



QC Development

PO Box 916

Storrs, CT 06268

860-670-9068

Mark.Roberts@QCDevelopment.net

February 15, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT5639
39 Ciro Road, North Branford, CT 06471
N 41.33108056
W 72.75615278

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 147-foot level of the existing 170-foot Monopole at 39 Ciro Rd, North Branford, CT. The tower is owned by SBA and the property is owned by Joseph J. Casagrande Jr.. AT&T now intends to replace three (3) Powerwave and (3) KMW antennas with (6) Kathrein 800-10965 antennas. AT&T will also swap (3) Ericsson RRUS-11 Remote Radio Units for (3) Ericsson 4449-B5/B12s and add (3) Ericsson 8843-B25/B66A Remote Radio Units (RRU). The Antennas and RRUs will be installed at the 147-foot level of the tower.

This facility was approved by the Siting Council in Petition # 564 on June 25, 2002. This approval included a condition that the monopole not exceed 180' in height. This modification will not extend the height of the tower and 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 J. Doody, Mayor of the Town of North Branford, and the North Branford Planning & Zoning Department as well as the property owner and 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 Doody - Elected Official
Casey Duques – Planning & Zoning Administrator
Joseph J. Casagrande Jr. – Property Owner
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* | | | | | | | 2.10% |
| AT&T GSM | 1 | 283 | 147 | 0.0051 | 880 | 0.5867 | 0.09% |
| AT&T UMTS | 2 | 565 | 147 | 0.0204 | 880 | 0.5867 | 0.35% |
| AT&T UMTS | 4 | 525 | 147 | 0.0380 | 1900 | 1.0000 | 0.38% |
| AT&T LTE | 1 | 1313 | 147 | 0.0238 | 734 | 0.4893 | 0.49% |
| AT&T LTE | 2 | 875 | 147 | 0.0317 | 1900 | 1.0000 | 0.32% |
| Site Total | | | | | | | 3.72% |

*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* | | | | | | | 1.08% |
| AT&T UMTS | 1 | 565 | 160 | 0.0086 | 850 | 0.5667 | 0.15% |
| AT&T LTE | 1 | 2951 | 160 | 0.0895 | 700 | 0.4667 | 1.92% |
| AT&T LTE | 1 | 1000 | 160 | 0.0152 | 850 | 0.5667 | 0.27% |
| AT&T 5G | 1 | 1000 | 160 | 0.0152 | 850 | 0.5667 | 0.27% |
| AT&T LTE | 2 | 3664 | 160 | 0.1111 | 1900 | 1.0000 | 1.11% |
| AT&T LTE | 1 | 3837 | 160 | 0.1164 | 2100 | 1.0000 | 1.16% |
| Site Total | | | | | | | 5.96% |

*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:
 • NEW AT&T ANTENNAS: (800-10965) MOUNTED @ POSITION 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • NEW AT&T ANTENNAS: (800-10965) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
 • NEW AT&T RRUS: 4449 B5/B12 (700/850) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
 • NEW AT&T RRUS: 8843 B2/B66A (1900/AWS) (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, (1) FIBER & (3) 3/8" HOMERUN RET CABLE IN 2" INNERDUCT (TO FOLLOW EXISTING ROUTE)

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
 • SWAP DUS FOR RBS 6630.
 • ADD RBS 6630 FOR 5G.

SITE ADDRESS: 39 CIRO ROAD
 NORTH BRANFORD, CT 06471

LATITUDE: 41.331091 N, 41° 19' 51.93" N
 LONGITUDE: 72.756198 W, 72° 45' 22.31" W
 TYPE OF SITE: MONOPOLE / OUTDOOR EQUIPMENT
 STRUCTURE HEIGHT: 170'-0"±
 RAD CENTER: 147'-0"±
 CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT5639

SITE NAME: NORTH BRANFORD EAST

FA CODE:10071170

PACE ID:MRCTB035159, MRCTB035180, MRCTB035155, MRCTB035280

PROJECT: LTE 2C/3C/4C/4TX4RX RETROFIT 2019 UPGRADE

DRAWING INDEX

| SHEET NO. | DESCRIPTION | REV. |
|-----------|-----------------------------|------|
| T-1 | TITLE SHEET | 1 |
| GN-1 | GENERAL NOTES | 1 |
| A-1 | COMPOUND & EQUIPMENT PLAN | 1 |
| A-2 | ANTENNA LAYOUTS & ELEVATION | 1 |
| A-3 | DETAILS | 1 |
| RF-1 | RF PLUMBING DIAGRAM | 1 |
| G-1 | GROUNDING DETAILS | 1 |

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 ONTO I-91 S. TAKE EXIT 14 FOR 1 CENTER ST. TOWARD CT-150/WALLINGFORD. TURN LEFT ONTO E CENTER ST. TURN RIGHT ONTO NORTHFORD ST. CONTINUE ONTO WOODS HILL RD. TURN RIGHT ONTO CT-17 S. CONTINUE ONTO CT-22 E. CONTINUE STRAIGHT TO STAY ON CT-22 E/CT-80 E. TURN RIGHT ONTO CIRO RD.



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

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

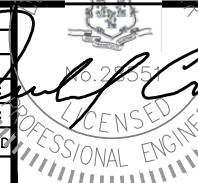
SAI
 12 INDUSTRIAL WAY
 SALEM, NH 03079

SITE NUMBER: CT5639
SITE NAME: NORTH BRANFORD EAST
 39 CIRO ROAD
 NORTH BRANFORD, CT 06471
 NEW HAVEN COUNTY

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

| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|-----|----------|-------------------------|----|-----|-------|
| 1 | 02/12/19 | ISSUED FOR CONSTRUCTION | AM | AT | |
| A | 12/27/18 | ISSUED FOR REVIEW | MR | AT | DJC |

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



| SITE NUMBER | DRAWING NUMBER | REV |
|-------------|----------------|-----|
| CT5639 | T-1 | 1 |

AT&T
 TITLE SHEET
 (LTE 2C/3C/4C/4TX4RX RETROFIT)

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 | | |

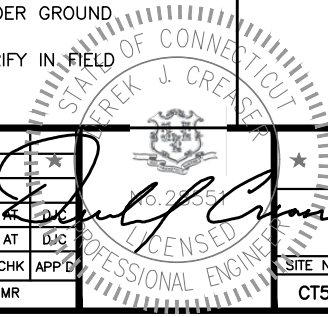
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5639
SITE NAME: NORTH BRANFORD EAST
 39 CIRO ROAD
 NORTH BRANFORD, CT 06471
 NEW HAVEN COUNTY

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

| | | | | | |
|-----------------|----------|-------------------------|--------------|-----|-------|
| 1 | 02/12/19 | ISSUED FOR CONSTRUCTION | AM | CHK | |
| A | 12/27/18 | ISSUED FOR REVIEW | MR | AT | DJC |
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| SCALE: AS SHOWN | | DESIGNED BY: AT | DRAWN BY: MR | | |



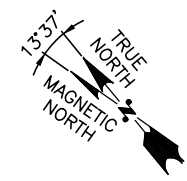
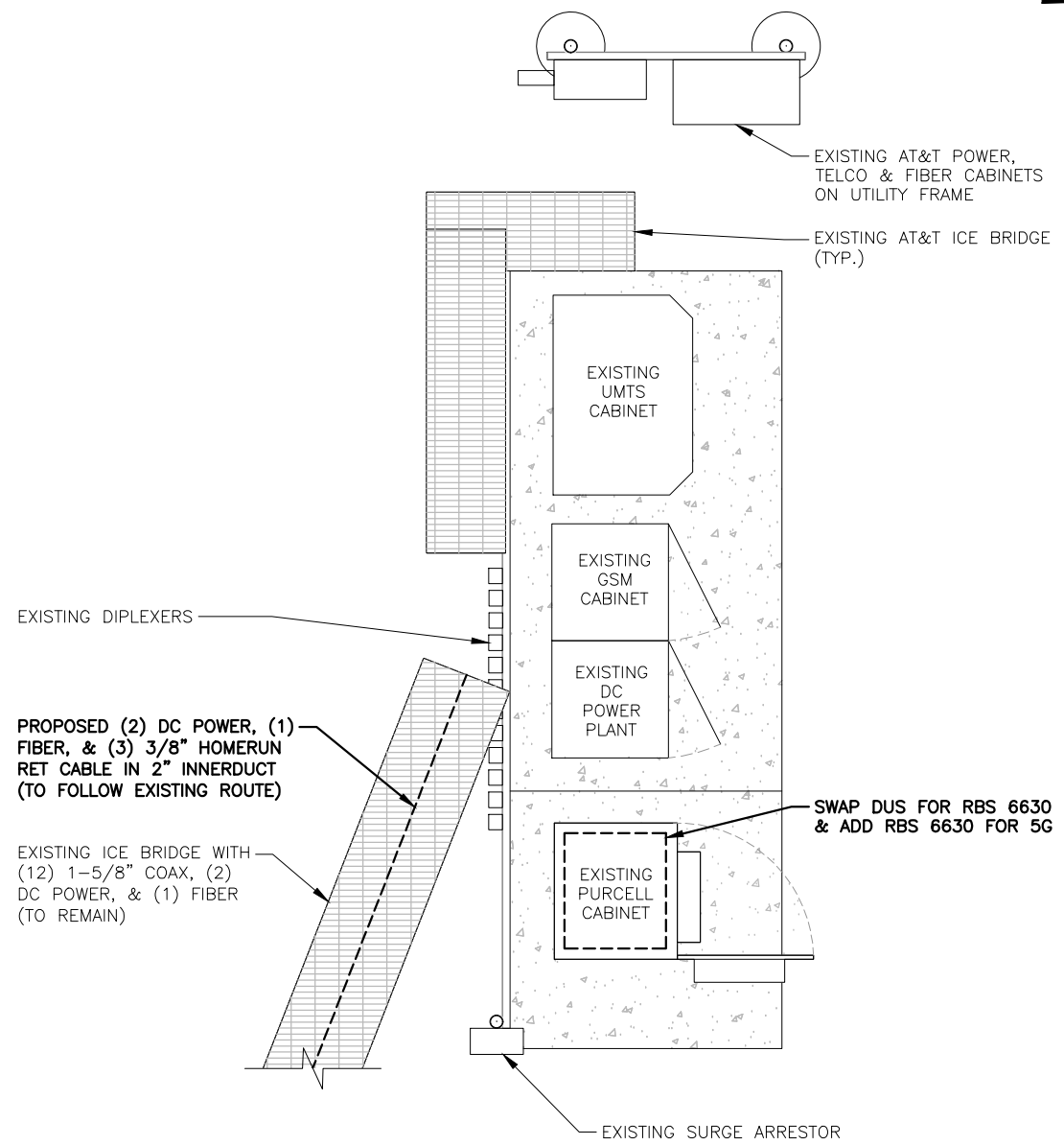
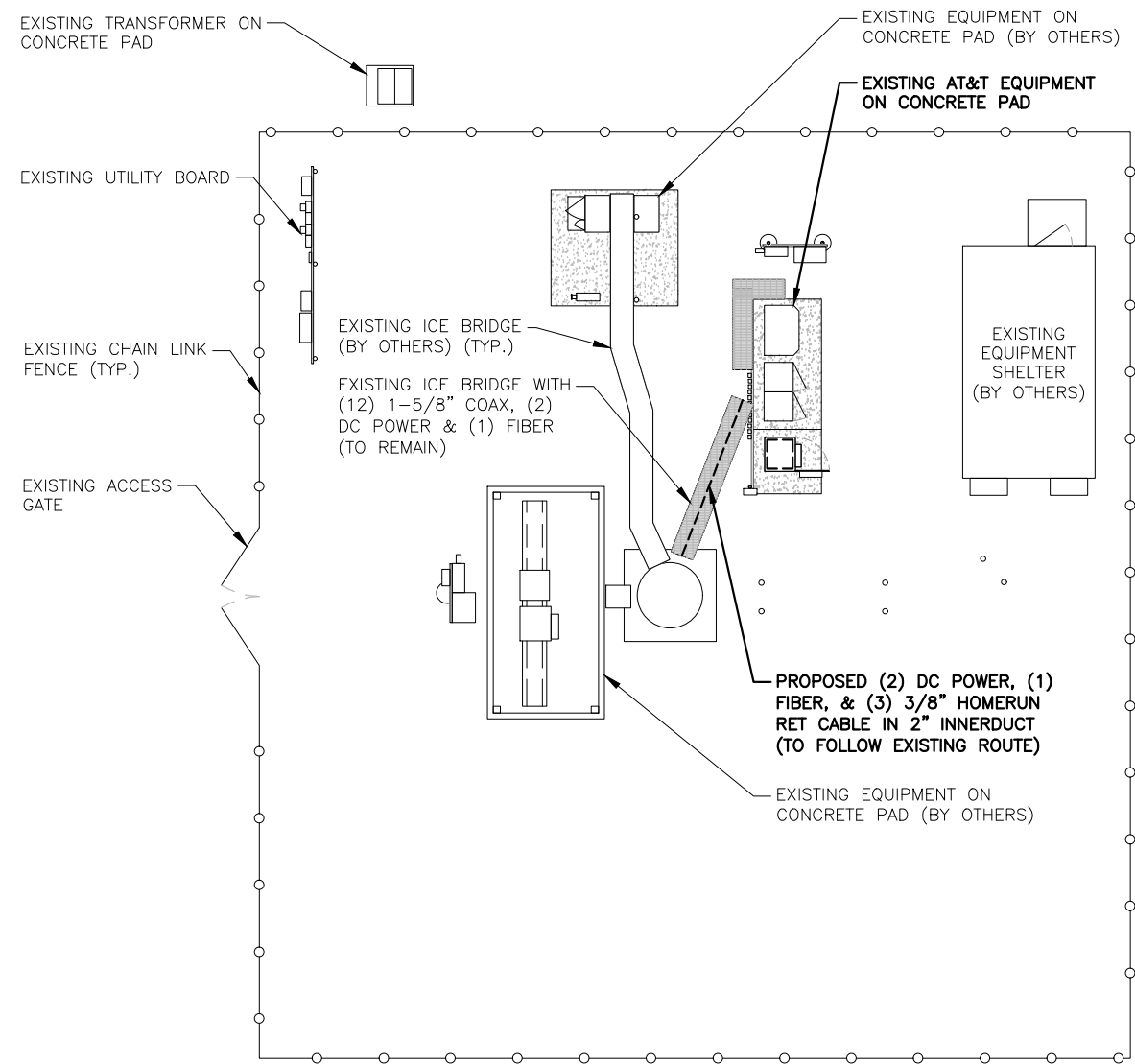
AT&T
 GENERAL NOTES
 (LTE 2C/3C/4C/4TX4RX RETROFIT)

| | | |
|-------------|----------------|-----|
| SITE NUMBER | DRAWING NUMBER | REV |
| CT5639 | GN-1 | 1 |

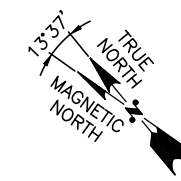
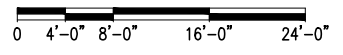
NOTE:
REFER TO STRUCTURAL ANALYSIS BY: IES TOWER ENGINEERING SOLUTIONS, DATED: FEBRUARY 4, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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: DECEMBER 26, 2018

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



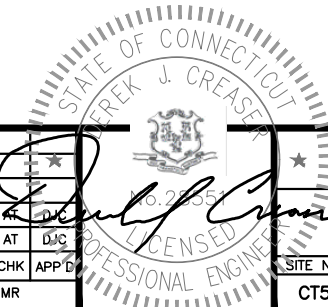
COMPOUND PLAN 1
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"
A-1

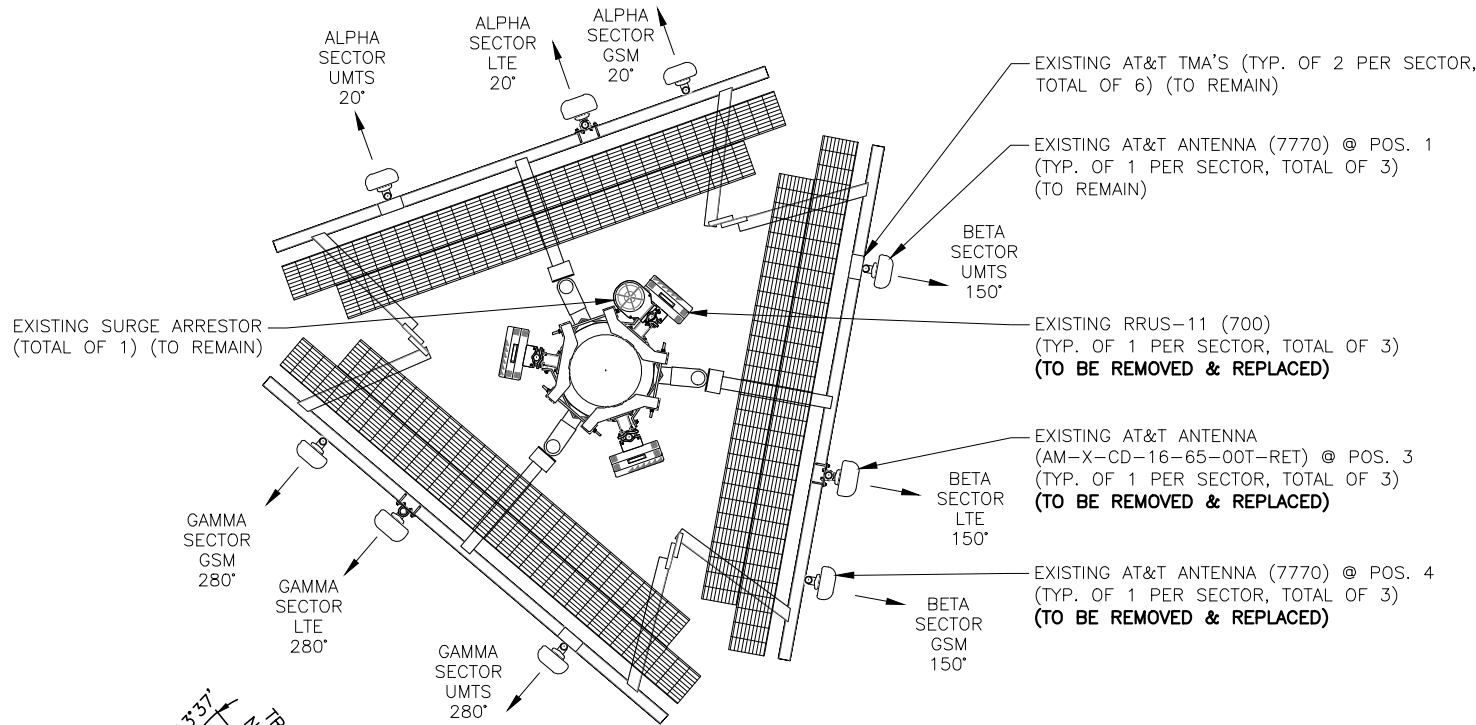


EQUIPMENT PLAN 2
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
A-1

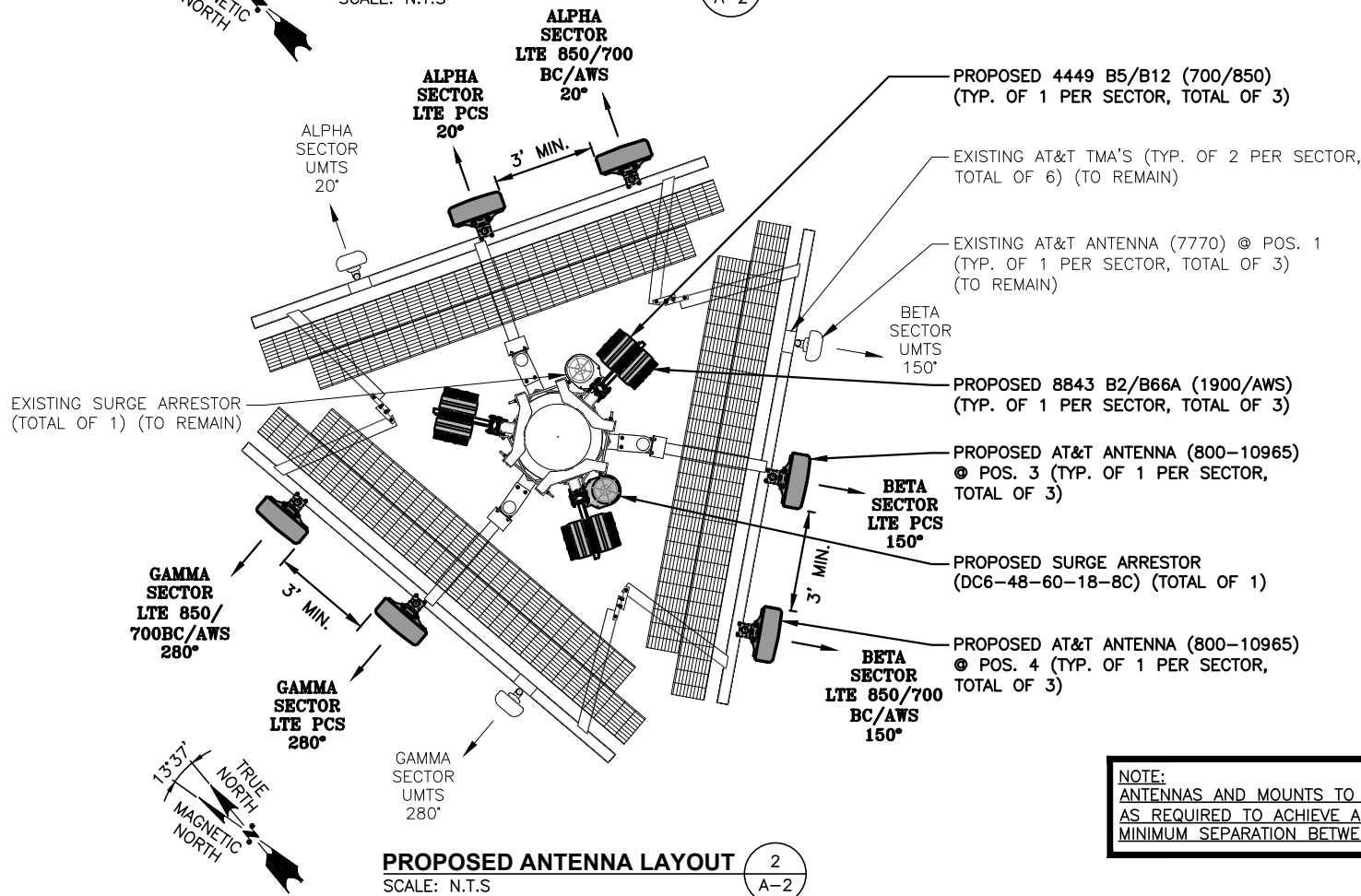


| | | | | | |
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| 1 | 02/12/19 | ISSUED FOR CONSTRUCTION | AM | AT | MR |
| A | 12/27/18 | ISSUED FOR REVIEW | MR | AT | DJC |
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| SCALE: AS SHOWN | | DESIGNED BY: AT | DRAWN BY: MR | | |

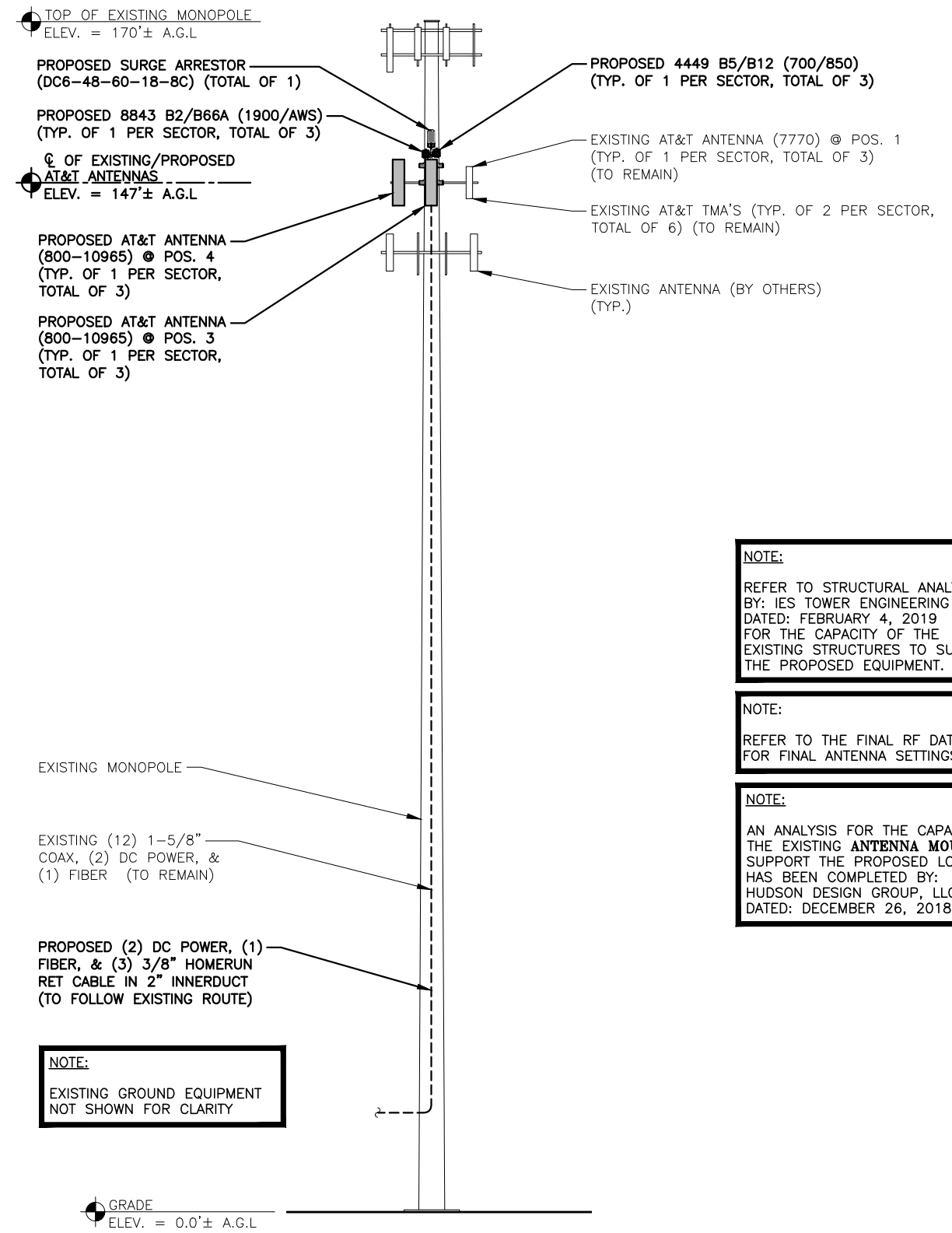




EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S. A-2



PROPOSED ANTENNA LAYOUT 2
SCALE: N.T.S. A-2



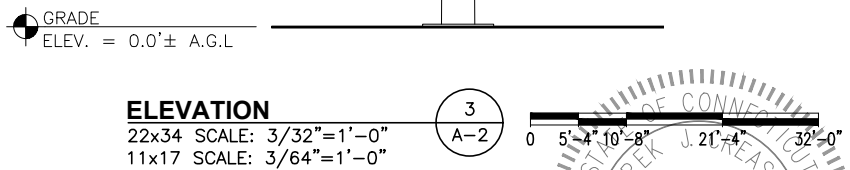
NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: IES TOWER ENGINEERING SOLUTIONS, DATED: FEBRUARY 4, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
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AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: DECEMBER 26, 2018

NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0\"/>



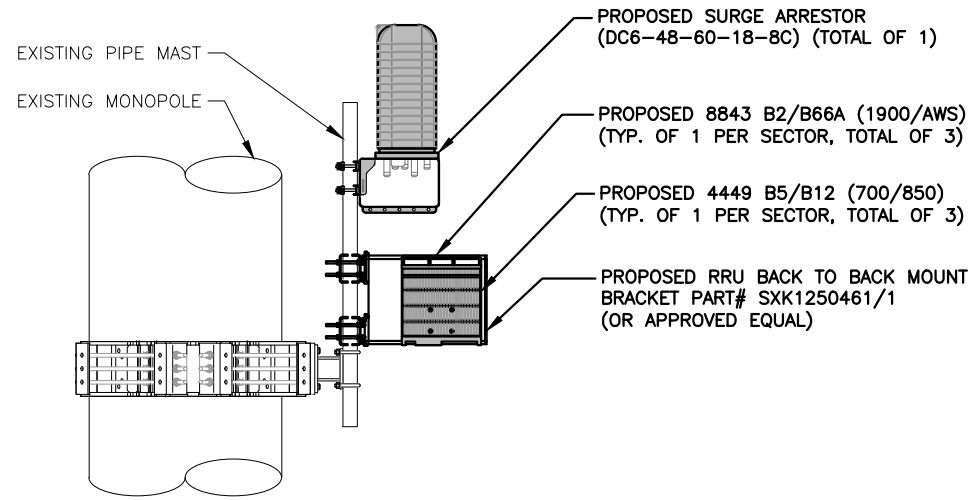
HGD HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT5639
SITE NAME: NORTH BRANFORD EAST
39 CIRO ROAD NORTH BRANFORD, CT 06471 NEW HAVEN COUNTY

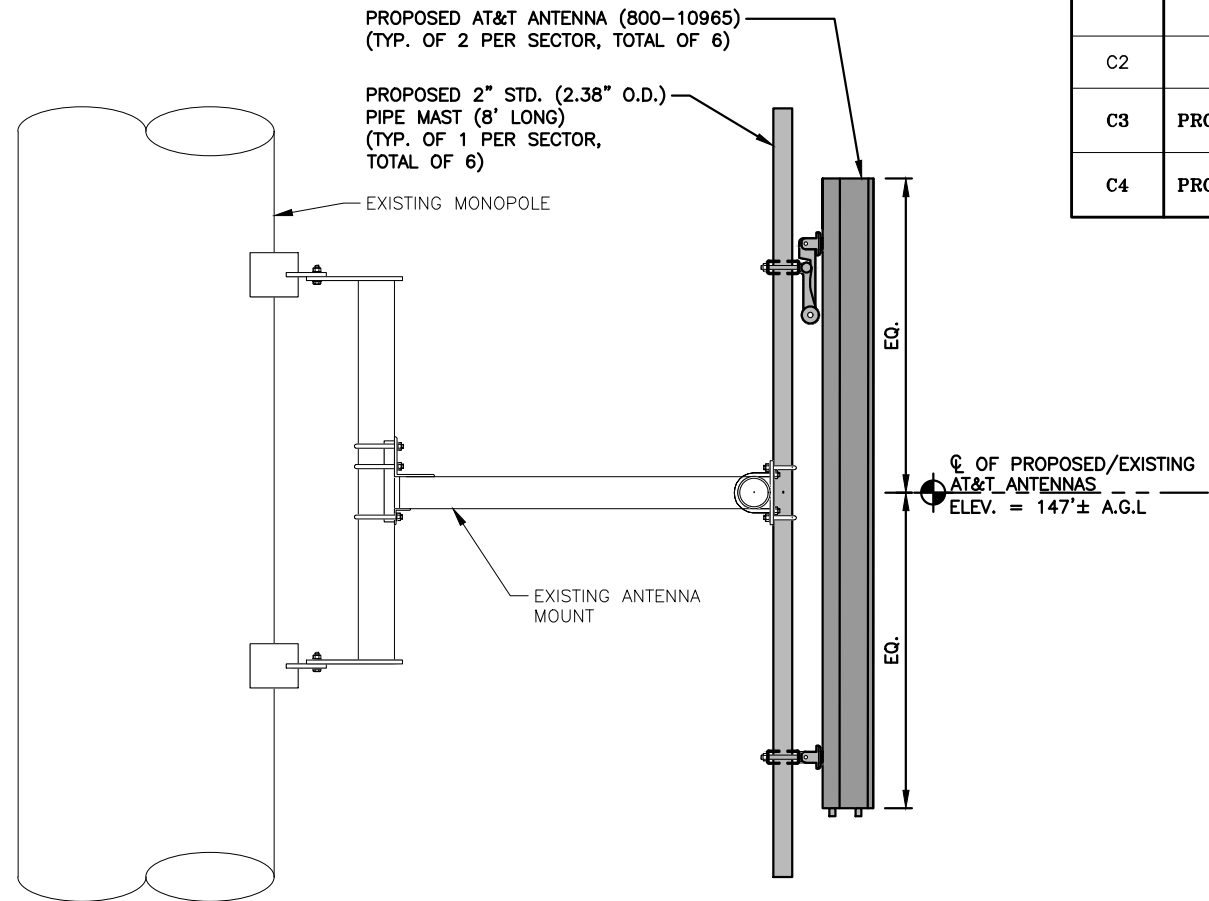
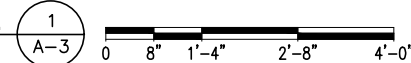
at&t
500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067

| | | | | | | | | | |
|-----|------|-----------------|-------------------------|-----------------|--------------|-------|-------------|--|-----|
| 1 | | 02/12/19 | ISSUED FOR CONSTRUCTION | AM | AT | DJC | | AT&T | |
| A | | 12/27/18 | ISSUED FOR REVIEW | MR | AT | DJC | | ANTENNA LAYOUTS & ELEVATION (LTE 2C/3C/4C/4TX4RX RETROFIT) | |
| NO. | DATE | REVISIONS | | BY | CHK | APP'D | SITE NUMBER | DRAWING NUMBER | REV |
| | | SCALE: AS SHOWN | | DESIGNED BY: AT | DRAWN BY: MR | | CT5639 | A-2 | 1 |



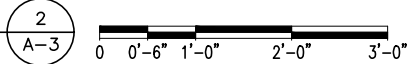
PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"



PROPOSED LTE ANTENNA MOUNTING DETAIL

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



| ANTENNA SCHEDULE | | | | | | | | | | | |
|------------------|-------------------|----------------------|-----------|------------------------------|-----------------------|---------|---------------------------|--------------------------------|-------------------------------|----------------------------------|-----------------------------------|
| SECTOR | EXISTING/PROPOSED | BAND | ANTENNA | SIZE (INCHES) (L x W x D) | ANTENNA CL. HEIGHT | AZIMUTH | TMA/ DIPLEXER | RRU | SIZE (INCHES) (L x W x D) | FEEDER | RAYCAP |
| A1 | EXISTING | UMTS | 7770 | 55X11X5 | ±147' | 20° | (E) POWERWAVE LGP21401 | - | - | (2) 1-5/8 COAX (LENGTH 185'±) | -- |
| A2 | - | - | - | - | - | - | - | - | - | (2) 1-5/8 COAX (LENGTH 185'±) | (E) (1) RAYCAP DC6-48-60-18-8C |
| A3 | PROPOSED | LTE PCS | 800-10965 | 78.7x20x6.9 | ±147' | 20° | - | (P) 8843 B2/B66A (1900/AWS) | 14.9X13.2X10.9 | -- | - |
| A4 | PROPOSED | LTE 850/700BC/AWS | 800-10965 | 78.7x20x6.9 | ±147' | 20° | - | (P) 4449 B5/B12 (700/850) | 14.9X13.2X5.4 | -- | - |
| B1 | EXISTING | UMTS | 7770 | 55X11X5 | ±147' | 150° | (E) POWERWAVE LGP21401 | - | - | (2) 1-5/8 COAX (LENGTH 185'±) | -- |
| B2 | - | - | - | - | - | - | - | - | - | (2) 1-5/8 COAX (LENGTH 185'±) | (P) (1) RAYCAP DC6-48-60-0-8C |
| B3 | PROPOSED | LTE PCS | 800-10965 | 78.7x20x6.9 | ±147' | 150° | -- | (P) 8843 B2/B66A (1900/AWS) | 14.9X13.2X10.9 | -- | - |
| B4 | PROPOSED | LTE 850/700BC/AWS | 800-10965 | 78.7x20x6.9 | ±147' | 150° | -- | (P) 4449 B5/B12 (700/850) | 14.9X13.2X5.4 | -- | - |
| C1 | EXISTING | UMTS | 7770 | 55X11X5 | ±147' | 280° | (E) POWERWAVE LGP21401 | - | - | (2) 1-5/8 COAX (LENGTH 185'±) | -- |
| C2 | - | - | - | - | - | - | -- | - | - | (2) 1-5/8 COAX (LENGTH 185'±) | - |
| C3 | PROPOSED | LTE PCS | 800-10965 | 78.7x20x6.9 | ±147' | 280° | -- | (P) 8843 B2/B66A (1900/AWS) | 14.9X13.2X10.9 | -- | - |
| C4 | PROPOSED | LTE 850/700BC/AWS | 800-10965 | 78.7x20x6.9 | ±147' | 280° | -- | (P) 4449 B5/B12 (700/850) | 14.9X13.2X5.4 | -- | - |

FINAL ANTENNA SCHEDULE

SCALE: N.T.S.



| RRU CHART | | | | |
|-----------|----------------------------|-------|-------|-------|
| QUANTITY | MODEL | L | W | D |
| 3(P) | 4449 B5/B12 (700/850) | 14.9" | 13.2" | 5.4" |
| 3(P) | 8843 B2/B66A (1900/AWS) | 14.9" | 13.2" | 10.9" |

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

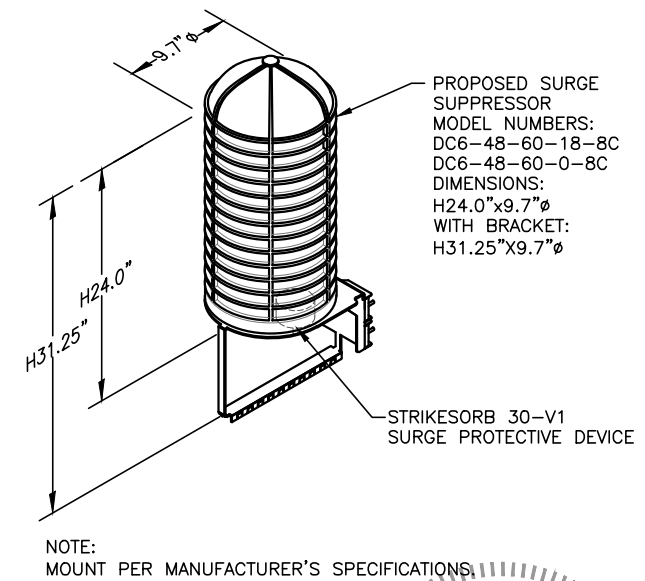
NOTE:
SEE RFDS FOR RRH
FREQUENCY AND
MODEL NUMBER

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

NOTE:
MOUNT PER MANUFACTURER'S
SPECIFICATIONS.

PROPOSED RRUS DETAIL

SCALE: N.T.S.



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

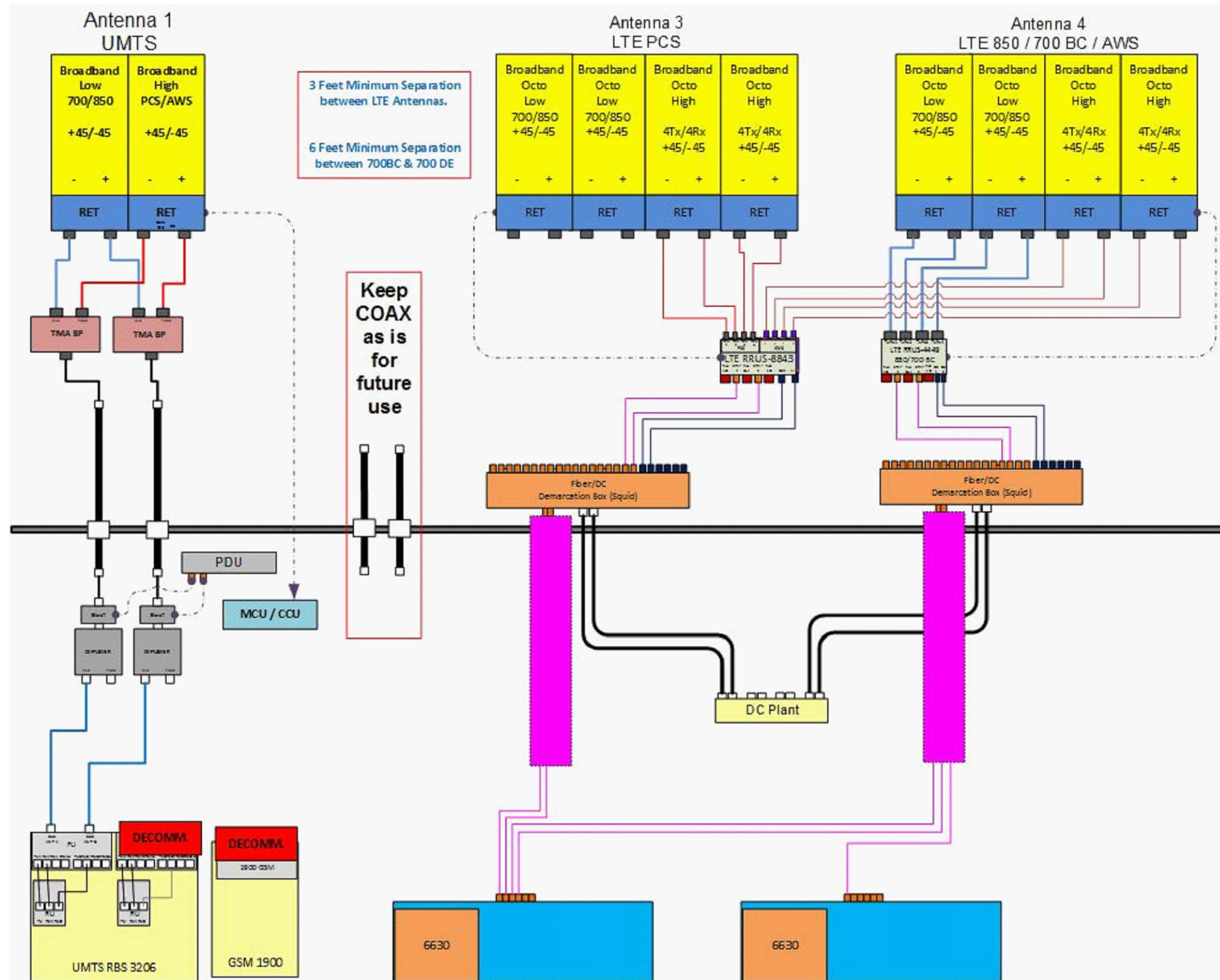
DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.

NOTE:
REFER TO STRUCTURAL ANALYSIS
BY: IES TOWER ENGINEERING SOLUTIONS,
DATED: FEBRUARY 4, 2019
FOR THE CAPACITY OF THE
EXISTING STRUCTURES TO SUPPORT
THE PROPOSED EQUIPMENT.

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: DECEMBER 26, 2018

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

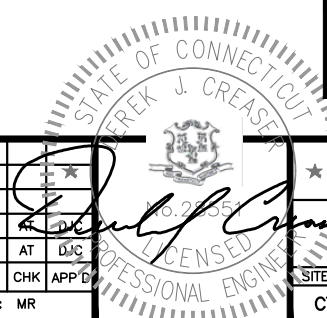


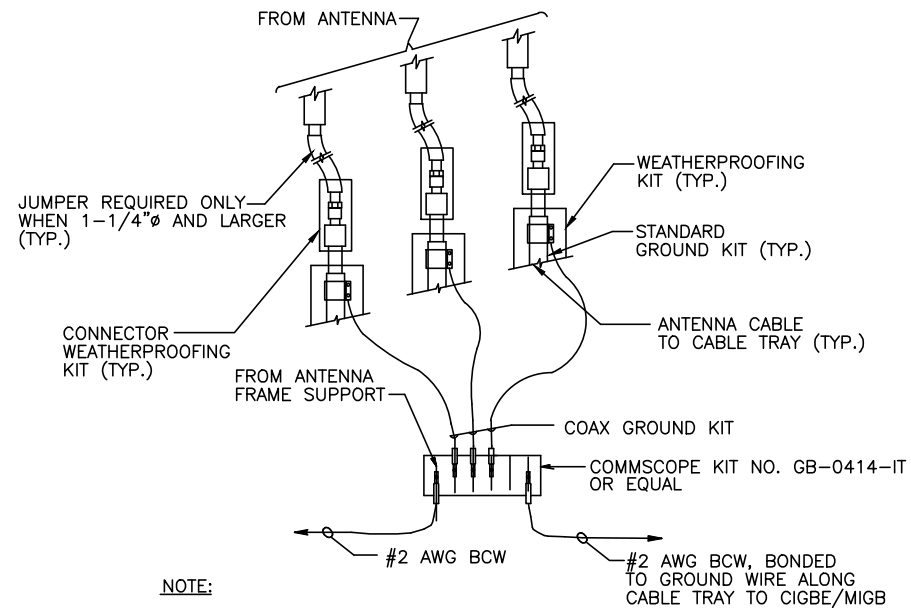
RF PLUMBING DIAGRAM 1
SCALE: N.T.S. RF-1

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.

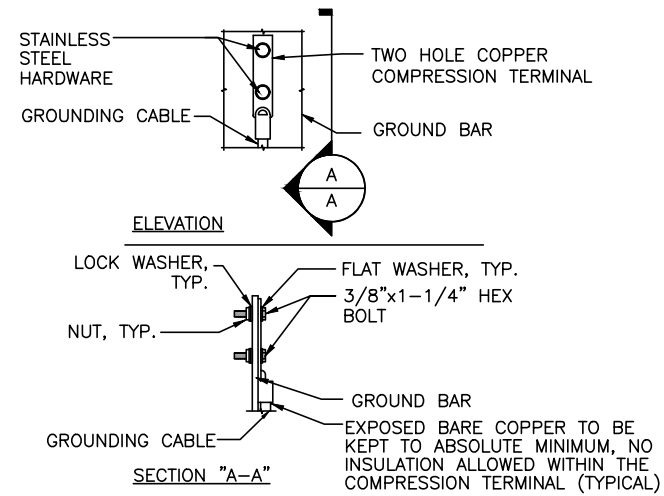
| | | | | | |
|-----------------|----------|-------------------------|--------------|-----|-------|
| 1 | 02/12/19 | ISSUED FOR CONSTRUCTION | AM | CHK | APP'D |
| A | 12/27/18 | ISSUED FOR REVIEW | MR | AT | CHK |
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| SCALE: AS SHOWN | | DESIGNED BY: AT | DRAWN BY: MR | | |





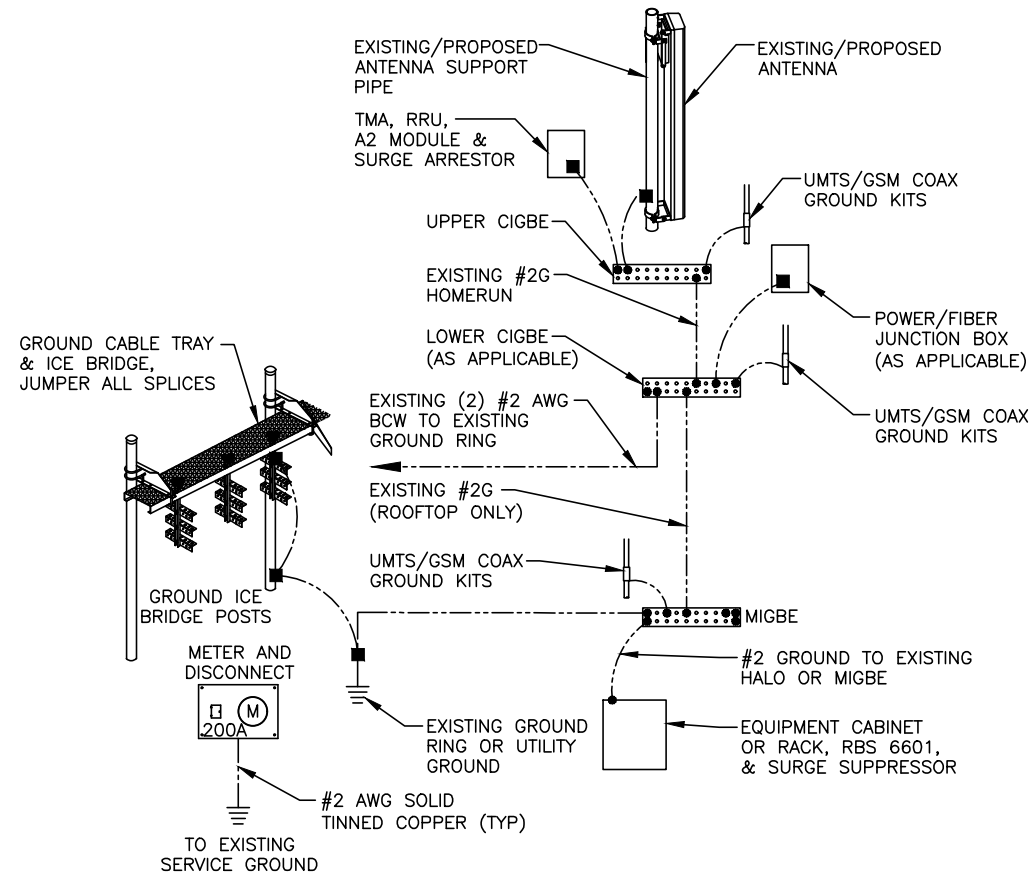
NOTE:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
 SCALE: N.T.S. G-1



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
 SCALE: N.T.S. G-1



GROUNDING RISER DIAGRAM 2
 SCALE: N.T.S. G-1

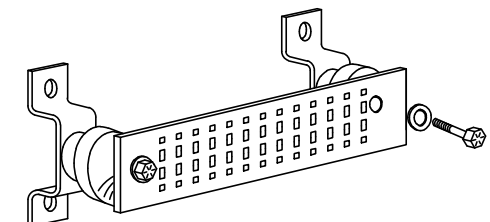
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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.

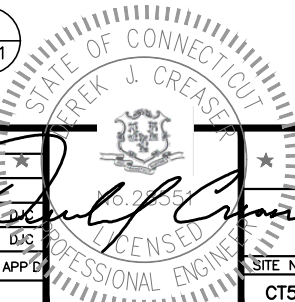
SECTION "A" - SURGE ABSORBERS

- 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
 SCALE: N.T.S. G-1

| | | | | | |
|-----------------|----------|-------------------------|--------------|-----|-------|
| 1 | 02/12/19 | ISSUED FOR CONSTRUCTION | AM | CHK | APP'D |
| A | 12/27/18 | ISSUED FOR REVIEW | MR | AT | CHK |
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| SCALE: AS SHOWN | | DESIGNED BY: AT | DRAWN BY: MR | | |





Tower Engineering Solutions

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

Structural Analysis Report

Existing 170 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT04066-S

Customer Site Name: North Branford East

Carrier Name: AT&T (App#: 105512, V2)

Carrier Site ID / Name: CT5639 / NORTH BRANFORD EAST

Site Location: 39 Cirro Road

North Branford, Connecticut

New Haven County

Latitude: 41.331060

Longitude: -72.756172

Analysis Result:

Max Structural Usage: 82.4% [Pass]

Max Foundation Usage: 87.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Tawfeeq Alajaj





Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
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Max Foundation Usage: 87.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 170 ft Nudd Corporation 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 | Fred A. Nudd Corporation, Project # 01-8471-1 Dated 08/08/2001 |
| Foundation Drawing | Fred A. Nudd Corporation, Project # 01-8471-1 Dated 08/08/2001 |
| Geotechnical Report | Jaworski, Project # 01480G Dated 07/23/2001 |
| Modification Drawings | N/A |

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 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 $V_{ult} = 130.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ 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: | $S_S = 0.178$, $S_1 = 0.061$ |

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

Existing Antennas, Mounts and Transmission Lines

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

| Items | Elevation (ft.) | Qty. | Antenna Descriptions | Mount Type & Qty. | Transmission Lines | Owner |
|-------|-----------------|------|-------------------------------------|----------------------|--|----------|
| 1 | 167.0 | 3 | Ericsson - AIR21 B2A/B4P - Panel | Low Profile Platform | (12) 1 5/8" (1) 1 5/8" Fiber | T-Mobile |
| 2 | | 3 | Ericsson - AIR21 B4A/B2P - Panel | | | |
| 3 | | 3 | Ericsson - KRY 112 144 - Double TMA | | | |
| 4 | | 3 | Ericsson - S11B12 - RRU | | | |
| 5 | 165.0 | 3 | Commscope - LNX-6515DS-A1M - Panel | | | |
| 6 | 147.0 | 6 | Powerwave - 7770 - Panel | Low Profile Platform | (12) 1 5/8" (2) 1/2" DC (1) 3/8" Fiber | AT&T |
| 7 | | 3 | KMW - AM-X-CD-16-65-00T - Panel | | | |
| 8 | | 6 | Powerwave - LGP 21401 - TMA | | | |
| 9 | | 6 | Ericsson - RRUS-11 800 MHz - RRU | | | |
| 10 | | 6 | Powerwave - LGP 21903 - Diplexers | | | |
| 11 | 137.0 | 1 | Raycap - DC6-48-60-18-8F - SP | Low Profile Platform | (3) 1 1/4" | Sprint |
| 12 | | 3 | RFS - APXVSP18-C-A20 - Panel | | | |
| 13 | | 3 | RFS - APXVTM14-C-I20 - Panel | | | |
| 14 | | 3 | ALU - 800MHz - RRH | | | |
| 15 | | 3 | ALU - 1900MHz - RRH | | | |
| 16 | | 3 | ALU - TD-RRH8x20-25 - RRU | | | |
| 17 | | 3 | ALU - 800MHz Filter | | | |
| 18 | 75.0 | 4 | RFS - ACU-A20-N - RET | (1) Standoff | (1) 1/2" | |
| 19 | | 1 | GPS | | | |

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 |
|-------|----------------|------|-----------------------------|----------------------|--|-------|
| 6 | 147.0 | 3 | Powerwave 7770 - Panel | Low Profile Platform | (12) 1 5/8" (4) 1/2" DC (1) 2" Conduit (2) 3/8" Fiber (3) 3/8" RET | AT&T |
| 7 | | 6 | Kathrein 800 10965 - Panel | | | |
| 8 | | 6 | Powerwave LGP21402 TMA | | | |
| 9 | | 6 | Powerwave LGP21903 Diplexer | | | |
| 10 | | 3 | Ericsson RRUS 8843 B2 B66A | | | |
| 11 | | 3 | Ericsson RRUS 4449 B5, B12 | | | |
| 12 | | 1 | Raycap DC6-48-60-18-8F | | | |
| 13 | | 1 | Raycap DC6-48-60-18-8C | | | |

2" conduit will contain proposed fiber and 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: | 53.3% | 39.8% | 82.4% |
| Pass/Fail | Pass | Pass | Pass |

Foundations

| | Moment (Kip-Ft) | Shear (Kips) |
|---------------------------|-----------------|--------------|
| Original Design Reactions | 6100.0 | 46.0 |
| Analysis Reactions | 4003.4 | 35.4 |
| Factored Reactions* | 8235.0 | 62.1 |
| % of Design Reactions | 48.6% | 57.0% |

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

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.8251 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/EIA 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 53.28% at 0.0ft

Structure: CT04066-S-SBA

Code: EIA/TIA-222-G

2/4/2019



Site Name: North Branford East

Exposure: C

Height: 170.00 (ft)

Gh: 1.1

Page: 1

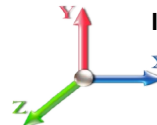
Base Elev: 0.000 (ft)

Dead Load Factor: 1.20

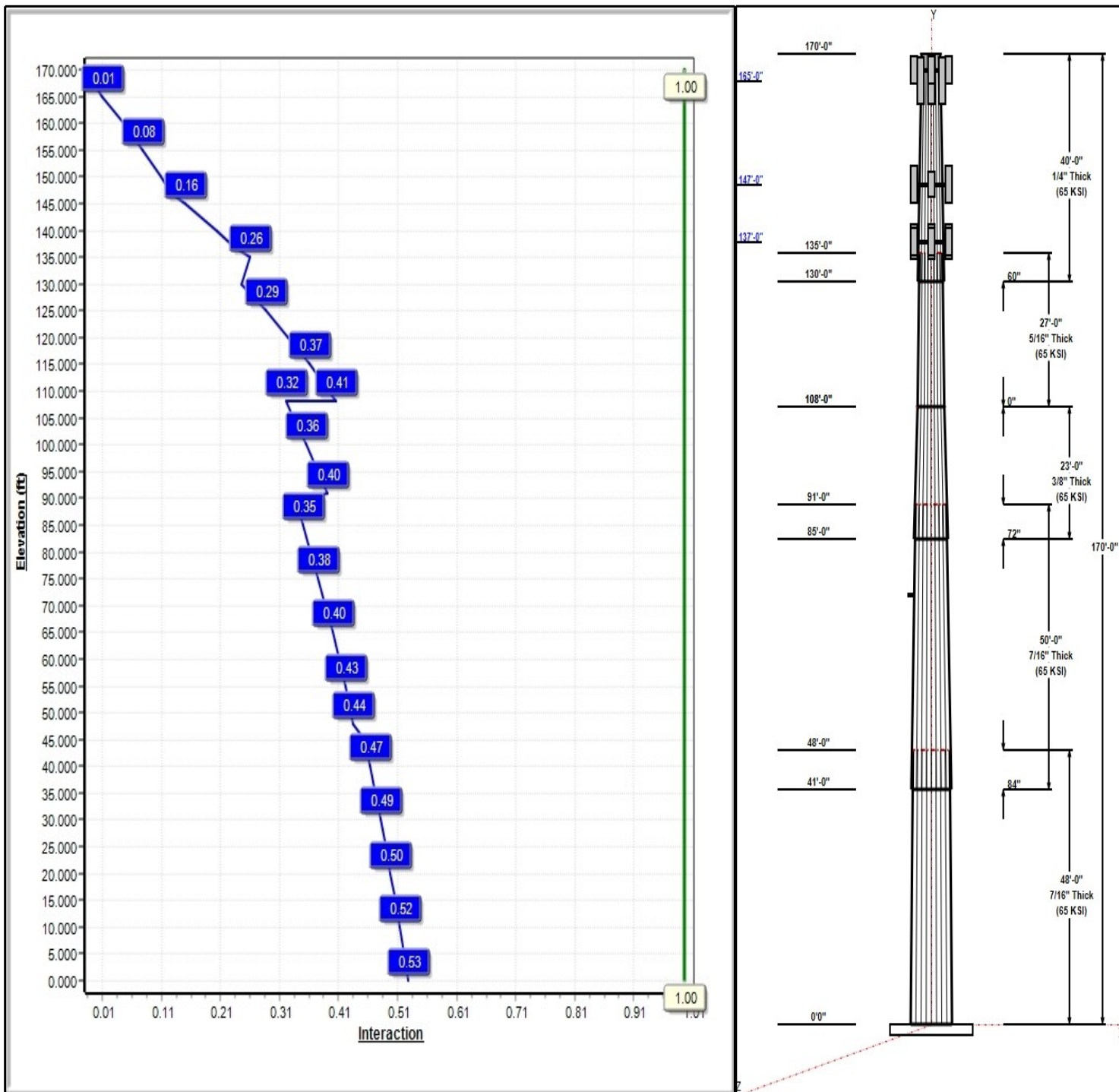
Wind Load Factor: 1.60

Iterations: 23

Load Case : 1.2D + 1.6W 101 mph Wind



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Structure: CT04066-S-SBA

Type: Tapered
Site Name: North Branford East
Height: 170.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25074

2/4/2019

Page: 2



Shaft Properties

| Seq | Length (ft) | Top (in) | Bottom (in) | Thick (in) | Joint Type | Taper | Grade (ksi) |
|-----|-------------|----------|-------------|------------|------------|---------|-------------|
| 1 | 48.00 | 52.46 | 64.50 | 0.438 | | 0.25074 | 65 |
| 2 | 50.00 | 42.56 | 55.09 | 0.438 | Slip | 0.25074 | 65 |
| 3 | 23.00 | 39.05 | 44.81 | 0.375 | Slip | 0.25074 | 65 |
| 4 | 27.00 | 32.28 | 39.05 | 0.313 | Butt | 0.25074 | 65 |
| 5 | 40.00 | 24.00 | 34.03 | 0.250 | Slip | 0.25074 | 65 |

Discrete Appurtenances

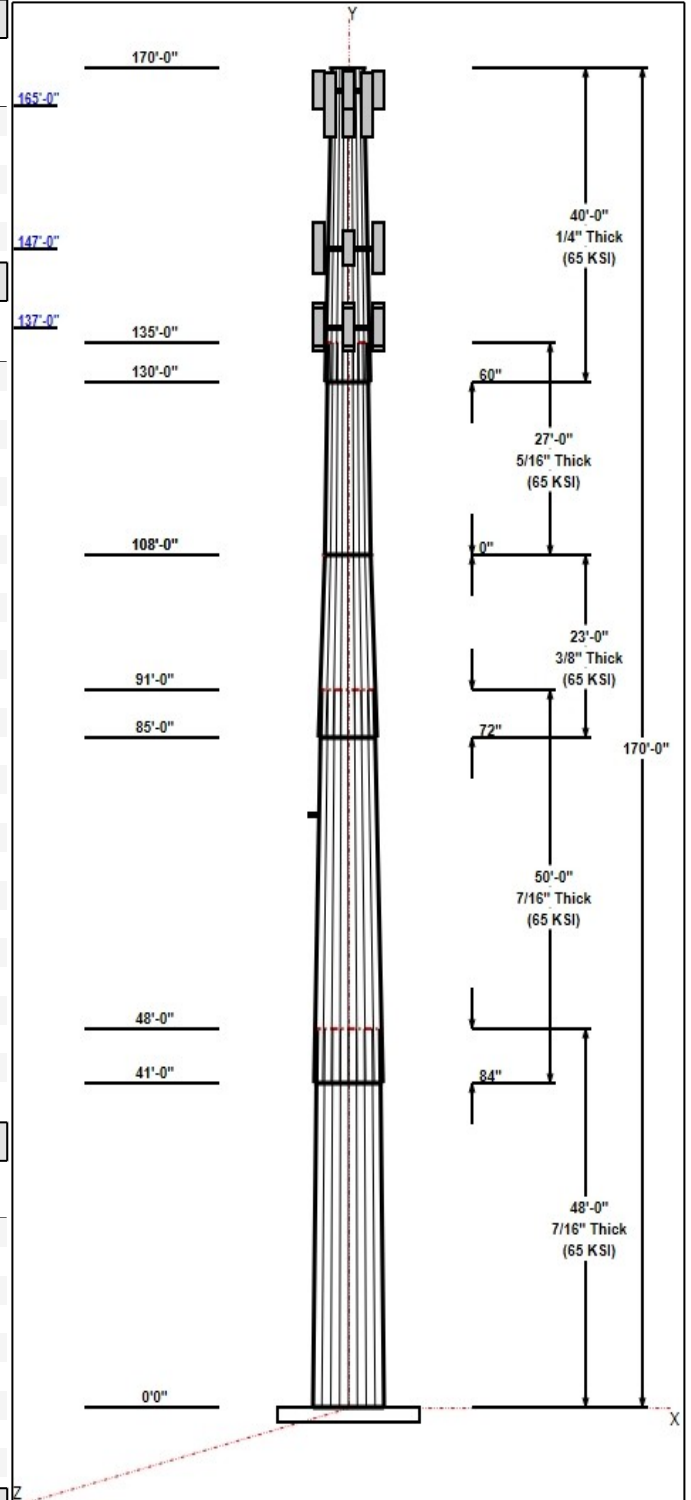
| Attach Elev (ft) | Force Elev (ft) | Qty | Description | Carrier |
|------------------|-----------------|-----|------------------------|----------|
| 170.00 | 170.00 | 1 | 6' Lightning rod | T-Mobile |
| 167.00 | 167.00 | 3 | AIR21 B2A/B4P | T-Mobile |
| 167.00 | 167.00 | 3 | AIR21 B4A/B2P | T-Mobile |
| 167.00 | 167.00 | 3 | KRY 112 114-1 - Double | T-Mobile |
| 167.00 | 167.00 | 1 | Low Profile | T-Mobile |
| 167.00 | 167.00 | 3 | S11B12 - RRU | T-Mobile |
| 165.00 | 165.00 | 3 | LNx-6515DS-A1M | T-Mobile |
| 147.00 | 147.00 | 1 | Low Profile | AT&T |
| 147.00 | 147.00 | 3 | 7770 | AT&T |
| 147.00 | 147.00 | 6 | 800 10965 | AT&T |
| 147.00 | 147.00 | 6 | Powerwave LGP21402 | AT&T |
| 147.00 | 147.00 | 6 | Powerwave LGP21903 | AT&T |
| 147.00 | 147.00 | 3 | Ericsson RRUS 8843 B2 | AT&T |
| 147.00 | 147.00 | 3 | Ericsson RRUS 4449 B5, | AT&T |
| 147.00 | 147.00 | 1 | Raycap DC6-48-60-18-8F | AT&T |
| 147.00 | 147.00 | 1 | Raycap DC6-48-60-18-8C | AT&T |
| 137.00 | 137.00 | 3 | ALU - 800MHz Filter | Sprint |
| 137.00 | 137.00 | 1 | Low Profile | Sprint |
| 137.00 | 137.00 | 3 | APXVSP18-C-A20 | Sprint |
| 137.00 | 137.00 | 3 | APXVTM14-C-I20 | Sprint |
| 137.00 | 137.00 | 3 | 800MHz - RRH | Sprint |
| 137.00 | 137.00 | 3 | 1900MHz - RRH | Sprint |
| 137.00 | 137.00 | 3 | TD-RRH8x20-25 - RRU | Sprint |
| 137.00 | 137.00 | 4 | ACU-A20-N - RET | Sprint |
| 75.00 | 75.00 | 1 | Standoff | Sprint |
| 75.00 | 75.00 | 1 | GPS | Sprint |

Linear Appurtenances

| Elev From (ft) | Elev To (ft) | Placement | Description | Carrier |
|----------------|--------------|-----------|--------------|----------|
| 0.00 | 167.00 | Inside | 1 5/8" Coax | T-Mobile |
| 0.00 | 167.00 | Inside | 1 5/8" Fiber | T-Mobile |
| 0.00 | 147.00 | Inside | 1 5/8" Coax | AT&T |
| 0.00 | 147.00 | Inside | 1/2" DC | AT&T |
| 0.00 | 147.00 | Inside | 2" Conduit | AT&T |
| 0.00 | 147.00 | Inside | 3/8" Fiber | AT&T |
| 0.00 | 147.00 | Inside | 3/8" RET | AT&T |
| 0.00 | 137.00 | Inside | 1 1/4" Coax | Sprint |
| 0.00 | 75.00 | Inside | 1/2" Coax | Sprint |

Anchor Bolts

| Qty | Specifications | Grade (ksi) | Arrangement |
|-----|----------------|-------------|-------------|
| 29 | 2.00" A687 | 105.0 | Radial |



Structure: CT04066-S-SBA

Type: Tapered
Site Name: North Branford East
Height: 170.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25074

2/4/2019

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Base Plate

| Thickness (in) | Specifications (in) | Grade (ksi) | Geometry |
|----------------|---------------------|-------------|----------|
| 2.2500 | 64.5 | 50.0 | Round |

Reactions

| Load Case | Moment (FT-Kips) | Shear (Kips) | Axial (Kips) |
|----------------------------------|------------------|--------------|--------------|
| 1.2D + 1.6W 101 mph Wind | 4003.4 | 35.4 | 56.9 |
| 0.9D + 1.6W 101 mph Wind | 3973.2 | 35.4 | 42.6 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 1046.9 | 9.5 | 81.3 |
| 1.2D + 1.0E | 203.1 | 1.7 | 56.9 |
| 0.9D + 1.0E | 201.4 | 1.7 | 42.7 |
| 1.0D + 1.0W 60 mph Wind | 879.1 | 7.8 | 47.4 |

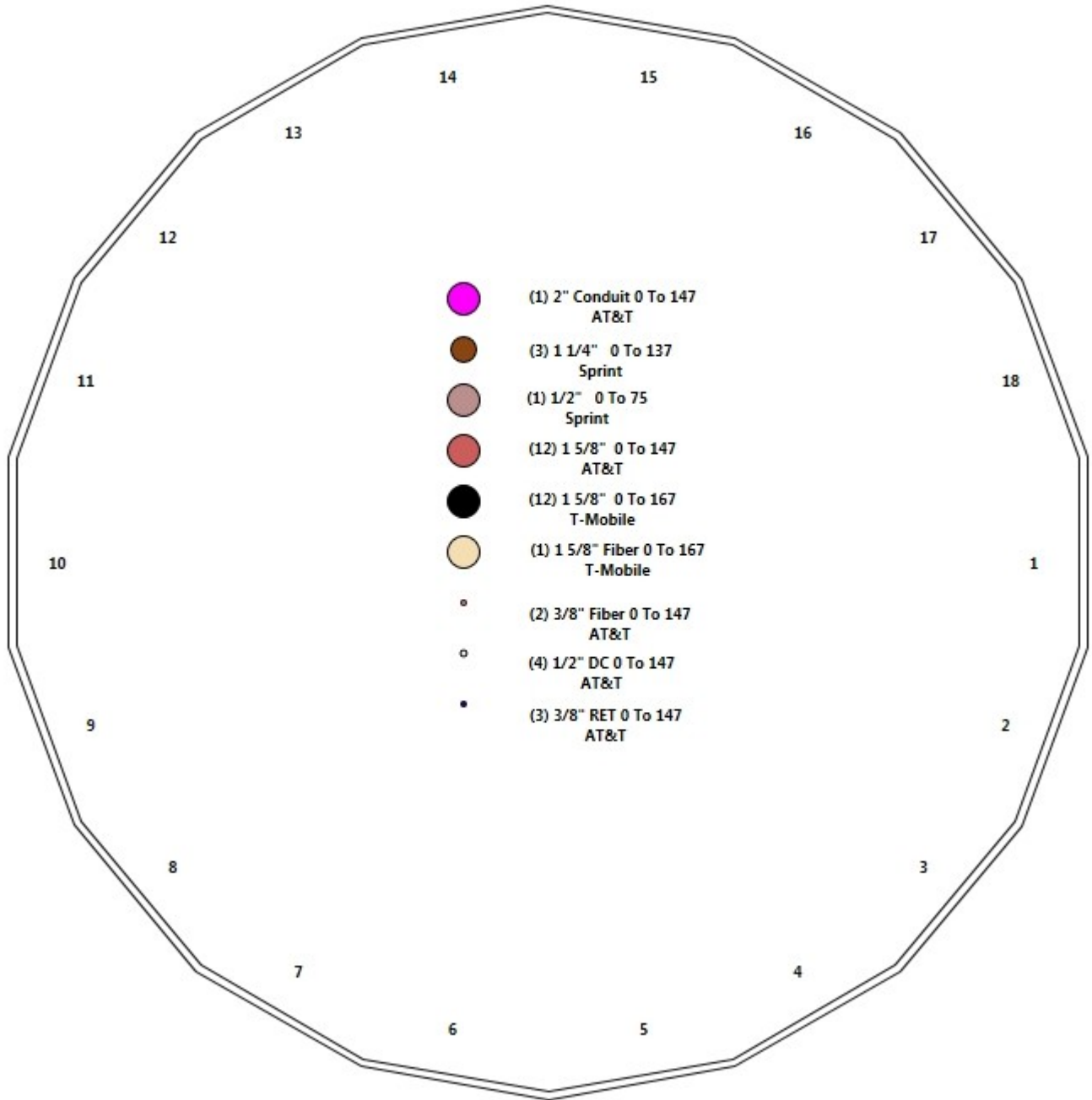
Structure: CT04066-S-SBA - Coax Line Placement

Type: Monopole
Site Name: North Branford East
Height: 170.00 (ft)

2/4/2019



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Shaft Properties

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| Sec. No. | Shape | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Overlap (in) | Weight (lb) |
|----------------------------|-------|-------------|------------|----------|------------|--------------|---------------|
| 1 | 18 | 48.000 | 0.4375 | 65 | | 0.00 | 13,165 |
| 2 | 18 | 50.000 | 0.4375 | 65 | Slip | 84.00 | 11,432 |
| 3 | 18 | 23.000 | 0.3750 | 65 | Slip | 72.00 | 3,871 |
| 4 | 18 | 27.000 | 0.3125 | 65 | Flange | 0.00 | 3,221 |
| 5 | 18 | 40.000 | 0.2500 | 65 | Slip | 60.00 | 3,107 |
| Total Shaft Weight: | | | | | | | 34,795 |

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 | 64.50 | 0.00 | 88.96 | 46124.76 | 24.59 | 147.43 | 52.46 | 48.00 | 72.24 | 24706.6 | 19.73 | 119.9 | 0.250735 |
| 2 | 55.09 | 41.00 | 75.90 | 28646.28 | 20.79 | 125.93 | 42.56 | 91.00 | 58.49 | 13110.0 | 15.74 | 97.28 | 0.250735 |
| 3 | 44.81 | 85.00 | 52.89 | 13195.46 | 19.66 | 119.50 | 39.05 | 108.00 | 46.03 | 8695.97 | 16.95 | 104.1 | 0.250735 |
| 4 | 39.05 | 108.0 | 38.42 | 7281.83 | 20.62 | 124.95 | 32.28 | 135.00 | 31.70 | 4092.10 | 16.80 | 103.2 | 0.250735 |
| 5 | 34.03 | 130.0 | 26.80 | 3864.03 | 22.59 | 136.12 | 24.00 | 170.00 | 18.84 | 1343.00 | 15.52 | 96.00 | 0.250735 |

Load Summary

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Discrete Appurtenances

| No. | Elev (ft) | Description | Qty | No Ice | | | Ice | | | Hor. Ecc. (ft) | Vert Ecc (ft) |
|----------------|-----------|-----------------------------|-----------|-----------------|-----------|-------------|------------------|-----------|-------------|----------------|---------------|
| | | | | Weight (lb) | CaAa (sf) | CaAa Factor | Weight (lb) | CaAa (sf) | CaAa Factor | | |
| 1 | 170.00 | 6' Lightning rod | 1 | 6.50 | 0.38 | 1.00 | 43.26 | 1.481 | 1.00 | 0.00 | 0.00 |
| 2 | 167.00 | AIR21 B2A/B4P | 3 | 91.50 | 6.09 | 0.84 | 262.57 | 7.200 | 0.85 | 0.00 | 0.00 |
| 3 | 167.00 | AIR21 B4A/B2P | 3 | 90.40 | 6.09 | 0.85 | 261.47 | 7.200 | 0.85 | 0.00 | 0.00 |
| 4 | 167.00 | KRY 112 114-1 - Double TMA | 3 | 11.00 | 0.41 | 0.70 | 21.90 | 0.890 | 0.74 | 0.00 | 0.00 |
| 5 | 167.00 | Low Profile Platform-Round | 1 | 1500.00 | 22.00 | 1.00 | 2823.04 | 39.852 | 1.00 | 0.00 | 0.00 |
| 6 | 167.00 | S11B12 - RRU | 3 | 51.00 | 2.83 | 0.67 | 121.35 | 3.509 | 0.69 | 0.00 | 0.00 |
| 7 | 165.00 | LNx-6515DS-A1M | 3 | 49.80 | 11.47 | 0.80 | 281.55 | 14.768 | 0.80 | 0.00 | 0.00 |
| 8 | 147.00 | Low Profile Platform-Round | 1 | 1500.00 | 22.00 | 1.00 | 2806.27 | 39.626 | 1.00 | 0.00 | 0.00 |
| 9 | 147.00 | 7770 | 3 | 35.00 | 5.50 | 0.73 | 169.84 | 6.563 | 0.73 | 0.00 | 0.00 |
| 10 | 147.00 | 800 10965 | 6 | 108.60 | 13.81 | 0.71 | 406.06 | 15.387 | 0.71 | 0.00 | 0.00 |
| 11 | 147.00 | Powerwave LGP21402 TMA | 6 | 14.10 | 1.29 | 0.64 | 39.05 | 2.124 | 0.64 | 0.00 | 0.00 |
| 12 | 147.00 | Powerwave LGP21903 Diplexer | 6 | 5.50 | 0.27 | 0.84 | 13.91 | 0.667 | 0.84 | 0.00 | 0.00 |
| 13 | 147.00 | Ericsson RRUS 8843 B2 B66A | 3 | 72.00 | 1.64 | 0.67 | 118.75 | 2.136 | 0.67 | 0.00 | 0.00 |
| 14 | 147.00 | Ericsson RRUS 4449 B5, B12 | 3 | 71.00 | 1.97 | 0.67 | 124.27 | 2.516 | 0.67 | 0.00 | 0.00 |
| 15 | 147.00 | Raycap DC6-48-60-18-8F | 1 | 31.80 | 0.92 | 1.00 | 93.50 | 1.357 | 1.00 | 0.00 | 0.00 |
| 16 | 147.00 | Raycap DC6-48-60-18-8C | 1 | 20.00 | 1.26 | 1.00 | 72.65 | 1.918 | 1.00 | 0.00 | 0.00 |
| 17 | 137.00 | ALU - 800MHz Filter | 3 | 8.80 | 0.78 | 0.50 | 26.28 | 1.421 | 0.55 | 0.00 | 0.00 |
| 18 | 137.00 | Low Profile Platform-Round | 1 | 1500.00 | 22.00 | 1.00 | 2797.10 | 39.502 | 1.00 | 0.00 | 0.00 |
| 19 | 137.00 | APXVSP18-C-A20 | 3 | 57.00 | 8.02 | 0.85 | 228.29 | 10.789 | 0.86 | 0.00 | 0.00 |
| 20 | 137.00 | APXVTM14-C-I20 | 3 | 56.00 | 6.34 | 0.86 | 214.67 | 7.443 | 0.88 | 0.00 | 0.00 |
| 21 | 137.00 | 800MHz - RRH | 3 | 53.00 | 2.49 | 0.67 | 126.29 | 3.623 | 0.69 | 0.00 | 0.00 |
| 22 | 137.00 | 1900MHz - RRH | 3 | 44.00 | 3.80 | 0.67 | 152.18 | 5.178 | 0.69 | 0.00 | 0.00 |
| 23 | 137.00 | TD-RRH8x20-25 - RRU | 3 | 70.00 | 4.05 | 0.67 | 179.26 | 4.855 | 0.69 | 0.00 | 0.00 |
| 24 | 137.00 | ACU-A20-N - RET | 4 | 1.00 | 0.14 | 0.78 | 5.26 | 0.434 | 0.80 | 0.00 | 0.00 |
| 25 | 75.00 | Standoff | 1 | 40.00 | 2.63 | 0.75 | 114.90 | 8.199 | 0.75 | 0.00 | 0.00 |
| 26 | 75.00 | GPS | 1 | 10.00 | 1.00 | 1.00 | 37.36 | 1.664 | 1.00 | 0.00 | 0.00 |
| Totals: | | | 72 | 7,663.00 | | | 18,429.27 | | | | |

Linear Appurtenances

| Bottom Elev. (ft) | Top Elev. (ft) | Description | Exposed Width | Exposed |
|-------------------|----------------|------------------|---------------|---------|
| 0.00 | 167.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 0.00 | 167.00 | (1) 1 5/8" Fiber | 0.00 | Inside |
| 0.00 | 147.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 0.00 | 147.00 | (4) 1/2" DC | 0.00 | Inside |
| 0.00 | 147.00 | (1) 2" Conduit | 0.00 | Inside |
| 0.00 | 147.00 | (2) 3/8" Fiber | 0.00 | Inside |
| 0.00 | 147.00 | (3) 3/8" RET | 0.00 | Inside |
| 0.00 | 137.00 | (3) 1 1/4" Coax | 0.00 | Inside |
| 0.00 | 75.00 | (1) 1/2" Coax | 0.00 | Inside |

Shaft Section Properties

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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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 | | 0.4375 | 64.500 | 88.956 | 46124.8 | 24.59 | 147.43 | 72.5 | 1408. | 0.0 |
| 5.00 | | 0.4375 | 63.246 | 87.215 | 43469.5 | 24.08 | 144.56 | 73.1 | 1353. | 1498.7 |
| 10.00 | | 0.4375 | 61.993 | 85.474 | 40918.1 | 23.57 | 141.70 | 73.7 | 1300. | 1469.1 |
| 15.00 | | 0.4375 | 60.739 | 83.733 | 38468.6 | 23.07 | 138.83 | 74.3 | 1247. | 1439.4 |
| 20.00 | | 0.4375 | 59.485 | 81.992 | 36118.8 | 22.56 | 135.97 | 74.9 | 1195. | 1409.8 |
| 25.00 | | 0.4375 | 58.232 | 80.251 | 33866.7 | 22.06 | 133.10 | 75.5 | 1145. | 1380.2 |
| 30.00 | | 0.4375 | 56.978 | 78.511 | 31710.3 | 21.55 | 130.24 | 76.1 | 1096. | 1350.6 |
| 35.00 | | 0.4375 | 55.724 | 76.770 | 29647.4 | 21.05 | 127.37 | 76.6 | 1047. | 1321.0 |
| 40.00 | | 0.4375 | 54.471 | 75.029 | 27675.9 | 20.54 | 124.50 | 77.2 | 1000. | 1291.3 |
| 41.00 | Bot - Section 2 | 0.4375 | 54.220 | 74.681 | 27292.4 | 20.44 | 123.93 | 77.4 | 991.4 | 254.7 |
| 45.00 | | 0.4375 | 53.217 | 73.288 | 25793.8 | 20.04 | 121.64 | 77.8 | 954.7 | 2030.6 |
| 48.00 | Top - Section 1 | 0.4375 | 53.340 | 73.459 | 25974.3 | 20.09 | 121.92 | 0.0 | 0.0 | 1498.0 |
| 50.00 | | 0.4375 | 52.838 | 72.762 | 25242.6 | 19.88 | 120.77 | 78.0 | 941.0 | 497.6 |
| 55.00 | | 0.4375 | 51.585 | 71.022 | 23473.9 | 19.38 | 117.91 | 78.6 | 896.3 | 1223.2 |
| 60.00 | | 0.4375 | 50.331 | 69.281 | 21789.7 | 18.87 | 115.04 | 79.2 | 852.7 | 1193.5 |
| 65.00 | | 0.4375 | 49.077 | 67.540 | 20188.1 | 18.37 | 112.18 | 79.8 | 810.2 | 1163.9 |
| 70.00 | | 0.4375 | 47.824 | 65.799 | 18667.0 | 17.86 | 109.31 | 80.4 | 768.8 | 1134.3 |
| 75.00 | | 0.4375 | 46.570 | 64.058 | 17224.2 | 17.36 | 106.45 | 81.0 | 728.5 | 1104.7 |
| 80.00 | | 0.4375 | 45.316 | 62.317 | 15857.8 | 16.85 | 103.58 | 81.6 | 689.2 | 1075.1 |
| 85.00 | Bot - Section 3 | 0.4375 | 44.063 | 60.577 | 14565.6 | 16.35 | 100.71 | 82.2 | 651.1 | 1045.5 |
| 90.00 | | 0.4375 | 42.809 | 58.836 | 13345.6 | 15.84 | 97.85 | 82.5 | 614.0 | 1903.0 |
| 91.00 | Top - Section 2 | 0.3750 | 43.308 | 51.099 | 11900.1 | 18.95 | 115.49 | 0.0 | 0.0 | 374.0 |
| 95.00 | | 0.3750 | 42.305 | 49.906 | 11085.5 | 18.48 | 112.81 | 79.7 | 516.1 | 687.4 |
| 100.00 | | 0.3750 | 41.051 | 48.413 | 10120.6 | 17.89 | 109.47 | 80.4 | 485.6 | 836.4 |
| 105.00 | | 0.3750 | 39.798 | 46.921 | 9213.4 | 17.30 | 106.13 | 81.0 | 456.0 | 811.0 |
| 108.00 | Top - Section 3 | 0.3750 | 39.046 | 46.026 | 8696.0 | 16.95 | 104.12 | 81.5 | 438.7 | 474.4 |
| 108.00 | Bot - Section 4 | 0.3125 | 39.046 | 38.417 | 7281.8 | 20.34 | 124.95 | 77.1 | 367.3 | |
| 110.00 | | 0.3125 | 38.544 | 37.920 | 7002.6 | 20.34 | 123.34 | 77.5 | 357.8 | 259.8 |
| 115.00 | | 0.3125 | 37.290 | 36.676 | 6336.1 | 19.63 | 119.33 | 78.3 | 334.7 | 634.6 |
| 120.00 | | 0.3125 | 36.037 | 35.433 | 5713.3 | 18.92 | 115.32 | 79.1 | 312.3 | 613.4 |
| 125.00 | | 0.3125 | 34.783 | 34.189 | 5132.6 | 18.22 | 111.31 | 80.0 | 290.6 | 592.3 |
| 130.00 | Bot - Section 5 | 0.3125 | 33.529 | 32.946 | 4592.7 | 17.51 | 107.29 | 80.8 | 269.8 | 571.1 |
| 135.00 | Top - Section 4 | 0.2500 | 32.776 | 25.808 | 3449.6 | 21.71 | 131.10 | 0.0 | 0.0 | 997.5 |
| 137.00 | | 0.2500 | 32.274 | 25.410 | 3292.5 | 21.35 | 129.10 | 76.3 | 200.9 | 174.3 |
| 140.00 | | 0.2500 | 31.522 | 24.813 | 3065.9 | 20.82 | 126.09 | 76.9 | 191.6 | 256.4 |
| 145.00 | | 0.2500 | 30.268 | 23.819 | 2711.7 | 19.94 | 121.07 | 78.0 | 176.5 | 413.7 |
| 147.00 | | 0.2500 | 29.767 | 23.421 | 2578.1 | 19.58 | 119.07 | 78.4 | 170.6 | 160.7 |
| 150.00 | | 0.2500 | 29.015 | 22.824 | 2386.0 | 19.05 | 116.06 | 79.0 | 162.0 | 236.0 |
| 155.00 | | 0.2500 | 27.761 | 21.829 | 2087.4 | 18.17 | 111.04 | 80.0 | 148.1 | 379.9 |
| 160.00 | | 0.2500 | 26.507 | 20.834 | 1814.8 | 17.29 | 106.03 | 81.1 | 134.9 | 362.9 |
| 165.00 | | 0.2500 | 25.254 | 19.840 | 1567.1 | 16.40 | 101.01 | 82.1 | 122.2 | 346.0 |
| 167.00 | | 0.2500 | 24.752 | 19.442 | 1474.7 | 16.05 | 99.01 | 82.5 | 117.3 | 133.7 |
| 170.00 | | 0.2500 | 24.000 | 18.845 | 1343.0 | 15.52 | 96.00 | 82.5 | 110.2 | 195.4 |

34795.0

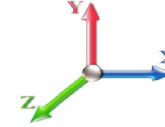
Wind Loading - Shaft

| | | |
|---------------------------------------|-----------------------------------|----------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Page: 8 |
| | Struct Class: II | |



Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| 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 | 21.088 | 23.20 | 508.23 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 21.088 | 23.20 | 498.35 | 0.650 | 0.000 | 5.00 | 27.024 | 17.57 | 651.9 | 0.0 | 1798.4 |
| 10.00 | | 1.00 | 0.85 | 21.088 | 23.20 | 488.47 | 0.650 | 0.000 | 5.00 | 26.494 | 17.22 | 639.1 | 0.0 | 1762.9 |
| 15.00 | | 1.00 | 0.85 | 21.088 | 23.20 | 478.59 | 0.650 | 0.000 | 5.00 | 25.964 | 16.88 | 626.3 | 0.0 | 1727.3 |
| 20.00 | | 1.00 | 0.90 | 22.375 | 24.61 | 482.81 | 0.650 | 0.000 | 5.00 | 25.433 | 16.53 | 651.0 | 0.0 | 1691.8 |
| 25.00 | | 1.00 | 0.95 | 23.451 | 25.80 | 483.87 | 0.650 | 0.000 | 5.00 | 24.903 | 16.19 | 668.1 | 0.0 | 1656.2 |
| 30.00 | | 1.00 | 0.98 | 24.369 | 26.81 | 482.62 | 0.650 | 0.000 | 5.00 | 24.372 | 15.84 | 679.4 | 0.0 | 1620.7 |
| 35.00 | | 1.00 | 1.01 | 25.172 | 27.69 | 479.72 | 0.650 | 0.000 | 5.00 | 23.842 | 15.50 | 686.6 | 0.0 | 1585.2 |
| 40.00 | | 1.00 | 1.04 | 25.890 | 28.48 | 475.57 | 0.650 | 0.000 | 5.00 | 23.311 | 15.15 | 690.4 | 0.0 | 1549.6 |
| 41.00 | Bot - Section 2 | 1.00 | 1.05 | 26.025 | 28.63 | 474.61 | 0.650 | 0.000 | 1.00 | 4.599 | 2.99 | 136.9 | 0.0 | 305.7 |
| 45.00 | | 1.00 | 1.07 | 26.540 | 29.19 | 470.42 | 0.650 | 0.000 | 4.00 | 18.479 | 12.01 | 561.0 | 0.0 | 2436.7 |
| 48.00 | Top - Section 1 | 1.00 | 1.08 | 26.903 | 29.59 | 466.93 | 0.650 | 0.000 | 3.00 | 13.636 | 8.86 | 419.7 | 0.0 | 1797.6 |
| 50.00 | | 1.00 | 1.09 | 27.135 | 29.85 | 472.28 | 0.650 | 0.000 | 2.00 | 8.985 | 5.84 | 278.9 | 0.0 | 597.1 |
| 55.00 | | 1.00 | 1.12 | 27.685 | 30.45 | 465.73 | 0.650 | 0.000 | 5.00 | 22.090 | 14.36 | 699.6 | 0.0 | 1467.8 |
| 60.00 | | 1.00 | 1.14 | 28.197 | 31.02 | 458.59 | 0.650 | 0.000 | 5.00 | 21.560 | 14.01 | 695.5 | 0.0 | 1432.3 |
| 65.00 | | 1.00 | 1.16 | 28.676 | 31.54 | 450.95 | 0.650 | 0.000 | 5.00 | 21.030 | 13.67 | 689.9 | 0.0 | 1396.7 |
| 70.00 | | 1.00 | 1.17 | 29.127 | 32.04 | 442.87 | 0.650 | 0.000 | 5.00 | 20.499 | 13.32 | 683.1 | 0.0 | 1361.2 |
| 75.00 | Appurtenance(s) | 1.00 | 1.19 | 29.553 | 32.51 | 434.40 | 0.650 | 0.000 | 5.00 | 19.969 | 12.98 | 675.1 | 0.0 | 1325.6 |
| 80.00 | | 1.00 | 1.21 | 29.958 | 32.95 | 425.59 | 0.650 | 0.000 | 5.00 | 19.438 | 12.63 | 666.2 | 0.0 | 1290.1 |
| 85.00 | Bot - Section 3 | 1.00 | 1.22 | 30.342 | 33.38 | 416.47 | 0.650 | 0.000 | 5.00 | 18.908 | 12.29 | 656.3 | 0.0 | 1254.5 |
| 90.00 | | 1.00 | 1.24 | 30.710 | 33.78 | 407.06 | 0.650 | 0.000 | 5.00 | 18.695 | 12.15 | 656.8 | 0.0 | 2283.6 |
| 91.00 | Top - Section 2 | 1.00 | 1.24 | 30.781 | 33.86 | 405.15 | 0.650 | 0.000 | 1.00 | 3.675 | 2.39 | 129.4 | 0.0 | 448.8 |
| 95.00 | | 1.00 | 1.25 | 31.061 | 34.17 | 404.57 | 0.650 | 0.000 | 4.00 | 14.489 | 9.42 | 514.9 | 0.0 | 824.9 |
| 100.00 | | 1.00 | 1.27 | 31.399 | 34.54 | 394.70 | 0.650 | 0.000 | 5.00 | 17.634 | 11.46 | 633.4 | 0.0 | 1003.7 |
| 105.00 | | 1.00 | 1.28 | 31.723 | 34.89 | 384.62 | 0.650 | 0.000 | 5.00 | 17.103 | 11.12 | 620.7 | 0.0 | 973.2 |
| 108.00 | Top - Section 3 | 1.00 | 1.29 | 31.911 | 35.10 | 378.47 | 0.650 | 0.000 | 3.00 | 10.007 | 6.50 | 365.3 | 0.0 | 569.3 |
| 110.00 | | 1.00 | 1.29 | 32.035 | 35.24 | 374.33 | 0.650 | 0.000 | 2.00 | 6.566 | 4.27 | 240.6 | 0.0 | 311.7 |
| 115.00 | | 1.00 | 1.30 | 32.336 | 35.57 | 363.85 | 0.650 | 0.000 | 5.00 | 16.043 | 10.43 | 593.5 | 0.0 | 761.5 |
| 120.00 | | 1.00 | 1.32 | 32.627 | 35.89 | 353.20 | 0.650 | 0.000 | 5.00 | 15.512 | 10.08 | 579.0 | 0.0 | 736.1 |
| 125.00 | | 1.00 | 1.33 | 32.909 | 36.20 | 342.38 | 0.650 | 0.000 | 5.00 | 14.982 | 9.74 | 564.0 | 0.0 | 710.7 |
| 130.00 | Bot - Section 5 | 1.00 | 1.34 | 33.182 | 36.50 | 331.41 | 0.650 | 0.000 | 5.00 | 14.451 | 9.39 | 548.6 | 0.0 | 685.3 |
| 135.00 | Top - Section 4 | 1.00 | 1.35 | 33.446 | 36.79 | 320.28 | 0.650 | 0.000 | 5.00 | 14.132 | 9.19 | 540.7 | 0.0 | 1197.0 |
| 137.00 | Appurtenance(s) | 1.00 | 1.35 | 33.550 | 36.90 | 320.77 | 0.650 | 0.000 | 2.00 | 5.504 | 3.58 | 211.3 | 0.0 | 209.1 |
| 140.00 | | 1.00 | 1.36 | 33.703 | 37.07 | 314.01 | 0.650 | 0.000 | 3.00 | 8.098 | 5.26 | 312.2 | 0.0 | 307.6 |
| 145.00 | | 1.00 | 1.37 | 33.953 | 37.35 | 302.63 | 0.650 | 0.000 | 5.00 | 13.072 | 8.50 | 507.7 | 0.0 | 496.5 |
| 147.00 | Appurtenance(s) | 1.00 | 1.37 | 34.051 | 37.46 | 298.05 | 0.650 | 0.000 | 2.00 | 5.080 | 3.30 | 197.9 | 0.0 | 192.9 |
| 150.00 | | 1.00 | 1.38 | 34.196 | 37.62 | 291.13 | 0.650 | 0.000 | 3.00 | 7.461 | 4.85 | 291.9 | 0.0 | 283.2 |
| 155.00 | | 1.00 | 1.39 | 34.433 | 37.88 | 279.52 | 0.650 | 0.000 | 5.00 | 12.011 | 7.81 | 473.1 | 0.0 | 455.8 |
| 160.00 | | 1.00 | 1.40 | 34.664 | 38.13 | 267.79 | 0.650 | 0.000 | 5.00 | 11.480 | 7.46 | 455.3 | 0.0 | 435.5 |
| 165.00 | Appurtenance(s) | 1.00 | 1.41 | 34.890 | 38.38 | 255.95 | 0.650 | 0.000 | 5.00 | 10.950 | 7.12 | 437.1 | 0.0 | 415.2 |
| 167.00 | Appurtenance(s) | 1.00 | 1.41 | 34.978 | 38.48 | 251.19 | 0.650 | 0.000 | 2.00 | 4.231 | 2.75 | 169.3 | 0.0 | 160.4 |
| 170.00 | Appurtenance(s) | 1.00 | 1.42 | 35.110 | 38.62 | 244.01 | 0.650 | 0.000 | 3.00 | 6.188 | 4.02 | 248.5 | 0.0 | 234.5 |
| Totals: | | | | | | | | | 170.00 | | | 20,746.4 | | 41,754.0 |

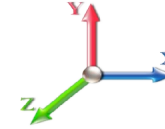
Discrete Appurtenance Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| 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 | 170.00 | 6' Lightning rod | 1 | 35.110 | 38.620 | 1.00 | 1.00 | 0.38 | 7.80 | 0.000 | 0.000 | 23.48 | 0.00 | 0.00 |
| 2 | 167.00 | S11B12 - RRU | 3 | 34.978 | 38.476 | 0.54 | 0.80 | 4.55 | 183.60 | 0.000 | 0.000 | 280.14 | 0.00 | 0.00 |
| 3 | 167.00 | Low Profile | 1 | 34.978 | 38.476 | 1.00 | 1.00 | 22.00 | 1800.00 | 0.000 | 0.000 | 1354.35 | 0.00 | 0.00 |
| 4 | 167.00 | KRY 112 114-1 - Double | 3 | 34.978 | 38.476 | 0.56 | 0.80 | 0.69 | 39.60 | 0.000 | 0.000 | 42.40 | 0.00 | 0.00 |
| 5 | 167.00 | AIR21 B4A/B2P | 3 | 34.978 | 38.476 | 0.77 | 0.90 | 13.98 | 325.44 | 0.000 | 0.000 | 860.42 | 0.00 | 0.00 |
| 6 | 167.00 | AIR21 B2A/B4P | 3 | 34.978 | 38.476 | 0.76 | 0.90 | 13.81 | 329.40 | 0.000 | 0.000 | 850.30 | 0.00 | 0.00 |
| 7 | 165.00 | LNx-6515DS-A1M | 3 | 34.890 | 38.378 | 0.72 | 0.90 | 24.78 | 179.28 | 0.000 | 0.000 | 1521.34 | 0.00 | 0.00 |
| 8 | 147.00 | Raycap DC6-48-60-18-8C | 1 | 34.051 | 37.456 | 0.80 | 0.80 | 1.01 | 24.00 | 0.000 | 0.000 | 60.41 | 0.00 | 0.00 |
| 9 | 147.00 | Raycap DC6-48-60-18-8F | 1 | 34.051 | 37.456 | 0.80 | 0.80 | 0.74 | 38.16 | 0.000 | 0.000 | 44.11 | 0.00 | 0.00 |
| 10 | 147.00 | Ericsson RRUS 4449 B5, | 3 | 34.051 | 37.456 | 0.54 | 0.80 | 3.17 | 255.60 | 0.000 | 0.000 | 189.84 | 0.00 | 0.00 |
| 11 | 147.00 | Ericsson RRUS 8843 B2 | 3 | 34.051 | 37.456 | 0.54 | 0.80 | 2.64 | 259.20 | 0.000 | 0.000 | 158.04 | 0.00 | 0.00 |
| 12 | 147.00 | Powerwave LGP21903 | 6 | 34.051 | 37.456 | 0.67 | 0.80 | 1.09 | 39.60 | 0.000 | 0.000 | 65.24 | 0.00 | 0.00 |
| 13 | 147.00 | Powerwave LGP21402 | 6 | 34.051 | 37.456 | 0.51 | 0.80 | 3.96 | 101.52 | 0.000 | 0.000 | 237.50 | 0.00 | 0.00 |
| 14 | 147.00 | 800 10965 | 6 | 34.051 | 37.456 | 0.57 | 0.80 | 47.06 | 781.92 | 0.000 | 0.000 | 2820.59 | 0.00 | 0.00 |
| 15 | 147.00 | Low Profile | 1 | 34.051 | 37.456 | 1.00 | 1.00 | 22.00 | 1800.00 | 0.000 | 0.000 | 1318.47 | 0.00 | 0.00 |
| 16 | 147.00 | 7770 | 3 | 34.051 | 37.456 | 0.58 | 0.80 | 9.64 | 126.00 | 0.000 | 0.000 | 577.49 | 0.00 | 0.00 |
| 17 | 137.00 | 1900MHz - RRH | 3 | 33.550 | 36.905 | 0.54 | 0.80 | 6.11 | 158.40 | 0.000 | 0.000 | 360.81 | 0.00 | 0.00 |
| 18 | 137.00 | APXVSP18-C-A20 | 3 | 33.550 | 36.905 | 0.68 | 0.80 | 16.36 | 205.20 | 0.000 | 0.000 | 966.07 | 0.00 | 0.00 |
| 19 | 137.00 | APXVTM14-C-I20 | 3 | 33.550 | 36.905 | 0.69 | 0.80 | 13.09 | 201.60 | 0.000 | 0.000 | 772.69 | 0.00 | 0.00 |
| 20 | 137.00 | 800MHz - RRH | 3 | 33.550 | 36.905 | 0.54 | 0.80 | 4.00 | 190.80 | 0.000 | 0.000 | 236.42 | 0.00 | 0.00 |
| 21 | 137.00 | TD-RRH8x20-25 - RRU | 3 | 33.550 | 36.905 | 0.54 | 0.80 | 6.51 | 252.00 | 0.000 | 0.000 | 384.54 | 0.00 | 0.00 |
| 22 | 137.00 | ACU-A20-N - RET | 4 | 33.550 | 36.905 | 0.62 | 0.80 | 0.35 | 4.80 | 0.000 | 0.000 | 20.63 | 0.00 | 0.00 |
| 23 | 137.00 | ALU - 800MHz Filter | 3 | 33.550 | 36.905 | 0.40 | 0.80 | 0.94 | 31.68 | 0.000 | 0.000 | 55.27 | 0.00 | 0.00 |
| 24 | 137.00 | Low Profile | 1 | 33.550 | 36.905 | 1.00 | 1.00 | 22.00 | 1800.00 | 0.000 | 0.000 | 1299.06 | 0.00 | 0.00 |
| 25 | 75.00 | GPS | 1 | 29.553 | 32.509 | 0.80 | 0.80 | 0.80 | 12.00 | 0.000 | 0.000 | 41.61 | 0.00 | 0.00 |
| 26 | 75.00 | Standoff | 1 | 29.553 | 32.509 | 0.56 | 0.75 | 1.48 | 48.00 | 0.000 | 0.000 | 76.95 | 0.00 | 0.00 |

Totals: 9,195.60

14,618.18

Total Applied Force Summary

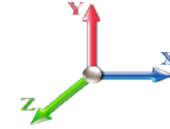
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| 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 | | 651.94 | 1993.95 | 0.00 | 0.00 |
| 10.00 | | 639.14 | 1958.40 | 0.00 | 0.00 |
| 15.00 | | 626.35 | 1922.86 | 0.00 | 0.00 |
| 20.00 | | 651.00 | 1887.32 | 0.00 | 0.00 |
| 25.00 | | 668.09 | 1851.78 | 0.00 | 0.00 |
| 30.00 | | 679.44 | 1816.24 | 0.00 | 0.00 |
| 35.00 | | 686.58 | 1780.69 | 0.00 | 0.00 |
| 40.00 | | 690.44 | 1745.15 | 0.00 | 0.00 |
| 41.00 | | 136.91 | 344.77 | 0.00 | 0.00 |
| 45.00 | | 561.04 | 2593.10 | 0.00 | 0.00 |
| 48.00 | | 419.68 | 1914.97 | 0.00 | 0.00 |
| 50.00 | | 278.91 | 675.29 | 0.00 | 0.00 |
| 55.00 | | 699.64 | 1663.33 | 0.00 | 0.00 |
| 60.00 | | 695.47 | 1627.79 | 0.00 | 0.00 |
| 65.00 | | 689.89 | 1592.25 | 0.00 | 0.00 |
| 70.00 | | 683.06 | 1556.71 | 0.00 | 0.00 |
| 75.00 | (2) attachments | 793.68 | 1581.17 | 0.00 | 0.00 |
| 80.00 | | 666.18 | 1479.38 | 0.00 | 0.00 |
| 85.00 | | 656.32 | 1443.84 | 0.00 | 0.00 |
| 90.00 | | 656.78 | 2472.90 | 0.00 | 0.00 |
| 91.00 | | 129.42 | 486.66 | 0.00 | 0.00 |
| 95.00 | | 514.85 | 976.31 | 0.00 | 0.00 |
| 100.00 | | 633.41 | 1192.97 | 0.00 | 0.00 |
| 105.00 | | 620.70 | 1162.51 | 0.00 | 0.00 |
| 108.00 | | 365.34 | 682.88 | 0.00 | 0.00 |
| 110.00 | | 240.61 | 387.43 | 0.00 | 0.00 |
| 115.00 | | 593.46 | 950.80 | 0.00 | 0.00 |
| 120.00 | | 579.00 | 925.41 | 0.00 | 0.00 |
| 125.00 | | 564.03 | 900.02 | 0.00 | 0.00 |
| 130.00 | | 548.57 | 874.64 | 0.00 | 0.00 |
| 135.00 | | 540.74 | 1386.32 | 0.00 | 0.00 |
| 137.00 | (23) attachments | 4306.76 | 3129.34 | 0.00 | 0.00 |
| 140.00 | | 312.21 | 414.07 | 0.00 | 0.00 |
| 145.00 | | 507.73 | 673.87 | 0.00 | 0.00 |
| 147.00 | (30) attachments | 5669.59 | 3689.86 | 0.00 | 0.00 |
| 150.00 | | 291.88 | 332.14 | 0.00 | 0.00 |
| 155.00 | | 473.12 | 537.31 | 0.00 | 0.00 |
| 160.00 | | 455.26 | 517.01 | 0.00 | 0.00 |
| 165.00 | (3) attachments | 1958.39 | 675.98 | 0.00 | 0.00 |
| 167.00 | (13) attachments | 3556.94 | 2871.03 | 0.00 | 0.00 |
| 170.00 | (1) attachments | 272.03 | 242.31 | 0.00 | 0.00 |
| | Totals: | 35,364.58 | 56,910.79 | 0.00 | 0.00 |

Calculated Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

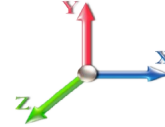


Page: 11

Load Case: 1.2D + 1.6W 101 mph Wind

Iterations 23

Dead Load Factor 1.20
Wind Load Factor 1.60



| 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 | -56.87 | -35.43 | 0.00 | -4003.4 | 0.00 | 4003.44 | 5803.10 | 2901.55 | 15291.3 | 7657.05 | 0.00 | 0.000 | 0.000 | 0.533 |
| 5.00 | -54.81 | -34.89 | 0.00 | -3826.3 | 0.00 | 3826.32 | 5736.18 | 2868.09 | 14817.2 | 7419.63 | 0.07 | -0.121 | 0.000 | 0.525 |
| 10.00 | -52.77 | -34.36 | 0.00 | -3651.8 | 0.00 | 3651.88 | 5667.41 | 2833.70 | 14345.3 | 7183.34 | 0.26 | -0.243 | 0.000 | 0.518 |
| 15.00 | -50.78 | -33.83 | 0.00 | -3480.1 | 0.00 | 3480.10 | 5596.76 | 2798.38 | 13875.9 | 6948.30 | 0.58 | -0.367 | 0.000 | 0.510 |
| 20.00 | -48.83 | -33.27 | 0.00 | -3310.9 | 0.00 | 3310.95 | 5524.26 | 2762.13 | 13409.4 | 6714.68 | 1.03 | -0.493 | 0.000 | 0.502 |
| 25.00 | -46.91 | -32.69 | 0.00 | -3144.5 | 0.00 | 3144.59 | 5449.89 | 2724.95 | 12945.9 | 6482.61 | 1.62 | -0.620 | 0.000 | 0.494 |
| 30.00 | -45.03 | -32.09 | 0.00 | -2981.1 | 0.00 | 2981.14 | 5373.66 | 2686.83 | 12485.9 | 6252.24 | 2.34 | -0.748 | 0.000 | 0.485 |
| 35.00 | -43.19 | -31.48 | 0.00 | -2820.6 | 0.00 | 2820.68 | 5295.57 | 2647.79 | 12029.5 | 6023.71 | 3.19 | -0.879 | 0.000 | 0.477 |
| 40.00 | -41.41 | -30.82 | 0.00 | -2663.2 | 0.00 | 2663.28 | 5215.62 | 2607.81 | 11577.1 | 5797.18 | 4.18 | -1.010 | 0.000 | 0.467 |
| 41.00 | -41.03 | -30.72 | 0.00 | -2632.4 | 0.00 | 2632.47 | 5199.41 | 2599.70 | 11487.1 | 5752.13 | 4.40 | -1.037 | 0.000 | 0.466 |
| 45.00 | -38.40 | -30.18 | 0.00 | -2509.5 | 0.00 | 2509.58 | 5133.81 | 2566.90 | 11129.0 | 5572.78 | 5.31 | -1.145 | 0.000 | 0.458 |
| 48.00 | -36.46 | -29.76 | 0.00 | -2419.0 | 0.00 | 2419.06 | 5141.90 | 2570.95 | 11172.7 | 5594.66 | 6.06 | -1.226 | 0.000 | 0.440 |
| 50.00 | -35.74 | -29.52 | 0.00 | -2359.5 | 0.00 | 2359.54 | 5108.73 | 2554.36 | 10994.5 | 5505.45 | 6.58 | -1.281 | 0.000 | 0.436 |
| 55.00 | -34.03 | -28.86 | 0.00 | -2211.9 | 0.00 | 2211.92 | 5024.49 | 2512.24 | 10552.4 | 5284.05 | 7.99 | -1.410 | 0.000 | 0.426 |
| 60.00 | -32.36 | -28.20 | 0.00 | -2067.6 | 0.00 | 2067.62 | 4938.39 | 2469.19 | 10115.2 | 5065.12 | 9.54 | -1.540 | 0.000 | 0.415 |
| 65.00 | -30.72 | -27.53 | 0.00 | -1926.6 | 0.00 | 1926.63 | 4850.42 | 2425.21 | 9683.22 | 4848.81 | 11.22 | -1.670 | 0.000 | 0.404 |
| 70.00 | -29.13 | -26.87 | 0.00 | -1788.9 | 0.00 | 1788.96 | 4760.60 | 2380.30 | 9256.75 | 4635.26 | 13.04 | -1.801 | 0.000 | 0.392 |
| 75.00 | -27.51 | -26.09 | 0.00 | -1654.6 | 0.00 | 1654.61 | 4668.91 | 2334.45 | 8836.09 | 4424.61 | 15.00 | -1.932 | 0.000 | 0.380 |
| 80.00 | -26.00 | -25.43 | 0.00 | -1524.1 | 0.00 | 1524.17 | 4575.36 | 2287.68 | 8421.51 | 4217.02 | 17.09 | -2.063 | 0.000 | 0.367 |
| 85.00 | -24.52 | -24.78 | 0.00 | -1397.0 | 0.00 | 1397.02 | 4479.95 | 2239.97 | 8013.32 | 4012.62 | 19.33 | -2.194 | 0.000 | 0.354 |
| 90.00 | -22.05 | -24.05 | 0.00 | -1273.1 | 0.00 | 1273.13 | 4371.20 | 2185.60 | 7591.89 | 3801.59 | 21.69 | -2.325 | 0.000 | 0.340 |
| 91.00 | -21.54 | -23.93 | 0.00 | -1249.0 | 0.00 | 1249.08 | 4368.14 | 2181.07 | 7591.89 | 3801.59 | 21.69 | -2.325 | 0.000 | 0.340 |
| 95.00 | -20.53 | -23.42 | 0.00 | -1153.3 | 0.00 | 1153.36 | 4271.07 | 2138.14 | 7174.29 | 3584.06 | 24.20 | -2.456 | 0.000 | 0.326 |
| 100.00 | -19.31 | -22.78 | 0.00 | -1036.2 | 0.00 | 1036.27 | 4181.29 | 2096.65 | 6784.19 | 3372.44 | 26.85 | -2.596 | 0.000 | 0.310 |
| 105.00 | -18.14 | -22.14 | 0.00 | -922.37 | 0.00 | 922.37 | 4098.66 | 2055.33 | 6421.74 | 3166.74 | 29.64 | -2.734 | 0.000 | 0.292 |
| 108.00 | -17.45 | -21.76 | 0.00 | -855.95 | 0.00 | 855.95 | 4021.59 | 2015.95 | 6084.18 | 2966.18 | 31.38 | -2.816 | 0.000 | 0.275 |
| 108.00 | -17.45 | -21.76 | 0.00 | -855.95 | 0.00 | 855.95 | 4021.59 | 2015.95 | 6084.18 | 2966.18 | 31.38 | -2.816 | 0.000 | 0.275 |
| 110.00 | -17.03 | -21.54 | 0.00 | -812.43 | 0.00 | 812.43 | 3950.20 | 1977.10 | 5762.60 | 2770.39 | 32.58 | -2.871 | 0.000 | 0.260 |
| 115.00 | -16.06 | -20.94 | 0.00 | -704.75 | 0.00 | 704.75 | 3884.96 | 1939.48 | 5453.36 | 2580.60 | 35.67 | -3.025 | 0.000 | 0.245 |
| 120.00 | -15.12 | -20.35 | 0.00 | -600.08 | 0.00 | 600.08 | 3825.85 | 1903.93 | 5157.54 | 2395.52 | 38.91 | -3.172 | 0.000 | 0.230 |
| 125.00 | -14.21 | -19.76 | 0.00 | -498.35 | 0.00 | 498.35 | 3772.88 | 1869.44 | 4874.44 | 2217.31 | 42.31 | -3.308 | 0.000 | 0.215 |
| 130.00 | -13.33 | -19.19 | 0.00 | -399.54 | 0.00 | 399.54 | 3725.05 | 1836.03 | 4603.33 | 2045.09 | 45.84 | -3.433 | 0.000 | 0.200 |
| 135.00 | -11.95 | -18.58 | 0.00 | -303.58 | 0.00 | 303.58 | 3681.27 | 1803.13 | 4345.65 | 1879.58 | 49.50 | -3.542 | 0.000 | 0.185 |
| 137.00 | -9.08 | -14.10 | 0.00 | -266.42 | 0.00 | 266.42 | 3641.61 | 1770.31 | 4094.82 | 1719.62 | 50.99 | -3.581 | 0.000 | 0.170 |
| 140.00 | -8.67 | -13.77 | 0.00 | -224.12 | 0.00 | 224.12 | 3606.57 | 1737.78 | 3849.74 | 1565.01 | 53.26 | -3.645 | 0.000 | 0.155 |
| 145.00 | -8.02 | -13.23 | 0.00 | -155.27 | 0.00 | 155.27 | 3575.00 | 1705.50 | 3609.16 | 1416.61 | 57.12 | -3.733 | 0.000 | 0.140 |
| 147.00 | -4.70 | -7.33 | 0.00 | -128.81 | 0.00 | 128.81 | 3546.86 | 1673.93 | 3374.25 | 1274.61 | 58.69 | -3.763 | 0.000 | 0.125 |
| 150.00 | -4.38 | -7.02 | 0.00 | -106.81 | 0.00 | 106.81 | 3522.58 | 1642.29 | 3141.22 | 1137.62 | 61.07 | -3.802 | 0.000 | 0.110 |
| 155.00 | -3.87 | -6.52 | 0.00 | -71.68 | 0.00 | 71.68 | 3502.29 | 1610.15 | 2909.21 | 995.92 | 65.08 | -3.855 | 0.000 | 0.095 |
| 160.00 | -3.39 | -6.03 | 0.00 | -39.09 | 0.00 | 39.09 | 3485.15 | 1577.15 | 2677.42 | 859.92 | 69.13 | -3.893 | 0.000 | 0.080 |
| 165.00 | -2.84 | -4.03 | 0.00 | -8.93 | 0.00 | 8.93 | 3471.13 | 1543.07 | 2445.13 | 726.68 | 73.22 | -3.911 | 0.000 | 0.065 |
| 167.00 | -0.22 | -0.29 | 0.00 | -0.86 | 0.00 | 0.86 | 3460.01 | 1508.00 | 2212.46 | 593.31 | 74.86 | -3.913 | 0.000 | 0.050 |
| 170.00 | 0.00 | -0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 3450.09 | 1472.04 | 1979.73 | 460.38 | 77.32 | -3.913 | 0.000 | 0.035 |

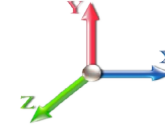
Wind Loading - Shaft

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

| 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 | 21.088 | 23.20 | 508.23 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 21.088 | 23.20 | 498.35 | 0.650 | 0.000 | 5.00 | 27.024 | 17.57 | 651.9 | 0.0 | 1348.8 |
| 10.00 | | 1.00 | 0.85 | 21.088 | 23.20 | 488.47 | 0.650 | 0.000 | 5.00 | 26.494 | 17.22 | 639.1 | 0.0 | 1322.1 |
| 15.00 | | 1.00 | 0.85 | 21.088 | 23.20 | 478.59 | 0.650 | 0.000 | 5.00 | 25.964 | 16.88 | 626.3 | 0.0 | 1295.5 |
| 20.00 | | 1.00 | 0.90 | 22.375 | 24.61 | 482.81 | 0.650 | 0.000 | 5.00 | 25.433 | 16.53 | 651.0 | 0.0 | 1268.8 |
| 25.00 | | 1.00 | 0.95 | 23.451 | 25.80 | 483.87 | 0.650 | 0.000 | 5.00 | 24.903 | 16.19 | 668.1 | 0.0 | 1242.2 |
| 30.00 | | 1.00 | 0.98 | 24.369 | 26.81 | 482.62 | 0.650 | 0.000 | 5.00 | 24.372 | 15.84 | 679.4 | 0.0 | 1215.5 |
| 35.00 | | 1.00 | 1.01 | 25.172 | 27.69 | 479.72 | 0.650 | 0.000 | 5.00 | 23.842 | 15.50 | 686.6 | 0.0 | 1188.9 |
| 40.00 | | 1.00 | 1.04 | 25.890 | 28.48 | 475.57 | 0.650 | 0.000 | 5.00 | 23.311 | 15.15 | 690.4 | 0.0 | 1162.2 |
| 41.00 | Bot - Section 2 | 1.00 | 1.05 | 26.025 | 28.63 | 474.61 | 0.650 | 0.000 | 1.00 | 4.599 | 2.99 | 136.9 | 0.0 | 229.2 |
| 45.00 | | 1.00 | 1.07 | 26.540 | 29.19 | 470.42 | 0.650 | 0.000 | 4.00 | 18.479 | 12.01 | 561.0 | 0.0 | 1827.5 |
| 48.00 | Top - Section 1 | 1.00 | 1.08 | 26.903 | 29.59 | 466.93 | 0.650 | 0.000 | 3.00 | 13.636 | 8.86 | 419.7 | 0.0 | 1348.2 |
| 50.00 | | 1.00 | 1.09 | 27.135 | 29.85 | 472.28 | 0.650 | 0.000 | 2.00 | 8.985 | 5.84 | 278.9 | 0.0 | 447.8 |
| 55.00 | | 1.00 | 1.12 | 27.685 | 30.45 | 465.73 | 0.650 | 0.000 | 5.00 | 22.090 | 14.36 | 699.6 | 0.0 | 1100.8 |
| 60.00 | | 1.00 | 1.14 | 28.197 | 31.02 | 458.59 | 0.650 | 0.000 | 5.00 | 21.560 | 14.01 | 695.5 | 0.0 | 1074.2 |
| 65.00 | | 1.00 | 1.16 | 28.676 | 31.54 | 450.95 | 0.650 | 0.000 | 5.00 | 21.030 | 13.67 | 689.9 | 0.0 | 1047.5 |
| 70.00 | | 1.00 | 1.17 | 29.127 | 32.04 | 442.87 | 0.650 | 0.000 | 5.00 | 20.499 | 13.32 | 683.1 | 0.0 | 1020.9 |
| 75.00 | Appurtenance(s) | 1.00 | 1.19 | 29.553 | 32.51 | 434.40 | 0.650 | 0.000 | 5.00 | 19.969 | 12.98 | 675.1 | 0.0 | 994.2 |
| 80.00 | | 1.00 | 1.21 | 29.958 | 32.95 | 425.59 | 0.650 | 0.000 | 5.00 | 19.438 | 12.63 | 666.2 | 0.0 | 967.6 |
| 85.00 | Bot - Section 3 | 1.00 | 1.22 | 30.342 | 33.38 | 416.47 | 0.650 | 0.000 | 5.00 | 18.908 | 12.29 | 656.3 | 0.0 | 940.9 |
| 90.00 | | 1.00 | 1.24 | 30.710 | 33.78 | 407.06 | 0.650 | 0.000 | 5.00 | 18.695 | 12.15 | 656.8 | 0.0 | 1712.7 |
| 91.00 | Top - Section 2 | 1.00 | 1.24 | 30.781 | 33.86 | 405.15 | 0.650 | 0.000 | 1.00 | 3.675 | 2.39 | 129.4 | 0.0 | 336.6 |
| 95.00 | | 1.00 | 1.25 | 31.061 | 34.17 | 404.57 | 0.650 | 0.000 | 4.00 | 14.489 | 9.42 | 514.9 | 0.0 | 618.7 |
| 100.00 | | 1.00 | 1.27 | 31.399 | 34.54 | 394.70 | 0.650 | 0.000 | 5.00 | 17.634 | 11.46 | 633.4 | 0.0 | 752.8 |
| 105.00 | | 1.00 | 1.28 | 31.723 | 34.89 | 384.62 | 0.650 | 0.000 | 5.00 | 17.103 | 11.12 | 620.7 | 0.0 | 729.9 |
| 108.00 | Top - Section 3 | 1.00 | 1.29 | 31.911 | 35.10 | 378.47 | 0.650 | 0.000 | 3.00 | 10.007 | 6.50 | 365.3 | 0.0 | 427.0 |
| 110.00 | | 1.00 | 1.29 | 32.035 | 35.24 | 374.33 | 0.650 | 0.000 | 2.00 | 6.566 | 4.27 | 240.6 | 0.0 | 233.8 |
| 115.00 | | 1.00 | 1.30 | 32.336 | 35.57 | 363.85 | 0.650 | 0.000 | 5.00 | 16.043 | 10.43 | 593.5 | 0.0 | 571.1 |
| 120.00 | | 1.00 | 1.32 | 32.627 | 35.89 | 353.20 | 0.650 | 0.000 | 5.00 | 15.512 | 10.08 | 579.0 | 0.0 | 552.1 |
| 125.00 | | 1.00 | 1.33 | 32.909 | 36.20 | 342.38 | 0.650 | 0.000 | 5.00 | 14.982 | 9.74 | 564.0 | 0.0 | 533.0 |
| 130.00 | Bot - Section 5 | 1.00 | 1.34 | 33.182 | 36.50 | 331.41 | 0.650 | 0.000 | 5.00 | 14.451 | 9.39 | 548.6 | 0.0 | 514.0 |
| 135.00 | Top - Section 4 | 1.00 | 1.35 | 33.446 | 36.79 | 320.28 | 0.650 | 0.000 | 5.00 | 14.132 | 9.19 | 540.7 | 0.0 | 897.8 |
| 137.00 | Appurtenance(s) | 1.00 | 1.35 | 33.550 | 36.90 | 320.77 | 0.650 | 0.000 | 2.00 | 5.504 | 3.58 | 211.3 | 0.0 | 156.9 |
| 140.00 | | 1.00 | 1.36 | 33.703 | 37.07 | 314.01 | 0.650 | 0.000 | 3.00 | 8.098 | 5.26 | 312.2 | 0.0 | 230.7 |
| 145.00 | | 1.00 | 1.37 | 33.953 | 37.35 | 302.63 | 0.650 | 0.000 | 5.00 | 13.072 | 8.50 | 507.7 | 0.0 | 372.3 |
| 147.00 | Appurtenance(s) | 1.00 | 1.37 | 34.051 | 37.46 | 298.05 | 0.650 | 0.000 | 2.00 | 5.080 | 3.30 | 197.9 | 0.0 | 144.7 |
| 150.00 | | 1.00 | 1.38 | 34.196 | 37.62 | 291.13 | 0.650 | 0.000 | 3.00 | 7.461 | 4.85 | 291.9 | 0.0 | 212.4 |
| 155.00 | | 1.00 | 1.39 | 34.433 | 37.88 | 279.52 | 0.650 | 0.000 | 5.00 | 12.011 | 7.81 | 473.1 | 0.0 | 341.9 |
| 160.00 | | 1.00 | 1.40 | 34.664 | 38.13 | 267.79 | 0.650 | 0.000 | 5.00 | 11.480 | 7.46 | 455.3 | 0.0 | 326.6 |
| 165.00 | Appurtenance(s) | 1.00 | 1.41 | 34.890 | 38.38 | 255.95 | 0.650 | 0.000 | 5.00 | 10.950 | 7.12 | 437.1 | 0.0 | 311.4 |
| 167.00 | Appurtenance(s) | 1.00 | 1.41 | 34.978 | 38.48 | 251.19 | 0.650 | 0.000 | 2.00 | 4.231 | 2.75 | 169.3 | 0.0 | 120.3 |
| 170.00 | Appurtenance(s) | 1.00 | 1.42 | 35.110 | 38.62 | 244.01 | 0.650 | 0.000 | 3.00 | 6.188 | 4.02 | 248.5 | 0.0 | 175.9 |
| Totals: | | | | | | | | | 170.00 | | | 20,746.4 | | 31,315.5 |

Discrete Appurtenance Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

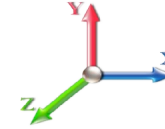


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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

| 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 | 170.00 | 6' Lightning rod | 1 | 35.110 | 38.620 | 1.00 | 1.00 | 0.38 | 5.85 | 0.000 | 0.000 | 23.48 | 0.00 | 0.00 |
| 2 | 167.00 | S11B12 - RRU | 3 | 34.978 | 38.476 | 0.54 | 0.80 | 4.55 | 137.70 | 0.000 | 0.000 | 280.14 | 0.00 | 0.00 |
| 3 | 167.00 | Low Profile | 1 | 34.978 | 38.476 | 1.00 | 1.00 | 22.00 | 1350.00 | 0.000 | 0.000 | 1354.35 | 0.00 | 0.00 |
| 4 | 167.00 | KRY 112 114-1 - Double | 3 | 34.978 | 38.476 | 0.56 | 0.80 | 0.69 | 29.70 | 0.000 | 0.000 | 42.40 | 0.00 | 0.00 |
| 5 | 167.00 | AIR21 B4A/B2P | 3 | 34.978 | 38.476 | 0.77 | 0.90 | 13.98 | 244.08 | 0.000 | 0.000 | 860.42 | 0.00 | 0.00 |
| 6 | 167.00 | AIR21 B2A/B4P | 3 | 34.978 | 38.476 | 0.76 | 0.90 | 13.81 | 247.05 | 0.000 | 0.000 | 850.30 | 0.00 | 0.00 |
| 7 | 165.00 | LNX-6515DS-A1M | 3 | 34.890 | 38.378 | 0.72 | 0.90 | 24.78 | 134.46 | 0.000 | 0.000 | 1521.34 | 0.00 | 0.00 |
| 8 | 147.00 | Raycap DC6-48-60-18-8C | 1 | 34.051 | 37.456 | 0.80 | 0.80 | 1.01 | 18.00 | 0.000 | 0.000 | 60.41 | 0.00 | 0.00 |
| 9 | 147.00 | Raycap DC6-48-60-18-8F | 1 | 34.051 | 37.456 | 0.80 | 0.80 | 0.74 | 28.62 | 0.000 | 0.000 | 44.11 | 0.00 | 0.00 |
| 10 | 147.00 | Ericsson RRUS 4449 B5, | 3 | 34.051 | 37.456 | 0.54 | 0.80 | 3.17 | 191.70 | 0.000 | 0.000 | 189.84 | 0.00 | 0.00 |
| 11 | 147.00 | Ericsson RRUS 8843 B2 | 3 | 34.051 | 37.456 | 0.54 | 0.80 | 2.64 | 194.40 | 0.000 | 0.000 | 158.04 | 0.00 | 0.00 |
| 12 | 147.00 | Powerwave LGP21903 | 6 | 34.051 | 37.456 | 0.67 | 0.80 | 1.09 | 29.70 | 0.000 | 0.000 | 65.24 | 0.00 | 0.00 |
| 13 | 147.00 | Powerwave LGP21402 | 6 | 34.051 | 37.456 | 0.51 | 0.80 | 3.96 | 76.14 | 0.000 | 0.000 | 237.50 | 0.00 | 0.00 |
| 14 | 147.00 | 800 10965 | 6 | 34.051 | 37.456 | 0.57 | 0.80 | 47.06 | 586.44 | 0.000 | 0.000 | 2820.59 | 0.00 | 0.00 |
| 15 | 147.00 | Low Profile | 1 | 34.051 | 37.456 | 1.00 | 1.00 | 22.00 | 1350.00 | 0.000 | 0.000 | 1318.47 | 0.00 | 0.00 |
| 16 | 147.00 | 7770 | 3 | 34.051 | 37.456 | 0.58 | 0.80 | 9.64 | 94.50 | 0.000 | 0.000 | 577.49 | 0.00 | 0.00 |
| 17 | 137.00 | 1900MHz - RRH | 3 | 33.550 | 36.905 | 0.54 | 0.80 | 6.11 | 118.80 | 0.000 | 0.000 | 360.81 | 0.00 | 0.00 |
| 18 | 137.00 | APXVSP18-C-A20 | 3 | 33.550 | 36.905 | 0.68 | 0.80 | 16.36 | 153.90 | 0.000 | 0.000 | 966.07 | 0.00 | 0.00 |
| 19 | 137.00 | APXVTM14-C-I20 | 3 | 33.550 | 36.905 | 0.69 | 0.80 | 13.09 | 151.20 | 0.000 | 0.000 | 772.69 | 0.00 | 0.00 |
| 20 | 137.00 | 800MHz - RRH | 3 | 33.550 | 36.905 | 0.54 | 0.80 | 4.00 | 143.10 | 0.000 | 0.000 | 236.42 | 0.00 | 0.00 |
| 21 | 137.00 | TD-RRH8x20-25 - RRU | 3 | 33.550 | 36.905 | 0.54 | 0.80 | 6.51 | 189.00 | 0.000 | 0.000 | 384.54 | 0.00 | 0.00 |
| 22 | 137.00 | ACU-A20-N - RET | 4 | 33.550 | 36.905 | 0.62 | 0.80 | 0.35 | 3.60 | 0.000 | 0.000 | 20.63 | 0.00 | 0.00 |
| 23 | 137.00 | ALU - 800MHz Filter | 3 | 33.550 | 36.905 | 0.40 | 0.80 | 0.94 | 23.76 | 0.000 | 0.000 | 55.27 | 0.00 | 0.00 |
| 24 | 137.00 | Low Profile | 1 | 33.550 | 36.905 | 1.00 | 1.00 | 22.00 | 1350.00 | 0.000 | 0.000 | 1299.06 | 0.00 | 0.00 |
| 25 | 75.00 | GPS | 1 | 29.553 | 32.509 | 0.80 | 0.80 | 0.80 | 9.00 | 0.000 | 0.000 | 41.61 | 0.00 | 0.00 |
| 26 | 75.00 | Standoff | 1 | 29.553 | 32.509 | 0.56 | 0.75 | 1.48 | 36.00 | 0.000 | 0.000 | 76.95 | 0.00 | 0.00 |

Totals: 6,896.70

14,618.18

Total Applied Force Summary

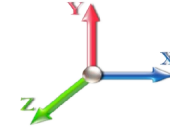
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

| 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 | | 651.94 | 1495.46 | 0.00 | 0.00 |
| 10.00 | | 639.14 | 1468.80 | 0.00 | 0.00 |
| 15.00 | | 626.35 | 1442.15 | 0.00 | 0.00 |
| 20.00 | | 651.00 | 1415.49 | 0.00 | 0.00 |
| 25.00 | | 668.09 | 1388.83 | 0.00 | 0.00 |
| 30.00 | | 679.44 | 1362.18 | 0.00 | 0.00 |
| 35.00 | | 686.58 | 1335.52 | 0.00 | 0.00 |
| 40.00 | | 690.44 | 1308.86 | 0.00 | 0.00 |
| 41.00 | | 136.91 | 258.57 | 0.00 | 0.00 |
| 45.00 | | 561.04 | 1944.83 | 0.00 | 0.00 |
| 48.00 | | 419.68 | 1436.23 | 0.00 | 0.00 |
| 50.00 | | 278.91 | 506.46 | 0.00 | 0.00 |
| 55.00 | | 699.64 | 1247.50 | 0.00 | 0.00 |
| 60.00 | | 695.47 | 1220.84 | 0.00 | 0.00 |
| 65.00 | | 689.89 | 1194.19 | 0.00 | 0.00 |
| 70.00 | | 683.06 | 1167.53 | 0.00 | 0.00 |
| 75.00 | (2) attachments | 793.68 | 1185.87 | 0.00 | 0.00 |
| 80.00 | | 666.18 | 1109.54 | 0.00 | 0.00 |
| 85.00 | | 656.32 | 1082.88 | 0.00 | 0.00 |
| 90.00 | | 656.78 | 1854.68 | 0.00 | 0.00 |
| 91.00 | | 129.42 | 364.99 | 0.00 | 0.00 |
| 95.00 | | 514.85 | 732.23 | 0.00 | 0.00 |
| 100.00 | | 633.41 | 894.73 | 0.00 | 0.00 |
| 105.00 | | 620.70 | 871.88 | 0.00 | 0.00 |
| 108.00 | | 365.34 | 512.16 | 0.00 | 0.00 |
| 110.00 | | 240.61 | 290.57 | 0.00 | 0.00 |
| 115.00 | | 593.46 | 713.10 | 0.00 | 0.00 |
| 120.00 | | 579.00 | 694.06 | 0.00 | 0.00 |
| 125.00 | | 564.03 | 675.02 | 0.00 | 0.00 |
| 130.00 | | 548.57 | 655.98 | 0.00 | 0.00 |
| 135.00 | | 540.74 | 1039.74 | 0.00 | 0.00 |
| 137.00 | (23) attachments | 4306.76 | 2347.01 | 0.00 | 0.00 |
| 140.00 | | 312.21 | 310.55 | 0.00 | 0.00 |
| 145.00 | | 507.73 | 505.41 | 0.00 | 0.00 |
| 147.00 | (30) attachments | 5669.59 | 2767.40 | 0.00 | 0.00 |
| 150.00 | | 291.88 | 249.10 | 0.00 | 0.00 |
| 155.00 | | 473.12 | 402.99 | 0.00 | 0.00 |
| 160.00 | | 455.26 | 387.75 | 0.00 | 0.00 |
| 165.00 | (3) attachments | 1958.39 | 506.98 | 0.00 | 0.00 |
| 167.00 | (13) attachments | 3556.94 | 2153.27 | 0.00 | 0.00 |
| 170.00 | (1) attachments | 272.03 | 181.73 | 0.00 | 0.00 |
| | Totals: | 35,364.58 | 42,683.09 | 0.00 | 0.00 |

Calculated Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

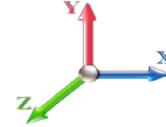


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Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 23

Dead Load Factor 0.90
Wind Load Factor 1.60



| 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 | -42.64 | -35.41 | 0.00 | -3973.1 | 0.00 | 3973.18 | 5803.10 | 2901.55 | 15291.3 | 7657.05 | 0.00 | 0.000 | 0.000 | 0.526 |
| 5.00 | -41.08 | -34.84 | 0.00 | -3796.1 | 0.00 | 3796.13 | 5736.18 | 2868.09 | 14817.2 | 7419.63 | 0.06 | -0.120 | 0.000 | 0.519 |
| 10.00 | -39.54 | -34.28 | 0.00 | -3621.9 | 0.00 | 3621.92 | 5667.41 | 2833.70 | 14345.3 | 7183.34 | 0.26 | -0.241 | 0.000 | 0.511 |
| 15.00 | -38.03 | -33.73 | 0.00 | -3450.5 | 0.00 | 3450.50 | 5596.76 | 2798.38 | 13875.9 | 6948.30 | 0.58 | -0.364 | 0.000 | 0.504 |
| 20.00 | -36.54 | -33.15 | 0.00 | -3281.8 | 0.00 | 3281.85 | 5524.26 | 2762.13 | 13409.4 | 6714.68 | 1.02 | -0.489 | 0.000 | 0.496 |
| 25.00 | -35.09 | -32.55 | 0.00 | -3116.1 | 0.00 | 3116.10 | 5449.89 | 2724.95 | 12945.9 | 6482.61 | 1.60 | -0.615 | 0.000 | 0.487 |
| 30.00 | -33.66 | -31.93 | 0.00 | -2953.3 | 0.00 | 2953.37 | 5373.66 | 2686.83 | 12485.9 | 6252.24 | 2.32 | -0.742 | 0.000 | 0.479 |
| 35.00 | -32.27 | -31.29 | 0.00 | -2793.7 | 0.00 | 2793.74 | 5295.57 | 2647.79 | 12029.5 | 6023.71 | 3.16 | -0.871 | 0.000 | 0.470 |
| 40.00 | -30.93 | -30.62 | 0.00 | -2637.2 | 0.00 | 2637.27 | 5215.62 | 2607.81 | 11577.1 | 5797.18 | 4.15 | -1.001 | 0.000 | 0.461 |
| 41.00 | -30.64 | -30.52 | 0.00 | -2606.6 | 0.00 | 2606.64 | 5199.41 | 2599.70 | 11487.1 | 5752.13 | 4.36 | -1.028 | 0.000 | 0.459 |
| 45.00 | -28.65 | -29.97 | 0.00 | -2484.5 | 0.00 | 2484.57 | 5133.81 | 2566.90 | 11129.0 | 5572.78 | 5.27 | -1.134 | 0.000 | 0.452 |
| 48.00 | -27.19 | -29.55 | 0.00 | -2394.6 | 0.00 | 2394.67 | 5141.90 | 2570.95 | 11172.7 | 5594.66 | 6.01 | -1.215 | 0.000 | 0.433 |
| 50.00 | -26.64 | -29.30 | 0.00 | -2335.5 | 0.00 | 2335.57 | 5108.73 | 2554.36 | 10994.5 | 5505.45 | 6.53 | -1.270 | 0.000 | 0.430 |
| 55.00 | -25.35 | -28.63 | 0.00 | -2189.0 | 0.00 | 2189.05 | 5024.49 | 2512.24 | 10552.4 | 5284.05 | 7.92 | -1.397 | 0.000 | 0.419 |
| 60.00 | -24.08 | -27.96 | 0.00 | -2045.9 | 0.00 | 2045.90 | 4938.39 | 2469.19 | 10115.2 | 5065.12 | 9.46 | -1.525 | 0.000 | 0.409 |
| 65.00 | -22.85 | -27.29 | 0.00 | -1906.1 | 0.00 | 1906.10 | 4850.42 | 2425.21 | 9683.22 | 4848.81 | 11.12 | -1.654 | 0.000 | 0.398 |
| 70.00 | -21.64 | -26.62 | 0.00 | -1769.6 | 0.00 | 1769.66 | 4760.60 | 2380.30 | 9256.75 | 4635.26 | 12.93 | -1.784 | 0.000 | 0.386 |
| 75.00 | -20.42 | -25.83 | 0.00 | -1636.5 | 0.00 | 1636.56 | 4668.91 | 2334.45 | 8836.09 | 4424.61 | 14.86 | -1.914 | 0.000 | 0.374 |
| 80.00 | -19.28 | -25.17 | 0.00 | -1507.3 | 0.00 | 1507.39 | 4575.36 | 2287.68 | 8421.51 | 4217.02 | 16.94 | -2.043 | 0.000 | 0.362 |
| 85.00 | -18.17 | -24.52 | 0.00 | -1381.5 | 0.00 | 1381.53 | 4479.95 | 2239.97 | 8013.32 | 4012.62 | 19.15 | -2.173 | 0.000 | 0.348 |
| 90.00 | -16.31 | -23.81 | 0.00 | -1258.9 | 0.00 | 1258.93 | 4371.20 | 2185.60 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 91.00 | -15.92 | -23.69 | 0.00 | -1235.1 | 0.00 | 1235.12 | 4368.14 | 2181.07 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 95.00 | -15.16 | -23.17 | 0.00 | -1140.3 | 0.00 | 1140.37 | 4357.07 | 2178.93 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 100.00 | -14.24 | -22.54 | 0.00 | -1024.5 | 0.00 | 1024.51 | 4350.29 | 2175.65 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 105.00 | -13.36 | -21.90 | 0.00 | -911.83 | 0.00 | 911.83 | 4342.66 | 2171.33 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 108.00 | -12.84 | -21.53 | 0.00 | -846.12 | 0.00 | 846.12 | 4337.59 | 2168.29 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 108.00 | -12.84 | -21.53 | 0.00 | -846.12 | 0.00 | 846.12 | 4337.59 | 2168.29 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 110.00 | -12.52 | -21.30 | 0.00 | -803.07 | 0.00 | 803.07 | 4332.10 | 2164.20 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 115.00 | -11.79 | -20.70 | 0.00 | -696.59 | 0.00 | 696.59 | 4324.96 | 2159.48 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 120.00 | -11.07 | -20.11 | 0.00 | -593.11 | 0.00 | 593.11 | 4316.85 | 2154.93 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 125.00 | -10.39 | -19.53 | 0.00 | -492.57 | 0.00 | 492.57 | 4307.88 | 2150.44 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 130.00 | -9.73 | -18.97 | 0.00 | -394.91 | 0.00 | 394.91 | 4298.05 | 2146.03 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 135.00 | -8.70 | -18.37 | 0.00 | -300.09 | 0.00 | 300.09 | 4287.27 | 2141.13 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 137.00 | -6.61 | -13.94 | 0.00 | -263.34 | 0.00 | 263.34 | 4274.61 | 2136.31 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 140.00 | -6.30 | -13.61 | 0.00 | -221.53 | 0.00 | 221.53 | 4261.57 | 2131.78 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 145.00 | -5.81 | -13.08 | 0.00 | -153.46 | 0.00 | 153.46 | 4247.10 | 2126.50 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 147.00 | -3.42 | -7.25 | 0.00 | -127.30 | 0.00 | 127.30 | 4231.86 | 2121.93 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 150.00 | -3.18 | -6.94 | 0.00 | -105.56 | 0.00 | 105.56 | 4215.88 | 2117.19 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 155.00 | -2.80 | -6.44 | 0.00 | -70.86 | 0.00 | 70.86 | 4198.29 | 2112.29 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 160.00 | -2.45 | -5.97 | 0.00 | -38.63 | 0.00 | 38.63 | 4179.15 | 2107.07 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 165.00 | -2.07 | -3.98 | 0.00 | -8.81 | 0.00 | 8.81 | 4166.13 | 2103.07 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 167.00 | -0.16 | -0.28 | 0.00 | -0.85 | 0.00 | 0.85 | 4144.01 | 2100.00 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |
| 170.00 | 0.00 | -0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 4100.09 | 2100.04 | 7591.89 | 3801.59 | 21.49 | -2.302 | 0.000 | 0.335 |

Wind Loading - Shaft

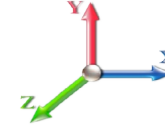
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

| 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 | 28.059 | 33.67 | 191.4 | 501.8 | 2300.2 |
| 10.00 | | 1.00 | 0.85 | 5.168 | 5.68 | 0.00 | 1.200 | 1.331 | 5.00 | 27.603 | 33.12 | 188.3 | 528.1 | 2290.9 |
| 15.00 | | 1.00 | 0.85 | 5.168 | 5.68 | 0.00 | 1.200 | 1.386 | 5.00 | 27.119 | 32.54 | 185.0 | 539.5 | 2266.8 |
| 20.00 | | 1.00 | 0.90 | 5.483 | 6.03 | 0.00 | 1.200 | 1.427 | 5.00 | 26.622 | 31.95 | 192.7 | 544.4 | 2236.2 |
| 25.00 | | 1.00 | 0.95 | 5.747 | 6.32 | 0.00 | 1.200 | 1.459 | 5.00 | 26.118 | 31.34 | 198.1 | 545.5 | 2201.8 |
| 30.00 | | 1.00 | 0.98 | 5.972 | 6.57 | 0.00 | 1.200 | 1.486 | 5.00 | 25.610 | 30.73 | 201.9 | 544.1 | 2164.8 |
| 35.00 | | 1.00 | 1.01 | 6.169 | 6.79 | 0.00 | 1.200 | 1.509 | 5.00 | 25.099 | 30.12 | 204.4 | 540.9 | 2126.1 |
| 40.00 | | 1.00 | 1.04 | 6.345 | 6.98 | 0.00 | 1.200 | 1.529 | 5.00 | 24.586 | 29.50 | 205.9 | 536.4 | 2086.0 |
| 41.00 | Bot - Section 2 | 1.00 | 1.05 | 6.378 | 7.02 | 0.00 | 1.200 | 1.533 | 1.00 | 4.854 | 5.82 | 40.9 | 107.1 | 412.7 |
| 45.00 | | 1.00 | 1.07 | 6.504 | 7.15 | 0.00 | 1.200 | 1.547 | 4.00 | 19.510 | 23.41 | 167.5 | 431.4 | 2868.1 |
| 48.00 | Top - Section 1 | 1.00 | 1.08 | 6.593 | 7.25 | 0.00 | 1.200 | 1.557 | 3.00 | 14.415 | 17.30 | 125.5 | 321.3 | 2118.9 |
| 50.00 | | 1.00 | 1.09 | 6.650 | 7.32 | 0.00 | 1.200 | 1.564 | 2.00 | 9.506 | 11.41 | 83.4 | 213.1 | 810.2 |
| 55.00 | | 1.00 | 1.12 | 6.785 | 7.46 | 0.00 | 1.200 | 1.579 | 5.00 | 23.406 | 28.09 | 209.6 | 525.7 | 1993.5 |
| 60.00 | | 1.00 | 1.14 | 6.910 | 7.60 | 0.00 | 1.200 | 1.592 | 5.00 | 22.887 | 27.46 | 208.8 | 517.9 | 1950.2 |
| 65.00 | | 1.00 | 1.16 | 7.028 | 7.73 | 0.00 | 1.200 | 1.605 | 5.00 | 22.367 | 26.84 | 207.5 | 509.6 | 1906.3 |
| 70.00 | | 1.00 | 1.17 | 7.138 | 7.85 | 0.00 | 1.200 | 1.617 | 5.00 | 21.847 | 26.22 | 205.9 | 500.8 | 1862.0 |
| 75.00 | Appurtenance(s) | 1.00 | 1.19 | 7.243 | 7.97 | 0.00 | 1.200 | 1.628 | 5.00 | 21.326 | 25.59 | 203.9 | 491.6 | 1817.2 |
| 80.00 | | 1.00 | 1.21 | 7.342 | 8.08 | 0.00 | 1.200 | 1.639 | 5.00 | 20.804 | 24.96 | 201.6 | 482.0 | 1772.1 |
| 85.00 | Bot - Section 3 | 1.00 | 1.22 | 7.436 | 8.18 | 0.00 | 1.200 | 1.649 | 5.00 | 20.282 | 24.34 | 199.1 | 472.1 | 1726.6 |
| 90.00 | | 1.00 | 1.24 | 7.526 | 8.28 | 0.00 | 1.200 | 1.658 | 5.00 | 20.077 | 24.09 | 199.5 | 469.6 | 2753.2 |
| 91.00 | Top - Section 2 | 1.00 | 1.24 | 7.544 | 8.30 | 0.00 | 1.200 | 1.660 | 1.00 | 3.952 | 4.74 | 39.4 | 93.5 | 542.3 |
| 95.00 | | 1.00 | 1.25 | 7.612 | 8.37 | 0.00 | 1.200 | 1.667 | 4.00 | 15.601 | 18.72 | 156.8 | 367.3 | 1192.2 |
| 100.00 | | 1.00 | 1.27 | 7.695 | 8.46 | 0.00 | 1.200 | 1.676 | 5.00 | 19.030 | 22.84 | 193.3 | 448.5 | 1452.1 |
| 105.00 | | 1.00 | 1.28 | 7.774 | 8.55 | 0.00 | 1.200 | 1.684 | 5.00 | 18.507 | 22.21 | 189.9 | 437.5 | 1410.7 |
| 108.00 | Top - Section 3 | 1.00 | 1.29 | 7.821 | 8.60 | 0.00 | 1.200 | 1.689 | 3.00 | 10.852 | 13.02 | 112.0 | 258.5 | 827.8 |
| 110.00 | | 1.00 | 1.29 | 7.851 | 8.64 | 0.00 | 1.200 | 1.692 | 2.00 | 7.130 | 8.56 | 73.9 | 170.5 | 482.2 |
| 115.00 | | 1.00 | 1.30 | 7.925 | 8.72 | 0.00 | 1.200 | 1.699 | 5.00 | 17.459 | 20.95 | 182.6 | 415.0 | 1176.5 |
| 120.00 | | 1.00 | 1.32 | 7.996 | 8.80 | 0.00 | 1.200 | 1.707 | 5.00 | 16.934 | 20.32 | 178.7 | 403.4 | 1139.5 |
| 125.00 | | 1.00 | 1.33 | 8.065 | 8.87 | 0.00 | 1.200 | 1.714 | 5.00 | 16.410 | 19.69 | 174.7 | 391.7 | 1102.4 |
| 130.00 | Bot - Section 5 | 1.00 | 1.34 | 8.132 | 8.95 | 0.00 | 1.200 | 1.720 | 5.00 | 15.885 | 19.06 | 170.5 | 379.8 | 1065.1 |
| 135.00 | Top - Section 4 | 1.00 | 1.35 | 8.197 | 9.02 | 0.00 | 1.200 | 1.727 | 5.00 | 15.572 | 18.69 | 168.5 | 373.1 | 1570.1 |
| 137.00 | Appurtenance(s) | 1.00 | 1.35 | 8.222 | 9.04 | 0.00 | 1.200 | 1.729 | 2.00 | 6.081 | 7.30 | 66.0 | 147.3 | 356.4 |
| 140.00 | | 1.00 | 1.36 | 8.260 | 9.09 | 0.00 | 1.200 | 1.733 | 3.00 | 8.964 | 10.76 | 97.7 | 216.5 | 524.2 |
| 145.00 | | 1.00 | 1.37 | 8.321 | 9.15 | 0.00 | 1.200 | 1.739 | 5.00 | 14.521 | 17.43 | 159.5 | 348.6 | 845.0 |
| 147.00 | Appurtenance(s) | 1.00 | 1.37 | 8.345 | 9.18 | 0.00 | 1.200 | 1.742 | 2.00 | 5.661 | 6.79 | 62.4 | 137.4 | 330.3 |
| 150.00 | | 1.00 | 1.38 | 8.381 | 9.22 | 0.00 | 1.200 | 1.745 | 3.00 | 8.334 | 10.00 | 92.2 | 201.7 | 484.9 |
| 155.00 | | 1.00 | 1.39 | 8.439 | 9.28 | 0.00 | 1.200 | 1.751 | 5.00 | 13.470 | 16.16 | 150.0 | 323.5 | 779.4 |
| 160.00 | | 1.00 | 1.40 | 8.495 | 9.34 | 0.00 | 1.200 | 1.757 | 5.00 | 12.944 | 15.53 | 145.2 | 310.8 | 746.3 |
| 165.00 | Appurtenance(s) | 1.00 | 1.41 | 8.551 | 9.41 | 0.00 | 1.200 | 1.762 | 5.00 | 12.418 | 14.90 | 140.2 | 298.0 | 713.2 |
| 167.00 | Appurtenance(s) | 1.00 | 1.41 | 8.572 | 9.43 | 0.00 | 1.200 | 1.764 | 2.00 | 4.819 | 5.78 | 54.5 | 117.1 | 277.5 |
| 170.00 | Appurtenance(s) | 1.00 | 1.42 | 8.604 | 9.46 | 0.00 | 1.200 | 1.767 | 3.00 | 7.072 | 8.49 | 80.3 | 171.0 | 405.5 |
| Totals: | | | | | | | | | 170.00 | | | 6,309.1 | | 57,087.7 |

Discrete Appurtenance Forces

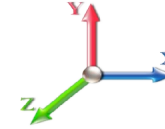
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

| 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 | 170.00 | 6' Lightning rod | 1 | 8.604 | 9.465 | 1.00 | 1.00 | 1.48 | 39.26 | 0.000 | 0.000 | 14.02 | 0.00 | 0.00 |
| 2 | 167.00 | S11B12 - RRU | 3 | 8.572 | 9.429 | 0.55 | 0.80 | 5.81 | 346.36 | 0.000 | 0.000 | 54.79 | 0.00 | 0.00 |
| 3 | 167.00 | Low Profile | 1 | 8.572 | 9.429 | 1.00 | 1.00 | 39.85 | 2823.04 | 0.000 | 0.000 | 375.78 | 0.00 | 0.00 |
| 4 | 167.00 | KRY 112 114-1 - Double | 3 | 8.572 | 9.429 | 0.59 | 0.80 | 1.58 | 62.99 | 0.000 | 0.000 | 14.91 | 0.00 | 0.00 |
| 5 | 167.00 | AIR21 B4A/B2P | 3 | 8.572 | 9.429 | 0.77 | 0.90 | 16.52 | 838.64 | 0.000 | 0.000 | 155.81 | 0.00 | 0.00 |
| 6 | 167.00 | AIR21 B2A/B4P | 3 | 8.572 | 9.429 | 0.77 | 0.90 | 16.52 | 842.60 | 0.000 | 0.000 | 155.81 | 0.00 | 0.00 |
| 7 | 165.00 | LNX-6515DS-A1M | 3 | 8.551 | 9.406 | 0.72 | 0.90 | 31.90 | 677.13 | 0.000 | 0.000 | 300.03 | 0.00 | 0.00 |
| 8 | 147.00 | Raycap DC6-48-60-18-8C | 1 | 8.345 | 9.180 | 0.80 | 0.80 | 1.53 | 61.55 | 0.000 | 0.000 | 14.09 | 0.00 | 0.00 |
| 9 | 147.00 | Raycap DC6-48-60-18-8F | 1 | 8.345 | 9.180 | 0.80 | 0.80 | 1.09 | 82.16 | 0.000 | 0.000 | 9.97 | 0.00 | 0.00 |
| 10 | 147.00 | Ericsson RRUS 4449 B5, | 3 | 8.345 | 9.180 | 0.54 | 0.80 | 4.05 | 374.62 | 0.000 | 0.000 | 37.14 | 0.00 | 0.00 |
| 11 | 147.00 | Ericsson RRUS 8843 B2 | 3 | 8.345 | 9.180 | 0.54 | 0.80 | 3.43 | 363.45 | 0.000 | 0.000 | 31.53 | 0.00 | 0.00 |
| 12 | 147.00 | Powerwave LGP21903 | 6 | 8.345 | 9.180 | 0.67 | 0.80 | 2.69 | 75.66 | 0.000 | 0.000 | 24.68 | 0.00 | 0.00 |
| 13 | 147.00 | Powerwave LGP21402 | 6 | 8.345 | 9.180 | 0.51 | 0.80 | 6.52 | 208.62 | 0.000 | 0.000 | 59.90 | 0.00 | 0.00 |
| 14 | 147.00 | 800 10965 | 6 | 8.345 | 9.180 | 0.57 | 0.80 | 52.44 | 2566.68 | 0.000 | 0.000 | 481.38 | 0.00 | 0.00 |
| 15 | 147.00 | Low Profile | 1 | 8.345 | 9.180 | 1.00 | 1.00 | 39.63 | 2806.27 | 0.000 | 0.000 | 363.75 | 0.00 | 0.00 |
| 16 | 147.00 | 7770 | 3 | 8.345 | 9.180 | 0.58 | 0.80 | 11.50 | 530.52 | 0.000 | 0.000 | 105.55 | 0.00 | 0.00 |
| 17 | 137.00 | 1900MHz - RRH | 3 | 8.222 | 9.044 | 0.55 | 0.80 | 8.57 | 389.34 | 0.000 | 0.000 | 77.55 | 0.00 | 0.00 |
| 18 | 137.00 | APXVSP18-C-A20 | 3 | 8.222 | 9.044 | 0.69 | 0.80 | 22.27 | 570.58 | 0.000 | 0.000 | 201.40 | 0.00 | 0.00 |
| 19 | 137.00 | APXVTM14-C-I20 | 3 | 8.222 | 9.044 | 0.70 | 0.80 | 15.72 | 677.62 | 0.000 | 0.000 | 142.17 | 0.00 | 0.00 |
| 20 | 137.00 | 800MHz - RRH | 3 | 8.222 | 9.044 | 0.55 | 0.80 | 6.00 | 347.38 | 0.000 | 0.000 | 54.27 | 0.00 | 0.00 |
| 21 | 137.00 | TD-RRH8x20-25 - RRU | 3 | 8.222 | 9.044 | 0.55 | 0.80 | 8.04 | 579.78 | 0.000 | 0.000 | 72.72 | 0.00 | 0.00 |
| 22 | 137.00 | ACU-A20-N - RET | 4 | 8.222 | 9.044 | 0.64 | 0.80 | 1.11 | 16.63 | 0.000 | 0.000 | 10.05 | 0.00 | 0.00 |
| 23 | 137.00 | ALU - 800MHz Filter | 3 | 8.222 | 9.044 | 0.44 | 0.80 | 1.88 | 69.13 | 0.000 | 0.000 | 16.97 | 0.00 | 0.00 |
| 24 | 137.00 | Low Profile | 1 | 8.222 | 9.044 | 1.00 | 1.00 | 39.50 | 2797.10 | 0.000 | 0.000 | 357.28 | 0.00 | 0.00 |
| 25 | 75.00 | GPS | 1 | 7.243 | 7.967 | 0.80 | 0.80 | 1.33 | 31.36 | 0.000 | 0.000 | 10.61 | 0.00 | 0.00 |
| 26 | 75.00 | Standoff | 1 | 7.243 | 7.967 | 0.56 | 0.75 | 4.61 | 99.90 | 0.000 | 0.000 | 36.74 | 0.00 | 0.00 |

Totals: 18,278.37

3,178.89

Total Applied Force Summary

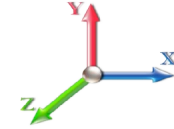
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

| 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 | | 191.41 | 2495.74 | 0.00 | 0.00 |
| 10.00 | | 188.30 | 2486.49 | 0.00 | 0.00 |
| 15.00 | | 185.00 | 2462.38 | 0.00 | 0.00 |
| 20.00 | | 192.69 | 2431.73 | 0.00 | 0.00 |
| 25.00 | | 198.14 | 2397.30 | 0.00 | 0.00 |
| 30.00 | | 201.89 | 2360.37 | 0.00 | 0.00 |
| 35.00 | | 204.39 | 2321.64 | 0.00 | 0.00 |
| 40.00 | | 205.91 | 2281.55 | 0.00 | 0.00 |
| 41.00 | | 40.87 | 451.84 | 0.00 | 0.00 |
| 45.00 | | 167.51 | 3024.51 | 0.00 | 0.00 |
| 48.00 | | 125.45 | 2236.27 | 0.00 | 0.00 |
| 50.00 | | 83.44 | 888.42 | 0.00 | 0.00 |
| 55.00 | | 209.63 | 2189.02 | 0.00 | 0.00 |
| 60.00 | | 208.77 | 2145.70 | 0.00 | 0.00 |
| 65.00 | | 207.49 | 2101.83 | 0.00 | 0.00 |
| 70.00 | | 205.85 | 2057.50 | 0.00 | 0.00 |
| 75.00 | (2) attachments | 251.23 | 2144.00 | 0.00 | 0.00 |
| 80.00 | | 201.62 | 1961.37 | 0.00 | 0.00 |
| 85.00 | | 199.08 | 1915.91 | 0.00 | 0.00 |
| 90.00 | | 199.45 | 2942.54 | 0.00 | 0.00 |
| 91.00 | | 39.35 | 580.17 | 0.00 | 0.00 |
| 95.00 | | 156.76 | 1343.65 | 0.00 | 0.00 |
| 100.00 | | 193.30 | 1641.43 | 0.00 | 0.00 |
| 105.00 | | 189.92 | 1600.01 | 0.00 | 0.00 |
| 108.00 | | 112.03 | 941.38 | 0.00 | 0.00 |
| 110.00 | | 73.88 | 557.96 | 0.00 | 0.00 |
| 115.00 | | 182.63 | 1365.76 | 0.00 | 0.00 |
| 120.00 | | 178.74 | 1328.81 | 0.00 | 0.00 |
| 125.00 | | 174.70 | 1291.69 | 0.00 | 0.00 |
| 130.00 | | 170.51 | 1254.39 | 0.00 | 0.00 |
| 135.00 | | 168.48 | 1759.43 | 0.00 | 0.00 |
| 137.00 | (23) attachments | 998.39 | 5879.71 | 0.00 | 0.00 |
| 140.00 | | 97.74 | 630.62 | 0.00 | 0.00 |
| 145.00 | | 159.50 | 1022.46 | 0.00 | 0.00 |
| 147.00 | (30) attachments | 1190.34 | 7470.84 | 0.00 | 0.00 |
| 150.00 | | 92.19 | 533.81 | 0.00 | 0.00 |
| 155.00 | | 150.04 | 860.84 | 0.00 | 0.00 |
| 160.00 | | 145.15 | 827.82 | 0.00 | 0.00 |
| 165.00 | (3) attachments | 440.19 | 1471.82 | 0.00 | 0.00 |
| 167.00 | (13) attachments | 811.64 | 5223.76 | 0.00 | 0.00 |
| 170.00 | (1) attachments | 94.34 | 444.80 | 0.00 | 0.00 |
| | Totals: | 9,487.96 | 81,327.30 | 0.00 | 0.00 |

Calculated Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

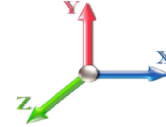


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load 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 | -81.32 | -9.51 | 0.00 | -1046.9 | 0.00 | 1046.90 | 5803.10 | 2901.55 | 15291.3 | 7657.05 | 0.00 | 0.000 | 0.000 | 0.151 |
| 5.00 | -78.82 | -9.36 | 0.00 | -999.35 | 0.00 | 999.35 | 5736.18 | 2868.09 | 14817.2 | 7419.63 | 0.02 | -0.032 | 0.000 | 0.148 |
| 10.00 | -76.33 | -9.21 | 0.00 | -952.54 | 0.00 | 952.54 | 5667.41 | 2833.70 | 14345.3 | 7183.34 | 0.07 | -0.063 | 0.000 | 0.146 |
| 15.00 | -73.86 | -9.07 | 0.00 | -906.47 | 0.00 | 906.47 | 5596.76 | 2798.38 | 13875.9 | 6948.30 | 0.15 | -0.096 | 0.000 | 0.144 |
| 20.00 | -71.43 | -8.91 | 0.00 | -861.13 | 0.00 | 861.13 | 5524.26 | 2762.13 | 13409.4 | 6714.68 | 0.27 | -0.128 | 0.000 | 0.141 |
| 25.00 | -69.03 | -8.75 | 0.00 | -816.58 | 0.00 | 816.58 | 5449.89 | 2724.95 | 12945.9 | 6482.61 | 0.42 | -0.162 | 0.000 | 0.139 |
| 30.00 | -66.66 | -8.58 | 0.00 | -772.84 | 0.00 | 772.84 | 5373.66 | 2686.83 | 12485.9 | 6252.24 | 0.61 | -0.195 | 0.000 | 0.136 |
| 35.00 | -64.34 | -8.40 | 0.00 | -729.96 | 0.00 | 729.96 | 5295.57 | 2647.79 | 12029.5 | 6023.71 | 0.83 | -0.229 | 0.000 | 0.133 |
| 40.00 | -62.05 | -8.21 | 0.00 | -687.95 | 0.00 | 687.95 | 5215.62 | 2607.81 | 11577.1 | 5797.18 | 1.09 | -0.263 | 0.000 | 0.131 |
| 41.00 | -61.60 | -8.18 | 0.00 | -679.74 | 0.00 | 679.74 | 5199.41 | 2599.70 | 11487.1 | 5752.13 | 1.15 | -0.270 | 0.000 | 0.130 |
| 45.00 | -58.57 | -8.03 | 0.00 | -647.01 | 0.00 | 647.01 | 5133.81 | 2566.90 | 11129.0 | 5572.78 | 1.38 | -0.297 | 0.000 | 0.128 |
| 48.00 | -56.33 | -7.91 | 0.00 | -622.93 | 0.00 | 622.93 | 5141.90 | 2570.95 | 11172.7 | 5594.66 | 1.58 | -0.318 | 0.000 | 0.122 |
| 50.00 | -55.44 | -7.84 | 0.00 | -607.12 | 0.00 | 607.12 | 5108.73 | 2554.36 | 10994.5 | 5505.45 | 1.71 | -0.332 | 0.000 | 0.121 |
| 55.00 | -53.25 | -7.65 | 0.00 | -567.91 | 0.00 | 567.91 | 5024.49 | 2512.24 | 10552.4 | 5284.05 | 2.08 | -0.366 | 0.000 | 0.118 |
| 60.00 | -51.10 | -7.46 | 0.00 | -529.67 | 0.00 | 529.67 | 4938.39 | 2469.19 | 10115.2 | 5065.12 | 2.48 | -0.399 | 0.000 | 0.115 |
| 65.00 | -49.00 | -7.26 | 0.00 | -492.39 | 0.00 | 492.39 | 4850.42 | 2425.21 | 9683.22 | 4848.81 | 2.92 | -0.432 | 0.000 | 0.112 |
| 70.00 | -46.94 | -7.07 | 0.00 | -456.09 | 0.00 | 456.09 | 4760.60 | 2380.30 | 9256.75 | 4635.26 | 3.39 | -0.466 | 0.000 | 0.108 |
| 75.00 | -44.79 | -6.82 | 0.00 | -420.76 | 0.00 | 420.76 | 4668.91 | 2334.45 | 8836.09 | 4424.61 | 3.89 | -0.499 | 0.000 | 0.105 |
| 80.00 | -42.83 | -6.63 | 0.00 | -386.64 | 0.00 | 386.64 | 4575.36 | 2287.68 | 8421.51 | 4217.02 | 4.43 | -0.532 | 0.000 | 0.101 |
| 85.00 | -40.91 | -6.44 | 0.00 | -353.50 | 0.00 | 353.50 | 4479.95 | 2239.97 | 8013.32 | 4012.62 | 5.01 | -0.566 | 0.000 | 0.097 |
| 90.00 | -37.97 | -6.22 | 0.00 | -321.32 | 0.00 | 321.32 | 4371.20 | 2185.60 | 7591.89 | 3801.59 | 5.62 | -0.599 | 0.000 | 0.093 |
| 91.00 | -37.39 | -6.18 | 0.00 | -315.10 | 0.00 | 315.10 | 4368.14 | 2181.07 | 7591.89 | 3801.59 | 5.62 | -0.599 | 0.000 | 0.093 |
| 95.00 | -36.04 | -6.03 | 0.00 | -290.37 | 0.00 | 290.37 | 4357.07 | 2178.93 | 7589.03 | 3803.62 | 6.26 | -0.632 | 0.000 | 0.104 |
| 100.00 | -34.40 | -5.84 | 0.00 | -260.21 | 0.00 | 260.21 | 4301.29 | 2150.65 | 7584.19 | 3801.59 | 6.94 | -0.667 | 0.000 | 0.099 |
| 105.00 | -32.80 | -5.65 | 0.00 | -231.00 | 0.00 | 231.00 | 4222.66 | 2111.33 | 7535.26 | 3771.74 | 7.66 | -0.701 | 0.000 | 0.093 |
| 108.00 | -31.86 | -5.53 | 0.00 | -214.06 | 0.00 | 214.06 | 4174.59 | 2087.29 | 7532.40 | 3768.18 | 8.11 | -0.722 | 0.000 | 0.089 |
| 108.00 | -31.86 | -5.53 | 0.00 | -214.06 | 0.00 | 214.06 | 4174.59 | 2087.29 | 7532.40 | 3768.18 | 8.11 | -0.722 | 0.000 | 0.113 |
| 110.00 | -31.30 | -5.47 | 0.00 | -202.99 | 0.00 | 202.99 | 4142.20 | 2072.10 | 7512.60 | 3739.39 | 8.42 | -0.736 | 0.000 | 0.109 |
| 115.00 | -29.93 | -5.29 | 0.00 | -175.65 | 0.00 | 175.65 | 4049.96 | 2029.48 | 7325.36 | 3665.60 | 9.21 | -0.774 | 0.000 | 0.101 |
| 120.00 | -28.60 | -5.11 | 0.00 | -149.22 | 0.00 | 149.22 | 3953.85 | 1961.93 | 7071.54 | 3553.52 | 10.04 | -0.811 | 0.000 | 0.092 |
| 125.00 | -27.31 | -4.93 | 0.00 | -123.69 | 0.00 | 123.69 | 3860.88 | 1894.44 | 6814.44 | 3443.31 | 10.91 | -0.845 | 0.000 | 0.082 |
| 130.00 | -26.06 | -4.75 | 0.00 | -99.04 | 0.00 | 99.04 | 3796.05 | 1848.03 | 6565.33 | 3350.09 | 11.81 | -0.875 | 0.000 | 0.071 |
| 135.00 | -24.30 | -4.56 | 0.00 | -75.28 | 0.00 | 75.28 | 3762.27 | 1811.13 | 6355.65 | 3279.58 | 12.74 | -0.902 | 0.000 | 0.078 |
| 137.00 | -18.43 | -3.48 | 0.00 | -66.15 | 0.00 | 66.15 | 3744.61 | 1802.31 | 6295.82 | 3279.58 | 13.12 | -0.912 | 0.000 | 0.068 |
| 140.00 | -17.80 | -3.38 | 0.00 | -55.71 | 0.00 | 55.71 | 3717.57 | 1798.78 | 6206.74 | 3279.58 | 13.70 | -0.928 | 0.000 | 0.061 |
| 145.00 | -16.78 | -3.20 | 0.00 | -38.84 | 0.00 | 38.84 | 3671.00 | 1798.50 | 6060.16 | 3279.58 | 14.68 | -0.950 | 0.000 | 0.048 |
| 147.00 | -9.33 | -1.89 | 0.00 | -32.43 | 0.00 | 32.43 | 3651.86 | 1825.93 | 6002.25 | 3279.58 | 15.08 | -0.958 | 0.000 | 0.038 |
| 150.00 | -8.80 | -1.79 | 0.00 | -26.76 | 0.00 | 26.76 | 3622.58 | 1811.29 | 5916.22 | 3279.58 | 15.69 | -0.967 | 0.000 | 0.033 |
| 155.00 | -7.94 | -1.63 | 0.00 | -17.80 | 0.00 | 17.80 | 3572.29 | 1786.15 | 5775.21 | 3279.58 | 16.71 | -0.981 | 0.000 | 0.025 |
| 160.00 | -7.12 | -1.47 | 0.00 | -9.66 | 0.00 | 9.66 | 3520.15 | 1760.07 | 5637.42 | 3279.58 | 17.74 | -0.990 | 0.000 | 0.016 |
| 165.00 | -5.65 | -1.00 | 0.00 | -2.31 | 0.00 | 2.31 | 3466.13 | 1733.07 | 5503.13 | 3279.58 | 18.78 | -0.995 | 0.000 | 0.007 |
| 167.00 | -0.44 | -0.10 | 0.00 | -0.31 | 0.00 | 0.31 | 3444.01 | 1722.00 | 5450.46 | 3279.58 | 19.20 | -0.995 | 0.000 | 0.001 |
| 170.00 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 3400.09 | 1700.04 | 5362.73 | 3279.58 | 19.82 | -0.995 | 0.000 | 0.000 |

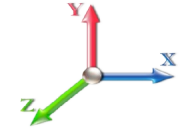
Seismic Segment Forces (Factored)

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| | | | | | | |
|-------------------------------|------|---------------------------------|------|------------|------|---------------------------------------|
| Load Case: 1.2D + 1.0E | | | | | | Iterations 20 |
| Gust Response Factor | 1.10 | | | Sds | 0.19 | Ss 0.18 |
| Dead Load Factor | 1.20 | Seismic Load Factor | 1.00 | Sd1 | 0.10 | S1 0.06 |
| Wind Load Factor | 0.00 | Structure Frequency (f1) | 0.39 | SA | 0.04 | 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 | | 1498.6 | 0.00 | 0.03 | 0.02 | 23.77 | |
| 10.00 | | 1469.0 | 0.01 | 0.05 | 0.03 | 35.04 | |
| 15.00 | | 1439.4 | 0.01 | 0.06 | 0.04 | 40.54 | |
| 20.00 | | 1409.8 | 0.03 | 0.07 | 0.04 | 43.07 | |
| 25.00 | | 1380.2 | 0.04 | 0.07 | 0.04 | 44.09 | |
| 30.00 | | 1350.5 | 0.06 | 0.07 | 0.04 | 44.40 | |
| 35.00 | | 1320.9 | 0.08 | 0.07 | 0.04 | 44.45 | |
| 40.00 | | 1291.3 | 0.10 | 0.07 | 0.04 | 44.40 | |
| 41.00 | Bot - Section 2 | 254.71 | 0.11 | 0.07 | 0.04 | 8.79 | |
| 45.00 | | 2030.5 | 0.13 | 0.07 | 0.03 | 71.23 | |
| 48.00 | Top - Section 1 | 1498.0 | 0.15 | 0.07 | 0.03 | 53.07 | |
| 50.00 | | 497.56 | 0.16 | 0.07 | 0.03 | 17.72 | |
| 55.00 | | 1223.1 | 0.20 | 0.06 | 0.02 | 43.73 | |
| 60.00 | | 1193.5 | 0.24 | 0.06 | 0.02 | 41.96 | |
| 65.00 | | 1163.9 | 0.28 | 0.05 | 0.01 | 38.88 | |
| 70.00 | | 1134.3 | 0.32 | 0.04 | 0.01 | 34.08 | |
| 75.00 | Appurtenance(s) | 1154.6 | 0.37 | 0.03 | 0.01 | 28.46 | |
| 80.00 | | 1075.0 | 0.42 | 0.01 | 0.01 | 18.28 | |
| 85.00 | Bot - Section 3 | 1045.4 | 0.47 | -0.01 | 0.01 | 7.67 | |
| 90.00 | | 1903.0 | 0.53 | -0.03 | 0.01 | -6.74 | |
| 91.00 | Top - Section 2 | 374.00 | 0.54 | -0.03 | 0.01 | -2.15 | |
| 95.00 | | 687.39 | 0.59 | -0.05 | 0.01 | -9.86 | |
| 100.00 | | 836.39 | 0.65 | -0.07 | 0.02 | -19.75 | |
| 105.00 | | 811.01 | 0.72 | -0.09 | 0.03 | -24.45 | |
| 108.00 | Top - Section 3 | 474.42 | 0.76 | -0.10 | 0.04 | -15.38 | |
| 110.00 | | 259.76 | 0.79 | -0.11 | 0.05 | -8.62 | |
| 115.00 | | 634.58 | 0.86 | -0.12 | 0.07 | -20.54 | |
| 120.00 | | 613.43 | 0.94 | -0.12 | 0.10 | -16.92 | |
| 125.00 | | 592.27 | 1.02 | -0.10 | 0.14 | -11.16 | |
| 130.00 | Bot - Section 5 | 571.11 | 1.11 | -0.07 | 0.19 | -3.52 | |
| 135.00 | Top - Section 4 | 997.52 | 1.19 | 0.00 | 0.25 | 10.41 | |
| 137.00 | Appurtenance(s) | 2544.6 | 1.23 | 0.03 | 0.28 | 46.24 | |
| 140.00 | | 256.35 | 1.28 | 0.10 | 0.32 | 7.94 | |
| 145.00 | | 413.71 | 1.37 | 0.24 | 0.41 | 22.94 | |
| 147.00 | Appurtenance(s) | 3015.7 | 1.41 | 0.31 | 0.45 | 200.10 | |
| 150.00 | | 236.04 | 1.47 | 0.43 | 0.51 | 19.81 | |
| 155.00 | | 379.86 | 1.57 | 0.69 | 0.63 | 44.26 | |
| 160.00 | | 362.94 | 1.67 | 1.03 | 0.78 | 55.61 | |
| 165.00 | Appurtenance(s) | 495.41 | 1.78 | 1.45 | 0.94 | 96.21 | |
| 167.00 | Appurtenance(s) | 2365.3 | 1.82 | 1.65 | 1.02 | 500.93 | |
| 170.00 | Appurtenance(s) | 201.92 | 1.89 | 1.98 | 1.14 | 48.35 | |
| Totals: | | 42,458.0 | | | | 1,597.3 | Total Wind: 35,364.6 |

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

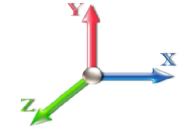
Calculated Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| | | |
|----------------------------------|--------------------------------------|---------------------------------------|
| Load Case: 1.2D + 1.0E | | Iterations 20 |
| Gust Response Factor 1.10 | Sds 0.19 | Ss 0.18 |
| Dead Load Factor 1.20 | Seismic Load Factor 1.00 | S1 0.06 |
| Wind Load Factor 0.00 | Structure Frequency (f1) 0.39 | SA 0.04 |
| | | 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 | -56.91 | -1.74 | 0.00 | -203.06 | 0.00 | 203.06 | 5803.10 | 2901.55 | 15291.3 | 7657.05 | 0.00 | 0.00 | 0.00 | 0.036 |
| 5.00 | -54.92 | -1.72 | 0.00 | -194.37 | 0.00 | 194.37 | 5736.18 | 2868.09 | 14817.2 | 7419.63 | 0.00 | -0.01 | -0.01 | 0.036 |
| 10.00 | -52.96 | -1.69 | 0.00 | -185.77 | 0.00 | 185.77 | 5667.41 | 2833.70 | 14345.3 | 7183.34 | 0.01 | -0.01 | -0.01 | 0.035 |
| 15.00 | -51.03 | -1.66 | 0.00 | -177.32 | 0.00 | 177.32 | 5596.76 | 2798.38 | 13875.9 | 6948.30 | 0.03 | -0.02 | -0.02 | 0.035 |
| 20.00 | -49.15 | -1.62 | 0.00 | -169.04 | 0.00 | 169.04 | 5524.26 | 2762.13 | 13409.4 | 6714.68 | 0.05 | -0.03 | -0.03 | 0.034 |
| 25.00 | -47.30 | -1.58 | 0.00 | -160.96 | 0.00 | 160.96 | 5449.89 | 2724.95 | 12945.9 | 6482.61 | 0.08 | -0.03 | -0.03 | 0.034 |
| 30.00 | -45.48 | -1.54 | 0.00 | -153.07 | 0.00 | 153.07 | 5373.66 | 2686.83 | 12485.9 | 6252.24 | 0.12 | -0.04 | -0.04 | 0.033 |
| 35.00 | -43.70 | -1.50 | 0.00 | -145.38 | 0.00 | 145.38 | 5295.57 | 2647.79 | 12029.5 | 6023.71 | 0.16 | -0.04 | -0.04 | 0.032 |
| 40.00 | -41.95 | -1.45 | 0.00 | -137.90 | 0.00 | 137.90 | 5215.62 | 2607.81 | 11577.1 | 5797.18 | 0.21 | -0.05 | -0.05 | 0.032 |
| 41.00 | -41.61 | -1.45 | 0.00 | -136.45 | 0.00 | 136.45 | 5199.41 | 2599.70 | 11487.1 | 5752.13 | 0.22 | -0.05 | -0.05 | 0.032 |
| 45.00 | -39.02 | -1.38 | 0.00 | -130.66 | 0.00 | 130.66 | 5133.81 | 2566.90 | 11129.0 | 5572.78 | 0.27 | -0.06 | -0.06 | 0.031 |
| 48.00 | -37.10 | -1.32 | 0.00 | -126.53 | 0.00 | 126.53 | 5141.90 | 2570.95 | 11172.7 | 5594.66 | 0.31 | -0.06 | -0.06 | 0.030 |
| 50.00 | -36.42 | -1.31 | 0.00 | -123.88 | 0.00 | 123.88 | 5108.73 | 2554.36 | 10994.5 | 5505.45 | 0.34 | -0.07 | -0.07 | 0.030 |
| 55.00 | -34.76 | -1.27 | 0.00 | -117.34 | 0.00 | 117.34 | 5024.49 | 2512.24 | 10552.4 | 5284.05 | 0.41 | -0.07 | -0.07 | 0.029 |
| 60.00 | -33.13 | -1.23 | 0.00 | -111.00 | 0.00 | 111.00 | 4938.39 | 2469.19 | 10115.2 | 5065.12 | 0.49 | -0.08 | -0.08 | 0.029 |
| 65.00 | -31.54 | -1.19 | 0.00 | -104.87 | 0.00 | 104.87 | 4850.42 | 2425.21 | 9683.22 | 4848.81 | 0.58 | -0.09 | -0.09 | 0.028 |
| 70.00 | -29.98 | -1.16 | 0.00 | -98.92 | 0.00 | 98.92 | 4760.60 | 2380.30 | 9256.75 | 4635.26 | 0.67 | -0.09 | -0.09 | 0.028 |
| 75.00 | -28.40 | -1.13 | 0.00 | -93.14 | 0.00 | 93.14 | 4668.91 | 2334.45 | 8836.09 | 4424.61 | 0.77 | -0.10 | -0.10 | 0.027 |
| 80.00 | -26.92 | -1.11 | 0.00 | -87.49 | 0.00 | 87.49 | 4575.36 | 2287.68 | 8421.51 | 4217.02 | 0.88 | -0.11 | -0.11 | 0.027 |
| 85.00 | -25.48 | -1.10 | 0.00 | -81.93 | 0.00 | 81.93 | 4479.95 | 2239.97 | 8013.32 | 4012.62 | 1.00 | -0.12 | -0.12 | 0.026 |
| 90.00 | -23.01 | -1.10 | 0.00 | -76.41 | 0.00 | 76.41 | 4371.20 | 2185.60 | 7591.89 | 3801.59 | 1.13 | -0.12 | -0.12 | 0.025 |
| 91.00 | -22.52 | -1.10 | 0.00 | -75.30 | 0.00 | 75.30 | 4368.14 | 2181.07 | 7591.89 | 3801.59 | 1.13 | -0.12 | -0.12 | 0.025 |
| 95.00 | -21.54 | -1.10 | 0.00 | -70.90 | 0.00 | 70.90 | 4357.07 | 2178.03 | 7591.89 | 3801.59 | 1.13 | -0.12 | -0.12 | 0.025 |
| 95.00 | -21.54 | -1.10 | 0.00 | -70.90 | 0.00 | 70.90 | 3578.07 | 1789.03 | 6158.09 | 3083.62 | 1.26 | -0.13 | -0.13 | 0.029 |
| 100.00 | -20.35 | -1.10 | 0.00 | -65.38 | 0.00 | 65.38 | 3501.29 | 1750.65 | 5844.19 | 2926.44 | 1.40 | -0.14 | -0.14 | 0.028 |
| 105.00 | -19.19 | -1.10 | 0.00 | -59.87 | 0.00 | 59.87 | 3422.66 | 1711.33 | 5535.26 | 2771.74 | 1.55 | -0.15 | -0.15 | 0.027 |
| 108.00 | -18.50 | -1.10 | 0.00 | -56.56 | 0.00 | 56.56 | 3374.59 | 1687.29 | 5352.40 | 2680.18 | 1.65 | -0.15 | -0.15 | 0.027 |
| 108.00 | -18.50 | -1.10 | 0.00 | -56.56 | 0.00 | 56.56 | 2667.38 | 1333.69 | 4244.39 | 2125.35 | 1.65 | -0.15 | -0.15 | 0.034 |
| 110.00 | -18.12 | -1.10 | 0.00 | -54.35 | 0.00 | 54.35 | 2644.20 | 1322.10 | 4152.60 | 2079.39 | 1.71 | -0.16 | -0.16 | 0.033 |
| 115.00 | -17.17 | -1.10 | 0.00 | -48.83 | 0.00 | 48.83 | 2584.96 | 1292.48 | 3925.36 | 1965.60 | 1.89 | -0.17 | -0.17 | 0.031 |
| 120.00 | -16.24 | -1.10 | 0.00 | -43.31 | 0.00 | 43.31 | 2523.85 | 1261.93 | 3701.54 | 1853.52 | 2.07 | -0.18 | -0.18 | 0.030 |
| 125.00 | -15.34 | -1.10 | 0.00 | -37.79 | 0.00 | 37.79 | 2460.88 | 1230.44 | 3481.44 | 1743.31 | 2.26 | -0.19 | -0.19 | 0.028 |
| 130.00 | -14.47 | -1.10 | 0.00 | -32.27 | 0.00 | 32.27 | 2396.05 | 1198.03 | 3265.33 | 1635.09 | 2.47 | -0.20 | -0.20 | 0.026 |
| 135.00 | -13.08 | -1.09 | 0.00 | -26.76 | 0.00 | 26.76 | 1762.27 | 881.13 | 2355.65 | 1179.58 | 2.68 | -0.21 | -0.21 | 0.030 |
| 137.00 | -9.95 | -1.03 | 0.00 | -24.58 | 0.00 | 24.58 | 1744.61 | 872.31 | 2295.82 | 1149.62 | 2.77 | -0.21 | -0.21 | 0.027 |
| 140.00 | -9.54 | -1.02 | 0.00 | -21.48 | 0.00 | 21.48 | 1717.57 | 858.78 | 2206.74 | 1105.01 | 2.90 | -0.22 | -0.22 | 0.025 |
| 145.00 | -8.86 | -1.00 | 0.00 | -16.36 | 0.00 | 16.36 | 1671.00 | 835.50 | 2060.16 | 1031.61 | 3.13 | -0.23 | -0.23 | 0.021 |
| 147.00 | -5.17 | -0.79 | 0.00 | -14.36 | 0.00 | 14.36 | 1651.86 | 825.93 | 2002.25 | 1002.61 | 3.23 | -0.23 | -0.23 | 0.017 |
| 150.00 | -4.84 | -0.76 | 0.00 | -12.00 | 0.00 | 12.00 | 1622.58 | 811.29 | 1916.22 | 959.54 | 3.38 | -0.23 | -0.23 | 0.015 |
| 155.00 | -4.30 | -0.72 | 0.00 | -8.18 | 0.00 | 8.18 | 1572.29 | 786.15 | 1775.21 | 888.92 | 3.62 | -0.24 | -0.24 | 0.012 |
| 160.00 | -3.79 | -0.66 | 0.00 | -4.58 | 0.00 | 4.58 | 1520.15 | 760.07 | 1637.42 | 819.92 | 3.88 | -0.24 | -0.24 | 0.008 |
| 165.00 | -3.11 | -0.56 | 0.00 | -1.27 | 0.00 | 1.27 | 1466.13 | 733.07 | 1503.13 | 752.68 | 4.14 | -0.25 | -0.25 | 0.004 |
| 167.00 | -0.24 | -0.05 | 0.00 | -0.15 | 0.00 | 0.15 | 1444.01 | 722.00 | 1450.46 | 726.31 | 4.24 | -0.25 | -0.25 | 0.000 |
| 170.00 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 1400.09 | 700.04 | 1362.73 | 682.38 | 4.39 | -0.25 | -0.25 | 0.000 |

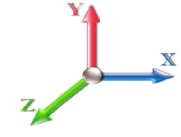
Seismic Segment Forces (Factored)

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| | | | | |
|-------------------------------|------|---------------------------------|------|---------------------------------------|
| Load Case: 0.9D + 1.0E | | | | Iterations 20 |
| Gust Response Factor | 1.10 | Sds | 0.19 | Ss 0.18 |
| Dead Load Factor | 0.90 | Seismic Load Factor | 1.00 | S1 0.06 |
| Wind Load Factor | 0.00 | Structure Frequency (f1) | 0.39 | SA 0.04 |
| | | | | 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 | | 1498.6 | 0.00 | 0.03 | 0.02 | 23.77 | |
| 10.00 | | 1469.0 | 0.01 | 0.05 | 0.03 | 35.04 | |
| 15.00 | | 1439.4 | 0.01 | 0.06 | 0.04 | 40.54 | |
| 20.00 | | 1409.8 | 0.03 | 0.07 | 0.04 | 43.07 | |
| 25.00 | | 1380.2 | 0.04 | 0.07 | 0.04 | 44.09 | |
| 30.00 | | 1350.5 | 0.06 | 0.07 | 0.04 | 44.40 | |
| 35.00 | | 1320.9 | 0.08 | 0.07 | 0.04 | 44.45 | |
| 40.00 | | 1291.3 | 0.10 | 0.07 | 0.04 | 44.40 | |
| 41.00 | Bot - Section 2 | 254.71 | 0.11 | 0.07 | 0.04 | 8.79 | |
| 45.00 | | 2030.5 | 0.13 | 0.07 | 0.03 | 71.23 | |
| 48.00 | Top - Section 1 | 1498.0 | 0.15 | 0.07 | 0.03 | 53.07 | |
| 50.00 | | 497.56 | 0.16 | 0.07 | 0.03 | 17.72 | |
| 55.00 | | 1223.1 | 0.20 | 0.06 | 0.02 | 43.73 | |
| 60.00 | | 1193.5 | 0.24 | 0.06 | 0.02 | 41.96 | |
| 65.00 | | 1163.9 | 0.28 | 0.05 | 0.01 | 38.88 | |
| 70.00 | | 1134.3 | 0.32 | 0.04 | 0.01 | 34.08 | |
| 75.00 | Appurtenance(s) | 1154.6 | 0.37 | 0.03 | 0.01 | 28.46 | |
| 80.00 | | 1075.0 | 0.42 | 0.01 | 0.01 | 18.28 | |
| 85.00 | Bot - Section 3 | 1045.4 | 0.47 | -0.01 | 0.01 | 7.67 | |
| 90.00 | | 1903.0 | 0.53 | -0.03 | 0.01 | -6.74 | |
| 91.00 | Top - Section 2 | 374.00 | 0.54 | -0.03 | 0.01 | -2.15 | |
| 95.00 | | 687.39 | 0.59 | -0.05 | 0.01 | -9.86 | |
| 100.00 | | 836.39 | 0.65 | -0.07 | 0.02 | -19.75 | |
| 105.00 | | 811.01 | 0.72 | -0.09 | 0.03 | -24.45 | |
| 108.00 | Top - Section 3 | 474.42 | 0.76 | -0.10 | 0.04 | -15.38 | |
| 110.00 | | 259.76 | 0.79 | -0.11 | 0.05 | -8.62 | |
| 115.00 | | 634.58 | 0.86 | -0.12 | 0.07 | -20.54 | |
| 120.00 | | 613.43 | 0.94 | -0.12 | 0.10 | -16.92 | |
| 125.00 | | 592.27 | 1.02 | -0.10 | 0.14 | -11.16 | |
| 130.00 | Bot - Section 5 | 571.11 | 1.11 | -0.07 | 0.19 | -3.52 | |
| 135.00 | Top - Section 4 | 997.52 | 1.19 | 0.00 | 0.25 | 10.41 | |
| 137.00 | Appurtenance(s) | 2544.6 | 1.23 | 0.03 | 0.28 | 46.24 | |
| 140.00 | | 256.35 | 1.28 | 0.10 | 0.32 | 7.94 | |
| 145.00 | | 413.71 | 1.37 | 0.24 | 0.41 | 22.94 | |
| 147.00 | Appurtenance(s) | 3015.7 | 1.41 | 0.31 | 0.45 | 200.10 | |
| 150.00 | | 236.04 | 1.47 | 0.43 | 0.51 | 19.81 | |
| 155.00 | | 379.86 | 1.57 | 0.69 | 0.63 | 44.26 | |
| 160.00 | | 362.94 | 1.67 | 1.03 | 0.78 | 55.61 | |
| 165.00 | Appurtenance(s) | 495.41 | 1.78 | 1.45 | 0.94 | 96.21 | |
| 167.00 | Appurtenance(s) | 2365.3 | 1.82 | 1.65 | 1.02 | 500.93 | |
| 170.00 | Appurtenance(s) | 201.92 | 1.89 | 1.98 | 1.14 | 48.35 | |
| Totals: | | 42,458.0 | | | | 1,597.3 | Total Wind: 35,364.6 |

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

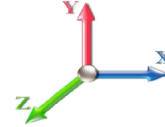
Calculated Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| | | |
|----------------------------------|--------------------------------------|---------------------------------------|
| Load Case: 0.9D + 1.0E | | Iterations 20 |
| Gust Response Factor 1.10 | Sds 0.19 | Ss 0.18 |
| Dead Load Factor 0.90 | Seismic Load Factor 1.00 | S1 0.06 |
| Wind Load Factor 0.00 | Structure Frequency (f1) 0.39 | SA 0.04 |
| | | 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 | -42.68 | -1.74 | 0.00 | -201.43 | 0.00 | 201.43 | 5803.10 | 2901.55 | 15291.3 | 7657.05 | 0.00 | 0.00 | 0.00 | 0.034 |
| 5.00 | -41.19 | -1.72 | 0.00 | -192.74 | 0.00 | 192.74 | 5736.18 | 2868.09 | 14817.2 | 7419.63 | 0.00 | -0.01 | -0.01 | 0.033 |
| 10.00 | -39.72 | -1.69 | 0.00 | -184.15 | 0.00 | 184.15 | 5667.41 | 2833.70 | 14345.3 | 7183.34 | 0.01 | -0.01 | -0.01 | 0.033 |
| 15.00 | -38.28 | -1.65 | 0.00 | -175.72 | 0.00 | 175.72 | 5596.76 | 2798.38 | 13875.9 | 6948.30 | 0.03 | -0.02 | -0.02 | 0.032 |
| 20.00 | -36.86 | -1.61 | 0.00 | -167.46 | 0.00 | 167.46 | 5524.26 | 2762.13 | 13409.4 | 6714.68 | 0.05 | -0.02 | -0.02 | 0.032 |
| 25.00 | -35.47 | -1.57 | 0.00 | -159.41 | 0.00 | 159.41 | 5449.89 | 2724.95 | 12945.9 | 6482.61 | 0.08 | -0.03 | -0.03 | 0.031 |
| 30.00 | -34.11 | -1.53 | 0.00 | -151.56 | 0.00 | 151.56 | 5373.66 | 2686.83 | 12485.9 | 6252.24 | 0.12 | -0.04 | -0.04 | 0.031 |
| 35.00 | -32.77 | -1.49 | 0.00 | -143.92 | 0.00 | 143.92 | 5295.57 | 2647.79 | 12029.5 | 6023.71 | 0.16 | -0.04 | -0.04 | 0.030 |
| 40.00 | -31.46 | -1.44 | 0.00 | -136.48 | 0.00 | 136.48 | 5215.62 | 2607.81 | 11577.1 | 5797.18 | 0.21 | -0.05 | -0.05 | 0.030 |
| 41.00 | -31.21 | -1.44 | 0.00 | -135.04 | 0.00 | 135.04 | 5199.41 | 2599.70 | 11487.1 | 5752.13 | 0.22 | -0.05 | -0.05 | 0.029 |
| 45.00 | -29.26 | -1.37 | 0.00 | -129.29 | 0.00 | 129.29 | 5133.81 | 2566.90 | 11129.0 | 5572.78 | 0.27 | -0.06 | -0.06 | 0.029 |
| 48.00 | -27.82 | -1.31 | 0.00 | -125.19 | 0.00 | 125.19 | 5141.90 | 2570.95 | 11172.7 | 5594.66 | 0.31 | -0.06 | -0.06 | 0.028 |
| 50.00 | -27.32 | -1.30 | 0.00 | -122.57 | 0.00 | 122.57 | 5108.73 | 2554.36 | 10994.5 | 5505.45 | 0.33 | -0.07 | -0.07 | 0.028 |
| 55.00 | -26.07 | -1.26 | 0.00 | -116.08 | 0.00 | 116.08 | 5024.49 | 2512.24 | 10552.4 | 5284.05 | 0.40 | -0.07 | -0.07 | 0.027 |
| 60.00 | -24.85 | -1.21 | 0.00 | -109.80 | 0.00 | 109.80 | 4938.39 | 2469.19 | 10115.2 | 5065.12 | 0.48 | -0.08 | -0.08 | 0.027 |
| 65.00 | -23.66 | -1.18 | 0.00 | -103.73 | 0.00 | 103.73 | 4850.42 | 2425.21 | 9683.22 | 4848.81 | 0.57 | -0.09 | -0.09 | 0.026 |
| 70.00 | -22.49 | -1.14 | 0.00 | -97.85 | 0.00 | 97.85 | 4760.60 | 2380.30 | 9256.75 | 4635.26 | 0.66 | -0.09 | -0.09 | 0.026 |
| 75.00 | -21.30 | -1.12 | 0.00 | -92.13 | 0.00 | 92.13 | 4668.91 | 2334.45 | 8836.09 | 4424.61 | 0.76 | -0.10 | -0.10 | 0.025 |
| 80.00 | -20.19 | -1.10 | 0.00 | -86.55 | 0.00 | 86.55 | 4575.36 | 2287.68 | 8421.51 | 4217.02 | 0.87 | -0.11 | -0.11 | 0.025 |
| 85.00 | -19.11 | -1.09 | 0.00 | -81.05 | 0.00 | 81.05 | 4479.95 | 2239.97 | 8013.32 | 4012.62 | 0.99 | -0.11 | -0.11 | 0.024 |
| 90.00 | -17.25 | -1.09 | 0.00 | -75.60 | 0.00 | 75.60 | 4371.20 | 2185.60 | 7591.89 | 3801.59 | 1.11 | -0.12 | -0.12 | 0.024 |
| 91.00 | -16.89 | -1.09 | 0.00 | -74.51 | 0.00 | 74.51 | 4368.14 | 2181.07 | 7591.89 | 3801.59 | 1.11 | -0.12 | -0.12 | 0.024 |
| 95.00 | -16.16 | -1.09 | 0.00 | -70.15 | 0.00 | 70.15 | 4357.07 | 2178.03 | 7591.89 | 3801.59 | 1.11 | -0.12 | -0.12 | 0.024 |
| 100.00 | -15.26 | -1.09 | 0.00 | -64.70 | 0.00 | 64.70 | 4350.29 | 2175.65 | 7591.89 | 3801.59 | 1.11 | -0.12 | -0.12 | 0.024 |
| 105.00 | -14.39 | -1.09 | 0.00 | -59.25 | 0.00 | 59.25 | 4322.66 | 2171.33 | 7591.89 | 3801.59 | 1.11 | -0.12 | -0.12 | 0.024 |
| 108.00 | -13.88 | -1.09 | 0.00 | -55.99 | 0.00 | 55.99 | 4374.59 | 2187.29 | 7591.89 | 3801.59 | 1.11 | -0.12 | -0.12 | 0.024 |
| 108.00 | -13.88 | -1.09 | 0.00 | -55.99 | 0.00 | 55.99 | 2667.38 | 1333.69 | 4244.39 | 2125.35 | 1.63 | -0.15 | -0.15 | 0.032 |
| 110.00 | -13.59 | -1.09 | 0.00 | -53.81 | 0.00 | 53.81 | 2644.20 | 1322.10 | 4152.60 | 2079.39 | 1.70 | -0.16 | -0.16 | 0.031 |
| 115.00 | -12.87 | -1.09 | 0.00 | -48.36 | 0.00 | 48.36 | 2584.96 | 1292.48 | 3925.36 | 1965.60 | 1.87 | -0.17 | -0.17 | 0.030 |
| 120.00 | -12.18 | -1.09 | 0.00 | -42.90 | 0.00 | 42.90 | 2523.85 | 1261.93 | 3701.54 | 1853.52 | 2.05 | -0.18 | -0.18 | 0.028 |
| 125.00 | -11.50 | -1.09 | 0.00 | -37.45 | 0.00 | 37.45 | 2460.88 | 1230.44 | 3481.44 | 1743.31 | 2.24 | -0.19 | -0.19 | 0.026 |
| 130.00 | -10.85 | -1.09 | 0.00 | -32.00 | 0.00 | 32.00 | 2396.05 | 1198.03 | 3265.33 | 1635.09 | 2.44 | -0.20 | -0.20 | 0.024 |
| 135.00 | -9.81 | -1.08 | 0.00 | -26.54 | 0.00 | 26.54 | 1762.27 | 881.13 | 2355.65 | 1179.58 | 2.65 | -0.21 | -0.21 | 0.028 |
| 137.00 | -7.46 | -1.02 | 0.00 | -24.39 | 0.00 | 24.39 | 1744.61 | 872.31 | 2295.82 | 1149.62 | 2.74 | -0.21 | -0.21 | 0.025 |
| 140.00 | -7.15 | -1.02 | 0.00 | -21.32 | 0.00 | 21.32 | 1717.57 | 858.78 | 2206.74 | 1105.01 | 2.87 | -0.22 | -0.22 | 0.023 |
| 145.00 | -6.65 | -0.99 | 0.00 | -16.25 | 0.00 | 16.25 | 1671.00 | 835.50 | 2060.16 | 1031.61 | 3.10 | -0.22 | -0.22 | 0.020 |
| 147.00 | -3.88 | -0.78 | 0.00 | -14.26 | 0.00 | 14.26 | 1651.86 | 825.93 | 2002.25 | 1002.61 | 3.20 | -0.23 | -0.23 | 0.017 |
| 150.00 | -3.63 | -0.76 | 0.00 | -11.92 | 0.00 | 11.92 | 1622.58 | 811.29 | 1916.22 | 959.54 | 3.34 | -0.23 | -0.23 | 0.015 |
| 155.00 | -3.23 | -0.71 | 0.00 | -8.12 | 0.00 | 8.12 | 1572.29 | 786.15 | 1775.21 | 888.92 | 3.59 | -0.24 | -0.24 | 0.011 |
| 160.00 | -2.84 | -0.66 | 0.00 | -4.55 | 0.00 | 4.55 | 1520.15 | 760.07 | 1637.42 | 819.92 | 3.84 | -0.24 | -0.24 | 0.007 |
| 165.00 | -2.33 | -0.56 | 0.00 | -1.27 | 0.00 | 1.27 | 1466.13 | 733.07 | 1503.13 | 752.68 | 4.10 | -0.24 | -0.24 | 0.003 |
| 167.00 | -0.18 | -0.05 | 0.00 | -0.15 | 0.00 | 0.15 | 1444.01 | 722.00 | 1450.46 | 726.31 | 4.20 | -0.24 | -0.24 | 0.000 |
| 170.00 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 1400.09 | 700.04 | 1362.73 | 682.38 | 4.35 | -0.24 | -0.24 | 0.000 |

Wind Loading - Shaft

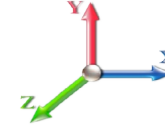
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| 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 | 301.92 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 296.05 | 0.650 | 0.000 | 5.00 | 27.024 | 17.57 | 143.8 | 0.0 | 1498.7 |
| 10.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 290.18 | 0.650 | 0.000 | 5.00 | 26.494 | 17.22 | 141.0 | 0.0 | 1469.1 |
| 15.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 284.31 | 0.650 | 0.000 | 5.00 | 25.964 | 16.88 | 138.2 | 0.0 | 1439.4 |
| 20.00 | | 1.00 | 0.90 | 7.896 | 8.69 | 286.82 | 0.650 | 0.000 | 5.00 | 25.433 | 16.53 | 143.6 | 0.0 | 1409.8 |
| 25.00 | | 1.00 | 0.95 | 8.276 | 9.10 | 287.44 | 0.650 | 0.000 | 5.00 | 24.903 | 16.19 | 147.4 | 0.0 | 1380.2 |
| 30.00 | | 1.00 | 0.98 | 8.600 | 9.46 | 286.71 | 0.650 | 0.000 | 5.00 | 24.372 | 15.84 | 149.9 | 0.0 | 1350.6 |
| 35.00 | | 1.00 | 1.01 | 8.883 | 9.77 | 284.98 | 0.650 | 0.000 | 5.00 | 23.842 | 15.50 | 151.4 | 0.0 | 1321.0 |
| 40.00 | | 1.00 | 1.04 | 9.137 | 10.05 | 282.52 | 0.650 | 0.000 | 5.00 | 23.311 | 15.15 | 152.3 | 0.0 | 1291.3 |
| 41.00 | Bot - Section 2 | 1.00 | 1.05 | 9.184 | 10.10 | 281.95 | 0.650 | 0.000 | 1.00 | 4.599 | 2.99 | 30.2 | 0.0 | 254.7 |
| 45.00 | | 1.00 | 1.07 | 9.366 | 10.30 | 279.46 | 0.650 | 0.000 | 4.00 | 18.479 | 12.01 | 123.7 | 0.0 | 2030.6 |
| 48.00 | Top - Section 1 | 1.00 | 1.08 | 9.494 | 10.44 | 277.39 | 0.650 | 0.000 | 3.00 | 13.636 | 8.86 | 92.6 | 0.0 | 1498.0 |
| 50.00 | | 1.00 | 1.09 | 9.576 | 10.53 | 280.56 | 0.650 | 0.000 | 2.00 | 8.985 | 5.84 | 61.5 | 0.0 | 497.6 |
| 55.00 | | 1.00 | 1.12 | 9.770 | 10.75 | 276.67 | 0.650 | 0.000 | 5.00 | 22.090 | 14.36 | 154.3 | 0.0 | 1223.2 |
| 60.00 | | 1.00 | 1.14 | 9.951 | 10.95 | 272.43 | 0.650 | 0.000 | 5.00 | 21.560 | 14.01 | 153.4 | 0.0 | 1193.5 |
| 65.00 | | 1.00 | 1.16 | 10.120 | 11.13 | 267.89 | 0.650 | 0.000 | 5.00 | 21.030 | 13.67 | 152.2 | 0.0 | 1163.9 |
| 70.00 | | 1.00 | 1.17 | 10.279 | 11.31 | 263.09 | 0.650 | 0.000 | 5.00 | 20.499 | 13.32 | 150.7 | 0.0 | 1134.3 |
| 75.00 | Appurtenance(s) | 1.00 | 1.19 | 10.430 | 11.47 | 258.06 | 0.650 | 0.000 | 5.00 | 19.969 | 12.98 | 148.9 | 0.0 | 1104.7 |
| 80.00 | | 1.00 | 1.21 | 10.572 | 11.63 | 252.83 | 0.650 | 0.000 | 5.00 | 19.438 | 12.63 | 146.9 | 0.0 | 1075.1 |
| 85.00 | Bot - Section 3 | 1.00 | 1.22 | 10.708 | 11.78 | 247.41 | 0.650 | 0.000 | 5.00 | 18.908 | 12.29 | 144.8 | 0.0 | 1045.5 |
| 90.00 | | 1.00 | 1.24 | 10.838 | 11.92 | 241.82 | 0.650 | 0.000 | 5.00 | 18.695 | 12.15 | 144.9 | 0.0 | 1903.0 |
| 91.00 | Top - Section 2 | 1.00 | 1.24 | 10.863 | 11.95 | 240.68 | 0.650 | 0.000 | 1.00 | 3.675 | 2.39 | 28.5 | 0.0 | 374.0 |
| 95.00 | | 1.00 | 1.25 | 10.962 | 12.06 | 240.34 | 0.650 | 0.000 | 4.00 | 14.489 | 9.42 | 113.6 | 0.0 | 687.4 |
| 100.00 | | 1.00 | 1.27 | 11.081 | 12.19 | 234.48 | 0.650 | 0.000 | 5.00 | 17.634 | 11.46 | 139.7 | 0.0 | 836.4 |
| 105.00 | | 1.00 | 1.28 | 11.195 | 12.31 | 228.49 | 0.650 | 0.000 | 5.00 | 17.103 | 11.12 | 136.9 | 0.0 | 811.0 |
| 108.00 | Top - Section 3 | 1.00 | 1.29 | 11.262 | 12.39 | 224.83 | 0.650 | 0.000 | 3.00 | 10.007 | 6.50 | 80.6 | 0.0 | 474.4 |
| 110.00 | | 1.00 | 1.29 | 11.305 | 12.44 | 222.37 | 0.650 | 0.000 | 2.00 | 6.566 | 4.27 | 53.1 | 0.0 | 259.8 |
| 115.00 | | 1.00 | 1.30 | 11.412 | 12.55 | 216.15 | 0.650 | 0.000 | 5.00 | 16.043 | 10.43 | 130.9 | 0.0 | 634.6 |
| 120.00 | | 1.00 | 1.32 | 11.514 | 12.67 | 209.82 | 0.650 | 0.000 | 5.00 | 15.512 | 10.08 | 127.7 | 0.0 | 613.4 |
| 125.00 | | 1.00 | 1.33 | 11.614 | 12.78 | 203.39 | 0.650 | 0.000 | 5.00 | 14.982 | 9.74 | 124.4 | 0.0 | 592.3 |
| 130.00 | Bot - Section 5 | 1.00 | 1.34 | 11.710 | 12.88 | 196.87 | 0.650 | 0.000 | 5.00 | 14.451 | 9.39 | 121.0 | 0.0 | 571.1 |
| 135.00 | Top - Section 4 | 1.00 | 1.35 | 11.803 | 12.98 | 190.27 | 0.650 | 0.000 | 5.00 | 14.132 | 9.19 | 119.3 | 0.0 | 997.5 |
| 137.00 | Appurtenance(s) | 1.00 | 1.35 | 11.840 | 13.02 | 190.55 | 0.650 | 0.000 | 2.00 | 5.504 | 3.58 | 46.6 | 0.0 | 174.3 |
| 140.00 | | 1.00 | 1.36 | 11.894 | 13.08 | 186.54 | 0.650 | 0.000 | 3.00 | 8.098 | 5.26 | 68.9 | 0.0 | 256.4 |
| 145.00 | | 1.00 | 1.37 | 11.982 | 13.18 | 179.78 | 0.650 | 0.000 | 5.00 | 13.072 | 8.50 | 112.0 | 0.0 | 413.7 |
| 147.00 | Appurtenance(s) | 1.00 | 1.37 | 12.017 | 13.22 | 177.06 | 0.650 | 0.000 | 2.00 | 5.080 | 3.30 | 43.6 | 0.0 | 160.7 |
| 150.00 | | 1.00 | 1.38 | 12.068 | 13.27 | 172.95 | 0.650 | 0.000 | 3.00 | 7.461 | 4.85 | 64.4 | 0.0 | 236.0 |
| 155.00 | | 1.00 | 1.39 | 12.152 | 13.37 | 166.05 | 0.650 | 0.000 | 5.00 | 12.011 | 7.81 | 104.4 | 0.0 | 379.9 |
| 160.00 | | 1.00 | 1.40 | 12.233 | 13.46 | 159.08 | 0.650 | 0.000 | 5.00 | 11.480 | 7.46 | 100.4 | 0.0 | 362.9 |
| 165.00 | Appurtenance(s) | 1.00 | 1.41 | 12.313 | 13.54 | 152.05 | 0.650 | 0.000 | 5.00 | 10.950 | 7.12 | 96.4 | 0.0 | 346.0 |
| 167.00 | Appurtenance(s) | 1.00 | 1.41 | 12.344 | 13.58 | 149.22 | 0.650 | 0.000 | 2.00 | 4.231 | 2.75 | 37.3 | 0.0 | 133.7 |
| 170.00 | Appurtenance(s) | 1.00 | 1.42 | 12.390 | 13.63 | 144.96 | 0.650 | 0.000 | 3.00 | 6.188 | 4.02 | 54.8 | 0.0 | 195.4 |
| Totals: | | | | | | | | | 170.00 | | | 4,576.0 | | 34,795.0 |

Discrete Appurtenance Forces

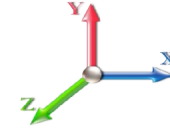
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| 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 | 170.00 | 6' Lightning rod | 1 | 12.390 | 13.629 | 1.00 | 1.00 | 0.38 | 6.50 | 0.000 | 0.000 | 5.18 | 0.00 | 0.00 |
| 2 | 167.00 | S11B12 - RRU | 3 | 12.344 | 13.578 | 0.54 | 0.80 | 4.55 | 153.00 | 0.000 | 0.000 | 61.79 | 0.00 | 0.00 |
| 3 | 167.00 | Low Profile | 1 | 12.344 | 13.578 | 1.00 | 1.00 | 22.00 | 1500.00 | 0.000 | 0.000 | 298.73 | 0.00 | 0.00 |
| 4 | 167.00 | KRY 112 114-1 - Double | 3 | 12.344 | 13.578 | 0.56 | 0.80 | 0.69 | 33.00 | 0.000 | 0.000 | 9.35 | 0.00 | 0.00 |
| 5 | 167.00 | AIR21 B4A/B2P | 3 | 12.344 | 13.578 | 0.77 | 0.90 | 13.98 | 271.20 | 0.000 | 0.000 | 189.78 | 0.00 | 0.00 |
| 6 | 167.00 | AIR21 B2A/B4P | 3 | 12.344 | 13.578 | 0.76 | 0.90 | 13.81 | 274.50 | 0.000 | 0.000 | 187.55 | 0.00 | 0.00 |
| 7 | 165.00 | LNx-6515DS-A1M | 3 | 12.313 | 13.544 | 0.72 | 0.90 | 24.78 | 149.40 | 0.000 | 0.000 | 335.56 | 0.00 | 0.00 |
| 8 | 147.00 | Raycap DC6-48-60-18-8C | 1 | 12.017 | 13.219 | 0.80 | 0.80 | 1.01 | 20.00 | 0.000 | 0.000 | 13.32 | 0.00 | 0.00 |
| 9 | 147.00 | Raycap DC6-48-60-18-8F | 1 | 12.017 | 13.219 | 0.80 | 0.80 | 0.74 | 31.80 | 0.000 | 0.000 | 9.73 | 0.00 | 0.00 |
| 10 | 147.00 | Ericsson RRUS 4449 B5, | 3 | 12.017 | 13.219 | 0.54 | 0.80 | 3.17 | 213.00 | 0.000 | 0.000 | 41.87 | 0.00 | 0.00 |
| 11 | 147.00 | Ericsson RRUS 8843 B2 | 3 | 12.017 | 13.219 | 0.54 | 0.80 | 2.64 | 216.00 | 0.000 | 0.000 | 34.86 | 0.00 | 0.00 |
| 12 | 147.00 | Powerwave LGP21903 | 6 | 12.017 | 13.219 | 0.67 | 0.80 | 1.09 | 33.00 | 0.000 | 0.000 | 14.39 | 0.00 | 0.00 |
| 13 | 147.00 | Powerwave LGP21402 | 6 | 12.017 | 13.219 | 0.51 | 0.80 | 3.96 | 84.60 | 0.000 | 0.000 | 52.38 | 0.00 | 0.00 |
| 14 | 147.00 | 800 10965 | 6 | 12.017 | 13.219 | 0.57 | 0.80 | 47.06 | 651.60 | 0.000 | 0.000 | 622.13 | 0.00 | 0.00 |
| 15 | 147.00 | Low Profile | 1 | 12.017 | 13.219 | 1.00 | 1.00 | 22.00 | 1500.00 | 0.000 | 0.000 | 290.81 | 0.00 | 0.00 |
| 16 | 147.00 | 7770 | 3 | 12.017 | 13.219 | 0.58 | 0.80 | 9.64 | 105.00 | 0.000 | 0.000 | 127.37 | 0.00 | 0.00 |
| 17 | 137.00 | 1900MHz - RRH | 3 | 11.840 | 13.024 | 0.54 | 0.80 | 6.11 | 132.00 | 0.000 | 0.000 | 79.58 | 0.00 | 0.00 |
| 18 | 137.00 | APXVSP18-C-A20 | 3 | 11.840 | 13.024 | 0.68 | 0.80 | 16.36 | 171.00 | 0.000 | 0.000 | 213.08 | 0.00 | 0.00 |
| 19 | 137.00 | APXVTM14-C-I20 | 3 | 11.840 | 13.024 | 0.69 | 0.80 | 13.09 | 168.00 | 0.000 | 0.000 | 170.43 | 0.00 | 0.00 |
| 20 | 137.00 | 800MHz - RRH | 3 | 11.840 | 13.024 | 0.54 | 0.80 | 4.00 | 159.00 | 0.000 | 0.000 | 52.15 | 0.00 | 0.00 |
| 21 | 137.00 | TD-RRH8x20-25 - RRU | 3 | 11.840 | 13.024 | 0.54 | 0.80 | 6.51 | 210.00 | 0.000 | 0.000 | 84.82 | 0.00 | 0.00 |
| 22 | 137.00 | ACU-A20-N - RET | 4 | 11.840 | 13.024 | 0.62 | 0.80 | 0.35 | 4.00 | 0.000 | 0.000 | 4.55 | 0.00 | 0.00 |
| 23 | 137.00 | ALU - 800MHz Filter | 3 | 11.840 | 13.024 | 0.40 | 0.80 | 0.94 | 26.40 | 0.000 | 0.000 | 12.19 | 0.00 | 0.00 |
| 24 | 137.00 | Low Profile | 1 | 11.840 | 13.024 | 1.00 | 1.00 | 22.00 | 1500.00 | 0.000 | 0.000 | 286.53 | 0.00 | 0.00 |
| 25 | 75.00 | GPS | 1 | 10.430 | 11.473 | 0.80 | 0.80 | 0.80 | 10.00 | 0.000 | 0.000 | 9.18 | 0.00 | 0.00 |
| 26 | 75.00 | Standoff | 1 | 10.430 | 11.473 | 0.56 | 0.75 | 1.48 | 40.00 | 0.000 | 0.000 | 16.97 | 0.00 | 0.00 |

Totals: 7,663.00

3,224.28

Total Applied Force Summary

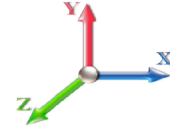
| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| Elev (ft) | Description | Lateral FX (-) (lb) | Axial FY (-) (lb) | Torsion MY (lb-ft) | Moment MZ (lb-ft) |
|--------------|------------------|---------------------------|-------------------------|--------------------------|-------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | | 143.80 | 1661.62 | 0.00 | 0.00 |
| 10.00 | | 140.97 | 1632.00 | 0.00 | 0.00 |
| 15.00 | | 138.15 | 1602.38 | 0.00 | 0.00 |
| 20.00 | | 143.59 | 1572.77 | 0.00 | 0.00 |
| 25.00 | | 147.36 | 1543.15 | 0.00 | 0.00 |
| 30.00 | | 149.86 | 1513.53 | 0.00 | 0.00 |
| 35.00 | | 151.44 | 1483.91 | 0.00 | 0.00 |
| 40.00 | | 152.29 | 1454.29 | 0.00 | 0.00 |
| 41.00 | | 30.20 | 287.30 | 0.00 | 0.00 |
| 45.00 | | 123.75 | 2160.92 | 0.00 | 0.00 |
| 48.00 | | 92.57 | 1595.81 | 0.00 | 0.00 |
| 50.00 | | 61.52 | 562.74 | 0.00 | 0.00 |
| 55.00 | | 154.32 | 1386.11 | 0.00 | 0.00 |
| 60.00 | | 153.40 | 1356.49 | 0.00 | 0.00 |
| 65.00 | | 152.17 | 1326.88 | 0.00 | 0.00 |
| 70.00 | | 150.66 | 1297.26 | 0.00 | 0.00 |
| 75.00 | (2) attachments | 175.06 | 1317.64 | 0.00 | 0.00 |
| 80.00 | | 146.94 | 1232.82 | 0.00 | 0.00 |
| 85.00 | | 144.76 | 1203.20 | 0.00 | 0.00 |
| 90.00 | | 144.86 | 2060.75 | 0.00 | 0.00 |
| 91.00 | | 28.55 | 405.55 | 0.00 | 0.00 |
| 95.00 | | 113.56 | 813.59 | 0.00 | 0.00 |
| 100.00 | | 139.71 | 994.14 | 0.00 | 0.00 |
| 105.00 | | 136.90 | 968.76 | 0.00 | 0.00 |
| 108.00 | | 80.58 | 569.07 | 0.00 | 0.00 |
| 110.00 | | 53.07 | 322.86 | 0.00 | 0.00 |
| 115.00 | | 130.90 | 792.33 | 0.00 | 0.00 |
| 120.00 | | 127.71 | 771.18 | 0.00 | 0.00 |
| 125.00 | | 124.41 | 750.02 | 0.00 | 0.00 |
| 130.00 | | 121.00 | 728.86 | 0.00 | 0.00 |
| 135.00 | | 119.27 | 1155.27 | 0.00 | 0.00 |
| 137.00 | (23) attachments | 949.93 | 2607.79 | 0.00 | 0.00 |
| 140.00 | | 68.86 | 345.06 | 0.00 | 0.00 |
| 145.00 | | 111.99 | 561.56 | 0.00 | 0.00 |
| 147.00 | (30) attachments | 1250.52 | 3074.89 | 0.00 | 0.00 |
| 150.00 | | 64.38 | 276.78 | 0.00 | 0.00 |
| 155.00 | | 104.36 | 447.76 | 0.00 | 0.00 |
| 160.00 | | 100.42 | 430.84 | 0.00 | 0.00 |
| 165.00 | (3) attachments | 431.95 | 563.31 | 0.00 | 0.00 |
| 167.00 | (13) attachments | 784.54 | 2392.53 | 0.00 | 0.00 |
| 170.00 | (1) attachments | 60.00 | 201.92 | 0.00 | 0.00 |
| | Totals: | 7,800.24 | 47,425.65 | 0.00 | 0.00 |

Calculated Forces

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

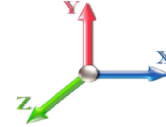


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00
Wind Load 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 | -47.42 | -7.81 | 0.00 | -879.06 | 0.00 | 879.06 | 5803.10 | 2901.55 | 15291.3 | 7657.05 | 0.00 | 0.000 | 0.000 | 0.123 |
| 5.00 | -45.76 | -7.69 | 0.00 | -840.01 | 0.00 | 840.01 | 5736.18 | 2868.09 | 14817.2 | 7419.63 | 0.01 | -0.027 | 0.000 | 0.121 |
| 10.00 | -44.12 | -7.57 | 0.00 | -801.57 | 0.00 | 801.57 | 5667.41 | 2833.70 | 14345.3 | 7183.34 | 0.06 | -0.053 | 0.000 | 0.119 |
| 15.00 | -42.52 | -7.45 | 0.00 | -763.73 | 0.00 | 763.73 | 5596.76 | 2798.38 | 13875.9 | 6948.30 | 0.13 | -0.081 | 0.000 | 0.118 |
| 20.00 | -40.94 | -7.32 | 0.00 | -726.50 | 0.00 | 726.50 | 5524.26 | 2762.13 | 13409.4 | 6714.68 | 0.23 | -0.108 | 0.000 | 0.116 |
| 25.00 | -39.39 | -7.19 | 0.00 | -689.89 | 0.00 | 689.89 | 5449.89 | 2724.95 | 12945.9 | 6482.61 | 0.35 | -0.136 | 0.000 | 0.114 |
| 30.00 | -37.88 | -7.05 | 0.00 | -653.95 | 0.00 | 653.95 | 5373.66 | 2686.83 | 12485.9 | 6252.24 | 0.51 | -0.164 | 0.000 | 0.112 |
| 35.00 | -36.39 | -6.92 | 0.00 | -618.67 | 0.00 | 618.67 | 5295.57 | 2647.79 | 12029.5 | 6023.71 | 0.70 | -0.193 | 0.000 | 0.110 |
| 40.00 | -34.94 | -6.77 | 0.00 | -584.09 | 0.00 | 584.09 | 5215.62 | 2607.81 | 11577.1 | 5797.18 | 0.92 | -0.222 | 0.000 | 0.107 |
| 41.00 | -34.65 | -6.75 | 0.00 | -577.32 | 0.00 | 577.32 | 5199.41 | 2599.70 | 11487.1 | 5752.13 | 0.96 | -0.228 | 0.000 | 0.107 |
| 45.00 | -32.48 | -6.63 | 0.00 | -550.33 | 0.00 | 550.33 | 5133.81 | 2566.90 | 11129.0 | 5572.78 | 1.17 | -0.251 | 0.000 | 0.105 |
| 48.00 | -30.89 | -6.53 | 0.00 | -530.46 | 0.00 | 530.46 | 5141.90 | 2570.95 | 11172.7 | 5594.66 | 1.33 | -0.269 | 0.000 | 0.101 |
| 50.00 | -30.32 | -6.48 | 0.00 | -517.39 | 0.00 | 517.39 | 5108.73 | 2554.36 | 10994.5 | 5505.45 | 1.44 | -0.281 | 0.000 | 0.100 |
| 55.00 | -28.93 | -6.33 | 0.00 | -484.98 | 0.00 | 484.98 | 5024.49 | 2512.24 | 10552.4 | 5284.05 | 1.75 | -0.309 | 0.000 | 0.098 |
| 60.00 | -27.58 | -6.19 | 0.00 | -453.31 | 0.00 | 453.31 | 4938.39 | 2469.19 | 10115.2 | 5065.12 | 2.09 | -0.338 | 0.000 | 0.095 |
| 65.00 | -26.25 | -6.04 | 0.00 | -422.38 | 0.00 | 422.38 | 4850.42 | 2425.21 | 9683.22 | 4848.81 | 2.46 | -0.366 | 0.000 | 0.093 |
| 70.00 | -24.95 | -5.89 | 0.00 | -392.19 | 0.00 | 392.19 | 4760.60 | 2380.30 | 9256.75 | 4635.26 | 2.86 | -0.395 | 0.000 | 0.090 |
| 75.00 | -23.63 | -5.72 | 0.00 | -362.72 | 0.00 | 362.72 | 4668.91 | 2334.45 | 8836.09 | 4424.61 | 3.29 | -0.424 | 0.000 | 0.087 |
| 80.00 | -22.39 | -5.57 | 0.00 | -334.13 | 0.00 | 334.13 | 4575.36 | 2287.68 | 8421.51 | 4217.02 | 3.75 | -0.453 | 0.000 | 0.084 |
| 85.00 | -21.19 | -5.43 | 0.00 | -306.25 | 0.00 | 306.25 | 4479.95 | 2239.97 | 8013.32 | 4012.62 | 4.24 | -0.481 | 0.000 | 0.081 |
| 90.00 | -19.13 | -5.27 | 0.00 | -279.10 | 0.00 | 279.10 | 4371.20 | 2185.60 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.078 |
| 91.00 | -18.72 | -5.25 | 0.00 | -273.83 | 0.00 | 273.83 | 4368.14 | 2181.07 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.078 |
| 95.00 | -17.91 | -5.13 | 0.00 | -252.84 | 0.00 | 252.84 | 4357.07 | 2178.93 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.078 |
| 100.00 | -16.91 | -4.99 | 0.00 | -227.17 | 0.00 | 227.17 | 4350.29 | 2175.65 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.078 |
| 105.00 | -15.94 | -4.85 | 0.00 | -202.21 | 0.00 | 202.21 | 4322.66 | 2171.33 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.078 |
| 108.00 | -15.37 | -4.77 | 0.00 | -187.65 | 0.00 | 187.65 | 4374.59 | 2168.29 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.075 |
| 108.00 | -15.37 | -4.77 | 0.00 | -187.65 | 0.00 | 187.65 | 4374.59 | 2168.29 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.075 |
| 110.00 | -15.05 | -4.72 | 0.00 | -178.10 | 0.00 | 178.10 | 4324.20 | 2164.20 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.075 |
| 115.00 | -14.25 | -4.59 | 0.00 | -154.50 | 0.00 | 154.50 | 4258.96 | 2129.48 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.084 |
| 120.00 | -13.48 | -4.46 | 0.00 | -131.56 | 0.00 | 131.56 | 4253.85 | 2126.93 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.076 |
| 125.00 | -12.73 | -4.33 | 0.00 | -109.27 | 0.00 | 109.27 | 4260.88 | 2123.44 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.068 |
| 130.00 | -12.00 | -4.21 | 0.00 | -87.61 | 0.00 | 87.61 | 4239.05 | 2119.83 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.059 |
| 135.00 | -10.85 | -4.08 | 0.00 | -66.57 | 0.00 | 66.57 | 4262.27 | 2118.13 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.063 |
| 137.00 | -8.25 | -3.09 | 0.00 | -58.42 | 0.00 | 58.42 | 4244.61 | 2117.31 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.056 |
| 140.00 | -7.91 | -3.02 | 0.00 | -49.15 | 0.00 | 49.15 | 4217.57 | 2117.78 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.049 |
| 145.00 | -7.35 | -2.90 | 0.00 | -34.05 | 0.00 | 34.05 | 4217.00 | 2117.00 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.037 |
| 147.00 | -4.29 | -1.61 | 0.00 | -28.25 | 0.00 | 28.25 | 4216.86 | 2117.00 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.031 |
| 150.00 | -4.01 | -1.54 | 0.00 | -23.42 | 0.00 | 23.42 | 4216.58 | 2117.29 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.027 |
| 155.00 | -3.57 | -1.43 | 0.00 | -15.72 | 0.00 | 15.72 | 4217.29 | 2117.29 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.020 |
| 160.00 | -3.14 | -1.32 | 0.00 | -8.57 | 0.00 | 8.57 | 4217.15 | 2117.07 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.013 |
| 165.00 | -2.58 | -0.88 | 0.00 | -1.96 | 0.00 | 1.96 | 4216.13 | 2117.07 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.004 |
| 167.00 | -0.20 | -0.06 | 0.00 | -0.19 | 0.00 | 0.19 | 4216.01 | 2117.00 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.000 |
| 170.00 | 0.00 | -0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 4216.09 | 2117.04 | 7591.89 | 3801.59 | 4.76 | -0.510 | 0.000 | 0.000 |

Final Analysis Summary

| | | |
|---------------------------------------|-----------------------------------|-------------------------|
| Structure: CT04066-S-SBA | Code: EIA/TIA-222-G | 2/4/2019 |
| Site Name: North Branford East | Exposure: C | |
| Height: 170.00 (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

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 101 mph Wind | 35.4 | 0.00 | 56.87 | 0.00 | 0.00 | 4003.44 |
| 0.9D + 1.6W 101 mph Wind | 35.4 | 0.00 | 42.64 | 0.00 | 0.00 | 3973.18 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 9.5 | 0.00 | 81.32 | 0.00 | 0.00 | 1046.90 |
| 1.2D + 1.0E | 1.7 | 0.00 | 56.91 | 0.00 | 0.00 | 203.06 |
| 0.9D + 1.0E | 1.7 | 0.00 | 42.68 | 0.00 | 0.00 | 201.43 |
| 1.0D + 1.0W 60 mph Wind | 7.8 | 0.00 | 47.42 | 0.00 | 0.00 | 879.06 |

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 101 mph Wind | -56.87 | -35.43 | 0.00 | -4003.4 | 0.00 | -4003.4 | 5803.10 | 2901.5 | 15291.3 | 7657.05 | 0.00 | 0.533 |
| 0.9D + 1.6W 101 mph Wind | -42.64 | -35.41 | 0.00 | -3973.1 | 0.00 | -3973.1 | 5803.10 | 2901.5 | 15291.3 | 7657.05 | 0.00 | 0.526 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | -81.32 | -9.51 | 0.00 | -1046.9 | 0.00 | -1046.9 | 5803.10 | 2901.5 | 15291.3 | 7657.05 | 0.00 | 0.151 |
| 1.2D + 1.0E | -56.91 | -1.74 | 0.00 | -203.06 | 0.00 | -203.06 | 5803.10 | 2901.5 | 15291.3 | 7657.05 | 0.00 | 0.036 |
| 0.9D + 1.0E | -42.68 | -1.74 | 0.00 | -201.43 | 0.00 | -201.43 | 5803.10 | 2901.5 | 15291.3 | 7657.05 | 0.00 | 0.034 |
| 1.0D + 1.0W 60 mph Wind | -47.42 | -7.81 | 0.00 | -879.06 | 0.00 | -879.06 | 5803.10 | 2901.5 | 15291.3 | 7657.05 | 0.00 | 0.123 |



Monopole Mat Foundation Design

Date

2/4/2019

| | | | |
|-----------------------|---------------|--------------------------------|-----------|
| Customer Name: | AT&T | EIA/TIA Standard: | EIA-222-G |
| Site Name: | | Structure Height (Ft.): | 170 |
| Site Number: | CT04066-S-SBA | Engineer Name: | T. Alajaj |
| Engr. Number: | 69150 | Engineer Login ID: | |

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

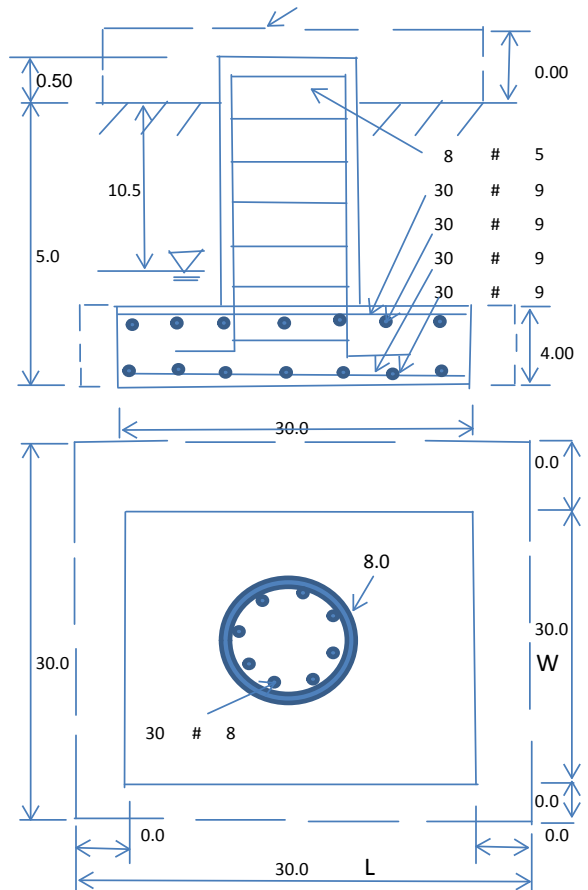
Base Reactions (Factored):

| | | | |
|----------------------|------|---------------------|--------|
| Axial Load (Kips): | 81.3 | Shear Force (Kips): | 35.4 |
| Uplift Force (Kips): | 0.0 | Moment (Kips-ft): | 4003.4 |

Allowable overstress %: 5.0%

Foundation Geometries:

| | | | |
|-----------------------------|------|-----------------------------|------|
| | | Mods required -Yes/No ?: | No |
| Diameter of Pier (ft.): | 8.0 | Depth of Base BG (ft.): | 5.0 |
| Pier Height A. G. (ft.): | 0.50 | Thickness of Pad (ft): | 4.00 |
| Length of Pad (ft.): | 30 | Width of Pad (ft.): | 30 |
| Final Length of pad (ft) | 30.0 | Final width of pad (ft): | 30.0 |
| Control Value for Cell D18: | 0 | Control Value for Cell F18: | 0 |



Material Properties and Rebar Info:

| | | | | |
|--|------|---------------------------|-------|-----|
| Concrete Strength (psi): | 3000 | Steel Elastic Modulus: | 29000 | ksi |
| Vertical bar yield (ksi) | 60 | Tie steel yield (ksi): | 60 | |
| Vertical Rebar Size #: | 8 | Tie / Stirrup Size #: | 5 | |
| Qty. of Vertical Rebars: | 30 | Tie Spacing (in): | 9.0 | |
| Pad Rebar Yield (Ksi): | 60 | Pad Steel Rebar Size (#): | 9 | |
| Concrete Cover (in.): | 4 | Unit Weight of Concrete: | 150.0 | pcf |
| Rebar at the bottom of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 30 | Qty. of Rebar in Pad (W): | 30 | |
| Rebar at the top of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 30 | Qty. of Rebar in Pad (W): | 30 | |

Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

| | | | | |
|--------------------------------------|-------|--|------|-----|
| Soil Unit Weight (pcf): | 120.0 | Soil Buoyant Weight: | 37.6 | Pcf |
| Water Table B.G.S. (ft): | 10.5 | Unit Weight of Water: | 62.4 | pcf |
| Ultimate Bearing Pressure (psf): | 80000 | Ultimate Skin Friction: | 0 | Psf |
| Consider Friction for O.T.M. (Y/N): | No | Consider Friction for bearing (Y/N): | No | |
| Consider soil hor. resist. for OTM.: | Yes | Reduction factor on the maximum soil bearing pressure: | 1.00 | |
| | | Angle from Top of Pad: | 30 | |
| | | Angle from Bottm of Pad: | 25 | |
| | | Angle from Bottm of Pad: | 25 | |

Foundation Analysis and Design:

| | | | |
|--|---------|--|--------|
| Uplift Strength Reduction Factor: | 0.75 | Compression Strength Reduction Factor: | 0.75 |
| Total Dry Soil Volume (cu. Ft.): | 849.73 | Total Dry Soil Weight (Kips): | 101.97 |
| Total Buoyant Soil Volume (cu. Ft.): | 0.00 | Total Buoyant Soil Weight (Kips): | 0.00 |
| Total Effective Soil Weight (Kips): | 101.97 | Weight from the Concrete Block at Top (K): | 0.00 |
| Total Dry Concrete Volume (cu. Ft.): | 3675.40 | Total Dry Concrete Weight (Kips): | 551.31 |
| Total Buoyant Concrete Volume (cu. Ft.): | 0.00 | Total Buoyant Concrete Weight (Kips): | 0.00 |
| Total Effective Concrete Weight (Kips): | 551.31 | Total Vertical Load on Base (Kips): | 734.58 |

Check Soil Capacities:

| | | | | | | |
|--|---------|---|--|-------|------|-----|
| Calculated Maxium Net Soil Pressure under the base (psf): | 1767 | < | Allowable Factored Soil Bearing (psf): | 60000 | 0.03 | OK! |
| Allowable Foundation Overturning Resistance (kips-ft.): | 10038.8 | > | Design Factored Momont (kips-ft): | 4058 | 0.40 | OK! |
| Factor of Safety Against Overturning (O. R. Moment/Design Moment): | 2.47 | | | | | OK! |

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension): 0.90 Strength reduction factor (Shear): 0.75
 Strength reduction factor (Axial compression): 0.65 Wind Load Factor on Concrete Design: 1.00

Load/
Capacity
Ratio**(1) Concrete Pier:**

| | | | | | |
|---|--------|------------------------------------|---------------------------------------|--------|----------|
| Vertical Steel Rebar Area (sq. in./each): | 0.79 | Tie / Stirrup Area (sq. in./each): | 0.31 | | |
| Calculated Moment Capacity (Mn,Kips-Ft): | 4665.7 | > | Design Factored Moment (Mu, Kips-F | 4056.5 | 0.87 OK! |
| Calculated Shear Capacity (Kips): | 912.1 | > | Design Factored Shear (Kips): | 35.4 | 0.04 OK! |
| Calculated Tension Capacity (Tn, Kips): | 1279.8 | > | Design Factored Tension (Tu Kips): | 0.0 | 0.00 OK! |
| Calculated Compression Capacity (Pn, Kips): | 9566.5 | > | Design Factored Axial Load (Pu Kips): | 81.3 | 0.01 OK! |
| Moment & Axial Strength Combination: | 0.87 | OK! | Check Tie Spacing (Design/Required): | 0.75 | OK! |
| Pier Reinforcement Ratio: | 0.003 | | Reinforcement Ratio is too small | | |

(2).Concrete Pad:

| | | | | | |
|---|--------|-----|---------------------------------------|--------|----------|
| One-Way Design Shear Capacity (L-Direction, Kips): | 1284.8 | > | One-Way Factored Shear (L-D. Kips): | 242.4 | 0.19 OK! |
| One-Way Design Shear Capacity (W-Direction, Kips): | 1284.8 | > | One-Way Factored Shear (W-D., Kips) | 242.4 | 0.19 OK! |
| One-Way Design Shear Capacity (Corner-Corner. Kips): | 1164.3 | > | One-Way Factored Shear (C-C, Kips): | 227.1 | 0.20 OK! |
| Lower Steel Pad Reinforcement Ratio (L-Direct.): | 0.0019 | OK! | Lower Steel Pad Reinf. Ratio (W-Direc | 0.0019 | |
| Lower Steel Pad Moment Capacity (L-Direction. Kips-ft): | 5731.7 | > | Moment at Bottom (L-Dir. K-Ft): | 1720.0 | 0.30 OK! |
| Lower Steel Pad Moment Capacity (W-Direction. Kips-ft): | 5731.7 | > | Moment at Bottom (W-Dir. K-Ft): | 1720.0 | 0.30 OK! |
| Lower Steel Pad Moment Capacity (Corner-Corner,K-ft): | 8062.4 | > | Moment at Bottom (C-C Dir. K-Ft): | 2432.5 | 0.30 OK! |
| Upper Steel Pad Reinforcement Ratio (L-Direct.): | 0.0019 | OK! | Upper Steel Reinf. Ratio (W-Dir.): | 0.0019 | |
| Upper Steel Pad Moment Capacity (L-Direc. Kips-ft): | 5731.7 | > | Moment at the top (L-Dir K-Ft): | 633.8 | 0.11 OK! |
| Upper Steel Pad Moment Capacity (W-Direc. Kips-ft): | 5731.7 | > | Moment at the top (W-Dir K-Ft): | 633.8 | 0.11 OK! |
| Upper Steel Pad Moment Capacity (Corner-Corner. K-ft): | 8062.4 | > | Moment at the top (C-C Dir. K-Ft): | 593.7 | 0.07 OK! |

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

| | | | | | |
|---|--------|-------|---|-------|-----|
| Moment transferred by punching shear: | 1601.4 | k-ft. | Max. factored shear stress $v_{u,CD}$: | 1.2 | Psi |
| Max. factored shear stress $v_{u,AB}$: | 7.7 | Psi | Factored shear Strength ϕv_n : | 164.3 | Psi |
| Max. factored shear stress v_u : | 7.7 | Psi | Check Usage of Punching Shear Capacity: | 0.05 | OK! |

December 26, 2018



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT5639 (LTE 2C/3C/4C)
 FA Number: 10071170
 PACE Number: MRCTB035159
 Site Name: North Branford East
 Site Address: 39 Ciro Road
 North Branford, CT 06471

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:

- (3) 7770 Antennas (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (6) LGP21901 Diplexers (6.3"x4.4"x3.0" – Wt. = 11 lbs. /each)
- (6) LGP21401 TMA's (14.0"x7.0"x2.7" – Wt. = 18 lbs. / each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(6) 800-10965 Antennas (78.7"x20.0"x6.9" – Wt. = 45 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 70.5 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)**

**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 November 29, 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 115 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 130 mph converted to a nominal wind speed of 101 mph and an escalated ice thickness of 2.32 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 CAPABLE** of supporting the proposed installation.

| | Component | Controlling Load Case | Stress Ratio | Pass/Fail |
|---|-----------|-----------------------|--------------|-----------|
| Existing (LTE 2C/3C/4C) Mount Rating | 1 | LC10 | 95% | 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:







HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 12/21/2018
 Project Name: North Branford East
 Project No.: CT5639
 Designed By: AK Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$z = 147$ (ft)
 $z_g = 1200$ (ft)
 $\alpha = 7.0$

$K_z = 1.103$

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

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 |

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

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

$K_{zt} = \#DIV/0!$

$K_h = \#DIV/0!$

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

$K_e = 0.9$ (from Table 2-4)

$K_t =$ (from Table 2-5)

$f =$ (from Table 2-5)

$z = 147$

$H =$ (Ht. of the crest above surrounding terrain)

$K_{zt} = 1.00$

$K_{iz} = 1.16$ (from Sec. 2.6.8)

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)

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

$t_{iz} = 2.32$ in

Date: 12/21/2018
 Project Name: North Branford East
 Project No.: CT5639
 Designed By: AK Checked By: MSC



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= 170 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

(Cantilevered 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} = 130 mph

Nomial Design Wind Speed, V_{asd} = V_{ult} √(0.6) V_{asd} = 101 mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.

Per TIA-222-G, V_{min} = 95 mph V_{max} = 115 mph

F= q_z*Gh*(EPA)_A

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

q_z= 27.21

q_{z (ice)}= 6.71

q_{z (30)}= 2.41

K_z= 1.103

K_{zt}= 1.0

K_d= 0.95 (from Table 2-2)

V_{asd}= 101 mph

V_{max (ice)}= 50 mph

V₃₀= 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 |

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 = **2.32 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) |
|------------------------------|--------|-------|-------|-----------|--------------|------|-------------|----------------------|----------------------|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 5.00 | 1.31 | 150 | 57 | 13 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.94 | 1.26 | 376 | 121 | 33 |
| 3-1/2" Pipe | 4.0 | 12.0 | | 0.33 | 0.33 | 1.20 | 11 | 8 | 1 |
| 4" Pipe | 4.5 | 12.0 | | 0.38 | 0.38 | 1.20 | 12 | 9 | 1 |
| 4" Pipe (Shielded) | 4.5 | 12.0 | | 0.38 | 0.38 | 1.20 | 11 | 9 | 1 |
| 4x4 HSS | 4.0 | 12.0 | | 0.33 | 0.33 | 1.20 | 11 | 8 | 1 |
| 4x4 HSS (Shielded) | 4.0 | 12.0 | | 0.33 | 0.33 | 1.20 | 10 | 8 | 1 |
| 4x4 Angle | 4.0 | 12.0 | | 0.33 | 0.33 | 1.20 | 11 | 8 | 1 |
| 4x4 Angle (Shielded) | 4.0 | 12.0 | | 0.33 | 0.33 | 1.20 | 10 | 8 | 1 |
| 2" Pipe | 2.4 | 12.0 | | 0.20 | 0.20 | 1.20 | 6 | 7 | 1 |
| 2-1/2x2-1/2 Angle | 2.5 | 12.0 | | 0.21 | 0.21 | 1.20 | 7 | 7 | 1 |
| 2-1/2x2-1/2 Angle (Shielded) | 2.5 | 12.0 | | 0.21 | 0.21 | 1.20 | 6 | 7 | 1 |

Date: 12/21/2018
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 Designed By: AK Checked By: MSC



WIND LOADS

Angle = **30** (deg)

Ice Thickness = **2.32** 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] |
|-------------------|--------|-------|-------|-----------------------|---------------------|-----------------|-----------------|-------------|--------------|-------------------------|-----------------------|------------------------|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 150 | 80 | 132 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 376 | 159 | 322 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-------------------|------|------|------|-------|------|------|------|------|------|-----|----|-----|
| 7770 Antenna | 59.6 | 15.6 | 9.6 | 6.48 | 3.99 | 3.81 | 6.18 | 1.26 | 1.36 | 55 | 37 | 50 |
| 800-10965 Antenna | 83.3 | 24.6 | 11.5 | 14.26 | 6.68 | 3.38 | 7.22 | 1.24 | 1.41 | 119 | 63 | 105 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-------------------|------|------|-----|-------|------|------|-------|------|------|----|----|----|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 13 | 7 | 12 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 33 | 14 | 29 |

Date: 12/21/2018
 Project Name: North Branford East
 Project No.: CT5639
 Designed By: AK Checked By: MSC



WIND LOADS

Angle = **60** (deg)

Ice Thickness = **2.32** in.

Equivalent Angle = **240** (deg)

WIND LOADS WITH NO ICE:

| <u>Appurtenances</u> | <u>Height</u> | <u>Width</u> | <u>Depth</u> | <u>Flat Area (normal)</u> | <u>Flat Area (side)</u> | <u>Ratio (normal)</u> | <u>Ratio (side)</u> | <u>Ca (normal)</u> | <u>Ca (side)</u> | <u>Force (lbs) (normal)</u> | <u>Force (lbs) (side)</u> | <u>Force (lbs) (angle)</u> |
|----------------------|---------------|--------------|--------------|---------------------------|-------------------------|-----------------------|---------------------|--------------------|------------------|-----------------------------|---------------------------|----------------------------|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 150 | 80 | 97 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 376 | 159 | 213 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-------------------|------|------|------|-------|------|------|------|------|------|-----|----|----|
| 7770 Antenna | 59.6 | 15.6 | 9.6 | 6.48 | 3.99 | 3.81 | 6.18 | 1.26 | 1.36 | 55 | 37 | 41 |
| 800-10965 Antenna | 83.3 | 24.6 | 11.5 | 14.26 | 6.68 | 3.38 | 7.22 | 1.24 | 1.41 | 119 | 63 | 77 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-------------------|------|------|-----|-------|------|------|-------|------|------|----|----|----|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 13 | 7 | 9 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 33 | 14 | 19 |

Date: 12/21/2018
 Project Name: North Branford East
 Project No.: CT5639
 Designed By: AK Checked By: MSC



WIND LOADS

Angle = **90** (deg)

Ice Thickness = **2.32** 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) |
|-------------------|--------|-------|-------|-----------------------|---------------------|-------------------|-----------------|----------------|--------------|-------------------------|-----------------------|------------------------|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 150 | 80 | 80 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 376 | 159 | 159 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-------------------|------|------|------|-------|------|------|------|------|------|-----|----|----|
| 7770 Antenna | 59.6 | 15.6 | 9.6 | 6.48 | 3.99 | 3.81 | 6.18 | 1.26 | 1.36 | 55 | 37 | 37 |
| 800-10965 Antenna | 83.3 | 24.6 | 11.5 | 14.26 | 6.68 | 3.38 | 7.22 | 1.24 | 1.41 | 119 | 63 | 63 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-------------------|------|------|-----|-------|------|------|-------|------|------|----|----|----|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 13 | 7 | 7 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 33 | 14 | 14 |

Date: 12/21/2018
 Project Name: North Branford East
 Project No.: CT5639
 Designed By: AK Checked By: MSC



WIND LOADS

Angle = **120** (deg)

Ice Thickness = **2.32** in.

Equivalent Angle = **300** (deg)

WIND LOADS WITH NO ICE:

| <u>Appurtenances</u> | <u>Height</u> | <u>Width</u> | <u>Depth</u> | <u>Flat Area</u> <u>(normal)</u> | <u>Flat Area</u> <u>(side)</u> | <u>Ratio</u> <u>(normal)</u> | <u>Ratio</u> <u>(side)</u> | <u>C_a</u> <u>(normal)</u> | <u>C_a</u> <u>(side)</u> | <u>Force (lbs)</u> <u>(normal)</u> | <u>Force (lbs)</u> <u>(side)</u> | <u>Force (lbs)</u> <u>(angle)</u> |
|----------------------|---------------|--------------|--------------|-------------------------------------|-----------------------------------|---------------------------------|-------------------------------|---|---------------------------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 150 | 80 | 97 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 376 | 159 | 213 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-------------------|------|------|------|-------|------|------|------|------|------|-----|----|----|
| 7770 Antenna | 59.6 | 15.6 | 9.6 | 6.48 | 3.99 | 3.81 | 6.18 | 1.26 | 1.36 | 55 | 37 | 41 |
| 800-10965 Antenna | 83.3 | 24.6 | 11.5 | 14.26 | 6.68 | 3.38 | 7.22 | 1.24 | 1.41 | 119 | 63 | 77 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-------------------|------|------|-----|-------|------|------|-------|------|------|----|----|----|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 13 | 7 | 9 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 33 | 14 | 19 |

Date: 12/21/2018
 Project Name: North Branford East
 Project No.: CT5639
 Designed By: AK Checked By: MSC



WIND LOADS

Angle = 150 (deg)

Ice Thickness = 2.32 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) |
|-------------------|--------|-------|-------|-----------------------|---------------------|-------------------|-----------------|----------------|--------------|-------------------------|-----------------------|------------------------|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 150 | 80 | 132 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 376 | 159 | 322 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-------------------|------|------|------|-------|------|------|------|------|------|-----|----|-----|
| 7770 Antenna | 59.6 | 15.6 | 9.6 | 6.48 | 3.99 | 3.81 | 6.18 | 1.26 | 1.36 | 55 | 37 | 50 |
| 800-10965 Antenna | 83.3 | 24.6 | 11.5 | 14.26 | 6.68 | 3.38 | 7.22 | 1.24 | 1.41 | 119 | 63 | 105 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-------------------|------|------|-----|-------|------|------|-------|------|------|----|----|----|
| 7770 Antenna | 55.0 | 11.0 | 5.0 | 4.20 | 1.91 | 5.00 | 11.00 | 1.31 | 1.53 | 19 | 7 | 12 |
| 800-10965 Antenna | 78.7 | 20.0 | 6.9 | 10.93 | 3.77 | 3.94 | 11.41 | 1.26 | 1.55 | 33 | 14 | 29 |

Date: 12/21/2018
Project Name: North Branford East
Project No.: CT5639
Designed By: AK **Checked By:** MSC



HUDSON
 Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 2.32 in.
 Density of ice: 56 pcf

7770 Antenna

Weight of ice based on total radial SF area:
 Height (in): 55.0
 Width (in): 11.0
 Depth (in): 5.0
 Total weight of ice on object: 187 lbs
 Weight of object: 35 lbs
Combined weight of ice and object: 222 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:
 Height (in): 78.7
 Width (in): 20.0
 Depth (in): 6.9
 Total weight of ice on object: 436 lbs
 Weight of object: 45 lbs
Combined weight of ice and object: 481 lbs

LGP21901 Diplexer

Weight of ice based on total radial SF area:
 Height (in): 6.3
 Width (in): 4.4
 Depth (in): 3.0
 Total weight of ice on object: 11 lbs
 Weight of object: 11 lbs
Combined weight of ice and object: 22 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:
 Height (in): 14.0
 Width (in): 7.0
 Depth (in): 2.7
 Total weight of ice on object: 32 lbs
 Weight of object: 18 lbs
Combined weight of ice and object: 50 lbs

2" pipe

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

3-1/2" pipe

Per foot weight of ice:
 diameter (in): 4
Per foot weight of ice on object: 18 plf

L 4x4x3/16 Angles

Weight of ice based on total radial SF area:
 Height (in): 4
 Width (in): 4
Per foot weight of ice on object: 23 plf

4" Pipe

Per foot weight of ice:
 diameter (in): 4.5
Per foot weight of ice on object: 19 plf

HSS 4x4

Weight of ice based on total radial SF area:
 Height (in): 4
 Width (in): 4
Per foot weight of ice on object: 23 plf

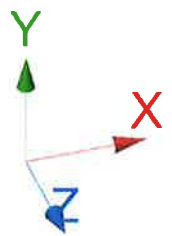
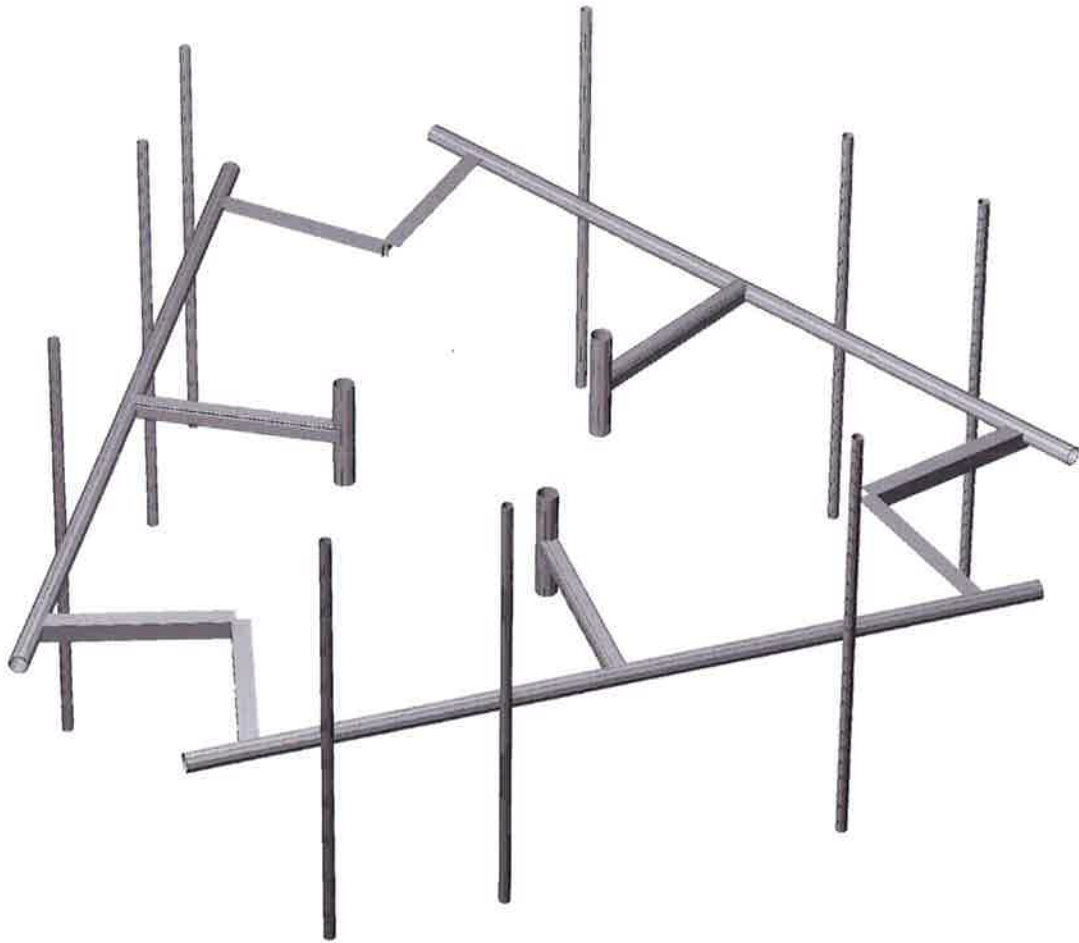
L 2-1/2x2-1/2x3/16 Angles

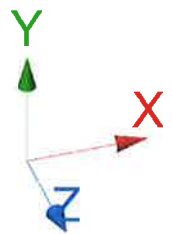
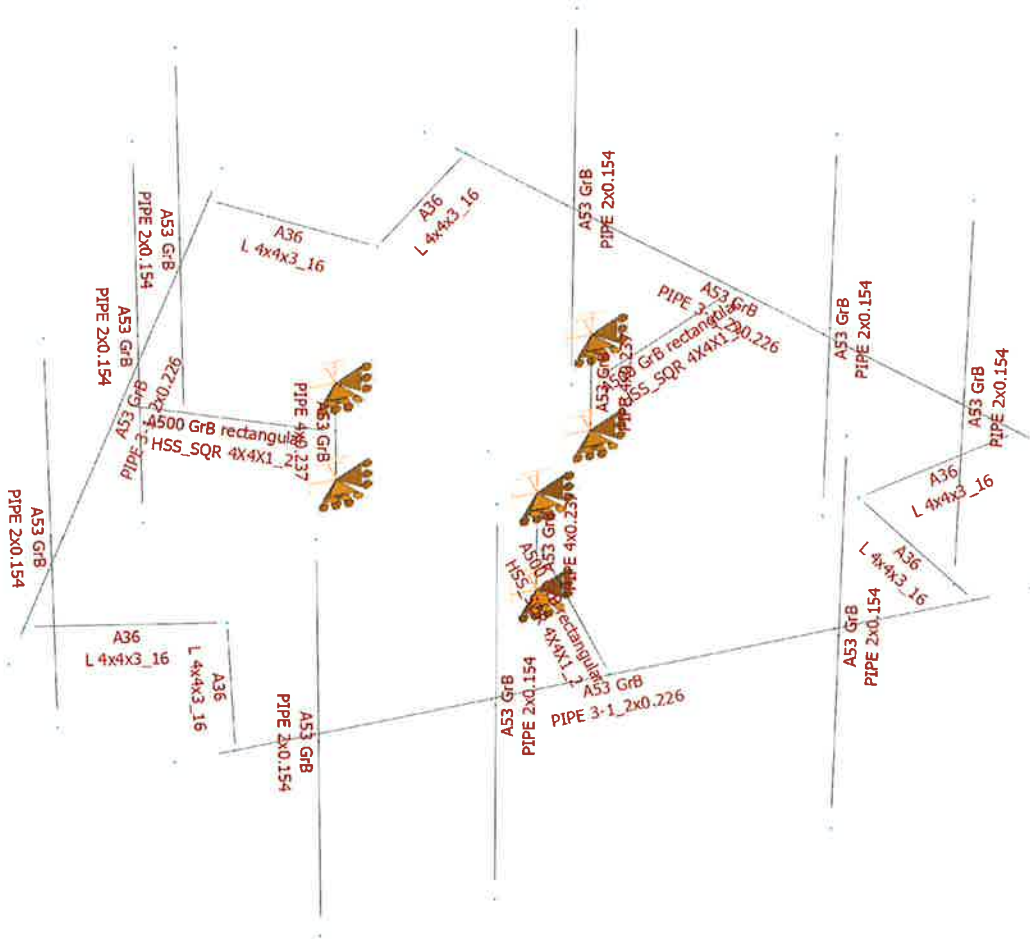
Weight of ice based on total radial SF area:
 Height (in): 2.5
 Width (in): 2.5
Per foot weight of ice on object: 17 plf

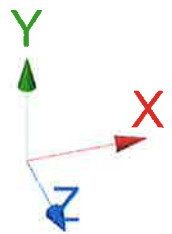
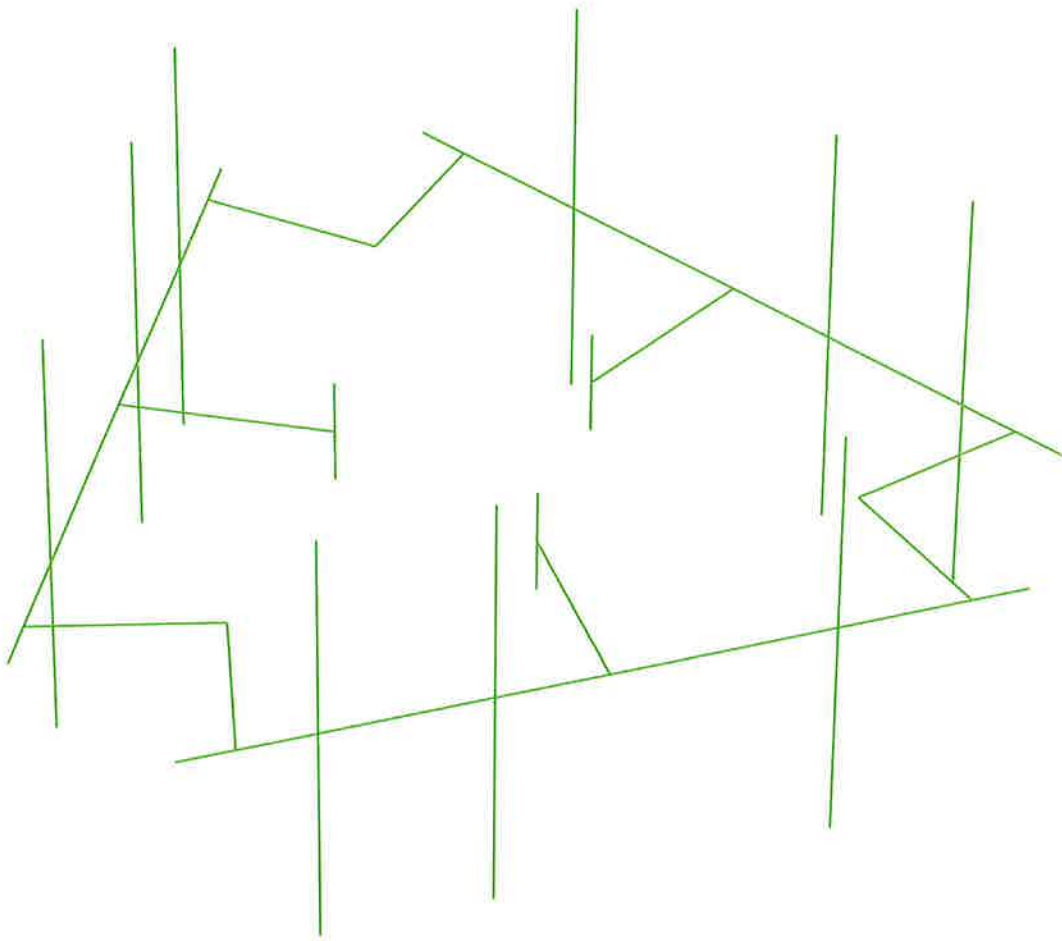


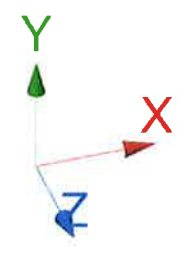
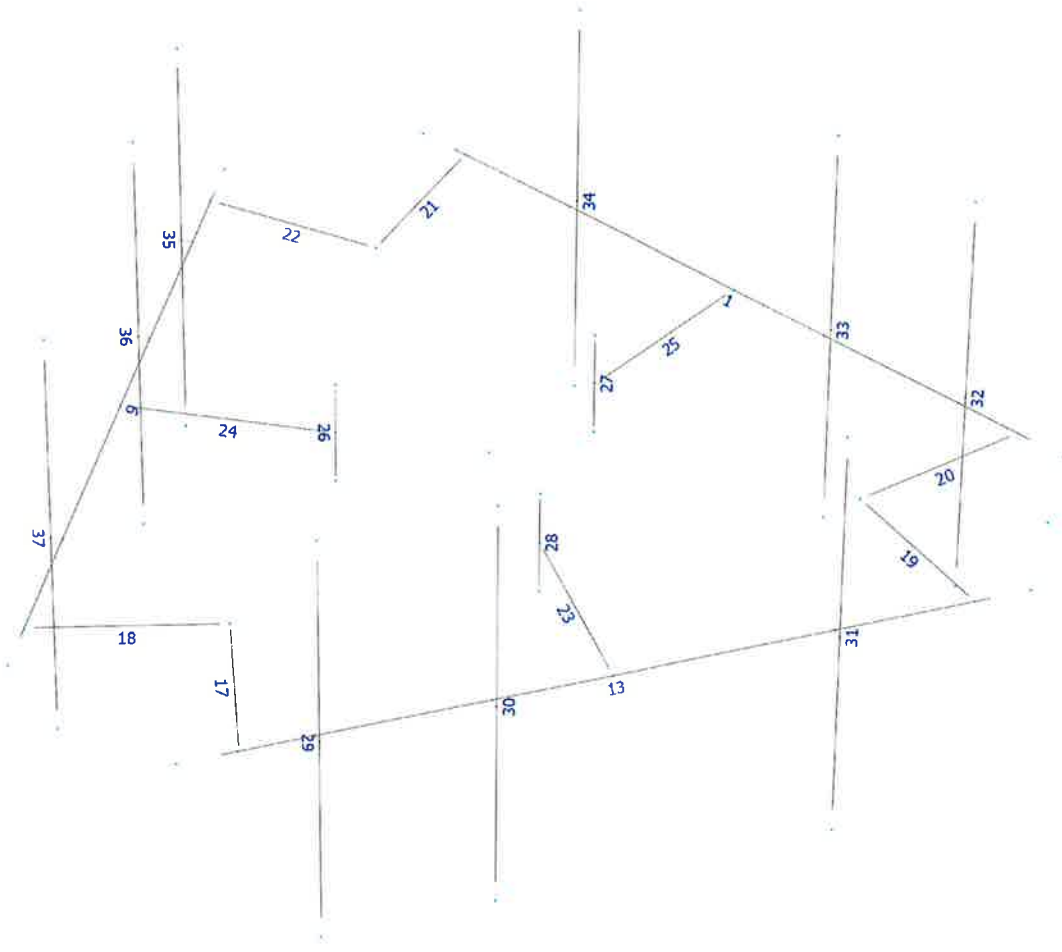
HUDSON
Design Group LLC

Mount Calculations









Load data

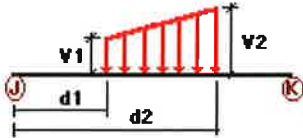
GLOSSARY

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 |

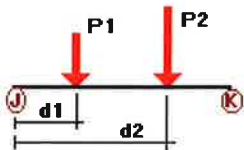
Distributed force on members



| Condition | Member | Dir1 | Val1 [Kip/ft] | Val2 [Kip/ft] | Dist1 [ft] | % | Dist2 [ft] | % |
|-----------|--------|------|------------------|------------------|---------------|-----|---------------|-----|
| DL | 17 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 18 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 19 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 20 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 21 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 22 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 23 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 24 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 25 | Y | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| W0 | 1 | Z | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 9 | Z | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 13 | Z | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 17 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 18 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 19 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |

| | | | | | | | | |
|-----|----|---|--------|--------|------|-----|--------|-----|
| | 20 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 21 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 22 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 23 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 24 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 25 | Z | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 26 | Z | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 27 | Z | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 28 | Z | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| W30 | 1 | X | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 9 | X | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 13 | X | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 17 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 18 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 19 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 20 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 21 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 22 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 23 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 24 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 25 | X | -0.01 | -0.01 | 0.00 | Yes | 100.00 | Yes |
| | 26 | X | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 27 | X | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| | 28 | X | -0.011 | -0.011 | 0.00 | Yes | 100.00 | Yes |
| Di | 1 | Y | -0.018 | -0.018 | 0.00 | Yes | 100.00 | Yes |
| | 9 | Y | -0.018 | -0.018 | 0.00 | Yes | 100.00 | Yes |
| | 13 | Y | -0.018 | -0.018 | 0.00 | Yes | 100.00 | Yes |
| | 17 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 18 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 19 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 20 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 21 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 22 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 23 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 24 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 25 | Y | -0.023 | -0.023 | 0.00 | Yes | 100.00 | Yes |
| | 26 | Y | -0.019 | -0.019 | 0.00 | Yes | 100.00 | Yes |
| | 27 | Y | -0.019 | -0.019 | 0.00 | Yes | 100.00 | Yes |
| | 28 | Y | -0.019 | -0.019 | 0.00 | Yes | 100.00 | Yes |
| | 29 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 30 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 31 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 32 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 33 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 34 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 35 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 36 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |
| | 37 | Y | -0.013 | -0.013 | 0.00 | Yes | 100.00 | Yes |

Concentrated forces on members



| Condition | Member | Dir1 | Value1 [Kip] | Dist1 [ft] | % | |
|-----------|--------|--------|-----------------|---------------|------|----|
| DL | 29 | y | -0.023 | 1.00 | No | |
| | | y | -0.023 | 7.00 | No | |
| | 30 | y | -0.023 | 1.00 | No | |
| | | y | -0.023 | 7.00 | No | |
| | | y | -0.036 | 4.00 | No | |
| | 31 | y | -0.018 | 2.00 | No | |
| | | y | -0.018 | 6.00 | No | |
| | | y | -0.022 | 3.00 | No | |
| | 32 | y | -0.023 | 1.00 | No | |
| | | y | -0.023 | 7.00 | No | |
| | 33 | y | -0.023 | 1.00 | No | |
| | | y | -0.023 | 7.00 | No | |
| | | y | -0.036 | 4.00 | No | |
| | 34 | y | -0.018 | 2.00 | No | |
| | | y | -0.018 | 6.00 | No | |
| | | y | -0.022 | 3.00 | No | |
| | 35 | y | -0.023 | 1.00 | No | |
| | | y | -0.023 | 7.00 | No | |
| | 36 | y | -0.023 | 1.00 | No | |
| | | y | -0.023 | 7.00 | No | |
| | | y | -0.036 | 4.00 | No | |
| | 37 | y | -0.018 | 2.00 | No | |
| | | y | -0.018 | 6.00 | No | |
| | | y | -0.022 | 3.00 | No | |
| | W0 | 29 | z | -0.188 | 1.00 | No |
| | | | z | -0.188 | 7.00 | No |
| | | 30 | z | -0.188 | 1.00 | No |
| | | | z | -0.188 | 7.00 | No |
| | | 31 | z | -0.075 | 2.00 | No |
| | | | z | -0.075 | 6.00 | No |
| | | 32 | z | -0.107 | 1.00 | No |
| | | | z | -0.107 | 7.00 | No |
| | | 33 | z | -0.107 | 1.00 | No |
| | | | z | -0.107 | 7.00 | No |
| | | 34 | z | -0.049 | 2.00 | No |
| | | | z | -0.049 | 6.00 | No |
| | | 35 | z | -0.107 | 1.00 | No |
| z | | | -0.107 | 7.00 | No | |
| 36 | z | -0.107 | 1.00 | No | | |
| | z | -0.107 | 7.00 | No | | |
| 37 | z | -0.049 | 2.00 | No | | |
| | z | -0.049 | 6.00 | No | | |
| W30 | 29 | x | -0.08 | 1.00 | No | |
| | | x | -0.08 | 7.00 | No | |
| | 30 | x | -0.08 | 1.00 | No | |
| | | x | -0.08 | 7.00 | No | |
| | 31 | x | -0.04 | 2.00 | No | |
| | | x | -0.04 | 6.00 | No | |
| | 32 | x | -0.161 | 1.00 | No | |
| | | x | -0.161 | 7.00 | No | |
| | 33 | x | -0.161 | 1.00 | No | |
| | | x | -0.161 | 7.00 | No | |
| | 34 | x | -0.067 | 2.00 | No | |
| | | x | -0.067 | 6.00 | No | |
| | 35 | x | -0.161 | 1.00 | No | |
| | | x | -0.161 | 7.00 | No | |
| 36 | x | -0.161 | 1.00 | No | | |
| | x | -0.161 | 7.00 | No | | |
| 37 | x | -0.067 | 2.00 | No | | |
| | x | -0.067 | 6.00 | No | | |

| | | | | | |
|------|----|--------|--------|------|----|
| Di | 29 | y | -0.218 | 1.00 | No |
| | | y | -0.218 | 7.00 | No |
| | 30 | y | -0.218 | 1.00 | No |
| | | y | -0.218 | 7.00 | No |
| | 31 | y | -0.064 | 4.00 | No |
| | | y | -0.094 | 2.00 | No |
| | | y | -0.094 | 6.00 | No |
| | | y | -0.022 | 3.00 | No |
| | 32 | y | -0.218 | 1.00 | No |
| | | y | -0.218 | 7.00 | No |
| | 33 | y | -0.218 | 1.00 | No |
| | | y | -0.218 | 7.00 | No |
| 34 | y | -0.064 | 4.00 | No | |
| | y | -0.094 | 2.00 | No | |
| | y | -0.094 | 6.00 | No | |
| | y | -0.022 | 3.00 | No | |
| 35 | y | -0.218 | 1.00 | No | |
| | y | -0.218 | 7.00 | No | |
| 36 | y | -0.218 | 1.00 | No | |
| | y | -0.218 | 7.00 | No | |
| | y | -0.064 | 4.00 | No | |
| | y | -0.094 | 2.00 | No | |
| 37 | y | -0.094 | 2.00 | No | |
| | y | -0.094 | 6.00 | No | |
| | y | -0.022 | 3.00 | No | |
| | y | -0.022 | 3.00 | No | |
| Wi0 | 29 | z | -0.061 | 1.00 | No |
| | | z | -0.061 | 7.00 | No |
| | 30 | z | -0.061 | 1.00 | No |
| | | z | -0.061 | 7.00 | No |
| | 31 | z | -0.029 | 2.00 | No |
| | | z | -0.029 | 6.00 | No |
| | 32 | z | -0.039 | 1.00 | No |
| | | z | -0.039 | 7.00 | No |
| | 33 | z | -0.039 | 1.00 | No |
| | | z | -0.039 | 7.00 | No |
| | 34 | z | -0.021 | 2.00 | No |
| | | z | -0.021 | 6.00 | No |
| z | | -0.039 | 1.00 | No | |
| z | | -0.039 | 7.00 | No | |
| 35 | z | -0.039 | 1.00 | No | |
| | z | -0.039 | 7.00 | No | |
| | z | -0.039 | 1.00 | No | |
| | z | -0.039 | 7.00 | No | |
| 36 | z | -0.039 | 1.00 | No | |
| | z | -0.039 | 7.00 | No | |
| | z | -0.039 | 1.00 | No | |
| | z | -0.039 | 7.00 | No | |
| 37 | z | -0.021 | 2.00 | No | |
| | z | -0.021 | 6.00 | No | |
| | z | -0.021 | 6.00 | No | |
| | z | -0.021 | 6.00 | No | |
| Wi30 | 29 | x | -0.032 | 1.00 | No |
| | | x | -0.032 | 7.00 | No |
| | 30 | x | -0.032 | 1.00 | No |
| | | x | -0.032 | 7.00 | No |
| | 31 | x | -0.019 | 2.00 | No |
| | | x | -0.019 | 6.00 | No |
| | 32 | x | -0.053 | 1.00 | No |
| | | x | -0.053 | 7.00 | No |
| | 33 | x | -0.053 | 1.00 | No |
| | | x | -0.053 | 7.00 | No |
| | 34 | x | -0.026 | 2.00 | No |
| | | x | -0.026 | 6.00 | No |
| x | | -0.053 | 1.00 | No | |
| x | | -0.053 | 7.00 | No | |
| 35 | x | -0.053 | 1.00 | No | |
| | x | -0.053 | 7.00 | No | |
| 36 | x | -0.053 | 1.00 | No | |
| | x | -0.053 | 7.00 | No | |
| 37 | x | -0.026 | 2.00 | No | |
| | x | -0.026 | 6.00 | No | |

| | | | | | |
|------|----|--------|--------|------|----|
| WLO | 29 | z | -0.017 | 1.00 | No |
| | | z | -0.017 | 7.00 | No |
| 30 | z | -0.017 | 1.00 | No | |
| | z | -0.017 | 7.00 | No | |
| 31 | z | -0.007 | 2.00 | No | |
| | z | -0.007 | 6.00 | No | |
| 32 | z | -0.01 | 1.00 | No | |
| | z | -0.01 | 7.00 | No | |
| 33 | z | -0.01 | 1.00 | No | |
| | z | -0.01 | 7.00 | No | |
| 34 | z | -0.005 | 2.00 | No | |
| | z | -0.005 | 6.00 | No | |
| 35 | z | -0.01 | 1.00 | No | |
| | z | -0.01 | 7.00 | No | |
| 36 | z | -0.01 | 1.00 | No | |
| | z | -0.01 | 7.00 | No | |
| 37 | z | -0.005 | 2.00 | No | |
| | z | -0.005 | 6.00 | No | |
| WL30 | 29 | x | -0.008 | 1.00 | No |
| | | x | -0.008 | 7.00 | No |
| 30 | x | -0.008 | 1.00 | No | |
| | x | -0.008 | 7.00 | No | |
| 31 | x | -0.004 | 2.00 | No | |
| | x | -0.004 | 6.00 | No | |
| 32 | x | -0.015 | 1.00 | No | |
| | x | -0.015 | 7.00 | No | |
| 33 | x | -0.015 | 1.00 | No | |
| | x | -0.015 | 7.00 | No | |
| 34 | x | -0.006 | 2.00 | No | |
| | x | -0.006 | 6.00 | No | |
| 35 | x | -0.015 | 1.00 | No | |
| | x | -0.015 | 7.00 | No | |
| 36 | x | -0.015 | 1.00 | No | |
| | x | -0.015 | 7.00 | No | |
| 37 | x | -0.006 | 2.00 | No | |
| | x | -0.006 | 6.00 | No | |
| LL1 | 13 | y | -0.25 | 7.00 | No |
| LL2 | 13 | y | -0.25 | 0.00 | No |
| LLa1 | 31 | y | -0.25 | 4.00 | No |
| LLa3 | 30 | y | -0.25 | 4.00 | No |
| LLa4 | 29 | 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 |
| WLO | 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 |



Current Date: 12/24/2018 11:55 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5639\CT5639.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 |
|-------------|------------------------|-----------|---------------|-------------|-----------|-----------|
| | HSS_SQR 4X4X1_2 | 23 | LC10 at 0.00% | 0.49 | OK | Eq. H1-1b |
| | | 24 | LC9 at 0.00% | 0.50 | OK | Eq. H1-1b |
| | | 25 | LC12 at 0.00% | 0.49 | OK | Eq. H1-1b |
| | L 4x4x3_16 | 17 | LC7 at 0.00% | 0.41 | OK | Eq. H2-1 |
| | | 18 | LC1 at 0.00% | 0.65 | OK | Eq. H2-1 |
| | | 19 | LC3 at 0.00% | 0.54 | OK | Eq. H2-1 |
| | | 20 | LC8 at 0.00% | 0.37 | OK | Eq. H2-1 |
| | | 21 | LC4 at 0.00% | 0.72 | OK | Eq. H2-1 |
| | | 22 | LC6 at 0.00% | 0.31 | OK | Eq. H2-1 |
| | PIPE 2x0.154 | 29 | LC1 at 50.00% | 0.73 | OK | Eq. H1-1b |
| | | 30 | LC1 at 50.00% | 0.73 | OK | Eq. H1-1b |
| | | 31 | LC1 at 50.00% | 0.19 | OK | Eq. H1-1b |
| | | 32 | LC2 at 50.00% | 0.62 | OK | Eq. H1-1b |
| | | 33 | LC2 at 50.00% | 0.62 | OK | Eq. H1-1b |
| | | 34 | LC2 at 50.00% | 0.17 | OK | Eq. H1-1b |

| | | | | | |
|-------------------------|-----------|----------------|-------------|-----------|-----------|
| | 35 | LC2 at 50.00% | 0.62 | OK | Eq. H1-1b |
| | 36 | LC2 at 50.00% | 0.62 | OK | Eq. H1-1b |
| | 37 | LC2 at 50.00% | 0.17 | OK | Eq. H1-1b |
| <hr/> | | | | | |
| PIPE 3-1_2x0.226 | 1 | LC10 at 49.11% | 0.95 | OK | Eq. H1-1b |
| | 9 | LC11 at 49.11% | 0.93 | OK | Eq. H1-1b |
| | 13 | LC9 at 49.11% | 0.95 | OK | Eq. H1-1b |
| <hr/> | | | | | |
| PIPE 4x0.237 | 26 | LC11 at 50.00% | 0.85 | OK | Eq. H1-1b |
| | 27 | LC10 at 50.00% | 0.79 | OK | Eq. H1-1b |
| | 28 | LC9 at 50.00% | 0.70 | OK | Eq. H1-1b |
| <hr/> | | | | | |

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 |
|------|-----------|-----------|-----------|-------------|
| 1 | 0.00 | 0.00 | 0.00 | 0 |
| 3 | 1.8656 | 0.00 | -9.4487 | 0 |
| 4 | 9.1156 | 0.00 | 3.1087 | 0 |
| 19 | -9.1156 | 0.00 | 3.1087 | 0 |
| 20 | -1.8656 | 0.00 | -9.4487 | 0 |
| 27 | 7.25 | 0.00 | 6.34 | 0 |
| 28 | -7.25 | 0.00 | 6.34 | 0 |
| 37 | 8.1828 | 0.00 | 4.7243 | 0 |
| 38 | 5.4552 | 0.00 | 3.1496 | 0 |
| 39 | 0.00 | 0.00 | -6.2991 | 0 |
| 40 | -5.4552 | 0.00 | 3.1496 | 0 |
| 41 | -2.3656 | 0.00 | -8.5827 | 0 |
| 42 | -8.6156 | 0.00 | 2.2427 | 0 |
| 45 | 2.3656 | 0.00 | -8.5827 | 0 |
| 46 | 8.6156 | 0.00 | 2.2427 | 0 |
| 47 | 6.25 | 0.00 | 6.34 | 0 |
| 48 | -6.25 | 0.00 | 6.34 | 0 |
| 49 | 0.00 | 0.00 | 6.34 | 0 |
| 50 | 5.4906 | 0.00 | -3.17 | 0 |
| 51 | -5.4906 | 0.00 | -3.17 | 0 |
| 52 | 2.2776 | 0.00 | -1.315 | 0 |
| 54 | -2.2776 | 0.00 | -1.315 | 0 |

| | | | | |
|----|---------|-------|---------|---|
| 55 | 0.00 | 0.00 | 2.63 | 0 |
| 56 | 0.00 | 1.00 | 2.63 | 0 |
| 57 | -2.2776 | 1.00 | -1.315 | 0 |
| 58 | 2.2776 | 1.00 | -1.315 | 0 |
| 59 | 2.2776 | -1.00 | -1.315 | 0 |
| 60 | -2.2776 | -1.00 | -1.315 | 0 |
| 61 | 0.00 | -1.00 | 2.63 | 0 |
| 62 | -4.6638 | 4.00 | -5.0021 | 0 |
| 63 | -3.1838 | 4.00 | -7.5655 | 0 |
| 64 | -7.5788 | 4.00 | 0.0469 | 0 |
| 65 | -4.96 | 4.00 | 6.54 | 0 |
| 66 | -2.00 | 4.00 | 6.54 | 0 |
| 67 | 3.83 | 4.00 | 6.54 | 0 |
| 68 | 8.1438 | 4.00 | 1.0255 | 0 |
| 69 | 6.6638 | 4.00 | -1.5379 | 0 |
| 70 | 3.7488 | 4.00 | -6.5869 | 0 |
| 71 | -4.6638 | -4.00 | -5.0021 | 0 |
| 72 | -3.1838 | -4.00 | -7.5655 | 0 |
| 73 | -7.5788 | -4.00 | 0.0469 | 0 |
| 74 | -4.96 | -4.00 | 6.54 | 0 |
| 75 | -2.00 | -4.00 | 6.54 | 0 |
| 76 | 3.83 | -4.00 | 6.54 | 0 |
| 77 | 8.1438 | -4.00 | 1.0255 | 0 |
| 78 | 6.6638 | -4.00 | -1.5379 | 0 |
| 79 | 3.7488 | -4.00 | -6.5869 | 0 |

Restraints

| Node | TX | TY | TZ | RX | RY | RZ |
|------|----|----|----|----|----|----|
| 56 | 1 | 1 | 1 | 1 | 1 | 1 |
| 57 | 1 | 1 | 1 | 1 | 1 | 1 |
| 58 | 1 | 1 | 1 | 1 | 1 | 1 |
| 59 | 1 | 1 | 1 | 1 | 1 | 1 |
| 60 | 1 | 1 | 1 | 1 | 1 | 1 |
| 61 | 1 | 1 | 1 | 1 | 1 | 1 |

Members

| Member | NJ | NK | Description | Section | Material | d0 [in] | dL [in] | Ig factor |
|--------|----|----|-------------|------------------|----------------------|------------|------------|-----------|
| 1 | 4 | 3 | | PIPE 3-1_2x0.226 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 9 | 20 | 19 | | PIPE 3-1_2x0.226 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 13 | 28 | 27 | | PIPE 3-1_2x0.226 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 17 | 48 | 40 | | L 4x4x3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 18 | 42 | 40 | | L 4x4x3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 19 | 47 | 38 | | L 4x4x3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 20 | 46 | 38 | | L 4x4x3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 21 | 45 | 39 | | L 4x4x3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 22 | 41 | 39 | | L 4x4x3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 23 | 55 | 49 | | HSS_SQR 4X4X1_2 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 24 | 54 | 51 | | HSS_SQR 4X4X1_2 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|----|----|----|-----------------|----------------------|------|------|------|
| 25 | 52 | 50 | HSS_SQR 4X4X1_2 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 26 | 57 | 60 | PIPE 4x0.237 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 27 | 58 | 59 | PIPE 4x0.237 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 28 | 56 | 61 | PIPE 4x0.237 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 29 | 65 | 74 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 30 | 66 | 75 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 31 | 67 | 76 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 32 | 68 | 77 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 33 | 69 | 78 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 34 | 70 | 79 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 35 | 63 | 72 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 36 | 62 | 71 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 37 | 64 | 73 | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |

Orientation of local axes

| Member | Rotation [Deg] | Axes23 | NX | NY | NZ |
|--------|-------------------|--------|------|------|------|
| 17 | 90.00 | 0 | 0.00 | 0.00 | 0.00 |
| 18 | 180.00 | 0 | 0.00 | 0.00 | 0.00 |
| 19 | 180.00 | 0 | 0.00 | 0.00 | 0.00 |
| 20 | 90.00 | 0 | 0.00 | 0.00 | 0.00 |
| 21 | 180.00 | 0 | 0.00 | 0.00 | 0.00 |
| 22 | 90.00 | 0 | 0.00 | 0.00 | 0.00 |

39 CIRO RD

Location 39 CIRO RD

Mblu 27/C 39F/ / /

Acct# 000629

Owner CASAGRANDE JOSEPH J JR

Assessment \$151,000

Appraisal \$215,600

PID 2083

Building Count 1

Current Value

| Appraisal | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$52,600 | \$163,000 | \$215,600 |
| Assessment | | | |
| Valuation Year | Improvements | Land | Total |
| 2015 | \$36,800 | \$114,200 | \$151,000 |

Owner of Record

Owner CASAGRANDE JOSEPH J JR
Co-Owner
Address 4 LOCHBOURNE DR
 CLINTON, CT 06413-1412

Sale Price \$165,000
Certificate
Book & Page 326/ 604
Sale Date 12/23/2002
Instrument 01

Ownership History

| Ownership History | | | | | |
|------------------------|------------|-------------|-------------|------------|------------|
| Owner | Sale Price | Certificate | Book & Page | Instrument | Sale Date |
| CASAGRANDE JOSEPH J JR | \$165,000 | | 326/ 604 | 01 | 12/23/2002 |
| CASAGRANDE PASQUALINA | \$0 | | 271/ 303 | | 06/25/1998 |
| CASAGRANDE JOSEPH | \$0 | | 092/ 202 | | 05/07/1974 |

Building Information

Building 1 : Section 1

Year Built: 1974
Living Area: 2,562
Replacement Cost: \$112,004
Building Percent Good: 47
Replacement Cost Less Depreciation: \$52,600

| Building Attributes | |
|---------------------|--------------|
| Field | Description |
| STYLE | Warehouse |
| MODEL | Ind or Comm |
| Grade | Low Cost |
| Stories: | 1 |
| Occupancy | 1 |
| Exterior Wall 1 | Concr/Cinder |
| Exterior Wall 2 | |
| Roof Structure | Flat |

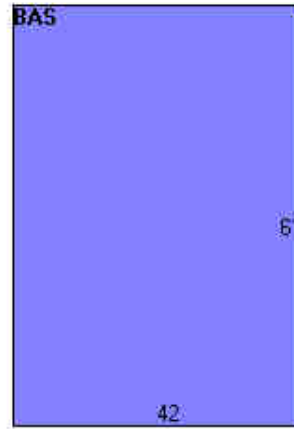
Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//\00\00\52\91.jpg>)

Building Layout

| | |
|------------------|------------------|
| Roof Cover | Tar & Gravel |
| Interior Wall 1 | Minim/Masonry |
| Interior Wall 2 | |
| Interior Floor 1 | Concr-Finished |
| Interior Floor 2 | |
| Heating Fuel | Gas |
| Heating Type | Hot Air-no Duc |
| AC Type | None |
| Bldg Use | COMM WHSE MDL-96 |
| Total Rooms | |
| Total Bedrms | 00 |
| Total Baths | 0 |
| 1st Floor Use: | 3320 |
| Heat/AC | NONE |
| Frame Type | MASONRY |
| Baths/Plumbing | AVERAGE |
| Ceiling/Wall | NONE |
| Rooms/Prtns | AVERAGE |
| Wall Height | 14 |
| % Comn Wall | 0 |



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

| Building Sub-Areas (sq ft) | | | Legend |
|----------------------------|-------------|------------|-------------|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 2,562 | 2,562 |
| | | 2,562 | 2,562 |

Extra Features

| Extra Features | Legend |
|----------------------------|--------|
| No Data for Extra Features | |

Land

Land Use

| | |
|-------------------------------|------------------|
| Use Code | 316I |
| Description | COMM WHSE MDL-96 |
| Zone | I2 |
| Neighborhood | |
| Alt Land Appr Category | No |

Land Line Valuation

| | |
|------------------------|-----------|
| Size (Acres) | 2.48 |
| Frontage | 0 |
| Depth | 0 |
| Assessed Value | \$114,200 |
| Appraised Value | \$163,000 |

Outbuildings

| Outbuildings | Legend |
|--------------------------|--------|
| No Data for Outbuildings | |

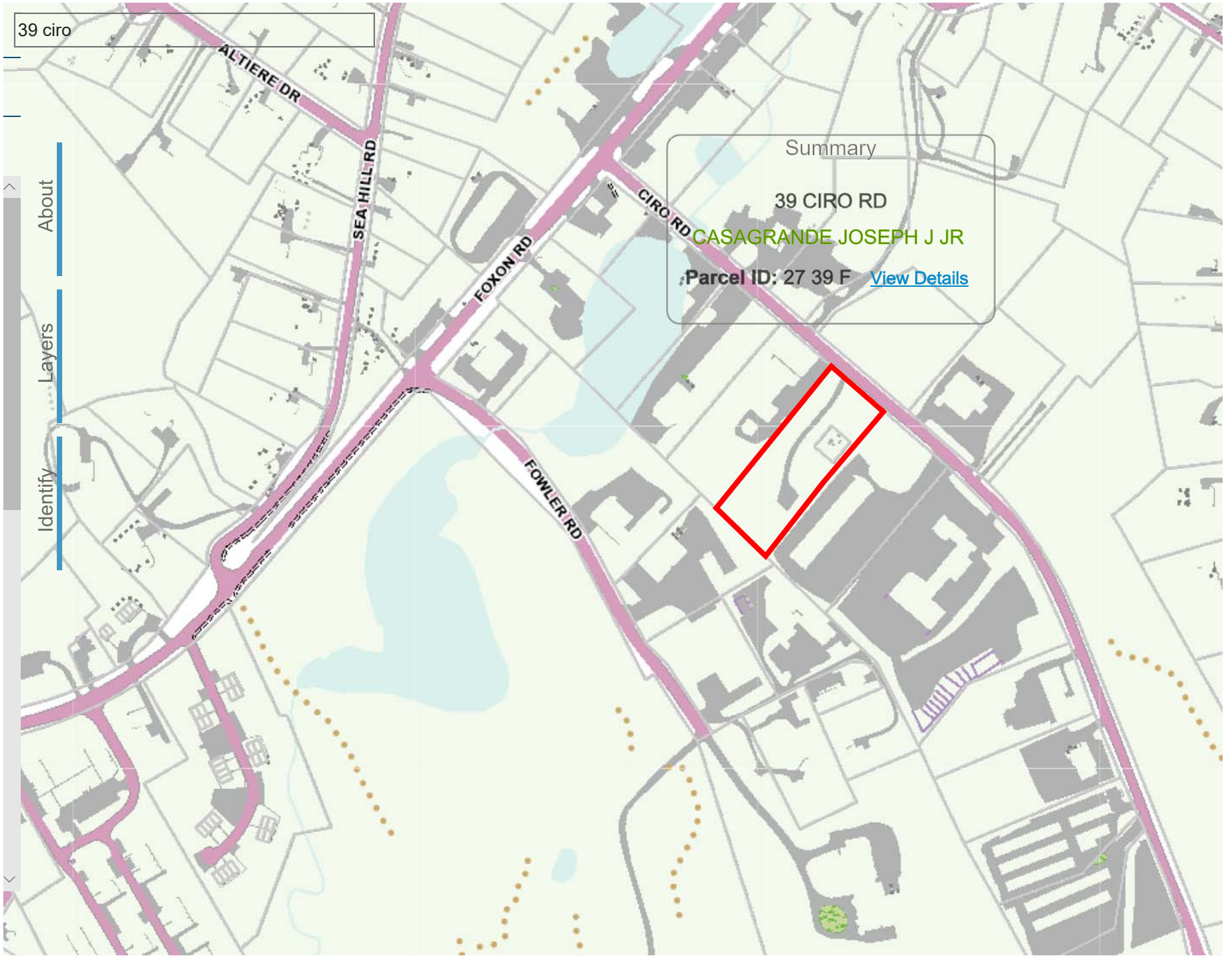
Valuation History

| Appraisal | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$52,600 | \$163,000 | \$215,600 |
| 2016 | \$52,600 | \$163,000 | \$215,600 |
| 2015 | \$52,600 | \$163,000 | \$215,600 |

| Assessment | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2017 | \$36,800 | \$114,200 | \$151,000 |
| 2016 | \$36,800 | \$114,200 | \$151,000 |

| | | | | |
|------|--|----------|-----------|-----------|
| 2015 | | \$36,800 | \$114,200 | \$151,000 |
|------|--|----------|-----------|-----------|

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 PO BOX 916
 STORRS CT 06268-0916

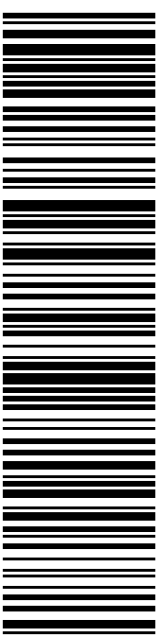
0024

Carrier -- Leave if No Response

R006

SHIP TO: MAYOR MICHAEL J DOODY
 TOWN OF NORTH BRANFORD
 909 FOXON RD
 CC: MS CAREY DUQUES - TOWN PLANNER
 N BRANFORD CT 06471-1290

USPS TRACKING #



9405 5036 9930 0418 5228 41

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0418 5228 41

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 456810187 | Priority Mail® Postage: \$7.35 |
| Print Date: 02/14/2019 | Total: \$7.35 |
| Ship Date: 02/16/2019 | |
| Expected Delivery Date: 02/19/2019 | |


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

To: MAYOR MICHAEL J DOODY
 TOWN OF NORTH BRANFORD
 909 FOXON RD
 CC: MS CAREY DUQUES - TOWN PLANNER
 N BRANFORD CT 06471-1290

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



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com




**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com
US POSTAGE
 Flat Rate Env
 \$7.35

9405 5036 9930 0418 5229 19 0073 5000 0010 6413



02/16/2019

Mailed from 06268 062S0000001307

PRIORITY MAIL 1-DAY™

Expected Delivery Date: 02/19/19

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

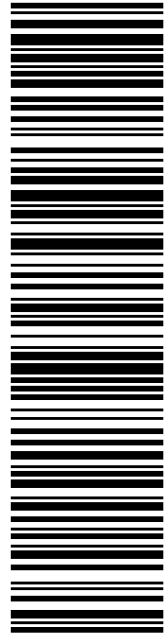
0024

Carrier -- Leave if No Response

R002

SHIP TO:
 MR. JOSEPH J CASAGRANDE JR.
 4 LOCHBOURNE DR
 CLINTON CT 06413-1410

USPS TRACKING #



9405 5036 9930 0418 5229 19

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
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9405 5036 9930 0418 5229 19

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

To: MR. JOSEPH J CASAGRANDE JR.
 4 LOCHBOURNE DR
 CLINTON CT 06413-1410

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



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com