November 12, 2020

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

Re: Notice of Exempt Modification New Cingular Wireless PCS, LLC ("AT&T") Site CT2838
490 Jefferson Avenue (Bates Woods Park), New London, CT 06320 (the "Property")
Latitude: 41.357902N Longitude: 72.123991W

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 111-foot level on the existing 115-foot monopole ballfield light pole ("Tower") at Bates Woods Park, 490 Jefferson Avenue, New London, CT. The tower is owned by SBA and property is owned by the City of New London. AT&T intends to modify its facility by replacing (3) remote radio units ("RRUs") with (3) 4426 B66 RRUs. The height of AT&Ts antennas and RRUs will remain at the 111-foot level of the tower.

This modification includes B2, B5, and B12 hardware that is both 4G (LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The facility received Connecticut Siting Council approval under Docket 439 on October 31, 2013. The approval included a condition indicating the tower and antennas shall not exceed 115 feet above ground level. The tower height will not change as a result of AT&T's modification and is in compliance with the CSC condition.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §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 Michael Passero, Mayor & as property owner, City of New London, Mr. Felix J. Reyes, Director of the Office of Development & Planning, City of New London. SBA, the tower owner, received a copy by email.

The planned modification of the facility falls squarely within those activities explicitly provided for in R.C.S.A §16-50j-72(b)(2). Specifically:

1. The proposed modification will not result in an increase in the height of the existing structure.

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

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

4. The operation of the modified facility 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 foundation can support the proposed loading.

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

Please contact me at 860-834-6964 if you should have any questions regarding this matter. Thank you for your time & consideration.

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc: The Honorable Michael Passero, Mayor & property owner
Mr. Felix J. Reyes, Director of the Office of Development & Planning
SBA as tower owner

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T UMTS	1	500	111	0.0163	850	0.5667	0.29%
AT&T UMTS	1	500	111	0.0163	1900	1.0000	0.16%
AT&T UMTS	2	2951	111	0.1925	700	0.4667	4.13%
AT&T UMTS	1	1000	111	0.0326	850	0.5667	0.58%
AT&T PCS UMTS	1	1000	111	0.0326	850	0.5667	0.58%
AT&T LTE	2	4842	111	0.3159	1900	1.0000	3.16%
AT&T PCS LTE	1	3837	111	0.1252	2100	1.0000	1.25%
AT&T LTE	1	1285	111	0.0419	2300	1.0000	0.42%
Site Total							10.56%

*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^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T LTE	2	1476	111	0.0963	850	0.4667	2.06%
AT&T LTE	2	4842	111	0.3159	700	1.0000	3.16%
AT&T LTE	1	2951	111	0.0963	850	0.4667	2.06%
AT&T 5G	1	1285	111	0.0419	850	1.0000	0.42%
AT&T LTE	1	1000	111	0.0326	1900	0.5667	0.58%
AT&T LTE	1	1000	111	0.0326	2100	0.5667	0.58%
AT&T LTE	1	3837	111	0.1252	2300	1.0000	1.25%
Site Total							10.11%

*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:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T RRUS: 4426 B66 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD VERTIC SUB-PANEL AND UPCONVERTER IN NEW RACK.

ITEMS TO BE REMOVED:
- EXISTING AT&T RRUS-12 + A2 MOUDLE (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO REMAIN:
- (12) ANTENNAS, (18) RRU'S, (4) SURGE ARRESTORS, (8) DC POWER & (3) FIBER.

SITE ADDRESS:	490 JEFFERSON AVENUE NEW LONDON, CT 06320
LATITUDE:	41.357902° N, 41° 21' 28.44" N
LONGITUDE:	72.123991° W, 72° 07' 26.36" W
TYPE OF SITE:	MONOPOLE / OUTDOOR
STRUCTURE HEIGHT:	115'-0"±
RAD CENTER:	111'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT2838

SITE NAME: NEW LONDON JEFFERSON AVENUE

FA CODE: 10152339

PACE ID: MRCTB049048

PROJECT: LTE BWE 2020 UPGRADE

DRAWING INDEX

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A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUTS & ELEVATION	1
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RF-1	RF PLUMBING DIAGRAM	1

SBA SITE #: CT22093

VICINITY MAP

DIRECTIONS TO SITE:

GET ON I-91 S FROM ENTERPRISE D, HEAD SOUTHEAST TOWARD CAPITAL BLVD, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT LANE TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE ONTO I-91 S, FOLLOW CT-9 S AND I-95 N TO CT-85 S/BROAD ST IN WATERFORD. TAKE EXIT 82 FROM I-95 N, MERGE ONTO I-91 S, USE THE LEFT LANE TO TAKE EXIT 22S TO MERGE ONTO CT-9 S TOWARD MIDDLETOWN/OLD SAYBROOK, USE THE LEFT 2 LANES TO MERGE ONTO I-95 N/US-1 N TOWARD NEW LONDON/PROVIDENCE, CONTINUE TO FOLLOW I-95 N, KEEP RIGHT AT THE FORK TO STAY ON I-95 N, FOLLOW SIGNS FOR NEW LONDON/PROVIDENCE, TAKE EXIT 82 FOR CT-85/BROAD ST TOWARD WATERFORD, CONTINUE ON CT-85 S/BROAD ST TO YOUR DESTINATION IN NEW LONDON, TURN RIGHT ONTO CT-85 S/BROAD ST, TURN RIGHT ONTO JEFFERSON AVE, TURN RIGHT, TURN LEFT, TURN RIGHT

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT2838
SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE # ID: CT22093

490 JEFFERSON AVENUE
NEW LONDON, CT 06320
NEW LONDON COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
LTE BWE 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2838	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR 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 SUBCONTRACTOR 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 IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. 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 BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR 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.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR 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.

19. 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.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S 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: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'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, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

    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.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2838
SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE # ID: CT22093

490 JEFFERSON AVENUE
NEW LONDON, CT 06320
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	10/27/20	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
LTE BWE 2020 UPGRADE

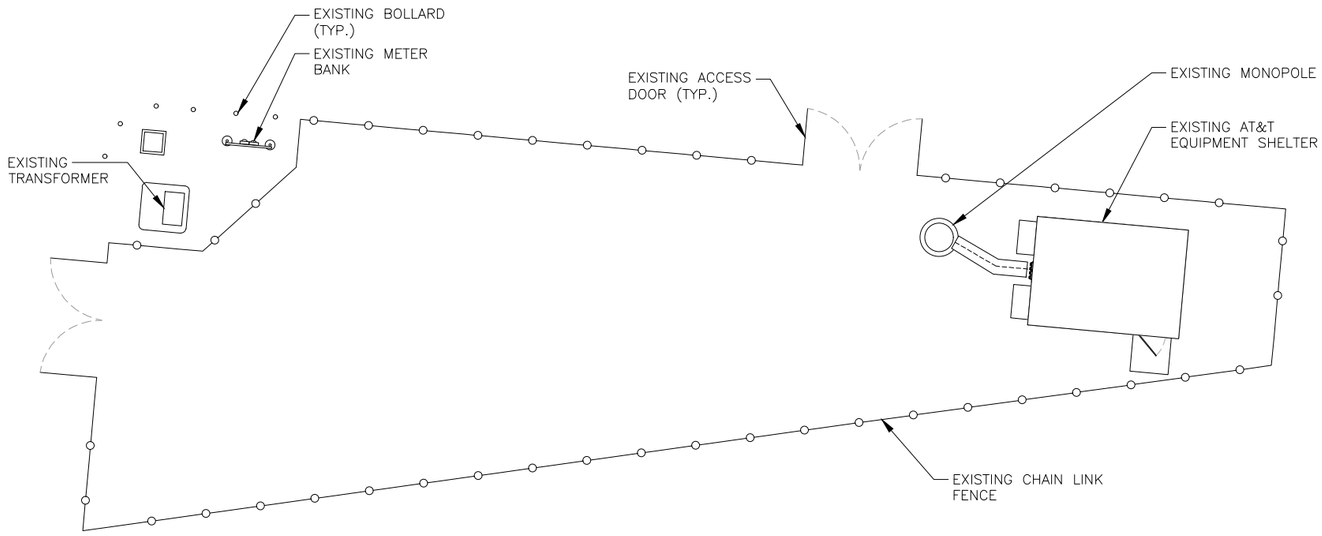
SITE NUMBER	DRAWING NUMBER	REV
CT2838	GN-1	1

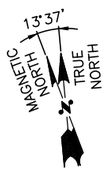
NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

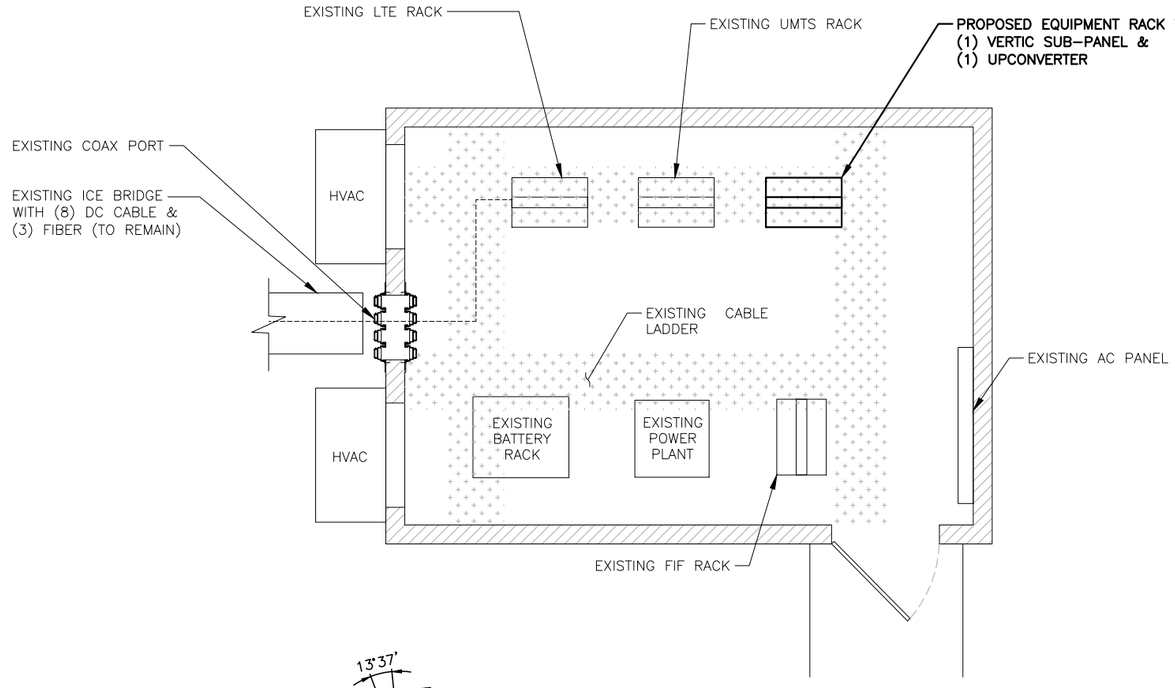
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING SOLUTIONS DATED: NOVEMBER 06, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.





COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
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12 INDUSTRIAL WAY
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500 ENTERPRISE DRIVE, SUITE 3A
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490 JEFFERSON AVENUE
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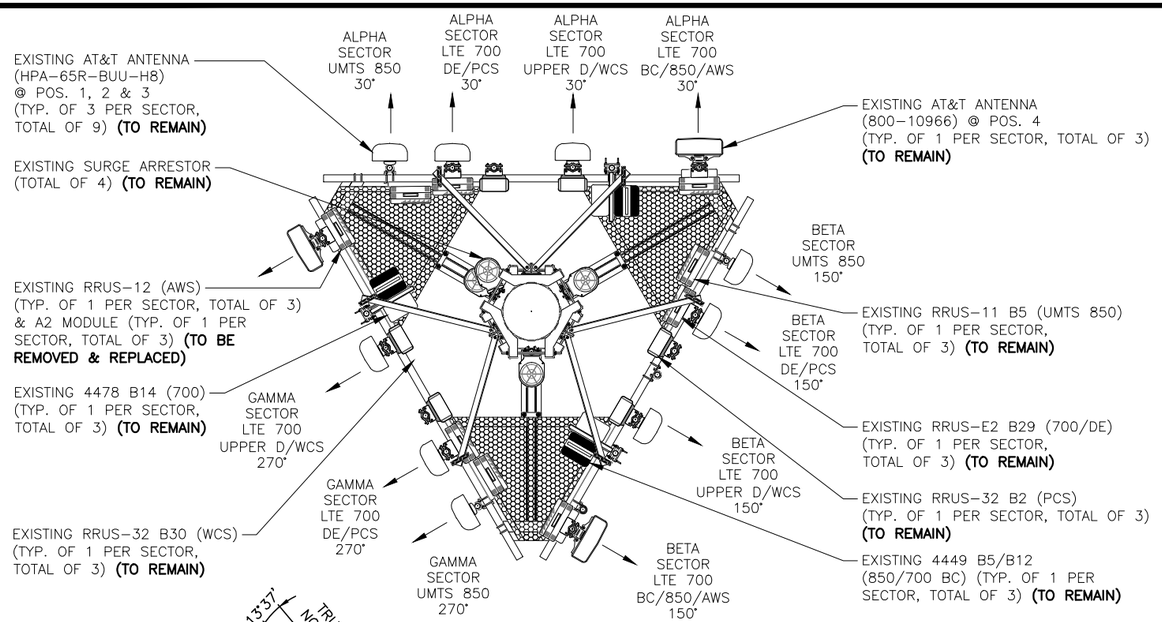
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLANS
LTE BWE 2020 UPGRADE

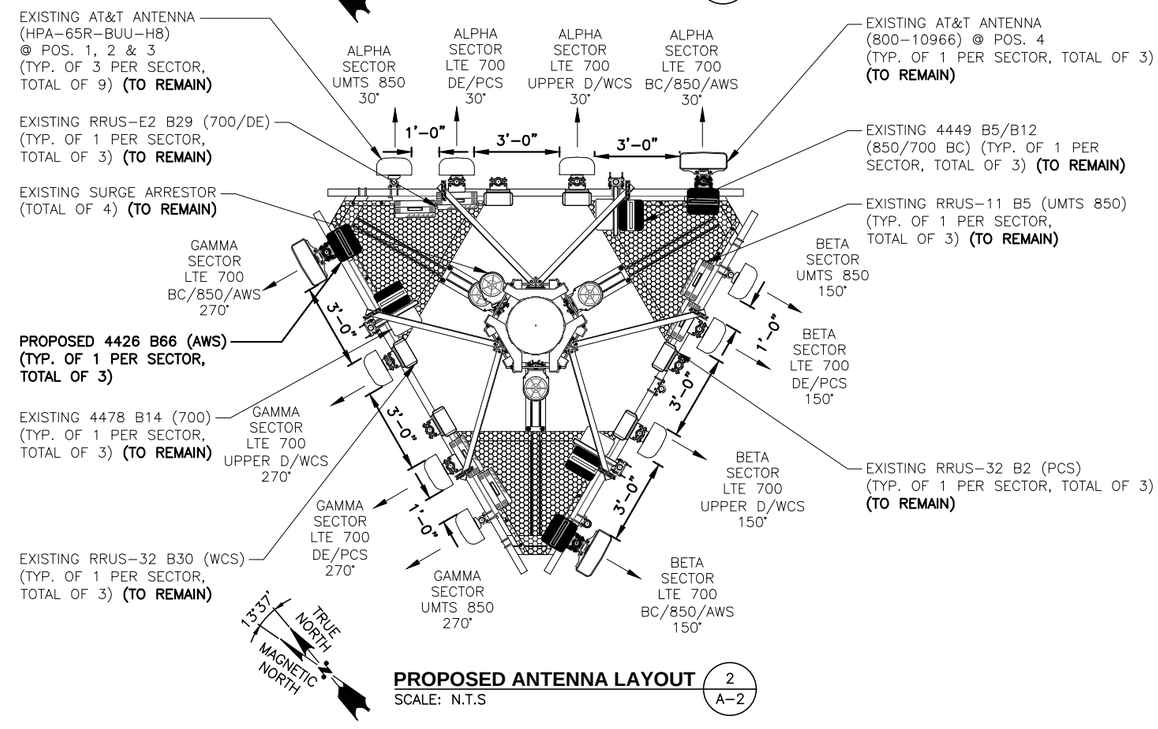
SITE NUMBER	DRAWING NUMBER	REV
CT2838	A-1	1



EXISTING ANTENNA LAYOUT

SCALE: N.T.S

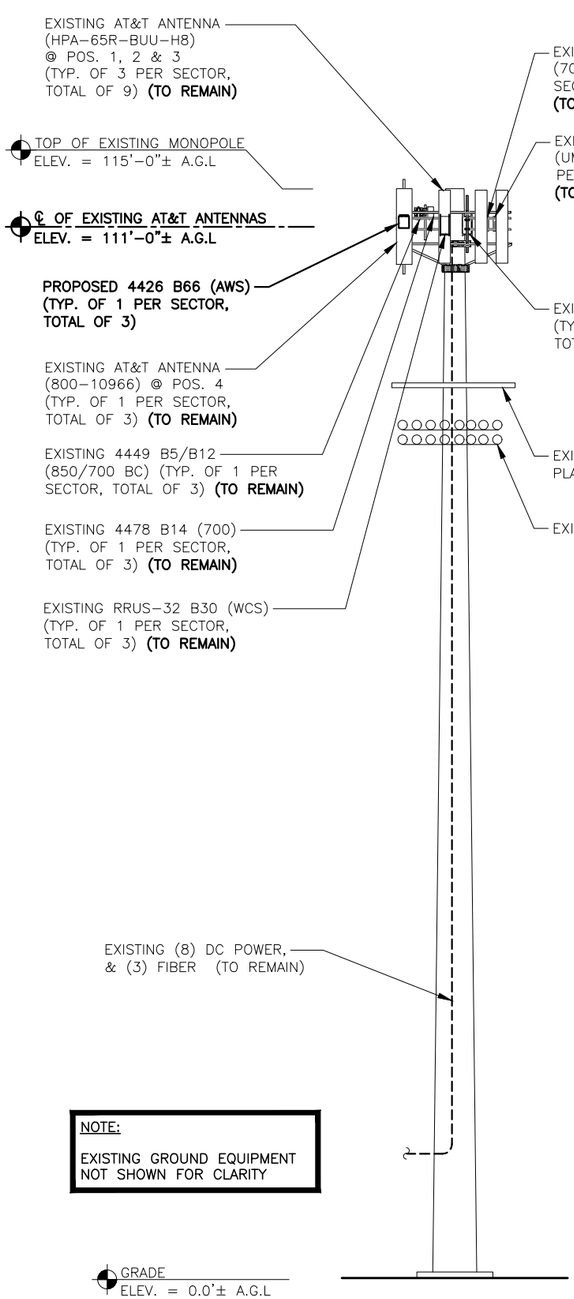
1 / A-2



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

2 / A-2



NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

3 / A-2

0 4'-0" 8'-0" 16'-0" 24'-0"

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 26, 2020

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING SOLUTIONS
DATED: NOVEMBER 06, 2020
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2838
SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE # ID: CT22093

490 JEFFERSON AVENUE
NEW LONDON, CT 06320
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/10/20	ISSUED FOR CONSTRUCTION	AR	AT	DPH
A	10/27/20	ISSUED FOR REVIEW	AR	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AR

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION
LTE BWE 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2838	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	FREQUENCY	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	30°	–	(E)(1) RRUS-11 B5	(UMTS 850)	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE 700 DE/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	30°	–	(E)(1) RRUS-E2 B29 (E)(1) RRUS-32 B2	(700 D/E) (PCS)	–	(2) DC POWER (1) FIBER	
A3	EXISTING	LTE 700 UPPER D/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	30°	–	(E)(1) B14 4478 (E)(1) RRUS-32 B30	(700) (WCS)	–	–	
A4	EXISTING	LTE 700 BC/850/AWS	800-10966	96x20x6.9	±111'-0"	30°	–	(E)(1) 4449 B5/B12 **(P)(1) 4426 B66**	(850/700) **(AWS)**	– **14.9"X13.2"X5.8"**	–	
B1	EXISTING	UMTS 850	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	150°	–	(E)(1) RRUS-11 B5	(UMTS 850)	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
B2	EXISTING	LTE 700 DE/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	150°	–	(E)(1) RRUS-E2 B29 (E)(1) RRUS-32 B2	(700 D/E) (PCS)	–	(2) DC POWER (1) FIBER	
B3	EXISTING	LTE 700 UPPER D/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	150°	–	(E)(1) B14 4478 (E)(1) RRUS-32 B30	(700) (WCS)	–	–	
B4	EXISTING	LTE 700 BC/850/AWS	800-10966	96x20x6.9	±111'-0"	150°	–	(E)(1) 4449 B5/B12 **(P)(1) 4426 B66**	(850/700) **(AWS)**	– **14.9"X13.2"X5.8"**	–	
C1	EXISTING	UMTS 850	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	270°	–	(E)(1) RRUS-11 B5	(UMTS 850)	–	–	(E) (1) RAYCAP DC6-48-60-18-8F (E) (1) RAYCAP DC6-48-60-0-8F
C2	EXISTING	LTE 700 DE/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	270°	–	(E)(1) RRUS-E2 B29 (E)(1) RRUS-32 B2	(700 D/E) (PCS)	–	(4) DC POWER (1) FIBER	
C3	EXISTING	LTE 700 UPPER D/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'-0"	270°	–	(E)(1) B14 4478 (E)(1) RRUS-32 B30	(700) (WCS)	–	–	
C4	EXISTING	LTE 700 BC/850/AWS	800-10966	96x20x6.9	±111'-0"	270°	–	(E)(1) 4449 B5/B12 **(P)(1) 4426 B66**	(850/700) **(AWS)**	– **14.9"X13.2"X5.8"**	–	

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 26, 2020

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING SOLUTIONS
DATED: NOVEMBER 06, 2020
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

FINAL ANTENNA SCHEDULE

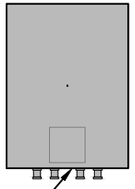
SCALE: N.T.S

(1 / A-3)

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
3(P)	**4426**	**14.9"x13.2"x5.8"**
3(E)	4478 B14 (700)	18.1"x13.4"x8.3"
3(E)	4449 (850/700)	17.9"x13.2"x10.4"
6(E)	RRUS-32 (WCS/PCS)	27.2"x12.1"x7.0"
3(E)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
3(E)	RRUS-11 (850)	19.7"x17.0"x7.2"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS



NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

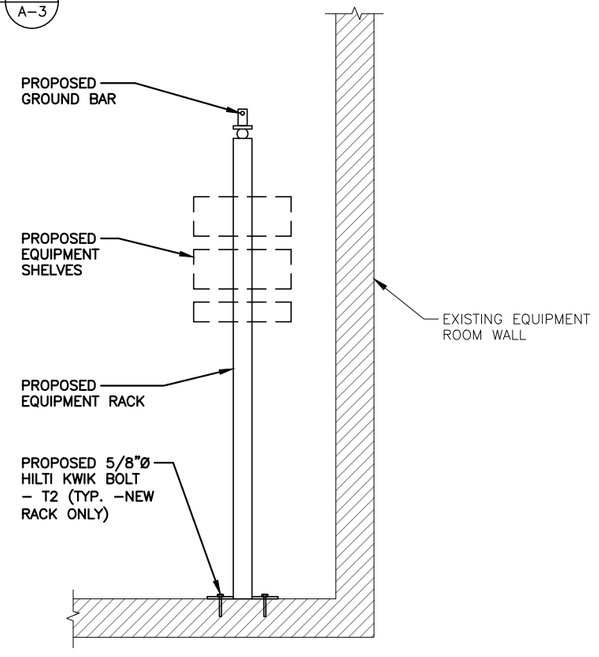
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL

SCALE: N.T.S

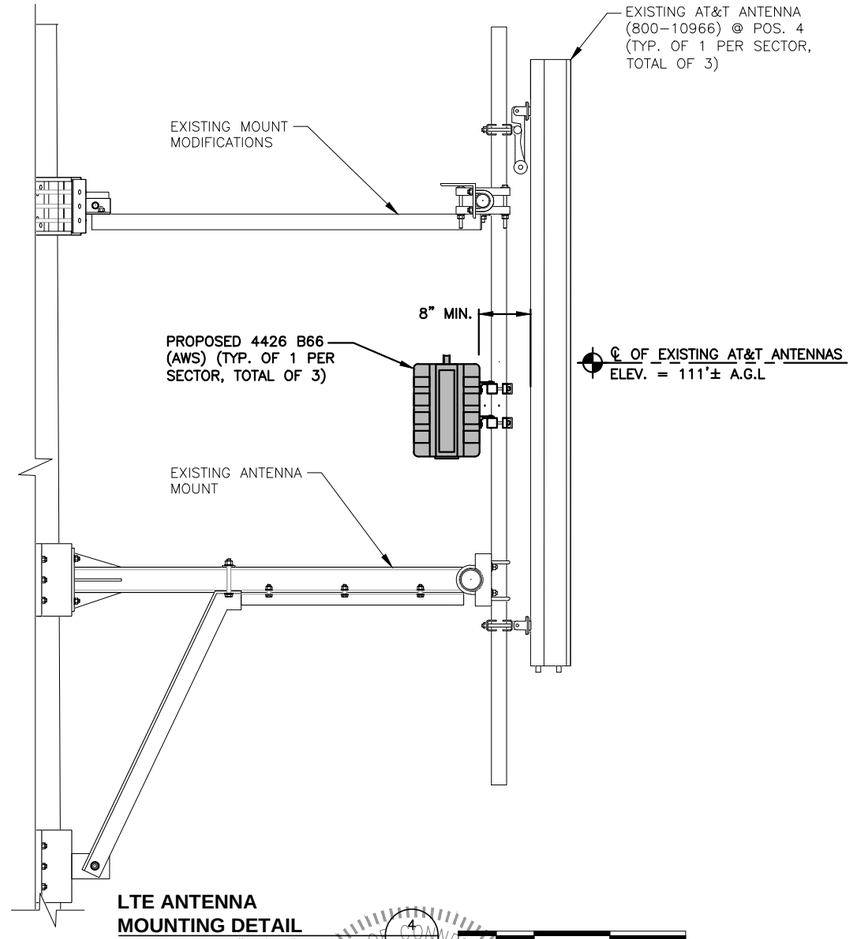
(2 / A-3)



PROPOSED 19" EQUIPMENT RACK DETAIL

SCALE: N.T.S

(3 / A-3)



LTE ANTENNA MOUNTING DETAIL

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

(4 / A-3)

0 0'-6" 1'-0" 2'-0" 3'-0"

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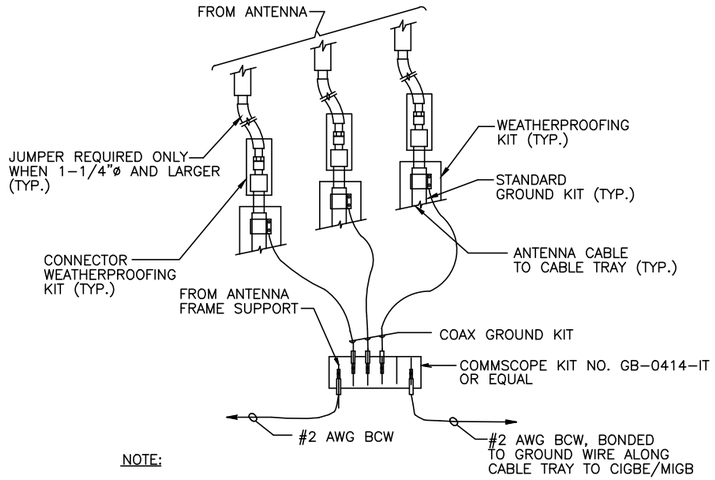
STATE OF CONNECTICUT DANIEL P. HAMM No.24178 LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
LTE BWE 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2838	A-3	1

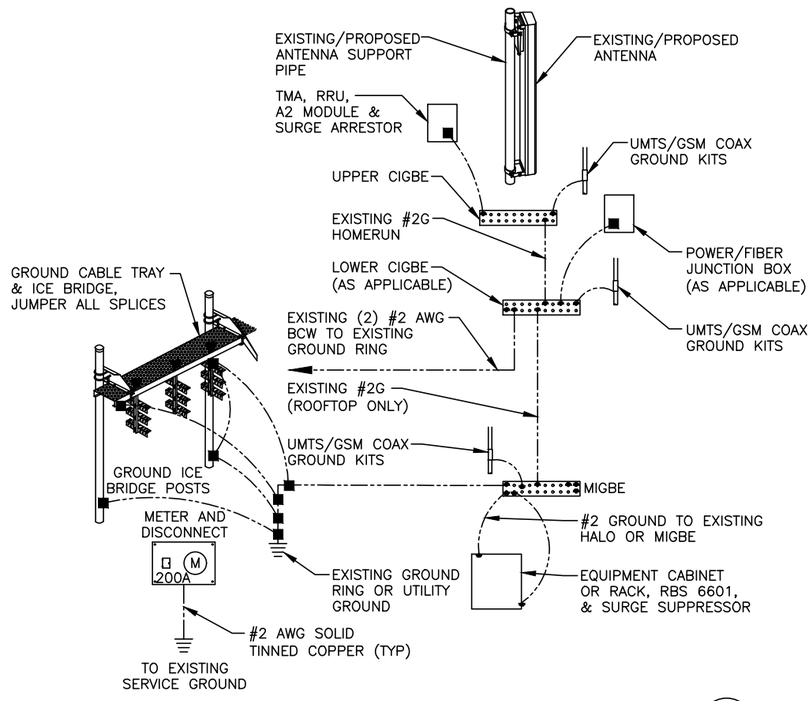


NOTE:

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

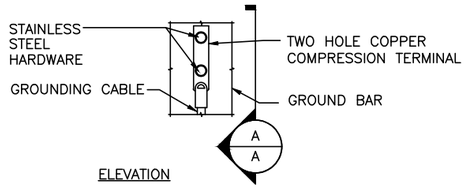
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

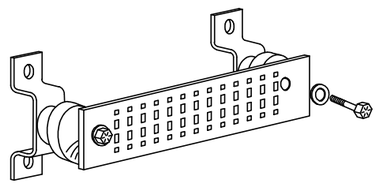
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED) (4 / G-1)

SCALE: N.T.S

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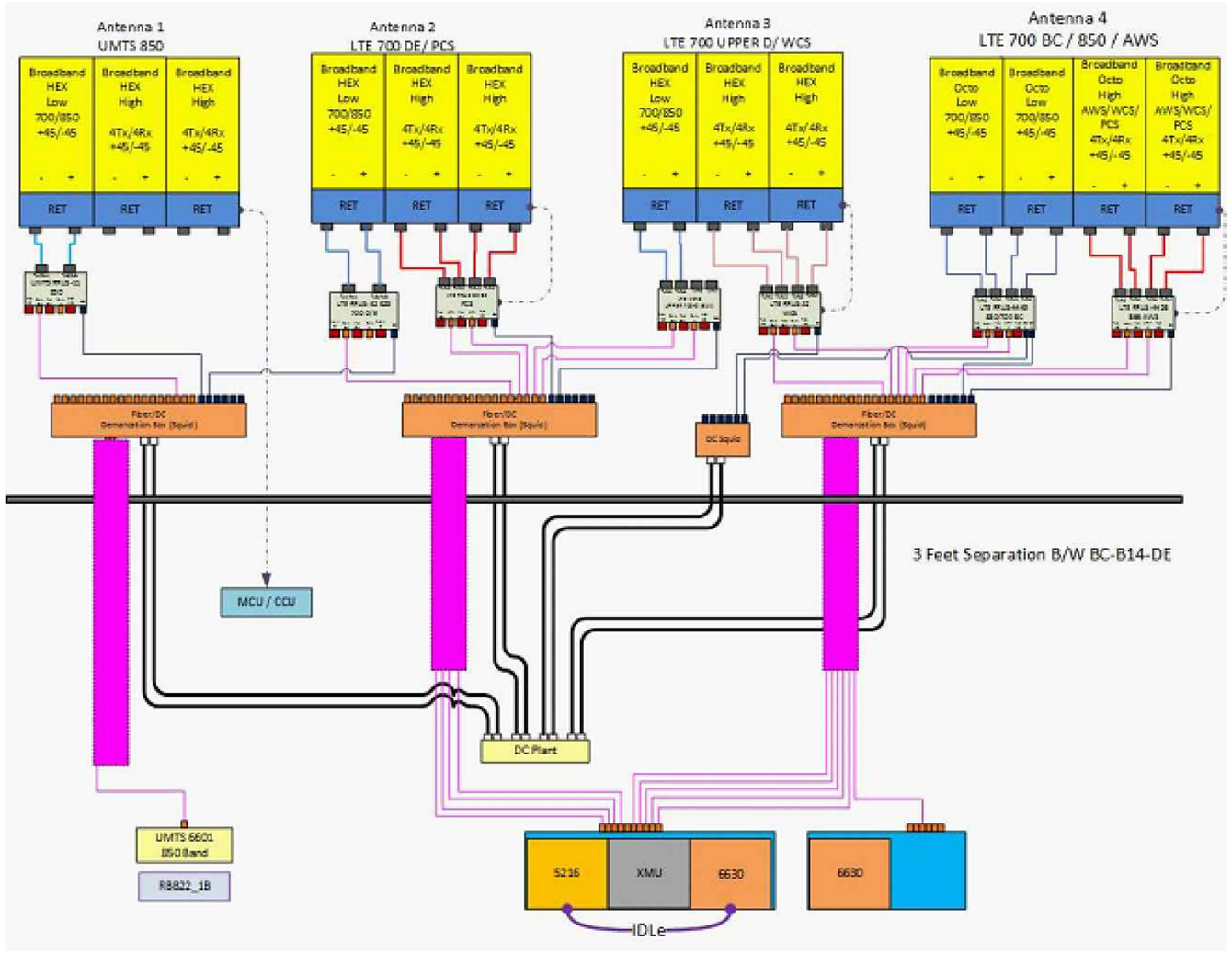
STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
LTE BWE 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2838	G-1	1



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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AT&T

RF PLUMBING DIAGRAM
LTE BWE 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2838	RF–1	1

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 114 ft Valmont Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT22093-A

Customer Site Name: New London (Bates Wood)

Carrier Name: AT&T (App#: 140940, v1)

Carrier Site ID / Name: CT2838 / NEW LONDON OFFLOAD FOR CT2080

Site Location: 490 Jefferson Avenue

New London, Connecticut

New London County

Latitude: 41.356100

Longitude: -72.124200

Analysis Result:

Max Structural Usage: 34.7% [Pass]

Max Foundation Usage: 22.2% [Pass]

Additional Usage Caused by Mount Modification: N/A

Report Prepared By: Walter Velez

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Report Prepared By: Walter Velez

Introduction

The purpose of this report is to summarize the analysis results on the 114 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Original tower profile prepared by Valmont. Dated 11-19-2013. File Id No 22890903. Site: Bates Woods Park, CT. Previous structural report prepared by Tower Engineering Solutions. Dated 02-14-2019. TES Project No 69531.
Foundation Drawing	Original foundation drawing prepared by Valmont Industries, Inc. Dated 01-14-2014. Drawing No B-138201. Order No 228909-2-1. Site: Bates Woods Park, CT.
Geotechnical Report	Geotechnical report prepared by Terracon Consultants, Inc. Dated 11-26-2013. Project No J2135212.
Modification Drawings	N/A
Mount Analysis	Structural mount analysis report prepared by Hudson Design Group, LLC. Dated 10-26-2020. Project No 2051A0WPW6.

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 135.0 mph (3-Sec. Gust)
(Based on IBC 2015)	Nominal Design Wind Speed V_{asd} = 105.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4” radial ice concurrent
Operational Wind Speed:	60 mph + 0” Radial ice
Standard/Codes:	TIA-222-G-2, 2015 IBC & 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.161, S_1 = 0.058

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	111.0	9	Cci HPA-65R-BUU-H8 - Panel	Platform w/ Handrails, Kicker Kit, (3) Sector Frame Stabilizer Kit (Site Pro SFS-H) & (6) Reinforcing Angles	(3) 1/2" Fiber (1) 2" Conduit* (8) 3/4" DC* (3) 5/16" RET	AT&T
2		3	Kathrein 800 10966 - Panel			
3		3	Ericsson RRUS-11			
4		3	Ericsson RRUS-12			
5		3	Ericsson RRUS 32			
6		3	Ericsson RRUS E2 B29			
7		3	Ericsson RRUS 4449 B5, B12			
8		3	Ericsson RRUS 4478 B14			
9		3	Ericsson RRUS 32 B30			
10		3	Ericsson RRU A2			
11		4	Raycap DC6-48-60-18-8F			
12	94.0	1	Ice Shield	Direct	-	-
13	90.0	1	10 Sport Lights	Direct	-	-
14	89.0	1	Light support	Direct	-	-
15	88.0	1	10 Sport Lights	Direct	-	-

*(1) 2” Conduit housing DC lines.

Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
16	111.0	3	Kathrein 800 10966 - Panel	Platform w/ Handrails, Kicker Kit, (3) Sector Frame Stabilizer Kit (Site Pro 1 SFS-H) & (6) Reinforcing Angles	(3) 1/2" Fiber; (8) 3/4" DC Power; (3) 5/16" RET Line (1) 2" Conduit*	AT&T
17		9	Cci HPA-65R-BUU-H8 - Panel			
18		3	Ericsson RRUS 32 B30 RRU's			
19		3	Ericsson RRUS 4478 B14 RRU's			
20		3	Ericsson RRUS 4449 B5, B12 RRU's			
21		3	Ericsson RRUS E2 B29 RRU's			
22		3	Ericsson RRUS 32 RRU's			
23		3	Ericsson RRUS 4426 B66 RRU's			
24		3	Ericsson RRUS-11 RRU's			
25		3	Ericsson RRU A2 RRU's			
26		4	Raycap DC6-48-60-18-8F DC Surge			
27		1	GPS			

* 2” Conduit housing (2) DC lines.

All transmission lines are considered running inside of the pole shafts. Please see the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**33.8%**	**34.7%**	**17.7%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	5051.0	47.2	55.3
Analysis Reactions	3023.5	36.2	45.3
Factored Reactions*	6818.9	63.7	74.7

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2844 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA-222-G standards, the 2015 IBC and the 2018 Connecticut State Building Code under the design basic wind speed specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

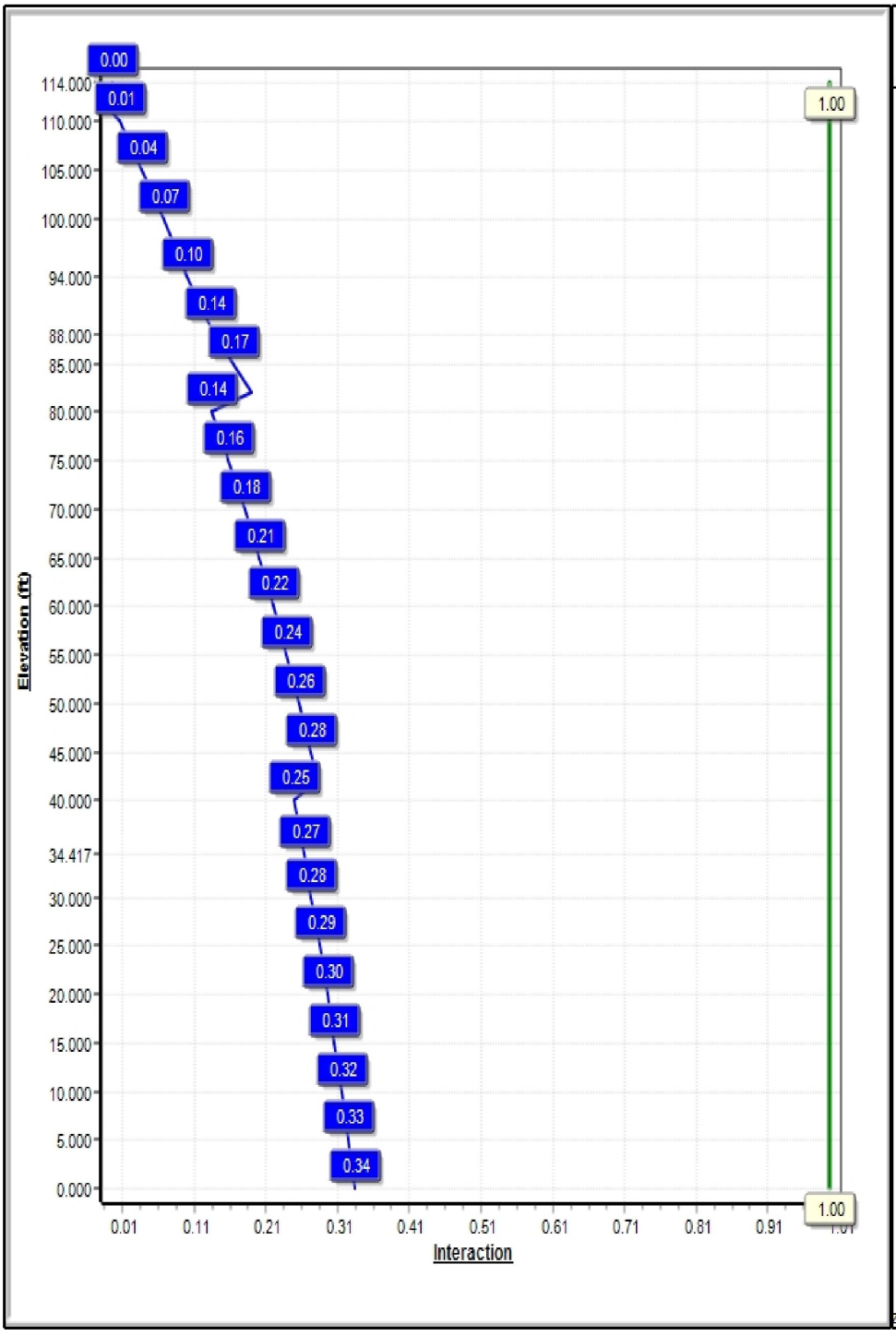
Usage Diagram - Max Ratio 33.79% at 0.0ft

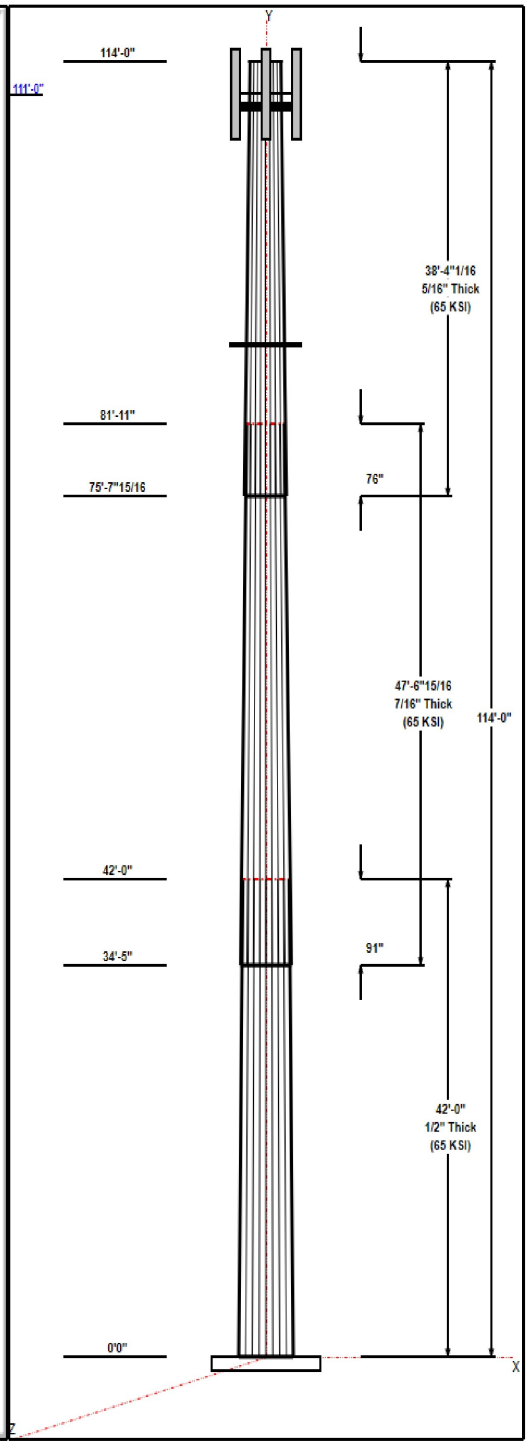
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)	**Exposure:**	C	
Height:	114.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	16
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 105 mph Wind





Structure: CT22093-A-SBA

Type: Tapered
Site Name: New London (Bates Wood)
Height: 114.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.26500

11/6/2020

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	42.00	53.12	64.25	0.500		0.26500	65
2	47.58	43.40	56.00	0.438	Slip	0.26500	65
3	38.34	35.54	45.70	0.313	Slip	0.26500	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
114.00	117.50	1	Lightning Rod	AT&T
111.00	111.00	6	Reinforcing Angles	AT&T
111.00	111.00	3	Kathrein 800 10966	AT&T
111.00	111.00	9	Cci HPA-65R-BUU-H8	AT&T
111.00	111.00	3	Ericsson RRUS 32 B30	AT&T
111.00	111.00	3	Ericsson RRUS 4478 B14	AT&T
111.00	111.00	3	Ericsson RRUS 4449 B5,	AT&T
111.00	111.00	3	Ericsson RRUS E2 B29	AT&T
111.00	111.00	3	Ericsson RRUS 32 RRU's	AT&T
111.00	111.00	3	Ericsson RRUS 4426 B66	AT&T
111.00	111.00	3	Ericsson RRUS-11 RRU's	AT&T
111.00	111.00	3	Ericsson RRU A2 RRU's	AT&T
111.00	111.00	4	Raycap DC6-48-60-18-8F	AT&T
111.00	111.00	1	GPS	AT&T
111.00	111.00	1	Platform w/ Handrails	AT&T
111.00	111.00	1	Kicker Kit	AT&T
111.00	113.50	1	Sector Frame Stabilizer Kit	AT&T
94.00	94.00	1	Ice shield	
90.00	90.00	1	Sport Lights	
89.00	89.00	1	Light support	
88.00	88.00	1	Sport Lights	

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
7.00	111.00	Inside	1/2" Fiber	AT&T
7.00	111.00	Inside	2" Conduit	AT&T
7.00	111.00	Inside	3/4" DC Power	AT&T
7.00	111.00	Inside	5/16" RET Line	AT&T

Anchor Bolts

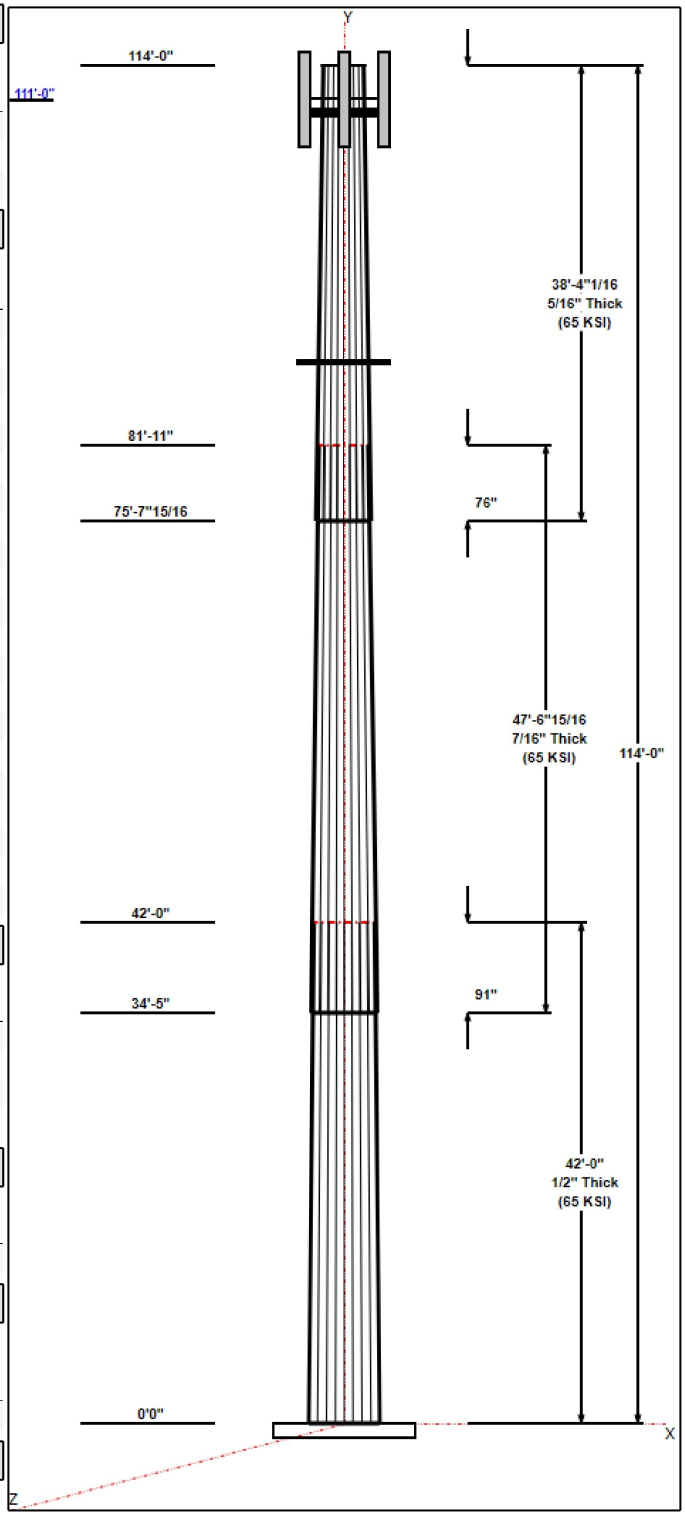
Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.5000	78.9	50.0	Polygon

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	3023.5	36.2	45.3
0.9D + 1.6W 105 mph Wind	3016.1	36.2	34.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	760.4	9.3	67.5
1.2D + 1.0E	187.9	2.0	45.3



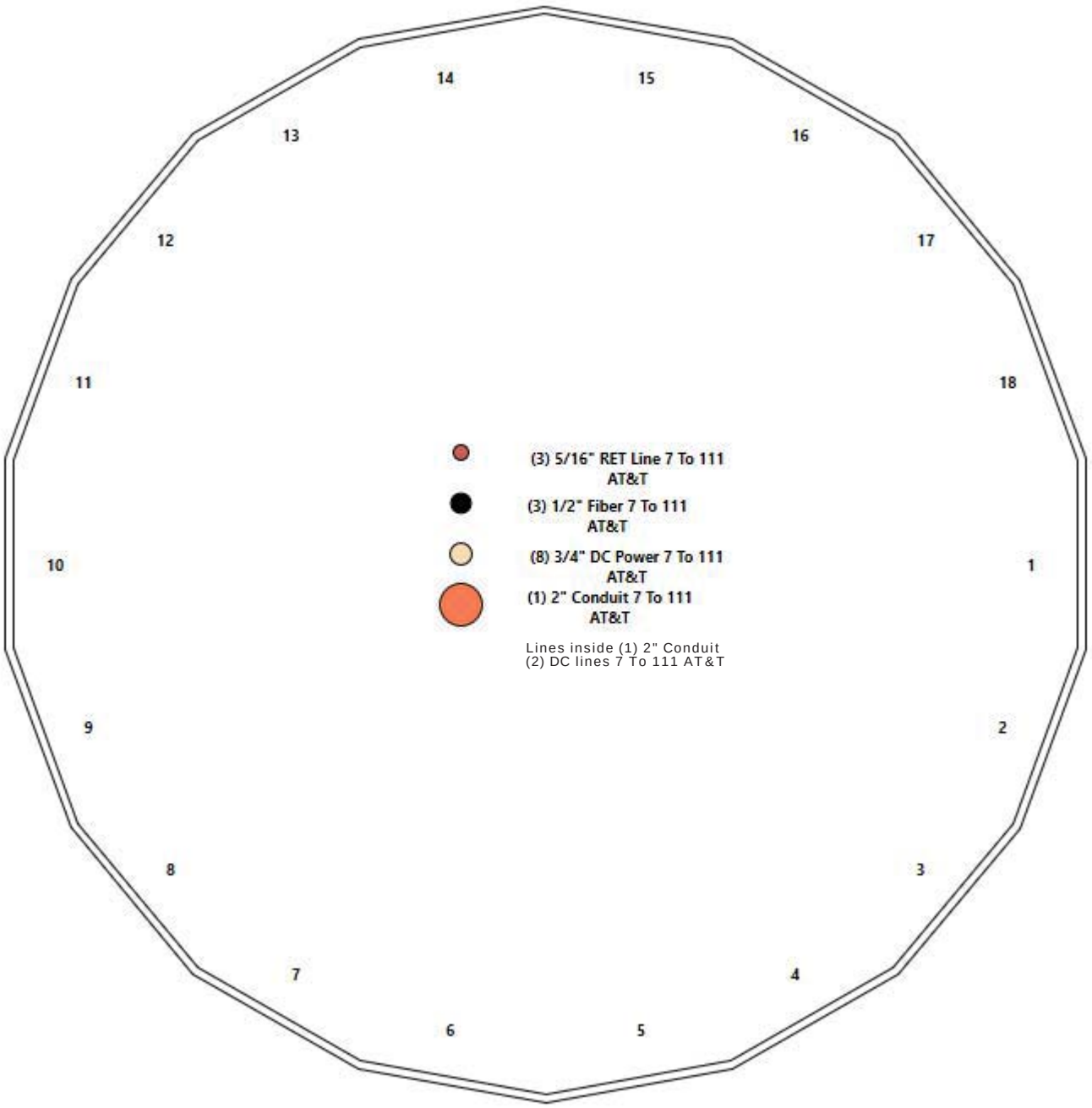
0.9D + 1.0E	187.4	2.0	34.0
1.0D + 1.0W 60 mph Wind	616.0	7.4	37.8

Structure: CT22093-A-SBA - Coax Line Placement

Type: Monopole
Site Name: New London (Bates Wood)
Height: 114.00 (ft)

11/6/2020

Tower Engineering Solutions



Shaft Properties

Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	42.000	0.5000	65		0.00	13,196
2	18	47.580	0.4375	65	Slip	91.00	11,075
3	18	38.337	0.3125	65	Slip	76.00	5,215
					Total Shaft Weight:		**29,487**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	64.25	0.00	101.1	51946.34	21.25	128.50	53.12	42.00	83.50	29212.3	17.32	106.2	0.265000
2	56.00	34.42	77.16	30100.61	21.16	128.01	43.40	82.00	59.65	13908.0	16.08	99.19	0.265000
3	45.70	75.66	45.02	11716.04	24.37	146.24	35.54	114.00	34.94	5478.22	18.64	113.7	0.265000

Load Summary

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	114.00	Lightning Rod	1	35.00	1.05	1.00	65.56	3.359	1.00	0.00	3.50
2	111.00	Reinforcing Angles	6	65.00	1.50	1.00	191.59	4.803	1.00	0.00	0.00
3	111.00	Kathrein 800 10966	3	114.60	17.36	0.72	460.14	19.112	0.72	0.00	0.00
4	111.00	Cci HPA-65R-BUU-H8	9	68.00	12.98	0.79	349.03	14.544	0.79	0.00	0.00
5	111.00	Ericsson RRUS 32 B30 RRU's	3	60.00	2.74	0.67	144.79	3.446	0.67	0.00	0.00
6	111.00	Ericsson RRUS 4478 B14 RRU's	3	59.40	2.02	0.67	99.64	2.636	0.67	0.00	0.00
7	111.00	Ericsson RRUS 4449 B5, B12 RRU's	3	71.00	1.97	0.67	145.34	2.537	0.67	0.00	0.00
8	111.00	Ericsson RRUS E2 B29 RRU's	3	60.00	3.15	0.67	123.40	3.833	0.67	0.00	0.00
9	111.00	Ericsson RRUS 32 RRU's	3	77.00	1.65	0.67	123.59	2.211	0.67	0.00	0.00
10	111.00	Ericsson RRUS 4426 B66 RRU's	3	48.40	1.65	0.67	101.98	2.170	0.67	0.00	0.00
11	111.00	Ericsson RRUS-11 RRU's	3	55.00	2.52	0.67	130.63	3.135	0.67	0.00	0.00
12	111.00	Ericsson RRU A2 RRU's	3	15.00	1.57	0.67	57.98	2.076	0.67	0.00	0.00
13	111.00	Raycap DC6-48-60-18-8F DC Surge	4	32.80	3.70	0.67	94.68	5.409	0.67	0.00	0.00
14	111.00	GPS	1	10.00	1.00	0.60	38.45	1.691	0.60	0.00	0.00
15	111.00	Platform w/ Handrails	1	1600.00	32.00	1.00	3637.56	59.095	1.00	0.00	0.00
16	111.00	Kicker Kit	1	464.91	9.50	1.00	779.83	19.153	1.00	0.00	0.00
17	111.00	Sector Frame Stabilizer Kit (Site Pro	1	197.00	6.30	1.00	463.89	12.701	1.00	0.00	2.50
18	94.00	Ice shield	1	500.00	40.00	1.00	999.66	79.973	1.00	0.00	0.00
19	90.00	Sport Lights	1	800.00	40.00	1.00	1595.99	79.799	1.00	0.00	0.00
20	89.00	Light support	1	500.00	28.00	1.00	996.94	55.828	1.00	0.00	0.00
21	88.00	Sport Lights	1	800.00	40.00	1.00	1594.20	79.710	1.00	0.00	0.00
		Totals:	**55**	**7,721.31**			**19,004.06**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
7.00	111.00	(3) 1/2" Fiber	0.00	Inside
7.00	111.00	(1) 2" Conduit	0.00	Inside
7.00	111.00	(8) 3/4" DC Power	0.00	Inside
7.00	111.00	(3) 5/16" RET Line	0.00	Inside

Shaft Section Properties

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.5000	64.250	101.168	51946.3	21.25	128.50	76.4	1592.	0.0
5.00		0.5000	62.925	99.065	48774.2	20.78	125.85	77.0	1526.	1703.4
10.00		0.5000	61.600	96.962	45733.9	20.31	123.20	77.5	1462.	1667.6
15.00		0.5000	60.275	94.860	42822.6	19.85	120.55	78.1	1399.	1631.8
20.00		0.5000	58.950	92.757	40037.6	19.38	117.90	78.6	1337.	1596.0
25.00		0.5000	57.625	90.654	37376.0	18.91	115.25	79.2	1277.	1560.3
30.00		0.5000	56.300	88.551	34835.1	18.44	112.60	79.7	1218.	1524.5
34.42	Bot - Section 2	0.5000	55.130	86.694	32688.7	18.03	110.26	80.2	1167.	1316.9
35.00		0.5000	54.975	86.449	32412.0	17.98	109.95	80.3	1161.	324.8
40.00		0.5000	53.650	84.346	30104.0	17.51	107.30	80.8	1105.	2746.4
42.00	Top - Section 1	0.4375	53.995	74.369	26951.5	20.35	123.42	0.0	0.0	1079.8
45.00		0.4375	53.200	73.265	25769.1	20.03	121.60	77.8	954.0	753.5
50.00		0.4375	51.875	71.425	23876.0	19.50	118.57	78.5	906.5	1230.9
55.00		0.4375	50.550	69.585	22078.0	18.96	115.54	79.1	860.2	1199.6
60.00		0.4375	49.225	67.745	20372.7	18.43	112.51	79.7	815.2	1168.3
65.00		0.4375	47.900	65.905	18757.5	17.89	109.49	80.4	771.3	1137.0
70.00		0.4375	46.575	64.065	17230.0	17.36	106.46	81.0	728.6	1105.7
75.00		0.4375	45.250	62.226	15787.7	16.83	103.43	81.6	687.2	1074.3
75.66	Bot - Section 3	0.4375	45.074	61.981	15602.7	16.76	103.03	81.7	681.8	140.2
80.00		0.4375	43.925	60.386	14428.3	16.29	100.40	82.2	647.0	1558.8
82.00	Top - Section 2	0.3125	44.021	43.352	10463.8	23.43	140.87	0.0	0.0	704.1
85.00		0.3125	43.225	42.562	9902.5	22.98	138.32	74.4	451.2	439.0
88.00		0.3125	42.430	41.774	9362.3	22.53	135.78	74.9	434.6	430.5
89.00		0.3125	42.165	41.511	9186.7	22.38	134.93	75.1	429.1	141.7
90.00		0.3125	41.900	41.248	9013.3	22.23	134.08	75.3	423.7	140.8
94.00		0.3125	40.840	40.197	8341.5	21.63	130.69	76.0	402.3	554.3
95.00		0.3125	40.575	39.934	8178.9	21.48	129.84	76.1	397.0	136.3
100.00		0.3125	39.250	38.620	7397.7	20.74	125.60	77.0	371.2	668.3
105.00		0.3125	37.925	37.306	6667.9	19.99	121.36	77.9	346.3	645.9
110.00		0.3125	36.600	35.991	5987.8	19.24	117.12	78.8	322.2	623.5
111.00		0.3125	36.335	35.729	5857.5	19.09	116.27	78.9	317.5	122.0
114.00		0.3125	35.540	34.940	5478.2	18.64	113.73	79.5	303.6	360.7
										29486.6

Wind Loading - Shaft

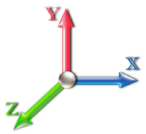
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	526.31	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	515.45	0.650	0.000	5.00	26.904	17.49	701.4	0.0	2044.0
10.00		1.00	0.85	22.791	25.07	504.60	0.650	0.000	5.00	26.343	17.12	686.8	0.0	2001.1
15.00		1.00	0.85	22.791	25.07	493.75	0.650	0.000	5.00	25.782	16.76	672.2	0.0	1958.2
20.00		1.00	0.90	24.182	26.60	497.41	0.650	0.000	5.00	25.222	16.39	697.7	0.0	1915.2
25.00		1.00	0.95	25.345	27.88	497.79	0.650	0.000	5.00	24.661	16.03	715.0	0.0	1872.3
30.00		1.00	0.98	26.337	28.97	495.77	0.650	0.000	5.00	24.101	15.67	726.1	0.0	1829.4
34.42	Bot - Section 2	1.00	1.01	27.110	29.82	492.53	0.650	0.000	4.42	20.822	13.53	645.8	0.0	1580.3
35.00		1.00	1.01	27.206	29.93	492.02	0.650	0.000	0.58	2.761	1.79	85.9	0.0	389.7
40.00		1.00	1.04	27.981	30.78	486.96	0.650	0.000	5.00	23.350	15.18	747.4	0.0	3295.7
42.00	Top - Section 1	1.00	1.05	28.270	31.10	484.63	0.650	0.000	2.00	9.183	5.97	297.0	0.0	1295.7
45.00		1.00	1.07	28.684	31.55	488.90	0.650	0.000	3.00	13.606	8.84	446.5	0.0	904.3
50.00		1.00	1.09	29.327	32.26	482.04	0.650	0.000	5.00	22.228	14.45	745.8	0.0	1477.0
55.00		1.00	1.12	29.922	32.91	474.46	0.650	0.000	5.00	21.668	14.08	741.7	0.0	1439.5
60.00		1.00	1.14	30.475	33.52	466.27	0.650	0.000	5.00	21.107	13.72	735.9	0.0	1401.9
65.00		1.00	1.16	30.993	34.09	457.56	0.650	0.000	5.00	20.547	13.36	728.5	0.0	1364.3
70.00		1.00	1.17	31.480	34.63	448.39	0.650	0.000	5.00	19.986	12.99	719.8	0.0	1326.8
75.00		1.00	1.19	31.941	35.13	438.81	0.650	0.000	5.00	19.425	12.63	709.8	0.0	1289.2
75.66	Bot - Section 3	1.00	1.19	32.000	35.20	437.51	0.650	0.000	0.66	2.535	1.65	92.8	0.0	168.2
80.00		1.00	1.21	32.377	35.62	428.86	0.650	0.000	4.34	16.559	10.76	613.3	0.0	1870.5
82.00	Top - Section 2	1.00	1.21	32.546	35.80	424.80	0.650	0.000	2.00	7.482	4.86	278.6	0.0	844.9
85.00		1.00	1.22	32.793	36.07	424.73	0.650	0.000	3.00	11.086	7.21	415.9	0.0	526.8
88.00	Appurtenance(s)	1.00	1.23	33.034	36.34	418.44	0.650	0.000	3.00	10.872	7.07	410.9	0.0	516.6
89.00	Appurtenance(s)	1.00	1.23	33.112	36.42	416.33	0.650	0.000	1.00	3.579	2.33	135.6	0.0	170.0
90.00	Appurtenance(s)	1.00	1.24	33.190	36.51	414.20	0.650	0.000	1.00	3.557	2.31	135.0	0.0	169.0
94.00	Appurtenance(s)	1.00	1.25	33.496	36.85	405.57	0.650	0.000	4.00	14.003	9.10	536.6	0.0	665.1
95.00		1.00	1.25	33.570	36.93	403.39	0.650	0.000	1.00	3.445	2.24	132.3	0.0	163.6
100.00		1.00	1.27	33.935	37.33	392.33	0.650	0.000	5.00	16.887	10.98	655.6	0.0	801.9
105.00		1.00	1.28	34.285	37.71	381.03	0.650	0.000	5.00	16.326	10.61	640.3	0.0	775.1
110.00		1.00	1.29	34.623	38.08	369.53	0.650	0.000	5.00	15.766	10.25	624.4	0.0	748.2
111.00	Appurtenance(s)	1.00	1.29	34.689	38.16	367.20	0.650	0.000	1.00	3.086	2.01	122.5	0.0	146.4
114.00	Appurtenance(s)	1.00	1.30	34.884	38.37	360.18	0.650	0.000	3.00	9.123	5.93	364.1	0.0	432.8
								Totals:	**114.00**			**15,961.2**		**35,384.0**

Discrete Appurtenance Forces

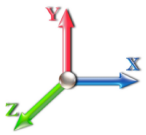
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	Lightning Rod	1	35.107	38.617	1.00	1.00	1.05	42.00	0.000	3.500	64.88	0.00	227.07
2	111.00	Sector Frame Stabilizer Kit	1	34.852	38.337	1.00	1.00	6.30	236.40	0.000	2.500	386.43	0.00	966.09
3	111.00	Kicker Kit	1	34.689	38.157	1.00	1.00	9.50	557.89	0.000	0.000	579.99	0.00	0.00
4	111.00	Platform w/ Handrails	1	34.689	38.157	1.00	1.00	32.00	1920.00	0.000	0.000	1953.66	0.00	0.00
5	111.00	GPS	1	34.689	38.157	0.45	0.75	0.45	12.00	0.000	0.000	27.47	0.00	0.00
6	111.00	Raycap DC6-48-60-18-8F	4	34.689	38.157	0.50	0.75	7.44	157.44	0.000	0.000	454.04	0.00	0.00
7	111.00	Ericsson RRU A2 RRU's	3	34.689	38.157	0.50	0.75	2.37	54.00	0.000	0.000	144.50	0.00	0.00
8	111.00	Ericsson RRUS-11 RRU's	3	34.689	38.157	0.50	0.75	3.80	198.00	0.000	0.000	231.93	0.00	0.00
9	111.00	Ericsson RRUS 4426 B66	3	34.689	38.157	0.50	0.75	2.49	174.24	0.000	0.000	151.86	0.00	0.00
10	111.00	Ericsson RRUS 32 RRU's	3	34.689	38.157	0.50	0.75	2.49	277.20	0.000	0.000	151.86	0.00	0.00
11	111.00	Ericsson RRUS E2 B29	3	34.689	38.157	0.50	0.75	4.75	216.00	0.000	0.000	289.91	0.00	0.00
12	111.00	Ericsson RRUS 4449 B5,	3	34.689	38.157	0.50	0.75	2.97	255.60	0.000	0.000	181.31	0.00	0.00
13	111.00	Ericsson RRUS 4478 B14	3	34.689	38.157	0.50	0.75	3.05	213.84	0.000	0.000	185.91	0.00	0.00
14	111.00	Ericsson RRUS 32 B30	3	34.689	38.157	0.50	0.75	4.13	216.00	0.000	0.000	252.18	0.00	0.00
15	111.00	Cci HPA-65R-BUU-H8	9	34.689	38.157	0.59	0.75	69.22	734.40	0.000	0.000	4225.76	0.00	0.00
16	111.00	Kathrein 800 10966	3	34.689	38.157	0.54	0.75	28.12	412.56	0.000	0.000	1716.98	0.00	0.00
17	111.00	Reinforcing Angles	6	34.689	38.157	1.00	1.00	9.00	468.00	0.000	0.000	549.47	0.00	0.00
18	94.00	Ice shield	1	33.496	36.845	1.00	1.00	40.00	600.00	0.000	0.000	2358.09	0.00	0.00
19	90.00	Sport Lights	1	33.190	36.509	1.00	1.00	40.00	960.00	0.000	0.000	2336.60	0.00	0.00
20	89.00	Light support	1	33.112	36.424	1.00	1.00	28.00	600.00	0.000	0.000	1631.78	0.00	0.00
21	88.00	Sport Lights	1	33.034	36.337	1.00	1.00	40.00	960.00	0.000	0.000	2325.57	0.00	0.00
							Totals:		**9,265.57**			**20,200.19**		

Total Applied Force Summary

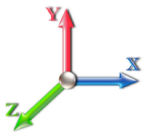
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		701.45	2044.04	0.00	0.00
10.00		686.83	2020.91	0.00	0.00
15.00		672.22	1991.18	0.00	0.00
20.00		697.74	1948.25	0.00	0.00
25.00		715.05	1905.32	0.00	0.00
30.00		726.14	1862.39	0.00	0.00
34.42		645.77	1609.40	0.00	0.00
35.00		85.92	393.59	0.00	0.00
40.00		747.43	3328.70	0.00	0.00
42.00		296.98	1308.94	0.00	0.00
45.00		446.47	924.05	0.00	0.00
50.00		745.77	1510.04	0.00	0.00
55.00		741.69	1472.47	0.00	0.00
60.00		735.86	1434.91	0.00	0.00
65.00		728.49	1397.35	0.00	0.00
70.00		719.75	1359.78	0.00	0.00
75.00		709.80	1322.22	0.00	0.00
75.66		92.80	172.59	0.00	0.00
80.00		613.35	1899.12	0.00	0.00
82.00		278.58	858.10	0.00	0.00
85.00		415.91	546.63	0.00	0.00
88.00	(1) attachments	2736.43	1496.36	0.00	0.00
89.00	(1) attachments	1767.36	776.64	0.00	0.00
90.00	(1) attachments	2471.65	1135.57	0.00	0.00
94.00	(1) attachments	2894.66	1291.53	0.00	0.00
95.00		132.29	170.20	0.00	0.00
100.00		655.57	834.90	0.00	0.00
105.00		640.35	808.07	0.00	0.00
110.00		624.45	781.24	0.00	0.00
111.00	(50) attachments	11605.73	6256.60	0.00	966.09
114.00	(1) attachments	428.95	474.84	0.00	227.07
	Totals:	**36,161.44**	**45,335.95**	**0.00**	**1,193.16**

Calculated Forces

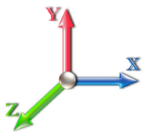
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.31	-36.19	0.00	-3023.5	0.00	3023.52	6957.19	3478.59	18224.6	9125.87	0.00	0.000	0.000	0.338
5.00	-43.22	-35.55	0.00	-2842.5	0.00	2842.56	6861.59	3430.79	17597.7	8811.94	0.04	-0.080	0.000	0.329
10.00	-41.15	-34.92	0.00	-2664.8	0.00	2664.80	6763.91	3381.95	16976.0	8500.66	0.17	-0.161	0.000	0.320
15.00	-39.11	-34.29	0.00	-2490.2	0.00	2490.21	6664.14	3332.07	16360.0	8192.18	0.38	-0.241	0.000	0.310
20.00	-37.12	-33.64	0.00	-2318.7	0.00	2318.75	6562.30	3281.15	15749.9	7886.69	0.68	-0.321	0.000	0.300
25.00	-35.17	-32.96	0.00	-2150.5	0.00	2150.56	6458.38	3229.19	15146.1	7584.35	1.06	-0.400	0.000	0.289
30.00	-33.28	-32.26	0.00	-1985.7	0.00	1985.76	6352.38	3176.19	14549.0	7285.34	1.52	-0.479	0.000	0.278
34.42	-31.65	-31.62	0.00	-1843.2	0.00	1843.28	6257.02	3128.51	14027.3	7024.11	2.00	-0.548	0.000	0.268
35.00	-31.23	-31.56	0.00	-1824.8	0.00	1824.83	6244.30	3122.15	13958.9	6989.82	2.07	-0.557	0.000	0.266
40.00	-27.88	-30.80	0.00	-1667.0	0.00	1667.05	6134.14	3067.07	13376.0	6697.98	2.69	-0.634	0.000	0.254
42.00	-26.56	-30.51	0.00	-1605.4	0.00	1605.45	5184.80	2592.40	11406.6	5711.80	2.96	-0.665	0.000	0.286
45.00	-25.61	-30.08	0.00	-1513.9	0.00	1513.93	5132.69	2566.34	11123.0	5569.77	3.40	-0.710	0.000	0.277
50.00	-24.07	-29.34	0.00	-1363.5	0.00	1363.54	5044.17	2522.08	10654.4	5335.12	4.19	-0.790	0.000	0.260
55.00	-22.57	-28.61	0.00	-1216.8	0.00	1216.82	4953.57	2476.78	10191.2	5103.20	5.05	-0.867	0.000	0.243
60.00	-21.11	-27.88	0.00	-1073.7	0.00	1073.76	4860.89	2430.44	9733.87	4874.17	6.00	-0.940	0.000	0.225
65.00	-19.69	-27.15	0.00	-934.36	0.00	934.36	4766.13	2383.06	9282.60	4648.20	7.03	-1.010	0.000	0.205
70.00	-18.32	-26.43	0.00	-798.61	0.00	798.61	4669.29	2334.64	8837.80	4425.47	8.12	-1.076	0.000	0.185
75.00	-16.99	-25.70	0.00	-666.47	0.00	666.47	4570.37	2285.18	8399.80	4206.15	9.28	-1.137	0.000	0.162
75.66	-16.81	-25.61	0.00	-649.43	0.00	649.43	4557.09	2278.54	8342.23	4177.31	9.44	-1.145	0.000	0.159
80.00	-14.91	-24.97	0.00	-538.35	0.00	538.35	4469.37	2234.68	7968.96	3990.40	10.51	-1.191	0.000	0.138
82.00	-14.05	-24.68	0.00	-488.49	0.00	488.49	2881.18	1440.59	5178.21	2592.95	11.01	-1.212	0.000	0.194
85.00	-13.50	-24.26	0.00	-414.37	0.00	414.37	2848.95	1424.48	5026.39	2516.93	11.78	-1.239	0.000	0.170
88.00	-12.05	-21.50	0.00	-341.60	0.00	341.60	2816.01	1408.00	4875.56	2441.40	12.57	-1.272	0.000	0.144
89.00	-11.31	-19.71	0.00	-320.10	0.00	320.10	2804.86	1402.43	4825.48	2416.32	12.84	-1.282	0.000	0.137
90.00	-10.23	-17.22	0.00	-300.39	0.00	300.39	2793.63	1396.81	4775.50	2391.30	13.11	-1.292	0.000	0.129
94.00	-9.00	-14.30	0.00	-231.51	0.00	231.51	2747.87	1373.94	4576.66	2291.73	14.21	-1.325	0.000	0.104
95.00	-8.82	-14.17	0.00	-217.21	0.00	217.21	2736.23	1368.11	4527.24	2266.98	14.49	-1.333	0.000	0.099
100.00	-8.00	-13.50	0.00	-146.38	0.00	146.38	2676.74	1338.37	4281.95	2144.16	15.90	-1.365	0.000	0.071
105.00	-7.20	-12.84	0.00	-78.90	0.00	78.90	2615.18	1307.59	4039.97	2022.99	17.34	-1.386	0.000	0.042
110.00	-6.44	-12.20	0.00	-14.71	0.00	14.71	2551.54	1275.77	3801.66	1903.65	18.80	-1.396	0.000	0.010
111.00	-0.46	-0.44	0.00	-1.55	0.00	1.55	2538.56	1269.28	3754.46	1880.02	19.10	-1.397	0.000	0.001
114.00	0.00	-0.43	0.00	-0.23	0.00	0.23	2499.12	1249.56	3613.87	1809.62	19.97	-1.397	0.000	0.000

Wind Loading - Shaft

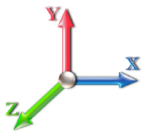
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	526.31	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	515.45	0.650	0.000	5.00	26.904	17.49	701.4	0.0	1533.0
10.00		1.00	0.85	22.791	25.07	504.60	0.650	0.000	5.00	26.343	17.12	686.8	0.0	1500.8
15.00		1.00	0.85	22.791	25.07	493.75	0.650	0.000	5.00	25.782	16.76	672.2	0.0	1468.6
20.00		1.00	0.90	24.182	26.60	497.41	0.650	0.000	5.00	25.222	16.39	697.7	0.0	1436.4
25.00		1.00	0.95	25.345	27.88	497.79	0.650	0.000	5.00	24.661	16.03	715.0	0.0	1404.2
30.00		1.00	0.98	26.337	28.97	495.77	0.650	0.000	5.00	24.101	15.67	726.1	0.0	1372.0
34.42	Bot - Section 2	1.00	1.01	27.110	29.82	492.53	0.650	0.000	4.42	20.822	13.53	645.8	0.0	1185.2
35.00		1.00	1.01	27.206	29.93	492.02	0.650	0.000	0.58	2.761	1.79	85.9	0.0	292.3
40.00		1.00	1.04	27.981	30.78	486.96	0.650	0.000	5.00	23.350	15.18	747.4	0.0	2471.8
42.00	Top - Section 1	1.00	1.05	28.270	31.10	484.63	0.650	0.000	2.00	9.183	5.97	297.0	0.0	971.8
45.00		1.00	1.07	28.684	31.55	488.90	0.650	0.000	3.00	13.606	8.84	446.5	0.0	678.2
50.00		1.00	1.09	29.327	32.26	482.04	0.650	0.000	5.00	22.228	14.45	745.8	0.0	1107.8
55.00		1.00	1.12	29.922	32.91	474.46	0.650	0.000	5.00	21.668	14.08	741.7	0.0	1079.6
60.00		1.00	1.14	30.475	33.52	466.27	0.650	0.000	5.00	21.107	13.72	735.9	0.0	1051.4
65.00		1.00	1.16	30.993	34.09	457.56	0.650	0.000	5.00	20.547	13.36	728.5	0.0	1023.3
70.00		1.00	1.17	31.480	34.63	448.39	0.650	0.000	5.00	19.986	12.99	719.8	0.0	995.1
75.00		1.00	1.19	31.941	35.13	438.81	0.650	0.000	5.00	19.425	12.63	709.8	0.0	966.9
75.66	Bot - Section 3	1.00	1.19	32.000	35.20	437.51	0.650	0.000	0.66	2.535	1.65	92.8	0.0	126.2
80.00		1.00	1.21	32.377	35.62	428.86	0.650	0.000	4.34	16.559	10.76	613.3	0.0	1402.9
82.00	Top - Section 2	1.00	1.21	32.546	35.80	424.80	0.650	0.000	2.00	7.482	4.86	278.6	0.0	633.7
85.00		1.00	1.22	32.793	36.07	424.73	0.650	0.000	3.00	11.086	7.21	415.9	0.0	395.1
88.00	Appurtenance(s)	1.00	1.23	33.034	36.34	418.44	0.650	0.000	3.00	10.872	7.07	410.9	0.0	387.4
89.00	Appurtenance(s)	1.00	1.23	33.112	36.42	416.33	0.650	0.000	1.00	3.579	2.33	135.6	0.0	127.5
90.00	Appurtenance(s)	1.00	1.24	33.190	36.51	414.20	0.650	0.000	1.00	3.557	2.31	135.0	0.0	126.7
94.00	Appurtenance(s)	1.00	1.25	33.496	36.85	405.57	0.650	0.000	4.00	14.003	9.10	536.6	0.0	498.8
95.00		1.00	1.25	33.570	36.93	403.39	0.650	0.000	1.00	3.445	2.24	132.3	0.0	122.7
100.00		1.00	1.27	33.935	37.33	392.33	0.650	0.000	5.00	16.887	10.98	655.6	0.0	601.4
105.00		1.00	1.28	34.285	37.71	381.03	0.650	0.000	5.00	16.326	10.61	640.3	0.0	581.3
110.00		1.00	1.29	34.623	38.08	369.53	0.650	0.000	5.00	15.766	10.25	624.4	0.0	561.2
111.00	Appurtenance(s)	1.00	1.29	34.689	38.16	367.20	0.650	0.000	1.00	3.086	2.01	122.5	0.0	109.8
114.00	Appurtenance(s)	1.00	1.30	34.884	38.37	360.18	0.650	0.000	3.00	9.123	5.93	364.1	0.0	324.6
								Totals:	**114.00**			**15,961.2**		**26,538.0**

Discrete Appurtenance Forces

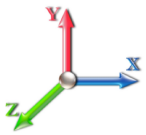
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	Lightning Rod	1	35.107	38.617	1.00	1.00	1.05	31.50	0.000	3.500	64.88	0.00	227.07
2	111.00	Sector Frame Stabilizer Kit	1	34.852	38.337	1.00	1.00	6.30	177.30	0.000	2.500	386.43	0.00	966.09
3	111.00	Kicker Kit	1	34.689	38.157	1.00	1.00	9.50	418.42	0.000	0.000	579.99	0.00	0.00
4	111.00	Platform w/ Handrails	1	34.689	38.157	1.00	1.00	32.00	1440.00	0.000	0.000	1953.66	0.00	0.00
5	111.00	GPS	1	34.689	38.157	0.45	0.75	0.45	9.00	0.000	0.000	27.47	0.00	0.00
6	111.00	Raycap DC6-48-60-18-8F	4	34.689	38.157	0.50	0.75	7.44	118.08	0.000	0.000	454.04	0.00	0.00
7	111.00	Ericsson RRU A2 RRU's	3	34.689	38.157	0.50	0.75	2.37	40.50	0.000	0.000	144.50	0.00	0.00
8	111.00	Ericsson RRUS-11 RRU's	3	34.689	38.157	0.50	0.75	3.80	148.50	0.000	0.000	231.93	0.00	0.00
9	111.00	Ericsson RRUS 4426 B66	3	34.689	38.157	0.50	0.75	2.49	130.68	0.000	0.000	151.86	0.00	0.00
10	111.00	Ericsson RRUS 32 RRU's	3	34.689	38.157	0.50	0.75	2.49	207.90	0.000	0.000	151.86	0.00	0.00
11	111.00	Ericsson RRUS E2 B29	3	34.689	38.157	0.50	0.75	4.75	162.00	0.000	0.000	289.91	0.00	0.00
12	111.00	Ericsson RRUS 4449 B5,	3	34.689	38.157	0.50	0.75	2.97	191.70	0.000	0.000	181.31	0.00	0.00
13	111.00	Ericsson RRUS 4478 B14	3	34.689	38.157	0.50	0.75	3.05	160.38	0.000	0.000	185.91	0.00	0.00
14	111.00	Ericsson RRUS 32 B30	3	34.689	38.157	0.50	0.75	4.13	162.00	0.000	0.000	252.18	0.00	0.00
15	111.00	Cci HPA-65R-BUU-H8	9	34.689	38.157	0.59	0.75	69.22	550.80	0.000	0.000	4225.76	0.00	0.00
16	111.00	Kathrein 800 10966	3	34.689	38.157	0.54	0.75	28.12	309.42	0.000	0.000	1716.98	0.00	0.00
17	111.00	Reinforcing Angles	6	34.689	38.157	1.00	1.00	9.00	351.00	0.000	0.000	549.47	0.00	0.00
18	94.00	Ice shield	1	33.496	36.845	1.00	1.00	40.00	450.00	0.000	0.000	2358.09	0.00	0.00
19	90.00	Sport Lights	1	33.190	36.509	1.00	1.00	40.00	720.00	0.000	0.000	2336.60	0.00	0.00
20	89.00	Light support	1	33.112	36.424	1.00	1.00	28.00	450.00	0.000	0.000	1631.78	0.00	0.00
21	88.00	Sport Lights	1	33.034	36.337	1.00	1.00	40.00	720.00	0.000	0.000	2325.57	0.00	0.00
							Totals:		**6,949.18**			**20,200.19**		

Total Applied Force Summary

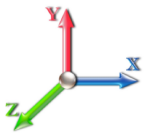
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		701.45	1533.03	0.00	0.00
10.00		686.83	1515.68	0.00	0.00
15.00		672.22	1493.38	0.00	0.00
20.00		697.74	1461.19	0.00	0.00
25.00		715.05	1428.99	0.00	0.00
30.00		726.14	1396.79	0.00	0.00
34.42		645.77	1207.05	0.00	0.00
35.00		85.92	295.19	0.00	0.00
40.00		747.43	2496.52	0.00	0.00
42.00		296.98	981.71	0.00	0.00
45.00		446.47	693.04	0.00	0.00
50.00		745.77	1132.53	0.00	0.00
55.00		741.69	1104.36	0.00	0.00
60.00		735.86	1076.18	0.00	0.00
65.00		728.49	1048.01	0.00	0.00
70.00		719.75	1019.84	0.00	0.00
75.00		709.80	991.66	0.00	0.00
75.66		92.80	129.44	0.00	0.00
80.00		613.35	1424.34	0.00	0.00
82.00		278.58	643.57	0.00	0.00
85.00		415.91	409.97	0.00	0.00
88.00	(1) attachments	2736.43	1122.27	0.00	0.00
89.00	(1) attachments	1767.36	582.48	0.00	0.00
90.00	(1) attachments	2471.65	851.67	0.00	0.00
94.00	(1) attachments	2894.66	968.65	0.00	0.00
95.00		132.29	127.65	0.00	0.00
100.00		655.57	626.18	0.00	0.00
105.00		640.35	606.05	0.00	0.00
110.00		624.45	585.93	0.00	0.00
111.00	(50) attachments	11605.73	4692.45	0.00	966.09
114.00	(1) attachments	428.95	356.13	0.00	227.07
	Totals:	**36,161.44**	**34,001.96**	**0.00**	**1,193.16**

Calculated Forces

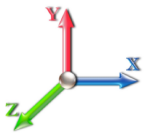
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.98	-36.19	0.00	-3016.0	0.00	3016.06	6957.19	3478.59	18224.6	9125.87	0.00	0.000	0.000	0.335
5.00	-32.39	-35.53	0.00	-2835.1	0.00	2835.13	6861.59	3430.79	17597.7	8811.94	0.04	-0.080	0.000	0.327
10.00	-30.83	-34.88	0.00	-2657.4	0.00	2657.49	6763.91	3381.95	16976.0	8500.66	0.17	-0.160	0.000	0.317
15.00	-29.29	-34.24	0.00	-2483.0	0.00	2483.08	6664.14	3332.07	16360.0	8192.18	0.38	-0.240	0.000	0.308
20.00	-27.79	-33.58	0.00	-2311.8	0.00	2311.86	6562.30	3281.15	15749.9	7886.69	0.68	-0.320	0.000	0.297
25.00	-26.32	-32.89	0.00	-2143.9	0.00	2143.97	6458.38	3229.19	15146.1	7584.35	1.06	-0.399	0.000	0.287
30.00	-24.89	-32.19	0.00	-1979.5	0.00	1979.52	6352.38	3176.19	14549.0	7285.34	1.52	-0.477	0.000	0.276
34.42	-23.66	-31.55	0.00	-1837.3	0.00	1837.37	6257.02	3128.51	14027.3	7024.11	1.99	-0.546	0.000	0.265
35.00	-23.34	-31.47	0.00	-1818.9	0.00	1818.97	6244.30	3122.15	13958.9	6989.82	2.06	-0.556	0.000	0.264
40.00	-20.83	-30.72	0.00	-1661.6	0.00	1661.60	6134.14	3067.07	13376.0	6697.98	2.68	-0.632	0.000	0.252
42.00	-19.83	-30.43	0.00	-1600.1	0.00	1600.16	5184.80	2592.40	11406.6	5711.80	2.96	-0.663	0.000	0.284
45.00	-19.11	-29.99	0.00	-1508.8	0.00	1508.88	5132.69	2566.34	11123.0	5569.77	3.39	-0.708	0.000	0.275
50.00	-17.95	-29.26	0.00	-1358.9	0.00	1358.93	5044.17	2522.08	10654.4	5335.12	4.17	-0.787	0.000	0.258
55.00	-16.82	-28.52	0.00	-1212.6	0.00	1212.65	4953.57	2476.78	10191.2	5103.20	5.04	-0.864	0.000	0.241
60.00	-15.72	-27.79	0.00	-1070.0	0.00	1070.05	4860.89	2430.44	9733.87	4874.17	5.99	-0.937	0.000	0.223
65.00	-14.65	-27.06	0.00	-931.12	0.00	931.12	4766.13	2383.06	9282.60	4648.20	7.01	-1.007	0.000	0.204
70.00	-13.61	-26.33	0.00	-795.83	0.00	795.83	4669.29	2334.64	8837.80	4425.47	8.10	-1.073	0.000	0.183
75.00	-12.62	-25.61	0.00	-664.16	0.00	664.16	4570.37	2285.18	8399.80	4206.15	9.26	-1.133	0.000	0.161
75.66	-12.48	-25.52	0.00	-647.17	0.00	647.17	4557.09	2278.54	8342.23	4177.31	9.41	-1.141	0.000	0.158
80.00	-11.05	-24.89	0.00	-536.48	0.00	536.48	4469.37	2234.68	7968.96	3990.40	10.47	-1.188	0.000	0.137
82.00	-10.41	-24.60	0.00	-486.78	0.00	486.78	2881.18	1440.59	5178.21	2592.95	10.98	-1.208	0.000	0.192
85.00	-9.99	-24.18	0.00	-412.90	0.00	412.90	2848.95	1424.48	5026.39	2516.93	11.74	-1.236	0.000	0.168
88.00	-8.92	-21.42	0.00	-340.35	0.00	340.35	2816.01	1408.00	4875.56	2441.40	12.53	-1.268	0.000	0.143
89.00	-8.38	-19.65	0.00	-318.93	0.00	318.93	2804.86	1402.43	4825.48	2416.32	12.80	-1.278	0.000	0.135
90.00	-7.57	-17.16	0.00	-299.28	0.00	299.28	2793.63	1396.81	4775.50	2391.30	13.07	-1.288	0.000	0.128
94.00	-6.67	-14.25	0.00	-230.65	0.00	230.65	2747.87	1373.94	4576.66	2291.73	14.16	-1.321	0.000	0.103
95.00	-6.54	-14.11	0.00	-216.40	0.00	216.40	2736.23	1368.11	4527.24	2266.98	14.44	-1.329	0.000	0.098
100.00	-5.92	-13.45	0.00	-145.84	0.00	145.84	2676.74	1338.37	4281.95	2144.16	15.85	-1.360	0.000	0.070
105.00	-5.33	-12.79	0.00	-78.62	0.00	78.62	2615.18	1307.59	4039.97	2022.99	17.29	-1.382	0.000	0.041
110.00	-4.75	-12.15	0.00	-14.66	0.00	14.66	2551.54	1275.77	3801.66	1903.65	18.74	-1.392	0.000	0.010
111.00	-0.35	-0.44	0.00	-1.54	0.00	1.54	2538.56	1269.28	3754.46	1880.02	19.04	-1.392	0.000	0.001
114.00	0.00	-0.43	0.00	-0.23	0.00	0.23	2499.12	1249.56	3613.87	1809.62	19.91	-1.392	0.000	0.000

Wind Loading - Shaft

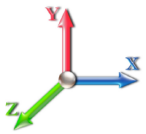
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	27.939	33.53	190.6	499.3	2543.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	27.452	32.94	187.3	524.8	2525.9
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	26.938	32.33	183.8	535.5	2493.7
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	26.411	31.69	191.2	539.6	2454.9
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	25.877	31.05	196.3	540.0	2412.3
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	25.339	30.41	199.7	537.8	2367.2
34.42	Bot - Section 2	1.00	1.01	6.147	6.76	0.00	1.200	1.506	4.42	21.931	26.32	178.0	472.1	2052.3
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	0.58	2.907	3.49	23.7	63.2	453.0
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	24.624	29.55	206.2	536.9	3832.6
42.00	Top - Section 1	1.00	1.05	6.410	7.05	0.00	1.200	1.537	2.00	9.695	11.63	82.0	213.8	1509.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	3.00	14.380	17.26	123.5	318.4	1222.6
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	23.531	28.24	206.6	523.4	2000.4
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	22.983	27.58	205.8	515.5	1954.9
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	22.434	26.92	204.6	506.9	1908.8
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.884	26.26	203.0	497.7	1862.1
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.334	25.60	201.0	488.1	1814.9
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	20.782	24.94	198.7	478.1	1767.3
75.66	Bot - Section 3	1.00	1.19	7.256	7.98	0.00	1.200	1.630	0.66	2.715	3.26	26.0	63.2	231.5
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	4.34	17.744	21.29	172.0	411.2	2281.7
82.00	Top - Section 2	1.00	1.21	7.380	8.12	0.00	1.200	1.643	2.00	8.029	9.63	78.2	187.6	1032.6
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	3.00	11.912	14.29	116.9	278.4	805.2
88.00	Appurtenance(s)	1.00	1.23	7.491	8.24	0.00	1.200	1.655	3.00	11.699	14.04	115.7	274.1	790.7
89.00	Appurtenance(s)	1.00	1.23	7.508	8.26	0.00	1.200	1.656	1.00	3.855	4.63	38.2	90.9	261.0
90.00	Appurtenance(s)	1.00	1.24	7.526	8.28	0.00	1.200	1.658	1.00	3.833	4.60	38.1	90.5	259.4
94.00	Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.200	1.666	4.00	15.113	18.14	151.5	354.7	1019.8
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	1.00	3.723	4.47	37.4	88.2	251.8
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	18.283	21.94	185.7	429.5	1231.4
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	17.730	21.28	181.9	417.7	1192.8
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	17.175	20.61	178.0	405.7	1154.0
111.00	Appurtenance(s)	1.00	1.29	7.866	8.65	0.00	1.200	1.693	1.00	3.368	4.04	35.0	80.7	227.1
114.00	Appurtenance(s)	1.00	1.30	7.910	8.70	0.00	1.200	1.698	3.00	9.972	11.97	104.1	237.6	670.4
								Totals:	**114.00**			**4,440.7**		**46,585.2**

Discrete Appurtenance Forces

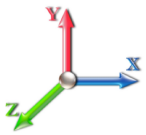
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	Lightning Rod	1	7.961	8.757	1.00	1.00	3.36	63.56	0.000	3.500	29.42	0.00	102.96
2	111.00	Sector Frame Stabilizer Kit	1	7.903	8.693	1.00	1.00	12.70	416.29	0.000	2.500	110.41	0.00	276.03
3	111.00	Kicker Kit	1	7.866	8.652	1.00	1.00	19.15	777.72	0.000	0.000	165.72	0.00	0.00
4	111.00	Platform w/ Handrails	1	7.866	8.652	1.00	1.00	59.10	3357.56	0.000	0.000	511.32	0.00	0.00
5	111.00	GPS	1	7.866	8.652	0.45	0.75	0.76	32.45	0.000	0.000	6.58	0.00	0.00
6	111.00	Raycap DC6-48-60-18-8F	4	7.866	8.652	0.50	0.75	10.87	338.15	0.000	0.000	94.08	0.00	0.00
7	111.00	Ericsson RRU A2 RRU's	3	7.866	8.652	0.50	0.75	3.13	182.95	0.000	0.000	27.09	0.00	0.00
8	111.00	Ericsson RRUS-11 RRU's	3	7.866	8.652	0.50	0.75	4.73	388.89	0.000	0.000	40.89	0.00	0.00
9	111.00	Ericsson RRUS 4426 B66	3	7.866	8.652	0.50	0.75	3.27	334.99	0.000	0.000	28.31	0.00	0.00
10	111.00	Ericsson RRUS 32 RRU's	3	7.866	8.652	0.50	0.75	3.33	416.97	0.000	0.000	28.84	0.00	0.00
11	111.00	Ericsson RRUS E2 B29	3	7.866	8.652	0.50	0.75	5.78	354.91	0.000	0.000	49.99	0.00	0.00
12	111.00	Ericsson RRUS 4449 B5,	3	7.866	8.652	0.50	0.75	3.82	478.61	0.000	0.000	33.09	0.00	0.00
13	111.00	Ericsson RRUS 4478 B14	3	7.866	8.652	0.50	0.75	3.97	306.35	0.000	0.000	34.38	0.00	0.00
14	111.00	Ericsson RRUS 32 B30	3	7.866	8.652	0.50	0.75	5.19	470.37	0.000	0.000	44.94	0.00	0.00
15	111.00	Cci HPA-65R-BUU-H8	9	7.866	8.652	0.59	0.75	77.56	3263.69	0.000	0.000	671.07	0.00	0.00
16	111.00	Kathrein 800 10966	3	7.866	8.652	0.54	0.75	30.96	1449.18	0.000	0.000	267.89	0.00	0.00
17	111.00	Reinforcing Angles	6	7.866	8.652	1.00	1.00	28.82	1239.51	0.000	0.000	249.36	0.00	0.00
18	94.00	Ice shield	1	7.595	8.355	1.00	1.00	79.97	599.66	0.000	0.000	668.17	0.00	0.00
19	90.00	Sport Lights	1	7.526	8.279	1.00	1.00	79.80	2555.99	0.000	0.000	660.64	0.00	0.00
20	89.00	Light support	1	7.508	8.259	1.00	1.00	55.83	600.00	0.000	0.000	461.10	0.00	0.00
21	88.00	Sport Lights	1	7.491	8.240	1.00	1.00	79.71	2554.20	0.000	0.000	656.79	0.00	0.00
							Totals:		**20,181.99**			**4,840.06**		

Total Applied Force Summary

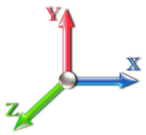
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		190.59	2543.33	0.00	0.00
10.00		187.27	2545.72	0.00	0.00
15.00		183.76	2526.67	0.00	0.00
20.00		191.16	2487.87	0.00	0.00
25.00		196.31	2445.30	0.00	0.00
30.00		199.75	2400.21	0.00	0.00
34.42		177.96	2081.46	0.00	0.00
35.00		23.67	456.84	0.00	0.00
40.00		206.23	3865.62	0.00	0.00
42.00		82.04	1522.75	0.00	0.00
45.00		123.46	1242.42	0.00	0.00
50.00		206.56	2033.44	0.00	0.00
55.00		205.84	1987.93	0.00	0.00
60.00		204.64	1941.78	0.00	0.00
65.00		203.01	1895.09	0.00	0.00
70.00		201.02	1847.92	0.00	0.00
75.00		198.69	1800.33	0.00	0.00
75.66		26.01	235.84	0.00	0.00
80.00		171.96	2310.34	0.00	0.00
82.00		78.22	1045.74	0.00	0.00
85.00		116.92	824.99	0.00	0.00
88.00	(1) attachments	772.46	3364.66	0.00	0.00
89.00	(1) attachments	499.31	867.56	0.00	0.00
90.00	(1) attachments	698.72	2822.03	0.00	0.00
94.00	(1) attachments	819.69	1645.90	0.00	0.00
95.00		37.40	258.42	0.00	0.00
100.00		185.71	1264.44	0.00	0.00
105.00		181.94	1225.81	0.00	0.00
110.00		177.99	1186.96	0.00	0.00
111.00	(50) attachments	2398.92	14042.27	0.00	276.03
114.00	(1) attachments	133.54	733.98	0.00	102.96
	Totals:	**9,280.77**	**67,453.61**	**0.00**	**378.99**

Calculated Forces

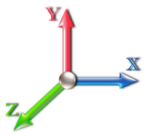
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 15

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-67.45	-9.29	0.00	-760.44	0.00	760.44	6957.19	3478.59	18224.6	9125.87	0.00	0.000	0.000	0.093
5.00	-64.91	-9.12	0.00	-713.98	0.00	713.98	6861.59	3430.79	17597.7	8811.94	0.01	-0.020	0.000	0.090
10.00	-62.36	-8.96	0.00	-668.36	0.00	668.36	6763.91	3381.95	16976.0	8500.66	0.04	-0.040	0.000	0.088
15.00	-59.83	-8.79	0.00	-623.58	0.00	623.58	6664.14	3332.07	16360.0	8192.18	0.10	-0.060	0.000	0.085
20.00	-57.34	-8.62	0.00	-579.62	0.00	579.62	6562.30	3281.15	15749.9	7886.69	0.17	-0.080	0.000	0.082
25.00	-54.89	-8.44	0.00	-536.53	0.00	536.53	6458.38	3229.19	15146.1	7584.35	0.27	-0.100	0.000	0.079
30.00	-52.49	-8.25	0.00	-494.35	0.00	494.35	6352.38	3176.19	14549.0	7285.34	0.38	-0.120	0.000	0.076
34.42	-50.40	-8.07	0.00	-457.92	0.00	457.92	6257.02	3128.51	14027.3	7024.11	0.50	-0.137	0.000	0.073
35.00	-49.95	-8.06	0.00	-453.21	0.00	453.21	6244.30	3122.15	13958.9	6989.82	0.52	-0.139	0.000	0.073
40.00	-46.08	-7.85	0.00	-412.91	0.00	412.91	6134.14	3067.07	13376.0	6697.98	0.67	-0.158	0.000	0.069
42.00	-44.55	-7.77	0.00	-397.20	0.00	397.20	5184.80	2592.40	11406.6	5711.80	0.74	-0.166	0.000	0.078
45.00	-43.31	-7.66	0.00	-373.88	0.00	373.88	5132.69	2566.34	11123.0	5569.77	0.85	-0.177	0.000	0.076
50.00	-41.28	-7.46	0.00	-335.58	0.00	335.58	5044.17	2522.08	10654.4	5335.12	1.05	-0.197	0.000	0.071
55.00	-39.29	-7.26	0.00	-298.28	0.00	298.28	4953.57	2476.78	10191.2	5103.20	1.26	-0.216	0.000	0.066
60.00	-37.34	-7.06	0.00	-261.99	0.00	261.99	4860.89	2430.44	9733.87	4874.17	1.50	-0.234	0.000	0.061
65.00	-35.45	-6.86	0.00	-226.69	0.00	226.69	4766.13	2383.06	9282.60	4648.20	1.75	-0.251	0.000	0.056
70.00	-33.60	-6.66	0.00	-192.40	0.00	192.40	4669.29	2334.64	8837.80	4425.47	2.03	-0.267	0.000	0.051
75.00	-31.80	-6.45	0.00	-159.11	0.00	159.11	4570.37	2285.18	8399.80	4206.15	2.31	-0.281	0.000	0.045
75.66	-31.56	-6.43	0.00	-154.83	0.00	154.83	4557.09	2278.54	8342.23	4177.31	2.35	-0.283	0.000	0.044
80.00	-29.25	-6.25	0.00	-126.94	0.00	126.94	4469.37	2234.68	7968.96	3990.40	2.62	-0.294	0.000	0.038
82.00	-28.20	-6.17	0.00	-114.46	0.00	114.46	2881.18	1440.59	5178.21	2592.95	2.74	-0.299	0.000	0.054
85.00	-27.38	-6.05	0.00	-95.92	0.00	95.92	2848.95	1424.48	5026.39	2516.93	2.93	-0.305	0.000	0.048
88.00	-24.02	-5.26	0.00	-77.77	0.00	77.77	2816.01	1408.00	4875.56	2441.40	3.12	-0.313	0.000	0.040
89.00	-23.15	-4.76	0.00	-72.50	0.00	72.50	2804.86	1402.43	4825.48	2416.32	3.19	-0.315	0.000	0.038
90.00	-20.34	-4.05	0.00	-67.74	0.00	67.74	2793.63	1396.81	4775.50	2391.30	3.26	-0.317	0.000	0.036
94.00	-18.69	-3.22	0.00	-51.54	0.00	51.54	2747.87	1373.94	4576.66	2291.73	3.53	-0.325	0.000	0.029
95.00	-18.44	-3.18	0.00	-48.32	0.00	48.32	2736.23	1368.11	4527.24	2266.98	3.59	-0.327	0.000	0.028
100.00	-17.17	-2.99	0.00	-32.40	0.00	32.40	2676.74	1338.37	4281.95	2144.16	3.94	-0.334	0.000	0.022
105.00	-15.95	-2.80	0.00	-17.44	0.00	17.44	2615.18	1307.59	4039.97	2022.99	4.29	-0.338	0.000	0.015
110.00	-14.76	-2.62	0.00	-3.41	0.00	3.41	2551.54	1275.77	3801.66	1903.65	4.65	-0.341	0.000	0.008
111.00	-0.73	-0.14	0.00	-0.52	0.00	0.52	2538.56	1269.28	3754.46	1880.02	4.72	-0.341	0.000	0.001
114.00	0.00	-0.13	0.00	-0.10	0.00	0.10	2499.12	1249.56	3613.87	1809.62	4.94	-0.341	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	15
Gust Response Factor	1.10				**Sds**	0.17		**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**		1.00	**Sd1**	0.09		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**		0.80	**SA**	0.07	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1703.3	0.00	0.04	0.02	17.25	
10.00		1667.5	0.01	0.06	0.04	25.36	
15.00		1631.8	0.03	0.07	0.04	29.23	
20.00		1596.0	0.06	0.07	0.04	31.42	
25.00		1560.2	0.09	0.07	0.04	33.16	
30.00		1524.4	0.13	0.07	0.03	34.85	
34.42	Bot - Section 2	1316.8	0.17	0.07	0.03	31.94	
35.00		324.78	0.18	0.07	0.03	7.93	
40.00		2746.4	0.23	0.06	0.02	70.41	
42.00	Top - Section 1	1079.7	0.26	0.05	0.02	27.99	
45.00		753.54	0.29	0.05	0.01	19.62	
50.00		1230.8	0.36	0.03	0.01	31.02	
55.00		1199.5	0.44	0.01	0.01	27.42	
60.00		1168.2	0.52	-0.02	0.01	22.33	
65.00		1136.9	0.61	-0.06	0.02	16.62	
70.00		1105.6	0.71	-0.09	0.03	11.81	
75.00		1074.3	0.82	-0.11	0.06	9.74	
75.66	Bot - Section 3	140.18	0.83	-0.12	0.06	1.28	
80.00		1558.7	0.93	-0.12	0.10	18.27	
82.00	Top - Section 2	704.10	0.98	-0.11	0.12	10.12	
85.00		439.01	1.05	-0.09	0.16	8.94	
88.00	Appurtenance(s)	1230.4	1.13	-0.05	0.20	35.68	
89.00	Appurtenance(s)	641.70	1.15	-0.04	0.22	20.85	
90.00	Appurtenance(s)	940.81	1.18	-0.02	0.24	34.16	
94.00	Appurtenance(s)	1054.2	1.29	0.10	0.32	57.85	
95.00		136.33	1.31	0.14	0.35	8.23	
100.00		668.25	1.45	0.39	0.49	62.14	
105.00		645.89	1.60	0.79	0.67	86.87	
110.00		623.53	1.76	1.36	0.91	115.38	
111.00	Appurtenance(s)	5208.3	1.79	1.50	0.96	1022.16	
114.00	Appurtenance(s)	395.70	1.89	1.98	1.14	91.84	
	Totals:	**37,208.0**				**2,021.9**	**Total Wind:** **36,161.4**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	15
Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.80	**SA**	0.07	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.34	-2.02	0.00	-187.89	0.00	187.89	6957.19	3478.59	18224.6	9125.87		0.00	0.00	0.027
5.00	-43.29	-2.01	0.00	-177.77	0.00	177.77	6861.59	3430.79	17597.7	8811.94		0.00	-0.01	0.026
10.00	-41.27	-1.99	0.00	-167.72	0.00	167.72	6763.91	3381.95	16976.0	8500.66		0.01	-0.01	0.026
15.00	-39.28	-1.96	0.00	-157.78	0.00	157.78	6664.14	3332.07	16360.0	8192.18		0.02	-0.02	0.025
20.00	-37.33	-1.93	0.00	-147.97	0.00	147.97	6562.30	3281.15	15749.9	7886.69		0.04	-0.02	0.024
25.00	-35.43	-1.90	0.00	-138.31	0.00	138.31	6458.38	3229.19	15146.1	7584.35		0.07	-0.03	0.024
30.00	-33.56	-1.87	0.00	-128.79	0.00	128.79	6352.38	3176.19	14549.0	7285.34		0.10	-0.03	0.023
34.42	-31.95	-1.84	0.00	-120.54	0.00	120.54	6257.02	3128.51	14027.3	7024.11		0.13	-0.03	0.022
35.00	-31.56	-1.83	0.00	-119.46	0.00	119.46	6244.30	3122.15	13958.9	6989.82		0.13	-0.04	0.022
40.00	-28.23	-1.76	0.00	-110.31	0.00	110.31	6134.14	3067.07	13376.0	6697.98		0.17	-0.04	0.021
42.00	-26.92	-1.73	0.00	-106.79	0.00	106.79	5184.80	2592.40	11406.6	5711.80		0.19	-0.04	0.024
45.00	-26.00	-1.71	0.00	-101.59	0.00	101.59	5132.69	2566.34	11123.0	5569.77		0.22	-0.05	0.023
50.00	-24.49	-1.68	0.00	-93.02	0.00	93.02	5044.17	2522.08	10654.4	5335.12		0.27	-0.05	0.022
55.00	-23.01	-1.66	0.00	-84.59	0.00	84.59	4953.57	2476.78	10191.2	5103.20		0.32	-0.06	0.021
60.00	-21.58	-1.64	0.00	-76.31	0.00	76.31	4860.89	2430.44	9733.87	4874.17		0.38	-0.06	0.020
65.00	-20.18	-1.62	0.00	-68.13	0.00	68.13	4766.13	2383.06	9282.60	4648.20		0.45	-0.07	0.019
70.00	-18.82	-1.61	0.00	-60.03	0.00	60.03	4669.29	2334.64	8837.80	4425.47		0.52	-0.07	0.018
75.00	-17.50	-1.60	0.00	-51.99	0.00	51.99	4570.37	2285.18	8399.80	4206.15		0.60	-0.08	0.016
75.66	-17.33	-1.60	0.00	-50.93	0.00	50.93	4557.09	2278.54	8342.23	4177.31		0.61	-0.08	0.016
80.00	-15.43	-1.58	0.00	-44.01	0.00	44.01	4469.37	2234.68	7968.96	3990.40		0.68	-0.08	0.014
82.00	-14.57	-1.57	0.00	-40.86	0.00	40.86	2881.18	1440.59	5178.21	2592.95		0.72	-0.08	0.021
85.00	-14.02	-1.56	0.00	-36.16	0.00	36.16	2848.95	1424.48	5026.39	2516.93		0.77	-0.08	0.019
88.00	-12.53	-1.52	0.00	-31.50	0.00	31.50	2816.01	1408.00	4875.56	2441.40		0.82	-0.09	0.017
89.00	-11.75	-1.50	0.00	-29.98	0.00	29.98	2804.86	1402.43	4825.48	2416.32		0.84	-0.09	0.017
90.00	-10.62	-1.46	0.00	-28.48	0.00	28.48	2793.63	1396.81	4775.50	2391.30		0.86	-0.09	0.016
94.00	-9.32	-1.40	0.00	-22.64	0.00	22.64	2747.87	1373.94	4576.66	2291.73		0.94	-0.09	0.013
95.00	-9.15	-1.39	0.00	-21.23	0.00	21.23	2736.23	1368.11	4527.24	2266.98		0.96	-0.09	0.013
100.00	-8.32	-1.33	0.00	-14.27	0.00	14.27	2676.74	1338.37	4281.95	2144.16		1.06	-0.10	0.010
105.00	-7.51	-1.24	0.00	-7.62	0.00	7.62	2615.18	1307.59	4039.97	2022.99		1.16	-0.10	0.007
110.00	-6.73	-1.13	0.00	-1.40	0.00	1.40	2551.54	1275.77	3801.66	1903.65		1.26	-0.10	0.003
111.00	-0.47	-0.09	0.00	-0.28	0.00	0.28	2538.56	1269.28	3754.46	1880.02		1.28	-0.10	0.000
114.00	0.00	-0.09	0.00	0.00	0.00	0.00	2499.12	1249.56	3613.87	1809.62		1.34	-0.10	0.000

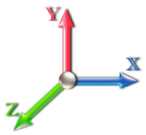
Seismic Segment Forces (Factored)

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	15
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.80	**SA**	0.07	**S1**	0.06
						Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1703.3	0.00	0.04	0.02	17.25	
10.00		1667.5	0.01	0.06	0.04	25.36	
15.00		1631.8	0.03	0.07	0.04	29.23	
20.00		1596.0	0.06	0.07	0.04	31.42	
25.00		1560.2	0.09	0.07	0.04	33.16	
30.00		1524.4	0.13	0.07	0.03	34.85	
34.42	Bot - Section 2	1316.8	0.17	0.07	0.03	31.94	
35.00		324.78	0.18	0.07	0.03	7.93	
40.00		2746.4	0.23	0.06	0.02	70.41	
42.00	Top - Section 1	1079.7	0.26	0.05	0.02	27.99	
45.00		753.54	0.29	0.05	0.01	19.62	
50.00		1230.8	0.36	0.03	0.01	31.02	
55.00		1199.5	0.44	0.01	0.01	27.42	
60.00		1168.2	0.52	-0.02	0.01	22.33	
65.00		1136.9	0.61	-0.06	0.02	16.62	
70.00		1105.6	0.71	-0.09	0.03	11.81	
75.00		1074.3	0.82	-0.11	0.06	9.74	
75.66	Bot - Section 3	140.18	0.83	-0.12	0.06	1.28	
80.00		1558.7	0.93	-0.12	0.10	18.27	
82.00	Top - Section 2	704.10	0.98	-0.11	0.12	10.12	
85.00		439.01	1.05	-0.09	0.16	8.94	
88.00	Appurtenance(s)	1230.4	1.13	-0.05	0.20	35.68	
89.00	Appurtenance(s)	641.70	1.15	-0.04	0.22	20.85	
90.00	Appurtenance(s)	940.81	1.18	-0.02	0.24	34.16	
94.00	Appurtenance(s)	1054.2	1.29	0.10	0.32	57.85	
95.00		136.33	1.31	0.14	0.35	8.23	
100.00		668.25	1.45	0.39	0.49	62.14	
105.00		645.89	1.60	0.79	0.67	86.87	
110.00		623.53	1.76	1.36	0.91	115.38	
111.00	Appurtenance(s)	5208.3	1.79	1.50	0.96	1022.16	
114.00	Appurtenance(s)	395.70	1.89	1.98	1.14	91.84	
	Totals:	**37,208.0**				**2,021.9**	**Total Wind:** **36,161.4**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	15
Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.80	**SA**	0.07	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-34.00	-2.02	0.00	-187.40	0.00	187.40	6957.19	3478.59	18224.6	9125.87		0.00	0.00	0.025
5.00	-32.47	-2.01	0.00	-177.28	0.00	177.28	6861.59	3430.79	17597.7	8811.94		0.00	0.00	0.025
10.00	-30.95	-1.99	0.00	-167.24	0.00	167.24	6763.91	3381.95	16976.0	8500.66		0.01	-0.01	0.024
15.00	-29.46	-1.96	0.00	-157.31	0.00	157.31	6664.14	3332.07	16360.0	8192.18		0.02	-0.02	0.024
20.00	-28.00	-1.93	0.00	-147.52	0.00	147.52	6562.30	3281.15	15749.9	7886.69		0.04	-0.02	0.023
25.00	-26.57	-1.90	0.00	-137.87	0.00	137.87	6458.38	3229.19	15146.1	7584.35		0.07	-0.03	0.022
30.00	-25.17	-1.86	0.00	-128.38	0.00	128.38	6352.38	3176.19	14549.0	7285.34		0.10	-0.03	0.022
34.42	-23.96	-1.83	0.00	-120.14	0.00	120.14	6257.02	3128.51	14027.3	7024.11		0.13	-0.03	0.021
35.00	-23.67	-1.83	0.00	-119.07	0.00	119.07	6244.30	3122.15	13958.9	6989.82		0.13	-0.04	0.021
40.00	-21.17	-1.76	0.00	-109.94	0.00	109.94	6134.14	3067.07	13376.0	6697.98		0.17	-0.04	0.020
42.00	-20.19	-1.73	0.00	-106.43	0.00	106.43	5184.80	2592.40	11406.6	5711.80		0.19	-0.04	0.023
45.00	-19.50	-1.71	0.00	-101.25	0.00	101.25	5132.69	2566.34	11123.0	5569.77		0.21	-0.05	0.022
50.00	-18.37	-1.68	0.00	-92.71	0.00	92.71	5044.17	2522.08	10654.4	5335.12		0.27	-0.05	0.021
55.00	-17.26	-1.65	0.00	-84.31	0.00	84.31	4953.57	2476.78	10191.2	5103.20		0.32	-0.06	0.020
60.00	-16.18	-1.63	0.00	-76.05	0.00	76.05	4860.89	2430.44	9733.87	4874.17		0.38	-0.06	0.019
65.00	-15.14	-1.61	0.00	-67.90	0.00	67.90	4766.13	2383.06	9282.60	4648.20		0.45	-0.07	0.018
70.00	-14.12	-1.60	0.00	-59.84	0.00	59.84	4669.29	2334.64	8837.80	4425.47		0.52	-0.07	0.017
75.00	-13.12	-1.59	0.00	-51.83	0.00	51.83	4570.37	2285.18	8399.80	4206.15		0.60	-0.08	0.015
75.66	-13.00	-1.59	0.00	-50.78	0.00	50.78	4557.09	2278.54	8342.23	4177.31		0.61	-0.08	0.015
80.00	-11.57	-1.57	0.00	-43.88	0.00	43.88	4469.37	2234.68	7968.96	3990.40		0.68	-0.08	0.014
82.00	-10.93	-1.56	0.00	-40.74	0.00	40.74	2881.18	1440.59	5178.21	2592.95		0.71	-0.08	0.020
85.00	-10.52	-1.55	0.00	-36.06	0.00	36.06	2848.95	1424.48	5026.39	2516.93		0.77	-0.08	0.018
88.00	-9.39	-1.51	0.00	-31.41	0.00	31.41	2816.01	1408.00	4875.56	2441.40		0.82	-0.09	0.016
89.00	-8.81	-1.49	0.00	-29.89	0.00	29.89	2804.86	1402.43	4825.48	2416.32		0.84	-0.09	0.016
90.00	-7.96	-1.46	0.00	-28.40	0.00	28.40	2793.63	1396.81	4775.50	2391.30		0.86	-0.09	0.015
94.00	-6.99	-1.40	0.00	-22.57	0.00	22.57	2747.87	1373.94	4576.66	2291.73		0.93	-0.09	0.012
95.00	-6.86	-1.39	0.00	-21.18	0.00	21.18	2736.23	1368.11	4527.24	2266.98		0.95	-0.09	0.012
100.00	-6.24	-1.33	0.00	-14.23	0.00	14.23	2676.74	1338.37	4281.95	2144.16		1.05	-0.10	0.009
105.00	-5.63	-1.24	0.00	-7.60	0.00	7.60	2615.18	1307.59	4039.97	2022.99		1.15	-0.10	0.006
110.00	-5.05	-1.12	0.00	-1.40	0.00	1.40	2551.54	1275.77	3801.66	1903.65		1.26	-0.10	0.003
111.00	-0.36	-0.09	0.00	-0.28	0.00	0.28	2538.56	1269.28	3754.46	1880.02		1.28	-0.10	0.000
114.00	0.00	-0.09	0.00	0.00	0.00	0.00	2499.12	1249.56	3613.87	1809.62		1.34	-0.10	0.000

Wind Loading - Shaft

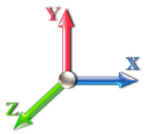
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	300.75	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	294.54	0.650	0.000	5.00	26.904	17.49	143.2	0.0	1703.4
10.00		1.00	0.85	7.442	8.19	288.34	0.650	0.000	5.00	26.343	17.12	140.2	0.0	1667.6
15.00		1.00	0.85	7.442	8.19	282.14	0.650	0.000	5.00	25.782	16.76	137.2	0.0	1631.8
20.00		1.00	0.90	7.896	8.69	284.24	0.650	0.000	5.00	25.222	16.39	142.4	0.0	1596.0
25.00		1.00	0.95	8.276	9.10	284.45	0.650	0.000	5.00	24.661	16.03	145.9	0.0	1560.3
30.00		1.00	0.98	8.600	9.46	283.29	0.650	0.000	5.00	24.101	15.67	148.2	0.0	1524.5
34.42	Bot - Section 2	1.00	1.01	8.852	9.74	281.44	0.650	0.000	4.42	20.822	13.53	131.8	0.0	1316.9
35.00		1.00	1.01	8.883	9.77	281.15	0.650	0.000	0.58	2.761	1.79	17.5	0.0	324.8
40.00		1.00	1.04	9.137	10.05	278.26	0.650	0.000	5.00	23.350	15.18	152.5	0.0	2746.4
42.00	Top - Section 1	1.00	1.05	9.231	10.15	276.93	0.650	0.000	2.00	9.183	5.97	60.6	0.0	1079.8
45.00		1.00	1.07	9.366	10.30	279.37	0.650	0.000	3.00	13.606	8.84	91.1	0.0	753.5
50.00		1.00	1.09	9.576	10.53	275.45	0.650	0.000	5.00	22.228	14.45	152.2	0.0	1230.9
55.00		1.00	1.12	9.770	10.75	271.12	0.650	0.000	5.00	21.668	14.08	151.4	0.0	1199.6
60.00		1.00	1.14	9.951	10.95	266.44	0.650	0.000	5.00	21.107	13.72	150.2	0.0	1168.3
65.00		1.00	1.16	10.120	11.13	261.46	0.650	0.000	5.00	20.547	13.36	148.7	0.0	1137.0
70.00		1.00	1.17	10.279	11.31	256.22	0.650	0.000	5.00	19.986	12.99	146.9	0.0	1105.7
75.00		1.00	1.19	10.430	11.47	250.75	0.650	0.000	5.00	19.425	12.63	144.9	0.0	1074.3
75.66	Bot - Section 3	1.00	1.19	10.449	11.49	250.01	0.650	0.000	0.66	2.535	1.65	18.9	0.0	140.2
80.00		1.00	1.21	10.572	11.63	245.06	0.650	0.000	4.34	16.559	10.76	125.2	0.0	1558.8
82.00	Top - Section 2	1.00	1.21	10.627	11.69	242.74	0.650	0.000	2.00	7.482	4.86	56.9	0.0	704.1
85.00		1.00	1.22	10.708	11.78	242.70	0.650	0.000	3.00	11.086	7.21	84.9	0.0	439.0
88.00	Appurtenance(s)	1.00	1.23	10.787	11.87	239.11	0.650	0.000	3.00	10.872	7.07	83.8	0.0	430.5
89.00	Appurtenance(s)	1.00	1.23	10.812	11.89	237.90	0.650	0.000	1.00	3.579	2.33	27.7	0.0	141.7
90.00	Appurtenance(s)	1.00	1.24	10.838	11.92	236.68	0.650	0.000	1.00	3.557	2.31	27.6	0.0	140.8
94.00	Appurtenance(s)	1.00	1.25	10.937	12.03	231.75	0.650	0.000	4.00	14.003	9.10	109.5	0.0	554.3
95.00		1.00	1.25	10.962	12.06	230.51	0.650	0.000	1.00	3.445	2.24	27.0	0.0	136.3
100.00		1.00	1.27	11.081	12.19	224.19	0.650	0.000	5.00	16.887	10.98	133.8	0.0	668.3
105.00		1.00	1.28	11.195	12.31	217.73	0.650	0.000	5.00	16.326	10.61	130.7	0.0	645.9
110.00		1.00	1.29	11.305	12.44	211.16	0.650	0.000	5.00	15.766	10.25	127.4	0.0	623.5
111.00	Appurtenance(s)	1.00	1.29	11.327	12.46	209.83	0.650	0.000	1.00	3.086	2.01	25.0	0.0	122.0
114.00	Appurtenance(s)	1.00	1.30	11.391	12.53	205.82	0.650	0.000	3.00	9.123	5.93	74.3	0.0	360.7
								Totals:	**114.00**			**3,257.4**		**29,486.6**

Discrete Appurtenance Forces

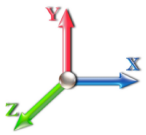
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	Lightning Rod	1	11.463	12.610	1.00	1.00	1.05	35.00	0.000	3.500	13.24	0.00	46.34
2	111.00	Sector Frame Stabilizer Kit	1	11.380	12.518	1.00	1.00	6.30	197.00	0.000	2.500	78.86	0.00	197.16
3	111.00	Kicker Kit	1	11.327	12.460	1.00	1.00	9.50	464.91	0.000	0.000	118.37	0.00	0.00
4	111.00	Platform w/ Handrails	1	11.327	12.460	1.00	1.00	32.00	1600.00	0.000	0.000	398.71	0.00	0.00
5	111.00	GPS	1	11.327	12.460	0.45	0.75	0.45	10.00	0.000	0.000	5.61	0.00	0.00
6	111.00	Raycap DC6-48-60-18-8F	4	11.327	12.460	0.50	0.75	7.44	131.20	0.000	0.000	92.66	0.00	0.00
7	111.00	Ericsson RRU A2 RRU's	3	11.327	12.460	0.50	0.75	2.37	45.00	0.000	0.000	29.49	0.00	0.00
8	111.00	Ericsson RRUS-11 RRU's	3	11.327	12.460	0.50	0.75	3.80	165.00	0.000	0.000	47.33	0.00	0.00
9	111.00	Ericsson RRUS 4426 B66	3	11.327	12.460	0.50	0.75	2.49	145.20	0.000	0.000	30.99	0.00	0.00
10	111.00	Ericsson RRUS 32 RRU's	3	11.327	12.460	0.50	0.75	2.49	231.00	0.000	0.000	30.99	0.00	0.00
11	111.00	Ericsson RRUS E2 B29	3	11.327	12.460	0.50	0.75	4.75	180.00	0.000	0.000	59.17	0.00	0.00
12	111.00	Ericsson RRUS 4449 B5,	3	11.327	12.460	0.50	0.75	2.97	213.00	0.000	0.000	37.00	0.00	0.00
13	111.00	Ericsson RRUS 4478 B14	3	11.327	12.460	0.50	0.75	3.05	178.20	0.000	0.000	37.94	0.00	0.00
14	111.00	Ericsson RRUS 32 B30	3	11.327	12.460	0.50	0.75	4.13	180.00	0.000	0.000	51.46	0.00	0.00
15	111.00	Cci HPA-65R-BUU-H8	9	11.327	12.460	0.59	0.75	69.22	612.00	0.000	0.000	862.40	0.00	0.00
16	111.00	Kathrein 800 10966	3	11.327	12.460	0.54	0.75	28.12	343.80	0.000	0.000	350.40	0.00	0.00
17	111.00	Reinforcing Angles	6	11.327	12.460	1.00	1.00	9.00	390.00	0.000	0.000	112.14	0.00	0.00
18	94.00	Ice shield	1	10.937	12.031	1.00	1.00	40.00	500.00	0.000	0.000	481.24	0.00	0.00
19	90.00	Sport Lights	1	10.838	11.921	1.00	1.00	40.00	800.00	0.000	0.000	476.86	0.00	0.00
20	89.00	Light support	1	10.812	11.893	1.00	1.00	28.00	500.00	0.000	0.000	333.02	0.00	0.00
21	88.00	Sport Lights	1	10.787	11.865	1.00	1.00	40.00	800.00	0.000	0.000	474.61	0.00	0.00
							Totals:		**7,721.31**			**4,122.49**		

Total Applied Force Summary

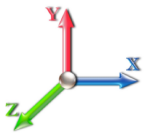
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		143.15	1703.37	0.00	0.00
10.00		140.17	1684.09	0.00	0.00
15.00		137.19	1659.32	0.00	0.00
20.00		142.40	1623.54	0.00	0.00
25.00		145.93	1587.77	0.00	0.00
30.00		148.19	1551.99	0.00	0.00
34.42		131.79	1341.17	0.00	0.00
35.00		17.53	327.99	0.00	0.00
40.00		152.54	2773.91	0.00	0.00
42.00		60.61	1090.78	0.00	0.00
45.00		91.12	770.04	0.00	0.00
50.00		152.20	1258.37	0.00	0.00
55.00		151.37	1227.06	0.00	0.00
60.00		150.18	1195.76	0.00	0.00
65.00		148.67	1164.46	0.00	0.00
70.00		146.89	1133.15	0.00	0.00
75.00		144.86	1101.85	0.00	0.00
75.66		18.94	143.83	0.00	0.00
80.00		125.17	1582.60	0.00	0.00
82.00		56.85	715.08	0.00	0.00
85.00		84.88	455.52	0.00	0.00
88.00	(1) attachments	558.46	1246.97	0.00	0.00
89.00	(1) attachments	360.69	647.20	0.00	0.00
90.00	(1) attachments	504.42	946.31	0.00	0.00
94.00	(1) attachments	590.75	1076.28	0.00	0.00
95.00		27.00	141.83	0.00	0.00
100.00		133.79	695.75	0.00	0.00
105.00		130.68	673.39	0.00	0.00
110.00		127.44	651.03	0.00	0.00
111.00	(50) attachments	2368.52	5213.83	0.00	197.16
114.00	(1) attachments	87.54	395.70	0.00	46.34
	Totals:	**7,379.88**	**37,779.95**	**0.00**	**243.50**

Calculated Forces

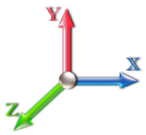
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	11/6/2020	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.78	-7.38	0.00	-616.03	0.00	616.03	6957.19	3478.59	18224.6	9125.87	0.00	0.000	0.000	0.073
5.00	-36.07	-7.25	0.00	-579.11	0.00	579.11	6861.59	3430.79	17597.7	8811.94	0.01	-0.016	0.000	0.071
10.00	-34.39	-7.12	0.00	-542.85	0.00	542.85	6763.91	3381.95	16976.0	8500.66	0.04	-0.033	0.000	0.069
15.00	-32.73	-6.99	0.00	-507.25	0.00	507.25	6664.14	3332.07	16360.0	8192.18	0.08	-0.049	0.000	0.067
20.00	-31.10	-6.86	0.00	-472.29	0.00	472.29	6562.30	3281.15	15749.9	7886.69	0.14	-0.065	0.000	0.065
25.00	-29.51	-6.72	0.00	-438.01	0.00	438.01	6458.38	3229.19	15146.1	7584.35	0.22	-0.081	0.000	0.062
30.00	-27.96	-6.57	0.00	-404.43	0.00	404.43	6352.38	3176.19	14549.0	7285.34	0.31	-0.098	0.000	0.060
34.42	-26.62	-6.44	0.00	-375.40	0.00	375.40	6257.02	3128.51	14027.3	7024.11	0.41	-0.112	0.000	0.058
35.00	-26.29	-6.43	0.00	-371.64	0.00	371.64	6244.30	3122.15	13958.9	6989.82	0.42	-0.113	0.000	0.057
40.00	-23.51	-6.27	0.00	-339.50	0.00	339.50	6134.14	3067.07	13376.0	6697.98	0.55	-0.129	0.000	0.055
42.00	-22.42	-6.21	0.00	-326.95	0.00	326.95	5184.80	2592.40	11406.6	5711.80	0.60	-0.135	0.000	0.062
45.00	-21.65	-6.13	0.00	-308.30	0.00	308.30	5132.69	2566.34	11123.0	5569.77	0.69	-0.145	0.000	0.060
50.00	-20.39	-5.98	0.00	-277.67	0.00	277.67	5044.17	2522.08	10654.4	5335.12	0.85	-0.161	0.000	0.056
55.00	-19.16	-5.83	0.00	-247.79	0.00	247.79	4953.57	2476.78	10191.2	5103.20	1.03	-0.177	0.000	0.052
60.00	-17.97	-5.68	0.00	-218.65	0.00	218.65	4860.89	2430.44	9733.87	4874.17	1.22	-0.192	0.000	0.049
65.00	-16.80	-5.53	0.00	-190.27	0.00	190.27	4766.13	2383.06	9282.60	4648.20	1.43	-0.206	0.000	0.044
70.00	-15.67	-5.38	0.00	-162.63	0.00	162.63	4669.29	2334.64	8837.80	4425.47	1.65	-0.219	0.000	0.040
75.00	-14.56	-5.23	0.00	-135.72	0.00	135.72	4570.37	2285.18	8399.80	4206.15	1.89	-0.232	0.000	0.035
75.66	-14.42	-5.22	0.00	-132.25	0.00	132.25	4557.09	2278.54	8342.23	4177.31	1.92	-0.233	0.000	0.035
80.00	-12.84	-5.09	0.00	-109.63	0.00	109.63	4469.37	2234.68	7968.96	3990.40	2.14	-0.243	0.000	0.030
82.00	-12.12	-5.03	0.00	-99.48	0.00	99.48	2881.18	1440.59	5178.21	2592.95	2.24	-0.247	0.000	0.043
85.00	-11.67	-4.94	0.00	-84.38	0.00	84.38	2848.95	1424.48	5026.39	2516.93	2.40	-0.252	0.000	0.038
88.00	-10.42	-4.38	0.00	-69.56	0.00	69.56	2816.01	1408.00	4875.56	2441.40	2.56	-0.259	0.000	0.032
89.00	-9.78	-4.01	0.00	-65.18	0.00	65.18	2804.86	1402.43	4825.48	2416.32	2.62	-0.261	0.000	0.030
90.00	-8.83	-3.51	0.00	-61.16	0.00	61.16	2793.63	1396.81	4775.50	2391.30	2.67	-0.263	0.000	0.029
94.00	-7.76	-2.91	0.00	-47.14	0.00	47.14	2747.87	1373.94	4576.66	2291.73	2.89	-0.270	0.000	0.023
95.00	-7.62	-2.88	0.00	-44.23	0.00	44.23	2736.23	1368.11	4527.24	2266.98	2.95	-0.271	0.000	0.022
100.00	-6.92	-2.75	0.00	-29.81	0.00	29.81	2676.74	1338.37	4281.95	2144.16	3.24	-0.278	0.000	0.016
105.00	-6.25	-2.61	0.00	-16.07	0.00	16.07	2615.18	1307.59	4039.97	2022.99	3.53	-0.282	0.000	0.010
110.00	-5.60	-2.48	0.00	-3.00	0.00	3.00	2551.54	1275.77	3801.66	1903.65	3.83	-0.284	0.000	0.004
111.00	-0.40	-0.09	0.00	-0.31	0.00	0.31	2538.56	1269.28	3754.46	1880.02	3.89	-0.284	0.000	0.000
114.00	0.00	-0.09	0.00	-0.05	0.00	0.05	2499.12	1249.56	3613.87	1809.62	4.07	-0.284	0.000	0.000

Final Analysis Summary

Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	36.2	0.00	45.31	0.00	0.00	3023.52
0.9D + 1.6W 105 mph Wind	36.2	0.00	33.98	0.00	0.00	3016.06
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.3	0.00	67.45	0.00	0.00	760.44
1.2D + 1.0E	2.0	0.00	45.34	0.00	0.00	187.89
0.9D + 1.0E	2.0	0.00	34.00	0.00	0.00	187.40
1.0D + 1.0W 60 mph Wind	7.4	0.00	37.78	0.00	0.00	616.03

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-45.31	-36.19	0.00	-3023.5	0.00	-3023.5	6957.19	3478.5	18224.6	9125.87	0.00	0.338
0.9D + 1.6W 105 mph Wind	-33.98	-36.19	0.00	-3016.0	0.00	-3016.0	6957.19	3478.5	18224.6	9125.87	0.00	0.335
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-67.45	-9.29	0.00	-760.44	0.00	-760.44	6957.19	3478.5	18224.6	9125.87	0.00	0.093
1.2D + 1.0E	-45.34	-2.02	0.00	-187.89	0.00	-187.89	6957.19	3478.5	18224.6	9125.87	0.00	0.027
0.9D + 1.0E	-34.00	-2.02	0.00	-187.40	0.00	-187.40	6957.19	3478.5	18224.6	9125.87	0.00	0.025
1.0D + 1.0W 60 mph Wind	-37.78	-7.38	0.00	-616.03	0.00	-616.03	6957.19	3478.5	18224.6	9125.87	0.00	0.073

Base Plate Summary

Structure:	CT22093-A-SB		**Code:**	EIA/TIA-222-G	11/6/2020
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	5051.00
Axial (kip):	55.30
Shear (kip):	47.20

Analysis (1.2D + 1.6W)

Moment (kip-ft):	3023.52
Axial (kip):	45.31
Shear (kip):	36.19

Base Plate

Yield (ksi):	50.00
Width (in):	78.94
Style:	Polygon
Polygon Sides:	18.00
Clip Length (in):	0.00
Effective Len (in):	13.36
Moment (kip-in):	326.20
Allow Stress (ksi):	67.50
Applied Stress (ksi):	12.15
Stress Ratio:	0.18

Anchor Bolts

Bolt Circle:	71.74
Number Bolts:	24.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	87.10
Allowable (kip):	260.00
Ratio:	0.35

Tension

Force (kip):	81.48
Allowable (kip):	260.00
Ratio:	0.32

Monopole Mat Foundation Design

			Date: 11/6/2020
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-G
Site Name:	New London (Bates Wood)	**Structure Height (Ft.):**	114
Site Number:	CT22093-A-SBA	**Engineer Name:**	W. Velez
Engr. Number:	99531	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

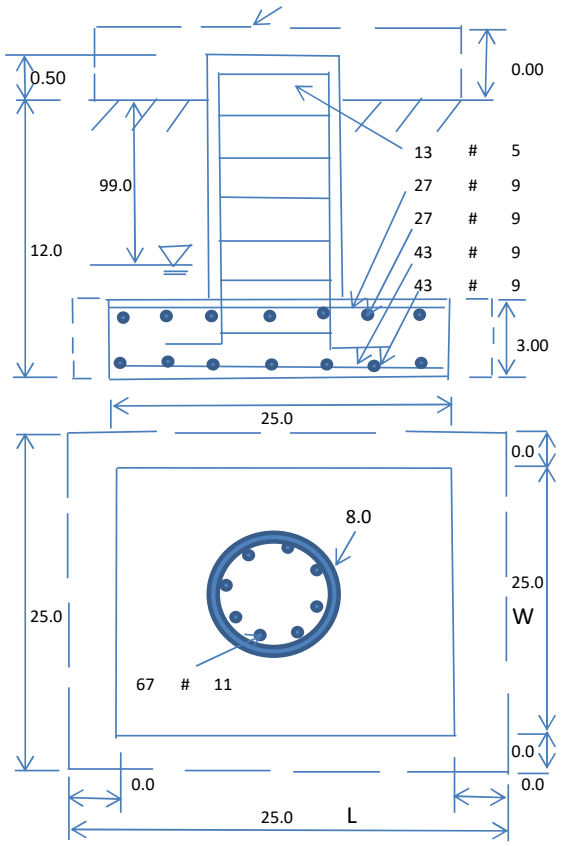
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	45.3	Shear Force (Kips):	36.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3023.5
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	12.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	25	Width of Pad (ft.):	25
Final Length of pad (ft)	25.0	Final width of pad (ft):	25.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	67	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	43	Qty. of Rebar in Pad (W):	43	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	62.5	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	20000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	5172.61	Total Dry Soil Weight (Kips):	646.58
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	646.58	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2352.52	Total Dry Concrete Weight (Kips):	352.88
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	352.88	Total Vertical Load on Base (Kips):	1044.76

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2111	<	Allowable Factored Soil Bearing (psf): 15000	0.14	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	11810.2	>	Design Factored Momont (kips-ft): 2619	0.22	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	4.51	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00			
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.56		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	18605.1	>	Design Factored Moment (Mu, Kips-F	3367.4	0.18	OK!
Calculated Shear Capacity (Kips):	924.8	>	Design Factored Shear (Kips):	36.2	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	5644.1	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12612.4	>	Design Factored Axial Load (Pu Kips):	45.3	0.00	OK!
Moment & Axial Strength Combination:	0.18	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.014		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	923.2	>	One-Way Factored Shear (L-D. Kips):	193.2	0.21	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	923.2	>	One-Way Factored Shear (W-D., Kips)	193.2	0.21	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	810.5	>	One-Way Factored Shear (C-C, Kips):	164.2	0.20	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0044	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0044		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6031.9	>	Moment at Bottom (L-Dir. K-Ft):	1047.4	0.17	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6031.9	>	Moment at Bottom (W-Dir. K-Ft):	1047.4	0.17	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8429.2	>	Moment at Bottom (C-C Dir. K-Ft):	1481.2	0.18	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0028	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0028		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	3844.7	>	Moment at the top (L-Dir K-Ft):	378.4	0.10	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	3844.7	>	Moment at the top (W-Dir K-Ft):	378.4	0.10	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5397.3	>	Moment at the top (C-C Dir. K-Ft):	357.4	0.07	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1209.4	k-ft.	Max. factored shear stress v_{u_CD}:		1.6	Psi
Max. factored shear stress v_{u_AB}:	7.1	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	7.1	Psi	Check Usage of Punching Shear Capacity:		0.04	OK!

October 26, 2020

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT2838 (BWE)
	FA Number:	10152339
	PACE Number:	MRCTB049048
	PT Number:	2051A0WPW6
	Site Name:	NEW LONDON JEFFERSON AVENUE
	Site Address:	490 Jefferson Avenue New London, CT 06320

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (9) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (3) 800-10966 Antennas (96.0"x20.0"x6.9"– Wt. = 115 lbs. /each)
- (3) RRUS-11 B5 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (3) RRUS-E2 B29 RRH's (20.4"x18.5"x7.5" – Wt. = 53 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (4) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs.) (Tower Mounted)
- **(3) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each)**

  **Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. Industrial Communication conducted a survey climb and mapping of the existing AT&T antenna mounts on December 13, 2020. HDG conducted a ground audit of the existing AT&T antenna mounts on September 22, 2020.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 135 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.13 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.161 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.058.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with a ring mount and threaded rods. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mount **ARE IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (AWS) Mount Rating	110	LC2	98%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated December 21, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

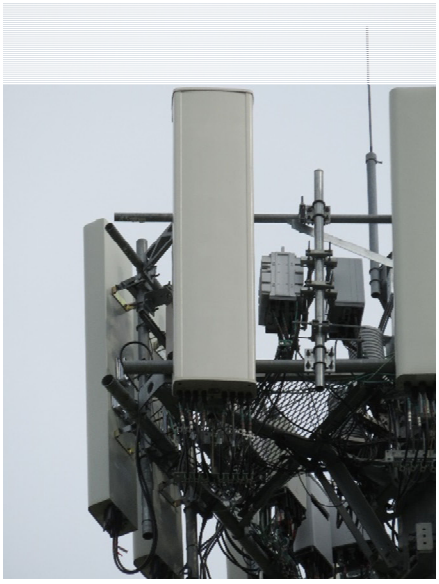
Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:



HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 10/23/2020
Project Name: NEW LONDON JEFFERSON AVENUE
Project No.: CT2838
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	111	(ft)
z_g=	1200	(ft)
α=	7.0	

K_z= 1.018

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= #DIV/0!

K_h=	#DIV/0!	
K_c=	0.9	(from Table 2-4)
K_t=		(from Table 2-5)
f=		(from Table 2-5)
z=	111	
z_s=	130	(Mean elevation of base of structure above sea level)
H=		(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	1.00	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **1**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in
Importance Factor = I= 1.00 (from Table 2-3)
K_{iz} = 1.13 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.13 in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	115	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.018	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**44.92**	K_e=	1.00	(from 2.6.8)
$q_{z\ (ice)}$=	**6.16**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.22**	V_{max}=	135	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{-1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.13** **in** | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	**583**	**94**	**29**
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	**780**	**122**	**39**
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	1.16	1.20	**125**	**22**	**6**
RRUS-11 B5 RRH (Shielded)	19.7	2.2	7.2	0.30	8.95	1.47	**20**	**6**	**1**
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.10	1.20	**141**	**24**	**7**
RRUS-E2 B29 RRH (Shielded)	20.4	3.7	7.5	0.52	5.51	1.33	**31**	**8**	**2**
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**123**	**22**	**6**
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	**91**	**16**	**4**
4478 B14 RRH (Shielded)	18.1	0.0	8.3	0.00	0.00	1.20	**0**	**2**	**0**
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**123**	**22**	**6**
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	**75**	**15**	**4**
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**88**	**16**	**4**
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	**63**	**12**	**3**
4426 B66 RRH	14.9	13.2	5.8	1.37	1.13	1.20	**74**	**14**	**4**
4426 B66 RRH (Shielded)	14.9	0.0	5.8	0.00	0.00	1.20	**0**	**2**	**0**
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	**51**	**9**	**3**
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	**11**		
3" Pipe	3.5	12.0	-	0.29	0.29	1.20	**16**		
L 2x2 Angles	2.0	12.0	-	0.17	0.17	2.00	**15**		
L 3x3 Angles	3.0	12.0	-	0.25	0.25	2.00	**22**		
P1000 Unistrut	1.7	12.0	-	0.14	0.14	1.25	**8**		
C 3x2	3.0	12.0	-	0.25	0.25	1.25	**14**		
PL 6x3/8	0.4	12.0	-	0.03	0.03	2.00	**3**		

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Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	583	338	522
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	780	337	669
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	54	107
RRUS-11 B5 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	63	54	60
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	141	58	120
RRUS-E2 B29 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	71	58	67
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	111
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	82
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	46	56	48
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	111
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	66	123	80
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	88	63	82
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	45	88	56
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	74	32	63
4426 B66 RRH (Shielded)	14.9	6.6	5.8	0.68	0.60	2.26	2.57	1.20	1.20	37	32	36

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.21	6.35	5.55	9.80	1.34	1.49	92	58	84
800-10966 Antenna	98.3	22.3	9.2	15.19	6.25	4.41	10.73	1.29	1.52	120	59	105
RRUS-11 B5 RRH	22.0	19.3	9.5	2.94	1.44	1.14	2.32	1.20	1.20	22	11	19
RRUS-11 B5 RRH (Shielded)	22.0	9.6	9.5	1.47	1.44	2.28	2.32	1.20	1.20	11	11	11
RRUS-E2 B29 RRH	22.7	20.8	9.8	3.27	1.54	1.09	2.32	1.20	1.20	24	11	21
RRUS-E2 B29 RRH (Shielded)	22.7	10.4	9.8	1.63	1.54	2.18	2.32	1.20	1.20	12	11	12
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	20
4478 B14 RRH	20.4	15.7	10.6	2.21	1.49	1.30	1.93	1.20	1.20	16	11	15
4478 B14 RRH (Shielded)	20.4	7.8	10.6	1.11	1.49	2.60	1.93	1.20	1.20	8	11	9
RRUS-32 B30 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	20
RRUS-32 B30 RRH (Side)	29.5	7.2	14.4	1.47	2.94	4.10	2.05	1.27	1.20	12	22	14
4449 B5/B12 RRH	20.2	15.5	11.7	2.16	1.63	1.30	1.73	1.20	1.20	16	12	15
4449 B5/B12 RRH (Side)	20.2	7.7	15.5	1.08	2.16	2.61	1.30	1.20	1.20	8	16	10
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	14	7	12
4426 B66 RRH (Shielded)	17.2	7.7	8.1	0.92	0.96	2.22	2.13	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	26
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	39	17	33
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
RRUS-11 B5 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	3	3	3
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	7	3	6
RRUS-E2 B29 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	3	3	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	4
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	3	2
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	3	6	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	4	2	3
4426 B66 RRH (Shielded)	14.9	6.6	5.8	0.68	0.60	2.26	2.57	1.20	1.20	2	2	2

Date: 10/23/2020
Project Name: NEW LONDON JEFFERSON AVENUE
Project No.: CT2838
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	583	338	399
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	780	337	448
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	54	72
RRUS-11 B5 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	94	54	64
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	141	58	79
RRUS-E2 B29 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	106	58	70
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	87
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	65
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	68	56	59
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	87
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	94	123	116
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	88	63	69
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	66	88	83
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	74	32	43
4426 B66 RRH (Shielded)	14.9	9.9	5.8	1.02	0.60	1.51	2.57	1.20	1.20	55	32	38

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.21	6.35	5.55	9.80	1.34	1.49	92	58	67
800-10966 Antenna	98.3	22.3	9.2	15.19	6.25	4.41	10.73	1.29	1.52	120	59	74
RRUS-11 B5 RRH	22.0	19.3	9.5	2.94	1.44	1.14	2.32	1.20	1.20	22	11	13
RRUS-11 B5 RRH (Shielded)	22.0	14.4	9.5	2.20	1.44	1.52	2.32	1.20	1.20	16	11	12
RRUS-E2 B29 RRH	22.7	20.8	9.8	3.27	1.54	1.09	2.32	1.20	1.20	24	11	15
RRUS-E2 B29 RRH (Shielded)	22.7	15.6	9.8	2.45	1.54	1.46	2.32	1.20	1.20	18	11	13
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	16
4478 B14 RRH	20.4	15.7	10.6	2.21	1.49	1.30	1.93	1.20	1.20	16	11	12
4478 B14 RRH (Shielded)	20.4	11.7	10.6	1.66	1.49	1.73	1.93	1.20	1.20	12	11	11
RRUS-32 B30 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	16
RRUS-32 B30 RRH (Side)	29.5	10.8	14.4	2.20	2.94	2.74	2.05	1.21	1.20	16	22	20
4449 B5/B12 RRH	20.2	15.5	11.7	2.16	1.63	1.30	1.73	1.20	1.20	16	12	13
4449 B5/B12 RRH (Side)	20.2	11.6	15.5	1.62	2.16	1.74	1.30	1.20	1.20	12	16	15
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	14	7	9
4426 B66 RRH (Shielded)	17.2	11.6	8.1	1.38	0.96	1.48	2.13	1.20	1.20	10	7	8

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	20
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	39	17	22
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	4
RRUS-11 B5 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	3
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	7	3	4
RRUS-E2 B29 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	5	3	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	3
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	3	3
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	5	6	6
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	3	4	4
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	4	2	2
4426 B66 RRH (Shielded)	14.9	9.9	5.8	1.02	0.60	1.51	2.57	1.20	1.20	3	2	2

Date: 10/23/2020
Project Name: NEW LONDON JEFFERSON AVENUE
Project No.: CT2838
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	583	338	338
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	780	337	337
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	54	54
RRUS-11 B5 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	8.95	2.74	1.47	1.21	20	54	54
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	141	58	58
RRUS-E2 B29 RRH (Shielded)	20.4	3.7	7.5	0.52	1.06	5.51	2.72	1.33	1.21	31	58	58
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	75
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	56
4478 B14 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	56	56
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	75
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	75	123	123
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	88	63	63
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	63	88	88
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	74	32	32
4426 B66 RRH (Shielded)	14.9	0.0	5.8	0.00	0.60	0.00	2.57	1.20	1.20	0	32	32

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.21	6.35	5.55	9.80	1.34	1.49	92	58	58
800-10966 Antenna	98.3	22.3	9.2	15.19	6.25	4.41	10.73	1.29	1.52	120	59	59
RRUS-11 B5 RRH	22.0	19.3	9.5	2.94	1.44	1.14	2.32	1.20	1.20	22	11	11
RRUS-11 B5 RRH (Shielded)	22.0	4.5	9.5	0.68	1.44	4.93	2.32	1.31	1.20	5	11	11
RRUS-E2 B29 RRH	22.7	20.8	9.8	3.27	1.54	1.09	2.32	1.20	1.20	24	11	11
RRUS-E2 B29 RRH (Shielded)	22.7	6.0	9.8	0.94	1.54	3.80	2.32	1.26	1.20	7	11	11
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	14
4478 B14 RRH	20.4	15.7	10.6	2.21	1.49	1.30	1.93	1.20	1.20	16	11	11
4478 B14 RRH (Shielded)	20.4	2.3	10.6	0.32	1.49	9.02	1.93	1.47	1.20	3	11	11
RRUS-32 B30 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	14
RRUS-32 B30 RRH (Side)	29.5	9.3	14.4	1.89	2.94	3.18	2.05	1.23	1.20	14	22	22
4449 B5/B12 RRH	20.2	15.5	11.7	2.16	1.63	1.30	1.73	1.20	1.20	16	12	12
4449 B5/B12 RRH (Side)	20.2	11.7	15.5	1.63	2.16	1.73	1.30	1.20	1.20	12	16	16
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	14	7	7
4426 B66 RRH (Shielded)	17.2	2.3	8.1	0.27	0.96	7.60	2.13	1.42	1.20	2	7	7

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	17
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	39	17	17
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	3
RRUS-11 B5 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	8.95	2.74	1.47	1.21	1	3	3
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	7	3	3
RRUS-E2 B29 RRH (Shielded)	20.4	3.7	7.5	0.52	1.06	5.51	2.72	1.33	1.21	2	3	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	3
4478 B14 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	3	3
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	4
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	4	2	2
4426 B66 RRH (Shielded)	14.9	0.0	5.8	0.00	0.60	0.00	2.57	1.20	1.20	0	2	2

Date: 10/23/2020
Project Name: NEW LONDON JEFFERSON AVENUE
Project No.: CT2838
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	583	338	399
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	780	337	448
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	54	72
RRUS-11 B5 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	94	54	64
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	141	58	79
RRUS-E2 B29 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	106	58	70
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	87
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	65
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	68	56	59
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	87
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	94	123	116
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	88	63	69
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	66	88	83
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	74	32	43
4426 B66 RRH (Shielded)	14.9	9.9	5.8	1.02	0.60	1.51	2.57	1.20	1.20	55	32	38

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.21	6.35	5.55	9.80	1.34	1.49	92	58	67
800-10966 Antenna	98.3	22.3	9.2	15.19	6.25	4.41	10.73	1.29	1.52	120	59	74
RRUS-11 B5 RRH	22.0	19.3	9.5	2.94	1.44	1.14	2.32	1.20	1.20	22	11	13
RRUS-11 B5 RRH (Shielded)	22.0	14.4	9.5	2.20	1.44	1.52	2.32	1.20	1.20	16	11	12
RRUS-E2 B29 RRH	22.7	20.8	9.8	3.27	1.54	1.09	2.32	1.20	1.20	24	11	15
RRUS-E2 B29 RRH (Shielded)	22.7	15.6	9.8	2.45	1.54	1.46	2.32	1.20	1.20	18	11	13
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	16
4478 B14 RRH	20.4	15.7	10.6	2.21	1.49	1.30	1.93	1.20	1.20	16	11	12
4478 B14 RRH (Shielded)	20.4	11.7	10.6	1.66	1.49	1.73	1.93	1.20	1.20	12	11	11
RRUS-32 B30 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	16
RRUS-32 B30 RRH (Side)	29.5	10.8	14.4	2.20	2.94	2.74	2.05	1.21	1.20	16	22	20
4449 B5/B12 RRH	20.2	15.5	11.7	2.16	1.63	1.30	1.73	1.20	1.20	16	12	13
4449 B5/B12 RRH (Side)	20.2	11.6	15.5	1.62	2.16	1.74	1.30	1.20	1.20	12	16	15
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	14	7	9
4426 B66 RRH (Shielded)	17.2	11.6	8.1	1.38	0.96	1.48	2.13	1.20	1.20	10	7	8

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	20
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	39	17	22
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	4
RRUS-11 B5 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	3
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	7	3	4
RRUS-E2 B29 RRH (Shielded)	20.4	13.9	7.5	1.97	1.06	1.47	2.72	1.20	1.21	5	3	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	3
4478 B14 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	3	3
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	5	6	6
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
4449 B5/B12 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	3	4	4
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	4	2	2
4426 B66 RRH (Shielded)	14.9	9.9	5.8	1.02	0.60	1.51	2.57	1.20	1.20	3	2	2

Date: 10/23/2020
Project Name: NEW LONDON JEFFERSON AVENUE
Project No.: CT2838
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.13	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	583	338	522
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	780	337	669
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	125	54	107
RRUS-11 B5 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	63	54	60
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	141	58	120
RRUS-E2 B29 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	71	58	67
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	111
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	91	56	82
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	46	56	48
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	123	75	111
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	66	123	80
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	88	63	82
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	45	88	56
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	74	32	63
4426 B66 RRH (Shielded)	14.9	6.6	5.8	0.68	0.60	2.26	2.57	1.20	1.20	37	32	36

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.7	17.1	9.7	11.21	6.35	5.55	9.80	1.34	1.49	92	58	84
800-10966 Antenna	98.3	22.3	9.2	15.19	6.25	4.41	10.73	1.29	1.52	120	59	105
RRUS-11 B5 RRH	22.0	19.3	9.5	2.94	1.44	1.14	2.32	1.20	1.20	22	11	19
RRUS-11 B5 RRH (Shielded)	22.0	9.6	9.5	1.47	1.44	2.28	2.32	1.20	1.20	11	11	11
RRUS-E2 B29 RRH	22.7	20.8	9.8	3.27	1.54	1.09	2.32	1.20	1.20	24	11	21
RRUS-E2 B29 RRH (Shielded)	22.7	10.4	9.8	1.63	1.54	2.18	2.32	1.20	1.20	12	11	12
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	20
4478 B14 RRH	20.4	15.7	10.6	2.21	1.49	1.30	1.93	1.20	1.20	16	11	15
4478 B14 RRH (Shielded)	20.4	7.8	10.6	1.11	1.49	2.60	1.93	1.20	1.20	8	11	9
RRUS-32 B30 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	22	14	20
RRUS-32 B30 RRH (Side)	29.5	7.2	14.4	1.47	2.94	4.10	2.05	1.27	1.20	12	22	14
4449 B5/B12 RRH	20.2	15.5	11.7	2.16	1.63	1.30	1.73	1.20	1.20	16	12	15
4449 B5/B12 RRH (Side)	20.2	7.7	15.5	1.08	2.16	2.61	1.30	1.20	1.20	8	16	10
4426 B66 RRH	17.2	15.5	8.1	1.84	0.96	1.11	2.13	1.20	1.20	14	7	12
4426 B66 RRH (Shielded)	17.2	7.7	8.1	0.92	0.96	2.22	2.13	1.20	1.20	7	7	7

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	26
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	39	17	33
RRUS-11 B5 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
RRUS-11 B5 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	3	3	3
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.06	1.10	2.72	1.20	1.21	7	3	6
RRUS-E2 B29 RRH (Shielded)	20.4	9.3	7.5	1.31	1.06	2.21	2.72	1.20	1.21	3	3	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	4
4478 B14 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	3	2
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	3	6	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
4449 B5/B12 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	4	2	3
4426 B66 RRH (Shielded)	14.9	6.6	5.8	0.68	0.60	2.26	2.57	1.20	1.20	2	2	2

Date: 10/23/2020
Project Name: NEW LONDON JEFFERSON AVENUE
Project No.: CT2838
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.13 in.
Density of ice: 56 pcf

HPA-65R-BUU-H8 Antenna

Weight of ice based on total radial SF area:		
Height (in):	92.4	
Width (in):	14.8	
Depth (in):	7.4	
Total weight of ice on object:		188 lbs
Weight of object:	68.0 lbs	
Combined weight of ice and object:		256 lbs

800-10966 Antenna

Weight of ice based on total radial SF area:		
Height (in):	96.0	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		246 lbs
Weight of object:	115.0 lbs	
Combined weight of ice and object:		361 lbs

RRUS-11 B5 RRH

Weight of ice based on total radial SF area:		
Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		44 lbs
Weight of object:	51.0 lbs	
Combined weight of ice and object:		95 lbs

RRUS-E2 B29 RRH

Weight of ice based on total radial SF area:		
Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on object:		50 lbs
Weight of object:	53.0 lbs	
Combined weight of ice and object:		103 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:		
Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		47 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		107 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:		
Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		35 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		95 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:		
Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		47 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		107 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:		
Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		36 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		109 lbs

4426 B66 RRH

Weight of ice based on total radial SF area:		
Height (in):	14.9	
Width (in):	13.2	
Depth (in):	5.8	
Total weight of ice on object:		27 lbs
Weight of object:	49.0 lbs	
Combined weight of ice and object:		76 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:		
Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		30 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		63 lbs

2" Pipe

Per foot weight of ice:		
diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

3" Pipe

Per foot weight of ice:		
diameter (in):	3.5	
Per foot weight of ice on object:		6 plf

L 2x2 Angles

Weight of ice based on total radial SF area:		
Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		5 plf

L 3x3 Angles

Weight of ice based on total radial SF area:		
Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		7 plf

C 3x2

Weight of ice based on total radial SF area:		
Height (in):	3	
Width (in):	2	
Per foot weight of ice on object:		7 plf

P1000 Unistrut

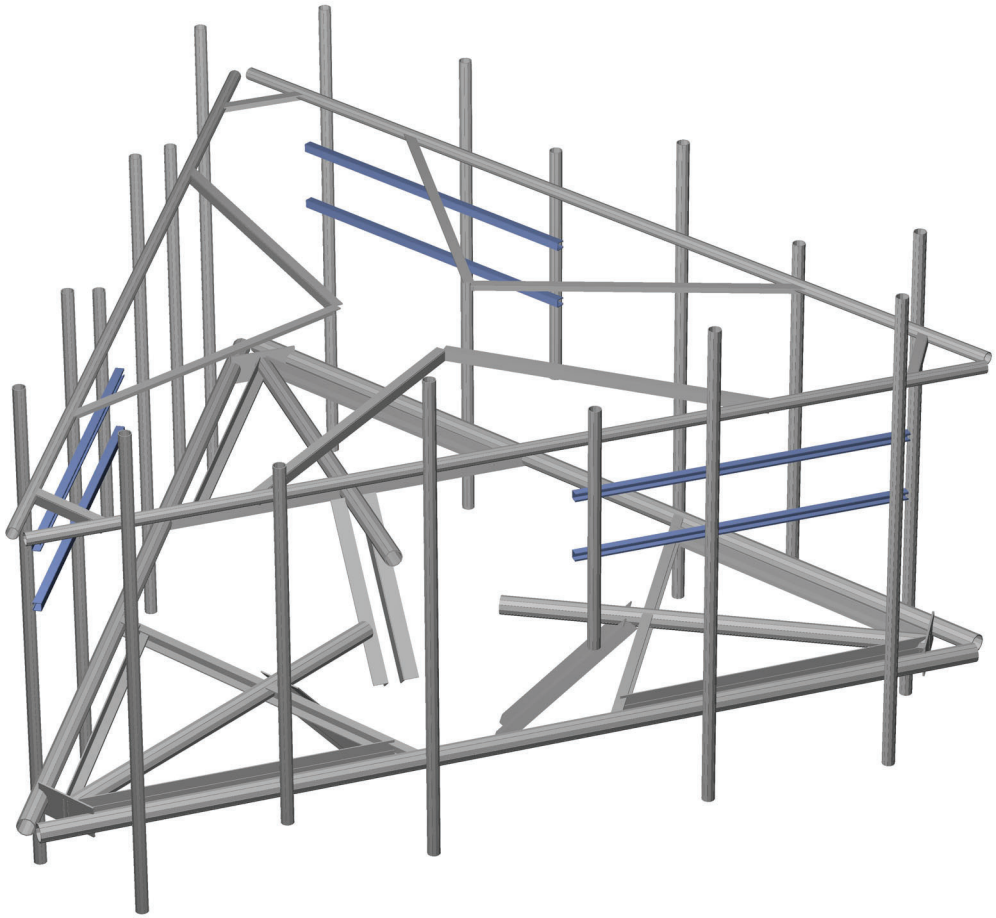
Weight of ice based on total radial SF area:		
Height (in):	1.66	
Width (in):	1.66	
Per foot weight of ice on object:		5 plf

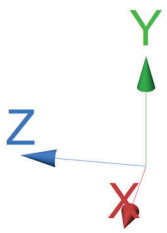
PL 6x3/8

Weight of ice based on total radial SF area:		
Height (in):	6	
Width (in):	0.375	
Per foot weight of ice on object:		10 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)

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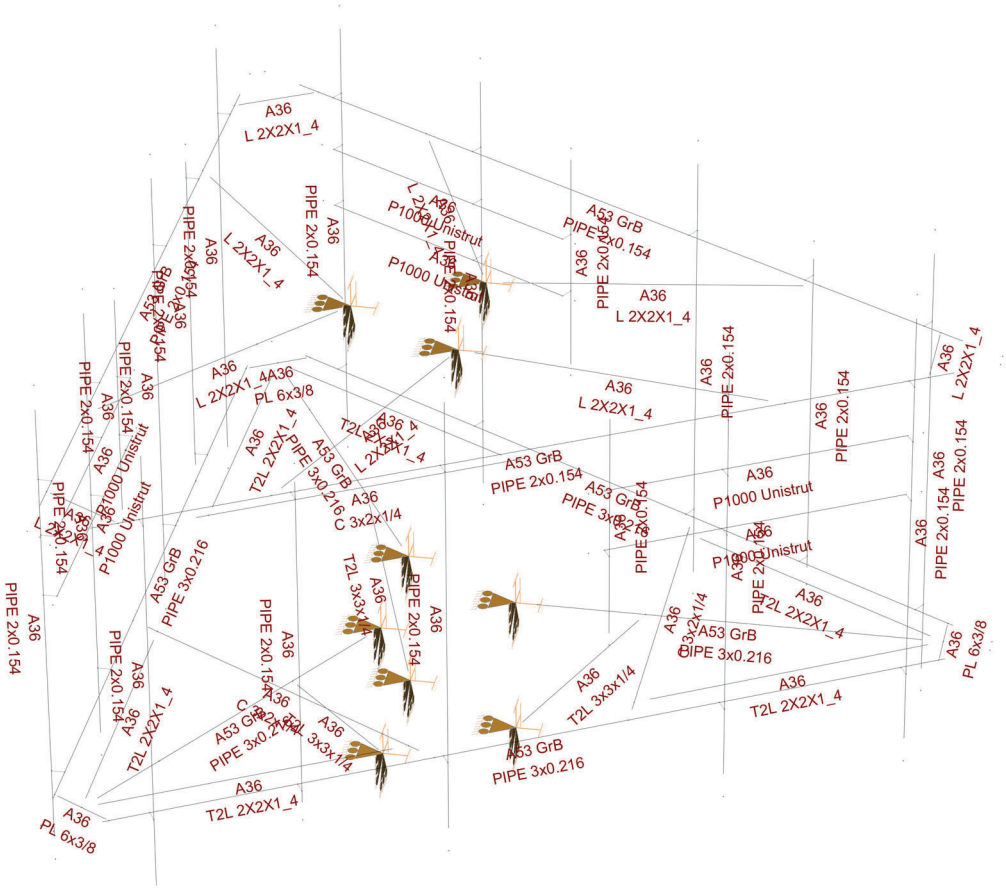
Z
X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PIPE 3x0.216
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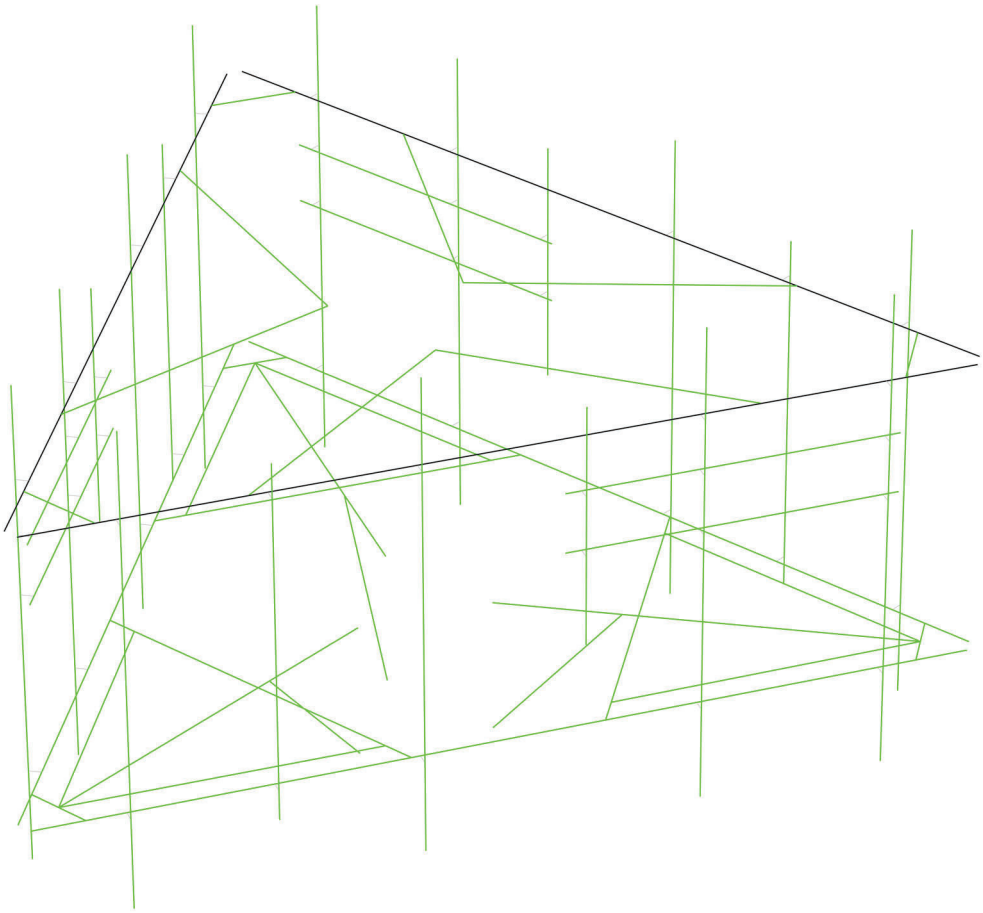
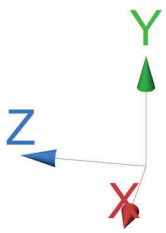
T2L 2X2X1_4
Y
Z
X




Y
Z
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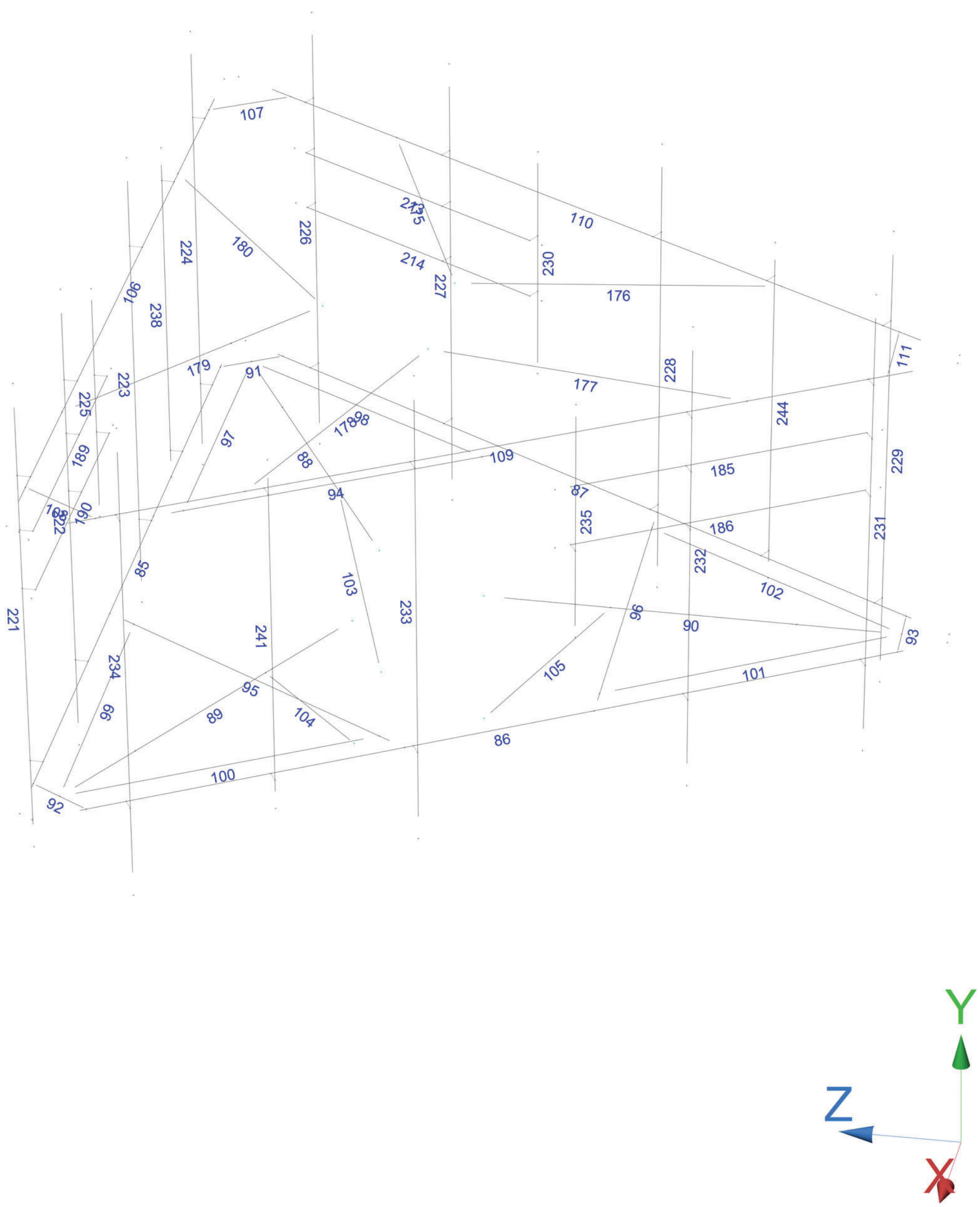

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Load data

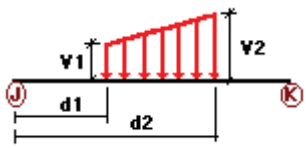
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members



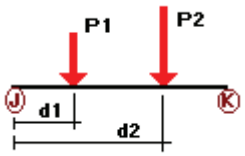
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	94	y	-0.01	-0.01	10.00	Yes	90.00	Yes
	95	y	-0.01	-0.01	10.00	Yes	90.00	Yes
	96	y	-0.01	-0.01	10.00	Yes	90.00	Yes
	97	y	-0.01	-0.01	0.00	Yes	100.00	Yes
	98	y	-0.01	-0.01	0.00	Yes	100.00	Yes
	99	y	-0.01	-0.01	0.00	Yes	100.00	Yes
	100	y	-0.01	-0.01	0.00	Yes	100.00	Yes
	101	y	-0.01	-0.01	0.00	Yes	100.00	Yes
	102	y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	85	z	-0.016	-0.016	0.00	No	100.00	Yes
	86	z	-0.016	-0.016	0.00	No	100.00	Yes
	87	z	-0.016	-0.016	0.00	No	100.00	Yes
	88	z	-0.016	-0.016	0.00	No	100.00	Yes
	89	z	-0.016	-0.016	0.00	No	100.00	Yes
	91	z	-0.003	-0.003	0.00	No	100.00	Yes

	92	z	-0.003	-0.003	0.00	No	100.00	Yes
	93	z	-0.003	-0.003	0.00	No	100.00	Yes
	94	z	-0.014	-0.014	0.00	No	100.00	Yes
	95	z	-0.014	-0.014	0.00	No	100.00	Yes
	96	z	-0.014	-0.014	0.00	No	100.00	Yes
	97	z	-0.015	-0.015	0.00	No	100.00	Yes
	98	z	-0.015	-0.015	0.00	No	100.00	Yes
	99	z	-0.015	-0.015	0.00	No	100.00	Yes
	100	z	-0.015	-0.015	0.00	No	100.00	Yes
	101	z	-0.015	-0.015	0.00	No	100.00	Yes
	102	z	-0.015	-0.015	0.00	No	100.00	Yes
	103	z	-0.022	-0.022	0.00	No	100.00	Yes
	104	z	-0.022	-0.022	0.00	No	100.00	Yes
	106	z	-0.011	-0.011	0.00	No	100.00	Yes
	107	z	-0.015	-0.015	0.00	No	100.00	Yes
	108	z	-0.015	-0.015	0.00	No	100.00	Yes
	109	z	-0.011	-0.011	0.00	No	100.00	Yes
	110	z	-0.011	-0.011	0.00	No	100.00	Yes
	111	z	-0.015	-0.015	0.00	No	100.00	Yes
	175	z	-0.015	-0.015	0.00	No	100.00	Yes
	176	z	-0.015	-0.015	0.00	No	100.00	Yes
	177	z	-0.015	-0.015	0.00	No	100.00	Yes
	178	z	-0.015	-0.015	0.00	No	100.00	Yes
	179	z	-0.015	-0.015	0.00	No	100.00	Yes
	180	z	-0.015	-0.015	0.00	No	100.00	Yes
	185	z	-0.008	-0.008	0.00	No	100.00	Yes
	186	z	-0.008	-0.008	0.00	No	100.00	Yes
	189	z	-0.008	-0.008	0.00	No	100.00	Yes
	190	z	-0.008	-0.008	0.00	No	100.00	Yes
	213	z	-0.008	-0.008	0.00	No	100.00	Yes
	214	z	-0.008	-0.008	0.00	No	100.00	Yes
	225	z	-0.011	-0.011	0.00	No	100.00	Yes
	226	z	-0.011	-0.011	0.00	No	100.00	Yes
	227	z	-0.011	-0.011	0.00	No	100.00	Yes
	228	z	-0.011	-0.011	0.00	No	100.00	Yes
	229	z	-0.011	-0.011	0.00	No	100.00	Yes
	230	z	-0.011	-0.011	0.00	No	100.00	Yes
	231	z	-0.011	-0.011	0.00	No	100.00	Yes
	232	z	-0.011	-0.011	0.00	No	100.00	Yes
	233	z	-0.011	-0.011	0.00	No	100.00	Yes
	234	z	-0.011	-0.011	0.00	No	100.00	Yes
	235	z	-0.011	-0.011	0.00	No	100.00	Yes
	238	z	-0.011	-0.011	0.00	No	100.00	Yes
	241	z	-0.011	-0.011	0.00	No	100.00	Yes
	244	z	-0.011	-0.011	0.00	No	100.00	Yes
W30	86	x	-0.016	-0.016	0.00	No	100.00	Yes
	87	x	-0.016	-0.016	0.00	No	100.00	Yes
	88	x	-0.016	-0.016	0.00	No	100.00	Yes
	89	x	-0.016	-0.016	0.00	No	100.00	Yes
	90	x	-0.016	-0.016	0.00	No	100.00	Yes
	91	x	-0.003	-0.003	0.00	No	100.00	Yes
	92	x	-0.003	-0.003	0.00	No	100.00	Yes
	94	x	-0.014	-0.014	0.00	No	100.00	Yes
	95	x	-0.014	-0.014	0.00	No	100.00	Yes
	98	x	-0.015	-0.015	0.00	No	100.00	Yes
	100	x	-0.015	-0.015	0.00	No	100.00	Yes
	101	x	-0.015	-0.015	0.00	No	100.00	Yes
	102	x	-0.015	-0.015	0.00	No	100.00	Yes
	103	x	-0.022	-0.022	0.00	No	100.00	Yes
	104	x	-0.022	-0.022	0.00	No	100.00	Yes

	105	x	-0.022	-0.022	0.00	No	100.00	Yes
	107	x	-0.015	-0.015	0.00	No	100.00	Yes
	108	x	-0.015	-0.015	0.00	No	100.00	Yes
	109	x	-0.011	-0.011	0.00	No	100.00	Yes
	110	x	-0.011	-0.011	0.00	No	100.00	Yes
	175	x	-0.015	-0.015	0.00	No	100.00	Yes
	176	x	-0.015	-0.015	0.00	No	100.00	Yes
	177	x	-0.015	-0.015	0.00	No	100.00	Yes
	178	x	-0.015	-0.015	0.00	No	100.00	Yes
	179	x	-0.015	-0.015	0.00	No	100.00	Yes
	180	x	-0.015	-0.015	0.00	No	100.00	Yes
	185	x	-0.008	-0.008	0.00	No	100.00	Yes
	186	x	-0.008	-0.008	0.00	No	100.00	Yes
	213	x	-0.008	-0.008	0.00	No	100.00	Yes
	214	x	-0.008	-0.008	0.00	No	100.00	Yes
	221	x	-0.011	-0.011	0.00	No	100.00	Yes
	222	x	-0.011	-0.011	0.00	No	100.00	Yes
	223	x	-0.011	-0.011	0.00	No	100.00	Yes
	224	x	-0.011	-0.011	0.00	No	100.00	Yes
	225	x	-0.011	-0.011	0.00	No	100.00	Yes
	226	x	-0.011	-0.011	0.00	No	100.00	Yes
	227	x	-0.011	-0.011	0.00	No	100.00	Yes
	228	x	-0.011	-0.011	0.00	No	100.00	Yes
	229	x	-0.011	-0.011	0.00	No	100.00	Yes
	230	x	-0.011	-0.011	0.00	No	100.00	Yes
	235	x	-0.011	-0.011	0.00	No	100.00	Yes
	238	x	-0.011	-0.011	0.00	No	100.00	Yes
	241	x	-0.011	-0.011	0.00	No	100.00	Yes
	244	x	-0.011	-0.011	0.00	No	100.00	Yes
Di	85	y	-0.006	-0.006	0.00	No	100.00	Yes
	86	y	-0.006	-0.006	0.00	No	100.00	Yes
	87	y	-0.006	-0.006	0.00	No	100.00	Yes
	88	y	-0.006	-0.006	0.00	No	100.00	Yes
	89	y	-0.006	-0.006	0.00	No	100.00	Yes
	90	y	-0.006	-0.006	0.00	No	100.00	Yes
	91	y	-0.01	-0.01	0.00	No	100.00	Yes
	92	y	-0.01	-0.01	0.00	No	100.00	Yes
	93	y	-0.01	-0.01	0.00	No	100.00	Yes
	94	y	-0.007	-0.007	0.00	No	100.00	Yes
	95	y	-0.007	-0.007	0.00	No	100.00	Yes
	96	y	-0.007	-0.007	0.00	No	100.00	Yes
	97	y	-0.005	-0.005	0.00	No	100.00	Yes
	98	y	-0.005	-0.005	0.00	No	100.00	Yes
	99	y	-0.005	-0.005	0.00	No	100.00	Yes
	100	y	-0.005	-0.005	0.00	No	100.00	Yes
	101	y	-0.005	-0.005	0.00	No	100.00	Yes
	102	y	-0.005	-0.005	0.00	No	100.00	Yes
	103	y	-0.007	-0.007	0.00	No	100.00	Yes
	104	y	-0.007	-0.007	0.00	No	100.00	Yes
	105	y	-0.007	-0.007	0.00	No	100.00	Yes
	106	y	-0.005	-0.005	0.00	No	100.00	Yes
	107	y	-0.005	-0.005	0.00	No	100.00	Yes
	108	y	-0.005	-0.005	0.00	No	100.00	Yes
	109	y	-0.005	-0.005	0.00	No	100.00	Yes
	110	y	-0.005	-0.005	0.00	No	100.00	Yes
	111	y	-0.005	-0.005	0.00	No	100.00	Yes
	175	y	-0.005	-0.005	0.00	No	100.00	Yes
	176	y	-0.005	-0.005	0.00	No	100.00	Yes
	177	y	-0.005	-0.005	0.00	No	100.00	Yes
	178	y	-0.005	-0.005	0.00	No	100.00	Yes

179	y	-0.005	-0.005	0.00	No	100.00	Yes
180	y	-0.005	-0.005	0.00	No	100.00	Yes
185	y	-0.005	-0.005	0.00	No	100.00	Yes
186	y	-0.005	-0.005	0.00	No	100.00	Yes
189	y	-0.005	-0.005	0.00	No	100.00	Yes
190	y	-0.005	-0.005	0.00	No	100.00	Yes
213	y	-0.005	-0.005	0.00	No	100.00	Yes
214	y	-0.005	-0.005	0.00	No	100.00	Yes
221	y	-0.005	-0.005	0.00	No	100.00	Yes
222	y	-0.005	-0.005	0.00	No	100.00	Yes
223	y	-0.005	-0.005	0.00	No	100.00	Yes
224	y	-0.005	-0.005	0.00	No	100.00	Yes
225	y	-0.005	-0.005	0.00	No	100.00	Yes
226	y	-0.005	-0.005	0.00	No	100.00	Yes
227	y	-0.005	-0.005	0.00	No	100.00	Yes
228	y	-0.005	-0.005	0.00	No	100.00	Yes
229	y	-0.005	-0.005	0.00	No	100.00	Yes
230	y	-0.005	-0.005	0.00	No	100.00	Yes
231	y	-0.005	-0.005	0.00	No	100.00	Yes
232	y	-0.005	-0.005	0.00	No	100.00	Yes
233	y	-0.005	-0.005	0.00	No	100.00	Yes
234	y	-0.005	-0.005	0.00	No	100.00	Yes
235	y	-0.005	-0.005	0.00	No	100.00	Yes
238	y	-0.005	-0.005	0.00	No	100.00	Yes
241	y	-0.005	-0.005	0.00	No	100.00	Yes
244	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	221	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.051	3.00	No
	222	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.053	3.00	No
	223	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	3.00	No
	224	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.049	3.00	No
	225	y	-0.06	2.00	No
	226	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.051	3.00	No
	227	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.053	3.00	No

	228	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	3.00	No
	229	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.049	3.00	No
	230	y	-0.06	2.00	No
	231	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.051	3.00	No
	232	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.053	3.00	No
	233	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	3.00	No
	234	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.049	3.00	No
	235	y	-0.06	2.00	No
	238	y	-0.06	2.00	No
		y	-0.073	2.00	No
	241	y	-0.06	2.00	No
		y	-0.073	2.00	No
	244	y	-0.06	2.00	No
		y	-0.073	2.00	No
W0	221	z	-0.292	0.50	No
		z	-0.292	7.50	No
		z	-0.02	3.00	No
	222	z	-0.292	0.50	No
		z	-0.292	7.50	No
		z	-0.031	3.00	No
	223	z	-0.292	0.50	No
		z	-0.292	7.50	No
	224	z	-0.39	0.50	No
		z	-0.39	7.50	No
	225	z	-0.123	2.00	No
	226	z	-0.20	0.50	No
		z	-0.20	7.50	No
		z	-0.064	3.00	No
	227	z	-0.20	0.50	No
		z	-0.20	7.50	No
		z	-0.07	3.00	No
	228	z	-0.20	0.50	No
		z	-0.20	7.50	No
		z	-0.059	3.00	No
	229	z	-0.224	0.50	No
		z	-0.224	7.50	No
		z	-0.038	3.00	No
	230	z	-0.087	2.00	No
	231	z	-0.20	0.50	No
		z	-0.20	7.50	No
		z	-0.064	3.00	No
	232	z	-0.20	0.50	No
		z	-0.20	7.50	No
		z	-0.07	3.00	No
	233	z	-0.20	0.50	No
		z	-0.20	7.50	No
		z	-0.059	3.00	No
	234	z	-0.224	0.50	No

		z	-0.224	7.50	No
		z	-0.038	3.00	No
	235	z	-0.087	2.00	No
	238	z	-0.075	2.00	No
		z	-0.063	2.00	No
	241	z	-0.116	2.00	No
	244	z	-0.116	2.00	No
W30	221	x	-0.169	0.50	No
		x	-0.169	7.50	No
		x	-0.054	3.00	No
	222	x	-0.169	0.50	No
		x	-0.169	7.50	No
		x	-0.058	3.00	No
	223	x	-0.169	0.50	No
		x	-0.169	7.50	No
		x	-0.056	3.00	No
	224	x	-0.169	0.50	No
		x	-0.169	7.50	No
		x	-0.032	3.00	No
	225	x	-0.075	2.00	No
	226	x	-0.261	0.50	No
		x	-0.261	7.50	No
		x	-0.06	3.00	No
	227	x	-0.261	0.50	No
		x	-0.261	7.50	No
		x	-0.067	3.00	No
	228	x	-0.261	0.50	No
		x	-0.261	7.50	No
		x	-0.048	3.00	No
	229	x	-0.335	0.50	No
		x	-0.335	7.50	No
		x	-0.036	3.00	No
	230	x	-0.111	2.00	No
	231	x	-0.261	0.50	No
		x	-0.261	7.50	No
		x	-0.06	3.00	No
	232	x	-0.261	0.50	No
		x	-0.261	7.50	No
		x	-0.067	3.00	No
	233	x	-0.261	0.50	No
		x	-0.261	7.50	No
		x	-0.048	3.00	No
	234	x	-0.335	0.50	No
		x	-0.335	7.50	No
		x	-0.036	3.00	No
	235	x	-0.111	2.00	No
	238	x	-0.123	2.00	No
	241	x	-0.08	2.00	No
	244	x	-0.08	2.00	No
Di	221	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.044	3.00	No
	222	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.05	3.00	No
	223	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.035	3.00	No
	224	y	-0.123	0.50	No
		y	-0.123	7.50	No

		y	-0.027	3.00	No
	225	y	-0.047	2.00	No
	226	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.044	3.00	No
	227	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.05	3.00	No
	228	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.035	3.00	No
	229	y	-0.123	0.50	No
		y	-0.123	7.50	No
		y	-0.027	3.00	No
	230	y	-0.047	2.00	No
	231	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.044	3.00	No
	232	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.05	3.00	No
	233	y	-0.094	0.50	No
		y	-0.094	7.50	No
		y	-0.035	3.00	No
	234	y	-0.123	0.50	No
		y	-0.123	7.50	No
		y	-0.027	3.00	No
	235	y	-0.047	2.00	No
	238	y	-0.047	2.00	No
		y	-0.036	2.00	No
	241	y	-0.047	2.00	No
		y	-0.036	2.00	No
	244	y	-0.047	2.00	No
		y	-0.036	2.00	No
Wi0	221	z	-0.048	0.50	No
		z	-0.048	7.50	No
		z	-0.006	3.00	No
	222	z	-0.048	0.50	No
		z	-0.048	7.50	No
		z	-0.008	3.00	No
	223	z	-0.048	0.50	No
		z	-0.048	7.50	No
	224	z	-0.061	0.50	No
		z	-0.061	7.50	No
	225	z	-0.022	2.00	No
	226	z	-0.034	0.50	No
		z	-0.034	7.50	No
		z	-0.012	3.00	No
	227	z	-0.034	0.50	No
		z	-0.034	7.50	No
		z	-0.013	3.00	No
	228	z	-0.034	0.50	No
		z	-0.034	7.50	No
		z	-0.011	3.00	No
	229	z	-0.038	0.50	No
		z	-0.038	7.50	No
		z	-0.008	3.00	No
	230	z	-0.016	2.00	No
	231	z	-0.034	0.50	No
		z	-0.034	7.50	No

		z	-0.012	3.00	No
	232	z	-0.034	0.50	No
		z	-0.034	7.50	No
		z	-0.013	3.00	No
	233	z	-0.034	0.50	No
		z	-0.034	7.50	No
		z	-0.011	3.00	No
	234	z	-0.038	0.50	No
		z	-0.038	7.50	No
		z	-0.008	3.00	No
	235	z	-0.016	2.00	No
	238	z	-0.015	2.00	No
		z	-0.012	2.00	No
	241	z	-0.02	2.00	No
	244	z	-0.02	2.00	No
Wi30	221	x	-0.03	0.50	No
		x	-0.03	7.50	No
		x	-0.011	3.00	No
	222	x	-0.03	0.50	No
		x	-0.03	7.50	No
		x	-0.011	3.00	No
	223	x	-0.03	0.50	No
		x	-0.03	7.50	No
		x	-0.011	3.00	No
	224	x	-0.03	0.50	No
		x	-0.03	7.50	No
		x	-0.007	3.00	No
	225	x	-0.014	2.00	No
	226	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.011	3.00	No
	227	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.012	3.00	No
	228	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.009	3.00	No
	229	x	-0.053	0.50	No
		x	-0.053	7.50	No
		x	-0.007	3.00	No
	230	x	-0.02	2.00	No
	231	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.011	3.00	No
	232	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.012	3.00	No
	233	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.009	3.00	No
	234	x	-0.053	0.50	No
		x	-0.053	7.50	No
		x	-0.007	3.00	No
	235	x	-0.02	2.00	No
	238	x	-0.022	2.00	No
	241	x	-0.014	2.00	No
	244	x	-0.014	2.00	No
WL0	221	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.001	3.00	No

	222	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.002	3.00	No
	223	z	-0.015	0.50	No
		z	-0.015	7.50	No
	224	z	-0.02	0.50	No
		z	-0.02	7.50	No
	225	z	-0.006	2.00	No
	226	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	227	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	228	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	229	z	-0.012	0.50	No
		z	-0.012	7.50	No
		z	-0.002	3.00	No
	230	z	-0.004	2.00	No
	231	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	232	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	233	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	234	z	-0.012	0.50	No
		z	-0.012	7.50	No
		z	-0.002	3.00	No
	235	z	-0.004	2.00	No
	238	z	-0.004	2.00	No
		z	-0.003	2.00	No
	241	z	-0.006	2.00	No
	244	z	-0.006	2.00	No
WL30	221	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.003	3.00	No
	222	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.003	3.00	No
	223	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.003	3.00	No
	224	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.002	3.00	No
	225	x	-0.004	2.00	No
	226	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
	227	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
	228	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.002	3.00	No

	229	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	-0.002	3.00	No
	230	x	-0.005	2.00	No
	231	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
	232	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
	233	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.002	3.00	No
	234	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	-0.002	3.00	No
	235	x	-0.005	2.00	No
	238	x	-0.006	2.00	No
	241	x	-0.004	2.00	No
	244	x	-0.004	2.00	No
LL1	85	y	-0.25	50.00	Yes
LL2	85	y	-0.25	0.00	Yes
LLa1	221	y	-0.25	50.00	Yes
LLa2	222	y	-0.25	50.00	Yes
LLa3	223	y	-0.25	50.00	Yes
LLa4	224	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Current Date: 10/23/2020 4:53 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2838\AWS\CT2838.retx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC15=1.2DL+1.5LL1
LC16=1.2DL+1.5LL2
LC17=1.2DL+WL0+1.5LLa1
LC18=1.2DL+WL30+1.5LLa1
LC19=1.2DL-WL0+1.5LLa1
LC20=1.2DL-WL30+1.5LLa1
LC21=1.2DL+WL0+1.5LLa2
LC22=1.2DL+WL30+1.5LLa2
LC23=1.2DL-WL0+1.5LLa2
LC24=1.2DL-WL30+1.5LLa2
LC25=1.2DL+WL0+1.5LLa3
LC26=1.2DL+WL30+1.5LLa3
LC27=1.2DL-WL0+1.5LLa3
LC28=1.2DL-WL30+1.5LLa3
LC29=1.2DL+WL0+1.5LLa4
LC30=1.2DL+WL30+1.5LLa4
LC31=1.2DL-WL0+1.5LLa4
LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3x2x1/4	**94**	LC10 at 50.00%	0.77	OK	Eq. H1-1b
		95	LC11 at 50.00%	0.78	OK	Eq. H1-1b
		96	LC12 at 50.00%	**0.78**	**OK**	Eq. H1-1b
	L 2X2X1_4	**107**	LC1 at 0.00%	**0.65**	**OK**	Eq. H2-1
		108	LC8 at 0.00%	0.61	OK	Eq. H2-1
		111	LC1 at 0.00%	0.55	OK	Sec. F1
		175	LC4 at 0.00%	0.63	OK	Eq. H2-1
		176	LC11 at 0.00%	0.61	OK	Sec. F1
		177	LC11 at 0.00%	0.61	OK	Sec. F1
		178	LC10 at 0.00%	0.62	OK	Sec. F1
		179	LC10 at 0.00%	0.61	OK	Sec. F1
		180	LC12 at 0.00%	0.60	OK	Sec. F1
	P1000 Unistrut	**185**	LC4 at 39.06%	0.56	OK	Sec. C5.2
		186	LC2 at 39.06%	0.52	OK	Sec. C5.2
		189	LC3 at 60.94%	**0.65**	**OK**	Sec. C5.1
		190	LC1 at 39.06%	0.64	OK	Sec. C5.2

	213	LC4 at 40.63%	0.60	OK	Sec. C5.1
	214	LC4 at 40.63%	0.59	OK	Sec. C5.2
PIPE 2x0.154	**106**	LC3 at 23.75%	0.95	With warnings	Eq. H1-1a
	109	LC4 at 23.75%	0.95	With warnings	Eq. H1-1a
	110	LC2 at 76.25%	**0.98**	**With warnings**	Eq. H1-1a
	221	LC9 at 80.00%	0.36	OK	Eq. H1-1b
	222	LC9 at 80.00%	0.54	OK	Eq. H1-1b
	223	LC9 at 79.17%	0.41	OK	Eq. H1-1b
	224	LC9 at 79.17%	0.35	OK	Eq. H1-1b
	225	LC11 at 37.50%	0.05	OK	Eq. H1-1b
	226	LC9 at 80.00%	0.34	OK	Eq. H1-1b
	227	LC9 at 80.00%	0.44	OK	Eq. H1-1b
	228	LC12 at 79.17%	0.48	OK	Eq. H1-1b
	229	LC2 at 79.17%	0.30	OK	Eq. H1-1b
	230	LC10 at 37.50%	0.05	OK	Eq. H1-1b
	231	LC4 at 80.00%	0.30	OK	Eq. H1-1b
	232	LC10 at 80.00%	0.52	OK	Eq. H1-1b
	233	LC11 at 79.17%	0.42	OK	Eq. H1-1b
	234	LC9 at 79.17%	0.35	OK	Eq. H1-1b
	235	LC9 at 37.50%	0.06	OK	Eq. H1-1b
	238	LC9 at 89.58%	0.43	OK	Eq. H1-1b
	241	LC9 at 89.58%	0.38	OK	Eq. H1-1b
	244	LC12 at 89.58%	0.37	OK	Eq. H1-1b
PIPE 3x0.216	**85**	LC9 at 60.63%	0.34	OK	Eq. H1-1b
	86	LC10 at 60.63%	0.34	OK	Eq. H1-1b
	87	LC12 at 60.63%	0.34	OK	Eq. H1-1b
	88	LC9 at 68.75%	**0.69**	**OK**	Eq. H1-1b
	89	LC10 at 68.75%	0.69	OK	Eq. H1-1b
	90	LC12 at 68.75%	0.69	OK	Eq. H1-1b
PL 6x3/8	**91**	LC4 at 50.00%	0.20	OK	Eq. H1-1b
	92	LC2 at 0.00%	0.20	OK	Eq. H1-1b
	93	LC3 at 50.00%	**0.21**	**OK**	Eq. H1-1b
T2L 2X2X1_4	**97**	LC3 at 100.00%	0.28	OK	Eq. H2-1
	98	LC2 at 0.00%	**0.30**	**OK**	Eq. H2-1
	99	LC3 at 0.00%	0.27	OK	Eq. H2-1
	100	LC4 at 100.00%	0.29	OK	Eq. H2-1
	101	LC1 at 0.00%	0.26	OK	Eq. H2-1
	102	LC1 at 100.00%	0.26	OK	Eq. H2-1
T2L 3x3x1/4	**103**	LC11 at 100.00%	0.69	OK	Eq. H2-1
	104	LC12 at 100.00%	0.69	OK	Eq. H2-1
	105	LC9 at 100.00%	**0.69**	**OK**	Eq. H2-1

Current Date: 10/23/2020 4:54 PM
Units system: English
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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
225	-1.0825	0.00	0.625	0
226	0.00	0.00	-1.25	0
256	-1.0825	-2.25	0.625	0
257	0.00	-2.25	-1.25	0
415	-1.0625	4.92	-0.625	0
239	1.0825	0.00	0.625	0
258	1.0825	-2.25	0.625	0
413	0.01	4.92	1.2327	0
414	1.0725	4.92	-0.6077	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
225	1	1	1	1	1	1
226	1	1	1	1	1	1
256	1	1	1	1	1	1
257	1	1	1	1	1	1
415	1	1	1	1	1	1
239	1	1	1	1	1	1
258	1	1	1	1	1	1
413	1	1	1	1	1	1
414	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
85	228	241		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
86	242	249		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
87	236	229		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
88	250	225		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
89	251	239		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
90	252	226		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
91	230	227		PL 6x3/8	A36	0.00	0.00	0.00
92	240	243		PL 6x3/8	A36	0.00	0.00	0.00
93	248	235		PL 6x3/8	A36	0.00	0.00	0.00
94	223	232		C 3x2x1/4	A36	0.00	0.00	0.00
95	245	237		C 3x2x1/4	A36	0.00	0.00	0.00
96	234	247		C 3x2x1/4	A36	0.00	0.00	0.00
97	224	250		T2L 2X2X1_4	A36	0.00	0.00	0.00
98	250	231		T2L 2X2X1_4	A36	0.00	0.00	0.00
99	251	238		T2L 2X2X1_4	A36	0.00	0.00	0.00
100	244	251		T2L 2X2X1_4	A36	0.00	0.00	0.00
101	252	246		T2L 2X2X1_4	A36	0.00	0.00	0.00
102	233	252		T2L 2X2X1_4	A36	0.00	0.00	0.00
103	256	255		T2L 3x3x1/4	A36	0.00	0.00	0.00
104	258	253		T2L 3x3x1/4	A36	0.00	0.00	0.00
105	257	254		T2L 3x3x1/4	A36	0.00	0.00	0.00
106	259	260		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	262	261		L 2X2X1_4	A36	0.00	0.00	0.00
108	264	263		L 2X2X1_4	A36	0.00	0.00	0.00
109	265	266		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
110	267	268		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
111	270	269		L 2X2X1_4	A36	0.00	0.00	0.00
175	415	411		L 2X2X1_4	A36	0.00	0.00	0.00
176	415	410		L 2X2X1_4	A36	0.00	0.00	0.00
177	414	409		L 2X2X1_4	A36	0.00	0.00	0.00
178	414	408		L 2X2X1_4	A36	0.00	0.00	0.00
179	413	407		L 2X2X1_4	A36	0.00	0.00	0.00
180	413	412		L 2X2X1_4	A36	0.00	0.00	0.00
185	425	426		P1000 Unistrut	A36	0.00	0.00	0.00
186	427	428		P1000 Unistrut	A36	0.00	0.00	0.00
189	510	509		P1000 Unistrut	A36	0.00	0.00	0.00
190	511	512		P1000 Unistrut	A36	0.00	0.00	0.00
213	467	468		P1000 Unistrut	A36	0.00	0.00	0.00
214	469	470		P1000 Unistrut	A36	0.00	0.00	0.00
221	499	500		PIPE 2x0.154	A36	0.00	0.00	0.00
222	497	498		PIPE 2x0.154	A36	0.00	0.00	0.00
223	495	496		PIPE 2x0.154	A36	0.00	0.00	0.00

224	493	494	PIPE 2x0.154	A36	0.00	0.00	0.00
225	517	518	PIPE 2x0.154	A36	0.00	0.00	0.00
226	457	458	PIPE 2x0.154	A36	0.00	0.00	0.00
227	455	456	PIPE 2x0.154	A36	0.00	0.00	0.00
228	453	454	PIPE 2x0.154	A36	0.00	0.00	0.00
229	451	452	PIPE 2x0.154	A36	0.00	0.00	0.00
230	475	476	PIPE 2x0.154	A36	0.00	0.00	0.00
231	392	393	PIPE 2x0.154	A36	0.00	0.00	0.00
232	390	391	PIPE 2x0.154	A36	0.00	0.00	0.00
233	388	389	PIPE 2x0.154	A36	0.00	0.00	0.00
234	386	387	PIPE 2x0.154	A36	0.00	0.00	0.00
235	433	434	PIPE 2x0.154	A36	0.00	0.00	0.00
238	536	535	PIPE 2x0.154	A36	0.00	0.00	0.00
241	524	523	PIPE 2x0.154	A36	0.00	0.00	0.00
244	530	529	PIPE 2x0.154	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
94	180.00	0	0.00	0.00	0.00
95	180.00	0	0.00	0.00	0.00
96	180.00	0	0.00	0.00	0.00
97	270.00	0	0.00	0.00	0.00
98	270.00	0	0.00	0.00	0.00
99	270.00	0	0.00	0.00	0.00
100	270.00	0	0.00	0.00	0.00
101	270.00	0	0.00	0.00	0.00
102	270.00	0	0.00	0.00	0.00
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
111	90.00	0	0.00	0.00	0.00
175	180.00	0	0.00	0.00	0.00
176	90.00	0	0.00	0.00	0.00
177	180.00	0	0.00	0.00	0.00
178	90.00	0	0.00	0.00	0.00
179	180.00	0	0.00	0.00	0.00
180	90.00	0	0.00	0.00	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
103	0	0	0	0	1	0	0	0	0	0	Full
104	0	0	0	0	1	0	0	0	0	0	Full
105	0	0	0	0	1	0	0	0	0	0	Full

490 JEFFERSON AVE

Location	490 JEFFERSON AVE	**Mblu**	B11/ 220/ 1/ /
Acct#	B11 0220 0001	**Owner**	NEW LONDON CITY OF
Assessment	$35,826,630	**Appraisal**	$51,180,900
PID	5464	**Building Count**	6

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$40,308,800	$10,872,100	$51,180,900

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$28,216,160	$7,610,470	$35,826,630

Owner of Record

Owner	NEW LONDON CITY OF	**Sale Price**	$0
Co-Owner	HIGH SCHOOL	**Certificate**	
Address	490 JEFFERSON AVE NEW LONDON, CT 06320	**Book & Page**	0323/0008

Sale Date 01/01/1700
Instrument

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
NEW LONDON CITY OF	$0		0323/0008		01/01/1700

Building Information

Building 1 : Section 1

Year Built: 1960
Living Area: 1,825
Replacement Cost: $449,578
Building Percent Good: 63
Replacement Cost Less Depreciation: $283,200

Building Attributes	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Good
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	

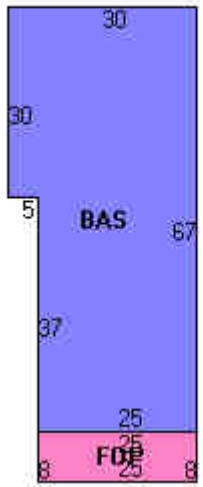
Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos/\00\01\02\56.jpg)

Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Coal or Wood
Heating Type	None
AC Type	None
Struct Class	
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
Usrfld 219	
1st Floor Use:	903I
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	AVERAGE
Wall Height	9.00
% Comn Wall	0.00

Building 2 : Section 1

Building Layout



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,825	1,825
FOP	Porch, Open, Finished	200	0
		2,025	1,825

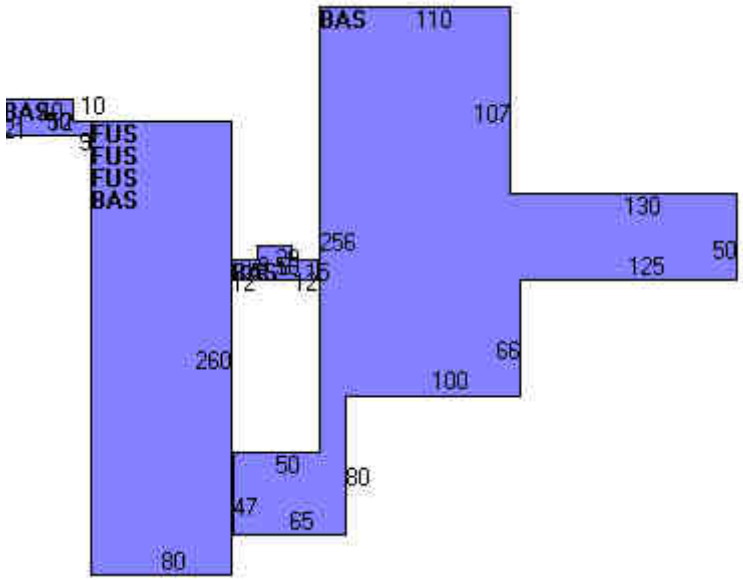
Year Built: 1972
Living Area: 119,800
Replacement Cost: $25,519,806
Building Percent Good: 50
Replacement Cost Less Depreciation: $12,759,900

Building Attributes : Bldg 2 of 6	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Good
Stories:	4
Occupancy	1.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//default.jpg)

Building Layout



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Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
Usrfld 219	
1st Floor Use:	903C
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	10.00
% Comn Wall	20.00

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	62,400	62,400
BAS	First Floor	57,400	57,400
		119,800	119,800

Building 3 : Section 1

Year Built: 1972
Living Area: 17,600
Replacement Cost: $1,648,020
Building Percent Good: 93
Replacement Cost Less Depreciation: $1,532,700

Building Attributes : Bldg 3 of 6	
Field	**Description**
STYLE	Commercial
MODEL	Commercial

Grade	Ave/Good
Stories:	1
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
Usrfld 219	
1st Floor Use:	903C
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE

Building Photo

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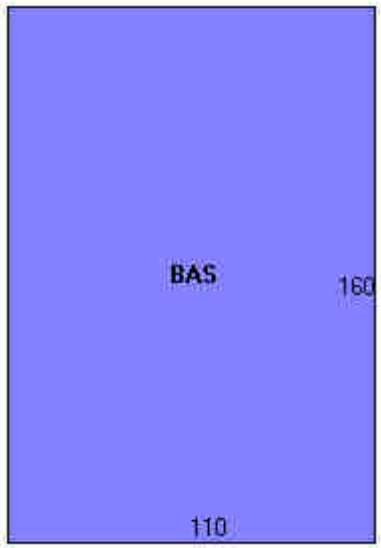
Building Layout



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Building Sub-Areas (sq ft)	Legend

Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	20.00
% Comn Wall	2.00

Code	Description	Gross Area	Living Area
BAS	First Floor	17,600	17,600
		17,600	17,600

Building 4 : Section 1

Year Built: 1972
Living Area: 14,980
Replacement Cost: $3,945,328
Building Percent Good: 50
Replacement Cost Less Depreciation: $1,972,700

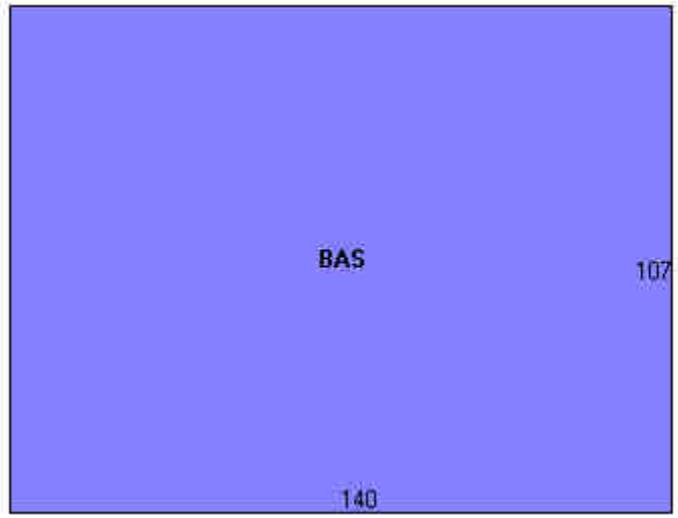
Building Attributes : Bldg 4 of 6	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Good
Stories:	1
Occupancy	1.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Hardwood

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//default.jpg)

Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
Usrfld 219	
1st Floor Use:	903C
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	20.00
% Comn Wall	50.00

Building Layout



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	14,980	14,980
		14,980	14,980

Building 5 : Section 1

Year Built: 1972
Living Area: 11,408
Replacement Cost: $3,733,017
Building Percent Good: 50

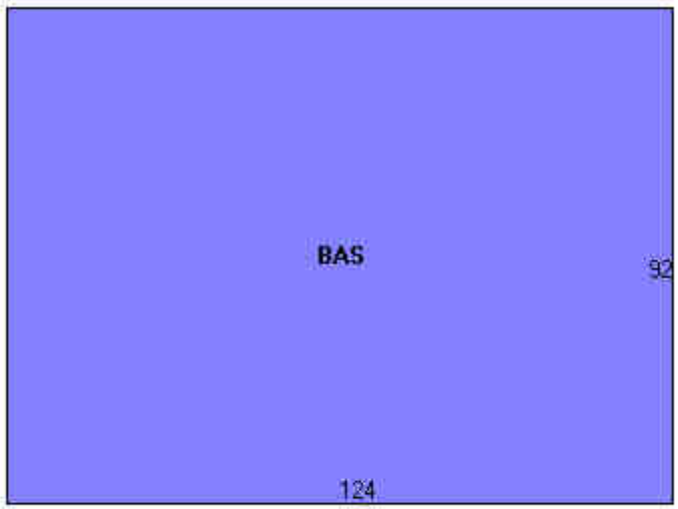
Replacement Cost
Less Depreciation: $1,866,500

Building Attributes : Bldg 5 of 6	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Excellent
Stories:	1
Occupancy	
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//default.jpg)

Building Layout



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Building Sub-Areas (sq ft)	Legend

Conv Type	
Usrfld 219	
1st Floor Use:	903C
Heat/AC	HEAT/AC PKGS
Frame Type	FIREPRF STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	20.00
% Comn Wall	40.00

Code	Description	Gross Area	Living Area
BAS	First Floor	11,408	11,408
		11,408	11,408

Building 6 : Section 1

Year Built: 2005
Living Area: 135,000
Replacement Cost: $22,331,943
Building Percent Good: 89
Replacement Cost Less Depreciation: $19,875,400

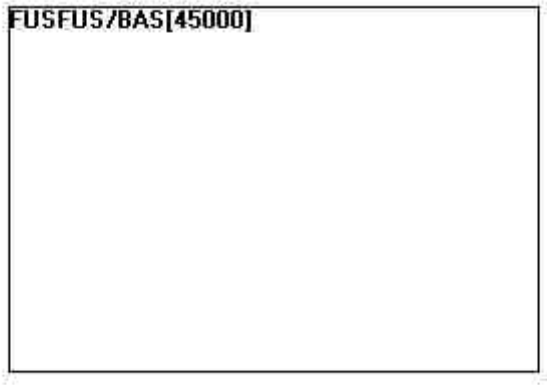
Building Attributes : Bldg 6 of 6	
Field	**Description**
STYLE	School/College
MODEL	Commercial
Grade	Custom
Stories:	2
Occupancy	1.00
Exterior Wall 1	Brick/Masonry

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//default.jpg)

Building Layout

Exterior Wall 2	Pre-finsh Metl
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Average
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	CNTY EDUC
Total Rooms	
Total Bedrms	
Total Baths	
Conv Type	
Usrfld 219	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	FIREPRF STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	10.00
% Comn Wall	0.00



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	90,000	90,000
BAS	First Floor	45,000	45,000
		135,000	135,000

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
GEN1	GEN BACKUP 36K W+	0.00 UNITS	$0	3
SPR1	SPRINKLERS-WET	90000.00 S.F.	$80,100	6
CNP1	CANOPY-AVE	3600.00 SF	$113,400	1
ELV1	Elevator, Pass	2.00 UNITS	$80,000	2
ELS1	Pass Stops	7.00 UNITS	$13,100	2

Land

Land Use

Use Code	903C
Description	MUNICIPAL MDL-94
Zone	R-3
Neighborhood	JEF1
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	49.32
Frontage	0
Depth	0
Assessed Value	$7,610,470
Appraised Value	$10,872,100

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN4	FENCE-8' CHAIN			600.00 L.F.	$4,800	1
GRN2	COMM GLASS			600.00 S.F	$6,300	6

PAV1	PAVING-ASPHALT			40000.00 S.F.	$60,000	2
TEN	TENNIS COURT			1.00 UNIT	$35,800	3
LT1	LIGHTS-IN W/PL			12.00 UNITS	$6,500	2
SHD1	SHED FRAME			280.00 S.F.	$2,200	1
BHS2	CMM BTH HSE GD			4200.00 S.F.	$168,000	6
LT2	W/DOUBLE LIGHT			6.00 UNITS	$5,000	2
SHD1	SHED FRAME			160.00 S.F.	$1,300	1
FN1	FENCE-4' CHAIN			400.00 L.F.	$2,000	1
LT12	W/FOUR LIGHTS			8.00 UNITS	$22,200	2
GRN2	COMM GLASS			600.00 S.F	$100,000	1
FF	FOOTBALL NAT			57600.00 S.F.	$149,800	1
FF1	FOOTBALL ARTIFIC			57600.00 S.F.	$374,400	1
TRK	ART TRACK			45000.00 S.F.	$810,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$40,308,800	$10,872,100	$51,180,900
2018	$40,262,400	$10,872,100	$51,134,500
2017	$36,994,500	$9,883,700	$46,878,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$28,216,160	$7,610,470	$35,826,630
2018	$28,183,680	$7,610,470	$35,794,150

2017	$25,896,150	$6,918,590	$32,814,740

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490 JEFFERSON AVE
NEW LONDON CITY OF
95-B11-220-1

DOCKET NO. 439 – Message Center Management, Inc. and New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at Bates Woods Park, New London, Connecticut.	}	Connecticut Siting Council October 31, 2013

Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes **§** 16-50k, be issued to Message Center Management, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at Bates Woods Park, New London, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC and other entities, both public and private, but such tower shall not exceed a height of 115 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the City of New London for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, emergency backup power, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
    c) determination of the final tower finish, upon consultation with the City of New London.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the City of New London. Any proposed modifications to this Decision and Order shall likewise be so served.

8. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

9. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

10. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

11. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

13. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

14. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated June 24, 2013, and notice of issuance published in The Day.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

SBA Communications Corporation
8051 Congress Avenue
Boca Raton, FL 33487-1307

T + 561.995.7670
F + 561.995.7626

sbasite.com

LETTER OF AUTHORIZATION

SBA Site ID: CT22093-A, New London (Bates Wood)

Property Located at: 490 Jefferson Avenue, New London, CT, 06320

THE CITY/COUNTY OF: New London / New London

APPLICATION FOR ZONING/USE/BUILDING PERMIT

This letter authorizes AT&T and its authorized agents to file for all necessary zoning, planning and building permits (local, state and federal) for the purposes of installing, operating and maintaining a telecommunications facility on the existing tower on the property referenced above on behalf of City of New London, CT.

All approval conditions that may be granted to AT&T in connection with above referenced facility relating to this specific application are the sole responsibility of AT&T.

MCM Acquisition 2017, LLC

Jason Silberstein

Executive VP, Site Leasing

Date: 11/12/2020

Hollis Redding

To: Michael McNamara
Subject: AT&T Wireless Exempt Mod Filing CT22093-A-01 / New London 490 Jefferson Ave AT&T CT2838

Mike-

Attached please find an Exempt Modification which will be filed with the CT Siting Council on November 12, 2020.

Thank you. Hollis

Hollis M. Redding

SAI Communications LLC
Mobile: 860-834-6964
hredding@saigrp.com

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