QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

March 1, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT2838
490 Jefferson Avenue (Bates Woods Park), New London, CT 06320
N 41.35610000
W 72.12420000

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 111-foot level of the existing 114-foot Ballfield Lightpole at Bates Woods Park, New London, CT. The tower is owned by SBA and the property is owned by the City of New London. AT&T now intends to remove (3) CCI antennas and replace them with (3) KMW 800-10966 antennas. AT&T will also swap (3) Ericsson RRUS-11 for (3) B5/B12 4449 Remote Radio Units (RRU) and add (3) B14-4478, (3) RRUS-32 and (3) RRUS-E2 B29. The new antennas and RRUs will also be installed at the 111-foot level of the tower.

This facility was approved by the Connecticut Siting Council in Docket #0439 on October 31, 2013. This approval included a condition that the tower and antennas not exceed 115 feet above ground level. No modification to the overall facility height is proposed, so this modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Michael Passero, Mayor of the City of New London and the City's Office of

Development and Planning, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

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

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

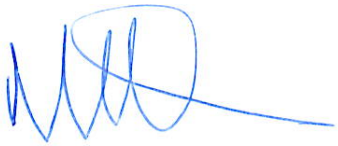
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

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

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Mayor Michael Passero - as Elected Official and Property Owner
Felix J. Reyes – Director of Development and Planning
SBA- Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T UMTS	2	500	111	0.0326	850	0.5667	0.58%
AT&T UMTS	2	500	111	0.0326	1900	1.0000	0.33%
AT&T LTE	1	1476	111	0.0481	700	0.4667	1.03%
AT&T LTE	1	2421	111	0.0790	1900	1.0000	0.79%
AT&T LTE	1	2535	111	0.0827	2100	1.0000	0.83%
AT&T UMTS	2	500	111	0.0326	850	0.5667	0.58%
Site Total							3.55%

*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 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 LTE	2	2951	111	0.1925	700	0.4667	4.13%
AT&T LTE	1	1000	111	0.0326	850	0.5667	0.58%
AT&T 5G	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 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

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING TOWER:
- INSTALL NEW SECTOR FRAME STABILIZER KIT, SITE PRO 1 PART # PRK-SFS (OR APPROVED EQUAL) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- REINFORCE EXISTING STEEL ANGLES WITH NEW ∠2"X2"X1/4" STEEL ANGLES (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- NEW AT&T ANTENNAS: (800-10966) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). REPLACE EXISTING
- NEW AT&T ANTENNA: (HPA-65R-BUU-H8) MOUNTED @ POSITION 3 (TYP. OF BETA SECTOR, TOTAL OF 1).
- NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS: RRUS-32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS: RUUS-E2 B29 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR: SURGE ARRESTOR (DC6-48-60-18-8C) (TOTAL OF 1).
- INSTALL (2) DC POWER IN (1) 2" FLEX CONDUIT.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD RBS 6630 WITH IDLe AND ADD 5G RBS 6630.

SITE ADDRESS:	490 JEFFERSON AVENUE NEW LONDON, CT
LATITUDE:	41.3579020 N, 41° 21' 23.44" N
LONGITUDE:	72.1239910 W, 72° 7' 26.36" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	115'±
RAD CENTER:	111'±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SBA SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE #: CT22093

at&t

SITE NUMBER: CT2838

SITE NAME: NEW LONDON JEFFERSON AVENUE

FA CODE: 10152339

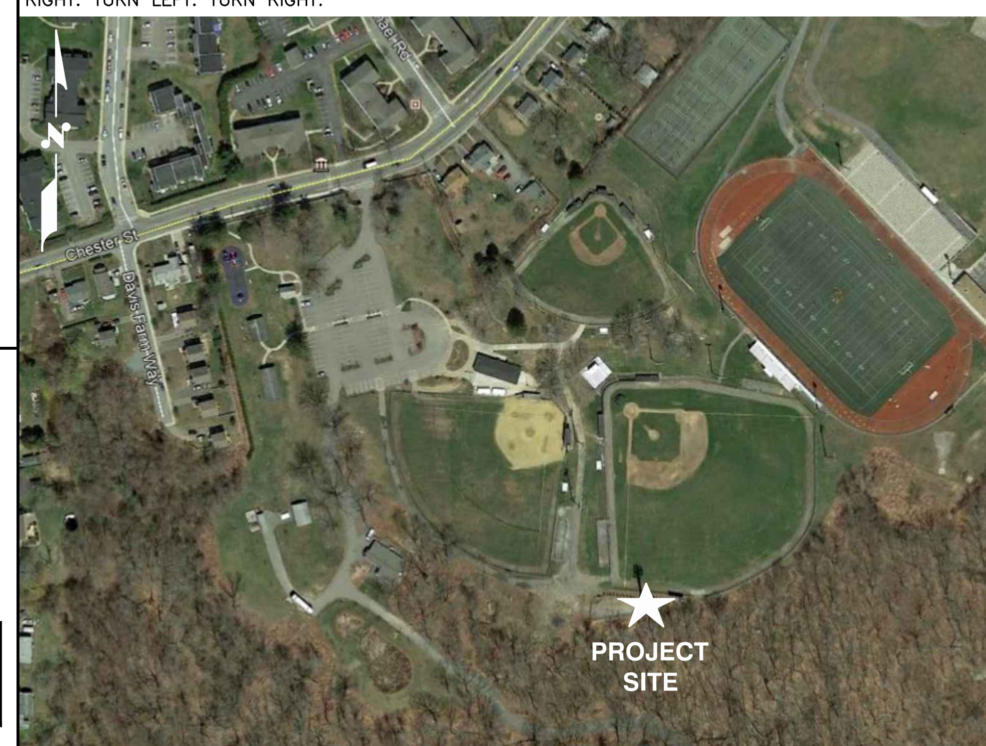
PACE ID: MRCTB035101, MRCTB035229, MRCTB035090, MRCTB035117,MRCTB035347

PROJECT: LTE 4C/5C/6C/7C/4TX4RX 2019 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

HEAD SOUTHEAST TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I-91 S. MERGE I-91 S. TAKE EXIT 22S ON THE LEFT TO MERGE ONTO CT-9 S. TOWARD MIDDLETOWN/OLD SAYBROOK. TAKE THE EXIT ON THE LEFT ONTO I-95 N/US-1 N TOWARD NEW LON/PROVIDENCE. KEEP RIGHT AT THE FORK TO STAY ON I-95 N, FOLLOW SIGNS FOR NEW LONDON/PROVIDENCE. TAKE EXIT 82 FOR BROAD ST/CT-85 TOWARD WATERFRONT. 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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2838
SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE #: CT22093
490 JEFFERSON AVENUE
NEW LONDON, CT
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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0	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC
A	01/11/19	ISSUED FOR REVIEW	MR	AT	DJC

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

STATE OF CONNECTICUT · No. 28551 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 4C/5C/6C/7C/4TX4RX)

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) 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 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 AWS 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. TOUCHUP 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-G, 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 #: CT22093
490 JEFFERSON AVENUE
NEW LONDON, CT
NEW LONDON COUNTY

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

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

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 24554
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	GN-1	1

NOTE:

ROTATION OF MOUNTS OR INSTALLATION OF MOUNT MODS MUST NOT ADVERSELY AFFECT, OBSTRUCT, BEND OR PINCH EXISTING SAFETY CABLE IN ANY WAY. GC, C/O AT&T, WILL PURCHASE AND INSTALL CABLE RE-ROUTING BRACKETS AS REQUIRED.

NOTE:

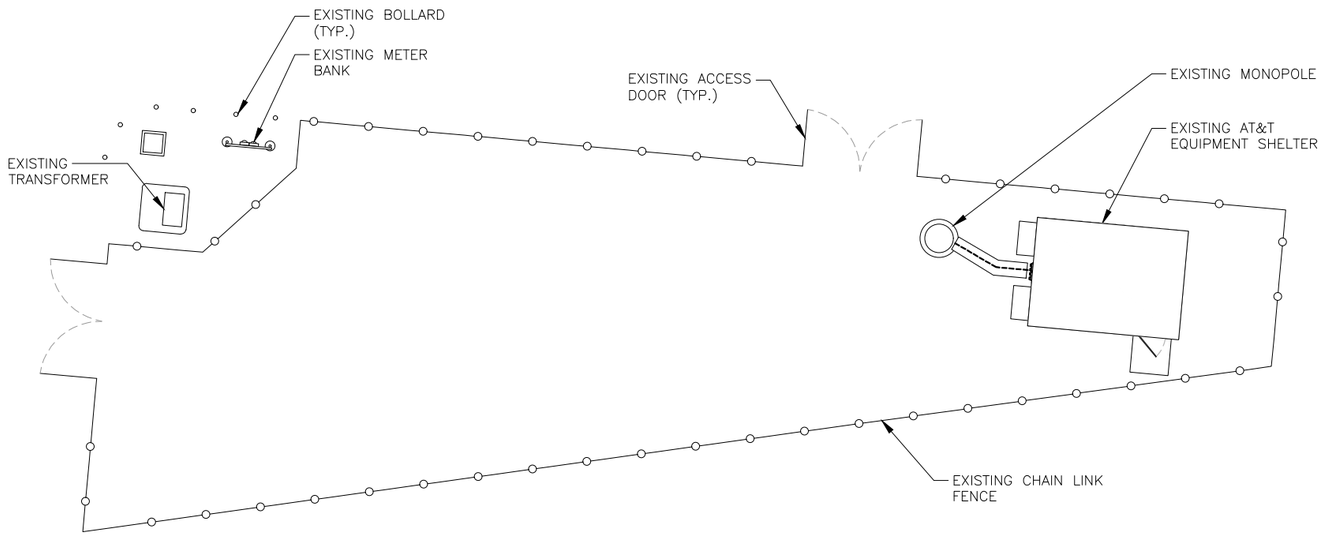
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: JANUARY 2, 2019 (REV. 1)

NOTE:

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

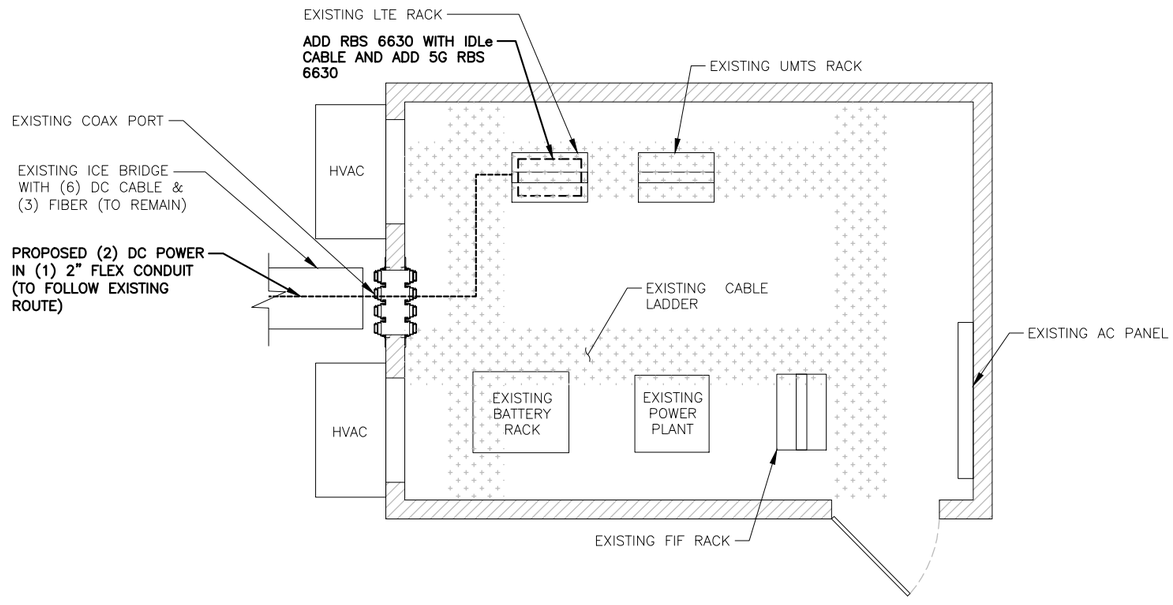
NOTE:

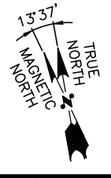
REFER TO STRUCTURAL ANALYSIS BY: TES TOWER ENGINEERING SOLUTIONS,
DATED: FEBRUARY 14, 2019,
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



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
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FAX: (978) 336-5586

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

STATE OF CONNECTICUT
DEREK J. CREASER
No. 23557
LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN
(LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
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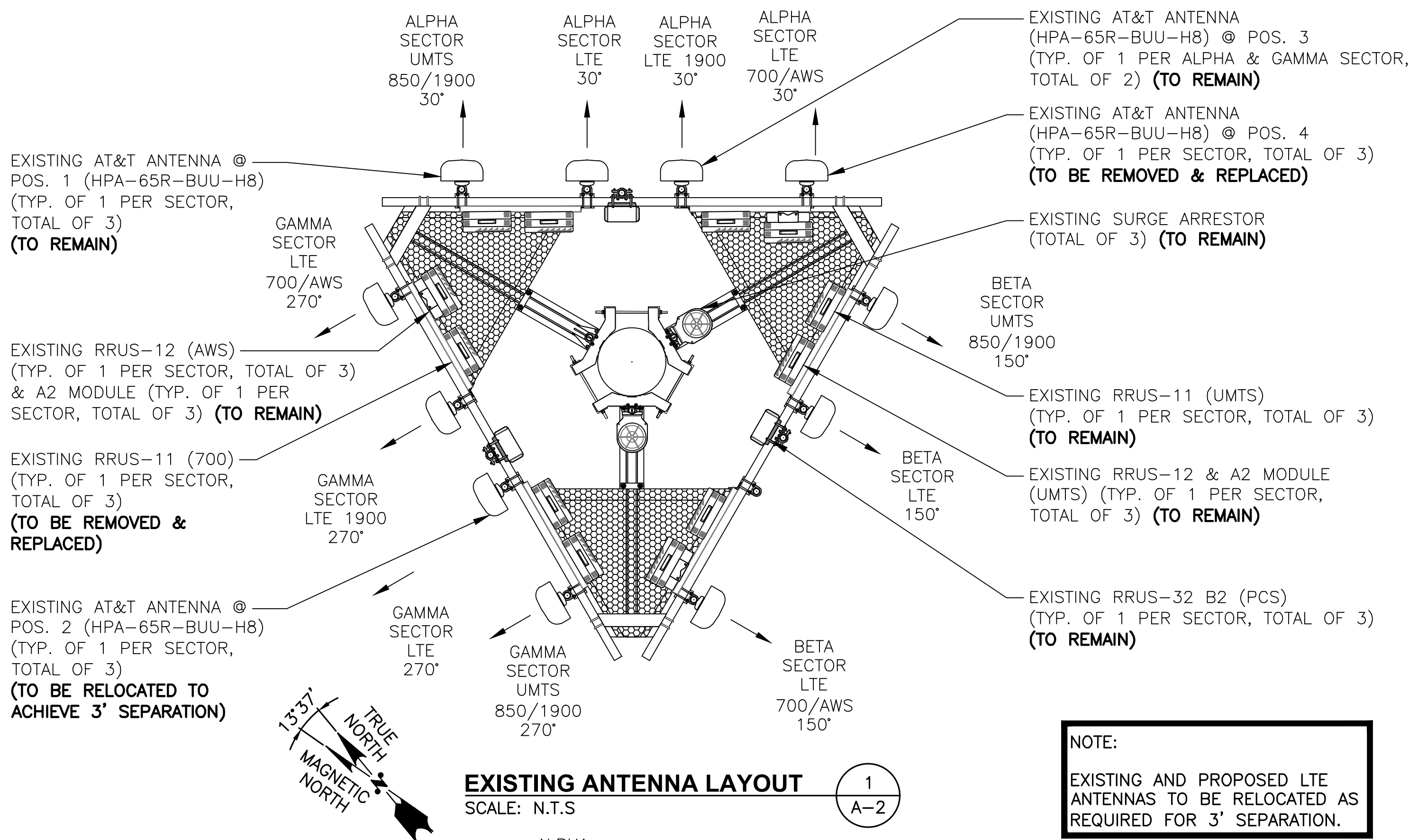
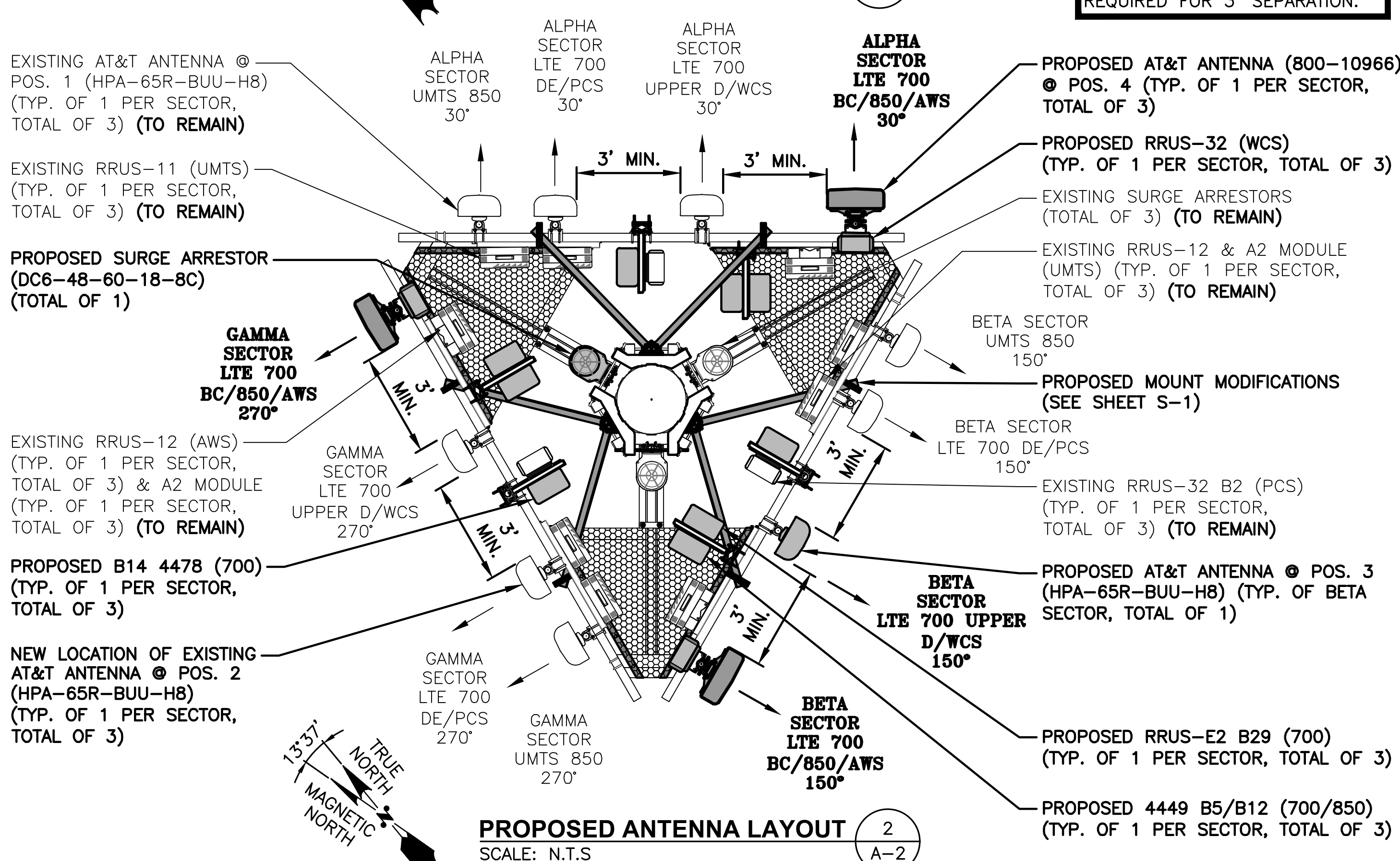


EXISTING ANTENNA LAYOUT (1 / A-2)

SCALE: N.T.S

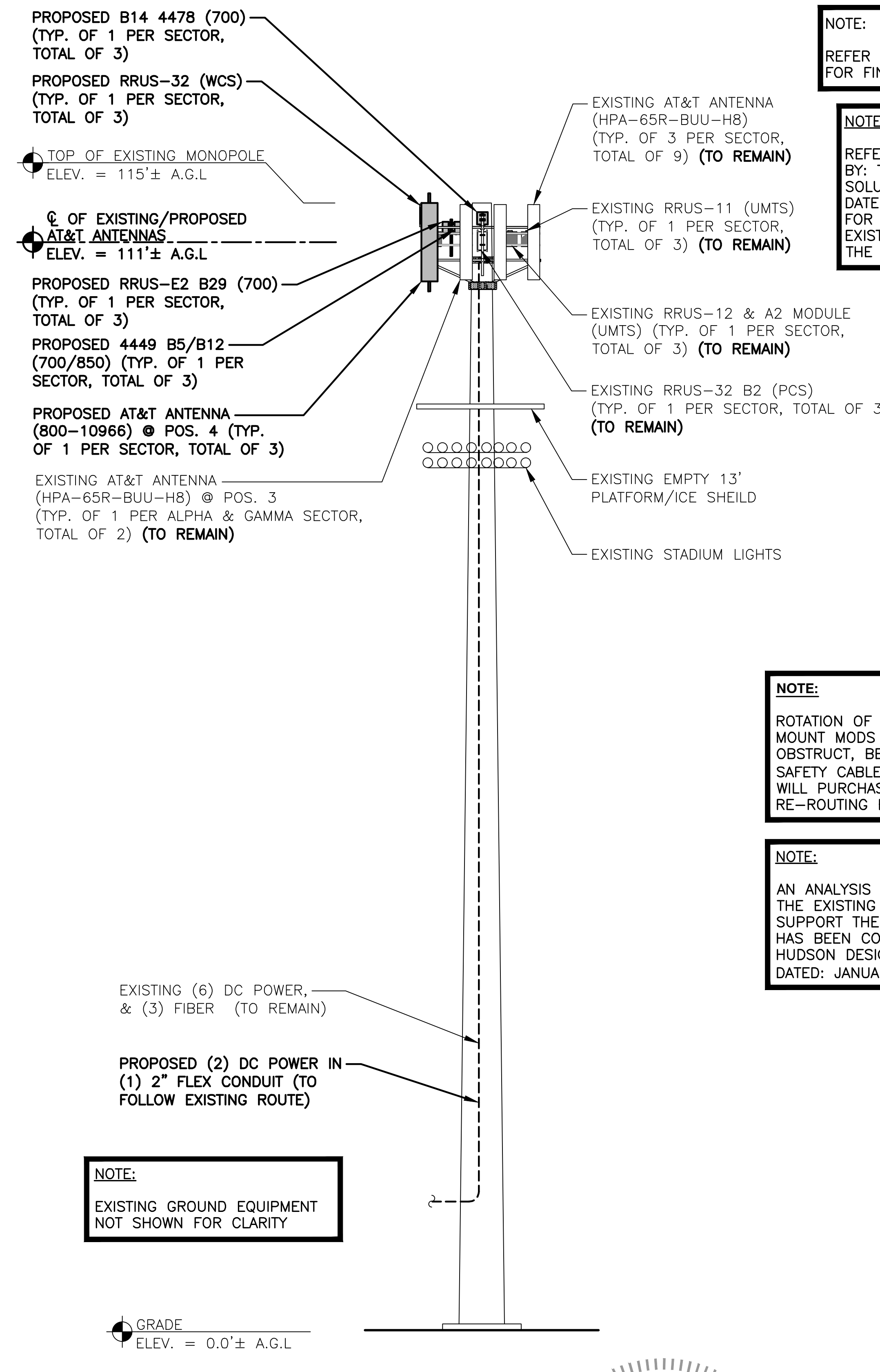
NOTE:

EXISTING AND PROPOSED LTE ANTENNAS TO BE RELOCATED AS REQUIRED FOR 3' SEPARATION.



PROPOSED ANTENNA LAYOUT (2 / A-2)

SCALE: N.T.S



NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION (3 / A-2)

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

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

NOTE:

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

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: TES TOWER ENGINEERING SOLUTIONS, DATED: FEBRUARY 14, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

ROTATION OF MOUNTS OR INSTALLATION OF MOUNT MODS MUST NOT ADVERSELY AFFECT, OBSTRUCT, BEND OR PINCH EXISTING SAFETY CABLE IN ANY WAY. GC, C/O AT&T, WILL PURCHASE AND INSTALL CABLE RE-ROUTING BRACKETS AS REQUIRED.

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: JANUARY 2, 2019 (REV. 1)

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

SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT2838
SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE #: CT22093
490 JEFFERSON AVENUE
NEW LONDON, CT
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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0	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC
A	01/11/19	ISSUED FOR REVIEW	MR	AT	DJC

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

AT&T

ANTENNA LAYOUTS & ELEVATION (LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	A-2	1

NOTE:

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

NOTE:

EXISTING AND PROPOSED LTE ANTENNAS TO BE RELOCATED AS REQUIRED FOR 3' SEPARATION.

NOTE:

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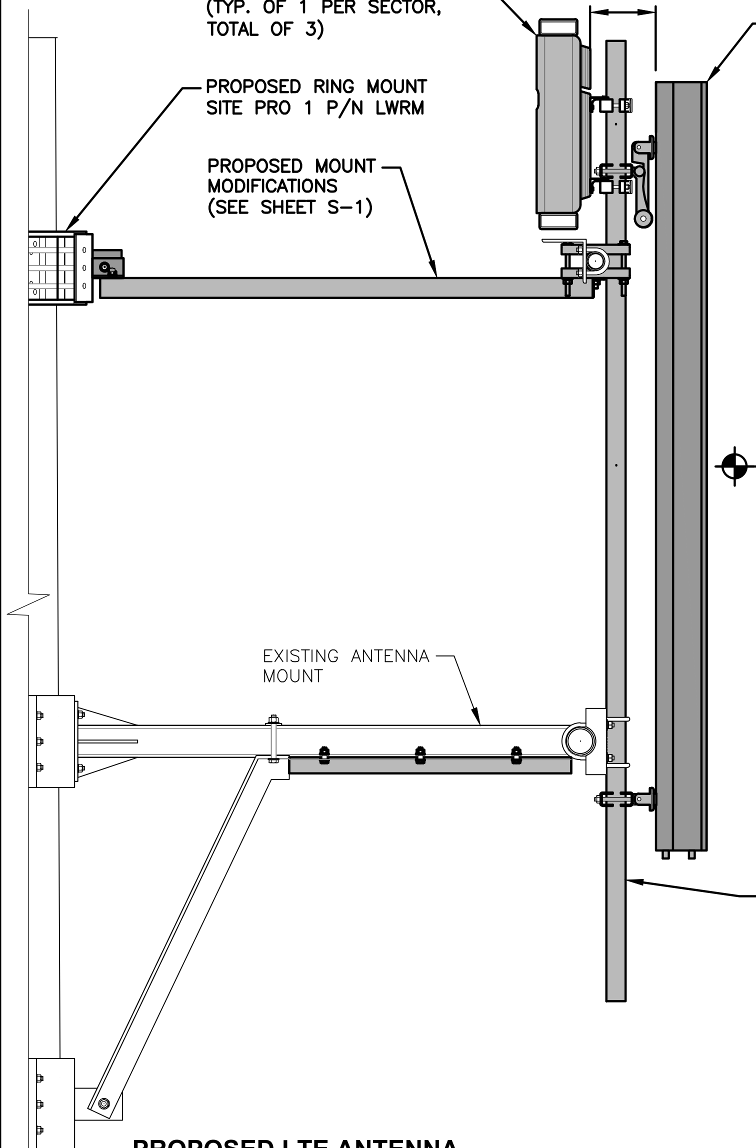
ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS DB/LTE PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	30°	–	(E) RRUS-11 (UMTS) (E) RRUS-12 & A2 MODULE	– –	–	--
A2	EXISTING	LTE 700 DE/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	30°	–	(P) RRUS-E2 B29 (700) (E) RRUS-32 B2 (1900)	20.4X18.5X7.5 –	–	(E) (1) RAYCAP DC6-48-60-18-8C (P) (1) RAYCAP DC6-48-60-0-8C
A3	EXISTING	LTE 700 UPPER D/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	30°	–	(P) B14 4478 (700) (P) RRUS-32 (WCS)	18.1X13.4X8.3 27.2X12.1X7.0	–	
A4	**PROPOSED**	**LTE 700 BC/850/AWS**	**800-10966**	**96x20x6.9**	**±111'**	**30°**	–	(P) 4449 B5/B12 (700/850) (E) RRU-12 + A2 MODULE (AWS)	14.9X13.2X10.4 –	–	
B1	EXISTING	UMTS DB/LTE PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	150°	–	(E) RRUS-11 (UMTS) (E) RRUS-12 & A2 MODULE	– –	–	--
B2	EXISTING	LTE 700 DE/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	150°	–	(P) RRUS-E2 B29 (700) (E) RRUS-32 B2 (1900)	20.4X18.5X7.5 –	–	(E) (1) RAYCAP DC6-48-60-18-8C
B3	**PROPOSED**	**LTE 700 UPPER D/WCS**	**HPA-65R-BUU-H8**	**92.4X14.8X7.4**	**±111'**	**150°**	–	(P) B14 4478 (700) (P) RRUS-32 (WCS)	18.1X13.4X8.3 27.2X12.1X7.0	–	
B4	**PROPOSED**	**LTE 700 BC/850/AWS**	**800-10966**	**96x20x6.9**	**±111'**	**150°**	–	(P) 4449 B5/B12 (700/850) (E) RRU-12 + A2 MODULE (AWS)	14.9X13.2X10.4 –	–	
C1	EXISTING	UMTS DB/LTE PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	270°	–	(E) RRUS-11 (UMTS) (E) RRUS-12 & A2 MODULE	– –	–	--
C2	EXISTING	LTE 700 DE/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	270°	–	(P) RRUS-E2 B29 (700) (E) RRUS-32 B2 (1900)	20.4X18.5X7.5 –	–	(E) (1) RAYCAP DC6-48-60-18-8C
C3	EXISTING	LTE 700 UPPER D/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±111'	270°	–	(P) B14 4478 (700) (P) RRUS-32 (WCS)	18.1X13.4X8.3 27.2X12.1X7.0	–	
C4	**PROPOSED**	**LTE 700 BC/850/AWS**	**800-10966**	**96x20x6.9**	**±111'**	**270°**	–	(P) 4449 B5/B12 (700/850) (E) RRU-12 + A2 MODULE (AWS)	14.9X13.2X10.4 –	–	

FINAL ANTENNA SCHEDULE (2 / A-3)
SCALE: N.T.S



PROPOSED LTE ANTENNA MOUNTING DETAIL (1 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

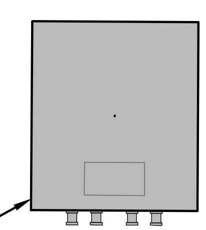
RRU CHART

QUANTITY	MODEL	L	W	D
3(E)	RRUW-11	19.7"	17.0"	7.2"
6(E)	RRUS-12	20.4"	18.5"	7.5"
6(E)	A2 MODULE	20.0"	20.4"	9.5"
3(P)	RRUS-E2	20.4"	18.5"	7.5"
3(E),3(P)	RRUS-32	27.2"	12.1"	7.0"
3(P)	B14 4478	18.1"	13.4"	8.3"
3(P)	4449 B5/B12	14.9"	13.2"	10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

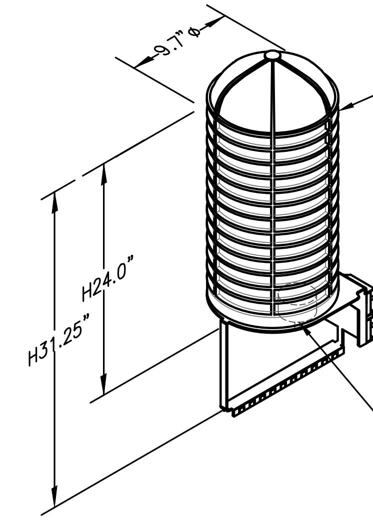
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-3)
SCALE: N.T.S

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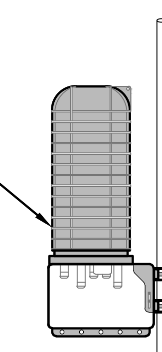

SURGE ARRESTOR MOUNTING DETAIL (5 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

STATE OF CONNECTICUT DEREK ... LICENSED PROFESSIONAL ENGINEER

AT&T
DETAILS
(LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	A-3	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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12 INDUSTRIAL WAY
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A	01/11/19	ISSUED FOR REVIEW	MR	AT	DJC

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

STATE OF CONNECTICUT · DEREK J. CREASER · No. 25[illegible] · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	SN-1	1

NOTE:

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NOTE:

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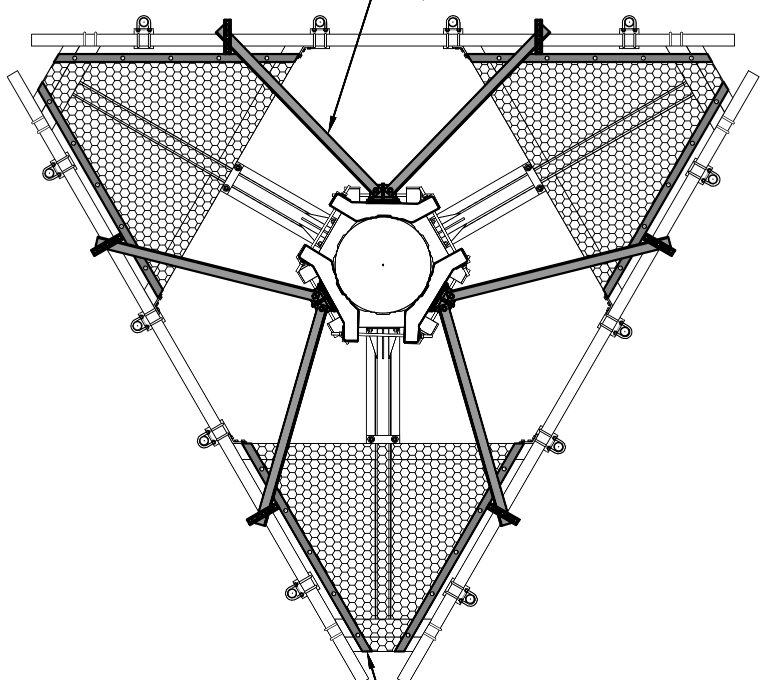
NOTE:

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

NOTE:

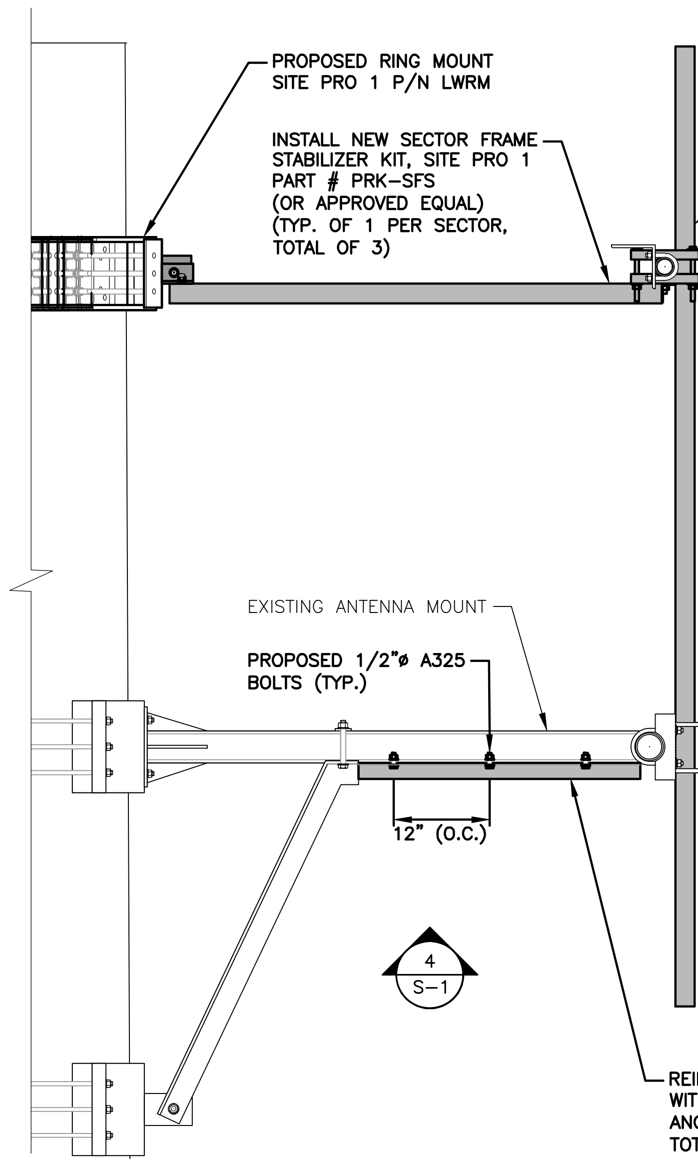
EXISTING AND PROPOSED LTE ANTENNAS TO BE SLID OVER AS REQUIRED FOR 3' SEPARATION.



PROPOSED REINFOCEMENT PLAN (1 / S-1)

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

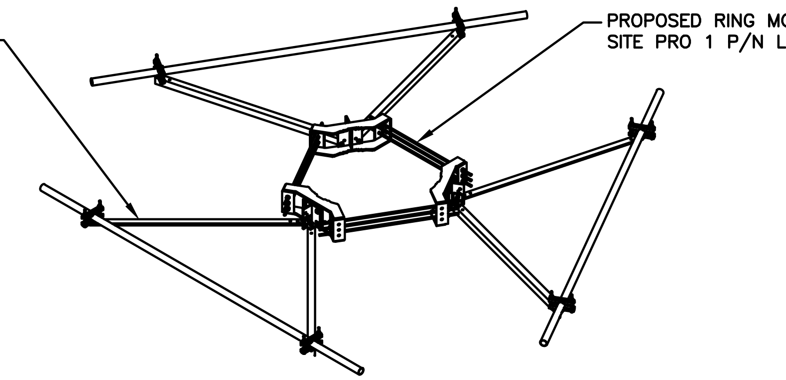
0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED MOUNT MODIFICATIONS DETAIL (2 / S-1)

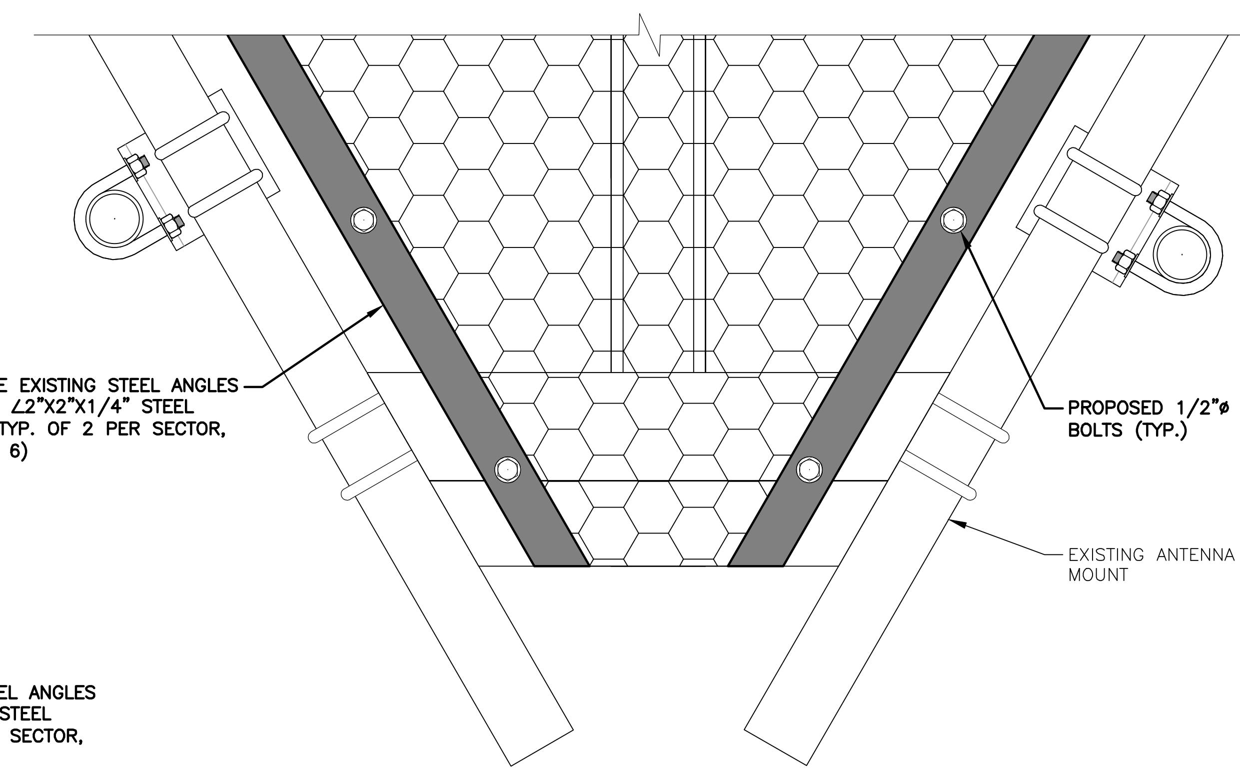
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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



PROPOSED REINFORCEMENT HANDRAIL KIT (3 / S-1)

SCALE: N.T.S



ENLARGED PROPOSED REINFORCEMENT PLAN (4 / S-1)

22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"

0 0'-2" 0'-4" 0'-8" 1'-0"

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

SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT2838
SITE NAME: NEW LONDON JEFFERSON AVENUE
SBA SITE #: CT22093
490 JEFFERSON AVENUE
NEW LONDON, CT
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/01/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
0	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC
A	01/11/19	ISSUED FOR REVIEW	MR	AT	DJC

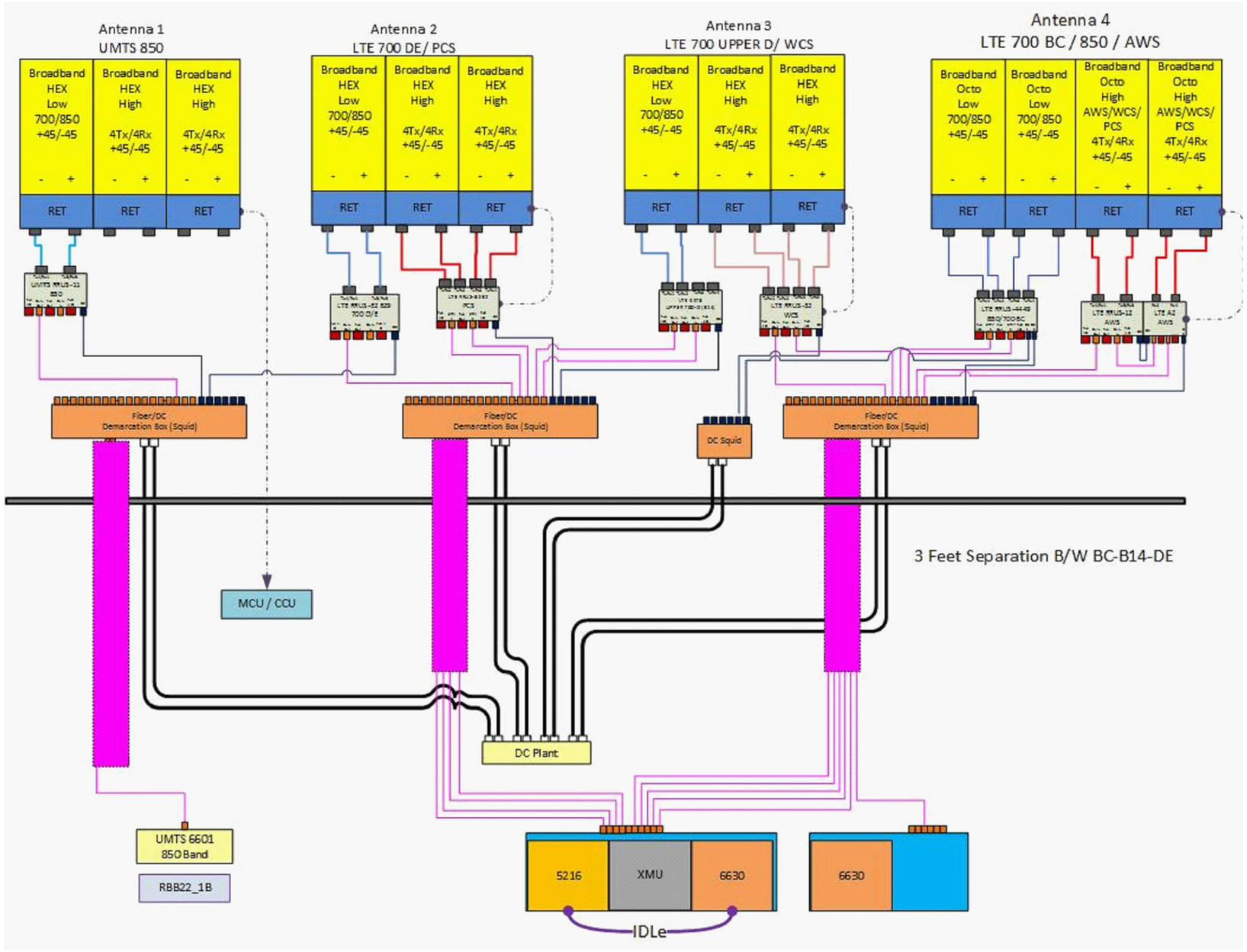
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT DEREK J. CREASER LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL DETAILS (LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	S-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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A	01/11/19	ISSUED FOR REVIEW	MR	AT	DJC

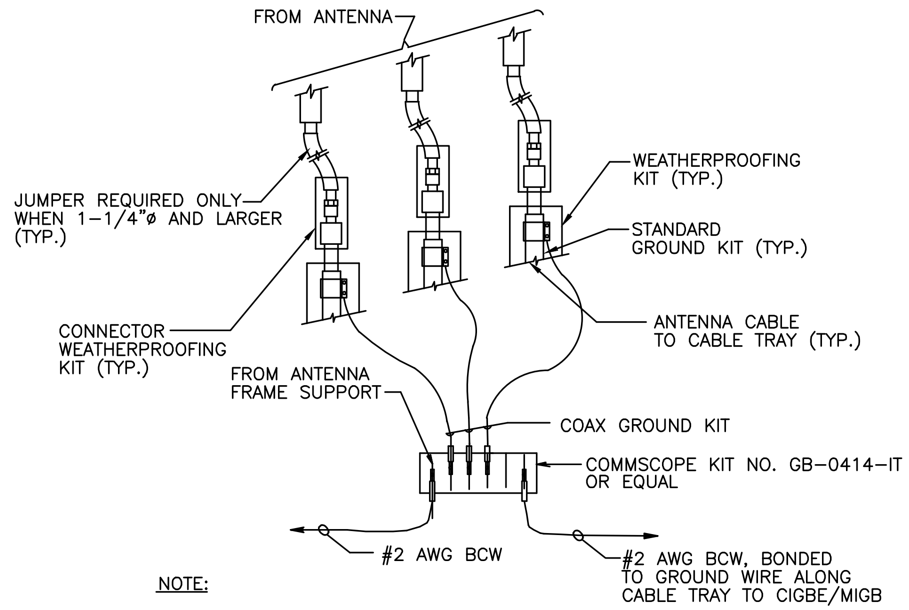
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT · DEREK J. CREASER · No. 23551 · LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
(LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	RF–1	1

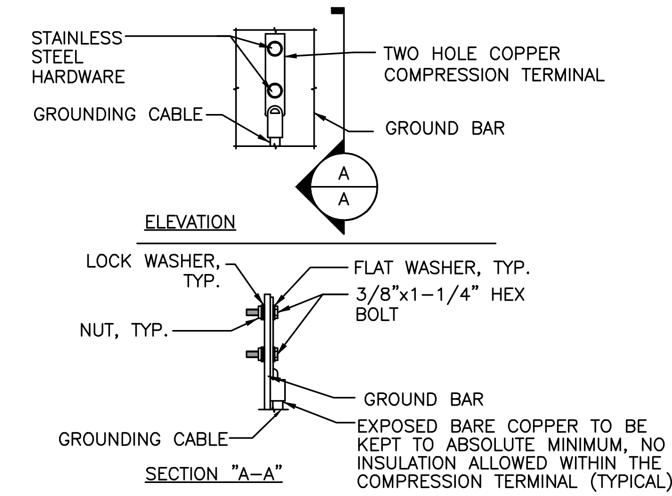


NOTE:

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

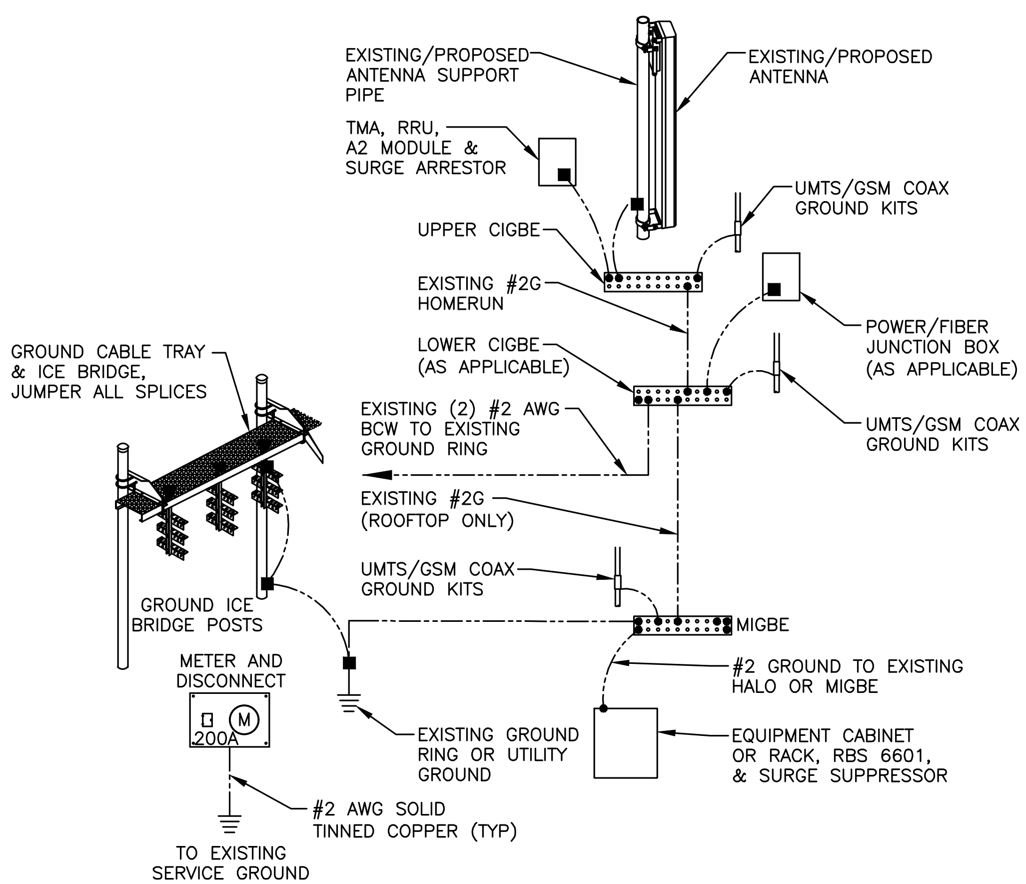


NOTE:

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



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S

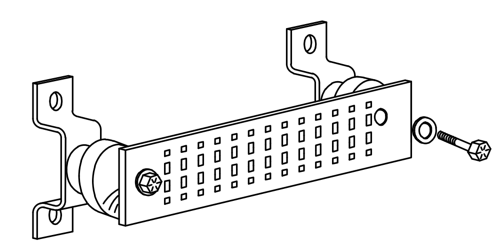
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (4 / G-1)

SCALE: N.T.S

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

STATE OF CONNECTICUT – DEREK J. CREASER – LICENSED PROFESSIONAL ENGINEER

AT&T
GROUNDING DETAILS
(LTE 4C/5C/6C/7C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2838	G-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#: 105485, V1)

Carrier Site ID / Name: CT2838 / NEW LONDON JEFFERSON AVENUE

Site Location: 490 Jefferson Avenue

New London, Connecticut

NEW LONDON County

Latitude: 41.356100

Longitude: -72.124200

2/14/19

Analysis Result:

Max Structural Usage: 34.8% [Pass]

Max Foundation Usage: 29.0% [Pass]

Additional Usage Caused by Mount Modification: + 0.5%

Report Prepared By: Leonardo Klem

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Report Prepared By: Leonardo Klem

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	Valmont, file id 22890903, on November 19, 2013.
Foundation Drawing	Valmont, dwg #B-138201, on January 14, 2014.
Geotechnical Report	Terracon, project #J2135212, on Nobember 26, 2013.
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA-222-G**.** 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)/ 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:	ANSI/TIA/EIA 222-G / 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
-	111.0	12	Cci HPA-65R-BUU-H8 - Panel	(1) Platform w/ Handrails	(2) 1/2" Fiber (8) 3/4" DC (3) 5/16" RET	AT&T
-		9	Ericsson RRUS-11			
-		6	Ericsson RRUS-12			
-		3	Ericsson RRUS 32			
-		3	Ericsson RRUS E2			
-		6	Ericsson RRU A2			
-		4	Raycap DC6-48-60-18-8F			
-	94.0	1	Ice Shield	-	-	-
-	90.0	1	Sport Lights	-	-	-
-	89.0	1	Light support	-	-	-
-	88.0	1	Sport Lights	-	-	-

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
1	111.0	9	Cci HPA-65R-BUU-H8 - Panel	(1) Platform w/ Handrails + (3) SFS-H (V-Braces) + (6) Reinforcing angles	(2) 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			

*(1) 2" Conduit housing DC lines.

All transmission lines are considered running inside of the pole shafts.

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:	**34.3%**	**34.8%**	**17.7%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Analysis Reactions	3034.4	37.5

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 ANSI/TIA-222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2032 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 Standard under the design basic wind speed as 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 34.30% at 0.0ft

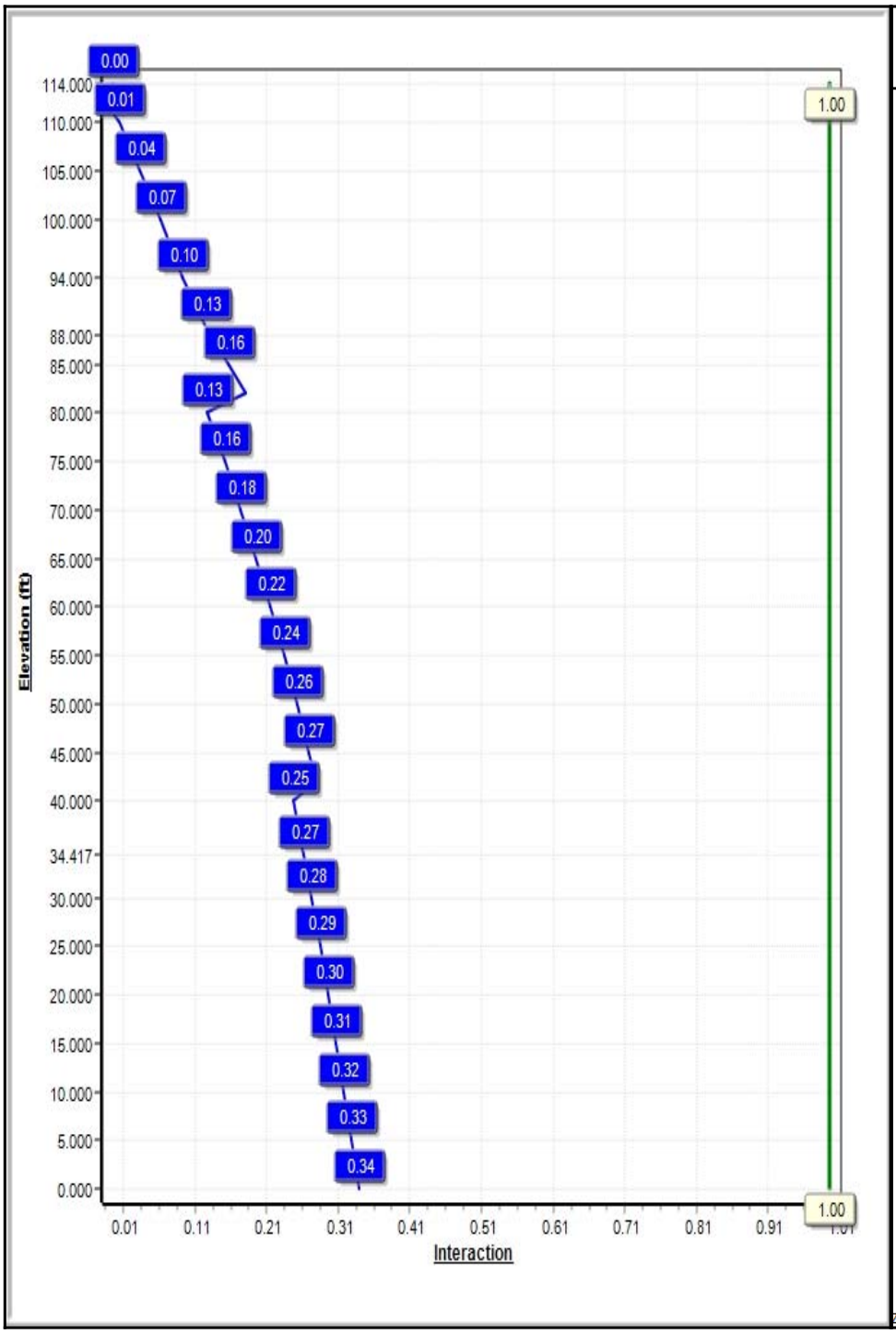
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019
Site Name:	New London (Bates Wood)	**Exposure:**	C	
Height:	114.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

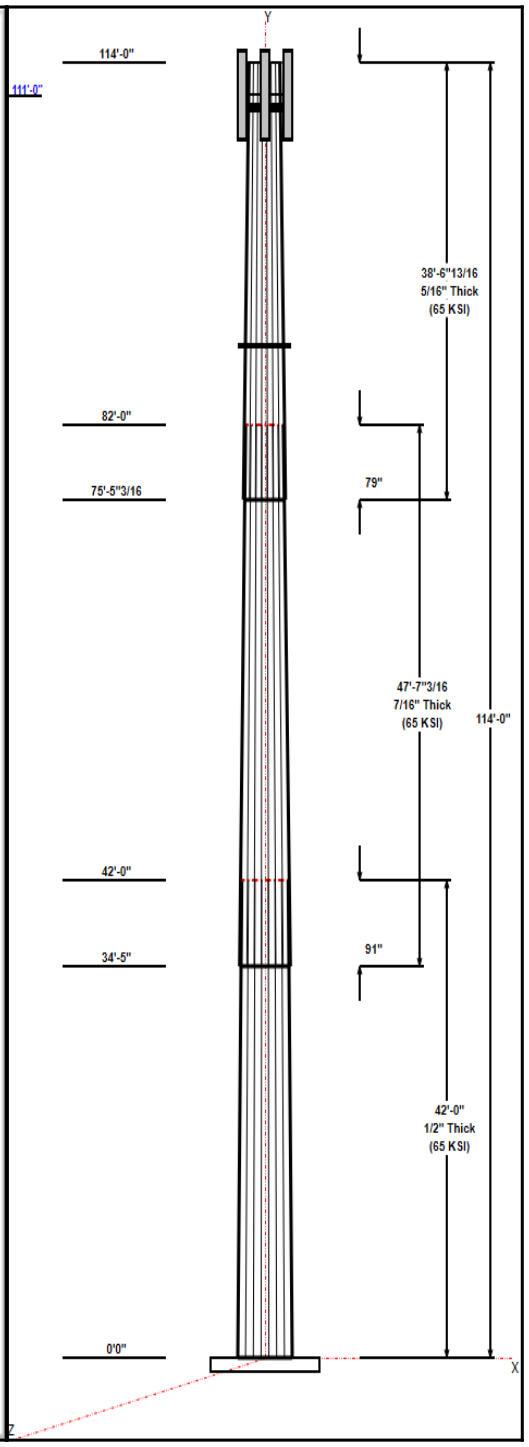
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 105 mph Wind

Iterations: 16





Structure: CT22093-A-SBA

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

Base Shape: 16 Sided
Taper: 0.26502

2/14/2019

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		0.26502	65
2	47.60	43.39	56.00	0.438	Slip	0.26502	65
3	38.57	35.54	45.76	0.313	Slip	0.26502	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
111.00	111.00	9	HPA-65R-BUU-H8	AT&T
111.00	111.00	3	800 10966	AT&T
111.00	111.00	1	(3) SFS-H (V-Braces)	AT&T
111.00	111.00	1	Platform w/ Hand Rail	AT&T
111.00	111.00	3	RRUS-11	AT&T
111.00	111.00	3	RRUS-12 1600 MHz	AT&T
111.00	111.00	3	RRUS 32	AT&T
111.00	111.00	3	RRUS-E2	AT&T
111.00	111.00	3	4449 B5/B12	AT&T
111.00	111.00	3	RRUS 4478 B14	AT&T
111.00	111.00	3	RRUS 32 B30	AT&T
111.00	111.00	3	RRUS A2 Module	AT&T
111.00	111.00	4	DC6-48-60-18-8F	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
0.00	111.00	Inside	1/2" Fiber	AT&T
0.00	111.00	Inside	2" Conduit	AT&T
0.00	111.00	Inside	3/4" DC	AT&T
0.00	111.00	Inside	5/16" RET	AT&T

Anchor Bolts

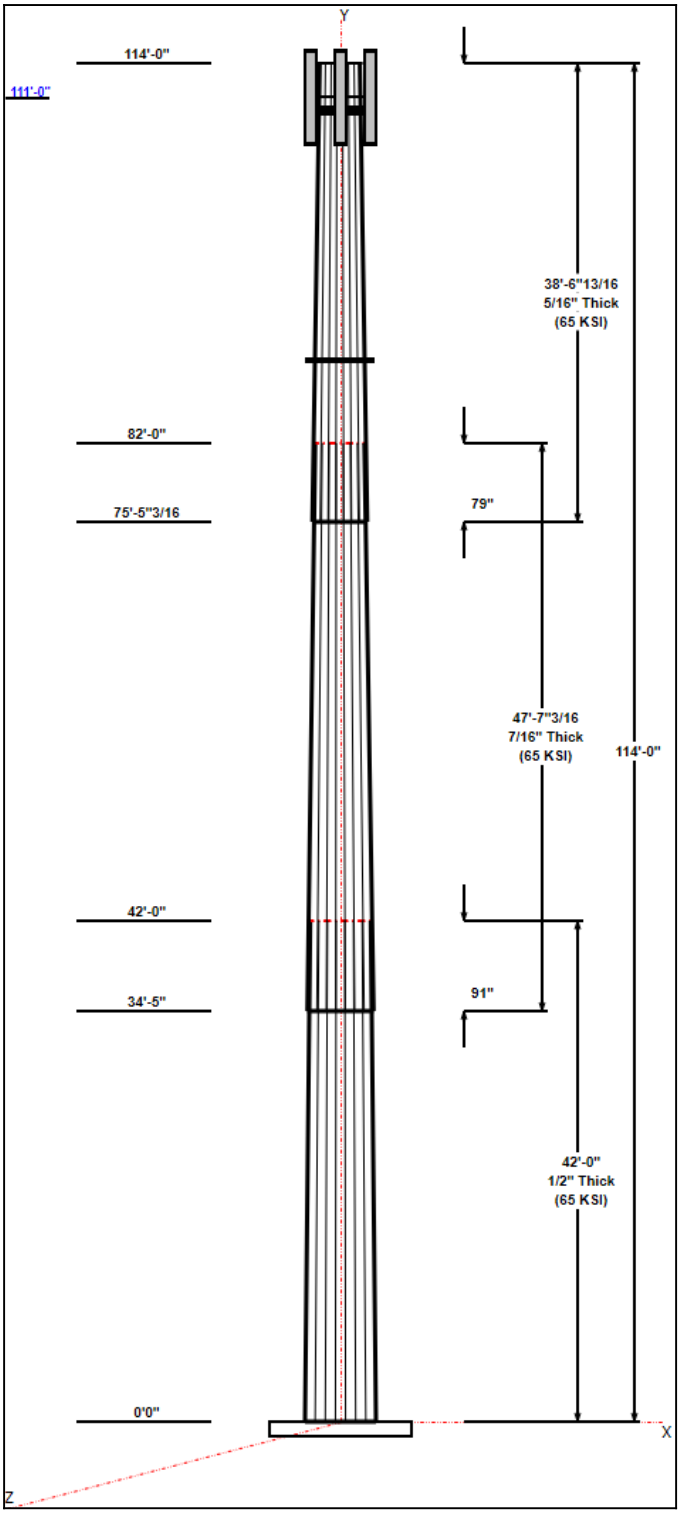
Qty	Specifications	Grade (ksi)	Arrangement
24	2.25" 18J	75.0	Radial

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	3034.4	37.5	44.6
0.9D + 1.6W 105 mph Wind	3027.4	37.5	33.4
1.2D + 1.0Di + 1.0Wi 50 mph Wind	713.5	8.9	65.7
1.2D + 1.0E	172.3	1.9	44.6
0.9D + 1.0E	171.9	1.9	33.5
1.0D + 1.0W 60 mph Wind	618.3	7.7	37.2

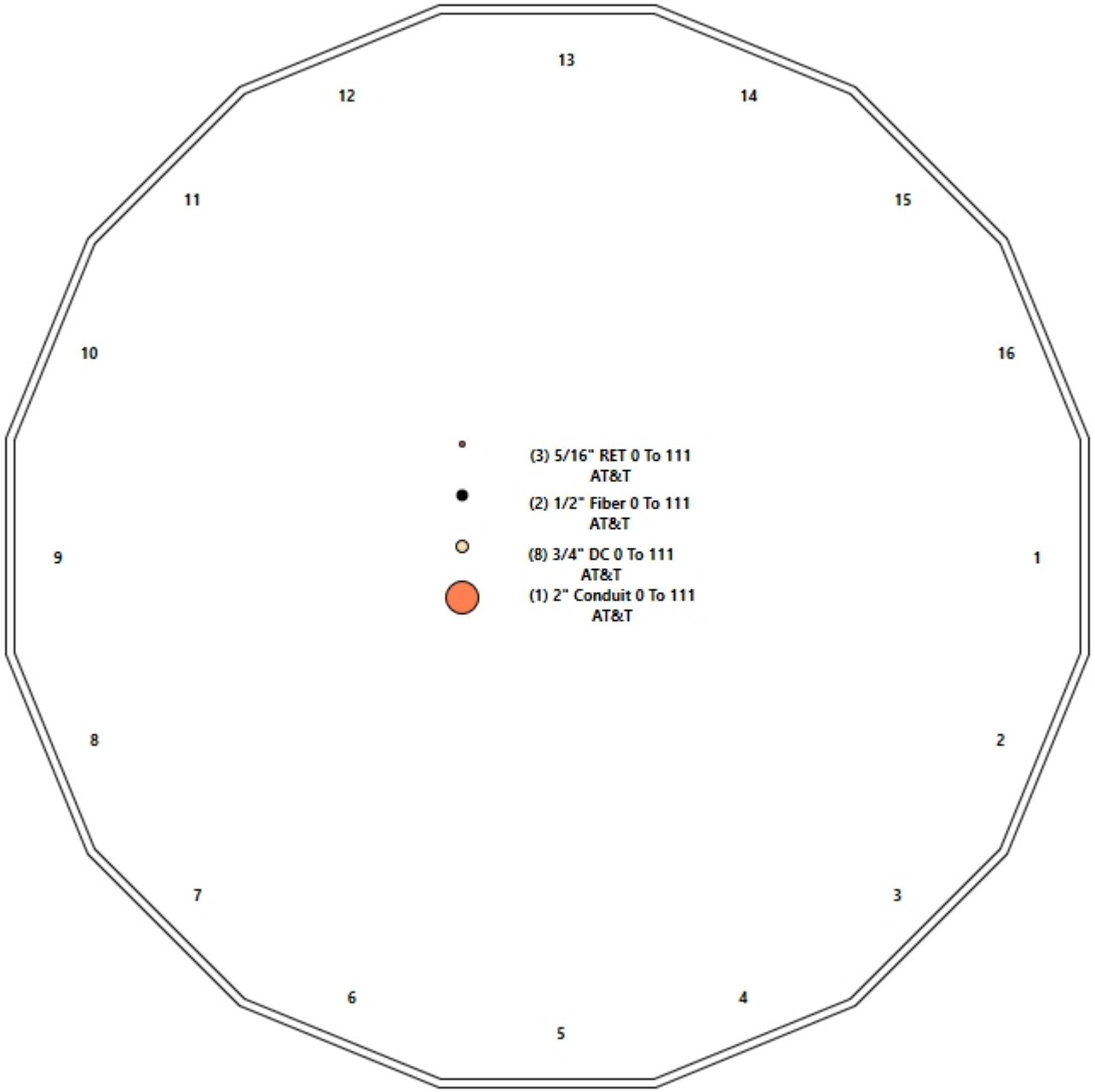


Structure: CT22093-A-SBA - Coax Line Placement

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

2/14/2019

Tower Engineering Solutions



Shaft Properties

Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	2/14/2019
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: 4

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	16	42.000	0.5000	65		0.00	13,263
2	16	47.600	0.4380	65	Slip	91.00	11,148
3	16	38.567	0.3130	65	Slip	79.00	5,286
					Total Shaft Weight:		**29,697**

	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	101.6	52205.42	23.97	128.50	53.12	42.00	83.93	29356.8	19.54	106.2	0.265018
2	56.00	34.42	77.64	30285.14	23.84	127.87	43.39	82.02	60.01	13987.2	18.11	99.06	0.265018
3	45.76	75.43	45.38	11841.02	27.49	146.20	35.54	114.00	35.17	5514.12	20.99	113.5	0.265018

Load Summary

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
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

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	111.00	HPA-65R-BUU-H8	9	68.00	12.98	0.79	349.03	14.544	0.81	0.00	0.00
2	111.00	800 10966	3	125.70	17.36	0.72	471.24	19.112	0.74	0.00	0.00
3	111.00	(3) SFS-H (V-Braces)	1	197.00	6.30	1.00	463.89	12.701	1.00	0.00	0.00
4	111.00	Platform w/ Hand Rail (round)	1	1600.00	32.00	1.00	3637.56	59.095	1.00	0.00	0.00
5	111.00	RRUS-11	3	51.00	2.52	0.71	121.13	3.135	0.73	0.00	0.00
6	111.00	RRUS-12 1600 MHz	3	60.00	2.70	0.75	132.10	3.744	0.77	0.00	0.00
7	111.00	RRUS 32	3	77.00	1.65	0.70	123.59	2.211	0.72	0.00	0.00
8	111.00	RRUS-E2	3	59.40	3.15	0.70	151.35	3.841	0.72	0.00	0.00
9	111.00	4449 B5/B12	3	71.00	1.97	0.86	122.80	2.501	0.88	0.00	0.00
10	111.00	RRUS 4478 B14	3	59.40	1.65	0.70	102.94	2.172	0.72	0.00	0.00
11	111.00	RRUS 32 B30	3	60.00	2.74	0.81	144.79	3.446	0.83	0.00	0.00
12	111.00	RRUS A2 Module	3	21.20	1.86	0.62	56.24	2.805	0.64	0.00	0.00
13	111.00	DC6-48-60-18-8F	4	31.80	0.92	1.00	91.79	1.345	1.00	0.00	0.00
14	94.00	Ice shield	1	500.00	40.00	1.00	999.66	79.973	1.00	0.00	0.00
15	90.00	Sport Lights	1	800.00	40.00	1.00	1595.99	79.799	1.00	0.00	0.00
16	89.00	Light support	1	500.00	28.00	1.00	996.94	55.828	1.00	0.00	0.00
17	88.00	Sport Lights	1	800.00	40.00	1.00	1594.20	79.710	1.00	0.00	0.00
		Totals:	**46**	**6,890.30**			**17,075.21**				

Linear Appurtenances

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

Shaft Section Properties

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
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

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	101.681	52205.4	23.97	128.50	75.5	1593.	0.0
5.00		0.5000	62.925	99.568	49017.2	23.44	125.85	76.0	1528.	1712.0
10.00		0.5000	61.600	97.454	45961.6	22.91	123.20	76.6	1463.	1676.1
15.00		0.5000	60.275	95.341	43035.6	22.39	120.55	77.2	1400.	1640.1
20.00		0.5000	58.950	93.227	40236.6	21.86	117.90	77.8	1338.	1604.1
25.00		0.5000	57.625	91.114	37561.6	21.33	115.25	78.4	1278.	1568.2
30.00		0.5000	56.299	89.000	35007.8	20.81	112.60	79.0	1219.	1532.2
34.42	Bot - Section 2	0.5000	55.129	87.133	32850.7	20.34	110.26	79.6	1168.	1323.5
35.00		0.5000	54.974	86.887	32572.6	20.28	109.95	79.6	1162.	326.6
40.00		0.5000	53.649	84.773	30252.9	19.75	107.30	80.2	1106.	2761.8
42.00	Top - Section 1	0.4380	53.995	74.831	27116.5	22.93	123.28	0.0	0.0	1085.8
45.00		0.4380	53.200	73.720	25926.8	22.57	121.46	77.0	956.0	758.2
50.00		0.4380	51.875	71.869	24022.0	21.97	118.44	77.7	908.4	1238.5
55.00		0.4380	50.550	70.018	22212.9	21.37	115.41	78.4	862.0	1207.0
60.00		0.4380	49.225	68.166	20497.0	20.76	112.39	79.1	816.8	1175.5
65.00		0.4380	47.900	66.315	18871.8	20.16	109.36	79.8	772.8	1144.0
70.00		0.4380	46.575	64.463	17334.9	19.56	106.34	80.4	730.1	1112.5
75.00		0.4380	45.250	62.612	15883.7	18.96	103.31	81.1	688.6	1081.0
75.43	Bot - Section 3	0.4380	45.135	62.451	15761.9	18.91	103.05	81.2	685.0	92.2
80.00		0.4380	43.925	60.760	14515.9	18.36	100.28	81.8	648.2	1653.1
82.02	Top - Section 2	0.3130	44.016	43.636	10529.0	26.38	140.63	0.0	0.0	715.7
85.00		0.3130	43.226	42.847	9967.8	25.88	138.10	73.3	452.3	439.0
88.00		0.3130	42.430	42.053	9424.0	25.37	135.56	73.9	435.7	433.3
89.00		0.3130	42.165	41.788	9247.2	25.20	134.71	74.1	430.2	142.6
90.00		0.3130	41.900	41.524	9072.7	25.04	133.87	74.2	424.7	141.7
94.00		0.3130	40.840	40.465	8396.4	24.36	130.48	75.0	403.3	558.0
95.00		0.3130	40.575	40.201	8232.8	24.19	129.63	75.2	398.0	137.2
100.00		0.3130	39.250	38.878	7446.4	23.35	125.40	76.1	372.1	672.7
105.00		0.3130	37.925	37.555	6711.7	22.51	121.17	77.1	347.1	650.2
110.00		0.3130	36.600	36.232	6027.1	21.67	116.93	78.1	323.0	627.7
111.00		0.3130	36.335	35.967	5896.0	21.50	116.09	78.2	318.3	122.8
114.00		0.3130	35.540	35.173	5514.1	20.99	113.55	78.8	304.3	363.1
										29696.8

Wind Loading - Shaft

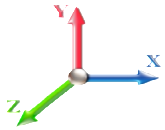
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

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	528.47	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	517.57	0.750	0.000	5.00	27.014	20.26	812.7	0.0	2054.4
10.00		1.00	0.85	22.791	25.07	506.67	0.750	0.000	5.00	26.451	19.84	795.7	0.0	2011.3
15.00		1.00	0.85	22.791	25.07	495.77	0.750	0.000	5.00	25.888	19.42	778.8	0.0	1968.1
20.00		1.00	0.90	24.182	26.60	499.45	0.750	0.000	5.00	25.325	18.99	808.4	0.0	1925.0
25.00		1.00	0.95	25.345	27.88	499.83	0.750	0.000	5.00	24.762	18.57	828.4	0.0	1881.8
30.00		1.00	0.98	26.337	28.97	497.79	0.750	0.000	5.00	24.199	18.15	841.3	0.0	1838.7
34.42	Bot - Section 2	1.00	1.01	27.110	29.82	494.54	0.750	0.000	4.42	20.908	15.68	748.2	0.0	1588.3
35.00		1.00	1.01	27.206	29.93	494.03	0.750	0.000	0.58	2.772	2.08	99.5	0.0	391.9
40.00		1.00	1.04	27.981	30.78	488.95	0.750	0.000	5.00	23.445	17.58	866.0	0.0	3314.2
42.00	Top - Section 1	1.00	1.05	28.270	31.10	486.61	0.750	0.000	2.00	9.221	6.92	344.1	0.0	1303.0
45.00		1.00	1.07	28.684	31.55	490.90	0.750	0.000	3.00	13.662	10.25	517.3	0.0	909.9
50.00		1.00	1.09	29.327	32.26	484.01	0.750	0.000	5.00	22.320	16.74	864.0	0.0	1486.2
55.00		1.00	1.12	29.922	32.91	476.41	0.750	0.000	5.00	21.757	16.32	859.3	0.0	1448.4
60.00		1.00	1.14	30.475	33.52	468.19	0.750	0.000	5.00	21.194	15.90	852.6	0.0	1410.6
65.00		1.00	1.16	30.993	34.09	459.44	0.750	0.000	5.00	20.631	15.47	844.0	0.0	1372.8
70.00		1.00	1.17	31.480	34.63	450.23	0.750	0.000	5.00	20.068	15.05	833.9	0.0	1335.0
75.00		1.00	1.19	31.941	35.13	440.61	0.750	0.000	5.00	19.505	14.63	822.4	0.0	1297.2
75.43	Bot - Section 3	1.00	1.19	31.979	35.18	439.75	0.750	0.000	0.43	1.664	1.25	70.2	0.0	110.6
80.00		1.00	1.21	32.377	35.62	430.62	0.750	0.000	4.57	17.521	13.14	748.8	0.0	1983.7
82.02	Top - Section 2	1.00	1.21	32.548	35.80	426.49	0.750	0.000	2.02	7.588	5.69	326.0	0.0	858.8
85.00		1.00	1.22	32.793	36.07	426.48	0.750	0.000	2.98	11.057	8.29	478.6	0.0	526.8
88.00	Appurtenance(s)	1.00	1.23	33.034	36.34	420.16	0.750	0.000	3.00	10.917	8.19	476.0	0.0	520.0
89.00	Appurtenance(s)	1.00	1.23	33.112	36.42	418.04	0.750	0.000	1.00	3.594	2.70	157.1	0.0	171.2
90.00	Appurtenance(s)	1.00	1.24	33.190	36.51	415.90	0.750	0.000	1.00	3.571	2.68	156.5	0.0	170.1
94.00	Appurtenance(s)	1.00	1.25	33.496	36.85	407.24	0.750	0.000	4.00	14.060	10.55	621.7	0.0	669.6
95.00		1.00	1.25	33.570	36.93	405.04	0.750	0.000	1.00	3.459	2.59	153.3	0.0	164.7
100.00		1.00	1.27	33.935	37.33	393.94	0.750	0.000	5.00	16.956	12.72	759.5	0.0	807.3
105.00		1.00	1.28	34.285	37.71	382.60	0.750	0.000	5.00	16.393	12.29	741.9	0.0	780.2
110.00		1.00	1.29	34.623	38.08	371.04	0.750	0.000	5.00	15.830	11.87	723.5	0.0	753.2
111.00	Appurtenance(s)	1.00	1.29	34.689	38.16	368.71	0.750	0.000	1.00	3.099	2.32	141.9	0.0	147.4
114.00		1.00	1.30	34.884	38.37	361.65	0.750	0.000	3.00	9.160	6.87	421.8	0.0	435.7
								Totals:	**114.00**			**18,493.3**		**35,636.2**

Discrete Appurtenance Forces

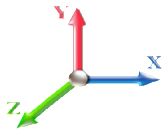
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa 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	111.00	RRUS-11	3	34.689	38.157	0.53	0.75	4.03	183.60	0.000	0.000	245.78	0.00	0.00
2	111.00	RRUS A2 Module	3	34.689	38.157	0.46	0.75	2.59	76.32	0.000	0.000	158.41	0.00	0.00
3	111.00	RRUS 32 B30	3	34.689	38.157	0.61	0.75	4.99	216.00	0.000	0.000	304.87	0.00	0.00
4	111.00	RRUS 4478 B14	3	34.689	38.157	0.52	0.75	2.60	213.84	0.000	0.000	158.66	0.00	0.00
5	111.00	4449 B5/B12	3	34.689	38.157	0.65	0.75	3.81	255.60	0.000	0.000	232.73	0.00	0.00
6	111.00	RRUS-E2	3	34.689	38.157	0.52	0.75	4.96	213.84	0.000	0.000	302.89	0.00	0.00
7	111.00	RRUS 32	3	34.689	38.157	0.52	0.75	2.60	277.20	0.000	0.000	158.66	0.00	0.00
8	111.00	RRUS-12 1600 MHz	3	34.689	38.157	0.56	0.75	4.56	216.00	0.000	0.000	278.17	0.00	0.00
9	111.00	DC6-48-60-18-8F	4	34.689	38.157	1.00	1.00	3.68	152.64	0.000	0.000	224.67	0.00	0.00
10	111.00	Platform w/ Hand Rail	1	34.689	38.157	1.00	1.00	32.00	1920.00	0.000	0.000	1953.66	0.00	0.00
11	111.00	(3) SFS-H (V-Braces)	1	34.689	38.157	1.00	1.00	6.30	236.40	0.000	0.000	384.63	0.00	0.00
12	111.00	800 10966	3	34.689	38.157	0.54	0.75	28.12	452.52	0.000	0.000	1716.98	0.00	0.00
13	111.00	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
14	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
15	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
16	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
17	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:		**8,268.36**			**18,997.91**		

Total Applied Force Summary

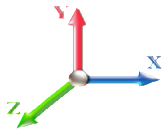
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	2/14/2019
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 9

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

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		812.68	2086.22	0.00	0.00
10.00		795.75	2043.07	0.00	0.00
15.00		778.81	1999.91	0.00	0.00
20.00		808.38	1956.76	0.00	0.00
25.00		828.43	1913.61	0.00	0.00
30.00		841.28	1870.46	0.00	0.00
34.42		748.17	1616.35	0.00	0.00
35.00		99.55	395.64	0.00	0.00
40.00		865.97	3345.99	0.00	0.00
42.00		344.08	1315.73	0.00	0.00
45.00		517.28	928.96	0.00	0.00
50.00		864.03	1518.03	0.00	0.00
55.00		859.31	1480.22	0.00	0.00
60.00		852.55	1442.42	0.00	0.00
65.00		844.01	1404.62	0.00	0.00
70.00		833.89	1366.82	0.00	0.00
75.00		822.35	1329.02	0.00	0.00
75.43		70.24	113.40	0.00	0.00
80.00		748.81	2012.73	0.00	0.00
82.02		326.00	871.63	0.00	0.00
85.00		478.63	545.74	0.00	0.00
88.00	(1) attachments	2801.59	1499.09	0.00	0.00
89.00	(1) attachments	1788.86	777.54	0.00	0.00
90.00	(1) attachments	2493.07	1136.46	0.00	0.00
94.00	(1) attachments	2979.75	1295.02	0.00	0.00
95.00		153.27	171.05	0.00	0.00
100.00		759.53	839.06	0.00	0.00
105.00		741.90	812.05	0.00	0.00
110.00		723.47	785.03	0.00	0.00
111.00	(42) attachments	10487.74	5302.13	0.00	0.00
114.00		421.81	435.73	0.00	0.00
	Totals:	**37,491.19**	**44,610.50**	**0.00**	**0.00**

Calculated Forces

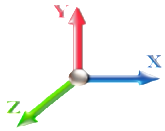
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 16

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	-44.58	-37.52	0.00	-3034.3	0.00	3034.37	6904.70	3452.35	18167.7	9019.23	0.00	0.000	0.000	0.343
5.00	-42.45	-36.77	0.00	-2846.7	0.00	2846.76	6814.63	3407.32	17555.1	8715.11	0.04	-0.080	0.000	0.333
10.00	-40.35	-36.02	0.00	-2662.9	0.00	2662.92	6722.29	3361.15	16946.7	8413.08	0.17	-0.160	0.000	0.323
15.00	-38.31	-35.29	0.00	-2482.8	0.00	2482.80	6627.68	3313.84	16342.9	8113.33	0.38	-0.240	0.000	0.312
20.00	-36.31	-34.52	0.00	-2306.3	0.00	2306.34	6530.81	3265.40	15744.1	7816.03	0.68	-0.319	0.000	0.301
25.00	-34.35	-33.73	0.00	-2133.7	0.00	2133.73	6431.66	3215.83	15150.5	7521.39	1.05	-0.397	0.000	0.289
30.00	-32.45	-32.92	0.00	-1965.0	0.00	1965.08	6330.24	3165.12	14562.7	7229.58	1.51	-0.475	0.000	0.277
34.42	-30.82	-32.17	0.00	-1819.7	0.00	1819.70	6238.77	3119.39	14048.6	6974.33	1.99	-0.543	0.000	0.266
35.00	-30.40	-32.09	0.00	-1800.9	0.00	1800.93	6226.56	3113.28	13981.0	6940.80	2.05	-0.552	0.000	0.264
40.00	-27.03	-31.22	0.00	-1640.4	0.00	1640.47	6120.60	3060.30	13405.8	6655.22	2.67	-0.627	0.000	0.251
42.00	-25.70	-30.88	0.00	-1578.0	0.00	1578.03	5160.62	2580.31	11403.8	5661.35	2.94	-0.657	0.000	0.284
45.00	-24.75	-30.37	0.00	-1485.4	0.00	1485.41	5111.11	2555.56	11125.4	5523.13	3.37	-0.702	0.000	0.274
50.00	-23.20	-29.52	0.00	-1333.5	0.00	1333.54	5026.79	2513.39	10664.8	5294.46	4.15	-0.779	0.000	0.257
55.00	-21.70	-28.67	0.00	-1185.9	0.00	1185.94	4940.20	2470.10	10208.8	5068.09	5.01	-0.854	0.000	0.239
60.00	-20.23	-27.82	0.00	-1042.6	0.00	1042.60	4851.34	2425.67	9757.80	4844.18	5.94	-0.925	0.000	0.220
65.00	-18.81	-26.97	0.00	-903.51	0.00	903.51	4760.21	2380.10	9312.15	4622.94	6.95	-0.993	0.000	0.200
70.00	-17.43	-26.13	0.00	-768.66	0.00	768.66	4666.81	2333.41	8872.22	4404.54	8.02	-1.056	0.000	0.178
75.00	-16.11	-25.29	0.00	-638.00	0.00	638.00	4571.14	2285.57	8438.40	4189.18	9.16	-1.114	0.000	0.156
75.43	-15.98	-25.23	0.00	-627.04	0.00	627.04	4562.75	2281.37	8401.11	4170.66	9.26	-1.118	0.000	0.154
80.00	-13.97	-24.45	0.00	-511.83	0.00	511.83	4473.21	2236.60	8011.07	3977.03	10.36	-1.165	0.000	0.132
82.02	-13.10	-24.11	0.00	-462.53	0.00	462.53	2855.96	1427.98	5155.05	2559.19	10.85	-1.185	0.000	0.186
85.00	-12.55	-23.63	0.00	-390.60	0.00	390.60	2826.21	1413.11	5008.42	2486.39	11.60	-1.211	0.000	0.162
88.00	-11.10	-20.80	0.00	-319.73	0.00	319.73	2795.48	1397.74	4861.52	2413.46	12.37	-1.241	0.000	0.137
89.00	-10.36	-18.99	0.00	-298.93	0.00	298.93	2785.06	1392.53	4812.69	2389.22	12.64	-1.250	0.000	0.129
90.00	-9.28	-16.48	0.00	-279.94	0.00	279.94	2774.55	1387.27	4763.94	2365.02	12.90	-1.259	0.000	0.122
94.00	-8.04	-13.47	0.00	-214.03	0.00	214.03	2731.58	1365.79	4569.72	2268.60	13.97	-1.290	0.000	0.097
95.00	-7.87	-13.32	0.00	-200.56	0.00	200.56	2720.62	1360.31	4521.38	2244.61	14.24	-1.297	0.000	0.092
100.00	-7.04	-12.54	0.00	-133.97	0.00	133.97	2664.41	1332.21	4281.13	2125.33	15.62	-1.326	0.000	0.066
105.00	-6.25	-11.78	0.00	-71.26	0.00	71.26	2605.94	1302.97	4043.55	2007.39	17.02	-1.346	0.000	0.038
110.00	-5.48	-11.04	0.00	-12.34	0.00	12.34	2545.20	1272.60	3809.02	1890.96	18.43	-1.355	0.000	0.009
111.00	-0.43	-0.43	0.00	-1.30	0.00	1.30	2532.78	1266.39	3762.51	1867.87	18.72	-1.355	0.000	0.001
114.00	0.00	-0.42	0.00	0.00	0.00	0.00	2494.98	1247.49	3623.84	1799.03	19.57	-1.355	0.000	0.000

Wind Loading - Shaft

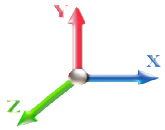
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 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	528.47	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	517.57	0.750	0.000	5.00	27.014	20.26	812.7	0.0	1540.8
10.00		1.00	0.85	22.791	25.07	506.67	0.750	0.000	5.00	26.451	19.84	795.7	0.0	1508.4
15.00		1.00	0.85	22.791	25.07	495.77	0.750	0.000	5.00	25.888	19.42	778.8	0.0	1476.1
20.00		1.00	0.90	24.182	26.60	499.45	0.750	0.000	5.00	25.325	18.99	808.4	0.0	1443.7
25.00		1.00	0.95	25.345	27.88	499.83	0.750	0.000	5.00	24.762	18.57	828.4	0.0	1411.4
30.00		1.00	0.98	26.337	28.97	497.79	0.750	0.000	5.00	24.199	18.15	841.3	0.0	1379.0
34.42	Bot - Section 2	1.00	1.01	27.110	29.82	494.54	0.750	0.000	4.42	20.908	15.68	748.2	0.0	1191.2
35.00		1.00	1.01	27.206	29.93	494.03	0.750	0.000	0.58	2.772	2.08	99.5	0.0	293.9
40.00		1.00	1.04	27.981	30.78	488.95	0.750	0.000	5.00	23.445	17.58	866.0	0.0	2485.6
42.00	Top - Section 1	1.00	1.05	28.270	31.10	486.61	0.750	0.000	2.00	9.221	6.92	344.1	0.0	977.3
45.00		1.00	1.07	28.684	31.55	490.90	0.750	0.000	3.00	13.662	10.25	517.3	0.0	682.4
50.00		1.00	1.09	29.327	32.26	484.01	0.750	0.000	5.00	22.320	16.74	864.0	0.0	1114.7
55.00		1.00	1.12	29.922	32.91	476.41	0.750	0.000	5.00	21.757	16.32	859.3	0.0	1086.3
60.00		1.00	1.14	30.475	33.52	468.19	0.750	0.000	5.00	21.194	15.90	852.6	0.0	1058.0
65.00		1.00	1.16	30.993	34.09	459.44	0.750	0.000	5.00	20.631	15.47	844.0	0.0	1029.6
70.00		1.00	1.17	31.480	34.63	450.23	0.750	0.000	5.00	20.068	15.05	833.9	0.0	1001.3
75.00		1.00	1.19	31.941	35.13	440.61	0.750	0.000	5.00	19.505	14.63	822.4	0.0	972.9
75.43	Bot - Section 3	1.00	1.19	31.979	35.18	439.75	0.750	0.000	0.43	1.664	1.25	70.2	0.0	83.0
80.00		1.00	1.21	32.377	35.62	430.62	0.750	0.000	4.57	17.521	13.14	748.8	0.0	1487.8
82.02	Top - Section 2	1.00	1.21	32.548	35.80	426.49	0.750	0.000	2.02	7.588	5.69	326.0	0.0	644.1
85.00		1.00	1.22	32.793	36.07	426.48	0.750	0.000	2.98	11.057	8.29	478.6	0.0	395.1
88.00	Appurtenance(s)	1.00	1.23	33.034	36.34	420.16	0.750	0.000	3.00	10.917	8.19	476.0	0.0	390.0
89.00	Appurtenance(s)	1.00	1.23	33.112	36.42	418.04	0.750	0.000	1.00	3.594	2.70	157.1	0.0	128.4
90.00	Appurtenance(s)	1.00	1.24	33.190	36.51	415.90	0.750	0.000	1.00	3.571	2.68	156.5	0.0	127.6
94.00	Appurtenance(s)	1.00	1.25	33.496	36.85	407.24	0.750	0.000	4.00	14.060	10.55	621.7	0.0	502.2
95.00		1.00	1.25	33.570	36.93	405.04	0.750	0.000	1.00	3.459	2.59	153.3	0.0	123.5
100.00		1.00	1.27	33.935	37.33	393.94	0.750	0.000	5.00	16.956	12.72	759.5	0.0	605.4
105.00		1.00	1.28	34.285	37.71	382.60	0.750	0.000	5.00	16.393	12.29	741.9	0.0	585.2
110.00		1.00	1.29	34.623	38.08	371.04	0.750	0.000	5.00	15.830	11.87	723.5	0.0	564.9
111.00	Appurtenance(s)	1.00	1.29	34.689	38.16	368.71	0.750	0.000	1.00	3.099	2.32	141.9	0.0	110.6
114.00		1.00	1.30	34.884	38.37	361.65	0.750	0.000	3.00	9.160	6.87	421.8	0.0	326.8
								Totals:	**114.00**			**18,493.3**		**26,727.1**

Discrete Appurtenance Forces

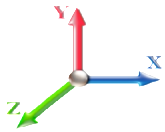
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa 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	111.00	RRUS-11	3	34.689	38.157	0.53	0.75	4.03	137.70	0.000	0.000	245.78	0.00	0.00
2	111.00	RRUS A2 Module	3	34.689	38.157	0.46	0.75	2.59	57.24	0.000	0.000	158.41	0.00	0.00
3	111.00	RRUS 32 B30	3	34.689	38.157	0.61	0.75	4.99	162.00	0.000	0.000	304.87	0.00	0.00
4	111.00	RRUS 4478 B14	3	34.689	38.157	0.52	0.75	2.60	160.38	0.000	0.000	158.66	0.00	0.00
5	111.00	4449 B5/B12	3	34.689	38.157	0.65	0.75	3.81	191.70	0.000	0.000	232.73	0.00	0.00
6	111.00	RRUS-E2	3	34.689	38.157	0.52	0.75	4.96	160.38	0.000	0.000	302.89	0.00	0.00
7	111.00	RRUS 32	3	34.689	38.157	0.52	0.75	2.60	207.90	0.000	0.000	158.66	0.00	0.00
8	111.00	RRUS-12 1600 MHz	3	34.689	38.157	0.56	0.75	4.56	162.00	0.000	0.000	278.17	0.00	0.00
9	111.00	DC6-48-60-18-8F	4	34.689	38.157	1.00	1.00	3.68	114.48	0.000	0.000	224.67	0.00	0.00
10	111.00	Platform w/ Hand Rail	1	34.689	38.157	1.00	1.00	32.00	1440.00	0.000	0.000	1953.66	0.00	0.00
11	111.00	(3) SFS-H (V-Braces)	1	34.689	38.157	1.00	1.00	6.30	177.30	0.000	0.000	384.63	0.00	0.00
12	111.00	800 10966	3	34.689	38.157	0.54	0.75	28.12	339.39	0.000	0.000	1716.98	0.00	0.00
13	111.00	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
14	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
15	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
16	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
17	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:		**6,201.27**			**18,997.91**		

Total Applied Force Summary

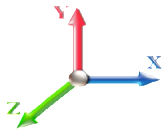
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	2/14/2019
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

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		812.68	1564.66	0.00	0.00
10.00		795.75	1532.30	0.00	0.00
15.00		778.81	1499.94	0.00	0.00
20.00		808.38	1467.57	0.00	0.00
25.00		828.43	1435.21	0.00	0.00
30.00		841.28	1402.85	0.00	0.00
34.42		748.17	1212.26	0.00	0.00
35.00		99.55	296.73	0.00	0.00
40.00		865.97	2509.49	0.00	0.00
42.00		344.08	986.80	0.00	0.00
45.00		517.28	696.72	0.00	0.00
50.00		864.03	1138.52	0.00	0.00
55.00		859.31	1110.17	0.00	0.00
60.00		852.55	1081.82	0.00	0.00
65.00		844.01	1053.47	0.00	0.00
70.00		833.89	1025.12	0.00	0.00
75.00		822.35	996.77	0.00	0.00
75.43		70.24	85.05	0.00	0.00
80.00		748.81	1509.55	0.00	0.00
82.02		326.00	653.72	0.00	0.00
85.00		478.63	409.31	0.00	0.00
88.00	(1) attachments	2801.59	1124.32	0.00	0.00
89.00	(1) attachments	1788.86	583.15	0.00	0.00
90.00	(1) attachments	2493.07	852.34	0.00	0.00
94.00	(1) attachments	2979.75	971.26	0.00	0.00
95.00		153.27	128.29	0.00	0.00
100.00		759.53	629.29	0.00	0.00
105.00		741.90	609.03	0.00	0.00
110.00		723.47	588.78	0.00	0.00
111.00	(42) attachments	10487.74	3976.59	0.00	0.00
114.00		421.81	326.80	0.00	0.00
	Totals:	**37,491.19**	**33,457.87**	**0.00**	**0.00**

Calculated Forces

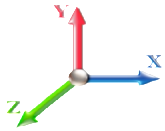
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 16

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	-33.43	-37.51	0.00	-3027.3	0.00	3027.39	6904.70	3452.35	18167.7	9019.23	0.00	0.000	0.000	0.341
5.00	-31.82	-36.75	0.00	-2839.8	0.00	2839.81	6814.63	3407.32	17555.1	8715.11	0.04	-0.080	0.000	0.331
10.00	-30.23	-35.99	0.00	-2656.0	0.00	2656.09	6722.29	3361.15	16946.7	8413.08	0.17	-0.160	0.000	0.320
15.00	-28.69	-35.24	0.00	-2476.1	0.00	2476.15	6627.68	3313.84	16342.9	8113.33	0.38	-0.239	0.000	0.310
20.00	-27.18	-34.47	0.00	-2299.9	0.00	2299.93	6530.81	3265.40	15744.1	7816.03	0.68	-0.318	0.000	0.299
25.00	-25.70	-33.66	0.00	-2127.6	0.00	2127.60	6431.66	3215.83	15150.5	7521.39	1.05	-0.396	0.000	0.287
30.00	-24.26	-32.84	0.00	-1959.2	0.00	1959.28	6330.24	3165.12	14562.7	7229.58	1.51	-0.474	0.000	0.275
34.42	-23.04	-32.10	0.00	-1814.2	0.00	1814.23	6238.77	3119.39	14048.6	6974.33	1.98	-0.541	0.000	0.264
35.00	-22.72	-32.01	0.00	-1795.5	0.00	1795.51	6226.56	3113.28	13981.0	6940.80	2.05	-0.551	0.000	0.262
40.00	-20.19	-31.14	0.00	-1635.4	0.00	1635.44	6120.60	3060.30	13405.8	6655.22	2.67	-0.625	0.000	0.249
42.00	-19.19	-30.80	0.00	-1573.1	0.00	1573.17	5160.62	2580.31	11403.8	5661.35	2.93	-0.656	0.000	0.282
45.00	-18.46	-30.29	0.00	-1480.7	0.00	1480.77	5111.11	2555.56	11125.4	5523.13	3.36	-0.700	0.000	0.272
50.00	-17.30	-29.44	0.00	-1329.3	0.00	1329.32	5026.79	2513.39	10664.8	5294.46	4.14	-0.777	0.000	0.255
55.00	-16.16	-28.58	0.00	-1182.1	0.00	1182.14	4940.20	2470.10	10208.8	5068.09	4.99	-0.851	0.000	0.237
60.00	-15.06	-27.73	0.00	-1039.2	0.00	1039.24	4851.34	2425.67	9757.80	4844.18	5.92	-0.923	0.000	0.218
65.00	-13.99	-26.88	0.00	-900.59	0.00	900.59	4760.21	2380.10	9312.15	4622.94	6.93	-0.990	0.000	0.198
70.00	-12.95	-26.05	0.00	-766.16	0.00	766.16	4666.81	2333.41	8872.22	4404.54	8.00	-1.053	0.000	0.177
75.00	-11.96	-25.21	0.00	-635.93	0.00	635.93	4571.14	2285.57	8438.40	4189.18	9.13	-1.110	0.000	0.155
75.43	-11.86	-25.15	0.00	-625.01	0.00	625.01	4562.75	2281.37	8401.11	4170.66	9.24	-1.115	0.000	0.153
80.00	-10.36	-24.37	0.00	-510.18	0.00	510.18	4473.21	2236.60	8011.07	3977.03	10.33	-1.162	0.000	0.131
82.02	-9.70	-24.04	0.00	-461.03	0.00	461.03	2855.96	1427.98	5155.05	2559.19	10.82	-1.181	0.000	0.184
85.00	-9.29	-23.55	0.00	-389.32	0.00	389.32	2826.21	1413.11	5008.42	2486.39	11.57	-1.207	0.000	0.160
88.00	-8.22	-20.73	0.00	-318.66	0.00	318.66	2795.48	1397.74	4861.52	2413.46	12.34	-1.237	0.000	0.135
89.00	-7.67	-18.93	0.00	-297.92	0.00	297.92	2785.06	1392.53	4812.69	2389.22	12.60	-1.247	0.000	0.128
90.00	-6.87	-16.42	0.00	-278.99	0.00	278.99	2774.55	1387.27	4763.94	2365.02	12.86	-1.255	0.000	0.121
94.00	-5.96	-13.43	0.00	-213.30	0.00	213.30	2731.58	1365.79	4569.72	2268.60	13.93	-1.286	0.000	0.096
95.00	-5.83	-13.27	0.00	-199.87	0.00	199.87	2720.62	1360.31	4521.38	2244.61	14.20	-1.293	0.000	0.091
100.00	-5.21	-12.50	0.00	-133.52	0.00	133.52	2664.41	1332.21	4281.13	2125.33	15.57	-1.322	0.000	0.065
105.00	-4.62	-11.74	0.00	-71.02	0.00	71.02	2605.94	1302.97	4043.55	2007.39	16.97	-1.342	0.000	0.037
110.00	-4.04	-11.01	0.00	-12.30	0.00	12.30	2545.20	1272.60	3809.02	1890.96	18.38	-1.350	0.000	0.008
111.00	-0.32	-0.43	0.00	-1.29	0.00	1.29	2532.78	1266.39	3762.51	1867.87	18.66	-1.351	0.000	0.001
114.00	0.00	-0.42	0.00	0.00	0.00	0.00	2494.98	1247.49	3623.84	1799.03	19.51	-1.351	0.000	0.000

Wind Loading - Shaft

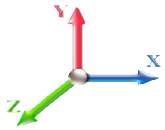
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 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	28.049	33.66	191.3	503.8	2558.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	27.560	33.07	188.0	529.6	2540.9
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	27.043	32.45	184.5	540.4	2508.5
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	26.514	31.82	191.9	544.5	2469.5
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	25.978	31.17	197.1	544.9	2426.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	25.437	30.52	200.5	542.7	2381.4
34.42	Bot - Section 2	1.00	1.01	6.147	6.76	0.00	1.200	1.506	4.42	22.016	26.42	178.7	476.3	2064.6
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	0.58	2.919	3.50	23.8	63.8	455.8
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	24.720	29.66	207.0	541.8	3856.0
42.00	Top - Section 1	1.00	1.05	6.410	7.05	0.00	1.200	1.537	2.00	9.733	11.68	82.4	215.7	1518.8
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	3.00	14.436	17.32	123.9	321.3	1231.1
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	23.623	28.35	207.4	528.2	2014.4
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	23.072	27.69	206.6	520.1	1968.6
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	22.521	27.02	205.4	511.5	1922.1
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.968	26.36	203.8	502.3	1875.1
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.415	25.70	201.8	492.6	1827.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	20.862	25.03	199.4	482.4	1779.7
75.43	Bot - Section 3	1.00	1.19	7.252	7.98	0.00	1.200	1.629	0.43	1.782	2.14	17.1	41.7	152.4
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	4.57	18.768	22.52	181.9	437.0	2420.6
82.02	Top - Section 2	1.00	1.21	7.380	8.12	0.00	1.200	1.643	2.02	8.140	9.77	79.3	191.2	1050.0
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	2.98	11.877	14.25	116.6	279.0	805.8
88.00	Appurtenance(s)	1.00	1.23	7.491	8.24	0.00	1.200	1.655	3.00	11.744	14.09	116.1	276.6	796.6
89.00	Appurtenance(s)	1.00	1.23	7.508	8.26	0.00	1.200	1.656	1.00	3.870	4.64	38.4	91.7	262.9
90.00	Appurtenance(s)	1.00	1.24	7.526	8.28	0.00	1.200	1.658	1.00	3.848	4.62	38.2	91.3	261.4
94.00	Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.200	1.666	4.00	15.171	18.20	152.1	357.9	1027.5
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	1.00	3.737	4.48	37.5	89.0	253.7
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	18.353	22.02	186.4	433.4	1240.7
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	17.797	21.36	182.6	421.5	1201.8
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	17.240	20.69	178.7	409.4	1162.6
111.00	Appurtenance(s)	1.00	1.29	7.866	8.65	0.00	1.200	1.693	1.00	3.381	4.06	35.1	81.4	228.8
114.00		1.00	1.30	7.910	8.70	0.00	1.200	1.698	3.00	10.009	12.01	104.5	239.7	675.4
								Totals:	**114.00**			**4,458.1**		**46,939.0**

Discrete Appurtenance Forces

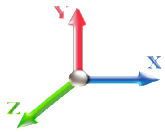
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

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

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa 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	111.00	RRUS-11	3	7.866	8.652	0.55	0.75	5.15	345.99	0.000	0.000	44.55	0.00	0.00
2	111.00	RRUS A2 Module	3	7.866	8.652	0.48	0.75	4.04	150.84	0.000	0.000	34.95	0.00	0.00
3	111.00	RRUS 32 B30	3	7.866	8.652	0.62	0.75	6.43	470.37	0.000	0.000	55.67	0.00	0.00
4	111.00	RRUS 4478 B14	3	7.866	8.652	0.54	0.75	3.52	316.25	0.000	0.000	30.44	0.00	0.00
5	111.00	4449 B5/B12	3	7.866	8.652	0.66	0.75	4.95	370.19	0.000	0.000	42.85	0.00	0.00
6	111.00	RRUS-E2	3	7.866	8.652	0.54	0.75	6.22	489.70	0.000	0.000	53.84	0.00	0.00
7	111.00	RRUS 32	3	7.866	8.652	0.54	0.75	3.58	416.97	0.000	0.000	30.99	0.00	0.00
8	111.00	RRUS-12 1600 MHz	3	7.866	8.652	0.58	0.75	6.49	368.70	0.000	0.000	56.13	0.00	0.00
9	111.00	DC6-48-60-18-8F	4	7.866	8.652	1.00	1.00	5.38	321.80	0.000	0.000	46.55	0.00	0.00
10	111.00	Platform w/ Hand Rail	1	7.866	8.652	1.00	1.00	59.10	3357.56	0.000	0.000	511.32	0.00	0.00
11	111.00	(3) SFS-H (V-Braces)	1	7.866	8.652	1.00	1.00	12.70	416.29	0.000	0.000	109.90	0.00	0.00
12	111.00	800 10966	3	7.866	8.652	0.55	0.75	31.82	1489.14	0.000	0.000	275.33	0.00	0.00
13	111.00	HPA-65R-BUU-H8	9	7.866	8.652	0.61	0.75	79.52	3263.69	0.000	0.000	688.06	0.00	0.00
14	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
15	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
16	89.00	Light support	1	7.508	8.259	1.00	1.00	55.83	1596.94	0.000	0.000	461.10	0.00	0.00
17	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:		**19,084.27**			**4,427.28**		

Total Applied Force Summary

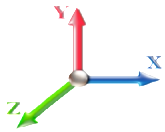
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	2/14/2019
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

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

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		191.34	2590.06	0.00	0.00
10.00		188.01	2572.66	0.00	0.00
15.00		184.48	2540.28	0.00	0.00
20.00		191.91	2501.30	0.00	0.00
25.00		197.08	2458.50	0.00	0.00
30.00		200.53	2413.17	0.00	0.00
34.42		178.65	2092.69	0.00	0.00
35.00		23.77	459.46	0.00	0.00
40.00		207.04	3887.79	0.00	0.00
42.00		82.36	1531.48	0.00	0.00
45.00		123.94	1250.22	0.00	0.00
50.00		207.36	2046.18	0.00	0.00
55.00		206.64	2000.36	0.00	0.00
60.00		205.43	1953.89	0.00	0.00
65.00		203.79	1906.88	0.00	0.00
70.00		201.79	1859.38	0.00	0.00
75.00		199.45	1811.46	0.00	0.00
75.43		17.05	155.14	0.00	0.00
80.00		181.89	2449.69	0.00	0.00
82.02		79.30	1062.85	0.00	0.00
85.00		116.58	824.75	0.00	0.00
88.00	(1) attachments	772.91	3369.88	0.00	0.00
89.00	(1) attachments	499.46	1866.22	0.00	0.00
90.00	(1) attachments	698.87	2823.74	0.00	0.00
94.00	(1) attachments	820.26	1652.59	0.00	0.00
95.00		37.55	260.07	0.00	0.00
100.00		186.41	1272.48	0.00	0.00
105.00		182.63	1233.56	0.00	0.00
110.00		178.66	1194.42	0.00	0.00
111.00	(42) attachments	2015.68	12012.64	0.00	0.00
114.00		104.51	675.45	0.00	0.00
	Totals:	**8,885.33**	**66,729.21**	**0.00**	**0.00**

Calculated Forces

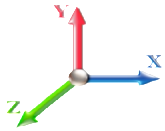
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

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

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	-66.73	-8.90	0.00	-713.76	0.00	713.76	6904.70	3452.35	18167.7	9019.23	0.00	0.000	0.000	0.089
5.00	-64.13	-8.73	0.00	-669.28	0.00	669.28	6814.63	3407.32	17555.1	8715.11	0.01	-0.019	0.000	0.086
10.00	-61.56	-8.56	0.00	-625.66	0.00	625.66	6722.29	3361.15	16946.7	8413.08	0.04	-0.038	0.000	0.084
15.00	-59.02	-8.39	0.00	-582.88	0.00	582.88	6627.68	3313.84	16342.9	8113.33	0.09	-0.056	0.000	0.081
20.00	-56.51	-8.21	0.00	-540.94	0.00	540.94	6530.81	3265.40	15744.1	7816.03	0.16	-0.075	0.000	0.078
25.00	-54.05	-8.03	0.00	-499.88	0.00	499.88	6431.66	3215.83	15150.5	7521.39	0.25	-0.093	0.000	0.075
30.00	-51.64	-7.84	0.00	-459.73	0.00	459.73	6330.24	3165.12	14562.7	7229.58	0.36	-0.111	0.000	0.072
34.42	-49.54	-7.66	0.00	-425.11	0.00	425.11	6238.77	3119.39	14048.6	6974.33	0.47	-0.127	0.000	0.069
35.00	-49.08	-7.65	0.00	-420.64	0.00	420.64	6226.56	3113.28	13981.0	6940.80	0.48	-0.129	0.000	0.068
40.00	-45.19	-7.44	0.00	-382.41	0.00	382.41	6120.60	3060.30	13405.8	6655.22	0.63	-0.147	0.000	0.065
42.00	-43.66	-7.36	0.00	-367.52	0.00	367.52	5160.62	2580.31	11403.8	5661.35	0.69	-0.154	0.000	0.073
45.00	-42.41	-7.24	0.00	-345.44	0.00	345.44	5111.11	2555.56	11125.4	5523.13	0.79	-0.164	0.000	0.071
50.00	-40.36	-7.04	0.00	-309.22	0.00	309.22	5026.79	2513.39	10664.8	5294.46	0.97	-0.182	0.000	0.066
55.00	-38.36	-6.84	0.00	-274.01	0.00	274.01	4940.20	2470.10	10208.8	5068.09	1.17	-0.200	0.000	0.062
60.00	-36.41	-6.64	0.00	-239.80	0.00	239.80	4851.34	2425.67	9757.80	4844.18	1.39	-0.216	0.000	0.057
65.00	-34.50	-6.44	0.00	-206.61	0.00	206.61	4760.21	2380.10	9312.15	4622.94	1.63	-0.232	0.000	0.052
70.00	-32.64	-6.23	0.00	-174.43	0.00	174.43	4666.81	2333.41	8872.22	4404.54	1.88	-0.246	0.000	0.047
75.00	-30.83	-6.03	0.00	-143.26	0.00	143.26	4571.14	2285.57	8438.40	4189.18	2.14	-0.259	0.000	0.041
75.43	-30.67	-6.02	0.00	-140.64	0.00	140.64	4562.75	2281.37	8401.11	4170.66	2.17	-0.260	0.000	0.040
80.00	-28.22	-5.83	0.00	-113.17	0.00	113.17	4473.21	2236.60	8011.07	3977.03	2.42	-0.271	0.000	0.035
82.02	-27.16	-5.74	0.00	-101.42	0.00	101.42	2855.96	1427.98	5155.05	2559.19	2.54	-0.275	0.000	0.049
85.00	-26.33	-5.63	0.00	-84.28	0.00	84.28	2826.21	1413.11	5008.42	2486.39	2.71	-0.280	0.000	0.043
88.00	-22.97	-4.84	0.00	-67.40	0.00	67.40	2795.48	1397.74	4861.52	2413.46	2.89	-0.287	0.000	0.036
89.00	-21.10	-4.33	0.00	-62.56	0.00	62.56	2785.06	1392.53	4812.69	2389.22	2.95	-0.289	0.000	0.034
90.00	-18.28	-3.62	0.00	-58.23	0.00	58.23	2774.55	1387.27	4763.94	2365.02	3.01	-0.291	0.000	0.031
94.00	-16.63	-2.79	0.00	-43.75	0.00	43.75	2731.58	1365.79	4569.72	2268.60	3.26	-0.297	0.000	0.025
95.00	-16.37	-2.75	0.00	-40.96	0.00	40.96	2720.62	1360.31	4521.38	2244.61	3.32	-0.299	0.000	0.024
100.00	-15.10	-2.56	0.00	-27.19	0.00	27.19	2664.41	1332.21	4281.13	2125.33	3.64	-0.304	0.000	0.018
105.00	-13.87	-2.37	0.00	-14.38	0.00	14.38	2605.94	1302.97	4043.55	2007.39	3.96	-0.308	0.000	0.012
110.00	-12.68	-2.19	0.00	-2.51	0.00	2.51	2545.20	1272.60	3809.02	1890.96	4.28	-0.310	0.000	0.006
111.00	-0.67	-0.11	0.00	-0.32	0.00	0.32	2532.78	1266.39	3762.51	1867.87	4.35	-0.310	0.000	0.000
114.00	0.00	-0.10	0.00	0.00	0.00	0.00	2494.98	1247.49	3623.84	1799.03	4.54	-0.310	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
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 + 1.0E					**Iterations**	14
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)**	0.83	**SA**	0.08	**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		1712.0	0.00	0.04	0.02	16.90	
10.00		1676.0	0.01	0.06	0.04	24.91	
15.00		1640.1	0.03	0.07	0.04	28.81	
20.00		1604.1	0.06	0.07	0.04	31.06	
25.00		1568.1	0.09	0.07	0.04	32.89	
30.00		1532.2	0.13	0.07	0.03	34.70	
34.42	Bot - Section 2	1323.5	0.17	0.07	0.03	31.91	
35.00		326.61	0.18	0.07	0.03	7.93	
40.00		2761.8	0.23	0.06	0.02	70.73	
42.00	Top - Section 1	1085.8	0.26	0.05	0.02	28.18	
45.00		758.23	0.29	0.05	0.01	19.84	
50.00		1238.5	0.36	0.03	0.01	31.65	
55.00		1207.0	0.44	0.01	0.01	28.36	
60.00		1175.5	0.52	-0.02	0.01	23.62	
65.00		1144.0	0.61	-0.06	0.02	18.28	
70.00		1112.5	0.71	-0.09	0.03	13.77	
75.00		1081.0	0.82	-0.11	0.06	11.89	
75.43	Bot - Section 3	92.21	0.83	-0.12	0.06	1.02	
80.00		1653.0	0.93	-0.12	0.10	22.74	
82.02	Top - Section 2	715.67	0.98	-0.11	0.12	11.77	
85.00		438.97	1.05	-0.09	0.16	9.82	
88.00	Appurtenance(s)	1233.3	1.13	-0.05	0.20	38.16	
89.00	Appurtenance(s)	642.65	1.15	-0.04	0.22	22.11	
90.00	Appurtenance(s)	941.75	1.18	-0.02	0.24	35.97	
94.00	Appurtenance(s)	1057.9	1.29	0.10	0.32	59.91	
95.00		137.24	1.31	0.14	0.35	8.52	
100.00		672.72	1.45	0.39	0.49	63.60	
105.00		650.21	1.60	0.79	0.67	88.35	
110.00		627.69	1.76	1.36	0.91	116.94	
111.00	Appurtenance(s)	4413.1	1.79	1.50	0.96	871.52	
114.00		363.11	1.89	1.98	1.14	84.70	
	Totals:	**36,587.1**				**1,890.6**	**Total Wind:** **37,491.2**

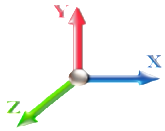
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
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



Gust Response Factor	1.10			**Sds**	0.17			**Iterations**	14
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.83	**SA**	0.08			**S1**	0.06
								Seismic Importance Factor	1.00

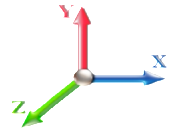
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-44.61	-1.89	0.00	-172.29	0.00	172.29	6904.70	3452.35	18167.7	9019.23		0.00	0.00	0.026
5.00	-42.52	-1.88	0.00	-162.84	0.00	162.84	6814.63	3407.32	17555.1	8715.11		0.00	0.00	0.025
10.00	-40.48	-1.86	0.00	-153.45	0.00	153.45	6722.29	3361.15	16946.7	8413.08		0.01	-0.01	0.024
15.00	-38.48	-1.83	0.00	-144.17	0.00	144.17	6627.68	3313.84	16342.9	8113.33		0.02	-0.01	0.024
20.00	-36.52	-1.80	0.00	-135.02	0.00	135.02	6530.81	3265.40	15744.1	7816.03		0.04	-0.02	0.023
25.00	-34.61	-1.77	0.00	-126.02	0.00	126.02	6431.66	3215.83	15150.5	7521.39		0.06	-0.02	0.022
30.00	-32.74	-1.74	0.00	-117.17	0.00	117.17	6330.24	3165.12	14562.7	7229.58		0.09	-0.03	0.021
34.42	-31.12	-1.71	0.00	-109.50	0.00	109.50	6238.77	3119.39	14048.6	6974.33		0.11	-0.03	0.021
35.00	-30.73	-1.70	0.00	-108.50	0.00	108.50	6226.56	3113.28	13981.0	6940.80		0.12	-0.03	0.021
40.00	-27.38	-1.63	0.00	-100.01	0.00	100.01	6120.60	3060.30	13405.8	6655.22		0.15	-0.04	0.020
42.00	-26.07	-1.60	0.00	-96.75	0.00	96.75	5160.62	2580.31	11403.8	5661.35		0.17	-0.04	0.022
45.00	-25.14	-1.58	0.00	-91.95	0.00	91.95	5111.11	2555.56	11125.4	5523.13		0.20	-0.04	0.022
50.00	-23.62	-1.55	0.00	-84.05	0.00	84.05	5026.79	2513.39	10664.8	5294.46		0.24	-0.05	0.021
55.00	-22.14	-1.52	0.00	-76.30	0.00	76.30	4940.20	2470.10	10208.8	5068.09		0.29	-0.05	0.020
60.00	-20.70	-1.50	0.00	-68.69	0.00	68.69	4851.34	2425.67	9757.80	4844.18		0.35	-0.06	0.018
65.00	-19.29	-1.48	0.00	-61.20	0.00	61.20	4760.21	2380.10	9312.15	4622.94		0.41	-0.06	0.017
70.00	-17.92	-1.47	0.00	-53.79	0.00	53.79	4666.81	2333.41	8872.22	4404.54		0.47	-0.06	0.016
75.00	-16.59	-1.45	0.00	-46.46	0.00	46.46	4571.14	2285.57	8438.40	4189.18		0.54	-0.07	0.015
75.43	-16.48	-1.45	0.00	-45.83	0.00	45.83	4562.75	2281.37	8401.11	4170.66		0.55	-0.07	0.015
80.00	-14.47	-1.43	0.00	-39.19	0.00	39.19	4473.21	2236.60	8011.07	3977.03		0.62	-0.07	0.013
82.02	-13.60	-1.42	0.00	-36.31	0.00	36.31	2855.96	1427.98	5155.05	2559.19		0.65	-0.07	0.019
85.00	-13.05	-1.41	0.00	-32.08	0.00	32.08	2826.21	1413.11	5008.42	2486.39		0.70	-0.08	0.018
88.00	-11.55	-1.37	0.00	-27.86	0.00	27.86	2795.48	1397.74	4861.52	2413.46		0.74	-0.08	0.016
89.00	-10.77	-1.34	0.00	-26.50	0.00	26.50	2785.06	1392.53	4812.69	2389.22		0.76	-0.08	0.015
90.00	-9.64	-1.31	0.00	-25.15	0.00	25.15	2774.55	1387.27	4763.94	2365.02		0.78	-0.08	0.014
94.00	-8.34	-1.25	0.00	-19.93	0.00	19.93	2731.58	1365.79	4569.72	2268.60		0.85	-0.08	0.012
95.00	-8.17	-1.24	0.00	-18.68	0.00	18.68	2720.62	1360.31	4521.38	2244.61		0.86	-0.08	0.011
100.00	-7.33	-1.17	0.00	-12.50	0.00	12.50	2664.41	1332.21	4281.13	2125.33		0.95	-0.09	0.009
105.00	-6.52	-1.08	0.00	-6.64	0.00	6.64	2605.94	1302.97	4043.55	2007.39		1.04	-0.09	0.006
110.00	-5.74	-0.96	0.00	-1.22	0.00	1.22	2545.20	1272.60	3809.02	1890.96		1.14	-0.09	0.003
111.00	-0.44	-0.09	0.00	-0.26	0.00	0.26	2532.78	1266.39	3762.51	1867.87		1.16	-0.09	0.000
114.00	0.00	-0.08	0.00	0.00	0.00	0.00	2494.98	1247.49	3623.84	1799.03		1.21	-0.09	0.000

Seismic Segment Forces (Factored)

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
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: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	14
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.83	**SA**	0.08	**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		1712.0	0.00	0.04	0.02	16.90	
10.00		1676.0	0.01	0.06	0.04	24.91	
15.00		1640.1	0.03	0.07	0.04	28.81	
20.00		1604.1	0.06	0.07	0.04	31.06	
25.00		1568.1	0.09	0.07	0.04	32.89	
30.00		1532.2	0.13	0.07	0.03	34.70	
34.42	Bot - Section 2	1323.5	0.17	0.07	0.03	31.91	
35.00		326.61	0.18	0.07	0.03	7.93	
40.00		2761.8	0.23	0.06	0.02	70.73	
42.00	Top - Section 1	1085.8	0.26	0.05	0.02	28.18	
45.00		758.23	0.29	0.05	0.01	19.84	
50.00		1238.5	0.36	0.03	0.01	31.65	
55.00		1207.0	0.44	0.01	0.01	28.36	
60.00		1175.5	0.52	-0.02	0.01	23.62	
65.00		1144.0	0.61	-0.06	0.02	18.28	
70.00		1112.5	0.71	-0.09	0.03	13.77	
75.00		1081.0	0.82	-0.11	0.06	11.89	
75.43	Bot - Section 3	92.21	0.83	-0.12	0.06	1.02	
80.00		1653.0	0.93	-0.12	0.10	22.74	
82.02	Top - Section 2	715.67	0.98	-0.11	0.12	11.77	
85.00		438.97	1.05	-0.09	0.16	9.82	
88.00	Appurtenance(s)	1233.3	1.13	-0.05	0.20	38.16	
89.00	Appurtenance(s)	642.65	1.15	-0.04	0.22	22.11	
90.00	Appurtenance(s)	941.75	1.18	-0.02	0.24	35.97	
94.00	Appurtenance(s)	1057.9	1.29	0.10	0.32	59.91	
95.00		137.24	1.31	0.14	0.35	8.52	
100.00		672.72	1.45	0.39	0.49	63.60	
105.00		650.21	1.60	0.79	0.67	88.35	
110.00		627.69	1.76	1.36	0.91	116.94	
111.00	Appurtenance(s)	4413.1	1.79	1.50	0.96	871.52	
114.00		363.11	1.89	1.98	1.14	84.70	
	Totals:	**36,587.1**				**1,890.6**	**Total Wind:** **37,491.2**

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	2/14/2019	
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**	14
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.83	**SA**	0.08			**S1**	0.06
								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	-33.46	-1.89	0.00	-171.87	0.00	171.87	6904.70	3452.35	18167.7	9019.23		0.00	0.00	0.024
5.00	-31.89	-1.88	0.00	-162.42	0.00	162.42	6814.63	3407.32	17555.1	8715.11		0.00	0.00	0.023
10.00	-30.36	-1.85	0.00	-153.04	0.00	153.04	6722.29	3361.15	16946.7	8413.08		0.01	-0.01	0.023
15.00	-28.86	-1.83	0.00	-143.77	0.00	143.77	6627.68	3313.84	16342.9	8113.33		0.02	-0.01	0.022
20.00	-27.39	-1.80	0.00	-134.63	0.00	134.63	6530.81	3265.40	15744.1	7816.03		0.04	-0.02	0.021
25.00	-25.96	-1.77	0.00	-125.65	0.00	125.65	6431.66	3215.83	15150.5	7521.39		0.06	-0.02	0.021
30.00	-24.55	-1.73	0.00	-116.82	0.00	116.82	6330.24	3165.12	14562.7	7229.58		0.09	-0.03	0.020
34.42	-23.34	-1.70	0.00	-109.16	0.00	109.16	6238.77	3119.39	14048.6	6974.33		0.11	-0.03	0.019
35.00	-23.05	-1.69	0.00	-108.17	0.00	108.17	6226.56	3113.28	13981.0	6940.80		0.12	-0.03	0.019
40.00	-20.54	-1.62	0.00	-99.70	0.00	99.70	6120.60	3060.30	13405.8	6655.22		0.15	-0.04	0.018
42.00	-19.55	-1.59	0.00	-96.45	0.00	96.45	5160.62	2580.31	11403.8	5661.35		0.17	-0.04	0.021
45.00	-18.85	-1.58	0.00	-91.67	0.00	91.67	5111.11	2555.56	11125.4	5523.13		0.20	-0.04	0.020
50.00	-17.71	-1.54	0.00	-83.79	0.00	83.79	5026.79	2513.39	10664.8	5294.46		0.24	-0.05	0.019
55.00	-16.60	-1.52	0.00	-76.07	0.00	76.07	4940.20	2470.10	10208.8	5068.09		0.29	-0.05	0.018
60.00	-15.52	-1.49	0.00	-68.48	0.00	68.48	4851.34	2425.67	9757.80	4844.18		0.35	-0.06	0.017
65.00	-14.47	-1.48	0.00	-61.01	0.00	61.01	4760.21	2380.10	9312.15	4622.94		0.41	-0.06	0.016
70.00	-13.44	-1.46	0.00	-53.64	0.00	53.64	4666.81	2333.41	8872.22	4404.54		0.47	-0.06	0.015
75.00	-12.45	-1.45	0.00	-46.33	0.00	46.33	4571.14	2285.57	8438.40	4189.18		0.54	-0.07	0.014
75.43	-12.36	-1.45	0.00	-45.70	0.00	45.70	4562.75	2281.37	8401.11	4170.66		0.55	-0.07	0.014
80.00	-10.85	-1.42	0.00	-39.09	0.00	39.09	4473.21	2236.60	8011.07	3977.03		0.62	-0.07	0.012
82.02	-10.20	-1.41	0.00	-36.21	0.00	36.21	2855.96	1427.98	5155.05	2559.19		0.65	-0.07	0.018
85.00	-9.79	-1.40	0.00	-32.00	0.00	32.00	2826.21	1413.11	5008.42	2486.39		0.69	-0.08	0.016
88.00	-8.66	-1.36	0.00	-27.79	0.00	27.79	2795.48	1397.74	4861.52	2413.46		0.74	-0.08	0.015
89.00	-8.08	-1.34	0.00	-26.43	0.00	26.43	2785.06	1392.53	4812.69	2389.22		0.76	-0.08	0.014
90.00	-7.23	-1.30	0.00	-25.09	0.00	25.09	2774.55	1387.27	4763.94	2365.02		0.78	-0.08	0.013
94.00	-6.26	-1.24	0.00	-19.88	0.00	19.88	2731.58	1365.79	4569.72	2268.60		0.84	-0.08	0.011
95.00	-6.13	-1.23	0.00	-18.64	0.00	18.64	2720.62	1360.31	4521.38	2244.61		0.86	-0.08	0.011
100.00	-5.50	-1.17	0.00	-12.47	0.00	12.47	2664.41	1332.21	4281.13	2125.33		0.95	-0.09	0.008
105.00	-4.89	-1.08	0.00	-6.62	0.00	6.62	2605.94	1302.97	4043.55	2007.39		1.04	-0.09	0.005
110.00	-4.30	-0.96	0.00	-1.22	0.00	1.22	2545.20	1272.60	3809.02	1890.96		1.13	-0.09	0.002
111.00	-0.33	-0.09	0.00	-0.26	0.00	0.26	2532.78	1266.39	3762.51	1867.87		1.15	-0.09	0.000
114.00	0.00	-0.08	0.00	0.00	0.00	0.00	2494.98	1247.49	3623.84	1799.03		1.21	-0.09	0.000

Wind Loading - Shaft

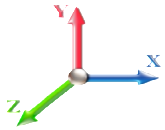
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 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	301.98	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	295.75	0.750	0.000	5.00	27.014	20.26	165.9	0.0	1712.0
10.00		1.00	0.85	7.442	8.19	289.52	0.750	0.000	5.00	26.451	19.84	162.4	0.0	1676.1
15.00		1.00	0.85	7.442	8.19	283.30	0.750	0.000	5.00	25.888	19.42	158.9	0.0	1640.1
20.00		1.00	0.90	7.896	8.69	285.40	0.750	0.000	5.00	25.325	18.99	165.0	0.0	1604.1
25.00		1.00	0.95	8.276	9.10	285.61	0.750	0.000	5.00	24.762	18.57	169.1	0.0	1568.2
30.00		1.00	0.98	8.600	9.46	284.45	0.750	0.000	5.00	24.199	18.15	171.7	0.0	1532.2
34.42	Bot - Section 2	1.00	1.01	8.852	9.74	282.60	0.750	0.000	4.42	20.908	15.68	152.7	0.0	1323.5
35.00		1.00	1.01	8.883	9.77	282.30	0.750	0.000	0.58	2.772	2.08	20.3	0.0	326.6
40.00		1.00	1.04	9.137	10.05	279.40	0.750	0.000	5.00	23.445	17.58	176.7	0.0	2761.8
42.00	Top - Section 1	1.00	1.05	9.231	10.15	278.06	0.750	0.000	2.00	9.221	6.92	70.2	0.0	1085.8
45.00		1.00	1.07	9.366	10.30	280.52	0.750	0.000	3.00	13.662	10.25	105.6	0.0	758.2
50.00		1.00	1.09	9.576	10.53	276.58	0.750	0.000	5.00	22.320	16.74	176.3	0.0	1238.5
55.00		1.00	1.12	9.770	10.75	272.23	0.750	0.000	5.00	21.757	16.32	175.4	0.0	1207.0
60.00		1.00	1.14	9.951	10.95	267.53	0.750	0.000	5.00	21.194	15.90	174.0	0.0	1175.5
65.00		1.00	1.16	10.120	11.13	262.54	0.750	0.000	5.00	20.631	15.47	172.2	0.0	1144.0
70.00		1.00	1.17	10.279	11.31	257.27	0.750	0.000	5.00	20.068	15.05	170.2	0.0	1112.5
75.00		1.00	1.19	10.430	11.47	251.77	0.750	0.000	5.00	19.505	14.63	167.8	0.0	1081.0
75.43	Bot - Section 3	1.00	1.19	10.442	11.49	251.29	0.750	0.000	0.43	1.664	1.25	14.3	0.0	92.2
80.00		1.00	1.21	10.572	11.63	246.07	0.750	0.000	4.57	17.521	13.14	152.8	0.0	1653.1
82.02	Top - Section 2	1.00	1.21	10.628	11.69	243.71	0.750	0.000	2.02	7.588	5.69	66.5	0.0	715.7
85.00		1.00	1.22	10.708	11.78	243.70	0.750	0.000	2.98	11.057	8.29	97.7	0.0	439.0
88.00	Appurtenance(s)	1.00	1.23	10.787	11.87	240.09	0.750	0.000	3.00	10.917	8.19	97.1	0.0	433.3
89.00	Appurtenance(s)	1.00	1.23	10.812	11.89	238.88	0.750	0.000	1.00	3.594	2.70	32.1	0.0	142.6
90.00	Appurtenance(s)	1.00	1.24	10.838	11.92	237.66	0.750	0.000	1.00	3.571	2.68	31.9	0.0	141.7
94.00	Appurtenance(s)	1.00	1.25	10.937	12.03	232.71	0.750	0.000	4.00	14.060	10.55	126.9	0.0	558.0
95.00		1.00	1.25	10.962	12.06	231.45	0.750	0.000	1.00	3.459	2.59	31.3	0.0	137.2
100.00		1.00	1.27	11.081	12.19	225.11	0.750	0.000	5.00	16.956	12.72	155.0	0.0	672.7
105.00		1.00	1.28	11.195	12.31	218.63	0.750	0.000	5.00	16.393	12.29	151.4	0.0	650.2
110.00		1.00	1.29	11.305	12.44	212.02	0.750	0.000	5.00	15.830	11.87	147.6	0.0	627.7
111.00	Appurtenance(s)	1.00	1.29	11.327	12.46	210.69	0.750	0.000	1.00	3.099	2.32	29.0	0.0	122.8
114.00		1.00	1.30	11.391	12.53	206.66	0.750	0.000	3.00	9.160	6.87	86.1	0.0	363.1
								Totals:	**114.00**			**3,774.1**		**29,696.8**

Discrete Appurtenance Forces

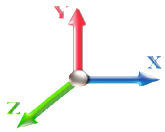
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa 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	111.00	RRUS-11	3	11.327	12.460	0.53	0.75	4.03	153.00	0.000	0.000	50.16	0.00	0.00
2	111.00	RRUS A2 Module	3	11.327	12.460	0.46	0.75	2.59	63.60	0.000	0.000	32.33	0.00	0.00
3	111.00	RRUS 32 B30	3	11.327	12.460	0.61	0.75	4.99	180.00	0.000	0.000	62.22	0.00	0.00
4	111.00	RRUS 4478 B14	3	11.327	12.460	0.52	0.75	2.60	178.20	0.000	0.000	32.38	0.00	0.00
5	111.00	4449 B5/B12	3	11.327	12.460	0.65	0.75	3.81	213.00	0.000	0.000	47.50	0.00	0.00
6	111.00	RRUS-E2	3	11.327	12.460	0.52	0.75	4.96	178.20	0.000	0.000	61.82	0.00	0.00
7	111.00	RRUS 32	3	11.327	12.460	0.52	0.75	2.60	231.00	0.000	0.000	32.38	0.00	0.00
8	111.00	RRUS-12 1600 MHz	3	11.327	12.460	0.56	0.75	4.56	180.00	0.000	0.000	56.77	0.00	0.00
9	111.00	DC6-48-60-18-8F	4	11.327	12.460	1.00	1.00	3.68	127.20	0.000	0.000	45.85	0.00	0.00
10	111.00	Platform w/ Hand Rail	1	11.327	12.460	1.00	1.00	32.00	1600.00	0.000	0.000	398.71	0.00	0.00
11	111.00	(3) SFS-H (V-Braces)	1	11.327	12.460	1.00	1.00	6.30	197.00	0.000	0.000	78.50	0.00	0.00
12	111.00	800 10966	3	11.327	12.460	0.54	0.75	28.12	377.10	0.000	0.000	350.40	0.00	0.00
13	111.00	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
14	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
15	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
16	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
17	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:		**6,890.30**			**3,877.12**		

Total Applied Force Summary

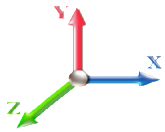
Structure:	CT22093-A-SBA		**Code:**	EIA/TIA-222-G	2/14/2019
Site Name:	New London (Bates Wood)		**Exposure:**	C	
Height:	114.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

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		165.85	1738.51	0.00	0.00
10.00		162.40	1702.55	0.00	0.00
15.00		158.94	1666.60	0.00	0.00
20.00		164.98	1630.64	0.00	0.00
25.00		169.07	1594.68	0.00	0.00
30.00		171.69	1558.72	0.00	0.00
34.42		152.69	1346.96	0.00	0.00
35.00		20.32	329.70	0.00	0.00
40.00		176.73	2788.32	0.00	0.00
42.00		70.22	1096.44	0.00	0.00
45.00		105.57	774.13	0.00	0.00
50.00		176.33	1265.02	0.00	0.00
55.00		175.37	1233.52	0.00	0.00
60.00		173.99	1202.02	0.00	0.00
65.00		172.25	1170.52	0.00	0.00
70.00		170.18	1139.02	0.00	0.00
75.00		167.83	1107.52	0.00	0.00
75.43		14.33	94.50	0.00	0.00
80.00		152.82	1677.28	0.00	0.00
82.02		66.53	726.35	0.00	0.00
85.00		97.68	454.78	0.00	0.00
88.00	(1) attachments	571.75	1249.24	0.00	0.00
89.00	(1) attachments	365.07	647.95	0.00	0.00
90.00	(1) attachments	508.79	947.05	0.00	0.00
94.00	(1) attachments	608.11	1079.18	0.00	0.00
95.00		31.28	142.54	0.00	0.00
100.00		155.01	699.22	0.00	0.00
105.00		151.41	676.71	0.00	0.00
110.00		147.65	654.19	0.00	0.00
111.00	(42) attachments	2140.36	4418.44	0.00	0.00
114.00		86.08	363.11	0.00	0.00
	Totals:	**7,651.26**	**37,175.41**	**0.00**	**0.00**

Calculated Forces

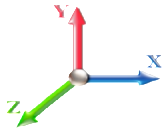
Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
Site Name:	New London (Bates Wood)	**Exposure:**	C		
Height:	114.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 15

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	-37.17	-7.66	0.00	-618.31	0.00	618.31	6904.70	3452.35	18167.7	9019.23	0.00	0.000	0.000	0.074
5.00	-35.43	-7.50	0.00	-580.03	0.00	580.03	6814.63	3407.32	17555.1	8715.11	0.01	-0.016	0.000	0.072
10.00	-33.73	-7.35	0.00	-542.53	0.00	542.53	6722.29	3361.15	16946.7	8413.08	0.03	-0.033	0.000	0.070
15.00	-32.06	-7.20	0.00	-505.80	0.00	505.80	6627.68	3313.84	16342.9	8113.33	0.08	-0.049	0.000	0.067
20.00	-30.43	-7.04	0.00	-469.82	0.00	469.82	6530.81	3265.40	15744.1	7816.03	0.14	-0.065	0.000	0.065
25.00	-28.83	-6.87	0.00	-434.63	0.00	434.63	6431.66	3215.83	15150.5	7521.39	0.21	-0.081	0.000	0.062
30.00	-27.27	-6.71	0.00	-400.26	0.00	400.26	6330.24	3165.12	14562.7	7229.58	0.31	-0.097	0.000	0.060
34.42	-25.92	-6.56	0.00	-370.64	0.00	370.64	6238.77	3119.39	14048.6	6974.33	0.40	-0.111	0.000	0.057
35.00	-25.59	-6.54	0.00	-366.82	0.00	366.82	6226.56	3113.28	13981.0	6940.80	0.42	-0.112	0.000	0.057
40.00	-22.80	-6.36	0.00	-334.13	0.00	334.13	6120.60	3060.30	13405.8	6655.22	0.54	-0.128	0.000	0.054
42.00	-21.71	-6.29	0.00	-321.41	0.00	321.41	5160.62	2580.31	11403.8	5661.35	0.60	-0.134	0.000	0.061
45.00	-20.93	-6.19	0.00	-302.54	0.00	302.54	5111.11	2555.56	11125.4	5523.13	0.69	-0.143	0.000	0.059
50.00	-19.67	-6.01	0.00	-271.60	0.00	271.60	5026.79	2513.39	10664.8	5294.46	0.85	-0.159	0.000	0.055
55.00	-18.43	-5.84	0.00	-241.53	0.00	241.53	4940.20	2470.10	10208.8	5068.09	1.02	-0.174	0.000	0.051
60.00	-17.23	-5.67	0.00	-212.34	0.00	212.34	4851.34	2425.67	9757.80	4844.18	1.21	-0.188	0.000	0.047
65.00	-16.06	-5.49	0.00	-184.01	0.00	184.01	4760.21	2380.10	9312.15	4622.94	1.42	-0.202	0.000	0.043
70.00	-14.92	-5.32	0.00	-156.55	0.00	156.55	4666.81	2333.41	8872.22	4404.54	1.63	-0.215	0.000	0.039
75.00	-13.81	-5.15	0.00	-129.94	0.00	129.94	4571.14	2285.57	8438.40	4189.18	1.87	-0.227	0.000	0.034
75.43	-13.72	-5.14	0.00	-127.71	0.00	127.71	4562.75	2281.37	8401.11	4170.66	1.89	-0.228	0.000	0.034
80.00	-12.04	-4.98	0.00	-104.25	0.00	104.25	4473.21	2236.60	8011.07	3977.03	2.11	-0.237	0.000	0.029
82.02	-11.31	-4.91	0.00	-94.20	0.00	94.20	2855.96	1427.98	5155.05	2559.19	2.21	-0.241	0.000	0.041
85.00	-10.86	-4.81	0.00	-79.55	0.00	79.55	2826.21	1413.11	5008.42	2486.39	2.36	-0.247	0.000	0.036
88.00	-9.61	-4.24	0.00	-65.12	0.00	65.12	2795.48	1397.74	4861.52	2413.46	2.52	-0.253	0.000	0.030
89.00	-8.96	-3.87	0.00	-60.88	0.00	60.88	2785.06	1392.53	4812.69	2389.22	2.57	-0.255	0.000	0.029
90.00	-8.02	-3.36	0.00	-57.01	0.00	57.01	2774.55	1387.27	4763.94	2365.02	2.63	-0.256	0.000	0.027
94.00	-6.94	-2.74	0.00	-43.59	0.00	43.59	2731.58	1365.79	4569.72	2268.60	2.85	-0.263	0.000	0.022
95.00	-6.80	-2.71	0.00	-40.84	0.00	40.84	2720.62	1360.31	4521.38	2244.61	2.90	-0.264	0.000	0.021
100.00	-6.10	-2.55	0.00	-27.28	0.00	27.28	2664.41	1332.21	4281.13	2125.33	3.18	-0.270	0.000	0.015
105.00	-5.42	-2.40	0.00	-14.51	0.00	14.51	2605.94	1302.97	4043.55	2007.39	3.47	-0.274	0.000	0.009
110.00	-4.77	-2.25	0.00	-2.51	0.00	2.51	2545.20	1272.60	3809.02	1890.96	3.75	-0.276	0.000	0.003
111.00	-0.36	-0.09	0.00	-0.26	0.00	0.26	2532.78	1266.39	3762.51	1867.87	3.81	-0.276	0.000	0.000
114.00	0.00	-0.09	0.00	0.00	0.00	0.00	2494.98	1247.49	3623.84	1799.03	3.99	-0.276	0.000	0.000

Final Analysis Summary

Structure:	CT22093-A-SBA	**Code:**	EIA/TIA-222-G	2/14/2019	
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

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	37.5	0.00	44.58	0.00	0.00	3034.37
0.9D + 1.6W 105 mph Wind	37.5	0.00	33.43	0.00	0.00	3027.39
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.9	0.00	66.73	0.00	0.00	713.76
1.2D + 1.0E	1.9	0.00	44.61	0.00	0.00	172.29
0.9D + 1.0E	1.9	0.00	33.46	0.00	0.00	171.87
1.0D + 1.0W 60 mph Wind	7.7	0.00	37.17	0.00	0.00	618.31

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	-44.58	-37.52	0.00	-3034.3	0.00	-3034.3	6904.70	3452.3	18167.7	9019.23	0.00	0.343
0.9D + 1.6W 105 mph Wind	-33.43	-37.51	0.00	-3027.3	0.00	-3027.3	6904.70	3452.3	18167.7	9019.23	0.00	0.341
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-66.73	-8.90	0.00	-713.76	0.00	-713.76	6904.70	3452.3	18167.7	9019.23	0.00	0.089
1.2D + 1.0E	-44.61	-1.89	0.00	-172.29	0.00	-172.29	6904.70	3452.3	18167.7	9019.23	0.00	0.026
0.9D + 1.0E	-33.46	-1.89	0.00	-171.87	0.00	-171.87	6904.70	3452.3	18167.7	9019.23	0.00	0.024
1.0D + 1.0W 60 mph Wind	-37.17	-7.66	0.00	-618.31	0.00	-618.31	6904.70	3452.3	18167.7	9019.23	0.00	0.074

Base Plate Summary

Structure:	CT22093-A-SB		**Code:**	EIA/TIA-222-G	2/14/2019
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		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	50.00	**Bolt Circle:**	71.74
Moment (kip-ft):	356.75	**Width (in):**	78.94	**Number Bolts:**	24.00
Axial (kip):	28.93	**Style:**	Polygon	**Bolt Type:**	2.25" 18J
Shear (kip):	43.37	**Polygon Sides:**	18.00	**Bolt Diameter (in):**	2.25
		Clip Length (in):	0.00	**Yield (ksi):**	75.00
Analysis				**Ultimate (ksi):**	100.00
Moment (kip-ft):	3034.37	**Effective Len (in):**	13.40	**Arrangement:**	Radial
Axial (kip):	66.73	**Moment (kip-in):**	327.22	**Cluster Dist (in):**	0.00
Shear (kip):	37.52	**Allow Stress (ksi):**	67.50	**Start Angle (deg):**	0.00
		Applied Stress (ksi):	0.00	Compression	
Moment Design %:	850.56	**Stress Ratio:**	0.18	**Force (kip):**	87.37
				Allowable (kip):	260.00
				Ratio:	0.35
				Tension	
				Force (kip):	81.81
				Allowable (kip):	260.00
				Ratio:	0.33

Monopole Mat Foundation Design

			Date: 2/14/2019
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	114
Site Number:	CT22093-A-SBA	**Engineer Name:**	J. Chen
Engr. Number:	69531	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

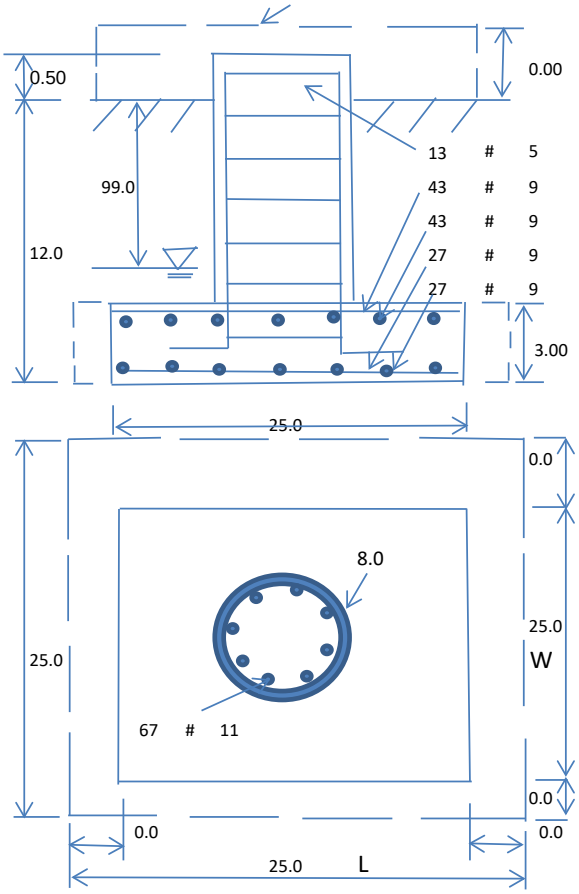
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	44.6	Shear Force (Kips):	37.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3034.4
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
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	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):	27	Qty. of Rebar in Pad (W):	27

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	43	Qty. of Rebar in Pad (W):	43
Apply 1.35 factor for e/w Per G:	1.35		

Soil Design Parameters:

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	37.6	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):	1044.03

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2108	<	Allowable Factored Soil Bearing (psf):	15000	0.14	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	11801.1	>	Design Factored Momont (kips-ft):	2646	0.22	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	4.46	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		

(1) Concrete Pier:

							Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.56		Tie / Stirrup Area (sq. in./each):	0.31				
Calculated Moment Capacity (Mn,Kips-Ft):	18154.7	>	Design Factored Moment (Mu, Kips-F	3390.6	0.19	OK!
Calculated Shear Capacity (Kips):	832.8	>	Design Factored Shear (Kips):	37.5	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	5644.1	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9459.3	>	Design Factored Axial Load (Pu Kips):	44.6	0.00	OK!
Moment & Axial Strength Combination:	0.19	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):	799.5	>	One-Way Factored Shear (L-D. Kips):	201.6	0.25	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	799.5	>	One-Way Factored Shear (W-D., Kips)	201.6	0.25	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	701.9	>	One-Way Factored Shear (C-C, Kips):	164.0	0.23	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0028	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0028		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3812.5	>	Moment at Bottom (L-Dir. K-Ft):	1096.4	0.29	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3812.5	>	Moment at Bottom (W-Dir. K-Ft):	1096.4	0.29	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5338.5	>	Moment at Bottom (C-C Dir. K-Ft):	1550.6	0.29	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0044	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0044		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5950.4	>	Moment at the top (L-Dir K-Ft):	382.7	0.06	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5950.4	>	Moment at the top (W-Dir K-Ft):	382.7	0.06	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8280.1	>	Moment at the top (C-C Dir. K-Ft):	361.4	0.04	OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1213.7	k-ft.	Max. factored shear stress v_{u_CD}:	1.7	Psi
Max. factored shear stress v_{u_AB}:	7.1	Psi	Factored shear Strength ϕv_n:	164.3	Psi
Max. factored shear stress v_u:	7.1	Psi	Check Usage of Punching Shear Capacity:	0.04	OK!

January 2, 2019 (Rev.1)
December 31, 2018

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT2838 (LTE 4C/5C/6C/7C)
	FA Number:	10152339
	PACE Number:	MRCTB035101
	PT Number:	2051A0KQA8
	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 mount to determine its capability of supporting the following additional loading:

- (9) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17"x7.2" – Wt. = 51 lbs. /each)
- (3) RRUS-12 + RRUS-A2 RRH's (20.4"x18.5"x10.9" – Wt. = 80 lbs. /each)
- (3) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) 800-10966 Antennas (96.0"x20.0"x6.9" – Wt. = 115 lbs. /each)**
- **(3) RRUS-E2 B29 RRH's (16.5"x18.0"x6.3" – Wt. = 52.9 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each**
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 70.5 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on December 21, 2018.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, 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 – R11.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G Annex B, the max basic wind speed for this site is equal to 105 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 0.75 in. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 135 mph converted to a nominal wind speed of 105 mph and an escalated ice thickness of 2.26 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.
- 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. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mount **IS NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new Sector Frame Stabilizer Kit, SitePro1 P/N SFS-H (or approved equal) (typ. of 1 per sector, total of 3).**
- **Reinforce existing steel angles with new L 2"2"x1/4" steel angles (typ. of 2 per sector, total of 6).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 4C/5C/6C/7C) Mount Rating	153	LC3	168%	**FAIL**
Modified (LTE 4C/5C/6C/7C) Mount Rating	88	LC12	97%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

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

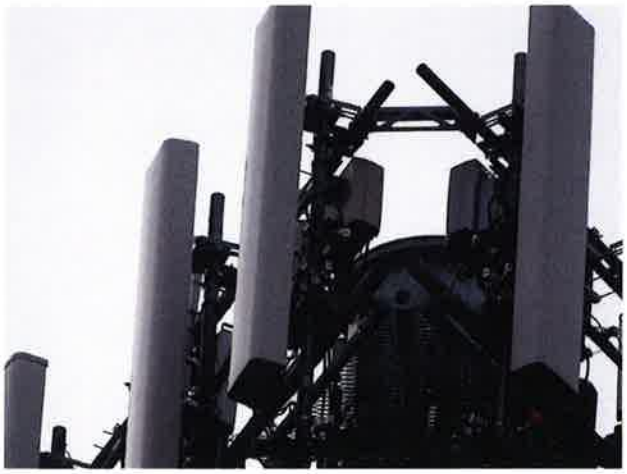
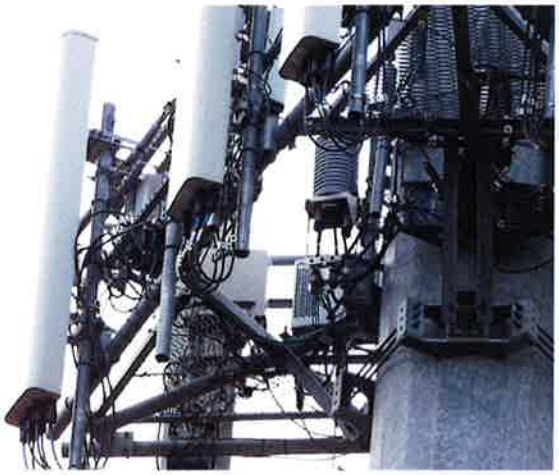
Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

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HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK **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

$K_{zmin} \le K_z \le 2.01$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
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

2.6.6.4 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

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

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

K_{zt}= #DIV/0!

K_h=	#DIV/0!	
K_e=	0.9	(from Table 2-4)
K_t=		(from Table 2-5)
f=		(from Table 2-5)
z=	111	
H=		(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	
K_{iz} =	1.13	(from Sec. 2.6.8)

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

Category= **1**

2.6.8 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in

Importance Factor, I_{ice} = I_{ice}= 1.00 (from Table 2-3)

$t_{iz} = 2.0*t_i*I_{ice}*K_{iz}*(Kzt)^{0.35}$ t_{iz} = 2.26 in

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

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

h=	115	Gh=	0.85
2.6.7.2 Guyed Masts		Gh=	0.85
2.6.7.3 Pole Structures		Gh=	1.1
2.6.9 Appurtenances		Gh=	1.0

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

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

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed: V_{ult} = 135 mph

Nomial Design Wind Speed, $V_{asd} = V_{ult}\sqrt{(0.6)}$ V_{asd} = 105 mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.
Per TIA-222-G, V_{min} = 105 mph V_{max} = 120 mph

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

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

		K_z=	1.018
		K_{zt}=	1.0
q_z=	**27.30**	K_d=	0.95 (from Table 2-2)
$q_{z\,(ice)}$=	**6.19**	V_{asd}=	105 mph
$q_{z\,(30)}$=	**2.23**	$V_{max\,(ice)}$=	50 mph
		V_{30}=	30 mph
		I=	1.0 (from Table 2-3)
		I_{wice}=	1.0 (from Table 2-3)

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

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-8

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
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (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 = **2.26 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	354	110	29
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	474	138	39
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	75	27	6
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	0.00	0	0	0
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	75	27	6
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	0.00	0	0	0
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.10	1.20	86	30	7
RRUS-12 + RRUS-A2 RRH (Shielded)	20.4	3.7	10.9	0.52	5.51	1.33	19	12	2
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.92	1.20	68	24	6
RRUS-E2 B29 RRH (Shielded)	16.5	3.2	6.3	0.37	5.16	1.32	13	9	1
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	55	21	5
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	0.00	0.00	0	0	0
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.36	1.20	54	20	4
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	0.00	0.00	0	0	0
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	76	27	6
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	8.95	1.47	12	10	1
2" Pipe	2.4	12.0		0.20	0.20	1.20	6	6	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	10	7	1
3" Pipe (Shielded)	3.5	12.0		0.29	0.29	1.20	9	7	1
2"x2" Angle (Shielded)	2.0	12.0		0.17	0.17	1.20	5	6	0
3"x2" Channel (Shielded)	3.0	12.0		0.25	0.25	1.20	8	6	1
3"x3" Angle	3.0	12.0		0.25	0.25	1.20	8	6	1
2-1/2"x2-1/2" Angle (Shielded)	2.5	12.0		0.21	0.21	1.20	7	6	1

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	2.26	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	354	205	317
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	474	205	407
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	68
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	40	46	42
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	68
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	40	46	42
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	86	51	77
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	43	51	45
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	68	24	57
RRUS-E2 B29 RRH (Shielded)	16.5	9.0	6.3	1.03	0.72	1.83	2.62	1.20	1.21	34	24	31
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	55	34	50
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	28	34	29
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	54	38	50
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	27	38	30
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	76	33	65
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	38	33	37

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	96.9	19.3	11.9	13.00	8.02	5.02	8.13	1.31	1.44	106	71	97
800-10966 Antenna	100.5	24.5	11.4	17.11	7.97	4.10	8.80	1.27	1.46	135	72	119
RRUS-32 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	25
RRUS-32 RRH (Shielded)	31.7	8.3	11.5	1.83	2.54	3.82	2.75	1.26	1.21	14	19	15
RRUS-32 B2 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	25
RRUS-32 B2 RRH (Shielded)	31.7	8.3	11.5	1.83	2.54	3.82	2.75	1.26	1.21	14	19	15
RRUS-12 + RRUS-A2 RRH	24.9	23.0	15.4	3.98	2.67	1.08	1.62	1.20	1.20	30	20	27
RRUS-12 + RRUS-A2 RRH (Shielded	24.9	11.5	15.4	1.99	2.67	2.17	1.62	1.20	1.20	15	20	16
RRUS-E2 B29 RRH	21.0	22.5	10.8	3.29	1.58	0.93	1.94	1.20	1.20	24	12	21
RRUS-E2 B29 RRH (Shielded)	21.0	11.3	10.8	1.64	1.58	1.87	1.94	1.20	1.20	12	12	12
B14 4478 RRH	22.6	17.9	12.8	2.81	2.01	1.26	1.76	1.20	1.20	21	15	19
B14 4478 RRH (Shielded)	22.6	9.0	12.8	1.41	2.01	2.52	1.76	1.20	1.20	10	15	12
B5/B12 4449 RRH	22.4	17.7	13.9	2.76	2.17	1.27	1.61	1.20	1.20	20	16	19
B5/B12 4449 RRH (Shielded)	22.4	8.9	13.9	1.38	2.17	2.53	1.61	1.20	1.20	10	16	12
RRUS-11 RRH	24.2	21.5	11.7	3.62	1.97	1.13	2.07	1.20	1.20	27	15	24
RRUS-11 RRH (Shielded)	24.2	10.8	11.7	1.81	1.97	2.25	2.07	1.20	1.20	13	15	14

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-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	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	6
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	7	4	6
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	4	4	4
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	6	2	5
RRUS-E2 B29 RRH (Shielded)	16.5	9.0	6.3	1.03	0.72	1.83	2.62	1.20	1.21	3	2	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	3	2
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	2	3	2
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	3	3	3

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	2.26	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)	Force (lbs)	Force (lbs)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	354	205	242
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	474	205	272
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	53
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	57	46	48
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	53
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	57	46	48
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	86	51	59
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	64	51	54
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	68	24	35
RRUS-E2 B29 RRH (Shielded)	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	51	24	30
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	55	34	39
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	41	34	36
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	54	38	42
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	40	38	39
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	76	33	43
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	57	33	39

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	96.9	19.3	11.9	13.00	8.02	5.02	8.13	1.31	1.44	106	71	80
800-10966 Antenna	100.5	24.5	11.4	17.11	7.97	4.10	8.80	1.27	1.46	135	72	88
RRUS-32 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	21
RRUS-32 RRH (Shielded)	31.7	12.5	11.5	2.74	2.54	2.55	2.75	1.20	1.21	20	19	19
RRUS-32 B2 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	21
RRUS-32 B2 RRH (Shielded)	31.7	12.5	11.5	2.74	2.54	2.55	2.75	1.20	1.21	20	19	19
RRUS-12 + RRUS-A2 RRH	24.9	23.0	15.4	3.98	2.67	1.08	1.62	1.20	1.20	30	20	22
RRUS-12 + RRUS-A2 RRH (Shielded	24.9	17.3	15.4	2.99	2.67	1.44	1.62	1.20	1.20	22	20	20
RRUS-E2 B29 RRH	21.0	22.5	10.8	3.29	1.58	0.93	1.94	1.20	1.20	24	12	15
RRUS-E2 B29 RRH (Shielded)	21.0	16.9	10.8	2.46	1.58	1.24	1.94	1.20	1.20	18	12	13
B14 4478 RRH	22.6	17.9	12.8	2.81	2.01	1.26	1.76	1.20	1.20	21	15	16
B14 4478 RRH (Shielded)	22.6	13.4	12.8	2.11	2.01	1.68	1.76	1.20	1.20	16	15	15
B5/B12 4449 RRH	22.4	17.7	13.9	2.76	2.17	1.27	1.61	1.20	1.20	20	16	17
B5/B12 4449 RRH (Shielded)	22.4	13.3	13.9	2.07	2.17	1.69	1.61	1.20	1.20	15	16	16
RRUS-11 RRH	24.2	21.5	11.7	3.62	1.97	1.13	2.07	1.20	1.20	27	15	18
RRUS-11 RRH (Shielded)	24.2	16.1	11.7	2.71	1.97	1.50	2.07	1.20	1.20	20	15	16

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-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
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
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	7	4	5
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	5	4	4
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	6	2	3
RRUS-E2 B29 RRH (Shielded)	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	2
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	3	3
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	3	3	3
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	4
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	3

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	2.26	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	354	205	205
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	474	205	205
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	46
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	#DIV/0!	3.89	#DIV/0!	1.26	#DIV/0!	46	#DIV/0!
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	46
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	#DIV/0!	3.89	#DIV/0!	1.26	#DIV/0!	46	#DIV/0!
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	86	51	51
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	3.7	10.9	0.52	1.54	5.51	1.87	1.33	1.20	19	51	51
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	68	24	24
RRUS-E2 B29 RRH (Shielded)	16.5	3.2	6.3	0.37	0.72	5.16	2.62	1.32	1.21	13	24	24
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	55	34	34
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	#DIV/0!	2.18	#DIV/0!	1.20	#DIV/0!	34	#DIV/0!
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	54	38	38
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	#DIV/0!	1.90	#DIV/0!	1.20	#DIV/0!	38	#DIV/0!
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	76	33	33
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	8.95	2.74	1.47	1.21	12	33	33

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	96.9	19.3	11.9	13.00	8.02	5.02	8.13	1.31	1.44	106	71	71
800-10966 Antenna	100.5	24.5	11.4	17.11	7.97	4.10	8.80	1.27	1.46	135	72	72
RRUS-32 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	19
RRUS-32 RRH (Shielded)	31.7	4.5	11.5	0.99	2.54	7.02	2.75	1.40	1.21	9	19	19
RRUS-32 B2 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	19
RRUS-32 B2 RRH (Shielded)	31.7	4.5	11.5	0.99	2.54	7.02	2.75	1.40	1.21	9	19	19
RRUS-12 + RRUS-A2 RRH	24.9	23.0	15.4	3.98	2.67	1.08	1.62	1.20	1.20	30	20	20
RRUS-12 + RRUS-A2 RRH (Shielded	24.9	8.2	15.4	1.42	2.67	3.03	1.62	1.22	1.20	11	20	20
RRUS-E2 B29 RRH	21.0	22.5	10.8	3.29	1.58	0.93	1.94	1.20	1.20	24	12	12
RRUS-E2 B29 RRH (Shielded)	21.0	7.7	10.8	1.13	1.58	2.72	1.94	1.21	1.20	8	12	12
B14 4478 RRH	22.6	17.9	12.8	2.81	2.01	1.26	1.76	1.20	1.20	21	15	15
B14 4478 RRH (Shielded)	22.6	4.5	12.8	0.71	2.01	5.01	1.76	1.31	1.20	6	15	15
B5/B12 4449 RRH	22.4	17.7	13.9	2.76	2.17	1.27	1.61	1.20	1.20	20	16	16
B5/B12 4449 RRH (Shielded)	22.4	4.5	13.9	0.70	2.17	4.96	1.61	1.31	1.20	6	16	16
RRUS-11 RRH	24.2	21.5	11.7	3.62	1.97	1.13	2.07	1.20	1.20	27	15	15
RRUS-11 RRH (Shielded)	24.2	6.7	11.7	1.13	1.97	3.61	2.07	1.25	1.20	9	15	15

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-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	#DIV/0!	3.89	#DIV/0!	1.26	#DIV/0!	4	#DIV/0!
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
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	#DIV/0!	3.89	#DIV/0!	1.26	#DIV/0!	4	#DIV/0!
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	7	4	4
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	3.7	10.9	0.52	1.54	5.51	1.87	1.33	1.20	2	4	4
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	6	2	2
RRUS-E2 B29 RRH (Shielded)	16.5	3.2	6.3	0.37	0.72	5.16	2.62	1.32	1.21	1	2	2
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	#DIV/0!	2.18	#DIV/0!	1.20	#DIV/0!	3	#DIV/0!
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	#DIV/0!	1.90	#DIV/0!	1.20	#DIV/0!	3	#DIV/0!
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	3
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	8.95	2.74	1.47	1.21	1	3	3

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | **Ice Thickness =** 2.26 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)	Force (lbs)	Force (lbs)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	354	205	242
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	474	205	272
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	53
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	57	46	48
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	53
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	57	46	48
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	86	51	59
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	64	51	54
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	68	24	35
RRUS-E2 B29 RRH (Shielded)	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	51	24	30
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	55	34	39
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	41	34	36
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	54	38	42
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	40	38	39
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	76	33	43
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	57	33	39

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	96.9	19.3	11.9	13.00	8.02	5.02	8.13	1.31	1.44	106	71	80
800-10966 Antenna	100.5	24.5	11.4	17.11	7.97	4.10	8.80	1.27	1.46	135	72	88
RRUS-32 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	21
RRUS-32 RRH (Shielded)	31.7	12.5	11.5	2.74	2.54	2.55	2.75	1.20	1.21	20	19	19
RRUS-32 B2 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	21
RRUS-32 B2 RRH (Shielded)	31.7	12.5	11.5	2.74	2.54	2.55	2.75	1.20	1.21	20	19	19
RRUS-12 + RRUS-A2 RRH	24.9	23.0	15.4	3.98	2.67	1.08	1.62	1.20	1.20	30	20	22
RRUS-12 + RRUS-A2 RRH (Shielded	24.9	17.3	15.4	2.99	2.67	1.44	1.62	1.20	1.20	22	20	20
RRUS-E2 B29 RRH	21.0	22.5	10.8	3.29	1.58	0.93	1.94	1.20	1.20	24	12	15
RRUS-E2 B29 RRH (Shielded)	21.0	16.9	10.8	2.46	1.58	1.24	1.94	1.20	1.20	18	12	13
B14 4478 RRH	22.6	17.9	12.8	2.81	2.01	1.26	1.76	1.20	1.20	21	15	16
B14 4478 RRH (Shielded)	22.6	13.4	12.8	2.11	2.01	1.68	1.76	1.20	1.20	16	15	15
B5/B12 4449 RRH	22.4	17.7	13.9	2.76	2.17	1.27	1.61	1.20	1.20	20	16	17
B5/B12 4449 RRH (Shielded)	22.4	13.3	13.9	2.07	2.17	1.69	1.61	1.20	1.20	15	16	16
RRUS-11 RRH	24.2	21.5	11.7	3.62	1.97	1.13	2.07	1.20	1.20	27	15	18
RRUS-11 RRH (Shielded)	24.2	16.1	11.7	2.71	1.97	1.50	2.07	1.20	1.20	20	15	16

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-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
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
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	7	4	5
RRUS-12 + RRUS-A2 RRH (Shielded	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	5	4	4
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	6	2	3
RRUS-E2 B29 RRH (Shielded)	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	4	2	2
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	3	3
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	3	3	3
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	4
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	3

Date: 12/31/2018
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg)

Ice Thickness = 2.26 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	354	205	317
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	474	205	407
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	68
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	40	46	42
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	75	46	68
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	40	46	42
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	86	51	77
RRUS-12 + RRUS-A2 RRH (Shielde	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	43	51	45
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	68	24	57
RRUS-E2 B29 RRH (Shielded)	16.5	9.0	6.3	1.03	0.72	1.83	2.62	1.20	1.21	34	24	31
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	55	34	50
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	28	34	29
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	54	38	50
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	27	38	30
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	76	33	65
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	38	33	37

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	96.9	19.3	11.9	13.00	8.02	5.02	8.13	1.31	1.44	106	71	97
800-10966 Antenna	100.5	24.5	11.4	17.11	7.97	4.10	8.80	1.27	1.46	135	72	119
RRUS-32 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	25
RRUS-32 RRH (Shielded)	31.7	8.3	11.5	1.83	2.54	3.82	2.75	1.26	1.21	14	19	15
RRUS-32 B2 RRH	31.7	16.6	11.5	3.66	2.54	1.91	2.75	1.20	1.21	27	19	25
RRUS-32 B2 RRH (Shielded)	31.7	8.3	11.5	1.83	2.54	3.82	2.75	1.26	1.21	14	19	15
RRUS-12 + RRUS-A2 RRH	24.9	23.0	15.4	3.98	2.67	1.08	1.62	1.20	1.20	30	20	27
RRUS-12 + RRUS-A2 RRH (Shielde	24.9	11.5	15.4	1.99	2.67	2.17	1.62	1.20	1.20	15	20	16
RRUS-E2 B29 RRH	21.0	22.5	10.8	3.29	1.58	0.93	1.94	1.20	1.20	24	12	21
RRUS-E2 B29 RRH (Shielded)	21.0	11.3	10.8	1.64	1.58	1.87	1.94	1.20	1.20	12	12	12
B14 4478 RRH	22.6	17.9	12.8	2.81	2.01	1.26	1.76	1.20	1.20	21	15	19
B14 4478 RRH (Shielded)	22.6	9.0	12.8	1.41	2.01	2.52	1.76	1.20	1.20	10	15	12
B5/B12 4449 RRH	22.4	17.7	13.9	2.76	2.17	1.27	1.61	1.20	1.20	20	16	19
B5/B12 4449 RRH (Shielded)	22.4	8.9	13.9	1.38	2.17	2.53	1.61	1.20	1.20	10	16	12
RRUS-11 RRH	24.2	21.5	11.7	3.62	1.97	1.13	2.07	1.20	1.20	27	15	24
RRUS-11 RRH (Shielded)	24.2	10.8	11.7	1.81	1.97	2.25	2.07	1.20	1.20	13	15	14

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-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	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	6
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
RRUS-12 + RRUS-A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	7	4	6
RRUS-12 + RRUS-A2 RRH (Shielde	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	4	4	4
RRUS-E2 B29 RRH	16.5	18.0	6.3	2.06	0.72	0.92	2.62	1.20	1.21	6	2	5
RRUS-E2 B29 RRH (Shielded)	16.5	9.0	6.3	1.03	0.72	1.83	2.62	1.20	1.21	3	2	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	3	2
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	2	3	2
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	3	3	3

Date: 01/02/2019
Project Name: New London Jefferson Avenue
Project No.: CT2838
Designed By: AK **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 2.26 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:		400 lbs
Weight of object:	68 lbs	
Combined weight of ice and object:		468 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:		517 lbs
Weight of object:	115 lbs	
Combined weight of ice and object:		632 lbs

RRUS-32 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:		102 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		162 lbs

RRUS-12 + RRUS-A2 RRH
Weight of ice based on total radial SF area:

Height (in):	20.4	
Width (in):	18.5	
Depth (in):	10.9	
Total weight of ice on object:		111 lbs
Weight of object:	80 lbs	
Combined weight of ice and object:		191 lbs

RRUS-E2 B29 RRH
Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	18.0	
Depth (in):	6.3	
Total weight of ice on object:		81 lbs
Weight of object:	53 lbs	
Combined weight of ice and object:		134 lbs

B14 4478 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:		75 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		135 lbs

B5/B12 4449 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:		76 lbs
Weight of object:	71 lbs	
Combined weight of ice and object:		147 lbs

RRUS-11 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:		94 lbs
Weight of object:	51 lbs	
Combined weight of ice and object:		145 lbs

2" pipe
Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		13 plf

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:		66 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		99 lbs

L 2x2x1/4 Angles
Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		14 plf

3" Pipe
Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		16 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:		16 plf

PL 6x3/8
Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.38	
Per foot weight of ice on object:		23 plf

L 2-1/2x2-1/2x1/4 Angles
Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		16 plf

T2L 3x3x1/4 Angles
Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		36 plf

HUDSON
Design Group LLC

Mount Calculations
(Unmodified 4C/5C/6C/7C Configuration)

Bentley

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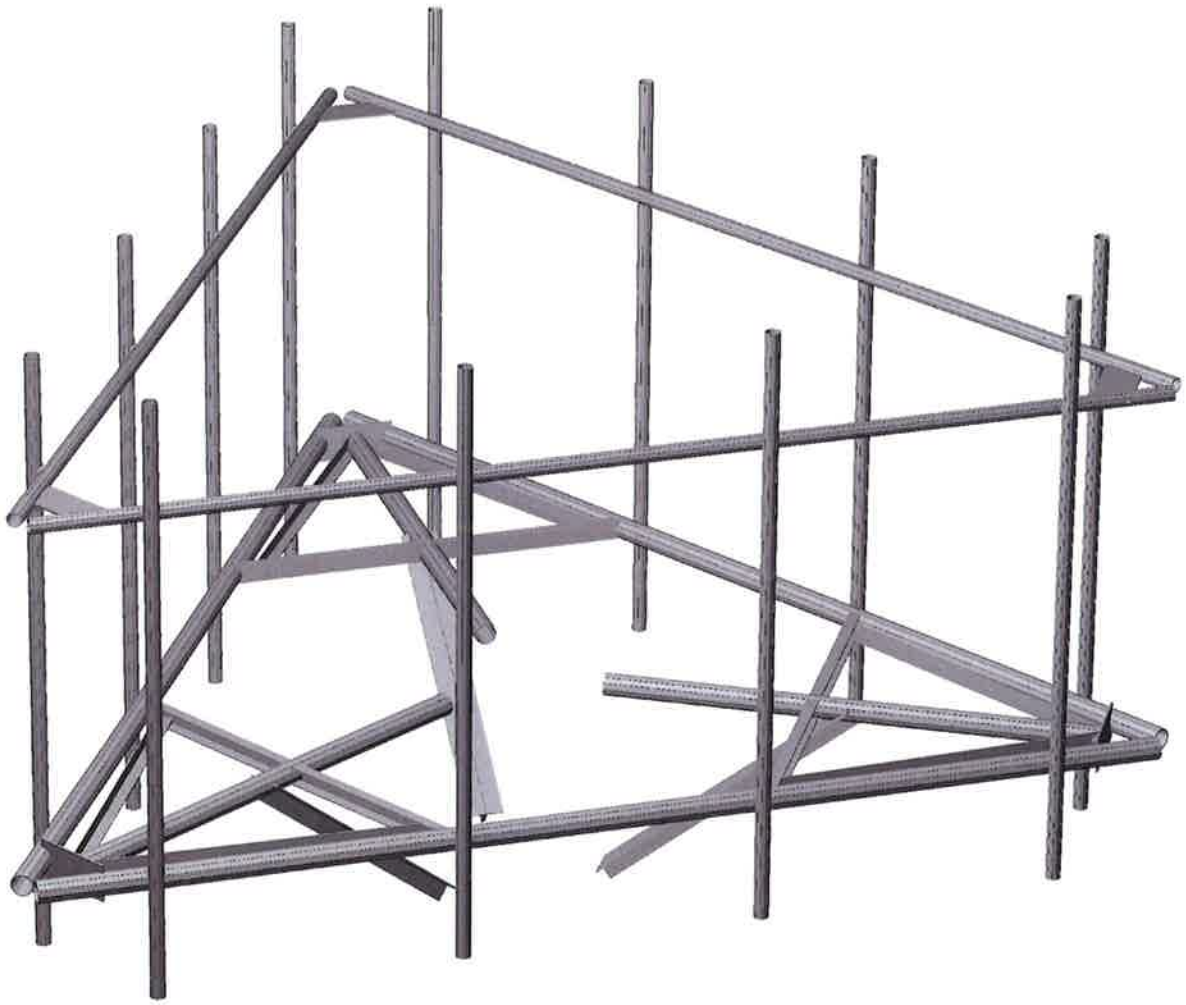

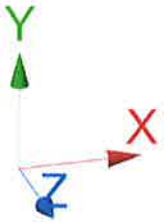

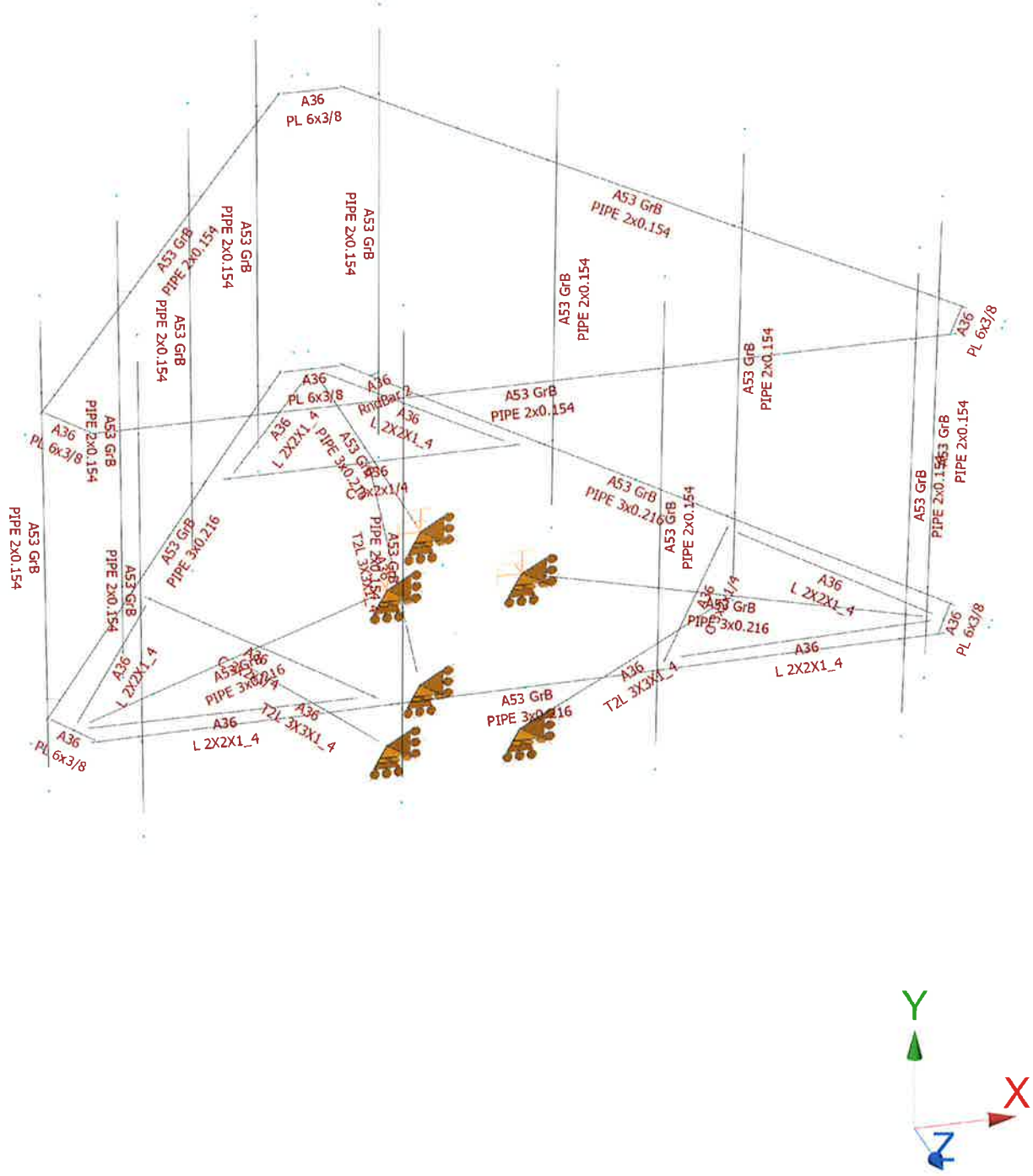
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L 2X2X1_4
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T2L 3X3X1_4
Y
X
Z

Bentley

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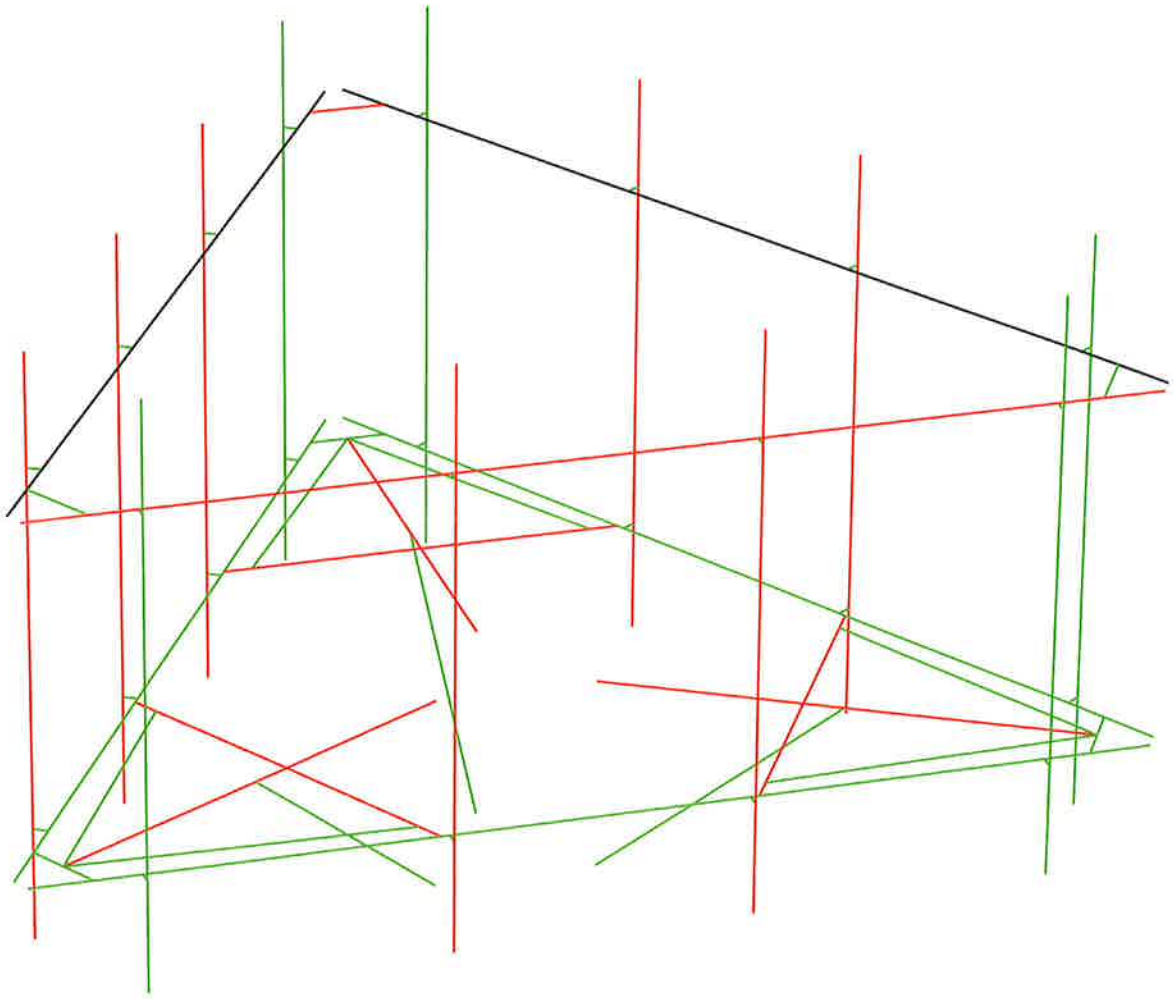

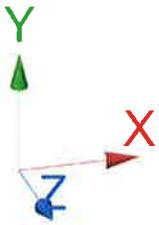

Bentley

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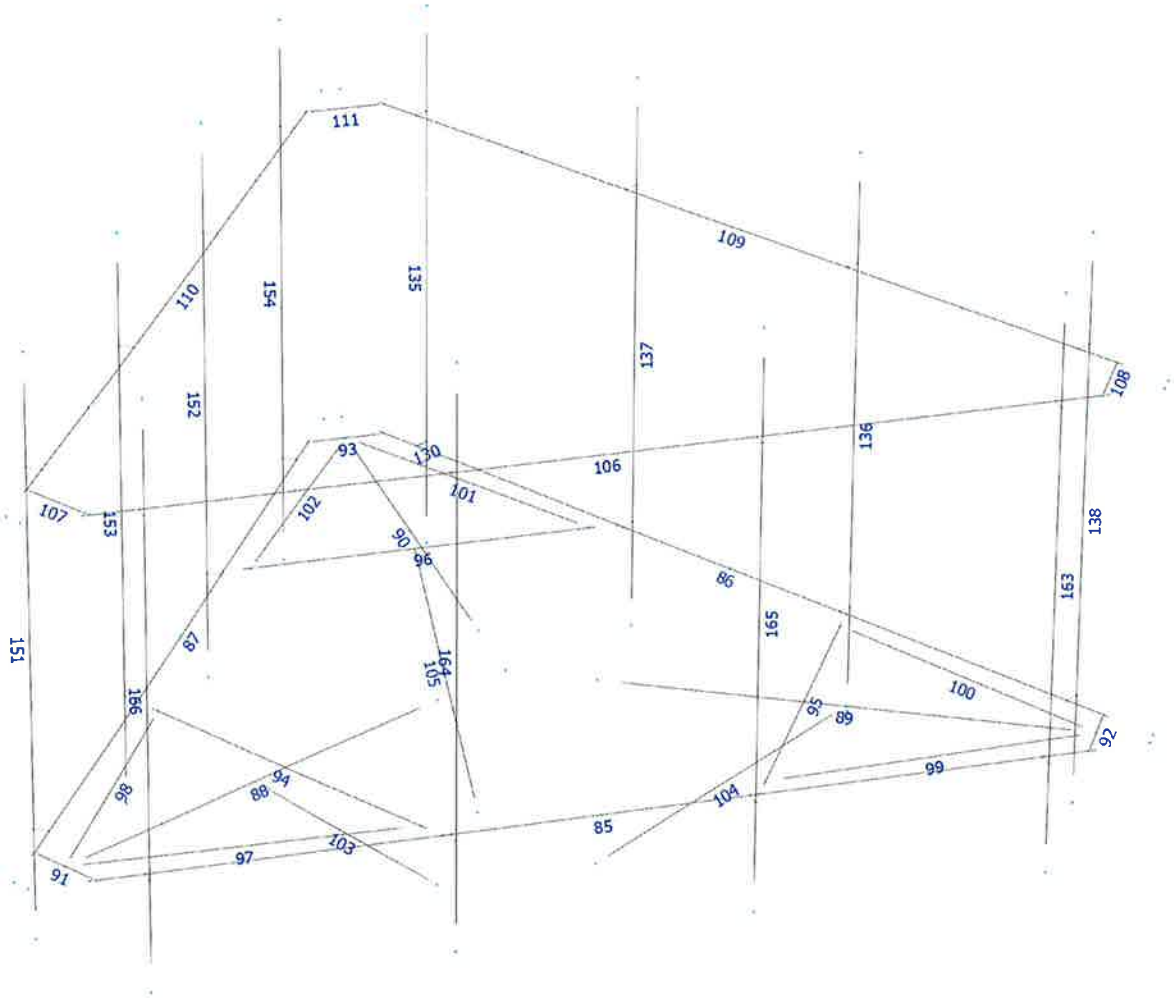

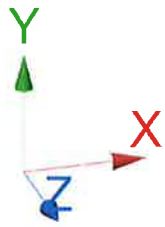

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Load data

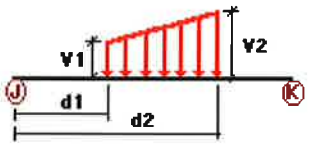
GLOSSARY

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 on Antenna 1	No	LL
LLa2	250 lb Live Load on Antenna 2	No	LL
LLa3	250 lb Live Load on Antenna 3	No	LL
LLa4	250 lb Live Load on Antenna 4	No	LL

Distributed force on members

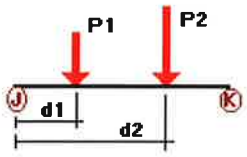


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	88	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	89	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	90	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	94	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	95	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	96	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	85	Z	-0.01	-0.01	0.00	Yes	100.00	Yes
	86	Z	-0.01	-0.01	0.00	Yes	100.00	Yes
	87	Z	-0.01	-0.01	0.00	Yes	100.00	Yes
	88	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	89	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	90	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	94	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	95	Z	-0.008	-0.008	0.00	Yes	100.00	Yes

	96	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	97	Z	-0.005	-0.005	0.00	Yes	100.00	Yes
	98	Z	-0.005	-0.005	0.00	Yes	100.00	Yes
	99	Z	-0.005	-0.005	0.00	Yes	100.00	Yes
	100	Z	-0.005	-0.005	0.00	Yes	100.00	Yes
	101	Z	-0.005	-0.005	0.00	Yes	100.00	Yes
	102	Z	-0.005	-0.005	0.00	Yes	100.00	Yes
	103	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	104	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	105	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	106	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
	109	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
	110	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
W30	85	X	-0.01	-0.01	0.00	Yes	100.00	Yes
	86	X	-0.01	-0.01	0.00	Yes	100.00	Yes
	87	X	-0.01	-0.01	0.00	Yes	100.00	Yes
	88	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	89	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	90	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	94	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	95	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	96	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	97	X	-0.005	-0.005	0.00	Yes	100.00	Yes
	98	X	-0.005	-0.005	0.00	Yes	100.00	Yes
	99	X	-0.005	-0.005	0.00	Yes	100.00	Yes
	100	X	-0.005	-0.005	0.00	Yes	100.00	Yes
	101	X	-0.005	-0.005	0.00	Yes	100.00	Yes
	102	X	-0.005	-0.005	0.00	Yes	100.00	Yes
	103	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	104	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	105	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	106	X	-0.006	-0.006	0.00	Yes	100.00	Yes
	109	X	-0.006	-0.006	0.00	Yes	100.00	Yes
	110	X	-0.006	-0.006	0.00	Yes	100.00	Yes
Di	85	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	86	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	87	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	88	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	89	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	90	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	91	Y	-0.023	-0.023	0.00	Yes	100.00	Yes
	92	Y	-0.023	-0.023	0.00	Yes	100.00	Yes
	93	Y	-0.023	-0.023	0.00	Yes	100.00	Yes
	94	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	95	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	96	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	97	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	98	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	99	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	100	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	101	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	102	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	103	Y	-0.036	-0.036	0.00	Yes	100.00	Yes
	104	Y	-0.036	-0.036	0.00	Yes	100.00	Yes
	105	Y	-0.036	-0.036	0.00	Yes	100.00	Yes
	106	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	107	Y	-0.023	-0.023	0.00	Yes	100.00	Yes
	108	Y	-0.023	-0.023	0.00	Yes	100.00	Yes
	109	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	110	Y	-0.013	-0.013	0.00	Yes	100.00	Yes

111	Y	-0.023	-0.023	0.00	Yes	100.00	Yes
135	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
136	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
137	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
138	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
151	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
152	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
153	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
154	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
163	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
164	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
165	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
166	Y	-0.013	-0.013	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	135	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.071	3.00	No
		y	-0.051	6.00	No
	136	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	3.00	No
	137	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.08	3.00	No
		y	-0.053	6.00	No
	138	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.06	3.00	No
		y	-0.06	6.00	No
	151	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.071	3.00	No
		y	-0.051	6.00	No
	152	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	3.00	No
	153	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.08	3.00	No
		y	-0.053	6.00	No
	154	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.06	3.00	No
		y	-0.06	6.00	No
	163	y	-0.034	0.50	No
		y	-0.034	7.50	No

		y	-0.071	3.00	No
		y	-0.051	6.00	No
	164	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	3.00	No
		y	-0.033	6.00	No
	165	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.08	3.00	No
		y	-0.053	6.00	No
	166	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.06	3.00	No
		y	-0.06	6.00	No
W0	135	z	-0.122	0.50	No
		z	-0.122	7.50	No
		z	-0.039	3.00	No
		z	-0.039	6.00	No
	136	z	-0.122	0.50	No
		z	-0.122	7.50	No
		z	-0.036	3.00	No
	137	z	-0.122	0.50	No
		z	-0.122	7.50	No
		z	-0.054	3.00	No
		z	-0.03	6.00	No
	138	z	-0.137	0.50	No
		z	-0.137	7.50	No
		z	-0.048	3.00	No
		z	-0.048	6.00	No
	151	z	-0.122	0.50	No
		z	-0.122	7.50	No
		z	-0.039	3.00	No
		z	-0.039	6.00	No
	152	z	-0.122	0.50	No
		z	-0.122	7.50	No
		z	-0.036	3.00	No
	153	z	-0.122	0.50	No
		z	-0.122	7.50	No
		z	-0.054	3.00	No
		z	-0.03	6.00	No
	154	z	-0.137	0.50	No
		z	-0.137	7.50	No
		z	-0.048	3.00	No
		z	-0.048	6.00	No
	163	z	-0.178	0.50	No
		z	-0.178	7.50	No
		z	0.00	3.00	No
		z	-0.012	6.00	No
	164	z	-0.178	0.50	No
		z	-0.178	7.50	No
		z	0.00	3.00	No
	165	z	-0.178	0.50	No
		z	-0.178	7.50	No
		z	-0.019	3.00	No
		z	-0.013	6.00	No
	166	z	-0.237	0.50	No
		z	-0.237	7.50	No
		z	0.00	3.00	No
		z	0.00	6.00	No
W30	135	x	-0.159	0.50	No

		x	-0.159	7.50	No
		x	-0.03	3.00	No
		x	-0.037	6.00	No
	136	x	-0.159	0.50	No
		x	-0.159	7.50	No
		x	-0.029	3.00	No
	137	x	-0.159	0.50	No
		x	-0.159	7.50	No
		x	-0.045	3.00	No
		x	-0.031	6.00	No
	138	x	-0.204	0.50	No
		x	-0.204	7.50	No
		x	-0.042	3.00	No
		x	-0.042	6.00	No
	151	x	-0.159	0.50	No
		x	-0.159	7.50	No
		x	-0.03	3.00	No
		x	-0.037	6.00	No
	152	x	-0.159	0.50	No
		x	-0.159	7.50	No
		x	-0.029	3.00	No
	153	x	-0.159	0.50	No
		x	-0.159	7.50	No
		x	-0.045	3.00	No
		x	-0.031	6.00	No
	154	x	-0.204	0.50	No
		x	-0.204	7.50	No
		x	-0.042	3.00	No
		x	-0.042	6.00	No
	163	x	-0.103	0.50	No
		x	-0.103	7.50	No
		x	0.00	3.00	No
		x	-0.033	6.00	No
	164	x	-0.103	0.50	No
		x	-0.103	7.50	No
		x	0.00	3.00	No
	165	x	-0.103	0.50	No
		x	-0.103	7.50	No
		x	-0.051	3.00	No
		x	-0.024	6.00	No
	166	x	-0.103	0.50	No
		x	-0.103	7.50	No
		x	0.00	3.00	No
Di	135	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.076	3.00	No
		y	-0.094	6.00	No
	136	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.075	3.00	No
	137	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.111	3.00	No
		y	-0.081	6.00	No
	138	y	-0.259	0.50	No
		y	-0.259	7.50	No
		y	-0.102	3.00	No
		y	-0.102	6.00	No
	151	y	-0.20	0.50	No
		y	-0.20	7.50	No

		y	-0.076	3.00	No
		y	-0.094	6.00	No
	152	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.075	3.00	No
	153	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.111	3.00	No
		y	-0.081	6.00	No
	154	y	-0.259	0.50	No
		y	-0.259	7.50	No
		y	-0.102	3.00	No
		y	-0.102	6.00	No
	163	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.076	3.00	No
		y	-0.094	6.00	No
	164	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.075	3.00	No
		y	-0.066	6.00	No
	165	y	-0.20	0.50	No
		y	-0.20	7.50	No
		y	-0.111	3.00	No
		y	-0.081	6.00	No
	166	y	-0.259	0.50	No
		y	-0.259	7.50	No
		y	-0.102	3.00	No
		y	-0.102	6.00	No
Wi0	135	z	-0.04	0.50	No
		z	-0.04	7.50	No
		z	-0.016	3.00	No
		z	-0.016	6.00	No
	136	z	-0.04	0.50	No
		z	-0.04	7.50	No
		z	-0.015	3.00	No
	137	z	-0.04	0.50	No
		z	-0.04	7.50	No
		z	-0.02	3.00	No
		z	-0.013	6.00	No
	138	z	-0.044	0.50	No
		z	-0.044	7.50	No
		z	-0.019	3.00	No
		z	-0.019	6.00	No
	151	z	-0.04	0.50	No
		z	-0.04	7.50	No
		z	-0.016	3.00	No
		z	-0.016	6.00	No
	152	z	-0.04	0.50	No
		z	-0.04	7.50	No
		z	-0.015	3.00	No
	153	z	-0.04	0.50	No
		z	-0.04	7.50	No
		z	-0.02	3.00	No
		z	-0.013	6.00	No
	154	z	-0.044	0.50	No
		z	-0.044	7.50	No
		z	-0.019	3.00	No
		z	-0.019	6.00	No
	163	z	-0.055	0.50	No

		z	-0.055	7.50	No
		z	0.00	3.00	No
		z	-0.01	6.00	No
	164	z	-0.055	0.50	No
		z	-0.055	7.50	No
		z	0.00	3.00	No
	165	z	-0.055	0.50	No
		z	-0.055	7.50	No
		z	-0.012	3.00	No
		z	-0.009	6.00	No
	166	z	-0.069	0.50	No
		z	-0.069	7.50	No
		z	0.00	3.00	No
		z	0.00	6.00	No
Wi30	135	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.012	3.00	No
		x	-0.014	6.00	No
	136	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.012	3.00	No
	137	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.016	3.00	No
		x	-0.012	6.00	No
	138	x	-0.06	0.50	No
		x	-0.06	7.50	No
		x	-0.015	3.00	No
		x	-0.015	6.00	No
	151	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.012	3.00	No
		x	-0.014	6.00	No
	152	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.012	3.00	No
	153	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.016	3.00	No
		x	-0.012	6.00	No
	154	x	-0.06	0.50	No
		x	-0.06	7.50	No
		x	-0.015	3.00	No
		x	-0.015	6.00	No
	163	x	-0.036	0.50	No
		x	-0.036	7.50	No
		x	-0.016	3.00	No
		x	-0.015	6.00	No
	164	x	-0.036	0.50	No
		x	-0.036	7.50	No
		x	-0.015	3.00	No
	165	x	-0.036	0.50	No
		x	-0.036	7.50	No
		x	-0.02	3.00	No
		x	-0.012	6.00	No
	166	x	-0.037	0.50	No
		x	-0.037	7.50	No
		x	-0.019	3.00	No
		x	-0.019	6.00	No
WL0	135	z	-0.01	0.50	No

		z	-0.01	7.50	No
		z	-0.004	3.00	No
		z	-0.004	6.00	No
	136	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	137	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.005	3.00	No
		z	-0.003	6.00	No
	138	z	-0.012	0.50	No
		z	-0.012	7.50	No
		z	-0.004	3.00	No
		z	-0.004	6.00	No
	151	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.004	3.00	No
		z	-0.004	6.00	No
	152	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	3.00	No
	153	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.005	3.00	No
		z	-0.003	6.00	No
	154	z	-0.012	0.50	No
		z	-0.012	7.50	No
		z	-0.004	3.00	No
		z	-0.004	6.00	No
	163	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	0.00	3.00	No
		z	-0.001	6.00	No
	164	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	0.00	3.00	No
	165	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.002	3.00	No
		z	-0.002	6.00	No
	166	z	-0.02	0.50	No
		z	-0.02	7.50	No
		z	0.00	3.00	No
WL30	135	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
		x	-0.003	6.00	No
	136	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
	137	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.004	3.00	No
		x	-0.003	6.00	No
	138	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	0.00	3.00	No
		x	-0.004	6.00	No
	151	x	-0.013	0.50	No
		x	-0.013	7.50	No

		x	-0.003	3.00	No
		x	-0.003	6.00	No
	152	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	3.00	No
	153	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.004	3.00	No
		x	-0.003	6.00	No
	154	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	-0.004	3.00	No
		x	-0.004	6.00	No
	163	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	0.00	3.00	No
		x	-0.003	6.00	No
	164	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	0.00	3.00	No
	165	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.005	3.00	No
		x	-0.002	6.00	No
	166	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	0.00	3.00	No
LL1	85	y	-0.25	7.00	No
LL2	85	y	-0.25	0.00	No
LLa1	166	y	-0.25	4.00	No
LLa2	165	y	-0.25	4.00	No
LLa3	164	y	-0.25	4.00	No
LLa4	163	y	-0.25	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	0.00	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 on Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load on 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

Bentley

Current Date: 1/2/2019 1:08 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2838\4C-5C-6C-7C\CT2838 (4C-5C-6C-7C).etz\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC5=0.9DL+1.6W0
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3
LC29=1.2DL+WL0+LLa4
LC30=1.2DL+WL30+LLa4
LC31=1.2DL-WL0+LLa4
LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3x2x1/4	**94**	LC10 at 50.00%	**1.14**	**N.G.**	Eq. H1-1b
		95	LC12 at 50.00%	1.12	N.G.	Eq. H1-1b
		96	LC9 at 50.00%	1.11	N.G.	Eq. H1-1b
	L 2X2X1_4	**97**	LC10 at 100.00%	0.62	OK	Sec. F1
		98	LC11 at 100.00%	0.63	OK	Sec. F1
		99	LC12 at 100.00%	**0.63**	**OK**	Sec. F1
		100	LC11 at 100.00%	0.60	OK	Sec. F1
		101	LC1 at 100.00%	0.63	OK	Eq. H2-1
		102	LC1 at 100.00%	0.63	OK	Eq. H2-1
	PIPE 2x0.154	**106**	LC2 at 89.58%	1.06	N.G.	Eq. H1-1b
		109	LC3 at 89.58%	0.92	With warnings	Eq. H1-1b
		110	LC3 at 10.42%	0.92	With warnings	Eq. H1-1b
		135	LC3 at 79.17%	0.96	OK	Eq. H1-1b
		136	LC3 at 79.17%	1.61	N.G.	Eq. H1-1b

	137	LC2 at 79.17%	1.62	N.G.	Eq. H1-1b
	138	LC1 at 79.17%	0.98	OK	Eq. H1-1b
	151	LC1 at 79.17%	1.02	N.G.	Eq. H1-1b
	152	LC4 at 79.17%	1.58	N.G.	Eq. H1-1b
	153	LC3 at 79.17%	**1.68**	**N.G.**	Eq. H1-1b
	154	LC3 at 79.17%	0.99	OK	Eq. H1-1b
	163	LC2 at 79.17%	0.76	OK	Eq. H1-1b
	164	LC2 at 79.17%	1.26	N.G.	Eq. H1-1b
	165	LC4 at 79.17%	1.31	N.G.	Eq. H1-1b
	166	LC4 at 79.17%	0.77	OK	Eq. H1-1b
PIPE 3x0.216	**85**	LC2 at 36.88%	0.51	OK	Eq. H1-1b
	86	LC4 at 36.88%	0.44	OK	Eq. H1-1b
	87	LC2 at 63.13%	0.43	OK	Eq. H1-1b
	88	LC10 at 48.44%	**1.10**	**N.G.**	Eq. H1-1b
	89	LC12 at 48.44%	1.09	N.G.	Eq. H1-1b
	90	LC9 at 48.44%	1.08	N.G.	Eq. H1-1b
PL 6x3/8	**91**	LC2 at 50.00%	0.49	OK	Eq. H3-6
	92	LC4 at 0.00%	0.47	OK	Eq. H3-6
	93	LC1 at 50.00%	0.51	OK	Eq. H3-6
	107	LC1 at 100.00%	0.94	OK	Eq. H3-6
	108	LC5 at 0.00%	0.86	OK	Eq. H3-6
	111	LC4 at 100.00%	**1.06**	**N.G.**	Eq. H3-6
RndBar 2	**127**	LC3 at 0.00%	0.80	OK	Eq. H3-6
	128	LC1 at 0.00%	0.45	OK	Eq. H3-1
	129	LC3 at 0.00%	0.77	OK	Eq. H3-6
	130	LC3 at 0.00%	0.44	OK	Eq. H3-1
	131	LC3 at 0.00%	0.47	OK	Eq. H3-1
	132	LC3 at 0.00%	0.76	OK	Eq. H3-1
	133	LC1 at 0.00%	0.76	OK	Eq. H3-1
	134	LC1 at 0.00%	0.56	OK	Eq. H3-1
	155	LC1 at 0.00%	0.56	OK	Eq. H3-1
	156	LC1 at 0.00%	0.47	OK	Eq. H3-1
	157	LC1 at 0.00%	0.77	OK	Eq. H3-1
	158	LC3 at 0.00%	0.78	OK	Eq. H3-1
	159	LC3 at 0.00%	0.49	OK	Eq. H3-1
	160	LC3 at 0.00%	0.45	OK	Eq. H3-1
	161	LC3 at 0.00%	0.77	OK	Eq. H3-6
	162	LC1 at 0.00%	**0.87**	**OK**	Eq. H3-6
	167	LC2 at 0.00%	0.53	OK	Eq. H3-1
	168	LC2 at 0.00%	0.45	OK	Eq. H3-1
	169	LC2 at 0.00%	0.80	OK	Eq. H3-1
	170	LC4 at 0.00%	0.83	OK	Eq. H3-1
	171	LC4 at 0.00%	0.54	OK	Eq. H3-1
	172	LC4 at 0.00%	0.45	OK	Eq. H3-1
	173	LC4 at 0.00%	0.73	OK	Eq. H3-1
	174	LC2 at 0.00%	0.76	OK	Eq. H3-1
T2L 3X3X1_4	**103**	LC10 at 100.00%	0.73	OK	Eq. H2-1
	104	LC12 at 100.00%	0.73	OK	Eq. H2-1
	105	LC9 at 100.00%	**0.73**	**OK**	Eq. H2-1

Bentley

Current Date: 1/2/2019 1:14 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2838\4C-5C-6C-7C\CT2838 (4C-5C-6C-7C).etz\

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
224	-2.2661	0.00	4.0449	0
225	-1.0825	0.00	0.625	0
226	0.00	0.00	-1.25	0
227	-6.50	0.00	4.3782	0
228	-7.3333	0.00	4.3782	0
229	-7.4583	0.00	4.1617	0
231	-4.636	0.00	-0.06	0
233	-2.3699	0.00	-3.985	0
236	-0.125	0.00	-8.54	0
239	1.0825	0.00	0.625	0
240	6.50	0.00	4.3782	0
241	7.3333	0.00	4.3782	0
242	7.4583	0.00	4.1617	0
243	7.0417	0.00	3.44	0
246	2.3699	0.00	-3.985	0
248	0.5417	0.00	-7.8183	0
249	0.125	0.00	-8.54	0
251	6.7709	0.00	3.9091	0
252	0.00	0.00	-7.8183	0
253	3.9267	0.00	2.267	0
254	0.00	0.00	-4.5342	0

255	-3.9267	0.00	2.267	0
256	-1.0825	-2.6667	0.625	0
257	0.00	-2.6667	-1.25	0
258	1.0825	-2.6667	0.625	0
259	-7.3333	4.92	4.3782	0
260	7.3333	4.92	4.3782	0
262	-6.50	4.92	4.3782	0
263	6.50	4.92	4.3782	0
265	7.4583	4.92	4.1617	0
266	0.125	4.92	-8.54	0
267	-0.125	4.92	-8.54	0
268	-7.4583	4.92	4.1617	0
269	0.5417	4.92	-7.8183	0
270	-0.5417	4.92	-7.8183	0
287	6.9053	-1.54	2.804	0
288	1.0244	-1.54	-7.3822	0
289	4.945	-1.54	-0.5914	0
290	2.9847	-1.54	-3.9868	0
318	6.9053	6.46	2.804	0
319	1.0244	6.46	-7.3822	0
320	4.945	6.46	-0.5914	0
321	2.9847	6.46	-3.9868	0
362	-1.0244	6.46	-7.3822	0
363	-1.0244	-1.54	-7.3822	0
364	-2.9847	6.46	-3.9868	0
365	-2.9847	-1.54	-3.9868	0
366	-4.945	6.46	-0.5914	0
367	-4.945	-1.54	-0.5914	0
368	-6.9053	6.46	2.804	0
369	-6.9053	-1.54	2.804	0
386	-5.881	6.46	4.5782	0
387	-5.881	-1.54	4.5782	0
388	-1.9603	6.46	4.5782	0
389	-1.9603	-1.54	4.5782	0
390	1.9603	6.46	4.5782	0
391	1.9603	-1.54	4.5782	0
392	5.881	6.46	4.5782	0
393	5.881	-1.54	4.5782	0
394	0.00	0.00	0.00	0
401	-3.7917	0.00	-2.1892	0
402	3.7917	0.00	-2.1892	0
403	0.00	0.00	4.3782	0
404	5.3488	0.00	3.0881	0
405	-5.3488	0.00	3.0881	0
406	0.00	0.00	-6.1762	0
407	3.9206	4.92	4.3782	0
408	5.7519	4.92	1.2063	0
409	1.8313	4.92	-5.5845	0
410	-1.8313	4.92	-5.5845	0
411	-5.7519	4.92	1.2063	0
412	-3.9206	4.92	4.3782	0
303	0.8512	0.00	-7.2822	0
307	1.0244	0.00	-7.3822	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
225	1	1	1	1	1	1
226	1	1	1	1	1	1
239	1	1	1	1	1	1
256	1	1	1	0	0	0
257	1	1	1	0	0	0
258	1	1	1	0	0	0

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		L 2X2X1_4	A36	0.00	0.00	0.00
98	231	250		L 2X2X1_4	A36	0.00	0.00	0.00
99	238	251		L 2X2X1_4	A36	0.00	0.00	0.00
100	244	251		L 2X2X1_4	A36	0.00	0.00	0.00
101	246	252		L 2X2X1_4	A36	0.00	0.00	0.00
102	233	252		L 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	261	262		PL 6x3/8	A36	0.00	0.00	0.00
108	263	264		PL 6x3/8	A36	0.00	0.00	0.00
109	265	266		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
111	269	270		PL 6x3/8	A36	0.00	0.00	0.00
135	319	288		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
136	320	289		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
137	321	290		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
138	318	287		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
151	368	369		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
152	364	365		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
153	366	367		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
154	362	363		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
163	392	393		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
164	388	389		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
165	390	391		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
166	386	387		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
130	303	307		RndBar 2	A36	0.00	0.00	0.00
110	267	268		PIPE 2x0.154	A53 GrB	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
98	270.00	0	0.00	0.00	0.00
99	270.00	0	0.00	0.00	0.00
101	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
135	0.00	2	-0.50	0.00	-0.866
136	0.00	2	-0.50	0.00	-0.866
137	0.00	2	-0.50	0.00	-0.866
138	0.00	2	-0.50	0.00	-0.866
151	0.00	2	-0.50	0.00	0.866
152	0.00	2	-0.50	0.00	0.866
153	0.00	2	-0.50	0.00	0.866
154	0.00	2	-0.50	0.00	0.866

Hinges

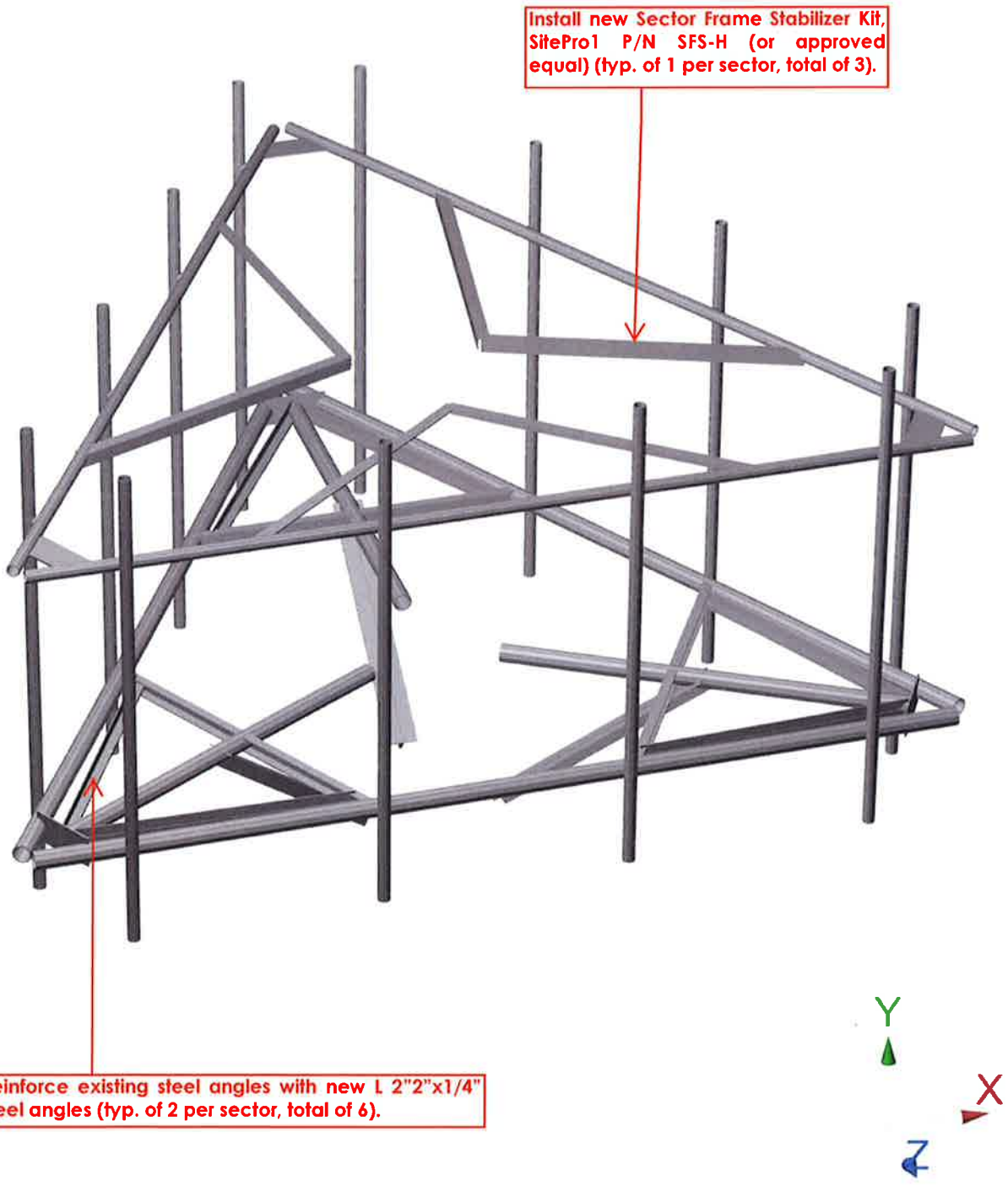
	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
103	0	0	0	0	1	0	0	0	0	0	Full
104	0	0	0	0	1	0	0	0	0	0	Full
105	0	0	0	0	1	0	0	0	0	0	Full

HUDSON
Design Group LLC

Mount Calculations
(Modified 4C/5C/6C/7C Configuration)

Bentley

Current Date: 1/2/2019 1:05 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2838\4C-5C-6C-7C\CT2838 (4C-5C-6C-7C) (mod).etz\



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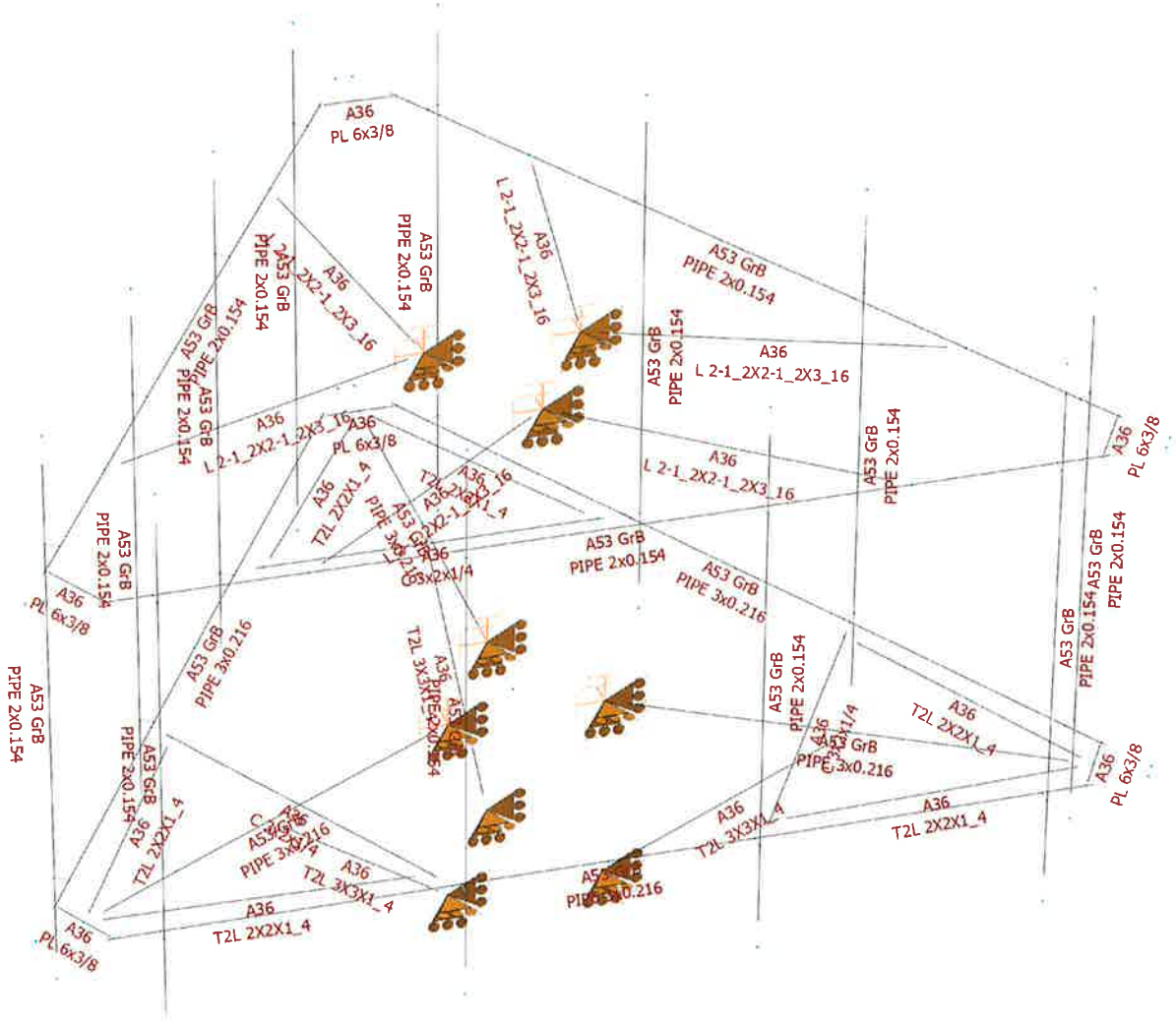

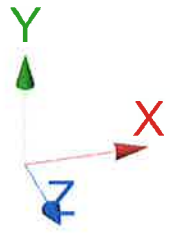

Bentley

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Units system: English
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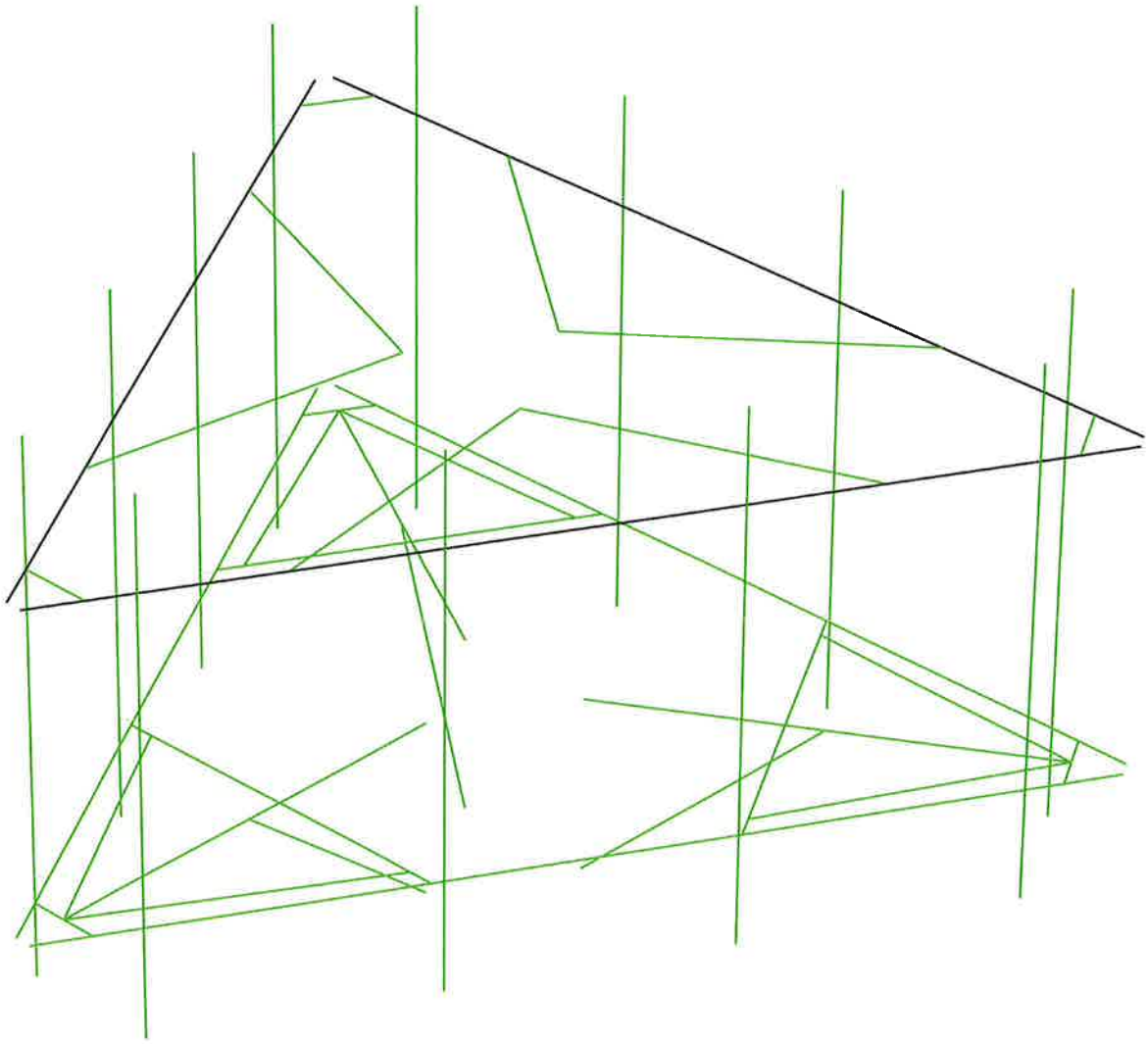

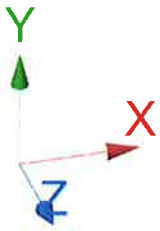

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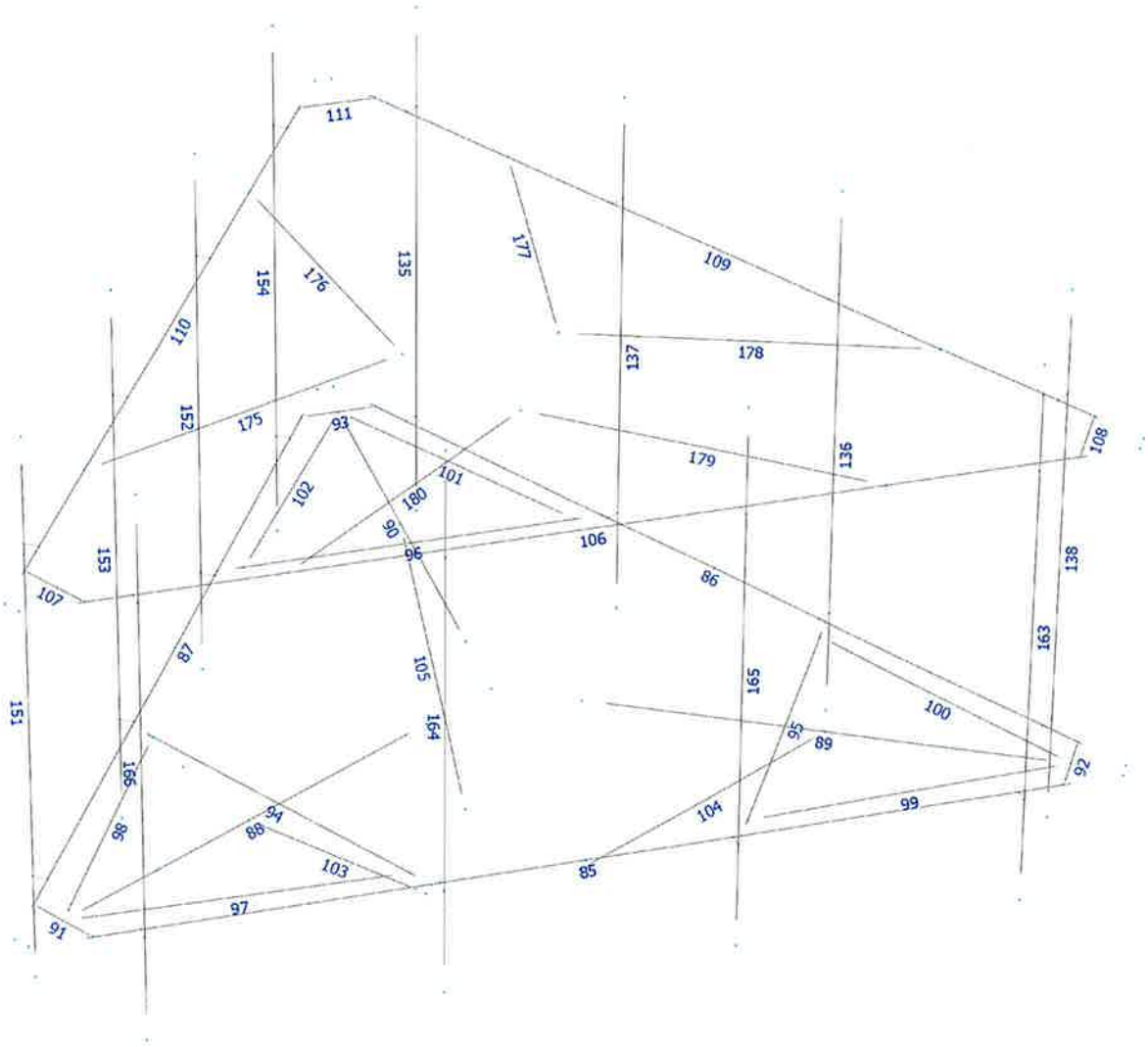

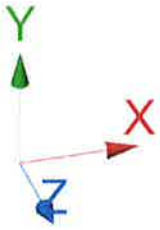

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Current Date: 1/2/2019 1:08 PM
Units system: English
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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC5=0.9DL+1.6W0
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3
LC29=1.2DL+WL0+LLa4
LC30=1.2DL+WL30+LLa4
LC31=1.2DL-WL0+LLa4
LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3x2x1/4	**94**	LC9 at 50.00%	**0.95**	**OK**	Eq. H1-1b
		95	LC9 at 50.00%	0.93	OK	Eq. H1-1b
		96	LC12 at 50.00%	0.93	OK	Eq. H1-1b
	L 2-1_2X2-1_2X3_16	**175**	LC11 at 100.00%	0.70	OK	Sec. F1
		176	LC12 at 100.00%	0.71	OK	Sec. F1
		177	LC10 at 100.00%	0.72	OK	Sec. F1
		178	LC11 at 100.00%	0.69	OK	Sec. F1
		179	LC9 at 100.00%	0.73	OK	Sec. F1
		180	LC9 at 100.00%	**0.73**	**OK**	Sec. F1
	PIPE 2x0.154	**106**	LC3 at 23.61%	0.82	With warnings	Eq. H1-1a
		109	LC4 at 23.61%	**0.83**	**With warnings**	Eq. H1-1a
		110	LC2 at 76.39%	0.83	With warnings	Eq. H1-1a
		135	LC11 at 79.17%	0.55	OK	Eq. H1-1b
		136	LC10 at 79.17%	0.57	OK	Eq. H1-1b

	137	LC11 at 79.17%	0.59	OK	Eq. H1-1b
	138	LC10 at 79.17%	0.58	OK	Eq. H1-1b
	151	LC12 at 79.17%	0.55	OK	Eq. H1-1b
	152	LC11 at 79.17%	0.57	OK	Eq. H1-1b
	153	LC12 at 79.17%	0.59	OK	Eq. H1-1b
	154	LC11 at 79.17%	0.58	OK	Eq. H1-1b
	163	LC10 at 79.17%	0.55	OK	Eq. H1-1b
	164	LC12 at 79.17%	0.58	OK	Eq. H1-1b
	165	LC10 at 79.17%	0.58	OK	Eq. H1-1b
	166	LC12 at 79.17%	0.57	OK	Eq. H1-1b
PIPE 3x0.216	**85**	LC12 at 35.63%	0.35	OK	Eq. H1-1b
	86	LC9 at 35.63%	0.35	OK	Eq. H1-1b
	87	LC11 at 35.63%	0.35	OK	Eq. H1-1b
	88	LC12 at 48.44%	**0.97**	**OK**	Eq. H1-1b
	89	LC10 at 48.44%	0.96	OK	Eq. H1-1b
	90	LC12 at 48.44%	0.97	OK	Eq. H1-1b
PL 6x3/8	**91**	LC12 at 50.00%	0.29	OK	Eq. H3-6
	92	LC10 at 50.00%	0.28	OK	Eq. H3-6
	93	LC11 at 50.00%	0.28	OK	Eq. H3-6
	107	LC1 at 100.00%	**0.30**	**OK**	Eq. H1-1b
	108	LC1 at 0.00%	0.25	OK	Eq. H1-1b
	111	LC4 at 100.00%	0.26	OK	Eq. H1-1b
T2L 2X2X1_4	**97**	LC12 at 100.00%	0.41	OK	Eq. H2-1
	98	LC12 at 100.00%	**0.43**	**OK**	Eq. H2-1
	99	LC10 at 100.00%	0.43	OK	Eq. H2-1
	100	LC10 at 100.00%	0.41	OK	Eq. H2-1
	101	LC11 at 100.00%	0.42	OK	Eq. H2-1
	102	LC11 at 100.00%	0.40	OK	Eq. H2-1
T2L 3X3X1_4	**103**	LC9 at 100.00%	**0.66**	**OK**	Eq. H2-1
	104	LC10 at 100.00%	0.65	OK	Eq. H2-1
	105	LC11 at 100.00%	0.65	OK	Eq. H2-1

Bentley

Current Date: 1/2/2019 1:08 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2838\4C-5C-6C-7C\CT2838 (4C-5C-6C-7C) (mod).etz\

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
227	-6.50	0.00	4.3782	0
228	-7.3333	0.00	4.3782	0
229	-7.4583	0.00	4.1617	0
230	-7.0417	0.00	3.44	0
231	-4.636	0.00	-0.06	0
239	1.0825	0.00	0.625	0
240	6.50	0.00	4.3782	0
241	7.3333	0.00	4.3782	0
242	7.4583	0.00	4.1617	0
246	2.3699	0.00	-3.985	0
248	0.5417	0.00	-7.8183	0
249	0.125	0.00	-8.54	0
250	-6.7709	0.00	3.9091	0
251	6.7709	0.00	3.9091	0
252	0.00	0.00	-7.8183	0
253	3.9267	0.00	2.267	0
254	0.00	0.00	-4.5342	0
255	-3.9267	0.00	2.267	0
257	0.00	-2.6667	-1.25	0

258	1.0825	-2.6667	0.625	0
259	-7.3333	4.92	4.3782	0
260	7.3333	4.92	4.3782	0
261	-7.0417	4.92	3.44	0
262	-6.50	4.92	4.3782	0
263	6.50	4.92	4.3782	0
264	7.0417	4.92	3.44	0
265	7.4583	4.92	4.1617	0
266	0.125	4.92	-8.54	0
267	-0.125	4.92	-8.54	0
268	-7.4583	4.92	4.1617	0
269	0.5417	4.92	-7.8183	0
288	1.0244	-1.54	-7.3822	0
289	4.945	-1.54	-0.5914	0
290	2.9847	-1.54	-3.9868	0
318	6.9053	6.46	2.804	0
319	1.0244	6.46	-7.3822	0
320	4.945	6.46	-0.5914	0
321	2.9847	6.46	-3.9868	0
362	-1.0244	6.46	-7.3822	0
363	-1.0244	-1.54	-7.3822	0
364	-2.9847	6.46	-3.9868	0
365	-2.9847	-1.54	-3.9868	0
366	-4.945	6.46	-0.5914	0
367	-4.945	-1.54	-0.5914	0
368	-6.9053	6.46	2.804	0
369	-6.9053	-1.54	2.804	0
376	-1.9603	4.92	4.3782	0
386	-5.881	6.46	4.5782	0
387	-5.881	-1.54	4.5782	0
388	-1.9603	6.46	4.5782	0
389	-1.9603	-1.54	4.5782	0
390	1.9603	6.46	4.5782	0
391	1.9603	-1.54	4.5782	0
393	5.881	-1.54	4.5782	0
394	0.00	0.00	0.00	0
401	-3.7917	0.00	-2.1892	0
402	3.7917	0.00	-2.1892	0
403	0.00	0.00	4.3782	0
404	5.3488	0.00	3.0881	0
405	-5.3488	0.00	3.0881	0
406	0.00	0.00	-6.1762	0
407	3.9206	4.92	4.3782	0
408	5.7519	4.92	1.2063	0
409	1.8313	4.92	-5.5845	0
410	-1.8313	4.92	-5.5845	0
411	-5.7519	4.92	1.2063	0
412	-3.9206	4.92	4.3782	0
413	0.01	4.92	1.2327	0
414	1.0725	4.92	-0.6077	0
415	-1.0625	4.92	-0.625	0
223	-2.0736	0.00	4.3782	0
256	-1.0825	-2.6667	0.625	0
382	-1.9603	0.00	4.3782	0
383	-1.9603	0.00	4.5782	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
225	1	1	1	1	1	1
226	1	1	1	1	1	1
239	1	1	1	1	1	1
257	1	1	1	0	0	0
258	1	1	1	0	0	0
413	1	1	1	1	1	1
414	1	1	1	1	1	1
415	1	1	1	1	1	1
256	1	1	1	0	0	0

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	231	250		T2L 2X2X1_4	A36	0.00	0.00	0.00
99	238	251		T2L 2X2X1_4	A36	0.00	0.00	0.00
100	244	251		T2L 2X2X1_4	A36	0.00	0.00	0.00
101	246	252		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	261	262		PL 6x3/8	A36	0.00	0.00	0.00
108	263	264		PL 6x3/8	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	269	270		PL 6x3/8	A36	0.00	0.00	0.00
135	319	288		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
136	320	289		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
137	321	290		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
138	318	287		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
151	368	369		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
152	364	365		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
153	366	367		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
154	362	363		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
163	392	393		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
164	388	389		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
165	390	391		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
166	386	387		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
175	411	415		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
176	410	415		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
177	409	414		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

178	408	414	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
179	407	413	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
180	412	413	L 2-1_2X2-1_2X3_16	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	90.00	0	0.00	0.00	0.00
99	90.00	0	0.00	0.00	0.00
100	-90.00	0	0.00	0.00	0.00
101	90.00	0	0.00	0.00	0.00
102	-90.00	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
135	0.00	2	-0.50	0.00	-0.866
136	0.00	2	-0.50	0.00	-0.866
137	0.00	2	-0.50	0.00	-0.866
138	0.00	2	-0.50	0.00	-0.866
151	0.00	2	-0.50	0.00	0.866
152	0.00	2	-0.50	0.00	0.866
153	0.00	2	-0.50	0.00	0.866
154	0.00	2	-0.50	0.00	0.866
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

SCCOG

Property Information

Property ID	95-B11-220-1
Location	490 JEFFERSON AVE
Owner	NEW LONDON CITY OF

SCCOG

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

SCCOG makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 01/11/2017
Properties updated 10/1/2013

490 JEFFERSON AVE

Location	490 JEFFERSON AVE	**Mblu**	B11/ 220/ 1/ /
Acct#	B11 0220 0001	**Owner**	NEW LONDON CITY OF
Assessment	$32,814,740	**Appraisal**	$46,878,200
PID	5464	**Building Count**	6

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$36,994,500	$9,883,700	$46,878,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$25,896,150	$6,918,590	$32,814,740

Owner of Record

Owner	NEW LONDON CITY OF	**Sale Price**	$0
Co-Owner	HIGH SCHOOL	**Certificate**	
Address	JEFFERSON AVE NEW LONDON, CT 06320	**Book & Page**	323/ 008
		Sale Date	01/01/1700

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
NEW LONDON CITY OF	$0		323/ 008	01/01/1700

Building Information

Building 1 : Section 1

Year Built:	1960
Living Area:	1,825
Replacement Cost:	$408,696
Building Percent Good:	62
Replacement Cost Less Depreciation:	$253,400

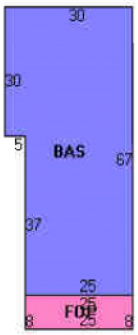
Building Attributes	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial

Building Photo

Grade	Good
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
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
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
1st Floor Use:	903I
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	0

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

Building Layout



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

Building 2 : Section 1

Year Built: 1972
Living Area: 119,800
Replacement Cost: $23,199,531
Building Percent Good: 58
Replacement Cost Less Depreciation: $13,455,700

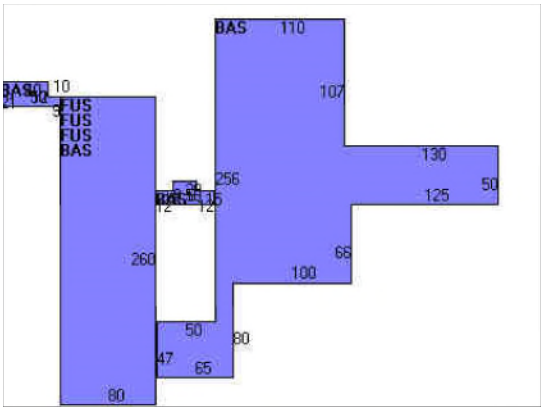
Building Attributes : Bldg 2 of 6	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Good
Stories:	4
Occupancy	1
Exterior Wall 1	Brick/Masonry

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//\00\01\02/57.jpg)

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
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
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
% Comn Wall	20

Building Layout



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: $1,530,320
Building Percent Good: 92
Replacement Cost Less Depreciation: $1,407,900

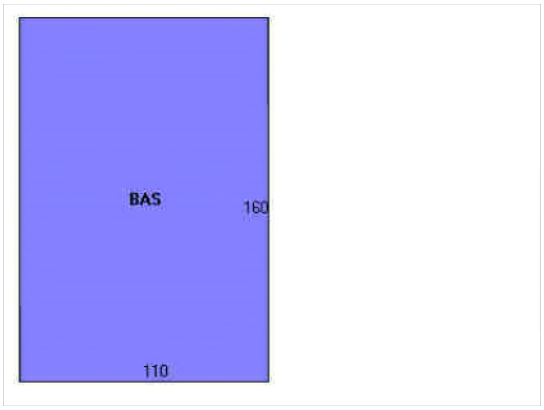
Building Attributes : Bldg 3 of 6	
Field	**Description**
STYLE	Commercial
MODEL	Commercial
Grade	Ave/Good
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//\00\01\02/58.jpg)

Building Layout

Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
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
% Comn Wall	2



Building Sub-Areas (sq ft)			Legend
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: $3,586,661
Building Percent Good: 58
Replacement Cost Less Depreciation: $2,080,300

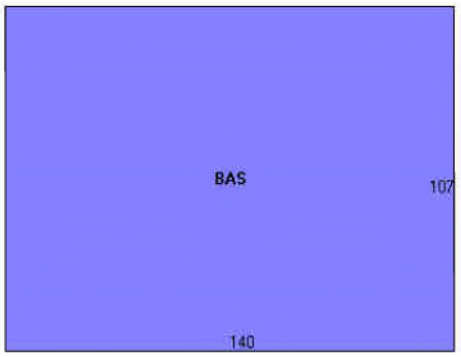
Building Attributes : Bldg 4 of 6	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Good
Stories:	1
Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Hardwood
Interior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

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//\00\01\02/59.jpg)

Building Layout

Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
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
% Comn Wall	50



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

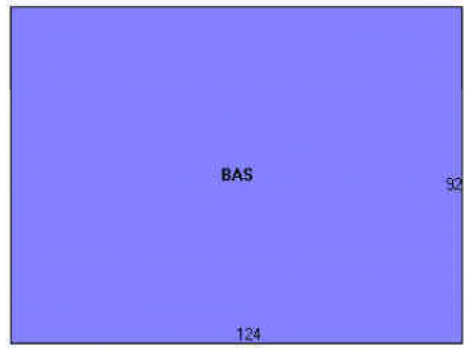
Year Built: 1972
Living Area: 11,408
Replacement Cost: $3,393,823
Building Percent Good: 58
Replacement Cost Less Depreciation: $1,968,400

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
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//\00\01\02/60.jpg)

Building Layout



Building Sub-Areas (sq ft)	Legend

Total Baths	0
Conv Type	
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
% Comn Wall	40

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: $18,982,269
Building Percent Good: 88
Replacement Cost Less Depreciation: $16,704,400

Building Attributes : Bldg 6 of 6	
Field	**Description**
STYLE	School/College
MODEL	Commercial
Grade	Custom
Stories:	2
Occupancy	1
Exterior Wall 1	Brick/Masonry
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
Bldg Use	MUN POLICE
Total Rooms	
Total Bedrms	
Total Baths	
Conv Type	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	FIREPRF STEEL

Building Photo

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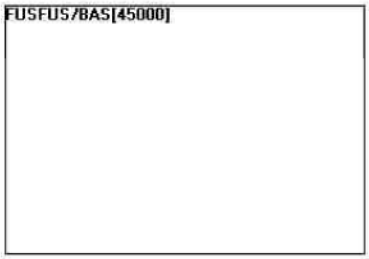
Building Layout



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

Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	0

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
GEN	GENERATOR BACKUP	1 UNITS	$900	3
SPR1	SPRINKLERS-WET	90000 S.F.	$79,200	6
CNP1	CANOPY-AVG	3600 S.F.	$67,000	1
ELV1	Elevator, Pass	2 UNITS	$92,800	2
ELS1	Pass Stops	7 UNITS	$15,200	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	$6,918,590
Appraised Value	$9,883,700

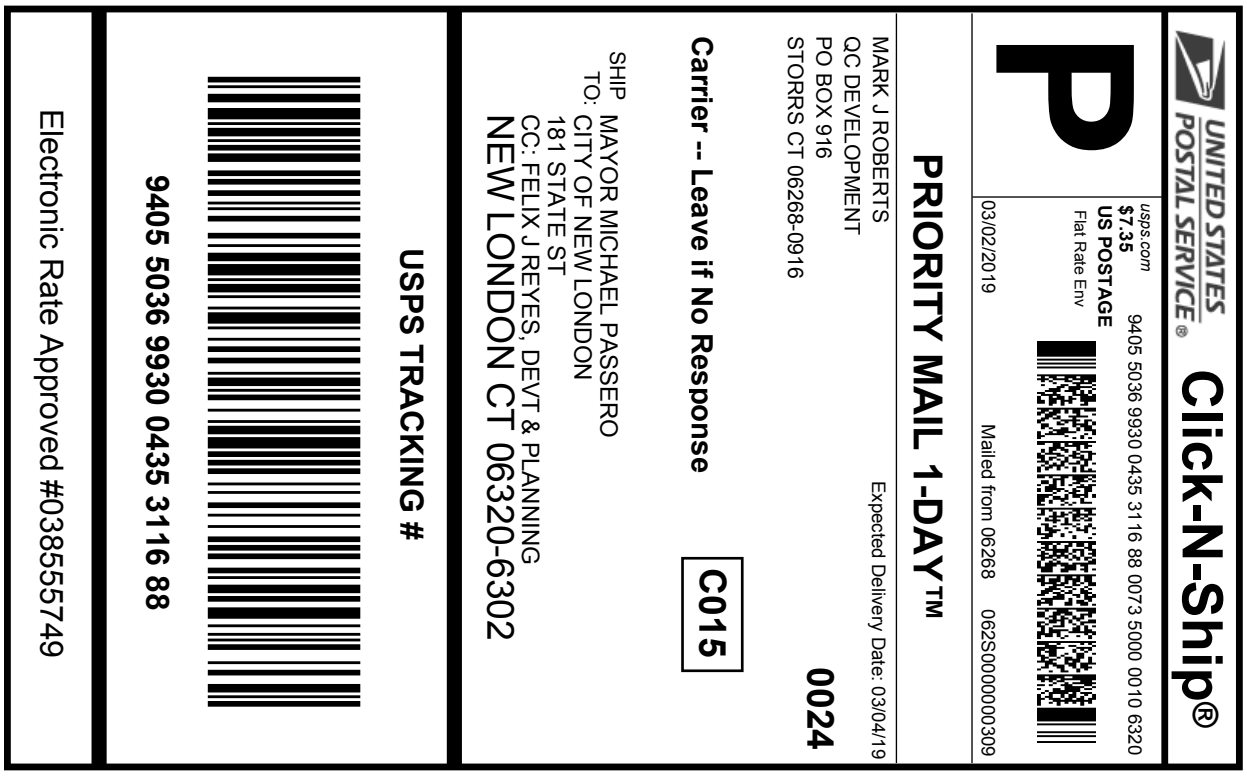
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN4	FENCE-8' CHAIN			600 L.F.	$4,200	1
GRN2	COMM GLASS			600 S.F	$6,300	6
PAV1	PAVING-ASPHALT			40000 S.F.	$60,000	2
TEN	TENNIS COURT			1 UNIT	$35,800	3
LT1	LIGHTS-IN W/PL			12 UNITS	$6,500	2
SHD1	SHED FRAME			280 S.F.	$1,700	1
BHS2	CMM BTH HSE GD			4200 S.F.	$100,800	6
LT2	W/DOUBLE LIGHT			6 UNITS	$5,000	2
SHD1	SHED FRAME			160 S.F.	$1,000	1
FN1	FENCE-4' CHAIN			400 L.F.	$1,600	1
LT12	W/FOUR LIGHTS			8 UNITS	$22,200	2
GRN2	COMM GLASS			600 S.F	$100,000	1
FF	FOOTBALL NAT			57600 S.F.	$149,800	1
FF1	FOOTBALL ARTIFIC			57600 S.F.	$374,400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$36,994,500	$9,883,700	$46,878,200
2014	$36,994,500	$9,883,700	$46,878,200
2013	$36,994,500	$15,116,200	$52,110,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$25,896,150	$6,918,590	$32,814,740
2014	$25,896,150	$6,918,590	$32,814,740
2013	$25,896,150	$10,581,340	$36,477,490



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Trans. #:	458149626
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Ship Date:	03/02/2019
Expected Delivery Date:	03/04/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

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