipe			
		6	Powerwave Technologies	LGP21401			
		6	Powerwave Technologies	LGP21901			
		3	Powerwave Technologies	P65-16-XLH-RR w/ Mount Pipe			

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	1	Raycap	DC6-48-60-18-8F			
		1	-	Sector Mount [SM 602-3]			
146.0	146.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER	-	-	1
		3	Alcatel Lucent	TME-800MHZ 2X50W RRH			
		3	Alcatel Lucent	TME-PCS 1900 MHz 4x45W-65MHz			
143.0	143.0	3	Alcatel Lucent	TD-RRH8x20-25	1	1-1/4	2
		3	RFS Celwave	APXVTM14-C-120 w/ Mount Pipe			
		9	RFS Celwave	ACU-A20-N	3	1-1/4	1
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		1	-	Sector Mount [SM 701-3]			
124.0	131.0	2	RFS Celwave	1142-2C	2	1/2	1
	124.0	2	-	Side Arm Mount [SO 306-1]			
104.0	111.0	1	RFS Celwave	1142-2C	1 1	7/8 1/2	1
	108.0	1	RFS Celwave	220-3BN			
	104.0	2	-	Side Arm Mount [SO 306-1]			
93.0	93.0	3	Ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	1 12	1-5/8 1-1/4	1
		3	Ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	Ericsson	KRY 112 144/1			
		1	-	Side Arm Mount [SO 101-3]	-	-	3
62.0	65.0	1	GPS	GPS_A	1	1/2	1
	62.0	1	-	Side Arm Mount [SO 301-1]			
42.0	44.0	1	GPS	GPS_A	1	1/2	1
	42.0	1	-	Side Arm Mount [SO 301-1]			
31.0	32.0	1	GPS	GPS_A	1	1/2	1
	31.0	1	-	Side Arm Mount [SO 301-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
GEOTECHNICAL REPORTS	FDH, 09-04219E G1 - 4/29/2009	262283	CCISITES
POST-MODIFICATION INSPECTION	Paul J. Ford, 37509-0801 - 1/11/2010	2575710	CCISITES
TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FWT, 18888-81 - 5/31/1988	262285	CCISITES

Document	Remarks	Reference	Source
TOWER MANUFACTURER DRAWINGS	FWT, 18888-81 - 5/6/1988	217757	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford, 37509-0801 - 12/8/2009	2434484	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	HEB, 98124A - 1/7/2000	3290324	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	APT, CT105271 - 1/17/2003	801524	CCISITES
FOUNDATION MAPPING	FDH, 09-11077 E N1 - 8/7/2012	-	-

3.1) Analysis Method

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

3.2) Assumptions

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

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	180 - 168	Leg	Pipe 2.375" x 0.154" (2 STD)	2	-2.48	24.25	10.2	Pass
T2	168 - 160	Leg	Pipe 2.375" x 0.154" (2 STD) (GR)	25	-9.19	35.52	25.9	Pass
T3	160 - 140	Leg	Pipe 3.5" x 0.216" (3 STD) (GR)	40	40.00	62.38	64.1	Pass
T4	140 - 120	Leg	Pipe 4" x 0.318" (3.5 XS) (GR)	67	-84.17	112.76	74.6	Pass
T5	120 - 100	Leg	Pipe 4.5" x 0.337" (4 XS) (GR)	88	101.23	123.38	82.0	Pass
T6	100 - 80	Leg	Pipe 5.563" x 0.375" (5 XS) (GR)	109	127.80	171.09	74.7	Pass
T7	80 - 60	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	130	152.88	235.28	65.0	Pass
T8	60 - 40	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	145	177.65	235.28	75.5	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	160	200.17	235.28	85.1	Pass
T10	20 - 0	Leg	Pipe 8.625" x 0.500" (8 XS) (GR)	181	221.69	357.27	62.1	Pass
T1	180 - 168	Diagonal	L 2 x 1.5 x 3/16 LLV	11	-0.69	11.64	6.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T2	168 - 160	Diagonal	L 2 x 1.5 x 3/16 LLV	33	-1.95	11.64	16.7	Pass
T3	160 - 140	Diagonal	L 2 x 1.5 x 3/16 LLV	44	-4.53	8.26	54.9	Pass
T4	140 - 120	Diagonal	L 2 x 2 x 3/16	71	-4.87	7.23	67.4	Pass
T5	120 - 100	Diagonal	L 2.5 x 2 x 3/16 LLV	92	-4.89	7.03	69.6	Pass
T6	100 - 80	Diagonal	L 2.5 x 2.5 x 3/16	113	-6.24	7.87	79.2	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 3/16	133	-7.17	8.53	84.0	Pass
T8	60 - 40	Diagonal	L 3.5 x 3 x 1/4 LLV	148	-7.38	11.26	65.6	Pass
T9	40 - 20	Diagonal	L 3.5 x 3 x 1/4 LLV	163	-7.83	9.07	86.4	Pass
T10	20 - 0	Diagonal	L 3.5 x 3.5 x 1/4	184	-8.25	10.44	79.0	Pass
T9	40 - 20	Secondary Horizontal	L3 1/2x3 1/2x1/4	169	-4.05	15.70	25.8	Pass
T1	180 - 168	Top Girt	L 2 x 1.5 x 3/16 LLH	5	-0.11	7.05	1.5	Pass
							Summary	
						Leg (T9)	85.1	Pass
						Diagonal (T9)	86.4	Pass
						Secondary Horizontal (T9)	25.8	Pass
						Top Girt (T1)	1.5	Pass
						Bolt Checks	96.0	Pass
						Rating =	96.0	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	81.9	Pass
1	Base Foundation	-	53.1	Pass
1	Base Foundation Soil Interaction	-	72.9	Pass

Structure Rating (max from all components) =	96%

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

APPENDIX A

TNXTOWER OUTPUT

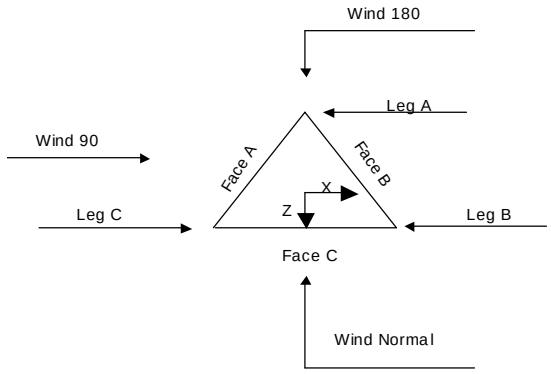
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 20.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

1) Tower is located in Fairfield County, Connecticut.
2) Basic wind speed of 85 mph.
3) Nominal ice thickness of 0.75 in.
4) Ice thickness is considered to increase with height.
5) Ice density of 56 pcf.
6) A wind speed of 38 mph is used in combination with ice.
7) Deflections calculated using a wind speed of 50 mph.
8) A non-linear (P-delta) analysis was used.
9) Grouted pipe f'_c is 7 ksi.
10) Pressures are calculated at each section.
11) Stress ratio used in tower member design is 1.333.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	180.00-168.00			4.00	1	12.00
T2	168.00-160.00			4.00	1	8.00
T3	160.00-140.00			4.00	1	20.00
T4	140.00-120.00			6.00	1	20.00
T5	120.00-100.00			8.00	1	20.00
T6	100.00-80.00			10.00	1	20.00
T7	80.00-60.00			12.00	1	20.00
T8	60.00-40.00			14.00	1	20.00
T9	40.00-20.00			16.00	1	20.00
T10	20.00-0.00			18.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.00-168.00	4.00	X Brace	No	No	0.00	0.00
T2	168.00-160.00	4.00	X Brace	No	No	0.00	0.00
T3	160.00-140.00	5.00	X Brace	No	No	0.00	0.00
T4	140.00-120.00	6.67	X Brace	No	No	0.00	0.00
T5	120.00-100.00	6.67	X Brace	No	No	0.00	0.00
T6	100.00-80.00	6.67	X Brace	No	No	0.00	0.00
T7	80.00-60.00	10.00	X Brace	No	No	0.00	0.00
T8	60.00-40.00	10.00	X Brace	No	No	0.00	0.00
T9	40.00-20.00	10.00	X Brace	No	Yes	0.00	0.00
T10	20.00-0.00	10.00	X Brace	No	No	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-168.00	Pipe	Pipe 2.375" x 0.154" (2 STD)	A53-B-35 (35 ksi)	Single Angle	L 2 x 1.5 x 3/16 LLV	A36 (36 ksi)
T2 168.00-160.00	Grouted Pipe	Pipe 2.375" x 0.154" (2 STD)	A53-B-35 (35 ksi)	Single Angle	L 2 x 1.5 x 3/16 LLV	A36 (36 ksi)
T3 160.00-140.00	Grouted Pipe	Pipe 3.5" x 0.216" (3 STD)	A53-B-35 (35 ksi)	Single Angle	L 2 x 1.5 x 3/16 LLV	A36 (36 ksi)
T4 140.00-120.00	Grouted Pipe	Pipe 4" x 0.318" (3.5 XS)	A53-B-35 (35 ksi)	Single Angle	L 2 x 2 x 3/16	A36 (36 ksi)
T5 120.00-100.00	Grouted Pipe	Pipe 4.5" x 0.337" (4 XS)	A53-B-35 (35 ksi)	Single Angle	L 2.5 x 2 x 3/16 LLV	A36 (36 ksi)
T6 100.00-80.00	Grouted Pipe	Pipe 5.563" x 0.375" (5 XS)	A53-B-35 (35 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
T7 80.00-60.00	Grouted Pipe	Pipe 6.625" x 0.432" (6 XS)	A53-B-35 (35 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T8 60.00-40.00	Grouted Pipe	Pipe 6.625" x 0.432" (6 XS)	A53-B-35 (35 ksi)	Single Angle	L 3.5 x 3 x 1/4 LLV	A36 (36 ksi)
T9 40.00-20.00	Grouted Pipe	Pipe 6.625" x 0.432" (6 XS)	A53-B-35 (35 ksi)	Single Angle	L 3.5 x 3 x 1/4 LLV	A36 (36 ksi)
T10 20.00-0.00	Grouted Pipe	Pipe 8.625" x 0.500" (8 XS)	A53-B-35 (35 ksi)	Single Angle	L 3.5 x 3.5 x 1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-	Single Angle	L 2 x 1.5 x 3/16 LLH	A36	Single Angle		A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
168.00			(36 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 40.00-20.00	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 180.00-168.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T2 168.00-160.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T3 160.00-140.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T4 140.00-120.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T5 120.00-100.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T6 100.00-80.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T7 80.00-60.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T8 60.00-40.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T9 40.00-20.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T10 20.00-0.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 180.00-168.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 168.00-160.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.00-140.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.00-120.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.00-100.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.00-80.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.00-60.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 60.00-40.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 40.00-	No	No	1	1	1	1	1	1	0.5	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
20.00				1	1	1	1	1	0.5	1
T10 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.00-168.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T2 168.00-160.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T3 160.00-140.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T4 140.00-120.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T5 120.00-100.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T6 100.00-80.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T7 80.00-60.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T8 60.00-40.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T9 40.00-20.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T10 20.00-0.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 180.00-168.00	4.50	4.19	4.50	4.19	0.00	0.00	0.00	0.00
T2 168.00-160.00	4.50	4.19	4.50	4.19	0.00	0.00	0.00	0.00
T3 160.00-140.00	4.60	4.75	4.60	4.75	0.00	0.00	0.00	0.00
T4 140.00-120.00	4.50	5.00	4.00	5.00	0.00	0.00	0.00	0.00
T5 120.00-100.00	3.50	5.25	3.50	5.25	0.00	0.00	0.00	0.00
T6 100.00-80.00	2.50	5.78	2.50	5.78	0.00	0.00	0.00	0.00
T7 80.00-60.00	4.00	6.31	4.00	6.31	0.00	0.00	0.00	0.00
T8 60.00-40.00	4.00	6.31	4.00	6.31	0.00	0.00	0.00	0.00
T9 40.00-20.00	3.90	6.31	3.90	6.31	0.00	0.00	0.00	0.00

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T10 20.00-0.00	4.00	7.31	4.00	7.31	0.00	0.00	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-168.00	Flange	0.00 A325N	0	0.63 A325N	1	0.63 A325N	1	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T2 168.00-160.00	Flange	0.63 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T3 160.00-140.00	Flange	0.63 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T4 140.00-120.00	Flange	0.75 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T5 120.00-100.00	Flange	0.88 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T6 100.00-80.00	Flange	0.88 A490N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T7 80.00-60.00	Flange	1.00 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T8 60.00-40.00	Flange	1.13 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T9 40.00-20.00	Flange	1.13 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.50 A325N	1
T10 20.00-0.00	Flange	1.50 F1554-36	6	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0

Grouted Pipe Properties

Size	F_y ksi	A_s in^2	A_c in^2	Wt plf	E_c ksi	E_m ksi	F_{ym} ksi
Pipe 2.375" x 0.154" (2 STD) (GR)	35	1.07	3.36	10.65	4769	40914	54
Pipe 3.5" x 0.216" (3 STD) (GR)	35	2.23	7.39	22.98	4769	41656	55
Pipe 4" x 0.318" (3.5 XS) (GR)	35	3.68	8.89	31.03	4769	38218	49
Pipe 4.5" x 0.337" (4 XS) (GR)	35	4.41	11.50	38.95	4769	38952	51
Pipe 5.563" x 0.375" (5 XS) (GR)	35	6.11	18.19	58.70	4769	40357	53
Pipe 6.625" x 0.432" (6 XS) (GR)	35	8.40	26.07	82.91	4769	40832	53
Pipe 8.625" x 0.500" (8 XS) (GR)	35	12.76	45.66	138.56	4769	42650	56

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
2" flat Cable Ladder Rail	C	Yes	Af (CfAe)	180.00 - 5.00	0.00	0	2	2	2.00	2.00	7.00	2.12

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement ft*	*Face Offset in*	*Lateral Offset (Frac FW)*	*#*	*# Per Row*	*Clear Spacing in*	*Width or Diameter in*	*Perimeter in*	*Weight plf*
5/8" ladder rung (12" long 12" oc)	C	Yes	Ar (CfAe)	180.00 - 5.00	0.00	0	1	1	0.63	0.63		1.04
Safety Line 3/8	C	Yes	Ar (CfAe)	180.00 - 5.00	3.00	0	1	1	0.38	0.38		0.22
***												
1.5" flat Cable Ladder Rail	A	Yes	Af (CfAe)	180.00 - 5.00	0.00	0	2	2	48.00 1.50	1.50	6.00	1.80
FSJ4-50B(1/2")	A	Yes	Ar (CfAe)	42.00 - 5.00	0.00	-0.1	4	4	0.52	0.52		0.14
LDF4-50A(1/2")	A	Yes	Ar (CfAe)	62.00 - 42.00	0.00	-0.1	3	3	0.63	0.63		0.15
LDF4-50A(1/2")	A	Yes	Ar (CfAe)	124.00 - 62.00	0.00	-0.1	2	2	0.63	0.63		0.15
HB114-1-0813U4-M5J(1 1/4")	A	Yes	Ar (CfAe)	143.00 - 5.00	0.00	-0.075	4	4	1.50 0.50	1.54		1.20
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	178.00 - 5.00	3.00	-0.05	2	2	1.09	1.09		0.33
561(1-5/8")	A	Yes	Ar (CfAe)	162.00 - 5.00	0.00	0	6	4	1.00 0.50	1.63		1.35
HB158-1-08U8-S8J18(1-5/8)	A	Yes	Ar (CfAe)	162.00 - 5.00	0.00	0.075	7	4	1.00 0.50	1.98		1.30
***												
1.5" flat Cable Ladder Rail	B	Yes	Af (CfAe)	54.00 - 5.00	0.00	0.12	2	2	36.00 1.50	1.50	6.00	1.80
1.5" flat Cable Ladder Rail	B	Yes	Af (CfAe)	93.00 - 5.00	0.00	0.38	2	2	36.00 1.50	1.50	6.00	1.80
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	93.00 - 5.00	0.00	0.15	12	6	1.55 0.50	1.55		0.66
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	B	Yes	Ar (CfAe)	93.00 - 0.00	0.00	0.1	1	1	1.63	1.63		1.07
LCF158-50JA-A0(1 5/8")	B	Yes	Ar (CfAe)	154.00 - 5.00	0.00	0.35	12	6	1.00 0.50	1.98		0.08
LDF4-50A(1/2")	B	Yes	Ar (CfAe)	104.00 - 5.00	0.00	0.4	1	1	0.63	0.63		0.15
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	104.00 - 5.00	0.00	0.41	1	1	1.09	1.09		0.33
2" Conduit (1 1/2" EMT)	B	Yes	Ar (CfAe)	104.00 - 5.00	0.00	0.43	1	1	1.74	1.74		1.16
FB-L98B-002-75000(3/8")	B	Yes	Ar (CaAa)	154.00 - 5.00	0.00	0.43	1	1	0.39	0.39		0.06
WR-VG82ST-BRDA(5/8")	B	Yes	Ar (CaAa)	154.00 - 5.00	0.00	0.43	2	2	0.65	0.65		0.31
***												
1.5" flat Cable Ladder Rail	C	Yes	Af (CfAe)	180.00 - 5.00	-1.00	-0.35	4	2	36.00 1.50	1.50	6.00	1.80
CR 50 1873PE(1-5/8")	C	Yes	Ar (CfAe)	170.00 - 5.00	0.00	-0.35	6	4	1.00 0.50	1.98		0.83
LDF4-50A(1/2")	C	Yes	Ar (CfAe)	31.00 - 5.00	-1.00	-0.32	1	1	0.63	0.63		0.15
***												

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
T1	180.00-168.00	A	1.817	3.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	2.320	7.000	0.000	0.000	0.16
T2	168.00-160.00	A	3.857	2.000	0.000	0.000	0.07
		B	0.000	0.000	0.000	0.000	0.00
		C	5.947	4.667	0.000	0.000	0.14
T3	160.00-140.00	A	29.207	5.000	0.000	0.000	0.44
		B	13.860	0.000	2.357	0.000	0.02
		C	14.867	11.667	0.000	0.000	0.35
T4	140.00-120.00	A	38.353	5.000	0.000	0.000	0.53
		B	19.800	0.000	3.367	0.000	0.03
		C	14.867	11.667	0.000	0.000	0.35
T5	120.00-100.00	A	40.033	5.000	0.000	0.000	0.53
		B	20.953	0.000	3.367	0.000	0.04
		C	14.867	11.667	0.000	0.000	0.35
T6	100.00-80.00	A	40.033	5.000	0.000	0.000	0.53
		B	37.402	3.250	3.367	0.000	0.23
		C	14.867	11.667	0.000	0.000	0.35
T7	80.00-60.00	A	40.138	5.000	0.000	0.000	0.53
		B	43.775	5.000	3.367	0.000	0.32
		C	14.867	11.667	0.000	0.000	0.35
T8	60.00-40.00	A	41.115	5.000	0.000	0.000	0.53
		B	43.775	8.500	3.367	0.000	0.37
		C	14.867	11.667	0.000	0.000	0.35
T9	40.00-20.00	A	41.400	5.000	0.000	0.000	0.54
		B	43.775	10.000	3.367	0.000	0.39
		C	15.444	11.667	0.000	0.000	0.36
T10	20.00-0.00	A	31.050	3.750	0.000	0.000	0.40
		B	33.508	7.500	2.526	0.000	0.30
		C	11.938	8.750	0.000	0.000	0.27

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
T1	180.00-168.00	A	0.916	2.434	7.258	0.000	0.000	0.17
		B		0.000	0.000	0.000	0.000	0.00
		C		5.298	13.373	0.000	0.000	0.48
T2	168.00-160.00	A	0.909	3.146	7.872	0.000	0.000	0.22
		B		0.000	0.000	0.000	0.000	0.00
		C		5.623	13.859	0.000	0.000	0.46
T3	160.00-140.00	A	0.899	17.654	42.936	0.000	0.000	1.31
		B		4.409	17.383	9.501	0.000	0.50
		C		13.961	34.562	0.000	0.000	1.14
T4	140.00-120.00	A	0.884	22.979	56.208	0.000	0.000	1.60
		B		6.247	24.833	13.450	0.000	0.71
		C		13.808	34.426	0.000	0.000	1.13
T5	120.00-100.00	A	0.867	25.885	57.810	0.000	0.000	1.63
		B		9.075	24.833	13.310	0.000	0.73
		C		13.632	34.270	0.000	0.000	1.11
T6	100.00-80.00	A	0.846	25.541	57.718	0.000	0.000	1.61
		B		27.452	47.319	13.145	0.000	1.50
		C		13.426	34.086	0.000	0.000	1.09
T7	80.00-60.00	A	0.821	25.122	57.816	0.000	0.000	1.58
		B		30.775	59.315	12.944	0.000	1.81
		C		13.175	33.863	0.000	0.000	1.07
T8	60.00-40.00	A	0.788	24.562	59.662	0.000	0.000	1.57
		B		30.125	65.123	12.684	0.000	1.90
		C		12.850	33.574	0.000	0.000	1.04
T9	40.00-20.00	A	0.750	23.758	60.392	0.000	0.000	1.53
		B		54.775	41.500	12.377	0.000	1.86
		C		14.419	33.233	0.000	0.000	1.02
T10	20.00-0.00	A	0.750	17.819	45.294	0.000	0.000	1.15

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
		B		42.383	31.125	9.283	0.000	1.41
		C		12.012	24.925	0.000	0.000	0.77

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	180.00-168.00	A	0.000	1.316	0.618	1.400
		B	0.000	0.000	0.000	0.000
		C	0.000	2.547	1.195	2.708
T2	168.00-160.00	A	0.000	1.267	0.690	1.394
		B	0.000	0.000	0.000	0.000
		C	0.000	2.261	1.251	2.486
T3	160.00-140.00	A	0.000	5.349	3.250	5.947
		B	0.000	2.453	1.504	2.727
		C	0.000	4.488	2.521	4.990
T4	140.00-120.00	A	0.000	4.971	3.004	5.623
		B	0.000	2.503	1.566	2.831
		C	0.000	3.195	1.838	3.614
T5	120.00-100.00	A	0.000	4.624	3.508	6.670
		B	0.000	2.353	1.851	3.394
		C	0.000	2.795	2.067	4.032
T6	100.00-80.00	A	0.000	4.215	3.294	6.228
		B	0.000	4.233	3.179	6.255
		C	0.000	2.538	1.941	3.750
T7	80.00-60.00	A	0.000	2.928	2.849	5.350
		B	0.000	3.498	3.256	6.392
		C	0.000	1.751	1.675	3.199
T8	60.00-40.00	A	0.000	2.716	3.234	6.030
		B	0.000	3.392	3.863	7.530
		C	0.000	1.577	1.861	3.502
T9	40.00-20.00	A	0.000	3.562	4.494	8.312
		B	0.000	4.504	5.481	10.509
		C	0.000	2.117	2.626	4.939
T10	20.00-0.00	A	0.000	1.819	2.294	4.244
		B	0.000	2.336	2.843	5.451
		C	0.000	1.114	1.364	2.600

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180.00-168.00	0.11	2.11	0.26	2.05
T2	168.00-160.00	1.13	3.01	0.75	2.46
T3	160.00-140.00	2.00	1.91	1.67	1.91
T4	140.00-120.00	2.51	2.42	2.10	2.41
T5	120.00-100.00	2.94	2.89	2.80	3.01
T6	100.00-80.00	7.34	3.70	7.36	4.02
T7	80.00-60.00	9.66	4.14	9.91	4.63
T8	60.00-40.00	10.89	4.32	11.27	4.87
T9	40.00-20.00	10.91	4.27	12.09	4.85
T10	20.00-0.00	10.76	4.17	12.64	5.06

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
PD10017	A	From Leg	0.500 0 6	0.000	178.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.11 5.64 7.19 10.32 14.45	4.11 5.64 7.19 10.32 14.45	0.03 0.06 0.09 0.20 0.54
***									
***									
800 10504 w/ Mount Pipe	A	From Leg	2.000 0 1	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.59 4.01 4.42 5.34 7.38	3.18 3.91 4.58 5.98 8.98	0.04 0.07 0.11 0.21 0.51
800 10504 w/ Mount Pipe	B	From Leg	2.000 0 1	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.59 4.01 4.42 5.34 7.38	3.18 3.91 4.58 5.98 8.98	0.04 0.07 0.11 0.21 0.51
800 10504 w/ Mount Pipe	C	From Leg	2.000 0 1	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.59 4.01 4.42 5.34 7.38	3.18 3.91 4.58 5.98 8.98	0.04 0.07 0.11 0.21 0.51
860 10025	A	From Leg	2.000 0 0	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.22 0.29 0.47 0.92	0.13 0.19 0.26 0.43 0.87	0.00 0.00 0.01 0.01 0.05
860 10025	B	From Leg	2.000 0 0	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.22 0.29 0.47 0.92	0.13 0.19 0.26 0.43 0.87	0.00 0.00 0.01 0.01 0.05
860 10025	C	From Leg	2.000 0 0	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.22 0.29 0.47 0.92	0.13 0.19 0.26 0.43 0.87	0.00 0.00 0.01 0.01 0.05
Side Arm Mount [SO 103-3]	A	None		0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	9.50 11.80 14.10 18.70 27.90	9.50 11.80 14.10 18.70 27.90	0.22 0.32 0.41 0.60 0.97
***									
(2) APL868013-42T0 w/ Mount Pipe	A	From Leg	4.000 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.18 3.52 4.27 5.88	3.73 4.10 4.48 5.25 6.91	0.02 0.05 0.07 0.15 0.35
(2) APL868013-42T0 w/ Mount Pipe	B	From Leg	4.000 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.87 3.18 3.52 4.27 5.88	3.73 4.10 4.48 5.25 6.91	0.02 0.05 0.07 0.15 0.35

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			
(2) APL868013-42T0 w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.18 3.52 4.27 5.88	3.73 4.10 4.48 5.25 6.91	0.02 0.05 0.07 0.15 0.35
APX75-866512-CT2 w/ Mount Pipe	A	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.43 6.92 7.41 8.43 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.09 0.14 0.27 0.64
APX75-866512-CT2 w/ Mount Pipe	B	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.43 6.92 7.41 8.43 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.09 0.14 0.27 0.64
APX75-866512-CT2 w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.43 6.92 7.41 8.43 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.09 0.14 0.27 0.64
MG D3-800Tx w/ Mount Pipe	A	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
MG D3-800Tx w/ Mount Pipe	B	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
MG D3-800Tx w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
(2) FD9R6004/2C-3L	A	From Leg	4.00 0 0	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	B	From Leg	4.00 0 0	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
(2) FD9R6004/2C-3L	C	From Leg	4.00 0 0	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	0.00 0.01 0.01 0.02 0.06
742 213 w/ Mount Pipe	A	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice	5.37 5.95 6.50 7.61	4.62 6.00 6.98 8.85	0.05 0.09 0.15 0.28

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" Ice	9.93	12.79	0.68
						4" Ice			
742 213 w/ Mount Pipe	B	From Leg	4.00 0 1	0.000	162.00	No Ice	5.37	4.62	0.05
						1/2" Ice	5.95	6.00	0.09
						1" Ice	6.50	6.98	0.15
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice	5.37	4.62	0.05
						1/2" Ice	5.95	6.00	0.09
						1" Ice	6.50	6.98	0.15
						2" Ice	7.61	8.85	0.28
						4" Ice	9.93	12.79	0.68
RRH2X40-AWS	A	From Leg	4.00 0 1	0.000	162.00	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2X40-AWS	B	From Leg	4.00 0 1	0.000	162.00	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2X40-AWS	C	From Leg	4.00 0 1	0.000	162.00	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
DB-T1-6Z-8AB-0Z	C	From Leg	4.00 0 1	0.000	162.00	No Ice	5.60	2.33	0.04
						1/2" Ice	5.92	2.56	0.08
						1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
Sector Mount [SM 602-3]	A	None		0.000	162.00	No Ice	33.11	33.11	1.54
						1/2" Ice	44.90	44.90	2.16
						1" Ice	56.69	56.69	2.78
						2" Ice	80.27	80.27	4.01
						4" Ice	127.43	127.43	6.49
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0 4	0.000	154.00	No Ice	6.22	4.82	0.09
						1/2" Ice	6.71	5.51	0.14
						1" Ice	7.22	6.21	0.21
						2" Ice	8.26	7.67	0.36
						4" Ice	10.48	11.06	0.76
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0 4	0.000	154.00	No Ice	6.22	4.82	0.09
						1/2" Ice	6.71	5.51	0.14
						1" Ice	7.22	6.21	0.21
						2" Ice	8.26	7.67	0.36
						4" Ice	10.48	11.06	0.76
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0 4	0.000	154.00	No Ice	6.22	4.82	0.09
						1/2" Ice	6.71	5.51	0.14
						1" Ice	7.22	6.21	0.21
						2" Ice	8.26	7.67	0.36
						4" Ice	10.48	11.06	0.76
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00 0	0.000	154.00	No Ice	8.64	6.36	0.08
						1/2" Ice	9.29	7.54	0.14

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	9.91	8.43	0.22
						1" Ice	11.18	10.24	0.39
						2" Ice	13.83	14.10	0.89
						4" Ice			
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00 0 4	0.000	154.00	No Ice	8.64	6.36	0.08
						1/2" Ice	9.29	7.54	0.14
						1" Ice	11.18	10.24	0.39
						2" Ice	13.83	14.10	0.89
						4" Ice			
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00 0 4	0.000	154.00	No Ice	8.64	6.36	0.08
						1/2" Ice	9.29	7.54	0.14
						1" Ice	11.18	10.24	0.39
						2" Ice	13.83	14.10	0.89
						4" Ice			
(2) LGP21901	A	From Leg	4.00 0 4	0.000	154.00	No Ice	0.27	0.18	0.01
						1/2" Ice	0.34	0.25	0.01
						1" Ice	0.62	0.49	0.02
						2" Ice	1.10	0.94	0.07
						4" Ice			
(2) LGP21901	B	From Leg	4.00 0 4	0.000	154.00	No Ice	0.27	0.18	0.01
						1/2" Ice	0.34	0.25	0.01
						1" Ice	0.62	0.49	0.02
						2" Ice	1.10	0.94	0.07
						4" Ice			
(2) LGP21901	C	From Leg	4.00 0 4	0.000	154.00	No Ice	0.27	0.18	0.01
						1/2" Ice	0.34	0.25	0.01
						1" Ice	0.62	0.49	0.02
						2" Ice	1.10	0.94	0.07
						4" Ice			
(2) RRUS-11	A	From Leg	4.00 0 4	0.000	154.00	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) RRUS-11	B	From Leg	4.00 0 4	0.000	154.00	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) RRUS-11	C	From Leg	4.00 0 4	0.000	154.00	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) LGP21401	A	From Leg	4.00 0 4	0.000	154.00	No Ice	1.29	0.36	0.01
						1/2" Ice	1.45	0.48	0.02
						1" Ice	1.97	0.87	0.05
						2" Ice	2.79	1.52	0.14
						4" Ice			
(2) LGP21401	B	From Leg	4.00 0 4	0.000	154.00	No Ice	1.29	0.36	0.01
						1/2" Ice	1.45	0.48	0.02
						1" Ice	1.97	0.87	0.05
						2" Ice	2.79	1.52	0.14
						4" Ice			
(2) LGP21401	C	From Leg	4.00	0.000	154.00	No Ice	1.29	0.36	0.01

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 4			1/2" Ice	1.45 1.61	0.48 0.60	0.02 0.03
						1" Ice	1.97	0.87	0.05
						2" Ice	2.79	1.52	0.14
						4" Ice			
DC6-48-60-18-8F	B	From Leg	4.00 0 0	0.000	154.00	No Ice 1/2" Ice	1.47 1.67	1.47 1.67	0.02 0.04
						1" Ice	1.88	1.88	0.06
						2" Ice	2.33	2.33	0.11
						4" Ice	3.38	3.38	0.24
Sector Mount [SM 602-3]	A	None		0.000	154.00	No Ice	33.11	33.11	1.54
						1/2" Ice	44.90	44.90	2.16
						1" Ice	56.69	56.69	2.78
						2" Ice	80.27	80.27	4.01
						4" Ice	127.43	127.43	6.49
***									
800 EXTERNAL NOTCH FILTER	A	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice	0.77 0.89	0.37 0.46	0.01 0.02
						1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
						4" Ice	1.97	1.34	0.11
800 EXTERNAL NOTCH FILTER	B	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice	0.77 0.89	0.37 0.46	0.01 0.02
						1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
						4" Ice	1.97	1.34	0.11
800 EXTERNAL NOTCH FILTER	C	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice	0.77 0.89	0.37 0.46	0.01 0.02
						1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
						4" Ice	1.97	1.34	0.11
TME-800MHZ 2X50W RRH	A	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice	2.49 2.71	2.07 2.27	0.05 0.07
						1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
TME-800MHZ 2X50W RRH	B	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice	2.49 2.71	2.07 2.27	0.05 0.07
						1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
TME-800MHZ 2X50W RRH	C	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice	2.49 2.71	2.07 2.27	0.05 0.07
						1" Ice	2.93	2.48	0.10
						2" Ice	3.41	2.93	0.16
						4" Ice	4.46	3.93	0.32
TME-PCS 1900 MHz 4x45W-65MHz	A	From Leg	2.00 0 0	0.000	146.00	No Ice 1/2" Ice	2.71 2.95	2.61 2.85	0.06 0.08
						1" Ice	3.20	3.09	0.11
						2" Ice	3.72	3.61	0.17
						4" Ice	4.86	4.74	0.35
TME-PCS 1900 MHz 4x45W-65MHz	B	From Leg	2.00 0 0	0.000	146.00	No Ice 1/2" Ice	2.71 2.95	2.61 2.85	0.06 0.08
						1" Ice	3.20	3.09	0.11
						2" Ice	3.72	3.61	0.17
						4" Ice	4.86	4.74	0.35

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			
TME-PCS 1900 MHz 4x45W-65MHz	C	From Leg	2.00 0 0	0.000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.71 2.95 3.20 3.72 4.86	2.61 2.85 3.09 3.61 4.74	0.06 0.08 0.11 0.17 0.35
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	2.00 0 0	0.000	143.00	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	2.00 0 0	0.000	143.00	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	2.00 0 0	0.000	143.00	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	2.00 0 0	0.000	143.00	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	2.00 0 0	0.000	143.00	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	2.00 0 0	0.000	143.00	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
Sector Mount [SM 701-3]	A	None		0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	19.73 27.41 35.09 50.45 81.17	19.73 27.41 35.09 50.45 81.17	0.82 1.17 1.51 2.19 3.55
***									
1142-2C	B	From Leg	4.00 0 7	0.000	124.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.09 3.37 4.67 7.32 10.79	2.09 3.37 4.67 7.32 10.79	0.02 0.04 0.07 0.14 0.39
1142-2C	C	From Leg	4.00 0 7	0.000	124.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.09 3.37 4.67 7.32 10.79	2.09 3.37 4.67 7.32 10.79	0.02 0.04 0.07 0.14 0.39
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0	0.000	124.00	No Ice 1/2"	0.98 1.70	2.18 3.80	0.04 0.06

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	2.42	5.42	0.08
						1" Ice	3.86	8.66	0.12
						2" Ice	6.74	15.14	0.20
						4" Ice			
Side Arm Mount [SO 306-1]	C	From Leg	2.00 0 0	0.000	124.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	2.18 3.80 5.42 8.66 15.14	0.04 0.06 0.08 0.12 0.20
***									
220-3BN	B	From Leg	4.00 0 4	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.72 7.83 9.96 14.27 22.63	5.72 7.83 9.96 14.27 22.63	0.02 0.07 0.12 0.27 0.73
1142-2C	C	From Leg	4.00 0 7	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.09 3.37 4.67 7.32 10.79	2.09 3.37 4.67 7.32 10.79	0.02 0.04 0.07 0.14 0.39
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0 0	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	2.18 3.80 5.42 8.66 15.14	0.04 0.06 0.08 0.12 0.20
Side Arm Mount [SO 306-1]	C	From Leg	2.00 0 0	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	2.18 3.80 5.42 8.66 15.14	0.04 0.06 0.08 0.12 0.20
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	93.00	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	A	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.82 7.34 7.85 8.92 11.17	5.63 6.47 7.25 8.85 12.28	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	A	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	93.00	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 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.82 7.34 7.85 8.92 11.17	5.63 6.47 7.25 8.85 12.28	0.11 0.17 0.23 0.38 0.81

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			
KRY 112 144/1	B	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	93.00	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 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.82 7.34 7.85 8.92 11.17	5.63 6.47 7.25 8.85 12.28	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	C	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
***									
GPS_A	C	From Leg	2.00 0 3	0.000	62.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.30 0.37 0.46 0.65 1.15	0.30 0.37 0.46 0.65 1.15	0.00 0.00 0.01 0.02 0.08
Side Arm Mount [SO 301-1]	C	From Leg	1.00 0 0	0.000	62.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.39 1.78 2.56 4.12	0.90 1.42 1.94 2.98 5.06	0.02 0.03 0.04 0.06 0.10
***									
GPS_A	C	From Leg	2.00 0 2	0.000	42.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.30 0.37 0.46 0.65 1.15	0.30 0.37 0.46 0.65 1.15	0.00 0.00 0.01 0.02 0.08
Side Arm Mount [SO 301-1]	C	From Leg	1.00 0 0	0.000	42.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.39 1.78 2.56 4.12	0.90 1.42 1.94 2.98 5.06	0.02 0.03 0.04 0.06 0.10
***									
GPS_A	C	From Leg	2.00 0 1	0.000	31.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.30 0.37 0.46 0.65 1.15	0.30 0.37 0.46 0.65 1.15	0.00 0.00 0.01 0.02 0.08
Side Arm Mount [SO 301-1]	C	From Leg	1.00 0 0	0.000	31.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.00 1.39 1.78 2.56 4.12	0.90 1.42 1.94 2.98 5.06	0.02 0.03 0.04 0.06 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
TD-RRH8x20-25	A	From Leg	4.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.72 5.01 5.32 5.95 7.31	1.70 1.92 2.15 2.62 3.68	0.07 0.10 0.13 0.20 0.40
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.13 7.66 8.18 9.26 11.53	4.96 5.75 6.47 8.01 11.41	0.08 0.13 0.19 0.34 0.75
TD-RRH8x20-25	B	From Leg	4.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.72 5.01 5.32 5.95 7.31	1.70 1.92 2.15 2.62 3.68	0.07 0.10 0.13 0.20 0.40
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.13 7.66 8.18 9.26 11.53	4.96 5.75 6.47 8.01 11.41	0.08 0.13 0.19 0.34 0.75
TD-RRH8x20-25	C	From Leg	4.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.72 5.01 5.32 5.95 7.31	1.70 1.92 2.15 2.62 3.68	0.07 0.10 0.13 0.20 0.40
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.13 7.66 8.18 9.26 11.53	4.96 5.75 6.47 8.01 11.41	0.08 0.13 0.19 0.34 0.75
***									
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	93.00	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
RRUS 11 B12	A	From Leg	4.00 0 0	0.000	93.00	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
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	93.00	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
RRUS 11 B12	B	From Leg	4.00 0 0	0.000	93.00	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
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14 14.60	9.84 11.37 12.91 15.27	0.08 0.17 0.27 0.51

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" Ice	17.87	20.14	1.15
						4" Ice			
RRUS 11 B12	C	From Leg	4.00 0 0	0.000	93.00	No Ice	3.31	1.36	0.05
						1/2" Ice	3.55	1.54	0.07
							3.80	1.73	0.10
						1" Ice	4.33	2.13	0.15
						2" Ice	5.50	3.04	0.31
						4" Ice			
Sector Mount [SM 1306-3]	C	None		0.000	93.00	No Ice	49.30	49.30	2.29
						1/2" Ice	65.73	65.73	2.68
							82.17	82.17	3.07
						1" Ice	115.03	115.03	3.85
						2" Ice	180.77	180.77	5.41
						4" Ice			

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
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 168	5.54	35	0.299	0.019
T2	168 - 160	4.80	35	0.296	0.020
T3	160 - 140	4.31	35	0.285	0.020
T4	140 - 120	3.16	35	0.239	0.019
T5	120 - 100	2.21	35	0.188	0.016
T6	100 - 80	1.48	35	0.139	0.013
T7	80 - 60	0.93	35	0.103	0.009
T8	60 - 40	0.51	35	0.075	0.006
T9	40 - 20	0.23	35	0.047	0.004
T10	20 - 0	0.07	35	0.018	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	PD10017	35	5.42	0.299	0.020	186510
170.00	800 10504 w/ Mount Pipe	35	4.92	0.297	0.020	96856
162.00	(2) APL868013-42T0 w/ Mount Pipe	35	4.43	0.289	0.020	150325
154.00	(2) 7770.00 w/ Mount Pipe	35	3.95	0.273	0.020	54357
146.00	800 EXTERNAL NOTCH FILTER	35	3.49	0.254	0.019	26423
143.00	APXVSPP18-C-A20 w/ Mount Pipe	35	3.32	0.247	0.019	22223
124.00	1142-2C	35	2.38	0.198	0.017	20191
104.00	220-3BN	35	1.61	0.148	0.014	27932
93.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	35	1.27	0.125	0.012	31684
62.00	GPS_A	35	0.55	0.078	0.006	36113
42.00	GPS_A	35	0.25	0.050	0.004	40696
31.00	GPS_A	35	0.14	0.033	0.003	41011

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 168	15.98	10	0.863	0.056
T2	168 - 160	13.85	10	0.853	0.058
T3	160 - 140	12.45	10	0.822	0.059
T4	140 - 120	9.11	10	0.689	0.054
T5	120 - 100	6.38	10	0.542	0.046
T6	100 - 80	4.29	10	0.401	0.037
T7	80 - 60	2.68	10	0.297	0.026
T8	60 - 40	1.48	10	0.218	0.018
T9	40 - 20	0.66	10	0.136	0.012
T10	20 - 0	0.19	10	0.053	0.006

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	PD10017	10	15.62	0.863	0.057	66273
170.00	800 10504 w/ Mount Pipe	10	14.20	0.857	0.058	34427
162.00	(2) APL868013-42T0 w/ Mount Pipe	10	12.80	0.832	0.059	54192
154.00	(2) 7770.00 w/ Mount Pipe	10	11.41	0.788	0.058	19077
146.00	800 EXTERNAL NOTCH FILTER	10	10.07	0.733	0.056	9185

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
143.00	APXVSPP18-C-A20 w/ Mount Pipe	10	9.58	0.711	0.055	7714
124.00	1142-2C	10	6.87	0.572	0.048	7010
104.00	220-3BN	10	4.66	0.427	0.039	9701
93.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	10	3.67	0.360	0.033	10997
62.00	GPS_A	10	1.58	0.226	0.019	12511
42.00	GPS_A	10	0.73	0.144	0.013	14087
31.00	GPS_A	10	0.41	0.096	0.009	14204

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Diagonal	A325N	0.63	1	0.66	4.76	0.139 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.63	1	0.07	3.40	0.020 ✔	1.333	Member Block Shear
T2	168	Leg	A325N	0.63	4	1.60	13.50	0.118 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	1.89	4.76	0.397 ✔	1.333	Member Block Shear
T3	160	Leg	A325N	0.63	4	10.00	13.50	0.741 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	4.47	4.76	0.939 ✔	1.333	Member Block Shear
T4	140	Leg	A325N	0.75	4	18.35	19.44	0.944 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	5.19	4.76	1.091 ✔	1.333	Member Block Shear
T5	120	Leg	A325N	0.88	4	25.31	26.46	0.957 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	4.89	6.44	0.760 ✔	1.333	Bolt Shear
T6	100	Leg	A490N	0.88	4	31.95	32.47	0.984 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	6.24	6.44	0.968 ✔	1.333	Bolt Shear
T7	80	Leg	A325N	1.00	4	38.22	34.56	1.106 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	7.17	6.44	1.113 ✔	1.333	Bolt Shear
T8	60	Leg	A325N	1.13	4	44.41	43.74	1.015 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	7.38	6.44	1.146 ✔	1.333	Bolt Shear
T9	40	Leg	A325N	1.13	4	49.94	43.74	1.142 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	7.83	6.44	1.216 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.50	1	4.05	4.12	0.982 ✔	1.333	Bolt Shear
T10	20	Leg	F1554-36	1.50	6	36.95	33.82	1.092 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	8.25	6.44	1.280 ✔	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	Pipe 2.375" x 0.154" (2 STD)	12.00	4.00	61.0 K=1.00	16.93	1.07	-2.48	18.20	0.137 ✔
T2	168 - 160	Pipe 2.375" x 0.154" (2 STD) (GR)	8.00	4.00	61.0 K=1.00	24.80	1.07	-9.19	26.65	0.345 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T3	160 - 140	Pipe 3.5" x 0.216" (3 STD) (GR)	20.03	5.01	51.7 K=1.00	26.83	2.23	-47.69	59.80	0.797 ✔
T4	140 - 120	Pipe 4" x 0.318" (3.5 XS) (GR)	20.03	6.68	61.3 K=1.00	23.00	3.68	-84.17	84.59	0.995 ✔
T5	120 - 100	Pipe 4.5" x 0.337" (4 XS) (GR)	20.03	6.68	54.3 K=1.00	24.54	4.41	-115.05	108.17	1.064 ✔
T6	100 - 80	Pipe 5.563" x 0.375" (5 XS) (GR)	20.03	6.68	43.6 K=1.00	27.10	6.11	-147.35	165.62	0.890 ✔
T7	80 - 60	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8 K=1.00	25.76	8.40	-176.22	216.54	0.814 ✔
T8	60 - 40	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8 K=1.00	25.76	8.40	-205.73	216.54	0.950 ✔
T9	40 - 20	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	5.15	28.2 K=1.00	29.47	8.40	-233.39	247.73	0.942 ✔
T10	20 - 0	Pipe 8.625" x 0.500" (8 XS) (GR)	20.03	10.02	41.8 K=1.00	29.10	12.76	-261.24	371.42	0.703 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLV	4.63	2.19	91.3 K=1.12	14.05	0.62	-0.69	8.73	0.079 ✔
T2	168 - 160	L 2 x 1.5 x 3/16 LLV	4.63	2.19	91.3 K=1.12	14.05	0.62	-1.95	8.73	0.223 ✔
T3	160 - 140	L 2 x 1.5 x 3/16 LLV	6.52	3.28	122.1 K=1.00	9.97	0.62	-4.53	6.19	0.731 ✔
T4	140 - 120	L 2 x 2 x 3/16	9.07	4.61	140.3 K=1.00	7.59	0.71	-4.87	5.43	0.898 ✔
T5	120 - 100	L 2.5 x 2 x 3/16 LLV	10.69	5.38	151.3 K=1.00	6.52	0.81	-4.89	5.28	0.928 ✔
T6	100 - 80	L 2.5 x 2.5 x 3/16	12.40	6.23	151.0 K=1.00	6.55	0.90	-6.24	5.91	1.056 ✔
T7	80 - 60	L 3 x 3 x 3/16	15.56	7.92	159.4 K=1.00	5.87	1.09	-7.17	6.40	1.120 ✔
T8	60 - 40	L 3.5 x 3 x 1/4 LLV	17.20	8.73	166.1 K=1.00	5.41	1.56	-7.38	8.45	0.874 ✔
T9	40 - 20	L 3.5 x 3 x 1/4 LLV	18.92	9.73	185.1 K=1.00	4.36	1.56	-7.83	6.80	1.152 ✔
T10	20 - 0	L 3.5 x 3.5 x 1/4	20.53	10.38	179.5 K=1.00	4.63	1.69	-8.25	7.83	1.053 ✔

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T9	40 - 20	L3 1/2x3 1/2x1/4	17.49	16.93	146.4 K=0.50	6.97	1.69	-4.05	11.77	0.344 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLH	4.00	3.55	132.4 K=1.00	8.52	0.62	-0.11	5.29	0.021 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	Pipe 2.375" x 0.154" (2 STD)	12.00	4.00	61.0	21.00	1.07	1.77	22.57	0.078 ✔
T2	168 - 160	Pipe 2.375" x 0.154" (2 STD) (GR)	8.00	4.00	61.0	21.00	1.07	6.39	22.57	0.283 ✔
T3	160 - 140	Pipe 3.5" x 0.216" (3 STD) (GR)	20.03	5.01	51.7	21.00	2.23	40.00	46.80	0.855 ✔
T4	140 - 120	Pipe 4" x 0.318" (3.5 XS) (GR)	20.03	6.68	61.3	21.00	3.68	73.39	77.25	0.950 ✔
T5	120 - 100	Pipe 4.5" x 0.337" (4 XS) (GR)	20.03	6.68	54.3	21.00	4.41	101.23	92.56	1.094 ✔
T6	100 - 80	Pipe 5.563" x 0.375" (5 XS) (GR)	20.03	6.68	43.6	21.00	6.11	127.80	128.35	0.996 ✔
T7	80 - 60	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8	21.00	8.40	152.88	176.50	0.866 ✔
T8	60 - 40	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8	21.00	8.40	177.65	176.50	1.007 ✔
T9	40 - 20	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	4.87	26.6	21.00	8.40	200.17	176.50	1.134 ✔
T10	20 - 0	Pipe 8.625" x 0.500" (8 XS) (GR)	20.03	10.02	41.8	21.00	12.76	221.69	268.02	0.827 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLV	4.63	2.19	63.2	29.00	0.36	0.66	10.45	0.063 ✔
T2	168 - 160	L 2 x 1.5 x 3/16 LLV	4.63	2.19	63.2	29.00	0.36	1.89	10.45	0.181 ✔
T3	160 - 140	L 2 x 1.5 x 3/16 LLV	6.52	3.28	92.9	29.00	0.36	4.47	10.45	0.427 ✔
T4	140 - 120	L 2 x 2 x 3/16	8.11	4.14	83.0	29.00	0.43	5.19	12.49	0.416 ✔
T5	120 - 100	L 2.5 x 2 x 3/16 LLV	10.69	5.38	110.7	29.00	0.50	4.78	14.54	0.329 ✔
T6	100 - 80	L 2.5 x 2.5 x 3/16	12.40	6.23	98.2	29.00	0.57	6.16	16.56	0.372 ✔
T7	80 - 60	L 3 x 3 x 3/16	15.56	7.92	103.1	29.00	0.71	6.99	20.65	0.338 ✔
T8	60 - 40	L 3.5 x 3 x 1/4 LLV	17.20	8.73	116.7	29.00	1.03	7.21	29.85	0.242 ✔
T9	40 - 20	L 3.5 x 3 x 1/4 LLV	18.92	9.73	127.9	29.00	1.03	7.47	29.85	0.250 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	20 - 0	L 3.5 x 3.5 x 1/4	20.53	10.38	115.8	29.00	1.13	7.97	32.68	0.244 ✔

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T9	40 - 20	L3 1/2x3 1/2x1/4	17.49	16.93	186.4	29.00	1.15	4.05	33.36	0.121 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLH	4.00	3.55	103.8	29.00	0.36	0.07	10.45	0.006 ✔

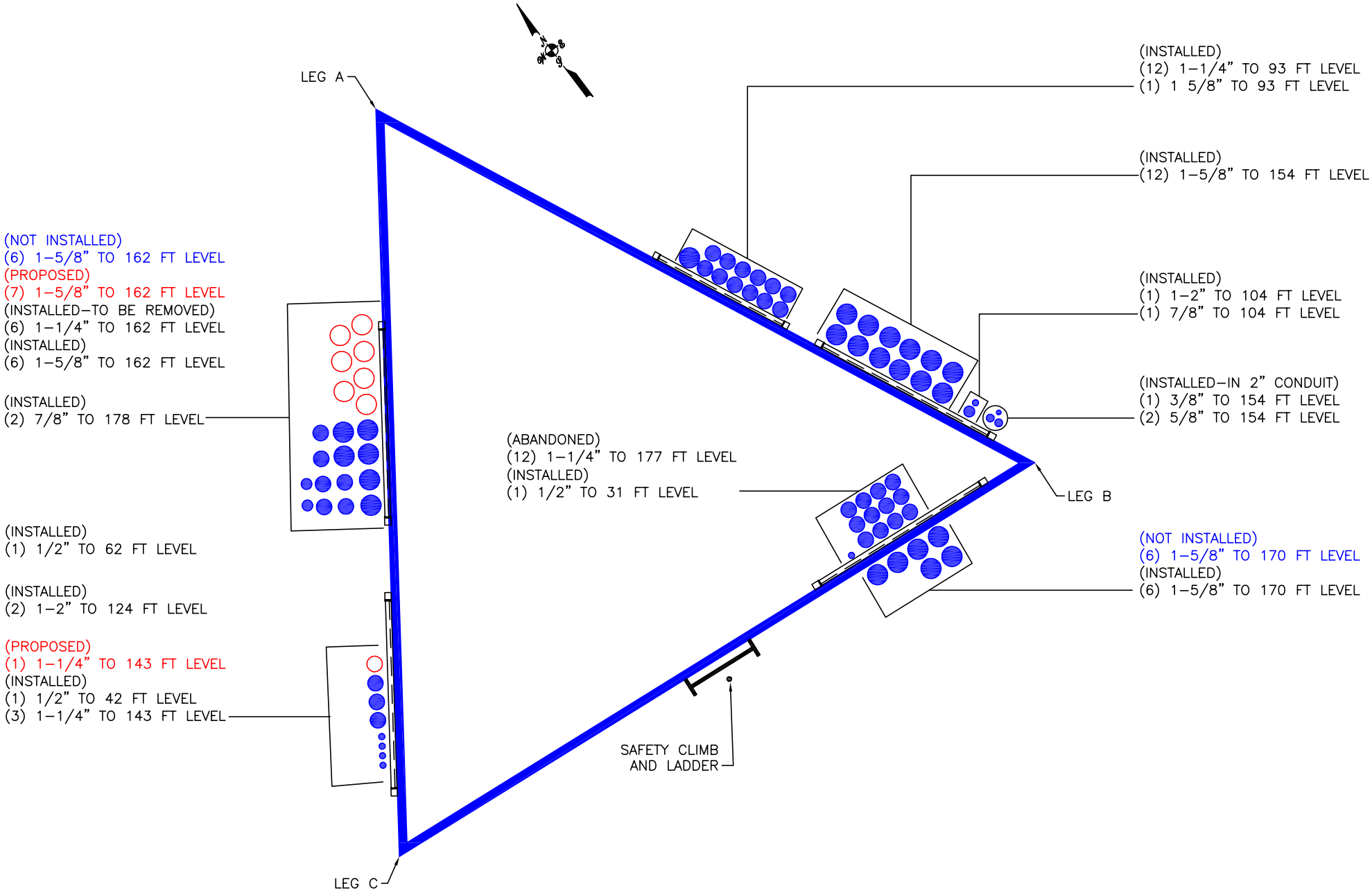
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	180 - 168	Leg	Pipe 2.375" x 0.154" (2 STD)	2	-2.48	24.25	10.2	Pass
T2	168 - 160	Leg	Pipe 2.375" x 0.154" (2 STD) (GR)	25	-9.19	35.52	25.9	Pass
T3	160 - 140	Leg	Pipe 3.5" x 0.216" (3 STD) (GR)	40	40.00	62.38	64.1	Pass
T4	140 - 120	Leg	Pipe 4" x 0.318" (3.5 XS) (GR)	67	-84.17	112.76	74.6	Pass
T5	120 - 100	Leg	Pipe 4.5" x 0.337" (4 XS) (GR)	88	101.23	123.38	82.0	Pass
T6	100 - 80	Leg	Pipe 5.563" x 0.375" (5 XS) (GR)	109	127.80	171.09	74.7	Pass
T7	80 - 60	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	130	152.88	235.28	65.0	Pass
T8	60 - 40	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	145	177.65	235.28	75.5	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	160	200.17	235.28	85.1	Pass
T10	20 - 0	Leg	Pipe 8.625" x 0.500" (8 XS) (GR)	181	221.69	357.27	62.1	Pass
T1	180 - 168	Diagonal	L 2 x 1.5 x 3/16 LLV	11	-0.69	11.64	6.0	Pass
T2	168 - 160	Diagonal	L 2 x 1.5 x 3/16 LLV	33	-1.95	11.64	16.7	Pass
T3	160 - 140	Diagonal	L 2 x 1.5 x 3/16 LLV	44	-4.53	8.26	54.9	Pass
T4	140 - 120	Diagonal	L 2 x 2 x 3/16	71	-4.87	7.23	67.4	Pass
T5	120 - 100	Diagonal	L 2.5 x 2 x 3/16 LLV	92	-4.89	7.03	69.6	Pass
T6	100 - 80	Diagonal	L 2.5 x 2.5 x 3/16	113	-6.24	7.87	79.2	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 3/16	133	-7.17	8.53	84.0	Pass
T8	60 - 40	Diagonal	L 3.5 x 3 x 1/4 LLV	148	-7.38	11.26	65.6	Pass
T9	40 - 20	Diagonal	L 3.5 x 3 x 1/4 LLV	163	-7.83	9.07	86.4	Pass
T10	20 - 0	Diagonal	L 3.5 x 3.5 x 1/4	184	-8.25	10.44	79.0	Pass
T9	40 - 20	Secondary Horizontal	L3 1/2x3 1/2x1/4	169	-4.05	15.70	25.8	Pass
T1	180 - 168	Top Girt	L 2 x 1.5 x 3/16 LLH	5	-0.11	7.05	1.5	Pass
							Summary	
						Leg (T9)	85.1	Pass
						Diagonal	86.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
						(T9) Secondary Horizontal (T9)	25.8	Pass
						Top Girt (T1)	1.5	Pass
						Bolt Checks	96.0	Pass
						RATING =	**96.0**	**Pass**

APPENDIX B

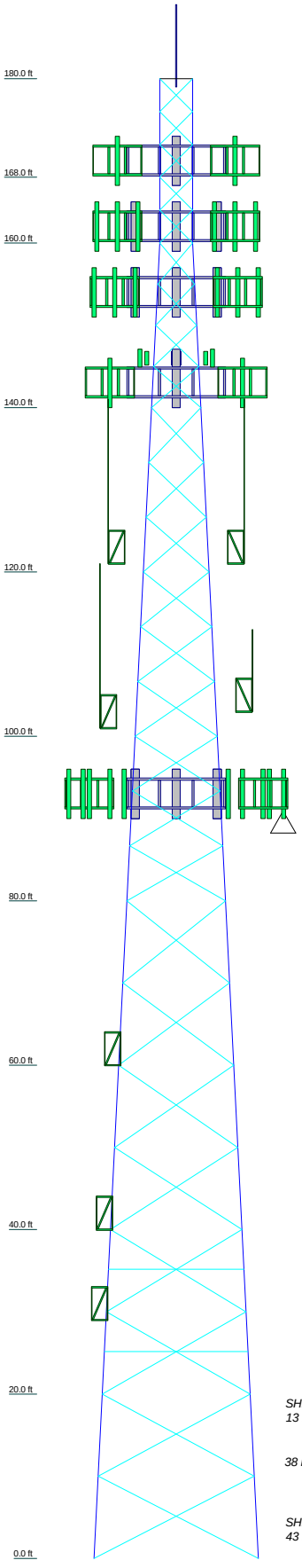
BASE LEVEL DRAWING


LEG A
(INSTALLED)
(12) 1-1/4" TO 93 FT LEVEL
(1) 1 5/8" TO 93 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 154 FT LEVEL
(INSTALLED)
(1) 1-2" TO 104 FT LEVEL
(1) 7/8" TO 104 FT LEVEL
(INSTALLED-IN 2" CONDUIT)
(1) 3/8" TO 154 FT LEVEL
(2) 5/8" TO 154 FT LEVEL
LEG B
(NOT INSTALLED)
(6) 1-5/8" TO 162 FT LEVEL
(PROPOSED)
(7) 1-5/8" TO 162 FT LEVEL
(INSTALLED-TO BE REMOVED)
(6) 1-1/4" TO 162 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 162 FT LEVEL
(INSTALLED)
(2) 7/8" TO 178 FT LEVEL
(ABANDONED)
(12) 1-1/4" TO 177 FT LEVEL
(INSTALLED)
(1) 1/2" TO 31 FT LEVEL
(NOT INSTALLED)
(6) 1-5/8" TO 170 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 170 FT LEVEL
(INSTALLED)
(1) 1/2" TO 62 FT LEVEL
(INSTALLED)
(2) 1-2" TO 124 FT LEVEL
(PROPOSED)
(1) 1-1/4" TO 143 FT LEVEL
(INSTALLED)
(1) 1/2" TO 42 FT LEVEL
(3) 1-1/4" TO 143 FT LEVEL
SAFETY CLIMB
AND LADDER
LEG C

APPENDIX C

ADDITIONAL CALCULATIONS

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10			
Legs		A	B	Pipe 3.5" x 0.216" (3 STD) (GR)	Pipe 4" x 0.318" (3.5 XS) (GR)	Pipe 4.5" x 0.337" (4 XS) (GR)	Pipe 5.563" x 0.375" (5 XS) (GR)	L 3 x 3 x 3/16	Pipe 6.625" x 0.432" (6 XS) (GR)	L 3.5 x 3 x 1/4 LLV	L 3.5 x 3.5 x 1/4			
Leg Grade		A53-B-35												
Diagonals		L 2 x 1.5 x 3/16 LLV			L 2 x 2 x 3/16	L 2.5 x 2 x 3/16 LLV	L 2.5 x 2.5 x 3/16							
Diagonal Grade		A36												
Top Girts		L 2 x 1.5 x 3/16 LLH												
Sec. Horizontals		N.A.				N.A.				L 3 1/2x3 1/2x1/4	N.A.			
Face Width (ft)	20	4			6	8	10	12	14	16	18			
# Panels @ (ft)		5 @ 4		4 @ 5		9 @ 6.66667				8 @ 10				
Weight (K)	29.1	0.3	0.3	1.2	1.7	2.1	3.0	4.0	4.4	5.1	6.9			



MAX. CORNER REACTIONS AT BASE:
DOWN: 268 K
SHEAR: 27 K

UPLIFT: -226 K
SHEAR: 23 K

AXIAL
93 K
SHEAR 13 K *MOMENT 1398 kip-ft*

TORQUE 6 kip-ft
38 mph WIND - 0.75 in ICE

AXIAL
49 K
SHEAR 43 K *MOMENT 4357 kip-ft*

TORQUE 19 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD10017	178	TME-800MHZ 2X50W RRH	146
800 10504 w/ Mount Pipe	170	TME-800MHZ 2X50W RRH	146
800 10504 w/ Mount Pipe	170	TME-PCS 1900 MHz 4x45W-65MHz	146
800 10504 w/ Mount Pipe	170	TME-PCS 1900 MHz 4x45W-65MHz	146
860 10025	170	TME-PCS 1900 MHz 4x45W-65MHz	146
860 10025	170	APXVSPP18-C-A20 w/ Mount Pipe	143
860 10025	170	APXVSPP18-C-A20 w/ Mount Pipe	143
Side Arm Mount [SO 103-3]	170	APXVSPP18-C-A20 w/ Mount Pipe	143
(2) APL868013-42T0 w/ Mount Pipe	162	(3) ACU-A20-N	143
(2) APL868013-42T0 w/ Mount Pipe	162	(3) ACU-A20-N	143
(2) APL868013-42T0 w/ Mount Pipe	162	(3) ACU-A20-N	143
APX75-866512-CT2 w/ Mount Pipe	162	Sector Mount [SM 701-3]	143
APX75-866512-CT2 w/ Mount Pipe	162	TD-RRH8x20-25	143
APX75-866512-CT2 w/ Mount Pipe	162	APXVTM14-C-120 w/ Mount Pipe	143
MG D3-800Tx w/ Mount Pipe	162	TD-RRH8x20-25	143
MG D3-800Tx w/ Mount Pipe	162	APXVTM14-C-120 w/ Mount Pipe	143
MG D3-800Tx w/ Mount Pipe	162	TD-RRH8x20-25	143
(2) FD9R6004/2C-3L	162	APXVTM14-C-120 w/ Mount Pipe	143
(2) FD9R6004/2C-3L	162	1142-2C	124
(2) FD9R6004/2C-3L	162	1142-2C	124
742 213 w/ Mount Pipe	162	Side Arm Mount [SO 306-1]	124
742 213 w/ Mount Pipe	162	Side Arm Mount [SO 306-1]	124
742 213 w/ Mount Pipe	162	Side Arm Mount [SO 306-1]	104
RRH2X40-AWS	162	Side Arm Mount [SO 306-1]	104
RRH2X40-AWS	162	220-3BN	104
RRH2X40-AWS	162	1142-2C	104
DB-T1-6Z-8AB-0Z	162	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	93
Sector Mount [SM 602-3]	162	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	93
(2) 7770.00 w/ Mount Pipe	154	KRY 112 144/1	93
(2) 7770.00 w/ Mount Pipe	154	KRY 112 144/1	93
(2) 7770.00 w/ Mount Pipe	154	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	93
P65-16-XLH-RR w/ Mount Pipe	154	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	93
P65-16-XLH-RR w/ Mount Pipe	154	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	93
P65-16-XLH-RR w/ Mount Pipe	154	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	93
(2) LGP21901	154	KRY 112 144/1	93
(2) LGP21901	154	LNX-6515DS-VTM w/ Mount Pipe	93
(2) LGP21901	154	RRUS 11 B12	93
(2) RRUS-11	154	LNX-6515DS-VTM w/ Mount Pipe	93
(2) RRUS-11	154	RRUS 11 B12	93
(2) RRUS-11	154	LNX-6515DS-VTM w/ Mount Pipe	93
(2) LGP21401	154	RRUS 11 B12	93
(2) LGP21401	154	Sector Mount [SM 1306-3]	93
(2) LGP21401	154	Side Arm Mount [SO 301-1]	62
DC6-48-60-18-8F	154	GPS_A	62
Sector Mount [SM 602-3]	154	Side Arm Mount [SO 301-1]	42
800 EXTERNAL NOTCH FILTER	146	GPS_A	42
800 EXTERNAL NOTCH FILTER	146	Side Arm Mount [SO 301-1]	31
800 EXTERNAL NOTCH FILTER	146	GPS_A	31
TME-800MHZ 2X50W RRH	146		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pipe 2.375" x 0.154" (2 STD)	B	Pipe 2.375" x 0.154" (2 STD) (GR)

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 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. Grouted pipe f'c is 7 ksi
6. TOWER RATING: 96%

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job:	***180-ft S/S Tower - Wilton, CT***
Project:	***BU 806353 (PJF # 37515-0813.001.8700)***
Client: Crown Castle	Drawn by: Charles Weir — App'd:
Code: TIA/EIA-222-F	Date: 03/03/15 — Scale: NTS
Path:	Dwg No. E-1

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Job Number:	37515-0813.001.8700	**Page:**	1
Site Number:	BU 806353	**By:**	CJW
Site Name:	BRG 124 943066	**Date:**	3/3/2015

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA/EIA-222-F

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =			k-ft
Shear, V =	27.0	23.0	kips
Axial Load, P =	268.0	-226.0	kips
OTM =	6.8	5.8	k-ft @ Ground

Safety Factors / Load Factors / Φ Factors

Tower Type =	Self-Supported
ACI Code =	ACI 318-02
Seismic Design Category =	D
Reference Standard =	TIA/EIA-222-F
Use 1.3 Load Factor?	Yes
Load Factor =	1.30

Drilled Pier Parameters

Diameter =	2.5	ft
Height Above Grade =	0.25	ft
Depth Below Grade =	13.5	ft
fc' =	3	ksi
εc =	0.003	in/in
Mat Ftdn. Cap Width =	5	ft
Mat Ftdn. Cap Length =	12	ft
Depth Below Grade =	5	ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA/EIA-222-F

1. Ult. Skin Friction/2.00 + Ult. End Bearing/2.00
 + Effective Soil Wt. - Buoyant Conc. Wt. ≥ Comp.
2. Ult. Skin Friction/2.00 + Buoyant Conc. Wt./1.25 ≥ Uplift
3. Ult. Skin Friction/1.50 + Buoyant Conc. Wt./1.50 ≥ Uplift

Steel Parameters

Number of Bars =	14	
Rebar Size =	#8	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#4	
Side Clear Cover to Ties =	3	in

Soil Parameters

Water Table Depth =	99.00	ft
Depth to Ignore Soil =	5.00	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	100.0%
Maximum Steel Ratio =	100.0%

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	5	110	0	30	Sand	0	0	0	5
2	99	140	8000	0	Clay	56000	8000	8000	104
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	10.16	ft, from Grade	Shear, V =	27.00	kips
Bending Moment, M =	281.00	k-ft, from COR	Resisting Shear, Va =	145.17	kips
Resisting Moment, Ma =	1510.86	k-ft, from COR			

MOMENT RATIO = 18.6% OK **SHEAR RATIO = 18.6% OK**

Soil Results: Uplift

Uplift, T =	226.00	kips
Allowable Uplift Cap., Ta =	309.84	kips

UPLIFT RATIO = 72.9% OK

Soil Results: Compression

Compression, C =	268.00	kips
Allowable Comp. Cap., Ca =	389.81	kips

COMPRESSION RATIO = 68.8% OK

Steel Results (ACI 318-02):

Minimum Steel Area =	2.36	sq in	Axial Load, P =	-171.62	kips @ 6.00 ft Below Grade
Actual Steel Area =	11.06	sq in	Moment, M =	137.41	k-ft @ 6.00 ft Below Grade
			Allowable Moment, Ma =	258.89	k-ft
Allowable Min Axial, Pa =	-459.42	kips, Where Ma = 0 k-ft			
Allowable Max Axial, Pa =	975.15	kips, Where Ma = 0 k-ft	**MOMENT RATIO =**	**53.1%**	**OK**

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

T-Mobile Existing Facility

Site ID: CT11119A

Wilton/ Mountain Rd & Bra
128 Mather Street
Wilton, CT 06897

March 18, 2015

EBI Project Number: 6215001610

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	53.70 %

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

EBI Consulting
environmental | engineering | due diligence

March 18, 2015

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

Emissions Analysis for Site: **CT11119A – Wilton/ Mountain Rd & Bra**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **128 Mather Street, Wilton, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **128 Mather Street, Wilton, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

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

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

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

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

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

7) The antennas used in this modeling are the **Ericsson AIR21 (B4A/B2P& B2A/B4P)** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 (B4A/B2P& B2A/B4P)** have a maximum gain of **15.9 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **93 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.

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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):	93	Height (AGL):	93	Height (AGL):	93
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	2.22	Antenna B1 MPE%	2.22	Antenna C1 MPE%	2.22
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	93	Height (AGL):	93	Height (AGL):	93
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	2.22	Antenna B2 MPE%	2.22	Antenna C2 MPE%	2.22
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	93	Height (AGL):	93	Height (AGL):	93
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.88	Antenna B3 MPE%	0.88	Antenna C3 MPE%	0.88

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**15.94**
Verizon Wireless	15.37 %
AT&T	8.28 %
MetroPCS	1.68 %
Sprint	6.05 %
Nextel	1.76 %
Town	4.62 %
Site Total MPE %:	**53.70 %**

T-Mobile Sector 1 Total:	5.31 %
T-Mobile Sector 2 Total:	5.31 %
T-Mobile Sector 3 Total:	5.31 %
Site Total:	53.70 %

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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:	5.31 %
Sector 2:	5.31 %
Sector 3 :	5.31 %
T-Mobile Total:	15.94 %
Site Total:	53.70 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **53.70%** 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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