



**QC Development**

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Storrs, CT 06268

860-670-9068

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March 30, 2018

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

**Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT5098**  
**111 Schoolhouse Road, Milford, CT 06460**  
**N 41-12-46.14**  
**W 73-05-05.64**

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 123-foot level of the existing 140-foot Monopole at 111 Schoolhouse Road, Milford, CT. The tower is owned by Crown Castle. The property is owned by the Milford Enterprises LLC. AT&T now intends to remove (3) Powerwave antennas and replace them with (3) new Quintel QS66512-2 antennas. AT&T also intends to install (3) new Ericsson RRUS-32 remote radio units (RRU). The new antennas and RRUs will also be installed at the 123-foot level of the tower.

This facility was approved by the Milford Planning & Zoning Board on May 6, 1997. The approval included certain conditions related to site work and wetlands, but none that would relate to the scope of this modification.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable Benjamin G. Blake, Mayor of the City of Milford, and the Milford Planning & Zoning Office, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in 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 structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,



Mark Roberts  
QC Development  
Consultant for AT&T

#### Attachments

cc: Mayor Benjamin G. Blake - as Elected Official  
David Sulkis – City Planner  
Milford Enterprises LLC - as Property Owners  
Crown Castle - Tower Owner (via e-mail)

## Power Density

### Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							7.33%
AT&T UMTS	4	414	125	0.0412	850	0.5667	0.74%
AT&T UMTS	2	656	125	0.0333	1900	1.0000	0.33%
AT&T LTE	2	940	125	0.0477	734	0.4893	0.98%
AT&T LTE	2	1791	125	0.0910	1900	1.0000	0.91%
Site Total							9.31%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

### Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							7.33%
AT&T UMTS	2	300	125	0.0152	850	0.5667	0.27%
AT&T UMTS	1	342	125	0.0087	1900	1.0000	0.09%
AT&T LTE	1	828	125	0.0210	700	0.4667	0.45%
AT&T LTE	2	2153	125	0.1094	1900	1.0000	1.09%
AT&T LTE	1	1285	125	0.0326	2300	1.0000	0.33%
Site Total							8.58%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880



**PROJECT INFORMATION**

SCOPE OF WORK: TOP - REPLACE (3) LTE ANTENNAS IN POSITION 4 WITH (3) 12 PORT ANTENNAS. INSTALL (3) RRUS-32, (1) SQUID, (1) FIBER & (2) DC CABLES. REPLACE DIPLEXERS WITH LOW BAND COMBINERS.  
 BOTTOM - REPLACE BB WITH RBS5216. INSTALL DC12 TO EXISTING POWER PLANT.

SITE ADDRESS: 111 SCHOOLHOUSE ROAD  
MILFORD, CT 06460

LATITUDE: 41° 12' 44.97" N (NAD 83)\*  
 LONGITUDE: 73° 05' 13.91" W (NAD 83)\*  
 \*PER RFDS

JURISDICTION: TOWN OF MILFORD

CURRENT USE: TELECOMMUNICATIONS FACILITY  
 PROPOSED USE: TELECOMMUNICATIONS FACILITY

NAME OF APPLICANT: AT&T MOBILITY  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701



**at&t**  
**Mobility**

**SITE NAME: MILFORD NAUGATUK GARDENS 3C**  
**SITE NUMBER: CT5098**  
**PACE NUMBER: MRCTB026605 (3C)**

**DRAWING INDEX**

**REV**

T01	TITLE SHEET	0
G01	GENERAL NOTES	0
C01	PROPOSED SITE PLAN & SHELTER PLAN	0
C02	PROPOSED ELEVATION & CONSTRUCTION DETAILS	0
C03	EQUIPMENT PLUMBING DIAGRAM	0
E01	GROUNDING NOTES & DETAILS	0

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.

**STRUCTURAL NOTE:**

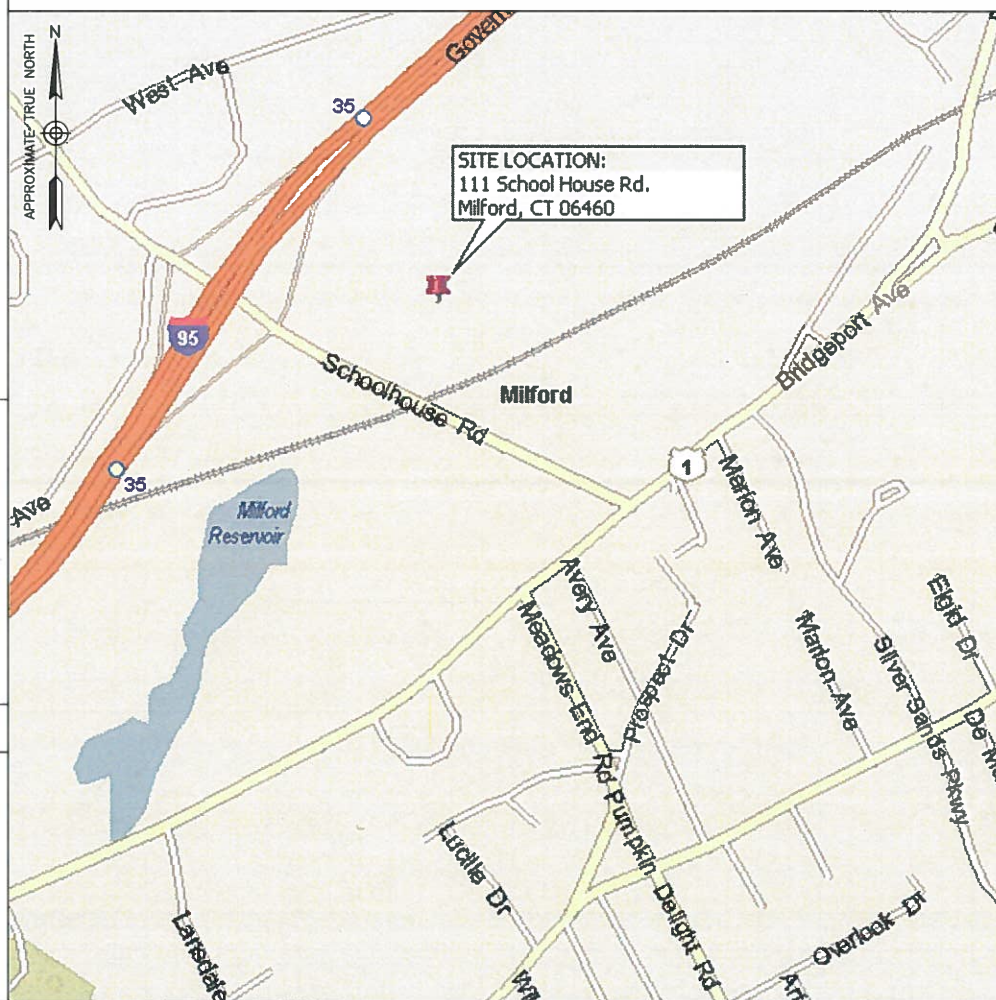
- AS REQUIRED UNDER TIA/EIA 222H - STANDARD, SAI COMMUNICATIONS SHALL PROVIDE A STRUCTURAL ANALYSIS OF THE TOWER PREPARED BY A LICENSED CONNECTICUT STRUCTURAL ENGINEER CERTIFYING THAT, THE EXISTING TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS AND APPURTENANCES AND COMPLIES WITH THE CURRENT CONNECTICUT STATE BUILDING CODE AND EIA/TIA CRITERIA. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.

**CONTACT & UTILITY INFORMATION**

CONTACT	CONTACT	COMPANY	PHONE NO.
ENGINEERING:	BENJAMIN REVETTE, P.E.	DEWBERRY ENGINEERS INC.	(617) 531-0800
SAC:	TIM BURKS	SAI COMMUNICATIONS	(860) 989-0001
<b>UTILITIES</b>			
POWER:	CONNECTICUT LIGHT & POWER		(860) 286-2000
TELCO:	AT&T		(888) 944-0447

**VICINITY MAP**

**DIRECTIONS:** FROM FRAMINGHAM, MA: TAKE I-90 W. TAKE EXIT 9 TO MERGE ONTO I-84 TOWARD RT-20/HARTFORD. TAKE EXIT 57 TO MERGE ONTO I-91 S. CONTINUE ONTO CT-15 S. TAKE EXIT 36 TO MERGE ONTO I-91 S TOWARD NEW HAVEN/NEW YORK CITY. MERGE ONTO I-95 S. TAKE EXIT 35 ONTO BIC DRIVE. TURN LEFT ONTO SCHOOL HOUSE ROAD. THE SITE WILL BE ON THE LEFT.



**APPLICABLE BUILDING CODES AND STANDARDS**

CONTRACTOR'S WORK SHALL COMPLY WITH PROJECT STANDARD NOTES, SYMBOLS AND DETAILS (SEE DRAWING INDEX FOR STANDARD NOTES AND DETAILS INCLUDED WITH TYPICAL DRAWING PACKAGE). CONTRACTOR WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE:**  
2016 CONNECTICUT STATE BUILDING CODE (2012 INTERNATIONAL BUILDING CODE)

**ELECTRICAL CODE:**  
NATIONAL ELECTRICAL CODE (NEC)

CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.  
 AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE  
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION  
 TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:  
 TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM  
 IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

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

**Dewberry**  
 Dewberry Engineers Inc.  
 280 SUMMER ST.  
 10TH FLOOR  
 BOSTON, MA 02210  
 PHONE: 617.695.3400  
 FAX: 617.695.3310

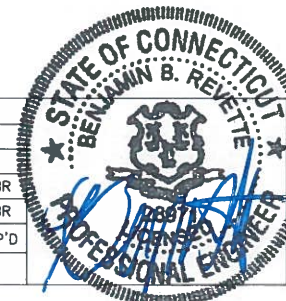
**SAI**  
 12 INDUSTRIAL WAY  
 SALEM, NH 03079

**MILFORD NAUGATUK GARDENS 3C**  
**SITE NO. CT5098**  
 111 SCHOOLHOUSE ROAD  
 MILFORD, CT 06460

**at&t**  
 Mobility  
 500 ENTERPRISE DRIVE  
 SUITE 3A  
 ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/09/18	FOR CONSTRUCTION	KB	DAS	BBR
A	02/09/18	FOR REVIEW	KB	DAS	BBR

SCALE: AS SHOWN    DESIGNED BY: KB    DRAWN BY: NMS



AT&T MOBILITY  
 ROCKY HILL, CT 06067

TITLE SHEET

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083719	T01	0



**GENERAL NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
PROJECT MANAGEMENT - SAI  
CONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
OWNER - AT&T MOBILITY  
OEM - ORIGINAL EQUIPMENT MANUFACTURER
- 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.
- 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.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
- 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.
- THE CONTRACTOR SHALL PROTECT EXISTING & PROPOSED IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- 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.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

**SITE WORK GENERAL NOTES:**

- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- 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.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
- 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.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
- 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.
- EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

**CONCRETE AND REINFORCING STEEL NOTES:**

- 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.
- 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.
- 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.
- 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.
- A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- 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.
- 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.
- 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.
- 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:**

- 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".
- 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.
- BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
- 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.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

**SOIL COMPACTION NOTES FOR SLAB ON GRADE:**

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
- COMPACTED SUBBASE SHALL BE UNIFORM & LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.
- AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

**COMPACTION EQUIPMENT:**


- HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

**CONSTRUCTION NOTES:**

- FIELD VERIFICATION: CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
- COORDINATION OF WORK: CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
- 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.

**ELECTRICAL INSTALLATION NOTES:**

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- 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.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- 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.
- 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).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- 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.
- 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.
- 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.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- 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.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- 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.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
- CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- 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.
- 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.
- 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.
- 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.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- 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.



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**MILFORD NAUGATUK  
GARDENS 3C  
SITE NO. CT5098**  
111 SCHOOLHOUSE ROAD  
MILFORD, CT 06460



**at&t  
Mobility**  
500 ENTERPRISE DRIVE  
SUITE 3A  
ROCKY HILL, CT 06067

0	03/09/18	FOR CONSTRUCTION	KB	DAS	BBR
A	02/09/18	FOR REVIEW	KB	DAS	BBR
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: KB	DRAWN BY: NMS		

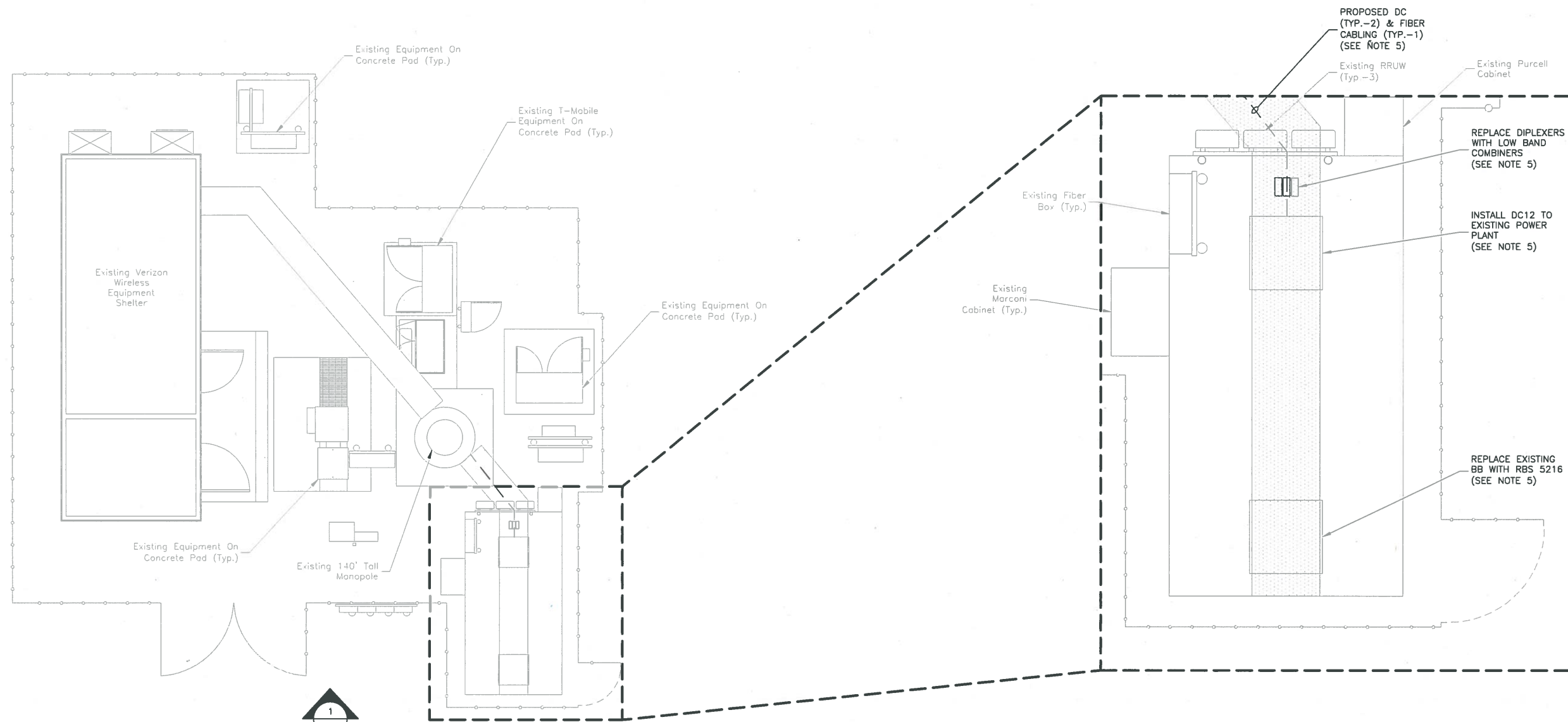
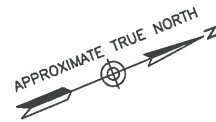


AT&T MOBILITY  
ROCKY HILL, CT 06067

GENERAL NOTES

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083719	GO1	0





**PROPOSED SITE PLAN**

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



1

**NOTES:**

- NORTH ARROW SHOWN AS APPROXIMATE.
- ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRU'S, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED 03-01-18.
- DEWBERRY WAS NOT PROVIDED WITH OR CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER. TOWER RELATED IMPROVEMENTS ARE NOT TO BE INSTALLED WITHOUT A PASSING STRUCTURAL ANALYSIS. SEE STRUCTURAL NOTE ON SHEET T01.
- NOT ALL INFORMATION SHOWN FOR CLARITY.
- EQUIPMENT MODIFICATION SCOPE:  
TOP - REPLACE (3) LTE ANTENNAS IN POSITION 4 WITH (3) 12 PORT ANTENNAS. INSTALL (3) RRUS-32, (1) SQUID, (1) FIBER & (2) DC CABLES. REPLACE DIPLEXERS WITH LOW BAND COMBINERS.  
BOTTOM - REPLACE BB WITH RBS5216. INSTALL DC12 TO EXISTING POWER PLANT.
- ALL SPACING REQUIREMENTS FOR PROPOSED RRU MOUNTS SHALL BE CONFIRMED & SHALL NOT IMPEDE CLIMBING PEGS, TIE OFF FEATURES, OR OTHER EXISTING SAFETY FEATURES. ALL MOUNTS SHALL MAINTAIN EXISTING/PROPOSED MANUFACTURER REQUIREMENTS & SHALL NOT EXCEED THE TOP OF THE TOWER OR INTERFERE WITH OTHER RAD CENTERS.
- CONTRACTOR SHALL VERIFY ANTENNA SPACING IN FIELD & RELOCATE PIPE MASTS AS REQUIRED TO MEET ANTENNA REQUIREMENTS. THE ANTENNA SPACING REQUIREMENTS ARE AS FOLLOWS:  
SEPARATION BETWEEN LTE ANTENNAS  
MINIMUM SEPARATION BETWEEN 700BC & 700DE



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**MILFORD NAUGATUK  
GARDENS 3C  
SITE NO. CT5098**

111 SCHOOLHOUSE ROAD  
MILFORD, CT 06460

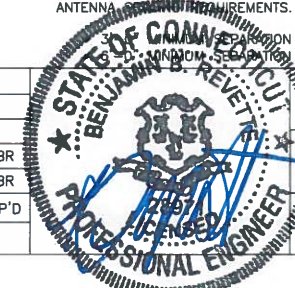


**at&t  
Mobility**

500 ENTERPRISE DRIVE  
SUITE 3A  
ROCKY HILL, CT 06067

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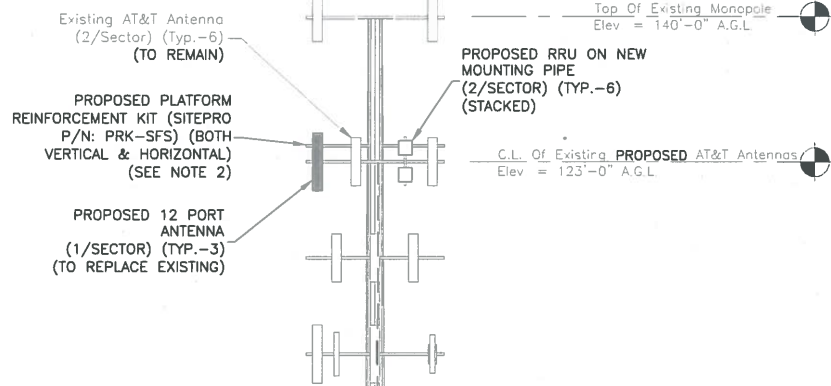
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AT&T MOBILITY  
ROCKY HILL, CT 06067

PROPOSED SITE PLAN & SHELTER PLAN

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083719	CO1	0



**NOTES:**

1. NORTH ARROW SHOWN AS APPROXIMATE.
2. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRU'S, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE APPURTENANCE MOUNT MODIFICATION REPORT BY B+T GROUP DATED 03-01-18.

3. DEWBERRY WAS NOT PROVIDED WITH OR CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER. TOWER RELATED IMPROVEMENTS ARE NOT TO BE INSTALLED WITHOUT A PASSING STRUCTURAL ANALYSIS. SEE STRUCTURAL NOTE ON SHEET 01.

4. NOT ALL INFORMATION SHOWN FOR CLARITY.

5. EQUIPMENT MODIFICATION SCOPE:

TOP - REPLACE (3) LTE ANTENNAS IN POSITION 4 WITH (3) 12 PORT ANTENNAS. INSTALL (3) RRUS-32, (1) SQUID, (1) FIBER & (2) DC CABLES. REPLACE DIPLEXERS WITH LOW BAND COMBINERS.

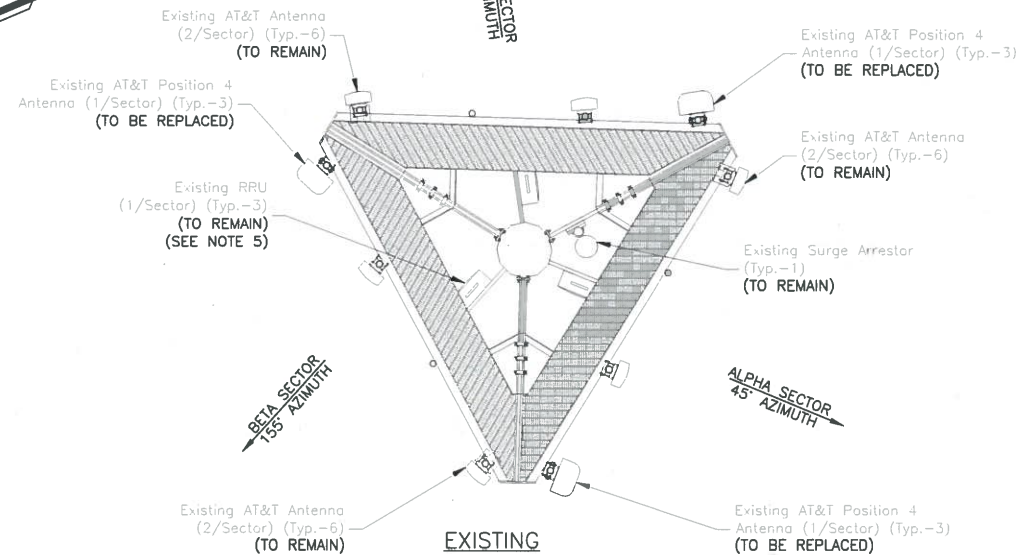
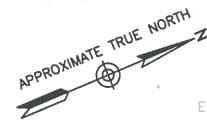
BOTTOM - REPLACE BB WITH RB55216. INSTALL DC12 TO EXISTING POWER PLANT.

6. ALL SPACING REQUIREMENTS FOR PROPOSED RRU MOUNTS SHALL BE CONFIRMED & SHALL NOT IMPEDE CLIMBING PEGS, TIE OFF FEATURES, OR OTHER EXISTING SAFETY FEATURES. ALL MOUNTS SHALL MAINTAIN EXISTING/PROPOSED MANUFACTURER REQUIREMENTS & SHALL NOT EXCEED THE TOP OF THE TOWER OR INTERFERE WITH OTHER RAD CENTERS.

7. CONTRACTOR SHALL VERIFY ANTENNA SPACING IN FIELD & RELOCATE PIPE MASTS AS REQUIRED TO MEET ANTENNA SPACING REQUIREMENTS. THE ANTENNA SPACING REQUIREMENTS ARE AS FOLLOWS:

- 3'-0" MINIMUM SEPARATION BETWEEN LTE ANTENNAS
- 6'-0" MINIMUM SEPARATION BETWEEN 700BC & 700DE

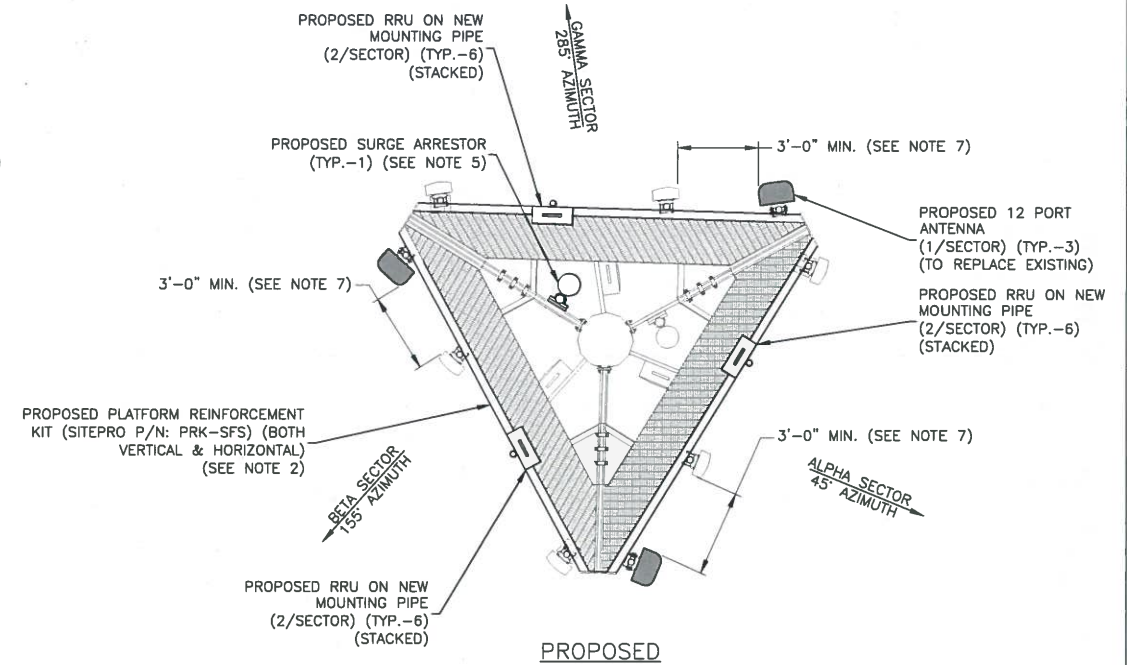
PROPOSED DC (TYP.-2) & FIBER CABLING (TYP.-1) (SEE NOTE 5)



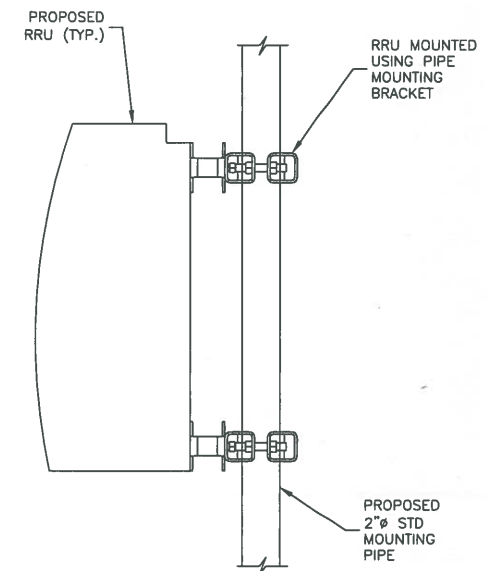
**ANTENNA ORIENTATION PLAN**

SCALE: N.T.S.

2



FINAL EQUIPMENT CONFIGURATION											
SECTOR	BAND	ANTENNA	SIZE (INCHES) (LxWxD)	RAD. CENTER	AZIMUTH	TMA	RRU	SIZE (INCHES) (LxWxD)	FEEDER	FIBER JUMPERS	DC JUMPERS
ALPHA	UMTS 850	(E) 7770	55.0x11.0x5.0	123'-0"	45°	(E) LGP 21901 (E) LGP 21901	-	-	(E) 2	-	-
	LTE 700 BC/PCS	(E) HPA-65R-BUU-H6	72.0x14.8x9.0	123'-0"	45°	-	(E) RRUS 11 700 (B/C) (E) RRUS 12 1900	19.7 x 17.0 x 7.2 27.2 x 12.1 x 7.0	-	(P) 3	(P) 2
	LTE WCS	(P) QS66512-6	72.0x12.0x9.6	123'-0"	45°	-	(P) RRUS-32 WCS	27.2 x 12.1 x 7.0	(E) 2	(P) 1	(P) 1
BETA	UMTS 850	(E) 7770	55.0x11.0x5.0	123'-0"	155°	(E) LGP 21901 (E) LGP 21901	-	-	(E) 2	-	-
	LTE 700 BC/PCS	(E) HPA-65R-BUU-H6	72.0x14.8x9.0	123'-0"	155°	-	(E) RRUS 11 700 (B/C) (E) RRUS 12 1900	19.7 x 17.0 x 7.2 27.2 x 12.1 x 7.0	-	(P) 3	(P) 2
	LTE WCS	(P) QS66512-6	72.0x12.0x9.6	123'-0"	155°	-	(P) RRUS-32 WCS	27.2 x 12.1 x 7.0	(E) 2	(P) 1	(P) 1
GAMMA	UMTS 850	(E) 7770	55.0x11.0x5.0	123'-0"	285°	(E) LGP 21901 (E) LGP 21901	-	-	(E) 2	-	-
	LTE 700 BC/PCS	(E) HPA-65R-BUU-H6	72.0x14.8x9.0	123'-0"	285°	-	(E) RRUS 11 700 (B/C) (E) RRUS 12 1900	19.7 x 17.0 x 7.2 27.2 x 12.1 x 7.0	-	(P) 3	(P) 2
	LTE WCS	(P) QS66512-6	72.0x12.0x9.6	123'-0"	285°	-	(P) RRUS-32 WCS	27.2 x 12.1 x 7.0	(E) 2	(P) 1	(P) 1



**MOUNTING CLEARANCE**  
 TOP: 1'-6" - 3'-0"  
 SIDES: 4"-12"  
 BOTTOM: 16"  
 FRONT: 2'-0" - 4'-0"

**REMOTE ATTACHMENT DETAIL**

SCALE: N.T.S.

3

**PROPOSED ELEVATION**

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



**FINAL EQUIPMENT CONFIGURATION**

SCALE: N.T.S.

3

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 111 SCHOOLHOUSE ROAD  
 MILFORD, CT 06460

**at&t**  
 Mobility  
 500 ENTERPRISE DRIVE  
 SUITE 3A  
 ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/09/18	FOR CONSTRUCTION	KB	DAS	BBR
A	02/09/18	FOR REVIEW	KB	DAS	BBR
SCALE: AS SHOWN		DESIGNED BY: KB	DRAWN BY: NMS		

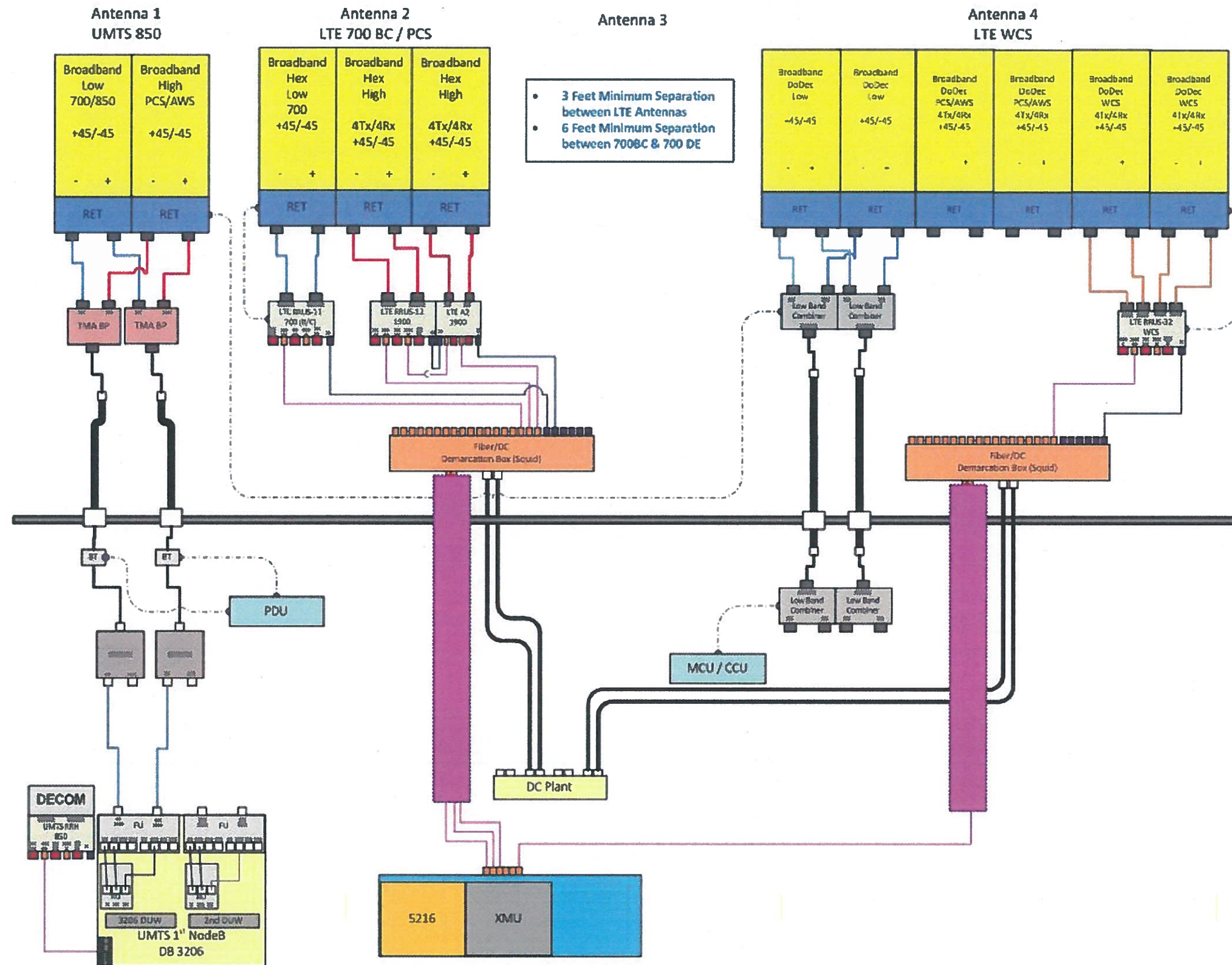


AT&T MOBILITY  
 ROCKY HILL, CT 06067

**PROPOSED ELEVATION & CONSTRUCTION DETAILS**

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083719	C02	0





• 3 Feet Minimum Separation between LTE Antennas  
 • 6 Feet Minimum Separation between 700BC & 700 DE

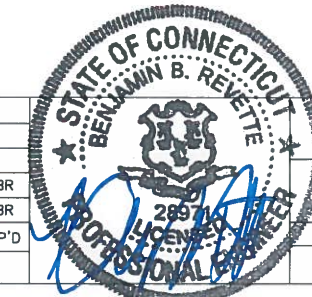
**EQUIPMENT PLUMBING DIAGRAM**  
 SCALE: N.T.S.

1

- NOTES:
1. EQUIPMENT PLUMBING DIAGRAM PER RFDS VERSION 4 DATED 10/19/17.
  2. CONTRACTOR TO VERIFY FINAL EQUIPMENT CONFIGURATION & SEPARATIONS WITH AT&T PRIOR TO CONSTRUCTION.

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A	02/09/18	FOR REVIEW	KB	DAS	BBR

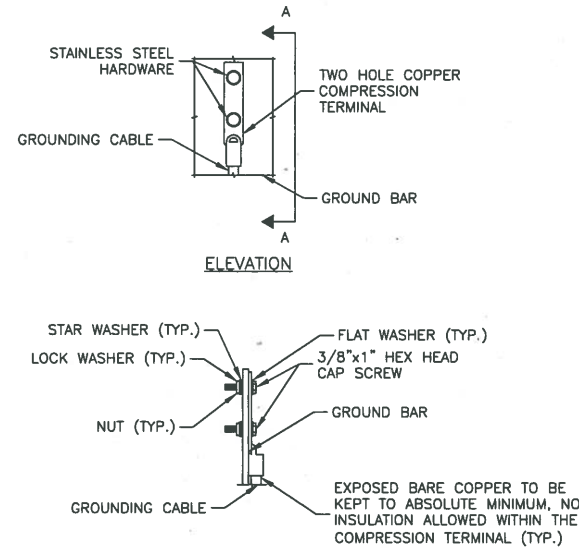
SCALE: AS SHOWN    DESIGNED BY: KB    DRAWN BY: NMS





**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 CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. THE CONTRACTOR SHALL PERFORM IEEE FALL-OFF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY CONTRACTOR 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 GROUNDING 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 SAI COMMUNICATIONS MARKET REPRESENTATIVE.
14. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTOR'S 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 CONNECTIONS. 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.



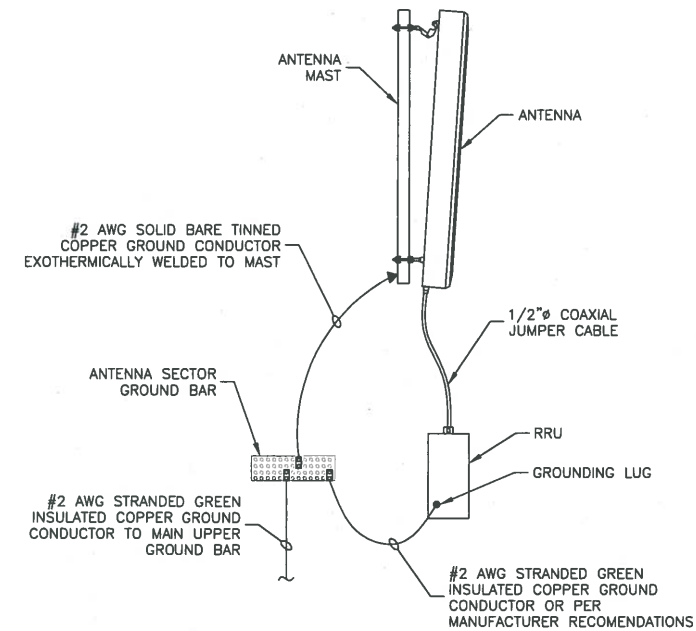
**NOTES:**

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**

SCALE: N.T.S.

1



**NOTES:**

1. VERIFY EXISTING GROUNDING SYSTEM IS INSTALLED PER AT&T STANDARDS.
2. BOND NEW EQUIPMENT INTO EXISTING GROUND SYSTEM IN ACCORDANCE WITH AT&T STANDARDS & MANUFACTURER RECOMMENDATIONS.

**TYPICAL ANTENNA/RRU GROUNDING DETAIL**

SCALE: N.T.S.

2

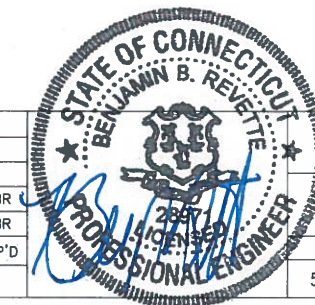
**Dewberry**  
Dewberry Engineers Inc.  
280 SUMMER ST.  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.695.3400  
FAX: 617.695.3310

**SAI**  
12 INDUSTRIAL WAY  
SALEM, NH 03079

**MILFORD NAUGATUK GARDENS 3C**  
SITE NO. CT5098  
111 SCHOOLHOUSE ROAD  
MILFORD, CT 06460

**at&t**  
Mobility  
500 ENTERPRISE DRIVE  
SUITE 3A  
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/09/18	FOR CONSTRUCTION	KB	DAS	BBR
A	02/09/18	FOR REVIEW	KB	DAS	BBR
SCALE: AS SHOWN      DESIGNED BY: KB      DRAWN BY: NMS					



AT&T MOBILITY  
ROCKY HILL, CT 06067

GROUNDING NOTES & DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50019239/50083719	E01	0



Date: January 25, 2018

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

Paul J. Ford and Company  
250 East Broad Street, Suite 600  
Columbus, Ohio 43215  
614-221-6679  
gaustin@pjfweb.com

**Subject: Structural Analysis Report**

**Carrier Designation:** AT&T Mobility Co-Locate  
**Carrier Site Number:** CT5098  
**Carrier Site Name:** MILFORD NAUGATUCK GARDENS

**Crown Castle Designation:** **Crown Castle BU Number:** 876342  
**Crown Castle Site Name:** BIC DRIVE (SSUSA)  
**Crown Castle JDE Job Number:** 477813  
**Crown Castle Work Order Number:** 1516377  
**Crown Castle Application Number:** 420721 Rev. 2

**Engineering Firm Designation:** Paul J. Ford and Company Project Number: 37518-0321.001.7805

**Site Data:** 111 School House Road, a/k/a Bic Drive, MILFORD,  
New Haven County, CT  
Latitude 41° 12' 46.06", Longitude -73° 5' 7.1"  
140 Foot - Monopole Tower

Dear Rebecca Klein,

Paul J. Ford and Company is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1132629, in accordance with application 420721, revision 2.

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:

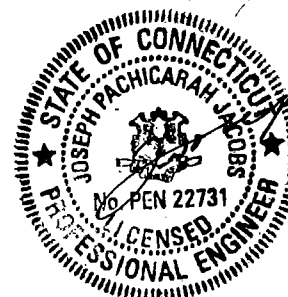
LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**  
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 were used in this analysis.

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

Respectfully submitted by:

Grant J. Austin  
Structural Designer





Date: **January 25, 2018**

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

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250 East Broad Street, Suite 600  
Columbus, Ohio 43215  
614-221-6679  
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**Subject: Structural Analysis Report**

**Carrier Designation:** **AT&T Mobility Co-Locate**  
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LC7: Existing + Reserved + Proposed Equipment

**Sufficient Capacity**

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, “Structural Standard for Antenna Supporting Structures and Antennas”, with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 were used in this analysis.

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Respectfully submitted by:

Grant J. Austin  
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## 1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by SUMMIT in October of 1999. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

## 2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 were used in this analysis.

**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
121.0	123.0	3	cci antennas	HPA-65R-BUU-H6 w/ MP	1 2	3/8 3/4	--
		3	ericsson	RRUS 11			
		3	ericsson	RRUS 32			
		3	ericsson	RRUS12/RRUS A2			
		3	kaelus	DBC0061F1V51-2			
		3	quintel technology	QS66512-6 w/ MP			
		1	raycap	DC6-48-60-18-8C			

**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
140.0	140.0	3	alcatel lucent	TD-RRH8X20-25	1 3 1	1/2 1-1/4 1-5/8	1
		9	rfs celwave	ACU-A20-N			
		3	rfs celwave	APXVSPP18-C-A20 w/ MP			
		3	rfs celwave	APXVTM14-C-120 w/ MP			
		1	tower mounts	Platform Mount [LP 1201-1]			
137.0	137.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	--	--	1
		3	alcatel lucent	TME-800MHZ RRH			
		3	alcatel lucent	TME-800MHZ 2X50W RRH W/FILTER			
		1	tower mounts	Side Arm Mount [SO 103-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note	
121.0	125.0	3	kmw communications	AM-X-CD-16-65-00T-RET w/ MP	--	--	3	
	123.0	3	powerwave technologies	7770.00 w/ MP				
		6	powerwave technologies	LGP21901				
		3	powerwave technologies	7770.00 w/ MP				
		2	powerwave technologies	LGP21401				
	121.0	121.0	4	powerwave technologies	LGP21401	1 2 12	3/8 7/16 1-5/8	1
			1	raycap	DC6-48-60-18-8F			
			1	tower mounts	Platform Mount [LP 1201-1]			
115.0	116.0	3	andrew	ETW200VS12UB	11 6	1-1/4 1-5/8	1	
		6	ems wireless	RR90-17-02DP w/ MP				
		6	remec	S20070A1				
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ MP				
	115.0	1	tower mounts	Platform Mount [LP 1201-1]				
104.0	107.0	1	trimble	ACUTIME 2000	6	1-5/8	1	
	104.0	3	alcatel lucent	RRH2X60-700	1 2	1/2 1-5/8	2	
		3	alcatel lucent	RRH2X60-PCS				
		3	alcatel lucent	RRH4X45-AWS4 B66				
		9	commscope	SBNHH-1D65B w/ MP				
		1	rfs celwave	DB-T1-6Z-8AB-0Z				
		3	andrew	LNx-6514DS-VTM w/ MP				
		1	rfs celwave	DB-T1-6Z-8AB-0Z				
	6	rfs celwave	FD9R6004/2C-3L					
1	tower mounts	Platform Mount [LP 1201-1]						
95.0	95.0	3	rfs celwave	APXV18-206517S-C w/ MP	6	1-5/8	1	
		1	tower mounts	Pipe Mount [PM 601-3]				
80.0	82.0	1	kathrein	OG-860/1920/GPS-A	1	1/2	1	
	80.0	1	tower mounts	Side Arm Mount [SO 901-1]				

- Notes:  
 1) Existing Equipment  
 2) Reserved Equipment  
 3) Equipment To Be Removed



### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH, 08-12040E G1, 12/05/2008	1531894	CCISITES
4-POST-MODIFICATION INSPECTION	PJF, 41709-0132, 12/04/2009	2547672	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 25566, 04/21/2016	6234048	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	PJF, 29299-549, 09/29/1999	1631615	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PJF, 29299-549, 10/29/1999	1630877	CCISITES

#### 3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

#### 3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) Monopole was modified in conformance with the referenced modification drawings.

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

#### 4) ANALYSIS RESULTS

**Table 4 - Section Capacity (Summary)**

Section No.	Elevation (ft)	Component Type	Size	% Capacity	Pass / Fail
L1	140 - 135	Pole	TP17.015x16x0.25	8.2%	Pass
L2	135 - 130	Pole	TP18.03x17.015x0.25	16.0%	Pass
L3	130 - 125	Pole	TP19.045x18.03x0.25	22.6%	Pass
L4	125 - 120	Pole	TP20.061x19.045x0.25	31.5%	Pass
L5	120 - 115	Pole	TP21.076x20.061x0.25	41.7%	Pass
L6	115 - 110	Pole	TP22.091x21.076x0.25	53.8%	Pass
L7	110 - 105	Pole	TP23.106x22.091x0.25	64.5%	Pass
L8	105 - 104	Pole	TP23.309x23.106x0.25	66.5%	Pass
L9	104 - 103.75	Pole + Reinf.	TP23.36x23.309x0.4625	62.9%	Pass
L10	103.75 - 98.75	Pole + Reinf.	TP24.375x23.36x0.45	76.6%	Pass
L11	98.75 - 98.5	Pole + Reinf.	TP24.426x24.375x0.45	77.2%	Pass
L12	98.5 - 98.25	Pole + Reinf.	TP24.476x24.426x0.725	49.8%	Pass
L13	98.25 - 97	Pole + Reinf.	TP24.73x24.476x0.725	52.0%	Pass
L14	97 - 96.75	Pole + Reinf.	TP24.781x24.73x0.5125	61.8%	Pass
L15	96.75 - 91.75	Pole + Reinf.	TP26.456x24.781x0.5	71.3%	Pass
L16	91.75 - 88	Pole + Reinf.	TP26.058x25.296x0.5625	71.3%	Pass
L17	88 - 87.75	Pole + Reinf.	TP26.108x26.058x0.7625	55.8%	Pass
L18	87.75 - 82.75	Pole + Reinf.	TP27.124x26.108x0.7375	61.8%	Pass
L19	82.75 - 77.75	Pole + Reinf.	TP28.139x27.124x0.725	67.3%	Pass
L20	77.75 - 72.75	Pole + Reinf.	TP29.154x28.139x0.7125	72.5%	Pass
L21	72.75 - 68.08	Pole + Reinf.	TP30.102x29.154x0.6875	77.0%	Pass
L22	68.08 - 67.83	Pole + Reinf.	TP30.153x30.102x0.8125	65.8%	Pass
L23	67.83 - 62.83	Pole + Reinf.	TP31.168x30.153x0.7875	69.9%	Pass
L24	62.83 - 57.83	Pole + Reinf.	TP32.184x31.168x0.7625	73.8%	Pass
L25	57.83 - 52.83	Pole + Reinf.	TP33.199x32.184x0.75	77.5%	Pass
L26	52.83 - 51.5	Pole + Reinf.	TP34.332x33.199x0.75	78.5%	Pass
L27	51.5 - 46.5	Pole + Reinf.	TP33.859x32.844x0.8	77.7%	Pass
L28	46.5 - 41.5	Pole + Reinf.	TP34.874x33.859x0.8	80.7%	Pass
L29	41.5 - 37.75	Pole + Reinf.	TP35.636x34.874x0.775	82.8%	Pass
L30	37.75 - 37.5	Pole + Reinf.	TP35.686x35.636x0.85	77.4%	Pass
L31	37.5 - 32.5	Pole + Reinf.	TP36.702x35.686x0.825	80.0%	Pass
L32	32.5 - 32.25	Pole + Reinf.	TP36.752x36.702x0.875	74.0%	Pass
L33	32.25 - 27.25	Pole + Reinf.	TP37.767x36.752x0.8625	76.3%	Pass
L34	27.25 - 23.5	Pole + Reinf.	TP38.529x37.767x0.85	78.0%	Pass
L35	23.5 - 23.25	Pole + Reinf.	TP38.58x38.529x0.95	73.3%	Pass
L36	23.25 - 20.75	Pole + Reinf.	TP39.087x38.58x0.95	74.3%	Pass
L37	20.75 - 20.5	Pole + Reinf.	TP39.138x39.087x0.9	75.4%	Pass
L38	20.5 - 15.5	Pole + Reinf.	TP40.153x39.138x0.875	77.3%	Pass
L39	15.5 - 10.5	Pole + Reinf.	TP41.168x40.153x0.8625	79.1%	Pass
L40	10.5 - 5.5	Pole + Reinf.	TP42.183x41.168x0.85	80.7%	Pass
L41	5.5 - 3	Pole + Reinf.	TP42.691x42.183x0.8375	81.5%	Pass
L42	3 - 2.75	Pole + Reinf.	TP42.742x42.691x0.9	76.6%	Pass
L43	2.75 - 0	Pole + Reinf.	TP43.3x42.742x0.9	77.5%	Pass
				Summary	

Section No.	Elevation (ft)	Component Type	Size	% Capacity	Pass / Fail
			Pole (L29)	82.8	Pass
			Rating =	82.8	Pass

**Table 5 - Tower Component Stresses vs. Capacity – LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	78.2	Pass
1	Base Plate	0	68.6	Pass
1	Base Foundation – Structural Steel	0	57.0	Pass
1	Base Foundation Soil Interaction	0	52.9	Pass

<b>Structure Rating (max from all components) =</b>	<b>82.8%</b>
---	--------------

Notes:

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

#### 4.1) Recommendations

The monopole and its foundation have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.



**APPENDIX A**  
**TNXTOWER OUTPUT**

## Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- 1) Tower is located in New Haven County, Connecticut.
- 2) ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- 3) Basic wind speed of 97 mph.
- 4) Structure Class II.
- 5) Exposure Category C.
- 6) Topographic Category 1.
- 7) Crest Height 0.0000 ft.
- 8) Nominal ice thickness of 0.7500 in.
- 9) Ice thickness is considered to increase with height.
- 10) Ice density of 56.00 pcf.
- 11) A wind speed of 50 mph is used in combination with ice.
- 12) Temperature drop of 50 °F.
- 13) Deflections calculated using a wind speed of 60 mph.
- 14) A non-linear (P-delta) analysis was used.
- 15) Pressures are calculated at each section.
- 16) Stress ratio used in pole design is 1.
- 17) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile  Include Bolts In Member Capacity  Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt.  Autocalc Torque Arm Areas  Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption  <div style="text-align: center; background-color: #e0e0e0; padding: 2px;"><b>Poles</b></div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
--	--	---

## Tapered Pole Section Geometry

Section	Elevation <small>ft</small>	Section Length <small>ft</small>	Splice Length <small>ft</small>	Number of Sides	Top Diameter <small>in</small>	Bottom Diameter <small>in</small>	Wall Thickness <small>in</small>	Bend Radius <small>in</small>	Pole Grade
L1	140.0000- 135.0000	5.0000	0.00	12	16.0000	17.0151	0.2500	1.0000	A572-65 (65 ksi)
L2	135.0000- 130.0000	5.0000	0.00	12	17.0151	18.0303	0.2500	1.0000	A572-65 (65 ksi)
L3	130.0000- 125.0000	5.0000	0.00	12	18.0303	19.0454	0.2500	1.0000	A572-65 (65 ksi)
L4	125.0000- 120.0000	5.0000	0.00	12	19.0454	20.0606	0.2500	1.0000	A572-65 (65 ksi)
L5	120.0000- 115.0000	5.0000	0.00	12	20.0606	21.0757	0.2500	1.0000	A572-65 (65 ksi)
L6	115.0000- 110.0000	5.0000	0.00	12	21.0757	22.0909	0.2500	1.0000	A572-65 (65 ksi)
L7	110.0000-	5.0000	0.00	12	22.0909	23.1060	0.2500	1.0000	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
L8	105.0000 105.0000- 104.0000	1.0000	0.00	12	23.1060	23.3090	0.2500	1.0000	(65 ksi) A572-65
L9	104.0000- 103.7500	0.2500	0.00	12	23.3090	23.3598	0.4625	1.8500	(65 ksi) A572-65
L10	103.7500- 98.7500	5.0000	0.00	12	23.3598	24.3750	0.4500	1.8000	(65 ksi) A572-65
L11	98.7500- 98.5000	0.2500	0.00	12	24.3750	24.4257	0.4500	1.8000	(65 ksi) A572-65
L12	98.5000- 98.2500	0.2500	0.00	12	24.4257	24.4765	0.7250	2.9000	(65 ksi) A572-65
L13	98.2500- 97.0000	1.2500	0.00	12	24.4765	24.7303	0.7250	2.9000	(65 ksi) A572-65
L14	97.0000- 96.7500	0.2500	0.00	12	24.7303	24.7810	0.5125	2.0500	(65 ksi) A572-65
L15	96.7500- 88.5000	8.2500	3.25	12	24.7810	26.4560	0.5000	2.0000	(65 ksi) A572-65
L16	88.5000- 88.0000	3.7500	0.00	12	25.2962	26.0576	0.5625	2.2500	(65 ksi) A572-65
L17	88.0000- 87.7500	0.2500	0.00	12	26.0576	26.1084	0.7625	3.0500	(65 ksi) A572-65
L18	87.7500- 82.7500	5.0000	0.00	12	26.1084	27.1236	0.7375	2.9500	(65 ksi) A572-65
L19	82.7500- 77.7500	5.0000	0.00	12	27.1236	28.1389	0.7250	2.9000	(65 ksi) A572-65
L20	77.7500- 72.7500	5.0000	0.00	12	28.1389	29.1542	0.7125	2.8500	(65 ksi) A572-65
L21	72.7500- 68.0800	4.6700	0.00	12	29.1542	30.1024	0.6875	2.7500	(65 ksi) A572-65
L22	68.0800- 67.8300	0.2500	0.00	12	30.1024	30.1532	0.8125	3.2500	(65 ksi) A572-65
L23	67.8300- 62.8300	5.0000	0.00	12	30.1532	31.1684	0.7875	3.1500	(65 ksi) A572-65
L24	62.8300- 57.8300	5.0000	0.00	12	31.1684	32.1837	0.7625	3.0500	(65 ksi) A572-65
L25	57.8300- 52.8300	5.0000	0.00	12	32.1837	33.1990	0.7500	3.0000	(65 ksi) A572-65
L26	52.8300- 47.2500	5.5800	4.25	12	33.1990	34.3320	0.7500	3.0000	(65 ksi) A572-65
L27	47.2500- 46.5000	5.0000	0.00	12	32.8440	33.8592	0.8000	3.2000	(65 ksi) A572-65
L28	46.5000- 41.5000	5.0000	0.00	12	33.8592	34.8743	0.8000	3.2000	(65 ksi) A572-65
L29	41.5000- 37.7500	3.7500	0.00	12	34.8743	35.6357	0.7750	3.1000	(65 ksi) A572-65
L30	37.7500- 37.5000	0.2500	0.00	12	35.6357	35.6864	0.8500	3.4000	(65 ksi) A572-65
L31	37.5000- 32.5000	5.0000	0.00	12	35.6864	36.7016	0.8250	3.3000	(65 ksi) A572-65
L32	32.5000- 32.2500	0.2500	0.00	12	36.7016	36.7523	0.8750	3.5000	(65 ksi) A572-65
L33	32.2500- 27.2500	5.0000	0.00	12	36.7523	37.7675	0.8625	3.4500	(65 ksi) A572-65
L34	27.2500- 23.5000	3.7500	0.00	12	37.7675	38.5288	0.8500	3.4000	(65 ksi) A572-65
L35	23.5000- 23.2500	0.2500	0.00	12	38.5288	38.5796	0.9500	3.8000	(65 ksi) A572-65
L36	23.2500- 20.7500	2.5000	0.00	12	38.5796	39.0872	0.9500	3.8000	(65 ksi) A572-65
L37	20.7500- 20.5000	0.2500	0.00	12	39.0872	39.1379	0.9000	3.6000	(65 ksi) A572-65
L38	20.5000- 15.5000	5.0000	0.00	12	39.1379	40.1531	0.8750	3.5000	(65 ksi) A572-65
L39	15.5000- 10.5000	5.0000	0.00	12	40.1531	41.1682	0.8625	3.4500	(65 ksi) A572-65
L40	10.5000- 5.5000	5.0000	0.00	12	41.1682	42.1833	0.8500	3.4000	(65 ksi) A572-65
L41	5.5000-3.0000	2.5000	0.00	12	42.1833	42.6909	0.8375	3.3500	(65 ksi) 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
L42	3.0000-2.7500	0.2500	0.00	12	42.6909	42.7417	0.9000	3.6000	A572-65 (65 ksi)
L43	2.7500-0.0000	2.7500		12	42.7417	43.3000	0.9000	3.6000	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	16.5644	12.6788	401.4426	5.6385	8.2880	48.4366	813.4316	6.2401	3.6180	14.472
	17.6154	13.4959	484.1766	6.0019	8.8138	54.9336	981.0731	6.6423	3.8901	15.56
L2	17.6154	13.4959	484.1766	6.0019	8.8138	54.9336	981.0731	6.6423	3.8901	15.56
	18.6663	14.3131	577.5618	6.3653	9.3397	61.8395	1170.2967	7.0445	4.1621	16.648
L3	18.6663	14.3131	577.5618	6.3653	9.3397	61.8395	1170.2967	7.0445	4.1621	16.648
	19.7173	15.1303	682.2430	6.7288	9.8655	69.1542	1382.4093	7.4467	4.4342	17.737
L4	19.7173	15.1303	682.2430	6.7288	9.8655	69.1542	1382.4093	7.4467	4.4342	17.737
	20.7682	15.9475	798.8653	7.0922	10.3914	76.8777	1618.7177	7.8489	4.7062	18.825
L5	20.7682	15.9475	798.8653	7.0922	10.3914	76.8777	1618.7177	7.8489	4.7062	18.825
	21.8192	16.7647	928.0736	7.4556	10.9172	85.0100	1880.5287	8.2511	4.9783	19.913
L6	21.8192	16.7647	928.0736	7.4556	10.9172	85.0100	1880.5287	8.2511	4.9783	19.913
	22.8702	17.5819	1070.5128	7.8190	11.4431	93.5512	2169.1491	8.6533	5.2504	21.001
L7	22.8702	17.5819	1070.5128	7.8190	11.4431	93.5512	2169.1491	8.6533	5.2504	21.001
	23.9211	18.3991	1226.8278	8.1825	11.9689	102.5011	2485.8858	9.0555	5.5224	22.09
L8	23.9211	18.3991	1226.8278	8.1825	11.9689	102.5011	2485.8858	9.0555	5.5224	22.09
	24.1313	18.5625	1259.8127	8.2551	12.0741	104.3402	2552.7221	9.1359	5.5768	22.307
L9	24.1313	18.5625	1259.8127	8.2551	12.0741	104.3402	2552.7221	9.1359	5.5768	22.307
	24.1839	34.0242	2266.8112	8.1791	12.0741	187.7418	4593.1742	16.7457	5.0073	10.827
L10	24.1839	34.0242	2266.8112	8.1791	12.0741	187.7418	4593.1742	16.7457	5.0073	10.827
	24.1839	33.1963	2223.9169	8.2017	12.1004	183.7890	4506.2586	16.3382	5.0544	11.232
L11	25.2348	34.6673	2532.8387	8.5651	12.6262	200.6014	5132.2179	17.0622	5.3265	11.837
	25.2348	34.6673	2532.8387	8.5651	12.6262	200.6014	5132.2179	17.0622	5.3265	11.837
	25.2874	34.7408	2548.9933	8.5833	12.6525	201.4614	5164.9515	17.0984	5.3401	11.867
L12	25.2874	34.7408	2548.9933	8.5833	12.6525	201.4614	5164.9515	17.0984	5.3401	11.867
	25.3399	55.4478	3992.5567	8.5030	12.6788	314.9000	8090.0023	27.2897	4.6167	6.368
L13	25.3399	55.4478	3992.5567	8.5030	12.6788	314.9000	8090.0023	27.2897	4.6167	6.368
	25.6026	56.0403	4121.9115	8.5939	12.8103	321.7661	8352.1101	27.5813	4.6847	6.462
L14	25.6026	56.0403	4121.9115	8.5939	12.8103	321.7661	8352.1101	27.5813	4.6847	6.462
	25.6552	40.0491	3010.6829	8.6881	12.8366	234.5396	6100.4598	19.7110	5.2678	10.279
L15	25.6552	40.0491	3010.6829	8.6881	12.8366	234.5396	6100.4598	19.7110	5.2678	10.279
	27.3893	41.7892	3593.5618	9.2922	13.7042	262.2232	7281.5305	20.5674	5.7502	11.5
L16	27.3893	41.7892	3593.5618	9.2922	13.7042	262.2232	7281.5305	20.5674	5.7502	11.5
	26.8717	44.7988	3498.0762	8.8546	13.1034	266.9593	7088.0507	22.0486	5.2719	9.372
L17	26.8717	44.7988	3498.0762	8.8546	13.1034	266.9593	7088.0507	22.0486	5.2719	9.372
	26.9768	46.1780	3831.1985	9.1272	13.4978	283.8379	7763.0469	22.7274	5.4759	9.735
L17	26.9768	46.1780	3831.1985	9.1272	13.4978	283.8379	7763.0469	22.7274	5.4759	9.735
	27.0294	62.1058	5072.1375	9.0556	13.4978	375.7741	10277.525	30.5666	4.9399	6.479
	27.0294	62.2304	5102.7357	9.0738	13.5241	377.3059	10339.526	30.6279	4.9535	6.496
L18	27.0294	62.2304	5102.7357	9.0738	13.5241	377.3059	10339.526	30.6279	4.9535	6.496
	28.0804	60.2495	4950.0516	9.0828	13.5241	366.0162	10030.146	29.6530	5.0205	6.808
	28.0804	62.6605	5568.4063	9.4462	14.0500	396.3267	11283.100	30.8396	5.2926	7.176
L19	28.0804	62.6605	5568.4063	9.4462	14.0500	396.3267	11283.100	30.8396	5.2926	7.176
	29.1315	61.6276	5481.8099	9.4507	14.0500	390.1633	11107.633	30.3312	5.3261	7.346
	29.1315	63.9977	6138.9199	9.8142	14.5759	421.1678	12439.116	31.4977	5.5982	7.722
L20	29.1315	63.9977	6138.9199	9.8142	14.5759	421.1678	12439.116	31.4977	5.5982	7.722
	30.1826	62.9230	6041.3330	9.8186	14.5759	414.4728	12241.378	30.9688	5.6317	7.904
	30.1826	65.2523	6737.3847	10.1821	15.1019	446.1297	13651.768	32.1152	5.9038	8.286
L21	30.1826	65.2523	6737.3847	10.1821	15.1019	446.1297	13651.768	32.1152	5.9038	8.286
	31.1643	63.0181	6518.1433	10.1911	15.1019	431.6122	13207.525	31.0156	5.9708	8.685
	31.1643	65.1173	7191.4623	10.5305	15.5930	461.1967	14571.852	32.0487	6.2249	9.054
L22	31.1643	65.1173	7191.4623	10.5305	15.5930	461.1967	14571.852	32.0487	6.2249	9.054
	31.2169	76.6297	8391.1100	10.4858	15.5930	538.1314	17002.663	37.7148	5.8899	7.249
	31.2169	76.7625	8434.8143	10.5040	15.6193	540.0236	17091.220	37.7802	5.9036	7.266
L23	31.2169	76.7625	8434.8143	10.5040	15.6193	540.0236	17091.220	37.7802	5.9036	7.266
	31.2169	74.4640	8196.1968	10.5129	15.6193	524.7465	16607.716	36.6489	5.9706	7.582

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
	32.2679	77.0385	9076.0309	10.8764	16.1453	562.1486	18390.499	37.9160	6.2426	7.927
L24	32.2679	74.6542	8809.6151	10.8853	16.1453	545.6474	17850.668	36.7425	6.3096	8.275
	33.3190	77.1469	9721.8760	11.2488	16.6712	583.1554	19699.156	37.9694	6.5817	8.632
L25	33.3190	75.9124	9573.9180	11.2533	16.6712	574.2803	19399.353	37.3618	6.6152	8.82
	34.3701	78.3643	10531.874	11.6167	17.1971	612.4228	21340.432	38.5685	6.8873	9.183
L26	34.3701	78.3643	10531.874	11.6167	17.1971	612.4228	21340.432	38.5685	6.8873	9.183
	35.5431	81.1005	11674.082	12.0224	17.7840	656.4383	23654.856	39.9152	7.1910	9.588
L27	34.8959	82.5454	10818.649	11.4718	17.0132	635.8972	21921.516	40.6263	6.6582	8.323
	35.0536	85.1604	11879.758	11.8352	17.5390	677.3319	24071.611	41.9134	6.9303	8.663
L28	35.0536	85.1604	11879.758	11.8352	17.5390	677.3319	24071.611	41.9134	6.9303	8.663
	36.1045	87.7754	13008.077	12.1986	18.0649	720.0749	26357.891	43.2004	7.2023	9.003
L29	36.1045	85.0948	12629.332	12.2076	18.0649	699.1091	25590.450	41.8811	7.2693	9.38
	36.8928	86.9948	13494.310	12.4801	18.4593	731.0314	27343.131	42.8162	7.4734	9.643
L30	36.8928	95.2084	14704.892	12.4533	18.4593	796.6126	29796.098	46.8587	7.2724	8.556
	36.9453	95.3473	14769.355	12.4714	18.4856	798.9668	29926.719	46.9270	7.2860	8.572
L31	36.9453	92.6094	14365.847	12.4804	18.4856	777.1385	29109.101	45.5795	7.3530	8.913
	37.9963	95.3061	15657.719	12.8438	19.0114	823.5958	31726.784	46.9068	7.6250	9.242
L32	37.9963	100.9414	16537.336	12.8259	19.0114	869.8636	33509.127	49.6803	7.4910	8.561
	38.0488	101.0844	16607.723	12.8441	19.0377	872.3595	33651.750	49.7507	7.5046	8.577
L33	38.0488	99.6750	16387.587	12.8486	19.0377	860.7964	33205.694	49.0570	7.5381	8.74
	39.0998	102.4943	17817.858	13.2120	19.5635	910.7682	36103.811	50.4446	7.8102	9.055
L34	39.0998	101.0431	17577.477	13.2165	19.5635	898.4810	35616.734	49.7303	7.8437	9.228
	39.8880	103.1270	18687.572	13.4890	19.9579	936.3481	37866.087	50.7559	8.0477	9.468
L35	39.8880	114.9536	20720.255	13.4532	19.9579	1038.1965	41984.854	56.5767	7.7797	8.189
	39.9405	115.1089	20804.328	13.4714	19.9842	1041.0375	42155.209	56.6531	7.7933	8.204
L36	39.9405	115.1089	20804.328	13.4714	19.9842	1041.0375	42155.209	56.6531	7.7933	8.204
	40.4660	116.6616	21657.600	13.6531	20.2471	1069.6619	43884.170	57.4173	7.9294	8.347
L37	40.4660	110.6664	20598.532	13.6710	20.2471	1017.3548	41738.211	54.4666	8.0634	8.959
	40.5185	110.8135	20680.778	13.6892	20.2734	1020.0923	41904.864	54.5390	8.0770	8.974
L38	40.5185	107.8058	20145.774	13.6981	20.2734	993.7029	40820.801	53.0587	8.1440	9.307
	41.5695	110.6659	21792.138	14.0615	20.7993	1047.7351	44156.780	54.4664	8.4160	9.618
L39	41.5695	109.1197	21501.336	14.0660	20.7993	1033.7537	43567.537	53.7054	8.4495	9.797
	42.6205	111.9390	23211.345	14.4294	21.3251	1088.4505	47032.478	55.0930	8.7216	10.112
L40	42.6205	110.3509	22896.238	14.4339	21.3251	1073.6742	46393.986	54.3114	8.7551	10.3
	43.6714	113.1294	24669.612	14.7973	21.8510	1128.9939	49987.323	55.6788	9.0271	10.62

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L41	43.6714	111.4994	24328.883 5	14.8018	21.8510	1113.4005	49296.913 8	54.8766	9.0606	10.819
	44.1969	112.8682	25235.929 8	14.9835	22.1139	1141.1799	51134.835 5	55.5503	9.1967	10.981
L42	44.1969	121.1101	26997.897 5	14.9611	22.1139	1220.8568	54705.059 9	59.6067	9.0292	10.032
	44.2494	121.2572	27096.387 9	14.9793	22.1402	1223.8555	54904.628 2	59.6791	9.0428	10.048
L43	44.2494	121.2572	27096.387 9	14.9793	22.1402	1223.8555	54904.628 2	59.6791	9.0428	10.048
	44.8275	122.8752	28195.636 4	15.1792	22.4294	1257.0838	57132.003 5	60.4754	9.1924	10.214

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
L1 140.0000-135.0000				1	1	1			
L2 135.0000-130.0000				1	1	1			
L3 130.0000-125.0000				1	1	1			
L4 125.0000-120.0000				1	1	1			
L5 120.0000-115.0000				1	1	1			
L6 115.0000-110.0000				1	1	1			
L7 110.0000-105.0000				1	1	1			
L8 105.0000-104.0000				1	1	1			
L9 104.0000-103.7500				1	1	0.942021			
L10 103.7500-98.7500				1	1	0.950174			
L11 98.7500-98.5000				1	1	0.949339			
L12 98.5000-98.2500				1	1	0.901676			
L13 98.2500-97.0000				1	1	0.895789			
L14 97.0000-96.7500				1	1	0.916918			
L15 96.7500-88.5000				1	1	0.921726			
L16 88.5000-88.0000				1	1	0.928587			
L17 88.0000-87.7500				1	1	0.97954			
L18 87.7500-82.7500				1	1	0.989121			
L19 82.7500-77.7500				1	1	0.984416			
L20 77.7500-72.7500				1	1	0.981146			
L21 72.7500-68.0800				1	1	0.997834			
L22 68.0800-67.8300				1	1	0.957491			
L23 67.8300-62.8300				1	1	0.967322			
L24 62.8300-57.8300				1	1	0.979205			
L25 57.8300-52.8300				1	1	0.97703			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor $A_r$	Adjust. Factor $A_r$	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft <sup>2</sup>	in							
L26 52.8300-47.2500				1	1	0.972405			
L27 47.2500-46.5000				1	1	0.985251			
L28 46.5000-41.5000				1	1	0.969863			
L29 41.5000-37.7500				1	1	0.989134			
L30 37.7500-37.5000				1	1	0.961419			
L31 37.5000-32.5000				1	1	0.974696			
L32 32.5000-32.2500				1	1	0.982743			
L33 32.2500-27.2500				1	1	0.981183			
L34 27.2500-23.5000				1	1	0.984079			
L35 23.5000-23.2500				1	1	1.02955			
L36 23.2500-20.7500				1	1	1.0211			
L37 20.7500-20.5000				1	1	0.982282			
L38 20.5000-15.5000				1	1	0.994668			
L39 15.5000-10.5000				1	1	0.994306			
L40 10.5000-5.5000				1	1	0.994679			
L41 5.5000-3.0000				1	1	1.00241			
L42 3.0000-2.7500				1	1	0.956794			
L43 2.7500-0.0000				1	1	0.949681			

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		$C_A A_A$ ft <sup>2</sup> /ft	Weight klf
LDF4-50A(1/2)	C	No	Inside Pole	140.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
LDF7-50A(1-5/8)	C	No	Inside Pole	140.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
HB114-1-0813U4-M5J(1-1/4)	C	No	Inside Pole	140.0000 - 0.0000	3	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								
LDF7-50A(1-5/8)	C	No	Inside Pole	121.0000 - 0.0000	12	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
FB-L98B-002-75000(3/8)	C	No	Inside Pole	121.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
WR-VG122ST-BRDA(7/16)	C	No	Inside Pole	121.0000 - 0.0000	2	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
FB-L98B-034-XXX(3/8)	C	No	CaAa (Out Of Face)	121.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
WR-VG86ST-BRD(3/4)	C	No	CaAa (Out Of	121.0000 - 0.0000	1	No Ice	0.0000	0.00



Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C <sub>A</sub> A <sub>A</sub> ft <sup>2</sup> /ft	Weight klf
			Face)			1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
WR-VG86ST-BRD(3/4)	C	No	CaAa (Out Of Face)	121.0000 - 0.0000	1	No Ice	0.0795	0.00
						1/2" Ice	0.1795	0.00
						1" Ice	0.2795	0.00
***								
HJ7-50A(1-5/8)	C	No	CaAa (Out Of Face)	115.0000 - 0.0000	1	No Ice	0.1980	0.00
						1/2" Ice	0.2980	0.00
						1" Ice	0.3980	0.00
HJ7-50A(1-5/8)	C	No	CaAa (Out Of Face)	115.0000 - 0.0000	5	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
LDF6-50A(1-1/4)	C	No	Inside Pole	115.0000 - 0.0000	11	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								
LDF7-50A(1-5/8)	C	No	Inside Pole	104.0000 - 0.0000	6	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
LDF4-50A(1/2)	C	No	Inside Pole	104.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
HB158-1-08U8-S8J18(1-5/8)	C	No	Inside Pole	104.0000 - 0.0000	2	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								
CR 50 1873(1-5/8)	C	No	CaAa (Out Of Face)	95.0000 - 0.0000	6	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								
LDF4-50A(1/2)	C	No	Inside Pole	80.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								
Aero MP3-08	C	No	CaAa (Out Of Face)	41.7500 - 0.0000	1	No Ice	0.4667	0.00
						1/2" Ice	0.5778	0.00
						1" Ice	0.6889	0.00
Aero MP3-06	C	No	CaAa (Out Of Face)	71.7500 - 41.7500	1	No Ice	0.4343	0.00
						1/2" Ice	0.5454	0.00
						1" Ice	0.6566	0.00
Aero MP3-05	C	No	CaAa (Out Of Face)	100.7500 - 71.7500	1	No Ice	0.3478	0.00
						1/2" Ice	0.4001	0.00
						1" Ice	0.6566	0.00
***								
1 1/4" Flat Reinforcement	C	No	CaAa (Out Of Face)	35.5000 - 0.0000	1	No Ice	0.2083	0.00
						1/2" Ice	0.3194	0.00
						1" Ice	0.4306	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	90.6700 - 35.5000	1	No Ice	0.1667	0.00
						1/2" Ice	0.2778	0.00
						1" Ice	0.3889	0.00
1" Flat Reinforcement	C	No	CaAa (Out Of Face)	105.5000 - 95.5000	1	No Ice	0.1667	0.00
						1/2" Ice	0.2778	0.00
						1" Ice	0.3889	0.00

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L1	140.0000- 135.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L2	135.0000- 130.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	130.0000- 125.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L4	125.0000-120.0000	C	0.000	0.000	0.000	0.000	0.02
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.080	0.03
L5	120.0000-115.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.398	0.08
L6	115.0000-110.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.388	0.14
L7	110.0000-105.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.471	0.14
L8	105.0000-104.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.444	0.03
L9	104.0000-103.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.111	0.01
L10	103.7500-98.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.916	0.18
L11	98.7500-98.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.198	0.01
L12	98.5000-98.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.198	0.01
L13	98.2500-97.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.990	0.05
L14	97.0000-96.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.198	0.01
L15	96.7500-88.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	5.729	0.33
L16	88.5000-88.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.396	0.02
L17	88.0000-87.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.198	0.01
L18	87.7500-82.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.960	0.21
L19	82.7500-77.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.960	0.21
L20	77.7500-72.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	3.960	0.21
L21	72.7500-68.0800	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.016	0.19
L22	68.0800-67.8300	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.220	0.01
L23	67.8300-62.8300	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.392	0.21
L24	62.8300-57.8300	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.392	0.21
L25	57.8300-52.8300	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	4.392	0.21
L26	52.8300-47.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation	Face	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
n	ft		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
L27	47.2500-46.5000	C	0.000	0.000	0.000	4.902	0.23
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L28	46.5000-41.5000	C	0.000	0.000	0.000	0.659	0.03
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L29	41.5000-37.7500	C	0.000	0.000	0.000	4.401	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L30	37.7500-37.5000	C	0.000	0.000	0.000	3.416	0.16
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L31	37.5000-32.5000	C	0.000	0.000	0.000	0.228	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L32	32.5000-32.2500	C	0.000	0.000	0.000	4.679	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L33	32.2500-27.2500	C	0.000	0.000	0.000	0.238	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L34	27.2500-23.5000	C	0.000	0.000	0.000	4.763	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L35	23.5000-23.2500	C	0.000	0.000	0.000	3.572	0.16
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L36	23.2500-20.7500	C	0.000	0.000	0.000	0.238	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L37	20.7500-20.5000	C	0.000	0.000	0.000	2.381	0.10
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L38	20.5000-15.5000	C	0.000	0.000	0.000	0.238	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L39	15.5000-10.5000	C	0.000	0.000	0.000	4.763	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L40	10.5000-5.5000	C	0.000	0.000	0.000	4.763	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L41	5.5000-3.0000	C	0.000	0.000	0.000	4.763	0.21
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L42	3.0000-2.7500	C	0.000	0.000	0.000	2.381	0.10
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
L43	2.7500-0.0000	C	0.000	0.000	0.000	0.238	0.01
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.619	0.11

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
n	ft		in	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
L1	140.0000-135.0000	A	1.730	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L2	135.0000-130.0000	A	1.724	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L3	130.0000-125.0000	A	1.717	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}$ In Face ft <sup>2</sup>	$C_{AA}$ Out Face ft <sup>2</sup>	Weight K
L4	125.0000-120.0000	A	1.710	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.422	0.05
L5	120.0000-115.0000	A	1.703	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.101	0.16
L6	115.0000-110.0000	A	1.696	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	4.779	0.46
L7	110.0000-105.0000	A	1.688	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.034	0.46
L8	105.0000-104.0000	A	1.683	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.492	0.09
L9	104.0000-103.7500	A	1.682	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.373	0.02
L10	103.7500-98.7500	A	1.678	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	9.055	0.49
L11	98.7500-98.5000	A	1.674	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.573	0.02
L12	98.5000-98.2500	A	1.673	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.573	0.02
L13	98.2500-97.0000	A	1.672	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	2.863	0.12
L14	97.0000-96.7500	A	1.671	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.572	0.02
L15	96.7500-88.5000	A	1.663	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	16.243	1.14
L16	88.5000-88.0000	A	1.655	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.141	0.07
L17	88.0000-87.7500	A	1.654	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.569	0.04
L18	87.7500-82.7500	A	1.649	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.356	0.74
L19	82.7500-77.7500	A	1.639	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.314	0.73
L20	77.7500-72.7500	A	1.629	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.270	0.73
L21	72.7500-68.0800	A	1.618	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.484	0.68
L22	68.0800-67.8300	A	1.612	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.560	0.04
L23	67.8300-62.8300	A	1.606	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.173	0.72
L24	62.8300-57.8300	A	1.593	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.120	0.71
L25	57.8300-52.8300	A	1.580	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.062	0.71
L26	52.8300-47.2500	A	1.564	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.270	0.78



Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
n	ft		in	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
L27	47.2500-46.5000	A	1.554	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	1.649	0.11
L28	46.5000-41.5000	A	1.544	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.919	0.69
L29	41.5000-37.7500	A	1.528	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.253	0.51
L30	37.7500-37.5000	A	1.520	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.549	0.03
L31	37.5000-32.5000	A	1.509	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.050	0.68
L32	32.5000-32.2500	A	1.497	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.554	0.03
L33	32.2500-27.2500	A	1.484	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.030	0.67
L34	27.2500-23.5000	A	1.461	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.199	0.49
L35	23.5000-23.2500	A	1.449	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.544	0.03
L36	23.2500-20.7500	A	1.440	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.422	0.32
L37	20.7500-20.5000	A	1.431	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.540	0.03
L38	20.5000-15.5000	A	1.412	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.723	0.63
L39	15.5000-10.5000	A	1.366	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.532	0.62
L40	10.5000-5.5000	A	1.302	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.258	0.59
L41	5.5000-3.0000	A	1.222	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	4.961	0.28
L42	3.0000-2.7500	A	1.175	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.486	0.03
L43	2.7500-0.0000	A	1.091	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	5.154	0.27

### Feed Line Center of Pressure

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub> Ice	CP <sub>z</sub> Ice
	ft	in	in	in	in
L1	140.0000-135.0000	0.0000	0.0000	0.0000	0.0000
L2	135.0000-130.0000	0.0000	0.0000	0.0000	0.0000
L3	130.0000-125.0000	0.0000	0.0000	0.0000	0.0000
L4	125.0000-120.0000	-0.0202	0.0116	-0.0886	0.0511
L5	120.0000-115.0000	-0.0955	0.0551	-0.3774	0.2179

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
	ft	in	in	Ice in	Ice in
L6	115.0000-110.0000	-0.3030	0.1750	-0.7203	0.4158
L7	110.0000-105.0000	-0.3211	0.1854	-0.7616	0.4397
L8	105.0000-104.0000	-0.4561	0.2634	-0.9928	0.5732
L9	104.0000-103.7500	-0.4566	0.2636	-0.9951	0.5745
L10	103.7500-98.7500	-0.5721	0.3303	-1.1302	0.6525
L11	98.7500-98.5000	-0.7221	0.4169	-1.2946	0.7475
L12	98.5000-98.2500	-0.7225	0.4171	-1.2960	0.7483
L13	98.2500-97.0000	-0.7237	0.4178	-1.3002	0.7507
L14	97.0000-96.7500	-0.7249	0.4185	-1.3043	0.7531
L15	96.7500-88.5000	-0.6633	0.3830	-1.2260	0.7078
L16	88.5000-88.0000	-0.7345	0.4241	-1.3379	0.7724
L17	88.0000-87.7500	-0.7350	0.4244	-1.3381	0.7726
L18	87.7500-82.7500	-0.7389	0.4266	-1.3514	0.7802
L19	82.7500-77.7500	-0.7459	0.4307	-1.3758	0.7943
L20	77.7500-72.7500	-0.7526	0.4345	-1.3988	0.8076
L21	72.7500-68.0800	-0.8076	0.4663	-1.4199	0.8198
L22	68.0800-67.8300	-0.8239	0.4757	-1.4303	0.8258
L23	67.8300-62.8300	-0.8275	0.4778	-1.4409	0.8319
L24	62.8300-57.8300	-0.8342	0.4816	-1.4603	0.8431
L25	57.8300-52.8300	-0.8405	0.4853	-1.4783	0.8535
L26	52.8300-47.2500	-0.8469	0.4890	-1.4960	0.8637
L27	47.2500-46.5000	-0.8470	0.4890	-1.4964	0.8639
L28	46.5000-41.5000	-0.8516	0.4917	-1.5028	0.8677
L29	41.5000-37.7500	-0.8795	0.5078	-1.5280	0.8822
L30	37.7500-37.5000	-0.8818	0.5091	-1.5334	0.8853
L31	37.5000-32.5000	-0.9036	0.5217	-1.5507	0.8953
L32	32.5000-32.2500	-0.9189	0.5305	-1.5641	0.9030
L33	32.2500-27.2500	-0.9220	0.5323	-1.5699	0.9064
L34	27.2500-23.5000	-0.9269	0.5352	-1.5782	0.9112
L35	23.5000-23.2500	-0.9291	0.5364	-1.5813	0.9129
L36	23.2500-20.7500	-0.9306	0.5373	-1.5831	0.9140
L37	20.7500-20.5000	-0.9321	0.5381	-1.5847	0.9149
L38	20.5000-15.5000	-0.9348	0.5397	-1.5869	0.9162
L39	15.5000-10.5000	-0.9399	0.5427	-1.5870	0.9163
L40	10.5000-5.5000	-0.9449	0.5455	-1.5784	0.9113
L41	5.5000-3.0000	-0.9484	0.5476	-1.5585	0.8998
L42	3.0000-2.7500	-0.9497	0.5483	-1.5437	0.8912
L43	2.7500-0.0000	-0.9511	0.5491	-1.5133	0.8737

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C <sub>A</sub> A <sub>A</sub> Front ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Side ft <sup>2</sup>	Weight K	
APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000	0.00	140.0000	No Ice	8.2619	6.9458	0.08
			0.00			1/2"	8.8215	8.1266	0.15
			0.00			Ice	9.3462	9.0212	0.23
APXVSP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000	0.00	140.0000	No Ice	8.2619	6.9458	0.08
			0.00			1/2"	8.8215	8.1266	0.15
			0.00			Ice	9.3462	9.0212	0.23

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						Vert
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000	0.00	0.00	140.0000	No Ice	8.2619	6.9458	0.08
			0.00				1/2"	8.8215	8.1266	0.15
			0.00				Ice	9.3462	9.0212	0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000	0.00	0.00	140.0000	No Ice	6.5799	4.9591	0.08
			0.00				1/2"	7.0306	5.7544	0.13
			0.00				Ice	7.4733	6.4723	0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000	0.00	0.00	140.0000	No Ice	6.5799	4.9591	0.08
			0.00				1/2"	7.0306	5.7544	0.13
			0.00				Ice	7.4733	6.4723	0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000	0.00	0.00	140.0000	No Ice	6.5799	4.9591	0.08
			0.00				1/2"	7.0306	5.7544	0.13
			0.00				Ice	7.4733	6.4723	0.19
(3) ACU-A20-N	A	From Leg	4.0000	0.00	0.00	140.0000	No Ice	0.0667	0.1167	0.00
			0.00				1/2"	0.1037	0.1620	0.00
			0.00				Ice	0.1481	0.2148	0.00
(3) ACU-A20-N	B	From Leg	4.0000	0.00	0.00	140.0000	No Ice	0.0667	0.1167	0.00
			0.00				1/2"	0.1037	0.1620	0.00
			0.00				Ice	0.1481	0.2148	0.00
(3) ACU-A20-N	C	From Leg	4.0000	0.00	0.00	140.0000	No Ice	0.0667	0.1167	0.00
			0.00				1/2"	0.1037	0.1620	0.00
			0.00				Ice	0.1481	0.2148	0.00
TD-RRH8X20-25	A	From Leg	4.0000	0.00	0.00	140.0000	No Ice	4.0455	1.5345	0.07
			0.00				1/2"	4.2975	1.7142	0.10
			0.00				Ice	4.5570	1.9008	0.13
TD-RRH8X20-25	B	From Leg	4.0000	0.00	0.00	140.0000	No Ice	4.0455	1.5345	0.07
			0.00				1/2"	4.2975	1.7142	0.10
			0.00				Ice	4.5570	1.9008	0.13
TD-RRH8X20-25	C	From Leg	4.0000	0.00	0.00	140.0000	No Ice	4.0455	1.5345	0.07
			0.00				1/2"	4.2975	1.7142	0.10
			0.00				Ice	4.5570	1.9008	0.13
(2) 2.375" OD x 6' Mount Pipe	A	From Leg	4.0000	0.00	0.00	140.0000	No Ice	1.4250	1.4250	0.03
			0.00				1/2"	1.9250	1.9250	0.04
			0.00				Ice	2.2939	2.2939	0.05
(2) 2.375" OD x 6' Mount Pipe	B	From Leg	4.0000	0.00	0.00	140.0000	No Ice	1.4250	1.4250	0.03
			0.00				1/2"	1.9250	1.9250	0.04
			0.00				Ice	2.2939	2.2939	0.05
(2) 2.375" OD x 6' Mount Pipe	C	From Leg	4.0000	0.00	0.00	140.0000	No Ice	1.4250	1.4250	0.03
			0.00				1/2"	1.9250	1.9250	0.04
			0.00				Ice	2.2939	2.2939	0.05
Platform Mount [LP 1201-1]	C	None			0.00	140.0000	No Ice	23.1000	23.1000	2.10
							1/2"	26.8000	26.8000	2.50
							Ice	30.5000	30.5000	2.90
***										
TME-800MHz 2X50W RRH W/FILTER	A	From Leg	4.0000	0.00	0.00	137.0000	No Ice	2.1453	2.2938	0.07
			0.00				1/2"	2.3591	2.6057	0.10
			0.00				Ice	2.5826	2.9343	0.13
TME-800MHz 2X50W RRH W/FILTER	B	From Leg	4.0000	0.00	0.00	137.0000	No Ice	2.1453	2.2938	0.07
			0.00				1/2"	2.3591	2.6057	0.10
			0.00				Ice	2.5826	2.9343	0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
TME-800MHz 2X50W RRH W/FILTER	C	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.1453	2.2938	0.07
						1/2"	2.3591	2.6057	0.10
						Ice	2.5826	2.9343	0.13
TME-800MHZ RRH	A	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.1342	1.7730	0.05
						1/2"	2.3195	1.9461	0.07
						Ice	2.5123	2.1267	0.10
TME-800MHZ RRH	B	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.1342	1.7730	0.05
						1/2"	2.3195	1.9461	0.07
						Ice	2.5123	2.1267	0.10
TME-800MHZ RRH	C	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.1342	1.7730	0.05
						1/2"	2.3195	1.9461	0.07
						Ice	2.5123	2.1267	0.10
800MHz 2X50W RRH W/FILTER	A	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.0583	1.9317	0.06
						1/2"	2.2398	2.1087	0.09
						Ice	2.4287	2.2931	0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.0583	1.9317	0.06
						1/2"	2.2398	2.1087	0.09
						Ice	2.4287	2.2931	0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	4.0000 0.00 0.00	0.00	137.0000	No Ice	2.0583	1.9317	0.06
						1/2"	2.2398	2.1087	0.09
						Ice	2.4287	2.2931	0.11
Side Arm Mount [SO 103-3]	C	None		0.00	137.0000	No Ice	9.5000	9.5000	0.22
						1/2"	11.8000	11.8000	0.32
						Ice	14.1000	14.1000	0.41
***									
7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice	5.7460	4.2543	0.06
						1/2"	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice	5.7460	4.2543	0.06
						1/2"	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice	5.7460	4.2543	0.06
						1/2"	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
(2) LGP21401	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice	1.1040	0.3471	0.01
						1/2"	1.2388	0.4422	0.02
						Ice	1.3810	0.5444	0.03
(2) LGP21401	B	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice	1.1040	0.3471	0.01
						1/2"	1.2388	0.4422	0.02
						Ice	1.3810	0.5444	0.03
(2) LGP21401	C	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice	1.1040	0.3471	0.01
						1/2"	1.2388	0.4422	0.02
						Ice	1.3810	0.5444	0.03
DC6-48-60-18-8F	B	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice	0.9167	0.9167	0.02
						1/2"	1.4583	1.4583	0.04
						Ice	1.6431	1.6431	0.06
QS66512-6 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	121.0000	No Ice	8.3708	8.4625	0.14
						1/2"	8.9314	9.6573	0.21
						Ice	9.4571	10.5478	0.30
						1" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
QS66512-6 w/ Mount Pipe	B	From Leg	4.0000	0.00	121.0000	No Ice	8.3708	8.4625	0.14
			0.00			1/2"	8.9314	9.6573	0.21
			2.00			Ice	9.4571	10.5478	0.30
QS66512-6 w/ Mount Pipe	C	From Leg	4.0000	0.00	121.0000	1" Ice	8.3708	8.4625	0.14
			0.00			1/2"	8.9314	9.6573	0.21
			2.00			Ice	9.4571	10.5478	0.30
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.0000	0.00	121.0000	No Ice	9.8953	8.1125	0.08
			0.00			1/2"	10.4700	9.3041	0.16
			2.00			Ice	11.0098	10.2095	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.0000	0.00	121.0000	1" Ice	9.8953	8.1125	0.08
			0.00			1/2"	10.4700	9.3041	0.16
			2.00			Ice	11.0098	10.2095	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.0000	0.00	121.0000	No Ice	9.8953	8.1125	0.08
			0.00			1/2"	10.4700	9.3041	0.16
			2.00			Ice	11.0098	10.2095	0.25
RRUS 11	A	From Leg	4.0000	0.00	121.0000	1" Ice	2.7908	1.1923	0.05
			0.00			1/2"	2.9984	1.3395	0.07
			2.00			Ice	3.2134	1.4957	0.10
RRUS 11	B	From Leg	4.0000	0.00	121.0000	1" Ice	2.7908	1.1923	0.05
			0.00			1/2"	2.9984	1.3395	0.07
			2.00			Ice	3.2134	1.4957	0.10
RRUS 11	C	From Leg	4.0000	0.00	121.0000	No Ice	2.7908	1.1923	0.05
			0.00			1/2"	2.9984	1.3395	0.07
			2.00			Ice	3.2134	1.4957	0.10
RRUS 32	A	From Leg	4.0000	0.00	121.0000	1" Ice	2.8571	1.7766	0.06
			0.00			1/2"	3.0830	1.9677	0.08
			2.00			Ice	3.3163	2.1658	0.10
RRUS 32	B	From Leg	4.0000	0.00	121.0000	1" Ice	2.8571	1.7766	0.06
			0.00			1/2"	3.0830	1.9677	0.08
			2.00			Ice	3.3163	2.1658	0.10
RRUS 32	C	From Leg	4.0000	0.00	121.0000	No Ice	2.8571	1.7766	0.06
			0.00			1/2"	3.0830	1.9677	0.08
			2.00			Ice	3.3163	2.1658	0.10
RRUS12/RRUS A2	A	From Leg	4.0000	0.00	121.0000	1" Ice	3.1435	1.8351	0.07
			0.00			1/2"	3.3632	2.0121	0.10
			2.00			Ice	3.5904	2.1965	0.13
RRUS12/RRUS A2	B	From Leg	4.0000	0.00	121.0000	1" Ice	3.1435	1.8351	0.07
			0.00			1/2"	3.3632	2.0121	0.10
			2.00			Ice	3.5904	2.1965	0.13
RRUS12/RRUS A2	C	From Leg	4.0000	0.00	121.0000	No Ice	3.1435	1.8351	0.07
			0.00			1/2"	3.3632	2.0121	0.10
			2.00			Ice	3.5904	2.1965	0.13
DBC0061F1V51-2	A	From Leg	4.0000	0.00	121.0000	1" Ice	0.2133	0.4133	0.01
			0.00			1/2"	0.2793	0.4959	0.02
			2.00			Ice	0.3526	0.5859	0.02
DBC0061F1V51-2	B	From Leg	4.0000	0.00	121.0000	1" Ice	0.2133	0.4133	0.01
			0.00			1/2"	0.2793	0.4959	0.02
			2.00			Ice	0.3526	0.5859	0.02
DBC0061F1V51-2	C	From Leg	4.0000	0.00	121.0000	No Ice	0.2133	0.4133	0.01



Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
			0.00			1/2"	0.2793	0.4959	0.02
			2.00			Ice	0.3526	0.5859	0.02
						1" Ice			
DC6-48-60-18-8C	C	From Leg	4.0000	0.00	121.0000	No Ice	2.7366	2.7366	0.03
			0.00			1/2"	2.9630	2.9630	0.05
			2.00			Ice	3.1964	3.1964	0.08
						1" Ice			
Platform Mount [LP 1201-1]	C	None		0.00	121.0000	No Ice	23.1000	23.1000	2.10
						1/2"	26.8000	26.8000	2.50
						Ice	30.5000	30.5000	2.90
						1" Ice			
***									
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Leg	4.0000	0.00	115.0000	No Ice	6.8239	3.4938	0.06
			0.00			1/2"	7.2751	4.2631	0.11
			1.00			Ice	7.7192	4.9598	0.16
						1" Ice			
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Leg	4.0000	0.00	115.0000	No Ice	6.8239	3.4938	0.06
			0.00			1/2"	7.2751	4.2631	0.11
			1.00			Ice	7.7192	4.9598	0.16
						1" Ice			
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Leg	4.0000	0.00	115.0000	No Ice	6.8239	3.4938	0.06
			0.00			1/2"	7.2751	4.2631	0.11
			1.00			Ice	7.7192	4.9598	0.16
						1" Ice			
(2) RR90-17-02DP w/ Mount Pipe	A	From Leg	4.0000	0.00	115.0000	No Ice	4.5931	3.3194	0.03
			0.00			1/2"	5.0183	4.0888	0.07
			1.00			Ice	5.4362	4.7844	0.12
						1" Ice			
(2) RR90-17-02DP w/ Mount Pipe	B	From Leg	4.0000	0.00	115.0000	No Ice	4.5931	3.3194	0.03
			0.00			1/2"	5.0183	4.0888	0.07
			1.00			Ice	5.4362	4.7844	0.12
						1" Ice			
(2) RR90-17-02DP w/ Mount Pipe	C	From Leg	4.0000	0.00	115.0000	No Ice	4.5931	3.3194	0.03
			0.00			1/2"	5.0183	4.0888	0.07
			1.00			Ice	5.4362	4.7844	0.12
						1" Ice			
ETW200VS12UB	A	From Leg	4.0000	0.00	115.0000	No Ice	0.4043	0.1628	0.01
			0.00			1/2"	0.4857	0.2187	0.01
			1.00			Ice	0.5746	0.2820	0.02
						1" Ice			
ETW200VS12UB	B	From Leg	4.0000	0.00	115.0000	No Ice	0.4043	0.1628	0.01
			0.00			1/2"	0.4857	0.2187	0.01
			1.00			Ice	0.5746	0.2820	0.02
						1" Ice			
ETW200VS12UB	C	From Leg	4.0000	0.00	115.0000	No Ice	0.4043	0.1628	0.01
			0.00			1/2"	0.4857	0.2187	0.01
			1.00			Ice	0.5746	0.2820	0.02
						1" Ice			
(2) S20070A1	A	From Leg	4.0000	0.00	115.0000	No Ice	0.6560	0.3257	0.01
			0.00			1/2"	0.7636	0.4114	0.01
			1.00			Ice	0.8786	0.5041	0.02
						1" Ice			
(2) S20070A1	B	From Leg	4.0000	0.00	115.0000	No Ice	0.6560	0.3257	0.01
			0.00			1/2"	0.7636	0.4114	0.01
			1.00			Ice	0.8786	0.5041	0.02
						1" Ice			
(2) S20070A1	C	From Leg	4.0000	0.00	115.0000	No Ice	0.6560	0.3257	0.01
			0.00			1/2"	0.7636	0.4114	0.01
			1.00			Ice	0.8786	0.5041	0.02
						1" Ice			
Platform Mount [LP 1201-1]	C	None		0.00	115.0000	No Ice	23.1000	23.1000	2.10
						1/2"	26.8000	26.8000	2.50
						Ice	30.5000	30.5000	2.90
						1" Ice			
***									

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						ft
LNX-6514DS-VTM w/ Mount Pipe	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice	8.3968	7.0679	0.06
			0.00	0.00			1/2"	8.9546	8.2532	0.13
			0.00	0.00			Ice	9.4800	9.1523	0.21
							1" Ice			
LNX-6514DS-VTM w/ Mount Pipe	B	From Leg	4.0000	0.00	0.00	104.0000	No Ice	8.3968	7.0679	0.06
			0.00	0.00			1/2"	8.9546	8.2532	0.13
			0.00	0.00			Ice	9.4800	9.1523	0.21
							1" Ice			
LNX-6514DS-VTM w/ Mount Pipe	C	From Leg	4.0000	0.00	0.00	104.0000	No Ice	8.3968	7.0679	0.06
			0.00	0.00			1/2"	8.9546	8.2532	0.13
			0.00	0.00			Ice	9.4800	9.1523	0.21
							1" Ice			
(2) FD9R6004/2C-3L	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice	0.3142	0.0762	0.00
			0.00	0.00			1/2"	0.3862	0.1189	0.01
			0.00	0.00			Ice	0.4656	0.1685	0.01
							1" Ice			
(2) FD9R6004/2C-3L	B	From Leg	4.0000	0.00	0.00	104.0000	No Ice	0.3142	0.0762	0.00
			0.00	0.00			1/2"	0.3862	0.1189	0.01
			0.00	0.00			Ice	0.4656	0.1685	0.01
							1" Ice			
(2) FD9R6004/2C-3L	C	From Leg	4.0000	0.00	0.00	104.0000	No Ice	0.3142	0.0762	0.00
			0.00	0.00			1/2"	0.3862	0.1189	0.01
			0.00	0.00			Ice	0.4656	0.1685	0.01
							1" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice	4.8000	2.0000	0.04
			0.00	0.00			1/2"	5.0704	2.1926	0.08
			0.00	0.00			Ice	5.3481	2.3926	0.12
							1" Ice			
ACUTIME 2000	B	From Leg	4.0000	0.00	0.00	104.0000	No Ice	0.2550	0.2550	0.00
			0.00	0.00			1/2"	0.3205	0.3205	0.00
			3.00	0.00			Ice	0.3934	0.3934	0.01
							1" Ice			
(3) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice	8.3995	7.0730	0.07
			0.00	0.00			1/2"	8.9639	8.2637	0.14
			0.00	0.00			Ice	9.4943	9.1753	0.21
							1" Ice			
(3) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000	0.00	0.00	104.0000	No Ice	8.3995	7.0730	0.07
			0.00	0.00			1/2"	8.9639	8.2637	0.14
			0.00	0.00			Ice	9.4943	9.1753	0.21
							1" Ice			
(3) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000	0.00	0.00	104.0000	No Ice	8.3995	7.0730	0.07
			0.00	0.00			1/2"	8.9639	8.2637	0.14
			0.00	0.00			Ice	9.4943	9.1753	0.21
							1" Ice			
RRH2X60-700	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice	3.5002	1.8157	0.06
			0.00	0.00			1/2"	3.7609	2.0519	0.08
			0.00	0.00			Ice	4.0285	2.2894	0.11
							1" Ice			
RRH2X60-700	B	From Leg	4.0000	0.00	0.00	104.0000	No Ice	3.5002	1.8157	0.06
			0.00	0.00			1/2"	3.7609	2.0519	0.08
			0.00	0.00			Ice	4.0285	2.2894	0.11
							1" Ice			
RRH2X60-700	C	From Leg	4.0000	0.00	0.00	104.0000	No Ice	3.5002	1.8157	0.06
			0.00	0.00			1/2"	3.7609	2.0519	0.08
			0.00	0.00			Ice	4.0285	2.2894	0.11
							1" Ice			
RRH2X60-PCS	A	From Leg	4.0000	0.00	0.00	104.0000	No Ice	2.2000	1.7233	0.06
			0.00	0.00			1/2"	2.3926	1.9015	0.08
			0.00	0.00			Ice	2.5926	2.0870	0.10
							1" Ice			
RRH2X60-PCS	B	From Leg	4.0000	0.00	0.00	104.0000	No Ice	2.2000	1.7233	0.06
			0.00	0.00			1/2"	2.3926	1.9015	0.08
			0.00	0.00			Ice	2.5926	2.0870	0.10
							1" Ice			
RRH2X60-PCS	C	From Leg	4.0000	0.00	0.00	104.0000	No Ice	2.2000	1.7233	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
			0.00			1/2"	2.3926	1.9015	0.08
			0.00			Ice	2.5926	2.0870	0.10
RRH4X45-AWS4 B66	A	From Leg	4.0000	0.00	104.0000	1" Ice	2.6600	1.5861	0.06
			0.00			No Ice	2.8781	1.7690	0.08
			0.00			1/2"	3.1037	1.9588	0.11
						Ice			
						1" Ice			
RRH4X45-AWS4 B66	B	From Leg	4.0000	0.00	104.0000	No Ice	2.6600	1.5861	0.06
			0.00			1/2"	2.8781	1.7690	0.08
			0.00			Ice	3.1037	1.9588	0.11
						1" Ice			
RRH4X45-AWS4 B66	C	From Leg	4.0000	0.00	104.0000	No Ice	2.6600	1.5861	0.06
			0.00			1/2"	2.8781	1.7690	0.08
			0.00			Ice	3.1037	1.9588	0.11
						1" Ice			
DB-T1-6Z-8AB-0Z	C	From Leg	4.0000	0.00	104.0000	No Ice	4.8000	2.0000	0.04
			0.00			1/2"	5.0704	2.1926	0.08
			0.00			Ice	5.3481	2.3926	0.12
						1" Ice			
Platform Mount [LP 1201-1]	C	None		0.00	104.0000	No Ice	23.1000	23.1000	2.10
						1/2"	26.8000	26.8000	2.50
						Ice	30.5000	30.5000	2.90
						1" Ice			
***									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	1.0000	0.00	95.0000	No Ice	5.4042	4.7000	0.05
			0.00			1/2"	5.9597	5.8600	0.10
			0.00			Ice	6.4808	6.7338	0.15
						1" Ice			
APXV18-206517S-C w/ Mount Pipe	B	From Leg	1.0000	0.00	95.0000	No Ice	5.4042	4.7000	0.05
			0.00			1/2"	5.9597	5.8600	0.10
			0.00			Ice	6.4808	6.7338	0.15
						1" Ice			
APXV18-206517S-C w/ Mount Pipe	C	From Leg	1.0000	0.00	95.0000	No Ice	5.4042	4.7000	0.05
			0.00			1/2"	5.9597	5.8600	0.10
			0.00			Ice	6.4808	6.7338	0.15
						1" Ice			
Pipe Mount [PM 601-3]	C	None		0.00	95.0000	No Ice	4.3900	4.3900	0.20
						1/2"	5.4800	5.4800	0.24
						Ice	6.5700	6.5700	0.28
						1" Ice			
***									
OG-860/1920/GPS-A	A	From Leg	4.0000	0.00	80.0000	No Ice	0.3077	0.3667	0.00
			0.00			1/2"	0.3952	0.4572	0.01
			2.00			Ice	0.4897	0.5548	0.01
						1" Ice			
Side Arm Mount [SO 901-1]	A	None		0.00	80.0000	No Ice	0.5000	0.8800	0.11
						1/2"	0.6800	1.1300	0.11
						Ice	0.8600	1.3800	0.11
						1" Ice			

**Tower Pressures - No Ice**

$G_H = 1.100$

Section Elevation ft	z ft	$K_z$	$q_z$ ksf	$A_G$ ft <sup>2</sup>	Face	$A_F$ ft <sup>2</sup>	$A_R$ ft <sup>2</sup>	$A_{leg}$ ft <sup>2</sup>	Leg %	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>
L1 140.0000-135.0000	137.4744	1.353	0.03	7.121	A	0.000	7.121	7.121	100.00	0.000	0.000
					B	0.000	7.121	100.00	0.000	0.000	
					C	0.000	7.121	100.00	0.000	0.000	
L2 135.0000-130.0000	132.4759	1.343	0.03	7.559	A	0.000	7.559	7.559	100.00	0.000	0.000
					B	0.000	7.559	100.00	0.000	0.000	
					C	0.000	7.559	100.00	0.000	0.000	
L3 130.0000-125.0000	127.4772	1.332	0.03	7.997	A	0.000	7.997	7.997	100.00	0.000	0.000
					B	0.000	7.997	100.00	0.000	0.000	
					C	0.000	7.997	100.00	0.000	0.000	
L4 125.0000-120.0000	122.4784	1.321	0.03	8.434	A	0.000	8.434	8.434	100.00	0.000	0.000
					B	0.000	8.434	100.00	0.000	0.000	
					C	0.000	8.434	100.00	0.000	0.080	
L5 120.0000-115.0000	117.4794	1.309	0.03	8.872	A	0.000	8.872	8.872	100.00	0.000	0.000
					B	0.000	8.872	100.00	0.000	0.000	
					C	0.000	8.872	100.00	0.000	0.398	
L6 115.0000-110.0000	112.4804	1.297	0.03	9.310	A	0.000	9.310	9.310	100.00	0.000	0.000
					B	0.000	9.310	100.00	0.000	0.000	
					C	0.000	9.310	100.00	0.000	1.388	
L7 110.0000-105.0000	107.4813	1.285	0.03	9.748	A	0.000	9.748	9.748	100.00	0.000	0.000
					B	0.000	9.748	100.00	0.000	0.000	
					C	0.000	9.748	100.00	0.000	1.471	
L8 105.0000-104.0000	104.4993	1.277	0.03	2.002	A	0.000	2.002	2.002	100.00	0.000	0.000
					B	0.000	2.002	100.00	0.000	0.000	
					C	0.000	2.002	100.00	0.000	0.444	
L9 104.0000-103.7500	103.8750	1.276	0.03	0.503	A	0.000	0.503	0.503	100.00	0.000	0.000
					B	0.000	0.503	100.00	0.000	0.000	
					C	0.000	0.503	100.00	0.000	0.111	
L10 103.7500-98.7500	101.2323	1.269	0.03	10.296	A	0.000	10.296	10.296	100.00	0.000	0.000
					B	0.000	10.296	100.00	0.000	0.000	
					C	0.000	10.296	100.00	0.000	2.916	
L11 98.7500-98.5000	98.6250	1.262	0.03	0.526	A	0.000	0.526	0.526	100.00	0.000	0.000
					B	0.000	0.526	100.00	0.000	0.000	
					C	0.000	0.526	100.00	0.000	0.198	
L12 98.5000-98.2500	98.3750	1.261	0.03	0.527	A	0.000	0.527	0.527	100.00	0.000	0.000
					B	0.000	0.527	100.00	0.000	0.000	
					C	0.000	0.527	100.00	0.000	0.198	
L13 98.2500-97.0000	97.6239	1.259	0.03	2.653	A	0.000	2.653	2.653	100.00	0.000	0.000
					B	0.000	2.653	100.00	0.000	0.000	
					C	0.000	2.653	100.00	0.000	0.990	
L14 97.0000-96.7500	96.8750	1.257	0.03	0.534	A	0.000	0.534	0.534	100.00	0.000	0.000
					B	0.000	0.534	100.00	0.000	0.000	
					C	0.000	0.534	100.00	0.000	0.198	
L15 96.7500-88.5000	92.5800	1.245	0.03	18.234	A	0.000	18.234	18.234	100.00	0.000	0.000
					B	0.000	18.234	100.00	0.000	0.000	
					C	0.000	18.234	100.00	0.000	5.729	
L16 88.5000-88.0000	88.2498	1.233	0.03	1.122	A	0.000	1.122	1.122	100.00	0.000	0.000
					B	0.000	1.122	100.00	0.000	0.000	
					C	0.000	1.122	100.00	0.000	0.396	
L17 88.0000-87.7500	87.8750	1.232	0.03	0.563	A	0.000	0.563	0.563	100.00	0.000	0.000
					B	0.000	0.563	100.00	0.000	0.000	
					C	0.000	0.563	100.00	0.000	0.198	
L18 87.7500-82.7500	85.2341	1.224	0.03	11.481	A	0.000	11.481	11.481	100.00	0.000	0.000
					B	0.000	11.481	100.00	0.000	0.000	
					C	0.000	11.481	100.00	0.000	3.960	
L19 82.7500-77.7500	80.2347	1.208	0.03	11.919	A	0.000	11.919	11.919	100.00	0.000	0.000
					B	0.000	11.919	100.00	0.000	0.000	
					C	0.000	11.919	100.00	0.000	3.960	
L20 77.7500-72.7500	75.2352	1.192	0.03	12.357	A	0.000	12.357	12.357	100.00	0.000	0.000
					B	0.000	12.357	100.00	0.000	0.000	
					C	0.000	12.357	100.00	0.000	3.960	
L21 72.7500-	70.4025	1.175	0.03	11.937	A	0.000	11.937	11.937	100.00	0.000	0.000

Section Elevation ft	z ft	K <sub>z</sub>	q <sub>z</sub> ksf	A <sub>G</sub> ft <sup>2</sup>	F a c e	A <sub>F</sub> ft <sup>2</sup>	A <sub>R</sub> ft <sup>2</sup>	A <sub>leg</sub> ft <sup>2</sup>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
68.0800					B	0.000	11.937		100.00	0.000	0.000
					C	0.000	11.937		100.00	0.000	4.016
L22 68.0800- 67.8300	67.9550	1.167	0.03	0.650	A	0.000	0.650	0.650	100.00	0.000	0.000
					B	0.000	0.650		100.00	0.000	0.000
					C	0.000	0.650		100.00	0.000	0.220
L23 67.8300- 62.8300	65.3162	1.157	0.03	13.226	A	0.000	13.226	13.226	100.00	0.000	0.000
					B	0.000	13.226		100.00	0.000	0.000
					C	0.000	13.226		100.00	0.000	4.392
L24 62.8300- 57.8300	60.3166	1.138	0.03	13.664	A	0.000	13.664	13.664	100.00	0.000	0.000
					B	0.000	13.664		100.00	0.000	0.000
					C	0.000	13.664		100.00	0.000	4.392
L25 57.8300- 52.8300	55.3171	1.117	0.03	14.102	A	0.000	14.102	14.102	100.00	0.000	0.000
					B	0.000	14.102		100.00	0.000	0.000
					C	0.000	14.102		100.00	0.000	4.392
L26 52.8300- 47.2500	50.0244	1.094	0.03	16.255	A	0.000	16.255	16.255	100.00	0.000	0.000
					B	0.000	16.255		100.00	0.000	0.000
					C	0.000	16.255		100.00	0.000	4.902
L27 47.2500- 46.5000	46.8747	1.079	0.02	2.186	A	0.000	2.186	2.186	100.00	0.000	0.000
					B	0.000	2.186		100.00	0.000	0.000
					C	0.000	2.186		100.00	0.000	0.659
L28 46.5000- 41.5000	43.9877	1.065	0.02	14.825	A	0.000	14.825	14.825	100.00	0.000	0.000
					B	0.000	14.825		100.00	0.000	0.000
					C	0.000	14.825		100.00	0.000	4.401
L29 41.5000- 37.7500	39.6183	1.041	0.02	11.406	A	0.000	11.406	11.406	100.00	0.000	0.000
					B	0.000	11.406		100.00	0.000	0.000
					C	0.000	11.406		100.00	0.000	3.416
L30 37.7500- 37.5000	37.6250	1.03	0.02	0.769	A	0.000	0.769	0.769	100.00	0.000	0.000
					B	0.000	0.769		100.00	0.000	0.000
					C	0.000	0.769		100.00	0.000	0.228
L31 37.5000- 32.5000	34.9883	1.015	0.02	15.613	A	0.000	15.613	15.613	100.00	0.000	0.000
					B	0.000	15.613		100.00	0.000	0.000
					C	0.000	15.613		100.00	0.000	4.679
L32 32.5000- 32.2500	32.3750	0.998	0.02	0.792	A	0.000	0.792	0.792	100.00	0.000	0.000
					B	0.000	0.792		100.00	0.000	0.000
					C	0.000	0.792		100.00	0.000	0.238
L33 32.2500- 27.2500	29.7386	0.98	0.02	16.073	A	0.000	16.073	16.073	100.00	0.000	0.000
					B	0.000	16.073		100.00	0.000	0.000
					C	0.000	16.073		100.00	0.000	4.763
L34 27.2500- 23.5000	25.3688	0.948	0.02	12.342	A	0.000	12.342	12.342	100.00	0.000	0.000
					B	0.000	12.342		100.00	0.000	0.000
					C	0.000	12.342		100.00	0.000	3.572
L35 23.5000- 23.2500	23.3750	0.932	0.02	0.832	A	0.000	0.832	0.832	100.00	0.000	0.000
					B	0.000	0.832		100.00	0.000	0.000
					C	0.000	0.832		100.00	0.000	0.238
L36 23.2500- 20.7500	21.9973	0.92	0.02	8.376	A	0.000	8.376	8.376	100.00	0.000	0.000
					B	0.000	8.376		100.00	0.000	0.000
					C	0.000	8.376		100.00	0.000	2.381
L37 20.7500- 20.5000	20.6250	0.908	0.02	0.844	A	0.000	0.844	0.844	100.00	0.000	0.000
					B	0.000	0.844		100.00	0.000	0.000
					C	0.000	0.844		100.00	0.000	0.238
L38 20.5000- 15.5000	17.9893	0.882	0.02	17.102	A	0.000	17.102	17.102	100.00	0.000	0.000
					B	0.000	17.102		100.00	0.000	0.000
					C	0.000	17.102		100.00	0.000	4.763
L39 15.5000- 10.5000	12.9896	0.85	0.02	17.540	A	0.000	17.540	17.540	100.00	0.000	0.000
					B	0.000	17.540		100.00	0.000	0.000
					C	0.000	17.540		100.00	0.000	4.763
L40 10.5000- 5.5000	7.9899	0.85	0.02	17.977	A	0.000	17.977	17.977	100.00	0.000	0.000
					B	0.000	17.977		100.00	0.000	0.000
					C	0.000	17.977		100.00	0.000	4.763
L41 5.5000- 3.0000	4.2475	0.85	0.02	9.153	A	0.000	9.153	9.153	100.00	0.000	0.000
					B	0.000	9.153		100.00	0.000	0.000
					C	0.000	9.153		100.00	0.000	2.381
L42 3.0000- 2.7500	2.8750	0.85	0.02	0.921	A	0.000	0.921	0.921	100.00	0.000	0.000
					B	0.000	0.921		100.00	0.000	0.000
					C	0.000	0.921		100.00	0.000	0.238
L43 2.7500- 0.0000	1.3720	0.85	0.02	10.207	A	0.000	10.207	10.207	100.00	0.000	0.000
					B	0.000	10.207		100.00	0.000	0.000
					C	0.000	10.207		100.00	0.000	2.619



**Tower Pressure - With Ice**

$G_H = 1.100$

Section Elevation ft	z ft	$K_z$	$q_z$ ksf	$t_z$ in	$A_G$ ft <sup>2</sup>	F a c e	$A_F$ ft <sup>2</sup>	$A_R$ ft <sup>2</sup>	$A_{leg}$ ft <sup>2</sup>	Leg %	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>
L1 140.0000-135.0000	137.4744	1.353	0.01	1.7301	8.563	A	0.000	8.563	8.563	100.00	0.000	0.000
						B	0.000	8.563		100.00	0.000	0.000
						C	0.000	8.563		100.00	0.000	0.000
L2 135.0000-130.0000	132.4759	1.343	0.01	1.7237	8.995	A	0.000	8.995	8.995	100.00	0.000	0.000
						B	0.000	8.995		100.00	0.000	0.000
						C	0.000	8.995		100.00	0.000	0.000
L3 130.0000-125.0000	127.4772	1.332	0.01	1.7171	9.427	A	0.000	9.427	9.427	100.00	0.000	0.000
						B	0.000	9.427		100.00	0.000	0.000
						C	0.000	9.427		100.00	0.000	0.000
L4 125.0000-120.0000	122.4784	1.321	0.01	1.7102	9.860	A	0.000	9.860	9.860	100.00	0.000	0.000
						B	0.000	9.860		100.00	0.000	0.000
						C	0.000	9.860		100.00	0.000	0.422
L5 120.0000-115.0000	117.4794	1.309	0.01	1.7031	10.292	A	0.000	10.292	10.292	100.00	0.000	0.000
						B	0.000	10.292		100.00	0.000	0.000
						C	0.000	10.292		100.00	0.000	2.101
L6 115.0000-110.0000	112.4804	1.297	0.01	1.6957	10.723	A	0.000	10.723	10.723	100.00	0.000	0.000
						B	0.000	10.723		100.00	0.000	0.000
						C	0.000	10.723		100.00	0.000	4.779
L7 110.0000-105.0000	107.4813	1.285	0.01	1.6880	11.155	A	0.000	11.155	11.155	100.00	0.000	0.000
						B	0.000	11.155		100.00	0.000	0.000
						C	0.000	11.155		100.00	0.000	5.034
L8 105.0000-104.0000	104.4993	1.277	0.01	1.6833	2.283	A	0.000	2.283	2.283	100.00	0.000	0.000
						B	0.000	2.283		100.00	0.000	0.000
						C	0.000	2.283		100.00	0.000	1.492
L9 104.0000-103.7500	103.8750	1.276	0.01	1.6823	0.573	A	0.000	0.573	0.573	100.00	0.000	0.000
						B	0.000	0.573		100.00	0.000	0.000
						C	0.000	0.573		100.00	0.000	0.373
L10 103.7500-98.7500	101.2323	1.269	0.01	1.6779	11.694	A	0.000	11.694	11.694	100.00	0.000	0.000
						B	0.000	11.694		100.00	0.000	0.000
						C	0.000	11.694		100.00	0.000	9.055
L11 98.7500-98.5000	98.6250	1.262	0.01	1.6735	0.596	A	0.000	0.596	0.596	100.00	0.000	0.000
						B	0.000	0.596		100.00	0.000	0.000
						C	0.000	0.596		100.00	0.000	0.573
L12 98.5000-98.2500	98.3750	1.261	0.01	1.6731	0.597	A	0.000	0.597	0.597	100.00	0.000	0.000
						B	0.000	0.597		100.00	0.000	0.000
						C	0.000	0.597		100.00	0.000	0.573
L13 98.2500-97.0000	97.6239	1.259	0.01	1.6718	3.002	A	0.000	3.002	3.002	100.00	0.000	0.000
						B	0.000	3.002		100.00	0.000	0.000
						C	0.000	3.002		100.00	0.000	2.863
L14 97.0000-96.7500	96.8750	1.257	0.01	1.6706	0.604	A	0.000	0.604	0.604	100.00	0.000	0.000
						B	0.000	0.604		100.00	0.000	0.000
						C	0.000	0.604		100.00	0.000	0.572
L15 96.7500-88.5000	92.5800	1.245	0.01	1.6630	20.521	A	0.000	20.521	20.521	100.00	0.000	0.000
						B	0.000	20.521		100.00	0.000	0.000
						C	0.000	20.521		100.00	0.000	16.243
L16 88.5000-88.0000	88.2498	1.233	0.01	1.6551	1.260	A	0.000	1.260	1.260	100.00	0.000	0.000
						B	0.000	1.260		100.00	0.000	0.000
						C	0.000	1.260		100.00	0.000	1.141
L17 88.0000-87.7500	87.8750	1.232	0.01	1.6543	0.631	A	0.000	0.631	0.631	100.00	0.000	0.000
						B	0.000	0.631		100.00	0.000	0.000
						C	0.000	0.631		100.00	0.000	0.569
L18 87.7500-82.7500	85.2341	1.224	0.01	1.6493	12.856	A	0.000	12.856	12.856	100.00	0.000	0.000
						B	0.000	12.856		100.00	0.000	0.000
						C	0.000	12.856		100.00	0.000	11.356
L19 82.7500-77.7500	80.2347	1.208	0.01	1.6394	13.285	A	0.000	13.285	13.285	100.00	0.000	0.000
						B	0.000	13.285		100.00	0.000	0.000
						C	0.000	13.285		100.00	0.000	11.314
L20 77.7500-72.7500	75.2352	1.192	0.01	1.6289	13.714	A	0.000	13.714	13.714	100.00	0.000	0.000
						B	0.000	13.714		100.00	0.000	0.000
						C	0.000	13.714		100.00	0.000	11.270
L21 72.7500-	70.4025	1.175	0.01	1.6181	13.196	A	0.000	13.196	13.196	100.00	0.000	0.000

Section Elevation	z	K <sub>z</sub>	q <sub>z</sub>	t <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>
ft	ft		ksf	in	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>
68.0800						B	0.000	13.196		100.00	0.000	0.000
						C	0.000	13.196		100.00	0.000	10.484
L22 68.0800- 67.8300	67.9550	1.167	0.01	1.6124	0.717	A	0.000	0.717	0.717	100.00	0.000	0.000
						B	0.000	0.717		100.00	0.000	0.000
						C	0.000	0.717		100.00	0.000	0.560
L23 67.8300- 62.8300	65.3162	1.157	0.01	1.6060	14.564	A	0.000	14.564	14.564	100.00	0.000	0.000
						B	0.000	14.564		100.00	0.000	0.000
						C	0.000	14.564		100.00	0.000	11.173
L24 62.8300- 57.8300	60.3166	1.138	0.01	1.5932	14.992	A	0.000	14.992	14.992	100.00	0.000	0.000
						B	0.000	14.992		100.00	0.000	0.000
						C	0.000	14.992		100.00	0.000	11.120
L25 57.8300- 52.8300	55.3171	1.117	0.01	1.5795	15.418	A	0.000	15.418	15.418	100.00	0.000	0.000
						B	0.000	15.418		100.00	0.000	0.000
						C	0.000	15.418		100.00	0.000	11.062
L26 52.8300- 47.2500	50.0244	1.094	0.01	1.5637	17.709	A	0.000	17.709	17.709	100.00	0.000	0.000
						B	0.000	17.709		100.00	0.000	0.000
						C	0.000	17.709		100.00	0.000	12.270
L27 47.2500- 46.5000	46.8747	1.079	0.01	1.5536	2.381	A	0.000	2.381	2.381	100.00	0.000	0.000
						B	0.000	2.381		100.00	0.000	0.000
						C	0.000	2.381		100.00	0.000	1.649
L28 46.5000- 41.5000	43.9877	1.065	0.01	1.5437	16.111	A	0.000	16.111	16.111	100.00	0.000	0.000
						B	0.000	16.111		100.00	0.000	0.000
						C	0.000	16.111		100.00	0.000	10.919
L29 41.5000- 37.7500	39.6183	1.041	0.01	1.5277	12.361	A	0.000	12.361	12.361	100.00	0.000	0.000
						B	0.000	12.361		100.00	0.000	0.000
						C	0.000	12.361		100.00	0.000	8.253
L30 37.7500- 37.5000	37.6250	1.03	0.01	1.5198	0.832	A	0.000	0.832	0.832	100.00	0.000	0.000
						B	0.000	0.832		100.00	0.000	0.000
						C	0.000	0.832		100.00	0.000	0.549
L31 37.5000- 32.5000	34.9883	1.015	0.01	1.5088	16.870	A	0.000	16.870	16.870	100.00	0.000	0.000
						B	0.000	16.870		100.00	0.000	0.000
						C	0.000	16.870		100.00	0.000	11.050
L32 32.5000- 32.2500	32.3750	0.998	0.01	1.4971	0.855	A	0.000	0.855	0.855	100.00	0.000	0.000
						B	0.000	0.855		100.00	0.000	0.000
						C	0.000	0.855		100.00	0.000	0.554
L33 32.2500- 27.2500	29.7386	0.98	0.01	1.4845	17.310	A	0.000	17.310	17.310	100.00	0.000	0.000
						B	0.000	17.310		100.00	0.000	0.000
						C	0.000	17.310		100.00	0.000	11.030
L34 27.2500- 23.5000	25.3688	0.948	0.01	1.4611	13.255	A	0.000	13.255	13.255	100.00	0.000	0.000
						B	0.000	13.255		100.00	0.000	0.000
						C	0.000	13.255		100.00	0.000	8.199
L35 23.5000- 23.2500	23.3750	0.932	0.01	1.4492	0.892	A	0.000	0.892	0.892	100.00	0.000	0.000
						B	0.000	0.892		100.00	0.000	0.000
						C	0.000	0.892		100.00	0.000	0.544
L36 23.2500- 20.7500	21.9973	0.92	0.01	1.4404	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	5.422
L37 20.7500- 20.5000	20.6250	0.908	0.01	1.4311	0.903	A	0.000	0.903	0.903	100.00	0.000	0.000
						B	0.000	0.903		100.00	0.000	0.000
						C	0.000	0.903		100.00	0.000	0.540
L38 20.5000- 15.5000	17.9893	0.882	0.01	1.4117	18.278	A	0.000	18.278	18.278	100.00	0.000	0.000
						B	0.000	18.278		100.00	0.000	0.000
						C	0.000	18.278		100.00	0.000	10.723
L39 15.5000- 10.5000	12.9896	0.85	0.01	1.3665	18.678	A	0.000	18.678	18.678	100.00	0.000	0.000
						B	0.000	18.678		100.00	0.000	0.000
						C	0.000	18.678		100.00	0.000	10.532
L40 10.5000- 5.5000	7.9899	0.85	0.01	1.3016	19.062	A	0.000	19.062	19.062	100.00	0.000	0.000
						B	0.000	19.062		100.00	0.000	0.000
						C	0.000	19.062		100.00	0.000	10.258
L41 5.5000- 3.0000	4.2475	0.85	0.01	1.2219	9.662	A	0.000	9.662	9.662	100.00	0.000	0.000
						B	0.000	9.662		100.00	0.000	0.000
						C	0.000	9.662		100.00	0.000	4.961
L42 3.0000- 2.7500	2.8750	0.85	0.01	1.1752	0.970	A	0.000	0.970	0.970	100.00	0.000	0.000
						B	0.000	0.970		100.00	0.000	0.000
						C	0.000	0.970		100.00	0.000	0.486
L43 2.7500- 0.0000	1.3720	0.85	0.01	1.0914	10.707	A	0.000	10.707	10.707	100.00	0.000	0.000
						B	0.000	10.707		100.00	0.000	0.000
						C	0.000	10.707		100.00	0.000	5.154

**Tower Pressure - Service**

$G_H = 1.100$

Section Elevation ft	z ft	$K_z$	$q_z$ ksf	$A_G$ ft <sup>2</sup>	Face	$A_F$ ft <sup>2</sup>	$A_R$ ft <sup>2</sup>	$A_{leg}$ ft <sup>2</sup>	Leg %	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>
L1 140.0000-135.0000	137.4744	1.353	0.01	7.121	A	0.000	7.121	7.121	100.00	0.000	0.000
					B	0.000	7.121		100.00	0.000	0.000
					C	0.000	7.121		100.00	0.000	0.000
L2 135.0000-130.0000	132.4759	1.343	0.01	7.559	A	0.000	7.559	7.559	100.00	0.000	0.000
					B	0.000	7.559		100.00	0.000	0.000
					C	0.000	7.559		100.00	0.000	0.000
L3 130.0000-125.0000	127.4772	1.332	0.01	7.997	A	0.000	7.997	7.997	100.00	0.000	0.000
					B	0.000	7.997		100.00	0.000	0.000
					C	0.000	7.997		100.00	0.000	0.000
L4 125.0000-120.0000	122.4784	1.321	0.01	8.434	A	0.000	8.434	8.434	100.00	0.000	0.000
					B	0.000	8.434		100.00	0.000	0.000
					C	0.000	8.434		100.00	0.000	0.080
L5 120.0000-115.0000	117.4794	1.309	0.01	8.872	A	0.000	8.872	8.872	100.00	0.000	0.000
					B	0.000	8.872		100.00	0.000	0.000
					C	0.000	8.872		100.00	0.000	0.398
L6 115.0000-110.0000	112.4804	1.297	0.01	9.310	A	0.000	9.310	9.310	100.00	0.000	0.000
					B	0.000	9.310		100.00	0.000	0.000
					C	0.000	9.310		100.00	0.000	1.388
L7 110.0000-105.0000	107.4813	1.285	0.01	9.748	A	0.000	9.748	9.748	100.00	0.000	0.000
					B	0.000	9.748		100.00	0.000	0.000
					C	0.000	9.748		100.00	0.000	1.471
L8 105.0000-104.0000	104.4993	1.277	0.01	2.002	A	0.000	2.002	2.002	100.00	0.000	0.000
					B	0.000	2.002		100.00	0.000	0.000
					C	0.000	2.002		100.00	0.000	0.444
L9 104.0000-103.7500	103.8750	1.276	0.01	0.503	A	0.000	0.503	0.503	100.00	0.000	0.000
					B	0.000	0.503		100.00	0.000	0.000
					C	0.000	0.503		100.00	0.000	0.111
L10 103.7500-98.7500	101.2323	1.269	0.01	10.296	A	0.000	10.296	10.296	100.00	0.000	0.000
					B	0.000	10.296		100.00	0.000	0.000
					C	0.000	10.296		100.00	0.000	2.916
L11 98.7500-98.5000	98.6250	1.262	0.01	0.526	A	0.000	0.526	0.526	100.00	0.000	0.000
					B	0.000	0.526		100.00	0.000	0.000
					C	0.000	0.526		100.00	0.000	0.198
L12 98.5000-98.2500	98.3750	1.261	0.01	0.527	A	0.000	0.527	0.527	100.00	0.000	0.000
					B	0.000	0.527		100.00	0.000	0.000
					C	0.000	0.527		100.00	0.000	0.198
L13 98.2500-97.0000	97.6239	1.259	0.01	2.653	A	0.000	2.653	2.653	100.00	0.000	0.000
					B	0.000	2.653		100.00	0.000	0.000
					C	0.000	2.653		100.00	0.000	0.990
L14 97.0000-96.7500	96.8750	1.257	0.01	0.534	A	0.000	0.534	0.534	100.00	0.000	0.000
					B	0.000	0.534		100.00	0.000	0.000
					C	0.000	0.534		100.00	0.000	0.198
L15 96.7500-88.5000	92.5800	1.245	0.01	18.234	A	0.000	18.234	18.234	100.00	0.000	0.000
					B	0.000	18.234		100.00	0.000	0.000
					C	0.000	18.234		100.00	0.000	5.729
L16 88.5000-88.0000	88.2498	1.233	0.01	1.122	A	0.000	1.122	1.122	100.00	0.000	0.000
					B	0.000	1.122		100.00	0.000	0.000
					C	0.000	1.122		100.00	0.000	0.396
L17 88.0000-87.7500	87.8750	1.232	0.01	0.563	A	0.000	0.563	0.563	100.00	0.000	0.000
					B	0.000	0.563		100.00	0.000	0.000
					C	0.000	0.563		100.00	0.000	0.198
L18 87.7500-82.7500	85.2341	1.224	0.01	11.481	A	0.000	11.481	11.481	100.00	0.000	0.000
					B	0.000	11.481		100.00	0.000	0.000
					C	0.000	11.481		100.00	0.000	3.960
L19 82.7500-77.7500	80.2347	1.208	0.01	11.919	A	0.000	11.919	11.919	100.00	0.000	0.000
					B	0.000	11.919		100.00	0.000	0.000
					C	0.000	11.919		100.00	0.000	3.960
L20 77.7500-72.7500	75.2352	1.192	0.01	12.357	A	0.000	12.357	12.357	100.00	0.000	0.000
					B	0.000	12.357		100.00	0.000	0.000
					C	0.000	12.357		100.00	0.000	3.960
L21 72.7500-	70.4025	1.175	0.01	11.937	A	0.000	11.937	11.937	100.00	0.000	0.000

Section Elevation	z	K <sub>z</sub>	q <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face
ft	ft		ksf	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>
68.0800					B	0.000	11.937		100.00	0.000	0.000
					C	0.000	11.937		100.00	0.000	4.016
L22 68.0800- 67.8300	67.9550	1.167	0.01	0.650	A	0.000	0.650	0.650	100.00	0.000	0.000
					B	0.000	0.650		100.00	0.000	0.000
					C	0.000	0.650		100.00	0.000	0.220
L23 67.8300- 62.8300	65.3162	1.157	0.01	13.226	A	0.000	13.226	13.226	100.00	0.000	0.000
					B	0.000	13.226		100.00	0.000	0.000
					C	0.000	13.226		100.00	0.000	4.392
L24 62.8300- 57.8300	60.3166	1.138	0.01	13.664	A	0.000	13.664	13.664	100.00	0.000	0.000
					B	0.000	13.664		100.00	0.000	0.000
					C	0.000	13.664		100.00	0.000	4.392
L25 57.8300- 52.8300	55.3171	1.117	0.01	14.102	A	0.000	14.102	14.102	100.00	0.000	0.000
					B	0.000	14.102		100.00	0.000	0.000
					C	0.000	14.102		100.00	0.000	4.392
L26 52.8300- 47.2500	50.0244	1.094	0.01	16.255	A	0.000	16.255	16.255	100.00	0.000	0.000
					B	0.000	16.255		100.00	0.000	0.000
					C	0.000	16.255		100.00	0.000	4.902
L27 47.2500- 46.5000	46.8747	1.079	0.01	2.186	A	0.000	2.186	2.186	100.00	0.000	0.000
					B	0.000	2.186		100.00	0.000	0.000
					C	0.000	2.186		100.00	0.000	0.659
L28 46.5000- 41.5000	43.9877	1.065	0.01	14.825	A	0.000	14.825	14.825	100.00	0.000	0.000
					B	0.000	14.825		100.00	0.000	0.000
					C	0.000	14.825		100.00	0.000	4.401
L29 41.5000- 37.7500	39.6183	1.041	0.01	11.406	A	0.000	11.406	11.406	100.00	0.000	0.000
					B	0.000	11.406		100.00	0.000	0.000
					C	0.000	11.406		100.00	0.000	3.416
L30 37.7500- 37.5000	37.6250	1.03	0.01	0.769	A	0.000	0.769	0.769	100.00	0.000	0.000
					B	0.000	0.769		100.00	0.000	0.000
					C	0.000	0.769		100.00	0.000	0.228
L31 37.5000- 32.5000	34.9883	1.015	0.01	15.613	A	0.000	15.613	15.613	100.00	0.000	0.000
					B	0.000	15.613		100.00	0.000	0.000
					C	0.000	15.613		100.00	0.000	4.679
L32 32.5000- 32.2500	32.3750	0.998	0.01	0.792	A	0.000	0.792	0.792	100.00	0.000	0.000
					B	0.000	0.792		100.00	0.000	0.000
					C	0.000	0.792		100.00	0.000	0.238
L33 32.2500- 27.2500	29.7386	0.98	0.01	16.073	A	0.000	16.073	16.073	100.00	0.000	0.000
					B	0.000	16.073		100.00	0.000	0.000
					C	0.000	16.073		100.00	0.000	4.763
L34 27.2500- 23.5000	25.3688	0.948	0.01	12.342	A	0.000	12.342	12.342	100.00	0.000	0.000
					B	0.000	12.342		100.00	0.000	0.000
					C	0.000	12.342		100.00	0.000	3.572
L35 23.5000- 23.2500	23.3750	0.932	0.01	0.832	A	0.000	0.832	0.832	100.00	0.000	0.000
					B	0.000	0.832		100.00	0.000	0.000
					C	0.000	0.832		100.00	0.000	0.238
L36 23.2500- 20.7500	21.9973	0.92	0.01	8.376	A	0.000	8.376	8.376	100.00	0.000	0.000
					B	0.000	8.376		100.00	0.000	0.000
					C	0.000	8.376		100.00	0.000	2.381
L37 20.7500- 20.5000	20.6250	0.908	0.01	0.844	A	0.000	0.844	0.844	100.00	0.000	0.000
					B	0.000	0.844		100.00	0.000	0.000
					C	0.000	0.844		100.00	0.000	0.238
L38 20.5000- 15.5000	17.9893	0.882	0.01	17.102	A	0.000	17.102	17.102	100.00	0.000	0.000
					B	0.000	17.102		100.00	0.000	0.000
					C	0.000	17.102		100.00	0.000	4.763
L39 15.5000- 10.5000	12.9896	0.85	0.01	17.540	A	0.000	17.540	17.540	100.00	0.000	0.000
					B	0.000	17.540		100.00	0.000	0.000
					C	0.000	17.540		100.00	0.000	4.763
L40 10.5000- 5.5000	7.9899	0.85	0.01	17.977	A	0.000	17.977	17.977	100.00	0.000	0.000
					B	0.000	17.977		100.00	0.000	0.000
					C	0.000	17.977		100.00	0.000	4.763
L41 5.5000- 3.0000	4.2475	0.85	0.01	9.153	A	0.000	9.153	9.153	100.00	0.000	0.000
					B	0.000	9.153		100.00	0.000	0.000
					C	0.000	9.153		100.00	0.000	2.381
L42 3.0000- 2.7500	2.8750	0.85	0.01	0.921	A	0.000	0.921	0.921	100.00	0.000	0.000
					B	0.000	0.921		100.00	0.000	0.000
					C	0.000	0.921		100.00	0.000	0.238
L43 2.7500- 0.0000	1.3720	0.85	0.01	10.207	A	0.000	10.207	10.207	100.00	0.000	0.000
					B	0.000	10.207		100.00	0.000	0.000
					C	0.000	10.207		100.00	0.000	2.619

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	140 - 135	Pole	Max Tension	26	0.00	-0.00	0.00
			Max. Compression	26	-9.82	0.02	-0.01
			Max. Mx	20	-4.07	26.42	-0.01
			Max. My	14	-4.07	0.01	-26.42
			Max. Vy	20	-6.35	26.42	-0.01
			Max. Vx	14	6.35	0.01	-26.42
			Max. Torque	12			0.00
L2	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	130 - 125	Pole	Max. Compression	26	-10.34	0.04	-0.02
			Max. Mx	20	-4.34	59.23	-0.01
			Max. My	14	-4.34	0.02	-59.24
			Max. Vy	20	-6.78	59.23	-0.01
			Max. Vx	14	6.78	0.02	-59.24
			Max. Torque	12			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.89	0.06	-0.04
			Max. Mx	20	-4.64	94.26	-0.02
			Max. My	14	-4.64	0.03	-94.26
L4	125 - 120	Pole	Max. Vy	20	-7.23	94.26	-0.02
			Max. Vx	14	7.23	0.03	-94.26
			Max. Torque	12			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.91	0.28	-0.62
			Max. Mx	20	-8.71	145.26	-0.13
			Max. My	14	-8.70	0.06	-145.49
			Max. Vy	20	-13.49	145.26	-0.13
			Max. Vx	14	13.49	0.06	-145.49
			Max. Torque	10			-0.51
L5	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.66	0.38	-0.68
			Max. Mx	20	-9.15	213.89	-0.15
			Max. My	14	-9.15	0.08	-214.13
			Max. Vy	20	-13.97	213.89	-0.15
			Max. Vx	14	13.98	0.08	-214.13
			Max. Torque	10			-0.52
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.91	0.72	-0.87
			Max. Mx	20	-12.43	303.59	-0.18
L6	115 - 110	Pole	Max. My	14	-12.43	0.14	-303.83
			Max. Vy	20	-17.86	303.59	-0.18
			Max. Vx	14	17.87	0.14	-303.83
			Max. Torque	10			-0.58
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.01	1.06	-1.07
			Max. Mx	20	-13.04	394.33	-0.22
			Max. My	14	-13.04	0.19	-394.56
			Max. Vy	20	-18.44	394.33	-0.22
			Max. Vx	14	18.44	0.19	-394.56
L7	110 - 105	Pole	Max. Torque	10			-0.64
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.24	1.14	-1.11
			Max. Mx	20	-13.17	412.83	-0.22
			Max. My	14	-13.17	0.20	-413.06
			Max. Vy	20	-18.57	412.83	-0.22
			Max. Vx	14	18.57	0.20	-413.06
			Max. Torque	12			-0.66
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.30	1.89	-0.70
L8	105 - 104	Pole	Max. Mx	20	-16.93	419.34	-0.14
			Max. My	14	-16.92	0.39	-419.26
			Max. Vy	20	-25.10	419.34	-0.14
			Max. Vx	14	25.16	0.39	-419.26
			Max. Torque	12			-0.85
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.75	2.27	-0.91
			Max. Mx	20	-17.85	546.76	-0.42
			Max. My	14	-17.84	0.70	-546.96
			Max. Vy	20	-25.87	546.76	-0.42
L9	104 - 103.75	Pole	Max. Vx	14	25.93	0.70	-546.96
			Max. Torque	12			-1.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.82	2.29	-0.92
			Max. Mx	20	-17.91	553.23	-0.44
			Max. My	14	-17.90	0.72	-553.44
			Max. Vy	20	-25.91	553.23	-0.44
			Max. Vx	14	25.96	0.72	-553.44
			Max. Torque	12			-1.00
			Max Tension	1	0.00	0.00	0.00
L10	103.75 - 98.75	Pole	Max. Compression	26	-41.75	2.27	-0.91
			Max. Mx	20	-17.85	546.76	-0.42
			Max. My	14	-17.84	0.70	-546.96
			Max. Vy	20	-25.87	546.76	-0.42
			Max. Vx	14	25.93	0.70	-546.96
			Max. Torque	12			-1.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.82	2.29	-0.92
			Max. Mx	20	-17.91	553.23	-0.44
			Max. My	14	-17.90	0.72	-553.44
L11	98.75 - 98.5	Pole	Max. Vy	20	-25.91	553.23	-0.44
			Max. Vx	14	25.96	0.72	-553.44
			Max. Torque	12			-1.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.82	2.29	-0.92
			Max. Mx	20	-17.91	553.23	-0.44
			Max. My	14	-17.90	0.72	-553.44
			Max. Vy	20	-25.91	553.23	-0.44
			Max. Vx	14	25.96	0.72	-553.44
			Max. Torque	12			-1.00



Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L12	98.5 - 98.25	Pole	Max. Torque	12			-1.01
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.92	2.31	-0.93
			Max. Mx	20	-17.97	559.71	-0.45
			Max. My	14	-17.97	0.73	-559.94
			Max. Vy	20	-25.95	559.71	-0.45
L13	98.25 - 97	Pole	Max. Vx	14	26.01	0.73	-559.94
			Max. Torque	12			-1.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.37	2.40	-0.98
			Max. Mx	20	-18.28	592.29	-0.52
			Max. My	14	-18.27	0.81	-592.59
L14	97 - 96.75	Pole	Max. Vy	20	-26.17	592.29	-0.52
			Max. Vx	14	26.23	0.81	-592.59
			Max. Torque	12			-1.07
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.45	2.43	-1.00
			Max. Mx	20	-18.34	598.84	-0.54
L15	96.75 - 88.5	Pole	Max. My	14	-18.33	0.82	-599.15
			Max. Vy	20	-26.21	598.84	-0.54
			Max. Vx	14	26.27	0.82	-599.15
			Max. Torque	12			-1.08
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.33	3.01	-1.33
L16	88.5 - 88	Pole	Max. Mx	20	-19.74	734.74	-0.83
			Max. My	14	-19.73	1.15	-735.33
			Max. Vy	20	-27.88	734.74	-0.83
			Max. Vx	14	27.94	1.15	-735.33
			Max. Torque	12			-1.26
			Max Tension	1	0.00	0.00	0.00
L17	88 - 87.75	Pole	Max. Compression	26	-47.43	3.46	-1.58
			Max. Mx	20	-21.09	840.63	-1.06
			Max. My	14	-21.09	1.40	-841.42
			Max. Vy	20	-28.57	840.63	-1.06
			Max. Vx	14	28.63	1.40	-841.42
			Max. Torque	12			-1.41
L18	87.75 - 82.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.55	3.49	-1.60
			Max. Mx	20	-21.18	847.78	-1.08
			Max. My	14	-21.17	1.42	-848.59
			Max. Vy	20	-28.62	847.78	-1.08
			Max. Vx	14	28.67	1.42	-848.59
L19	82.75 - 77.75	Pole	Max. Torque	12			-1.42
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.86	4.14	-1.97
			Max. Mx	20	-22.72	993.11	-1.38
			Max. My	14	-22.71	1.76	-994.18
			Max. Vy	20	-29.50	993.11	-1.38
L20	77.75 - 72.75	Pole	Max. Vx	14	29.56	1.76	-994.18
			Max. Torque	12			-1.63
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.36	4.81	-2.25
			Max. Mx	20	-24.42	1143.03	-1.68
			Max. My	14	-24.42	2.10	-1144.35
L21	72.75 - 68.08	Pole	Max. Vy	20	-30.45	1143.03	-1.68
			Max. Vx	14	30.51	2.10	-1144.35
			Max. Torque	12			-1.82
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.72	5.49	-2.64
			Max. Mx	20	-26.04	1297.49	-1.98
L21	72.75 - 68.08	Pole	Max. My	14	-26.04	2.44	-1299.07
			Max. Vy	20	-31.33	1297.49	-1.98
			Max. Vx	14	31.39	2.44	-1299.07
			Max. Torque	12			-2.04
			Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L22	68.08 - 67.83	Pole	Max. Compression	26	-56.95	6.14	-3.02
			Max. Mx	20	-27.59	1445.74	-2.27
			Max. My	14	-27.58	2.77	-1447.55
			Max. Vy	20	-32.16	1445.74	-2.27
			Max. Vx	14	32.22	2.77	-1447.55
			Max. Torque	12			-2.27
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.08	6.18	-3.04
L23	67.83 - 62.83	Pole	Max. Mx	20	-27.69	1453.78	-2.29
			Max. My	14	-27.69	2.78	-1455.61
			Max. Vy	20	-32.20	1453.78	-2.29
			Max. Vx	14	32.25	2.78	-1455.61
			Max. Torque	12			-2.29
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.66	6.89	-3.44
			Max. Mx	20	-29.52	1617.07	-2.60
L24	62.83 - 57.83	Pole	Max. My	14	-29.52	3.13	-1619.15
			Max. Vy	20	-33.11	1617.07	-2.60
			Max. Vx	14	33.17	3.13	-1619.15
			Max. Torque	12			-2.55
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.26	7.61	-3.86
			Max. Mx	20	-31.39	1784.89	-2.91
			Max. My	14	-31.39	3.48	-1787.22
L25	57.83 - 52.83	Pole	Max. Vy	20	-34.01	1784.89	-2.91
			Max. Vx	14	34.07	3.48	-1787.22
			Max. Torque	12			-2.81
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.89	8.35	-4.28
			Max. Mx	20	-33.29	1957.17	-3.22
			Max. My	14	-33.29	3.83	-1959.75
			Max. Vy	20	-34.90	1957.17	-3.22
L26	52.83 - 47.25	Pole	Max. Vx	14	34.96	3.83	-1959.75
			Max. Torque	12			-3.08
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.60	8.55	-4.39
			Max. Mx	20	-33.80	2003.74	-3.30
			Max. My	14	-33.80	3.92	-2006.39
			Max. Vy	20	-35.14	2003.74	-3.30
			Max. Vx	14	35.19	3.92	-2006.39
L27	47.25 - 46.5	Pole	Max. Torque	12			-3.15
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.01	9.29	-4.82
			Max. Mx	20	-37.15	2181.95	-3.61
			Max. My	14	-37.15	4.28	-2184.85
			Max. Vy	20	-36.13	2181.95	-3.61
			Max. Vx	14	36.18	4.28	-2184.85
			Max. Torque	12			-3.42
L28	46.5 - 41.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.81	10.03	-5.25
			Max. Mx	20	-39.24	2364.73	-3.92
			Max. My	14	-39.24	4.63	-2367.87
			Max. Vy	20	-36.98	2364.73	-3.92
			Max. Vx	14	37.04	4.63	-2367.87
			Max. Torque	12			-3.69
			Max Tension	1	0.00	0.00	0.00
L29	41.5 - 37.75	Pole	Max. Compression	26	-74.92	10.60	-5.57
			Max. Mx	20	-40.83	2504.57	-4.16
			Max. My	14	-40.83	4.89	-2507.90
			Max. Vy	20	-37.61	2504.57	-4.16
			Max. Vx	14	37.67	4.89	-2507.90
			Max. Torque	12			-3.90
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.07	10.64	-5.59
L30	37.75 - 37.5	Pole	Max. Compression	26	-75.07	10.64	-5.59

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L31	37.5 - 32.5	Pole	Max. Mx	20	-40.96	2513.98	-4.18
			Max. My	14	-40.96	4.91	-2517.32
			Max. Vy	20	-37.64	2513.98	-4.18
			Max. Vx	14	37.69	4.91	-2517.32
			Max. Torque	12			-3.91
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.01	11.39	-6.02
			Max. Mx	20	-43.21	2704.29	-4.49
			Max. My	14	-43.21	5.27	-2707.88
			Max. Vy	20	-38.48	2704.29	-4.49
L32	32.5 - 32.25	Pole	Max. Vx	14	38.54	5.27	-2707.88
			Max. Torque	12			-4.20
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.17	11.43	-6.05
			Max. Mx	20	-43.34	2713.92	-4.50
			Max. My	14	-43.34	5.29	-2717.52
			Max. Vy	20	-38.51	2713.92	-4.50
			Max. Vx	14	38.57	5.29	-2717.52
			Max. Torque	12			-4.21
			Max Tension	1	0.00	0.00	0.00
L33	32.25 - 27.25	Pole	Max. Compression	26	-81.26	12.17	-6.48
			Max. Mx	20	-45.74	2908.58	-4.82
			Max. My	14	-45.74	5.64	-2912.42
			Max. Vy	20	-39.34	2908.58	-4.82
			Max. Vx	14	39.40	5.64	-2912.42
			Max. Torque	12			-4.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.59	12.71	-6.79
			Max. Mx	20	-47.57	3057.22	-5.05
			Max. My	14	-47.57	5.91	-3061.25
L34	27.25 - 23.5	Pole	Max. Vy	20	-39.94	3057.22	-5.05
			Max. Vx	14	40.00	5.91	-3061.25
			Max. Torque	12			-4.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.77	12.75	-6.81
			Max. Mx	20	-47.73	3067.21	-5.07
			Max. My	14	-47.72	5.93	-3071.25
			Max. Vy	20	-39.96	3067.21	-5.07
			Max. Vx	14	40.02	5.93	-3071.25
			Max. Torque	12			-4.74
L35	23.5 - 23.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.77	12.75	-6.81
			Max. Mx	20	-47.73	3067.21	-5.07
			Max. My	14	-47.72	5.93	-3071.25
			Max. Vy	20	-39.96	3067.21	-5.07
			Max. Vx	14	40.02	5.93	-3071.25
			Max. Torque	12			-4.74
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.50	13.10	-7.02
			Max. Mx	20	-49.11	3167.64	-5.23
L36	23.25 - 20.75	Pole	Max. My	14	-49.11	6.11	-3171.80
			Max. Vy	20	-40.37	3167.64	-5.23
			Max. Vx	14	40.43	6.11	-3171.80
			Max. Torque	12			-4.88
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.66	13.14	-7.04
			Max. Mx	20	-49.25	3177.74	-5.24
			Max. My	14	-49.25	6.13	-3181.91
			Max. Vy	20	-40.40	3177.74	-5.24
			Max. Vx	14	40.45	6.13	-3181.91
L37	20.75 - 20.5	Pole	Max. Torque	12			-4.89
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.92	13.85	-7.45
			Max. Mx	20	-51.86	3381.62	-5.56
			Max. My	14	-51.85	6.49	-3386.03
			Max. Vy	20	-41.14	3381.62	-5.56
			Max. Vx	14	41.20	6.49	-3386.03
			Max. Torque	12			-5.17
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.18	14.56	-7.86
L38	20.5 - 15.5	Pole	Max. Mx	20	-54.50	3589.10	-5.87
			Max. My	14	-54.50	6.84	-3593.74
			Max. Vy	20	-41.85	3589.10	-5.87
			Max. Vx	14	41.90	6.84	-3593.74
			Max. Torque	12			-5.17
			Max Tension	1	0.00	0.00	0.00
L39	15.5 - 10.5	Pole	Max. Compression	26	-92.18	14.56	-7.86
			Max. Mx	20	-54.50	3589.10	-5.87
			Max. My	14	-54.50	6.84	-3593.74
			Max. Vy	20	-41.85	3589.10	-5.87
			Max. Vx	14	41.90	6.84	-3593.74
			Max. Torque	12			-5.17

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L40	10.5 - 5.5	Pole	Max. Torque	12			-5.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.43	15.24	-8.25
			Max. Mx	20	-57.18	3800.09	-6.19
			Max. My	14	-57.18	7.20	-3804.97
			Max. Vy	20	-42.55	3800.09	-6.19
			Max. Vx	14	42.60	7.20	-3804.97
L41	5.5 - 3	Pole	Max. Torque	12			-5.73
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.04	15.56	-8.44
			Max. Mx	20	-58.53	3906.90	-6.34
			Max. My	14	-58.53	7.39	-3911.89
			Max. Vy	20	-42.90	3906.90	-6.34
			Max. Vx	14	42.96	7.39	-3911.89
L42	3 - 2.75	Pole	Max. Torque	12			-5.87
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.20	15.59	-8.45
			Max. Mx	20	-58.68	3917.63	-6.36
			Max. My	14	-58.68	7.40	-3922.63
			Max. Vy	20	-42.92	3917.63	-6.36
			Max. Vx	14	42.97	7.40	-3922.63
L43	2.75 - 0	Pole	Max. Torque	12			-5.89
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.97	15.90	-8.63
			Max. Mx	20	-60.19	4036.24	-6.53
			Max. My	14	-60.19	7.60	-4041.37
			Max. Vy	20	-43.34	4036.24	-6.53
			Max. Vx	14	43.39	7.60	-4041.37
			Max. Torque	12			-6.05

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	98.97	-0.00	0.00
	Max. H <sub>x</sub>	21	45.16	43.31	-0.05
	Max. H <sub>z</sub>	2	60.21	-0.05	43.36
	Max. M <sub>x</sub>	2	4039.06	-0.05	43.36
	Max. M <sub>z</sub>	8	4031.78	-43.31	0.05
	Max. Torsion	24	6.04	21.61	37.53
	Min. Vert	9	45.16	-43.31	0.05
	Min. H <sub>x</sub>	8	60.21	-43.31	0.05
	Min. H <sub>z</sub>	14	60.21	0.05	-43.36
	Min. M <sub>x</sub>	14	-4041.37	0.05	-43.36
	Min. M <sub>z</sub>	20	-4036.24	43.31	-0.05
	Min. Torsion	12	-6.05	-21.61	-37.53

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturing Moment, M <sub>x</sub> kip-ft	Overturing Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	50.17	-0.00	0.00	0.93	1.79	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	60.21	0.05	-43.36	-4039.06	-3.18	-5.34
0.9 Dead+1.6 Wind 0 deg - No Ice	45.16	0.05	-43.36	-3996.83	-3.69	-5.34
1.2 Dead+1.6 Wind 30 deg - No Ice	60.21	21.70	-37.58	-3500.48	-2019.46	-3.21
0.9 Dead+1.6 Wind 30 deg - No Ice	45.16	21.70	-37.58	-3463.93	-1998.76	-3.21
1.2 Dead+1.6 Wind 60 deg - No Ice	60.21	37.53	-21.72	-2023.63	-3494.05	-0.22

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
0.9 Dead+1.6 Wind 60 deg - No Ice	45.16	37.53	-21.72	-2002.62	-3457.83	-0.22
1.2 Dead+1.6 Wind 90 deg - No Ice	60.21	43.31	-0.05	-4.24	-4031.78	2.84
0.9 Dead+1.6 Wind 90 deg - No Ice	45.16	43.31	-0.05	-4.48	-3989.87	2.84
1.2 Dead+1.6 Wind 120 deg - No Ice	60.21	37.48	21.64	2016.60	-3488.69	5.13
0.9 Dead+1.6 Wind 120 deg - No Ice	45.16	37.48	21.64	1995.10	-3452.52	5.13
1.2 Dead+1.6 Wind 150 deg - No Ice	60.21	21.61	37.53	3497.41	-2010.15	6.05
0.9 Dead+1.6 Wind 150 deg - No Ice	45.16	21.61	37.53	3460.32	-1989.54	6.04
1.2 Dead+1.6 Wind 180 deg - No Ice	60.21	-0.05	43.36	4041.37	7.60	5.34
0.9 Dead+1.6 Wind 180 deg - No Ice	45.16	-0.05	43.36	3998.54	6.98	5.34
1.2 Dead+1.6 Wind 210 deg - No Ice	60.21	-21.70	37.58	3502.80	2023.91	3.20
0.9 Dead+1.6 Wind 210 deg - No Ice	45.16	-21.70	37.58	3465.65	2002.06	3.20
1.2 Dead+1.6 Wind 240 deg - No Ice	60.21	-37.53	21.72	2025.94	3498.51	0.21
0.9 Dead+1.6 Wind 240 deg - No Ice	45.16	-37.53	21.72	2004.34	3461.14	0.21
1.2 Dead+1.6 Wind 270 deg - No Ice	60.21	-43.31	0.05	6.53	4036.24	-2.83
0.9 Dead+1.6 Wind 270 deg - No Ice	45.16	-43.31	0.05	6.18	3993.23	-2.83
1.2 Dead+1.6 Wind 300 deg - No Ice	60.21	-37.48	-21.64	-2014.33	3493.14	-5.12
0.9 Dead+1.6 Wind 300 deg - No Ice	45.16	-37.48	-21.64	-1993.41	3455.82	-5.12
1.2 Dead+1.6 Wind 330 deg - No Ice	60.21	-21.61	-37.53	-3495.13	2014.58	-6.04
0.9 Dead+1.6 Wind 330 deg - No Ice	45.16	-21.61	-37.53	-3458.63	1992.83	-6.03
1.2 Dead+1.0 Ice+1.0 Temp	98.97	0.00	-0.00	8.63	15.90	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	98.97	0.01	-10.22	-1005.25	15.01	-2.11
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	98.97	5.12	-8.86	-869.92	-491.24	-1.24
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	98.97	8.85	-5.12	-499.16	-861.57	-0.03
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	98.97	10.21	-0.01	7.68	-996.75	1.18
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	98.97	8.84	5.10	514.80	-860.55	2.08
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	98.97	5.10	8.85	886.31	-489.47	2.42
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	98.97	-0.01	10.22	1022.66	17.05	2.11
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	98.97	-5.12	8.86	887.33	523.31	1.24
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	98.97	-8.85	5.12	516.57	893.64	0.03
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	98.97	-10.21	0.01	9.72	1028.82	-1.18
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	98.97	-8.84	-5.10	-497.39	892.62	-2.08
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	98.97	-5.10	-8.85	-868.90	521.54	-2.42
Dead+Wind 0 deg - Service	50.17	0.01	-9.28	-858.53	0.71	-0.14
Dead+Wind 30 deg - Service	50.17	4.64	-8.04	-744.02	-428.26	-0.11
Dead+Wind 60 deg - Service	50.17	8.03	-4.65	-429.82	-741.99	-0.05
Dead+Wind 90 deg - Service	50.17	9.26	-0.01	-0.19	-856.32	0.03
Dead+Wind 120 deg - Service	50.17	8.02	4.63	429.75	-740.84	0.09

Load Combination	Vertical	Shear <sub>x</sub>	Shear <sub>z</sub>	Overturning Moment, M <sub>x</sub>	Overturning Moment, M <sub>z</sub>	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 150 deg - Service	50.17	4.62	8.03	744.80	-426.28	0.13
Dead+Wind 180 deg - Service	50.17	-0.01	9.28	860.45	3.00	0.14
Dead+Wind 210 deg - Service	50.17	-4.64	8.04	745.94	431.97	0.11
Dead+Wind 240 deg - Service	50.17	-8.03	4.65	431.74	745.70	0.05
Dead+Wind 270 deg - Service	50.17	-9.26	0.01	2.10	860.02	-0.03
Dead+Wind 300 deg - Service	50.17	-8.02	-4.63	-427.83	744.55	-0.09
Dead+Wind 330 deg - Service	50.17	-4.62	-8.03	-742.88	429.99	-0.13

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-50.17	0.00	0.00	50.17	-0.00	0.000%
2	0.05	-60.21	-43.36	-0.05	60.21	43.36	0.000%
3	0.05	-45.16	-43.36	-0.05	45.16	43.36	0.000%
4	21.70	-60.21	-37.58	-21.70	60.21	37.58	0.000%
5	21.70	-45.16	-37.58	-21.70	45.16	37.58	0.000%
6	37.53	-60.21	-21.72	-37.53	60.21	21.72	0.000%
7	37.53	-45.16	-21.72	-37.53	45.16	21.72	0.000%
8	43.31	-60.21	-0.05	-43.31	60.21	0.05	0.001%
9	43.31	-45.16	-0.05	-43.31	45.16	0.05	0.001%
10	37.48	-60.21	21.64	-37.48	60.21	-21.64	0.000%
11	37.48	-45.16	21.64	-37.48	45.16	-21.64	0.000%
12	21.61	-60.21	37.53	-21.61	60.21	-37.53	0.000%
13	21.61	-45.16	37.53	-21.61	45.16	-37.53	0.000%
14	-0.05	-60.21	43.36	0.05	60.21	-43.36	0.000%
15	-0.05	-45.16	43.36	0.05	45.16	-43.36	0.000%
16	-21.70	-60.21	37.58	21.70	60.21	-37.58	0.000%
17	-21.70	-45.16	37.58	21.70	45.16	-37.58	0.000%
18	-37.53	-60.21	21.72	37.53	60.21	-21.72	0.000%
19	-37.53	-45.16	21.72	37.53	45.16	-21.72	0.000%
20	-43.31	-60.21	0.05	43.31	60.21	-0.05	0.001%
21	-43.31	-45.16	0.05	43.31	45.16	-0.05	0.000%
22	-37.48	-60.21	-21.64	37.48	60.21	21.64	0.000%
23	-37.48	-45.16	-21.64	37.48	45.16	21.64	0.000%
24	-21.61	-60.21	-37.53	21.61	60.21	37.53	0.000%
25	-21.61	-45.16	-37.53	21.61	45.16	37.53	0.000%
26	0.00	-98.97	0.00	-0.00	98.97	0.00	0.000%
27	0.01	-98.97	-10.23	-0.01	98.97	10.22	0.000%
28	5.12	-98.97	-8.86	-5.12	98.97	8.86	0.000%
29	8.85	-98.97	-5.12	-8.85	98.97	5.12	0.000%
30	10.22	-98.97	-0.01	-10.21	98.97	0.01	0.000%
31	8.84	-98.97	5.10	-8.84	98.97	-5.10	0.000%
32	5.10	-98.97	8.85	-5.10	98.97	-8.85	0.000%
33	-0.01	-98.97	10.23	0.01	98.97	-10.22	0.000%
34	-5.12	-98.97	8.86	5.12	98.97	-8.86	0.000%
35	-8.85	-98.97	5.12	8.85	98.97	-5.12	0.000%
36	-10.22	-98.97	0.01	10.21	98.97	-0.01	0.000%
37	-8.84	-98.97	-5.10	8.84	98.97	5.10	0.000%
38	-5.10	-98.97	-8.85	5.10	98.97	8.85	0.000%
39	0.01	-50.17	-9.28	-0.01	50.17	9.28	0.002%
40	4.64	-50.17	-8.04	-4.64	50.17	8.04	0.000%
41	8.03	-50.17	-4.65	-8.03	50.17	4.65	0.000%
42	9.27	-50.17	-0.01	-9.26	50.17	0.01	0.002%
43	8.02	-50.17	4.63	-8.02	50.17	-4.63	0.000%
44	4.62	-50.17	8.03	-4.62	50.17	-8.03	0.000%
45	-0.01	-50.17	9.28	0.01	50.17	-9.28	0.002%
46	-4.64	-50.17	8.04	4.64	50.17	-8.04	0.000%
47	-8.03	-50.17	4.65	8.03	50.17	-4.65	0.000%



Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
48	-9.27	-50.17	0.01	9.26	50.17	-0.01	0.002%
49	-8.02	-50.17	-4.63	8.02	50.17	4.63	0.000%
50	-4.62	-50.17	-8.03	4.62	50.17	8.03	0.000%

## Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.0000001	0.0000001
2	Yes	19	0.0000001	0.00007706
3	Yes	18	0.0000001	0.00012637
4	Yes	22	0.0000001	0.00011719
5	Yes	22	0.0000001	0.00007964
6	Yes	22	0.0000001	0.00011960
7	Yes	22	0.0000001	0.00008135
8	Yes	18	0.0000001	0.00007992
9	Yes	17	0.0000001	0.00012964
10	Yes	22	0.0000001	0.00012211
11	Yes	22	0.0000001	0.00008316
12	Yes	22	0.0000001	0.00011496
13	Yes	22	0.0000001	0.00007810
14	Yes	19	0.0000001	0.00008540
15	Yes	18	0.0000001	0.00013980
16	Yes	22	0.0000001	0.00012203
17	Yes	22	0.0000001	0.00008298
18	Yes	22	0.0000001	0.00011944
19	Yes	22	0.0000001	0.00008117
20	Yes	18	0.0000001	0.00009753
21	Yes	18	0.0000001	0.00007263
22	Yes	22	0.0000001	0.00011570
23	Yes	22	0.0000001	0.00007861
24	Yes	22	0.0000001	0.00012303
25	Yes	22	0.0000001	0.00008377
26	Yes	13	0.0000001	0.00014776
27	Yes	20	0.0000001	0.00008848
28	Yes	20	0.0000001	0.00010688
29	Yes	20	0.0000001	0.00010750
30	Yes	20	0.0000001	0.00008723
31	Yes	20	0.0000001	0.00011071
32	Yes	20	0.0000001	0.00010811
33	Yes	20	0.0000001	0.00009000
34	Yes	20	0.0000001	0.00011405
35	Yes	20	0.0000001	0.00011298
36	Yes	20	0.0000001	0.00009002
37	Yes	20	0.0000001	0.00010983
38	Yes	20	0.0000001	0.00011288
39	Yes	15	0.0000001	0.00005441
40	Yes	17	0.0000001	0.00008495
41	Yes	17	0.0000001	0.00008760
42	Yes	15	0.0000001	0.00004871
43	Yes	17	0.0000001	0.00008846
44	Yes	17	0.0000001	0.00008407
45	Yes	15	0.0000001	0.00005553
46	Yes	17	0.0000001	0.00009011
47	Yes	17	0.0000001	0.00008725
48	Yes	15	0.0000001	0.00004920
49	Yes	17	0.0000001	0.00008515
50	Yes	17	0.0000001	0.00008974

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	21.28	46	1.45	0.00
L2	135 - 130	19.77	46	1.44	0.00
L3	130 - 125	18.27	46	1.41	0.00
L4	125 - 120	16.81	46	1.38	0.00
L5	120 - 115	15.39	46	1.33	0.00
L6	115 - 110	14.03	46	1.27	0.00
L7	110 - 105	12.74	46	1.19	0.00
L8	105 - 104	11.54	46	1.10	0.00
L9	104 - 103.75	11.31	46	1.08	0.00
L10	103.75 - 98.75	11.26	46	1.08	0.00
L11	98.75 - 98.5	10.16	46	1.01	0.00
L12	98.5 - 98.25	10.11	46	1.01	0.00
L13	98.25 - 97	10.06	46	1.01	0.00
L14	97 - 96.75	9.79	46	1.00	0.00
L15	96.75 - 88.5	9.74	46	1.00	0.00
L16	91.75 - 88	8.73	46	0.93	0.00
L17	88 - 87.75	8.01	46	0.90	0.00
L18	87.75 - 82.75	7.96	46	0.90	0.00
L19	82.75 - 77.75	7.05	46	0.85	0.00
L20	77.75 - 72.75	6.19	46	0.79	0.00
L21	72.75 - 68.08	5.39	46	0.73	0.00
L22	68.08 - 67.83	4.70	46	0.68	0.00
L23	67.83 - 62.83	4.66	46	0.67	0.00
L24	62.83 - 57.83	3.98	46	0.62	0.00
L25	57.83 - 52.83	3.36	46	0.57	0.00
L26	52.83 - 47.25	2.80	46	0.51	0.00
L27	51.5 - 46.5	2.66	46	0.49	0.00
L28	46.5 - 41.5	2.16	46	0.46	0.00
L29	41.5 - 37.75	1.71	46	0.41	0.00
L30	37.75 - 37.5	1.40	46	0.36	0.00
L31	37.5 - 32.5	1.38	46	0.36	0.00
L32	32.5 - 32.25	1.03	46	0.31	0.00
L33	32.25 - 27.25	1.02	46	0.31	0.00
L34	27.25 - 23.5	0.72	46	0.26	0.00
L35	23.5 - 23.25	0.54	46	0.22	0.00
L36	23.25 - 20.75	0.52	46	0.22	0.00
L37	20.75 - 20.5	0.42	46	0.19	0.00
L38	20.5 - 15.5	0.41	46	0.19	0.00
L39	15.5 - 10.5	0.23	46	0.14	0.00
L40	10.5 - 5.5	0.10	46	0.10	0.00
L41	5.5 - 3	0.03	46	0.05	0.00
L42	3 - 2.75	0.01	46	0.03	0.00
L43	2.75 - 0	0.01	46	0.02	0.00

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.0000	APXVSP18-C-A20 w/ Mount Pipe	46	21.28	1.45	0.00	17702
137.0000	TME-800MHz 2X50W RRH W/FILTER	46	20.37	1.44	0.00	17702
121.0000	7770.00 w/ Mount Pipe	46	15.67	1.34	0.00	5550
115.0000	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	46	14.03	1.27	0.00	4064
104.0000	LNx-6514DS-VTM w/ Mount Pipe	46	11.31	1.08	0.00	3707
95.0000	APXV18-206517S-C w/ Mount Pipe	46	9.38	0.97	0.00	4973
80.0000	OG-860/1920/GPS-A	46	6.57	0.82	0.00	5144

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	99.84	14	6.80	0.01
L2	135 - 130	92.75	16	6.77	0.01
L3	130 - 125	85.74	16	6.65	0.01
L4	125 - 120	78.89	16	6.48	0.01
L5	120 - 115	72.24	16	6.26	0.01
L6	115 - 110	65.85	16	5.96	0.01
L7	110 - 105	59.81	16	5.60	0.01
L8	105 - 104	54.19	16	5.16	0.01
L9	104 - 103.75	53.12	16	5.07	0.01
L10	103.75 - 98.75	52.85	16	5.06	0.01
L11	98.75 - 98.5	47.71	16	4.77	0.01
L12	98.5 - 98.25	47.46	16	4.76	0.01
L13	98.25 - 97	47.21	16	4.75	0.01
L14	97 - 96.75	45.98	16	4.70	0.01
L15	96.75 - 88.5	45.74	16	4.68	0.01
L16	91.75 - 88	41.00	16	4.38	0.01
L17	88 - 87.75	37.61	16	4.25	0.01
L18	87.75 - 82.75	37.39	16	4.23	0.01
L19	82.75 - 77.75	33.09	16	3.98	0.01
L20	77.75 - 72.75	29.06	16	3.72	0.01
L21	72.75 - 68.08	25.31	16	3.45	0.01
L22	68.08 - 67.83	22.07	16	3.18	0.01
L23	67.83 - 62.83	21.90	16	3.17	0.01
L24	62.83 - 57.83	18.71	16	2.92	0.01
L25	57.83 - 52.83	15.80	16	2.66	0.01
L26	52.83 - 47.25	13.16	16	2.39	0.00
L27	51.5 - 46.5	12.50	16	2.32	0.00
L28	46.5 - 41.5	10.14	16	2.17	0.00
L29	41.5 - 37.75	8.01	16	1.91	0.00
L30	37.75 - 37.5	6.59	16	1.71	0.00
L31	37.5 - 32.5	6.50	16	1.70	0.00
L32	32.5 - 32.25	4.85	16	1.45	0.00
L33	32.25 - 27.25	4.78	16	1.44	0.00
L34	27.25 - 23.5	3.39	16	1.20	0.00
L35	23.5 - 23.25	2.52	16	1.03	0.00
L36	23.25 - 20.75	2.46	16	1.02	0.00
L37	20.75 - 20.5	1.96	16	0.91	0.00
L38	20.5 - 15.5	1.91	16	0.90	0.00
L39	15.5 - 10.5	1.09	16	0.68	0.00
L40	10.5 - 5.5	0.49	16	0.46	0.00
L41	5.5 - 3	0.13	16	0.23	0.00
L42	3 - 2.75	0.04	16	0.12	0.00
L43	2.75 - 0	0.03	16	0.11	0.00

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.0000	APXVSPP18-C-A20 w/ Mount Pipe	14	99.84	6.80	0.01	3851
137.0000	TME-800MHz 2X50W RRH W/FILTER	14	95.58	6.79	0.01	3851
121.0000	7770.00 w/ Mount Pipe	16	73.55	6.31	0.01	1206
115.0000	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	16	65.85	5.96	0.01	882
104.0000	LNx-6514DS-VTM w/ Mount Pipe	16	53.12	5.07	0.01	800
95.0000	APXV18-206517S-C w/ Mount Pipe	16	44.04	4.57	0.01	1070
80.0000	OG-860/1920/GPS-A	16	30.84	3.84	0.01	1103

## Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	$L_u$ ft	Kl/r	A in <sup>2</sup>	$P_u$ K
L1	140 - 135 (1)	TP17.0151x16x0.25	5.0000	0.0000	0.0	13.4959	-4.07
L2	135 - 130 (2)	TP18.0303x17.0151x0.25	5.0000	0.0000	0.0	14.3131	-4.34
L3	130 - 125 (3)	TP19.0454x18.0303x0.25	5.0000	0.0000	0.0	15.1303	-4.64
L4	125 - 120 (4)	TP20.0606x19.0454x0.25	5.0000	0.0000	0.0	15.9475	-8.70
L5	120 - 115 (5)	TP21.0757x20.0606x0.25	5.0000	0.0000	0.0	16.7647	-9.15
L6	115 - 110 (6)	TP22.0909x21.0757x0.25	5.0000	0.0000	0.0	17.5819	-12.42
L7	110 - 105 (7)	TP23.106x22.0909x0.25	5.0000	0.0000	0.0	18.3991	-13.04
L8	105 - 104 (8)	TP23.309x23.106x0.25	1.0000	0.0000	0.0	18.5625	-13.16
L9	104 - 103.75 (9)	TP23.3598x23.309x0.4625	0.2500	0.0000	0.0	34.0998	-16.91
L10	103.75 - 98.75 (10)	TP24.375x23.3598x0.45	5.0000	0.0000	0.0	34.6673	-17.84
L11	98.75 - 98.5 (11)	TP24.4257x24.375x0.45	0.2500	0.0000	0.0	34.7408	-17.90
L12	98.5 - 98.25 (12)	TP24.4765x24.4257x0.725	0.2500	0.0000	0.0	55.4478	-17.96
L13	98.25 - 97 (13)	TP24.7303x24.4765x0.725	1.2500	0.0000	0.0	56.0403	-18.27
L14	97 - 96.75 (14)	TP24.781x24.7303x0.5125	0.2500	0.0000	0.0	40.0491	-18.33
L15	96.75 - 88.5 (15)	TP26.456x24.781x0.5	8.2500	0.0000	0.0	40.7268	-19.73
L16	88.5 - 88 (16)	TP26.0576x25.2962x0.5625	3.7500	0.0000	0.0	46.1780	-21.08
L17	88 - 87.75 (17)	TP26.1084x26.0576x0.7625	0.2500	0.0000	0.0	62.2304	-21.17
L18	87.75 - 82.75 (18)	TP27.1236x26.1084x0.7375	5.0000	0.0000	0.0	62.6605	-22.71
L19	82.75 - 77.75 (19)	TP28.1389x27.1236x0.725	5.0000	0.0000	0.0	63.9977	-24.41
L20	77.75 - 72.75 (20)	TP29.1542x28.1389x0.7125	5.0000	0.0000	0.0	65.2523	-26.04
L21	72.75 - 68.08 (21)	TP30.1024x29.1542x0.6875	4.6700	0.0000	0.0	65.1173	-27.58
L22	68.08 - 67.83 (22)	TP30.1532x30.1024x0.8125	0.2500	0.0000	0.0	76.7625	-27.69
L23	67.83 - 62.83 (23)	TP31.1684x30.1532x0.7875	5.0000	0.0000	0.0	77.0385	-29.51
L24	62.83 - 57.83 (24)	TP32.1837x31.1684x0.7625	5.0000	0.0000	0.0	77.1469	-31.38
L25	57.83 - 52.83 (25)	TP33.199x32.1837x0.75	5.0000	0.0000	0.0	78.3643	-33.29
L26	52.83 - 47.25 (26)	TP34.332x33.199x0.75	5.5800	0.0000	0.0	79.0164	-33.80
L27	47.25 - 46.5 (27)	TP33.8592x32.844x0.8	5.0000	0.0000	0.0	85.1604	-37.15
L28	46.5 - 41.5 (28)	TP34.8743x33.8592x0.8	5.0000	0.0000	0.0	87.7754	-39.24
L29	41.5 - 37.75 (29)	TP35.6357x34.8743x0.775	3.7500	0.0000	0.0	86.9948	-40.83
L30	37.75 - 37.5 (30)	TP35.6864x35.6357x0.85	0.2500	0.0000	0.0	95.3473	-40.96
L31	37.5 - 32.5 (31)	TP36.7016x35.6864x0.825	5.0000	0.0000	0.0	95.3061	-43.20
L32	32.5 - 32.25	TP36.7523x36.7016x0.87	0.2500	0.0000	0.0	101.08	-43.34

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K
L33	32.25 - 27.25 (32)	TP37.7675x36.7523x0.86 5	5.0000	0.0000	0.0	102.49 40	-45.74
L34	27.25 - 23.5 (33)	TP38.5288x37.7675x0.85 25	3.7500	0.0000	0.0	103.12 40	-47.57
L35	23.5 - 23.25 (34)	TP38.5796x38.5288x0.95 70	0.2500	0.0000	0.0	115.10 70	-47.72
L36	23.25 - 20.75 (35)	TP39.0872x38.5796x0.95 90	2.5000	0.0000	0.0	116.66 90	-49.11
L37	20.75 - 20.5 (36)	TP39.1379x39.0872x0.9 20	0.2500	0.0000	0.0	110.81 20	-49.25
L38	20.5 - 15.5 (37)	TP40.1531x39.1379x0.87 30	5.0000	0.0000	0.0	110.66 30	-51.85
L39	15.5 - 10.5 (38)	TP41.1682x40.1531x0.86 5	5.0000	0.0000	0.0	111.93 60	-54.50
L40	10.5 - 5.5 (40)	TP42.1833x41.1682x0.85 25	5.0000	0.0000	0.0	113.12 90	-57.18
L41	5.5 - 3 (41)	TP42.6909x42.1833x0.83 75	2.5000	0.0000	0.0	112.86 80	-58.53
L42	3 - 2.75 (42)	TP42.7417x42.6909x0.9 70	0.2500	0.0000	0.0	121.25 70	-58.68
L43	2.75 - 0 (43)	TP43.3x42.7417x0.9 50	2.7500	0.0000	0.0	122.87 50	-60.19

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	M <sub>uy</sub> kip-ft
L1	140 - 135 (1)	TP17.0151x16x0.25	26.42	0.00
L2	135 - 130 (2)	TP18.0303x17.0151x0.25	59.24	0.00
L3	130 - 125 (3)	TP19.0454x18.0303x0.25	94.27	0.00
L4	125 - 120 (4)	TP20.0606x19.0454x0.25	145.49	0.00
L5	120 - 115 (5)	TP21.0757x20.0606x0.25	214.13	0.00
L6	115 - 110 (6)	TP22.0909x21.0757x0.25	303.83	0.00
L7	110 - 105 (7)	TP23.106x22.0909x0.25	394.59	0.00
L8	105 - 104 (8)	TP23.309x23.106x0.25	413.09	0.00
L9	104 - 103.75 (9)	TP23.3598x23.309x0.462 5	419.42	0.00
L10	103.75 - 98.75 (10)	TP24.375x23.3598x0.45	547.28	0.00
L11	98.75 - 98.5 (11)	TP24.4257x24.375x0.45	553.78	0.00
L12	98.5 - 98.25 (12)	TP24.4765x24.4257x0.72 5	560.28	0.00
L13	98.25 - 97 (13)	TP24.7303x24.4765x0.72 5	592.97	0.00
L14	97 - 96.75 (14)	TP24.781x24.7303x0.512 5	599.55	0.00
L15	96.75 - 88.5 (15)	TP26.456x24.781x0.5	735.90	0.00
L16	88.5 - 88 (16)	TP26.0576x25.2962x0.56 25	842.13	0.00
L17	88 - 87.75 (17)	TP26.1084x26.0576x0.76 25	849.30	0.00
L18	87.75 - 82.75 (18)	TP27.1236x26.1084x0.73 75	995.08	0.00
L19	82.75 - 77.75 (19)	TP28.1389x27.1236x0.72 5	1145.43	0.00
L20	77.75 - 72.75 (20)	TP29.1542x28.1389x0.71 25	1300.34	0.00
L21	72.75 - 68.08 (21)	TP30.1024x29.1542x0.68 75	1449.00	0.00
L22	68.08 - 67.83 (22)	TP30.1532x30.1024x0.81 25	1457.07	0.00
L23	67.83 - 62.83	TP31.1684x30.1532x0.78	1620.80	0.00

Section No.	Elevation	Size	$M_{ux}$	$M_{uy}$
	ft		kip-ft	kip-ft
L24	62.83 - 57.83 (23)	TP32.1837x31.1684x0.76 75	1789.06	0.00
L25	57.83 - 52.83 (24)	TP33.199x32.1837x0.75 25	1961.78	0.00
L26	52.83 - 47.25 (25)	TP34.332x33.199x0.75	2008.47	0.00
L27	47.25 - 46.5 (26)	TP33.8592x32.844x0.8	2187.13	0.00
L28	46.5 - 41.5 (27)	TP34.8743x33.8592x0.8	2370.34	0.00
L29	41.5 - 37.75 (28)	TP35.6357x34.8743x0.77	2510.52	0.00
L30	37.75 - 37.5 (29)	TP35.6864x35.6357x0.85 5	2519.94	0.00
L31	37.5 - 32.5 (30)	TP36.7016x35.6864x0.82 5	2710.70	0.00
L32	32.5 - 32.25 (31)	TP36.7523x36.7016x0.87 5	2720.35	0.00
L33	32.25 - 27.25 (32)	TP37.7675x36.7523x0.86 5	2915.44	0.00
L34	27.25 - 23.5 (33)	TP38.5288x37.7675x0.85 25	3064.42	0.00
L35	23.5 - 23.25 (34)	TP38.5796x38.5288x0.95	3074.43	0.00
L36	23.25 - 20.75 (35)	TP39.0872x38.5796x0.95	3175.07	0.00
L37	20.75 - 20.5 (36)	TP39.1379x39.0872x0.9	3185.19	0.00
L38	20.5 - 15.5 (37)	TP40.1531x39.1379x0.87 5	3389.51	0.00
L39	15.5 - 10.5 (38)	TP41.1682x40.1531x0.86 5	3597.43	0.00
L40	10.5 - 5.5 (40)	TP42.1833x41.1682x0.85 25	3808.84	0.00
L41	5.5 - 3 (41)	TP42.6909x42.1833x0.83 75	3915.87	0.00
L42	3 - 2.75 (42)	TP42.7417x42.6909x0.9	3926.62	0.00
L43	2.75 - 0 (43)	TP43.3x42.7417x0.9	4045.47	0.00

### Pole Shear Design Data

Section No.	Elevation	Size	Actual $V_u$	Actual $T_u$
	ft		K	kip-ft
L1	140 - 135 (1)	TP17.0151x16x0.25	6.35	0.00
L2	135 - 130 (2)	TP18.0303x17.0151x0.25	6.78	0.00
L3	130 - 125 (3)	TP19.0454x18.0303x0.25	7.23	0.00
L4	125 - 120 (4)	TP20.0606x19.0454x0.25	13.49	0.33
L5	120 - 115 (5)	TP21.0757x20.0606x0.25	13.98	0.34
L6	115 - 110 (6)	TP22.0909x21.0757x0.25	17.87	0.13
L7	110 - 105 (7)	TP23.106x22.0909x0.25	18.44	0.16
L8	105 - 104 (8)	TP23.309x23.106x0.25	18.58	0.17
L9	104 - 103.75 (9)	TP23.3598x23.309x0.462 5	25.20	0.55
L10	103.75 - 98.75 (10)	TP24.375x23.3598x0.45	25.96	0.62
L11	98.75 - 98.5 (11)	TP24.4257x24.375x0.45	26.01	0.63
L12	98.5 - 98.25 (12)	TP24.4765x24.4257x0.72 5	26.06	0.63
L13	98.25 - 97 (13)	TP24.7303x24.4765x0.72 5	26.26	0.66
L14	97 - 96.75 (14)	TP24.781x24.7303x0.512 5	26.31	0.67
L15	96.75 - 88.5 (15)	TP26.456x24.781x0.5	27.98	0.76

Section No.	Elevation ft	Size	Actual $V_u$ K	Actual $T_u$ kip-ft
L16	88.5 - 88 (16)	TP26.0576x25.2962x0.56 25	28.67	0.83
L17	88 - 87.75 (17)	TP26.1084x26.0576x0.76 25	28.72	0.83
L18	87.75 - 82.75 (18)	TP27.1236x26.1084x0.73 75	29.60	0.94
L19	82.75 - 77.75 (19)	TP28.1389x27.1236x0.72 5	30.54	1.09
L20	77.75 - 72.75 (20)	TP29.1542x28.1389x0.71 25	31.42	1.20
L21	72.75 - 68.08 (21)	TP30.1024x29.1542x0.68 75	32.25	1.32
L22	68.08 - 67.83 (22)	TP30.1532x30.1024x0.81 25	32.29	1.32
L23	67.83 - 62.83 (23)	TP31.1684x30.1532x0.78 75	33.20	1.45
L24	62.83 - 57.83 (24)	TP32.1837x31.1684x0.76 25	34.10	1.58
L25	57.83 - 52.83 (25)	TP33.199x32.1837x0.75	34.99	1.72
L26	52.83 - 47.25 (26)	TP34.332x33.199x0.75	35.22	1.75
L27	47.25 - 46.5 (27)	TP33.8592x32.844x0.8	36.22	1.89
L28	46.5 - 41.5 (28)	TP34.8743x33.8592x0.8	37.07	2.02
L29	41.5 - 37.75 (29)	TP35.6357x34.8743x0.77 5	37.70	2.13
L30	37.75 - 37.5 (30)	TP35.6864x35.6357x0.85	37.72	2.13
L31	37.5 - 32.5 (31)	TP36.7016x35.6864x0.82 5	38.57	2.28
L32	32.5 - 32.25 (32)	TP36.7523x36.7016x0.87 5	38.60	2.29
L33	32.25 - 27.25 (33)	TP37.7675x36.7523x0.86 25	39.43	2.43
L34	27.25 - 23.5 (34)	TP38.5288x37.7675x0.85	40.03	2.54
L35	23.5 - 23.25 (35)	TP38.5796x38.5288x0.95	40.05	2.55
L36	23.25 - 20.75 (36)	TP39.0872x38.5796x0.95	40.46	2.62
L37	20.75 - 20.5 (37)	TP39.1379x39.0872x0.9	40.48	2.62
L38	20.5 - 15.5 (38)	TP40.1531x39.1379x0.87 5	41.23	2.76
L39	15.5 - 10.5 (39)	TP41.1682x40.1531x0.86 25	41.93	2.90
L40	10.5 - 5.5 (40)	TP42.1833x41.1682x0.85	42.63	3.04
L41	5.5 - 3 (41)	TP42.6909x42.1833x0.83 75	42.99	3.11
L42	3 - 2.75 (42)	TP42.7417x42.6909x0.9	43.00	3.12
L43	2.75 - 0 (43)	TP43.3x42.7417x0.9	43.42	3.20



Site BU: 876342

Work Order: \_\_\_\_\_



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**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	140	51.5	3.25	12	16	26.456	0.25	1	A572-65
2	91.75	44.5	4.25	12	25.30	34.332	0.3125	1.25	A572-65
3	51.5	51.5	0	12	32.84	43.3	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
1	0	23.5	channel	MP3-06 (1.1875")	2						o		o				
2	0	37.75	channel	MP3-08 (1.1875")	2			o								o	
3	20.75	37.75	channel	MP3-08 (1.1875")	1							o					
4	37.75	68.08	channel	MP3-06 (1.1875")	3			o				o				o	
5	68.08	98.5	channel	MP3-05 (1.1875")	3			o				o				o	
6	3	32.5	plate	1-065125; (1) (1.1875)	3					o			o				o
7	32.5	68.08	plate	CCI-AFP-060100	3					o			o				o
8	68.08	88	plate	CCI-AFP-060100	3					o			o				o
9	97	104	plate	CCI-SFP-045100	3	o				o			o				
10	0	3	plate	FP 1.25 x 7.25_1	3					o			o				o
11																	

**Reinforcement Details**

	B (in)	H (in)	Gross Area (in <sup>2</sup> )	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L <sub>v</sub> (in)	Net Area (in <sup>2</sup> )	Bolt Hole Size (in)	Reinforcement Material
1	6.89	2.61	8.47	0.93	41.000	41.000	24.000	7.670	1.1875	A572-65
2	7.93	2.8	10.32	0.95	47.000	47.000	24.000	9.370	1.1875	A572-65
3	7.93	2.8	10.32	0.95	47.000	47.000	24.000	9.370	1.1875	A572-65
4	6.89	2.61	8.47	0.93	41.000	41.000	24.000	7.670	1.1875	A572-65
5	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
6	6.5	1.25	8.125	0.625	n/a	36.000	19.000	6.563	1.1875	A572-65
7	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
8	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
9	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
10	1.25	7.25	9.0625	3.625	n/a	n/a	0.000	9.063	0.0000	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	140 - 135	5		12	16.000	17.015	0.25	A572-65	1.000
2	135 - 130	5		12	17.015	18.030	0.25	A572-65	1.000
3	130 - 125	5		12	18.030	19.045	0.25	A572-65	1.000
4	125 - 120	5		12	19.045	20.061	0.25	A572-65	1.000
5	120 - 115	5		12	20.061	21.076	0.25	A572-65	1.000
6	115 - 110	5		12	21.076	22.091	0.25	A572-65	1.000
7	110 - 105	5		12	22.091	23.106	0.25	A572-65	1.000
8	105 - 104	1		12	23.106	23.309	0.25	A572-65	1.000
9	104 - 103.75	0.25		12	23.309	23.360	0.4625	A572-65	0.942
10	103.75 - 98.75	5		12	23.360	24.375	0.45	A572-65	0.950
11	98.75 - 98.5	0.25		12	24.375	24.426	0.45	A572-65	0.949
12	98.5 - 98.25	0.25		12	24.426	24.476	0.725	A572-65	0.902
13	98.25 - 97	1.25		12	24.476	24.730	0.725	A572-65	0.896
14	97 - 96.75	0.25		12	24.730	24.781	0.5125	A572-65	0.917
15	96.75 - 91.75	8.25	3.25	12	24.781	26.456	0.5	A572-65	0.922
16	91.75 - 88	3.75		12	25.296	26.058	0.5625	A572-65	0.929
17	88 - 87.75	0.25		12	26.058	26.108	0.7625	A572-65	0.980
18	87.75 - 82.75	5		12	26.108	27.124	0.7375	A572-65	0.989
19	82.75 - 77.75	5		12	27.124	28.139	0.725	A572-65	0.984
20	77.75 - 72.75	5		12	28.139	29.154	0.7125	A572-65	0.981
21	72.75 - 68.08	4.67		12	29.154	30.102	0.6875	A572-65	0.998
22	68.08 - 67.83	0.25		12	30.102	30.153	0.8125	A572-65	0.957
23	67.83 - 62.83	5		12	30.153	31.168	0.7875	A572-65	0.967
24	62.83 - 57.83	5		12	31.168	32.184	0.7625	A572-65	0.979
25	57.83 - 52.83	5		12	32.184	33.199	0.75	A572-65	0.977
26	52.83 - 51.5	5.58	4.25	12	33.199	34.332	0.75	A572-65	0.972
27	51.5 - 46.5	5		12	32.844	33.859	0.8	A572-65	0.985
28	46.5 - 41.5	5		12	33.859	34.874	0.8	A572-65	0.970
29	41.5 - 37.75	3.75		12	34.874	35.636	0.775	A572-65	0.989
30	37.75 - 37.5	0.25		12	35.636	35.686	0.85	A572-65	0.961
31	37.5 - 32.5	5		12	35.686	36.702	0.825	A572-65	0.975
32	32.5 - 32.25	0.25		12	36.702	36.752	0.875	A572-65	0.983
33	32.25 - 27.25	5		12	36.752	37.767	0.8625	A572-65	0.981
34	27.25 - 23.5	3.75		12	37.767	38.529	0.85	A572-65	0.984
35	23.5 - 23.25	0.25		12	38.529	38.580	0.95	A572-65	1.030
36	23.25 - 20.75	2.5		12	38.580	39.087	0.95	A572-65	1.021
37	20.75 - 20.5	0.25		12	39.087	39.138	0.9	A572-65	0.982
38	20.5 - 15.5	5		12	39.138	40.153	0.875	A572-65	0.995
39	15.5 - 10.5	5		12	40.153	41.168	0.8625	A572-65	0.994
40	10.5 - 5.5	5		12	41.168	42.183	0.85	A572-65	0.995
41	5.5 - 3	2.5		12	42.183	42.691	0.8375	A572-65	1.002
42	3 - 2.75	0.25		12	42.691	42.742	0.9	A572-65	0.957
43	2.75 - 0	2.75		12	42.742	43.300	0.9	A572-65	0.950

## TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P <sub>u</sub> (K)	M <sub>ux</sub> (kip-ft)	V <sub>u</sub> (K)	
1	140 - 135	4.07	26.42	6.35	
2	135 - 130	4.34	59.24	6.78	
3	130 - 125	4.64	94.27	7.23	
4	125 - 120	8.70	145.49	13.49	
5	120 - 115	9.15	214.13	13.98	
6	115 - 110	12.42	303.83	17.87	
7	110 - 105	13.04	394.59	18.44	
8	105 - 104	13.16	413.09	18.58	
9	104 - 103.75	16.92	419.42	25.17	
10	103.75 - 98.75	17.84	547.28	25.96	
11	98.75 - 98.5	17.90	553.78	26.01	
12	98.5 - 98.25	17.96	560.28	26.06	
13	98.25 - 97	18.27	592.97	26.26	
14	97 - 96.75	18.33	599.55	26.31	
15	96.75 - 91.75	19.73	735.90	27.98	
16	91.75 - 88	21.08	842.13	28.67	
17	88 - 87.75	21.17	849.30	28.72	
18	87.75 - 82.75	22.71	995.08	29.60	
19	82.75 - 77.75	24.41	1145.43	30.54	
20	77.75 - 72.75	26.03	1300.34	31.42	
21	72.75 - 68.08	27.58	1449.00	32.25	
22	68.08 - 67.83	27.69	1457.07	32.29	
23	67.83 - 62.83	29.51	1620.80	33.20	
24	62.83 - 57.83	31.38	1789.06	34.10	
25	57.83 - 52.83	33.29	1961.78	34.99	
26	52.83 - 51.5	33.80	2008.47	35.22	
27	51.5 - 46.5	37.15	2187.13	36.22	
28	46.5 - 41.5	39.24	2370.34	37.07	
29	41.5 - 37.75	40.83	2510.52	37.70	
30	37.75 - 37.5	40.96	2519.95	37.72	
31	37.5 - 32.5	43.20	2710.70	38.57	
32	32.5 - 32.25	43.34	2720.35	38.60	
33	32.25 - 27.25	45.74	2915.44	39.43	
34	27.25 - 23.5	47.57	3064.42	40.03	
35	23.5 - 23.25	47.72	3074.43	40.05	
36	23.25 - 20.75	49.11	3175.08	40.46	
37	20.75 - 20.5	49.25	3185.20	40.48	
38	20.5 - 15.5	51.85	3389.51	41.23	
39	15.5 - 10.5	54.50	3597.42	41.93	
40	10.5 - 5.5	57.18	3808.84	42.63	
41	5.5 - 3	58.53	3915.87	42.99	
42	3 - 2.75	58.68	3926.62	43.00	
43	2.75 - 0	60.19	4045.46	43.42	

# Analysis Results

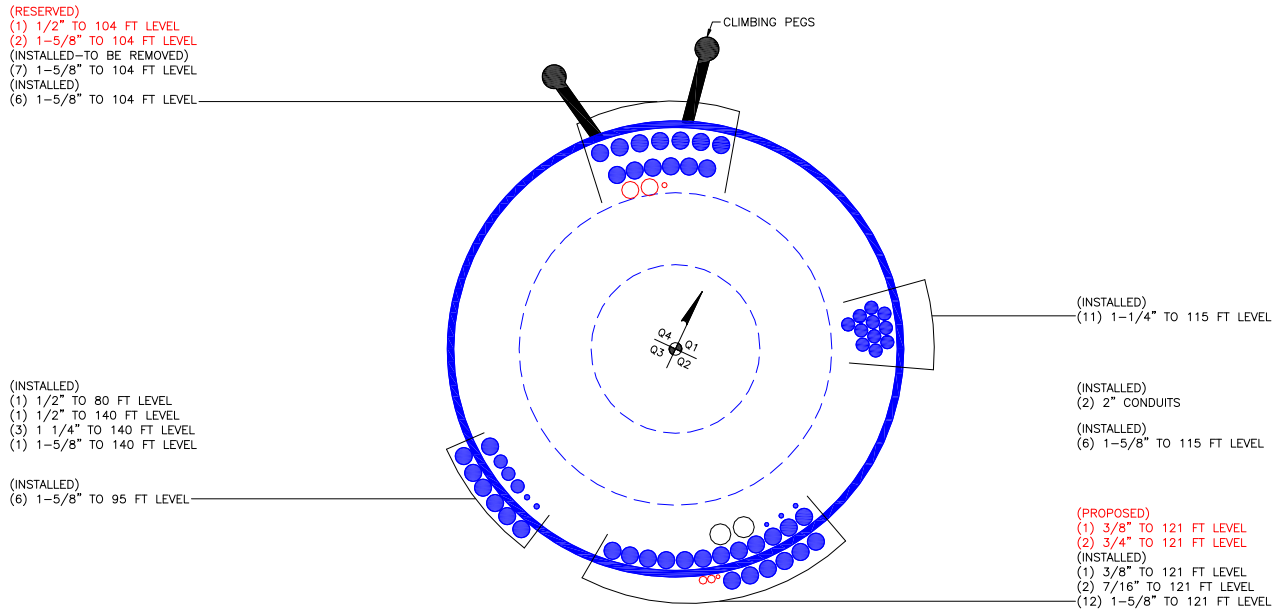
Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP17.015x16x0.25	Pole	8.2%	Pass
135 - 130	Pole	TP18.03x17.015x0.25	Pole	16.0%	Pass
130 - 125	Pole	TP19.045x18.03x0.25	Pole	22.6%	Pass
125 - 120	Pole	TP20.061x19.045x0.25	Pole	31.5%	Pass
120 - 115	Pole	TP21.076x20.061x0.25	Pole	41.7%	Pass
115 - 110	Pole	TP22.091x21.076x0.25	Pole	53.8%	Pass
110 - 105	Pole	TP23.106x22.091x0.25	Pole	64.5%	Pass
105 - 104	Pole	TP23.309x23.106x0.25	Pole	66.5%	Pass
104 - 103.75	Pole + Reinf.	TP23.36x23.309x0.4625	Reinf. 9 Tension Rupture	62.9%	Pass
103.75 - 98.75	Pole + Reinf.	TP24.375x23.36x0.45	Reinf. 9 Tension Rupture	76.6%	Pass
98.75 - 98.5	Pole + Reinf.	TP24.426x24.375x0.45	Reinf. 9 Tension Rupture	77.2%	Pass
98.5 - 98.25	Pole + Reinf.	TP24.476x24.426x0.725	Reinf. 9 Tension Rupture	49.8%	Pass
98.25 - 97	Pole + Reinf.	TP24.73x24.476x0.725	Reinf. 9 Tension Rupture	52.0%	Pass
97 - 96.75	Pole + Reinf.	TP24.781x24.73x0.5125	Reinf. 5 Tension Rupture	61.8%	Pass
96.75 - 91.75	Pole + Reinf.	TP26.456x24.781x0.5	Reinf. 5 Tension Rupture	71.3%	Pass
91.75 - 88	Pole + Reinf.	TP26.058x25.296x0.5625	Reinf. 5 Tension Rupture	71.3%	Pass
88 - 87.75	Pole + Reinf.	TP26.108x26.058x0.7625	Reinf. 5 Tension Rupture	55.8%	Pass
87.75 - 82.75	Pole + Reinf.	TP27.124x26.108x0.7375	Reinf. 5 Tension Rupture	61.8%	Pass
82.75 - 77.75	Pole + Reinf.	TP28.139x27.124x0.725	Reinf. 5 Tension Rupture	67.3%	Pass
77.75 - 72.75	Pole + Reinf.	TP29.154x28.139x0.7125	Reinf. 5 Tension Rupture	72.5%	Pass
72.75 - 68.08	Pole + Reinf.	TP30.102x29.154x0.6875	Reinf. 5 Tension Rupture	77.0%	Pass
68.08 - 67.83	Pole + Reinf.	TP30.153x30.102x0.8125	Reinf. 7 Tension Rupture	65.8%	Pass
67.83 - 62.83	Pole + Reinf.	TP31.168x30.153x0.7875	Reinf. 7 Tension Rupture	69.9%	Pass
62.83 - 57.83	Pole + Reinf.	TP32.184x31.168x0.7625	Reinf. 7 Tension Rupture	73.8%	Pass
57.83 - 52.83	Pole + Reinf.	TP33.199x32.184x0.75	Reinf. 7 Tension Rupture	77.5%	Pass
52.83 - 51.5	Pole + Reinf.	TP34.332x33.199x0.75	Reinf. 7 Tension Rupture	78.5%	Pass
51.5 - 46.5	Pole + Reinf.	TP33.859x32.844x0.8	Reinf. 7 Tension Rupture	77.7%	Pass
46.5 - 41.5	Pole + Reinf.	TP34.874x33.859x0.8	Reinf. 7 Tension Rupture	80.7%	Pass
41.5 - 37.75	Pole + Reinf.	TP35.636x34.874x0.775	Reinf. 7 Tension Rupture	82.8%	Pass
37.75 - 37.5	Pole + Reinf.	TP35.686x35.636x0.85	Reinf. 7 Tension Rupture	77.4%	Pass
37.5 - 32.5	Pole + Reinf.	TP36.702x35.686x0.825	Reinf. 7 Tension Rupture	80.0%	Pass
32.5 - 32.25	Pole + Reinf.	TP36.752x36.702x0.875	Reinf. 2 Tension Rupture	74.0%	Pass
32.25 - 27.25	Pole + Reinf.	TP37.767x36.752x0.8625	Reinf. 6 Tension Rupture	76.3%	Pass
27.25 - 23.5	Pole + Reinf.	TP38.529x37.767x0.85	Reinf. 6 Tension Rupture	78.0%	Pass
23.5 - 23.25	Pole + Reinf.	TP38.58x38.529x0.95	Reinf. 2 Tension Rupture	73.3%	Pass
23.25 - 20.75	Pole + Reinf.	TP39.087x38.58x0.95	Reinf. 2 Tension Rupture	74.3%	Pass
20.75 - 20.5	Pole + Reinf.	TP39.138x39.087x0.9	Reinf. 2 Tension Rupture	75.4%	Pass
20.5 - 15.5	Pole + Reinf.	TP40.153x39.138x0.875	Reinf. 2 Tension Rupture	77.3%	Pass
15.5 - 10.5	Pole + Reinf.	TP41.168x40.153x0.8625	Reinf. 2 Tension Rupture	79.1%	Pass
10.5 - 5.5	Pole + Reinf.	TP42.183x41.168x0.85	Reinf. 2 Tension Rupture	80.7%	Pass
5.5 - 3	Pole + Reinf.	TP42.691x42.183x0.8375	Reinf. 2 Tension Rupture	81.5%	Pass
3 - 2.75	Pole + Reinf.	TP42.742x42.691x0.9	Reinf. 2 Tension Rupture	76.6%	Pass
2.75 - 0	Pole + Reinf.	TP43.3x42.742x0.9	Reinf. 2 Tension Rupture	77.5%	Pass
				Summary	
			Pole	66.5%	Pass
			Reinforcement	82.8%	Pass
			Overall	82.8%	Pass

# Additional Calculations

Section Elevation (ft)	Moment of Inertia (in <sup>4</sup> )			Area (in <sup>2</sup> )			% Capacity										
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
140 - 135	485	n/a	485	13.48	n/a	13.48	8.2%										
135 - 130	578	n/a	578	14.29	n/a	14.29	16.0%										
130 - 125	683	n/a	683	15.11	n/a	15.11	22.6%										
125 - 120	800	n/a	800	15.92	n/a	15.92	31.5%										
120 - 115	929	n/a	929	16.74	n/a	16.74	41.7%										
115 - 110	1072	n/a	1072	17.56	n/a	17.56	53.8%										
110 - 105	1228	n/a	1228	18.37	n/a	18.37	64.5%										
105 - 104	1262	n/a	1262	18.54	n/a	18.54	66.5%										
104 - 103.75	1270	1013	2283	18.58	13.50	32.08	36.8%									62.9%	
103.75 - 98.75	1445	1099	2543	19.39	13.50	32.89	45.1%									76.6%	
98.75 - 98.5	1454	1103	2557	19.43	13.50	32.93	45.6%									77.2%	
98.5 - 98.25	1463	2557	4020	19.47	30.45	49.92	29.4%				42.7%					49.8%	
98.25 - 97	1509	2607	4116	19.68	30.45	50.13	30.8%				44.6%					52.0%	
97 - 96.75	1519	1483	3002	19.72	16.95	36.67	42.8%				61.8%						
96.75 - 91.75	1715	1599	3314	20.54	16.95	37.49	50.2%				71.3%						
91.75 - 88	2195	1629	3824	25.87	16.95	42.82	47.5%				71.3%						
88 - 87.75	2218	2867	5085	25.92	34.95	60.87	38.9%				55.8%				54.3%		
87.75 - 82.75	2491	3149	5640	26.94	34.95	61.89	42.2%				61.8%				60.2%		
82.75 - 77.75	2784	3375	6159	27.96	34.95	62.91	46.4%				67.3%				65.8%		
77.75 - 72.75	3099	3609	6708	28.98	34.95	63.93	50.7%				72.5%				71.0%		
72.75 - 68.08	3415	3835	7249	29.93	34.95	64.88	54.5%				77.0%				75.5%		
68.08 - 67.83	3429	4990	8419	29.98	43.41	73.39	47.1%				65.5%			65.8%			
67.83 - 62.83	3791	5311	9102	31.00	43.41	74.41	50.6%				69.5%			69.9%			
62.83 - 57.83	4177	5643	9819	32.02	43.41	75.43	54.1%				73.3%			73.8%			
57.83 - 52.83	4588	5984	10572	33.04	43.41	76.45	57.5%				76.8%			77.5%			
52.83 - 51.5	4702	6077	10779	33.32	43.41	76.73	58.4%				77.7%			78.5%			
51.5 - 46.5	5809	6214	12023	40.37	43.41	83.78	54.1%				76.5%			77.7%			
46.5 - 41.5	6353	6572	12925	41.60	43.41	85.01	56.6%				79.2%			80.7%			
41.5 - 37.75	6782	6848	13630	42.52	43.41	85.93	58.5%				81.2%			82.8%			
37.75 - 37.5	6810	7877	14687	42.58	48.96	91.54	54.5%		75.3%	72.1%				77.4%			
37.5 - 32.5	7414	8308	15721	43.80	48.96	92.76	56.9%		77.7%	74.4%				80.0%			
32.5 - 32.25	7455	9253	16708	43.86	55.34	99.20	54.3%		74.0%	70.1%			74.0%				
32.25 - 27.25	8095	9744	17840	45.09	55.34	100.42	56.5%		76.3%	72.2%			76.3%				
27.25 - 23.5	8600	10121	18721	46.00	55.34	101.34	58.2%		77.8%	73.7%			78.0%				
23.5 - 23.25	8810	12398	21208	46.07	72.28	118.34	54.9%	57.3%	73.3%	52.8%			69.2%				
23.25 - 20.75	9163	12712	21875	46.68	72.28	118.95	56.0%	58.1%	74.3%	53.6%			70.2%				
20.75 - 20.5	9060	11536	20596	46.74	61.96	108.69	58.0%		70.3%	75.4%			75.1%				
20.5 - 15.5	9789	12114	21903	47.96	61.96	109.92	60.1%	72.1%	77.3%				77.0%				
15.5 - 10.5	10556	12706	23261	49.19	61.96	111.14	62.2%	73.8%	79.1%				78.9%				
10.5 - 5.5	11361	13312	24673	50.41	61.96	112.37	64.3%	75.5%	80.7%				80.6%				
5.5 - 3	11779	13620	25399	51.02	61.96	112.98	65.3%	76.3%	81.5%				81.5%				
3 - 2.75	11844	15497	27342	51.08	64.77	115.85	61.3%	71.1%	76.6%							69.6%	
2.75 - 0	12317	15870	28187	51.76	64.77	116.53	62.5%	72.0%	77.5%								70.4%

Note: Section capacity checked in 5 degree increments.

**APPENDIX B**  
**BASE LEVEL DRAWING**



**APPENDIX C**  
**ADDITIONAL CALCULATIONS**



**DESIGNED APPURTENANCE LOADING**

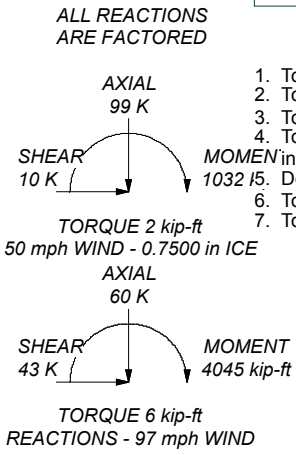
TYPE	ELEVATION	TYPE	ELEVATION
APXVSP18-C-A20 w/ Mount Pipe	140	DBC0061F1V51-2	121
APXVSP18-C-A20 w/ Mount Pipe	140	DBC0061F1V51-2	121
APXVSP18-C-A20 w/ Mount Pipe	140	DC6-48-60-18-8C	121
APXVTM14-C-120 w/ Mount Pipe	140	Platform Mount [LP 1201-1]	121
APXVTM14-C-120 w/ Mount Pipe	140	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	115
APXVTM14-C-120 w/ Mount Pipe	140	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	115
(3) ACU-A20-N	140	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	115
(3) ACU-A20-N	140	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	115
(3) ACU-A20-N	140	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	115
TD-RRH8X20-25	140	(2) RR90-17-02DP w/ Mount Pipe	115
TD-RRH8X20-25	140	(2) RR90-17-02DP w/ Mount Pipe	115
TD-RRH8X20-25	140	(2) RR90-17-02DP w/ Mount Pipe	115
(2) 2.375" OD x 6" Mount Pipe	140	ETW200VS12UB	115
(2) 2.375" OD x 6" Mount Pipe	140	ETW200VS12UB	115
(2) 2.375" OD x 6" Mount Pipe	140	ETW200VS12UB	115
Platform Mount [LP 1201-1]	140	(2) S20070A1	115
TME-800MHz 2X50W RRH W/FILTER	137	(2) S20070A1	115
TME-800MHz 2X50W RRH W/FILTER	137	Platform Mount [LP 1201-1]	115
TME-800MHz RRH	137	LNx-6514DS-VTM w/ Mount Pipe	104
TME-800MHz RRH	137	LNx-6514DS-VTM w/ Mount Pipe	104
TME-800MHz RRH	137	LNx-6514DS-VTM w/ Mount Pipe	104
800MHz 2X50W RRH W/FILTER	137	(2) FD9R6004/2C-3L	104
800MHz 2X50W RRH W/FILTER	137	(2) FD9R6004/2C-3L	104
800MHz 2X50W RRH W/FILTER	137	(2) FD9R6004/2C-3L	104
Side Arm Mount [SO 103-3]	137	DB-T1-6Z-8AB-OZ	104
7770.00 w/ Mount Pipe	121	ACUTIME 2000	104
7770.00 w/ Mount Pipe	121	(3) SBNHH-1D65B w/ Mount Pipe	104
7770.00 w/ Mount Pipe	121	(3) SBNHH-1D65B w/ Mount Pipe	104
(2) LGP21401	121	(3) SBNHH-1D65B w/ Mount Pipe	104
(2) LGP21401	121	RRH2X60-700	104
(2) LGP21401	121	RRH2X60-700	104
DC6-48-60-18-8F	121	RRH2X60-700	104
QS66512-6 w/ Mount Pipe	121	RRH2X60-PCS	104
QS66512-6 w/ Mount Pipe	121	RRH2X60-PCS	104
QS66512-6 w/ Mount Pipe	121	RRH2X60-PCS	104
HPA-65R-BUU-H6 w/ Mount Pipe	121	RRH4X45-AWS4 B66	104
HPA-65R-BUU-H6 w/ Mount Pipe	121	RRH4X45-AWS4 B66	104
HPA-65R-BUU-H6 w/ Mount Pipe	121	RRH4X45-AWS4 B66	104
RRUS 11	121	DB-T1-6Z-8AB-OZ	104
RRUS 11	121	Platform Mount [LP 1201-1]	104
RRUS 11	121	APXV18-206517S-C w/ Mount Pipe	95
RRUS 32	121	APXV18-206517S-C w/ Mount Pipe	95
RRUS 32	121	APXV18-206517S-C w/ Mount Pipe	95
RRUS12/RRUS A2	121	Pipe Mount [PM 601-3]	95
RRUS12/RRUS A2	121	OG-860/1920/GPS-A	80
RRUS12/RRUS A2	121	Side Arm Mount [SO 901-1]	80
DBC0061F1V51-2	121		

**MATERIAL STRENGTH**

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

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.0000 ft



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	16.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.2
2	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.2
3	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
4	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
5	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
6	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
7	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
8	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
9	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
10	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
11	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
12	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
13	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
14	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
15	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
16	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
17	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
18	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
19	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
20	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
21	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
22	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
23	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
24	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
25	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
26	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
27	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
28	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
29	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
30	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
31	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
32	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
33	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
34	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
35	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
36	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
37	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
38	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
39	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
40	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
41	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
42	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
43	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
44	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
45	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
46	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
47	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
48	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
49	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
50	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
51	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
52	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
53	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
54	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
55	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
56	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
57	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
58	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
59	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
60	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
61	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
62	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
63	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
64	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
65	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
66	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
67	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
68	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
69	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
70	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
71	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
72	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
73	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
74	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
75	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
76	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
77	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
78	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
79	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
80	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
81	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
82	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
83	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
84	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
85	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
86	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
87	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
88	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
89	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
90	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
91	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
92	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
93	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
94	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
95	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
96	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	0.3
97	5.0000	12	0.2500	3.2500	42.74	43.80	A572-65	

v4.4 - Effective 7-12-13

**Asymmetric Anchor Rod Analysis**

Moment =	4045	k-ft	TIA Ref.	G	Location =	Base Plate
Axial =	60.0	kips	ASIF =	1.0000	η =	0.50 for BP, Rev. G Sect. 4.9.9
Shear =	43.0	kips	Max Ratio =	105.0%	Threads =	N/A for FP, Rev. G
Anchor Qty =	19					

**\*\* For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. \*\***

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Area Override, in <sup>2</sup>	Area, in <sup>2</sup>	Max Net Compression, kips	Max Net Tension, kips	Load for Capacity Calc, kips	Capacity Override, kips	Capacity, kips	Capacity Ratio
1	2.250	#18J A615 Gr 75	75	100	26.0	54.00	0.00	3.98	197.44	191.12	201.97	0.00	260.00	77.7%
2	2.250	#18J A615 Gr 75	75	100	39.0	54.00	0.00	3.98	198.71	192.39	203.24	0.00	260.00	78.2%
3	2.250	#18J A615 Gr 75	75	100	51.0	54.00	0.00	3.98	197.50	191.18	202.02	0.00	260.00	77.7%
4	2.250	#18J A615 Gr 75	75	100	64.0	54.00	0.00	3.98	193.87	187.55	198.39	0.00	260.00	76.3%
5	2.250	#18J A615 Gr 75	75	100	116.0	54.00	0.00	3.98	171.88	165.56	176.41	0.00	260.00	67.8%
6	2.250	#18J A615 Gr 75	75	100	129.0	54.00	0.00	3.98	169.76	163.44	174.28	0.00	260.00	67.0%
7	2.250	#18J A615 Gr 75	75	100	141.0	54.00	0.00	3.98	170.12	163.80	174.65	0.00	260.00	67.2%
8	2.250	#18J A615 Gr 75	75	100	154.0	54.00	0.00	3.98	172.71	166.40	177.24	0.00	260.00	68.2%
9	2.250	#18J A615 Gr 75	75	100	206.0	54.00	0.00	3.98	186.64	180.32	191.16	0.00	260.00	73.5%
10	2.250	#18J A615 Gr 75	75	100	219.0	54.00	0.00	3.98	186.46	180.14	190.99	0.00	260.00	73.5%
11	2.250	#18J A615 Gr 75	75	100	231.0	54.00	0.00	3.98	184.33	178.01	188.85	0.00	260.00	72.6%
12	2.250	#18J A615 Gr 75	75	100	244.0	54.00	0.00	3.98	180.18	173.87	184.71	0.00	260.00	71.0%
13	2.250	#18J A615 Gr 75	75	100	296.0	54.00	0.00	3.98	162.89	156.58	167.42	0.00	260.00	64.4%
14	2.250	#18J A615 Gr 75	75	100	309.0	54.00	0.00	3.98	163.77	157.46	168.30	0.00	260.00	64.7%
15	2.250	#18J A615 Gr 75	75	100	321.0	54.00	0.00	3.98	167.25	160.93	171.78	0.00	260.00	66.1%
16	2.250	#18J A615 Gr 75	75	100	334.0	54.00	0.00	3.98	173.26	166.95	177.79	0.00	260.00	68.4%
17	2.250	A193 Gr B7	105	125	125.0	66.30	0.00	3.98	207.13	200.81	211.65	0.00	325.00	65.1%
18	2.250	A193 Gr B7	105	125	240.0	66.30	0.00	3.98	223.60	217.29	228.12	0.00	325.00	70.2%
19	2.250	A193 Gr B7	105	125	330.0	66.30	0.00	3.98	209.30	202.99	213.82	0.00	325.00	65.8%

75.61

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

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

### Site Data

BU#:	846342	
Site Name:	BIC DRIVE (SSUSA)	
App #:		
Anchor Rod Data		
Eta Factor, $\eta$	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, $F_y$ :	75	ksi
Strength, $F_u$ :	100	ksi
Bolt Circle:	54	in
Anchor Spacing:	6	in

### Plate Data

W=Side:	56	in
Thick:	3	in
Grade:	50	ksi
Clip Distance:	6	in

### Stiffener Data (Welding at both sides)

Configuration:	Stiffened	
Weld Type:	Both	**
Groove Depth:	0.5	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.5	in
Fillet V. Weld:	0.3125	in
Width:	7.75	in
Height:	18	in
Thick:	1.25	in
Notch:	0.75	in
Grade:	65	ksi
Weld str.:	70	ksi

### Pole Data

Diam:	43.3	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round

### Base Reactions

TIA Revision:	G	
Factored Moment, $M_u$ :	3519.9	ft-kips
Factored Axial, $P_u$ :	50.5	kips
Factored Shear, $V_u$ :	36.2	kips

Reactions adjusted to account for additional anchor rods.

### Anchor Rod Results

TIA G --> Max Rod ( $C_u + V_u/\eta$ ):	203.2 Kips
Axial Design Strength, $\Phi * F_u * A_{net}$ :	260.0 Kips
Anchor Rod Stress Ratio:	78.2% <b>Pass</b>

### Base Plate Results

Base Plate Stress:	4.3 ksi	Shear Check Only
PL Design Bending Strength, $\Phi * F_y$ :	27.0 ksi	
Base Plate Stress Ratio:	15.8% <b>Pass</b>	

### PL Ref. Data

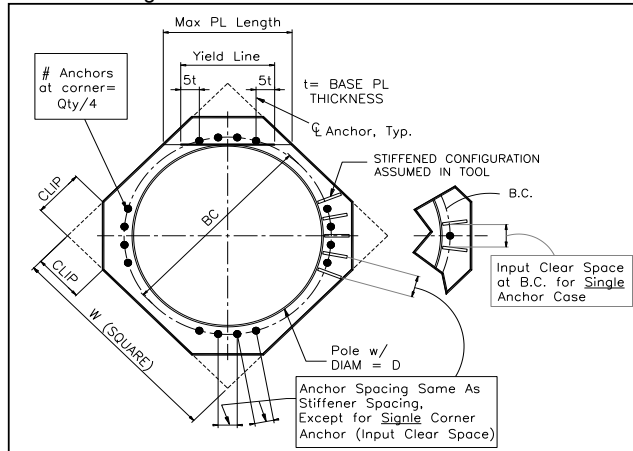
Yield Line (in):	N/A, Roark
Max PL Length:	35.90

### Stiffener Results

Horizontal Weld :	61.8% <b>Pass</b>
Vertical Weld:	68.6% <b>Pass</b>
Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$ :	10.6% <b>Pass</b>
Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$ :	29.1% <b>Pass</b>
Plate Comp. (AISC Bracket):	36.5% <b>Pass</b>

### Pole Results

Pole Punching Shear Check:	20.4% <b>Pass</b>
----------------------------	-------------------



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

# Pier and Pad Foundation



BU #: 876342  
 Site Name: Bic Drive (SSUSA)  
 App. Number:

TIA-222 Revision: G  
 Tower Type: Monopole

Block Foundation?:

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	60	kips
Base Shear, $V_{u\_comp}$ :	43	kips
Moment, $M_u$ :	4045	ft-kips
Tower Height, $H$ :	140	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	454.72	43.00	9.5%	Pass
<i>Bearing Pressure (ksf)</i>	15.98	3.34	20.9%	Pass
<i>Overtuning (kip*ft)</i>	8514.06	4507.25	52.9%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	7593.21	4324.50	57.0%	Pass
<i>Pier Compression (kip)</i>	23390.64	117.33	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	6671.79	1556.80	23.3%	Pass
<i>Pad Shear - 1-way (kips)</i>	951.31	231.03	24.3%	Pass
<i>Pad Shear - 2-way (ksi)</i>	0.16	0.03	16.2%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	7.0	ft
Ext. Above Grade, $E$ :	0.50	ft
Pier Rebar Size, $S_c$ :	11	
Pier Rebar Quantity, $mc$ :	32	
Pier Tie/Spiral Size, $S_t$ :	5	
Pier Tie/Spiral Quantity, $mt$ :		
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

Soil Rating: 52.9%  
 Structural Rating: 57.0%

Pad Properties		
Depth, $D$ :	10.0	ft
Pad Width, $W$ :	22.5	ft
Pad Thickness, $T$ :	4.0	ft
Pad Rebar Size, $S_p$ :	11	
Pad Rebar Quantity, $mp$ :	23	
Pad Clear Cover, $cc_{pad}$ :	3	in

Material Properties		
Rebar Grade, $F_y$ :	60000	psi
Concrete Compressive Strength, $F'_c$ :	3000	psi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	130	pcf
Ultimate Net Bearing, $Q_{net}$ :	20.000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	32	degrees
SPT Blow Count, $N_{blows}$ :	22	
Base Friction, $\mu$ :		
Neglected Depth, $N$ :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	N/A	ft

<--Toggle between Gross and Net

# 111 SCHOOLHOUSE RD #CELL

**Location** 111 SCHOOLHOUSE RD  
#CELL

**Mblu** 33/ 335/ 5/A /

**Acct#** 023043

**Owner** MILFORD ENTERPRISES LLC

**Assessment** \$245,000

**Appraisal** \$350,000

**PID** 100242

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$350,000	\$0	\$350,000

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$245,000	\$0	\$245,000

## Owner of Record

**Owner** MILFORD ENTERPRISES LLC  
**Other** C/O JAYESH PATEL  
**Address** 7871 BELLE POINT DR  
 GREENBELT, MD 20770

**Sale Price** \$3,675,000  
**Certificate**  
**Book & Page** 03622/0230  
**Sale Date** 03/27/2015  
**Instrument** 18

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
MILFORD ENTERPRISES LLC	\$3,675,000		03622/0230	18	03/27/2015
CSMC 2007 C5 FFI HOTEL PORTFOLIO LLC	\$6,930,207		03602/0294	22	10/06/2014
MILFORD FFI LLC	\$4,800,000		03168/0407	00	05/10/2007
OLY REALTY ONE LLC	\$3,800,000		02396/0375		02/28/2000
TELAHC PROPERTIES L P	\$0		02040/0184		03/11/1994

## Building Information

### Building 1 : Section 1

**Year Built:**  
**Living Area:** 0  
**Replacement Cost:** \$0

**Building Photo**

**Building Percent****Good:****Replacement Cost****Less Depreciation:** \$0

Building Attributes	
Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Description:	
Kitchen Descrip:	
Int Condition:	
Solar Panels	
House Generator	



(<http://images.vgsi.com/photos/MilfordCTPhotos//default.jpg>)

**Building Layout**
 Building Layout

(<http://images.vgsi.com/photos/MilfordCTPhotos//Sketches/1002>)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

**Extra Features**

Extra Features	Legend
No Data for Extra Features	

**Land****Land Use**

**Use Code** 434V  
**Description** CELL TOWER MDL-00  
**Zone**

**Land Line Valuation**

**Size (Acres)** 0  
**Frontage**  
**Depth**

**Neighborhood** C  
**Alt Land Appr** No  
**Category**

**Assessed Value** \$0  
**Appraised Value** \$0

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CEL1	CEL TWR SITE			1 UNITS	\$350,000	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$350,000	\$0	\$350,000
2013	\$450,000	\$0	\$450,000
2012	\$450,000	\$0	\$450,000

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$245,000	\$0	\$245,000
2013	\$315,000	\$0	\$315,000
2012	\$315,000	\$0	\$315,000

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Google Maps 111 Schoolhouse Rd







# City of Milford, Connecticut

THIS IS TO CERTIFY THAT SPRINT PCS

WAS GRANTED A MINOR AMENDMENT TO A SPECIAL PERMIT AND SITE PLAN REVIEW  
AMENDMENT

BY THE MILFORD PLANNING & ZONING BOARD ON MAY 6, 1997

FOR PROPERTY LOCATED AT 111 SCHOOL HOUSE ROAD

MAP 33 BLOCK 335 PARCEL 5

IN THE CITY OF MILFORD, COUNTY OF NEW HAVEN, STATE OF CONNECTICUT

FOR WHICH TELACH PRIOP. L.P. IS THE OWNER.

**THE SPECIAL PERMIT MINOR AMENDMENT WAS GRANTED TO:**

the petition of Sprint PCS for a Special Permit and Site Plan Amendment to construct a 140' telecommunications monopole at 111 School House Road, parcel 5, block 335, assessor's map 33, of which Telach Properties LP is the owner. This approval shall be in accordance with plans prepared by William N. Hardy, Licensed Professional Engineer, consisting of a three page set entitled Sprint PCS Lucent Technologies/Bechtel Alliance, Devon - 111 School House Road dated January, 1997, received March 13, 1997 by the Planning and Zoning Office with the following stipulations: Site construction and development shall comply with the Director of Public Works memo dated 4/24/97; Inland Wetland letter dated 4/17/97 and Inland Wetland Permit #IWA97-006, granted 4/16/97; Fire Chief's letter dated 3/18/97. Site development shall also comply to submitted booklet dated 4/29/97, entitled, Written Testimony Application for Amendment to Special Permit, 111 School House Road, Sprint PCS Site 171.

**"NO VARIANCE, SPECIAL PERMIT OR SPECIAL EXCEPTION GRANTED PURSUANT TO CHAPTER 124 OF ANY SPECIAL ACT SHALL BE EFFECTIVE UNTIL A COPY THEREOF...IS RECORDED IN THE LAND RECORDS OF THE TOWN IN WHICH SUCH PREMISES ARE LOCATED."**

P.A. 75-317

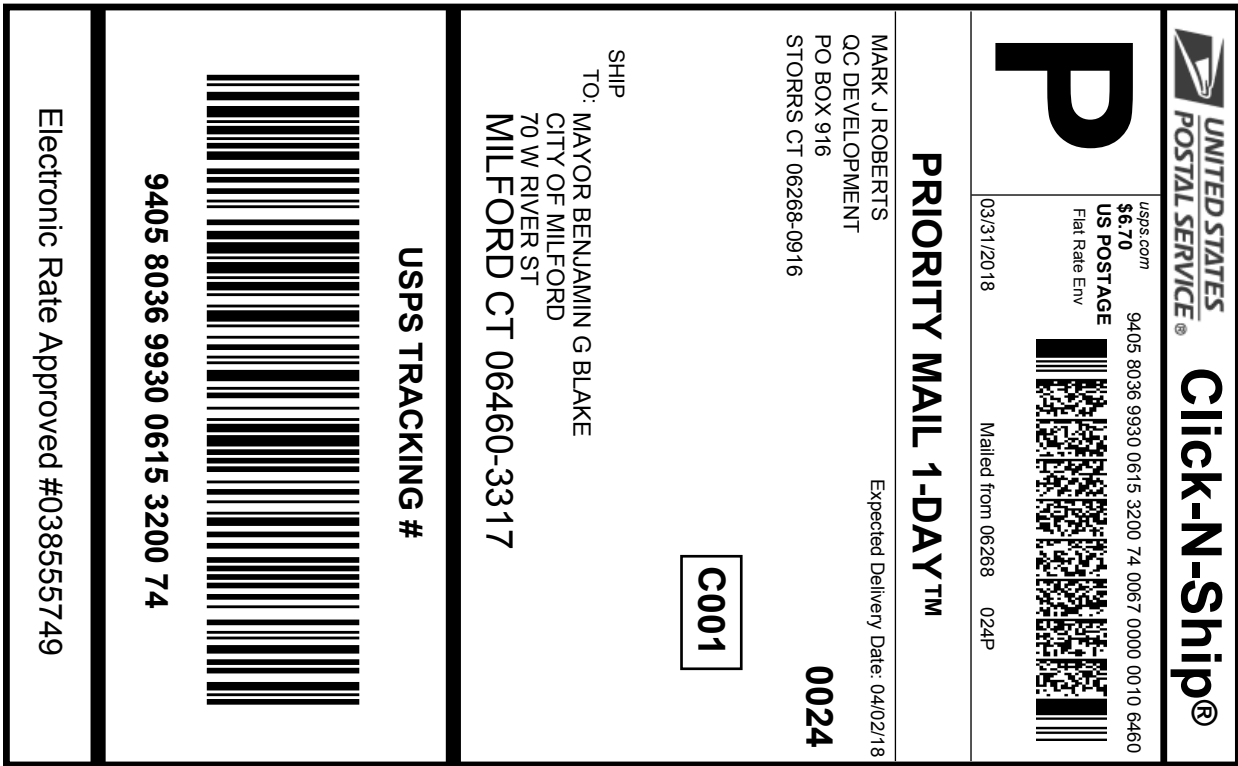
RECORDED 5-13-97

CITY CLERK REC. NO. 4206

Nº 9968

PLANNING & ZONING BOARD

BY: Waide E. Pierce  
WAIDE E. PIERCE  
EXECUTIVE SECRETARY



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3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # / Insurance Number:**  
**9405 8036 9930 0615 3200 74**

Trans. #:	431300899	Priority Mail® Postage:	<b>\$6.70</b>
Print Date:	03/30/2018	Insurance Fee	<b>\$0.00</b>
Ship Date:	03/31/2018	Total	<b>\$6.70</b>
Expected Delivery Date:	04/02/2018		
Insured Value:	\$50.00		

**From:** MARK J ROBERTS  
 QC DEVELOPMENT  
 PO BOX 916  
 STORRS CT 06268-0916

**To:** MAYOR BENJAMIN G BLAKE  
 CITY OF MILFORD  
 70 W RIVER ST  
 MILFORD CT 06460-3317

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!  
 Check the status of your shipment on the USPS Tracking® page at [usps.com](http://usps.com)

**SHIP TO:** MILFORD ENTERPRISES LLC  
C/O JAYESH PATEL  
7871 BELLE POINT DR  
GREENBELT MD 20770-3350

**SHIP**

**USPS TRACKING #**

**9405 8036 9930 0615 3200 36**

Electronic Rate Approved #038555749

**MARK J ROBERTS**  
QC DEVELOPMENT  
PO BOX 916  
STORRS CT 06268-0916

**Expected Delivery Date: 04/02/18**

**0006**

**P**

03/31/2018

**PRIORITY MAIL 2-DAY™**

usps.com  
**\$6.70**  
US POSTAGE  
Flat Rate Envoy

9405 8036 9930 0615 3200 36 0067 0000 0032 0770

Mailed from 06268 024P

**Click-N-Ship®**



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Expected Delivery Date:	04/02/2018		
Insured Value:	\$50.00		

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QC DEVELOPMENT  
PO BOX 916  
STORRS CT 06268-0916

**To:** MILFORD ENTERPRISES LLC  
C/O JAYESH PATEL  
7871 BELLE POINT DR  
GREENBELT MD 20770-3350

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