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

October 16, 2015

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

RE: **T-Mobile - Exempt Modification - Crown Site BU: 876401**
T-Mobile Site ID: CTNL130A
Located at: 47-51 Unity Street, Plainfield, CT 06374

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 The Honorable Paul E. Sweet, First Selectman, Town of Plainfield. The Town of Plainfield is also the Property Owner.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **47-51 Unity Street, Plainfield, CT**. 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 additional 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. A Structural Modification Report confirming that the tower and foundation can support T-Mobile's proposed modifications is included as Exhibit-2.

5. The operation of the additional 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.

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). Please send approval/rejection letter to Attn: Kimberly Myl.

Sincerely,

Kimberly Myl
Real Estate Specialist

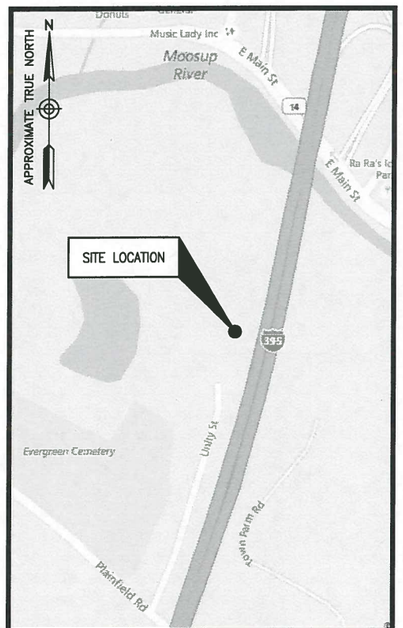
Enclosures

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

cc: The Honorable Paul E. Sweet, First Selectman
Town of Plainfield
Office of the Mayor
8 Community Avenue
Plainfield, CT 06374

T-MOBILE NORTHEAST LLC

T-MOBILE SITE #: CTNL130A
CROWN CASTLE BU #: 876401
SITE NAME: TOWN OF PLAINFIELD / SSUSA
47-51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM COUNTY



VICINITY MAP

FROM PARSIPPANY, NJ:

DEPART SYLVAN WAY TOWARD CENTURY DR. TURN RIGHT ON TO US-202/LITTLETON RD. KEEP RIGHT ON TO LITTLETON RD. TAKE RAMP ON LEFT AND FOLLOW SIGNS FOR I-80E. TAKE EXIT 62A-B FOR I-80E TOWARD NEW JERSEY TURNPIKE. TAKE RAMP FOR I-95N TOWARD G. WASHINGTON BRIDGE. TAKE EXIT 76 FOR I-395N TOWARD NORWICH/PLAINFIELD. TAKE EXIT 88 ONTO CT-14AW TOWARD PLAINFIELD. TURN LEFT ONTO CT-14A. TURN RIGHT ON TO CT-12/NORWICH RD. TURN RIGHT ON TO PLAINFIELD RD. TURN LEFT ONTO UNITY ST. SITE WILL BE STRAIGHT AHEAD.

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

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

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

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

CONSULTANT TEAM

SITE NAME:
TOWN OF PLAINFIELD / SSUSA

SITE NUMBER:
CTNL130A

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

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

COORDINATES:
LATITUDE: 41°-42'-54.49" N (NAD83)
LONGITUDE: 71°-53'-46.73" W (NAD83)
(PER CROWN CASTLE)

CONFIGURATION
704G

PROJECT SUMMARY

SITE ADDRESS:
47-51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM COUNTY

PROJECT DIRECTORY

- REMOVE & REPLACE (6) EXISTING ANTENNAS WITH (6) NEW ANTENNAS.
- REMOVE & REPLACE (3) EXISTING TMA'S WITH (3) NEW TMA'S.
- INSTALL (3) NEW BIAS TEE'S.
- INSTALL (6) NEW RUS INSIDE EXISTING EQUIPMENT CABINET AT GRADE.
- INSTALL (1) NEW BBU CABINET AT GRADE.

SCOPE OF WORK

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

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

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

SHEET INDEX

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

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

CTNL130A TOWN OF PLAINFIELD/SSUSA

CONSTRUCTION DRAWINGS

0	10/15/15	ISSUED AS FINAL
A	10/14/15	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 YU
No. 23222
LICENSED PROFESSIONAL ENGINEER

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

DRAWN BY:	ALH
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074613
SITE ADDRESS:	

47-51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM 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.

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CTNL130A
TOWN OF PLAINFIELD/SSUSA

CONSTRUCTION DRAWINGS		
0	10/15/15	ISSUED AS FINAL
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Dewberry®
Dewberry Engineers Inc.
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STATE OF CONNECTICUT
JIANG YU
No. 23222
PROFESSIONAL ENGINEER
JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY:	ALH
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074613
SITE ADDRESS:	

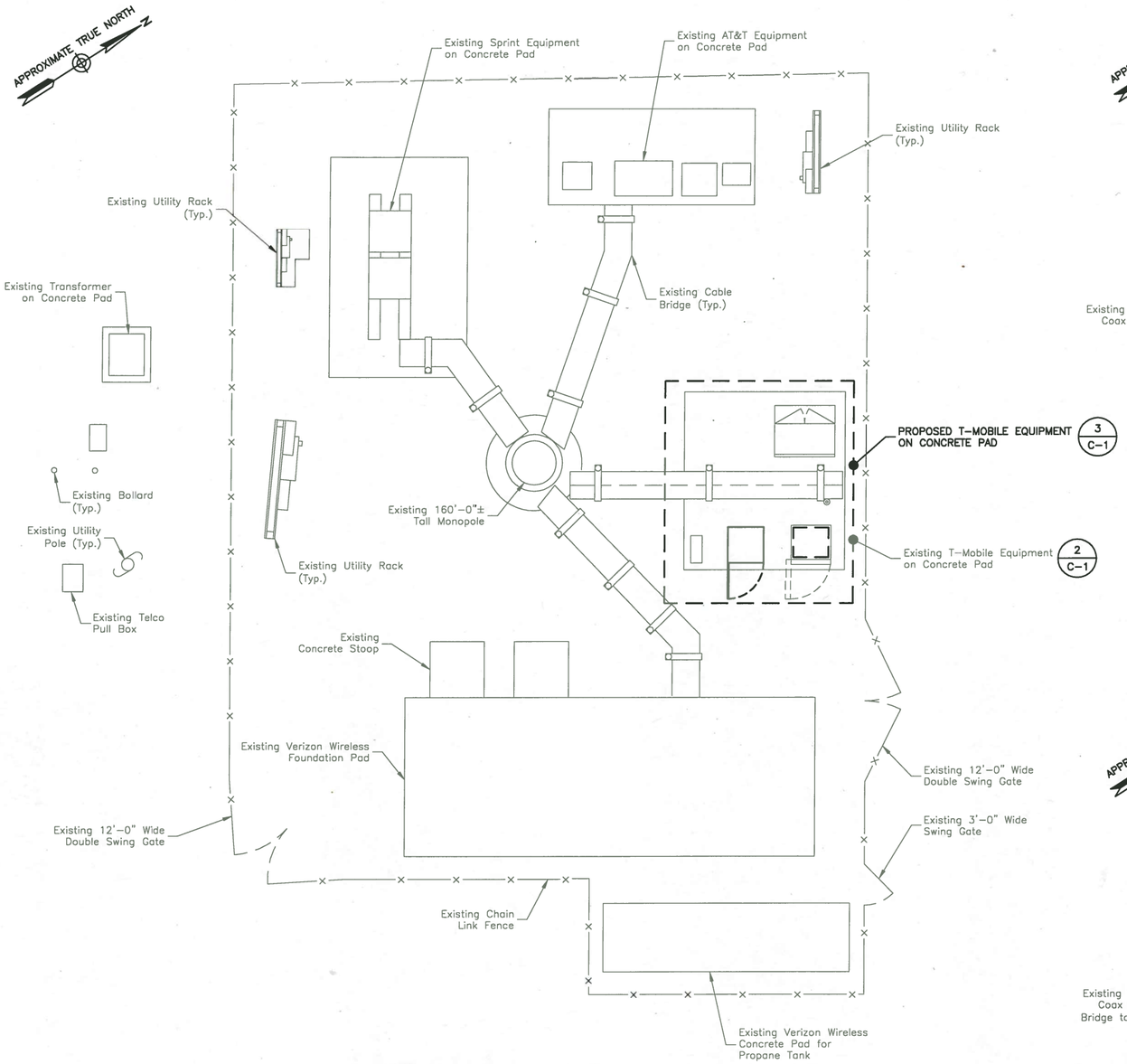
47–51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM COUNTY

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

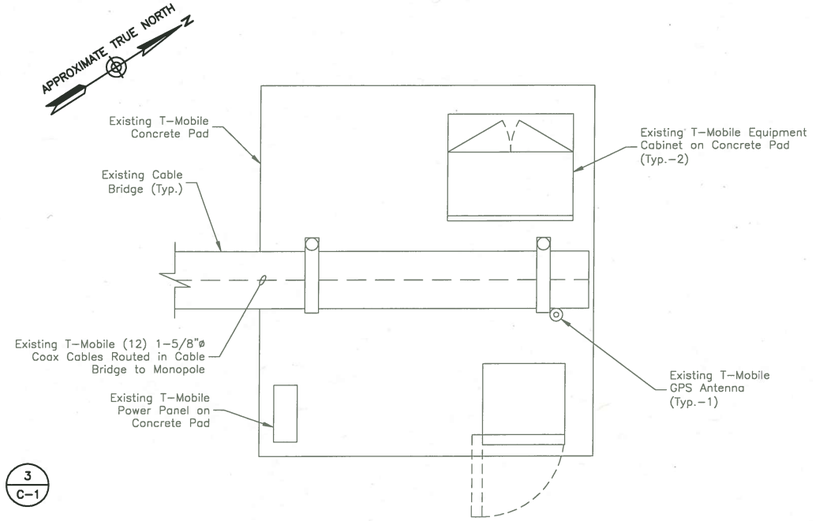
G–1



COMPOUND PLAN 1

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

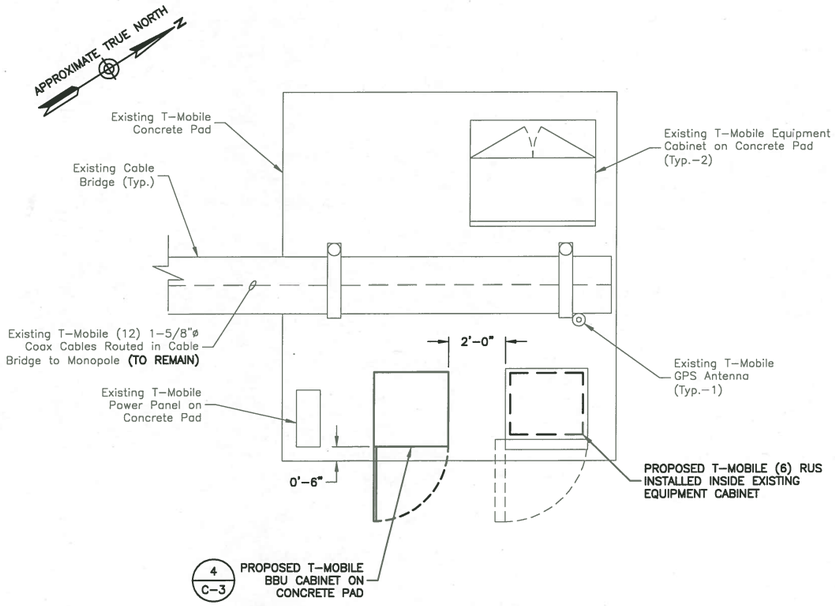
0' 5' 10'



EXISTING EQUIPMENT PLAN 2

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'



PROPOSED EQUIPMENT PLAN 3

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. NORTH ARROW SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, BIAS TEE'S, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TECTONIC DATED SEPTEMBER 23, 2015.

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STATE OF CONNECTICUT
JIANG YU
No. 23222
LICENSED PROFESSIONAL ENGINEER

JIANG YU, PE
CONNECTICUT LICENSE NO. 0023222

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CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074613
SITE ADDRESS:	

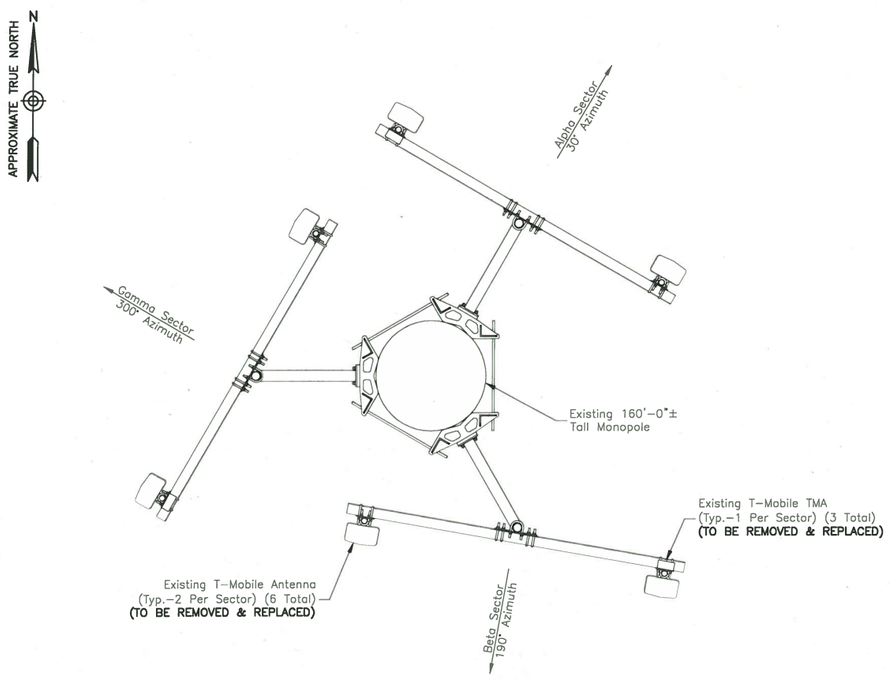
47-51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM COUNTY

SHEET TITLE

COMPOUND PLAN & EQUIPMENT PLANS

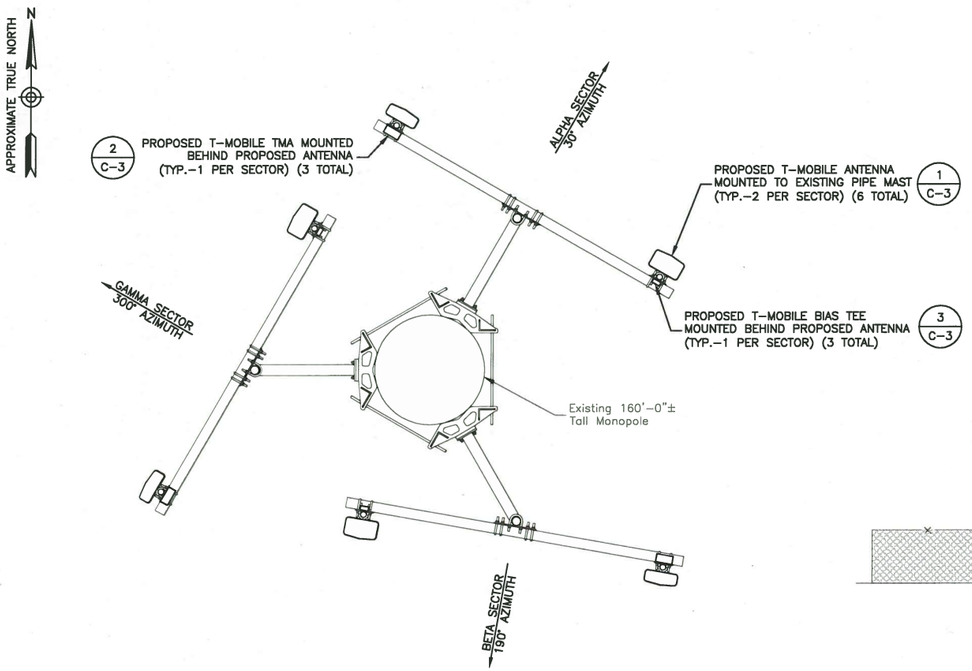
SHEET NUMBER

C-1



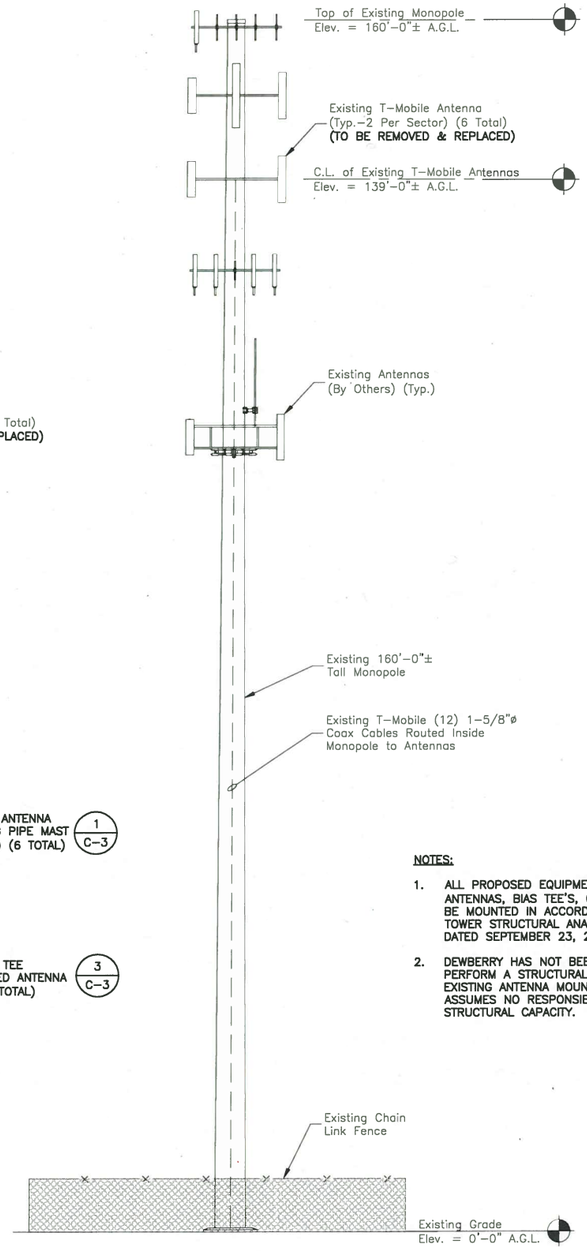
EXISTING ANTENNA LAYOUT 1

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT 2

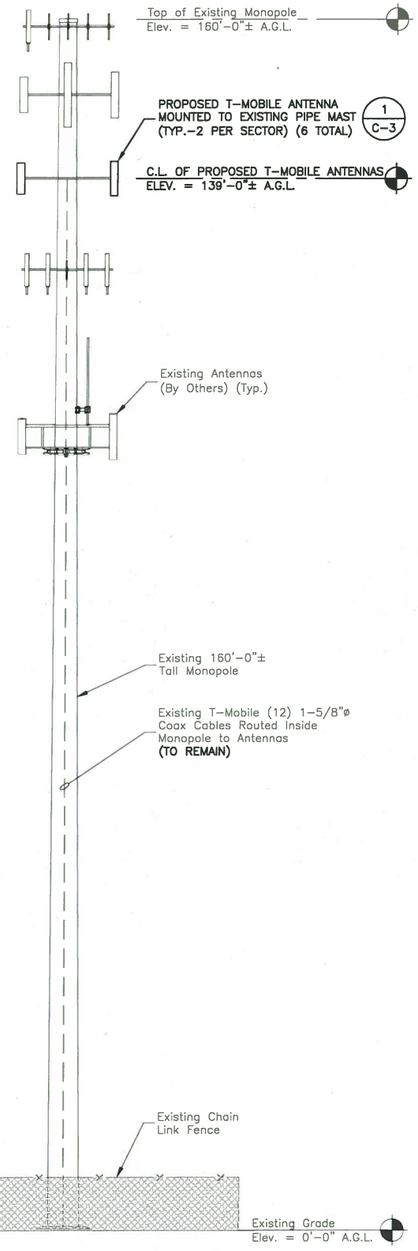
SCALE: N.T.S.



EXISTING ELEVATION 3

SCALE: 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'

NOTES:

1. ALL PROPOSED EQUIPMENT INCLUDING, ANTENNAS, BIAS TEE'S, COAX, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY TECTONIC DATED SEPTEMBER 23, 2015.
2. DEWBERRY HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THE EXISTING ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY.

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JOB NUMBER:	50074613
SITE ADDRESS:	

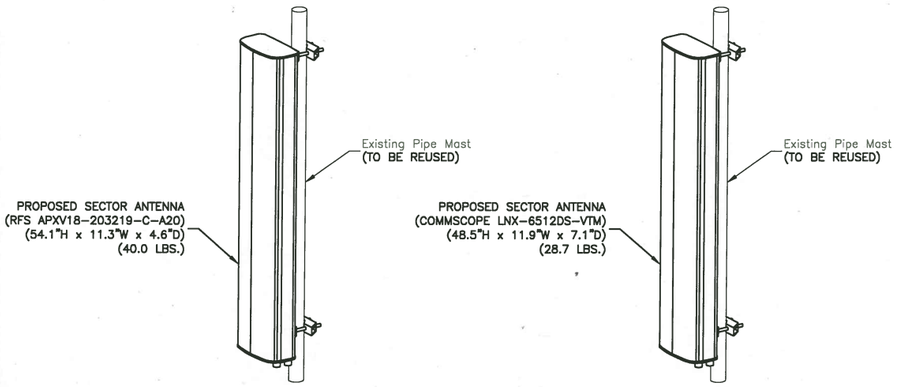
47-51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM COUNTY

SHEET TITLE

ANTENNA LAYOUTS & ELEVATIONS

SHEET NUMBER

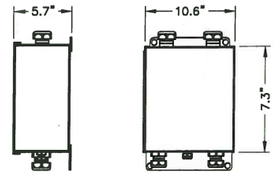
C-2



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 DETAILS 1
SCALE: N.T.S.

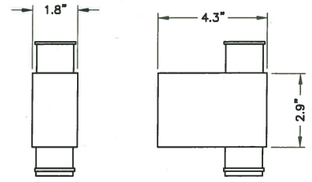


COMMSCOPE TMAT7LA-11A

NOTES:

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

DUAL-PORT TMA DETAIL 2
SCALE: N.T.S.

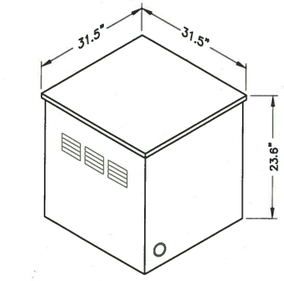


COMMSCOPE ATBT-BOTTOM-24V

NOTES:

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

BIAS TEE DETAIL 3
SCALE: N.T.S.



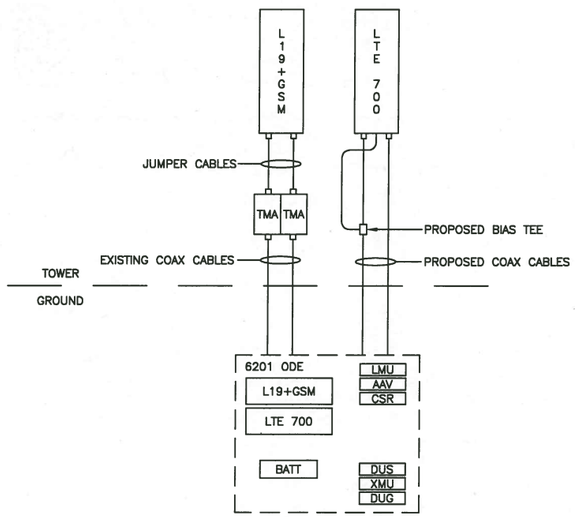
ALCATEL-LUCENT EZBFo BATTERY BACKUP SYSTEM

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

NOTE:

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

BBU CABINET DETAIL 4
SCALE: N.T.S.



SITE CONFIGURATION 704G 5
SCALE: N.T.S.

DESIGN CONFIGURATION

	ANTENNAS				COAX		COAX LENGTH	RRU (AT GRADE)		TMA	BIAS TEE
	EXISTING	PROPOSED	AZIMUTH	C.L.	EXISTING	PROPOSED		EXISTING	PROPOSED	PROPOSED	PROPOSED
ALPHA	EXISTING TO BE REMOVED	RFS APXV18-203219-C-A20	30°	139'	(4) 1-5/8"ø	–	160'-0"	–	–	TMAT7LA-11A	–
	–	–	–	–				–	–	–	–
	EXISTING TO BE REMOVED	COMMSCOPE LNX-6512DS-VTM	30°	139'				–	–	–	ATBT-BOTTOM-24V
BETA	EXISTING TO BE REMOVED	RFS APXV18-203219-C-A20	190°	139'	(4) 1-5/8"ø	–	160'-0"	–	–	TMAT7LA-11A	–
	–	–	–	–				–	–	–	–
	EXISTING TO BE REMOVED	COMMSCOPE LNX-6512DS-VTM	190°	139'				–	–	–	ATBT-BOTTOM-24V
GAMMA	EXISTING TO BE REMOVED	RFS APXV18-203219-C-A20	300°	139'	(4) 1-5/8"ø	–	160'-0"	–	–	TMAT7LA-11A	–
	–	–	–	–				–	–	–	–
	EXISTING TO BE REMOVED	COMMSCOPE LNX-6512DS-VTM	300°	139'				–	–	–	ATBT-BOTTOM-24V

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STATE OF CONNECTICUT
JIANG YU
No. 23222
LICENSED PROFESSIONAL ENGINEER

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

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REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50066258
JOB NUMBER:	50074613
SITE ADDRESS:	

47-51 UNITY STREET
PLAINFIELD, CT 06354
WINDHAM COUNTY

SHEET TITLE

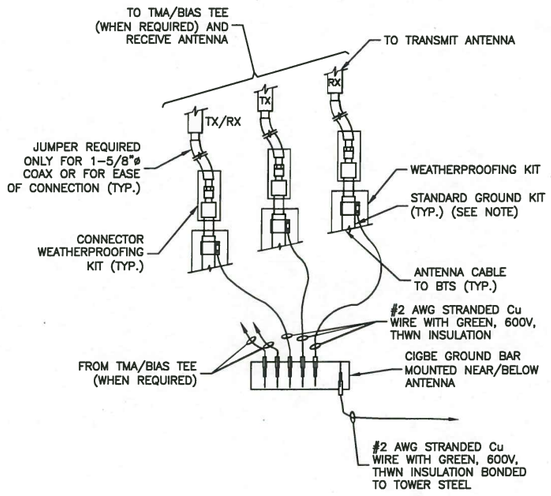
CONSTRUCTION DETAILS

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.

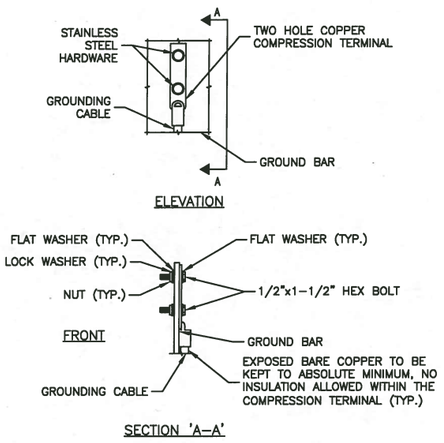


NOTE:

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.

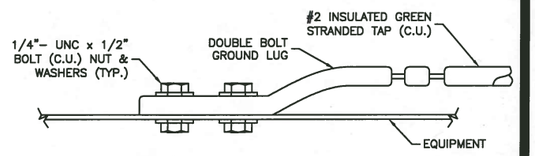


NOTES:

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

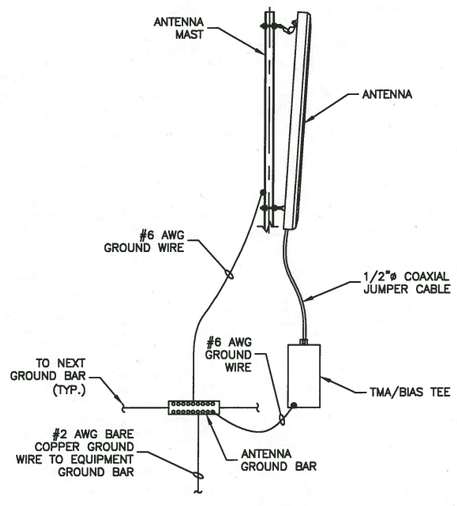
TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 2

SCALE: N.T.S.



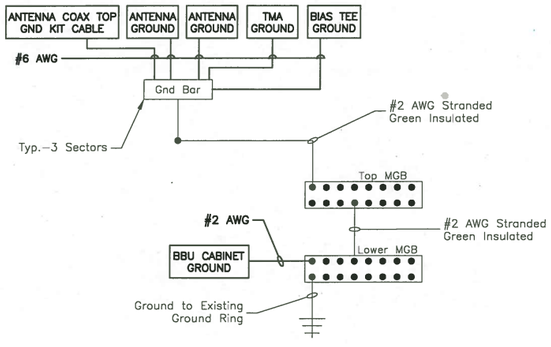
CONNECTION TO EQUIPMENT DETAIL 3

SCALE: N.T.S.



TYPICAL ANTENNA GROUNDING DETAIL 4

SCALE: N.T.S



NOTES:

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

SCHEMATIC GROUNDING DIAGRAM 5

SCALE: N.T.S.

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WINDHAM COUNTY

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

Date: **September 23, 2015**

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Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

TECTONIC
1279 Route 300
Newburgh, NY 12550
(845) 567-6656

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CTNL130A
	Carrier Site Name:	NL 130/Global-Plainfield
Crown Castle Designation:	**Crown Castle BU Number:**	876401
	Crown Castle Site Name:	TOWN OF PLAINFIELD/SSUSA
	Crown Castle JDE Job Number:	347086
	Crown Castle Work Order Number:	1120585
	Crown Castle Application Number:	309746 Rev. 0
Engineering Firm Designation:	**TECTONIC Project Number:**	6500.876401
Site Data:	**47-51 Unity Street, PLAINFIELD, Windham County, CT** **Latitude *41° 42' 54.49"*, Longitude *-71° 53' 46.73"*** **160 Foot - Monopole Tower**	

Dear Sean Dempsey,

Tectonic Engineering & Surveying Consultants P.C. (TECTONIC) 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 827077, in accordance with application 309746, revision 0.

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 CT State Building Code based upon a wind speed of 85 mph fastest mile.

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

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

Structural analysis prepared by: Garrett Miller / VE

Respectfully submitted by:

9/23/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED
PROFESSIONAL ENGINEER

Antonio A. Gualtieri, P.E.
Sr. Vice President

tnxTower Report - version 6.1.4.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by Engineered Endeavors, Inc. in May of 2003. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

The tower has been modified multiple times in the past in order to accommodate additional loading

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 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
139.0	139.0	3	commscope	ATBT-BOTTOM-24V	-	-	-
		3	commscope	LNX-6512DS-VTM w/ Mount Pipe			
		3	commscope	TMAT7LA-11A			
		3	rfs celwave	APXV18-203219-C-A20 w/ Mount Pipe			

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
159.0	159.0	1	crown mounts	LP 712-1	3	1 1/4	1
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
157.0	157.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-	1
		1	crown mounts	SO 102-3			
	154.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
152.0	152.0	1	crown mounts	SO 102-3	-	-	1
		6	ericsson	TME-RRUS-11			
150.0	150.0	1	crown mounts	LP 303-1	1 2 12	3/8 7/16 1-5/8	1
		3	kmw communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21901			
		1	raycap	DC6-48-60-18-8F			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
139.0	139.0	1	crown mounts	TA 602-3	12	1-5/8	1
		6	ems wireless	DR85-17-02DPL2Q w/ Mount Pipe	-	-	3
		6	ericsson	KRY 112 71/3			
127.0	130.0	3	alcatel lucent	RRH2X40-07-U	2	1-5/8	2
		3	alcatel lucent	RRH2X60-AWS			
		3	alcatel lucent	RRH2X60-PCS			
		6	commscope	HBXX-6517DS-A2M w/ Mount Pipe			
		6	commscope	LNX-6514DS-A1M w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
	127.0	1	crown mounts	LP 303-1	-	-	1
109.0	114.0	1	decibel	DB589	1	7/8	1
	109.0	1	crown mounts	SO 201-1			
		1	crown mounts	SO 701-1			
105.0	105.0	1	crown mounts	SM 506-3	12 1	7/8 3/8	2
		6	kathrein	800 10504 w/ Mount Pipe			
		6	kathrein	860 10025			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed; Not Considered In This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	160.0	12	dapa	48000	-	-
150.0	150.0	12	dapa	48000	-	-
140.0	140.0	12	dapa	48000	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	1610729	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	1615418	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	1615382	CCISITES
4-POST-MODIFICATION INSPECTION	FDH	5666814	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Black & Veatch	5422409	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company	3667143	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	3986355	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Semaan Engineering Solutions	2266356	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Solutions Inc.	2819430	CCISITES

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. TECTONIC should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	160 - 155	Pole	TP17.6204x16.5x0.1875	Pole	7.8%	Pass
L2	155 - 150	Pole	TP18.7407x17.6204x0.1875	Pole	18.3%	Pass
L3	150 - 145	Pole	TP19.8611x18.7407x0.1875	Pole	37.1%	Pass
L4	145 - 140	Pole	TP20.9814x19.8611x0.1875	Pole	52.0%	Pass
L5	140 - 135	Pole	TP22.1018x20.9814x0.1875	Pole	67.5%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L6	135 - 130	Pole	TP23.2221x22.1018x0.1875	Pole	80.8%	Pass
L7	130 - 125.75	Pole	TP24.1744x23.2221x0.1875	Pole	97.6%	Pass
L8	125.75 - 125.5	Pole + Reinf.	TP24.2304x24.1744x0.3688	Reinf. 4 Tension Rupture	77.9%	Pass
L9	125.5 - 119.12	Pole + Reinf.	TP25.66x24.2304x0.3625	Reinf. 4 Tension Rupture	86.3%	Pass
L10	119.12 - 119	Pole + Reinf.	TP25.2956x24.4447x0.425	Reinf. 4 Tension Rupture	85.4%	Pass
L11	119 - 118.75	Pole + Reinf.	TP25.3506x25.2956x0.5	Reinf. 3 Bolt Shear	77.1%	Pass
L12	118.75 - 113.75	Pole + Reinf.	TP26.4499x25.3506x0.4875	Reinf. 3 Tension Rupture	70.3%	Pass
L13	113.75 - 108.75	Pole + Reinf.	TP27.5493x26.4499x0.475	Reinf. 3 Tension Rupture	77.9%	Pass
L14	108.75 - 103.75	Pole + Reinf.	TP28.6486x27.5493x0.4625	Reinf. 3 Tension Rupture	85.3%	Pass
L15	103.75 - 103	Pole + Reinf.	TP28.8135x28.6486x0.4625	Reinf. 3 Tension Rupture	86.5%	Pass
L16	103 - 102.75	Pole + Reinf.	TP28.8685x28.8135x0.4625	Reinf. 3 Tension Rupture	85.1%	Pass
L17	102.75 - 100.208	Pole + Reinf.	TP29.4274x28.8685x0.4563	Reinf. 3 Tension Rupture	88.8%	Pass
L18	100.208 - 95.83	Pole + Reinf.	TP30.39x29.4274x0.5375	Reinf. 3 Tension Rupture	81.7%	Pass
L19	95.83 - 94.83	Pole + Reinf.	TP30.1187x28.938x0.6	Reinf. 3 Tension Rupture	80.4%	Pass
L20	94.83 - 93.5	Pole + Reinf.	TP30.4133x30.1187x0.6	Reinf. 3 Tension Rupture	81.7%	Pass
L21	93.5 - 93.25	Pole + Reinf.	TP30.4687x30.4133x0.7875	Reinf. 3 Tension Rupture	63.8%	Pass
L22	93.25 - 89.25	Pole + Reinf.	TP31.3548x30.4687x0.7625	Reinf. 3 Tension Rupture	67.2%	Pass
L23	89.25 - 89	Pole + Reinf.	TP31.4102x31.3548x0.8125	Reinf. 13 Tension Rupture	61.7%	Pass
L24	89 - 86.5	Pole + Reinf.	TP31.964x31.4102x0.8	Reinf. 13 Tension Rupture	63.6%	Pass
L25	86.5 - 86.25	Pole + Reinf.	TP32.0194x31.964x0.625	Reinf. 2 Tension Rupture	76.4%	Pass
L26	86.25 - 81.25	Pole + Reinf.	TP33.127x32.0194x0.6125	Reinf. 2 Tension Rupture	80.3%	Pass
L27	81.25 - 76.25	Pole + Reinf.	TP34.2347x33.127x0.6	Reinf. 2 Tension Rupture	83.8%	Pass
L28	76.25 - 75.417	Pole + Reinf.	TP34.4192x34.2347x0.6	Reinf. 2 Tension Rupture	84.4%	Pass
L29	75.417 - 75.167	Pole + Reinf.	TP34.4746x34.4192x0.7125	Reinf. 2 Tension Rupture	73.0%	Pass
L30	75.167 - 70.167	Pole + Reinf.	TP35.5822x34.4746x0.6875	Reinf. 2 Tension Rupture	75.9%	Pass
L31	70.167 - 65.167	Pole + Reinf.	TP36.6898x35.5822x0.675	Reinf. 2 Tension Rupture	78.7%	Pass
L32	65.167 - 60.167	Pole + Reinf.	TP37.7975x36.6898x0.6625	Reinf. 2 Tension Rupture	81.4%	Pass
L33	60.167 - 59.5	Pole + Reinf.	TP37.9452x37.7975x0.6625	Reinf. 2 Tension Rupture	81.7%	Pass
L34	59.5 - 59.25	Pole + Reinf.	TP38.0006x37.9452x0.6625	Reinf. 1 Tension Rupture	81.8%	Pass
L35	59.25 - 54.25	Pole + Reinf.	TP39.1082x38.0006x0.65	Reinf. 1 Tension Rupture	84.3%	Pass
L36	54.25 - 53	Pole + Reinf.	TP39.3851x39.1082x0.65	Reinf. 1 Tension Rupture	84.8%	Pass
L37	53 - 47.2	Pole + Reinf.	TP40.67x39.3851x0.65	Reinf. 1 Tension Rupture	85.4%	Pass
L38	47.2 - 46.2	Pole + Reinf.	TP40.2664x38.8089x0.7125	Reinf. 1 Tension Rupture	82.9%	Pass
L39	46.2 - 41.2	Pole + Reinf.	TP41.3739x40.2664x0.7	Reinf. 1 Tension Rupture	84.6%	Pass
L40	41.2 - 39.333	Pole + Reinf.	TP41.7875x41.3739x0.7	Reinf. 1 Tension Rupture	85.3%	Pass
L41	39.333 - 39.083	Pole + Reinf.	TP41.8429x41.7875x0.775	Reinf. 1 Tension Rupture	76.8%	Pass
L42	39.083 - 37.75	Pole + Reinf.	TP42.1381x41.8429x0.775	Reinf. 1 Tension Rupture	77.3%	Pass
L43	37.75 - 37.5	Pole + Reinf.	TP42.1935x42.1381x0.7	Reinf. 1 Tension Rupture	85.9%	Pass
L44	37.5 - 32.5	Pole + Reinf.	TP43.301x42.1935x0.6875	Reinf. 1 Tension Rupture	87.5%	Pass
L45	32.5 - 27.5	Pole + Reinf.	TP44.4086x43.301x0.675	Reinf. 1 Tension Rupture	89.0%	Pass
L46	27.5 - 22.5	Pole + Reinf.	TP45.5161x44.4086x0.675	Reinf. 1 Tension Rupture	90.3%	Pass
L47	22.5 - 21.25	Pole + Reinf.	TP45.793x45.5161x0.675	Reinf. 1 Tension Rupture	90.7%	Pass
L48	21.25 - 21	Pole + Reinf.	TP45.8484x45.793x0.7125	Reinf. 1 Tension Rupture	81.2%	Pass
L49	21 - 20	Pole + Reinf.	TP46.0699x45.8484x0.7	Reinf. 1 Tension Rupture	81.5%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L50	20 - 19.75	Pole + Reinf.	TP46.1252x46.0699x0.775	Reinf. 1 Tension Rupture	77.8%	Pass
L51	19.75 - 17	Pole + Reinf.	TP46.7344x46.1252x0.775	Reinf. 1 Tension Rupture	78.5%	Pass
L52	17 - 16.75	Pole + Reinf.	TP46.7898x46.7344x0.775	Reinf. 1 Tension Rupture	78.6%	Pass
L53	16.75 - 11.75	Pole + Reinf.	TP47.8973x46.7898x0.7625	Reinf. 1 Tension Rupture	79.8%	Pass
L54	11.75 - 6.75	Pole + Reinf.	TP49.0048x47.8973x0.75	Reinf. 1 Tension Rupture	80.9%	Pass
L55	6.75 - 1.75	Pole + Reinf.	TP50.1124x49.0048x0.7375	Reinf. 1 Tension Rupture	82.0%	Pass
L56	1.75 - 0	Pole + Reinf.	TP50.5x50.1124x0.7375	Reinf. 1 Tension Rupture	82.4%	Pass
					Summary	
				Pole	97.6%	Pass
				Reinforcement	90.7%	Pass
				Overall	97.6%	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	65.8	Pass
1	Base Plate	0	62.3	Pass
1	Base Foundation	0	69.3	Pass
1	Base Foundation Soil Interaction	0	50.5	Pass

Structure Rating (max from all components) =	97.6%

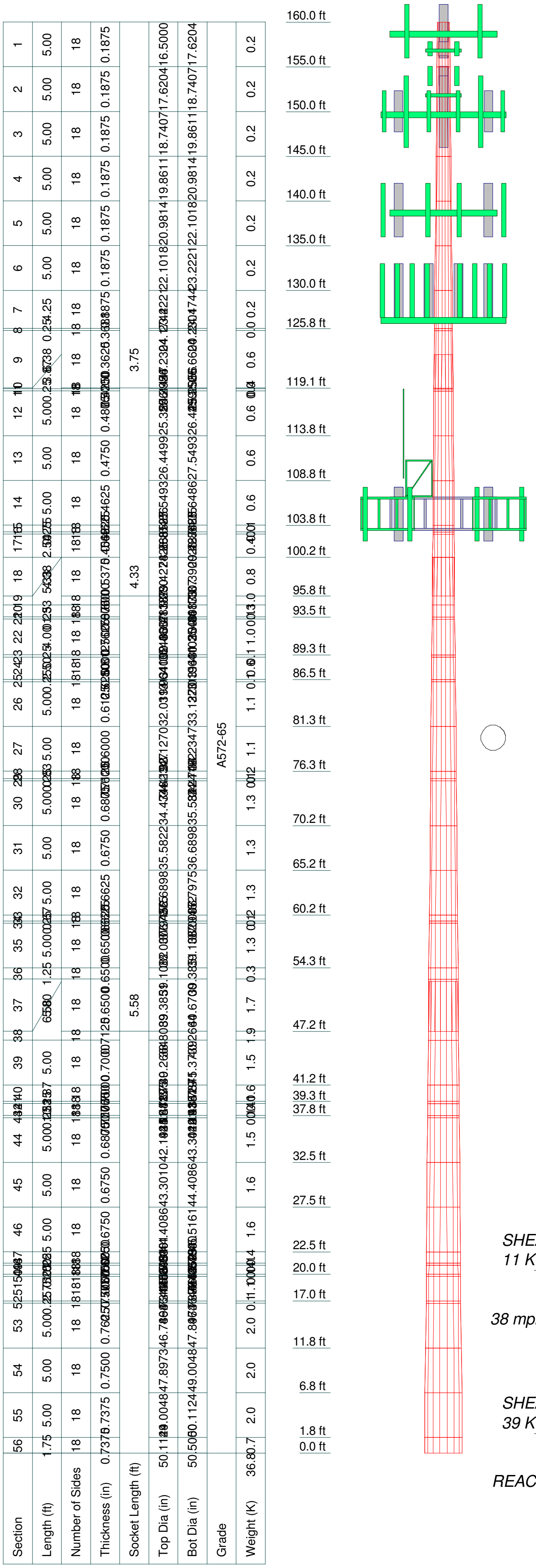
Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT



DESIGNED APPURTENANCE LOADING

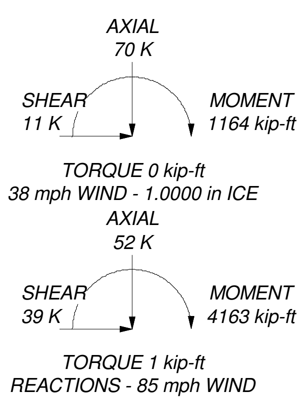
TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe	159	LNX-6512DS-VTM w/ Mount Pipe	139
APXVSPP18-C-A20 w/ Mount Pipe	159	TMAT7LA-11A	139
APXVSPP18-C-A20 w/ Mount Pipe	159	TMAT7LA-11A	139
(3) 7' x 2" STD Pipe	159	TMAT7LA-11A	139
(3) 7' x 2" STD Pipe	159	ATBT-BOTTOM-24V	139
(3) 7' x 2" STD Pipe	159	ATBT-BOTTOM-24V	139
LP 712-1	159	ATBT-BOTTOM-24V	139
800MHz 2X50W RRH W/FILTER	157	5' x 2" STD Pipe	139
800MHz 2X50W RRH W/FILTER	157	5' x 2" STD Pipe	139
800MHz 2X50W RRH W/FILTER	157	5' x 2" STD Pipe	139
PCS 1900MHz 4x45W-65MHz	157	TA 602-3	139
PCS 1900MHz 4x45W-65MHz	157	(2) LNX-6514DS-A1M w/ Mount Pipe	127
PCS 1900MHz 4x45W-65MHz	157	(2) LNX-6514DS-A1M w/ Mount Pipe	127
SO 102-3	157	(2) LNX-6514DS-A1M w/ Mount Pipe	127
(2) TME-RRUS-11	152	(2) HBXX-6517DS-A2M w/ Mount Pipe	127
(2) TME-RRUS-11	152	(2) HBXX-6517DS-A2M w/ Mount Pipe	127
(2) TME-RRUS-11	152	(2) HBXX-6517DS-A2M w/ Mount Pipe	127
SO 102-3	152	RRH2X40-07-U	127
(2) 7770.00 w/ Mount Pipe	150	RRH2X40-07-U	127
(2) 7770.00 w/ Mount Pipe	150	RRH2X40-07-U	127
(2) 7770.00 w/ Mount Pipe	150	RRH2X60-AWS	127
AM-X-CD-17-65-00T-RET w/ Mount Pipe	150	RRH2X60-AWS	127
		RRH2X60-AWS	127
AM-X-CD-17-65-00T-RET w/ Mount Pipe	150	RRH2X60-PCS	127
		RRH2X60-PCS	127
AM-X-CD-17-65-00T-RET w/ Mount Pipe	150	RRH2X60-PCS	127
		DB-T1-6Z-8AB-0Z	127
(2) LGP21401	150	DB-T1-6Z-8AB-0Z	127
(2) LGP21401	150	LP 303-1	127
(2) LGP21401	150	DB589	109
(2) LGP21901	150	SO 701-1	109
(2) LGP21901	150	SO 201-1	109
(2) LGP21901	150	(2) 800 10504 w/ Mount Pipe	105
DC6-48-60-18-8F	150	(2) 800 10504 w/ Mount Pipe	105
LP 303-1	150	(2) 800 10504 w/ Mount Pipe	105
APXV18-203219-C-A20 w/ Mount Pipe	139	(2) 860 10025	105
APXV18-203219-C-A20 w/ Mount Pipe	139	(2) 860 10025	105
APXV18-203219-C-A20 w/ Mount Pipe	139	(2) 860 10025	105
LNX-6512DS-VTM w/ Mount Pipe	139	SM 506-3	105
LNX-6512DS-VTM w/ Mount Pipe	139		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Windham 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 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 97.6%



TECTONIC 1279 Route 300 Newburgh, NY 12550 Phone: (845) 567-6656 FAX: (845) 567-8703	Job: **6500.876401**	
	Project: **BU 876401 - TOWN OF PLAINFIELD/SSUSA**	
	Client: Crown Castle / Drawn by: Veronica Elson	App'd:
	Code: TIA/EIA-222-F / Date: 09/23/15	Scale: NTS
	Path: G:\Newburgh\Projects\6500 Crown SA\876401\Structural\Reinf\Reinf.6500.876401.eri	Dwg No. E-1

Tower Input Data

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

4) Tower is located in Windham County, Connecticut.
5) Basic wind speed of 85 mph.
6) Nominal ice thickness of 1.0000 in.
7) Ice thickness is considered to increase with height.
8) Ice density of 56 pcf.
9) A wind speed of 38 mph is used in combination with ice.
10) Deflections calculated using a wind speed of 50 mph.
11) TOWER RATING: 90.7%.
12) A non-linear (P-delta) analysis was used.
13) Pressures are calculated at each section.
14) Stress ratio used in pole design is 1.333.
15) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	160.00-155.00	5.00	0.00	18	16.5000	17.6204	0.1875	0.7500	A572-65 (65 ksi)
L2	155.00-150.00	5.00	0.00	18	17.6204	18.7407	0.1875	0.7500	A572-65 (65 ksi)
L3	150.00-145.00	5.00	0.00	18	18.7407	19.8611	0.1875	0.7500	A572-65 (65 ksi)
L4	145.00-140.00	5.00	0.00	18	19.8611	20.9814	0.1875	0.7500	A572-65 (65 ksi)
L5	140.00-135.00	5.00	0.00	18	20.9814	22.1018	0.1875	0.7500	A572-65 (65 ksi)
L6	135.00-130.00	5.00	0.00	18	22.1018	23.2221	0.1875	0.7500	A572-65 (65 ksi)
L7	130.00-125.75	4.25	0.00	18	23.2221	24.1744	0.1875	0.7500	A572-65 (65 ksi)
L8	125.75-125.50	0.25	0.00	18	24.1744	24.2304	0.3688	1.4750	A572-65 (65 ksi)
L9	125.50-119.12	6.38	3.75	18	24.2304	25.6600	0.3625	1.4500	A572-65 (65 ksi)
L10	119.12-119.00	3.87	0.00	18	24.4447	25.2956	0.4250	1.7000	A572-65 (65 ksi)
L11	119.00-118.75	0.25	0.00	18	25.2956	25.3506	0.5000	2.0000	A572-65 (65 ksi)
L12	118.75-113.75	5.00	0.00	18	25.3506	26.4499	0.4875	1.9500	A572-65 (65 ksi)
L13	113.75-108.75	5.00	0.00	18	26.4499	27.5493	0.4750	1.9000	A572-65 (65 ksi)
L14	108.75-103.75	5.00	0.00	18	27.5493	28.6486	0.4625	1.8500	A572-65 (65 ksi)
L15	103.75-103.00	0.75	0.00	18	28.6486	28.8135	0.4625	1.8500	A572-65 (65 ksi)
L16	103.00-102.75	0.25	0.00	18	28.8135	28.8685	0.4625	1.8500	A572-65 (65 ksi)
L17	102.75-100.21	2.54	0.00	18	28.8685	29.4274	0.4562	1.8250	A572-65 (65 ksi)
L18	100.21-95.83	4.38	4.33	18	29.4274	30.3900	0.5375	2.1500	A572-65 (65 ksi)
L19	95.83-94.83	5.33	0.00	18	28.9380	30.1187	0.6000	2.4000	A572-65 (65 ksi)
L20	94.83-93.50	1.33	0.00	18	30.1187	30.4133	0.6000	2.4000	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
									(65 ksi)
L21	93.50-93.25	0.25	0.00	18	30.4133	30.4687	0.7875	3.1500	A572-65 (65 ksi)
L22	93.25-89.25	4.00	0.00	18	30.4687	31.3548	0.7625	3.0500	A572-65 (65 ksi)
L23	89.25-89.00	0.25	0.00	18	31.3548	31.4102	0.8125	3.2500	A572-65 (65 ksi)
L24	89.00-86.50	2.50	0.00	18	31.4102	31.9640	0.8000	3.2000	A572-65 (65 ksi)
L25	86.50-86.25	0.25	0.00	18	31.9640	32.0194	0.6250	2.5000	A572-65 (65 ksi)
L26	86.25-81.25	5.00	0.00	18	32.0194	33.1270	0.6125	2.4500	A572-65 (65 ksi)
L27	81.25-76.25	5.00	0.00	18	33.1270	34.2347	0.6000	2.4000	A572-65 (65 ksi)
L28	76.25-75.42	0.83	0.00	18	34.2347	34.4192	0.6000	2.4000	A572-65 (65 ksi)
L29	75.42-75.17	0.25	0.00	18	34.4192	34.4746	0.7125	2.8500	A572-65 (65 ksi)
L30	75.17-70.17	5.00	0.00	18	34.4746	35.5822	0.6875	2.7500	A572-65 (65 ksi)
L31	70.17-65.17	5.00	0.00	18	35.5822	36.6898	0.6750	2.7000	A572-65 (65 ksi)
L32	65.17-60.17	5.00	0.00	18	36.6898	37.7975	0.6625	2.6500	A572-65 (65 ksi)
L33	60.17-59.50	0.67	0.00	18	37.7975	37.9452	0.6625	2.6500	A572-65 (65 ksi)
L34	59.50-59.25	0.25	0.00	18	37.9452	38.0006	0.6625	2.6500	A572-65 (65 ksi)
L35	59.25-54.25	5.00	0.00	18	38.0006	39.1082	0.6500	2.6000	A572-65 (65 ksi)
L36	54.25-53.00	1.25	0.00	18	39.1082	39.3851	0.6500	2.6000	A572-65 (65 ksi)
L37	53.00-47.20	5.80	5.58	18	39.3851	40.6700	0.6500	2.6000	A572-65 (65 ksi)
L38	47.20-46.20	6.58	0.00	18	38.8089	40.2664	0.7125	2.8500	A572-65 (65 ksi)
L39	46.20-41.20	5.00	0.00	18	40.2664	41.3739	0.7000	2.8000	A572-65 (65 ksi)
L40	41.20-39.33	1.87	0.00	18	41.3739	41.7875	0.7000	2.8000	A572-65 (65 ksi)
L41	39.33-39.08	0.25	0.00	18	41.7875	41.8429	0.7750	3.1000	A572-65 (65 ksi)
L42	39.08-37.75	1.33	0.00	18	41.8429	42.1381	0.7750	3.1000	A572-65 (65 ksi)
L43	37.75-37.50	0.25	0.00	18	42.1381	42.1935	0.7000	2.8000	A572-65 (65 ksi)
L44	37.50-32.50	5.00	0.00	18	42.1935	43.3010	0.6875	2.7500	A572-65 (65 ksi)
L45	32.50-27.50	5.00	0.00	18	43.3010	44.4086	0.6750	2.7000	A572-65 (65 ksi)
L46	27.50-22.50	5.00	0.00	18	44.4086	45.5161	0.6750	2.7000	A572-65 (65 ksi)
L47	22.50-21.25	1.25	0.00	18	45.5161	45.7930	0.6750	2.7000	A572-65 (65 ksi)
L48	21.25-21.00	0.25	0.00	18	45.7930	45.8484	0.7125	2.8500	A572-65 (65 ksi)
L49	21.00-20.00	1.00	0.00	18	45.8484	46.0699	0.7000	2.8000	A572-65 (65 ksi)
L50	20.00-19.75	0.25	0.00	18	46.0699	46.1252	0.7750	3.1000	A572-65 (65 ksi)
L51	19.75-17.00	2.75	0.00	18	46.1252	46.7344	0.7750	3.1000	A572-65 (65 ksi)
L52	17.00-16.75	0.25	0.00	18	46.7344	46.7898	0.7750	3.1000	A572-65 (65 ksi)
L53	16.75-11.75	5.00	0.00	18	46.7898	47.8973	0.7625	3.0500	A572-65 (65 ksi)
L54	11.75-6.75	5.00	0.00	18	47.8973	49.0048	0.7500	3.0000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L55	6.75-1.75	5.00	0.00	18	49.0048	50.1124	0.7375	2.9500	A572-65 (65 ksi)
L56	1.75-0.00	1.75		18	50.1124	50.5000	0.7375	2.9500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.7545	9.7080	326.3677	5.7909	8.3820	38.9367	653.1649	4.8549	2.5740	13.728
	17.8922	10.3747	398.3373	6.1887	8.9511	44.5013	797.1988	5.1883	2.7712	14.78
L2	17.8922	10.3747	398.3373	6.1887	8.9511	44.5013	797.1988	5.1883	2.7712	14.78
	19.0298	11.0415	480.1782	6.5864	9.5203	50.4374	960.9882	5.5218	2.9684	15.831
L3	19.0298	11.0415	480.1782	6.5864	9.5203	50.4374	960.9882	5.5218	2.9684	15.831
	20.1674	11.7082	572.5248	6.9841	10.0894	56.7451	1145.8029	5.8552	3.1655	16.883
L4	20.1674	11.7082	572.5248	6.9841	10.0894	56.7451	1145.8029	5.8552	3.1655	16.883
	21.3051	12.3750	676.0115	7.3818	10.6586	63.4243	1352.9124	6.1887	3.3627	17.935
L5	21.3051	12.3750	676.0115	7.3818	10.6586	63.4243	1352.9124	6.1887	3.3627	17.935
	22.4427	13.0417	791.2726	7.7796	11.2277	70.4751	1583.5865	6.5221	3.5599	18.986
L6	22.4427	13.0417	791.2726	7.7796	11.2277	70.4751	1583.5865	6.5221	3.5599	18.986
	23.5804	13.7085	918.9427	8.1773	11.7968	77.8974	1839.0946	6.8555	3.7571	20.038
L7	23.5804	13.7085	918.9427	8.1773	11.7968	77.8974	1839.0946	6.8555	3.7571	20.038
	24.5473	14.2752	1037.6926	8.5154	12.2806	84.4985	2076.7506	7.1390	3.9247	20.932
L8	24.5473	27.8624	1994.8821	8.4510	12.2806	162.4417	3992.3892	13.9339	3.6057	9.778
	24.6042	27.9280	2008.9979	8.4709	12.3091	163.2130	4020.6393	13.9667	3.6156	9.805
L9	24.6042	27.4618	1976.4994	8.4731	12.3091	160.5727	3955.5995	13.7335	3.6266	10.004
	26.0558	29.1067	2353.3428	8.9806	13.0353	180.5364	4709.7822	14.5561	3.8782	10.698
L10	25.6591	32.4014	2361.7721	8.5270	12.4179	190.1905	4726.6518	16.2038	3.5543	8.363
	25.6859	33.5492	2621.7643	8.8291	12.8502	204.0255	5246.9784	16.7778	3.7040	8.715
L11	25.6859	39.3507	3056.6084	8.8024	12.8502	237.8650	6117.2388	19.6791	3.5720	7.144
	25.7417	39.4379	3076.9813	8.8220	12.8781	238.9313	6158.0114	19.7227	3.5817	7.163
L12	25.7417	38.4713	3004.5862	8.8264	12.8781	233.3097	6013.1259	19.2393	3.6037	7.392
	26.8580	40.1723	3421.0205	9.2167	13.4366	254.6052	6846.5424	20.0900	3.7972	7.789
L13	26.8580	39.1611	3338.1189	9.2211	13.4366	248.4353	6680.6302	19.5843	3.8192	8.04
	27.9743	40.8186	3780.1513	9.6114	13.9950	270.1065	7565.2767	20.4132	4.0127	8.448
L14	27.9743	39.7627	3685.7740	9.6158	13.9950	263.3629	7376.3979	19.8851	4.0347	8.724
	29.0906	41.3765	4153.0076	10.0061	14.5535	285.3613	8311.4798	20.6922	4.2282	9.142
L15	29.0906	41.3765	4153.0076	10.0061	14.5535	285.3613	8311.4798	20.6922	4.2282	9.142
	29.2580	41.6186	4226.3259	10.0646	14.6373	288.7372	8458.2129	20.8133	4.2572	9.205
L16	29.2580	41.6186	4226.3259	10.0646	14.6373	288.7372	8458.2129	20.8133	4.2572	9.205
	29.3138	41.6993	4250.9557	10.0841	14.6652	289.8669	8507.5050	20.8536	4.2669	9.226
L17	29.3138	41.1449	4196.2790	10.0864	14.6652	286.1385	8398.0796	20.5763	4.2779	9.376
	29.8814	41.9542	4448.8219	10.2848	14.9491	297.5975	8903.4976	20.9811	4.3762	9.592
L18	29.8814	49.2869	5197.1053	10.2559	14.9491	347.6528	10401.0492	24.6481	4.2332	7.876
	30.8588	50.9291	5734.0960	10.5976	15.4381	371.4245	11475.7371	25.4694	4.4026	8.191
L19	30.3584	53.9668	5475.2210	10.0600	14.7005	372.4517	10957.6465	26.9885	4.0371	6.728
	30.5833	56.2154	6188.5281	10.4791	15.3003	404.4710	12385.1993	28.1130	4.2449	7.075
L20	30.5833	56.2154	6188.5281	10.4791	15.3003	404.4710	12385.1993	28.1130	4.2449	7.075
	30.8825	56.7765	6375.6894	10.5837	15.4500	412.6667	12759.7680	28.3936	4.2967	7.161
L21	30.8825	74.0505	8211.1990	10.5172	15.4500	531.4701	16433.2026	37.0323	3.9667	5.037
	30.9387	74.1889	8257.3344	10.5368	15.4781	533.4848	16525.5341	37.1015	3.9765	5.05
L22	30.9387	71.8942	8015.4165	10.5457	15.4781	517.8551	16041.3799	35.9539	4.0205	5.273
	31.8385	74.0388	8754.2993	10.8603	15.9282	549.6084	17520.1177	37.0264	4.1764	5.477
L23	31.8385	78.7648	9282.6877	10.8425	15.9282	582.7815	18577.5898	39.3899	4.0884	5.032

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	31.8948	78.9076	9333.2755	10.8622	15.9564	584.9243	18678.8319	39.4613	4.0982	5.044
L24	31.8948	77.7254	9200.9540	10.8666	15.9564	576.6316	18414.0148	38.8701	4.1202	5.15
	32.4571	79.1317	9709.4494	11.0632	16.2377	597.9565	19431.6748	39.5734	4.2177	5.272
L25	32.4571	62.1688	7714.0144	11.1254	16.2377	475.0676	15438.1791	31.0903	4.5257	7.241
	32.5133	62.2786	7754.9828	11.1450	16.2659	476.7646	15520.1698	31.1452	4.5354	7.257
L26	32.5133	61.0574	7608.9647	11.1494	16.2659	467.7876	15227.9414	30.5345	4.5574	7.441
	33.6381	63.2107	8442.7293	11.5427	16.8285	501.6914	16896.5677	31.6113	4.7524	7.759
L27	33.6381	61.9445	8279.9709	11.5471	16.8285	492.0198	16570.8367	30.9781	4.7744	7.957
	34.7628	64.0538	9154.9667	11.9403	17.3912	526.4135	18321.9796	32.0330	4.9693	8.282
L28	34.7628	64.0538	9154.9667	11.9403	17.3912	526.4135	18321.9796	32.0330	4.9693	8.282
	34.9502	64.4053	9306.4768	12.0058	17.4849	532.2564	18625.1994	32.2088	5.0018	8.336
L29	34.9502	76.2268	10941.5194	11.9659	17.4849	625.7679	21897.4359	38.1207	4.8038	6.742
	35.0064	76.3521	10995.5403	11.9855	17.5131	627.8472	22005.5487	38.1833	4.8135	6.756
L30	35.0064	73.7276	10633.3180	11.9944	17.5131	607.1642	21280.6277	36.8708	4.8575	7.065
	36.1311	76.1446	11713.7424	12.3876	18.0758	648.0360	23442.8981	38.0795	5.0525	7.349
L31	36.1311	74.7869	11513.1292	12.3921	18.0758	636.9375	23041.4076	37.4006	5.0745	7.518
	37.2558	77.1600	12644.2331	12.7853	18.6384	678.3956	25305.1038	38.5873	5.2694	7.807
L32	37.2558	75.7574	12423.0070	12.7897	18.6384	666.5262	24862.3604	37.8859	5.2914	7.987
	38.3806	78.0865	13604.4010	13.1829	19.2011	708.5214	27226.7031	39.0507	5.4864	8.281
L33	38.3806	78.0865	13604.4010	13.1829	19.2011	708.5214	27226.7031	39.0507	5.4864	8.281
	38.5306	78.3972	13767.4416	13.2354	19.2762	714.2206	27552.9987	39.2060	5.5124	8.321
L34	38.5306	78.3972	13767.4416	13.2354	19.2762	714.2206	27552.9987	39.2060	5.5124	8.321
	38.5868	78.5136	13828.8853	13.2550	19.3043	716.3626	27675.9669	39.2643	5.5221	8.335
L35	38.5868	77.0580	13581.5943	13.2595	19.3043	703.5525	27181.0595	38.5363	5.5441	8.529
	39.7115	79.3432	14826.0659	13.6527	19.8670	746.2665	29671.6404	39.6791	5.7391	8.829
L36	39.7115	79.3432	14826.0659	13.6527	19.8670	746.2665	29671.6404	39.6791	5.7391	8.829
	39.9927	79.9145	15148.6303	13.7510	20.0077	757.1417	30317.1935	39.9648	5.7878	8.904
L37	39.9927	79.9145	15148.6303	13.7510	20.0077	757.1417	30317.1935	39.9648	5.7878	8.904
	41.2974	82.5653	16706.6349	14.2071	20.6604	808.6323	33435.2528	41.2905	6.0139	9.252
L38	40.6626	86.1540	15797.2132	13.5242	19.7149	801.2824	31615.2127	43.0852	5.5764	7.826
	40.8876	89.4501	17680.6023	14.0416	20.4553	864.3519	35384.4692	44.7336	5.8329	8.187
L39	40.8876	87.9086	17386.8900	14.0461	20.4553	849.9932	34796.6580	43.9627	5.8549	8.364
	42.0122	90.3693	18888.2098	14.4392	21.0180	898.6702	37801.2733	45.1933	6.0498	8.643
L40	42.0122	90.3693	18888.2098	14.4392	21.0180	898.6702	37801.2733	45.1933	6.0498	8.643
	42.4321	91.2882	19470.2260	14.5861	21.2280	917.1937	38966.0715	45.6528	6.1226	8.747

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L41	42.4321	100.8846	21438.4920	14.5594	21.2280	1009.9138	42905.1934	50.4519	5.9906	7.73
	42.4884	101.0208	21525.4506	14.5791	21.2562	1012.6682	43079.2249	50.5200	6.0003	7.742
L42	42.4884	101.0208	21525.4506	14.5791	21.2562	1012.6682	43079.2249	50.5200	6.0003	7.742
	42.7882	101.7471	21993.0855	14.6839	21.4062	1027.4181	44015.1101	50.8832	6.0523	7.809
L43	42.7882	92.0672	19972.9751	14.7105	21.4062	933.0476	39972.2312	46.0424	6.1843	8.835
	42.8444	92.1903	20053.1560	14.7302	21.4343	935.5638	40132.6985	46.1039	6.1941	8.849
L44	42.8444	90.5713	19712.8688	14.7346	21.4343	919.6880	39451.6764	45.2942	6.2161	9.042
	43.9690	92.9881	21333.3867	15.1278	21.9969	969.8349	42694.8445	46.5029	6.4110	9.325
L45	43.9690	91.3242	20963.9445	15.1322	21.9969	953.0397	41955.4738	45.6708	6.4330	9.53
	45.0936	93.6970	22640.8598	15.5254	22.5596	1003.6041	45311.5110	46.8574	6.6279	9.819
L46	45.0936	93.6970	22640.8598	15.5254	22.5596	1003.6041	45311.5110	46.8574	6.6279	9.819
	46.2183	96.0698	24404.8971	15.9186	23.1222	1055.4756	48841.9068	48.0440	6.8228	10.108
L47	46.2183	96.0698	24404.8971	15.9186	23.1222	1055.4756	48841.9068	48.0440	6.8228	10.108
	46.4994	96.6630	24859.7778	16.0169	23.2628	1068.6477	49752.2667	48.3407	6.8716	10.18
L48	46.4994	101.9484	26175.5003	16.0036	23.2628	1125.2067	52385.4429	50.9839	6.8056	9.552
	46.5556	102.0736	26272.0804	16.0232	23.2910	1127.9944	52578.7302	51.0465	6.8153	9.565
L49	46.5556	100.3106	25832.6172	16.0277	23.2910	1109.1260	51699.2256	50.1648	6.8373	9.768
	46.7806	100.8028	26214.7051	16.1063	23.4035	1120.1193	52463.9041	50.4110	6.8763	9.823
L50	46.7806	111.4186	28879.7272	16.0797	23.4035	1233.9922	57797.4551	55.7199	6.7443	8.702
	46.8368	111.5548	28985.7802	16.0993	23.4316	1237.0367	58009.7006	55.7880	6.7540	8.715
L51	46.8368	111.5548	28985.7802	16.0993	23.4316	1237.0367	58009.7006	55.7880	6.7540	8.715
	47.4553	113.0532	30169.5473	16.3156	23.7411	1270.7746	60378.7925	56.5373	6.8613	8.853
L52	47.4553	113.0532	30169.5473	16.3156	23.7411	1270.7746	60378.7925	56.5373	6.8613	8.853
	47.5116	113.1894	30278.7330	16.3352	23.7692	1273.8642	60597.3075	56.6055	6.8710	8.866
L53	47.5116	111.3940	29814.6508	16.3397	23.7692	1254.3397	59668.5324	55.7076	6.8930	9.04
	48.6362	114.0745	32019.1033	16.7329	24.3318	1315.9350	64080.3382	57.0481	7.0879	9.296
L54	48.6362	112.2341	31519.2631	16.7373	24.3318	1295.3924	63080.0001	56.1277	7.1099	9.48
	49.7608	114.8706	33793.0992	17.1305	24.8945	1357.4549	67630.6642	57.4462	7.3049	9.74
L55	49.7608	112.9854	33255.7113	17.1349	24.8945	1335.8683	66555.1814	56.5034	7.3269	9.935
	50.8854	115.5779	35597.8789	17.5281	25.4571	1398.3488	71242.5984	57.7999	7.5218	10.199
L56	50.8854	115.5779	35597.8789	17.5281	25.4571	1398.3488	71242.5984	57.7999	7.5218	10.199
	51.2790	116.4853	36442.9033	17.6657	25.6540	1420.5544	72933.7592	58.2537	7.5900	10.292

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft^2	in					in	in
L1 160.00-155.00				1	1	1		
L2 155.00-150.00				1	1	1		
L3 150.00-145.00				1	1	1		
L4 145.00-140.00				1	1	1		
L5 140.00-135.00				1	1	1		
L6 135.00-130.00				1	1	1		
L7 130.00-125.75				1	1	1		
L8 125.75-125.50				1	1	0.931958		
L9 125.50-119.12				1	1	0.937404		
L10 119.12-119.00				1	1	0.941687		
L11 119.00-118.75				1	1	0.921047		
L12 118.75-113.75				1	1	0.925923		
L13 113.75-108.75				1	1	0.932635		
L14 108.75-103.75				1	1	0.941141		
L15 103.75-103.00				1	1	0.938811		
L16 103.00-102.75				1	1	1.08193		
L17 102.75-100.21				1	1	1.08593		
L18 100.21-95.83				1	1	1.0459		
L19 95.83-94.83				1	1	1.03123		
L20 94.83-93.50				1	1	1.02619		
L21 93.50-93.25				1	1	0.968055		
L22 93.25-89.25				1	1	0.981889		
L23 89.25-89.00				1	1	0.969525		
L24 89.00-86.50				1	1	0.973722		
L25 86.50-86.25				1	1	1.02132		
L26 86.25-81.25				1	1	1.02365		
L27 81.25-76.25				1	1	1.02732		
L28 76.25-75.42				1	1	1.02456		
L29 75.42-75.17				1	1	0.979701		
L30 75.17-70.17				1	1	0.996799		
L31 70.17-65.17				1	1	0.99792		
L32 65.17-60.17				1	1	1.00015		
L33 60.17-59.50				1	1	0.998055		
L34 59.50-				1	1	0.997274		

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
59.25								
L35 59.25-54.25				1	1	1.00069		
L36 54.25-53.00				1	1	0.996977		
L37 53.00-47.20				1	1	1.07132		
L38 47.20-46.20				1	1	0.988243		
L39 46.20-41.20				1	1	0.992778		
L40 41.20-39.33				1	1	0.988178		
L41 39.33-39.08				1	1	0.980345		
L42 39.08-37.75				1	1	0.9768		
L43 37.75-37.50				1	1	0.98375		
L44 37.50-32.50				1	1	0.989487		
L45 32.50-27.50				1	1	0.996069		
L46 27.50-22.50				1	1	0.985189		
L47 22.50-21.25				1	1	0.982552		
L48 21.25-21.00				1	1	1.03521		
L49 21.00-20.00				1	1	1.05088		
L50 20.00-19.75				1	1	1.0331		
L51 19.75-17.00				1	1	1.02582		
L52 17.00-16.75				1	1	1.02517		
L53 16.75-11.75				1	1	1.02877		
L54 11.75-6.75				1	1	1.03312		
L55 6.75-1.75				1	1	1.0382		
L56 1.75-0.00				1	1	1.03408		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
159								
HB114-1-08U4-M5J(1 1/4")	A	No	Inside Pole	159.00 - 0.00	3	No Ice	0.00	1.08
						1/2" Ice	0.00	1.08
						1" Ice	0.00	1.08
						2" Ice	0.00	1.08
						4" Ice	0.00	1.08
150								
LDF7-50A(1-5/8")	A	No	Inside Pole	150.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
FB-L98B-002-75000(3/8")	A	No	Inside Pole	150.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.06
						2" Ice	0.00	0.06
						4" Ice	0.00	0.06
WR-VG122ST-BRDA(7/16)	A	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	0.14
						1/2" Ice	0.00	0.14
						1" Ice	0.00	0.14
						2" Ice	0.00	0.14
						4" Ice	0.00	0.14
2" Rigid Conduit	A	No	Inside Pole	150.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
						2" Ice	0.00	2.80
						4" Ice	0.00	2.80
139								
LDF7-50A(1-5/8")	B	No	Inside Pole	139.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
127								
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	127.00 - 0.00	2	No Ice	0.00	1.30
						1/2" Ice	0.00	1.30
						1" Ice	0.00	1.30
						2" Ice	0.00	1.30
						4" Ice	0.00	1.30
109								
CR 50 1070(7/8")	B	No	Inside Pole	109.00 - 0.00	1	No Ice	0.00	0.28
						1/2" Ice	0.00	0.28
						1" Ice	0.00	0.28
						2" Ice	0.00	0.28
						4" Ice	0.00	0.28
105								
FSJ2-50(3/8")	C	No	Inside Pole	105.00 - 0.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
						2" Ice	0.00	0.08
						4" Ice	0.00	0.08
FXL 780 PE(7/8)	C	No	Inside Pole	105.00 - 0.00	12	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
						2" Ice	0.00	0.25
						4" Ice	0.00	0.25
REINF								
Aero MP3-03	A	No	CaAa (Out Of Face)	76.58 - 36.58	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
						2" Ice	0.71	0.00
						4" Ice	1.15	0.00
Aero MP3-03	B	No	CaAa (Out Of Face)	76.58 - 36.58	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
						2" Ice	0.71	0.00
						4" Ice	1.15	0.00
Aero MP3-03	C	No	CaAa (Out Of Face)	76.58 - 36.58	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
						2" Ice	0.71	0.00
						4" Ice	1.15	0.00
Aero MP3-03	A	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
						2" Ice	0.71	0.00
						4" Ice	1.15	0.00
Aero MP3-03	B	No	CaAa (Out Of Face)	40.50 - 0.50	1	No Ice	0.26	0.00
						1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
						2" Ice	0.71	0.00
						4" Ice	1.15	0.00
Aero MP3-03	C	No	CaAa (Out Of	40.50 - 0.50	1	No Ice	0.26	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
			Face)			1/2" Ice	0.37	0.00
						1" Ice	0.48	0.00
						2" Ice	0.71	0.00
						4" Ice	1.15	0.00
PL1.25x5 Reinforcement - Wind Area	A	No	CaAa (Out Of Face)	127.00 - 1.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
						2" Ice	0.54	0.00
						4" Ice	0.88	0.00
PL1.25x5 Reinforcement - Wind Area	B	No	CaAa (Out Of Face)	127.00 - 1.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
						2" Ice	0.54	0.00
						4" Ice	0.88	0.00
PL1.25x5 Reinforcement - Wind Area	C	No	CaAa (Out Of Face)	127.00 - 1.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
						2" Ice	0.54	0.00
						4" Ice	0.88	0.00
****								
CCI-SFP-085125	A	No	CaAa (Out Of Face)	25.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
						2" Ice	0.54	0.00
						4" Ice	0.88	0.00
CCI-SFP-085125	B	No	CaAa (Out Of Face)	20.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
						2" Ice	0.54	0.00
						4" Ice	0.88	0.00
CCI-SFP-085125	C	No	CaAa (Out Of Face)	20.00 - 0.00	1	No Ice	0.21	0.00
						1/2" Ice	0.29	0.00
						1" Ice	0.37	0.00
						2" Ice	0.54	0.00
						4" Ice	0.88	0.00
CCI-SFP-060100	A	No	CaAa (Out Of Face)	105.00 - 15.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00
						4" Ice	0.83	0.00
CCI-SFP-060100	C	No	CaAa (Out Of Face)	105.00 - 20.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00
						4" Ice	0.83	0.00
CCI-SFP-060100	B	No	CaAa (Out Of Face)	55.00 - 20.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00
						4" Ice	0.83	0.00
CCI-SFP-060100	B	No	CaAa (Out Of Face)	102.20 - 47.20	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00
						4" Ice	0.83	0.00
CCI-SFP-045100	A	No	CaAa (Out Of Face)	95.00 - 85.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00
						4" Ice	0.83	0.00
CCI-SFP-045100	B	No	CaAa (Out Of Face)	95.00 - 85.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00
						4" Ice	0.83	0.00
CCI-SFP-045100	C	No	CaAa (Out Of Face)	95.00 - 85.00	1	No Ice	0.17	0.00
						1/2" Ice	0.25	0.00
						1" Ice	0.33	0.00
						2" Ice	0.50	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						4" Ice	0.83	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.00-155.00	A	0.000	0.000	0.000	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	155.00-150.00	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	150.00-145.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	145.00-140.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L5	140.00-135.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.00
L6	135.00-130.00	A	0.000	0.000	0.000	0.000	0.08
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L7	130.00-125.75	A	0.000	0.000	0.000	0.260	0.07
		B	0.000	0.000	0.000	0.260	0.04
		C	0.000	0.000	0.000	0.260	0.00
L8	125.75-125.50	A	0.000	0.000	0.000	0.052	0.00
		B	0.000	0.000	0.000	0.052	0.00
		C	0.000	0.000	0.000	0.052	0.00
L9	125.50-119.12	A	0.000	0.000	0.000	1.327	0.10
		B	0.000	0.000	0.000	1.327	0.06
		C	0.000	0.000	0.000	1.327	0.02
L10	119.12-119.00	A	0.000	0.000	0.000	0.025	0.00
		B	0.000	0.000	0.000	0.025	0.00
		C	0.000	0.000	0.000	0.025	0.00
L11	119.00-118.75	A	0.000	0.000	0.000	0.052	0.00
		B	0.000	0.000	0.000	0.052	0.00
		C	0.000	0.000	0.000	0.052	0.00
L12	118.75-113.75	A	0.000	0.000	0.000	1.040	0.08
		B	0.000	0.000	0.000	1.040	0.05
		C	0.000	0.000	0.000	1.040	0.01
L13	113.75-108.75	A	0.000	0.000	0.000	1.040	0.08
		B	0.000	0.000	0.000	1.040	0.05
		C	0.000	0.000	0.000	1.040	0.01
L14	108.75-103.75	A	0.000	0.000	0.000	1.248	0.08
		B	0.000	0.000	0.000	1.040	0.05
		C	0.000	0.000	0.000	1.248	0.02
L15	103.75-103.00	A	0.000	0.000	0.000	0.281	0.01
		B	0.000	0.000	0.000	0.156	0.01
		C	0.000	0.000	0.000	0.281	0.00
L16	103.00-102.75	A	0.000	0.000	0.000	0.094	0.00
		B	0.000	0.000	0.000	0.052	0.00
		C	0.000	0.000	0.000	0.094	0.00
L17	102.75-100.21	A	0.000	0.000	0.000	0.952	0.04
		B	0.000	0.000	0.000	0.861	0.03
		C	0.000	0.000	0.000	0.952	0.01
L18	100.21-95.83	A	0.000	0.000	0.000	1.640	0.07
		B	0.000	0.000	0.000	1.640	0.04
		C	0.000	0.000	0.000	1.640	0.02
L19	95.83-94.83	A	0.000	0.000	0.000	0.403	0.02
		B	0.000	0.000	0.000	0.403	0.01
		C	0.000	0.000	0.000	0.403	0.01
L20	94.83-93.50	A	0.000	0.000	0.000	0.720	0.02
		B	0.000	0.000	0.000	0.720	0.01

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
		C	0.000	0.000	0.000	0.720	0.01
L21	93.50-93.25	A	0.000	0.000	0.000	0.135	0.00
		B	0.000	0.000	0.000	0.135	0.00
		C	0.000	0.000	0.000	0.135	0.00
L22	93.25-89.25	A	0.000	0.000	0.000	2.165	0.06
		B	0.000	0.000	0.000	2.165	0.04
		C	0.000	0.000	0.000	2.165	0.02
L23	89.25-89.00	A	0.000	0.000	0.000	0.135	0.00
		B	0.000	0.000	0.000	0.135	0.00
		C	0.000	0.000	0.000	0.135	0.00
L24	89.00-86.50	A	0.000	0.000	0.000	1.353	0.04
		B	0.000	0.000	0.000	1.353	0.03
		C	0.000	0.000	0.000	1.353	0.01
L25	86.50-86.25	A	0.000	0.000	0.000	0.135	0.00
		B	0.000	0.000	0.000	0.135	0.00
		C	0.000	0.000	0.000	0.135	0.00
L26	86.25-81.25	A	0.000	0.000	0.000	2.082	0.08
		B	0.000	0.000	0.000	2.082	0.05
		C	0.000	0.000	0.000	2.082	0.03
L27	81.25-76.25	A	0.000	0.000	0.000	1.961	0.08
		B	0.000	0.000	0.000	1.961	0.05
		C	0.000	0.000	0.000	1.961	0.03
L28	76.25-75.42	A	0.000	0.000	0.000	0.531	0.01
		B	0.000	0.000	0.000	0.531	0.01
		C	0.000	0.000	0.000	0.531	0.00
L29	75.42-75.17	A	0.000	0.000	0.000	0.159	0.00
		B	0.000	0.000	0.000	0.159	0.00
		C	0.000	0.000	0.000	0.159	0.00
L30	75.17-70.17	A	0.000	0.000	0.000	3.186	0.08
		B	0.000	0.000	0.000	3.186	0.05
		C	0.000	0.000	0.000	3.186	0.03
L31	70.17-65.17	A	0.000	0.000	0.000	3.186	0.08
		B	0.000	0.000	0.000	3.186	0.05
		C	0.000	0.000	0.000	3.186	0.03
L32	65.17-60.17	A	0.000	0.000	0.000	3.186	0.08
		B	0.000	0.000	0.000	3.186	0.05
		C	0.000	0.000	0.000	3.186	0.03
L33	60.17-59.50	A	0.000	0.000	0.000	0.425	0.01
		B	0.000	0.000	0.000	0.425	0.01
		C	0.000	0.000	0.000	0.425	0.00
L34	59.50-59.25	A	0.000	0.000	0.000	0.159	0.00
		B	0.000	0.000	0.000	0.159	0.00
		C	0.000	0.000	0.000	0.159	0.00
L35	59.25-54.25	A	0.000	0.000	0.000	3.186	0.08
		B	0.000	0.000	0.000	3.311	0.05
		C	0.000	0.000	0.000	3.186	0.03
L36	54.25-53.00	A	0.000	0.000	0.000	0.796	0.02
		B	0.000	0.000	0.000	1.005	0.01
		C	0.000	0.000	0.000	0.796	0.01
L37	53.00-47.20	A	0.000	0.000	0.000	3.695	0.09
		B	0.000	0.000	0.000	4.662	0.06
		C	0.000	0.000	0.000	3.695	0.03
L38	47.20-46.20	A	0.000	0.000	0.000	0.637	0.02
		B	0.000	0.000	0.000	0.637	0.01
		C	0.000	0.000	0.000	0.637	0.01
L39	46.20-41.20	A	0.000	0.000	0.000	3.186	0.08
		B	0.000	0.000	0.000	3.186	0.05
		C	0.000	0.000	0.000	3.186	0.03
L40	41.20-39.33	A	0.000	0.000	0.000	1.496	0.03
		B	0.000	0.000	0.000	1.496	0.02
		C	0.000	0.000	0.000	1.496	0.01
L41	39.33-39.08	A	0.000	0.000	0.000	0.225	0.00
		B	0.000	0.000	0.000	0.225	0.00
		C	0.000	0.000	0.000	0.225	0.00
L42	39.08-37.75	A	0.000	0.000	0.000	1.199	0.02
		B	0.000	0.000	0.000	1.199	0.01
		C	0.000	0.000	0.000	1.199	0.01
L43	37.75-37.50	A	0.000	0.000	0.000	0.225	0.00
		B	0.000	0.000	0.000	0.225	0.00

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
		C	0.000	0.000	0.000	0.225	0.00
L44	37.50-32.50	A	0.000	0.000	0.000	3.426	0.08
		B	0.000	0.000	0.000	3.426	0.05
		C	0.000	0.000	0.000	3.426	0.03
L45	32.50-27.50	A	0.000	0.000	0.000	3.186	0.08
		B	0.000	0.000	0.000	3.186	0.05
		C	0.000	0.000	0.000	3.186	0.03
L46	27.50-22.50	A	0.000	0.000	0.000	3.706	0.08
		B	0.000	0.000	0.000	3.186	0.05
		C	0.000	0.000	0.000	3.186	0.03
L47	22.50-21.25	A	0.000	0.000	0.000	1.057	0.02
		B	0.000	0.000	0.000	0.796	0.01
		C	0.000	0.000	0.000	0.796	0.01
L48	21.25-21.00	A	0.000	0.000	0.000	0.211	0.00
		B	0.000	0.000	0.000	0.159	0.00
		C	0.000	0.000	0.000	0.159	0.00
L49	21.00-20.00	A	0.000	0.000	0.000	0.845	0.02
		B	0.000	0.000	0.000	0.637	0.01
		C	0.000	0.000	0.000	0.637	0.01
L50	20.00-19.75	A	0.000	0.000	0.000	0.211	0.00
		B	0.000	0.000	0.000	0.170	0.00
		C	0.000	0.000	0.000	0.170	0.00
L51	19.75-17.00	A	0.000	0.000	0.000	2.325	0.04
		B	0.000	0.000	0.000	1.867	0.03
		C	0.000	0.000	0.000	1.867	0.02
L52	17.00-16.75	A	0.000	0.000	0.000	0.211	0.00
		B	0.000	0.000	0.000	0.170	0.00
		C	0.000	0.000	0.000	0.170	0.00
L53	16.75-11.75	A	0.000	0.000	0.000	3.686	0.08
		B	0.000	0.000	0.000	3.394	0.05
		C	0.000	0.000	0.000	3.394	0.03
L54	11.75-6.75	A	0.000	0.000	0.000	3.394	0.08
		B	0.000	0.000	0.000	3.394	0.05
		C	0.000	0.000	0.000	3.394	0.03
L55	6.75-1.75	A	0.000	0.000	0.000	3.394	0.08
		B	0.000	0.000	0.000	3.394	0.05
		C	0.000	0.000	0.000	3.394	0.03
L56	1.75-0.00	A	0.000	0.000	0.000	0.849	0.03
		B	0.000	0.000	0.000	0.849	0.02
		C	0.000	0.000	0.000	0.849	0.01

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.00-155.00	A	1.206	0.000	0.000	0.000	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	155.00-150.00	A	1.202	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	150.00-145.00	A	1.197	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L4	145.00-140.00	A	1.192	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L5	140.00-135.00	A	1.187	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.00
L6	135.00-130.00	A	1.182	0.000	0.000	0.000	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
L7	130.00-125.75	A	1.176	0.000	0.000	0.000	0.506	0.07
		B		0.000	0.000	0.000	0.506	0.04

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
		C		0.000	0.000	0.000	0.506	0.00
L8	125.75-125.50	A	1.174	0.000	0.000	0.000	0.101	0.00
		B		0.000	0.000	0.000	0.101	0.00
		C		0.000	0.000	0.000	0.101	0.00
L9	125.50-119.12	A	1.170	0.000	0.000	0.000	2.574	0.10
		B		0.000	0.000	0.000	2.574	0.06
		C		0.000	0.000	0.000	2.574	0.02
L10	119.12-119.00	A	1.166	0.000	0.000	0.000	0.048	0.00
		B		0.000	0.000	0.000	0.048	0.00
		C		0.000	0.000	0.000	0.048	0.00
L11	119.00-118.75	A	1.166	0.000	0.000	0.000	0.101	0.00
		B		0.000	0.000	0.000	0.101	0.00
		C		0.000	0.000	0.000	0.101	0.00
L12	118.75-113.75	A	1.163	0.000	0.000	0.000	2.011	0.08
		B		0.000	0.000	0.000	2.011	0.05
		C		0.000	0.000	0.000	2.011	0.01
L13	113.75-108.75	A	1.157	0.000	0.000	0.000	2.006	0.08
		B		0.000	0.000	0.000	2.006	0.05
		C		0.000	0.000	0.000	2.006	0.01
L14	108.75-103.75	A	1.151	0.000	0.000	0.000	2.449	0.08
		B		0.000	0.000	0.000	2.001	0.05
		C		0.000	0.000	0.000	2.449	0.02
L15	103.75-103.00	A	1.147	0.000	0.000	0.000	0.568	0.01
		B		0.000	0.000	0.000	0.300	0.01
		C		0.000	0.000	0.000	0.568	0.00
L16	103.00-102.75	A	1.146	0.000	0.000	0.000	0.189	0.00
		B		0.000	0.000	0.000	0.100	0.00
		C		0.000	0.000	0.000	0.189	0.00
L17	102.75-100.21	A	1.144	0.000	0.000	0.000	1.923	0.04
		B		0.000	0.000	0.000	1.726	0.03
		C		0.000	0.000	0.000	1.923	0.01
L18	100.21-95.83	A	1.140	0.000	0.000	0.000	3.305	0.07
		B		0.000	0.000	0.000	3.305	0.04
		C		0.000	0.000	0.000	3.305	0.02
L19	95.83-94.83	A	1.136	0.000	0.000	0.000	0.816	0.02
		B		0.000	0.000	0.000	0.816	0.01
		C		0.000	0.000	0.000	0.816	0.01
L20	94.83-93.50	A	1.134	0.000	0.000	0.000	1.475	0.02
		B		0.000	0.000	0.000	1.475	0.01
		C		0.000	0.000	0.000	1.475	0.01
L21	93.50-93.25	A	1.133	0.000	0.000	0.000	0.277	0.00
		B		0.000	0.000	0.000	0.277	0.00
		C		0.000	0.000	0.000	0.277	0.00
L22	93.25-89.25	A	1.130	0.000	0.000	0.000	4.426	0.06
		B		0.000	0.000	0.000	4.426	0.04
		C		0.000	0.000	0.000	4.426	0.02
L23	89.25-89.00	A	1.127	0.000	0.000	0.000	0.276	0.00
		B		0.000	0.000	0.000	0.276	0.00
		C		0.000	0.000	0.000	0.276	0.00
L24	89.00-86.50	A	1.125	0.000	0.000	0.000	2.760	0.04
		B		0.000	0.000	0.000	2.760	0.03
		C		0.000	0.000	0.000	2.760	0.01
L25	86.50-86.25	A	1.122	0.000	0.000	0.000	0.276	0.00
		B		0.000	0.000	0.000	0.276	0.00
		C		0.000	0.000	0.000	0.276	0.00
L26	86.25-81.25	A	1.118	0.000	0.000	0.000	4.180	0.08
		B		0.000	0.000	0.000	4.180	0.05
		C		0.000	0.000	0.000	4.180	0.03
L27	81.25-76.25	A	1.110	0.000	0.000	0.000	3.895	0.08
		B		0.000	0.000	0.000	3.895	0.05
		C		0.000	0.000	0.000	3.895	0.03
L28	76.25-75.42	A	1.105	0.000	0.000	0.000	1.042	0.01
		B		0.000	0.000	0.000	1.042	0.01
		C		0.000	0.000	0.000	1.042	0.00
L29	75.42-75.17	A	1.104	0.000	0.000	0.000	0.313	0.00
		B		0.000	0.000	0.000	0.313	0.00
		C		0.000	0.000	0.000	0.313	0.00
L30	75.17-70.17	A	1.099	0.000	0.000	0.000	6.241	0.08
		B		0.000	0.000	0.000	6.241	0.05

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
		C		0.000	0.000	0.000	6.241	0.03
L31	70.17-65.17	A	1.090	0.000	0.000	0.000	6.215	0.08
		B		0.000	0.000	0.000	6.215	0.05
		C		0.000	0.000	0.000	6.215	0.03
L32	65.17-60.17	A	1.080	0.000	0.000	0.000	6.187	0.08
		B		0.000	0.000	0.000	6.187	0.05
		C		0.000	0.000	0.000	6.187	0.03
L33	60.17-59.50	A	1.074	0.000	0.000	0.000	0.823	0.01
		B		0.000	0.000	0.000	0.823	0.01
		C		0.000	0.000	0.000	0.823	0.00
L34	59.50-59.25	A	1.073	0.000	0.000	0.000	0.308	0.00
		B		0.000	0.000	0.000	0.308	0.00
		C		0.000	0.000	0.000	0.308	0.00
L35	59.25-54.25	A	1.067	0.000	0.000	0.000	6.152	0.08
		B		0.000	0.000	0.000	6.410	0.05
		C		0.000	0.000	0.000	6.152	0.03
L36	54.25-53.00	A	1.060	0.000	0.000	0.000	1.533	0.02
		B		0.000	0.000	0.000	1.962	0.01
		C		0.000	0.000	0.000	1.533	0.01
L37	53.00-47.20	A	1.051	0.000	0.000	0.000	7.085	0.09
		B		0.000	0.000	0.000	9.068	0.06
		C		0.000	0.000	0.000	7.085	0.03
L38	47.20-46.20	A	1.043	0.000	0.000	0.000	1.222	0.02
		B		0.000	0.000	0.000	1.222	0.01
		C		0.000	0.000	0.000	1.222	0.01
L39	46.20-41.20	A	1.034	0.000	0.000	0.000	6.060	0.08
		B		0.000	0.000	0.000	6.060	0.05
		C		0.000	0.000	0.000	6.060	0.03
L40	41.20-39.33	A	1.024	0.000	0.000	0.000	2.824	0.03
		B		0.000	0.000	0.000	2.824	0.02
		C		0.000	0.000	0.000	2.824	0.01
L41	39.33-39.08	A	1.021	0.000	0.000	0.000	0.423	0.00
		B		0.000	0.000	0.000	0.423	0.00
		C		0.000	0.000	0.000	0.423	0.00
L42	39.08-37.75	A	1.018	0.000	0.000	0.000	2.255	0.02
		B		0.000	0.000	0.000	2.255	0.01
		C		0.000	0.000	0.000	2.255	0.01
L43	37.75-37.50	A	1.016	0.000	0.000	0.000	0.423	0.00
		B		0.000	0.000	0.000	0.423	0.00
		C		0.000	0.000	0.000	0.423	0.00
L44	37.50-32.50	A	1.007	0.000	0.000	0.000	6.430	0.08
		B		0.000	0.000	0.000	6.430	0.05
		C		0.000	0.000	0.000	6.430	0.03
L45	32.50-27.50	A	1.000	0.000	0.000	0.000	5.965	0.08
		B		0.000	0.000	0.000	5.965	0.05
		C		0.000	0.000	0.000	5.965	0.03
L46	27.50-22.50	A	1.000	0.000	0.000	0.000	6.903	0.08
		B		0.000	0.000	0.000	5.965	0.05
		C		0.000	0.000	0.000	5.965	0.03
L47	22.50-21.25	A	1.000	0.000	0.000	0.000	1.960	0.02
		B		0.000	0.000	0.000	1.491	0.01
		C		0.000	0.000	0.000	1.491	0.01
L48	21.25-21.00	A	1.000	0.000	0.000	0.000	0.392	0.00
		B		0.000	0.000	0.000	0.298	0.00
		C		0.000	0.000	0.000	0.298	0.00
L49	21.00-20.00	A	1.000	0.000	0.000	0.000	1.568	0.02
		B		0.000	0.000	0.000	1.193	0.01
		C		0.000	0.000	0.000	1.193	0.01
L50	20.00-19.75	A	1.000	0.000	0.000	0.000	0.392	0.00
		B		0.000	0.000	0.000	0.309	0.00
		C		0.000	0.000	0.000	0.309	0.00
L51	19.75-17.00	A	1.000	0.000	0.000	0.000	4.312	0.04
		B		0.000	0.000	0.000	3.395	0.03
		C		0.000	0.000	0.000	3.395	0.02
L52	17.00-16.75	A	1.000	0.000	0.000	0.000	0.392	0.00
		B		0.000	0.000	0.000	0.309	0.00
		C		0.000	0.000	0.000	0.309	0.00
L53	16.75-11.75	A	1.000	0.000	0.000	0.000	6.757	0.08
		B		0.000	0.000	0.000	6.173	0.05

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
		C		0.000	0.000	0.000	6.173	0.03
L54	11.75-6.75	A	1.000	0.000	0.000	0.000	6.173	0.08
		B		0.000	0.000	0.000	6.173	0.05
		C		0.000	0.000	0.000	6.173	0.03
L55	6.75-1.75	A	1.000	0.000	0.000	0.000	6.173	0.08
		B		0.000	0.000	0.000	6.173	0.05
		C		0.000	0.000	0.000	6.173	0.03
L56	1.75-0.00	A	1.000	0.000	0.000	0.000	1.543	0.03
		B		0.000	0.000	0.000	1.543	0.02
		C		0.000	0.000	0.000	1.543	0.01

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.00-155.00	0.0000	0.0000	0.0000	0.0000
L2	155.00-150.00	0.0000	0.0000	0.0000	0.0000
L3	150.00-145.00	0.0000	0.0000	0.0000	0.0000
L4	145.00-140.00	0.0000	0.0000	0.0000	0.0000
L5	140.00-135.00	0.0000	0.0000	0.0000	0.0000
L6	135.00-130.00	0.0000	0.0000	0.0000	0.0000
L7	130.00-125.75	0.0000	0.0000	0.0000	0.0000
L8	125.75-125.50	0.0000	0.0000	0.0000	0.0000
L9	125.50-119.12	0.0000	0.0000	0.0000	0.0000
L10	119.12-119.00	0.0000	0.0000	0.0000	0.0000
L11	119.00-118.75	0.0000	0.0000	0.0000	0.0000
L12	118.75-113.75	0.0000	0.0000	0.0000	0.0000
L13	113.75-108.75	0.0000	0.0000	0.0000	0.0000
L14	108.75-103.75	-0.0422	-0.0244	-0.0707	-0.0408
L15	103.75-103.00	-0.1547	-0.0893	-0.2473	-0.1428
L16	103.00-102.75	-0.1548	-0.0894	-0.2477	-0.1430
L17	102.75-100.21	-0.0321	-0.0185	-0.0503	-0.0291
L18	100.21-95.83	0.0000	0.0000	0.0000	0.0000
L19	95.83-94.83	0.0000	0.0000	0.0000	0.0000
L20	94.83-93.50	0.0000	0.0000	0.0000	0.0000
L21	93.50-93.25	0.0000	0.0000	0.0000	0.0000
L22	93.25-89.25	0.0000	0.0000	0.0000	0.0000
L23	89.25-89.00	0.0000	0.0000	0.0000	0.0000
L24	89.00-86.50	0.0000	0.0000	0.0000	0.0000
L25	86.50-86.25	0.0000	0.0000	0.0000	0.0000
L26	86.25-81.25	0.0000	0.0000	0.0000	0.0000
L27	81.25-76.25	0.0000	0.0000	0.0000	0.0000
L28	76.25-75.42	0.0000	0.0000	0.0000	0.0000
L29	75.42-75.17	0.0000	0.0000	0.0000	0.0000
L30	75.17-70.17	0.0000	0.0000	0.0000	0.0000
L31	70.17-65.17	0.0000	0.0000	0.0000	0.0000
L32	65.17-60.17	0.0000	0.0000	0.0000	0.0000
L33	60.17-59.50	0.0000	0.0000	0.0000	0.0000
L34	59.50-59.25	0.0000	0.0000	0.0000	0.0000
L35	59.25-54.25	0.0205	0.0118	0.0306	0.0177
L36	54.25-53.00	0.1324	0.0764	0.1953	0.1127
L37	53.00-47.20	0.1334	0.0770	0.1971	0.1138
L38	47.20-46.20	0.0000	0.0000	0.0000	0.0000
L39	46.20-41.20	0.0000	0.0000	0.0000	0.0000
L40	41.20-39.33	0.0000	0.0000	0.0000	0.0000
L41	39.33-39.08	0.0000	0.0000	0.0000	0.0000
L42	39.08-37.75	0.0000	0.0000	0.0000	0.0000
L43	37.75-37.50	0.0000	0.0000	0.0000	0.0000
L44	37.50-32.50	0.0000	0.0000	0.0000	0.0000
L45	32.50-27.50	0.0000	0.0000	0.0000	0.0000
L46	27.50-22.50	0.0000	-0.1022	0.0000	-0.1381
L47	22.50-21.25	0.0000	-0.2007	0.0000	-0.2700
L48	21.25-21.00	0.0000	-0.2009	0.0000	-0.2705
L49	21.00-20.00	0.0000	-0.2012	0.0000	-0.2710

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L50	20.00-19.75	0.0000	-0.1589	0.0000	-0.2387
L51	19.75-17.00	0.0000	-0.1593	0.0000	-0.2396
L52	17.00-16.75	0.0000	-0.1597	0.0000	-0.2405
L53	16.75-11.75	0.0000	-0.0567	0.0000	-0.0864
L54	11.75-6.75	0.0000	0.0000	0.0000	0.0000
L55	6.75-1.75	0.0000	0.0000	0.0000	0.0000
L56	1.75-0.00	0.0000	0.0000	0.0000	0.0000

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
159									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	159.00	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	4.00 0.00 0.00	0.0000	159.00	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	4.00 0.00 0.00	0.0000	159.00	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) 7' x 2" STD Pipe	A	From Leg	4.00 0.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.66 2.39 2.83 3.71 5.58	1.66 2.39 2.83 3.71 5.58	0.03 0.04 0.06 0.10 0.27
(3) 7' x 2" STD Pipe	B	From Leg	4.00 0.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.66 2.39 2.83 3.71 5.58	1.66 2.39 2.83 3.71 5.58	0.03 0.04 0.06 0.10 0.27
(3) 7' x 2" STD Pipe	C	From Leg	4.00 0.00 0.00	0.0000	159.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.66 2.39 2.83 3.71 5.58	1.66 2.39 2.83 3.71 5.58	0.03 0.04 0.06 0.10 0.27
LP 712-1	C	None		0.0000	159.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.53 29.94 35.35 46.17 67.81	24.53 29.94 35.35 46.17 67.81	1.34 1.65 1.96 2.58 3.82
157									
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	2.40 2.61 2.83 3.30	2.25 2.46 2.68 3.13	0.06 0.09 0.11 0.17

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	4.34	4.15	0.34
						4" Ice			
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.0000	157.00	No Ice	2.40	2.25	0.06
						1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.0000	157.00	No Ice	2.40	2.25	0.06
						1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00 0.00 -3.00	0.0000	157.00	No Ice	2.71	2.61	0.06
						1/2" Ice	2.95	2.85	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
PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00 0.00 -3.00	0.0000	157.00	No Ice	2.71	2.61	0.06
						1/2" Ice	2.95	2.85	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
PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00 0.00 -3.00	0.0000	157.00	No Ice	2.71	2.61	0.06
						1/2" Ice	2.95	2.85	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
SO 102-3	C	None		0.0000	157.00	No Ice	3.00	3.00	0.08
						1/2" Ice	3.48	3.48	0.11
						1" Ice	3.96	3.96	0.14
						2" Ice	4.92	4.92	0.20
						4" Ice	6.84	6.84	0.32
152									
(2) TME-RRUS-11	A	From Leg	2.00 0.00 0.00	0.0000	152.00	No Ice	3.42	1.85	0.06
						1/2" Ice	3.72	2.19	0.08
						1" Ice	4.04	2.55	0.12
						2" Ice	4.72	3.38	0.19
						4" Ice	6.25	5.29	0.43
(2) TME-RRUS-11	B	From Leg	2.00 0.00 0.00	0.0000	152.00	No Ice	3.42	1.85	0.06
						1/2" Ice	3.72	2.19	0.08
						1" Ice	4.04	2.55	0.12
						2" Ice	4.72	3.38	0.19
						4" Ice	6.25	5.29	0.43
(2) TME-RRUS-11	C	From Leg	2.00 0.00 0.00	0.0000	152.00	No Ice	3.42	1.85	0.06
						1/2" Ice	3.72	2.19	0.08
						1" Ice	4.04	2.55	0.12
						2" Ice	4.72	3.38	0.19
						4" Ice	6.25	5.29	0.43
SO 102-3	C	None		0.0000	152.00	No Ice	3.00	3.00	0.08
						1/2" Ice	3.48	3.48	0.11
						1" Ice	3.96	3.96	0.14
						2" Ice	4.92	4.92	0.20
						4" Ice	6.84	6.84	0.32
150									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	6.12	4.25	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
			0.00			1/2"	6.63	5.01	0.10
			0.00			Ice	7.13	5.71	0.16
						1" Ice	8.16	7.16	0.29
						2" Ice	10.36	10.41	0.66
						4" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	6.12	4.25	0.06
			0.00			1/2"	6.63	5.01	0.10
			0.00			Ice	7.13	5.71	0.16
						1" Ice	8.16	7.16	0.29
						2" Ice	10.36	10.41	0.66
						4" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	6.12	4.25	0.06
			0.00			1/2"	6.63	5.01	0.10
			0.00			Ice	7.13	5.71	0.16
						1" Ice	8.16	7.16	0.29
						2" Ice	10.36	10.41	0.66
						4" Ice			
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.00	0.0000	150.00	No Ice	11.55	8.94	0.09
			0.00			1/2"	12.27	10.45	0.18
			0.00			Ice	13.00	11.99	0.27
						1" Ice	14.45	14.31	0.50
						2" Ice	17.71	19.14	1.12
						4" Ice			
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.0000	150.00	No Ice	11.55	8.94	0.09
			0.00			1/2"	12.27	10.45	0.18
			0.00			Ice	13.00	11.99	0.27
						1" Ice	14.45	14.31	0.50
						2" Ice	17.71	19.14	1.12
						4" Ice			
AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Leg	4.00	0.0000	150.00	No Ice	11.55	8.94	0.09
			0.00			1/2"	12.27	10.45	0.18
			0.00			Ice	13.00	11.99	0.27
						1" Ice	14.45	14.31	0.50
						2" Ice	17.71	19.14	1.12
						4" Ice			
(2) LGP21401	A	From Leg	4.00	0.0000	150.00	No Ice	1.29	0.23	0.01
			0.00			1/2"	1.45	0.31	0.02
			0.00			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	150.00	No Ice	1.29	0.23	0.01
			0.00			1/2"	1.45	0.31	0.02
			0.00			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21401	C	From Leg	4.00	0.0000	150.00	No Ice	1.29	0.23	0.01
			0.00			1/2"	1.45	0.31	0.02
			0.00			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21901	A	From Leg	4.00	0.0000	150.00	No Ice	0.27	0.18	0.01
			0.00			1/2"	0.34	0.25	0.01
			0.00			Ice	0.43	0.32	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	0.0000	150.00	No Ice	0.27	0.18	0.01
			0.00			1/2"	0.34	0.25	0.01
			0.00			Ice	0.43	0.32	0.01
						1" Ice	0.62	0.49	0.02
						2" Ice	1.10	0.94	0.07
						4" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) LGP21901	C	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.27 0.34 0.43 0.62 1.10	0.18 0.25 0.32 0.49 0.94	0.01 0.01 0.01 0.02 0.07
DC6-48-60-18-8F	B	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.47 1.67 1.88 2.33 3.38	1.47 1.67 1.88 2.33 3.38	0.02 0.04 0.06 0.11 0.24
LP 303-1	C	None		0.0000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	14.66 18.87 23.08 31.50 48.34	14.66 18.87 23.08 31.50 48.34	1.25 1.48 1.71 2.18 3.10
139									
APXV18-203219-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.18 6.68 7.18 8.21 10.39	4.00 4.74 5.43 6.85 10.03	0.06 0.11 0.16 0.29 0.66
APXV18-203219-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.18 6.68 7.18 8.21 10.39	4.00 4.74 5.43 6.85 10.03	0.06 0.11 0.16 0.29 0.66
APXV18-203219-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.18 6.68 7.18 8.21 10.39	4.00 4.74 5.43 6.85 10.03	0.06 0.11 0.16 0.29 0.66
LNX-6512DS-VTM w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.85 6.31 6.77 7.74 9.80	4.55 5.23 5.91 7.34 10.46	0.05 0.10 0.15 0.28 0.65
LNX-6512DS-VTM w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.85 6.31 6.77 7.74 9.80	4.55 5.23 5.91 7.34 10.46	0.05 0.10 0.15 0.28 0.65
LNX-6512DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.85 6.31 6.77 7.74 9.80	4.55 5.23 5.91 7.34 10.46	0.05 0.10 0.15 0.28 0.65
TMAT7LA-11A	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.75 0.87 1.00 1.29 1.96	0.40 0.49 0.59 0.81 1.36	0.02 0.03 0.04 0.06 0.13
TMAT7LA-11A	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice	0.75 0.87 1.00 1.29	0.40 0.49 0.59 0.81	0.02 0.03 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
						2" Ice	1.96	1.36	0.13
						4" Ice			
TMAT7LA-11A	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	0.75	0.40	0.02
						1/2" Ice	0.87	0.49	0.03
							1.00	0.59	0.04
						1" Ice	1.29	0.81	0.06
						2" Ice	1.96	1.36	0.13
						4" Ice			
ATBT-BOTTOM-24V	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	0.12	0.08	0.00
						1/2" Ice	0.17	0.12	0.00
							0.23	0.17	0.01
						1" Ice	0.38	0.30	0.01
						2" Ice	0.77	0.67	0.04
						4" Ice			
ATBT-BOTTOM-24V	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	0.12	0.08	0.00
						1/2" Ice	0.17	0.12	0.00
							0.23	0.17	0.01
						1" Ice	0.38	0.30	0.01
						2" Ice	0.77	0.67	0.04
						4" Ice			
ATBT-BOTTOM-24V	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	0.12	0.08	0.00
						1/2" Ice	0.17	0.12	0.00
							0.23	0.17	0.01
						1" Ice	0.38	0.30	0.01
						2" Ice	0.77	0.67	0.04
						4" Ice			
5' x 2" STD Pipe	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	1.19	1.19	0.02
						1/2" Ice	1.50	1.50	0.03
							1.81	1.81	0.04
						1" Ice	2.46	2.46	0.08
						2" Ice	3.92	3.92	0.20
						4" Ice			
5' x 2" STD Pipe	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	1.19	1.19	0.02
						1/2" Ice	1.50	1.50	0.03
							1.81	1.81	0.04
						1" Ice	2.46	2.46	0.08
						2" Ice	3.92	3.92	0.20
						4" Ice			
5' x 2" STD Pipe	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice	1.19	1.19	0.02
						1/2" Ice	1.50	1.50	0.03
							1.81	1.81	0.04
						1" Ice	2.46	2.46	0.08
						2" Ice	3.92	3.92	0.20
						4" Ice			
TA 602-3	C	None		0.0000	139.00	No Ice	11.59	11.59	0.77
						1/2" Ice	15.44	15.44	0.99
							19.29	19.29	1.21
						1" Ice	26.99	26.99	1.64
						2" Ice	42.39	42.39	2.50
						4" Ice			
130									
(2) LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice	8.65	7.08	0.06
						1/2" Ice	9.31	8.27	0.13
							9.93	9.18	0.21
						1" Ice	11.20	11.02	0.39
						2" Ice	13.87	15.06	0.90
						4" Ice			
(2) LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice	8.65	7.08	0.06
						1/2" Ice	9.31	8.27	0.13
							9.93	9.18	0.21
						1" Ice	11.20	11.02	0.39
						2" Ice	13.87	15.06	0.90
						4" Ice			
(2) LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00	0.0000	127.00	No Ice	8.65	7.08	0.06
						1/2" Ice	9.31	8.27	0.13

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
			3.00			Ice	9.93	9.18	0.21
						1" Ice	11.20	11.02	0.39
						2" Ice	13.87	15.06	0.90
						4" Ice			
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.92 9.56 10.19 11.46 14.13	6.91 8.10 9.01 10.86 14.81	0.08 0.15 0.22 0.41 0.92
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.92 9.56 10.19 11.46 14.13	6.91 8.10 9.01 10.86 14.81	0.08 0.15 0.22 0.41 0.92
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.92 9.56 10.19 11.46 14.13	6.91 8.10 9.01 10.86 14.81	0.08 0.15 0.22 0.41 0.92
RRH2X40-07-U	A	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.25 2.45 2.66 3.10 4.10	1.23 1.39 1.55 1.91 2.73	0.05 0.07 0.09 0.13 0.27
RRH2X40-07-U	B	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.25 2.45 2.66 3.10 4.10	1.23 1.39 1.55 1.91 2.73	0.05 0.07 0.09 0.13 0.27
RRH2X40-07-U	C	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.25 2.45 2.66 3.10 4.10	1.23 1.39 1.55 1.91 2.73	0.05 0.07 0.09 0.13 0.27
RRH2X60-AWS	A	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.96 4.27 4.60 5.27 6.72	2.05 2.33 2.62 3.23 4.54	0.06 0.08 0.11 0.18 0.36
RRH2X60-AWS	B	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.96 4.27 4.60 5.27 6.72	2.05 2.33 2.62 3.23 4.54	0.06 0.08 0.11 0.18 0.36
RRH2X60-AWS	C	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.96 4.27 4.60 5.27 6.72	2.05 2.33 2.62 3.23 4.54	0.06 0.08 0.11 0.18 0.36
RRH2X60-PCS	A	From Leg	4.00 0.00 3.00	0.0000	127.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.57 2.79 3.02 3.52 4.61	2.01 2.22 2.43 2.89 3.92	0.06 0.08 0.10 0.16 0.31
RRH2X60-PCS	B	From Leg	4.00	0.0000	127.00	No Ice	2.57	2.01	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
			0.00			1/2"	2.79	2.22	0.08
			3.00			Ice	3.02	2.43	0.10
						1" Ice	3.52	2.89	0.16
						2" Ice	4.61	3.92	0.31
						4" Ice			
RRH2X60-PCS	C	From Leg	4.00	0.0000	127.00	No Ice	2.57	2.01	0.06
			0.00			1/2"	2.79	2.22	0.08
			3.00			Ice	3.02	2.43	0.10
						1" Ice	3.52	2.89	0.16
						2" Ice	4.61	3.92	0.31
						4" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.00	0.0000	127.00	No Ice	5.60	2.33	0.04
			0.00			1/2"	5.92	2.56	0.08
			3.00			Ice	6.24	2.79	0.12
						1" Ice	6.91	3.28	0.21
						2" Ice	8.37	4.37	0.45
						4" Ice			
DB-T1-6Z-8AB-0Z	C	From Leg	4.00	0.0000	127.00	No Ice	5.60	2.33	0.04
			0.00			1/2"	5.92	2.56	0.08
			3.00			Ice	6.24	2.79	0.12
						1" Ice	6.91	3.28	0.21
						2" Ice	8.37	4.37	0.45
						4" Ice			
LP 303-1	C	None		0.0000	127.00	No Ice	14.66	14.66	1.25
						1/2"	18.87	18.87	1.48
						Ice	23.08	23.08	1.71
						1" Ice	31.50	31.50	2.18
						2" Ice	48.34	48.34	3.10
						4" Ice			
109									
DB589	C	From Leg	4.00	0.0000	109.00	No Ice	2.13	2.13	0.01
			0.00			1/2"	3.00	3.00	0.03
			5.00			Ice	3.76	3.76	0.05
						1" Ice	4.82	4.82	0.11
						2" Ice	7.04	7.04	0.30
						4" Ice			
SO 701-1	C	From Leg	2.00	0.0000	109.00	No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice	1.43	3.01	0.09
						1" Ice	2.01	4.35	0.12
						2" Ice	3.17	7.03	0.18
						4" Ice			
SO 201-1	C	From Leg	0.50	0.0000	109.00	No Ice	2.96	2.11	0.10
			0.00			1/2"	4.10	2.93	0.12
			0.00			Ice	5.24	3.75	0.14
						1" Ice	7.52	5.39	0.18
						2" Ice	12.08	8.67	0.26
						4" Ice			
105									
(2) 800 10504 w/ Mount Pipe	A	From Leg	4.00	0.0000	105.00	No Ice	3.59	3.18	0.04
			0.00			1/2"	4.01	3.91	0.07
			0.00			Ice	4.42	4.58	0.11
						1" Ice	5.34	5.98	0.21
						2" Ice	7.38	8.98	0.51
						4" Ice			
(2) 800 10504 w/ Mount Pipe	B	From Leg	4.00	0.0000	105.00	No Ice	3.59	3.18	0.04
			0.00			1/2"	4.01	3.91	0.07
			0.00			Ice	4.42	4.58	0.11
						1" Ice	5.34	5.98	0.21
						2" Ice	7.38	8.98	0.51
						4" Ice			
(2) 800 10504 w/ Mount Pipe	C	From Leg	4.00	0.0000	105.00	No Ice	3.59	3.18	0.04
			0.00			1/2"	4.01	3.91	0.07
			0.00			Ice	4.42	4.58	0.11
						1" Ice	5.34	5.98	0.21

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	7.38	8.98	0.51
						4" Ice			
(2) 860 10025	A	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	0.16	0.14	0.00
						1/2" Ice	0.23	0.20	0.00
						1" Ice	0.30	0.27	0.01
						2" Ice	0.48	0.44	0.01
						4" Ice	0.93	0.88	0.05
(2) 860 10025	B	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	0.16	0.14	0.00
						1/2" Ice	0.23	0.20	0.00
						1" Ice	0.30	0.27	0.01
						2" Ice	0.48	0.44	0.01
						4" Ice	0.93	0.88	0.05
(2) 860 10025	C	From Leg	4.00 0.00 0.00	0.0000	105.00	No Ice	0.16	0.14	0.00
						1/2" Ice	0.23	0.20	0.00
						1" Ice	0.30	0.27	0.01
						2" Ice	0.48	0.44	0.01
						4" Ice	0.93	0.88	0.05
SM 506-3	C	None		0.0000	105.00	No Ice	35.47	35.47	1.74
						1/2" Ice	50.60	50.60	2.35
						1" Ice	64.53	64.53	0.98
						2" Ice	93.59	93.59	1.39
						4" Ice	151.71	151.71	2.20

Tower Pressures - No Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % 	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 160.00-155.00	157.47	1.563	29	7.108	A	0.000	7.108	7.108	100.00	0.000	0.000
					B	0.000	7.108		100.00	0.000	0.000
					C	0.000	7.108		100.00	0.000	0.000
L2 155.00-150.00	152.47	1.548	29	7.575	A	0.000	7.575	7.575	100.00	0.000	0.000
					B	0.000	7.575		100.00	0.000	0.000
					C	0.000	7.575		100.00	0.000	0.000
L3 150.00-145.00	147.48	1.534	28	8.042	A	0.000	8.042	8.042	100.00	0.000	0.000
					B	0.000	8.042		100.00	0.000	0.000
					C	0.000	8.042		100.00	0.000	0.000
L4 145.00-140.00	142.48	1.519	28	8.509	A	0.000	8.509	8.509	100.00	0.000	0.000
					B	0.000	8.509		100.00	0.000	0.000
					C	0.000	8.509		100.00	0.000	0.000
L5 140.00-135.00	137.48	1.503	28	8.976	A	0.000	8.976	8.976	100.00	0.000	0.000
					B	0.000	8.976		100.00	0.000	0.000
					C	0.000	8.976		100.00	0.000	0.000
L6 135.00-130.00	132.48	1.488	28	9.442	A	0.000	9.442	9.442	100.00	0.000	0.000
					B	0.000	9.442		100.00	0.000	0.000
					C	0.000	9.442		100.00	0.000	0.000
L7 130.00-125.75	127.86	1.473	27	8.393	A	0.000	8.393	8.393	100.00	0.000	0.260
					B	0.000	8.393		100.00	0.000	0.260
					C	0.000	8.393		100.00	0.000	0.260
L8 125.75-125.50	125.62	1.465	27	0.504	A	0.000	0.504	0.504	100.00	0.000	0.052
					B	0.000	0.504		100.00	0.000	0.052
					C	0.000	0.504		100.00	0.000	0.052

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
L9 125.50-119.12	122.28	1.454	27	13.263	A	0.000	13.263	13.263	100.00	0.000	1.327
					B	0.000	13.263		100.00	0.000	1.327
					C	0.000	13.263		100.00	0.000	1.327
L10 119.12-119.00	119.06	1.443	27	0.253	A	0.000	0.253	0.253	100.00	0.000	0.025
					B	0.000	0.253		100.00	0.000	0.025
					C	0.000	0.253		100.00	0.000	0.025
L11 119.00-118.75	118.87	1.442	27	0.528	A	0.000	0.528	0.528	100.00	0.000	0.052
					B	0.000	0.528		100.00	0.000	0.052
					C	0.000	0.528		100.00	0.000	0.052
L12 118.75-113.75	116.23	1.433	27	10.792	A	0.000	10.792	10.792	100.00	0.000	1.040
					B	0.000	10.792		100.00	0.000	1.040
					C	0.000	10.792		100.00	0.000	1.040
L13 113.75-108.75	111.23	1.415	26	11.250	A	0.000	11.250	11.250	100.00	0.000	1.040
					B	0.000	11.250		100.00	0.000	1.040
					C	0.000	11.250		100.00	0.000	1.040
L14 108.75-103.75	106.23	1.397	26	11.708	A	0.000	11.708	11.708	100.00	0.000	1.248
					B	0.000	11.708		100.00	0.000	1.040
					C	0.000	11.708		100.00	0.000	1.248
L15 103.75-103.00	103.37	1.386	26	1.796	A	0.000	1.796	1.796	100.00	0.000	0.281
					B	0.000	1.796		100.00	0.000	0.156
					C	0.000	1.796		100.00	0.000	0.281
L16 103.00-102.75	102.87	1.384	26	0.601	A	0.000	0.601	0.601	100.00	0.000	0.094
					B	0.000	0.601		100.00	0.000	0.052
					C	0.000	0.601		100.00	0.000	0.094
L17 102.75-100.21	101.47	1.378	25	6.175	A	0.000	6.175	6.175	100.00	0.000	0.952
					B	0.000	6.175		100.00	0.000	0.861
					C	0.000	6.175		100.00	0.000	0.952
L18 100.21-95.83	98.01	1.365	25	10.912	A	0.000	10.912	10.912	100.00	0.000	1.640
					B	0.000	10.912		100.00	0.000	1.640
					C	0.000	10.912		100.00	0.000	1.640
L19 95.83-94.83	95.33	1.354	25	2.501	A	0.000	2.501	2.501	100.00	0.000	0.403
					B	0.000	2.501		100.00	0.000	0.403
					C	0.000	2.501		100.00	0.000	0.403
L20 94.83-93.50	94.16	1.349	25	3.354	A	0.000	3.354	3.354	100.00	0.000	0.720
					B	0.000	3.354		100.00	0.000	0.720
					C	0.000	3.354		100.00	0.000	0.720
L21 93.50-93.25	93.37	1.346	25	0.634	A	0.000	0.634	0.634	100.00	0.000	0.135
					B	0.000	0.634		100.00	0.000	0.135
					C	0.000	0.634		100.00	0.000	0.135
L22 93.25-89.25	91.24	1.337	25	10.304	A	0.000	10.304	10.304	100.00	0.000	2.165
					B	0.000	10.304		100.00	0.000	2.165
					C	0.000	10.304		100.00	0.000	2.165
L23 89.25-89.00	89.12	1.328	25	0.654	A	0.000	0.654	0.654	100.00	0.000	0.135
					B	0.000	0.654		100.00	0.000	0.135
					C	0.000	0.654		100.00	0.000	0.135
L24 89.00-86.50	87.75	1.322	24	6.601	A	0.000	6.601	6.601	100.00	0.000	1.353
					B	0.000	6.601		100.00	0.000	1.353
					C	0.000	6.601		100.00	0.000	1.353
L25 86.50-86.25	86.37	1.316	24	0.666	A	0.000	0.666	0.666	100.00	0.000	0.135
					B	0.000	0.666		100.00	0.000	0.135
					C	0.000	0.666		100.00	0.000	0.135
L26 86.25-81.25	83.74	1.305	24	13.572	A	0.000	13.572	13.572	100.00	0.000	2.082
					B	0.000	13.572		100.00	0.000	2.082
					C	0.000	13.572		100.00	0.000	2.082
L27 81.25-76.25	78.74	1.282	24	14.034	A	0.000	14.034	14.034	100.00	0.000	1.961
					B	0.000	14.034		100.00	0.000	1.961
					C	0.000	14.034		100.00	0.000	1.961
L28 76.25-75.42	75.83	1.268	23	2.383	A	0.000	2.383	2.383	100.00	0.000	0.531
					B	0.000	2.383		100.00	0.000	0.531
					C	0.000	2.383		100.00	0.000	0.531
L29 75.42-75.17	75.29	1.266	23	0.718	A	0.000	0.718	0.718	100.00	0.000	0.159
					B	0.000	0.718		100.00	0.000	0.159
					C	0.000	0.718		100.00	0.000	0.159
L30 75.17-70.17	72.65	1.253	23	14.595	A	0.000	14.595	14.595	100.00	0.000	3.186
					B	0.000	14.595		100.00	0.000	3.186
					C	0.000	14.595		100.00	0.000	3.186
L31 70.17-65.17	67.65	1.228	23	15.057	A	0.000	15.057	15.057	100.00	0.000	3.186
					B	0.000	15.057		100.00	0.000	3.186

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
					C	0.000	15.057		100.00	0.000	3.186
L32 65.17-60.17	62.65	1.201	22	15.518	A	0.000	15.518	15.518	100.00	0.000	3.186
					B	0.000	15.518		100.00	0.000	3.186
					C	0.000	15.518		100.00	0.000	3.186
L33 60.17-59.50	59.83	1.185	22	2.105	A	0.000	2.105	2.105	100.00	0.000	0.425
					B	0.000	2.105		100.00	0.000	0.425
					C	0.000	2.105		100.00	0.000	0.425
L34 59.50-59.25	59.37	1.183	22	0.791	A	0.000	0.791	0.791	100.00	0.000	0.159
					B	0.000	0.791		100.00	0.000	0.159
					C	0.000	0.791		100.00	0.000	0.159
L35 59.25-54.25	56.74	1.167	22	16.064	A	0.000	16.064	16.064	100.00	0.000	3.186
					B	0.000	16.064		100.00	0.000	3.311
					C	0.000	16.064		100.00	0.000	3.186
L36 54.25-53.00	53.62	1.149	21	4.088	A	0.000	4.088	4.088	100.00	0.000	0.796
					B	0.000	4.088		100.00	0.000	1.005
					C	0.000	4.088		100.00	0.000	0.796
L37 53.00-47.20	50.08	1.127	21	19.347	A	0.000	19.347	19.347	100.00	0.000	3.695
					B	0.000	19.347		100.00	0.000	4.662
					C	0.000	19.347		100.00	0.000	3.695
L38 47.20-46.20	46.70	1.104	20	3.346	A	0.000	3.346	3.346	100.00	0.000	0.637
					B	0.000	3.346		100.00	0.000	0.637
					C	0.000	3.346		100.00	0.000	0.637
L39 46.20-41.20	43.69	1.083	20	17.008	A	0.000	17.008	17.008	100.00	0.000	3.186
					B	0.000	17.008		100.00	0.000	3.186
					C	0.000	17.008		100.00	0.000	3.186
L40 41.20-39.33	40.26	1.058	20	6.469	A	0.000	6.469	6.469	100.00	0.000	1.496
					B	0.000	6.469		100.00	0.000	1.496
					C	0.000	6.469		100.00	0.000	1.496
L41 39.33-39.08	39.21	1.05	19	0.871	A	0.000	0.871	0.871	100.00	0.000	0.225
					B	0.000	0.871		100.00	0.000	0.225
					C	0.000	0.871		100.00	0.000	0.225
L42 39.08-37.75	38.42	1.044	19	4.664	A	0.000	4.664	4.664	100.00	0.000	1.199
					B	0.000	4.664		100.00	0.000	1.199
					C	0.000	4.664		100.00	0.000	1.199
L43 37.75-37.50	37.62	1.038	19	0.878	A	0.000	0.878	0.878	100.00	0.000	0.225
					B	0.000	0.878		100.00	0.000	0.225
					C	0.000	0.878		100.00	0.000	0.225
L44 37.50-32.50	34.99	1.017	19	17.811	A	0.000	17.811	17.811	100.00	0.000	3.426
					B	0.000	17.811		100.00	0.000	3.426
					C	0.000	17.811		100.00	0.000	3.426
L45 32.50-27.50	29.99	1	18	18.273	A	0.000	18.273	18.273	100.00	0.000	3.186
					B	0.000	18.273		100.00	0.000	3.186
					C	0.000	18.273		100.00	0.000	3.186
L46 27.50-22.50	24.99	1	18	18.734	A	0.000	18.734	18.734	100.00	0.000	3.706
					B	0.000	18.734		100.00	0.000	3.186
					C	0.000	18.734		100.00	0.000	3.186
L47 22.50-21.25	21.87	1	18	4.756	A	0.000	4.756	4.756	100.00	0.000	1.057
					B	0.000	4.756		100.00	0.000	0.796
					C	0.000	4.756		100.00	0.000	0.796
L48 21.25-21.00	21.12	1	18	0.955	A	0.000	0.955	0.955	100.00	0.000	0.211
					B	0.000	0.955		100.00	0.000	0.159
					C	0.000	0.955		100.00	0.000	0.159
L49 21.00-20.00	20.50	1	18	3.830	A	0.000	3.830	3.830	100.00	0.000	0.845
					B	0.000	3.830		100.00	0.000	0.637
					C	0.000	3.830		100.00	0.000	0.637
L50 20.00-19.75	19.87	1	18	0.960	A	0.000	0.960	0.960	100.00	0.000	0.211
					B	0.000	0.960		100.00	0.000	0.170
					C	0.000	0.960		100.00	0.000	0.170
L51 19.75-17.00	18.37	1	18	10.640	A	0.000	10.640	10.640	100.00	0.000	2.325
					B	0.000	10.640		100.00	0.000	1.867
					C	0.000	10.640		100.00	0.000	1.867
L52 17.00-16.75	16.87	1	18	0.974	A	0.000	0.974	0.974	100.00	0.000	0.211
					B	0.000	0.974		100.00	0.000	0.170
					C	0.000	0.974		100.00	0.000	0.170
L53 16.75-11.75	14.24	1	18	19.726	A	0.000	19.726	19.726	100.00	0.000	3.686
					B	0.000	19.726		100.00	0.000	3.394
					C	0.000	19.726		100.00	0.000	3.394
L54 11.75-	9.24	1	18	20.188	A	0.000	20.188	20.188	100.00	0.000	3.394

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
6.75					B	0.000	20.188		100.00	0.000	3.394
					C	0.000	20.188		100.00	0.000	3.394
L55 6.75-1.75	4.24	1	18	20.649	A	0.000	20.649	20.649	100.00	0.000	3.394
					B	0.000	20.649		100.00	0.000	3.394
					C	0.000	20.649		100.00	0.000	3.394
L56 1.75-0.00	0.87	1	18	7.336	A	0.000	7.336	7.336	100.00	0.000	0.849
					B	0.000	7.336		100.00	0.000	0.849
					C	0.000	7.336		100.00	0.000	0.849

Tower Pressure - With Ice

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 160.00-155.00	157.47	1.563	6	1.2063	8.114	A	0.000	8.114	8.114	100.00	0.000	0.000
						B	0.000	8.114		100.00	0.000	0.000
						C	0.000	8.114		100.00	0.000	0.000
L2 155.00-150.00	152.47	1.548	6	1.2016	8.577	A	0.000	8.577	8.577	100.00	0.000	0.000
						B	0.000	8.577		100.00	0.000	0.000
						C	0.000	8.577		100.00	0.000	0.000
L3 150.00-145.00	147.48	1.534	6	1.1968	9.039	A	0.000	9.039	9.039	100.00	0.000	0.000
						B	0.000	9.039		100.00	0.000	0.000
						C	0.000	9.039		100.00	0.000	0.000
L4 145.00-140.00	142.48	1.519	5	1.1919	9.502	A	0.000	9.502	9.502	100.00	0.000	0.000
						B	0.000	9.502		100.00	0.000	0.000
						C	0.000	9.502		100.00	0.000	0.000
L5 140.00-135.00	137.48	1.503	5	1.1868	9.965	A	0.000	9.965	9.965	100.00	0.000	0.000
						B	0.000	9.965		100.00	0.000	0.000
						C	0.000	9.965		100.00	0.000	0.000
L6 135.00-130.00	132.48	1.488	5	1.1815	10.427	A	0.000	10.427	10.427	100.00	0.000	0.000
						B	0.000	10.427		100.00	0.000	0.000
						C	0.000	10.427		100.00	0.000	0.000
L7 130.00-125.75	127.86	1.473	5	1.1765	9.226	A	0.000	9.226	9.226	100.00	0.000	0.506
						B	0.000	9.226		100.00	0.000	0.506
						C	0.000	9.226		100.00	0.000	0.506
L8 125.75-125.50	125.62	1.465	5	1.1740	0.553	A	0.000	0.553	0.553	100.00	0.000	0.101
						B	0.000	0.553		100.00	0.000	0.101
						C	0.000	0.553		100.00	0.000	0.101
L9 125.50-119.12	122.28	1.454	5	1.1702	14.507	A	0.000	14.507	14.507	100.00	0.000	2.574
						B	0.000	14.507		100.00	0.000	2.574
						C	0.000	14.507		100.00	0.000	2.574
L10 119.12-119.00	119.06	1.443	5	1.1665	0.276	A	0.000	0.276	0.276	100.00	0.000	0.048
						B	0.000	0.276		100.00	0.000	0.048
						C	0.000	0.276		100.00	0.000	0.048
L11 119.00-118.75	118.87	1.442	5	1.1662	0.576	A	0.000	0.576	0.576	100.00	0.000	0.101
						B	0.000	0.576		100.00	0.000	0.101
						C	0.000	0.576		100.00	0.000	0.101
L12 118.75-113.75	116.23	1.433	5	1.1631	11.761	A	0.000	11.761	11.761	100.00	0.000	2.011
						B	0.000	11.761		100.00	0.000	2.011
						C	0.000	11.761		100.00	0.000	2.011
L13 113.75-108.75	111.23	1.415	5	1.1570	12.214	A	0.000	12.214	12.214	100.00	0.000	2.006
						B	0.000	12.214		100.00	0.000	2.006
						C	0.000	12.214		100.00	0.000	2.006
L14 108.75-103.75	106.23	1.397	5	1.1506	12.667	A	0.000	12.667	12.667	100.00	0.000	2.449
						B	0.000	12.667		100.00	0.000	2.001
						C	0.000	12.667		100.00	0.000	2.449
L15 103.75-103.00	103.37	1.386	5	1.1469	1.939	A	0.000	1.939	1.939	100.00	0.000	0.568
						B	0.000	1.939		100.00	0.000	0.300
						C	0.000	1.939		100.00	0.000	0.568
L16 103.00-102.75	102.87	1.384	5	1.1462	0.649	A	0.000	0.649	0.649	100.00	0.000	0.189
						B	0.000	0.649		100.00	0.000	0.100
						C	0.000	0.649		100.00	0.000	0.189

Section Elevation	z	K_Z	q_z	t_Z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
L17 102.75-100.21	101.47	1.378	5	1.1443	6.659	A	0.000	6.659	6.659	100.00	0.000	1.923
						B	0.000	6.659		100.00	0.000	1.726
						C	0.000	6.659		100.00	0.000	1.923
L18 100.21-95.83	98.01	1.365	5	1.1395	11.743	A	0.000	11.743	11.743	100.00	0.000	3.305
						B	0.000	11.743		100.00	0.000	3.305
						C	0.000	11.743		100.00	0.000	3.305
L19 95.83-94.83	95.33	1.354	5	1.1358	2.691	A	0.000	2.691	2.691	100.00	0.000	0.816
						B	0.000	2.691		100.00	0.000	0.816
						C	0.000	2.691		100.00	0.000	0.816
L20 94.83-93.50	94.16	1.349	5	1.1341	3.606	A	0.000	3.606	3.606	100.00	0.000	1.475
						B	0.000	3.606		100.00	0.000	1.475
						C	0.000	3.606		100.00	0.000	1.475
L21 93.50-93.25	93.37	1.346	5	1.1329	0.681	A	0.000	0.681	0.681	100.00	0.000	0.277
						B	0.000	0.681		100.00	0.000	0.277
						C	0.000	0.681		100.00	0.000	0.277
L22 93.25-89.25	91.24	1.337	5	1.1298	11.057	A	0.000	11.057	11.057	100.00	0.000	4.426
						B	0.000	11.057		100.00	0.000	4.426
						C	0.000	11.057		100.00	0.000	4.426
L23 89.25-89.00	89.12	1.328	5	1.1266	0.701	A	0.000	0.701	0.701	100.00	0.000	0.276
						B	0.000	0.701		100.00	0.000	0.276
						C	0.000	0.701		100.00	0.000	0.276
L24 89.00-86.50	87.75	1.322	5	1.1245	7.070	A	0.000	7.070	7.070	100.00	0.000	2.760
						B	0.000	7.070		100.00	0.000	2.760
						C	0.000	7.070		100.00	0.000	2.760
L25 86.50-86.25	86.37	1.316	5	1.1224	0.713	A	0.000	0.713	0.713	100.00	0.000	0.276
						B	0.000	0.713		100.00	0.000	0.276
						C	0.000	0.713		100.00	0.000	0.276
L26 86.25-81.25	83.74	1.305	5	1.1182	14.504	A	0.000	14.504	14.504	100.00	0.000	4.180
						B	0.000	14.504		100.00	0.000	4.180
						C	0.000	14.504		100.00	0.000	4.180
L27 81.25-76.25	78.74	1.282	5	1.1100	14.959	A	0.000	14.959	14.959	100.00	0.000	3.895
						B	0.000	14.959		100.00	0.000	3.895
						C	0.000	14.959		100.00	0.000	3.895
L28 76.25-75.42	75.83	1.268	5	1.1050	2.536	A	0.000	2.536	2.536	100.00	0.000	1.042
						B	0.000	2.536		100.00	0.000	1.042
						C	0.000	2.536		100.00	0.000	1.042
L29 75.42-75.17	75.29	1.266	5	1.1040	0.764	A	0.000	0.764	0.764	100.00	0.000	0.313
						B	0.000	0.764		100.00	0.000	0.313
						C	0.000	0.764		100.00	0.000	0.313
L30 75.17-70.17	72.65	1.253	5	1.0993	15.511	A	0.000	15.511	15.511	100.00	0.000	6.241
						B	0.000	15.511		100.00	0.000	6.241
						C	0.000	15.511		100.00	0.000	6.241
L31 70.17-65.17	67.65	1.228	4	1.0900	15.965	A	0.000	15.965	15.965	100.00	0.000	6.215
						B	0.000	15.965		100.00	0.000	6.215
						C	0.000	15.965		100.00	0.000	6.215
L32 65.17-60.17	62.65	1.201	4	1.0800	16.418	A	0.000	16.418	16.418	100.00	0.000	6.187
						B	0.000	16.418		100.00	0.000	6.187
						C	0.000	16.418		100.00	0.000	6.187
L33 60.17-59.50	59.83	1.185	4	1.0740	2.224	A	0.000	2.224	2.224	100.00	0.000	0.823
						B	0.000	2.224		100.00	0.000	0.823
						C	0.000	2.224		100.00	0.000	0.823
L34 59.50-59.25	59.37	1.183	4	1.0730	0.836	A	0.000	0.836	0.836	100.00	0.000	0.308
						B	0.000	0.836		100.00	0.000	0.308
						C	0.000	0.836		100.00	0.000	0.308
L35 59.25-54.25	56.74	1.167	4	1.0672	16.954	A	0.000	16.954	16.954	100.00	0.000	6.152
						B	0.000	16.954		100.00	0.000	6.410
						C	0.000	16.954		100.00	0.000	6.152
L36 54.25-53.00	53.62	1.149	4	1.0600	4.309	A	0.000	4.309	4.309	100.00	0.000	1.533
						B	0.000	4.309		100.00	0.000	1.962
						C	0.000	4.309		100.00	0.000	1.533
L37 53.00-47.20	50.08	1.127	4	1.0513	20.363	A	0.000	20.363	20.363	100.00	0.000	7.085
						B	0.000	20.363		100.00	0.000	9.068
						C	0.000	20.363		100.00	0.000	7.085
L38 47.20-46.20	46.70	1.104	4	1.0425	3.522	A	0.000	3.522	3.522	100.00	0.000	1.222
						B	0.000	3.522		100.00	0.000	1.222
						C	0.000	3.522		100.00	0.000	1.222
L39 46.20-41.20	43.69	1.083	4	1.0342	17.870	A	0.000	17.870	17.870	100.00	0.000	6.060
						B	0.000	17.870		100.00	0.000	6.060

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	0.000	17.870		100.00	0.000	6.060
L40 41.20-39.33	40.26	1.058	4	1.0242	6.788	A	0.000	6.788	6.788	100.00	0.000	2.824
						B	0.000	6.788		100.00	0.000	2.824
						C	0.000	6.788		100.00	0.000	2.824
L41 39.33-39.08	39.21	1.05	4	1.0209	0.914	A	0.000	0.914	0.914	100.00	0.000	0.423
						B	0.000	0.914		100.00	0.000	0.423
						C	0.000	0.914		100.00	0.000	0.423
L42 39.08-37.75	38.42	1.044	4	1.0184	4.891	A	0.000	4.891	4.891	100.00	0.000	2.255
						B	0.000	4.891		100.00	0.000	2.255
						C	0.000	4.891		100.00	0.000	2.255
L43 37.75-37.50	37.62	1.038	4	1.0159	0.921	A	0.000	0.921	0.921	100.00	0.000	0.423
						B	0.000	0.921		100.00	0.000	0.423
						C	0.000	0.921		100.00	0.000	0.423
L44 37.50-32.50	34.99	1.017	4	1.0070	18.651	A	0.000	18.651	18.651	100.00	0.000	6.430
						B	0.000	18.651		100.00	0.000	6.430
						C	0.000	18.651		100.00	0.000	6.430
L45 32.50-27.50	29.99	1	4	1.0000	19.106	A	0.000	19.106	19.106	100.00	0.000	5.965
						B	0.000	19.106		100.00	0.000	5.965
						C	0.000	19.106		100.00	0.000	5.965
L46 27.50-22.50	24.99	1	4	1.0000	19.568	A	0.000	19.568	19.568	100.00	0.000	6.903
						B	0.000	19.568		100.00	0.000	5.965
						C	0.000	19.568		100.00	0.000	5.965
L47 22.50-21.25	21.87	1	4	1.0000	4.964	A	0.000	4.964	4.964	100.00	0.000	1.960
						B	0.000	4.964		100.00	0.000	1.491
						C	0.000	4.964		100.00	0.000	1.491
L48 21.25-21.00	21.12	1	4	1.0000	0.996	A	0.000	0.996	0.996	100.00	0.000	0.392
						B	0.000	0.996		100.00	0.000	0.298
						C	0.000	0.996		100.00	0.000	0.298
L49 21.00-20.00	20.50	1	4	1.0000	3.997	A	0.000	3.997	3.997	100.00	0.000	1.568
						B	0.000	3.997		100.00	0.000	1.193
						C	0.000	3.997		100.00	0.000	1.193
L50 20.00-19.75	19.87	1	4	1.0000	1.002	A	0.000	1.002	1.002	100.00	0.000	0.392
						B	0.000	1.002		100.00	0.000	0.309
						C	0.000	1.002		100.00	0.000	0.309
L51 19.75-17.00	18.37	1	4	1.0000	11.098	A	0.000	11.098	11.098	100.00	0.000	4.312
						B	0.000	11.098		100.00	0.000	3.395
						C	0.000	11.098		100.00	0.000	3.395
L52 17.00-16.75	16.87	1	4	1.0000	1.016	A	0.000	1.016	1.016	100.00	0.000	0.392
						B	0.000	1.016		100.00	0.000	0.309
						C	0.000	1.016		100.00	0.000	0.309
L53 16.75-11.75	14.24	1	4	1.0000	20.560	A	0.000	20.560	20.560	100.00	0.000	6.757
						B	0.000	20.560		100.00	0.000	6.173
						C	0.000	20.560		100.00	0.000	6.173
L54 11.75-6.75	9.24	1	4	1.0000	21.021	A	0.000	21.021	21.021	100.00	0.000	6.173
						B	0.000	21.021		100.00	0.000	6.173
						C	0.000	21.021		100.00	0.000	6.173
L55 6.75-1.75	4.24	1	4	1.0000	21.483	A	0.000	21.483	21.483	100.00	0.000	6.173
						B	0.000	21.483		100.00	0.000	6.173
						C	0.000	21.483		100.00	0.000	6.173
L56 1.75-0.00	0.87	1	4	1.0000	7.628	A	0.000	7.628	7.628	100.00	0.000	1.543
						B	0.000	7.628		100.00	0.000	1.543
						C	0.000	7.628		100.00	0.000	1.543

Tower Pressure - Service

G_H = 1.690

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 160.00-155.00	157.47	1.563	10	7.108	A	0.000	7.108	7.108	100.00	0.000	0.000
					B	0.000	7.108		100.00	0.000	0.000

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
					C	0.000	7.108		100.00	0.000	0.000
L2 155.00-150.00	152.47	1.548	10	7.575	A	0.000	7.575	7.575	100.00	0.000	0.000
					B	0.000	7.575		100.00	0.000	0.000
					C	0.000	7.575		100.00	0.000	0.000
L3 150.00-145.00	147.48	1.534	10	8.042	A	0.000	8.042	8.042	100.00	0.000	0.000
					B	0.000	8.042		100.00	0.000	0.000
					C	0.000	8.042		100.00	0.000	0.000
L4 145.00-140.00	142.48	1.519	10	8.509	A	0.000	8.509	8.509	100.00	0.000	0.000
					B	0.000	8.509		100.00	0.000	0.000
					C	0.000	8.509		100.00	0.000	0.000
L5 140.00-135.00	137.48	1.503	10	8.976	A	0.000	8.976	8.976	100.00	0.000	0.000
					B	0.000	8.976		100.00	0.000	0.000
					C	0.000	8.976		100.00	0.000	0.000
L6 135.00-130.00	132.48	1.488	10	9.442	A	0.000	9.442	9.442	100.00	0.000	0.000
					B	0.000	9.442		100.00	0.000	0.000
					C	0.000	9.442		100.00	0.000	0.000
L7 130.00-125.75	127.86	1.473	9	8.393	A	0.000	8.393	8.393	100.00	0.000	0.260
					B	0.000	8.393		100.00	0.000	0.260
					C	0.000	8.393		100.00	0.000	0.260
L8 125.75-125.50	125.62	1.465	9	0.504	A	0.000	0.504	0.504	100.00	0.000	0.052
					B	0.000	0.504		100.00	0.000	0.052
					C	0.000	0.504		100.00	0.000	0.052
L9 125.50-119.12	122.28	1.454	9	13.263	A	0.000	13.263	13.263	100.00	0.000	1.327
					B	0.000	13.263		100.00	0.000	1.327
					C	0.000	13.263		100.00	0.000	1.327
L10 119.12-119.00	119.06	1.443	9	0.253	A	0.000	0.253	0.253	100.00	0.000	0.025
					B	0.000	0.253		100.00	0.000	0.025
					C	0.000	0.253		100.00	0.000	0.025
L11 119.00-118.75	118.87	1.442	9	0.528	A	0.000	0.528	0.528	100.00	0.000	0.052
					B	0.000	0.528		100.00	0.000	0.052
					C	0.000	0.528		100.00	0.000	0.052
L12 118.75-113.75	116.23	1.433	9	10.792	A	0.000	10.792	10.792	100.00	0.000	1.040
					B	0.000	10.792		100.00	0.000	1.040
					C	0.000	10.792		100.00	0.000	1.040
L13 113.75-108.75	111.23	1.415	9	11.250	A	0.000	11.250	11.250	100.00	0.000	1.040
					B	0.000	11.250		100.00	0.000	1.040
					C	0.000	11.250		100.00	0.000	1.040
L14 108.75-103.75	106.23	1.397	9	11.708	A	0.000	11.708	11.708	100.00	0.000	1.248
					B	0.000	11.708		100.00	0.000	1.040
					C	0.000	11.708		100.00	0.000	1.248
L15 103.75-103.00	103.37	1.386	9	1.796	A	0.000	1.796	1.796	100.00	0.000	0.281
					B	0.000	1.796		100.00	0.000	0.156
					C	0.000	1.796		100.00	0.000	0.281
L16 103.00-102.75	102.87	1.384	9	0.601	A	0.000	0.601	0.601	100.00	0.000	0.094
					B	0.000	0.601		100.00	0.000	0.052
					C	0.000	0.601		100.00	0.000	0.094
L17 102.75-100.21	101.47	1.378	9	6.175	A	0.000	6.175	6.175	100.00	0.000	0.952
					B	0.000	6.175		100.00	0.000	0.861
					C	0.000	6.175		100.00	0.000	0.952
L18 100.21-95.83	98.01	1.365	9	10.912	A	0.000	10.912	10.912	100.00	0.000	1.640
					B	0.000	10.912		100.00	0.000	1.640
					C	0.000	10.912		100.00	0.000	1.640
L19 95.83-94.83	95.33	1.354	9	2.501	A	0.000	2.501	2.501	100.00	0.000	0.403
					B	0.000	2.501		100.00	0.000	0.403
					C	0.000	2.501		100.00	0.000	0.403
L20 94.83-93.50	94.16	1.349	9	3.354	A	0.000	3.354	3.354	100.00	0.000	0.720
					B	0.000	3.354		100.00	0.000	0.720
					C	0.000	3.354		100.00	0.000	0.720
L21 93.50-93.25	93.37	1.346	9	0.634	A	0.000	0.634	0.634	100.00	0.000	0.135
					B	0.000	0.634		100.00	0.000	0.135
					C	0.000	0.634		100.00	0.000	0.135
L22 93.25-89.25	91.24	1.337	9	10.304	A	0.000	10.304	10.304	100.00	0.000	2.165
					B	0.000	10.304		100.00	0.000	2.165
					C	0.000	10.304		100.00	0.000	2.165
L23 89.25-89.00	89.12	1.328	9	0.654	A	0.000	0.654	0.654	100.00	0.000	0.135
					B	0.000	0.654		100.00	0.000	0.135
					C	0.000	0.654		100.00	0.000	0.135
L24 89.00-	87.75	1.322	8	6.601	A	0.000	6.601	6.601	100.00	0.000	1.353

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
86.50					B	0.000	6.601		100.00	0.000	1.353
					C	0.000	6.601		100.00	0.000	1.353
L25 86.50-86.25	86.37	1.316	8	0.666	A	0.000	0.666	0.666	100.00	0.000	0.135
					B	0.000	0.666		100.00	0.000	0.135
					C	0.000	0.666		100.00	0.000	0.135
L26 86.25-81.25	83.74	1.305	8	13.572	A	0.000	13.572	13.572	100.00	0.000	2.082
					B	0.000	13.572		100.00	0.000	2.082
					C	0.000	13.572		100.00	0.000	2.082
L27 81.25-76.25	78.74	1.282	8	14.034	A	0.000	14.034	14.034	100.00	0.000	1.961
					B	0.000	14.034		100.00	0.000	1.961
					C	0.000	14.034		100.00	0.000	1.961
L28 76.25-75.42	75.83	1.268	8	2.383	A	0.000	2.383	2.383	100.00	0.000	0.531
					B	0.000	2.383		100.00	0.000	0.531
					C	0.000	2.383		100.00	0.000	0.531
L29 75.42-75.17	75.29	1.266	8	0.718	A	0.000	0.718	0.718	100.00	0.000	0.159
					B	0.000	0.718		100.00	0.000	0.159
					C	0.000	0.718		100.00	0.000	0.159
L30 75.17-70.17	72.65	1.253	8	14.595	A	0.000	14.595	14.595	100.00	0.000	3.186
					B	0.000	14.595		100.00	0.000	3.186
					C	0.000	14.595		100.00	0.000	3.186
L31 70.17-65.17	67.65	1.228	8	15.057	A	0.000	15.057	15.057	100.00	0.000	3.186
					B	0.000	15.057		100.00	0.000	3.186
					C	0.000	15.057		100.00	0.000	3.186
L32 65.17-60.17	62.65	1.201	8	15.518	A	0.000	15.518	15.518	100.00	0.000	3.186
					B	0.000	15.518		100.00	0.000	3.186
					C	0.000	15.518		100.00	0.000	3.186
L33 60.17-59.50	59.83	1.185	8	2.105	A	0.000	2.105	2.105	100.00	0.000	0.425
					B	0.000	2.105		100.00	0.000	0.425
					C	0.000	2.105		100.00	0.000	0.425
L34 59.50-59.25	59.37	1.183	8	0.791	A	0.000	0.791	0.791	100.00	0.000	0.159
					B	0.000	0.791		100.00	0.000	0.159
					C	0.000	0.791		100.00	0.000	0.159
L35 59.25-54.25	56.74	1.167	7	16.064	A	0.000	16.064	16.064	100.00	0.000	3.186
					B	0.000	16.064		100.00	0.000	3.311
					C	0.000	16.064		100.00	0.000	3.186
L36 54.25-53.00	53.62	1.149	7	4.088	A	0.000	4.088	4.088	100.00	0.000	0.796
					B	0.000	4.088		100.00	0.000	1.005
					C	0.000	4.088		100.00	0.000	0.796
L37 53.00-47.20	50.08	1.127	7	19.347	A	0.000	19.347	19.347	100.00	0.000	3.695
					B	0.000	19.347		100.00	0.000	4.662
					C	0.000	19.347		100.00	0.000	3.695
L38 47.20-46.20	46.70	1.104	7	3.346	A	0.000	3.346	3.346	100.00	0.000	0.637
					B	0.000	3.346		100.00	0.000	0.637
					C	0.000	3.346		100.00	0.000	0.637
L39 46.20-41.20	43.69	1.083	7	17.008	A	0.000	17.008	17.008	100.00	0.000	3.186
					B	0.000	17.008		100.00	0.000	3.186
					C	0.000	17.008		100.00	0.000	3.186
L40 41.20-39.33	40.26	1.058	7	6.469	A	0.000	6.469	6.469	100.00	0.000	1.496
					B	0.000	6.469		100.00	0.000	1.496
					C	0.000	6.469		100.00	0.000	1.496
L41 39.33-39.08	39.21	1.05	7	0.871	A	0.000	0.871	0.871	100.00	0.000	0.225
					B	0.000	0.871		100.00	0.000	0.225
					C	0.000	0.871		100.00	0.000	0.225
L42 39.08-37.75	38.42	1.044	7	4.664	A	0.000	4.664	4.664	100.00	0.000	1.199
					B	0.000	4.664		100.00	0.000	1.199
					C	0.000	4.664		100.00	0.000	1.199
L43 37.75-37.50	37.62	1.038	7	0.878	A	0.000	0.878	0.878	100.00	0.000	0.225
					B	0.000	0.878		100.00	0.000	0.225
					C	0.000	0.878		100.00	0.000	0.225
L44 37.50-32.50	34.99	1.017	7	17.811	A	0.000	17.811	17.811	100.00	0.000	3.426
					B	0.000	17.811		100.00	0.000	3.426
					C	0.000	17.811		100.00	0.000	3.426
L45 32.50-27.50	29.99	1	6	18.273	A	0.000	18.273	18.273	100.00	0.000	3.186
					B	0.000	18.273		100.00	0.000	3.186
					C	0.000	18.273		100.00	0.000	3.186
L46 27.50-22.50	24.99	1	6	18.734	A	0.000	18.734	18.734	100.00	0.000	3.706
					B	0.000	18.734		100.00	0.000	3.186
					C	0.000	18.734		100.00	0.000	3.186

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L47 22.50-21.25	21.87	1	6	4.756	A	0.000	4.756	4.756	100.00	0.000	1.057
					B	0.000	4.756		100.00	0.000	0.796
					C	0.000	4.756		100.00	0.000	0.796
L48 21.25-21.00	21.12	1	6	0.955	A	0.000	0.955	0.955	100.00	0.000	0.211
					B	0.000	0.955		100.00	0.000	0.159
					C	0.000	0.955		100.00	0.000	0.159
L49 21.00-20.00	20.50	1	6	3.830	A	0.000	3.830	3.830	100.00	0.000	0.845
					B	0.000	3.830		100.00	0.000	0.637
					C	0.000	3.830		100.00	0.000	0.637
L50 20.00-19.75	19.87	1	6	0.960	A	0.000	0.960	0.960	100.00	0.000	0.211
					B	0.000	0.960		100.00	0.000	0.170
					C	0.000	0.960		100.00	0.000	0.170
L51 19.75-17.00	18.37	1	6	10.640	A	0.000	10.640	10.640	100.00	0.000	2.325
					B	0.000	10.640		100.00	0.000	1.867
					C	0.000	10.640		100.00	0.000	1.867
L52 17.00-16.75	16.87	1	6	0.974	A	0.000	0.974	0.974	100.00	0.000	0.211
					B	0.000	0.974		100.00	0.000	0.170
					C	0.000	0.974		100.00	0.000	0.170
L53 16.75-11.75	14.24	1	6	19.726	A	0.000	19.726	19.726	100.00	0.000	3.686
					B	0.000	19.726		100.00	0.000	3.394
					C	0.000	19.726		100.00	0.000	3.394
L54 11.75-6.75	9.24	1	6	20.188	A	0.000	20.188	20.188	100.00	0.000	3.394
					B	0.000	20.188		100.00	0.000	3.394
					C	0.000	20.188		100.00	0.000	3.394
L55 6.75-1.75	4.24	1	6	20.649	A	0.000	20.649	20.649	100.00	0.000	3.394
					B	0.000	20.649		100.00	0.000	3.394
					C	0.000	20.649		100.00	0.000	3.394
L56 1.75-0.00	0.87	1	6	7.336	A	0.000	7.336	7.336	100.00	0.000	0.849
					B	0.000	7.336		100.00	0.000	0.849
					C	0.000	7.336		100.00	0.000	0.849

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

Comb. No.	Description
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	160 - 155	Pole	Max Tension	5	0.00	0.00	0.00
			Max. Compression	14	-4.68	0.00	0.00
			Max. Mx	11	-1.97	14.34	-0.00
			Max. My	8	-1.96	0.00	-14.34
			Max. Vy	11	-4.43	14.34	-0.00
			Max. Vx	8	4.43	0.00	-14.34
			Max. Torque	7			-0.00
L2	155 - 150	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-5.97	0.00	0.00
			Max. Mx	11	-2.47	39.04	-0.01
			Max. My	8	-2.47	0.00	-39.04
			Max. Vy	11	-5.64	39.04	-0.01
			Max. Vx	8	5.64	0.00	-39.04
			Max. Torque	7			-0.00
L3	150 - 145	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-10.61	-0.28	-0.16
			Max. Mx	5	-4.26	-89.22	-0.02
			Max. My	8	-4.26	-0.04	-89.19
			Max. Vy	11	-10.16	89.05	-0.04
			Max. Vx	8	10.16	-0.04	-89.19
			Max. Torque	3			-0.35
L4	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-11.05	-0.28	-0.16
			Max. Mx	5	-4.56	-140.67	-0.02
			Max. My	8	-4.56	-0.03	-140.65
			Max. Vy	11	-10.43	140.50	-0.05
			Max. Vx	8	10.43	-0.03	-140.65
			Max. Torque	3			-0.35
L5	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-14.20	-0.28	-0.16
			Max. Mx	5	-5.92	-203.03	-0.02
			Max. My	8	-5.92	-0.02	-203.01
			Max. Vy	11	-13.09	202.86	-0.06
			Max. Vx	8	13.09	-0.02	-203.01
			Max. Torque	3			-0.35
L6	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-14.73	-0.28	-0.16
			Max. Mx	5	-6.34	-269.15	-0.01
			Max. My	8	-6.33	-0.01	-269.14
			Max. Vy	11	-13.37	268.99	-0.06
			Max. Vx	8	13.37	-0.01	-269.14
			Max. Torque	9			0.35
L7	130 - 125.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.24	0.32	0.18
			Max. Mx	11	-8.81	351.74	-0.27
			Max. My	2	-8.80	-0.21	352.05
			Max. Vy	11	-20.21	351.74	-0.27
			Max. Vx	8	20.29	0.41	-351.95
			Max. Torque	9			0.35
L8	125.75 - 125.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.27	0.32	0.18
			Max. Mx	11	-8.86	356.79	-0.29

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-8.85	-0.23	357.12
			Max. Vy	11	-20.23	356.79	-0.29
			Max. Vx	8	20.31	0.43	-357.02
			Max. Torque	3			0.19
L9	125.5 - 119.12	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-21.68	0.32	0.18
			Max. Mx	11	-9.18	410.30	-0.47
			Max. My	2	-9.17	-0.40	410.83
			Max. Vy	11	-20.47	410.30	-0.47
			Max. Vx	8	20.55	0.61	-410.73
			Max. Torque	3			0.19
L10	119.12 - 119	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.83	0.32	0.18
			Max. Mx	11	-10.06	490.28	-0.73
			Max. My	2	-10.05	-0.66	491.11
			Max. Vy	5	20.87	-490.09	0.80
			Max. Vx	8	20.95	0.87	-491.01
			Max. Torque	3			0.19
L11	119 - 118.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-22.88	0.32	0.18
			Max. Mx	11	-10.10	495.50	-0.75
			Max. My	2	-10.09	-0.68	496.35
			Max. Vy	11	-20.89	495.50	-0.75
			Max. Vx	8	20.97	0.89	-496.25
			Max. Torque	3			0.19
L12	118.75 - 113.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-23.84	0.32	0.18
			Max. Mx	11	-10.91	601.13	-1.09
			Max. My	2	-10.90	-1.01	602.37
			Max. Vy	11	-21.37	601.13	-1.09
			Max. Vx	8	21.45	1.23	-602.27
			Max. Torque	3			0.19
L13	113.75 - 108.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-25.12	1.05	-0.24
			Max. Mx	11	-11.89	710.01	-1.60
			Max. My	8	-11.88	1.88	-711.39
			Max. Vy	11	-22.11	710.01	-1.60
			Max. Vx	8	22.19	1.88	-711.39
			Max. Torque	7			-0.96
L14	108.75 - 103.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-27.95	1.05	-0.24
			Max. Mx	11	-14.57	825.00	-1.95
			Max. My	8	-14.56	2.23	-826.76
			Max. Vy	11	-25.20	825.00	-1.95
			Max. Vx	8	25.27	2.23	-826.76
			Max. Torque	7			-0.96
L15	103.75 - 103	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-28.10	1.05	-0.24
			Max. Mx	11	-14.71	843.92	-2.00
			Max. My	8	-14.70	2.28	-845.74
			Max. Vy	11	-25.27	843.92	-2.00
			Max. Vx	8	25.35	2.28	-845.74
			Max. Torque	7			-0.96
L16	103 - 102.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-28.16	1.05	-0.24
			Max. Mx	11	-14.77	850.24	-2.01
			Max. My	8	-14.76	2.29	-852.08
			Max. Vy	11	-25.30	850.24	-2.01
			Max. Vx	8	25.37	2.29	-852.08
			Max. Torque	7			-0.96
L17	102.75 - 100.208	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-28.74	1.05	-0.24
			Max. Mx	11	-15.27	914.90	-2.19
			Max. My	8	-15.26	2.47	-916.94

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-25.59	914.90	-2.19
			Max. Vx	8	25.67	2.47	-916.94
			Max. Torque	7			-0.96
L18	100.208 - 95.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-28.75	1.05	-0.24
			Max. Mx	11	-15.30	916.13	-2.19
			Max. My	8	-15.29	2.47	-918.17
			Max. Vy	5	25.59	-915.22	1.90
			Max. Vx	8	25.66	2.47	-918.17
			Max. Torque	7			-0.96
L19	95.83 - 94.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.15	1.05	-0.24
			Max. Mx	11	-17.28	1054.43	-2.56
			Max. My	8	-17.28	2.85	-1056.88
			Max. Vy	11	-26.30	1054.43	-2.56
			Max. Vx	8	26.38	2.85	-1056.88
			Max. Torque	7			-0.96
L20	94.83 - 93.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.51	1.05	-0.24
			Max. Mx	11	-17.60	1089.53	-2.65
			Max. My	8	-17.59	2.94	-1092.08
			Max. Vy	11	-26.49	1089.53	-2.65
			Max. Vx	8	26.57	2.94	-1092.08
			Max. Torque	7			-0.96
L21	93.5 - 93.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-31.59	1.05	-0.24
			Max. Mx	11	-17.69	1096.15	-2.67
			Max. My	8	-17.68	2.96	-1098.72
			Max. Vy	11	-26.52	1096.15	-2.67
			Max. Vx	8	26.59	2.96	-1098.72
			Max. Torque	7			-0.96
L22	93.25 - 89.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.87	1.05	-0.24
			Max. Mx	11	-18.82	1203.35	-2.95
			Max. My	8	-18.81	3.23	-1206.23
			Max. Vy	11	-27.09	1203.35	-2.95
			Max. Vx	8	27.17	3.23	-1206.23
			Max. Torque	7			-0.96
L23	89.25 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-32.96	1.05	-0.24
			Max. Mx	11	-18.90	1210.12	-2.96
			Max. My	8	-18.89	3.25	-1213.02
			Max. Vy	11	-27.12	1210.12	-2.96
			Max. Vx	8	27.20	3.25	-1213.02
			Max. Torque	7			-0.96
L24	89 - 86.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.80	1.05	-0.24
			Max. Mx	11	-19.65	1278.37	-3.14
			Max. My	8	-19.64	3.43	-1281.46
			Max. Vy	11	-27.48	1278.37	-3.14
			Max. Vx	8	27.56	3.43	-1281.46
			Max. Torque	7			-0.96
L25	86.5 - 86.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-33.87	1.05	-0.24
			Max. Mx	11	-19.72	1285.24	-3.15
			Max. My	8	-19.71	3.44	-1288.35
			Max. Vy	11	-27.51	1285.24	-3.15
			Max. Vx	8	27.59	3.44	-1288.35
			Max. Torque	7			-0.96
L26	86.25 - 81.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-35.35	1.05	-0.24
			Max. Mx	11	-21.03	1424.28	-3.50
			Max. My	8	-21.03	3.79	-1427.78
			Max. Vy	11	-28.12	1424.28	-3.50
			Max. Vx	8	28.19	3.79	-1427.78

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	7			-0.96
L27	81.25 - 76.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-36.85	1.05	-0.24
			Max. Mx	11	-22.38	1566.25	-3.84
			Max. My	8	-22.37	4.14	-1570.13
			Max. Vy	11	-28.69	1566.25	-3.84
			Max. Vx	8	28.77	4.14	-1570.13
			Max. Torque	7			-0.96
L28	76.25 - 75.417	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-37.10	1.05	-0.24
			Max. Mx	11	-22.61	1590.19	-3.90
			Max. My	8	-22.60	4.19	-1594.14
			Max. Vy	11	-28.81	1590.19	-3.90
			Max. Vx	8	28.89	4.19	-1594.14
			Max. Torque	7			-0.96
L29	75.417 - 75.167	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-37.18	1.05	-0.24
			Max. Mx	11	-22.69	1597.39	-3.92
			Max. My	8	-22.69	4.21	-1601.36
			Max. Vy	5	28.84	-1596.47	3.61
			Max. Vx	8	28.92	4.21	-1601.36
			Max. Torque	7			-0.96
L30	75.167 - 70.167	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-38.86	1.05	-0.24
			Max. Mx	11	-24.19	1743.38	-4.26
			Max. My	8	-24.18	4.56	-1747.74
			Max. Vy	11	-29.57	1743.38	-4.26
			Max. Vx	8	29.65	4.56	-1747.74
			Max. Torque	7			-0.96
L31	70.167 - 65.167	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-40.56	1.05	-0.24
			Max. Mx	11	-25.72	1892.97	-4.60
			Max. My	8	-25.71	4.90	-1897.71
			Max. Vy	11	-30.28	1892.97	-4.60
			Max. Vx	8	30.36	4.90	-1897.71
			Max. Torque	7			-0.96
L32	65.167 - 60.167	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.29	1.05	-0.24
			Max. Mx	11	-27.27	2046.07	-4.95
			Max. My	8	-27.26	5.25	-2051.20
			Max. Vy	11	-30.98	2046.07	-4.95
			Max. Vx	8	31.06	5.25	-2051.20
			Max. Torque	7			-0.96
L33	60.167 - 59.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.52	1.05	-0.24
			Max. Mx	11	-27.48	2066.76	-4.99
			Max. My	8	-27.48	5.29	-2071.94
			Max. Vy	11	-31.07	2066.76	-4.99
			Max. Vx	8	31.14	5.29	-2071.94
			Max. Torque	7			-0.96
L34	59.5 - 59.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-42.61	1.05	-0.24
			Max. Mx	11	-27.57	2074.52	-5.01
			Max. My	8	-27.56	5.31	-2079.73
			Max. Vy	5	31.10	-2073.60	4.69
			Max. Vx	8	31.17	5.31	-2079.73
			Max. Torque	7			-0.96
L35	59.25 - 54.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.36	1.05	-0.24
			Max. Mx	11	-29.14	2231.69	-5.35
			Max. My	8	-29.14	5.65	-2237.28

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-31.79	2231.69	-5.35
			Max. Vx	8	31.86	5.65	-2237.28
			Max. Torque	7			-0.96
L36	54.25 - 53	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.80	1.05	-0.24
			Max. Mx	11	-29.54	2271.52	-5.44
			Max. My	8	-29.53	5.74	-2277.21
			Max. Vy	11	-31.96	2271.52	-5.44
			Max. Vx	8	32.04	5.74	-2277.21
			Max. Torque	7			-0.96
L37	53 - 47.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-44.89	1.05	-0.24
			Max. Mx	11	-29.63	2278.55	-5.45
			Max. My	8	-29.62	5.75	-2284.26
			Max. Vy	5	31.98	-2277.62	5.13
			Max. Vx	8	32.06	5.75	-2284.26
			Max. Torque	7			-0.96
L38	47.2 - 46.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-49.34	1.05	-0.24
			Max. Mx	11	-33.48	2492.36	-5.90
			Max. My	8	-33.48	6.21	-2498.58
			Max. Vy	11	-33.00	2492.36	-5.90
			Max. Vx	8	33.07	6.21	-2498.58
			Max. Torque	7			-0.95
L39	46.2 - 41.2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-51.27	1.05	-0.24
			Max. Mx	11	-35.24	2658.84	-6.24
			Max. My	8	-35.24	6.55	-2665.44
			Max. Vy	11	-33.62	2658.84	-6.24
			Max. Vx	8	33.70	6.55	-2665.44
			Max. Torque	7			-0.95
L40	41.2 - 39.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.00	1.05	-0.24
			Max. Mx	11	-35.90	2721.83	-6.37
			Max. My	8	-35.90	6.67	-2728.57
			Max. Vy	11	-33.89	2721.83	-6.37
			Max. Vx	8	33.97	6.67	-2728.57
			Max. Torque	7			-0.95
L41	39.333 - 39.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.11	1.05	-0.24
			Max. Mx	11	-36.02	2730.30	-6.39
			Max. My	8	-36.01	6.69	-2737.06
			Max. Vy	5	33.91	-2729.37	6.07
			Max. Vx	8	33.98	6.69	-2737.06
			Max. Torque	7			-0.95
L42	39.083 - 37.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.67	1.05	-0.24
			Max. Mx	11	-36.52	2775.63	-6.48
			Max. My	8	-36.51	6.78	-2782.49
			Max. Vy	11	-34.12	2775.63	-6.48
			Max. Vx	8	34.19	6.78	-2782.49
			Max. Torque	7			-0.95
L43	37.75 - 37.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-52.77	1.05	-0.24
			Max. Mx	11	-36.62	2784.16	-6.49
			Max. My	8	-36.62	6.80	-2791.04
			Max. Vy	5	34.14	-2783.22	6.17
			Max. Vx	8	34.22	6.80	-2791.04
			Max. Torque	7			-0.95
L44	37.5 - 32.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-54.75	1.05	-0.24
			Max. Mx	11	-38.42	2956.34	-6.83
			Max. My	8	-38.42	7.14	-2963.61
			Max. Vy	11	-34.75	2956.34	-6.83
			Max. Vx	8	34.83	7.14	-2963.61
			Max. Torque	7			-0.95

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L45	32.5 - 27.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-56.75	1.05	-0.24
			Max. Mx	11	-40.26	3131.45	-7.17
			Max. My	8	-40.25	7.48	-3139.10
			Max. Vy	11	-35.32	3131.45	-7.17
			Max. Vx	8	35.39	7.48	-3139.10
			Max. Torque	7			-0.95
L46	27.5 - 22.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-58.79	1.05	-0.24
			Max. Mx	11	-42.12	3309.42	-7.51
			Max. My	8	-42.12	7.81	-3317.45
			Max. Vy	11	-35.90	3309.42	-7.51
			Max. Vx	8	35.98	7.81	-3317.45
			Max. Torque	7			-0.95
L47	22.5 - 21.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.30	1.05	-0.24
			Max. Mx	11	-42.58	3354.37	-7.59
			Max. My	8	-42.58	7.90	-3362.49
			Max. Vy	11	-36.05	3354.37	-7.59
			Max. Vx	8	36.13	7.90	-3362.49
			Max. Torque	7			-0.95
L48	21.25 - 21	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.41	1.05	-0.24
			Max. Mx	11	-42.70	3363.38	-7.61
			Max. My	8	-42.70	7.92	-3371.53
			Max. Vy	5	36.07	-3362.44	7.29
			Max. Vx	8	36.15	7.92	-3371.53
			Max. Torque	7			-0.95
L49	21 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.86	1.05	-0.24
			Max. Mx	11	-43.10	3399.51	-7.68
			Max. My	8	-43.10	7.98	-3407.73
			Max. Vy	11	-36.20	3399.51	-7.68
			Max. Vx	8	36.28	7.98	-3407.73
			Max. Torque	7			-0.95
L50	20 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-59.98	1.05	-0.24
			Max. Mx	11	-43.22	3408.56	-7.69
			Max. My	8	-43.22	8.00	-3416.80
			Max. Vy	5	36.22	-3407.62	7.37
			Max. Vx	8	36.30	8.00	-3416.80
			Max. Torque	7			-0.95
L51	19.75 - 17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-61.31	1.05	-0.24
			Max. Mx	11	-44.43	3508.64	-7.88
			Max. My	8	-44.43	8.18	-3517.09
			Max. Vy	11	-36.58	3508.64	-7.88
			Max. Vx	8	36.66	8.18	-3517.09
			Max. Torque	7			-0.95
L52	17 - 16.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-61.43	1.05	-0.24
			Max. Mx	11	-44.56	3517.78	-7.89
			Max. My	8	-44.55	8.20	-3526.25
			Max. Vy	5	36.60	-3516.84	7.57
			Max. Vx	8	36.68	8.20	-3526.25
			Max. Torque	7			-0.94
L53	16.75 - 11.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-63.86	1.05	-0.24
			Max. Mx	11	-46.78	3702.30	-8.23
			Max. My	8	-46.78	8.53	-3711.15
			Max. Vy	11	-37.22	3702.30	-8.23
			Max. Vx	8	37.30	8.53	-3711.15
			Max. Torque	7			-0.94
L54	11.75 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-66.32	1.05	-0.24
			Max. Mx	11	-49.04	3889.86	-8.56
			Max. My	8	-49.04	8.87	-3899.08
			Max. Vy	11	-37.83	3889.86	-8.56

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	8	37.90	8.87	-3899.08
			Max. Torque	7			-0.94
L55	6.75 - 1.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-68.82	1.05	-0.24
			Max. Mx	11	-51.33	4080.42	-8.89
			Max. My	8	-51.33	9.20	-4090.02
			Max. Vy	11	-38.43	4080.42	-8.89
			Max. Vx	8	38.50	9.20	-4090.02
			Max. Torque	7			-0.94
L56	1.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-69.70	1.05	-0.24
			Max. Mx	11	-52.13	4147.79	-9.01
			Max. My	8	-52.13	9.31	-4157.52
			Max. Vy	11	-38.62	4147.79	-9.01
			Max. Vx	8	38.69	9.31	-4157.52
			Max. Torque	7			-0.94

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	21	69.70	0.01	-10.68
	Max. H_x	11	52.15	38.59	-0.07
	Max. H_z	2	52.15	-0.07	38.66
	Max. M_x	2	4157.20	-0.07	38.66
	Max. M_z	5	4146.85	-38.59	0.07
	Max. Torsion	13	0.94	19.24	33.45
	Min. Vert	1	52.15	0.00	0.00
	Min. H_x	5	52.15	-38.59	0.07
	Min. H_z	8	52.15	0.07	-38.66
	Min. M_x	8	-4157.52	0.07	-38.66
	Min. M_z	11	-4147.79	38.59	-0.07
	Min. Torsion	7	-0.94	-19.24	-33.45

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	52.15	0.00	0.00	0.15	0.45	0.00
Dead+Wind 0 deg - No Ice	52.15	0.07	-38.66	-4157.20	-8.38	-0.90
Dead+Wind 30 deg - No Ice	52.15	19.35	-33.52	-3604.63	-2080.83	-0.62
Dead+Wind 60 deg - No Ice	52.15	33.45	-19.39	-2086.18	-3595.62	-0.18
Dead+Wind 90 deg - No Ice	52.15	38.59	-0.07	-8.69	-4146.85	0.31
Dead+Wind 120 deg - No Ice	52.15	33.39	19.28	2071.20	-3586.81	0.72
Dead+Wind 150 deg - No Ice	52.15	19.24	33.45	3596.14	-2065.53	0.94
Dead+Wind 180 deg - No Ice	52.15	-0.07	38.66	4157.52	9.31	0.90
Dead+Wind 210 deg - No Ice	52.15	-19.35	33.52	3604.95	2081.77	0.62
Dead+Wind 240 deg - No Ice	52.15	-33.45	19.39	2086.50	3596.56	0.17
Dead+Wind 270 deg - No Ice	52.15	-38.59	0.07	9.01	4147.79	-0.32
Dead+Wind 300 deg - No Ice	52.15	-33.39	-19.28	-2070.88	3587.74	-0.72
Dead+Wind 330 deg - No Ice	52.15	-19.24	-33.45	-3595.82	2066.47	-0.94
Dead+Ice	69.70	0.00	0.00	0.24	1.05	0.00
Dead+Wind 0 deg+Ice	69.70	0.01	-10.68	-1162.36	-0.68	-0.30
Dead+Wind 30 deg+Ice	69.70	5.34	-9.26	-1007.51	-580.64	-0.19
Dead+Wind 60 deg+Ice	69.70	9.24	-5.35	-582.63	-1004.71	-0.03
Dead+Wind 90 deg+Ice	69.70	10.67	-0.01	-1.56	-1159.26	0.14
Dead+Wind 120 deg+Ice	69.70	9.23	5.33	579.99	-1002.89	0.27
Dead+Wind 150 deg+Ice	69.70	5.32	9.24	1006.22	-577.48	0.33
Dead+Wind 180 deg+Ice	69.70	-0.01	10.68	1162.89	2.97	0.30

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 210 deg+Ice	69.70	-5.34	9.26	1008.04	582.93	0.19
Dead+Wind 240 deg+Ice	69.70	-9.24	5.35	583.16	1007.00	0.03
Dead+Wind 270 deg+Ice	69.70	-10.67	0.01	2.09	1161.55	-0.14
Dead+Wind 300 deg+Ice	69.70	-9.23	-5.33	-579.47	1005.18	-0.27
Dead+Wind 330 deg+Ice	69.70	-5.32	-9.24	-1005.69	579.77	-0.33
Dead+Wind 0 deg - Service	52.15	0.02	-13.38	-1440.17	-2.59	-0.31
Dead+Wind 30 deg - Service	52.15	6.70	-11.60	-1248.73	-720.60	-0.22
Dead+Wind 60 deg - Service	52.15	11.58	-6.71	-722.66	-1245.40	-0.06
Dead+Wind 90 deg - Service	52.15	13.35	-0.02	-2.90	-1436.37	0.11
Dead+Wind 120 deg - Service	52.15	11.55	6.67	717.68	-1242.34	0.25
Dead+Wind 150 deg - Service	52.15	6.66	11.57	1246.00	-715.30	0.33
Dead+Wind 180 deg - Service	52.15	-0.02	13.38	1440.50	3.54	0.31
Dead+Wind 210 deg - Service	52.15	-6.70	11.60	1249.06	721.55	0.22
Dead+Wind 240 deg - Service	52.15	-11.58	6.71	722.98	1246.35	0.06
Dead+Wind 270 deg - Service	52.15	-13.35	0.02	3.23	1437.32	-0.11
Dead+Wind 300 deg - Service	52.15	-11.55	-6.67	-717.35	1243.29	-0.25
Dead+Wind 330 deg - Service	52.15	-6.66	-11.57	-1245.67	716.24	-0.33

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-52.15	0.00	0.00	52.15	0.00	0.000%
2	0.07	-52.15	-38.66	-0.07	52.15	38.66	0.000%
3	19.35	-52.15	-33.52	-19.35	52.15	33.52	0.000%
4	33.45	-52.15	-19.39	-33.45	52.15	19.39	0.000%
5	38.59	-52.15	-0.07	-38.59	52.15	0.07	0.000%
6	33.39	-52.15	19.28	-33.39	52.15	-19.28	0.000%
7	19.24	-52.15	33.45	-19.24	52.15	-33.45	0.000%
8	-0.07	-52.15	38.66	0.07	52.15	-38.66	0.000%
9	-19.35	-52.15	33.52	19.35	52.15	-33.52	0.000%
10	-33.45	-52.15	19.39	33.45	52.15	-19.39	0.000%
11	-38.59	-52.15	0.07	38.59	52.15	-0.07	0.000%
12	-33.39	-52.15	-19.28	33.39	52.15	19.28	0.000%
13	-19.24	-52.15	-33.45	19.24	52.15	33.45	0.000%
14	0.00	-69.70	0.00	0.00	69.70	0.00	0.000%
15	0.01	-69.70	-10.68	-0.01	69.70	10.68	0.000%
16	5.34	-69.70	-9.26	-5.34	69.70	9.26	0.000%
17	9.24	-69.70	-5.35	-9.24	69.70	5.35	0.000%
18	10.67	-69.70	-0.01	-10.67	69.70	0.01	0.000%
19	9.23	-69.70	5.33	-9.23	69.70	-5.33	0.000%
20	5.32	-69.70	9.24	-5.32	69.70	-9.24	0.000%
21	-0.01	-69.70	10.68	0.01	69.70	-10.68	0.000%
22	-5.34	-69.70	9.26	5.34	69.70	-9.26	0.000%
23	-9.24	-69.70	5.35	9.24	69.70	-5.35	0.000%
24	-10.67	-69.70	0.01	10.67	69.70	-0.01	0.000%
25	-9.23	-69.70	-5.33	9.23	69.70	5.33	0.000%
26	-5.32	-69.70	-9.24	5.32	69.70	9.24	0.000%
27	0.02	-52.15	-13.38	-0.02	52.15	13.38	0.000%
28	6.70	-52.15	-11.60	-6.70	52.15	11.60	0.000%
29	11.58	-52.15	-6.71	-11.58	52.15	6.71	0.000%
30	13.35	-52.15	-0.02	-13.35	52.15	0.02	0.000%
31	11.55	-52.15	6.67	-11.55	52.15	-6.67	0.000%
32	6.66	-52.15	11.57	-6.66	52.15	-11.57	0.000%
33	-0.02	-52.15	13.38	0.02	52.15	-13.38	0.000%
34	-6.70	-52.15	11.60	6.70	52.15	-11.60	0.000%
35	-11.58	-52.15	6.71	11.58	52.15	-6.71	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
36	-13.35	-52.15	0.02	13.35	52.15	-0.02	0.000%
37	-11.55	-52.15	-6.67	11.55	52.15	6.67	0.000%
38	-6.66	-52.15	-11.57	6.66	52.15	11.57	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00005364
3	Yes	7	0.00000001	0.00010222
4	Yes	7	0.00000001	0.00010367
5	Yes	5	0.00000001	0.00051215
6	Yes	7	0.00000001	0.00010425
7	Yes	7	0.00000001	0.00010084
8	Yes	6	0.00000001	0.00008690
9	Yes	7	0.00000001	0.00010464
10	Yes	7	0.00000001	0.00010317
11	Yes	6	0.00000001	0.00004578
12	Yes	7	0.00000001	0.00010139
13	Yes	7	0.00000001	0.00010451
14	Yes	4	0.00000001	0.00000001
15	Yes	6	0.00000001	0.00014278
16	Yes	6	0.00000001	0.00099302
17	Yes	7	0.00000001	0.00007912
18	Yes	6	0.00000001	0.00012377
19	Yes	7	0.00000001	0.00008082
20	Yes	6	0.00000001	0.00097030
21	Yes	6	0.00000001	0.00014700
22	Yes	7	0.00000001	0.00008142
23	Yes	7	0.00000001	0.00007919
24	Yes	6	0.00000001	0.00012638
25	Yes	6	0.00000001	0.00098170
26	Yes	7	0.00000001	0.00008184
27	Yes	5	0.00000001	0.00043921
28	Yes	6	0.00000001	0.00025823
29	Yes	6	0.00000001	0.00026418
30	Yes	5	0.00000001	0.00031208
31	Yes	6	0.00000001	0.00026592
32	Yes	6	0.00000001	0.00025264
33	Yes	5	0.00000001	0.00048735
34	Yes	6	0.00000001	0.00026919
35	Yes	6	0.00000001	0.00026259
36	Yes	5	0.00000001	0.00033711
37	Yes	6	0.00000001	0.00025426
38	Yes	6	0.00000001	0.00026849

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	37.410	34	2.3444	0.0010
L2	155 - 150	34.958	34	2.3374	0.0010
L3	150 - 145	32.525	34	2.3084	0.0010
L4	145 - 140	30.137	34	2.2486	0.0009
L5	140 - 135	27.828	34	2.1578	0.0009
L6	135 - 130	25.627	34	2.0427	0.0010
L7	130 - 125.75	23.559	34	1.9063	0.0011
L8	125.75 - 125.5	21.919	34	1.7757	0.0012

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L9	125.5 - 119.12	21.826	34	1.7713	0.0012
L10	122.87 - 119	20.864	34	1.7226	0.0011
L11	119 - 118.75	19.483	34	1.6851	0.0011
L12	118.75 - 113.75	19.394	34	1.6811	0.0011
L13	113.75 - 108.75	17.678	34	1.5965	0.0011
L14	108.75 - 103.75	16.054	34	1.5052	0.0011
L15	103.75 - 103	14.529	34	1.4082	0.0009
L16	103 - 102.75	14.309	34	1.3935	0.0009
L17	102.75 - 100.208	14.236	34	1.3885	0.0009
L18	100.208 - 95.83	13.510	34	1.3370	0.0008
L19	100.16 - 94.83	13.497	34	1.3362	0.0008
L20	94.83 - 93.5	12.032	34	1.2821	0.0008
L21	93.5 - 93.25	11.678	34	1.2599	0.0007
L22	93.25 - 89.25	11.612	34	1.2567	0.0007
L23	89.25 - 89	10.582	34	1.2022	0.0007
L24	89 - 86.5	10.519	34	1.1990	0.0007
L25	86.5 - 86.25	9.900	34	1.1664	0.0006
L26	86.25 - 81.25	9.839	34	1.1623	0.0006
L27	81.25 - 76.25	8.666	34	1.0786	0.0006
L28	76.25 - 75.417	7.581	34	0.9935	0.0005
L29	75.417 - 75.167	7.409	34	0.9795	0.0005
L30	75.167 - 70.167	7.358	34	0.9759	0.0005
L31	70.167 - 65.167	6.375	34	0.9017	0.0004
L32	65.167 - 60.167	5.470	34	0.8271	0.0004
L33	60.167 - 59.5	4.643	34	0.7521	0.0003
L34	59.5 - 59.25	4.538	34	0.7422	0.0003
L35	59.25 - 54.25	4.500	34	0.7385	0.0003
L36	54.25 - 53	3.766	34	0.6634	0.0003
L37	53 - 47.2	3.594	34	0.6450	0.0003
L38	52.78 - 46.2	3.565	34	0.6417	0.0003
L39	46.2 - 41.2	2.714	34	0.5875	0.0002
L40	41.2 - 39.333	2.135	34	0.5171	0.0002
L41	39.333 - 39.083	1.938	34	0.4916	0.0002
L42	39.083 - 37.75	1.912	34	0.4885	0.0002
L43	37.75 - 37.5	1.778	34	0.4719	0.0002
L44	37.5 - 32.5	1.754	34	0.4685	0.0002
L45	32.5 - 27.5	1.300	34	0.3992	0.0001
L46	27.5 - 22.5	0.918	34	0.3301	0.0001
L47	22.5 - 21.25	0.608	34	0.2623	0.0001
L48	21.25 - 21	0.541	34	0.2457	0.0001
L49	21 - 20	0.528	34	0.2425	0.0001
L50	20 - 19.75	0.479	34	0.2298	0.0001
L51	19.75 - 17	0.467	34	0.2269	0.0001
L52	17 - 16.75	0.345	34	0.1950	0.0001
L53	16.75 - 11.75	0.335	34	0.1922	0.0001
L54	11.75 - 6.75	0.164	34	0.1344	0.0000
L55	6.75 - 1.75	0.054	34	0.0768	0.0000
L56	1.75 - 0	0.004	34	0.0195	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXVSPP18-C-A20 w/ Mount Pipe	34	36.919	2.3438	0.0011	16167
157.00	800MHz 2X50W RRH W/FILTER	34	35.938	2.3418	0.0011	16167
152.00	(2) TME-RRUS-11	34	33.494	2.3234	0.0011	9029
150.00	(2) 7770.00 w/ Mount Pipe	34	32.525	2.3084	0.0011	6636
139.00	APXV18-203219-C-A20 w/ Mount Pipe	34	27.379	2.1362	0.0009	2659
127.00	(2) LNX-6514DS-A1M w/ Mount Pipe	34	22.389	1.8056	0.0012	2134
109.00	DB589	34	16.133	1.5100	0.0011	3054
105.00	(2) 800 10504 w/ Mount Pipe	34	14.901	1.4327	0.0010	2936

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	107.609	9	6.7507	0.0026
L2	155 - 150	100.574	9	6.7306	0.0026
L3	150 - 145	93.592	9	6.6472	0.0026
L4	145 - 140	86.738	9	6.4754	0.0024
L5	140 - 135	80.110	9	6.2145	0.0026
L6	135 - 130	73.790	9	5.8840	0.0030
L7	130 - 125.75	67.846	9	5.4916	0.0033
L8	125.75 - 125.5	63.132	9	5.1161	0.0033
L9	125.5 - 119.12	62.865	9	5.1036	0.0033
L10	122.87 - 119	60.098	9	4.9635	0.0033
L11	119 - 118.75	56.125	9	4.8556	0.0032
L12	118.75 - 113.75	55.872	9	4.8442	0.0032
L13	113.75 - 108.75	50.935	9	4.6007	0.0032
L14	108.75 - 103.75	46.262	9	4.3380	0.0031
L15	103.75 - 103	41.871	9	4.0588	0.0026
L16	103 - 102.75	41.238	9	4.0165	0.0026
L17	102.75 - 100.208	41.028	9	4.0023	0.0026
L18	100.208 - 95.83	38.940	9	3.8541	0.0024
L19	100.16 - 94.83	38.901	9	3.8517	0.0024
L20	94.83 - 93.5	34.682	9	3.6961	0.0022
L21	93.5 - 93.25	33.662	9	3.6322	0.0021
L22	93.25 - 89.25	33.473	9	3.6228	0.0021
L23	89.25 - 89	30.507	9	3.4661	0.0019
L24	89 - 86.5	30.326	9	3.4569	0.0019
L25	86.5 - 86.25	28.542	9	3.3629	0.0018
L26	86.25 - 81.25	28.366	9	3.3511	0.0018
L27	81.25 - 76.25	24.986	9	3.1099	0.0016
L28	76.25 - 75.417	21.861	9	2.8648	0.0014
L29	75.417 - 75.167	21.365	9	2.8245	0.0014
L30	75.167 - 70.167	21.217	9	2.8141	0.0013
L31	70.167 - 65.167	18.384	9	2.6006	0.0012
L32	65.167 - 60.167	15.775	9	2.3855	0.0010
L33	60.167 - 59.5	13.391	9	2.1693	0.0009
L34	59.5 - 59.25	13.090	9	2.1408	0.0009
L35	59.25 - 54.25	12.979	9	2.1301	0.0009
L36	54.25 - 53	10.862	9	1.9136	0.0008
L37	53 - 47.2	10.369	9	1.8605	0.0007
L38	52.78 - 46.2	10.283	9	1.8511	0.0007
L39	46.2 - 41.2	7.828	9	1.6947	0.0006
L40	41.2 - 39.333	6.160	9	1.4919	0.0006
L41	39.333 - 39.083	5.591	9	1.4182	0.0005
L42	39.083 - 37.75	5.517	9	1.4092	0.0005
L43	37.75 - 37.5	5.131	9	1.3615	0.0005
L44	37.5 - 32.5	5.060	9	1.3516	0.0005
L45	32.5 - 27.5	3.749	9	1.1518	0.0004
L46	27.5 - 22.5	2.648	9	0.9524	0.0003
L47	22.5 - 21.25	1.754	9	0.7568	0.0002
L48	21.25 - 21	1.562	9	0.7090	0.0002
L49	21 - 20	1.525	9	0.6999	0.0002
L50	20 - 19.75	1.382	9	0.6630	0.0002
L51	19.75 - 17	1.348	9	0.6546	0.0002
L52	17 - 16.75	0.997	9	0.5628	0.0002
L53	16.75 - 11.75	0.968	9	0.5545	0.0002
L54	11.75 - 6.75	0.475	9	0.3877	0.0001
L55	6.75 - 1.75	0.156	9	0.2217	0.0001
L56	1.75 - 0	0.010	9	0.0564	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXVSPP18-C-A20 w/ Mount Pipe	9	106.201	6.7490	0.0033	5767
157.00	800MHz 2X50W RRH W/FILTER	9	103.385	6.7433	0.0033	5767
152.00	(2) TME-RRUS-11	9	96.374	6.6905	0.0033	3223
150.00	(2) 7770.00 w/ Mount Pipe	9	93.592	6.6472	0.0033	2369
139.00	APXV18-203219-C-A20 w/ Mount Pipe	9	78.819	6.1525	0.0027	945
127.00	(2) LNX-6514DS-A1M w/ Mount Pipe	9	64.484	5.2022	0.0034	753
109.00	DB589	9	46.489	4.3516	0.0031	1073
105.00	(2) 800 10504 w/ Mount Pipe	9	42.942	4.1293	0.0028	1031

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	160 - 155 (1)	TP17.6204x16.5x0.1875	5.00	0.00	0.0	39.000	10.3747	-1.96	404.61	0.005
L2	155 - 150 (2)	TP18.7407x17.6204x0.1875	5.00	0.00	0.0	39.000	11.0415	-2.47	430.62	0.006
L3	150 - 145 (3)	TP19.8611x18.7407x0.1875	5.00	0.00	0.0	39.000	11.7082	-4.26	456.62	0.009
L4	145 - 140 (4)	TP20.9814x19.8611x0.1875	5.00	0.00	0.0	39.000	12.3750	-4.56	482.62	0.009
L5	140 - 135 (5)	TP22.1018x20.9814x0.1875	5.00	0.00	0.0	39.000	13.0417	-5.92	508.63	0.012
L6	135 - 130 (6)	TP23.2221x22.1018x0.1875	5.00	0.00	0.0	39.000	13.7085	-6.34	534.63	0.012
L7	130 - 125.75 (7)	TP24.1744x23.2221x0.1875	4.25	0.00	0.0	39.000	14.2752	-8.79	556.73	0.016
L8	125.75 - 125.5 (8)	TP24.2304x24.1744x0.3688	0.25	0.00	0.0	39.000	27.9280	-8.84	1089.19	0.008
L9	125.5 - 119.12 (9)	TP25.66x24.2304x0.3625	6.38	0.00	0.0	39.000	28.1399	-9.17	1097.46	0.008
L10	119.12 - 119 (10)	TP25.2956x24.4447x0.425	3.87	0.00	0.0	39.000	33.5492	-10.05	1308.42	0.008
L11	119 - 118.75 (11)	TP25.3506x25.2956x0.5	0.25	0.00	0.0	39.000	39.4379	-10.08	1538.08	0.007
L12	118.75 - 113.75 (12)	TP26.4499x25.3506x0.4875	5.00	0.00	0.0	39.000	40.1723	-10.89	1566.72	0.007
L13	113.75 - 108.75 (13)	TP27.5493x26.4499x0.475	5.00	0.00	0.0	39.000	40.8186	-11.88	1591.92	0.007
L14	108.75 - 103.75 (14)	TP28.6486x27.5493x0.4625	5.00	0.00	0.0	39.000	41.3765	-14.56	1613.69	0.009
L15	103.75 - 103 (15)	TP28.8135x28.6486x0.4625	0.75	0.00	0.0	39.000	41.6186	-14.70	1623.13	0.009
L16	103 - 102.75 (16)	TP28.8685x28.8135x0.4625	0.25	0.00	0.0	39.000	41.6993	-14.75	1626.27	0.009
L17	102.75 - 100.208 (17)	TP29.4274x28.8685x0.4563	2.54	0.00	0.0	39.000	41.9542	-15.26	1636.21	0.009
L18	100.208 - 95.83 (18)	TP30.39x29.4274x0.5375	4.38	0.00	0.0	39.000	49.3049	-15.28	1922.89	0.008
L19	95.83 - 94.83 (19)	TP30.1187x28.938x0.6	5.33	0.00	0.0	39.000	56.2154	-17.27	2192.40	0.008
L20	94.83 - 93.5 (20)	TP30.4133x30.1187x0.6	1.33	0.00	0.0	39.000	56.7765	-17.59	2214.28	0.008
L21	93.5 - 93.25 (21)	TP30.4687x30.4133x0.7875	0.25	0.00	0.0	39.000	74.1889	-17.67	2893.37	0.006
L22	93.25 - 89.25	TP31.3548x30.4687x0.762	4.00	0.00	0.0	39.000	74.0388	-18.81	2887.51	0.007

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 $\frac{P}{P_a}$
	(22)	5								
L23	89.25 - 89 (23)	TP31.4102x31.3548x0.812 5	0.25	0.00	0.0	39.000	78.9076	-18.89	3077.40	0.006
L24	89 - 86.5 (24)	TP31.964x31.4102x0.8	2.50	0.00	0.0	39.000	79.1317	-19.63	3086.14	0.006
L25	86.5 - 86.25 (25)	TP32.0194x31.964x0.625	0.25	0.00	0.0	39.000	62.2786	-19.71	2428.87	0.008
L26	86.25 - 81.25 (26)	TP33.127x32.0194x0.6125	5.00	0.00	0.0	39.000	63.2107	-21.02	2465.22	0.009
L27	81.25 - 76.25 (27)	TP34.2347x33.127x0.6	5.00	0.00	0.0	39.000	64.0538	-22.37	2498.10	0.009
L28	76.25 - 75.417 (28)	TP34.4192x34.2347x0.6	0.83	0.00	0.0	39.000	64.4053	-22.60	2511.81	0.009
L29	75.417 - 75.167 (29)	TP34.4746x34.4192x0.712 5	0.25	0.00	0.0	39.000	76.3521	-22.68	2977.73	0.008
L30	75.167 - 70.167 (30)	TP35.5822x34.4746x0.687 5	5.00	0.00	0.0	39.000	76.1446	-24.18	2969.64	0.008
L31	70.167 - 65.167 (31)	TP36.6898x35.5822x0.675	5.00	0.00	0.0	39.000	77.1600	-25.71	3009.24	0.009
L32	65.167 - 60.167 (32)	TP37.7975x36.6898x0.662 5	5.00	0.00	0.0	39.000	78.0865	-27.26	3045.37	0.009
L33	60.167 - 59.5 (33)	TP37.9452x37.7975x0.662 5	0.67	0.00	0.0	39.000	78.3972	-27.47	3057.49	0.009
L34	59.5 - 59.25 (34)	TP38.0006x37.9452x0.662 5	0.25	0.00	0.0	39.000	78.5136	-27.56	3062.03	0.009
L35	59.25 - 54.25 (35)	TP39.1082x38.0006x0.65	5.00	0.00	0.0	39.000	79.3432	-29.13	3094.38	0.009
L36	54.25 - 53 (36)	TP39.3851x39.1082x0.65	1.25	0.00	0.0	39.000	79.9145	-29.53	3116.66	0.009
L37	53 - 47.2 (37)	TP40.67x39.3851x0.65	5.80	0.00	0.0	39.000	80.0150	-29.62	3120.59	0.009
L38	47.2 - 46.2 (38)	TP40.2664x38.8089x0.712 5	6.58	0.00	0.0	39.000	89.4501	-33.47	3488.56	0.010
L39	46.2 - 41.2 (39)	TP41.3739x40.2664x0.7	5.00	0.00	0.0	39.000	90.3693	-35.24	3524.40	0.010
L40	41.2 - 39.333 (40)	TP41.7875x41.3739x0.7	1.87	0.00	0.0	39.000	91.2882	-35.89	3560.24	0.010
L41	39.333 - 39.083 (41)	TP41.8429x41.7875x0.775	0.25	0.00	0.0	39.000	101.021 0	-36.01	3939.81	0.009
L42	39.083 - 37.75 (42)	TP42.1381x41.8429x0.775	1.33	0.00	0.0	39.000	101.747 0	-36.51	3968.14	0.009
L43	37.75 - 37.5 (43)	TP42.1935x42.1381x0.7	0.25	0.00	0.0	39.000	92.1903	-36.61	3595.42	0.010
L44	37.5 - 32.5 (44)	TP43.301x42.1935x0.6875	5.00	0.00	0.0	39.000	92.9881	-38.41	3626.53	0.011
L45	32.5 - 27.5 (45)	TP44.4086x43.301x0.675	5.00	0.00	0.0	39.000	93.6970	-40.25	3654.18	0.011
L46	27.5 - 22.5 (46)	TP45.5161x44.4086x0.675	5.00	0.00	0.0	39.000	96.0698	-42.11	3746.72	0.011
L47	22.5 - 21.25 (47)	TP45.793x45.5161x0.675	1.25	0.00	0.0	39.000	96.6630	-42.58	3769.86	0.011
L48	21.25 - 21 (48)	TP45.8484x45.793x0.7125	0.25	0.00	0.0	39.000	102.074 0	-42.70	3980.87	0.011
L49	21 - 20 (49)	TP46.0699x45.8484x0.7	1.00	0.00	0.0	39.000	100.803 0	-43.10	3931.31	0.011
L50	20 - 19.75 (50)	TP46.1252x46.0699x0.775	0.25	0.00	0.0	39.000	111.555 0	-43.22	4350.64	0.010
L51	19.75 - 17 (51)	TP46.7344x46.1252x0.775	2.75	0.00	0.0	39.000	113.053 0	-44.43	4409.08	0.010
L52	17 - 16.75 (52)	TP46.7898x46.7344x0.775	0.25	0.00	0.0	39.000	113.189 0	-44.55	4414.39	0.010
L53	16.75 - 11.75 (53)	TP47.8973x46.7898x0.762 5	5.00	0.00	0.0	39.000	114.074 0	-46.78	4448.90	0.011
L54	11.75 - 6.75 (54)	TP49.0048x47.8973x0.75	5.00	0.00	0.0	39.000	114.871 0	-49.04	4479.95	0.011
L55	6.75 - 1.75 (55)	TP50.1124x49.0048x0.737 5	5.00	0.00	0.0	39.000	115.578 0	-51.33	4507.54	0.011
L56	1.75 - 0 (56)	TP50.5x50.1124x0.7375	1.75	0.00	0.0	39.000	116.485 0	-52.13	4542.93	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	160 - 155 (1)	TP17.6204x16.5x0.1875	14.35	3.868	39.000	0.099	0.00	0.000	39.000	0.000
L2	155 - 150 (2)	TP18.7407x17.6204x0.1875	39.04	9.289	39.000	0.238	0.00	0.000	39.000	0.000
L3	150 - 145 (3)	TP19.8611x18.7407x0.1875	89.23	18.869	39.000	0.484	0.00	0.000	39.000	0.000
L4	145 - 140 (4)	TP20.9814x19.8611x0.1875	140.67	26.615	39.000	0.682	0.00	0.000	39.000	0.000
L5	140 - 135 (5)	TP22.1018x20.9814x0.1875	203.03	34.570	39.000	0.886	0.00	0.000	39.000	0.000
L6	135 - 130 (6)	TP23.2221x22.1018x0.1875	269.15	41.462	39.000	1.063	0.00	0.000	39.000	0.000
L7	130 - 125.75 (7)	TP24.1744x23.2221x0.1875	352.18	50.014	39.000	1.282	0.00	0.000	39.000	0.000
L8	125.75 - 125.5 (8)	TP24.2304x24.1744x0.3688	357.26	26.267	39.000	0.674	0.00	0.000	39.000	0.000
L9	125.5 - 119.12 (9)	TP25.66x24.2304x0.3625	411.07	29.247	39.000	0.750	0.00	0.000	39.000	0.000
L10	119.12 - 119 (10)	TP25.2956x24.4447x0.425	491.50	28.908	39.000	0.741	0.00	0.000	39.000	0.000
L11	119 - 118.75 (11)	TP25.3506x25.2956x0.5	496.75	24.949	39.000	0.640	0.00	0.000	39.000	0.000
L12	118.75 - 113.75 (12)	TP26.4499x25.3506x0.4875	602.97	28.419	39.000	0.729	0.00	0.000	39.000	0.000
L13	113.75 - 108.75 (13)	TP27.5493x26.4499x0.475	712.43	31.651	39.000	0.812	0.00	0.000	39.000	0.000
L14	108.75 - 103.75 (14)	TP28.6486x27.5493x0.4625	828.00	34.819	39.000	0.893	0.00	0.000	39.000	0.000
L15	103.75 - 103 (15)	TP28.8135x28.6486x0.4625	847.01	35.202	39.000	0.903	0.00	0.000	39.000	0.000
L16	103 - 102.75 (16)	TP28.8685x28.8135x0.4625	853.36	35.328	39.000	0.906	0.00	0.000	39.000	0.000
L17	102.75 - 100.208 (17)	TP29.4274x28.8685x0.4563	918.32	37.029	39.000	0.949	0.00	0.000	39.000	0.000
L18	100.208 - 95.83 (18)	TP30.39x29.4274x0.5375	919.55	31.717	39.000	0.813	0.00	0.000	39.000	0.000
L19	95.83 - 94.83 (19)	TP30.1187x28.938x0.6	1058.47	31.403	39.000	0.805	0.00	0.000	39.000	0.000
L20	94.83 - 93.5 (20)	TP30.4133x30.1187x0.6	1093.72	31.805	39.000	0.816	0.00	0.000	39.000	0.000
L21	93.5 - 93.25 (21)	TP30.4687x30.4133x0.7875	1100.38	24.752	39.000	0.635	0.00	0.000	39.000	0.000
L22	93.25 - 89.25 (22)	TP31.3548x30.4687x0.7625	1208.04	26.376	39.000	0.676	0.00	0.000	39.000	0.000
L23	89.25 - 89 (23)	TP31.4102x31.3548x0.8125	1214.85	24.923	39.000	0.639	0.00	0.000	39.000	0.000
L24	89 - 86.5 (24)	TP31.964x31.4102x0.8	1283.38	25.755	39.000	0.660	0.00	0.000	39.000	0.000
L25	86.5 - 86.25 (25)	TP32.0194x31.964x0.625	1290.29	32.476	39.000	0.833	0.00	0.000	39.000	0.000
L26	86.25 - 81.25 (26)	TP33.127x32.0194x0.6125	1429.92	34.202	39.000	0.877	0.00	0.000	39.000	0.000
L27	81.25 - 76.25 (27)	TP34.2347x33.127x0.6	1572.47	35.846	39.000	0.919	0.00	0.000	39.000	0.000
L28	76.25 - 75.417 (28)	TP34.4192x34.2347x0.6	1596.51	35.994	39.000	0.923	0.00	0.000	39.000	0.000
L29	75.417 - 75.167 (29)	TP34.4746x34.4192x0.7125	1603.74	30.652	39.000	0.786	0.00	0.000	39.000	0.000
L30	75.167 - 70.167 (30)	TP35.5822x34.4746x0.6875	1750.33	32.412	39.000	0.831	0.00	0.000	39.000	0.000
L31	70.167 - 65.167 (31)	TP36.6898x35.5822x0.675	1900.49	33.617	39.000	0.862	0.00	0.000	39.000	0.000
L32	65.167 - 60.167 (32)	TP37.7975x36.6898x0.6625	2054.18	34.791	39.000	0.892	0.00	0.000	39.000	0.000
L33	60.167 - 59.5 (33)	TP37.9452x37.7975x0.6625	2074.94	34.862	39.000	0.894	0.00	0.000	39.000	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L34	59.5 - 59.25 (34)	TP38.0006x37.9452x0.6625	2082.74	34.889	39.000	0.895	0.00	0.000	39.000	0.000
L35	59.25 - 54.25 (35)	TP39.1082x38.0006x0.65	2240.50	36.027	39.000	0.924	0.00	0.000	39.000	0.000
L36	54.25 - 53 (36)	TP39.3851x39.1082x0.65	2280.47	36.143	39.000	0.927	0.00	0.000	39.000	0.000
L37	53 - 47.2 (37)	TP40.67x39.3851x0.65	2287.53	36.163	39.000	0.927	0.00	0.000	39.000	0.000
L38	47.2 - 46.2 (38)	TP40.2664x38.8089x0.7125	2502.11	34.737	39.000	0.891	0.00	0.000	39.000	0.000
L39	46.2 - 41.2 (39)	TP41.3739x40.2664x0.7	2669.18	35.642	39.000	0.914	0.00	0.000	39.000	0.000
L40	41.2 - 39.333 (40)	TP41.7875x41.3739x0.7	2732.38	35.749	39.000	0.917	0.00	0.000	39.000	0.000
L41	39.333 - 39.083 (41)	TP41.8429x41.7875x0.775	2740.88	32.479	39.000	0.833	0.00	0.000	39.000	0.000
L42	39.083 - 37.75 (42)	TP42.1381x41.8429x0.775	2786.36	32.544	39.000	0.834	0.00	0.000	39.000	0.000
L43	37.75 - 37.5 (43)	TP42.1935x42.1381x0.7	2794.92	35.849	39.000	0.919	0.00	0.000	39.000	0.000
L44	37.5 - 32.5 (44)	TP43.301x42.1935x0.6875	2967.68	36.720	39.000	0.942	0.00	0.000	39.000	0.000
L45	32.5 - 27.5 (45)	TP44.4086x43.301x0.675	3143.38	37.585	39.000	0.964	0.00	0.000	39.000	0.000
L46	27.5 - 22.5 (46)	TP45.5161x44.4086x0.675	3321.92	37.768	39.000	0.968	0.00	0.000	39.000	0.000
L47	22.5 - 21.25 (47)	TP45.793x45.5161x0.675	3367.02	37.809	39.000	0.969	0.00	0.000	39.000	0.000
L48	21.25 - 21 (48)	TP45.8484x45.793x0.7125	3376.06	35.916	39.000	0.921	0.00	0.000	39.000	0.000
L49	21 - 20 (49)	TP46.0699x45.8484x0.7	3412.30	36.556	39.000	0.937	0.00	0.000	39.000	0.000
L50	20 - 19.75 (50)	TP46.1252x46.0699x0.775	3421.38	33.189	39.000	0.851	0.00	0.000	39.000	0.000
L51	19.75 - 17 (51)	TP46.7344x46.1252x0.775	3521.77	33.256	39.000	0.853	0.00	0.000	39.000	0.000
L52	17 - 16.75 (52)	TP46.7898x46.7344x0.775	3530.94	33.262	39.000	0.853	0.00	0.000	39.000	0.000
L53	16.75 - 11.75 (53)	TP47.8973x46.7898x0.7625	3716.04	33.886	39.000	0.869	0.00	0.000	39.000	0.000
L54	11.75 - 6.75 (54)	TP49.0048x47.8973x0.75	3904.17	34.513	39.000	0.885	0.00	0.000	39.000	0.000
L55	6.75 - 1.75 (55)	TP50.1124x49.0048x0.7375	4095.29	35.144	39.000	0.901	0.00	0.000	39.000	0.000
L56	1.75 - 0 (56)	TP50.5x50.1124x0.7375	4162.87	35.165	39.000	0.902	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	160 - 155 (1)	TP17.6204x16.5x0.1875	4.43	0.427	26.000	0.033	0.00	0.000	26.000	0.000
L2	155 - 150 (2)	TP18.7407x17.6204x0.1875	5.64	0.511	26.000	0.039	0.00	0.000	26.000	0.000
L3	150 - 145 (3)	TP19.8611x18.7407x0.1875	10.16	0.867	26.000	0.067	0.00	0.000	26.000	0.000
L4	145 - 140 (4)	TP20.9814x19.8611x0.1875	10.43	0.843	26.000	0.065	0.17	0.016	26.000	0.001
L5	140 - 135 (5)	TP22.1018x20.9814x0.1875	13.09	1.004	26.000	0.077	0.17	0.014	26.000	0.001
L6	135 - 130 (6)	TP23.2221x22.1018x0.1875	13.37	0.975	26.000	0.075	0.17	0.013	26.000	0.001
L7	130 - 125.75 (7)	TP24.1744x23.2221x0.1875	20.33	1.424	26.000	0.110	0.19	0.013	26.000	0.001

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L8	125.75 - 125.5 (8)	TP24.2304x24.1744x0.3688	20.34	0.728	26.000	0.056	0.19	0.007	26.000	0.000
L9	125.5 - 119.12 (9)	TP25.66x24.2304x0.3625	20.59	0.732	26.000	0.056	0.19	0.007	26.000	0.000
L10	119.12 - 119 (10)	TP25.2956x24.4447x0.425	20.99	0.626	26.000	0.048	0.19	0.005	26.000	0.000
L11	119 - 118.75 (11)	TP25.3506x25.2956x0.5	21.01	0.533	26.000	0.041	0.19	0.005	26.000	0.000
L12	118.75 - 113.75 (12)	TP26.4499x25.3506x0.4875	21.48	0.535	26.000	0.041	0.19	0.004	26.000	0.000
L13	113.75 - 108.75 (13)	TP27.5493x26.4499x0.475	22.23	0.545	26.000	0.042	0.62	0.013	26.000	0.001
L14	108.75 - 103.75 (14)	TP28.6486x27.5493x0.4625	25.31	0.612	26.000	0.047	0.63	0.013	26.000	0.000
L15	103.75 - 103 (15)	TP28.8135x28.6486x0.4625	25.39	0.610	26.000	0.047	0.63	0.013	26.000	0.000
L16	103 - 102.75 (16)	TP28.8685x28.8135x0.4625	25.41	0.609	26.000	0.047	0.63	0.013	26.000	0.000
L17	102.75 - 100.208 (17)	TP29.4274x28.8685x0.4563	25.71	0.613	26.000	0.047	0.63	0.012	26.000	0.000
L18	100.208 - 95.83 (18)	TP30.39x29.4274x0.5375	25.70	0.521	26.000	0.040	0.63	0.010	26.000	0.000
L19	95.83 - 94.83 (19)	TP30.1187x28.938x0.6	26.42	0.470	26.000	0.036	0.63	0.009	26.000	0.000
L20	94.83 - 93.5 (20)	TP30.4133x30.1187x0.6	26.61	0.469	26.000	0.036	0.63	0.009	26.000	0.000
L21	93.5 - 93.25 (21)	TP30.4687x30.4133x0.7875	26.63	0.359	26.000	0.028	0.63	0.007	26.000	0.000
L22	93.25 - 89.25 (22)	TP31.3548x30.4687x0.7625	27.21	0.367	26.000	0.028	0.63	0.007	26.000	0.000
L23	89.25 - 89 (23)	TP31.4102x31.3548x0.8125	27.24	0.345	26.000	0.027	0.63	0.006	26.000	0.000
L24	89 - 86.5 (24)	TP31.964x31.4102x0.8	27.60	0.349	26.000	0.027	0.63	0.006	26.000	0.000
L25	86.5 - 86.25 (25)	TP32.0194x31.964x0.625	27.63	0.444	26.000	0.034	0.63	0.008	26.000	0.000
L26	86.25 - 81.25 (26)	TP33.127x32.0194x0.6125	28.23	0.447	26.000	0.034	0.63	0.007	26.000	0.000
L27	81.25 - 76.25 (27)	TP34.2347x33.127x0.6	28.81	0.450	26.000	0.035	0.63	0.007	26.000	0.000
L28	76.25 - 75.417 (28)	TP34.4192x34.2347x0.6	28.93	0.449	26.000	0.035	0.63	0.007	26.000	0.000
L29	75.417 - 75.167 (29)	TP34.4746x34.4192x0.7125	28.96	0.379	26.000	0.029	0.63	0.006	26.000	0.000
L30	75.167 - 70.167 (30)	TP35.5822x34.4746x0.6875	29.69	0.390	26.000	0.030	0.63	0.006	26.000	0.000
L31	70.167 - 65.167 (31)	TP36.6898x35.5822x0.675	30.40	0.394	26.000	0.030	0.63	0.005	26.000	0.000
L32	65.167 - 60.167 (32)	TP37.7975x36.6898x0.6625	31.10	0.398	26.000	0.031	0.63	0.005	26.000	0.000
L33	60.167 - 59.5 (33)	TP37.9452x37.7975x0.6625	31.18	0.398	26.000	0.031	0.63	0.005	26.000	0.000
L34	59.5 - 59.25 (34)	TP38.0006x37.9452x0.6625	31.21	0.398	26.000	0.031	0.63	0.005	26.000	0.000
L35	59.25 - 54.25 (35)	TP39.1082x38.0006x0.65	31.90	0.402	26.000	0.031	0.63	0.005	26.000	0.000
L36	54.25 - 53 (36)	TP39.3851x39.1082x0.65	32.08	0.401	26.000	0.031	0.62	0.005	26.000	0.000
L37	53 - 47.2 (37)	TP40.67x39.3851x0.65	32.10	0.401	26.000	0.031	0.62	0.005	26.000	0.000
L38	47.2 - 46.2 (38)	TP40.2664x38.8089x0.7125	33.11	0.370	26.000	0.028	0.61	0.004	26.000	0.000
L39	46.2 - 41.2 (39)	TP41.3739x40.2664x0.7	33.74	0.373	26.000	0.029	0.61	0.004	26.000	0.000
L40	41.2 - 39.333 (40)	TP41.7875x41.3739x0.7	34.01	0.373	26.000	0.029	0.61	0.004	26.000	0.000
L41	39.333 - 39.083 (41)	TP41.8429x41.7875x0.775	34.02	0.337	26.000	0.026	0.61	0.003	26.000	0.000
L42	39.083 - 37.75 (42)	TP42.1381x41.8429x0.775	34.23	0.336	26.000	0.026	0.61	0.003	26.000	0.000
L43	37.75 - 37.5	TP42.1935x42.1381x0.7	34.26	0.372	26.000	0.029	0.61	0.004	26.000	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	(43)									
L44	37.5 - 32.5 (44)	TP43.301x42.1935x0.6875	34.87	0.375	26.000	0.029	0.61	0.004	26.000	0.000
L45	32.5 - 27.5 (45)	TP44.4086x43.301x0.675	35.43	0.378	26.000	0.029	0.61	0.004	26.000	0.000
L46	27.5 - 22.5 (46)	TP45.5161x44.4086x0.675	36.02	0.375	26.000	0.029	0.61	0.003	26.000	0.000
L47	22.5 - 21.25 (47)	TP45.793x45.5161x0.675	36.17	0.374	26.000	0.029	0.62	0.003	26.000	0.000
L48	21.25 - 21 (48)	TP45.8484x45.793x0.7125	36.18	0.354	26.000	0.027	0.62	0.003	26.000	0.000
L49	21 - 20 (49)	TP46.0699x45.8484x0.7	36.32	0.360	26.000	0.028	0.62	0.003	26.000	0.000
L50	20 - 19.75 (50)	TP46.1252x46.0699x0.775	36.34	0.326	26.000	0.025	0.62	0.003	26.000	0.000
L51	19.75 - 17 (51)	TP46.7344x46.1252x0.775	36.70	0.325	26.000	0.025	0.62	0.003	26.000	0.000
L52	17 - 16.75 (52)	TP46.7898x46.7344x0.775	36.72	0.324	26.000	0.025	0.62	0.003	26.000	0.000
L53	16.75 - 11.75 (53)	TP47.8973x46.7898x0.7625	37.34	0.327	26.000	0.025	0.62	0.003	26.000	0.000
L54	11.75 - 6.75 (54)	TP49.0048x47.8973x0.75	37.94	0.330	26.000	0.025	0.62	0.003	26.000	0.000
L55	6.75 - 1.75 (55)	TP50.1124x49.0048x0.7375	38.54	0.333	26.000	0.026	0.62	0.003	26.000	0.000
L56	1.75 - 0 (56)	TP50.5x50.1124x0.7375	38.73	0.332	26.000	0.026	0.62	0.003	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 155 (1)	0.005	0.099	0.000	0.033	0.000	0.104 ✔	1.333	H1-3+VT ✔
L2	155 - 150 (2)	0.006	0.238	0.000	0.039	0.000	0.244 ✔	1.333	H1-3+VT ✔
L3	150 - 145 (3)	0.009	0.484	0.000	0.067	0.000	0.494 ✔	1.333	H1-3+VT ✔
L4	145 - 140 (4)	0.009	0.682	0.000	0.065	0.001	0.693 ✔	1.333	H1-3+VT ✔
L5	140 - 135 (5)	0.012	0.886	0.000	0.077	0.001	0.900 ✔	1.333	H1-3+VT ✔
L6	135 - 130 (6)	0.012	1.063	0.000	0.075	0.001	1.076 ✔	1.333	H1-3+VT ✔
L7	130 - 125.75 (7)	0.016	1.282	0.000	0.110	0.001	1.301 ✔	1.333	H1-3+VT ✔
L8	125.75 - 125.5 (8)	0.008	0.674	0.000	0.056	0.000	0.682 ✔	1.333	H1-3+VT ✔
L9	125.5 - 119.12 (9)	0.008	0.750	0.000	0.056	0.000	0.759 ✔	1.333	H1-3+VT ✔
L10	119.12 - 119 (10)	0.008	0.741	0.000	0.048	0.000	0.750 ✔	1.333	H1-3+VT ✔
L11	119 - 118.75 (11)	0.007	0.640	0.000	0.041	0.000	0.647 ✔	1.333	H1-3+VT ✔
L12	118.75 - 113.75 (12)	0.007	0.729	0.000	0.041	0.000	0.736 ✔	1.333	H1-3+VT ✔
L13	113.75 - 108.75 (13)	0.007	0.812	0.000	0.042	0.001	0.819 ✔	1.333	H1-3+VT ✔
L14	108.75 - 103.75 (14)	0.009	0.893	0.000	0.047	0.000	0.902 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L15	103.75 - 103 (15)	0.009	0.903	0.000	0.047	0.000	0.912 ✔	1.333	H1-3+VT ✔
L16	103 - 102.75 (16)	0.009	0.906	0.000	0.047	0.000	0.915 ✔	1.333	H1-3+VT ✔
L17	102.75 - 100.208 (17)	0.009	0.949	0.000	0.047	0.000	0.959 ✔	1.333	H1-3+VT ✔
L18	100.208 - 95.83 (18)	0.008	0.813	0.000	0.040	0.000	0.822 ✔	1.333	H1-3+VT ✔
L19	95.83 - 94.83 (19)	0.008	0.805	0.000	0.036	0.000	0.813 ✔	1.333	H1-3+VT ✔
L20	94.83 - 93.5 (20)	0.008	0.816	0.000	0.036	0.000	0.824 ✔	1.333	H1-3+VT ✔
L21	93.5 - 93.25 (21)	0.006	0.635	0.000	0.028	0.000	0.641 ✔	1.333	H1-3+VT ✔
L22	93.25 - 89.25 (22)	0.007	0.676	0.000	0.028	0.000	0.683 ✔	1.333	H1-3+VT ✔
L23	89.25 - 89 (23)	0.006	0.639	0.000	0.027	0.000	0.645 ✔	1.333	H1-3+VT ✔
L24	89 - 86.5 (24)	0.006	0.660	0.000	0.027	0.000	0.667 ✔	1.333	H1-3+VT ✔
L25	86.5 - 86.25 (25)	0.008	0.833	0.000	0.034	0.000	0.841 ✔	1.333	H1-3+VT ✔
L26	86.25 - 81.25 (26)	0.009	0.877	0.000	0.034	0.000	0.886 ✔	1.333	H1-3+VT ✔
L27	81.25 - 76.25 (27)	0.009	0.919	0.000	0.035	0.000	0.928 ✔	1.333	H1-3+VT ✔
L28	76.25 - 75.417 (28)	0.009	0.923	0.000	0.035	0.000	0.932 ✔	1.333	H1-3+VT ✔
L29	75.417 - 75.167 (29)	0.008	0.786	0.000	0.029	0.000	0.794 ✔	1.333	H1-3+VT ✔
L30	75.167 - 70.167 (30)	0.008	0.831	0.000	0.030	0.000	0.839 ✔	1.333	H1-3+VT ✔
L31	70.167 - 65.167 (31)	0.009	0.862	0.000	0.030	0.000	0.871 ✔	1.333	H1-3+VT ✔
L32	65.167 - 60.167 (32)	0.009	0.892	0.000	0.031	0.000	0.901 ✔	1.333	H1-3+VT ✔
L33	60.167 - 59.5 (33)	0.009	0.894	0.000	0.031	0.000	0.903 ✔	1.333	H1-3+VT ✔
L34	59.5 - 59.25 (34)	0.009	0.895	0.000	0.031	0.000	0.904 ✔	1.333	H1-3+VT ✔
L35	59.25 - 54.25 (35)	0.009	0.924	0.000	0.031	0.000	0.933 ✔	1.333	H1-3+VT ✔
L36	54.25 - 53 (36)	0.009	0.927	0.000	0.031	0.000	0.936 ✔	1.333	H1-3+VT ✔
L37	53 - 47.2 (37)	0.009	0.927	0.000	0.031	0.000	0.937 ✔	1.333	H1-3+VT ✔
L38	47.2 - 46.2 (38)	0.010	0.891	0.000	0.028	0.000	0.901 ✔	1.333	H1-3+VT ✔
L39	46.2 - 41.2 (39)	0.010	0.914	0.000	0.029	0.000	0.924 ✔	1.333	H1-3+VT ✔
L40	41.2 - 39.333 (40)	0.010	0.917	0.000	0.029	0.000	0.927 ✔	1.333	H1-3+VT ✔
L41	39.333 - 39.083 (41)	0.009	0.833	0.000	0.026	0.000	0.842 ✔	1.333	H1-3+VT ✔
L42	39.083 - 37.75 (42)	0.009	0.834	0.000	0.026	0.000	0.844 ✔	1.333	H1-3+VT ✔
L43	37.75 - 37.5 (43)	0.010	0.919	0.000	0.029	0.000	0.930 ✔	1.333	H1-3+VT ✔
L44	37.5 - 32.5 (44)	0.011	0.942	0.000	0.029	0.000	0.952 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L45	32.5 - 27.5 (45)	0.011	0.964	0.000	0.029	0.000	0.975 ✔	1.333	H1-3+VT ✔
L46	27.5 - 22.5 (46)	0.011	0.968	0.000	0.029	0.000	0.980 ✔	1.333	H1-3+VT ✔
L47	22.5 - 21.25 (47)	0.011	0.969	0.000	0.029	0.000	0.981 ✔	1.333	H1-3+VT ✔
L48	21.25 - 21 (48)	0.011	0.921	0.000	0.027	0.000	0.932 ✔	1.333	H1-3+VT ✔
L49	21 - 20 (49)	0.011	0.937	0.000	0.028	0.000	0.949 ✔	1.333	H1-3+VT ✔
L50	20 - 19.75 (50)	0.010	0.851	0.000	0.025	0.000	0.861 ✔	1.333	H1-3+VT ✔
L51	19.75 - 17 (51)	0.010	0.853	0.000	0.025	0.000	0.863 ✔	1.333	H1-3+VT ✔
L52	17 - 16.75 (52)	0.010	0.853	0.000	0.025	0.000	0.863 ✔	1.333	H1-3+VT ✔
L53	16.75 - 11.75 (53)	0.011	0.869	0.000	0.025	0.000	0.880 ✔	1.333	H1-3+VT ✔
L54	11.75 - 6.75 (54)	0.011	0.885	0.000	0.025	0.000	0.896 ✔	1.333	H1-3+VT ✔
L55	6.75 - 1.75 (55)	0.011	0.901	0.000	0.026	0.000	0.913 ✔	1.333	H1-3+VT ✔
L56	1.75 - 0 (56)	0.011	0.902	0.000	0.026	0.000	0.913 ✔	1.333	H1-3+VT ✔

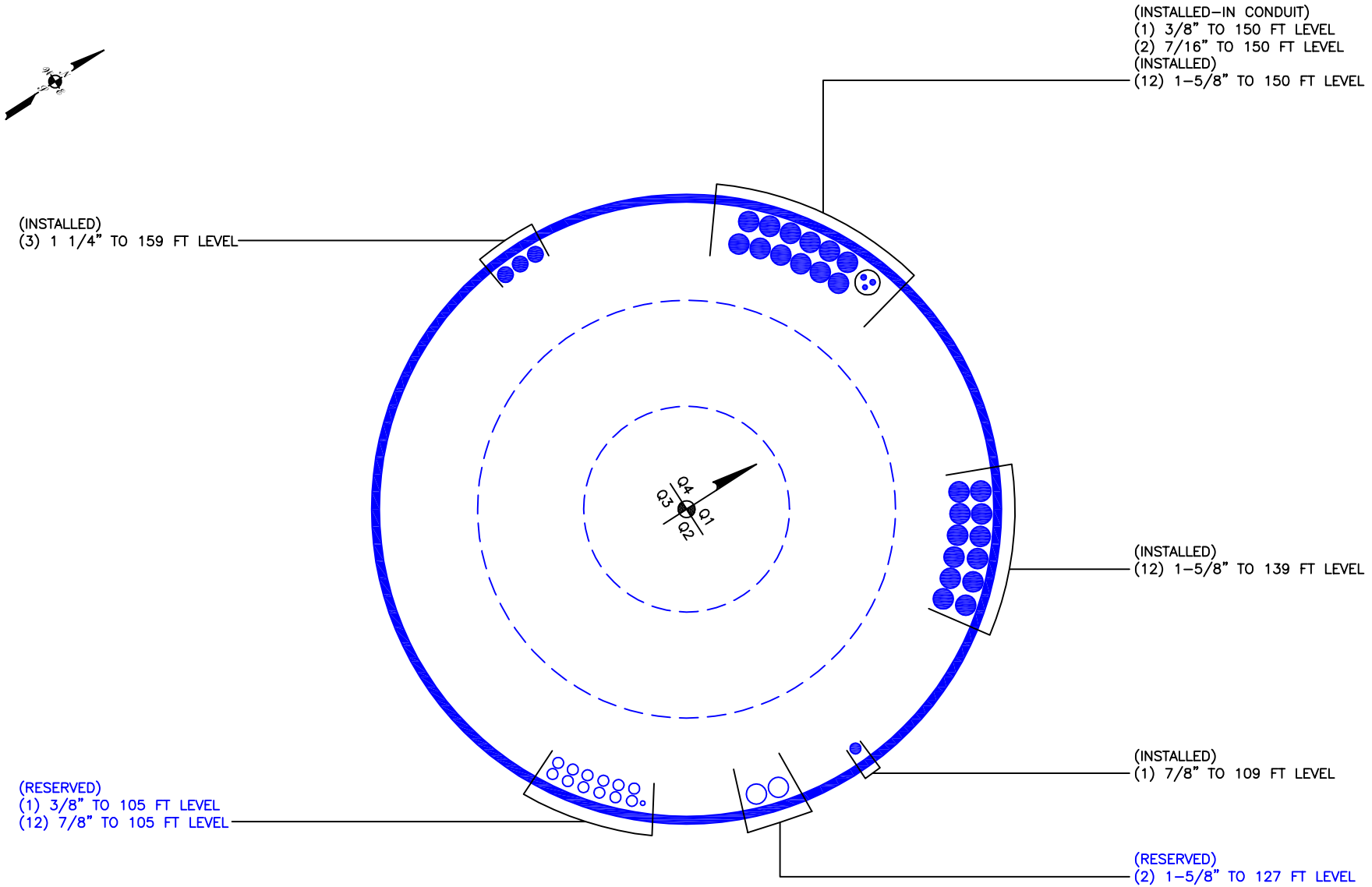
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	160 - 155	Pole	TP17.6204x16.5x0.1875	1	-1.96	539.35	7.8	Pass
L2	155 - 150	Pole	TP18.7407x17.6204x0.1875	2	-2.47	574.01	18.3	Pass
L3	150 - 145	Pole	TP19.8611x18.7407x0.1875	3	-4.26	608.68	37.1	Pass
L4	145 - 140	Pole	TP20.9814x19.8611x0.1875	4	-4.56	643.34	52.0	Pass
L5	140 - 135	Pole	TP22.1018x20.9814x0.1875	5	-5.92	678.00	67.5	Pass
L6	135 - 130	Pole	TP23.2221x22.1018x0.1875	6	-6.34	712.66	80.8	Pass
L7	130 - 125.75	Pole	TP24.1744x23.2221x0.1875	7	-8.79	742.13	97.6	Pass
L8	125.75 - 125.5	Pole	TP24.2304x24.1744x0.3688	8	-8.84	1451.89	51.2	Pass
L9	125.5 - 119.12	Pole	TP25.66x24.2304x0.3625	9	-9.17	1462.91	56.9	Pass
L10	119.12 - 119	Pole	TP25.2956x24.4447x0.425	10	-10.05	1744.12	56.2	Pass
L11	119 - 118.75	Pole	TP25.3506x25.2956x0.5	11	-10.08	2050.26	48.5	Pass
L12	118.75 - 113.75	Pole	TP26.4499x25.3506x0.4875	12	-10.89	2088.44	55.2	Pass
L13	113.75 - 108.75	Pole	TP27.5493x26.4499x0.475	13	-11.88	2122.03	61.5	Pass
L14	108.75 - 103.75	Pole	TP28.6486x27.5493x0.4625	14	-14.56	2151.05	67.7	Pass
L15	103.75 - 103	Pole	TP28.8135x28.6486x0.4625	15	-14.70	2163.63	68.4	Pass
L16	103 - 102.75	Pole	TP28.8685x28.8135x0.4625	16	-14.75	2167.82	68.7	Pass
L17	102.75 - 100.208	Pole	TP29.4274x28.8685x0.4563	17	-15.26	2181.07	72.0	Pass
L18	100.208 - 95.83	Pole	TP30.39x29.4274x0.5375	18	-15.28	2563.21	61.6	Pass
L19	95.83 - 94.83	Pole	TP30.1187x28.938x0.6	19	-17.27	2922.47	61.0	Pass
L20	94.83 - 93.5	Pole	TP30.4133x30.1187x0.6	20	-17.59	2951.64	61.8	Pass
L21	93.5 - 93.25	Pole	TP30.4687x30.4133x0.7875	21	-17.67	3856.86	48.1	Pass
L22	93.25 - 89.25	Pole	TP31.3548x30.4687x0.7625	22	-18.81	3849.05	51.2	Pass
L23	89.25 - 89	Pole	TP31.4102x31.3548x0.8125	23	-18.89	4102.17	48.4	Pass
L24	89 - 86.5	Pole	TP31.964x31.4102x0.8	24	-19.63	4113.82	50.0	Pass
L25	86.5 - 86.25	Pole	TP32.0194x31.964x0.625	25	-19.71	3237.68	63.1	Pass
L26	86.25 - 81.25	Pole	TP33.127x32.0194x0.6125	26	-21.02	3286.14	66.5	Pass
L27	81.25 - 76.25	Pole	TP34.2347x33.127x0.6	27	-22.37	3329.97	69.6	Pass
L28	76.25 - 75.417	Pole	TP34.4192x34.2347x0.6	28	-22.60	3348.24	69.9	Pass
L29	75.417 - 75.167	Pole	TP34.4746x34.4192x0.7125	29	-22.68	3969.31	59.5	Pass
L30	75.167 - 70.167	Pole	TP35.5822x34.4746x0.6875	30	-24.18	3958.53	63.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L31	70.167 - 65.167	Pole	TP36.6898x35.5822x0.675	31	-25.71	4011.32	65.3	Pass
L32	65.167 - 60.167	Pole	TP37.7975x36.6898x0.6625	32	-27.26	4059.48	67.6	Pass
L33	60.167 - 59.5	Pole	TP37.9452x37.7975x0.6625	33	-27.47	4075.63	67.8	Pass
L34	59.5 - 59.25	Pole	TP38.0006x37.9452x0.6625	34	-27.56	4081.69	67.8	Pass
L35	59.25 - 54.25	Pole	TP39.1082x38.0006x0.65	35	-29.13	4124.81	70.0	Pass
L36	54.25 - 53	Pole	TP39.3851x39.1082x0.65	36	-29.53	4154.51	70.3	Pass
L37	53 - 47.2	Pole	TP40.67x39.3851x0.65	37	-29.62	4159.75	70.3	Pass
L38	47.2 - 46.2	Pole	TP40.2664x38.8089x0.7125	38	-33.47	4650.25	67.6	Pass
L39	46.2 - 41.2	Pole	TP41.3739x40.2664x0.7	39	-35.24	4698.03	69.3	Pass
L40	41.2 - 39.333	Pole	TP41.7875x41.3739x0.7	40	-35.89	4745.80	69.5	Pass
L41	39.333 - 39.083	Pole	TP41.8429x41.7875x0.775	41	-36.01	5251.77	63.2	Pass
L42	39.083 - 37.75	Pole	TP42.1381x41.8429x0.775	42	-36.51	5289.53	63.3	Pass
L43	37.75 - 37.5	Pole	TP42.1935x42.1381x0.7	43	-36.61	4792.69	69.7	Pass
L44	37.5 - 32.5	Pole	TP43.301x42.1935x0.6875	44	-38.41	4834.16	71.4	Pass
L45	32.5 - 27.5	Pole	TP44.4086x43.301x0.675	45	-40.25	4871.02	73.1	Pass
L46	27.5 - 22.5	Pole	TP45.5161x44.4086x0.675	46	-42.11	4994.38	73.5	Pass
L47	22.5 - 21.25	Pole	TP45.793x45.5161x0.675	47	-42.58	5025.22	73.6	Pass
L48	21.25 - 21	Pole	TP45.8484x45.793x0.7125	48	-42.70	5306.50	69.9	Pass
L49	21 - 20	Pole	TP46.0699x45.8484x0.7	49	-43.10	5240.44	71.2	Pass
L50	20 - 19.75	Pole	TP46.1252x46.0699x0.775	50	-43.22	5799.40	64.6	Pass
L51	19.75 - 17	Pole	TP46.7344x46.1252x0.775	51	-44.43	5877.30	64.7	Pass
L52	17 - 16.75	Pole	TP46.7898x46.7344x0.775	52	-44.55	5884.38	64.8	Pass
L53	16.75 - 11.75	Pole	TP47.8973x46.7898x0.7625	53	-46.78	5930.38	66.0	Pass
L54	11.75 - 6.75	Pole	TP49.0048x47.8973x0.75	54	-49.04	5971.77	67.2	Pass
L55	6.75 - 1.75	Pole	TP50.1124x49.0048x0.7375	55	-51.33	6008.55	68.5	Pass
L56	1.75 - 0	Pole	TP50.5x50.1124x0.7375	56	-52.13	6055.73	68.5	Pass
							Summary	
						Pole (L7)	97.6	Pass
						RATING =	**97.6**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876401 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Additional Calculations

CCIpole

per TIA-222- G

Site BU: 876401

Work Order: 1120585

CROWN CASTLE

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	160	40.88	3.75	18	16.5	25.66	0.1875	0.75	A572-65
2	122.87	27.04	4.33	18	24.44	30.39	0.25	1	A572-65
3	100.16	52.96	5.58	18	28.94	40.67	0.3125	1.25	A572-65
4	52.78	52.78	0	18	38.81	50.5	0.375	1.5	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	59.5	plate	5.375"x1.25" Plate	3					x						x						x	
2	59.5	89.25	plate	5.375"x1.25"(8 top)	3					x						x						x	
3	89.25	119	plate	4.375"x1.25" Plate	3					x						x						x	
4	119	125.75	plate	3.125"x1.25" Plate	3					x						x						x	
5	0	39.333	channel	MP3-03 (1.1875")	3						x						x						x
6	37.75	75.417	channel	MP3-03 (1.1875")	3	x						x						x					
7	0	20	plate	CCI-WSFP-085125	2										x					x			
8	0	21.25	plate	CCI-WSFP-085125	1		x																
9	17	103	plate	CCI-SFP-060100	1			x															
10	20	53	plate	CCI-SFP-060100	1										x								
11	20	103	plate	CCI-SFP-060100	1															x			
12	49.208	100.208	plate	CCI-SFP-060100	1									x									
13	86.5	93.5	plate	CCI-SFP-045100	3	x						x						x					
14																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	5.375	1.25	6.71875	0.625	n/a	30.000	15.000	5.116	1.2200	A572-65
2	5.375	1.25	6.71875	0.625	30.000	24.000	15.000	5.116	1.2200	A572-65
3	4.375	1.25	5.46875	0.625	24.000	15.000	21.000	3.866	1.2200	A572-65
4	3.125	1.25	3.90625	0.625	15.000	15.000	24.000	2.303	1.2200	A572-65
5	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
6	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
7	8.5	1.25	10.625	0.625	n/a	45.000	17.000	9.063	1.1875	A572-65
8	8.5	1.25	10.625	0.625	n/a	45.000	17.000	9.063	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
10	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
11	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
12	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
13	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	160 - 155	5		18	16.500	17.620	0.1875	A572-65	1.000
2	155 - 150	5		18	17.620	18.741	0.1875	A572-65	1.000
3	150 - 145	5		18	18.741	19.861	0.1875	A572-65	1.000
4	145 - 140	5		18	19.861	20.981	0.1875	A572-65	1.000
5	140 - 135	5		18	20.981	22.102	0.1875	A572-65	1.000
6	135 - 130	5		18	22.102	23.222	0.1875	A572-65	1.000
7	130 - 125.75	4.25		18	23.222	24.174	0.1875	A572-65	1.000
8	125.75 - 125.5	0.25		18	24.174	24.230	0.36875	A572-65	0.932
9	125.5 - 122.87	6.38	3.75	18	24.230	25.660	0.3625	A572-65	0.937
10	122.87 - 119	3.87		18	24.445	25.296	0.425	A572-65	0.942
11	119 - 118.75	0.25		18	25.296	25.351	0.5	A572-65	0.921
12	118.75 - 113.75	5		18	25.351	26.450	0.4875	A572-65	0.926
13	113.75 - 108.75	5		18	26.450	27.549	0.475	A572-65	0.933
14	108.75 - 103.75	5		18	27.549	28.649	0.4625	A572-65	0.941
15	103.75 - 103	0.75		18	28.649	28.814	0.4625	A572-65	0.939
16	103 - 102.75	0.25		18	28.814	28.869	0.4625	A572-65	1.082
17	102.75 - 100.208	2.542		18	28.869	29.427	0.45625	A572-65	1.086
18	100.208 - 100.16	4.378	4.33	18	29.427	30.390	0.5375	A572-65	1.046
19	100.16 - 94.83	5.33		18	28.938	30.119	0.6	A572-65	1.031
20	94.83 - 93.5	1.33		18	30.119	30.413	0.6	A572-65	1.026
21	93.5 - 93.25	0.25		18	30.413	30.469	0.7875	A572-65	0.968
22	93.25 - 89.25	4		18	30.469	31.355	0.7625	A572-65	0.982
23	89.25 - 89	0.25		18	31.355	31.410	0.8125	A572-65	0.970
24	89 - 86.5	2.5		18	31.410	31.964	0.8	A572-65	0.974
25	86.5 - 86.25	0.25		18	31.964	32.019	0.625	A572-65	1.021
26	86.25 - 81.25	5		18	32.019	33.127	0.6125	A572-65	1.024
27	81.25 - 76.25	5		18	33.127	34.235	0.6	A572-65	1.027
28	76.25 - 75.417	0.833		18	34.235	34.419	0.6	A572-65	1.025
29	75.417 - 75.167	0.25		18	34.419	34.475	0.7125	A572-65	0.980
30	75.167 - 70.167	5		18	34.475	35.582	0.6875	A572-65	0.997
31	70.167 - 65.167	5		18	35.582	36.690	0.675	A572-65	0.998
32	65.167 - 60.167	5		18	36.690	37.797	0.6625	A572-65	1.000
33	60.167 - 59.5	0.667		18	37.797	37.945	0.6625	A572-65	0.998
34	59.5 - 59.25	0.25		18	37.945	38.001	0.6625	A572-65	0.997
35	59.25 - 54.25	5		18	38.001	39.108	0.65	A572-65	1.001
36	54.25 - 53	1.25		18	39.108	39.385	0.65	A572-65	0.997
37	53 - 52.78	5.8	5.58	18	39.385	40.670	0.65	A572-65	1.071
38	52.78 - 46.2	6.58		18	38.809	40.266	0.7125	A572-65	0.988
39	46.2 - 41.2	5		18	40.266	41.374	0.7	A572-65	0.993
40	41.2 - 39.333	1.867		18	41.374	41.787	0.7	A572-65	0.988
41	39.333 - 39.083	0.25		18	41.787	41.843	0.775	A572-65	0.980
42	39.083 - 37.75	1.333		18	41.843	42.138	0.775	A572-65	0.977
43	37.75 - 37.5	0.25		18	42.138	42.194	0.7	A572-65	0.984
44	37.5 - 32.5	5		18	42.194	43.301	0.6875	A572-65	0.989
45	32.5 - 27.5	5		18	43.301	44.409	0.675	A572-65	0.996
46	27.5 - 22.5	5		18	44.409	45.516	0.675	A572-65	0.985
47	22.5 - 21.25	1.25		18	45.516	45.793	0.675	A572-65	0.983
48	21.25 - 21	0.25		18	45.793	45.848	0.7125	A572-65	1.035
49	21 - 20	1		18	45.848	46.070	0.7	A572-65	1.051
50	20 - 19.75	0.25		18	46.070	46.125	0.775	A572-65	1.033
51	19.75 - 17	2.75		18	46.125	46.734	0.775	A572-65	1.026
52	17 - 16.75	0.25		18	46.734	46.790	0.775	A572-65	1.025
53	16.75 - 11.75	5		18	46.790	47.897	0.7625	A572-65	1.029
54	11.75 - 6.75	5		18	47.897	49.005	0.75	A572-65	1.033
55	6.75 - 1.75	5		18	49.005	50.112	0.7375	A572-65	1.038
56	1.75 - 0	1.75		18	50.112	50.500	0.7375	A572-65	1.034

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 155	1.9637	14.345	4.4305
2	155 - 150	2.4716	39.044	5.6428
3	150 - 145	4.2596	89.228	10.155
4	145 - 140	4.5604	140.67	10.428
5	140 - 135	5.9198	203.03	13.089
6	135 - 130	6.3353	269.15	13.368
7	130 - 125.75	8.7915	352.18	20.328
8	125.75 - 125.5	8.8391	357.26	20.344
9	125.5 - 122.87	9.1654	411.07	20.585
10	122.87 - 119	10.045	491.5	20.986
11	119 - 118.75	10.085	496.75	21.01
12	118.75 - 113.75	10.89	602.97	21.484
13	113.75 - 108.75	11.879	712.43	22.228
14	108.75 - 103.75	14.557	828	25.313
15	103.75 - 103	14.696	847.01	25.391
16	103 - 102.75	14.753	853.36	25.414
17	102.75 - 100.208	15.256	918.32	25.707
18	100.208 - 100.16	15.283	919.55	25.704
19	100.16 - 94.83	17.271	1058.5	26.421
20	94.83 - 93.5	17.589	1093.7	26.607
21	93.5 - 93.25	17.673	1100.4	26.634
22	93.25 - 89.25	18.807	1208	27.208
23	89.25 - 89	18.889	1214.8	27.239
24	89 - 86.5	19.633	1283.4	27.602
25	86.5 - 86.25	19.707	1290.3	27.63
26	86.25 - 81.25	21.021	1429.9	28.234
27	81.25 - 76.25	22.371	1572.5	28.808
28	76.25 - 75.417	22.6	1596.5	28.926
29	75.417 - 75.167	22.682	1603.7	28.957
30	75.167 - 70.167	24.177	1750.3	29.689
31	70.167 - 65.167	25.706	1900.5	30.4
32	65.167 - 60.167	27.26	2054.2	31.096
33	60.167 - 59.5	27.474	2074.9	31.185
34	59.5 - 59.25	27.558	2082.7	31.215
35	59.25 - 54.25	29.133	2240.5	31.902
36	54.25 - 53	29.531	2280.5	32.079
37	53 - 52.78	29.619	2287.5	32.098
38	52.78 - 46.2	33.474	2502.1	33.114
39	46.2 - 41.2	35.2	2669.2	33.7
40	41.2 - 39.333	35.9	2732.4	34.0
41	39.333 - 39.083	36.0	2740.9	34.0
42	39.083 - 37.75	36.5	2786.4	34.2
43	37.75 - 37.5	36.6	2794.9	34.3
44	37.5 - 32.5	38.4	2967.7	34.9
45	32.5 - 27.5	40.3	3143.4	35.4
46	27.5 - 22.5	42.1	3321.9	36.0
47	22.5 - 21.25	42.6	3367.0	36.2
48	21.25 - 21	42.7	3376.1	36.2
49	21 - 20	43.1	3412.3	36.3
50	20 - 19.75	43.2	3421.4	36.3
51	19.75 - 17	44.4	3521.8	36.7
52	17 - 16.75	44.6	3530.9	36.7
53	16.75 - 11.75	46.8	3716.0	37.3
54	11.75 - 6.75	49.0	3904.2	37.9
55	6.75 - 1.75	51.3	4095.3	38.5
56	1.75 - 0	52.1	4162.9	38.7

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP17.62x16.5x0.1875	Pole	7.8%	Pass
155 - 150	Pole	TP18.741x17.62x0.1875	Pole	18.3%	Pass
150 - 145	Pole	TP19.861x18.741x0.1875	Pole	37.1%	Pass
145 - 140	Pole	TP20.981x19.861x0.1875	Pole	52.0%	Pass
140 - 135	Pole	TP22.102x20.981x0.1875	Pole	67.5%	Pass
135 - 130	Pole	TP23.222x22.102x0.1875	Pole	80.8%	Pass
130 - 125.75	Pole	TP24.174x23.222x0.1875	Pole	97.6%	Pass
125.75 - 125.5	Pole + Reinf.	TP24.23x24.174x0.3688	Reinf. 4 Tension Rupture	77.9%	Pass
125.5 - 122.87	Pole + Reinf.	TP25.66x24.23x0.3625	Reinf. 4 Tension Rupture	86.3%	Pass
122.87 - 119	Pole + Reinf.	TP25.296x24.445x0.425	Reinf. 4 Tension Rupture	85.4%	Pass
119 - 118.75	Pole + Reinf.	TP25.351x25.296x0.5	Reinf. 3 Bolt Shear	77.1%	Pass
118.75 - 113.75	Pole + Reinf.	TP26.45x25.351x0.4875	Reinf. 3 Tension Rupture	70.3%	Pass
113.75 - 108.75	Pole + Reinf.	TP27.549x26.45x0.475	Reinf. 3 Tension Rupture	77.9%	Pass
108.75 - 103.75	Pole + Reinf.	TP28.649x27.549x0.4625	Reinf. 3 Tension Rupture	85.3%	Pass
103.75 - 103	Pole + Reinf.	TP28.814x28.649x0.4625	Reinf. 3 Tension Rupture	86.5%	Pass
103 - 102.75	Pole + Reinf.	TP28.869x28.814x0.4625	Reinf. 3 Tension Rupture	85.1%	Pass
102.75 - 100.21	Pole + Reinf.	TP29.427x28.869x0.4563	Reinf. 3 Tension Rupture	88.8%	Pass
100.21 - 100.16	Pole + Reinf.	TP30.39x29.427x0.5375	Reinf. 3 Tension Rupture	81.7%	Pass
100.16 - 94.83	Pole + Reinf.	TP30.119x28.938x0.6	Reinf. 3 Tension Rupture	80.4%	Pass
94.83 - 93.5	Pole + Reinf.	TP30.413x30.119x0.6	Reinf. 3 Tension Rupture	81.7%	Pass
93.5 - 93.25	Pole + Reinf.	TP30.469x30.413x0.7875	Reinf. 3 Tension Rupture	63.8%	Pass
93.25 - 89.25	Pole + Reinf.	TP31.355x30.469x0.7625	Reinf. 3 Tension Rupture	67.2%	Pass
89.25 - 89	Pole + Reinf.	TP31.41x31.355x0.8125	Reinf. 13 Tension Rupture	61.7%	Pass
89 - 86.5	Pole + Reinf.	TP31.964x31.41x0.8	Reinf. 13 Tension Rupture	63.6%	Pass
86.5 - 86.25	Pole + Reinf.	TP32.019x31.964x0.625	Reinf. 2 Tension Rupture	76.4%	Pass
86.25 - 81.25	Pole + Reinf.	TP33.127x32.019x0.6125	Reinf. 2 Tension Rupture	80.3%	Pass
81.25 - 76.25	Pole + Reinf.	TP34.235x33.127x0.6	Reinf. 2 Tension Rupture	83.8%	Pass
76.25 - 75.42	Pole + Reinf.	TP34.419x34.235x0.6	Reinf. 2 Tension Rupture	84.4%	Pass
75.42 - 75.17	Pole + Reinf.	TP34.475x34.419x0.7125	Reinf. 2 Tension Rupture	73.0%	Pass
75.17 - 70.17	Pole + Reinf.	TP35.582x34.475x0.6875	Reinf. 2 Tension Rupture	75.9%	Pass
70.17 - 65.17	Pole + Reinf.	TP36.69x35.582x0.675	Reinf. 2 Tension Rupture	78.7%	Pass
65.17 - 60.17	Pole + Reinf.	TP37.797x36.69x0.6625	Reinf. 2 Tension Rupture	81.4%	Pass
60.17 - 59.5	Pole + Reinf.	TP37.945x37.797x0.6625	Reinf. 2 Tension Rupture	81.7%	Pass
59.5 - 59.25	Pole + Reinf.	TP38.001x37.945x0.6625	Reinf. 1 Tension Rupture	81.8%	Pass
59.25 - 54.25	Pole + Reinf.	TP39.108x38.001x0.65	Reinf. 1 Tension Rupture	84.3%	Pass
54.25 - 53	Pole + Reinf.	TP39.385x39.108x0.65	Reinf. 1 Tension Rupture	84.8%	Pass
53 - 52.78	Pole + Reinf.	TP40.67x39.385x0.65	Reinf. 1 Tension Rupture	85.4%	Pass
52.78 - 46.2	Pole + Reinf.	TP40.266x38.809x0.7125	Reinf. 1 Tension Rupture	82.9%	Pass
46.2 - 41.2	Pole + Reinf.	TP41.374x40.266x0.7	Reinf. 1 Tension Rupture	84.6%	Pass
41.2 - 39.33	Pole + Reinf.	TP41.787x41.374x0.7	Reinf. 1 Tension Rupture	85.3%	Pass
39.33 - 39.08	Pole + Reinf.	TP41.843x41.787x0.775	Reinf. 1 Tension Rupture	76.8%	Pass
39.08 - 37.75	Pole + Reinf.	TP42.138x41.843x0.775	Reinf. 1 Tension Rupture	77.3%	Pass
37.75 - 37.5	Pole + Reinf.	TP42.194x42.138x0.7	Reinf. 1 Tension Rupture	85.9%	Pass
37.5 - 32.5	Pole + Reinf.	TP43.301x42.194x0.6875	Reinf. 1 Tension Rupture	87.5%	Pass
32.5 - 27.5	Pole + Reinf.	TP44.409x43.301x0.675	Reinf. 1 Tension Rupture	89.0%	Pass
27.5 - 22.5	Pole + Reinf.	TP45.516x44.409x0.675	Reinf. 1 Tension Rupture	90.3%	Pass
22.5 - 21.25	Pole + Reinf.	TP45.793x45.516x0.675	Reinf. 1 Tension Rupture	90.7%	Pass
21.25 - 21	Pole + Reinf.	TP45.848x45.793x0.7125	Reinf. 1 Tension Rupture	81.2%	Pass
21 - 20	Pole + Reinf.	TP46.07x45.848x0.7	Reinf. 1 Tension Rupture	81.5%	Pass
20 - 19.75	Pole + Reinf.	TP46.125x46.07x0.775	Reinf. 1 Tension Rupture	77.8%	Pass
19.75 - 17	Pole + Reinf.	TP46.734x46.125x0.775	Reinf. 1 Tension Rupture	78.5%	Pass
17 - 16.75	Pole + Reinf.	TP46.79x46.734x0.775	Reinf. 1 Tension Rupture	78.6%	Pass
16.75 - 11.75	Pole + Reinf.	TP47.897x46.79x0.7625	Reinf. 1 Tension Rupture	79.8%	Pass
11.75 - 6.75	Pole + Reinf.	TP49.005x47.897x0.75	Reinf. 1 Tension Rupture	80.9%	Pass
6.75 - 1.75	Pole + Reinf.	TP50.112x49.005x0.7375	Reinf. 1 Tension Rupture	82.0%	Pass
1.75 - 0	Pole + Reinf.	TP50.5x50.112x0.7375	Reinf. 1 Tension Rupture	82.4%	Pass
				Summary	
			Pole	97.6%	Pass
			Reinforcement	90.7%	Pass
			Overall	97.6%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity													
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
160 - 155	398	n/a	398	10.37	n/a	10.37	7.8%													
155 - 150	480	n/a	480	11.04	n/a	11.04	18.3%													
150 - 145	572	n/a	572	11.71	n/a	11.71	37.1%													
145 - 140	676	n/a	676	12.37	n/a	12.37	52.0%													
140 - 135	791	n/a	791	13.04	n/a	13.04	67.5%													
135 - 130	919	n/a	919	13.71	n/a	13.71	80.8%													
130 - 125.75	1037	n/a	1037	14.27	n/a	14.27	97.6%													
125.75 - 125.5	1045	957	2001	14.31	11.72	26.03	45.1%				77.9%									
125.5 - 122.87	1123	1001	2124	14.66	11.72	26.38	50.0%				86.3%									
122.87 - 119	1574	1038	2612	19.87	11.72	31.59	49.5%				85.4%									
119 - 118.75	1585	1465	3050	19.92	16.41	36.32	42.9%			77.1%										
118.75 - 113.75	1802	1588	3390	20.79	16.41	37.20	48.8%			70.3%										
113.75 - 108.75	2039	1715	3754	21.66	16.41	38.07	54.2%			77.9%										
108.75 - 103.75	2295	1847	4143	22.53	16.41	38.94	59.5%			85.3%										
103.75 - 103	2335	1868	4203	22.66	16.41	39.07	60.3%			86.5%										
103 - 102.75	2349	1892	4241	22.71	22.41	45.11	61.1%			85.1%								52.5%		
102.75 - 100.21	2489	1962	4451	23.15	22.41	45.56	63.9%			88.8%								55.0%		
100.21 - 100.16	2552	2720	5272	23.16	28.41	51.57	59.6%			81.7%								55.1%	55.1%	
100.16 - 94.83	3380	2855	6236	29.56	28.41	57.97	58.7%			80.4%								56.1%	56.1%	
94.83 - 93.5	3481	2909	6390	29.86	28.41	58.26	59.7%			81.7%								57.2%	57.2%	
93.5 - 93.25	3474	4766	8240	29.91	41.91	71.82	46.0%			63.8%								47.0%	47.0%	62.0%
93.25 - 89.25	3788	5035	8823	30.79	41.91	72.70	48.5%			67.2%								49.7%	49.7%	65.3%
89.25 - 89	3805	5572	9377	30.84	45.66	76.50	45.8%		60.9%									47.4%	47.4%	61.7%
89 - 86.5	4011	5762	9773	31.39	45.66	77.05	47.2%		60.7%									48.9%	48.9%	63.6%
86.5 - 86.25	4056	3759	7815	31.45	32.16	63.60	60.2%		76.4%									58.9%	58.9%	
86.25 - 81.25	4493	4013	8506	32.55	32.16	64.70	63.3%		80.3%									62.2%	62.2%	
81.25 - 76.25	4961	4275	9236	33.65	32.16	65.80	66.2%		83.8%									65.2%	65.2%	
76.25 - 75.42	5042	4320	9362	33.83	32.16	65.98	66.6%		84.4%									65.7%	65.7%	
75.42 - 75.17	5046	5909	10955	33.88	40.92	74.80	56.8%		73.0%				67.0%					58.4%	58.4%	
75.17 - 70.17	5551	6281	11832	34.98	40.92	75.90	59.2%		75.9%				69.7%					61.0%	61.0%	
70.17 - 65.17	6089	6663	12752	36.08	40.92	77.00	61.4%		78.7%				72.3%					63.4%	63.4%	
65.17 - 60.17	6660	7058	13718	37.18	40.92	78.10	63.6%		81.4%				74.7%					65.7%	65.7%	
60.17 - 59.5	6739	7111	13850	37.33	40.92	78.24	63.8%		81.7%				75.0%					66.0%	66.0%	
59.5 - 59.25	6768	7131	13900	37.38	40.92	78.30	63.9%	81.8%					75.1%					66.1%	66.1%	
59.25 - 54.25	7381	7539	14920	38.48	40.92	79.40	65.9%	84.3%					77.3%					68.3%	68.3%	
54.25 - 53	7540	7643	15182	38.75	40.92	79.67	66.3%	84.8%					77.9%					68.8%	68.8%	
53 - 52.78	7614	7806	15420	38.80	46.92	85.72	66.8%	85.4%					73.5%				58.9%	69.2%	57.8%	
52.78 - 46.2	9669	8180	17849	47.48	40.92	88.40	63.9%	82.9%					73.3%				67.9%	67.9%		
46.2 - 41.2	10493	8624	19117	48.80	40.92	89.71	65.4%	84.6%					75.0%				69.5%	69.5%		
41.2 - 39.33	10812	8793	19605	49.29	40.92	90.21	65.9%	85.3%					75.5%				70.1%	70.1%		
39.33 - 39.08	10832	10891	21722	49.36	49.68	99.03	59.4%	76.8%				68.3%	68.3%				64.1%	64.1%		
39.08 - 37.75	11064	11041	22105	49.71	49.68	99.38	59.7%	77.3%				68.7%	68.7%				64.5%	64.5%		
37.75 - 37.5	11131	8961	20092	49.77	40.92	90.69	66.4%	85.9%				76.1%					70.7%	70.7%		
37.5 - 32.5	12035	9426	21461	51.09	40.92	92.01	67.7%	87.5%				77.6%					72.2%	72.2%		
32.5 - 27.5	12986	9903	22889	52.41	40.92	93.33	68.9%	89.0%				78.9%					73.6%	73.6%		
27.5 - 22.5	13986	10392	24378	53.73	40.92	94.64	70.0%	90.3%				80.2%					74.9%	74.9%		
22.5 - 21.25	14244	10516	24760	54.06	40.92	94.97	70.2%	90.7%				80.5%					75.2%	75.2%		
21.25 - 21	14148	11957	26105	54.12	51.54	105.66	63.8%	81.2%				77.4%			58.9%		69.6%	76.0%		
21 - 20	14356	12069	26425	54.39	51.54	105.93	64.0%	81.5%				77.6%			59.1%		69.8%	76.2%		
20 - 19.75	14498	14606	29104	54.45	60.79	115.24	60.3%	77.8%				72.7%		62.9%	57.7%					
19.75 - 17	15083	14982	30065	55.18	60.79	115.97	60.8%	78.5%				73.4%		63.5%	58.3%					
17 - 16.75	15137	15016	30153	55.24	60.79	116.03	60.9%	78.6%				73.4%		63.6%	58.4%					
16.75 - 11.75	16244	15712	31956	56.56	60.79	117.35	61.9%	79.8%				74.6%		64.6%	59.4%					
11.75 - 6.75	17404	16424	33828	57.88	60.79	118.67	62.8%	80.9%				75.6%		65.7%	60.4%					
6.75 - 1.75	18617	17152	35769	59.20	60.79	119.99	63.7%	82.0%				76.7%		66.6%	61.3%					
1.75 - 0	19055	17411	36466	59.66	60.79	120.45	64.0%	82.4%				77.0%		66.9%	61.7%					

Note: Section capacity checked in 5 degree increments.

ANCHOR BOLTS - Distribution of Base Reactions

Base Reactions:		
Moment	4163	k-ft
Axial	52	k
Shear	39	k

Combined MOI: 48139.08 in^4

Original Bolts		
Quantity	14	
Diameter	2.25	in
Material	A615 Gr 75	
Fy	75	ksi
Fu	100	ksi
Bolt Circle	59	in
Bolt Group MOI	24238.89	in^4

Reactions Taken by Bolt Group

Moment	2096	k-ft
Axial	52.0	k
Shear	39.0	k

Reinforcing Bolts (1st Set)		
Quantity	3	
Diameter	2	in
Material	A193 B7	
Fy	105	ksi
Fu	125	ksi
Bolt Circle	62.5	in
Bolt Group MOI	4111.44	in^4

Reactions Taken by Bolt Group

Moment	356	k-ft
Axial	0.0	k
Shear	0.0	k

Reinforcing Bolts (2nd Set)		
Quantity	9	
Diameter	2.25	in
Material	A615 Gr 75	
Fy	75	ksi
Fu	100	ksi
Bolt Circle	71.1	in
Bolt Group MOI	19788.75	in^4

Reactions Taken by Bolt Group

Moment	1711	k-ft
Axial	0.0	k
Shear	0.0	k

Moment of Inertia Values from AutoCAD

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

TIA Rev F

Site Data

BU#: *876401*
Site Name: *TOWN OF PLAINFIELD/SSUSA*
App#: *309745 Rev 0*

Pole Manufacturer:	*Other*

Reactions		
Moment:	2096	ft-kips
Axial:	52	kips
Shear:	39	kips

Original Anchor Rod Data		
Qty:	14	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	59	in

Plate Data		
Diam:	65	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	11.45	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.625	in
Fillet V. Weld:	0.3125	in
Width:	7	in
Height:	21	in
Thick:	0.75	in
Notch:	0.75	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	50.5	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

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

Original Anchor Rod Results

		Stiffened
Maximum Rod Tension:	118.1 Kips	Service, ASD
Allowable Tension:	195.0 Kips	Fty*ASIF
Anchor Rod Stress Ratio:	60.6% **Pass**	

Base Plate Results

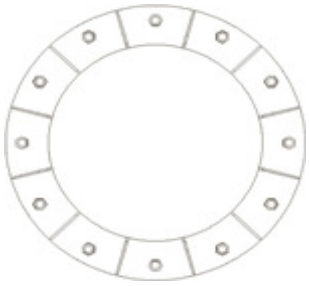
	Flexural Check	Stiffened
Base Plate Stress:	37.4 ksi	Service, ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	62.3% **Pass**	Y.L. Length: N/A, Roark

Stiffener To Toe Plate/Pole Results

Horizontal Weld :	50.5% **Pass**
Vertical Weld:	34.0% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	10.1% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	42.9% **Pass**
Plate Comp. (AISC Bracket):	45.4% **Pass**

Pole Results

Pole Punching Shear Check:	7.6% **Pass**



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

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

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

TIA Rev F

Site Data

BU#: *876401*
Site Name: *TOWN OF PLAINFIELD/SSUSA*
App #: *309746 Rev 0*

Pole Manufacturer:	*Other*

Reactions		
Moment:	356	ft-kips
Axial:	0	kips
Shear:	0	kips

Anchor Rod Data (1st Set)		
Qty:	3	
Diam:	2	in
Rod Material:	Other	
Strength (Fu):	125	ksi
Yield (Fy):	105	ksi
Bolt Circle:	62.5	in

Plate Data		
Diam:	65	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	26.00	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	50.5	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

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

Anchor Rod Results

Maximum Rod Tension:	91.1 Kips	
Allowable Tension:	172.7 Kips	
Anchor Rod Stress Ratio:	52.8% **Pass**	

Non-Rigid
Service, ASD
Fty*ASIF

Base Plate Results

Base Plate Stress:	-	
Allowable Plate Stress:	-	
Base Plate Stress Ratio:	-	

Non-Rigid
Service ASD
0.75*Fy*ASIF
Y.L. Length: 17.50

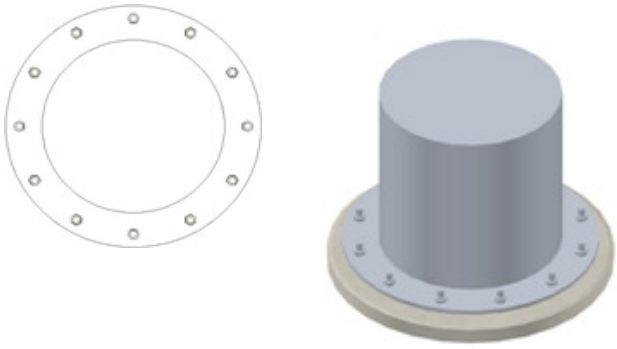
n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a



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

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

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

TIA Rev F

Site Data

BU#: *876401*
Site Name: *TOWN OF PLAINFIELD/SSUSA*
App #: *309746 Rev 0*

Pole Manufacturer:	*Other*

Reactions		
Moment:	1711	ft-kips
Axial:	0	kips
Shear:	0	kips

Anchor Rod Data (2nd Set)		
Qty:	9	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	71.1	in

Plate Data		
Diam:	65	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	17.81	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	50.5	in
Thick:	0.675	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

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

Anchor Rod Results

Maximum Rod Tension:	128.3 Kips	Non-Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	65.8% **Pass**	Fty*ASIF

Base Plate Results

Base Plate Stress:	-	Non-Rigid
Allowable Plate Stress:	-	Service ASD
Base Plate Stress Ratio:	-	0.75*Fy*ASIF
		Y.L. Length: 41.82

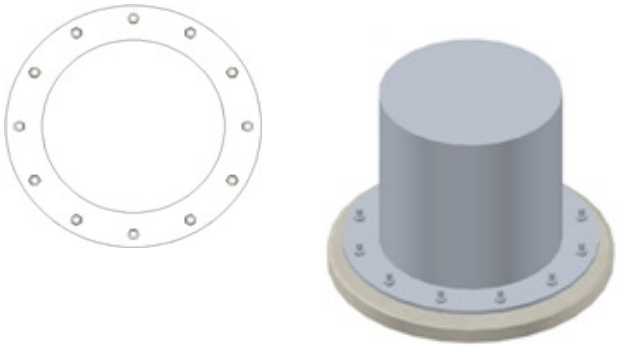
n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a



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

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

Project Title: TOWN OF PLAINFIELD/SSUSA
Project Notes: 6500.876401

Calculation Method: Full 8CD

******* I N P U T D A T A

Pier Properties

Diameter (ft)	Distance of Top of Pier above Ground (ft)	Concrete Strength (ksi)	Steel Yield Strength (ksi)
7.00	1.00	4.00	60.00

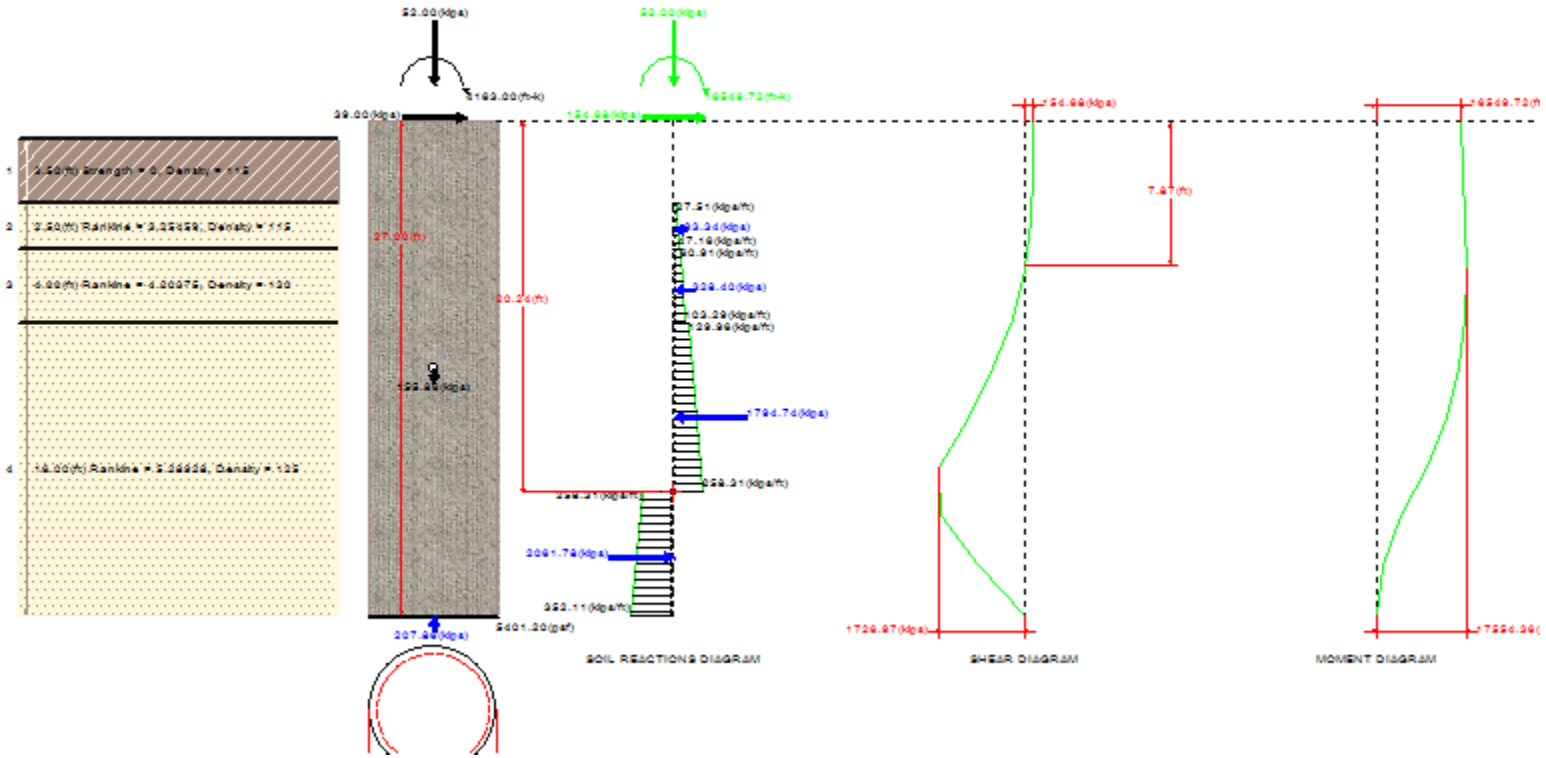
Soil Properties

Layer	Type	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	KP	PHI (deg)
1	Clay	3.50	0.00	115.0			
2	Sand	2.50	3.50	115.0		3.255	32.00
3	Sand	4.00	6.00	120.0		4.204	38.00
4	Sand	16.00	10.00	125.0		5.289	43.00

Design (Factored) Loads at Top of Pier

Moment (ft-k)	Axial Load (kips)	Shear Load (kips)	Additional Safety Factor Against Soil Failure	
4163.0	52.0	39.00	3.96	Approx. Lateral Capacity = 50.5%

******* R E S U L T S



Calculated Pier Properties

Length (ft)	Weight (kips)	Pressure Due To Axial Load (psf)	Pressure Due To Weight (psf)	Total End-Bearing Pressure (psf)
27.000	155.862	1351.2	4050.0	5401.2

Ultimate Resisting Forces Along Pier

Type	Distance of Top of Layer to Top of Pier (ft)	Thickness (ft)	Density (lbs/ft^3)	CU (psf)	KP	Force (kips)	Arm (ft)
Clay	1.00	3.50	115.0			0.00	2.75
Sand	4.50	2.50	115.0		3.255	93.34	5.86
Sand	7.00	4.00	120.0		4.204	328.40	9.17
Sand	11.00	9.24	125.0		5.289	1794.74	16.13
Sand	20.24	6.76	125.0		5.289	-2061.78	23.80

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	154.7	16549.7	39.1	4179.2
2.70	154.7	16967.4	39.1	4284.7
5.40	126.7	17372.9	32.0	4387.1
8.10	-12.1	17554.4	-3.0	4432.9
10.80	-246.6	17222.5	-62.3	4349.1
13.50	-635.3	16061.3	-160.4	4055.9
16.20	-1130.5	13700.1	-285.5	3459.6
18.90	-1727.0	9865.2	-436.1	2491.2
21.60	-1698.9	4769.3	-429.0	1204.4
24.30	-900.1	1237.9	-227.3	312.6
27.00	-0.0	0.0	-0.0	0.0

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *876401*
Site Name: *TOWN OF PLAINFIELD/SSUSA*
App #: *309746 Rev 0*

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	4432.9	ft-kips **(* Note)**
Max. Service Shaft P:	52	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Load Factor	Shaft Factored Loads		
1.30	Mu:	5762.77	ft-kips
1.30	Pu:	67.6	kips

Pier Properties (0-'18' BGL)		
Concrete:		
Pier Diameter =	7.0	ft
Concrete Area =	5541.8	in^2
Reinforcement:		
Clear Cover to **Tie**=	4.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	6.09	ft
Vert. Cage Diameter =	73.06	in
Vertical Bar Size* =	14	
Bar Diameter =	1.69	in
Bar Area =	2.25	in^2
As Total=	56.25	in^2
A s/ Aconc, Rho:	0.0102	1.02%

Material Properties		
Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	
ACI 318 Code		
Select Analysis ACI Code=	2002	
Seismic Properties		
Seismic Design Category =	B	
Seismic Risk =	**Low**	

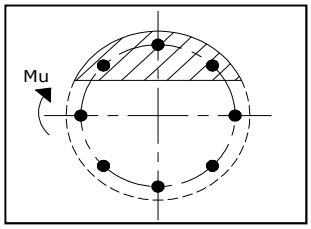
Solve (Run) <-- Press Upon Completing All Input

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy): 0.0032
200 / Fy: 0.0033

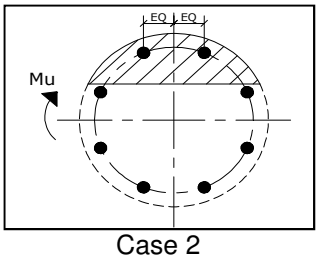
*Note: Equivalent bar area used in upper 18' of foundation

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis: **15.74** in
Extreme Steel Strain, εt: **0.0119**
εt > 0.0050, Tension Controlled
Reduction Factor,φ: **0.900**

Minimum Rho Check:
Actual Req'd Min. Rho: 0.33% Flexural
Provided Rho: 1.02% **OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	11453.40	kips
at Mu=(ϕ=0.65)Mn=	6896.45	ft-kips
Max Tu, (φ=0.9) Tn =	3037.5	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	67.60	kips
Drilled Shaft Moment Capacity, φMn:	**8577.95**	ft-kips
Drilled Shaft Superimposed Mu:	**5762.77**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**67.2%**

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *876401*
Site Name: *TOWN OF PLAINFIELD/SSUSA*
App #: *309745 Rev 0*

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties (18'+ BGL)

Concrete:

Pier Diameter =	7.0	ft
Concrete Area =	5541.8	in^2

Reinforcement:

Clear Cover to **Tie**=	4.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	6.11	ft
Vert. Cage Diameter =	73.34	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	18	
As Total=	28.08	in^2
A s/ Aconc, Rho:	0.0051	0.51%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0032
200 / Fy: 0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.51%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	10624.30	kips
at Mu=(ϕ=0.65)Mn=	6471.08	ft-kips
Max Tu, (φ=0.9) Tn =	1516.32	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	2491.2	ft-kips **(* Note)**
Max. Service Shaft P:	52	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	Shaft Factored Loads		
1.30	Mu:	3238.56	ft-kips
1.30	Pu:	67.6	kips

Material Properties

Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code=	2002	

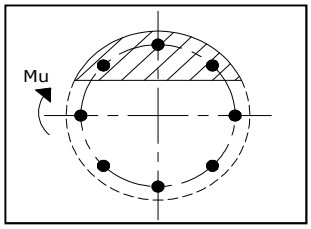
Seismic Properties

Seismic Design Category =	B	
Seismic Risk =	**Low**	

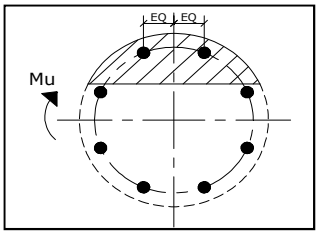
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **1**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**11.37**	in
Extreme Steel Strain, ϵt:	**0.0178**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	67.60	kips
Drilled Shaft Moment Capacity, φMn:	**4675.43**	ft-kips
Drilled Shaft Superimposed Mu:	**3238.56**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**69.3%**

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

T-Mobile Existing Facility

Site ID: CTNL130A

Global- Plainfield
47-51 Unity Street
Plainfield, CT 06354

October 5, 2015

EBI Project Number: 6215004940

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	8.23 %

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

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October 5, 2015

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

Emissions Analysis for Site: **CTNL130A – Global- Plainfield**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **47-51 Unity Street, Plainfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **47-51 Unity Street, Plainfield, 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 (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 1.65 dB of additional cable loss for all 1900 MHz channels and 0.90 dB of additional cable loss at 700 MHz. This is based on manufacturers Specifications for 160 feet of 1-5/8" coax cable on each path.

6) 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.

7) 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.

8) The antennas used in this modeling are the **RFS APXV18-203219-C-A20** for 1900 MHz (PCS) channels and the **Commscope LNX-6512DS-A1M** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-203219-C-A20** has a maximum gain of **18.5 dBd** at its main lobe. The **Commscope LNX-6512DS-A1M** has a maximum gain of **12 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.

9) The antenna mounting height centerline of the proposed antennas is **139 feet** above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXV18-203219-C-A20	Make / Model:	RFS APXV18-203219-C-A20	Make / Model:	RFS APXV18-203219-C-A20
Gain:	18.5 dBd	Gain:	18.5 dBd	Gain:	18.5 dBd
Height (AGL):	139	Height (AGL):	139	Height (AGL):	139
Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)
Channel Count	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	11,625.49	ERP (W):	11,625.49	ERP (W):	11,625.49
Antenna A1 MPE%	2.36	Antenna B1 MPE%	2.36	Antenna C1 MPE%	2.36
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6512DS-A1M	Make / Model:	Commscope LNX-6512DS-A1M	Make / Model:	Commscope LNX-6512DS-A1M
Gain:	12 dBd	Gain:	12 dBd	Gain:	12 dBd
Height (AGL):	139	Height (AGL):	139	Height (AGL):	139
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):	386.65	ERP (W):	386.65	ERP (W):	386.65
Antenna A2 MPE%	0.17	Antenna B2 MPE%	0.17	Antenna C2 MPE%	0.17

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**2.53 %**
Sprint	0.30 %
MetroPCS	0.43 %
AT&T	1.58 %
Town	0.25 %
Verizon Wireless	3.14 %
Site Total MPE %:	**8.23 %**

T-Mobile Sector 1 Total:	2.53 %
T-Mobile Sector 2 Total:	2.53 %
T-Mobile Sector 3 Total:	2.53 %
Site Total:	8.23 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	**2**	**2906.37**	**139**	**11.81**	**2100**	**1000**	**1.18 %**
T-Mobile 700 MHz LTE	**1**	**386.65**	**139**	**0.79**	**700**	**467**	**0.79 %**
T-Mobile 1900 MHz (PCS) GSM	**2**	**1453.19**	**139**	**5.91**	**1900**	**1000**	**0.59 %**
T-Mobile 1900 MHz (PCS) UMTS	**2**	**1453.19**	**139**	**5.91**	**2100**	**1000**	**0.59 %**
						Total:	**2.53%**

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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:	2.53 %
Sector 2:	2.53 %
Sector 3 :	2.53 %
T-Mobile Per Sector Maximum:	2.53 %
Site Total:	8.23 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.23%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

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