



Filed by:

G. Scott Shepherd, Site Development Specialist II - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - kpelletier@sbasite.com

June 16, 2021

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

RE: Notice of Exempt Modification
237 Sandy Hollow Road, Groton, CT 06355
Latitude: 41.369510
Longitude: -71.982463
T-Mobile Site #: CTNL053A_L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 129-foot and three (3) antennas at the 127-foot level of the existing 130-foot Monopole Tower at 237 Sandy Hollow Rd., Groton, CT. The 130-foot tower is owned by SBA Infrastructure, LLC. The property is owned by Mystic River Ambulance Association Inc. T-Mobile now intends to remove three (3) antennas from the 127-foot level and replace with three (3) new 600/700 MHz antennas. The total amount of antennas will remain at nine (9).

- **The new antennas support 5G services and would be installed at the 127-foot and 129-foot levels of the tower.**

Please note: Per the Connecticut Siting Council Website: CSC COVID 19 Guidelines.
In order to prevent the spread of Coronavirus and protect the health and safety of our members and staff, as of March 18, 2020, the Connecticut Siting Council shall convert to full remote operations until March 30, 2020. Please be advised that during this time period, all hard copy filing requirements will be waived in lieu of an electronic filing. Please also be advised that the March 26, 2020 regular meeting shall be held via teleconference. The Council's website is not equipped with an on-line filing fee receipt service. Therefore, filing fees and/or direct cost charges associated with matters received electronically during the above-mentioned time period will be directly invoiced at a later date.

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) LNX-6515DS antennas (remove) – (3) RFS APXVAALL24_43-U-NA20 600/700MHz antennas (replace)
- (3) Ericsson RRUS-11 B12 RRUs (remove) – (3) Ericsson 4449 B71 + B85 RRUs (replace)
- (3) 1-5/8" Coax (remove) – (3) 1.9" Fiber (replace)

Install New:

- N/A

Existing Equipment to Remain:

- (3) Ericsson AIR 21 B2A/B4P antennas
- (3) Ericsson AIR 21 B4P/B2P antennas
- (1) Low profile platform w/handrails
- (3) Ericsson KRY 112 144/1 TMAs

Entitlements:

- (6) 1-5/8" coax
- (1) 1-1/4" Fiber

GROUND

Remove:

- Nortel S12000 Equipment Cabinet

Remove and Replace:

- N/A

Install New:

- (1) Emerson 2416 Fiber Cabinet
- T-Mobile equipment mounted to existing H-Frame
- T-Mobile equipment within existing cabinet

Existing to Remain:

- (1) 15' x 15' Concrete pad
- 9' x 25' Lease area
- (1) GPS antenna
- (1) RBS3106 Equipment cabinet (relocated)
- T-Mobile existing Ice bridge
- Cienna box
- T-Mobile fiber box

Entitlements:

- N/A



This facility was approved by the Council on March 26, 2008 under Docket 343. Approval was given for a monopole no taller than necessary to provide space for public and private entities, but not to exceed 130' above ground level. The height of the top of antennas was also not to exceed 130' above ground level. An updated EME report was to be provided when operations would cause a change in power density levels. The certificate holder was to provide public and private entities shared reasonable space and space was to be provided to Town public safety services for zero compensation. And any non-functioning equipment was to be removed within 60 days. There were no further post construction stipulations set. Please see attached.

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 Town of Groton's Mayor, Patrice Granatosky, Town Manager, John Burt, and Director of Planning, Jonathan J. Riener, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

Sincerely,

G. Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
gshepherd@sbsite.com

Attachments



cc: Patrice Granatosky, Mayor / with attachments
30 North Prospect St., Groton CT 06340
John Burt, Town Manager / with attachments
45 Fort Hill Rd., Groton, CT 06340
Jonathan J. Reiner, AICP, Director of Planning / with attachments
134 Groton Long Point Rd., Groton CT 06340-4873
Mystic River Ambulance Association Inc. / with attachments
PO Box 64, West Mystic CT 06388

EXHIBIT LIST

Exhibit 1	Check Copy	To be invoiced at a later date per Covid guidelines
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	CSC 3/26/2008 Docket 343
Exhibit 6	Construction Drawings	Chappell Engineering 4/28/21
Exhibit 7	Structural Analysis	TES 6/1/21
Exhibit 8	Mount Analysis	TES 5/19/21
Exhibit 9	EME Report	EBI Consulting 5/27/21

EXHIBIT 1

Normally, Exhibit 1
would contain the
copy of the check for
the filing fee.

EXHIBIT 2

EXHIBIT 3

Commercial Property Card

Print Date: 6/16/2021

Card 1 of 1

Account	Location	Zoning	Deed Book/Page	Acres
261909065371 E	237 SANDY HOLLOW RD	RS-20	518/	3.35
District	Use Code			
OLD MYSTIC	ALL OTHER CHARITABLE ORGANIZATIONS			

Current Owner

MYSTIC RIVER AMBULANCE ASSOC
P O BOX 64
W MYSTIC CT 06388

Property Picture



Building Information

Building No:	1
Year Built:	1992
No of Units:	1
Structure Type:	POLICE/FIRE STATION
Building Total Area:	5624 sqft.
Grade:	B-
Identical Units:	1

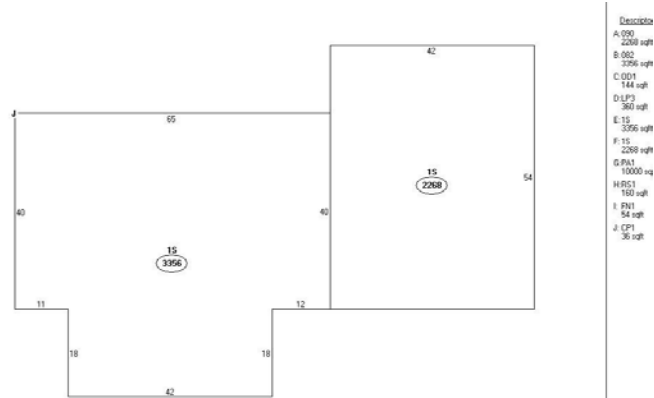
Valuation

Land:	\$670,000
Building:	\$445,400
Total:	\$1,115,400
Total Assessed Value:	\$780,780

Recent Sales

Book/Page	Date	Price
518/656	1990-09-25	\$141,900

Building Sketch



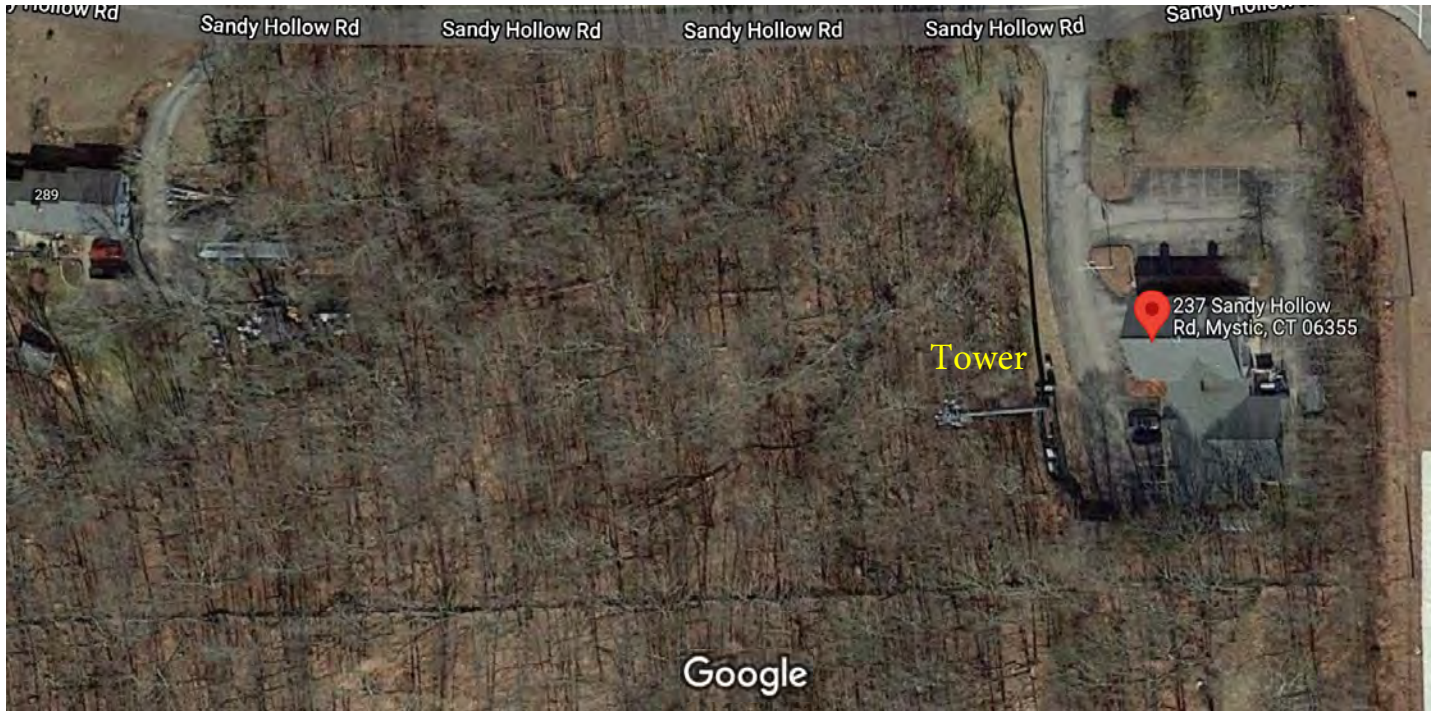
Exterior/Interior Information

Levels	Use Type	Ext. Walls	Const. Type	Heating	A/C	Condition
01 - 01	PARKING GARAGE	FRAME	WOOD JOIST	HOT AIR	NONE	NORMAL
01 - 01	MULTI-USE OFFICE	FRAME	WOOD JOIST	HOT AIR	CENTRAL	NORMAL

EXHIBIT 4



237 Sandy Hollow Rd



Imagery ©2021 Maxar Technologies, USDA Farm Service Agency, Map data ©2021 50 ft



237 Sandy Hollow Rd

Building



Directions



Save



Nearby



Send to your
phone



Share



237 Sandy Hollow Rd, Mystic, CT 06355

Photos

EXHIBIT 5

DOCKET NO. 343 - MCF Communications bg, Inc and }
Omnipoint Communications, Inc. application for a Certificate of }
Environmental Compatibility and Public Need for the }
construction, maintenance and operation of a telecommunications }
facility located at 237 Sandy Hollow Road, Groton, Connecticut. }

Connecticut

Siting

Council

March 26, 2008

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to MCF Communications bg, Inc and Omnipoint Communications, Inc., hereinafter referred to as the Certificate Holders, for a telecommunications facility at 237 Sandy Hollow Road, Groton, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile and other entities, both public and private, but such tower shall not exceed a height of 130 feet above ground level. The height at the top of the antennas shall not exceed 130 feet above ground level.
2. The tower shall be installed 60 feet north of the proposed compound.
3. The equipment compound shall be located within a 35-foot by 50-foot fenced area.
4. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Groton for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

5. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Groton public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Groton. Any proposed modifications to this Decision and Order shall likewise be so served.
10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.
12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Day, the Norwich Bulletin and The Groton Times.

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

The parties and intervenors to this proceeding are:

Applicant

MCF Communications bj, Inc and Omnipoint
Communications, Inc

Its Representative

Julie Kohler, Esq.
Carrie Larson, Esq.
Cohen and Wolf, P.C
1115 Broad Street
Bridgeport, CT 06604

Intervenor

Charles E. Stevens
12 Stony Hill Drive
Mystic, CT 06355-1636

EXHIBIT 6

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT
THE T-MOBILE RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL
ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

NL053/MCF-AMBULANCE

APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK, THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADERS REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.

16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.
- AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811
-
- VICINITY MAP
- SCALE: 1" = 1000'-0"
-
- DO NOT SCALE DRAWINGS
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- 237 SANDY HOLLOW ROAD
GROTON, CT 06355
NEW LONDON COUNTY
- SITE NO.: CTNL053A
- SITE TYPE: 130'± MONOPOLE
- RF DESIGN GUIDELINE: 67D02C OUTDOOR
- SCOPE OF WORK
- | | |
|--|---|
| REMOVE: | INSTALL: |
| <ul style="list-style-type: none">3 ANTENNAS3 RADIOS6 COAX CABLES1 HYBRID CABLE1 EQUIPMENT CABINET | <ul style="list-style-type: none">3 ANTENNAS3 RADIOS3 HYBRID CABLES1 EMERSON CABINET1 FUTURE GENERATOR1 FUTURE ATS |
- SITE NOTES
- THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
 - ADA COMPLIANCE NOT REQUIRED.
 - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
 - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
 - CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
 - NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
 - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
 - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
 - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
- SHEET INDEX
- | SHEET NO. | DESCRIPTION | REV. NO. |
|-----------|---------------------------------|----------|
| T-1 | TITLE SHEET | 3 |
| GN-1 | GENERAL NOTES | 3 |
| A-1 | COMPOUND & EQUIPMENT PLAN | 3 |
| A-2 | TOWER ELEVATIONS & ANTENNA PLAN | 3 |
| A-3 | SITE DETAILS | 3 |
| A-4 | ANTENNA & FEEDLINE CHARTS | 3 |
| E-1 | ELECTRIC & GROUNDING DETAILS | 3 |
- SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).
- PROJECT SUMMARY
- | | |
|----------------------|--|
| SITE NUMBER: | CTNL053A |
| SBA SITE NUMBER: | CT11561-A |
| SBA SITE NAME: | GROTON 2, CT |
| SITE ADDRESS: | 237 SANDY HOLLOW ROAD
GROTON, CT 06355 |
| PROPERTY OWNER: | MYSTIC RIVER AMBULANCE ASSOC.
P.O. BOX 64
W. MYSTIC, CT 06388 |
| TOWER OWNER: | SBA INFRASTRUCTURE, LLC
8501 CONGRESS AVENUE
BOCA RATON, FL 33487
PHONE: 561-226-9523 |
| COUNTY: | NEW LONDON COUNTY |
| ZONING DISTRICT: | COMMERCIAL |
| STRUCTURE TYPE: | MONOPOLE |
| STRUCTURE HEIGHT: | 130' |
| APPLICANT: | T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766 |
| SBA RSM: | STEPHEN ROTH
PHONE: 860-539-4920
EMAIL: SROth@sbsasite.com |
| ARCHITECT: | CHAPPELL ENGINEERING ASSOCIATES, LLC.
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752 |
| STRUCTURAL ENGINEER: | CHAPPELL ENGINEERING ASSOCIATES, LLC.
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752 |
| SITE CONTROL POINT: | LATITUDE: N.41.370002° N.41°22'12.01"
LONGITUDE W.71.982496° W.71°58'56.99" |
- T-MOBILE
NORTHEAST LLC
- 15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700
-
- SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720
-
- R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com
-
- CHECKED BY: JMT
- APPROVED BY: JMT
- | SUBMITTALS | | | |
|------------|----------|-------------------------|-----|
| REV. | DATE | DESCRIPTION | BY |
| | | | |
| | | | |
| | | | |
| | | | |
| 3 | 04/28/21 | CONSTRUCTION REVISED | CNC |
| 2 | 04/21/21 | CONSTRUCTION REVISED | CNC |
| 1 | 08/18/19 | ISSUED FOR CONSTRUCTION | JRV |
| 0 | 05/16/19 | ISSUED FOR REVIEW | CNC |
- SITE NUMBER:
CTNL053A

SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355
- SHEET TITLE

TITLE SHEET
- SHEET NUMBER

T-1
- 1815.121

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – T-MOBILE
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE
OEM – ORIGINAL EQUIPMENT MANUFACTURER
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.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE 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 FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND 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 AND/OR LANDLORD PRIOR TO CONSTRUCTION.
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 THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
15. CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
16. 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.
17. THE EXISTING CELL SITES ARE 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.
18. IF THE EXISTING 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 TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.
9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
CONCRETE CAST AGAINST EARTH.....3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:
#6 AND LARGER2 IN.
#5 AND SMALLER & WWF1½ IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER
OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL¾ IN.
BEAMS AND COLUMNS½ IN.
5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T-MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ¾" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL
6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

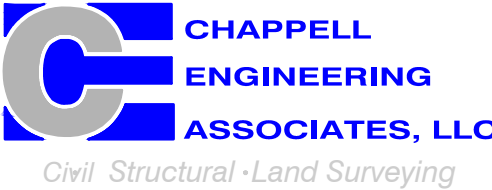
1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.
6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND, DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

T-MOBILE
NORTHEAST LLC

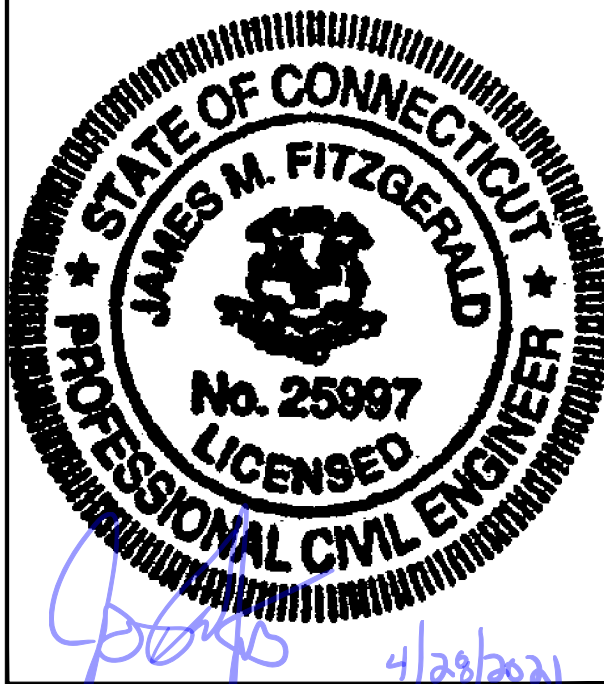
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SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
3	04/28/21	CONSTRUCTION REVISED	CMC
2	04/21/21	CONSTRUCTION REVISED	CMC
1	08/18/19	ISSUED FOR CONSTRUCTION	JRV
0	05/16/19	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CTNL053A

SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355

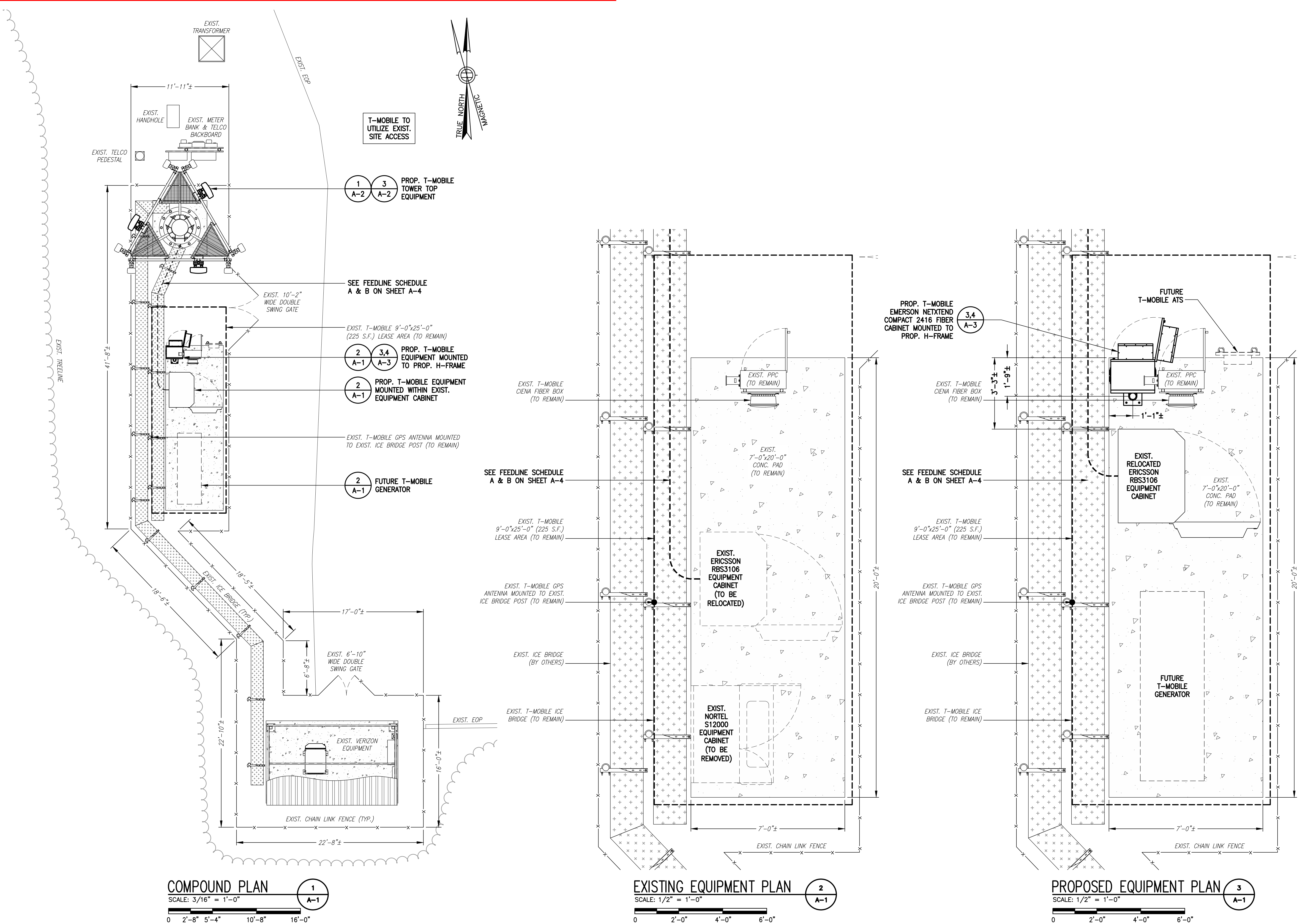
SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-1

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM
SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

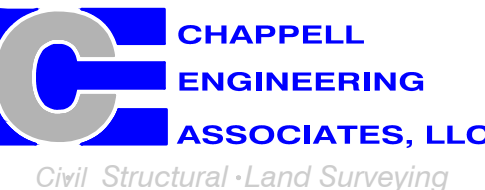


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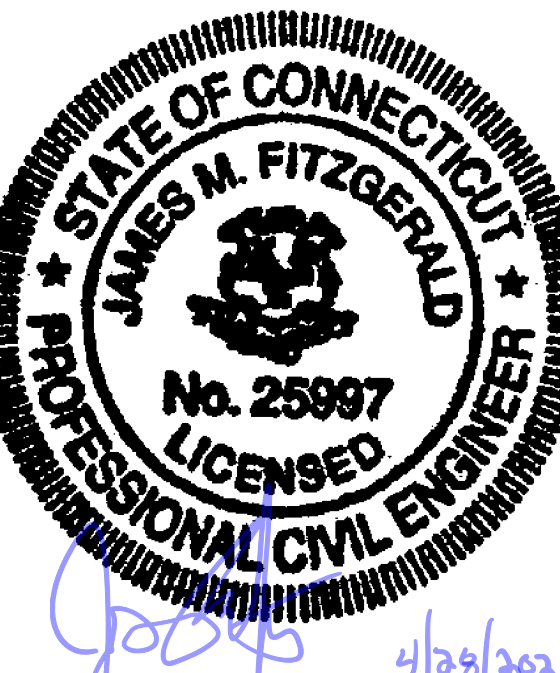
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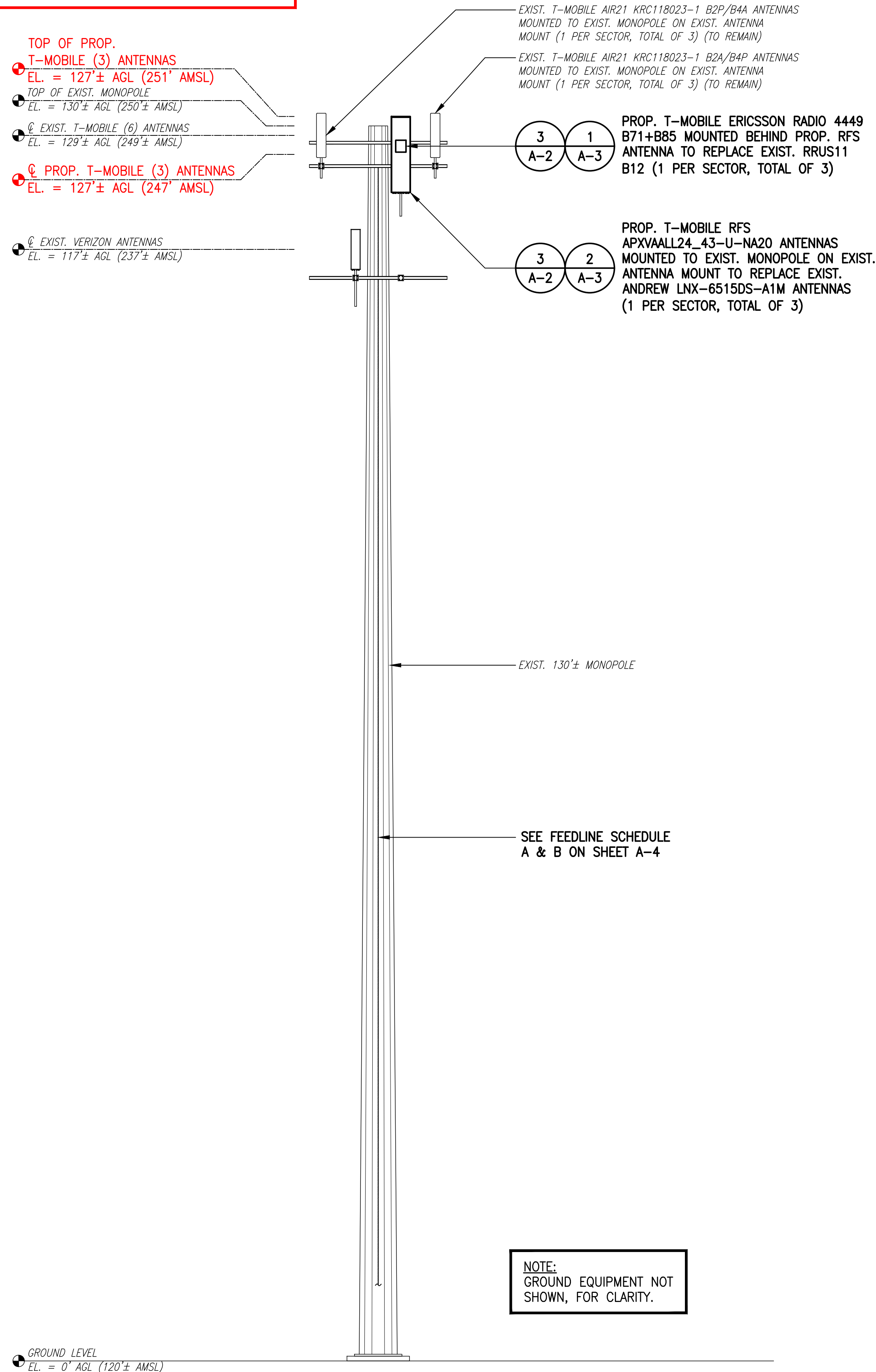
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SHEET TITLE
**COMPOUND &
EQUIPMENT PLAN**

SHEET NUMBER
A-1

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT
THE T-MOBILE RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL
ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED
CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL
ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE
ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.



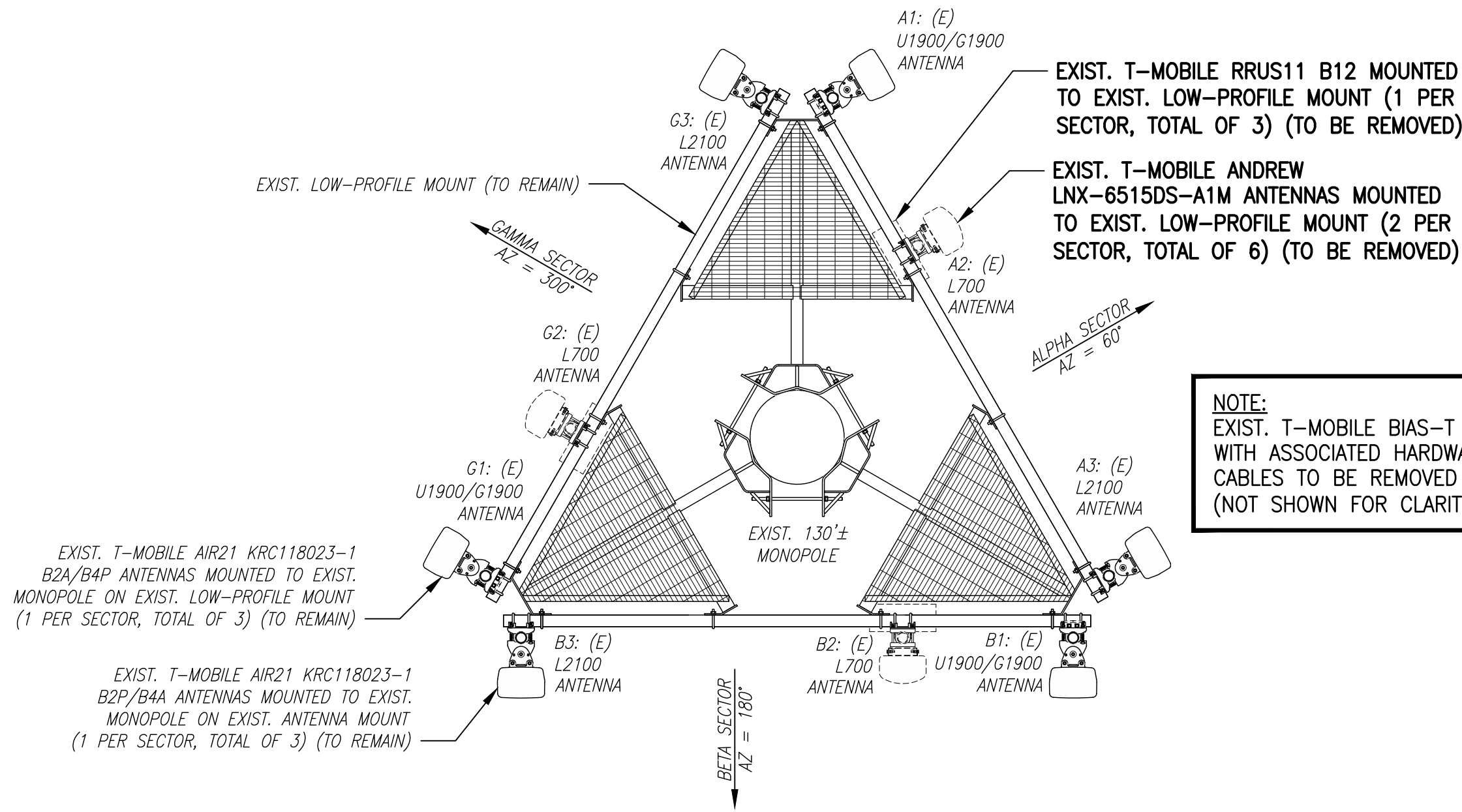
TOWER ELEVATION

SCALE: 1/8" = 1'-0"

0 4' 8' 16' 24'

1
A-2

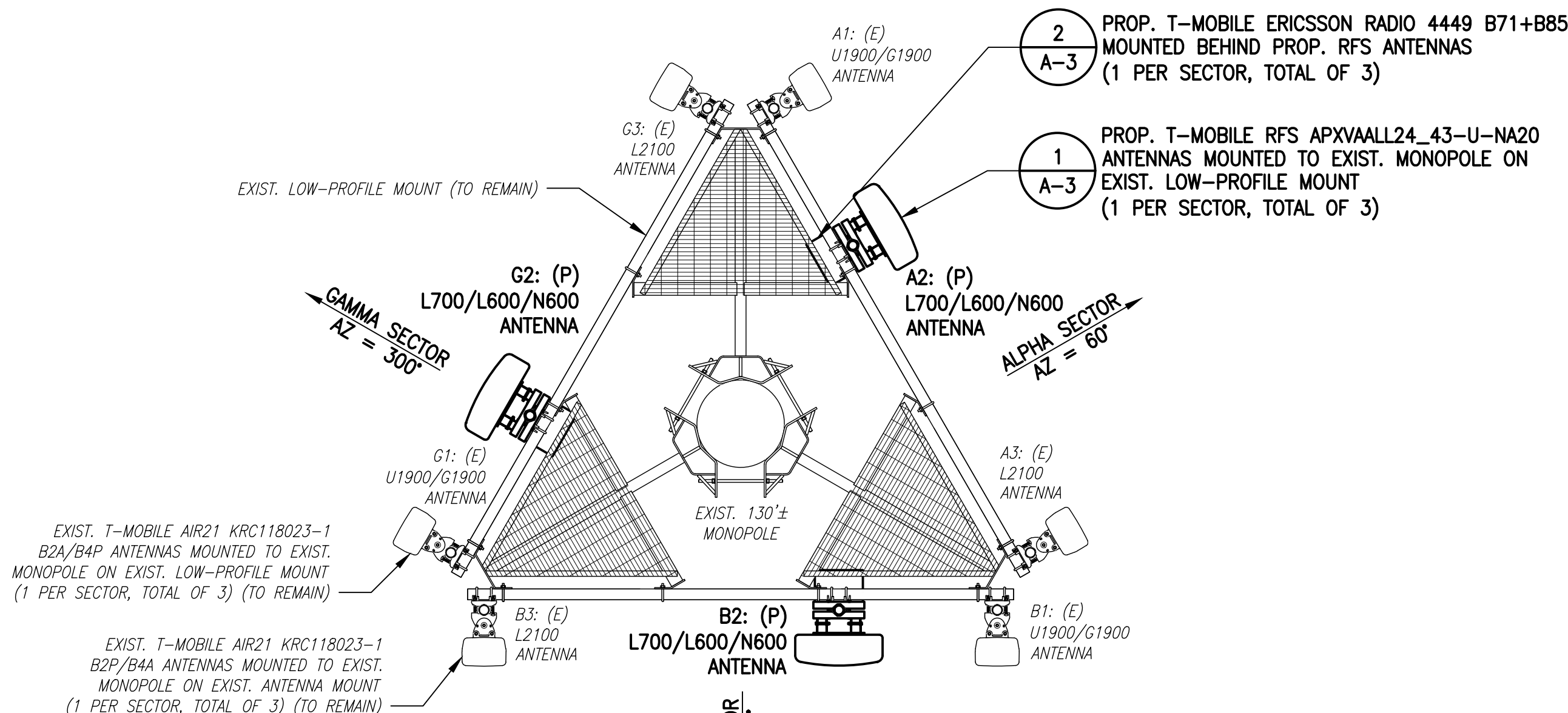
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SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.



EXISTING ANTENNA PLAN

SCALE: 3/8" = 1'-0"

2
A-2



PROPOSED ANTENNA PLAN

SCALE: 3/8" = 1'-0"

3
A-2

ANTENNA LEGEND:

EMPTY - EMPTY PIPE

(E) - EXISTING

(P) - INSTALL

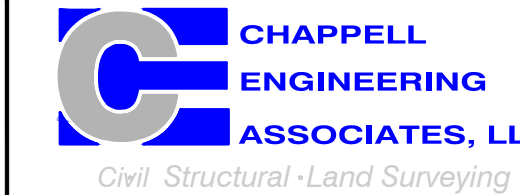
NOTE:
VERIFY PROPOSED AZIMUTHS
WITH RF ENGINEER PRIOR
TO INSTALLATION.

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CTNL053A

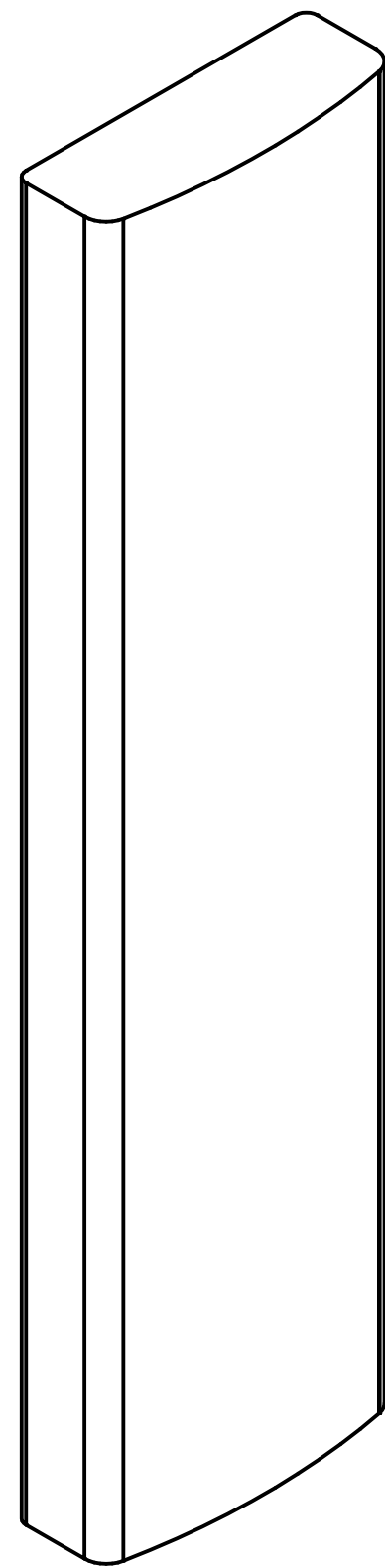
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237 SANDY HOLLOW ROAD
GROTON, CT 06355

SHEET TITLE

TOWER ELEVATIONS &
ANTENNA PLAN

SHEET NUMBER

A-2



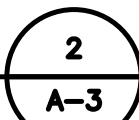
RFS APXVAALL24-43-U-NA20 ANTENNA
DIMENSIONS: 95.9"H x 24.0"W x 8.5"D
WEIGHT: 122.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ANTENNA DETAIL
SCALE: N.T.S.



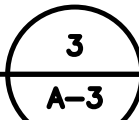
ERICSSON RADIO 4449 B71+B85
DIMENSIONS: 17.9"H x 13.1"W x 10.6"D
WEIGHT: 75.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAIL
SCALE: N.T.S.

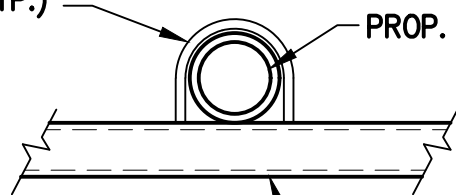


EMERSON NETXTEND COMPACT 2416 FIBER CABINET
DIMENSIONS: 24.0"H x 24.0"W x 25.2"D
WEIGHT: 64 lbs
QUANTITY: TOTAL OF 1

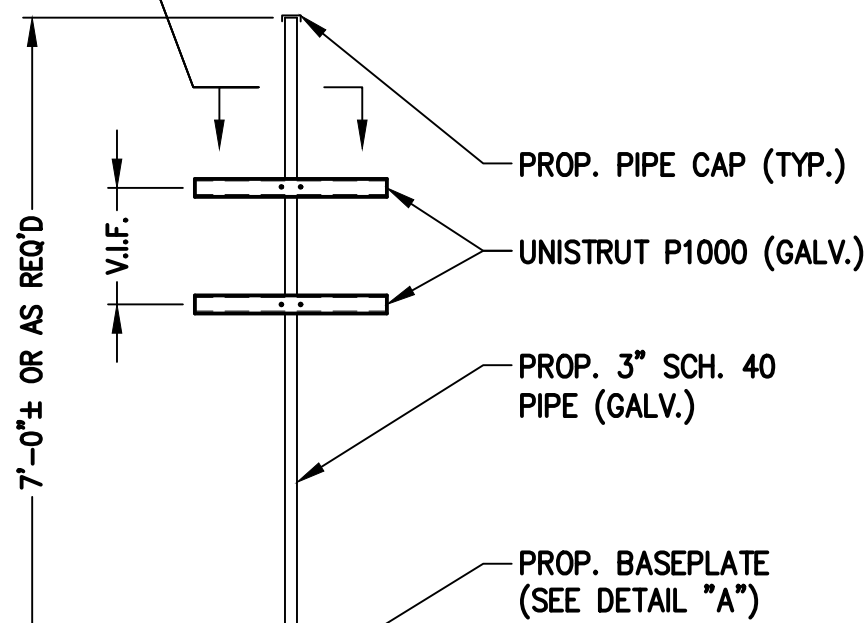
SSC DETAILS
SCALE: N.T.S.



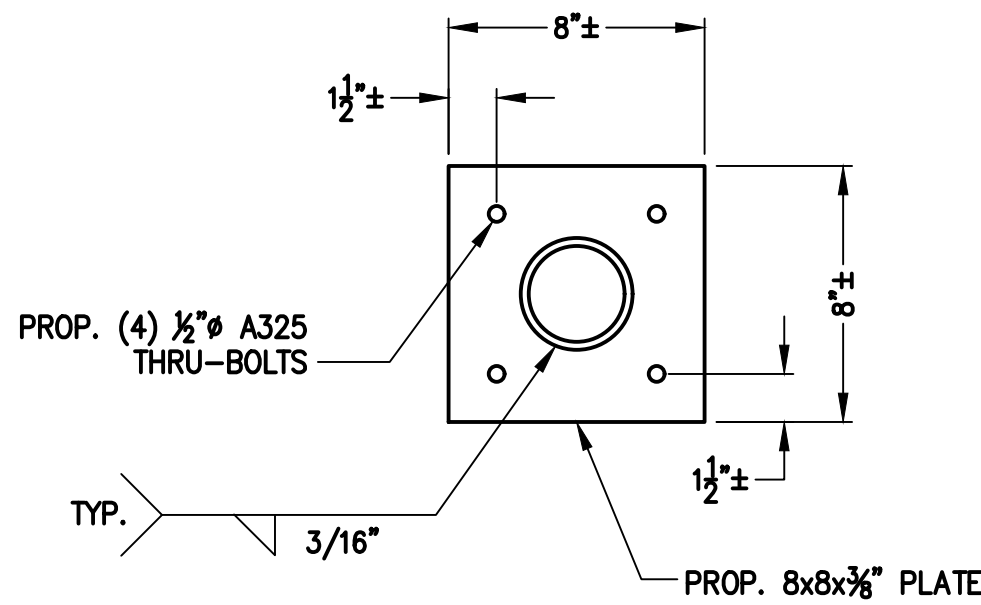
PROP. 1/2" U-BOLT (TYP.)



PROP. 3" SCH. 40 PIPE (GALV.)

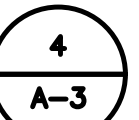


EXIST. W-BEAM



DETAIL "A"

H-FRAME DETAIL
SCALE: N.T.S.

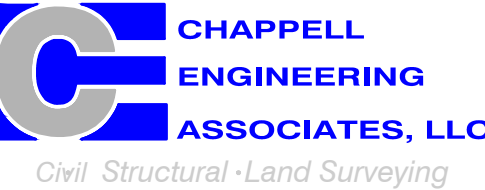


**T-MOBILE
NORTHEAST LLC**

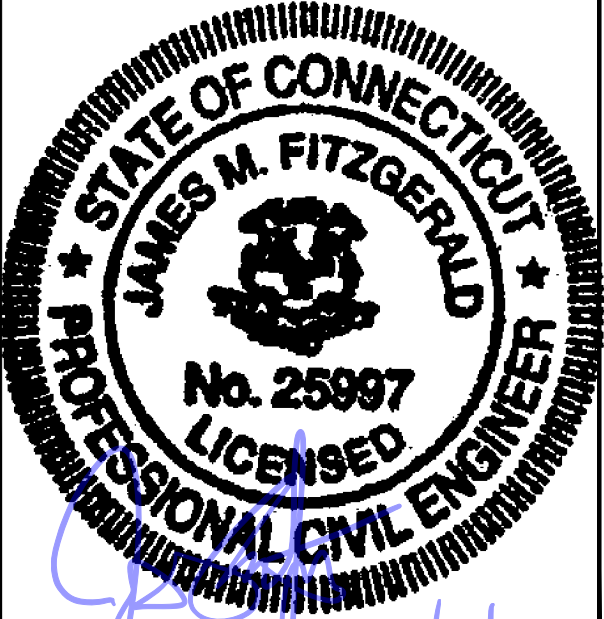
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720



R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS				
REV.	DATE	DESCRIPTION	BY	
3	04/28/21	CONSTRUCTION REVISED	CMC	
2	04/21/21	CONSTRUCTION REVISED	CMC	
1	08/18/19	ISSUED FOR CONSTRUCTION	JRV	
0	05/16/19	ISSUED FOR REVIEW	CMC	

SITE NUMBER:
CTNL053A

SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355

SHEET TITLE

SITE DETAILS

SHEET NUMBER

A-3

FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	A1 ERICSSON AIR21 KRC118023-1 B2A/B4P	129'± AGL	60°	0°	2°	U1900/G1900	-	PROP. (3) 2" (6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	127'± AGL	60°	0°	2°	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
	A3 ERICSSON AIR21 KRC118023-1 B2P/B4A	129'± AGL	60°	0°	-	L2100	-	
BETA	B1 ERICSSON AIR21 KRC118023-1 B2A/B4P	129'± AGL	180°	0°	2°	U1900/G1900	-	
	B2 RFS APXVAALL24_43-U-NA20	127'± AGL	180°	0°	2°	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
	B3 ERICSSON AIR21 KRC118023-1 B2P/B4A	129'± AGL	180°	0°	-	L2100	-	
GAMMA	G1 ERICSSON AIR21 KRC118023-1 B2A/B4P	129'± AGL	300°	0°	2°	U1900/G1900	-	
	G2 RFS APXVAALL24_43-U-NA20	127'± AGL	300°	0°	2°	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
	G3 ERICSSON AIR21 KRC118023-1 B2P/B4A	129'± AGL	300°	0°	-	L2100	-	
CABLE NOTE: EXISTING (6) 1-5/8" COAX CABLES & (1) 1-1/4" (9x18) HCS FIBER CABLE TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.								

NOTE: RFDS REV3 - 02/09/21

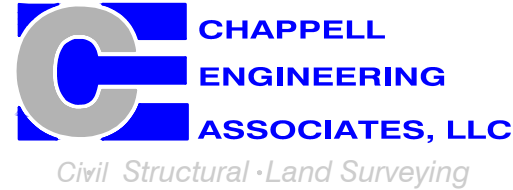
FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) ½" COAX FOR GPS ANTENNA EXISTING TO BE REMOVED: (6) 1-5⁄8" COAX CABLES (1) 1-¼" (9x18) HCS FIBER CABLE	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES	
NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.		

T-MOBILE
NORTHEAST LLC

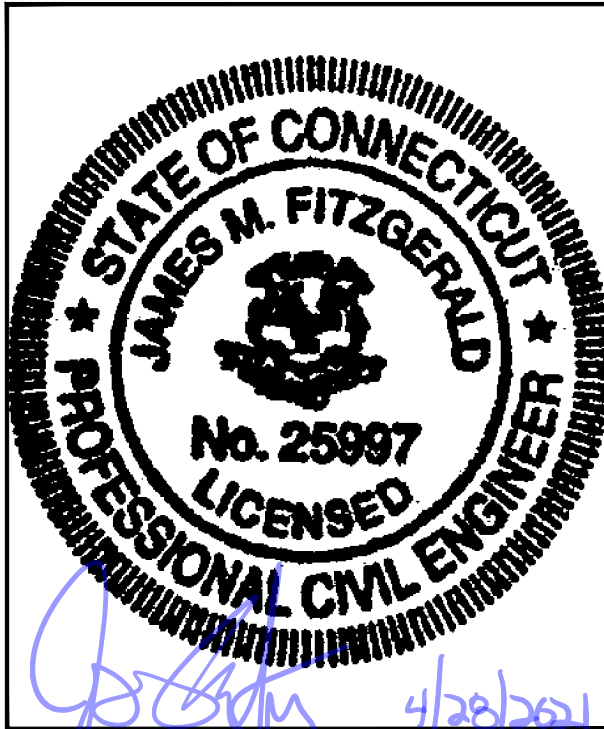
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
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R.K. EXECUTIVE CENTRE
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MARLBOROUGH, MA 01752
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www.chappellengineering.com



CHECKED BY: JMT

APPROVED BY: JMT

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0	05/16/19	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CTNL053A

SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355

SHEET TITLE

ANTENNA &
FEEDLINE CHARTS

SHEET NUMBER

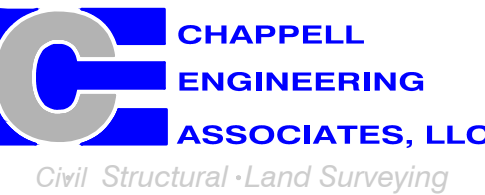
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T-MOBILE
NORTHEAST LLC

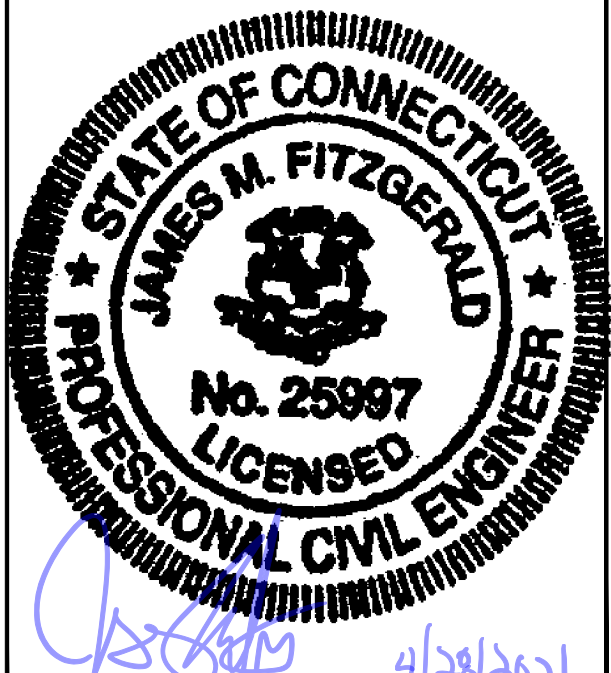
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
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SBA COMMUNICATIONS CORP.
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CHECKED BY: JMT

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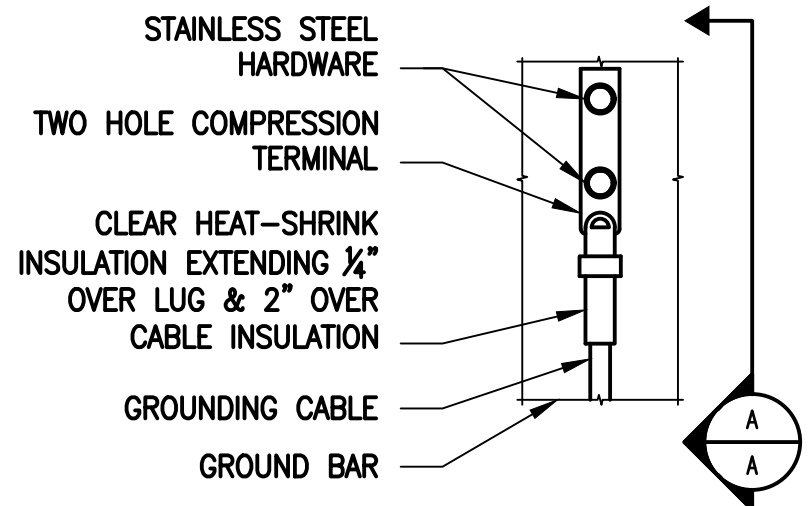
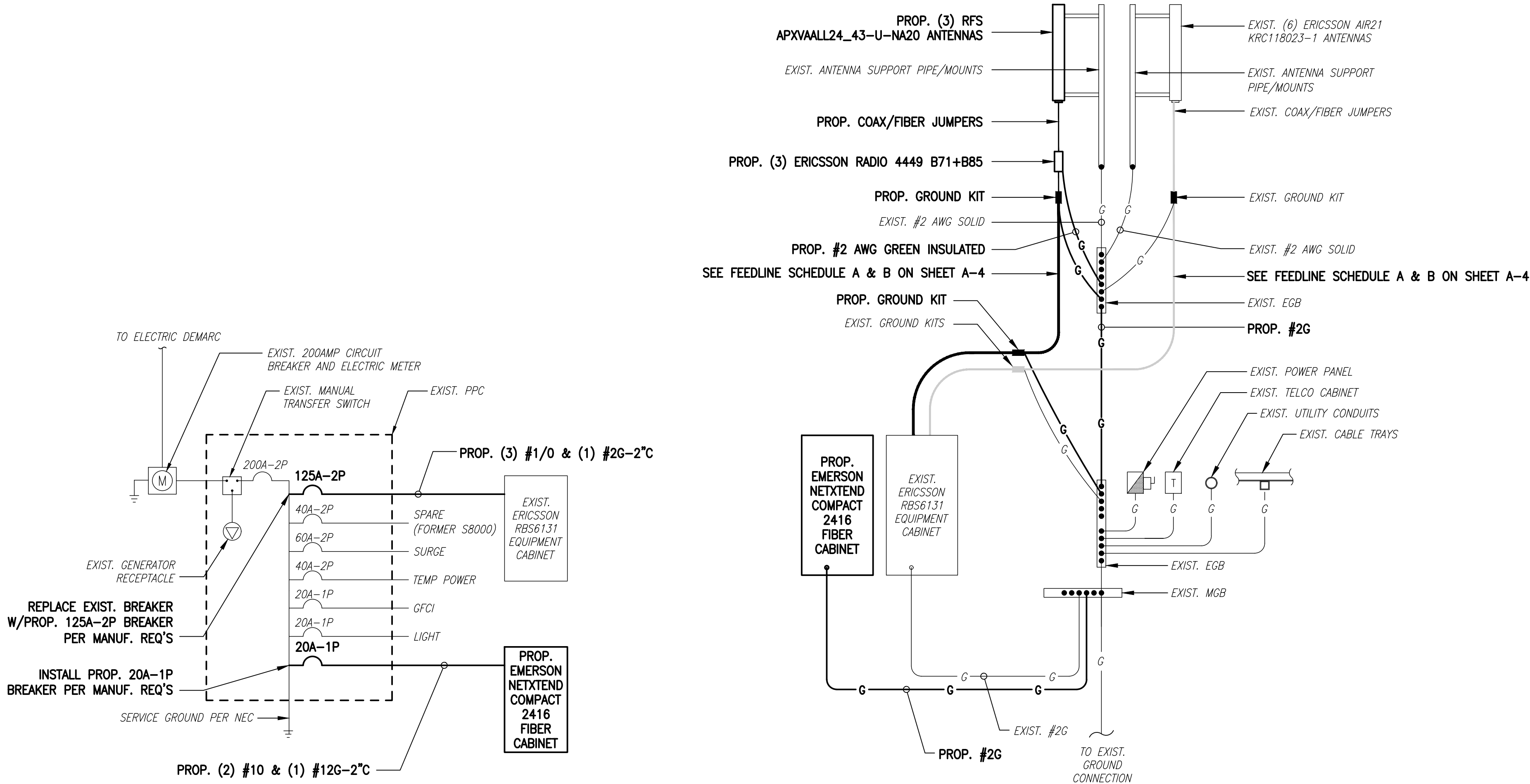
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237 SANDY HOLLOW ROAD
GROTON, CT 06355

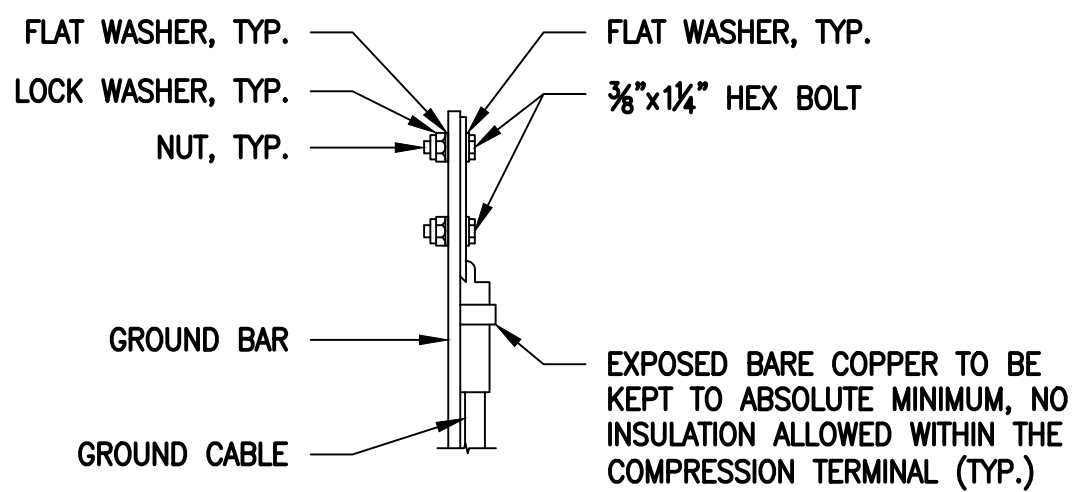
SHEET TITLE
**ELECTRIC & GROUNDING
DETAILS**

SHEET NUMBER

E-1



ELEVATION



SECTION A-A

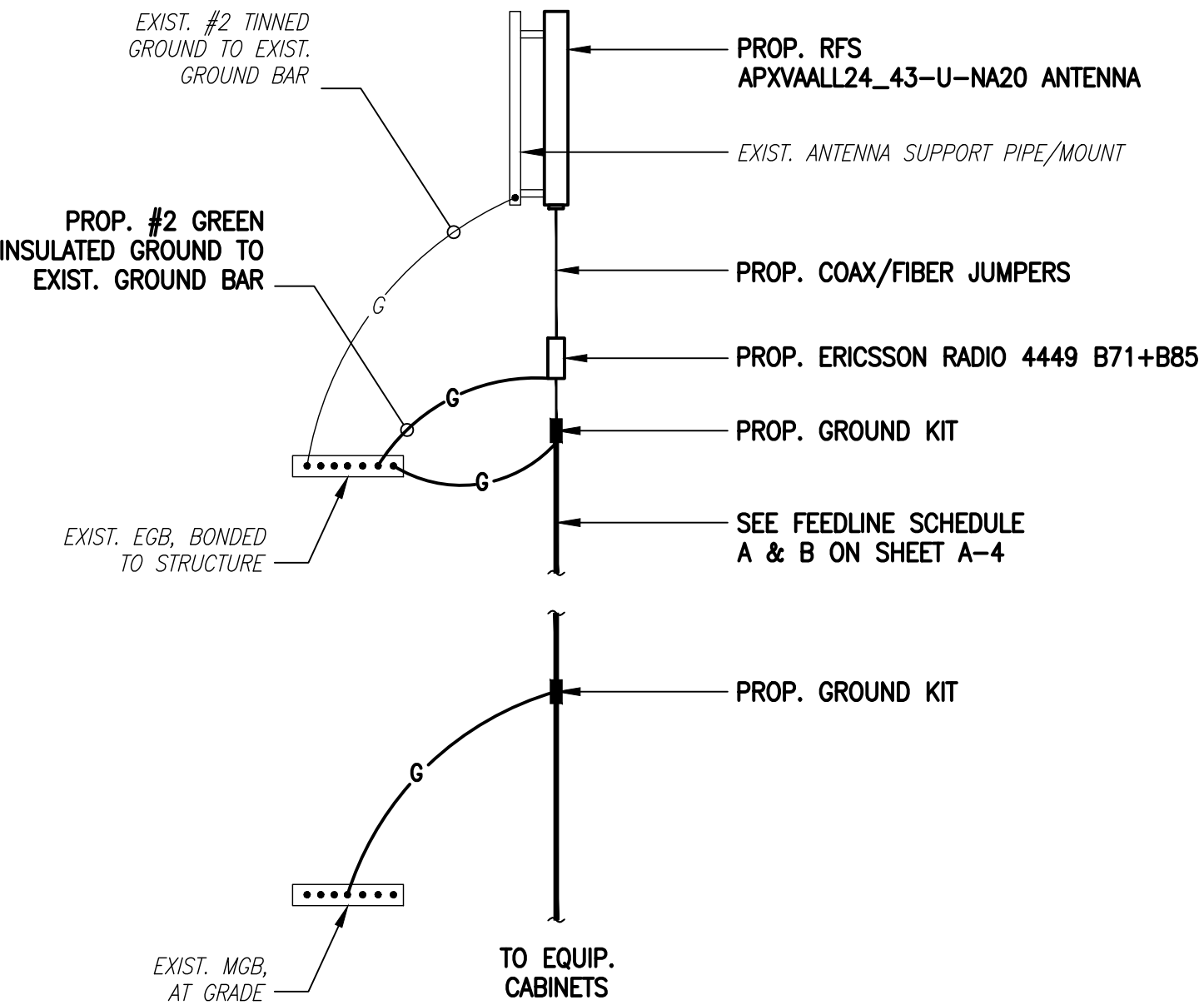
- NOTES:
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR
CONNECTIONS DETAIL

SCALE: NOT TO SCALE

ELECTRICAL AND GROUNDING NOTES

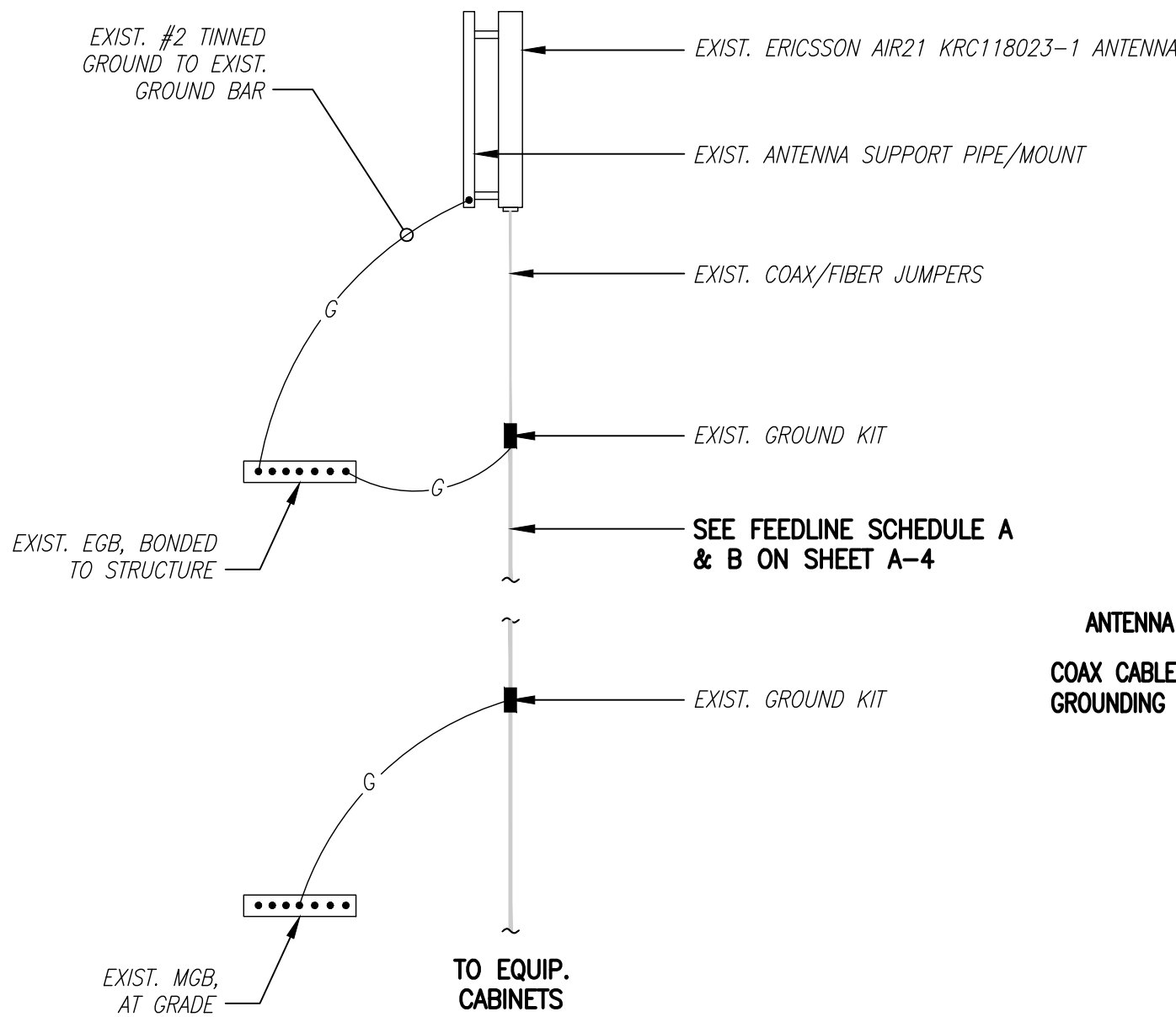
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.



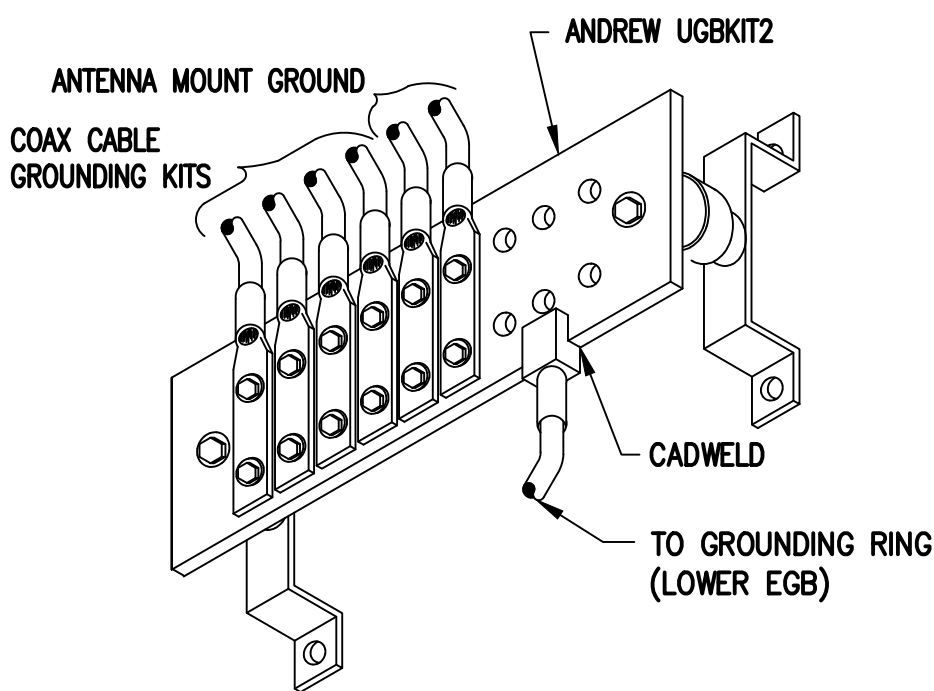
L700/L600/N600 ANTENNA

COAX CABLE CONNECTION
AND GROUNDING DETAIL

SCALE: NOT TO SCALE



L2100 & U1900/G1900 ANTENNA



GROUND BAR (EGB)

SCALE: NOT TO SCALE

EXHIBIT 7



Tower Engineering Solutions

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

Structural Analysis Report

Existing 130 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT11561-A

Customer Site Name: Groton 2, CT

Carrier Name: T-Mobile (App#: 116835, v3)

Carrier Site ID / Name: CTNL053A / Groton

Site Location: 237 Sandy Hollow Road

Groton, Connecticut

New London County

Latitude: 41.369510

Longitude: -71.982463

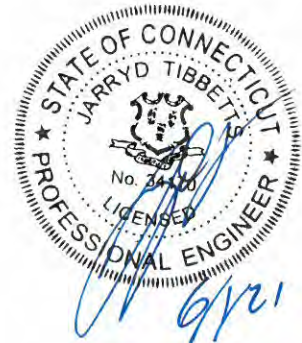
Analysis Result:

Max Structural Usage: 52.5% [Pass]

Max Foundation Usage: 31.8% [Pass]

Additional Usage Caused by Mount Modification: +3.8%

Report Prepared By: Walter Velez



Introduction

The purpose of this report is to summarize the analysis results on the 130 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	Original shaft section data prepared by Fred. A. Nudd Corp. Dated 05-09-2008. Drawing No 208-13077-1. Previous structural report prepared by Tower Engineering Solutions. Dated 09-29-2015. TES Project No 17801.
Foundation Drawing	Original foundation drawings prepared by Fred. A. Nudd Corp. Dated 05-09-2008. Drawing No 208-13077-1.
Geotechnical Report	Geotechnical report prepared by FDH Engineering, Inc. Dated 03-26-2014. Project No 1424W71600.
Modification Drawings	N/A
Mount Analysis	Antenna mount analysis report prepared by Tower Engineering Solutions. Dated 05-19-2021. TES Project No 106968.

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 135.0$ mph (3-Sec. Gust)
(Based on IBC 2015)	Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2, 2015 IBC & 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.160$, $S_1 = 0.058$

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	129.0	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		6	Ericsson KRY 112 144/1 TMAs			
4		3	Ericsson S11B12 RRUs			
5	127.0	3	Commscope LNX-6515DS-A1M - Panel	Low Profile Platform (Valmont RMQP)	(2) 1 5/8" Fiber	Verizon
6	117.0	4	Commscope HBX-6513DS-A1M - Panel			
7		2	ALU RRH 2x60 AWS			
8		2	ALU RRH 2x60 PCS			

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
9	127.0	3	Ericsson Air 21 B2A/B4P - Panel	Platform w/ Hand Rails	(9) 1 5/8" Coax; (3) 1.9" Fiber	T-Mobile
10		3	Ericsson Air 21 B4A/B2P - Panel			
11		3	RFS APXVAALL24_43-U-NA20 - Panel			
12		3	Ericsson KRY 112 144/1 TMAs			
13		3	Ericsson 4449 B71 + B85 RRU's			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate	Flange Connection
Max. Usage:	41.4%	36.8%	21.3%	52.5%
Pass/Fail	Pass	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	2188.8	22.7	27.8
Analysis Reactions	1528.8	16.9	27.4
Factored Reactions*	2954.9	30.6	37.5

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

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.6077 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/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 41.44% at 90.0ft

Structure: CT11561-A-SBA
Site Name: Groton 2, CT
Height: 130.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: B
Gh: 1.1

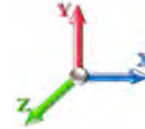
6/1/2021

Page: 1



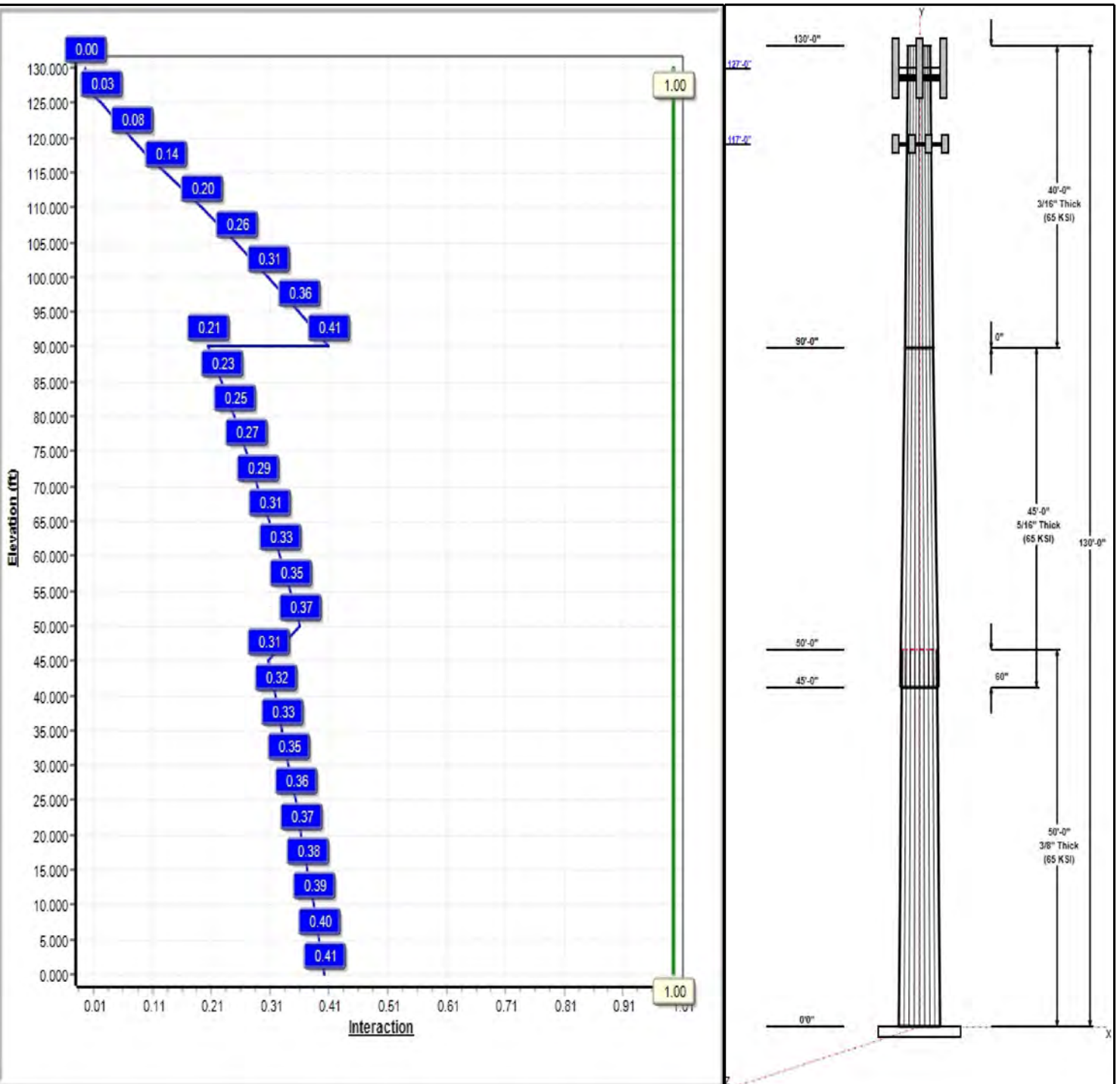
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 105 mph Wind



Iterations: 22

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Structure: CT11561-A-SBA

Type: Tapered
Site Name: Groton 2, CT
Height: 130.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18942

6/1/2021

Page: 2



Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	38.53	48.00	0.375		0.18942	65
2	45.00	31.58	40.10	0.313	Slip	0.18942	65
3	40.00	24.00	31.58	0.188	Butt	0.18942	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
127.00	127.00	3	Ericsson Air 21 B2A/B4P	T-Mobile
127.00	127.00	3	Ericsson Air 21 B4A/B2P	T-Mobile
127.00	127.00	3	RFS	T-Mobile
127.00	127.00	3	Ericsson KRY 112 144/1	T-Mobile
127.00	127.00	3	Ericsson 4449 B71 + B85	T-Mobile
127.00	127.00	1	Platform w/ Hand Rails	T-Mobile
117.00	117.00	1	Low Profile Platform	Verizon
117.00	117.00	4	Commscope	Verizon
117.00	117.00	2	ALU RRH 2x60 PCS	Verizon
117.00	117.00	2	ALU RRH 2x60 AWS	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	127.00	Inside	1 5/8" Coax	T-Mobile
3.00	127.00	Inside	1.9" Fiber	T-Mobile
3.00	117.00	Inside	1 5/8" Fiber	Verizon

Anchor Bolts

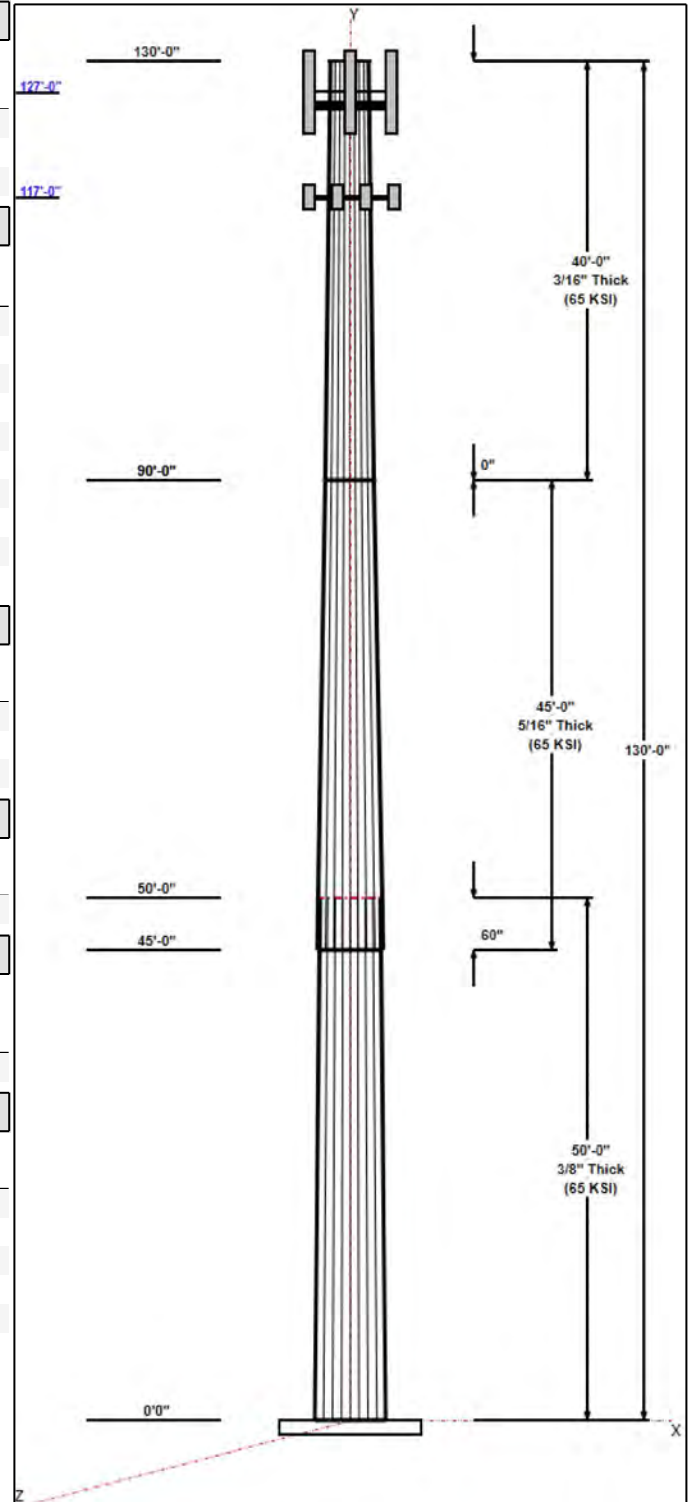
Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" A193 B7	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	60.0	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	1528.8	16.9	27.4
0.9D + 1.6W 105 mph Wind	1518.6	16.9	20.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	370.9	4.2	42.1
1.2D + 1.0E	95.1	0.9	27.4
0.9D + 1.0E	94.4	0.9	20.5
1.0D + 1.0W 60 mph Wind	310.6	3.4	22.8

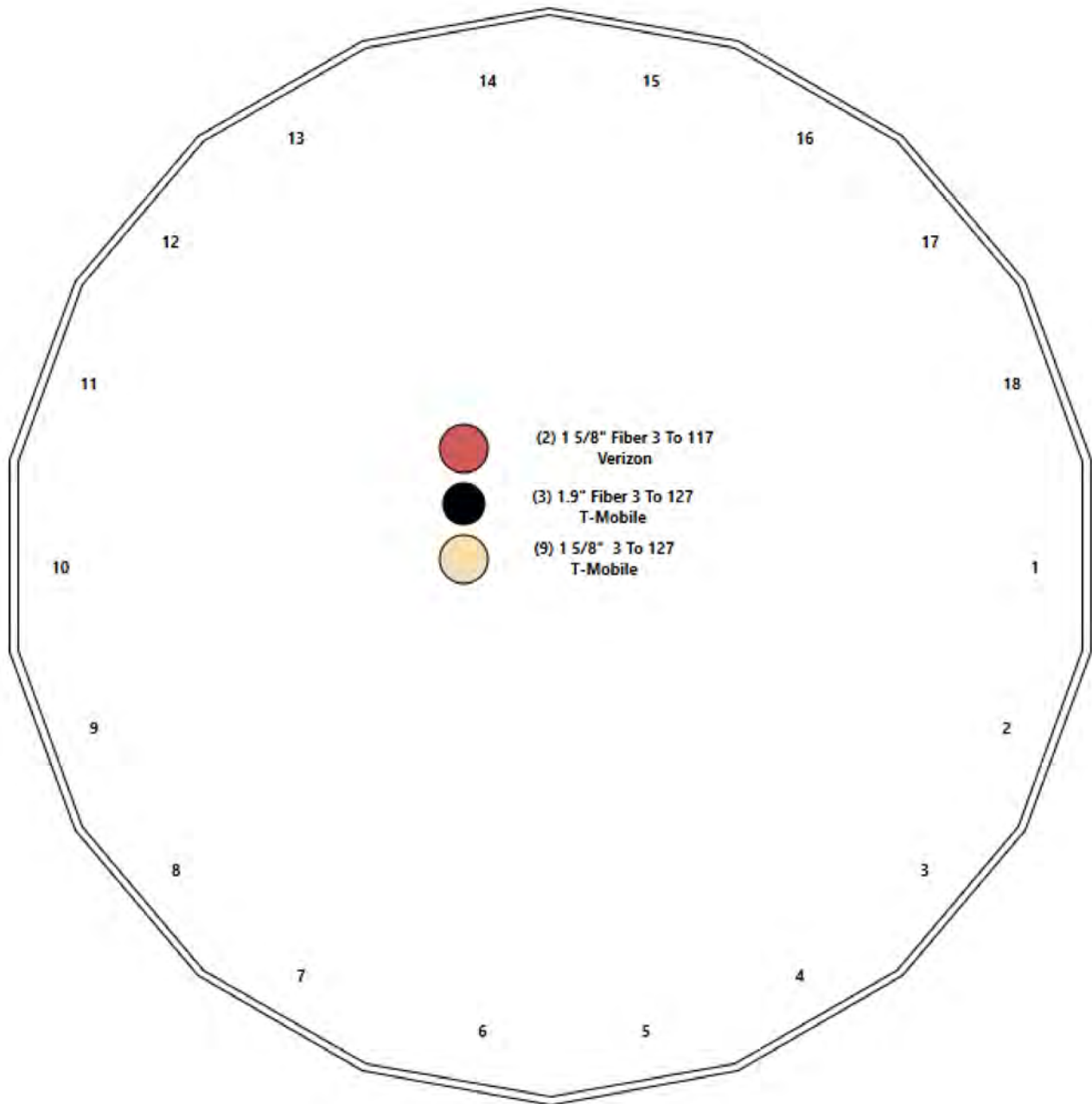


Structure: CT11561-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Groton 2, CT
Height: 130.00 (ft)

6/1/2021

Page: 3



Shaft Properties

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense 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	50.000	0.3750	65		0.00	8,685
2	18	45.000	0.3125	65	Slip	60.00	5,396
3	18	40.000	0.1875	65	Flange	0.00	2,236
Total Shaft Weight:							16,316

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	48.00	0.00	56.68	16243.54	21.16	128.00	38.53	50.00	45.41	8352.00	16.71	102.7	0.189423
2	40.10	45.00	39.46	7893.43	21.22	128.32	31.58	90.00	31.01	3829.53	16.41	101.0	0.189423
3	31.58	90.00	18.68	2325.39	28.28	168.41	24.00	130.00	14.17	1015.22	21.16	128.0	0.189423

Load Summary

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 5



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	127.00	Ericsson Air 21 B2A/B4P	3	91.50	6.04	0.85	255.27	7.109	0.85	0.00	0.00
2	127.00	Ericsson Air 21 B4A/B2P	3	90.30	6.04	0.85	254.07	7.109	0.85	0.00	0.00
3	127.00	RFS APXVAALL24_43-U-NA20	3	122.80	20.24	0.72	542.58	22.108	0.72	0.00	0.00
4	127.00	Ericsson KRY 112 144/1 TMAs	3	11.00	0.35	0.60	21.60	0.749	0.60	0.00	0.00
5	127.00	Ericsson 4449 B71 + B85 RRU's	3	75.00	1.95	0.67	154.84	2.529	0.67	0.00	0.00
6	127.00	Platform w/ Hand Rails	1	2000.00	40.00	1.00	4059.69	60.597	1.00	0.00	0.00
7	117.00	Low Profile Platform (Valmont	1	1500.00	22.00	1.00	2776.79	39.228	1.00	0.00	0.00
8	117.00	Commscope HBX-6513DS-A1M	4	5.70	1.58	0.80	41.91	2.634	0.80	0.00	0.00
9	117.00	ALU RRH 2x60 PCS	2	55.00	1.83	0.67	118.77	2.403	0.67	0.00	0.00
10	117.00	ALU RRH 2x60 AWS	2	60.00	1.83	0.67	145.15	2.232	0.67	0.00	0.00
Totals:			25	4,924.60			11,217.01				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
3.00	127.00	(9) 1 5/8" Coax	0.00	Inside
3.00	127.00	(3) 1.9" Fiber	0.00	Inside
3.00	117.00	(2) 1 5/8" Fiber	0.00	Inside

Shaft Section Properties

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense 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		0.3750	48.000	56.684	16243.5	21.16	128.00	76.5	666.5	0.0
5.00		0.3750	47.053	55.556	15293.6	20.71	125.47	77.0	640.2	954.8
10.00		0.3750	46.106	54.429	14381.4	20.27	122.95	77.6	614.4	935.6
15.00		0.3750	45.159	53.302	13506.2	19.82	120.42	78.1	589.1	916.5
20.00		0.3750	44.212	52.175	12667.3	19.38	117.90	78.6	564.3	897.3
25.00		0.3750	43.264	51.047	11863.9	18.93	115.37	79.1	540.1	878.1
30.00		0.3750	42.317	49.920	11095.1	18.49	112.85	79.7	516.4	858.9
35.00		0.3750	41.370	48.793	10360.3	18.04	110.32	80.2	493.3	839.7
40.00		0.3750	40.423	47.666	9658.7	17.60	107.79	80.7	470.6	820.6
45.00	Bot - Section 2	0.3750	39.476	46.538	8989.5	17.15	105.27	81.2	448.5	801.4
50.00	Top - Section 1	0.3125	39.154	38.524	7343.1	20.68	125.29	0.0	0.0	1445.6
55.00		0.3125	38.207	37.585	6818.9	20.15	122.26	77.7	351.5	647.5
60.00		0.3125	37.260	36.646	6320.3	19.61	119.23	78.3	334.1	631.5
65.00		0.3125	36.312	35.706	5846.6	19.08	116.20	79.0	317.1	615.5
70.00		0.3125	35.365	34.767	5397.2	18.54	113.17	79.6	300.6	599.5
75.00		0.3125	34.418	33.827	4971.4	18.01	110.14	80.2	284.5	583.5
80.00		0.3125	33.471	32.888	4568.6	17.48	107.11	80.8	268.8	567.5
85.00		0.3125	32.524	31.949	4188.2	16.94	104.08	81.5	253.6	551.6
90.00	Top - Section 2	0.3125	31.577	31.009	3829.5	16.41	101.05	82.1	238.9	535.6
90.00	Bot - Section 3	0.1875	31.577	18.680	2325.4	27.34	168.41	68.1	145.0	
95.00		0.1875	30.630	18.116	2121.2	27.39	163.36	69.2	136.4	313.0
100.00		0.1875	29.683	17.553	1929.3	26.50	158.31	70.2	128.0	303.4
105.00		0.1875	28.736	16.989	1749.3	25.61	153.26	71.3	119.9	293.8
110.00		0.1875	27.788	16.425	1581.0	24.72	148.21	72.3	112.1	284.3
115.00		0.1875	26.841	15.862	1423.7	23.83	143.15	73.4	104.5	274.7
117.00		0.1875	26.462	15.636	1363.9	23.47	141.13	73.8	101.5	107.2
120.00		0.1875	25.894	15.298	1277.3	22.94	138.10	74.4	97.2	157.9
125.00		0.1875	24.947	14.735	1141.2	22.05	133.05	75.5	90.1	255.5
127.00		0.1875	24.568	14.509	1089.7	21.69	131.03	75.9	87.4	99.5
130.00		0.1875	24.000	14.171	1015.2	21.16	128.00	76.5	83.3	146.4

16316.4

Wind Loading - Shaft

Structure: CT11561-A-SBA

Code: EIA/TIA-222-G

6/1/2021

Site Name: Groton 2, CT

Exposure: B

Height: 130.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: C - Very Dense Soil

Gh: 1.1

Topography: 1

Struct Class: II

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Load Case: 1.2D + 1.6W 105 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.60



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	0.70	18.769	20.65	356.82	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	18.769	20.65	349.78	0.650	0.000	5.00	20.108	13.07	431.8	0.0	1145.8
10.00		1.00	0.70	18.769	20.65	342.74	0.650	0.000	5.00	19.707	12.81	423.2	0.0	1122.8
15.00		1.00	0.70	18.769	20.65	335.70	0.650	0.000	5.00	19.307	12.55	414.5	0.0	1099.8
20.00		1.00	0.70	18.769	20.65	328.66	0.650	0.000	5.00	18.906	12.29	405.9	0.0	1076.7
25.00		1.00	0.70	18.769	20.65	321.62	0.650	0.000	5.00	18.505	12.03	397.3	0.0	1053.7
30.00		1.00	0.70	18.785	20.66	314.71	0.650	0.000	5.00	18.105	11.77	389.1	0.0	1030.7
35.00		1.00	0.73	19.631	21.59	314.51	0.650	0.000	5.00	17.704	11.51	397.6	0.0	1007.7
40.00		1.00	0.76	20.394	22.43	313.23	0.650	0.000	5.00	17.303	11.25	403.7	0.0	984.7
45.00 Bot - Section 2		1.00	0.79	21.092	23.20	311.08	0.650	0.000	5.00	16.902	10.99	407.8	0.0	961.7
50.00 Top - Section 1		1.00	0.81	21.737	23.91	308.22	0.650	0.000	5.00	16.766	10.90	416.9	0.0	1734.8
55.00		1.00	0.83	22.337	24.57	309.84	0.650	0.000	5.00	16.365	10.64	418.2	0.0	776.9
60.00		1.00	0.85	22.899	25.19	305.94	0.650	0.000	5.00	15.965	10.38	418.2	0.0	757.8
65.00		1.00	0.87	23.429	25.77	301.59	0.650	0.000	5.00	15.564	10.12	417.2	0.0	738.6
70.00		1.00	0.89	23.930	26.32	296.85	0.650	0.000	5.00	15.163	9.86	415.1	0.0	719.4
75.00		1.00	0.91	24.406	26.85	291.76	0.650	0.000	5.00	14.763	9.60	412.2	0.0	700.2
80.00		1.00	0.93	24.861	27.35	286.36	0.650	0.000	5.00	14.362	9.34	408.5	0.0	681.1
85.00		1.00	0.94	25.295	27.82	280.68	0.650	0.000	5.00	13.961	9.07	404.0	0.0	661.9
90.00 Top - Section 2		1.00	0.96	25.711	28.28	274.74	0.650	0.000	5.00	13.560	8.81	398.9	0.0	642.7
95.00		1.00	0.97	26.112	28.72	268.56	0.650	0.000	5.00	13.160	8.55	393.1	0.0	375.6
100.00		1.00	0.99	26.497	29.15	262.17	0.650	0.000	5.00	12.759	8.29	386.8	0.0	364.1
105.00		1.00	1.00	26.869	29.56	255.58	0.650	0.000	5.00	12.358	8.03	379.9	0.0	352.6
110.00		1.00	1.02	27.229	29.95	248.81	0.650	0.000	5.00	11.958	7.77	372.5	0.0	341.1
115.00		1.00	1.03	27.577	30.33	241.86	0.650	0.000	5.00	11.557	7.51	364.6	0.0	329.6
117.00 Appurtenance(s)		1.00	1.03	27.713	30.48	239.03	0.650	0.000	2.00	4.511	2.93	143.0	0.0	128.6
120.00		1.00	1.04	27.914	30.71	234.75	0.650	0.000	3.00	6.646	4.32	212.2	0.0	189.5
125.00		1.00	1.05	28.242	31.07	227.48	0.650	0.000	5.00	10.755	6.99	347.5	0.0	306.6
127.00 Appurtenance(s)		1.00	1.06	28.370	31.21	224.54	0.650	0.000	2.00	4.190	2.72	136.0	0.0	119.4
130.00		1.00	1.07	28.560	31.42	220.08	0.650	0.000	3.00	6.165	4.01	201.4	0.0	175.7
Totals:									130.00			10,316.9		19,579.7

Discrete Appurtenance Forces

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

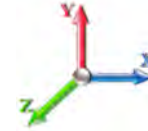


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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Ericsson Air 21 B2A/B4P	3	28.370	31.207	0.64	0.75	11.55	329.40	0.000	0.000	576.78	0.00	0.00
2	127.00	Ericsson Air 21 B4A/B2P	3	28.370	31.207	0.64	0.75	11.55	325.08	0.000	0.000	576.78	0.00	0.00
3	127.00	RFS	3	28.370	31.207	0.54	0.75	32.79	442.08	0.000	0.000	1637.18	0.00	0.00
4	127.00	Ericsson KRY 112 144/1	3	28.370	31.207	0.45	0.75	0.47	39.60	0.000	0.000	23.59	0.00	0.00
5	127.00	Ericsson 4449 B71 + B85	3	28.370	31.207	0.50	0.75	2.94	270.00	0.000	0.000	146.78	0.00	0.00
6	127.00	Platform w/ Hand Rails	1	28.370	31.207	1.00	1.00	40.00	2400.00	0.000	0.000	1997.25	0.00	0.00
7	117.00	Low Profile Platform	1	27.713	30.484	1.00	1.00	22.00	1800.00	0.000	0.000	1073.04	0.00	0.00
8	117.00	Commscope	4	27.713	30.484	0.80	1.00	5.06	27.36	0.000	0.000	246.61	0.00	0.00
9	117.00	ALU RRH 2x60 PCS	2	27.713	30.484	0.67	1.00	2.45	132.00	0.000	0.000	119.61	0.00	0.00
10	117.00	ALU RRH 2x60 AWS	2	27.713	30.484	0.67	1.00	2.45	144.00	0.000	0.000	119.61	0.00	0.00
Totals:									5,909.52			6,517.22		

Total Applied Force Summary

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 9

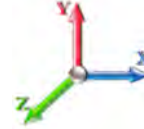


Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60

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		431.76	1176.84	0.00	0.00
10.00		423.15	1200.41	0.00	0.00
15.00		414.55	1177.39	0.00	0.00
20.00		405.94	1154.38	0.00	0.00
25.00		397.34	1131.36	0.00	0.00
30.00		389.06	1108.35	0.00	0.00
35.00		397.58	1085.33	0.00	0.00
40.00		403.70	1062.32	0.00	0.00
45.00		407.84	1039.30	0.00	0.00
50.00		416.92	1812.42	0.00	0.00
55.00		418.19	854.59	0.00	0.00
60.00		418.22	835.41	0.00	0.00
65.00		417.15	816.23	0.00	0.00
70.00		415.11	797.05	0.00	0.00
75.00		412.18	777.87	0.00	0.00
80.00		408.46	758.69	0.00	0.00
85.00		404.00	739.51	0.00	0.00
90.00		398.86	720.34	0.00	0.00
95.00		393.10	453.27	0.00	0.00
100.00		386.76	441.76	0.00	0.00
105.00		379.87	430.25	0.00	0.00
110.00		372.47	418.75	0.00	0.00
115.00		364.59	407.24	0.00	0.00
117.00	(9) attachments	1701.86	2263.03	0.00	0.00
120.00		212.22	228.57	0.00	0.00
125.00		347.49	371.74	0.00	0.00
127.00	(16) attachments	5094.34	3951.64	0.00	0.00
130.00		201.42	175.66	0.00	0.00
Totals:		16,834.14	27,389.72	0.00	0.00

Calculated Forces

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



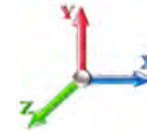
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Load Case: 1.2D + 1.6W 105 mph Wind

Iterations 22

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	-27.37	-16.87	0.00	-1528.7	0.00	1528.76	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.407
5.00	-26.16	-16.49	0.00	-1444.4	0.00	1444.43	3851.93	1925.96	7386.73	3698.85	0.07	-0.130	0.000	0.397
10.00	-24.92	-16.12	0.00	-1361.9	0.00	1361.97	3799.43	1899.71	7137.04	3573.82	0.28	-0.261	0.000	0.388
15.00	-23.71	-15.75	0.00	-1281.3	0.00	1281.37	3745.86	1872.93	6889.51	3449.88	0.62	-0.391	0.000	0.378
20.00	-22.52	-15.39	0.00	-1202.6	0.00	1202.60	3691.24	1845.62	6644.27	3327.07	1.10	-0.522	0.000	0.368
25.00	-21.36	-15.03	0.00	-1125.6	0.00	1125.64	3635.55	1817.78	6401.45	3205.48	1.72	-0.653	0.000	0.357
30.00	-20.23	-14.67	0.00	-1050.4	0.00	1050.49	3578.80	1789.40	6161.16	3085.16	2.47	-0.783	0.000	0.346
35.00	-19.11	-14.30	0.00	-977.12	0.00	977.12	3520.99	1760.49	5923.54	2966.17	3.36	-0.913	0.000	0.335
40.00	-18.03	-13.92	0.00	-905.61	0.00	905.61	3462.11	1731.06	5688.70	2848.58	4.39	-1.043	0.000	0.323
45.00	-16.97	-13.53	0.00	-836.00	0.00	836.00	3402.17	1701.09	5456.79	2732.45	5.55	-1.171	0.000	0.311
50.00	-15.13	-13.11	0.00	-768.34	0.00	768.34	2672.34	1336.17	4264.27	2135.31	6.84	-1.298	0.000	0.366
55.00	-14.26	-12.70	0.00	-702.79	0.00	702.79	2628.44	1314.22	4091.13	2048.60	8.27	-1.423	0.000	0.349
60.00	-13.41	-12.30	0.00	-639.27	0.00	639.27	2583.48	1291.74	3919.82	1962.82	9.84	-1.563	0.000	0.331
65.00	-12.57	-11.89	0.00	-577.79	0.00	577.79	2537.45	1268.73	3750.46	1878.02	11.55	-1.700	0.000	0.313
70.00	-11.76	-11.47	0.00	-518.36	0.00	518.36	2490.36	1245.18	3583.19	1794.26	13.40	-1.833	0.000	0.294
75.00	-10.98	-11.06	0.00	-460.99	0.00	460.99	2442.21	1221.10	3418.12	1711.60	15.39	-1.962	0.000	0.274
80.00	-10.21	-10.65	0.00	-405.69	0.00	405.69	2392.99	1196.50	3255.39	1630.11	17.51	-2.086	0.000	0.253
85.00	-9.47	-10.23	0.00	-352.45	0.00	352.45	2342.71	1171.36	3095.11	1549.86	19.76	-2.205	0.000	0.232
90.00	-8.74	-9.82	0.00	-301.28	0.00	301.28	2291.37	1145.69	2937.41	1470.89	22.13	-2.316	0.000	0.209
90.00	-8.74	-9.82	0.00	-301.28	0.00	301.28	1145.45	572.73	1480.17	741.18	22.13	-2.316	0.000	0.414
95.00	-8.29	-9.43	0.00	-252.16	0.00	252.16	1127.97	563.98	1413.34	707.72	24.61	-2.418	0.000	0.364
100.00	-7.84	-9.05	0.00	-205.01	0.00	205.01	1109.42	554.71	1346.59	674.30	27.23	-2.572	0.000	0.311
105.00	-7.41	-8.66	0.00	-159.78	0.00	159.78	1089.82	544.91	1280.05	640.97	30.00	-2.706	0.000	0.256
110.00	-6.99	-8.28	0.00	-116.47	0.00	116.47	1069.15	534.57	1213.84	607.82	32.89	-2.818	0.000	0.198
115.00	-6.60	-7.90	0.00	-75.07	0.00	75.07	1047.42	523.71	1148.08	574.89	35.89	-2.905	0.000	0.137
117.00	-4.42	-6.09	0.00	-59.26	0.00	59.26	1038.42	519.21	1121.94	561.80	37.12	-2.931	0.000	0.110
120.00	-4.20	-5.87	0.00	-40.99	0.00	40.99	1024.62	512.31	1082.91	542.26	38.97	-2.963	0.000	0.080
125.00	-3.84	-5.50	0.00	-11.64	0.00	11.64	1000.76	500.38	1018.44	509.98	42.09	-2.992	0.000	0.027
127.00	-0.16	-0.21	0.00	-0.63	0.00	0.63	990.92	495.46	992.88	497.18	43.34	-2.995	0.000	0.001
130.00	0.00	-0.20	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	45.22	-2.995	0.000	0.000

Wind Loading - Shaft

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

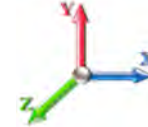


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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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	0.70	18.769	20.65	356.82	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	18.769	20.65	349.78	0.650	0.000	5.00	20.108	13.07	431.8	0.0	859.3
10.00		1.00	0.70	18.769	20.65	342.74	0.650	0.000	5.00	19.707	12.81	423.2	0.0	842.1
15.00		1.00	0.70	18.769	20.65	335.70	0.650	0.000	5.00	19.307	12.55	414.5	0.0	824.8
20.00		1.00	0.70	18.769	20.65	328.66	0.650	0.000	5.00	18.906	12.29	405.9	0.0	807.6
25.00		1.00	0.70	18.769	20.65	321.62	0.650	0.000	5.00	18.505	12.03	397.3	0.0	790.3
30.00		1.00	0.70	18.785	20.66	314.71	0.650	0.000	5.00	18.105	11.77	389.1	0.0	773.0
35.00		1.00	0.73	19.631	21.59	314.51	0.650	0.000	5.00	17.704	11.51	397.6	0.0	755.8
40.00		1.00	0.76	20.394	22.43	313.23	0.650	0.000	5.00	17.303	11.25	403.7	0.0	738.5
45.00	Bot - Section 2	1.00	0.79	21.092	23.20	311.08	0.650	0.000	5.00	16.902	10.99	407.8	0.0	721.2
50.00	Top - Section 1	1.00	0.81	21.737	23.91	308.22	0.650	0.000	5.00	16.766	10.90	416.9	0.0	1301.1
55.00		1.00	0.83	22.337	24.57	309.84	0.650	0.000	5.00	16.365	10.64	418.2	0.0	582.7
60.00		1.00	0.85	22.899	25.19	305.94	0.650	0.000	5.00	15.965	10.38	418.2	0.0	568.3
65.00		1.00	0.87	23.429	25.77	301.59	0.650	0.000	5.00	15.564	10.12	417.2	0.0	553.9
70.00		1.00	0.89	23.930	26.32	296.85	0.650	0.000	5.00	15.163	9.86	415.1	0.0	539.6
75.00		1.00	0.91	24.406	26.85	291.76	0.650	0.000	5.00	14.763	9.60	412.2	0.0	525.2
80.00		1.00	0.93	24.861	27.35	286.36	0.650	0.000	5.00	14.362	9.34	408.5	0.0	510.8
85.00		1.00	0.94	25.295	27.82	280.68	0.650	0.000	5.00	13.961	9.07	404.0	0.0	496.4
90.00	Top - Section 2	1.00	0.96	25.711	28.28	274.74	0.650	0.000	5.00	13.560	8.81	398.9	0.0	482.0
95.00		1.00	0.97	26.112	28.72	268.56	0.650	0.000	5.00	13.160	8.55	393.1	0.0	281.7
100.00		1.00	0.99	26.497	29.15	262.17	0.650	0.000	5.00	12.759	8.29	386.8	0.0	273.1
105.00		1.00	1.00	26.869	29.56	255.58	0.650	0.000	5.00	12.358	8.03	379.9	0.0	264.5
110.00		1.00	1.02	27.229	29.95	248.81	0.650	0.000	5.00	11.958	7.77	372.5	0.0	255.8
115.00		1.00	1.03	27.577	30.33	241.86	0.650	0.000	5.00	11.557	7.51	364.6	0.0	247.2
117.00	Appurtenance(s)	1.00	1.03	27.713	30.48	239.03	0.650	0.000	2.00	4.511	2.93	143.0	0.0	96.5
120.00		1.00	1.04	27.914	30.71	234.75	0.650	0.000	3.00	6.646	4.32	212.2	0.0	142.1
125.00		1.00	1.05	28.242	31.07	227.48	0.650	0.000	5.00	10.755	6.99	347.5	0.0	229.9
127.00	Appurtenance(s)	1.00	1.06	28.370	31.21	224.54	0.650	0.000	2.00	4.190	2.72	136.0	0.0	89.6
130.00		1.00	1.07	28.560	31.42	220.08	0.650	0.000	3.00	6.165	4.01	201.4	0.0	131.7
Totals:									130.00			10,316.9		14,684.8

Discrete Appurtenance Forces

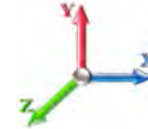
Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 12



Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Ericsson Air 21 B2A/B4P	3	28.370	31.207	0.64	0.75	11.55	247.05	0.000	0.000	576.78	0.00	0.00
2	127.00	Ericsson Air 21 B4A/B2P	3	28.370	31.207	0.64	0.75	11.55	243.81	0.000	0.000	576.78	0.00	0.00
3	127.00	RFS	3	28.370	31.207	0.54	0.75	32.79	331.56	0.000	0.000	1637.18	0.00	0.00
4	127.00	Ericsson KRY 112 144/1	3	28.370	31.207	0.45	0.75	0.47	29.70	0.000	0.000	23.59	0.00	0.00
5	127.00	Ericsson 4449 B71 + B85	3	28.370	31.207	0.50	0.75	2.94	202.50	0.000	0.000	146.78	0.00	0.00
6	127.00	Platform w/ Hand Rails	1	28.370	31.207	1.00	1.00	40.00	1800.00	0.000	0.000	1997.25	0.00	0.00
7	117.00	Low Profile Platform	1	27.713	30.484	1.00	1.00	22.00	1350.00	0.000	0.000	1073.04	0.00	0.00
8	117.00	Commscope	4	27.713	30.484	0.80	1.00	5.06	20.52	0.000	0.000	246.61	0.00	0.00
9	117.00	ALU RRH 2x60 PCS	2	27.713	30.484	0.67	1.00	2.45	99.00	0.000	0.000	119.61	0.00	0.00
10	117.00	ALU RRH 2x60 AWS	2	27.713	30.484	0.67	1.00	2.45	108.00	0.000	0.000	119.61	0.00	0.00
Totals:									4,432.14			6,517.22		

Total Applied Force Summary

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

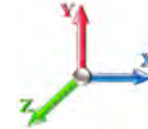


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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



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		431.76	882.63	0.00	0.00
10.00		423.15	900.31	0.00	0.00
15.00		414.55	883.04	0.00	0.00
20.00		405.94	865.78	0.00	0.00
25.00		397.34	848.52	0.00	0.00
30.00		389.06	831.26	0.00	0.00
35.00		397.58	814.00	0.00	0.00
40.00		403.70	796.74	0.00	0.00
45.00		407.84	779.48	0.00	0.00
50.00		416.92	1359.31	0.00	0.00
55.00		418.19	640.94	0.00	0.00
60.00		418.22	626.56	0.00	0.00
65.00		417.15	612.17	0.00	0.00
70.00		415.11	597.79	0.00	0.00
75.00		412.18	583.40	0.00	0.00
80.00		408.46	569.02	0.00	0.00
85.00		404.00	554.64	0.00	0.00
90.00		398.86	540.25	0.00	0.00
95.00		393.10	339.95	0.00	0.00
100.00		386.76	331.32	0.00	0.00
105.00		379.87	322.69	0.00	0.00
110.00		372.47	314.06	0.00	0.00
115.00		364.59	305.43	0.00	0.00
117.00	(9) attachments	1701.86	1697.28	0.00	0.00
120.00		212.22	171.43	0.00	0.00
125.00		347.49	278.81	0.00	0.00
127.00	(16) attachments	5094.34	2963.73	0.00	0.00
130.00		201.42	131.75	0.00	0.00
Totals:		16,834.14	20,542.29	0.00	0.00

Calculated Forces

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Page: 14
	Struct Class: II	

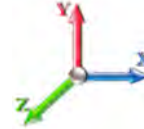


Load Case: 0.9D + 1.6W 105 mph Wind

Iterations 22

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	-20.52	-16.86	0.00	-1518.5	0.00	1518.59	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.402
5.00	-19.60	-16.47	0.00	-1434.3	0.00	1434.30	3851.93	1925.96	7386.73	3698.85	0.07	-0.129	0.000	0.393
10.00	-18.67	-16.09	0.00	-1351.9	0.00	1351.96	3799.43	1899.71	7137.04	3573.82	0.27	-0.259	0.000	0.383
15.00	-17.75	-15.71	0.00	-1271.5	0.00	1271.53	3745.86	1872.93	6889.51	3449.88	0.62	-0.389	0.000	0.373
20.00	-16.85	-15.33	0.00	-1193.0	0.00	1193.00	3691.24	1845.62	6644.27	3327.07	1.09	-0.518	0.000	0.363
25.00	-15.98	-14.96	0.00	-1116.3	0.00	1116.35	3635.55	1817.78	6401.45	3205.48	1.71	-0.648	0.000	0.353
30.00	-15.12	-14.60	0.00	-1041.5	0.00	1041.54	3578.80	1789.40	6161.16	3085.16	2.45	-0.777	0.000	0.342
35.00	-14.28	-14.22	0.00	-968.56	0.00	968.56	3520.99	1760.49	5923.54	2966.17	3.34	-0.906	0.000	0.331
40.00	-13.46	-13.83	0.00	-897.47	0.00	897.47	3462.11	1731.06	5688.70	2848.58	4.36	-1.034	0.000	0.319
45.00	-12.66	-13.44	0.00	-828.31	0.00	828.31	3402.17	1701.09	5456.79	2732.45	5.51	-1.161	0.000	0.307
50.00	-11.28	-13.02	0.00	-761.13	0.00	761.13	2672.34	1336.17	4264.27	2135.31	6.79	-1.287	0.000	0.361
55.00	-10.62	-12.61	0.00	-696.05	0.00	696.05	2628.44	1314.22	4091.13	2048.60	8.21	-1.411	0.000	0.344
60.00	-9.97	-12.20	0.00	-633.02	0.00	633.02	2583.48	1291.74	3919.82	1962.82	9.76	-1.550	0.000	0.326
65.00	-9.35	-11.78	0.00	-572.03	0.00	572.03	2537.45	1268.73	3750.46	1878.02	11.46	-1.686	0.000	0.308
70.00	-8.73	-11.37	0.00	-513.11	0.00	513.11	2490.36	1245.18	3583.19	1794.26	13.29	-1.818	0.000	0.290
75.00	-8.14	-10.96	0.00	-456.26	0.00	456.26	2442.21	1221.10	3418.12	1711.60	15.26	-1.945	0.000	0.270
80.00	-7.56	-10.55	0.00	-401.48	0.00	401.48	2392.99	1196.50	3255.39	1630.11	17.37	-2.068	0.000	0.250
85.00	-7.01	-10.13	0.00	-348.75	0.00	348.75	2342.71	1171.36	3095.11	1549.86	19.60	-2.185	0.000	0.228
90.00	-6.46	-9.73	0.00	-298.08	0.00	298.08	2291.37	1145.69	2937.41	1470.89	21.95	-2.295	0.000	0.206
90.00	-6.46	-9.73	0.00	-298.08	0.00	298.08	1145.45	572.73	1480.17	741.18	21.95	-2.295	0.000	0.408
95.00	-6.12	-9.33	0.00	-249.44	0.00	249.44	1127.97	563.98	1413.34	707.72	24.40	-2.396	0.000	0.358
100.00	-5.78	-8.95	0.00	-202.78	0.00	202.78	1109.42	554.71	1346.59	674.30	27.00	-2.548	0.000	0.306
105.00	-5.46	-8.57	0.00	-158.04	0.00	158.04	1089.82	544.91	1280.05	640.97	29.74	-2.681	0.000	0.252
110.00	-5.15	-8.19	0.00	-115.21	0.00	115.21	1069.15	534.57	1213.84	607.82	32.61	-2.792	0.000	0.195
115.00	-4.85	-7.81	0.00	-74.28	0.00	74.28	1047.42	523.71	1148.08	574.89	35.58	-2.877	0.000	0.134
117.00	-3.24	-6.03	0.00	-58.65	0.00	58.65	1038.42	519.21	1121.94	561.80	36.79	-2.904	0.000	0.108
120.00	-3.08	-5.81	0.00	-40.57	0.00	40.57	1024.62	512.31	1082.91	542.26	38.63	-2.935	0.000	0.078
125.00	-2.82	-5.45	0.00	-11.52	0.00	11.52	1000.76	500.38	1018.44	509.98	41.72	-2.964	0.000	0.026
127.00	-0.12	-0.21	0.00	-0.62	0.00	0.62	990.92	495.46	992.88	497.18	42.96	-2.967	0.000	0.001
130.00	0.00	-0.20	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	44.83	-2.967	0.000	0.000

Wind Loading - Shaft

Structure: CT11561-A-SBA

Code: EIA/TIA-222-G

6/1/2021

Site Name: Groton 2, CT

Exposure: B

Height: 130.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: C - Very Dense Soil

Gh: 1.1

Topography: 1

Struct Class: II

Page: 15



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

Iterations 21

Dead Load Factor 1.20

Wind Load Factor 1.00



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	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	21.143	25.37	118.8	375.8	1521.5
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.331	5.00	20.817	24.98	116.9	395.6	1518.3
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.386	5.00	20.462	24.55	115.0	404.2	1503.9
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.427	5.00	20.095	24.11	112.9	407.9	1484.6
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.459	5.00	19.721	23.67	110.8	408.7	1462.4
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.486	5.00	19.343	23.21	108.8	407.6	1438.3
35.00		1.00	0.73	4.451	4.90	0.00	1.200	1.509	5.00	18.961	22.75	111.4	405.2	1412.9
40.00		1.00	0.76	4.625	5.09	0.00	1.200	1.529	5.00	18.577	22.29	113.4	401.8	1386.5
45.00 Bot - Section 2		1.00	0.79	4.783	5.26	0.00	1.200	1.547	5.00	18.192	21.83	114.8	397.5	1359.2
50.00 Top - Section 1		1.00	0.81	4.929	5.42	0.00	1.200	1.564	5.00	18.069	21.68	117.6	398.7	2133.5
55.00		1.00	0.83	5.065	5.57	0.00	1.200	1.579	5.00	17.681	21.22	118.2	393.3	1170.3
60.00		1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	17.292	20.75	118.5	387.5	1145.2
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	16.902	20.28	118.5	381.2	1119.8
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	16.511	19.81	118.3	374.5	1093.9
75.00		1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	16.119	19.34	117.8	367.6	1067.8
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	15.728	18.87	117.0	360.3	1041.4
85.00		1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	15.335	18.40	116.1	352.8	1014.7
90.00 Top - Section 2		1.00	0.96	5.830	6.41	0.00	1.200	1.658	5.00	14.942	17.93	115.0	345.1	987.8
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	5.00	14.549	17.46	113.7	337.2	712.8
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	5.00	14.155	16.99	112.3	329.1	693.2
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	5.00	13.762	16.51	110.7	320.8	673.4
110.00		1.00	1.02	6.174	6.79	0.00	1.200	1.692	5.00	13.367	16.04	108.9	312.3	653.4
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	12.973	15.57	107.1	303.7	633.3
117.00 Appurtenance(s)		1.00	1.03	6.284	6.91	0.00	1.200	1.702	2.00	5.078	6.09	42.1	120.1	248.7
120.00		1.00	1.04	6.330	6.96	0.00	1.200	1.707	3.00	7.499	9.00	62.7	177.0	366.4
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	5.00	12.183	14.62	103.0	286.0	592.6
127.00 Appurtenance(s)		1.00	1.06	6.433	7.08	0.00	1.200	1.716	2.00	4.762	5.71	40.4	113.0	232.4
130.00		1.00	1.07	6.476	7.12	0.00	1.200	1.720	3.00	7.025	8.43	60.1	166.2	341.9
Totals:									130.00			2,940.7		29,010.3

Discrete Appurtenance Forces

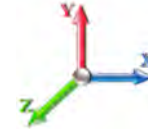
Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 16



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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Ericsson Air 21 B2A/B4P	3	6.433	7.076	0.64	0.75	13.60	820.70	0.000	0.000	96.22	0.00	0.00
2	127.00	Ericsson Air 21 B4A/B2P	3	6.433	7.076	0.64	0.75	13.60	816.38	0.000	0.000	96.22	0.00	0.00
3	127.00	RFS	3	6.433	7.076	0.54	0.75	35.81	1701.41	0.000	0.000	253.44	0.00	0.00
4	127.00	Ericsson KRY 112 144/1	3	6.433	7.076	0.45	0.75	1.01	62.11	0.000	0.000	7.15	0.00	0.00
5	127.00	Ericsson 4449 B71 + B85	3	6.433	7.076	0.50	0.75	3.81	509.52	0.000	0.000	26.98	0.00	0.00
6	127.00	Platform w/ Hand Rails	1	6.433	7.076	1.00	1.00	60.60	3859.69	0.000	0.000	428.81	0.00	0.00
7	117.00	Low Profile Platform	1	6.284	6.913	1.00	1.00	39.23	2776.79	0.000	0.000	271.17	0.00	0.00
8	117.00	Commscope	4	6.284	6.913	0.80	1.00	8.43	129.80	0.000	0.000	58.27	0.00	0.00
9	117.00	ALU RRH 2x60 PCS	2	6.284	6.913	0.67	1.00	3.22	259.55	0.000	0.000	22.26	0.00	0.00
10	117.00	ALU RRH 2x60 AWS	2	6.284	6.913	0.67	1.00	2.99	274.09	0.000	0.000	20.68	0.00	0.00
Totals:									11,210.03			1,281.18		

Total Applied Force Summary

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

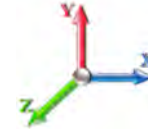


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 21

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		118.78	1552.59	0.00	0.00
10.00		116.95	1595.96	0.00	0.00
15.00		114.95	1581.56	0.00	0.00
20.00		112.89	1562.23	0.00	0.00
25.00		110.79	1540.05	0.00	0.00
30.00		108.76	1515.98	0.00	0.00
35.00		111.41	1490.56	0.00	0.00
40.00		113.40	1464.10	0.00	0.00
45.00		114.85	1436.84	0.00	0.00
50.00		117.56	2211.17	0.00	0.00
55.00		118.21	1247.93	0.00	0.00
60.00		118.52	1222.88	0.00	0.00
65.00		118.53	1197.41	0.00	0.00
70.00		118.26	1171.59	0.00	0.00
75.00		117.76	1145.45	0.00	0.00
80.00		117.03	1119.03	0.00	0.00
85.00		116.11	1092.36	0.00	0.00
90.00		115.00	1065.45	0.00	0.00
95.00		113.71	790.46	0.00	0.00
100.00		112.27	770.82	0.00	0.00
105.00		110.68	751.02	0.00	0.00
110.00		108.95	731.04	0.00	0.00
115.00		107.08	710.92	0.00	0.00
117.00	(9) attachments	414.50	3719.98	0.00	0.00
120.00		62.66	405.52	0.00	0.00
125.00		102.99	657.78	0.00	0.00
127.00	(16) attachments	949.25	8028.25	0.00	0.00
130.00		60.05	341.87	0.00	0.00
Totals:		4,221.89	42,120.81	0.00	0.00

Calculated Forces

Structure: CT11561-A-SBA

Code: EIA/TIA-222-G

6/1/2021

Site Name: Groton 2, CT

Exposure: B

Height: 130.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: C - Very Dense Soil

Gh: 1.1

Topography: 1

Struct Class: II

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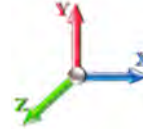


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 21

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	-42.12	-4.23	0.00	-370.94	0.00	370.94	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.108
5.00	-40.56	-4.14	0.00	-349.78	0.00	349.78	3851.93	1925.96	7386.73	3698.85	0.02	-0.032	0.000	0.105
10.00	-38.97	-4.04	0.00	-329.10	0.00	329.10	3799.43	1899.71	7137.04	3573.82	0.07	-0.063	0.000	0.102
15.00	-37.38	-3.94	0.00	-308.90	0.00	308.90	3745.86	1872.93	6889.51	3449.88	0.15	-0.095	0.000	0.100
20.00	-35.82	-3.85	0.00	-289.18	0.00	289.18	3691.24	1845.62	6644.27	3327.07	0.27	-0.126	0.000	0.097
25.00	-34.28	-3.75	0.00	-269.95	0.00	269.95	3635.55	1817.78	6401.45	3205.48	0.42	-0.158	0.000	0.094
30.00	-32.76	-3.66	0.00	-251.19	0.00	251.19	3578.80	1789.40	6161.16	3085.16	0.60	-0.189	0.000	0.091
35.00	-31.27	-3.56	0.00	-232.92	0.00	232.92	3520.99	1760.49	5923.54	2966.17	0.81	-0.220	0.000	0.087
40.00	-29.80	-3.45	0.00	-215.14	0.00	215.14	3462.11	1731.06	5688.70	2848.58	1.06	-0.251	0.000	0.084
45.00	-28.36	-3.35	0.00	-197.88	0.00	197.88	3402.17	1701.09	5456.79	2732.45	1.34	-0.281	0.000	0.081
50.00	-26.15	-3.23	0.00	-181.15	0.00	181.15	2672.34	1336.17	4264.27	2135.31	1.65	-0.311	0.000	0.095
55.00	-24.90	-3.12	0.00	-165.00	0.00	165.00	2628.44	1314.22	4091.13	2048.60	1.99	-0.340	0.000	0.090
60.00	-23.68	-3.01	0.00	-149.41	0.00	149.41	2583.48	1291.74	3919.82	1962.82	2.36	-0.373	0.000	0.085
65.00	-22.48	-2.89	0.00	-134.38	0.00	134.38	2537.45	1268.73	3750.46	1878.02	2.77	-0.405	0.000	0.080
70.00	-21.31	-2.78	0.00	-119.92	0.00	119.92	2490.36	1245.18	3583.19	1794.26	3.21	-0.436	0.000	0.075
75.00	-20.16	-2.66	0.00	-106.05	0.00	106.05	2442.21	1221.10	3418.12	1711.60	3.69	-0.466	0.000	0.070
80.00	-19.04	-2.54	0.00	-92.75	0.00	92.75	2392.99	1196.50	3255.39	1630.11	4.19	-0.494	0.000	0.065
85.00	-17.95	-2.42	0.00	-80.04	0.00	80.04	2342.71	1171.36	3095.11	1549.86	4.72	-0.521	0.000	0.059
90.00	-16.89	-2.31	0.00	-67.92	0.00	67.92	2291.37	1145.69	2937.41	1470.89	5.28	-0.546	0.000	0.054
90.00	-16.89	-2.31	0.00	-67.92	0.00	67.92	1145.45	572.73	1480.17	741.18	5.28	-0.546	0.000	0.106
95.00	-16.10	-2.19	0.00	-56.39	0.00	56.39	1127.97	563.98	1413.34	707.72	5.87	-0.569	0.000	0.094
100.00	-15.32	-2.08	0.00	-45.42	0.00	45.42	1109.42	554.71	1346.59	674.30	6.48	-0.604	0.000	0.081
105.00	-14.57	-1.97	0.00	-35.01	0.00	35.01	1089.82	544.91	1280.05	640.97	7.13	-0.633	0.000	0.068
110.00	-13.84	-1.86	0.00	-25.16	0.00	25.16	1069.15	534.57	1213.84	607.82	7.81	-0.658	0.000	0.054
115.00	-13.13	-1.75	0.00	-15.87	0.00	15.87	1047.42	523.71	1148.08	574.89	8.51	-0.676	0.000	0.040
117.00	-9.42	-1.29	0.00	-12.38	0.00	12.38	1038.42	519.21	1121.94	561.80	8.79	-0.682	0.000	0.031
120.00	-9.01	-1.22	0.00	-8.52	0.00	8.52	1024.62	512.31	1082.91	542.26	9.22	-0.688	0.000	0.025
125.00	-8.36	-1.11	0.00	-2.41	0.00	2.41	1000.76	500.38	1018.44	509.98	9.95	-0.694	0.000	0.013
127.00	-0.34	-0.06	0.00	-0.19	0.00	0.19	990.92	495.46	992.88	497.18	10.24	-0.695	0.000	0.001
130.00	0.00	-0.06	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	10.68	-0.695	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense 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 0.13

Ss 0.16

Dead Load Factor 1.20 **Seismic Load Factor** 1.00

Sd1 0.07

S1 0.06

Wind Load Factor 0.00 **Structure Frequency (f1)** 0.47

SA 0.03

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		954.82	0.00	0.04	0.02	10.64	
10.00		935.64	0.01	0.06	0.03	15.15	
15.00		916.46	0.03	0.07	0.04	17.04	
20.00		897.28	0.04	0.07	0.04	17.78	
25.00		878.10	0.07	0.07	0.04	18.09	
30.00		858.92	0.10	0.07	0.04	18.26	
35.00		839.74	0.14	0.07	0.03	18.37	
40.00		820.57	0.18	0.07	0.03	18.27	
45.00	Bot - Section 2	801.39	0.23	0.06	0.02	17.72	
50.00	Top - Section 1	1445.6	0.28	0.05	0.01	30.30	
55.00		647.46	0.34	0.04	0.01	11.83	
60.00		631.48	0.40	0.02	0.01	8.62	
65.00		615.49	0.47	-0.01	0.01	4.37	
70.00		599.51	0.55	-0.03	0.01	-0.42	
75.00		583.53	0.63	-0.06	0.02	-4.88	
80.00		567.55	0.72	-0.09	0.03	-8.07	
85.00		551.56	0.81	-0.11	0.06	-9.29	
90.00	Top - Section 2	535.58	0.91	-0.12	0.09	-8.25	
95.00		313.02	1.01	-0.11	0.14	-2.98	
100.00		303.43	1.12	-0.06	0.20	0.29	
105.00		293.84	1.23	0.04	0.28	4.72	
110.00		284.26	1.35	0.20	0.39	10.18	
115.00		274.67	1.48	0.45	0.52	16.56	
117.00	Appurtenance(s)	1859.9	1.53	0.58	0.58	132.84	
120.00		157.89	1.61	0.81	0.68	14.14	
125.00		255.49	1.75	1.31	0.89	31.61	
127.00	Appurtenance(s)	3271.3	1.80	1.56	0.98	454.04	
130.00		146.39	1.89	1.98	1.14	23.85	

Totals: 21,241.0

860.8

Total Wind:

16,834.1

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

Calculated Forces

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 20



Load Case: 1.2D + 1.0E

Iterations 20

Gust Response Factor 1.10

Sds 0.13

Ss 0.16

Dead Load Factor 1.20

Seismic Load Factor 1.00

Sd1 0.07

S1 0.06

Wind Load Factor 0.00

Structure Frequency (f1) 0.47

SA 0.03

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	-27.39	-0.90	0.00	-95.11	0.00	95.11	3903.36	1951.68	7638.46	3824.91	0.00	0.00	0.00	0.032
5.00	-26.21	-0.89	0.00	-90.62	0.00	90.62	3851.93	1925.96	7386.73	3698.85	0.00	-0.01	0.031	
10.00	-25.01	-0.88	0.00	-86.18	0.00	86.18	3799.43	1899.71	7137.04	3573.82	0.02	-0.02	0.031	
15.00	-23.83	-0.86	0.00	-81.79	0.00	81.79	3745.86	1872.93	6889.51	3449.88	0.04	-0.02	0.030	
20.00	-22.68	-0.85	0.00	-77.47	0.00	77.47	3691.24	1845.62	6644.27	3327.07	0.07	-0.03	0.029	
25.00	-21.55	-0.83	0.00	-73.23	0.00	73.23	3635.55	1817.78	6401.45	3205.48	0.11	-0.04	0.029	
30.00	-20.44	-0.82	0.00	-69.07	0.00	69.07	3578.80	1789.40	6161.16	3085.16	0.16	-0.05	0.028	
35.00	-19.35	-0.80	0.00	-64.98	0.00	64.98	3520.99	1760.49	5923.54	2966.17	0.21	-0.06	0.027	
40.00	-18.29	-0.78	0.00	-60.98	0.00	60.98	3462.11	1731.06	5688.70	2848.58	0.28	-0.07	0.027	
45.00	-17.25	-0.77	0.00	-57.06	0.00	57.06	3402.17	1701.09	5456.79	2732.45	0.35	-0.08	0.026	
50.00	-15.44	-0.74	0.00	-53.23	0.00	53.23	2672.34	1336.17	4264.27	2135.31	0.44	-0.08	0.031	
55.00	-14.59	-0.73	0.00	-49.54	0.00	49.54	2628.44	1314.22	4091.13	2048.60	0.53	-0.09	0.030	
60.00	-13.75	-0.72	0.00	-45.91	0.00	45.91	2583.48	1291.74	3919.82	1962.82	0.64	-0.10	0.029	
65.00	-12.93	-0.71	0.00	-42.32	0.00	42.32	2537.45	1268.73	3750.46	1878.02	0.75	-0.11	0.028	
70.00	-12.14	-0.72	0.00	-38.75	0.00	38.75	2490.36	1245.18	3583.19	1794.26	0.87	-0.12	0.026	
75.00	-11.36	-0.72	0.00	-35.17	0.00	35.17	2442.21	1221.10	3418.12	1711.60	1.01	-0.13	0.025	
80.00	-10.60	-0.72	0.00	-31.60	0.00	31.60	2392.99	1196.50	3255.39	1630.11	1.15	-0.14	0.024	
85.00	-9.86	-0.71	0.00	-28.02	0.00	28.02	2342.71	1171.36	3095.11	1549.86	1.31	-0.15	0.022	
90.00	-9.14	-0.71	0.00	-24.45	0.00	24.45	2291.37	1145.69	2937.41	1470.89	1.47	-0.16	0.021	
90.00	-9.14	-0.71	0.00	-24.45	0.00	24.45	1145.45	572.73	1480.17	741.18	1.47	-0.16	0.041	
95.00	-8.69	-0.71	0.00	-20.88	0.00	20.88	1127.97	563.98	1413.34	707.72	1.64	-0.17	0.037	
100.00	-8.24	-0.71	0.00	-17.30	0.00	17.30	1109.42	554.71	1346.59	674.30	1.83	-0.18	0.033	
105.00	-7.81	-0.71	0.00	-13.73	0.00	13.73	1089.82	544.91	1280.05	640.97	2.02	-0.19	0.029	
110.00	-7.40	-0.70	0.00	-10.18	0.00	10.18	1069.15	534.57	1213.84	607.82	2.23	-0.20	0.024	
115.00	-6.99	-0.68	0.00	-6.68	0.00	6.68	1047.42	523.71	1148.08	574.89	2.45	-0.21	0.018	
117.00	-4.73	-0.54	0.00	-5.32	0.00	5.32	1038.42	519.21	1121.94	561.80	2.54	-0.21	0.014	
120.00	-4.50	-0.53	0.00	-3.69	0.00	3.69	1024.62	512.31	1082.91	542.26	2.67	-0.22	0.011	
125.00	-4.13	-0.49	0.00	-1.06	0.00	1.06	1000.76	500.38	1018.44	509.98	2.90	-0.22	0.006	
127.00	-0.18	-0.02	0.00	-0.07	0.00	0.07	990.92	495.46	992.88	497.18	2.99	-0.22	0.000	
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	3.13	-0.22	0.000	

Seismic Segment Forces (Factored)

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 21

Load Case: 0.9D + 1.0E

Iterations 20

Gust Response Factor 1.10

Sds 0.13

Ss 0.16

Dead Load Factor 0.90 **Seismic Load Factor** 1.00

Sd1 0.07

S1 0.06

Wind Load Factor 0.00 **Structure Frequency (f1)** 0.47

SA 0.03

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		954.82	0.00	0.04	0.02	10.64	
10.00		935.64	0.01	0.06	0.03	15.15	
15.00		916.46	0.03	0.07	0.04	17.04	
20.00		897.28	0.04	0.07	0.04	17.78	
25.00		878.10	0.07	0.07	0.04	18.09	
30.00		858.92	0.10	0.07	0.04	18.26	
35.00		839.74	0.14	0.07	0.03	18.37	
40.00		820.57	0.18	0.07	0.03	18.27	
45.00	Bot - Section 2	801.39	0.23	0.06	0.02	17.72	
50.00	Top - Section 1	1445.6	0.28	0.05	0.01	30.30	
55.00		647.46	0.34	0.04	0.01	11.83	
60.00		631.48	0.40	0.02	0.01	8.62	
65.00		615.49	0.47	-0.01	0.01	4.37	
70.00		599.51	0.55	-0.03	0.01	-0.42	
75.00		583.53	0.63	-0.06	0.02	-4.88	
80.00		567.55	0.72	-0.09	0.03	-8.07	
85.00		551.56	0.81	-0.11	0.06	-9.29	
90.00	Top - Section 2	535.58	0.91	-0.12	0.09	-8.25	
95.00		313.02	1.01	-0.11	0.14	-2.98	
100.00		303.43	1.12	-0.06	0.20	0.29	
105.00		293.84	1.23	0.04	0.28	4.72	
110.00		284.26	1.35	0.20	0.39	10.18	
115.00		274.67	1.48	0.45	0.52	16.56	
117.00	Appurtenance(s)	1859.9	1.53	0.58	0.58	132.84	
120.00		157.89	1.61	0.81	0.68	14.14	
125.00		255.49	1.75	1.31	0.89	31.61	
127.00	Appurtenance(s)	3271.3	1.80	1.56	0.98	454.04	
130.00		146.39	1.89	1.98	1.14	23.85	

Totals: 21,241.0

860.8

Total Wind:

16,834.1

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

Calculated Forces

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 22



Load Case: 0.9D + 1.0E

Iterations 20

Gust Response Factor 1.10

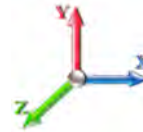
Sds 0.13

Ss 0.16

Dead Load Factor 0.90 **Seismic Load Factor** 1.00 **Sd1** 0.07

S1 0.06

Wind Load Factor 0.00 **Structure Frequency (f1)** 0.47 **SA** 0.03 **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	-20.54	-0.90	0.00	-94.42	0.00	94.42	3903.36	1951.68	7638.46	3824.91	0.00	0.00	0.00	0.030
5.00	-19.66	-0.89	0.00	-89.94	0.00	89.94	3851.93	1925.96	7386.73	3698.85	0.00	-0.01	0.029	
10.00	-18.76	-0.88	0.00	-85.50	0.00	85.50	3799.43	1899.71	7137.04	3573.82	0.02	-0.02	0.029	
15.00	-17.88	-0.86	0.00	-81.12	0.00	81.12	3745.86	1872.93	6889.51	3449.88	0.04	-0.02	0.028	
20.00	-17.01	-0.84	0.00	-76.82	0.00	76.82	3691.24	1845.62	6644.27	3327.07	0.07	-0.03	0.028	
25.00	-16.16	-0.83	0.00	-72.60	0.00	72.60	3635.55	1817.78	6401.45	3205.48	0.11	-0.04	0.027	
30.00	-15.33	-0.81	0.00	-68.46	0.00	68.46	3578.80	1789.40	6161.16	3085.16	0.16	-0.05	0.026	
35.00	-14.52	-0.79	0.00	-64.40	0.00	64.40	3520.99	1760.49	5923.54	2966.17	0.21	-0.06	0.026	
40.00	-13.72	-0.78	0.00	-60.42	0.00	60.42	3462.11	1731.06	5688.70	2848.58	0.28	-0.07	0.025	
45.00	-12.94	-0.76	0.00	-56.53	0.00	56.53	3402.17	1701.09	5456.79	2732.45	0.35	-0.08	0.024	
50.00	-11.58	-0.73	0.00	-52.73	0.00	52.73	2672.34	1336.17	4264.27	2135.31	0.44	-0.08	0.029	
55.00	-10.94	-0.72	0.00	-49.08	0.00	49.08	2628.44	1314.22	4091.13	2048.60	0.53	-0.09	0.028	
60.00	-10.31	-0.71	0.00	-45.48	0.00	45.48	2583.48	1291.74	3919.82	1962.82	0.63	-0.10	0.027	
65.00	-9.70	-0.71	0.00	-41.92	0.00	41.92	2537.45	1268.73	3750.46	1878.02	0.74	-0.11	0.026	
70.00	-9.10	-0.71	0.00	-38.38	0.00	38.38	2490.36	1245.18	3583.19	1794.26	0.87	-0.12	0.025	
75.00	-8.52	-0.71	0.00	-34.84	0.00	34.84	2442.21	1221.10	3418.12	1711.60	1.00	-0.13	0.024	
80.00	-7.95	-0.71	0.00	-31.30	0.00	31.30	2392.99	1196.50	3255.39	1630.11	1.14	-0.14	0.023	
85.00	-7.39	-0.71	0.00	-27.76	0.00	27.76	2342.71	1171.36	3095.11	1549.86	1.29	-0.15	0.021	
90.00	-6.85	-0.71	0.00	-24.22	0.00	24.22	2291.37	1145.69	2937.41	1470.89	1.46	-0.16	0.019	
95.00	-6.85	-0.71	0.00	-24.22	0.00	24.22	1145.45	572.73	1480.17	741.18	1.46	-0.16	0.039	
95.00	-6.51	-0.71	0.00	-20.68	0.00	20.68	1127.97	563.98	1413.34	707.72	1.63	-0.17	0.035	
100.00	-6.18	-0.71	0.00	-17.14	0.00	17.14	1109.42	554.71	1346.59	674.30	1.81	-0.18	0.031	
105.00	-5.86	-0.70	0.00	-13.60	0.00	13.60	1089.82	544.91	1280.05	640.97	2.01	-0.19	0.027	
110.00	-5.55	-0.69	0.00	-10.09	0.00	10.09	1069.15	534.57	1213.84	607.82	2.21	-0.20	0.022	
115.00	-5.24	-0.68	0.00	-6.62	0.00	6.62	1047.42	523.71	1148.08	574.89	2.43	-0.21	0.017	
117.00	-3.54	-0.54	0.00	-5.27	0.00	5.27	1038.42	519.21	1121.94	561.80	2.52	-0.21	0.013	
120.00	-3.37	-0.52	0.00	-3.66	0.00	3.66	1024.62	512.31	1082.91	542.26	2.65	-0.21	0.010	
125.00	-3.09	-0.49	0.00	-1.05	0.00	1.05	1000.76	500.38	1018.44	509.98	2.87	-0.22	0.005	
127.00	-0.13	-0.02	0.00	-0.07	0.00	0.07	990.92	495.46	992.88	497.18	2.97	-0.22	0.000	
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	3.10	-0.22	0.000	

Wind Loading - Shaft

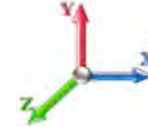
Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 23



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

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	0.70	6.129	6.74	203.90	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	199.87	0.650	0.000	5.00	20.108	13.07	88.1	0.0	954.8
10.00		1.00	0.70	6.129	6.74	195.85	0.650	0.000	5.00	19.707	12.81	86.4	0.0	935.6
15.00		1.00	0.70	6.129	6.74	191.83	0.650	0.000	5.00	19.307	12.55	84.6	0.0	916.5
20.00		1.00	0.70	6.129	6.74	187.80	0.650	0.000	5.00	18.906	12.29	82.8	0.0	897.3
25.00		1.00	0.70	6.129	6.74	183.78	0.650	0.000	5.00	18.505	12.03	81.1	0.0	878.1
30.00		1.00	0.70	6.134	6.75	179.83	0.650	0.000	5.00	18.105	11.77	79.4	0.0	858.9
35.00		1.00	0.73	6.410	7.05	179.72	0.650	0.000	5.00	17.704	11.51	81.1	0.0	839.7
40.00		1.00	0.76	6.659	7.33	178.99	0.650	0.000	5.00	17.303	11.25	82.4	0.0	820.6
45.00	Bot - Section 2	1.00	0.79	6.887	7.58	177.76	0.650	0.000	5.00	16.902	10.99	83.2	0.0	801.4
50.00	Top - Section 1	1.00	0.81	7.098	7.81	176.13	0.650	0.000	5.00	16.766	10.90	85.1	0.0	1445.6
55.00		1.00	0.83	7.294	8.02	177.05	0.650	0.000	5.00	16.365	10.64	85.3	0.0	647.5
60.00		1.00	0.85	7.477	8.22	174.82	0.650	0.000	5.00	15.965	10.38	85.4	0.0	631.5
65.00		1.00	0.87	7.650	8.42	172.34	0.650	0.000	5.00	15.564	10.12	85.1	0.0	615.5
70.00		1.00	0.89	7.814	8.60	169.63	0.650	0.000	5.00	15.163	9.86	84.7	0.0	599.5
75.00		1.00	0.91	7.969	8.77	166.72	0.650	0.000	5.00	14.763	9.60	84.1	0.0	583.5
80.00		1.00	0.93	8.118	8.93	163.63	0.650	0.000	5.00	14.362	9.34	83.4	0.0	567.5
85.00		1.00	0.94	8.260	9.09	160.39	0.650	0.000	5.00	13.961	9.07	82.4	0.0	551.6
90.00	Top - Section 2	1.00	0.96	8.396	9.24	156.99	0.650	0.000	5.00	13.560	8.81	81.4	0.0	535.6
95.00		1.00	0.97	8.526	9.38	153.47	0.650	0.000	5.00	13.160	8.55	80.2	0.0	313.0
100.00		1.00	0.99	8.652	9.52	149.81	0.650	0.000	5.00	12.759	8.29	78.9	0.0	303.4
105.00		1.00	1.00	8.774	9.65	146.05	0.650	0.000	5.00	12.358	8.03	77.5	0.0	293.8
110.00		1.00	1.02	8.891	9.78	142.18	0.650	0.000	5.00	11.958	7.77	76.0	0.0	284.3
115.00		1.00	1.03	9.005	9.91	138.20	0.650	0.000	5.00	11.557	7.51	74.4	0.0	274.7
117.00	Appurtenance(s)	1.00	1.03	9.049	9.95	136.59	0.650	0.000	2.00	4.511	2.93	29.2	0.0	107.2
120.00		1.00	1.04	9.115	10.03	134.14	0.650	0.000	3.00	6.646	4.32	43.3	0.0	157.9
125.00		1.00	1.05	9.222	10.14	129.99	0.650	0.000	5.00	10.755	6.99	70.9	0.0	255.5
127.00	Appurtenance(s)	1.00	1.06	9.264	10.19	128.31	0.650	0.000	2.00	4.190	2.72	27.8	0.0	99.5
130.00		1.00	1.07	9.326	10.26	125.76	0.650	0.000	3.00	6.165	4.01	41.1	0.0	146.4
Totals:									130.00			2,105.5		16,316.4

Discrete Appurtenance Forces

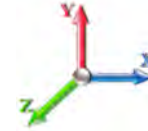
Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 24



Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Ericsson Air 21 B2A/B4P	3	9.264	10.190	0.64	0.75	11.55	274.50	0.000	0.000	117.71	0.00	0.00
2	127.00	Ericsson Air 21 B4A/B2P	3	9.264	10.190	0.64	0.75	11.55	270.90	0.000	0.000	117.71	0.00	0.00
3	127.00	RFS	3	9.264	10.190	0.54	0.75	32.79	368.40	0.000	0.000	334.12	0.00	0.00
4	127.00	Ericsson KRY 112 144/1	3	9.264	10.190	0.45	0.75	0.47	33.00	0.000	0.000	4.81	0.00	0.00
5	127.00	Ericsson 4449 B71 + B85	3	9.264	10.190	0.50	0.75	2.94	225.00	0.000	0.000	29.95	0.00	0.00
6	127.00	Platform w/ Hand Rails	1	9.264	10.190	1.00	1.00	40.00	2000.00	0.000	0.000	407.60	0.00	0.00
7	117.00	Low Profile Platform	1	9.049	9.954	1.00	1.00	22.00	1500.00	0.000	0.000	218.99	0.00	0.00
8	117.00	Commscope	4	9.049	9.954	0.80	1.00	5.06	22.80	0.000	0.000	50.33	0.00	0.00
9	117.00	ALU RRH 2x60 PCS	2	9.049	9.954	0.67	1.00	2.45	110.00	0.000	0.000	24.41	0.00	0.00
10	117.00	ALU RRH 2x60 AWS	2	9.049	9.954	0.67	1.00	2.45	120.00	0.000	0.000	24.41	0.00	0.00
Totals:									4,924.60			1,330.04		

Total Applied Force Summary

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021	
Site Name: Groton 2, CT	Exposure: B		
Height: 130.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 25

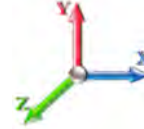


Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations 20



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		88.11	980.70	0.00	0.00
10.00		86.36	1000.34	0.00	0.00
15.00		84.60	981.16	0.00	0.00
20.00		82.85	961.98	0.00	0.00
25.00		81.09	942.80	0.00	0.00
30.00		79.40	923.62	0.00	0.00
35.00		81.14	904.44	0.00	0.00
40.00		82.39	885.27	0.00	0.00
45.00		83.23	866.09	0.00	0.00
50.00		85.09	1510.35	0.00	0.00
55.00		85.34	712.16	0.00	0.00
60.00		85.35	696.18	0.00	0.00
65.00		85.13	680.19	0.00	0.00
70.00		84.72	664.21	0.00	0.00
75.00		84.12	648.23	0.00	0.00
80.00		83.36	632.25	0.00	0.00
85.00		82.45	616.26	0.00	0.00
90.00		81.40	600.28	0.00	0.00
95.00		80.23	377.72	0.00	0.00
100.00		78.93	368.13	0.00	0.00
105.00		77.52	358.54	0.00	0.00
110.00		76.01	348.96	0.00	0.00
115.00		74.41	339.37	0.00	0.00
117.00	(9) attachments	347.32	1885.86	0.00	0.00
120.00		43.31	190.47	0.00	0.00
125.00		70.92	309.79	0.00	0.00
127.00	(16) attachments	1039.66	3293.03	0.00	0.00
130.00		41.11	146.39	0.00	0.00
Totals:		3,435.54	22,824.77	0.00	0.00

Calculated Forces

Structure: CT11561-A-SBA

Code: EIA/TIA-222-G

6/1/2021

Site Name: Groton 2, CT

Exposure: B

Height: 130.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: C - Very Dense Soil

Gh: 1.1

Topography: 1

Struct Class: II

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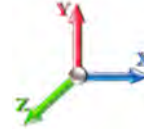


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 20

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	-22.82	-3.44	0.00	-310.62	0.00	310.62	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.087
5.00	-21.84	-3.36	0.00	-293.42	0.00	293.42	3851.93	1925.96	7386.73	3698.85	0.01	-0.026	0.000	0.085
10.00	-20.84	-3.28	0.00	-276.61	0.00	276.61	3799.43	1899.71	7137.04	3573.82	0.06	-0.053	0.000	0.083
15.00	-19.86	-3.21	0.00	-260.19	0.00	260.19	3745.86	1872.93	6889.51	3449.88	0.13	-0.080	0.000	0.081
20.00	-18.89	-3.13	0.00	-244.16	0.00	244.16	3691.24	1845.62	6644.27	3327.07	0.22	-0.106	0.000	0.079
25.00	-17.95	-3.06	0.00	-228.50	0.00	228.50	3635.55	1817.78	6401.45	3205.48	0.35	-0.133	0.000	0.076
30.00	-17.03	-2.98	0.00	-213.21	0.00	213.21	3578.80	1789.40	6161.16	3085.16	0.50	-0.159	0.000	0.074
35.00	-16.12	-2.91	0.00	-198.29	0.00	198.29	3520.99	1760.49	5923.54	2966.17	0.68	-0.185	0.000	0.071
40.00	-15.23	-2.83	0.00	-183.76	0.00	183.76	3462.11	1731.06	5688.70	2848.58	0.89	-0.212	0.000	0.069
45.00	-14.37	-2.75	0.00	-169.62	0.00	169.62	3402.17	1701.09	5456.79	2732.45	1.13	-0.238	0.000	0.066
50.00	-12.86	-2.66	0.00	-155.88	0.00	155.88	2672.34	1336.17	4264.27	2135.31	1.39	-0.263	0.000	0.078
55.00	-12.14	-2.58	0.00	-142.56	0.00	142.56	2628.44	1314.22	4091.13	2048.60	1.68	-0.289	0.000	0.074
60.00	-11.45	-2.50	0.00	-129.67	0.00	129.67	2583.48	1291.74	3919.82	1962.82	2.00	-0.317	0.000	0.070
65.00	-10.76	-2.41	0.00	-117.19	0.00	117.19	2537.45	1268.73	3750.46	1878.02	2.34	-0.345	0.000	0.067
70.00	-10.10	-2.33	0.00	-105.13	0.00	105.13	2490.36	1245.18	3583.19	1794.26	2.72	-0.372	0.000	0.063
75.00	-9.45	-2.24	0.00	-93.49	0.00	93.49	2442.21	1221.10	3418.12	1711.60	3.12	-0.398	0.000	0.058
80.00	-8.82	-2.16	0.00	-82.27	0.00	82.27	2392.99	1196.50	3255.39	1630.11	3.56	-0.423	0.000	0.054
85.00	-8.20	-2.08	0.00	-71.47	0.00	71.47	2342.71	1171.36	3095.11	1549.86	4.01	-0.447	0.000	0.050
90.00	-7.60	-1.99	0.00	-61.09	0.00	61.09	2291.37	1145.69	2937.41	1470.89	4.49	-0.470	0.000	0.045
90.00	-7.60	-1.99	0.00	-61.09	0.00	61.09	1145.45	572.73	1480.17	741.18	4.49	-0.470	0.000	0.089
95.00	-7.22	-1.91	0.00	-51.13	0.00	51.13	1127.97	563.98	1413.34	707.72	5.00	-0.491	0.000	0.079
100.00	-6.86	-1.83	0.00	-41.57	0.00	41.57	1109.42	554.71	1346.59	674.30	5.53	-0.522	0.000	0.068
105.00	-6.50	-1.76	0.00	-32.40	0.00	32.40	1089.82	544.91	1280.05	640.97	6.09	-0.549	0.000	0.057
110.00	-6.15	-1.68	0.00	-23.62	0.00	23.62	1069.15	534.57	1213.84	607.82	6.68	-0.572	0.000	0.045
115.00	-5.81	-1.60	0.00	-15.23	0.00	15.23	1047.42	523.71	1148.08	574.89	7.29	-0.589	0.000	0.032
117.00	-3.93	-1.24	0.00	-12.02	0.00	12.02	1038.42	519.21	1121.94	561.80	7.53	-0.595	0.000	0.025
120.00	-3.74	-1.19	0.00	-8.32	0.00	8.32	1024.62	512.31	1082.91	542.26	7.91	-0.601	0.000	0.019
125.00	-3.43	-1.12	0.00	-2.36	0.00	2.36	1000.76	500.38	1018.44	509.98	8.54	-0.607	0.000	0.008
127.00	-0.15	-0.04	0.00	-0.13	0.00	0.13	990.92	495.46	992.88	497.18	8.80	-0.608	0.000	0.000
130.00	0.00	-0.04	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	9.18	-0.608	0.000	0.000

Final Analysis Summary

Structure: CT11561-A-SBA	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	16.9	0.00	27.37	0.00	0.00	1528.76
0.9D + 1.6W 105 mph Wind	16.9	0.00	20.52	0.00	0.00	1518.59
1.2D + 1.0Di + 1.0Wi 50 mph Wind	4.2	0.00	42.12	0.00	0.00	370.94
1.2D + 1.0E	0.9	0.00	27.39	0.00	0.00	95.11
0.9D + 1.0E	0.9	0.00	20.54	0.00	0.00	94.42
1.0D + 1.0W 60 mph Wind	3.4	0.00	22.82	0.00	0.00	310.62

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-8.74	-9.82	0.00	-301.28	0.00	-301.28	2291.37	1145.6	2937.41	1470.89	90.00	0.414
0.9D + 1.6W 105 mph Wind	-6.46	-9.73	0.00	-298.08	0.00	-298.08	2291.37	1145.6	2937.41	1470.89	90.00	0.408
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-42.12	-4.23	0.00	-370.94	0.00	-370.94	3903.36	1951.6	7638.46	3824.91	0.00	0.108
1.2D + 1.0E	-9.14	-0.71	0.00	-24.45	0.00	-24.45	2291.37	1145.6	2937.41	1470.89	90.00	0.041
0.9D + 1.0E	-6.85	-0.71	0.00	-24.22	0.00	-24.22	2291.37	1145.6	2937.41	1470.89	90.00	0.039
1.0D + 1.0W 60 mph Wind	-7.60	-1.99	0.00	-61.09	0.00	-61.09	2291.37	1145.6	2937.41	1470.89	90.00	0.089

Base Plate Summary

Structure: CT11561-A-SB	Code: EIA/TIA-222-G	6/1/2021
Site Name: Groton 2, CT	Exposure: B	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 28



Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 50.00	Bolt Circle: 54.00
Moment (kip-ft): 2188.80	Width (in): 60.00	Number Bolts: 12.00
Axial (kip): 27.80	Style: Round	Bolt Type: 2.25" A193 B7
Shear (kip): 22.70	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.6W)	Clip Length (in): 0.00	Yield (ksi): 105.00
Moment (kip-ft): 1528.76	Effective Len (in): 23.42	Ultimate (ksi): 125.00
Axial (kip): 27.37	Moment (kip-in): 350.25	Arrangement: Radial
Shear (kip): 16.87	Allow Stress (ksi): 67.50	Cluster Dist (in): 0.00
	Applied Stress (ksi): 14.18	Start Angle (deg): 30.00
	Stress Ratio: 0.21	Compression
		Force (kip): 116.75
		Allowable (kip): 325.00
		Ratio: 0.37
		Tension
		Force (kip): 109.73
		Allowable (kip): 325.00
		Ratio: 0.35

	Monopole Mat Foundation Design		Date	
			6/1/2021	
	Customer Name:	T-Mobile	EIA/TIA Standard:	EIA-222-G
	Site Name:	Groton 2, CT	Structure Height (Ft.):	130
	Site Number:	CT11561-A-SBA	Engineer Name:	W. Velez
	Engr. Number:	109168	Engineer Login ID:	

Foundation Info Obtained from:

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	27.4	Shear Force (Kips):	16.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1528.8

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	0.25	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	23	Width of Pad (ft.):	23

Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0
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Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	42	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	16	Qty. of Rebar in Pad (W):	16
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Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

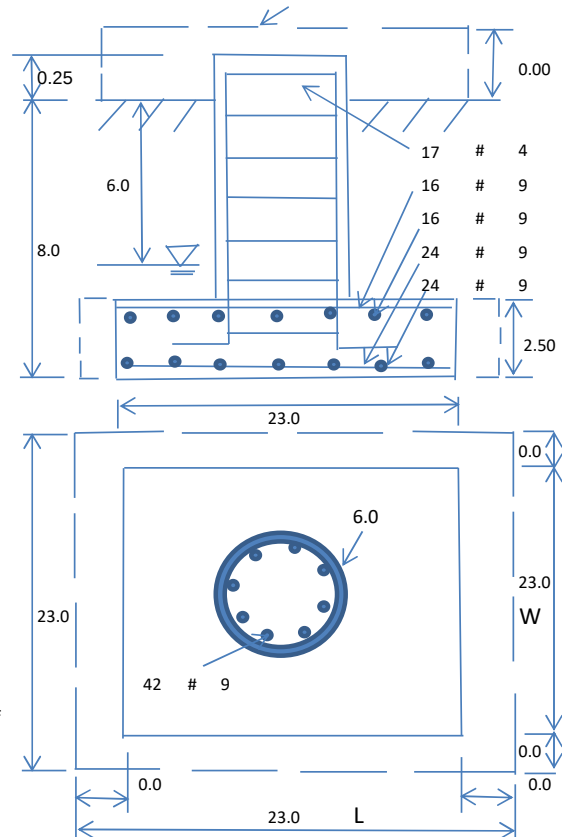
Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	47.6	Pcf
Water Table B.G.S. (ft):	6.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:		Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:	30	
		Angle from Botm of Pad:	25	
		Angle from Botm 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.):	2753.99	Total Dry Soil Weight (Kips):	302.94
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	302.94	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	427.08	Total Dry Concrete Weight (Kips):	64.06
Total Buoyant Concrete Volume (cu. Ft.):	1058.00	Total Buoyant Concrete Weight (Kips):	92.68
Total Effective Concrete Weight (Kips):	156.74	Total Vertical Load on Base (Kips):	487.05

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1707	< Allowable Factored Soil Bearing (psf):	22500	0.08	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	5072.5	> Design Factored Momont (kips-ft):	1468	0.29	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	3.46				OK!



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):

1.00

Tie / Stirrup Area (sq. in./each):

0.20

Calculated Moment Capacity (Mn,Kips-Ft):

5713.0

>

Design Factored Moment (Mu, Kips-F

1625.9

0.28

OK!

Calculated Shear Capacity (Kips):

616.7

>

Design Factored Shear (Kips):

16.9

0.03

OK!

Calculated Tension Capacity (Tn, Kips):

2268.0

>

Design Factored Tension (Tu Kips):

0.0

0.00

OK!

Calculated Compression Capacity (Pn, Kips):

7124.2

>

Design Factored Axial Load (Pu Kips):

27.4

0.00

OK!

Moment & Axial Strength Combination:

0.28

OK!

Check Tie Spacing (Design/Required):

0.5

OK!

Pier Reinforcement Ratio:

0.010

Reinforcement Ratio is satisfied per ACI

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):

692.2

>

One-Way Factored Shear (L-D. Kips):

168.4

0.24

OK!

One-Way Design Shear Capacity (W-Direction, Kips):

692.2

>

One-Way Factored Shear (W-D., Kips)

168.4

0.24

OK!

One-Way Design Shear Capacity (Corner-Corner. Kips):

665.8

>

One-Way Factored Shear (C-C, Kips):

147.4

0.22

OK!

Lower Steel Pad Reinforcement Ratio (L-Direct.):

0.0033

OK!

Lower Steel Pad Reinf. Ratio (W-Direc

0.0033

Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):

2772.4

>

Moment at Bottom (L-Dir. K-Ft):

883.8

0.32

OK!

Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):

2772.4

>

Moment at Bottom (W-Dir. K-Ft):

883.8

0.32

OK!

Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):

3894.2

>

Moment at Bottom (C-C Dir. K-Ft):

1249.9

0.32

OK!

Upper Steel Pad Reinforcement Ratio (L-Direct.):

0.0022

OK!

Upper Steel Reinf. Ratio (W-Dir.):

0.0022

Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):

1866.7

>

Moment at the top (L-Dir K-Ft):

223.6

0.12

OK!

Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):

1866.7

>

Moment at the top (W-Dir K-Ft):

223.6

0.12

OK!

Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):

2628.1

>

Moment at the top (C-C Dir. K-Ft):

209.4

0.08

OK!

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

Moment transferred by punching shear:

611.5

k-ft.

Max. factored shear stress v_{u_CD} :

2.2

Psi

Max. factored shear stress v_{u_AB} :

7.5

Psi

Factored shear Strength ϕv_n :

189.7

Psi

Max. factored shear stress v_u :

7.5

Psi

Check Usage of Punching Shear Capacity:

0.04

OK!

EXHIBIT 8



Tower Engineering Solutions

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

Antenna Mount Analysis Report

Existing 130-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT11561-A-SBA / Groton 2, CT

Customer Site Name: Groton 2, CT

Carrier Name: T-Mobile (App#: 116835, V3)

Carrier Site ID / Name: CTNL053A / Groton

Site Location: 237 Sandy Hollow Road

Groton, Connecticut

New London County

Latitude: 41.369510

Longitude: -71.982463

Analysis Result:

Max Structural Usage: 69.0% [Pass]

Report Prepared By : Mariana Franco



Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform w/ Hand Rails at 129.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount mapping by Full Metal Tower Services dated 4/30/19.
Antenna Loading	SBA Application #: 116835, v3
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: $V_{ULT} = 135$ mph (3-Sec. Gust) / Equivalent to
 $V_{ASD} = 105$ mph (3-Sec. Gust)

Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 0.75" radial ice concurrent

Operational Wind Speed: 60 mph +0" Radial ice

Standard/Codes: ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code

Exposure Category: C

Structure Class: II

Topographic Category: 1

Crest Height (Ft): 0

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(1) Platform w/ Hand Rails at 129.00' elevation

Final Antenna Configuration

- 3 Ericsson Air 21 B2A/B4P
- 3 Ericsson Air 21 B4A/B2P
- 3 RFS APXVAALL24_43-U-NA20
- 3 Ericsson KRY 112 144/1
- 3 Ericsson 4449 B71 + B85

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 69.0%, which occurs in the support rail member. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos
2. Antenna Placement Diagram
3. Mount Mapping Information
4. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.
2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.
4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.
6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.
7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.
8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.
9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.



Structure: CT11561-A-SBA - Groton 2, CT

Sector: **A**

5/19/2021

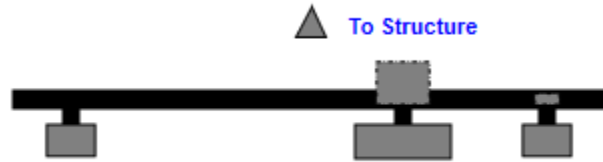
Structure Type: Monopole

Mount Elev: 129.00

Page: 1

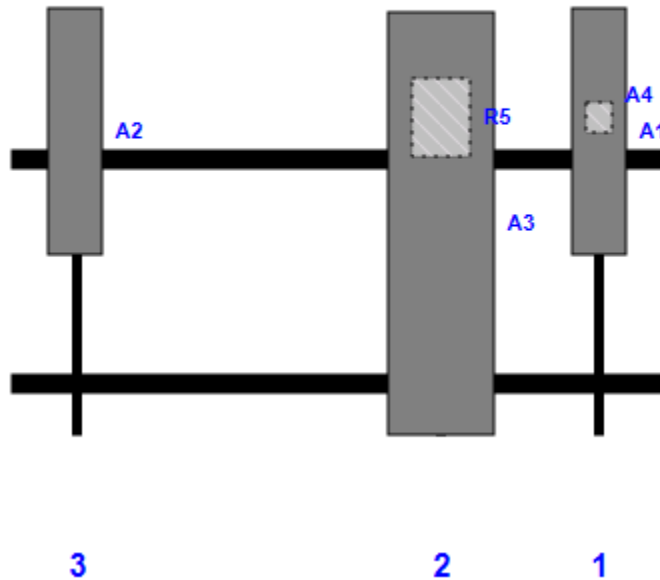


Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	Air 21 B2A/B4P	56.00	12.10	134.00	1	a	Front	27.00			
A4	KRY 112 144/1	6.90	6.10	134.00	1	a	Behind	24.00			
A3	APXVAALL24_43-U-NA20	95.90	24.00	98.00	2	a	Front	48.00			
R5	4449 B71 + B85	17.90	13.20	98.00	2	a	Behind	24.00			
A2	Air 21 B4A/B2P	56.00	12.10	15.00	3	a	Front	27.00			

Structure: CT11561-A-SBA - Groton 2, CT

Sector: **B**

5/19/2021

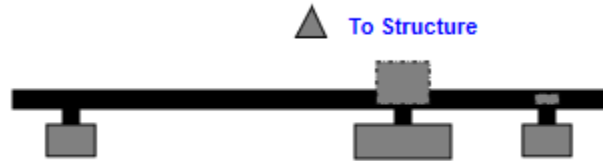
Structure Type: Monopole

Mount Elev: 129.00

Page: 2

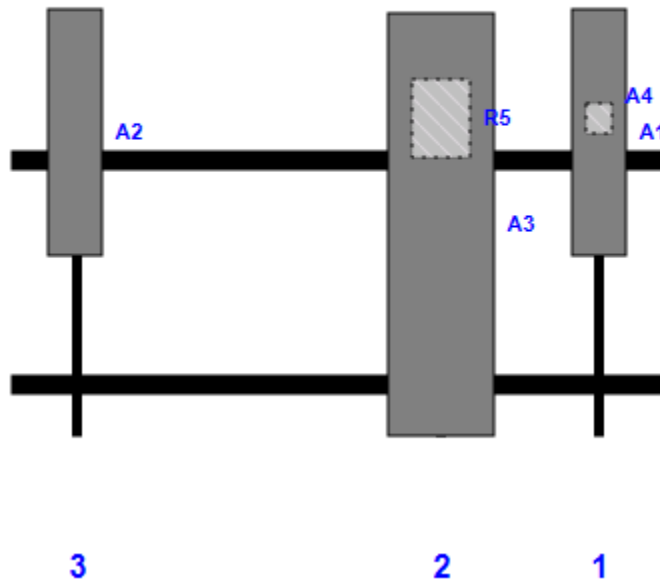


Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	Air 21 B2A/B4P	56.00	12.10	134.00	1	a	Front	27.00			
A4	KRY 112 144/1	6.90	6.10	134.00	1	a	Behind	24.00			
A3	APXVAALL24_43-U-NA20	95.90	24.00	98.00	2	a	Front	48.00			
R5	4449 B71 + B85	17.90	13.20	98.00	2	a	Behind	24.00			
A2	Air 21 B4A/B2P	56.00	12.10	15.00	3	a	Front	27.00			

Structure: CT11561-A-SBA - Groton 2, CT

Sector: **C**

5/19/2021

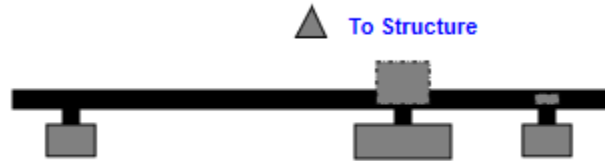
Structure Type: Monopole

Mount Elev: 129.00

Page: 3

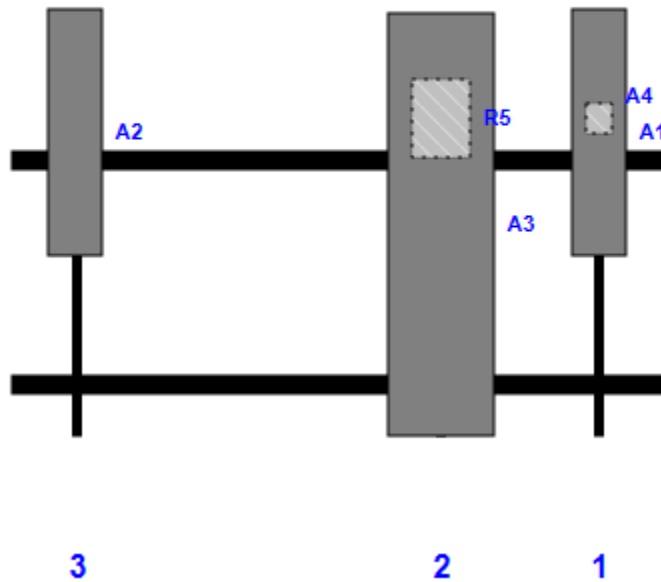


Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	Air 21 B2A/B4P	56.00	12.10	134.00	1	a	Front	27.00			
A4	KRY 112 144/1	6.90	6.10	134.00	1	a	Behind	24.00			
A3	APXVAALL24_43-U-NA20	95.90	24.00	98.00	2	a	Front	48.00			
R5	4449 B71 + B85	17.90	13.20	98.00	2	a	Behind	24.00			
A2	Air 21 B4A/B2P	56.00	12.10	15.00	3	a	Front	27.00			



TES
Tower Engineering Solutions

Antenna Mount Type "MT-B" Mapping Form (PATENT PENDING)

FCC #
1261047

Tower Owner: SBA Communications

Site Name: Groton 2, CT

Site Number or ID: CT11561-A-SBA

Mapping Contractor: Full Metal Tower Services

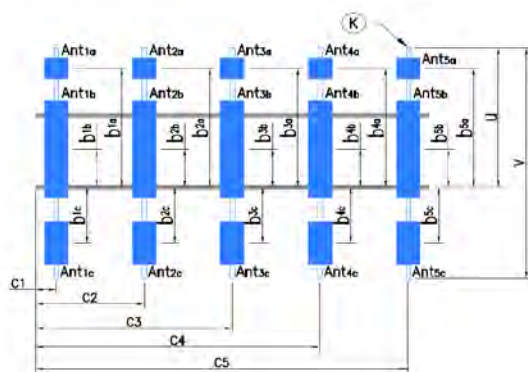
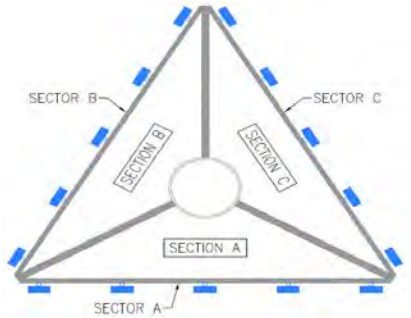
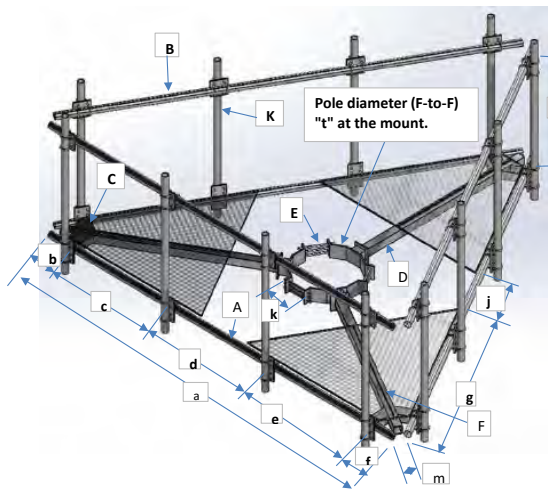
Mapping Date: 4/30/19

Structure Type: Monopole

Structure Height (Ft.): 131

Mount Height (Ft.): 128.4

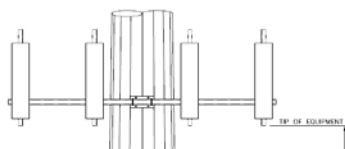
This antenna mapping form is the property of TES and under **PATENT PENDING**. The formation contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method is prohibited except by express written permission of TES. All means and methods are the responsibility of the contractor and the work shall be compliant with ANSI/ASSE A 10.48, OSHA, FCC, FAA and other safety requirements that may apply. TES is not warranting the usability of the safety climb as it must be assessed prior to each use in compliance with OSHA requirements.



Antenna Layout

Azimuth (Degree) of Each Sector and Climbing Information

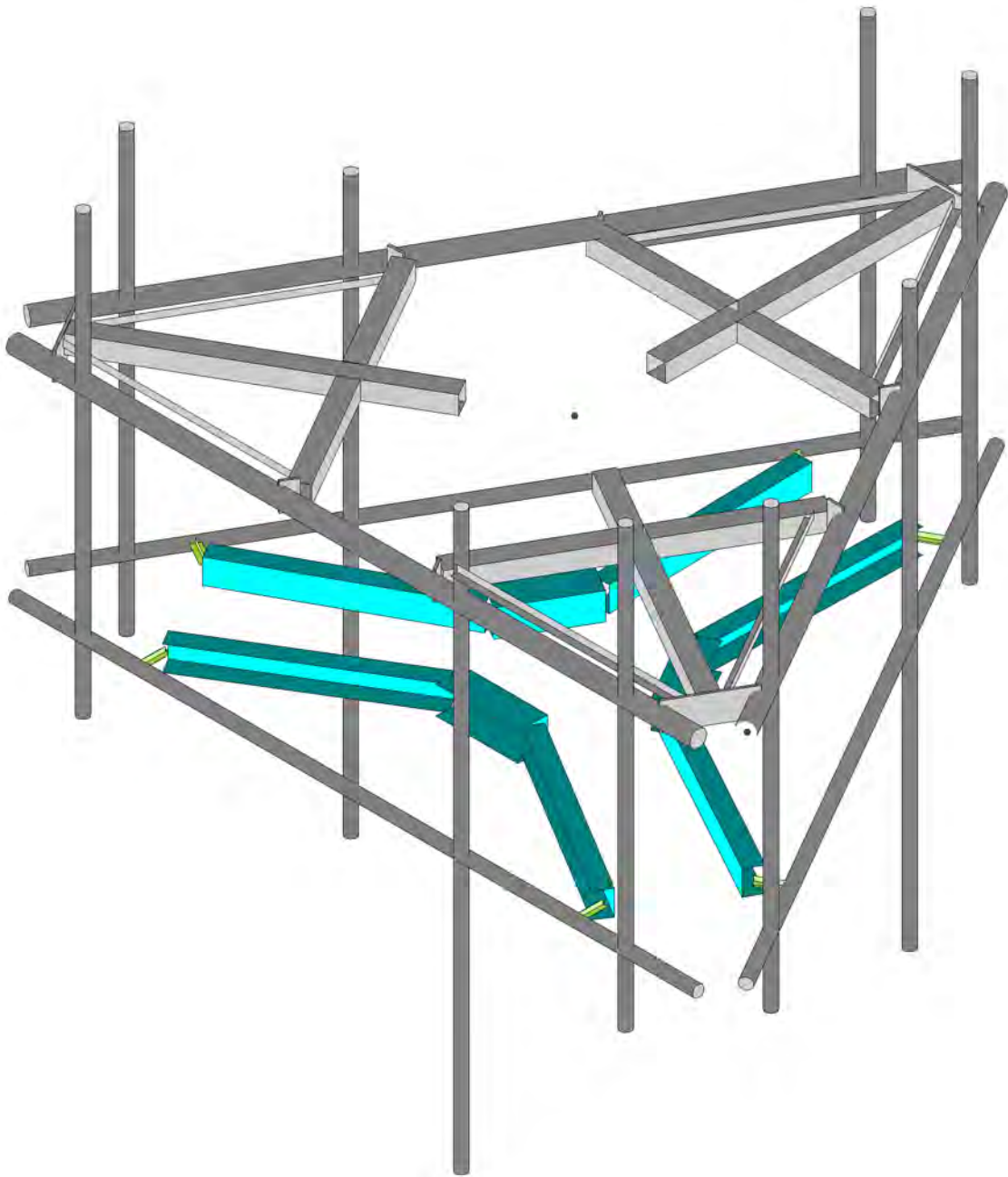
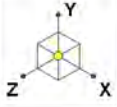
Sector A:	70°	Deg	
Sector B:	190°	Deg	
Sector C:	310°	Deg	
Climbing	150°	Deg	
Climbing Facility	Corrosion Type:		
	Access:		
	Condition:		



Geometries (Unit: inches)									
a	150	e	45	j	41	o	N/A	s	N/A
b	10	f	9	k	36	p	N/A	t	24
c	45	g	45	m	12	q	N/A	u *	33
d	41	h	-45	n	N/A	r	N/A	v *	96
Members/Bolts (Unit: inches) * - See Ant Layout for "u", "v" and member "K" (pipe)									
Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	3.5 OD x 0.216 Pipe	3.5	3.068	0.216	F	Tubing 4x4x1/4	4	4	0.25
B	2.375 OD x 0.154 Pipe	2.375	2.067	0.154	G				
C	1/2" Thick. Plate	0	0	0.5	H				
D	Tubing 4x4x1/4	4	4	0.25	J				
E	3/4" Bolt		36		K* (pipe)	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
Distance from top of main platform member to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.)									N/A
Distance from top of main platform member to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.)									7.5'
Please enter the information below if members can't be found from the drop down lists									

Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.						Mounting Locations (Unit: inches)			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Vertical Distances "b _{1a} , b _{2a} , b _{3a} , b _{1b} ,..." (in.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C ₁ , C ₂ , C ₃ , C ₄ , C ₅ " (in.)	Photo Numbers
Sector A									
Ant _{1a}									
Ant _{1b}	Antenna A	12	8	56	1/2" (2)	+4"	7	16	
Ant _{1c}	TMA A				1/2" (2)		N/A	16	
Ant _{2a}									
Ant _{2b}	Antenna B	12	7.5	96.5	1/2" (2)	-27"	7	52	
Ant _{2c}	RRH A	17	7	20	1/2" (2)	-23"	N/A	52	
Ant _{3a}									
Ant _{3b}	Antenna C	13	9	56	1/2" (1)	+4"	8	135	
Ant _{3c}									
Ant _{4a}									
Ant _{4b}									
Ant _{4c}									
Ant _{5a}									
Ant _{5b}									
Ant _{5c}									
Are Ant same as sector A?		Yes	Antennas on Sector B are the same as Sector A						

Are Ant same as sector A/B? Same As A Antennas on Sector C are the same as Sector A



Tower Engineering Solutio...

LK

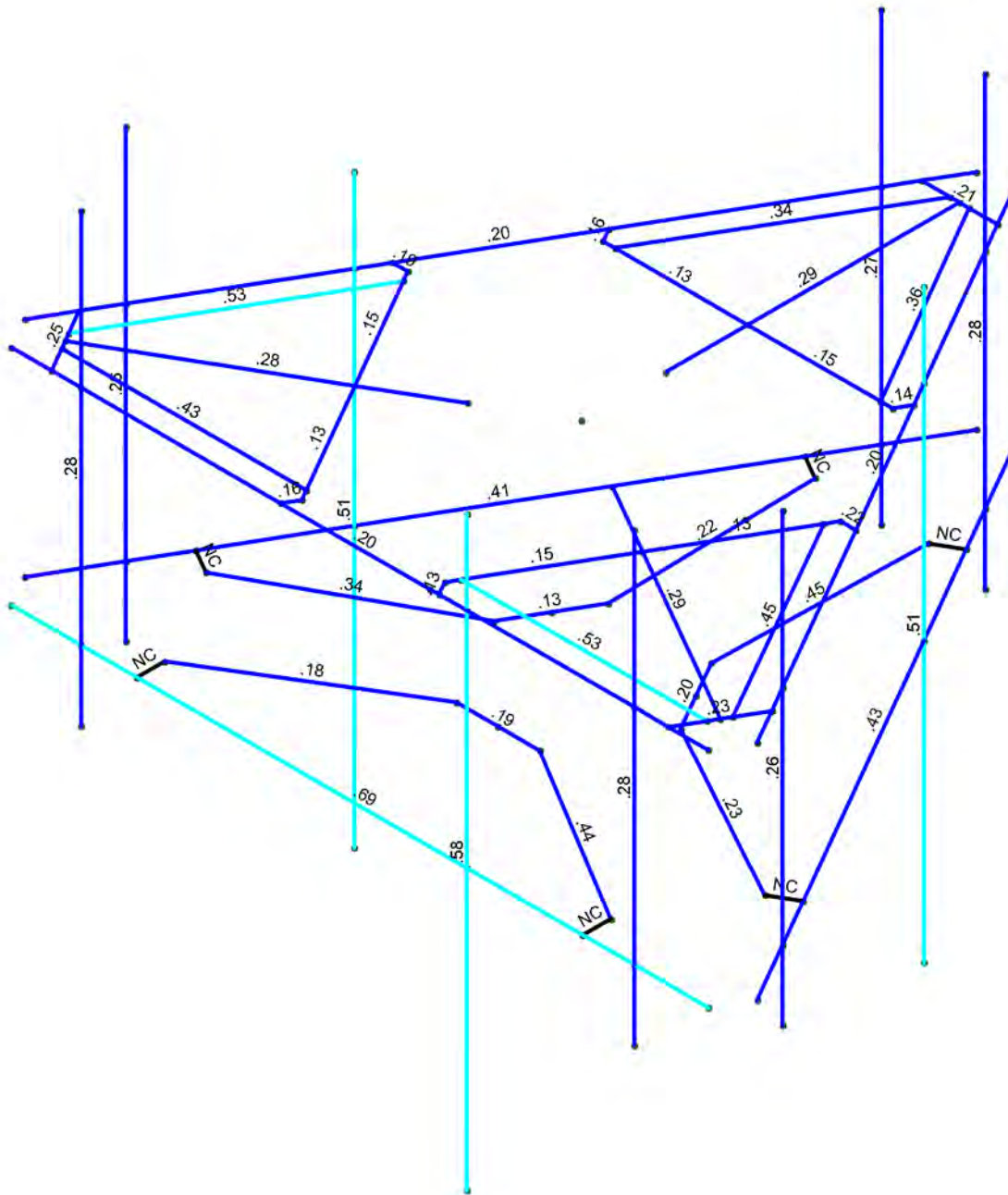
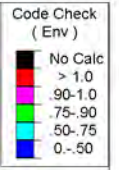
TES Project No. 106968

CT11561-A-SBA_MT_LO_Loads Only_G

SK - 1

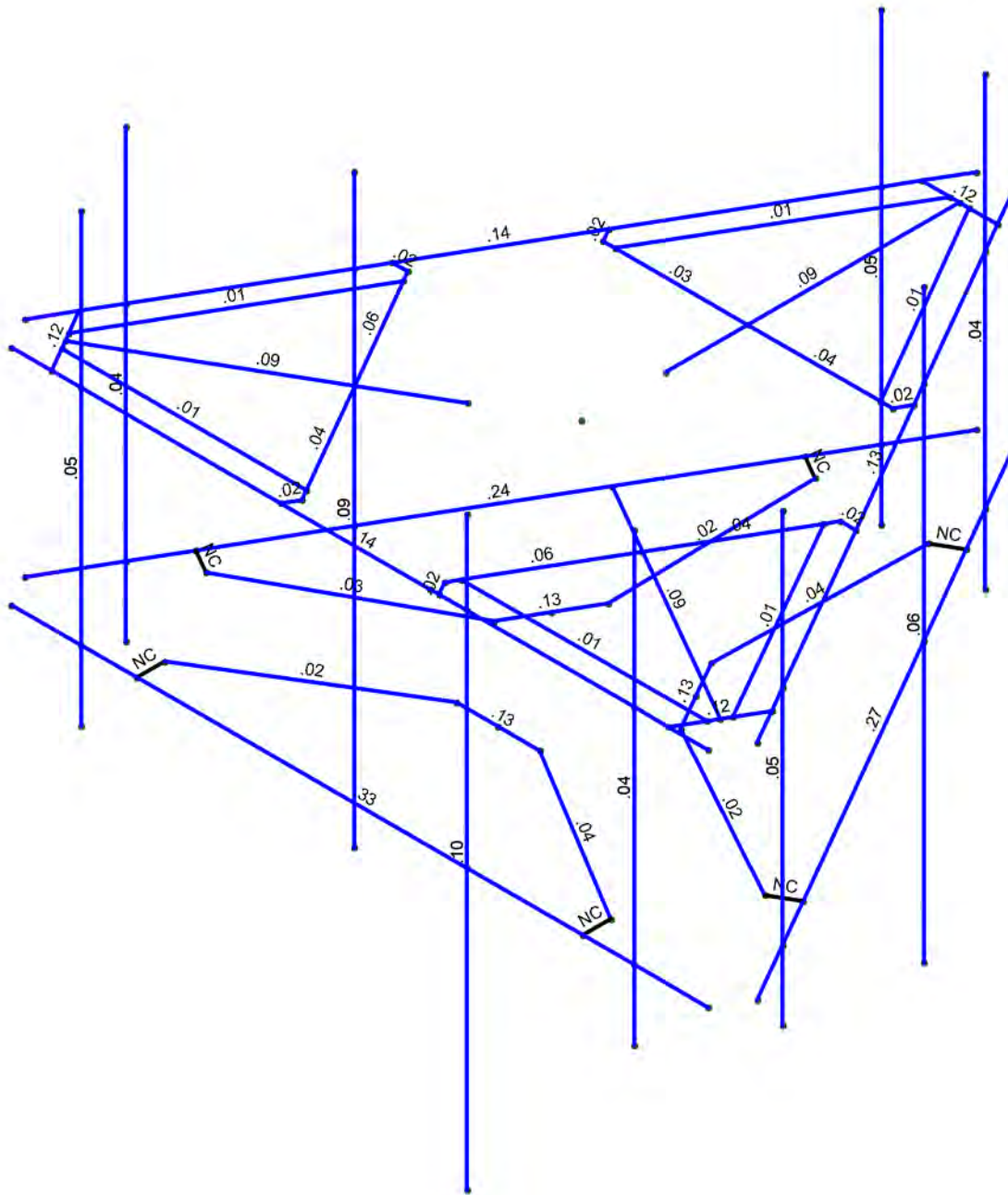
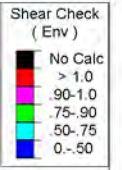
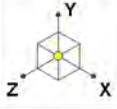
May 19, 2021 at 3:43 PM

CT11561-A-SBA_106968_G_RISA_...



LK
TES Project No. 106968

CT11561-A-SBA_106968_G_RISA_...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...

LK

TES Project No. 106968

CT11561-A-SBA_MT_LO_Loads Only_G

SK - 3

May 19, 2021 at 3:44 PM

CT11561-A-SBA_106968_G_RISA_...



Company : Tower Engineering Solutions, LLC
 Designer : LK
 Job Number : TES Project No. 106968
 Model Name : CT11561-A-SBA_MT_LO_Loads Only_G

May 19, 2021
 3:45 PM
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Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(...
1	Antenna D	None					24		
2	Antenna Di	None					24		
3	Antenna W Front	None					24		
4	Antenna Wi Front	None					24		
5	Antenna W Side	None					24		
6	Antenna Wi Side	None					24		
7	Service Lm1	None					1		
8	Service Lm2	None					1		
9	Structure D	None		-1					3
10	Structure Di	None						48	3
11	Structure W Front	None						48	
12	Structure Wi Front	None						48	
13	Structure W Side	None						48	
14	Structure Wi Side	None						48	
15	BLC 9 Transient Area Loads	None							
16	BLC 10 Transient Area Loads	None						54	

Load Combinations

	Description	So.. P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6								
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6								
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6								
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6								
5	1.2D+1.0Di+1.0Wi (Front)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1				
6	1.2D+1.0Di+1.0Wi (Back)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1				
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1				
8	1.2D+1.0Di+1.0Wi (Right)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1				
9	1.2D+1.5L1+.16W (Mai...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16						
10	1.2D+1.5L2+.16W (Mai...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16						
11	1.4D	Yes	Y		1	1.4	9	1.4												

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	-1.299038	0	.75	0	
3	N3	-2.580756	0	1.49	0	
4	N4	-3.880756	0	-0.761666	0	
5	N5	-5.871652	0	3.39	0	
6	N6	-1.280756	0	3.741666	0	
7	N7	-1.390131	0	3.552223	0	
8	N8	-3.771381	0	-0.572223	0	
9	N9	-5.531652	0	3.978897	0	
10	N10	-6.211652	0	2.801103	0	
11	N11	-5.956652	0	3.242776	0	
12	N12	-5.786652	0	3.537224	0	



Company : Tower Engineering Solutions, LLC
Designer : LK
Job Number : TES Project No. 106968
Model Name : CT11561-A-SBA_MT_LO_Loads Only_G

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Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
13	N13	5.531652	0	3.978897	0	
14	N14	-1.422991	0	3.978897	0	
15	N15	-4.157322	0	-0.757102	0	
16	N16	1.299038	0	0.75	0	
17	N17	2.580756	0	1.49	0	
18	N18	1.280756	0	3.741666	0	
19	N19	5.871652	0	3.39	0	
20	N20	3.880756	0	-0.761666	0	
21	N21	3.771381	0	-0.572223	0	
22	N22	1.390131	0	3.552223	0	
23	N23	6.211652	0	2.801103	0	
24	N24	5.786652	0	3.537224	0	
25	N25	5.956652	0	3.242776	0	
26	N26	4.157322	0	-0.757102	0	
27	N27	1.422991	0	3.978897	0	
28	N28	1.8e-13	0	-1.5	0	
29	N29	-5e-14	0	-2.98	0	
30	N30	2.6	0	-2.98	0	
31	N31	1.8e-13	0	-6.78	0	
32	N32	-2.6	0	-2.98	0	
33	N33	-2.38125	0	-2.98	0	
34	N34	2.38125	0	-2.98	0	
35	N35	-0.68	0	-6.78	0	
36	N36	0.68	0	-6.78	0	
37	N37	0.17	0	-6.78	0	
38	N38	-0.17	0	-6.78	0	
39	N39	-2.734331	0	-3.221795	0	
40	N40	2.734331	0	-3.221795	0	
41	N41	6.25	0	3.978897	0	
42	N42	-6.25	0	3.978897	0	
43	N43	0.320826	0	-7.402107	0	
44	N44	6.570826	0	3.42321	0	
45	N45	-6.570826	0	3.42321	0	
46	N46	-0.320826	0	-7.402107	0	
47	N47	1.25	0	3.978897	0	
48	N48	4.92	0	3.978897	0	
49	N49	0.985826	0	-6.250294	0	
50	N50	-5.905826	0	2.271396	0	
51	N51	1.92	0	3.978897	0	
52	N52	2.485826	0	-3.652217	0	
53	N53	-4.405826	0	-0.32668	0	
54	N54	-5.	0	3.978897	0	
55	N55	5.945826	0	2.340678	0	
56	N56	-0.945826	0	-6.319576	0	
57	N57	4.92	2.75	3.978897	0	
58	N58	0.985826	2.75	-6.250294	0	
59	N59	-5.905826	2.75	2.271396	0	
60	N60	-5.	2.75	3.978897	0	
61	N61	5.945826	2.75	2.340678	0	
62	N62	-0.945826	2.75	-6.319576	0	
63	N63	4.92	-5.25	3.978897	0	
64	N64	0.985826	-5.25	-6.250294	0	



Company : Tower Engineering Solutions, LLC
Designer : LK
Job Number : TES Project No. 106968
Model Name : CT11561-A-SBA_MT_LO_Loads Only_G

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Checked By: _____

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
65	N65	-5.905826	-5.25	2.271396	0	
66	N66	-5.	-5.25	3.978897	0	
67	N67	5.945826	-5.25	2.340678	0	
68	N68	-0.945826	-5.25	-6.319576	0	
69	N69	1.92	1.5	3.978897	0	
70	N70	2.485826	1.5	-3.652217	0	
71	N71	-4.405826	1.5	-0.32668	0	
72	N72	1.92	-9	3.978897	0	
73	N73	2.485826	-9	-3.652217	0	
74	N74	-4.405826	-9	-0.32668	0	
75	N75	6.25	-4	3.978897	0	
76	N76	-6.25	-4	3.978897	0	
77	N77	-1.7e-13	-4	1.5	0	
78	N79	4.	-4	3.978897	0	
79	N80	-4.	-4	3.978897	0	
80	N80A	0.320826	-4	-7.402107	0	
81	N81	6.570826	-4	3.42321	0	
82	N85	-6.570826	-4	3.42321	0	
83	N86	-0.320826	-4	-7.402107	0	
84	N90	-5.	-4	3.978897	0	
85	N91	1.92	-4	3.978897	0	
86	N92	4.92	-4	3.978897	0	
87	N93	5.945826	-4	2.340678	0	
88	N94	2.485826	-4	-3.652217	0	
89	N95	0.985826	-4	-6.250294	0	
90	N96	-0.945826	-4	-6.319576	0	
91	N97	-4.405826	-4	-0.32668	0	
92	N98	-5.905826	-4	2.271396	0	
93	N93A	0.75	-4	1.5	0	
94	N94A	-0.75	-4	1.5	0	
95	N95A	4.	-4	3.478897	0	
96	N96A	-4.	-4	3.478897	0	
97	N97A	1.299038	-4	-0.75	0	
98	N98A	1.445826	-4	-5.45355	0	
99	N99	5.445826	-4	1.474653	0	
100	N100	0.924038	-4	-1.399519	0	
101	N101	1.674038	-4	-0.100481	0	
102	N102	1.012813	-4	-5.20355	0	
103	N103	5.012813	-4	1.724653	0	
104	N104	-1.299038	-4	-0.75	0	
105	N105	-5.445826	-4	1.474653	0	
106	N106	-1.445826	-4	-5.45355	0	
107	N107	-1.674038	-4	-0.100481	0	
108	N108	-0.924038	-4	-1.399519	0	
109	N109	-5.012813	-4	1.724653	0	
110	N110	-1.012813	-4	-5.20355	0	



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Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4x4x5	Beam	SquareTube	A500 Gr.B ...	Typical	4.1	9.14	9.14	15.3
2	Internal Fa...	L1.5x1.5x3	Beam	Single Angle	A36 Gr.36	Typical	.527	.11	.11	.006
3	Plate Conn...	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
4	Internal Bra...	HSS4x4x4	Beam	Tube	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
5	End Conne...	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
6	Face Horiz...	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
7	Support Rail	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	End Conne...	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
9	Mount Pipe...	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	V-Brace	5.44CU3.7x1875	Beam	CU	A570 Gr.33	Typical	2.262	3.221	11.043	.027
2	V-Brace C...	6CU6.5x250	Beam	CU	A570 Gr.33	Typical	4.491	20.132	29.124	.094

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	AL1A	AACS14X13.9	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	52
2	A607 C1 Gr.55	29500	11346	.3	.65	.49	55	70

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...Density[...Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct
1	3003-H14	10100	3787.5	.33	1.3 .173 Table B...	1	19	16	13	12	141
2	6061-T6	10100	3787.5	.33	1.3 .173 Table B...	1	38	35	35	24	141
3	6063-T5	10100	3787.5	.33	1.3 .173 Table B...	1	22	16	16	13	141
4	6063-T6	10100	3787.5	.33	1.3 .173 Table B...	1	30	25	25	19	141
5	5052-H34	10200	3787.5	.33	1.3 .173 Table B...	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	.33	1.3 .173 Table B...	1	24	15	15	15	141



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Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N2	N5			Standoff	Beam	SquareTube	A500 Gr.B...	Typical
2	M2	N4	N3			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
3	M3	N7	N12			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N3	N6			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
5	M5	N8	N11			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N6	N14			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
7	M7	N9	N10			End Connectio...	Beam	RECT	A36 Gr.36	Typical
8	M8	N42	N41			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
9	M9	N4	N15			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
10	M10	N16	N19			Standoff	Beam	SquareTube	A500 Gr.B...	Typical
11	M11	N18	N17			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
12	M12	N21	N25			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N17	N20			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
14	M14	N22	N24			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N20	N26			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
16	M16	N23	N13			End Connectio...	Beam	RECT	A36 Gr.36	Typical
17	M17	N18	N27			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
18	M18	N28	N31			Standoff	Beam	SquareTube	A500 Gr.B...	Typical
19	M19	N30	N29			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
20	M20	N33	N38			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N29	N32			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
22	M22	N34	N37			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N32	N39			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
24	M24	N35	N36			End Connectio...	Beam	RECT	A36 Gr.36	Typical
25	M25	N30	N40			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
26	M26	N44	N43			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
27	M27	N46	N45			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
28	MP3A	N60	N66			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
29	MP2A	N69	N72			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
30	MP1A	N57	N63			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
31	MP3C	N61	N67			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
32	MP2C	N70	N73			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
33	MP1C	N58	N64			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
34	MP3B	N62	N68			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
35	MP2B	N71	N74			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
36	MP1B	N59	N65			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
37	M37	N76	N75			Support Rail	Beam	Pipe	A53 Gr.B	Typical
38	M38	N94A	N96A		180	V-Brace	Beam	CU	A570 Gr.33	Typical
39	M39	N93A	N95A			V-Brace	Beam	CU	A570 Gr.33	Typical
40	M40	N81	N80A			Support Rail	Beam	Pipe	A53 Gr.B	Typical
41	M43	N86	N85			Support Rail	Beam	Pipe	A53 Gr.B	Typical
42	M42	N80	N96A			RIGID	Beam	None	RIGID	DR1
43	M43A	N79	N95A			RIGID	Beam	None	RIGID	DR1
44	M44	N94A	N93A			V-Brace Conn...	Beam	CU	A570 Gr.33	Typical
45	M45	N101	N103		180	V-Brace	Beam	CU	A570 Gr.33	Typical
46	M46	N100	N102			V-Brace	Beam	CU	A570 Gr.33	Typical
47	M47	N99	N103			RIGID	Beam	None	RIGID	DR1
48	M48	N98A	N102			RIGID	Beam	None	RIGID	DR1
49	M49	N101	N100			V-Brace Conn...	Beam	CU	A570 Gr.33	Typical
50	M50	N108	N110		180	V-Brace	Beam	CU	A570 Gr.33	Typical
51	M51	N107	N109			V-Brace	Beam	CU	A570 Gr.33	Typical



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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
52	M52	N106	N110			RIGID	Beam	None	RIGID	DR1
53	M53	N105	N109			RIGID	Beam	None	RIGID	DR1
54	M54	N108	N107			V-Brace Conn...	Beam	CU	A570 Gr.33	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2				M1		Yes			None
3	M3						Yes			None
4	M4			M1			Yes			None
5	M5						Yes			None
6	M6		OOOXOO				Yes			None
7	M7	OOOOOX	OOOOOX				Yes			None
8	M8						Yes			None
9	M9		OOOXOO				Yes			None
10	M10						Yes			None
11	M11				M1		Yes			None
12	M12						Yes			None
13	M13			M1			Yes			None
14	M14						Yes			None
15	M15		OOOXOO				Yes			None
16	M16	OOOOOX	OOOOOX				Yes			None
17	M17		OOOXOO				Yes			None
18	M18						Yes			None
19	M19				M1		Yes			None
20	M20						Yes			None
21	M21			M1			Yes			None
22	M22						Yes			None
23	M23		OOOXOO				Yes			None
24	M24	OOOOOX	OOOOOX				Yes			None
25	M25		OOOXOO				Yes			None
26	M26						Yes			None
27	M27						Yes			None
28	MP3A						Yes			None
29	MP2A						Yes			None
30	MP1A						Yes			None
31	MP3C						Yes			None
32	MP2C						Yes			None
33	MP1C						Yes			None
34	MP3B						Yes			None
35	MP2B						Yes			None
36	MP1B						Yes			None
37	M37						Yes			None
38	M38						Yes			None
39	M39						Yes			None
40	M40						Yes			None
41	M43						Yes			None
42	M42						Yes			None
43	M43A						Yes			None
44	M44						Yes			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
45	M45						Yes			None
46	M46						Yes			None
47	M47						Yes			None
48	M48						Yes			None
49	M49						Yes			None
50	M50						Yes			None
51	M51						Yes			None
52	M52						Yes			None
53	M53						Yes			None
54	M54						Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torq...	Kyy	Kzz	Cb	Funct...
1	M1	Standoff	5.28			Lbyy						Lateral
2	M2	Internal Brace Bottom	2.6			Lbyy						Lateral
3	M3	Internal Face Horizontal	4.397			Lbyy						Lateral
4	M4	Internal Brace Bottom	2.6			Lbyy						Lateral
5	M5	Internal Face Horizontal	4.397			Lbyy						Lateral
6	M6	Plate Connection	.277			Lbyy						Lateral
7	M7	End Connection Bottom	1.36			Lbyy						Lateral
8	M8	Face Horizontal	12.5			Lbyy						Lateral
9	M9	Plate Connection	.277			Lbyy						Lateral
10	M10	Standoff	5.28			Lbyy						Lateral
11	M11	Internal Brace Bottom	2.6			Lbyy						Lateral
12	M12	Internal Face Horizontal	4.397			Lbyy						Lateral
13	M13	Internal Brace Bottom	2.6			Lbyy						Lateral
14	M14	Internal Face Horizontal	4.397			Lbyy						Lateral
15	M15	Plate Connection	.277			Lbyy						Lateral
16	M16	End Connection Bottom	1.36			Lbyy						Lateral
17	M17	Plate Connection	.277			Lbyy						Lateral
18	M18	Standoff	5.28			Lbyy						Lateral
19	M19	Internal Brace Bottom	2.6			Lbyy						Lateral
20	M20	Internal Face Horizontal	4.397			Lbyy						Lateral
21	M21	Internal Brace Bottom	2.6			Lbyy						Lateral
22	M22	Internal Face Horizontal	4.397			Lbyy						Lateral
23	M23	Plate Connection	.277			Lbyy						Lateral
24	M24	End Connection Bottom	1.36			Lbyy						Lateral
25	M25	Plate Connection	.277			Lbyy						Lateral
26	M26	Face Horizontal	12.5			Lbyy						Lateral
27	M27	Face Horizontal	12.5			Lbyy						Lateral
28	MP3A	Mount Pipe 2 std	8			Lbyy						Lateral
29	MP2A	Mount Pipe 2 std	10.5			Lbyy						Lateral
30	MP1A	Mount Pipe 2 std	8			Lbyy						Lateral
31	MP3C	Mount Pipe 2 std	8			Lbyy						Lateral
32	MP2C	Mount Pipe 2 std	10.5			Lbyy						Lateral
33	MP1C	Mount Pipe 2 std	8			Lbyy						Lateral
34	MP3B	Mount Pipe 2 std	8			Lbyy						Lateral
35	MP2B	Mount Pipe 2 std	10.5			Lbyy						Lateral
36	MP1B	Mount Pipe 2 std	8			Lbyy						Lateral
37	M37	Support Rail	12.5			Lbyy						Lateral



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Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torq...	Kyy	Kzz	Cb	Funct...
38	M40	Support Rail	12.5			Lbyy						Lateral
39	M43	Support Rail	12.5			Lbyy						Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
1	M38	V-Brace	3.805			Lbyy											
2	M39	V-Brace	3.805			Lbyy											
3	M44	V-Brace..	1.5			Lbyy											
4	M45	V-Brace	3.805			Lbyy											
5	M46	V-Brace	3.805			Lbyy											
6	M49	V-Brace..	1.5			Lbyy											
7	M50	V-Brace	3.805			Lbyy											
8	M51	V-Brace	3.805			Lbyy											
9	M54	V-Brace..	1.5			Lbyy											

Aluminum Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
No Data to Print ...											

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N16	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N28	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N77	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N93A						
6	N94A						
7	N97A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N100						
9	N101						
10	N104	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N107						
12	N108						

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N2	max	2391.137	4	2489.895	7	1326.965	1	-.718	2	.916	1	-1.558	10
2		min	-2383.64	3	732.891	4	-1392.503	2	-2.112	5	-1.062	2	-4.684	5
3	N16	max	1826.416	4	2487.858	5	2023.402	1	-1.004	1	1.297	2	4.171	8
4		min	-1886.59	3	729.326	2	-1996.342	2	-3.001	6	-1.445	1	1.394	1
5	N28	max	1628.656	4	2486.985	6	2546.678	1	5.109	7	1.785	3	.536	5
6		min	-1575.012	3	716.054	9	-2507.205	2	1.657	10	-1.932	4	.094	10
7	N77	max	730.993	4	433.03	6	1713.835	1	-.048	1	1.524	2	.109	10
8		min	-654.198	3	-20.201	1	-1550.434	2	-.154	8	-1.415	1	-.099	1
9	N97A	max	1434.187	4	429.608	7	869.016	1	.132	3	2.354	3	.142	8
10		min	-1331.154	3	3.019	4	-1017.847	2	-.079	4	-2.24	4	-.003	3



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Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
11	N104	max	1354.293	4	422.786	8	895.224	1	.099	2	1.822	1	.001	2
12		min	-1535.087	3	37.765	3	-910.79	2	-.042	1	-1.709	2	-.144	5
13	Totals:	max	9365.681	4	8586.736	7	9375.121	1						
14		min	-9365.681	3	3040.41	4	-9375.121	2						

Envelope Member Section Forces

	Member	Sec		Axial [lb]	LC	y Shear [lb]	LC	z Shear [lb]	LC	Torque [k-...]	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	2355.276	3	2490.791	7	957.373	2	.378	9	.916	1	5.113	5
2			min	-2394.433	4	730.986	4	-904.633	1	-.532	6	-1.062	2	1.722	10
3		2	max	2331.264	3	2446.835	7	915.783	2	.378	9	.467	3	1.915	8
4			min	-2370.421	4	707.219	4	-863.044	1	-.532	6	-.543	4	.424	3
5		3	max	2054.386	3	488.764	5	116.26	2	.005	9	.049	3	1.001	5
6			min	-2084.921	4	117.761	2	-114.545	1	-.145	7	-.058	4	.23	2
7		4	max	2030.375	3	425.726	5	74.67	2	.005	9	.13	2	.399	5
8			min	-2060.909	4	93.993	2	-72.955	1	-.145	7	-.136	1	.09	2
9		5	max	2006.363	3	373.074	5	33.081	2	.005	9	.201	2	.012	4
10			min	-2036.898	4	70.226	2	-31.366	1	-.145	7	-.205	1	-.134	7
11	M2	1	max	301.119	2	-223.239	4	1362.669	4	.221	4	.053	4	.123	4
12			min	-285.848	1	-906.569	7	-1307.554	3	-.285	3	-.055	3	-.158	3
13		2	max	604.383	3	-241.552	4	167.274	4	.237	4	.368	4	.506	8
14			min	-617.046	4	-963.36	7	-151.632	3	-.28	3	-.361	3	.079	3
15		3	max	615.449	3	-250.555	4	186.441	4	.237	4	.476	4	1.086	6
16			min	-628.112	4	-987.818	7	-170.799	3	-.28	3	-.459	3	.324	1
17		4	max	626.515	3	-259.558	4	205.607	4	.237	4	.595	4	1.691	6
18			min	-639.178	4	-1012.276	7	-189.966	3	-.28	3	-.569	3	.495	1
19		5	max	637.581	3	-268.562	4	224.774	4	.237	4	.726	4	2.311	6
20			min	-650.244	4	-1036.733	7	-209.133	3	-.28	3	-.69	3	.671	1
21	M3	1	max	1006.635	2	34.719	5	48.495	2	0	1	.018	1	.063	1
22			min	-1011.661	1	-5.112	2	-49.794	1	0	6	-.028	6	-.045	2
23		2	max	1006.576	2	23.498	5	31.179	2	0	1	0	2	.019	1
24			min	-1011.602	1	-7.479	2	-32.479	1	0	6	-.002	1	-.009	2
25		3	max	1006.517	2	11.944	1	13.864	2	0	1	.011	2	.015	2
26			min	-1011.543	1	-9.846	2	-15.164	1	0	6	-.011	1	-.01	1
27		4	max	1006.458	2	9.577	1	4.994	4	0	1	.007	2	.028	2
28			min	-1011.484	1	-17.269	6	-6.276	3	0	6	-.007	1	-.024	1
29		5	max	1006.399	2	7.211	1	19.466	1	0	1	.008	1	.029	2
30			min	-1011.425	1	-29.886	6	-20.766	2	0	6	-.022	6	-.022	1
31	M4	1	max	241.618	1	878.815	7	100.23	1	.252	1	.407	2	1.959	7
32			min	-303.881	2	247.353	4	-92.513	2	-.231	2	-.426	1	.552	4
33		2	max	230.552	1	854.355	7	93.841	1	.252	1	.353	2	1.432	7
34			min	-292.815	2	238.349	4	-86.124	2	-.231	2	-.367	1	.384	1
35		3	max	219.486	1	829.896	7	87.452	1	.252	1	.302	2	.927	6
36			min	-281.749	2	229.346	4	-79.735	2	-.231	2	-.312	1	.192	1
37		4	max	208.42	1	805.436	7	81.063	1	.252	1	.256	2	.442	6
38			min	-270.683	2	220.343	4	-73.346	2	-.231	2	-.26	1	.006	1
39		5	max	288.311	2	751.66	7	923.78	1	.28	1	.078	2	.135	2
40			min	-354.675	1	209.689	4	-912.826	2	-.243	2	-.084	1	-.155	1
41	M5	1	max	1428.495	4	37.89	8	37.762	3	0	6	.02	4	.052	8
42			min	-1381.903	3	2.582	3	-40.669	4	0	3	-.031	7	-.023	3
43		2	max	1435.963	4	26.667	8	24.724	3	0	6	.002	4	.016	8



Company : Tower Engineering Solutions, LLC
Designer : LK
Job Number : TES Project No. 106968
Model Name : CT11561-A-SBA_MT_LO_Loads Only_G

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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
44			min	-1389.371	3	.215	3	-27.632	4	0	3	-.005	3	0	3
45		3	max	1443.431	4	7.458	8	11.687	3	0	6	.01	7	.015	3
46			min	-1396.839	3	-2.152	3	-14.594	4	0	3	-.008	4	-.012	4
47		4	max	1450.899	4	4.577	4	1.084	1	0	6	.01	3	.022	3
48			min	-1404.307	3	-11.726	7	-5.732	7	0	3	-.01	4	-.022	4
49		5	max	1458.367	4	2.21	4	11.481	4	0	6	.002	1	.02	3
50			min	-1411.775	3	-24.343	7	-14.388	3	0	3	-.016	7	-.021	4
51	M6	1	max	635.401	1	751.867	7	759.087	1	0	1	.078	2	.278	2
52			min	-657.874	2	209.312	4	-695.02	2	0	1	-.084	1	-.32	1
53		2	max	633.48	1	750.101	7	760.239	1	0	1	.03	2	.262	2
54			min	-655.952	2	208.465	4	-696.172	2	0	1	-.031	1	-.339	1
55		3	max	631.558	1	748.335	7	761.391	1	0	1	.021	1	.246	2
56			min	-654.03	2	207.618	4	-697.324	2	0	1	-.018	2	-.358	1
57		4	max	629.636	1	746.569	7	762.544	1	0	1	.074	1	.23	2
58			min	-652.108	2	206.771	4	-698.476	2	0	1	-.067	2	-.377	1
59		5	max	627.714	1	744.803	7	763.696	1	0	1	.127	1	.213	2
60			min	-650.187	2	205.924	4	-699.629	2	0	1	-.115	2	-.395	1
61	M7	1	max	297.073	1	24.891	10	165.049	1	.05	1	.068	2	0	1
62			min	-341.044	2	-55.056	1	-165.518	2	-.031	2	-.069	1	0	1
63		2	max	306.351	1	20.726	10	170.405	1	.05	1	.011	2	.019	1
64			min	-350.322	2	-59.221	1	-170.875	2	-.031	2	-.012	1	-.008	10
65		3	max	398.498	4	294.978	5	1463.859	4	.032	1	.247	3	.19	5
66			min	-445.759	3	-54.818	1	-1429.956	3	-.088	7	-.25	4	.034	9
67		4	max	263.573	3	262.914	5	180.317	4	.007	4	.012	4	.088	5
68			min	-334.84	4	39.532	9	-187.558	3	-.072	7	-.014	3	.013	9
69		5	max	254.296	3	254.231	5	164.248	4	.007	4	.071	4	0	1
70			min	-325.563	4	35.367	9	-171.49	3	-.072	7	-.075	3	0	1
71	M8	1	max	0	1	0	1	0	1	0	1	0	1	0	1
72			min	0	1	0	1	0	1	0	1	0	1	0	1
73		2	max	97.766	3	-110.078	4	148.632	2	.171	2	.043	1	.33	8
74			min	-237.376	4	-404.311	7	-127.026	1	-.287	1	-.034	2	.049	3
75		3	max	827.07	2	353.718	9	19.784	2	.07	8	.141	2	.769	5
76			min	-1009.103	1	46.103	2	-50.192	1	-.027	3	-.127	1	-.175	9
77		4	max	105.883	4	156.568	4	115.979	1	.201	1	.111	1	.149	10
78			min	-251.524	3	-49.427	3	-108.759	2	-.099	2	-.15	2	-.188	5
79		5	max	0	1	0	1	0	1	0	1	0	1	0	1
80			min	0	1	0	1	0	1	0	1	0	1	0	1
81	M9	1	max	1078.001	3	907.283	7	790.136	4	0	1	.055	3	.253	4
82			min	-1119.142	4	220.604	4	-753.145	3	0	1	-.053	4	-.326	3
83		2	max	1077.929	3	905.517	7	790.137	4	0	1	.013	1	.238	4
84			min	-1119.07	4	219.757	4	-753.147	3	0	1	-.009	2	-.352	3
85		3	max	1077.857	3	903.751	7	790.139	4	0	1	.056	4	.223	4
86			min	-1118.998	4	218.91	4	-753.148	3	0	1	-.049	3	-.379	3
87		4	max	1077.785	3	901.985	7	790.14	4	0	1	.111	4	.208	4
88			min	-1118.926	4	218.063	4	-753.149	3	0	1	-.101	3	-.406	3
89		5	max	1077.714	3	900.219	7	790.141	4	0	1	.165	4	.193	4
90			min	-1118.854	4	217.216	4	-753.15	3	0	1	-.153	3	-.432	3
91	M10	1	max	2059.737	4	2488.411	5	1431.321	1	-.122	4	1.297	2	5.11	8
92			min	-2098.503	3	728.029	2	-1376.533	2	-.687	9	-1.445	1	1.709	1
93		2	max	2035.725	4	2444.456	5	1389.732	1	-.122	4	.417	1	1.956	10
94			min	-2074.491	3	704.261	2	-1334.943	2	-.687	9	-.492	2	.393	1
95		3	max	1807.783	4	538.559	10	107.001	1	-.017	3	.045	1	1.283	10



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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
96			min	-1838.682	3	131.332	3	-105.172	2	-.534	10	-.053	2	.274	1
97		4	max	1783.771	4	514.791	10	65.411	1	-.017	3	.158	1	.588	10
98			min	-1814.67	3	107.564	3	-63.583	2	-.534	10	-.164	2	.082	1
99		5	max	1759.759	4	491.023	10	32.937	3	-.017	3	.217	1	.002	2
100			min	-1790.658	3	83.796	3	-31.181	4	-.534	10	-.221	2	-.132	5
101	M11	1	max	283.554	1	-184.114	2	1334.166	2	.245	2	.035	3	.136	2
102			min	-269.028	2	-913.287	5	-1280.662	1	-.309	1	-.037	4	-.171	1
103		2	max	1001.408	1	-202.202	2	178.58	2	.26	2	.324	2	.502	6
104			min	-1011.798	2	-969.931	5	-163.158	1	-.304	1	-.317	1	.089	1
105		3	max	1012.474	1	-211.206	2	184.969	2	.26	2	.435	2	1.083	7
106			min	-1022.864	2	-994.389	5	-169.547	1	-.304	1	-.419	1	.332	4
107		4	max	1023.54	1	-220.209	2	191.358	2	.26	2	.549	2	1.691	5
108			min	-1033.93	2	-1018.847	5	-175.936	1	-.304	1	-.524	1	.503	2
109		5	max	1034.606	1	-229.212	2	197.747	2	.26	2	.667	2	2.319	5
110			min	-1044.996	2	-1043.304	5	-182.325	1	-.304	1	-.633	1	.639	2
111	M12	1	max	1152.496	3	34.798	8	41.183	3	0	2	.015	4	.06	4
112			min	-1156.876	4	-5.452	3	-42.474	4	0	10	-.027	7	-.042	3
113		2	max	1159.964	3	23.576	8	28.146	3	0	2	0	1	.019	4
114			min	-1164.344	4	-7.819	3	-29.437	4	0	10	-.004	10	-.01	3
115		3	max	1167.432	3	12.275	4	15.108	3	0	2	.009	7	.014	3
116			min	-1171.812	4	-10.185	3	-16.399	4	0	10	-.008	4	-.009	4
117		4	max	1174.9	3	9.909	4	2.155	2	0	2	.007	3	.03	3
118			min	-1179.28	4	-17.347	7	-3.434	1	0	10	-.008	4	-.025	4
119		5	max	1182.368	3	7.542	4	9.676	4	0	2	.002	4	.037	3
120			min	-1186.749	4	-29.964	7	-10.967	3	0	10	-.021	7	-.03	4
121	M13	1	max	143.468	2	879.877	8	131.779	4	.212	4	.48	3	1.963	5
122			min	-206.32	1	240.828	3	-124.146	3	-.192	3	-.498	4	.515	2
123		2	max	132.402	2	855.418	8	112.612	4	.212	4	.41	3	1.438	5
124			min	-195.254	1	231.825	3	-104.979	3	-.192	3	-.424	4	.362	2
125		3	max	121.336	2	830.958	8	93.445	4	.212	4	.352	3	.927	5
126			min	-184.188	1	222.821	3	-85.812	3	-.192	3	-.361	4	.214	2
127		4	max	110.27	2	806.499	8	74.278	4	.212	4	.306	3	.435	7
128			min	-173.122	1	213.818	3	-66.645	3	-.192	3	-.31	4	.044	4
129		5	max	579.774	3	750.399	8	1033.202	4	.239	4	.103	3	.113	3
130			min	-646.315	4	212.049	3	-1023.297	3	-.203	3	-.109	4	-.133	4
131	M14	1	max	1372.334	2	37.917	6	45.312	1	0	7	.024	2	.053	6
132			min	-1326.781	1	2.919	1	-48.213	2	0	10	-.033	1	-.025	1
133		2	max	1372.275	2	26.694	6	27.997	1	0	7	.001	2	.022	10
134			min	-1326.722	1	.553	1	-30.898	2	0	10	-.005	10	.002	1
135		3	max	1372.216	2	11.162	10	10.682	1	0	7	.011	1	.017	1
136			min	-1326.663	1	-1.814	1	-13.583	2	0	10	-.01	2	-.013	2
137		4	max	1372.157	2	8.795	10	3.732	2	0	7	.01	1	.021	1
138			min	-1326.604	1	-11.753	5	-7.9	10	0	10	-.01	2	-.022	2
139		5	max	1372.098	2	6.428	10	21.047	2	0	7	.004	4	.014	1
140			min	-1326.545	1	-24.37	5	-23.949	1	0	10	-.018	5	-.018	10
141	M15	1	max	589.835	4	750.978	8	1067.685	4	0	1	.103	3	.233	3
142			min	-612.546	3	210.689	3	-1002.954	3	0	1	-.109	4	-.274	4
143		2	max	589.763	4	749.212	8	1067.686	4	0	1	.034	3	.218	3
144			min	-612.474	3	209.842	3	-1002.955	3	0	1	-.035	4	-.295	4
145		3	max	589.691	4	747.446	8	1067.687	4	0	1	.038	4	.204	3
146			min	-612.403	3	208.995	3	-1002.956	3	0	1	-.035	3	-.315	4
147		4	max	589.619	4	745.68	8	1067.688	4	0	1	.112	4	.189	3



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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
148			min	-612.331	3	208.148	3	-1002.957	3	0	1	-.105	3	-.336	4
149		5	max	589.547	4	743.914	8	1067.69	4	0	1	.186	4	.175	3
150			min	-612.259	3	207.301	3	-1002.959	3	0	1	-.174	3	-.357	4
151	M16	1	max	198.709	2	167.22	10	198.48	4	.054	4	.08	3	0	1
152			min	-242.813	1	-43.03	4	-198.928	3	-.035	3	-.081	4	0	1
153		2	max	207.986	2	163.055	10	214.549	4	.054	4	.009	3	.015	4
154			min	-252.09	1	-47.195	4	-214.996	3	-.035	3	-.01	4	-.056	10
155		3	max	370.327	3	645.594	10	1330.557	2	.052	10	.223	1	.432	10
156			min	-415.987	4	-42.456	4	-1297.733	1	-.087	5	-.226	2	.038	3
157		4	max	401.956	1	647.882	10	144.58	3	.005	2	.014	2	.22	10
158			min	-472.885	2	57.393	3	-151.193	4	-.071	5	-.015	1	.019	3
159		5	max	392.678	1	643.717	10	128.512	3	.005	2	.056	2	0	1
160			min	-463.608	2	53.228	3	-135.124	4	-.071	5	-.06	1	0	1
161	M17	1	max	1257.091	1	913.911	5	412.538	2	0	1	.037	4	.28	2
162			min	-1297.067	2	181.461	2	-374.204	1	0	1	-.035	3	-.353	1
163		2	max	1255.169	1	912.145	5	413.69	2	0	1	.018	4	.268	2
164			min	-1295.145	2	180.614	2	-375.356	1	0	1	-.014	3	-.383	1
165		3	max	1253.247	1	910.379	5	414.843	2	0	1	.043	2	.255	2
166			min	-1293.223	2	179.767	2	-376.508	1	0	1	-.036	1	-.412	1
167		4	max	1251.325	1	908.613	5	415.995	2	0	1	.072	2	.243	2
168			min	-1291.301	2	178.92	2	-377.661	1	0	1	-.062	1	-.441	1
169		5	max	1249.403	1	906.847	5	417.147	2	0	1	.1	2	.231	2
170			min	-1289.38	2	178.073	2	-378.813	1	0	1	-.088	1	-.471	1
171	M18	1	max	2507.205	2	2487.984	6	1628.832	4	-.094	10	1.785	3	5.109	7
172			min	-2546.678	1	715.891	9	-1574.832	3	-.536	5	-1.932	4	1.657	10
173		2	max	2507.205	2	2444.029	6	1573.379	4	-.094	10	.181	4	1.906	7
174			min	-2546.678	1	692.123	9	-1519.379	3	-.536	5	-.257	3	.506	4
175		3	max	2237.787	2	485.638	7	136.153	4	-.006	10	.018	2	.999	7
176			min	-2269.141	1	127.343	4	-134.402	3	-.148	6	-.026	1	.224	4
177		4	max	2237.787	2	422.6	7	80.701	4	-.006	10	.157	4	.401	7
178			min	-2269.141	1	103.575	4	-78.949	3	-.148	6	-.163	3	.072	4
179		5	max	2237.787	2	369.948	7	25.248	4	-.006	10	.227	4	.009	1
180			min	-2269.141	1	79.808	4	-23.497	3	-.148	6	-.231	3	-.134	6
181	M19	1	max	541.367	4	-201.529	3	964.995	1	.136	3	.065	1	.076	3
182			min	-525.797	3	-909.973	8	-908.892	2	-.199	4	-.066	2	-.111	4
183		2	max	993.53	4	-219.431	3	114.869	3	.15	3	.281	1	.503	5
184			min	-1003.2	3	-966.43	8	-99.497	4	-.194	4	-.273	2	.107	2
185		3	max	993.53	4	-228.434	3	119.962	1	.15	3	.346	1	1.086	8
186			min	-1003.2	3	-990.888	8	-104.358	2	-.194	4	-.329	2	.294	9
187		4	max	993.53	4	-237.438	3	145.518	1	.15	3	.427	1	1.696	8
188			min	-1003.2	3	-1015.346	8	-129.914	2	-.194	4	-.4	2	.45	9
189		5	max	993.53	4	-246.441	3	171.074	1	.15	3	.523	1	2.321	8
190			min	-1003.2	3	-1039.803	8	-155.47	2	-.194	4	-.487	2	.611	9
191	M20	1	max	956.246	1	34.229	6	33.817	4	0	3	.011	3	.045	3
192			min	-959.954	2	-2.57	1	-35.103	3	0	8	-.026	8	-.027	4
193		2	max	963.773	1	23.008	6	20.882	4	0	3	0	4	.016	2
194			min	-967.481	2	-4.937	1	-22.168	3	0	8	-.003	3	-.006	1
195		3	max	971.3	1	9.383	2	11.883	1	0	3	.009	8	.011	4
196			min	-975.008	2	-7.304	1	-13.163	2	0	8	-.008	3	-.006	3
197		4	max	978.827	1	7.016	2	7.503	1	0	3	.005	1	.023	1
198			min	-982.535	2	-16.78	5	-8.783	2	0	8	-.006	2	-.019	2
199		5	max	986.354	1	4.649	2	16.638	3	0	3	.006	3	.036	1



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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
200			min	-990.062	2	-29.396	5	-17.924	4	0	8	-.021	8	-.029	2
201	M21	1	max	326.345	3	880.839	6	114.021	2	.191	3	.37	1	1.958	8
202			min	-388.234	4	216.802	9	-106.341	1	-.171	4	-.388	2	.488	9
203		2	max	326.345	3	856.379	6	88.466	2	.191	3	.313	1	1.437	8
204			min	-388.234	4	207.799	9	-80.785	1	-.171	4	-.327	2	.349	3
205		3	max	326.345	3	831.92	6	62.91	2	.191	3	.272	1	.931	8
206			min	-388.234	4	198.796	9	-55.229	1	-.171	4	-.281	2	.183	3
207		4	max	326.345	3	807.46	6	60.774	3	.191	3	.246	1	.44	8
208			min	-388.234	4	189.792	9	-53.102	4	-.171	4	-.25	2	.023	3
209		5	max	424.611	1	752.124	6	830.194	2	.211	3	.084	1	.097	4
210			min	-490.683	2	175.799	9	-820.485	1	-.175	4	-.089	2	-.117	3
211	M22	1	max	1048.536	1	37.65	7	32.039	4	0	5	.015	3	.05	7
212			min	-1000.525	2	3.34	2	-34.956	3	0	2	-.029	8	-.015	4
213		2	max	1056.063	1	26.427	7	19.104	4	0	5	.002	1	.016	5
214			min	-1008.052	2	.973	2	-22.021	3	0	2	-.004	2	0	2
215		3	max	1063.59	1	7.217	7	8.932	2	0	5	.01	8	.012	4
216			min	-1015.58	2	-1.394	2	-11.853	1	0	2	-.007	3	-.009	3
217		4	max	1071.118	1	3.826	1	4.552	2	0	5	.007	2	.017	2
218			min	-1023.107	2	-11.485	8	-7.473	1	0	2	-.007	1	-.017	1
219		5	max	1078.645	1	1.459	1	16.785	3	0	5	.005	2	.022	2
220			min	-1030.634	2	-24.102	8	-19.702	4	0	2	-.017	8	-.023	1
221	M23	1	max	487.697	2	752.592	6	832.656	2	0	1	.084	1	.201	4
222			min	-510.833	1	175.736	9	-769.188	1	0	1	-.089	2	-.242	3
223		2	max	485.847	2	750.827	6	831.628	2	0	1	.03	1	.182	4
224			min	-508.983	1	174.889	9	-768.161	1	0	1	-.032	2	-.258	3
225		3	max	483.997	2	749.061	6	830.6	2	0	1	.026	2	.163	4
226			min	-507.133	1	174.042	9	-767.133	1	0	1	-.023	1	-.275	3
227		4	max	482.147	2	747.295	6	829.572	2	0	1	.083	2	.144	4
228			min	-505.284	1	173.195	9	-766.105	1	0	1	-.076	1	-.291	3
229		5	max	480.298	2	745.529	6	828.545	2	0	1	.14	2	.125	4
230			min	-503.434	1	172.347	9	-765.077	1	0	1	-.129	1	-.307	3
231	M24	1	max	269.246	3	8.771	4	209.503	2	.042	2	.082	1	0	1
232			min	-313.453	4	-51.181	3	-210.31	1	-.023	1	-.083	2	0	1
233		2	max	269.246	3	4.606	4	230.928	2	.042	2	.008	4	.018	3
234			min	-313.453	4	-55.346	3	-231.735	1	-.023	1	-.009	3	-.002	4
235		3	max	505.7	1	293.227	6	1165.674	1	.023	3	.2	2	.191	6
236			min	-550.836	2	58.086	10	-1131.174	2	-.086	6	-.203	1	.036	1
237		4	max	349.877	4	260.902	6	212.864	1	-.001	1	.01	3	.087	6
238			min	-421.635	3	50.528	10	-219.629	2	-.071	6	-.012	4	.016	10
239		5	max	349.877	4	252.219	6	191.439	1	-.001	1	.078	1	0	1
240			min	-421.635	3	46.363	10	-198.204	2	-.071	6	-.082	2	0	1
241	M25	1	max	972.907	4	910.222	8	709.034	1	0	1	.066	2	.156	3
242			min	-1012.704	3	200.055	3	-670.179	2	0	1	-.065	1	-.228	4
243		2	max	971.057	4	908.456	8	708.006	1	0	1	.02	2	.142	3
244			min	-1010.854	3	199.208	3	-669.151	2	0	1	-.016	1	-.256	4
245		3	max	969.207	4	906.69	8	706.978	1	0	1	.033	1	.128	3
246			min	-1009.004	3	198.361	3	-668.123	2	0	1	-.027	2	-.284	4
247		4	max	967.357	4	904.924	8	705.951	1	0	1	.082	1	.115	3
248			min	-1007.155	3	197.514	3	-667.095	2	0	1	-.073	2	-.313	6
249		5	max	965.507	4	903.158	8	704.923	1	0	1	.131	1	.101	3
250			min	-1005.305	3	196.666	3	-666.068	2	0	1	-.119	2	-.375	8
251	M26	1	max	0	1	.007	2	.003	4	0	1	0	1	0	1



Company : Tower Engineering Solutions, LLC
Designer : LK
Job Number : TES Project No. 106968
Model Name : CT11561-A-SBA_MT_LO_Loads Only_G

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Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
252		min	0	1	-.004	4	0	6	0	1	0	1	0	1
253		2 max	172.058	1	-102.911	2	103.91	3	.185	3	.105	4	.329	6
254		min	-311.508	2	-405.273	5	-82.274	4	-.3	4	-.096	3	.054	1
255		3 max	872.241	3	282.533	8	146.582	3	.096	10	.122	3	.765	8
256		min	-1054.255	4	45.414	3	-176.962	4	-.038	1	-.108	4	.213	3
257		4 max	145.545	2	190.646	3	116.16	4	.196	2	.038	2	.051	3
258		min	-291.119	1	-83.451	4	-109.129	3	-.094	1	-.077	1	-.19	8
259		5 max	0	1	.004	3	0	7	0	1	0	1	0	1
260		min	0	1	-.003	1	-.002	1	0	1	0	1	0	1
261	M27	1 max	0	1	.007	3	.002	4	0	1	0	1	0	1
262		min	0	1	-.003	6	0	5	0	1	0	1	0	1
263		2 max	115.695	2	-102.085	3	144.188	4	.111	1	.047	4	.328	5
264		min	-255.444	1	-405.106	8	-122.437	3	-.226	2	-.039	3	.054	2
265		3 max	630.059	1	281.244	6	88.136	3	.078	3	.111	4	.768	7
266		min	-811.712	2	16.599	9	-118.486	4	-.037	4	-.097	3	.212	4
267		4 max	203.977	3	183.464	1	78.428	3	.237	3	.149	3	.012	1
268		min	-348.619	4	-76.228	2	-71.157	4	-.135	4	-.188	4	-.185	6
269		5 max	0	1	.003	1	0	5	0	1	0	1	0	1
270		min	0	1	-.004	4	-.004	4	0	1	0	1	0	1
271	MP3A	1 max	0	1	.369	8	.2	1	0	1	0	1	0	1
272		min	0	1	-.07	3	-.255	6	0	1	0	1	0	1
273		2 max	162.705	6	165.888	4	222.01	1	0	1	.318	1	.234	3
274		min	62.57	1	-165.803	3	-222.05	2	0	1	-.318	2	-.234	4
275		3 max	13.247	4	-23.464	3	95.067	7	.022	3	.009	4	-.044	9
276		min	-47.373	7	-172.47	8	-3.591	4	-.034	4	-.08	7	-.21	8
277		4 max	21.577	4	-37.587	1	98.031	5	.022	3	.115	5	.124	8
278		min	-25.51	3	-165.964	6	-15.445	2	-.034	4	-.033	2	.008	1
279		5 max	0	1	0	10	.014	8	0	1	0	1	0	1
280		min	0	1	-.003	7	-.001	3	0	1	0	1	0	1
281	MP2A	1 max	0	1	-.022	9	.048	1	0	1	0	1	0	1
282		min	0	1	-.488	7	-.39	6	0	1	0	1	0	1
283		2 max	79.61	2	143.672	10	129.673	1	.12	2	.17	1	.186	5
284		min	-553.849	5	3.412	2	-76.402	2	-.127	1	-.255	2	.031	2
285		3 max	90.543	2	143.672	10	168.959	1	.12	2	.562	1	.071	3
286		min	-520.344	5	-17.274	3	-115.687	2	-.127	1	-.508	2	-.216	10
287		4 max	-10.933	10	39.006	3	38.489	2	0	1	.049	1	.051	3
288		min	-33.505	5	-38.986	4	-38.485	1	0	1	-.049	2	-.051	4
289		5 max	0	1	.383	8	.8	1	0	1	0	1	0	1
290		min	0	1	-.279	3	-.797	2	0	1	0	1	0	1
291	MP1A	1 max	0	1	.086	4	.239	1	0	1	0	1	0	1
292		min	0	1	-.263	7	-.276	2	0	1	0	1	0	1
293		2 max	187.201	5	173.841	4	237.904	1	0	1	.318	1	.234	3
294		min	74.03	3	-173.904	3	-237.941	2	0	1	-.318	2	-.234	4
295		3 max	194.733	10	193.273	10	84.184	8	.026	3	.04	1	.189	10
296		min	-104.721	4	17.907	4	-14.853	3	-.032	4	-.101	2	.023	3
297		4 max	203.063	10	193.273	10	84.184	8	.026	3	.092	1	-.011	4
298		min	-96.391	4	37.187	9	-14.853	3	-.032	4	-.051	2	-.197	10
299		5 max	0	1	.019	6	.005	1	0	1	0	1	0	1
300		min	0	1	0	1	-.005	2	0	1	0	1	0	1
301	MP3C	1 max	0	1	.16	4	.101	1	0	1	0	1	0	1
302		min	0	1	-.384	7	-.259	6	0	1	0	1	0	1
303		2 max	162.705	5	207.952	4	179.854	1	0	1	.255	1	.297	3



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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-in]	LC	y-y Mome... [in^2]	LC	z-z Mome... [in^2]	LC
304			min	62.57	1	-208.029	3	-179.907	2	0	1	-.255	2	-.297	4
305		3	max	49.744	10	160.503	5	108.881	6	.024	4	-.027	1	.173	5
306			min	-47.248	8	38.748	3	-13.623	4	-.036	3	-.151	6	.028	2
307		4	max	58.074	10	168.664	8	110.709	10	.024	4	.103	3	-.004	3
308			min	-27.652	4	8.816	3	-13.623	4	-.036	3	-.062	4	-.157	8
309		5	max	0	1	.012	6	.002	1	0	1	0	1	0	1
310			min	0	1	0	1	-.006	6	0	1	0	1	0	1
311	MP2C	1	max	0	1	.044	4	.608	5	0	1	0	1	0	1
312			min	0	1	-.083	7	.016	2	0	1	0	1	0	1
313		2	max	131.525	3	59.22	4	3.907	1	.076	3	.226	7	.165	3
314			min	-565.119	8	-58.992	3	-156.75	6	-.084	4	.022	4	-.155	4
315		3	max	142.458	3	98.506	4	43.192	1	.076	3	.175	1	.371	3
316			min	-531.615	8	-98.277	3	-170.377	6	-.084	4	-.299	2	-.362	4
317		4	max	-10.933	1	38.635	3	38.888	2	0	1	.051	1	.05	3
318			min	-33.505	5	-38.641	4	-38.907	1	0	1	-.051	2	-.05	4
319		5	max	0	1	.644	4	.378	1	0	1	0	1	0	1
320			min	0	1	-.651	3	-.456	6	0	1	0	1	0	1
321	MP1C	1	max	0	1	.188	4	.327	5	0	1	0	1	0	1
322			min	0	1	-.188	3	-.13	2	0	1	0	1	0	1
323		2	max	187.201	5	225.838	4	188.432	1	0	1	.255	1	.297	3
324			min	74.03	1	-225.838	3	-188.358	2	0	1	-.255	2	-.297	4
325		3	max	193.509	4	46.31	2	-42.34	4	.024	1	.137	7	.065	3
326			min	-135.888	3	-53.718	1	-160.393	5	-.03	2	.002	4	-.051	4
327		4	max	201.839	4	46.31	2	-39.572	1	.024	1	-.05	3	.117	1
328			min	-127.558	3	-53.718	1	-161.799	6	-.03	2	-.186	8	-.089	2
329		5	max	0	1	.004	4	0	3	0	1	0	1	0	1
330			min	0	1	-.011	7	-.016	8	0	1	0	1	0	1
331	MP3B	1	max	0	1	.174	4	.417	5	0	1	0	1	0	1
332			min	0	1	-.182	3	-.095	2	0	1	0	1	0	1
333		2	max	162.705	5	207.966	4	179.941	1	0	1	.255	1	.297	3
334			min	62.57	1	-207.973	3	-179.848	2	0	1	-.255	2	-.297	4
335		3	max	15.708	1	57.763	1	-54.469	2	.028	2	.219	8	.051	5
336			min	-47.69	6	-50.733	2	-188.658	5	-.04	1	.058	3	-.019	2
337		4	max	24.038	1	57.763	1	-48.23	1	.028	2	-.049	4	.082	2
338			min	-27.923	2	-50.733	2	-190.253	6	-.04	1	-.154	7	-.065	1
339		5	max	0	1	.002	2	0	4	0	1	0	1	0	1
340			min	0	1	-.012	5	-.008	7	0	1	0	1	0	1
341	MP2B	1	max	0	1	.579	8	.001	4	0	1	0	1	0	1
342			min	0	1	-.021	3	-.266	7	0	1	0	1	0	1
343		2	max	62.818	1	62.617	4	73.822	5	.105	4	.056	4	.055	3
344			min	-555.331	6	-154.178	3	2.463	2	-.113	3	-.123	3	-.217	8
345		3	max	73.751	1	101.903	4	89.508	1	.105	4	.208	1	.511	3
346			min	-521.826	6	-193.464	3	-36.822	2	-.113	3	-.137	2	-.408	4
347		4	max	-10.933	1	38.639	3	38.901	2	0	1	.051	1	.05	3
348			min	-33.505	5	-38.652	4	-38.886	1	0	1	-.051	2	-.05	4
349		5	max	0	1	.634	4	.427	5	0	1	0	1	0	1
350			min	0	1	-.647	3	-.384	2	0	1	0	1	0	1
351	MP1B	1	max	0	1	.336	8	.105	1	0	1	0	1	0	1
352			min	0	1	-.213	3	-.168	6	0	1	0	1	0	1
353		2	max	187.201	7	225.927	4	188.333	1	0	1	.255	1	.297	3
354			min	74.03	4	-225.863	3	-188.37	2	0	1	-.255	2	-.297	4
355		3	max	193.382	2	-17.897	2	94.225	6	.028	2	.014	4	.005	2



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Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
356		min	-136.004	1	-139.823	5	-16.626	1	-.034	1	-.051	3	-.135	5	
357		max	201.712	2	-14.488	4	88.302	8	.028	2	.147	4	.154	7	
358		min	-127.674	1	-142.799	7	-2.658	3	-.034	1	-.056	3	-.006	4	
359		max	0	1	.001	1	.016	5	0	1	0	1	0	1	
360		min	0	1	-.011	6	-.001	3	0	1	0	1	0	1	
361	M37	1	max	0	1	0	1	0	1	1	0	1	0	1	
362		min	0	1	0	1	0	1	0	1	0	1	0	1	
363		max	455.436	2	50.669	3	179.033	1	.185	2	.201	2	.074	7	
364		min	-407.169	1	-35.272	4	-170.171	2	-.149	1	-.218	1	-.033	4	
365		max	455.436	2	37.654	3	132.265	1	.185	2	.269	1	.098	4	
366		min	-407.169	1	-48.287	4	-123.402	2	-.149	1	-.257	2	-.065	3	
367		max	452.001	2	250.937	1	758.979	2	.385	1	.317	2	.176	2	
368		min	-495.253	1	-173.349	2	-794.478	1	-.418	2	-.324	1	-.07	1	
369		max	0	1	0	1	0	1	0	1	0	1	0	1	
370		min	0	1	0	1	0	1	0	1	0	1	0	1	
371	M38	1	max	649.445	1	-34.079	1	211.198	1	0	.443	3	-.047	10	
372		min	-552.404	2	-182.165	7	-187.024	2	-.003	6	-.526	4	-.145	5	
373		max	625.303	1	-25.293	1	171.549	1	0	1	.314	3	.03	2	
374		min	-528.262	2	-157.048	7	-147.375	2	-.003	6	-.374	4	-.025	1	
375		max	601.161	1	-16.508	1	138.083	4	0	1	.273	1	.155	6	
376		min	-504.12	2	-131.931	7	-112.782	3	-.003	6	-.308	2	-.006	1	
377		max	577.019	1	-7.722	1	123.384	4	0	1	.38	1	.268	6	
378		min	-479.978	2	-106.815	7	-98.083	3	-.003	6	-.391	2	.006	1	
379		max	552.877	1	1.063	1	108.684	4	0	1	.449	1	.358	6	
380		min	-455.836	2	-81.698	7	-83.383	3	-.003	6	-.437	2	.009	1	
381	M39	1	max	1028.506	1	189.354	2	663.724	1	.005	6	1.075	2	.164	6
382		min	-855.157	2	-79.728	1	-659.858	2	0	1	-1.031	1	.038	1	
383		max	1004.364	1	180.568	2	624.075	1	.005	6	.466	2	.118	1	
384		min	-831.015	2	-88.513	1	-620.209	2	0	1	-.418	1	-.1	2	
385		max	980.222	1	171.783	2	584.426	1	.005	6	.249	4	.207	1	
386		min	-806.873	2	-97.299	1	-580.56	2	0	1	-.195	3	-.267	2	
387		max	956.08	1	162.997	2	544.777	1	.005	6	.694	1	.303	1	
388		min	-782.731	2	-106.084	1	-540.911	2	0	1	-.639	2	-.426	2	
389		max	931.938	1	154.212	2	505.128	1	.005	6	1.193	1	.408	1	
390		min	-758.589	2	-114.869	1	-501.262	2	0	1	-1.134	2	-.577	2	
391	M40	1	max	0	1	0	.008	3	0	1	0	1	0	1	
392		min	0	1	-.002	1	0	5	0	1	0	1	0	1	
393		max	562.826	3	58.466	1	124.14	4	.151	3	.109	3	.088	1	
394		min	-512.567	4	-43.038	2	-114.804	3	-.116	4	-.127	4	-.047	2	
395		max	542.574	3	45.45	1	89.064	4	.151	3	.206	4	.108	2	
396		min	-492.316	4	-56.054	2	-79.727	3	-.116	4	-.195	3	-.075	1	
397		max	409.825	1	341.192	4	575.17	3	.305	4	.282	3	.177	1	
398		min	-449.681	2	-263.866	3	-613.134	4	-.337	3	-.29	4	-.071	2	
399		max	0	1	.006	3	0	11	0	1	0	1	0	1	
400		min	0	1	-.005	1	-.006	3	0	1	0	1	0	1	
401	M43	1	max	0	1	0	.007	1	0	1	0	1	0	1	
402		min	0	1	-.002	2	0	8	0	1	0	1	0	1	
403		max	423.586	1	54.493	4	149.862	3	.138	4	.191	4	.09	4	
404		min	-371.765	2	-39.057	3	-140.671	4	-.103	3	-.209	3	-.05	3	
405		max	403.335	1	41.478	4	114.786	3	.138	4	.205	3	.098	1	
406		min	-351.514	2	-52.073	3	-105.595	4	-.103	3	-.193	4	-.065	2	
407		max	563.155	4	290.715	2	570.018	4	.273	3	.198	4	.214	4	



Company : Tower Engineering Solutions, LLC
Designer : LK
Job Number : TES Project No. 106968
Model Name : CT11561-A-SBA_MT_LO_Loads Only_G

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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
408			min	-604.782	3	-213.755	1	-607.051	3	-.306	4	-.205	3	-.108	3
409		5	max	0	1	.004	1	0	11	0	1	0	1	0	1
410			min	0	1	-.007	4	-.006	1	0	1	0	1	0	1
411	M42	1	max	332.676	1	1.238	1	445.2	1	.304	6	.226	1	-.004	1
412			min	-261.097	2	-81.726	6	-374.29	2	.008	1	-.25	2	-.229	6
413		2	max	332.676	1	1.238	1	445.2	1	.304	6	.282	1	-.005	1
414			min	-261.097	2	-81.726	6	-374.29	2	.008	1	-.297	2	-.219	6
415		3	max	332.676	1	1.238	1	445.2	1	.304	6	.337	1	-.005	1
416			min	-261.097	2	-81.726	6	-374.29	2	.008	1	-.344	2	-.209	6
417		4	max	332.676	1	1.238	1	445.2	1	.304	6	.393	1	-.005	1
418			min	-261.097	2	-81.726	6	-374.29	2	.008	1	-.39	2	-.199	6
419		5	max	332.676	1	1.238	1	445.2	1	.304	6	.449	1	-.005	1
420			min	-261.097	2	-81.726	6	-374.29	2	.008	1	-.437	2	-.188	6
421	M43A	1	max	915.271	1	113.284	1	386.595	2	.349	1	.941	2	.269	1
422			min	-823.448	2	-157.523	2	-534.255	1	-.491	2	-.926	1	-.382	2
423		2	max	915.271	1	113.284	1	386.595	2	.349	1	.989	2	.255	1
424			min	-823.448	2	-157.523	2	-534.255	1	-.491	2	-.993	1	-.362	2
425		3	max	915.271	1	113.284	1	386.595	2	.349	1	1.038	2	.241	1
426			min	-823.448	2	-157.523	2	-534.255	1	-.491	2	-1.059	1	-.343	2
427		4	max	915.271	1	113.284	1	386.595	2	.349	1	1.086	2	.227	1
428			min	-823.448	2	-157.523	2	-534.255	1	-.491	2	-1.126	1	-.323	2
429		5	max	915.271	1	113.284	1	386.595	2	.349	1	1.134	2	.213	1
430			min	-823.448	2	-157.523	2	-534.255	1	-.491	2	-1.193	1	-.303	2
431	M44	1	max	444.739	1	-33.19	1	446.766	2	.073	5	.443	3	.125	5
432			min	-374.708	2	-182.118	6	-518.381	1	.024	3	-.526	4	.04	10
433		2	max	444.739	1	-40.066	1	470.397	2	.073	5	.42	3	.196	6
434			min	-374.708	2	-198.522	6	-542.011	1	.024	3	-.531	4	.06	1
435		3	max	533.802	1	218.108	6	1148.315	1	.028	1	1.849	2	.294	6
436			min	-386.757	2	-214.216	7	-1056.323	2	-.081	6	-1.874	1	.076	1
437		4	max	533.802	1	201.705	6	1124.684	1	-.02	1	1.458	2	.215	6
438			min	-386.757	2	-74.021	1	-1032.692	2	-.081	6	-1.448	1	.003	1
439		5	max	533.802	1	190.829	2	1101.054	1	-.02	1	1.075	2	.143	6
440			min	-386.757	2	-80.897	1	-1009.062	2	-.081	6	-1.031	1	.032	1
441	M45	1	max	739.907	4	-32.768	2	302.668	2	0	4	.617	1	-.046	1
442			min	-643.91	3	-183.883	5	-277.776	1	-.003	10	-.699	2	-.146	6
443		2	max	717.033	4	-23.983	2	260.824	2	0	4	.492	4	.037	1
444			min	-621.036	3	-158.766	5	-235.931	1	-.003	10	-.551	3	-.032	2
445		3	max	694.159	4	-15.197	2	218.979	2	0	4	.46	4	.158	5
446			min	-598.162	3	-133.649	5	-194.086	1	-.003	10	-.495	3	-.013	2
447		4	max	671.285	4	-6.412	2	177.134	2	0	4	.415	4	.274	5
448			min	-575.287	3	-108.533	5	-152.242	1	-.003	10	-.427	3	-.003	2
449		5	max	648.41	4	2.374	2	135.29	2	0	4	.359	4	.365	5
450			min	-552.413	3	-83.416	5	-110.397	1	-.003	10	-.347	3	-.001	2
451	M46	1	max	655.579	2	192.328	3	698.83	4	.005	7	1.4	3	.165	7
452			min	-483.74	1	-82.387	4	-695.127	3	0	4	-1.355	4	.038	4
453		2	max	654.311	2	183.542	3	644.51	4	.005	7	.765	3	.121	4
454			min	-482.472	1	-91.173	4	-640.808	3	0	4	-.716	4	-.103	3
455		3	max	653.044	2	174.757	3	590.191	4	.005	7	.367	2	.212	4
456			min	-481.204	1	-99.958	4	-586.489	3	0	4	-.314	1	-.273	3
457		4	max	651.776	2	165.972	3	535.872	4	.005	7	.407	4	.311	4
458			min	-479.937	1	-108.743	4	-532.17	3	0	4	-.351	3	-.435	3
459		5	max	650.508	2	157.186	3	481.553	4	.005	7	.891	4	.419	4



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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
460			min	-478.669	1	-117.529	4	-477.851	3	0	4	-.831	3	-.589	3
461	M47	1	max	282.344	4	2.081	2	587.988	4	.31	5	.175	2	0	2
462			min	-209.571	3	-83.051	5	-518.547	3	-.001	2	-.196	1	-.234	5
463		2	max	282.344	4	2.081	2	587.988	4	.31	5	.165	2	0	2
464			min	-209.571	3	-83.051	5	-518.547	3	-.001	2	-.178	1	-.223	5
465		3	max	282.344	4	2.081	2	587.988	4	.31	5	.212	4	0	2
466			min	-209.571	3	-83.051	5	-518.547	3	-.001	2	-.218	3	-.213	5
467		4	max	282.344	4	2.081	2	587.988	4	.31	5	.286	4	0	2
468			min	-209.571	3	-83.051	5	-518.547	3	-.001	2	-.282	3	-.202	5
469		5	max	282.344	4	2.081	2	587.988	4	.31	5	.359	4	0	2
470			min	-209.571	3	-83.051	5	-518.547	3	-.001	2	-.347	3	-.192	5
471	M48	1	max	681.504	4	116.645	4	394.415	1	.358	4	.806	3	.276	4
472			min	-590.861	3	-158.677	3	-539.308	2	-.501	3	-.793	4	-.388	3
473		2	max	681.504	4	116.645	4	394.415	1	.358	4	.812	3	.262	4
474			min	-590.861	3	-158.677	3	-539.308	2	-.501	3	-.818	4	-.368	3
475		3	max	681.504	4	116.645	4	394.415	1	.358	4	.819	3	.247	4
476			min	-590.861	3	-158.677	3	-539.308	2	-.501	3	-.842	4	-.349	3
477		4	max	681.504	4	116.645	4	394.415	1	.358	4	.825	3	.232	4
478			min	-590.861	3	-158.677	3	-539.308	2	-.501	3	-.866	4	-.329	3
479		5	max	681.504	4	116.645	4	394.415	1	.358	4	.831	3	.218	4
480			min	-590.861	3	-158.677	3	-539.308	2	-.501	3	-.891	4	-.309	3
481	M49	1	max	639.373	4	-32.862	2	299.892	3	.074	6	.617	1	.126	6
482			min	-571.292	3	-183.277	5	-372.64	4	.023	1	-.699	2	.04	1
483		2	max	649.605	4	-39.738	2	317.615	3	.074	6	.668	1	.196	5
484			min	-581.524	3	-199.681	5	-390.363	4	.023	1	-.777	2	.064	2
485		3	max	659.837	4	219.526	7	905.185	4	.066	10	1.998	3	.295	7
486			min	-591.756	3	-216.084	5	-814.537	3	-.082	7	-2.021	4	.094	4
487		4	max	553.146	2	203.123	7	887.462	4	-.02	4	1.696	3	.216	7
488			min	-409.539	1	-76.126	4	-796.814	3	-.082	7	-1.685	4	.003	4
489		5	max	542.913	2	192.986	3	869.739	4	-.02	4	1.4	3	.143	7
490			min	-399.306	1	-83.003	4	-779.091	3	-.082	7	-1.355	4	.033	4
491	M50	1	max	484.305	2	-23.896	3	360.108	3	0	3	.576	2	-.048	4
492			min	-390.25	1	-184.722	8	-335.813	4	-.003	8	-.66	1	-.146	7
493		2	max	483.038	2	-15.111	3	305.789	3	0	3	.472	2	.043	4
494			min	-388.983	1	-159.605	8	-281.494	4	-.003	8	-.532	1	-.038	3
495		3	max	481.77	2	-6.325	3	251.469	3	0	3	.369	2	.16	8
496			min	-387.715	1	-134.488	8	-227.175	4	-.003	8	-.404	1	-.028	3
497		4	max	480.502	2	2.46	3	197.15	3	0	3	.265	2	.276	8
498			min	-386.447	1	-109.371	8	-172.855	4	-.003	8	-.277	1	-.026	3
499		5	max	479.235	2	11.246	3	142.831	3	0	3	.33	3	.368	8
500			min	-385.18	1	-84.255	8	-118.536	4	-.003	8	-.319	4	-.033	3
501	M51	1	max	1057.873	3	179.534	5	436.636	2	.005	8	1.012	1	.164	5
502			min	-884.457	4	-32.404	2	-432.216	1	0	3	-.967	2	.045	2
503		2	max	1034.999	3	154.417	5	394.791	2	.005	8	.621	1	.08	2
504			min	-861.583	4	-41.19	2	-390.371	1	0	3	-.572	2	-.062	1
505		3	max	1012.124	3	129.3	5	352.946	2	.005	8	.386	3	.124	2
506			min	-838.709	4	-49.975	2	-348.526	1	0	3	-.334	4	-.185	1
507		4	max	989.25	3	116.274	1	311.102	2	.005	8	.672	3	.176	2
508			min	-815.834	4	-58.761	2	-306.682	1	0	3	-.616	4	-.3	1
509		5	max	966.376	3	107.489	1	281.8	3	.005	8	.946	3	.236	2
510			min	-792.96	4	-67.546	2	-277.337	4	0	3	-.886	4	-.407	1
511	M52	1	max	249.356	3	11.112	3	465.971	2	.313	8	.262	3	.022	3



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Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
512			min	-179.472	4	-84.071	8	-398.893	1	-.028	3	-.285	4	-.236	8
513		2	max	249.356	3	11.112	3	465.971	2	.313	8	.279	3	.021	3
514			min	-179.472	4	-84.071	8	-398.893	1	-.028	3	-.294	4	-.225	8
515		3	max	249.356	3	11.112	3	465.971	2	.313	8	.296	3	.019	3
516			min	-179.472	4	-84.071	8	-398.893	1	-.028	3	-.302	4	-.215	8
517		4	max	249.356	3	11.112	3	465.971	2	.313	8	.313	3	.018	3
518			min	-179.472	4	-84.071	8	-398.893	1	-.028	3	-.31	4	-.204	8
519		5	max	249.356	3	11.112	3	465.971	2	.313	8	.33	3	.017	3
520			min	-179.472	4	-84.071	8	-398.893	1	-.028	3	-.319	4	-.194	8
521	M53	1	max	743.625	3	67.338	2	532.009	4	.202	2	.62	4	.155	2
522			min	-649.087	4	-107.335	1	-680.186	3	-.346	1	-.606	3	-.267	1
523		2	max	743.625	3	67.338	2	532.009	4	.202	2	.686	4	.147	2
524			min	-649.087	4	-107.335	1	-680.186	3	-.346	1	-.691	3	-.254	1
525		3	max	743.625	3	67.338	2	532.009	4	.202	2	.753	4	.139	2
526			min	-649.087	4	-107.335	1	-680.186	3	-.346	1	-.776	3	-.24	1
527		4	max	743.625	3	67.338	2	532.009	4	.202	2	.819	4	.13	2
528			min	-649.087	4	-107.335	1	-680.186	3	-.346	1	-.861	3	-.227	1
529		5	max	743.625	3	67.338	2	532.009	4	.202	2	.886	4	.122	2
530			min	-649.087	4	-107.335	1	-680.186	3	-.346	1	-.946	3	-.213	1
531	M54	1	max	470.016	2	-23.504	3	367.693	4	.074	7	.576	2	.126	7
532			min	-403.495	1	-184.407	8	-437.576	3	.024	4	-.66	1	.042	4
533		2	max	480.248	2	-30.381	3	385.416	4	.074	7	.687	4	.196	8
534			min	-413.727	1	-200.81	8	-455.299	3	.024	4	-.794	3	.059	3
535		3	max	751.239	3	211.281	5	869.442	3	.029	3	1.232	1	.288	5
536			min	-605.768	4	-217.214	8	-774.786	4	-.081	5	-1.256	2	.072	3
537		4	max	741.006	3	194.878	5	851.719	3	-.023	2	1.121	1	.212	5
538			min	-595.536	4	-25.603	2	-757.064	4	-.081	5	-1.111	2	.028	2
539		5	max	730.774	3	178.475	5	833.996	3	-.023	2	1.012	1	.142	5
540			min	-585.304	4	-32.48	2	-739.341	4	-.081	5	-.967	2	.039	2

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M37	PIPE 2.0	.690	10.156	2	.332	10.1...		2	6295.422	32130	1.872	1.872	2...	H3-6
2	MP2A	PIPE 2.0	.580	5.578	2	.096	5.469		1	8922.084	32130	1.872	1.872	1...	H1-1b
3	M14	L1.5x1.5x3	.527	0	2	.009	0	z	2	3683.174	17085.9...	.293	.665	2...	H2-1
4	M5	L1.5x1.5x3	.527	0	4	.008	0	y	8	3683.174	17085.9...	.293	.662	2...	H2-1
5	MP2B	PIPE 2.0	.512	5.578	4	.089	5.469		3	8922.084	32130	1.872	1.872	2...	H1-1b
6	MP2C	PIPE 2.0	.512	5.578	4	.064	5.578		4	8922.084	32130	1.872	1.872	2...	H1-1b
7	M12	L1.5x1.5x3	.455	0	3	.009	0	z	3	3683.174	17085.9...	.293	.647	1...	H2-1
8	M40	PIPE 2.0	.435	10.156	4	.269	10.1...		3	6295.422	32130	1.872	1.872	3...	H1-1b
9	M3	L1.5x1.5x3	.430	0	2	.010	0	z	2	3683.174	17085.9...	.293	.652	1...	H2-1
10	M43	PIPE 2.0	.407	10.156	4	.243	10.1...		4	6295.422	32130	1.872	1.872	1...	H1-1b
11	M22	L1.5x1.5x3	.364	0	1	.008	0	y	5	3683.174	17085.9...	.293	.662	2...	H2-1
12	M20	L1.5x1.5x3	.342	0	1	.008	0	y	6	3683.174	17085.9...	.293	.657	2...	H2-1
13	M18	HSS4x4x5	.293	0	8	.087	0	y	8	150374....	169740	19.285	19.285	2...	H1-1b
14	M10	HSS4x4x5	.289	0	5	.087	0	y	5	150374....	169740	19.285	19.285	2...	H1-1b
15	M1	HSS4x4x5	.285	0	6	.086	0	y	6	150374....	169740	19.285	19.285	2...	H1-1b
16	MP3A	PIPE 2.0	.281	2.75	2	.046	2.75		4	14916.0...	32130	1.872	1.872	2...	H1-1b
17	MP1A	PIPE 2.0	.278	2.75	2	.040	2.75		3	14916.0...	32130	1.872	1.872	2...	H1-1b
18	MP1C	PIPE 2.0	.275	2.75	3	.042	2.75		3	14916.0...	32130	1.872	1.872	2...	H1-1b



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Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
19	MP3B	PIPE 2.0	.265	2.75	5	.050	2.75		1	14916.0...	32130	1.872	1.872	2...	H1-1b
20	MP3C	PIPE 2.0	.264	2.75	3	.048	2.75		3	14916.0...	32130	1.872	1.872	2...	H1-1b
21	MP1B	PIPE 2.0	.259	2.75	4	.042	2.75		2	14916.0...	32130	1.872	1.872	2...	H1-1b
22	M7	PL1/2x6	.255	.68	4	.122	.68	y	7	49587.6...	97200	1.012	12.15	1...	H1-1b
23	M16	PL1/2x6	.230	.68	2	.121	.68	y	5	49587.6...	97200	1.012	12.15	1...	H1-1b
24	M15	PL1/2x6	.216	.277	4	.019	0	y	8	94531.2...	97200	1.012	12.15	1...	H1-1b
25	M24	PL1/2x6	.208	.68	1	.120	.68	y	6	49587.6...	97200	1.012	12.15	1...	H1-1b
26	M26	PIPE 3.0	.204	4.948	8	.135	7.682		6	28250.5...	65205	5.749	5.749	1...	H1-1b
27	M8	PIPE 3.0	.204	4.948	5	.139	7.682		5	28250.5...	65205	5.749	5.749	1...	H1-1b
28	M27	PIPE 3.0	.202	4.948	6	.139	7.682		7	28250.5...	65205	5.749	5.749	1...	H1-1b
29	M9	PL1/2x6	.193	.277	3	.023	0	y	7	94531.2...	97200	1.012	12.15	1...	H1-1b
30	M6	PL1/2x6	.161	.277	1	.019	0	y	7	94531.2...	97200	1.012	12.15	1...	H1-1b
31	M23	PL1/2x6	.161	.277	2	.019	0	y	6	94531.2...	97200	1.012	12.15	1...	H1-1b
32	M2	HSS4x4x4	.153	2.433	8	.055	.203	z	3	136103...	139518	16.181	16.181	1...	H1-1b
33	M11	HSS4x4x4	.152	2.433	6	.056	.203	z	1	136103...	139518	16.181	16.181	1...	H1-1b
34	M19	HSS4x4x4	.151	2.433	5	.037	.203	z	2	136103...	139518	16.181	16.181	1...	H1-1b
35	M25	PL1/2x6	.145	.277	2	.023	0	y	8	94531.2...	97200	1.012	12.15	1...	H1-1b
36	M17	PL1/2x6	.133	.277	1	.024	0	y	5	94531.2...	97200	1.012	12.15	1...	H1-1b
37	M13	HSS4x4x4	.128	0	8	.045	2.231	z	4	136103...	139518	16.181	16.181	1...	H1-1b
38	M21	HSS4x4x4	.128	0	6	.032	2.231	z	2	136103...	139518	16.181	16.181	1...	H1-1b
39	M4	HSS4x4x4	.126	0	5	.045	2.231	z	1	136103...	139518	16.181	16.181	1...	H1-1b

Envelope AISI S100-10: LRFD Cold Formed Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mn...	phi*Mn...	Cb	Cmyy	Cmzz	Eqn
1	M38	5.44CU3...	.176	0	4	.022	0	y	6	50553....	67173....	3.157	10.048	2.285	.85	.85	C5.1.2-1
2	M39	5.44CU3...	.441	3.805	1	.044	0	z	2	50553....	67173....	3.157	9.057	1.64	.85	.85	C5.2.2-3
3	M44	6CU6.5x...	.189	.75	2	.126	.75	y	6	97347....	133378...	10.571	18.263	1.306	.85	.85	C3.3.2-1
4	M45	5.44CU3...	.229	0	2	.022	0	y	5	50553....	67173....	3.157	10.048	2.403	.85	.85	C5.1.2-1
5	M46	5.44CU3...	.447	0	3	.043	0	z	3	50553....	67173....	3.157	9.057	1.762	.85	.85	C5.1.2-2
6	M49	6CU6.5x...	.201	.75	3	.126	.75	y	7	97347....	133378...	10.571	18.263	1.323	.85	.85	C3.3.2-1
7	M50	5.44CU3...	.220	0	1	.022	0	y	8	50553....	67173....	3.157	10.048	1.874	.85	.85	C5.1.2-1
8	M51	5.44CU3...	.336	3.805	3	.029	0	y	5	50553....	67173....	3.157	9.057	1.55	.85	.85	C5.2.2-3
9	M54	6CU6.5x...	.129	.766	1	.125	.75	y	5	97347....	133378...	10.571	18.263	1.295	.85	.85	C5.2.2-3

Envelope AA ADM1-10: ASD - Building Aluminum Code Checks

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/O...	Pnt/Om...	Mny/O...	Mnz/O...	Vny/O...	Vnz/O...	Cb	Eqn
	No Data to Print ...																

EXHIBIT 9

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

T-Mobile Existing Facility

Site ID: CTNL053A

**NL053/ MCF_Ambulance
237 Sandy Hollow Road
West Mystic, Connecticut 06388**

May 27, 2021

EBI Project Number: 6221002707

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.63%



May 27, 2021

T-Mobile

Attn: Jason Overbey, RF Manager

35 Griffin Road South

Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNL053A - NL053/ MCF_Ambulance

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **237 Sandy Hollow Road in West Mystic, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 237 Sandy Hollow Road in West Mystic, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated



- value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
 - 8) The antennas used in this modeling are the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
 - 9) The antenna mounting height centerline of the proposed antennas is 127 feet above ground level (AGL).
 - 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
 - 11) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	1.52%	Antenna B1 MPE %:	1.52%	Antenna C1 MPE %:	1.52%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	1.41%	Antenna B2 MPE %:	1.41%	Antenna C2 MPE %:	1.41%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	1.01%	Antenna B3 MPE %:	1.01%	Antenna C3 MPE %:	1.01%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	3.93%
Verizon	0.31%
Metro PCS	0.39%
Site Total MPE % :	4.63%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	3.93%
T-Mobile Sector B Total:	3.93%
T-Mobile Sector C Total:	3.93%
Site Total MPE % :	4.63%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	127.0	10.10	1900 MHz GSM	1000	1.01%
T-Mobile 1900 MHz UMTS	2	1028.30	127.0	5.05	1900 MHz UMTS	1000	0.51%
T-Mobile 600 MHz LTE	2	591.73	127.0	2.91	600 MHz LTE	400	0.73%
T-Mobile 700 MHz LTE	2	648.82	127.0	3.19	700 MHz LTE	467	0.68%
T-Mobile 2100 MHz LTE	2	2056.61	127.0	10.10	2100 MHz LTE	1000	1.01%
						Total:	3.93%

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	3.93%
Sector B:	3.93%
Sector C:	3.93%
T-Mobile Maximum MPE % (Sector A):	3.93%
Site Total:	4.63%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **4.63%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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