



Northeast Site Solutions  
Denise Sabo  
4 Angela's Way, Burlington CT 06013  
203-435-3640  
denise@northeastsitesolutions.com

July 20, 2022

Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Exempt Modification Application  
67 Fairchild Road, Middletown, CT 06457  
Latitude: 41.544833  
Longitude: -72.620788  
Site #: CT13064-A\_CTHA537A\_SBA/T-Mobile

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification for an existing tower located at 67 Fairchild Road, Middletown, CT 06457. T-Mobile currently maintains nine (9) antennas at the 100-foot level of the existing 130-foot monopole tower. The property is owned by Stephen & Barbara Borrelli, and the tower is owned by SBA. T-Mobile now intends to replace three (3) antennas. The new antennas would be installed at the 100-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed as per the attached TES Mount Analysis dated June 28, 2022.

**T-Mobile Planned Modifications:**

**Remove:**

(1) Hybrid Line – 1-5/8”

**Remove and Replace:**

(3) COMMSCOPE LNX-6515DS-A1M Antennas (REMOVE) - (3) RFS APXVAALL24\_43-U\_NA20 Antennas (REPLACE)

**Install New:**

(3) ERICSSON 4480 B71+B85 RRU

(3) Hybrid Lines – 1.9”

**Existing to Remain:**

(3) ERICSSON AIR21 B2A B4P Antennas

(3) ERICSSON AIR21 B4A B2P Antennas

(3) KATHREIN TMA's

(6) Coax – 1-5/8”



The facility was approved by the Connecticut Siting Council, Docket No. 316A on August 25, 2011. 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 Mayor Ben Florsheim and Marek Kozikowski, Director of Land Use for the City of Middletown, as well as the property owner and the tower owner.

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

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

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

Sincerely,

Denise Sabo  
Mobile: 203-435-3640  
Fax: 413-521-0558  
Office: 4 Angela's Way, Burlington CT 06013  
Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

Attachments

Cc: Mayor Ben Florsheim  
City of Middletown  
245 deKoven Drive  
Room 209  
Middletown, CT 06457

Marek Kozikowski, Director of Land Use  
City of Middletown  
245 deKoven Drive  
Middletown, CT 06457

Stephen & Barbara Borrelli – Property Owners  
67 Fairchild Road  
Middletown, CT 06457

SBA - Tower Owner

# Exhibit A

## **Original Facility Approval**

**DOCKET NO. 316A** - SBA Infrastructure LLC Certificate of } Connecticut  
Environmental Compatibility and Public Need for the }  
construction, maintenance and operation of a telecommunications } Siting  
facility at 50 Fairchild Road in Middletown, Connecticut. }  
Reopening. } Council

August 25, 2011

### **Decision and Order**

In response to the Connecticut Siting Council's (Council) reopening of the record in this docket on March 31, 2011 to consider whether changed conditions exist that would warrant a modification to the original Decision and Order's Condition 2 eliminating the requirement that all antennas on this telecommunications facility must be flush-mounted and to consider a proposed ten-foot extension of the facility, the Council hereby rescinds the Decision and Order in Docket 316 issued on November 14, 2006 and issues this new Decision and Order for the construction, maintenance and operation of a telecommunications facility located at 50 Fairchild Road in Middletown, 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 existing monopole tower may be extended from its originally approved height of 120 feet, no taller than necessary to provide the proposed telecommunications services and sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC (AT&T) and other entities, but such tower shall not exceed a height of 130 feet above ground level.
2. AT&T shall submit plans showing the extension of the existing tower and the installation of its proposed antennas. These plans shall be served on the City of Middletown 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.
3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility herein shall be brought into compliance with such standards.
4. 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.
5. The Certificate Holder shall provide reasonable space on the tower for no compensation for any City of Middletown public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

6. 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.
7. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the City of Middletown. Any proposed modifications to this Decision and Order shall likewise be so served.
9. 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.
10. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.
11. 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 tower erection, commencement of site operation, and the completion of site construction.
12. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.
13. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

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 Middletown Press.

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:

**Intervenor:**

New Cingular Wireless PCS, LLC

**Certificate Holder:**

SBA Infrastructure LLC

**Its Representative(s):**

Christopher B. Fisher, Esq.  
Cuddy & Feder LLP  
445 Hamilton Avenue, 14<sup>th</sup> Floor  
White Plains, NY 10601

**Its Representative(s):**

Christopher B. Fisher, Esq.  
Cuddy & Feder LLP  
445 Hamilton Avenue, 14<sup>th</sup> Floor  
White Plains, NY 10601

# Exhibit B

## **Property Card**



# 67 FAIRCHILD RD

**Location** 67 FAIRCHILD RD

**Map-Lot** 42 / / 0118 / /

**Acct#** R15245

**Owner** BORRELLI STEPHEN G &  
BARBARA L

**Municipality**

**Assessment** \$495,450

**Appraisal** \$707,780

**PID** 15236

**Building Count** 2

**Assessing District**

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2021	\$394,130	\$313,650	\$707,780

Assessment			
Valuation Year	Improvements	Land	Total
2021	\$275,890	\$219,560	\$495,450

## Parcel Addresses

Additional Addresses
No Additional Addresses available for this parcel

## Owner of Record

**Owner** BORRELLI STEPHEN G & BARBARA L  
**Co-Owner**  
**Address** 67 FAIRCHILD RD  
MIDDLETOWN, CT 06457

**Sale Price** \$0  
**Certificate**  
**Book & Page** 1091/0136  
**Sale Date** 02/28/1996  
**Instrument** 29

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
BORRELLI STEPHEN G & BARBARA L	\$0		1091/0136	29	02/28/1996

## Building Information

## Building 1 : Section 1

**Year Built:** 2012  
**Living Area:** 2,134  
**Replacement Cost:** \$292,538  
**Building Percent Good:** 95  
**Replacement Cost Less Depreciation:** \$277,910

### Building Attributes

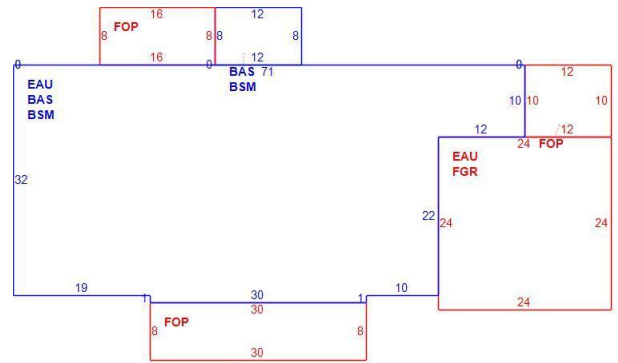
Field	Description
Style	Cape Cod
Model	Residential
Grade	B-
Stories	1.25
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Hardwood
Interior Floor 2	
Heat Fuel	Propane
Heat Type	Forced Air
Ac Type	
Bedrooms	3
Full Baths	2
Half Baths	0
Extra Fixtures	2
Total Rooms	5
Bath Remodel	Not Updated
Kitchen Remodel	Not Updated
Extra Kitchens	
Fireplaces	0
Extra Openings	
Gas Fireplace	1
Int vs Ext	Same
A/C Type	Central
A/C %	100
Fireplaces 1	2137
Fin Bsmt Area	

### Building Photo



(<https://images.vgsi.com/photos/MiddletownCTPhotos/\00\02\11\39.jpg>)

### Building Layout



(ParcelSketch.ashx?pid=15236&bid=15236)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	2,134	2,134
BSM	Basement	2,134	0
EAU	Expansion Attic Unfinished	2,614	0
FGR	Garage	576	0
FOP	Framed Open Porch	488	0
		7,946	2,134

FBM grade	
Bsmt Garage	
Fndtn Cndtn	
In Law	

**Building 2 : Section 1**

**Year Built:** 2000  
**Living Area:** 3,192  
**Replacement Cost:** \$67,875  
**Building Percent Good:** 86  
**Replacement Cost Less Depreciation:** \$58,370

**Building Photo**



(<https://images.vgsi.com/photos/MiddletownCTPhotos/\00\03\06\29.jpg>)

**Building Layout**



(ParcelSketch.ashx?pid=15236&bid=20634)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	3,192	3,192

Building Attributes : Bldg 2 of 2	
Field	Description
Style	Equip Garage
Model	Commercial
Grade	D
Stories	1
Occupancy	1.00
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Metal/Tin
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None
Struct Class	
Bldg Use	Res / Comm MDL 94
Cov Parking	
Uncov Parking	
Percent Fin	
1st Floor Use	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Walls	None
Rooms/Prtns	None
Wall Height	14.00

		3,192	3,192
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**Extra Features**

Extra Features	<u>Legend</u>
No Data for Extra Features	

**Land**

**Land Use**

**Use Code** 101  
**Description** Single Family  
**Zone** R-30  
**Neighborhood** 13  
**Alt Land Appr Category** No

**Land Line Valuation**

**Size (Acres)** 18.89  
**Assessed Value** \$219,560  
**Appraised Value** \$313,650

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CSHD	Cell Shed			240.00 UNITS	\$15,000	2
CSHD	Cell Shed			240.00 UNITS	\$15,000	2
SHD1	Shed	MS	Masonry	143.00 UNITS	\$1,430	1
CSHD	Cell Shed			360.00 UNITS	\$22,500	2
FN4	Fence-8' Chain			280.00 UNITS	\$3,920	2

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$394,130	\$313,650	\$707,780
2019	\$394,130	\$313,650	\$707,780
2018	\$394,130	\$313,650	\$707,780

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$275,890	\$219,560	\$495,450
2019	\$275,890	\$219,560	\$495,450
2018	\$275,890	\$219,560	\$495,450





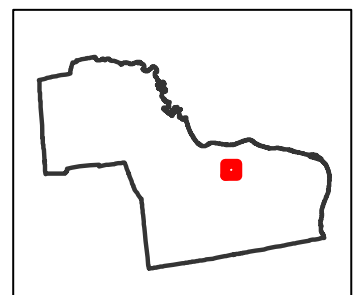
## 67 FAIRCHILD ROAD

Map generated 7/20/2022



Map Legend: <http://gis.cityofmiddletown.com/middletownct/legend.pdf>  
<vision link>

0 0.025 0.05 0.1 0.15 0.2 <sup>mi</sup> 1 in = 400 ft



### MAP FOR REFERENCE ONLY - NOT A LEGAL DOCUMENT

Because of different update schedules, current property assessments may not reflect recent changes to property boundaries. Check with the Board of Assessors to confirm boundaries uses at the time of assessment.

# Exhibit C

## **Construction Drawings**

**SPECIAL CONSTRUCTION NOTE:**  
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

# SBA MIDDLETOWN MONOPOLE

67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457  
MIDDLESEX COUNTY

## SITE NO.: CTHA537A

SITE TYPE: 130'± MONOPOLE

RF DESIGN GUIDELINE: 67E05A

### SCOPE OF WORK

- REMOVE:
- 3 ANTENNAS
  - 1 60A-2P BREAKER
- INSTALL:
- 3 ANTENNAS
  - 3 RRUs
  - 3 HYBRID CABLES
  - 1 125A-2P BREAKER

### 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.

### 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

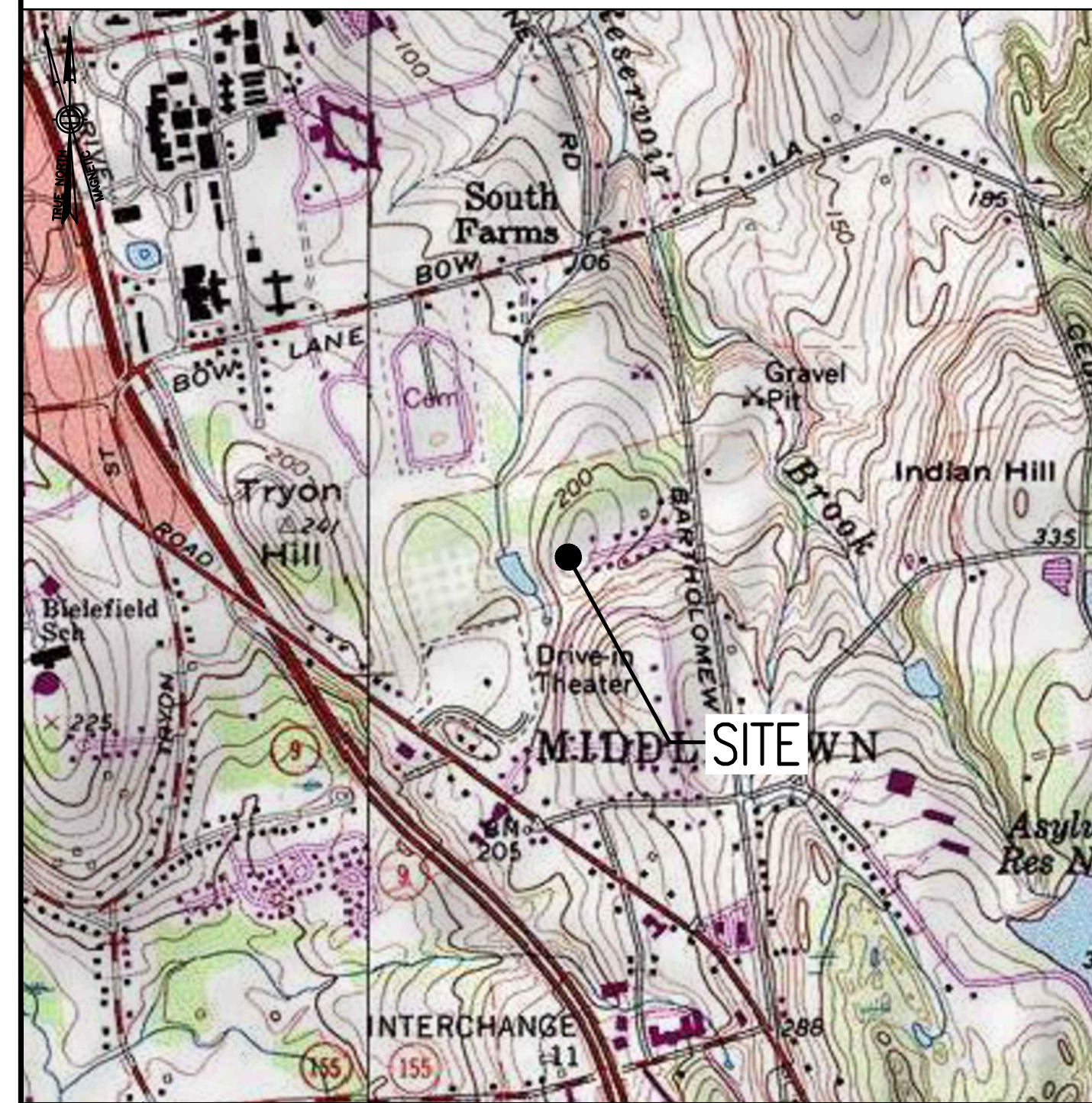
- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- 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.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OWNERS 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
- 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.
- 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.
- 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.
- THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
- 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.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- 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"



### DIRECTIONS

MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. TAKE EXIT 33B FOR I-95 SOUTH TOWARD PROVIDENCE RI. KEEP RIGHT AT THE FORK TO STAY ON I-95 S. USE THE RIGHT 2 LANES TO TAKE EXIT 69 FOR CT-9 N TOWARD ESSEX/HARTFORD. KEEP LEFT, FOLLOW SIGNS FOR CT-9 N/ESSEX/HARTFORD. TAKE EXIT 12 FOR BOW LANE TOWARD HARBOR AREA. TURN RIGHT ONTO BOW LANE. TURN RIGHT ONTO FAIRCHILD ROAD. DESTINATION WILL BE ON THE RIGHT.

### SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	COMPOUND & EQUIPMENT PLAN	0
A-2	TOWER ELEVATIONS & ANTENNA PLAN	0
A-3	SITE DETAILS, ANTENNA & FEEDLINE CHARTS	0
E-1	ELECTRIC & GROUNDING DETAILS	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.

### PROJECT SUMMARY

SITE NUMBER:	CTHA537A
SITE NAME:	SBA MIDDLETOWN MONOPOLE
SBA SITE NUMBER:	CT13064-A
SBA SITE NAME:	MIDDLETOWN 2 CT
SITE ADDRESS:	67 FAIRCHILD ROAD MIDDLETOWN, CT 06457
PROPERTY OWNER:	BORERELLI STEPHEN G. & BARBARA 67 FAIRCHILD ROAD MIDDLETOWN, CT 06457
TOWER OWNER:	SBA INFRASTRUCTURE, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	MIDDLESEX
ZONING DISTRICT:	R-30, RESIDENTIAL
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	130'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
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.41.545000° N41°32'42.00" LONGITUDE: W.72.620800° W72°37'14.88"

### SPECIAL ZONING NOTE:

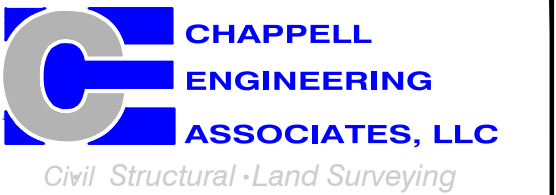
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

## T-MOBILE NORTHEAST LLC

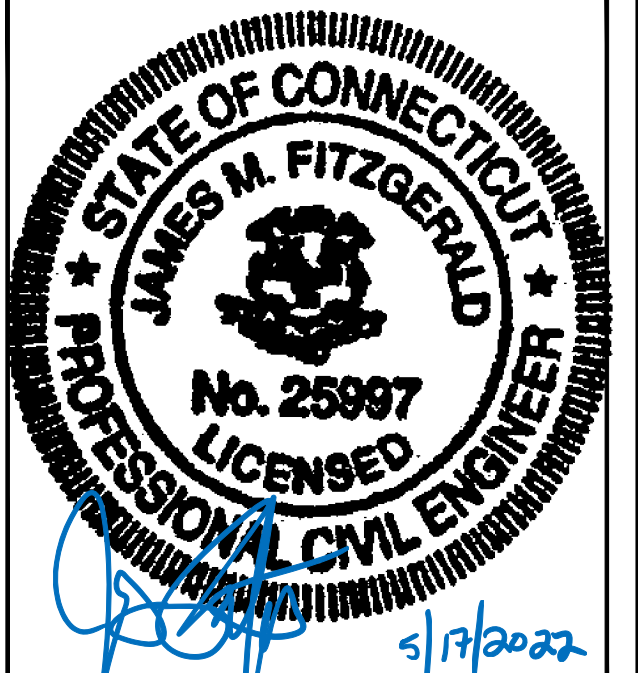
15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
(508) 286-2700



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  
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### SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION	JRV

SITE NUMBER:  
**CTHA537A**

SITE ADDRESS:  
67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457

SHEET TITLE

TITLE SHEET

SHEET NUMBER

**T-1**



**GENERAL NOTES:**

- 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
- 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.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- 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.
- 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.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
- 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.
- 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.
- CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
- 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.
- 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.
- 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:**

- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

**CONCRETE AND REINFORCING STEEL NOTES:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 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
- 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.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:  
CONCRETE CAST AGAINST EARTH.....3 IN.  
CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6 AND LARGER .....2 IN.  
#5 AND SMALLER & WWF .....1½ IN.  
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:  
SLAB AND WALL .....¾ IN.  
BEAMS AND COLUMNS .....½ IN.
- A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- 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.
- 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 SUPPLIER'S PLANT.  
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.  
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

**STRUCTURAL STEEL NOTES:**

- ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS 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".
- 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.
- 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.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ¾" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

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

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- AS AN 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.
- 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.
- 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:**

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

**CONSTRUCTION NOTES:**

- FIELD VERIFICATION:  
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
- COORDINATION OF WORK:  
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
- 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:**

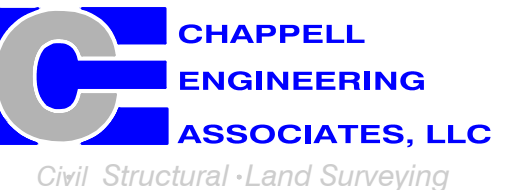
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLE TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- 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.
- POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#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.
- 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.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
- METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- 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.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

**T-MOBILE  
NORTHEAST LLC**

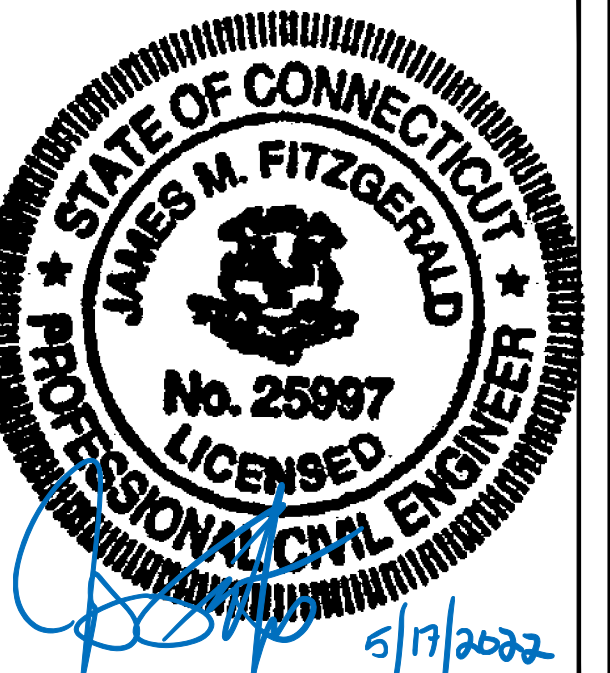
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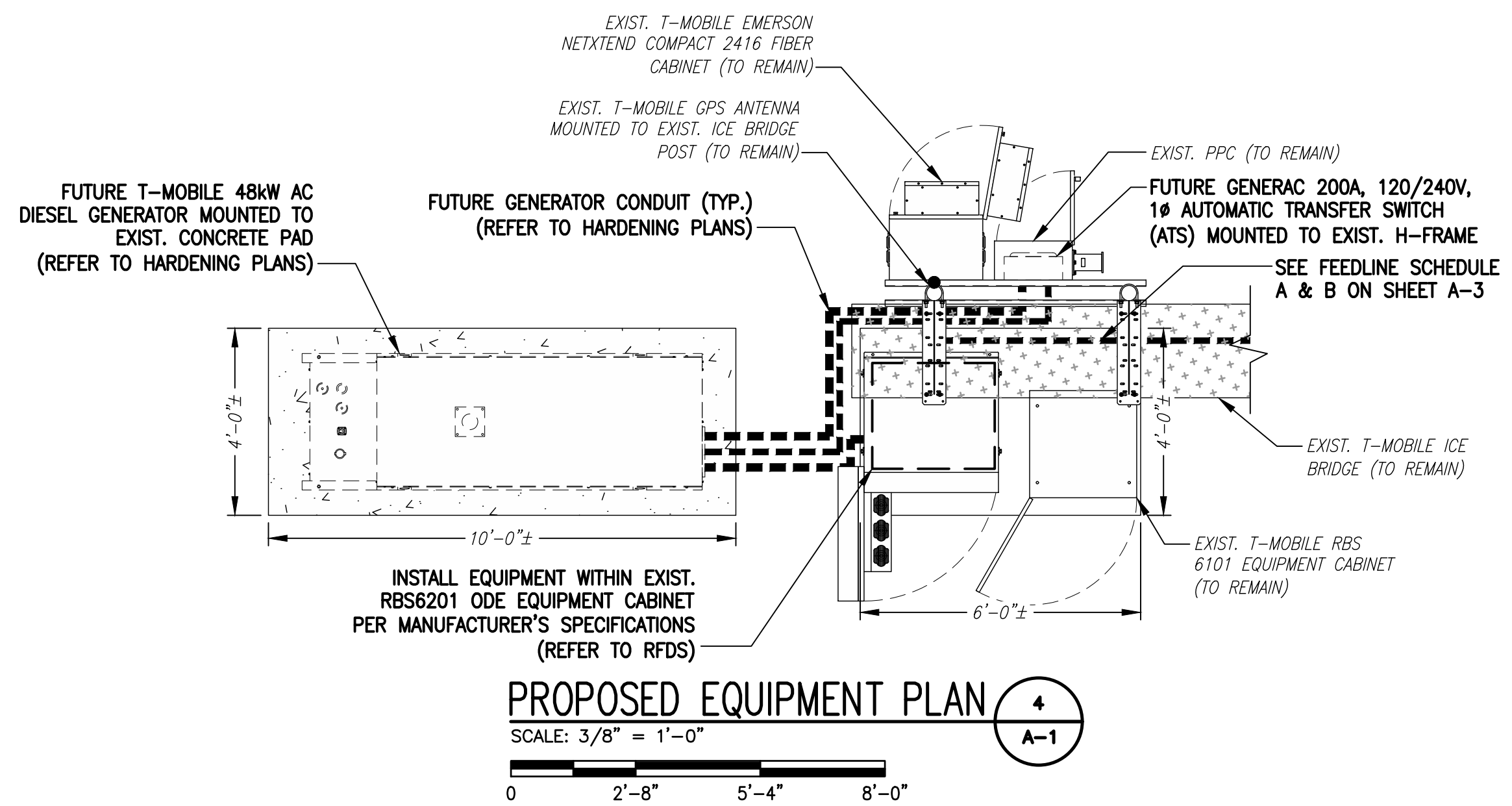
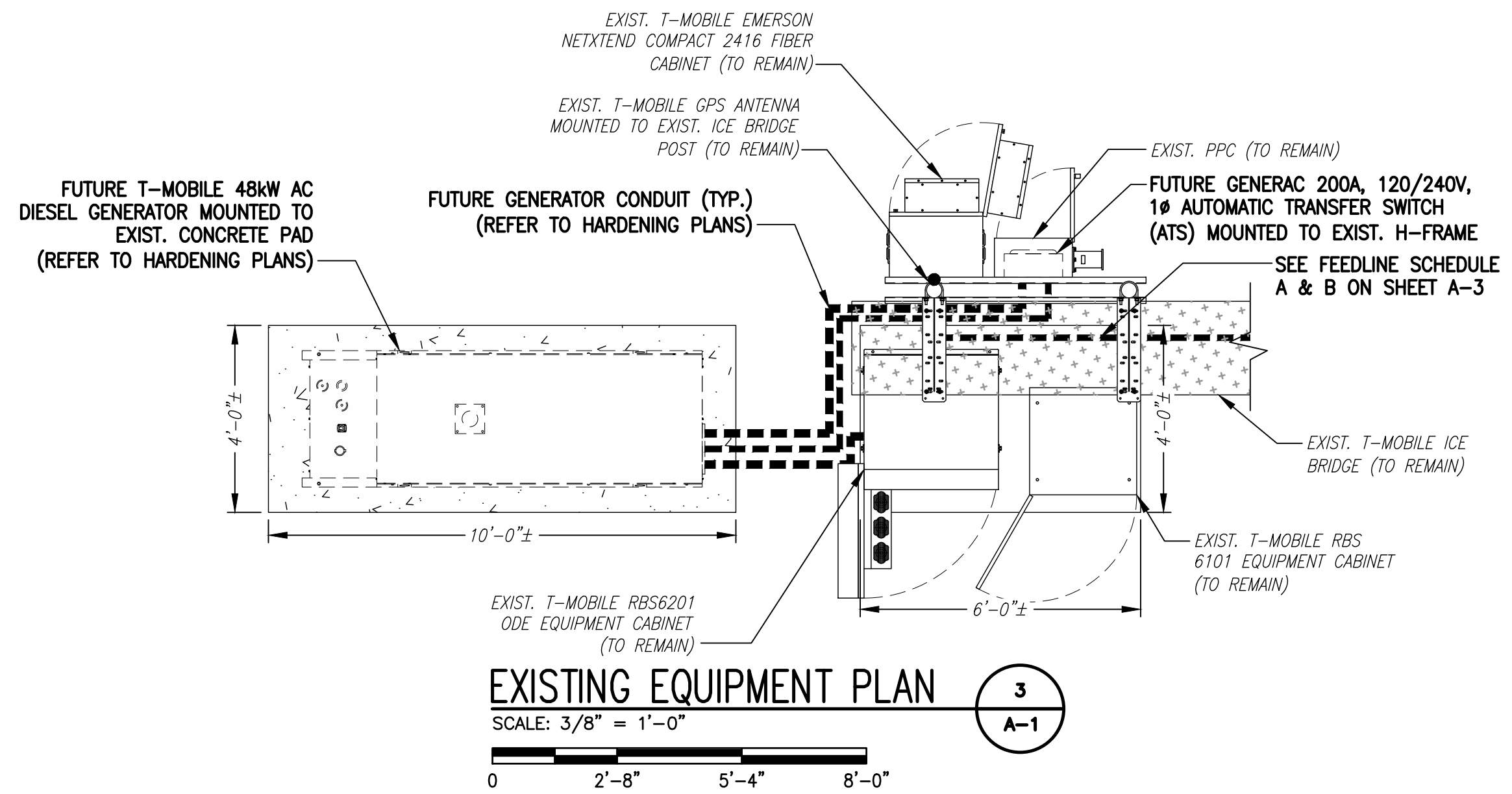
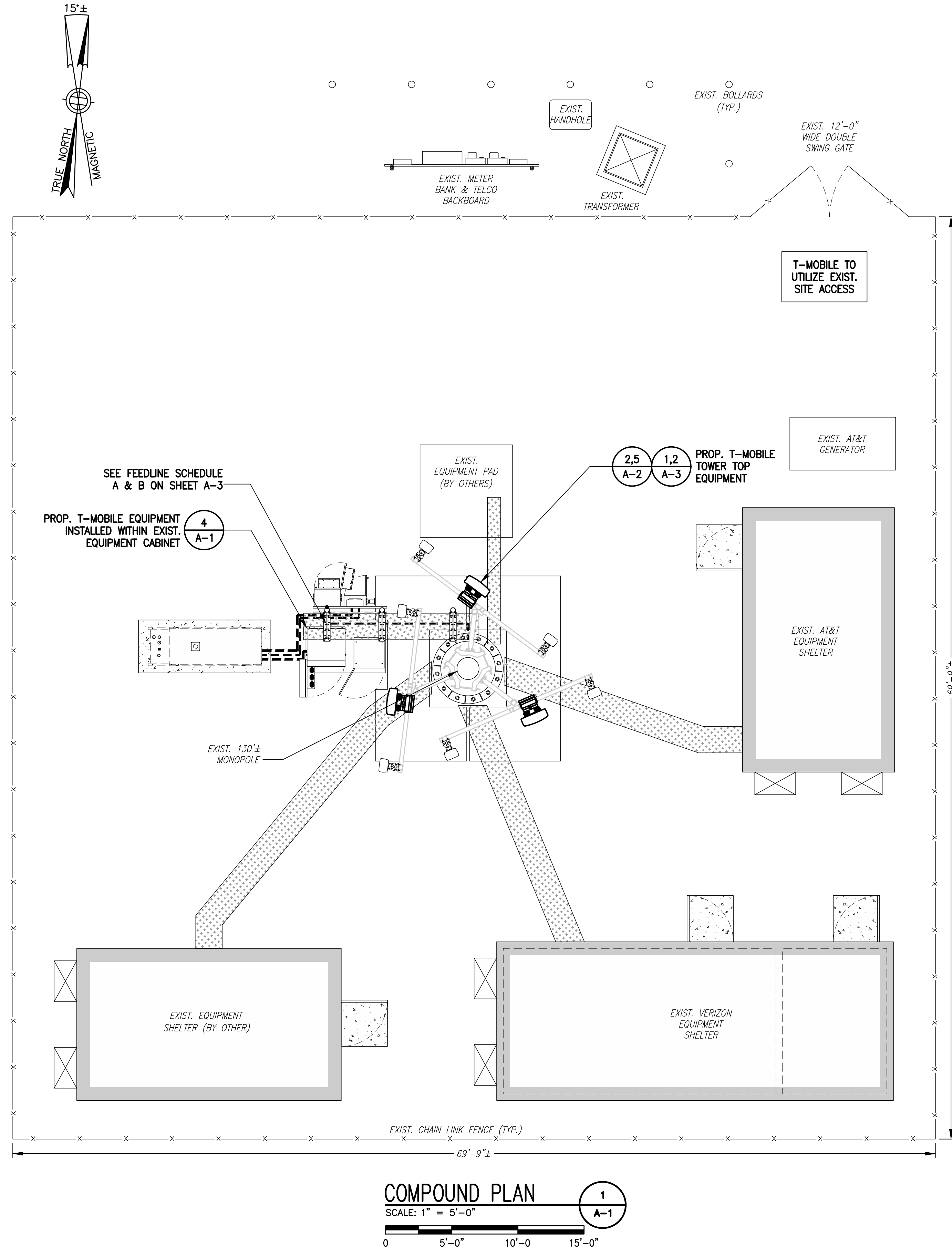
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**GENERAL NOTES**

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**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.

**SPECIAL CONSTRUCTION NOTE:**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

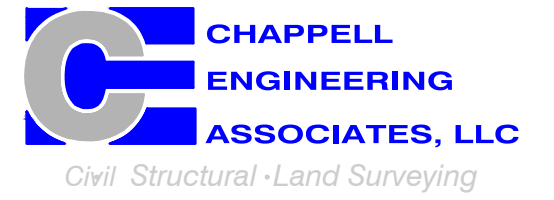


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**COMPOUND &  
 EQUIPMENT PLANS**

SHEET NUMBER  
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 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

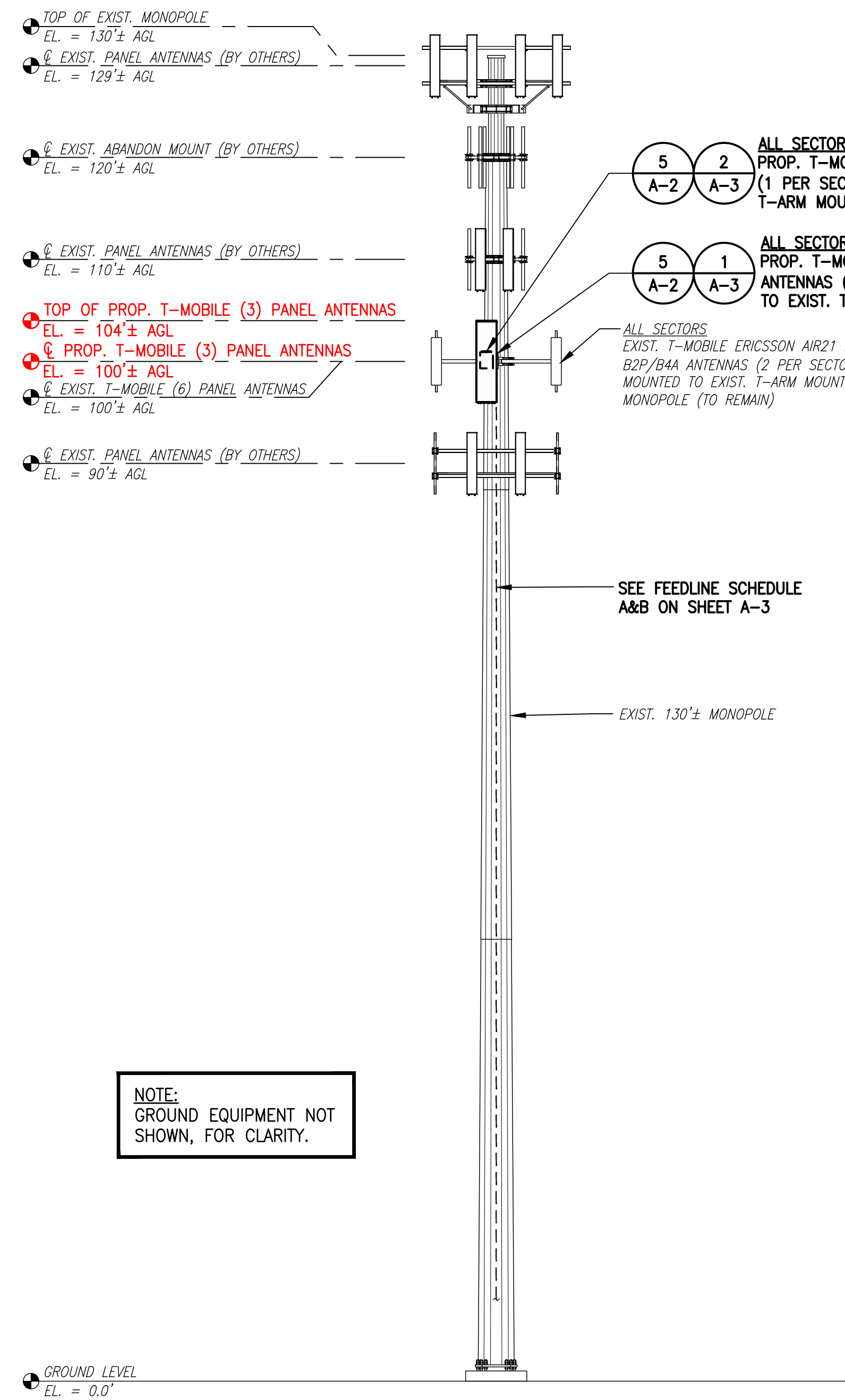
**RAD CENTER NOTE:**  
 T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.



**EXISTING ANTENNA PHOTO** 3  
 N.T.S. A-2

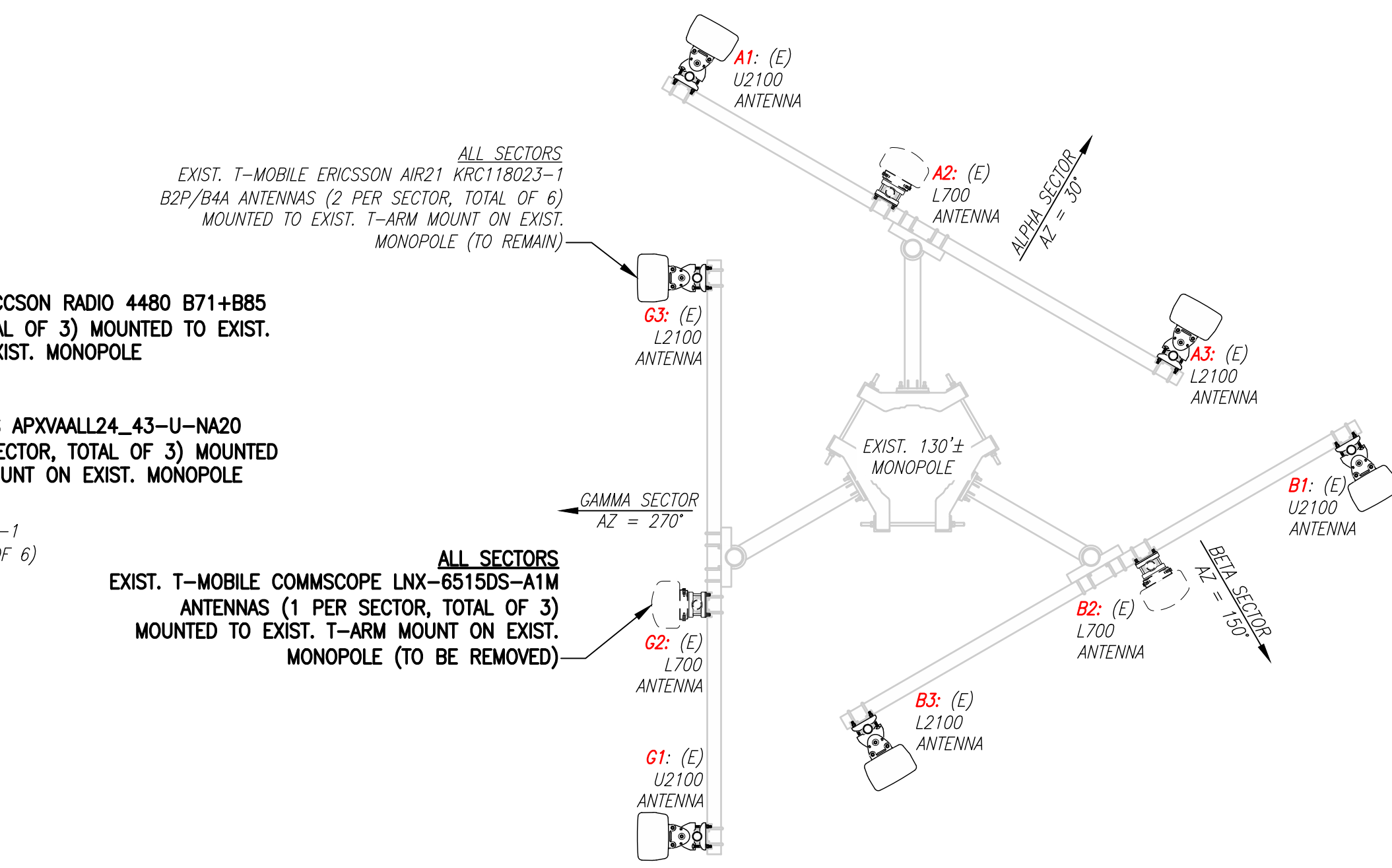


**EXISTING TOWER PHOTO** 1  
 N.T.S. A-2

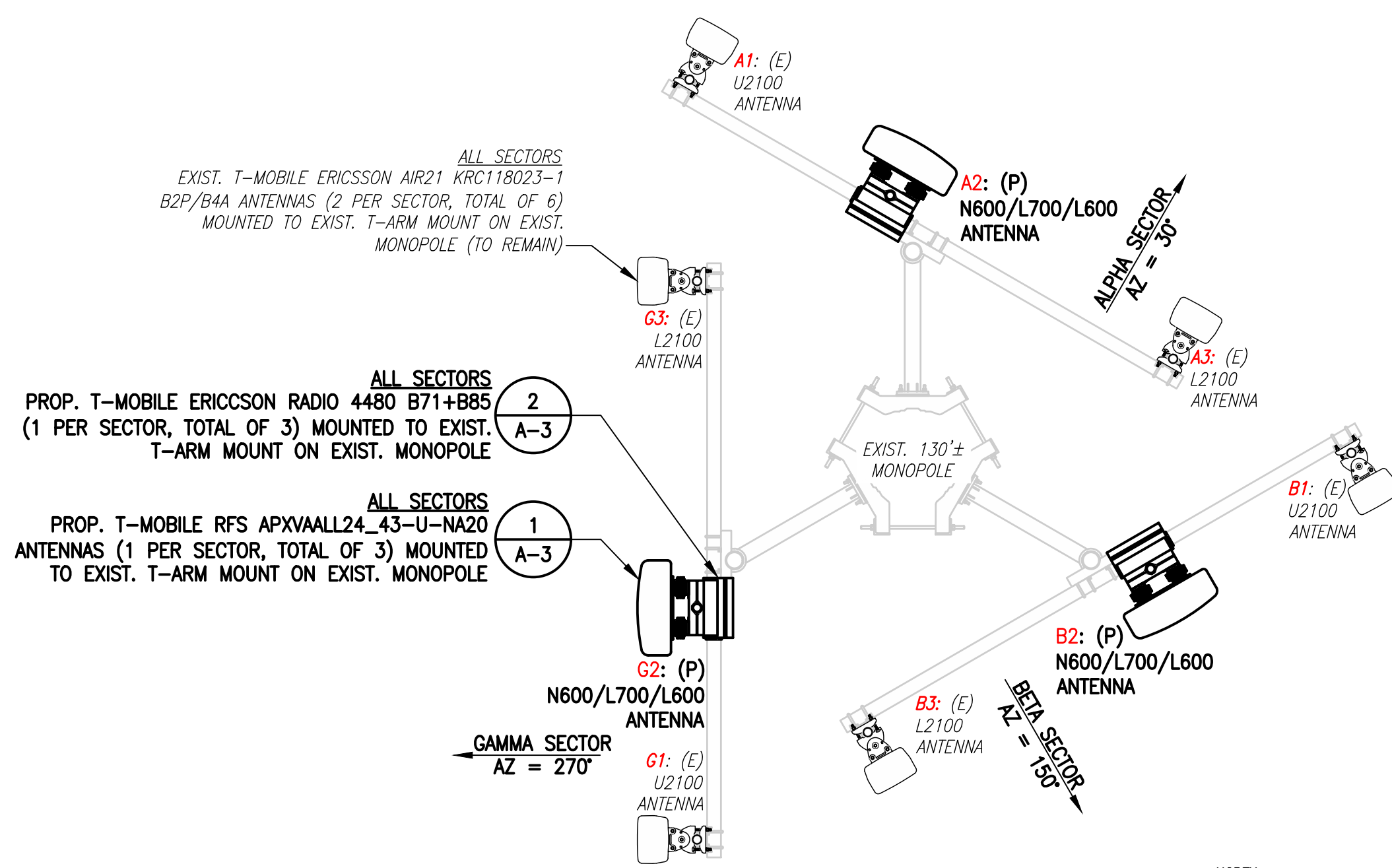


**NOTE:**  
 GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

**TOWER ELEVATION** 2  
 SCALE: 1" = 10'-0"  
 0 10' 20' 30' A-2



**EXISTING ANTENNA PLAN** 4  
 SCALE: 3/8" = 1'-0" A-2



**PROPOSED ANTENNA PLAN** 5  
 SCALE: 3/8" = 1'-0" A-2

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

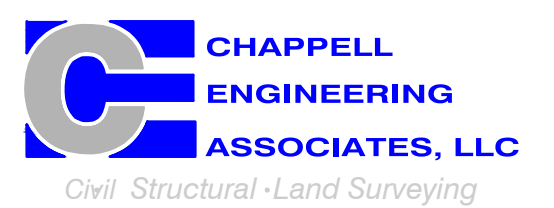
**ANTENNA STATUS LEGEND:**  
 EMPTY - EMPTY PIPE  
 (E) - EXISTING  
 (P) - INSTALL  
 (F) - FUTURE

**T-MOBILE  
 NORTHEAST LLC**

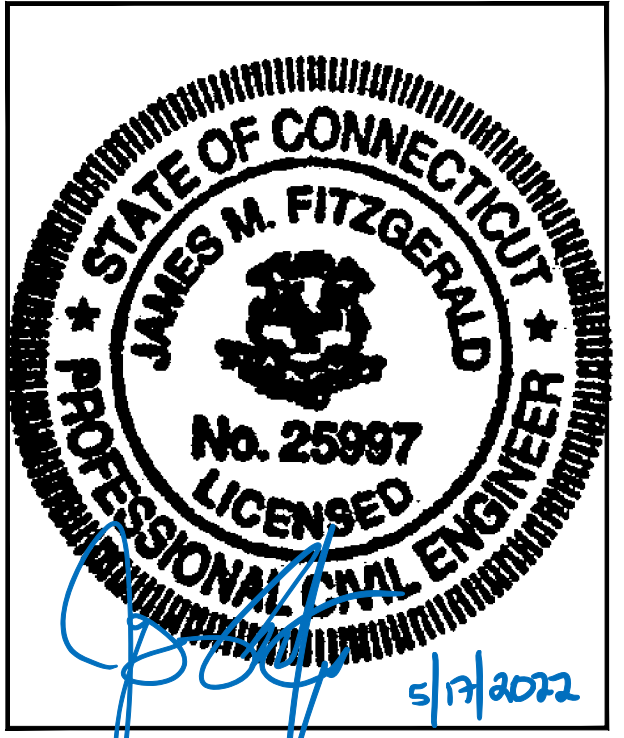
15 COMMERCE WAY, SUITE B  
 NORTON, MA 02766  
 (508) 286-2700



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



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION	JRV

SITE NUMBER:  
**CTHA537A**

SITE ADDRESS:  
 67 FAIRCHILD ROAD  
 MIDDLETOWN, CT 06457

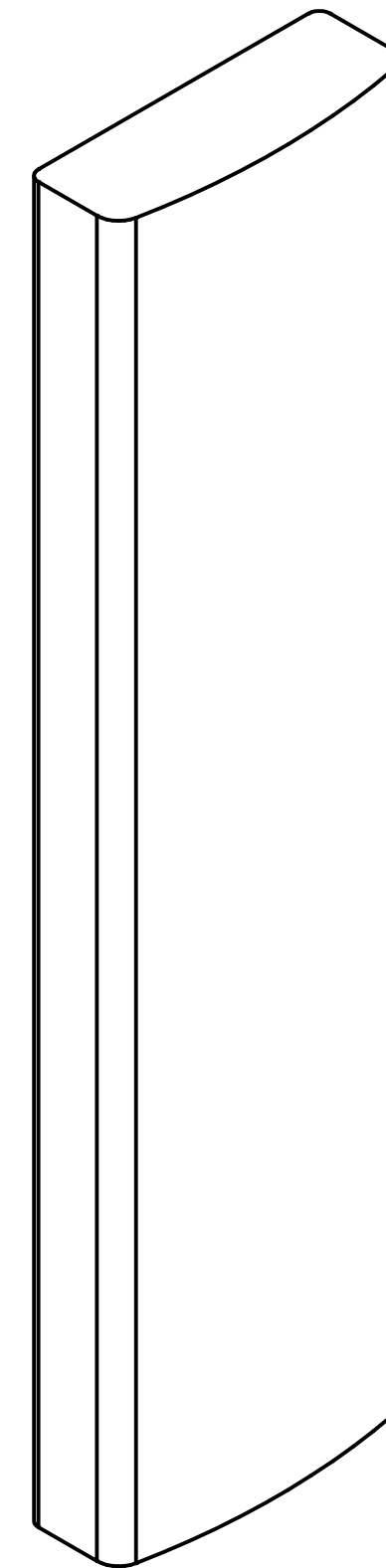
SHEET TITLE  
**TOWER ELEVATIONS &  
 ANTENNA PLANS**

SHEET NUMBER  
**A-2**

FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1 ERICSSON AIR21 KRC118023-1 B2P/B4A	100'± AGL	30°	0°	2°	U2100	-	(6) 1-5/8" COAX CABLES (3) 2" (6x24) HCS FIBER CABLES
	A2 RFS APXVAALL24_43-U-NA20	100'± AGL	30°	0°	2°	L700/L600/N600	RADIO 4480 B71+B85	
	A3 ERICSSON AIR21 KRC118023-1 B2P/B4A	100'± AGL	30°	0°	2°	L2100	-	
BETA	B1 ERICSSON AIR21 KRC118023-1 B2P/B4A	100'± AGL	150°	0°	2°	U2100	-	
	B2 RFS APXVAALL24_43-U-NA20	100'± AGL	150°	0°	2°	L700/L600/N600	RADIO 4480 B71+B85	
	B3 ERICSSON AIR21 KRC118023-1 B2P/B4A	100'± AGL	150°	0°	2°	L2100	-	
GAMMA	G1 ERICSSON AIR21 KRC118023-1 B2P/B4A	100'± AGL	270°	0°	2°	U2100	-	
	G2 RFS APXVAALL24_43-U-NA20	100'± AGL	270°	0°	2°	L700/L600/N600	RADIO 4480 B71+B85	
	G3 ERICSSON AIR21 KRC118023-1 B2P/B4A	100'± AGL	270°	0°	2°	L2100	-	

CABLE NOTE: SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV4 - 03/09/22



**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 DETAILS**  
 SCALE: N.T.S.



**ERICSSON RADIO 4480 B71+B85**  
 DIMENSIONS: 19.2"H x 15.1"W x 7.5"D  
 WEIGHT: 92.6 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

**RADIO DETAILS**  
 SCALE: N.T.S.

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1/2" COAX CABLE FOR GPS ANTENNA (6) 1-5/8" COAX CABLES  EXISTING TO BE REMOVED: NONE	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES	

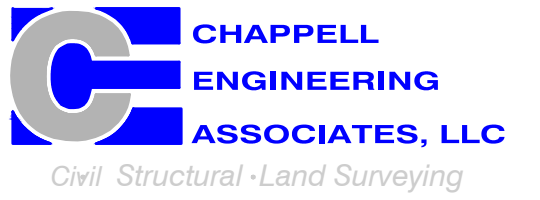
NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

**T-MOBILE  
NORTHEAST LLC**

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



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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
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0	04/21/22	ISSUED FOR CONSTRUCTION	JRV

SITE NUMBER:  
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SITE ADDRESS:  
67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457

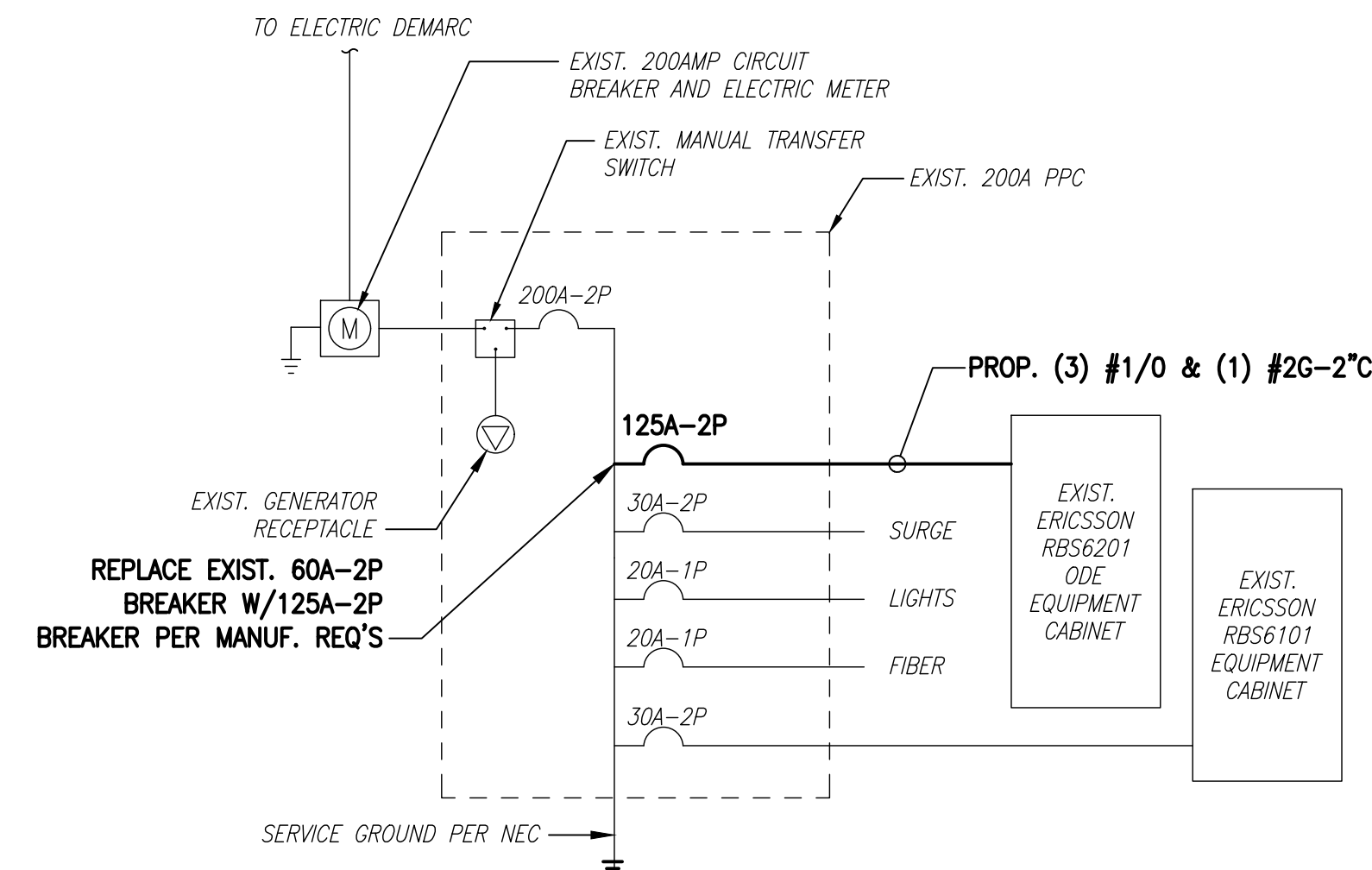
SHEET TITLE  
**SITE DETAILS, ANTENNA  
& FEEDLINE CHARTS**

SHEET NUMBER

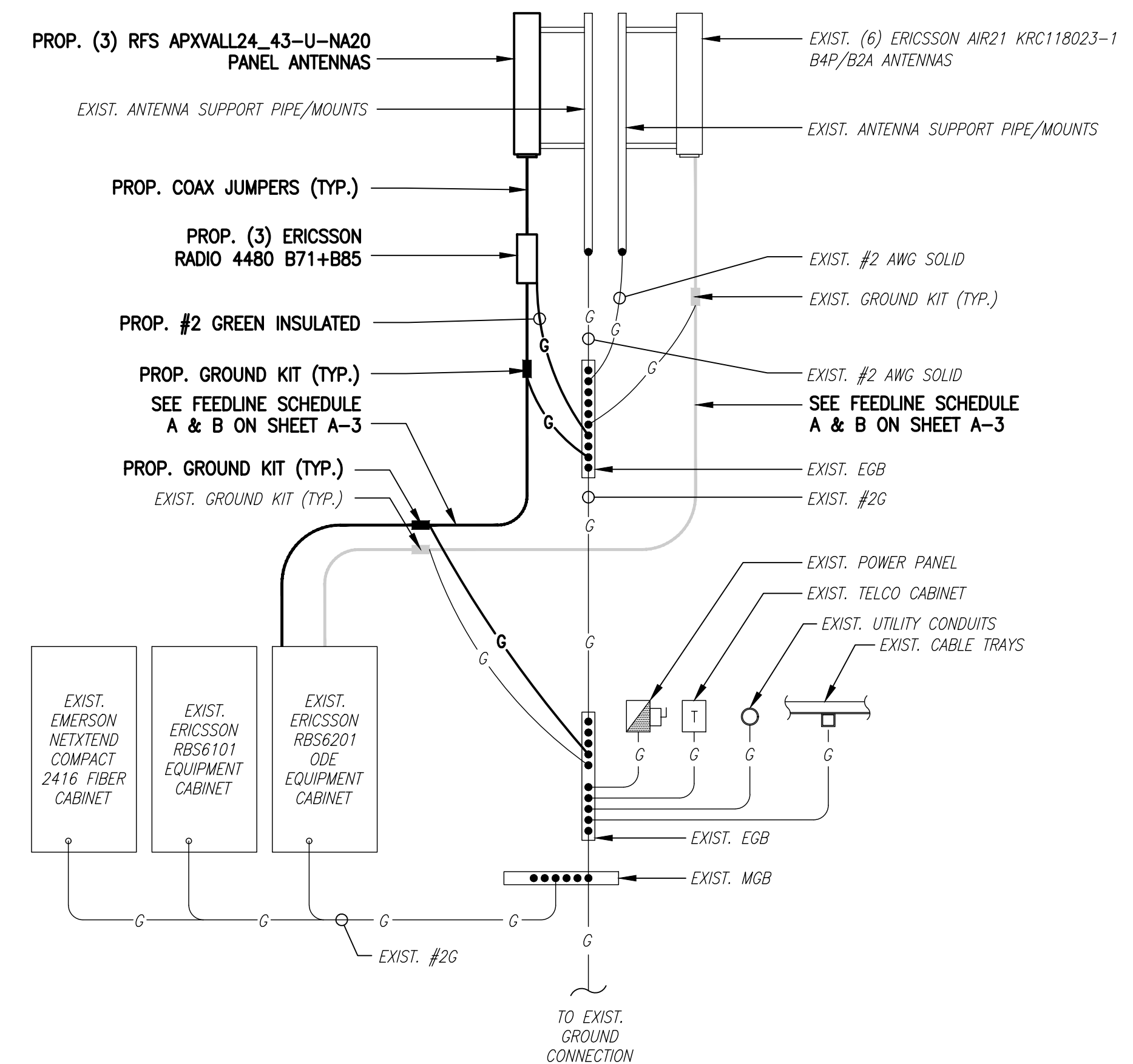
**A-3**



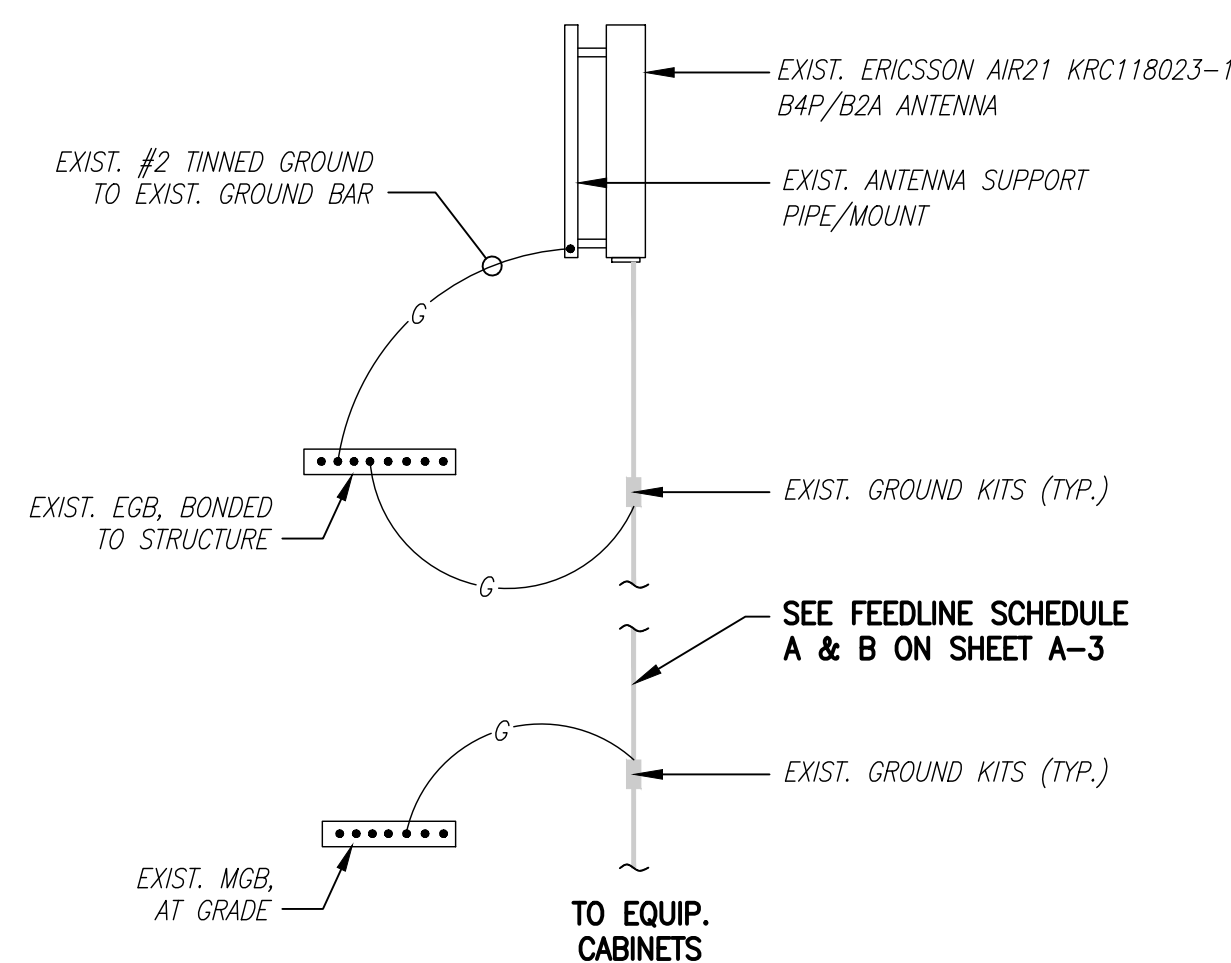
**EXISTING POWER PANEL PHOTOS** 1  
SCALE: NOT TO SCALE



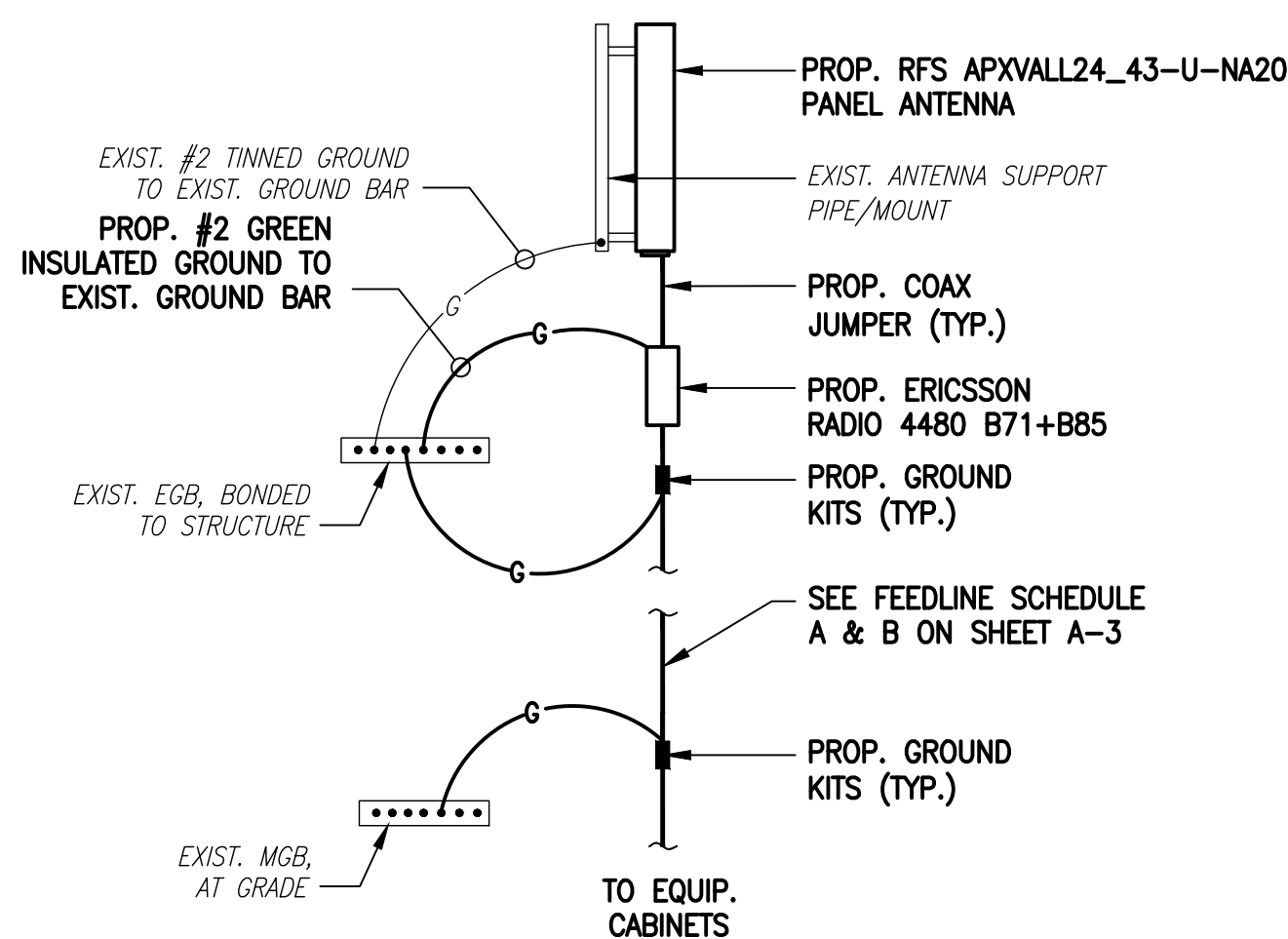
**ONE LINE DIAGRAM** 2  
SCALE: NOT TO SCALE



**GROUNDING RISER DIAGRAM** 3  
SCALE: NOT TO SCALE

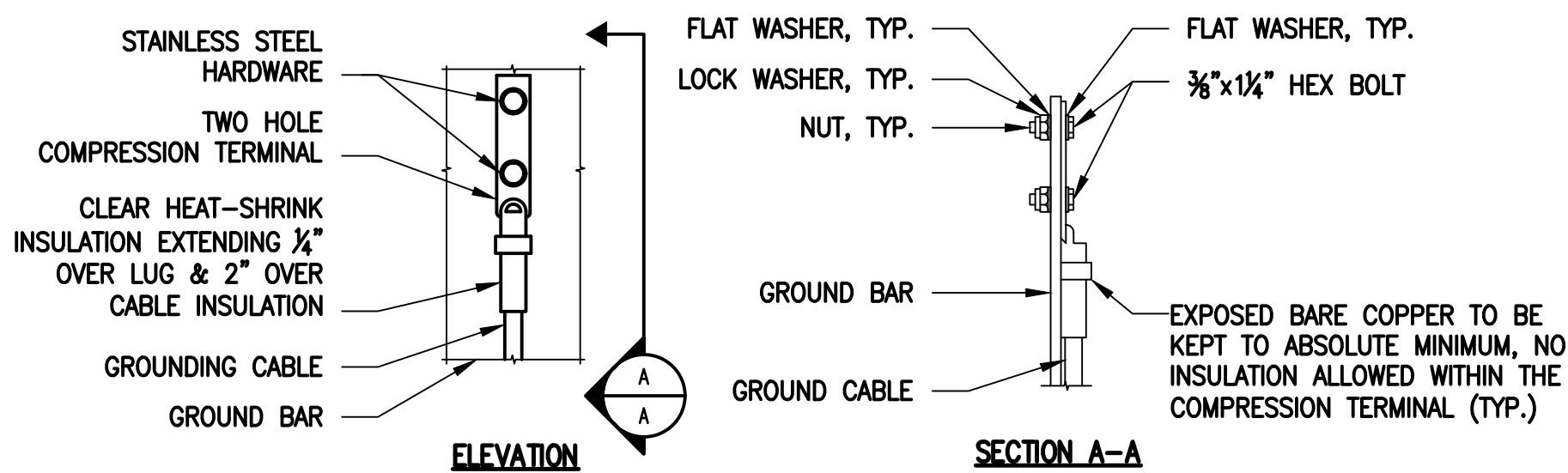


**U2100 & L2100 ANTENNAS**



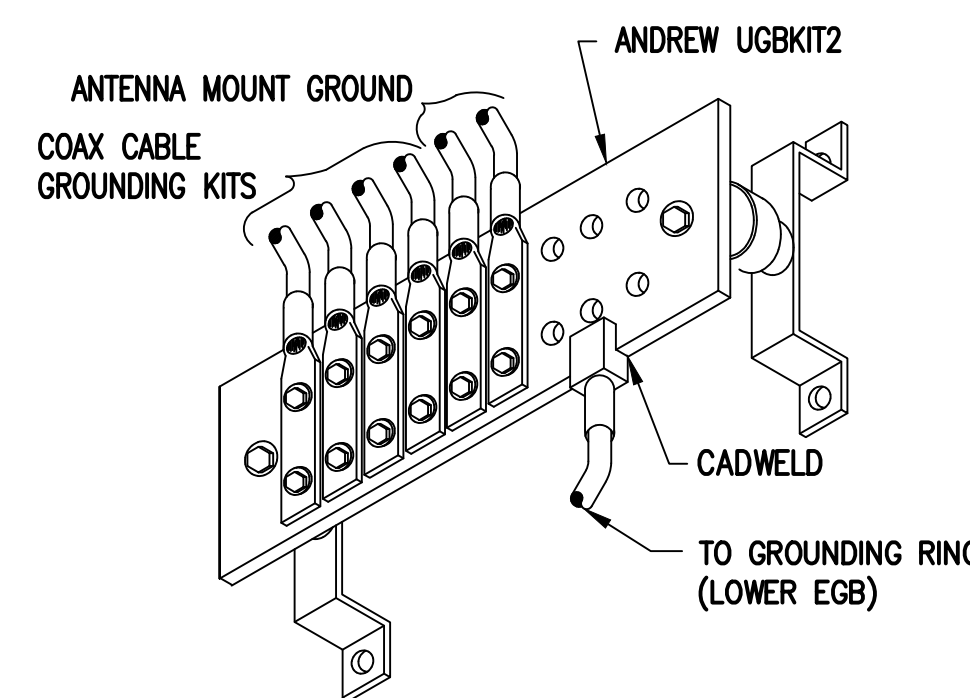
**L700/L600/N600 ANTENNA**

**COAX CABLE CONNECTION AND GROUNDING DETAIL** 4  
SCALE: NOT TO SCALE



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

**TYPICAL GROUND BAR CONNECTIONS DETAIL** 5  
SCALE: NOT TO SCALE



**GROUND BAR (EGB)** 6  
SCALE: NOT TO SCALE

**ELECTRICAL AND GROUNDING NOTES**

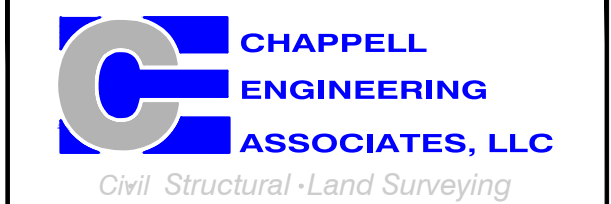
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED 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 HYDRON 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.

**T-MOBILE NORTHEAST LLC**

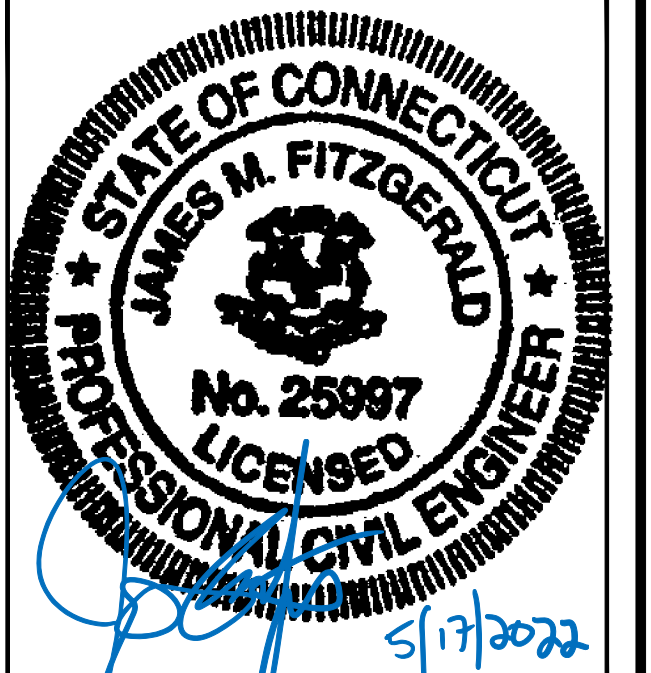
15 COMMERCE WAY, SUITE B  
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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	04/21/22	ISSUED FOR CONSTRUCTION	JRV

SITE NUMBER:  
**CTHA537A**

SITE ADDRESS:  
67 FAIRCHILD ROAD  
MIDDLETOWN, CT 06457

SHEET TITLE  
**ELECTRIC & GROUNDING DETAILS**

SHEET NUMBER  
**E-1**

# Exhibit D

## **Structural Analysis Report**



**Tower Engineering Solutions**

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

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## Structural Analysis Report

**Existing 130 ft Rohn Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13064-A**

**Customer Site Name: Middletown 2, CT**

**Carrier Name: T-Mobile (App#: 194474-1)**

**Carrier Site ID / Name: CTHA537A / Middletown**

**Site Location: 67 Fairchild Road**

**Middletown, Connecticut**

**Middlesex County**

**Latitude: 41.545011**

**Longitude: -72.620766**

**Analysis Result:**

**Max Structural Usage: 99.3% [Pass]**

**Max Foundation Usage: 99.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: Kevin Azisllari**



**Report Prepared By: Kevin Azisllari**



**Tower Engineering Solutions**

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**Customer Site Number: CT13064-A**

**Customer Site Name: Middletown 2, CT**

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**Additional Usage Caused by New Mount/Mount Modification: Kevin Azisllari**

**Report Prepared By: Kevin Azisllari**



## Introduction

The purpose of this report is to summarize the analysis results on the 130 ft Rohn 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

<b>Tower Drawings</b>	Rohn Parent File # 57886EH, Eng. File # 060-3494, Dwg. # A060995, dated 12/15/2006
<b>Foundation Drawing</b>	Rohn Parent File # 57886EH, Eng. File # 060-3494, Dwg. # A060998, dated 12/15/2006
<b>Geotechnical Report</b>	Gemini Geotechnical Associates Project # 06161CT, dated 11/30/2006
<b>Modification Drawings</b>	FDH Project # 11-01248E S1, dated 09/21/2001; FDH Project # 12-08192E S2, dated 11/14/2012; FDH Project # 15BVXK1400, dated 08/06/2015; TES Job # 13064, dated 11/05/2015; TES Job # 56931, dated 08/24/2018 TES Job # 121134, dated 02/11/2022
<b>Mount Analysis</b>	N/A

## 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.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 130.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_s = 0.179$ , $S_1 = 0.062$

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	132.0	3	Ericsson AIR6419 - Panel	Platform w/ Hand Rail (Commscope MTC3607R) + Platform Reinforcement Kit (SitePro1 PRK-FMA), (6) P2.5" X-STR Pipe Masts, (6) Channel Reinforcement Angles L2x2x1/4 (3) Pipe Mast (6) Steel Tube Stand off (3) Horizontal Pipes	(5) 2" Conduits (Housing (6) 1.496" Fiber & (8) 0.645" DC cables) (1) 1/2"	AT&T
2	130.0	3	Cci DMP65R-BU6DA - Panel			
3		3	Quintel QD6616-7 - Panel			
4		6	Ericsson - RRUS 32 - RRU			
5		3	Ericsson - RRUS 4478 B14 - RRU			
6		3	Ericsson - RRUS 8843 B2 B66A - RRU			
7		3	Ericsson - 4449 B5/B12 - RRU			
8		3	Ericsson - RRUS E2 B29 - RRU			
9		2	Raycap - DC6-48-60-18-8F - OVP			
10		2	Raycap - DC6-48-60-0-8C-EV - OVP			
11	128.0	3	Ericsson AIR6449 - Panel	Platform w/ Handrails Commscope MC-PK8-DSH	(1) 1.6" Hybrid	Dish Wireless
12	120.0	3	JMA Wireless MX08FRO665-21 - Panel			
13		3	Fujitsu TA08025-B605 - RRU			
14		3	Fujitsu TA08025-B604 - RRU			
15		1	Raycap RDIDC-9181-PF-48 - OVP			
16	111.0	3	Andrew - CBC721-DF - Panel	(3) T-Arms	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
17	110.0	6	Andrew - SBNHH-1D65B - Panel			
18		3	Alcatel - RRH2X60-1900A-4R			
19		3	Alcatel - B13 RRH4X30-4R			
20		3	Alcatel - B4 RRH2X60-4R			
21		2	RFS - DB-T1-6Z-8AB-OZ			
22	109.0	3	Andrew - CBC721-DF - Panel	(3) T-Arms (Site Pro P/N RMV12-3xx)	(6) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
-	100.0	3	Ericsson - AIR 21 B2A/B4P - Panel			
-		3	Ericsson - AIR 21 B4A/B2P - Panel			
-		3	Commscope - LNX-6515DS-A1M - Panel			
-		3	Kathrein - 782 11056 - TMA	Platform w/ Handrails (Site Pro F3P-10W w/HRK10)	(3) 1-1/4" Fiber (1) 1.689" Fiber (2) 1/2" Fiber	Sprint Nextel
28	90.0	3	Nokia - AAHC - MIMO - Panel			
29		3	Commscope - NNVV-65B-R4 - Panel			
30		3	ALU - 1900 Mhz - RRU			
31		6	ALU - 800 Mhz - RRU			
32		2	Andrew - VHLP2-11 - Dish			

\*Inside (5) 2" Conduits

## **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
23	100.0	3	Ericsson AIR21 B2A B4P - Panel	(3) T-Arms (Site Pro P/N RMV12-3xx) w/support rails w/end connections	(6) 1 5/8" (3) 1.9" Fiber	T-Mobile
24		3	Ericsson AIR21 B4A B2P - Panel			
25		3	Kathrein 782 11056			
26		3	RFS APXVAALL24_43-U-NA20 - Panel			
27		3	Ericsson 4480 B71 + B85 - RRUs			

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
Max. Usage:	<b>99.3%</b>	<b>71.5%</b>	<b>53.4%</b>	<b>64.0%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3654.4	36.0	39.9

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 1.3732 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 TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the 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 97.63% at 91.3ft

**Structure:** CT13064-A-SBA  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Gh:** 1.1

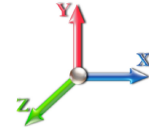
5/5/2022



Page: 1

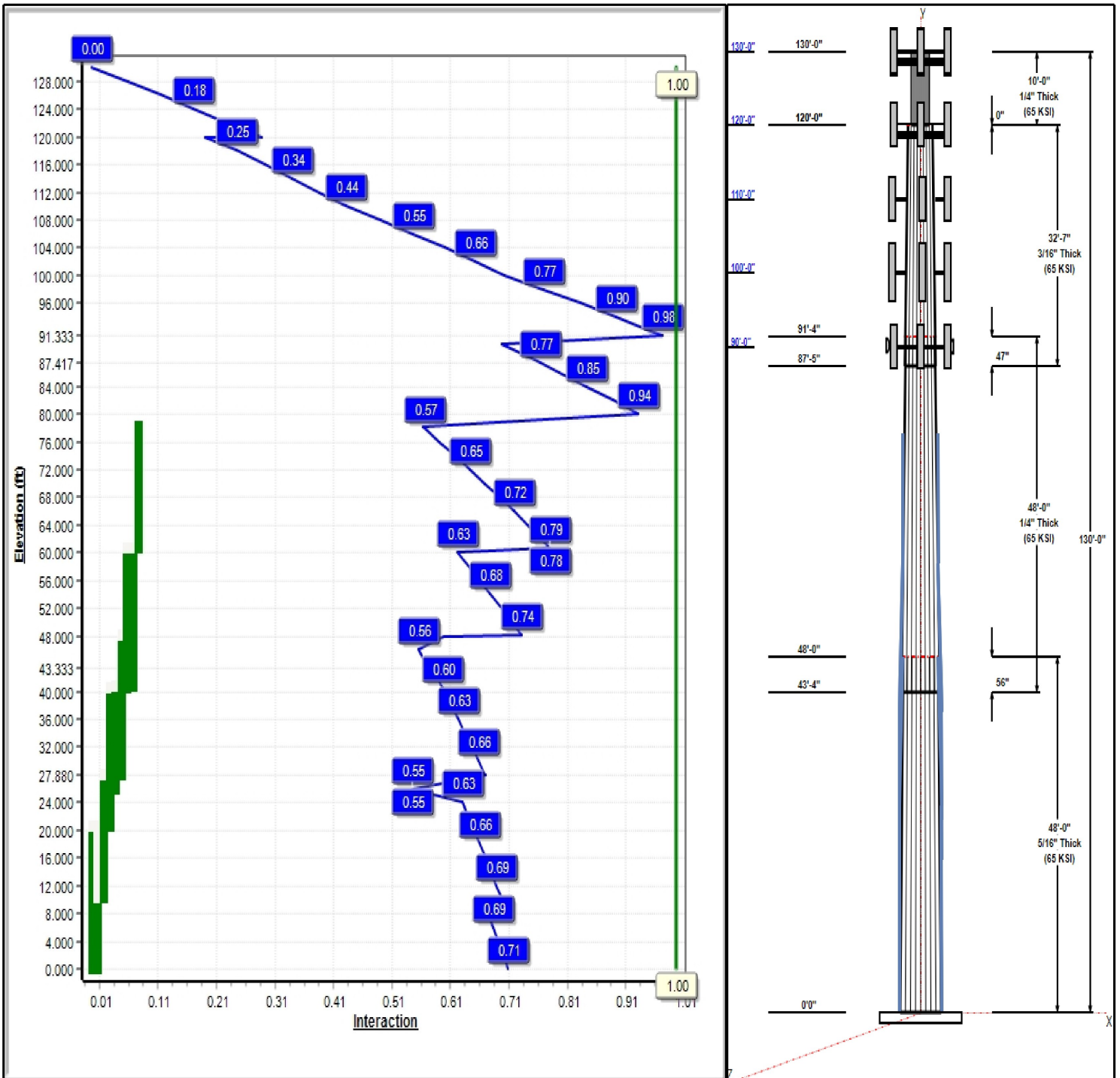
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 101 mph Wind**



**Iterations:** 25

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## Structure: CT13064-A-SBA

**Type:** Custom  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.15529

5/5/2022

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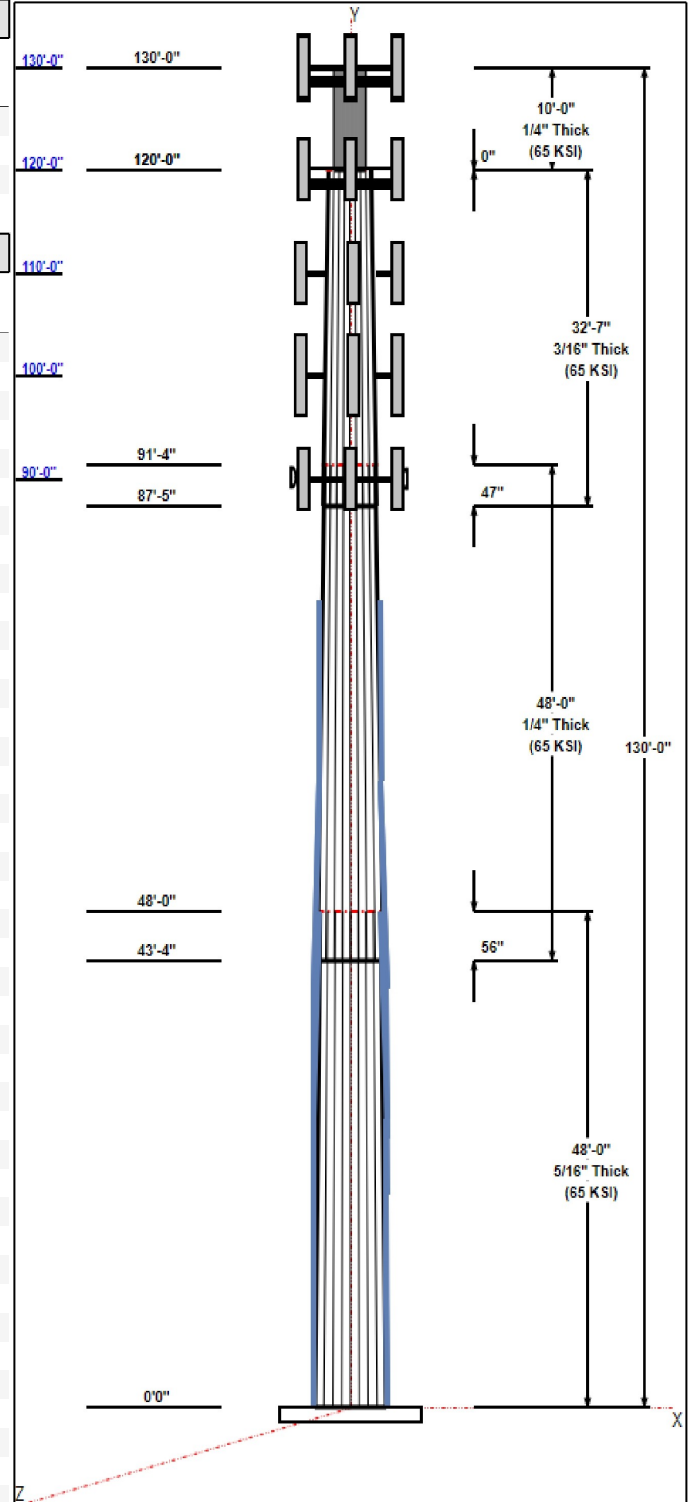


### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	35.05	42.50	0.313		0.15529	65
2	48.00	28.82	36.27	0.250	Slip	0.15529	65
3	32.58	24.74	29.80	0.188	Slip	0.15529	65
4	10.00	18.00	18.00	0.250	Butt	0.00000	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
130.00	133.00	1	6' Lightning rod	
130.00	130.00	3	Cci DMP65R-BU6DA	AT&T
130.00	130.00	6	RRUS 32	AT&T
130.00	130.00	3	RRUS 4478 B14	AT&T
130.00	130.00	3	B2 B66A 8843	AT&T
130.00	130.00	3	4449 B5/B12	AT&T
130.00	130.00	3	RRUS E2 B29	AT&T
130.00	130.00	2	DC6-48-60-18-8F	AT&T
130.00	130.00	2	DC6-48-60-0-8C	AT&T
130.00	130.00	1	MTC3607 Platform + HR	AT&T
130.00	130.00	1	PRK-1245 (kicker kit)	AT&T
130.00	130.00	1	Angle Reinforcement kit	AT&T
130.00	128.00	3	Ericsson AIR6449	AT&T
130.00	130.00	3	Quinte QD6616-7	AT&T
130.00	132.00	3	Ericsson AIR6419	AT&T
130.00	130.00	1	(3) Horizontal bracing	AT&T
130.00	130.00	3	Additional mount pipe	AT&T
120.00	120.00	3	MX08FRO665-21	Dish Wireless
120.00	120.00	3	TA08025-B605	Dish Wireless
120.00	120.00	3	TA08025-B604	Dish Wireless
120.00	120.00	1	RDIDC-9181-OF-48	Dish Wireless
120.00	120.00	1	MC-PK8-DSH	Dish Wireless
110.00	110.00	6	SBNHH-1D65B	Verizon
110.00	110.00	3	RRH2X60-1900A-4R	Verizon
110.00	110.00	3	B13 RRH4X30-4R	Verizon
110.00	110.00	3	B4 RRH2X60-4R	Verizon
110.00	110.00	2	DB-T1-6Z-8AB-0Z	Verizon
110.00	110.00	3	T-Arm (Round)	Verizon
110.00	111.00	3	CBC721-DF	Verizon
110.00	109.00	3	CBC721-DF	Verizon
100.00	100.00	3	Ericsson AIR21 B2A B4P	T-Mobile
100.00	100.00	3	Ericsson AIR21 B4A B2P	T-Mobile
100.00	100.00	3	Kathrein 782 11056	T-Mobile
100.00	100.00	3	T-Arm (Round)	T-Mobile
100.00	100.00	3	RFS	T-Mobile
100.00	100.00	3	Ericsson 4480 B71 + B85	T-Mobile
94.00	94.00	1	14"x6.5"x6" Surge	Clearwire
90.00	90.00	2	Andrew - VHLP2-11	Sprint Nextel
90.00	90.00	3	ALU - 1900MHz - RRU	Sprint Nextel
90.00	90.00	6	ALU - 800 MHz - RRU	Sprint Nextel
90.00	90.00	3	AAHC	Sprint Nextel
90.00	90.00	3	NNVV-65B-R4	Sprint Nextel
90.00	90.00	1	F3P-10W	Sprint Nextel



### Linear Appurtenances

## Structure: CT13064-A-SBA

**Type:** Custom  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.00000

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Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	130.00	Inside	0.645" DC Cables	AT&T
0.00	130.00	Inside	1.496" Hybrid	AT&T
0.00	130.00	Inside	1/2" Coax	AT&T
0.00	130.00	Inside	2" Conduit	AT&T
0.00	130.00	Outside	2" Conduit	AT&T
0.00	130.00	Inside	3/4" DC	AT&T
0.00	120.00	Inside	1.6" Hybrid	Dish Wireless
0.00	110.00	Inside	1 5/8" Coax	Verizon
0.00	110.00	Inside	1 5/8" Hybrid	Verizon
0.00	100.00	Inside	1 5/8" Coax	T-Mobile
0.00	100.00	Inside	1.9" Fiber	T-Mobile
0.00	90.00	Inside	1-1/4" Fiber	Sprint Nextel
0.00	90.00	Inside	1.689" Hybrid	Sprint Nextel
0.00	90.00	Inside	1/2" Fiber	Sprint Nextel
0.00	81.00	Outside	1" Reinforcing plate	
23.33	63.33	Outside	1" Reinforcing plate	
30.50	50.50	Outside	1" Reinforcing plate	
0.00	30.50	Outside	1" Reinforcing plate	

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
14	1.5" F1554 105	105.0	Radial

### Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	51.8	50.0	Round

### Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	3654.4	36.0	39.9
0.9D + 1.6W 101 mph Wind	3612.4	36.0	29.9
1.2D + 1.0Di + 1.0Wi 50 mph Wind	962.3	9.4	66.8
1.2D + 1.0E	241.5	2.0	39.9
0.9D + 1.0E	238.3	2.0	29.9
1.0D + 1.0W 60 mph Wind	801.5	7.9	33.3

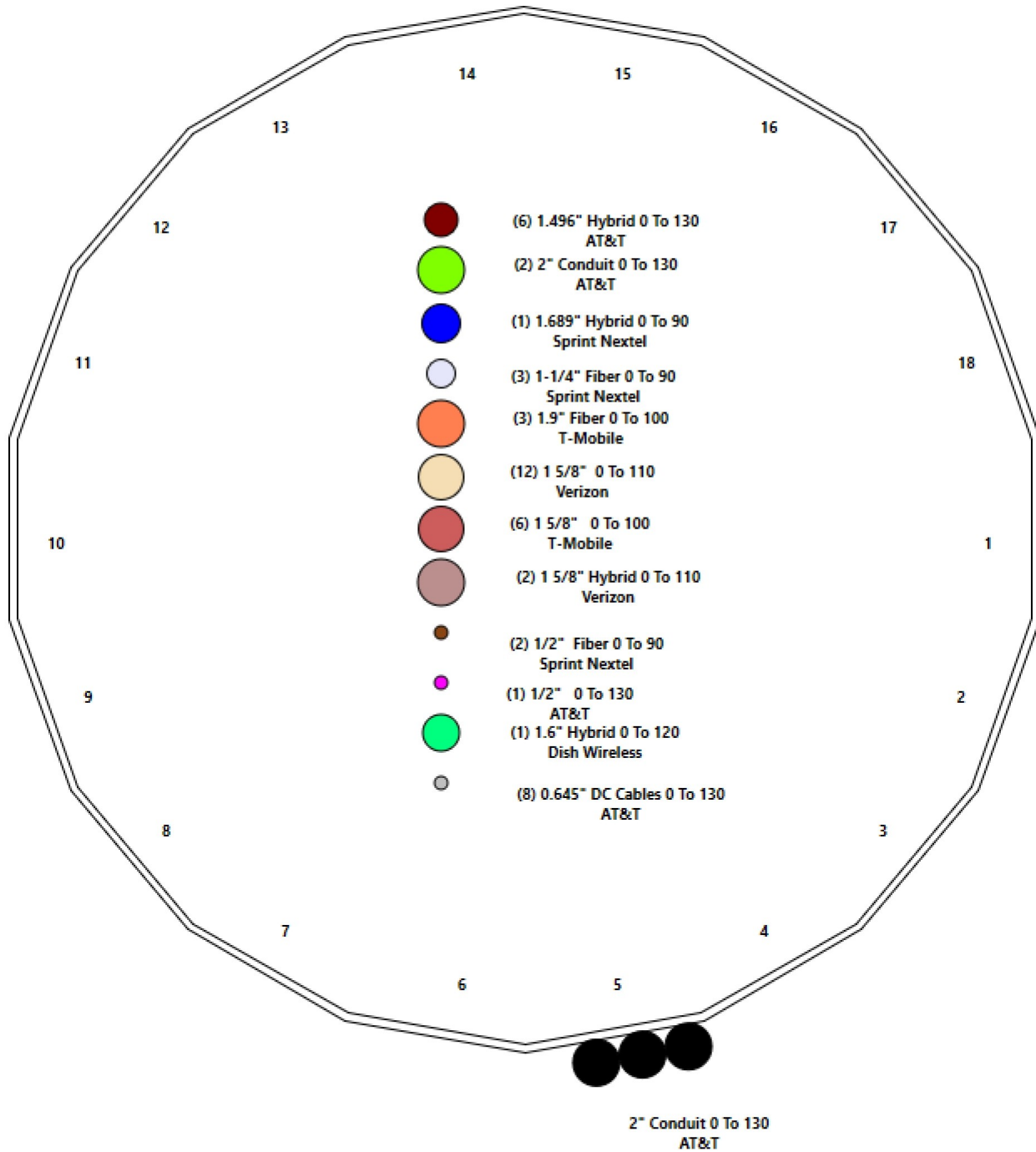


# Structure: CT13064-A-SBA - Coax Line Placement

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

5/5/2022

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## Shaft Properties

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.3125	65		0.00	6,231
2	18	48.000	0.2500	65	Slip	56.00	4,185
3	18	32.583	0.1875	65	Slip	47.00	1,787
4	R	10.000	0.2500	65	Flange	0.00	474
<b>Total Shaft Weight:</b>							<b>12,677</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	42.50	0.00	41.84	9409.05	22.57	136.00	35.05	48.00	34.45	5250.98	18.36	112.1	0.155292
2	36.27	43.33	28.58	4685.33	24.17	145.08	28.82	91.33	22.67	2337.03	18.91	115.2	0.155292
3	29.80	87.42	17.62	1952.39	26.61	158.93	24.74	120.00	14.61	1112.84	21.86	131.9	0.155292
4	18.00	120.0	13.94	549.45	0.00	72.00	18.00	130.00	13.94	549.45	0.00	72.00	0.000000

### Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors Description	Spacing (in)	Termination Connectors Description	Spacing (in)	Lower Qty	Upper Qty
0.00	20.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
0.00	10.25	4	PLT 5.5"x1 1/4" (1.25" hol)	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	9	9
10.25	27.88	4	LNP LP6X100-G-20CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		8
20.50	40.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
25.96	40.71	2	LNP LP6X100-G-20CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		8
27.88	48.12	2	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	8	8
40.50	60.75	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
40.71	60.71	2	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	10	10
60.75	78.25	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	10

## Load Summary

Structure: CT13064-A-SBA	Code: TIA-222-G	5/5/2022
Site Name: Middletown 2, CT	Exposure: C	
Height: 130.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	130.00	6' Lightning rod	1	6.50	0.38	1.00	42.28	1.452	1.00	0.00	3.00
2	130.00	Cci DMP65R-BU6DA	3	63.30	12.71	0.72	360.21	14.179	0.74	0.00	0.00
3	130.00	RRUS 32	6	77.00	1.65	0.50	182.98	2.218	0.50	0.00	0.00
4	130.00	RRUS 4478 B14	3	59.40	1.65	0.50	100.28	2.161	0.50	0.00	0.00
5	130.00	B2 B66A 8843	3	70.00	1.64	0.50	115.33	2.149	0.50	0.00	0.00
6	130.00	4449 B5/B12	3	71.00	1.97	0.50	123.62	2.510	0.50	0.00	0.00
7	130.00	RRUS E2 B29	3	59.40	3.15	0.50	123.17	3.844	0.50	0.00	0.00
8	130.00	DC6-48-60-18-8F	2	31.80	0.92	0.50	92.75	1.352	0.50	0.00	0.00
9	130.00	DC6-48-60-0-8C	2	16.00	4.78	0.50	137.98	5.652	0.50	0.00	0.00
10	130.00	MTC3607 Platform + HR	1	2000.00	45.40	1.00	4064.50	78.517	1.00	0.00	0.00
11	130.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	784.85	19.306	1.00	0.00	0.00
12	130.00	Angle Reinforcement kit	1	250.00	5.80	1.00	542.47	11.388	1.00	0.00	0.00
13	130.00	Ericcson AIR6449	3	88.00	4.13	0.85	223.24	4.974	0.85	0.00	-2.00
14	130.00	Quinte QD6616-7	3	59.10	13.58	0.75	465.81	15.449	0.77	0.00	0.00
15	130.00	Ericsson AIR6419	3	66.10	3.80	0.76	160.94	4.585	0.76	0.00	2.00
16	130.00	(3) Horizontal bracing Pipes	1	137.25	5.94	1.00	269.48	13.292	1.00	0.00	0.00
17	130.00	Additional mount pipe	3	17.00	1.75	0.75	50.63	5.665	0.75	0.00	0.00
18	120.00	MX08FRO665-21	3	64.50	12.49	0.74	348.95	13.922	0.74	0.00	0.00
19	120.00	TA08025-B605	3	75.00	1.96	0.50	126.15	2.509	0.50	0.00	0.00
20	120.00	TA08025-B604	3	63.90	1.96	0.50	113.41	2.509	0.50	0.00	0.00
21	120.00	RDIDC-9181-OF-48	1	21.90	2.01	0.50	73.97	2.566	0.50	0.00	0.00
22	120.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3377.59	83.782	1.00	0.00	0.00
23	110.00	SBNHH-1D65B	6	40.00	8.16	0.79	235.78	9.418	0.82	0.00	0.00
24	110.00	RRH2X60-1900A-4R	3	46.00	1.88	0.50	112.46	2.446	0.50	0.00	0.00
25	110.00	B13 RRRH4X30-4R	3	57.20	2.16	0.50	117.59	2.752	0.50	0.00	0.00
26	110.00	B4 RRRH2X60-4R	3	55.00	3.36	0.50	138.75	4.115	0.50	0.00	0.00
27	110.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.50	157.48	5.645	0.50	0.00	0.00
28	110.00	T-Arm (Round)	3	350.00	8.00	0.75	586.87	14.768	0.75	0.00	0.00
29	110.00	CBC721-DF	3	4.40	0.45	0.50	13.66	0.934	0.50	0.00	1.00
30	110.00	CBC721-DF	3	4.40	0.45	0.50	13.66	0.934	0.50	0.00	-1.00
31	100.00	Ericsson AIR21 B2A B4P	3	91.50	6.09	0.80	252.43	7.141	0.83	0.00	0.00
32	100.00	Ericsson AIR21 B4A B2P	3	90.40	6.09	0.80	251.33	7.141	0.83	0.00	0.00
33	100.00	Kathrein 782 11056	3	1.80	0.13	0.50	4.18	0.410	0.50	0.00	0.00
34	100.00	T-Arm (Round)	3	350.00	8.00	0.75	584.62	14.704	0.75	0.00	0.00
35	100.00	RFS APXVAALL24_43-U-NA20	3	122.80	20.24	0.73	531.47	22.062	0.73	0.00	0.00
36	100.00	Ericsson 4480 B71 + B85	3	93.00	2.85	0.74	162.08	3.498	0.74	0.00	0.00
37	94.00	1'4"x6.5"x6" Surge Protector	1	53.00	2.14	1.00	146.00	3.112	1.00	0.00	0.00
38	90.00	Andrew - VHLP2-11	2	27.00	4.68	1.00	119.99	5.891	1.00	0.00	0.00
39	90.00	ALU - 1900MHz - RRU	3	44.00	3.80	0.50	147.73	5.121	0.50	0.00	0.00
40	90.00	ALU - 800 MHz - RRU	6	53.00	2.49	0.50	123.28	3.577	0.50	0.00	0.00
41	90.00	AAHC	3	104.00	4.20	0.75	225.70	4.987	0.75	0.00	0.00
42	90.00	NNVV-65B-R4	3	77.40	12.27	0.74	348.74	13.654	0.74	0.00	0.00
43	90.00	F3P-10W	1	2122.00	51.77	1.00	4092.60	13.582	1.00	0.00	0.00
<b>Totals:</b>			<b>116</b>	<b>14,735.76</b>			<b>35,071.32</b>				

### Linear Appurtenances

## 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		
Bottom Elev. (ft)	Top Elev. (ft)	Description		Exposed Width	Exposed						
0.00	130.00	(8) 0.645" DC Cables		0.00	Inside						
0.00	130.00	(6) 1.496" Hybrid		0.00	Inside						
0.00	130.00	(1) 1/2" Coax		0.00	Inside						
0.00	130.00	(2) 2" Conduit		0.00	Inside						
0.00	130.00	(3) 2" Conduit		2.00	Outside						
0.00	130.00	(8) 3/4" DC		0.00	Inside						
0.00	120.00	(1) 1.6" Hybrid		0.00	Inside						
0.00	110.00	(12) 1 5/8" Coax		0.00	Inside						
0.00	110.00	(2) 1 5/8" Hybrid		0.00	Inside						
0.00	100.00	(6) 1 5/8" Coax		0.00	Inside						
0.00	100.00	(3) 1.9" Fiber		0.00	Inside						
0.00	90.00	(3) 1-1/4" Fiber		0.00	Inside						
0.00	90.00	(1) 1.689" Hybrid		0.00	Inside						
0.00	90.00	(2) 1/2" Fiber		0.00	Inside						
0.00	81.00	(4) 1" Reinforcing plate		1.00	Outside						
23.33	63.33	(2) 1" Reinforcing plate		0.00	Outside						
30.50	50.50	(2) 1" Reinforcing plate		0.00	Outside						
0.00	30.50	(4) 1" Reinforcing plate		0.00	Outside						



Increment Length: 2 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in <sup>2</sup> )	Ixp (in <sup>4</sup> )	Iyp (in <sup>4</sup> )	Weight (lb)
78.25	RT9	0.2500	30.848	24.279	2872.0	20.35	123.39	65	77	20.7	24.00	4078.5	2047.2	20.4
80.00		0.2500	30.577	24.063	2796.1	20.16	122.31	65	78	143.9				
82.00		0.2500	30.266	23.817	2711.1	19.94	121.06	65	78	162.9				
84.00		0.2500	29.955	23.570	2627.8	19.72	119.82	65	78	161.2				
86.00		0.2500	29.645	23.324	2546.3	19.50	118.58	65	78	159.6				
87.42	Bot - Section 3	0.2500	29.425	23.149	2489.5	19.34	117.70	65	79	112.0				
88.00		0.2500	29.334	23.078	2466.4	19.28	117.34	65	79	80.8				
90.00		0.2500	29.024	22.831	2388.2	19.06	116.09	65	79	275.2				
91.33	Top - Section 2	0.1875	29.192	17.260	1834.5	26.04	155.69	65	71	181.8				
92.00		0.1875	29.088	17.199	1815.0	25.94	155.14	65	71	39.1				
94.00		0.1875	28.778	17.014	1757.1	25.65	153.48	65	71	116.4				
96.00		0.1875	28.467	16.829	1700.4	25.36	151.82	65	72	115.2				
98.00		0.1875	28.156	16.644	1645.0	25.07	150.17	65	72	113.9				
100.00		0.1875	27.846	16.460	1590.8	24.78	148.51	65	72	112.6				
102.00		0.1875	27.535	16.275	1537.8	24.48	146.85	65	73	111.4				
104.00		0.1875	27.225	16.090	1486.0	24.19	145.20	65	73	110.1				
106.00		0.1875	26.914	15.905	1435.4	23.90	143.54	65	73	108.9				
108.00		0.1875	26.603	15.720	1385.9	23.61	141.89	65	74	107.6				
110.00		0.1875	26.293	15.535	1337.6	23.32	140.23	65	74	106.4				
112.00		0.1875	25.982	15.351	1290.5	23.02	138.57	65	74	105.1				
114.00		0.1875	25.672	15.166	1244.4	22.73	136.92	65	75	103.8				
116.00		0.1875	25.361	14.981	1199.5	22.44	135.26	65	75	102.6				
118.00		0.1875	25.051	14.796	1155.6	22.15	133.60	65	75	101.3				
120.00	Top - Section 3	0.1875	24.740	14.611	1112.8	21.86	131.95	65	76	100.1				
120.00	Bot - Section 4	0.2500	18.000	13.941	549.4	16.39	98.96	65	59					
122.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
124.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
126.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
128.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
130.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
<b>Total Weight</b>										<b>12677.2</b>				
											<b>11001.2</b>			



## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00	1.00	1.19	29.470	32.42	293.50	0.650	0.000	2.00	5.359	3.48	180.7	0.0	203.6
76.00	1.00	1.19	29.636	32.60	291.42	0.650	0.000	2.00	5.306	3.45	179.9	0.0	201.5
78.00	1.00	1.20	29.798	32.78	289.31	0.650	0.000	2.00	5.254	3.41	179.1	0.0	199.5
78.25 RT9	1.00	1.20	29.818	32.80	289.04	0.650	0.000	0.25	0.653	0.42	22.3	0.0	24.8
80.00	1.00	1.21	29.958	32.95	287.16	0.650	0.000	1.75	4.548	2.96	155.9	0.0	172.7
82.00	1.00	1.21	30.114	33.13	284.99	0.650	0.000	2.00	5.148	3.35	177.4	0.0	195.5
84.00	1.00	1.22	30.267	33.29	282.78	0.650	0.000	2.00	5.096	3.31	176.4	0.0	193.5
86.00	1.00	1.23	30.417	33.46	280.54	0.650	0.000	2.00	5.043	3.28	175.5	0.0	191.5
87.42 Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	1.42	3.541	2.30	123.6	0.0	134.4
88.00	1.00	1.23	30.565	33.62	278.27	0.650	0.000	0.58	1.469	0.95	51.4	0.0	97.0
90.00 Appurtenance(s)	1.00	1.24	30.710	33.78	275.98	0.650	0.000	2.00	5.002	3.25	175.7	0.0	330.2
91.33 Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.650	0.000	1.33	3.305	2.15	116.5	0.0	218.2
92.00	1.00	1.24	30.852	33.94	277.23	0.650	0.000	0.67	1.644	1.07	58.0	0.0	46.9
94.00 Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.650	0.000	2.00	4.897	3.18	173.6	0.0	339.7
96.00	1.00	1.25	31.130	34.24	272.53	0.650	0.000	2.00	4.844	3.15	172.5	0.0	338.2
98.00	1.00	1.26	31.265	34.39	270.14	0.650	0.000	2.00	4.791	3.11	171.4	0.0	336.7
100.00 Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.650	0.000	2.00	4.739	3.08	170.2	0.0	335.2
102.00	1.00	1.27	31.530	34.68	265.30	0.650	0.000	2.00	4.686	3.05	169.0	0.0	333.7
104.00	1.00	1.28	31.659	34.82	262.84	0.650	0.000	2.00	4.634	3.01	167.8	0.0	332.2
106.00	1.00	1.28	31.786	34.96	260.37	0.650	0.000	2.00	4.581	2.98	166.6	0.0	330.6
108.00	1.00	1.29	31.911	35.10	257.87	0.650	0.000	2.00	4.529	2.94	165.3	0.0	329.1
110.00 Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.650	0.000	2.00	4.476	2.91	164.0	0.0	327.6
112.00	1.00	1.30	32.157	35.37	252.81	0.650	0.000	2.00	4.423	2.88	162.7	0.0	326.1
114.00	1.00	1.30	32.277	35.50	250.26	0.650	0.000	2.00	4.371	2.84	161.4	0.0	324.6
116.00	1.00	1.31	32.395	35.63	247.68	0.650	0.000	2.00	4.318	2.81	160.0	0.0	323.1
118.00	1.00	1.31	32.512	35.76	245.09	0.650	0.000	2.00	4.266	2.77	158.7	0.0	321.6
120.00 Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.650	0.000	2.00	4.213	2.74	157.3	0.0	320.1
122.00	1.00	1.32	32.741	36.01	174.04	0.620 *	0.000	2.00	3.000	1.86	107.2	0.0	113.9
124.00	1.00	1.32	32.853	36.14	174.34	0.620 *	0.000	2.00	3.000	1.86	107.5	0.0	113.9
126.00	1.00	1.33	32.964	36.26	174.63	0.620 *	0.000	2.00	3.000	1.86	107.9	0.0	113.9
128.00	1.00	1.33	33.073	36.38	174.92	0.620 *	0.000	2.00	3.000	1.86	108.3	0.0	113.9
130.00 Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.620 *	0.000	2.00	3.000	1.86	108.6	0.0	113.9
								<b>Totals:</b>	<b>130.00</b>		<b>11,059.9</b>		<b>15,212.6</b>

\* Cf Adjusted by Linear Load Ra Effect





## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

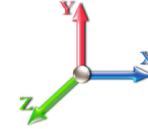


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**Load Case:** 1.2D + 1.6W 101 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



**Iterations** 25

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
2.00		172.88	462.70	0.00	0.00
4.00		171.61	460.18	0.00	0.00
6.00		170.35	457.67	0.00	0.00
8.00		169.08	455.15	0.00	0.00
10.00		167.81	452.64	0.00	0.00
10.25		20.89	56.40	0.00	0.00
12.00		145.65	393.72	0.00	0.00
14.00		165.27	447.60	0.00	0.00
16.00		166.03	445.09	0.00	0.00
18.00		168.88	442.57	0.00	0.00
20.00		171.33	440.06	0.00	0.00
20.50		42.84	109.62	0.00	0.00
22.00		129.94	327.92	0.00	0.00
24.00		175.23	435.03	0.00	0.00
25.96		173.21	423.88	0.00	0.00
26.00		3.52	8.63	0.00	0.00
27.88		167.33	404.27	0.00	0.00
28.00		10.65	25.73	0.00	0.00
30.00		179.27	427.48	0.00	0.00
32.00		180.23	424.96	0.00	0.00
34.00		181.04	422.45	0.00	0.00
36.00		181.71	419.93	0.00	0.00
38.00		182.25	417.42	0.00	0.00
40.00		182.67	414.90	0.00	0.00
40.50		45.54	103.33	0.00	0.00
40.71		19.12	43.35	0.00	0.00
42.00		117.85	265.70	0.00	0.00
43.33		121.92	273.52	0.00	0.00
44.00		61.74	214.04	0.00	0.00
46.00		185.90	639.09	0.00	0.00
48.00		185.96	634.56	0.00	0.00
48.12		11.11	21.05	0.00	0.00
50.00		174.73	328.90	0.00	0.00
52.00		185.83	347.94	0.00	0.00
54.00		185.65	345.92	0.00	0.00
56.00		185.41	343.91	0.00	0.00
58.00		185.10	341.90	0.00	0.00
60.00		184.73	339.89	0.00	0.00
60.71		65.33	120.18	0.00	0.00
60.75		3.67	6.76	0.00	0.00
62.00		114.99	210.94	0.00	0.00
64.00		183.82	335.86	0.00	0.00
66.00		183.28	333.85	0.00	0.00
68.00		182.70	331.84	0.00	0.00
70.00		182.06	329.82	0.00	0.00
72.00		181.38	327.81	0.00	0.00

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00		180.66	325.80	0.00	0.00
76.00		179.90	323.79	0.00	0.00
78.00		179.09	321.77	0.00	0.00
78.25		22.28	40.08	0.00	0.00
80.00		155.87	279.68	0.00	0.00
82.00		177.36	317.75	0.00	0.00
84.00		176.45	315.74	0.00	0.00
86.00		175.49	313.72	0.00	0.00
87.42		123.63	221.00	0.00	0.00
88.00		51.36	132.62	0.00	0.00
90.00	(18) attachments	5374.41	4256.66	0.00	0.00
91.33		116.48	292.96	0.00	0.00
92.00		58.02	84.30	0.00	0.00
94.00	(1) attachments	266.99	315.50	0.00	0.00
96.00		172.51	250.39	0.00	0.00
98.00		171.38	248.88	0.00	0.00
100.00	(18) attachments	4456.50	2945.57	0.00	0.00
102.00		169.03	222.97	0.00	0.00
104.00		167.82	221.46	0.00	0.00
106.00		166.59	219.95	0.00	0.00
108.00		165.32	218.44	0.00	0.00
110.00	(26) attachments	3447.85	2411.49	0.00	0.12
112.00		162.73	180.19	0.00	0.00
114.00		161.39	178.68	0.00	0.00
116.00		160.04	177.17	0.00	0.00
118.00		158.66	175.66	0.00	0.00
120.00	(11) attachments	3806.52	3005.07	0.00	0.00
122.00		107.18	163.55	0.00	0.00
124.00		107.55	163.55	0.00	0.00
126.00		107.91	163.55	0.00	0.00
128.00		108.27	163.55	0.00	0.00
130.00	(42) attachments	8510.21	6254.95	0.00	-91.25
<b>Totals:</b>		<b>35,972.90</b>	<b>39,922.61</b>	<b>0.00</b>	<b>-91.13</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 15



<b>Load Case:</b> 1.2D + 1.6W 101 mph Wind	<b>Iterations</b> 25
<b>Dead Load Factor</b> 1.20 <b>Wind Load Factor</b> 1.60	

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	21.088	0.00	11.59
2.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.070	0.000	21.088	0.00	0.00
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	21.088	0.00	0.00
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	21.088	0.00	11.59
4.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.070	0.000	21.088	0.00	0.00
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	21.088	0.00	0.00
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	21.088	0.00	11.59
6.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.071	0.000	21.088	0.00	0.00
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	21.088	0.00	0.00
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	21.088	0.00	11.59
8.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.071	0.000	21.088	0.00	0.00
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	21.088	0.00	0.00
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	21.088	0.00	11.59
10.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.072	0.000	21.088	0.00	0.00
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.072	0.000	21.088	0.00	0.00
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.072	0.000	21.088	0.00	1.45
10.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.02	0.00	0.072	0.000	21.088	0.00	0.00
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.072	0.000	21.088	0.00	0.00
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.072	0.000	21.088	0.00	10.14
12.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.15	0.00	0.072	0.000	21.088	0.00	0.00
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.072	0.000	21.088	0.00	0.00
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	21.088	0.00	11.59
14.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.073	0.000	21.088	0.00	0.00
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.073	0.000	21.088	0.00	0.00
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	21.348	0.00	11.59
16.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.074	0.000	21.348	0.00	0.00
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	21.348	0.00	0.00
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	21.884	0.00	11.59
18.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.074	0.000	21.884	0.00	0.00
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	21.884	0.00	0.00
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	22.375	0.00	11.59
20.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.075	0.000	22.375	0.00	0.00
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.075	0.000	22.375	0.00	0.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.075	0.000	22.491	0.00	2.90
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.075	0.000	22.491	0.00	0.00
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.075	0.000	22.491	0.00	0.00
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.075	0.000	22.828	0.00	8.69
22.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.075	0.000	22.828	0.00	0.00
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.075	0.000	22.828	0.00	0.00
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	23.250	0.00	11.59
24.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.076	0.000	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.076	0.000	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	23.250	0.00	0.00
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.33	0.00	0.076	0.000	23.638	0.00	11.36
25.96	1" Reinforcing plate	Yes	1.96	0.000	1.00	0.16	0.00	0.076	0.000	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	23.638	0.00	0.00



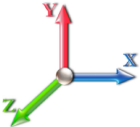


## Linear Appurtenance Segment Forces (Factored)

**Structure:** CT13064-A-SBA      **Code:** TIA-222-G      5/5/2022  
**Site Name:** Middletown 2, CT      **Exposure:** C  
**Height:** 130.00 (ft)      **Crest Height:** 0.00  
**Base Elev:** 0.000 (ft)      **Site Class:** D - Stiff Soil  
**Gh:** 1.1      **Topography:** 1      **Struct Class:** II      Page: 18



**Load Case:** 1.2D + 1.6W 101 mph Wind      **Iterations** 25  
**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.088	0.000	28.271	0.00	0.00
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.21	0.00	0.088	0.000	28.392	0.00	7.25
62.00	1" Reinforcing plate	Yes	1.25	0.000	1.00	0.10	0.00	0.088	0.000	28.392	0.00	0.00
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.088	0.000	28.392	0.00	0.00
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.089	0.000	28.583	0.00	11.59
64.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.089	0.000	28.583	0.00	0.00
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.089	0.000	28.583	0.00	0.00
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.090	0.000	28.769	0.00	11.59
66.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.090	0.000	28.769	0.00	0.00
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.091	0.000	28.950	0.00	11.59
68.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.091	0.000	28.950	0.00	0.00
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.092	0.000	29.127	0.00	11.59
70.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.092	0.000	29.127	0.00	0.00
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.092	0.000	29.300	0.00	11.59
72.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.092	0.000	29.300	0.00	0.00
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	29.470	0.00	11.59
74.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.093	0.000	29.470	0.00	0.00
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	29.636	0.00	11.59
76.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.094	0.000	29.636	0.00	0.00
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	29.798	0.00	11.59
78.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.095	0.000	29.798	0.00	0.00
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	29.818	0.00	1.45
78.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.02	0.00	0.096	0.000	29.818	0.00	0.00
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.096	0.000	29.958	0.00	10.14
80.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.15	0.00	0.096	0.000	29.958	0.00	0.00
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.081	0.000	30.114	0.00	11.59
82.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.081	0.000	30.114	0.00	0.00
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.065	0.000	30.267	0.00	11.59
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.066	0.000	30.417	0.00	11.59
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.24	0.00	0.067	0.000	30.522	0.00	8.21
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.10	0.00	0.067	0.000	30.565	0.00	3.38
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.710	0.00	11.59
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	30.805	0.00	7.73
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.068	0.000	30.852	0.00	3.86
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.992	0.00	11.59
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.069	0.000	31.130	0.00	11.59
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.265	0.00	11.59
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.399	0.00	11.59
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	31.530	0.00	11.59
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	31.659	0.00	11.59
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	31.786	0.00	11.59
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	31.911	0.00	11.59
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	32.035	0.00	11.59
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	32.157	0.00	11.59
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	32.277	0.00	11.59
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.077	0.000	32.395	0.00	11.59
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	32.512	0.00	11.59

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 101 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	32.627	0.00	11.59
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.741	0.00	11.59
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.853	0.00	11.59
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.964	0.00	11.59
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	33.073	0.00	11.59
130.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	33.182	0.00	11.59
<b>Totals:</b>											<b>0.0</b>	<b>753.5</b>



## Calculated Forces

**Structure:** CT13064-A-SBA  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Topography:** 1

**Code:** TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

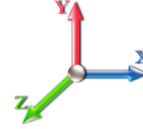
5/5/2022  
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**Load Case:** 1.2D + 1.6W 101 mph Wind

**Iterations** 25

**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	-39.89	-36.01	0.00	-3654.3	0.00	3654.36	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.713
2.00	-39.36	-35.91	0.00	-3582.3	0.00	3582.34	2805.89	1402.95	4830.09	2418.63	0.02	-0.103	0.000	0.705
4.00	-38.84	-35.80	0.00	-3510.5	0.00	3510.53	2792.73	1396.36	4771.51	2389.30	0.09	-0.207	0.000	0.696
6.00	-38.32	-35.70	0.00	-3438.9	0.00	3438.92	2779.45	1389.73	4713.08	2360.04	0.20	-0.310	0.000	0.687
8.00	-37.80	-35.60	0.00	-3367.5	0.00	3367.53	2766.06	1383.03	4654.80	2330.86	0.35	-0.413	0.000	0.678
10.00	-37.31	-35.46	0.00	-3296.3	0.00	3296.33	2752.56	1376.28	4596.67	2301.75	0.54	-0.515	0.000	0.669
10.25	-37.22	-35.48	0.00	-3287.4	0.00	3287.47	2750.86	1375.43	4589.41	2298.12	0.57	-0.528	0.000	0.701
12.00	-36.77	-35.39	0.00	-3225.3	0.00	3225.39	2738.94	1369.47	4538.70	2272.72	0.78	-0.622	0.000	0.693
14.00	-36.26	-35.29	0.00	-3154.6	0.00	3154.61	2725.20	1362.60	4480.89	2243.77	1.07	-0.729	0.000	0.683
16.00	-35.75	-35.18	0.00	-3084.0	0.00	3084.03	2711.35	1355.68	4423.25	2214.91	1.39	-0.835	0.000	0.674
18.00	-35.24	-35.07	0.00	-3013.6	0.00	3013.67	2697.39	1348.70	4365.78	2186.13	1.77	-0.941	0.000	0.664
20.00	-34.77	-34.93	0.00	-2943.5	0.00	2943.53	2683.32	1341.66	4308.48	2157.44	2.18	-1.047	0.000	0.654
20.50	-34.63	-34.92	0.00	-2926.0	0.00	2926.07	2679.78	1339.89	4294.19	2150.28	2.30	-1.073	0.000	0.652
22.00	-34.25	-34.84	0.00	-2873.6	0.00	2873.69	2669.12	1334.56	4251.37	2128.84	2.65	-1.152	0.000	0.645
24.00	-33.75	-34.71	0.00	-2804.0	0.00	2804.01	2654.82	1327.41	4194.44	2100.34	3.15	-1.257	0.000	0.635
25.96	-33.30	-34.56	0.00	-2735.9	0.00	2735.97	2640.69	1320.34	4138.83	2072.49	3.69	-1.359	0.000	0.549
26.00	-33.27	-34.58	0.00	-2734.5	0.00	2734.59	2640.40	1320.20	4137.70	2071.92	3.70	-1.360	0.000	0.549
27.88	-32.84	-34.43	0.00	-2669.5	0.00	2669.58	2626.74	1313.37	4084.54	2045.30	4.25	-1.446	0.000	0.674
28.00	-32.78	-34.46	0.00	-2665.4	0.00	2665.44	2625.87	1312.93	4081.15	2043.61	4.29	-1.453	0.000	0.673
30.00	-32.29	-34.33	0.00	-2596.5	0.00	2596.53	2611.22	1305.61	4024.80	2015.39	4.92	-1.565	0.000	0.662
32.00	-31.80	-34.20	0.00	-2527.8	0.00	2527.88	2596.46	1298.23	3968.65	1987.27	5.60	-1.678	0.000	0.651
34.00	-31.32	-34.07	0.00	-2459.4	0.00	2459.48	2581.58	1290.79	3912.71	1959.26	6.33	-1.789	0.000	0.640
36.00	-30.84	-33.93	0.00	-2391.3	0.00	2391.35	2566.59	1283.29	3856.98	1931.36	7.10	-1.899	0.000	0.628
38.00	-30.36	-33.79	0.00	-2323.4	0.00	2323.49	2551.48	1275.74	3801.46	1903.56	7.92	-2.009	0.000	0.616
40.00	-29.92	-33.63	0.00	-2255.9	0.00	2255.91	2536.26	1268.13	3746.17	1875.87	8.79	-2.118	0.000	0.604
40.50	-29.80	-33.59	0.00	-2239.1	0.00	2239.10	2532.44	1266.22	3732.38	1868.96	9.01	-2.145	0.000	0.601
40.71	-29.74	-33.59	0.00	-2230.0	0.00	2232.05	2530.83	1265.42	3726.59	1866.07	9.10	-2.157	0.000	0.600
42.00	-29.43	-33.50	0.00	-2188.7	0.00	2188.71	2520.93	1260.46	3691.10	1848.29	9.70	-2.226	0.000	0.592
43.33	-29.13	-33.39	0.00	-2144.0	0.00	2144.05	2510.64	1255.32	3654.51	1829.97	10.33	-2.298	0.000	0.584
44.00	-28.88	-33.36	0.00	-2121.7	0.00	2121.79	2505.48	1252.74	3636.25	1820.83	10.65	-2.334	0.000	0.572
46.00	-28.19	-33.20	0.00	-2055.0	0.00	2055.07	2489.92	1244.96	3581.64	1793.48	11.65	-2.438	0.000	0.560
48.00	-27.53	-33.01	0.00	-1988.6	0.00	1988.68	1854.44	927.22	2691.60	1347.80	12.69	-2.541	0.000	0.602
48.12	-27.48	-33.03	0.00	-1984.7	0.00	1984.72	1853.85	926.92	2689.31	1346.66	12.76	-2.548	0.000	0.735
50.00	-27.09	-32.90	0.00	-1922.6	0.00	1922.63	1844.56	922.28	2653.53	1328.74	13.79	-2.665	0.000	0.719
52.00	-26.68	-32.75	0.00	-1856.8	0.00	1856.84	1834.56	917.28	2615.56	1309.72	14.93	-2.788	0.000	0.701
54.00	-26.27	-32.60	0.00	-1791.3	0.00	1791.34	1824.45	912.23	2577.68	1290.76	16.12	-2.909	0.000	0.683
56.00	-25.87	-32.45	0.00	-1726.1	0.00	1726.13	1814.23	907.11	2539.90	1271.84	17.37	-3.029	0.000	0.664
58.00	-25.48	-32.30	0.00	-1661.2	0.00	1661.23	1803.89	901.94	2502.23	1252.97	18.66	-3.147	0.000	0.646
60.00	-25.10	-32.13	0.00	-1596.6	0.00	1596.63	1793.44	896.72	2464.66	1234.16	20.00	-3.263	0.000	0.627
60.71	-24.97	-32.07	0.00	-1573.8	0.00	1573.81	1789.70	894.85	2451.36	1227.50	20.49	-3.304	0.000	0.785
60.75	-24.94	-32.09	0.00	-1572.5	0.00	1572.53	1789.49	894.74	2450.61	1227.12	20.52	-3.307	0.000	0.785
62.00	-24.67	-32.01	0.00	-1532.4	0.00	1532.42	1782.87	891.44	2427.21	1215.41	21.40	-3.397	0.000	0.770
64.00	-24.27	-31.87	0.00	-1468.4	0.00	1468.40	1772.19	886.09	2389.88	1196.72	22.85	-3.538	0.000	0.747
66.00	-23.87	-31.72	0.00	-1404.6	0.00	1404.67	1761.39	880.70	2352.67	1178.08	24.36	-3.677	0.000	0.723
68.00	-23.48	-31.57	0.00	-1341.2	0.00	1341.23	1750.48	875.24	2315.58	1159.51	25.93	-3.813	0.000	0.698
70.00	-23.09	-31.42	0.00	-1278.0	0.00	1278.09	1739.46	869.73	2278.63	1141.01	27.55	-3.946	0.000	0.673
72.00	-22.71	-31.27	0.00	-1215.2	0.00	1215.26	1728.32	864.16	2241.81	1122.57	29.23	-4.076	0.000	0.648
74.00	-22.33	-31.11	0.00	-1152.7	0.00	1152.73	1717.07	858.54	2205.13	1104.20	30.97	-4.202	0.000	0.623

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 21



76.00	-21.95	-30.95	0.00	-1090.5	0.00	1090.50	1705.70	852.85	2168.59	1085.91	32.75	-4.325	0.000	0.596
78.00	-21.61	-30.78	0.00	-1028.6	0.00	1028.60	1694.22	847.11	2132.20	1067.69	34.59	-4.444	0.000	0.570
78.25	-21.54	-30.77	0.00	-1020.9	0.00	1020.90	1692.78	846.39	2127.67	1065.41	34.82	-4.459	0.000	0.566
78.25	-21.54	-30.77	0.00	-1020.9	0.00	1020.90	1692.78	846.39	2127.67	1065.41	34.82	-4.459	0.000	0.566
80.00	-21.20	-30.65	0.00	-967.05	0.00	967.05	1682.63	841.31	2095.97	1049.54	36.47	-4.559	0.000	0.935
82.00	-20.79	-30.52	0.00	-905.75	0.00	905.75	1670.92	835.46	2059.89	1031.48	38.42	-4.750	0.000	0.892
84.00	-20.40	-30.38	0.00	-844.72	0.00	844.72	1659.09	829.55	2023.98	1013.49	40.45	-4.933	0.000	0.847
86.00	-20.02	-30.23	0.00	-783.97	0.00	783.97	1647.16	823.58	1988.23	995.59	42.55	-5.110	0.000	0.801
87.42	-19.77	-30.11	0.00	-741.15	0.00	741.15	1638.63	819.32	1963.01	982.97	44.09	-5.230	0.000	0.767
88.00	-19.59	-30.09	0.00	-723.59	0.00	723.59	1635.10	817.55	1952.65	977.78	44.73	-5.279	0.000	0.753
90.00	-15.80	-24.37	0.00	-663.42	0.00	663.42	1622.94	811.47	1917.25	960.05	46.97	-5.439	0.000	0.702
91.33	-15.48	-24.25	0.00	-630.92	0.00	630.92	1099.39	549.70	1312.06	657.00	48.51	-5.542	0.000	0.976
92.00	-15.35	-24.22	0.00	-614.75	0.00	614.75	1097.24	548.62	1304.79	653.36	49.28	-5.592	0.000	0.957
94.00	-14.99	-23.97	0.00	-566.32	0.00	566.32	1090.71	545.35	1282.99	642.45	51.66	-5.778	0.000	0.897
96.00	-14.69	-23.81	0.00	-518.39	0.00	518.39	1084.06	542.03	1261.23	631.55	54.12	-5.953	0.000	0.836
98.00	-14.39	-23.66	0.00	-470.77	0.00	470.77	1077.30	538.65	1239.51	620.68	56.64	-6.119	0.000	0.774
100.00	-11.90	-18.94	0.00	-423.45	0.00	423.45	1070.43	535.22	1217.83	609.82	59.24	-6.273	0.000	0.707
102.00	-11.65	-18.77	0.00	-385.58	0.00	385.58	1063.44	531.72	1196.21	598.99	61.89	-6.418	0.000	0.656
104.00	-11.41	-18.61	0.00	-348.03	0.00	348.03	1056.34	528.17	1174.63	588.19	64.61	-6.554	0.000	0.604
106.00	-11.17	-18.44	0.00	-310.81	0.00	310.81	1049.12	524.56	1153.11	577.41	67.37	-6.680	0.000	0.550
108.00	-10.93	-18.27	0.00	-273.93	0.00	273.93	1041.79	520.90	1131.65	566.67	70.19	-6.796	0.000	0.495
110.00	-8.93	-14.58	0.00	-237.38	0.00	237.38	1034.34	517.17	1110.26	555.96	73.06	-6.901	0.000	0.436
112.00	-8.75	-14.41	0.00	-208.23	0.00	208.23	1026.79	513.39	1088.94	545.28	75.96	-6.996	0.000	0.391
114.00	-8.57	-14.24	0.00	-179.41	0.00	179.41	1019.11	509.56	1067.70	534.64	78.90	-7.081	0.000	0.345
116.00	-8.39	-14.07	0.00	-150.93	0.00	150.93	1011.32	505.66	1046.53	524.04	81.88	-7.156	0.000	0.297
118.00	-8.23	-13.90	0.00	-122.80	0.00	122.80	1003.42	501.71	1025.45	513.49	84.89	-7.221	0.000	0.248
120.00	-5.72	-9.75	0.00	-95.01	0.00	95.01	995.40	497.70	1004.45	502.97	87.92	-7.275	0.000	0.195
120.00	-5.72	-9.75	0.00	-95.01	0.00	95.01	735.22	367.61	535.89	335.79	87.92	-7.275	0.000	0.291
122.00	-5.56	-9.62	0.00	-75.51	0.00	75.51	735.22	367.61	535.89	335.79	90.97	-7.319	0.000	0.233
124.00	-5.40	-9.50	0.00	-56.26	0.00	56.26	735.22	367.61	535.89	335.79	94.04	-7.387	0.000	0.176
126.00	-5.25	-9.38	0.00	-37.26	0.00	37.26	735.22	367.61	535.89	335.79	97.14	-7.435	0.000	0.119
128.00	-5.10	-9.25	0.00	-18.50	0.00	18.50	735.22	367.61	535.89	335.79	100.25	-7.464	0.000	0.063
130.00	0.00	-8.51	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	103.37	-7.474	0.000	0.001

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

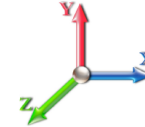


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90  
**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	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	21.088	23.20	332.43	0.650	0.000	2.00	7.166	4.66	172.9	0.0	255.3
4.00		1.00	0.85	21.088	23.20	329.98	0.650	0.000	2.00	7.114	4.62	171.6	0.0	253.5
6.00		1.00	0.85	21.088	23.20	327.54	0.650	0.000	2.00	7.061	4.59	170.3	0.0	251.6
8.00		1.00	0.85	21.088	23.20	325.09	0.650	0.000	2.00	7.009	4.56	169.1	0.0	249.7
10.00		1.00	0.85	21.088	23.20	322.64	0.650	0.000	2.00	6.956	4.52	167.8	0.0	247.8
10.25	RT2 RB3	1.00	0.85	21.088	23.20	322.34	0.650	0.000	0.25	0.866	0.56	20.9	0.0	30.8
12.00		1.00	0.85	21.088	23.20	320.19	0.650	0.000	1.75	6.038	3.92	145.7	0.0	215.1
14.00		1.00	0.85	21.088	23.20	317.75	0.650	0.000	2.00	6.851	4.45	165.3	0.0	244.0
16.00		1.00	0.86	21.348	23.48	317.24	0.650	0.000	2.00	6.798	4.42	166.0	0.0	242.1
18.00		1.00	0.88	21.884	24.07	318.71	0.650	0.000	2.00	6.746	4.38	168.9	0.0	240.3
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	2.00	6.693	4.35	171.3	0.0	238.4
20.50	RT1 RB4	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	59.3
22.00		1.00	0.92	22.828	25.11	320.42	0.650	0.000	1.50	4.976	3.23	129.9	0.0	177.2
24.00		1.00	0.94	23.250	25.58	320.80	0.650	0.000	2.00	6.588	4.28	175.2	0.0	234.6
25.96	RB5	1.00	0.95	23.638	26.00	320.92	0.650	0.000	1.96	6.405	4.16	173.2	0.0	228.1
26.00		1.00	0.95	23.645	26.01	320.92	0.650	0.000	0.04	0.130	0.08	3.5	0.0	4.6
27.88	RT3 RB6	1.00	0.97	23.995	26.39	320.83	0.650	0.000	1.88	6.096	3.96	167.3	0.0	217.0
28.00		1.00	0.97	24.017	26.42	320.82	0.650	0.000	0.12	0.387	0.25	10.6	0.0	13.8
30.00		1.00	0.98	24.369	26.81	320.53	0.650	0.000	2.00	6.430	4.18	179.3	0.0	228.9
32.00		1.00	1.00	24.702	27.17	320.06	0.650	0.000	2.00	6.378	4.15	180.2	0.0	227.0
34.00		1.00	1.01	25.019	27.52	319.45	0.650	0.000	2.00	6.325	4.11	181.0	0.0	225.2
36.00		1.00	1.02	25.322	27.85	318.69	0.650	0.000	2.00	6.273	4.08	181.7	0.0	223.3
38.00		1.00	1.03	25.612	28.17	317.82	0.650	0.000	2.00	6.220	4.04	182.3	0.0	221.4
40.00		1.00	1.04	25.890	28.48	316.82	0.650	0.000	2.00	6.168	4.01	182.7	0.0	219.5
40.50	RT4 RB7	1.00	1.05	25.958	28.55	316.56	0.650	0.000	0.50	1.534	1.00	45.5	0.0	54.6
40.71	RT5 RB8	1.00	1.05	25.986	28.58	316.45	0.650	0.000	0.21	0.643	0.42	19.1	0.0	22.9
42.00		1.00	1.05	26.157	28.77	315.73	0.650	0.000	1.29	3.938	2.56	117.8	0.0	140.1
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.650	0.000	1.33	4.048	2.63	121.9	0.0	144.0
44.00		1.00	1.06	26.415	29.06	314.54	0.650	0.000	0.67	2.043	1.33	61.7	0.0	130.0
46.00		1.00	1.07	26.663	29.33	313.26	0.650	0.000	2.00	6.095	3.96	185.9	0.0	387.6
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.650	0.000	2.00	6.042	3.93	186.0	0.0	384.2
48.12	RT6	1.00	1.08	26.917	29.61	316.27	0.650	0.000	0.12	0.361	0.23	11.1	0.0	10.3
50.00		1.00	1.09	27.135	29.85	314.94	0.650	0.000	1.88	5.629	3.66	174.7	0.0	160.5
52.00		1.00	1.10	27.360	30.10	313.46	0.650	0.000	2.00	5.937	3.86	185.8	0.0	169.3
54.00		1.00	1.11	27.579	30.34	311.91	0.650	0.000	2.00	5.884	3.82	185.6	0.0	167.8
56.00		1.00	1.12	27.790	30.57	310.29	0.650	0.000	2.00	5.832	3.79	185.4	0.0	166.3
58.00		1.00	1.13	27.997	30.80	308.62	0.650	0.000	2.00	5.779	3.76	185.1	0.0	164.7
60.00		1.00	1.14	28.197	31.02	306.90	0.650	0.000	2.00	5.727	3.72	184.7	0.0	163.2
60.71	RT8	1.00	1.14	28.267	31.09	306.27	0.650	0.000	0.71	2.020	1.31	65.3	0.0	57.6
60.75	RT7 RB9	1.00	1.14	28.271	31.10	306.24	0.650	0.000	0.04	0.114	0.07	3.7	0.0	3.2
62.00		1.00	1.14	28.392	31.23	305.12	0.650	0.000	1.25	3.540	2.30	115.0	0.0	100.9
64.00		1.00	1.15	28.583	31.44	303.29	0.650	0.000	2.00	5.622	3.65	183.8	0.0	160.2
66.00		1.00	1.16	28.769	31.65	301.42	0.650	0.000	2.00	5.569	3.62	183.3	0.0	158.7
68.00		1.00	1.17	28.950	31.84	299.50	0.650	0.000	2.00	5.516	3.59	182.7	0.0	157.2
70.00		1.00	1.17	29.127	32.04	297.54	0.650	0.000	2.00	5.464	3.55	182.1	0.0	155.7
72.00		1.00	1.18	29.300	32.23	295.54	0.650	0.000	2.00	5.411	3.52	181.4	0.0	154.2

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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74.00	1.00	1.19	29.470	32.42	293.50	0.650	0.000	2.00	5.359	3.48	180.7	0.0	152.7
76.00	1.00	1.19	29.636	32.60	291.42	0.650	0.000	2.00	5.306	3.45	179.9	0.0	151.2
78.00	1.00	1.20	29.798	32.78	289.31	0.650	0.000	2.00	5.254	3.41	179.1	0.0	149.7
78.25 RT9	1.00	1.20	29.818	32.80	289.04	0.650	0.000	0.25	0.653	0.42	22.3	0.0	18.6
80.00	1.00	1.21	29.958	32.95	287.16	0.650	0.000	1.75	4.548	2.96	155.9	0.0	129.5
82.00	1.00	1.21	30.114	33.13	284.99	0.650	0.000	2.00	5.148	3.35	177.4	0.0	146.6
84.00	1.00	1.22	30.267	33.29	282.78	0.650	0.000	2.00	5.096	3.31	176.4	0.0	145.1
86.00	1.00	1.23	30.417	33.46	280.54	0.650	0.000	2.00	5.043	3.28	175.5	0.0	143.6
87.42 Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	1.42	3.541	2.30	123.6	0.0	100.8
88.00	1.00	1.23	30.565	33.62	278.27	0.650	0.000	0.58	1.469	0.95	51.4	0.0	72.7
90.00 Appurtenance(s)	1.00	1.24	30.710	33.78	275.98	0.650	0.000	2.00	5.002	3.25	175.7	0.0	247.6
91.33 Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.650	0.000	1.33	3.305	2.15	116.5	0.0	163.6
92.00	1.00	1.24	30.852	33.94	277.23	0.650	0.000	0.67	1.644	1.07	58.0	0.0	35.2
94.00 Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.650	0.000	2.00	4.897	3.18	173.6	0.0	104.8
96.00	1.00	1.25	31.130	34.24	272.53	0.650	0.000	2.00	4.844	3.15	172.5	0.0	103.6
98.00	1.00	1.26	31.265	34.39	270.14	0.650	0.000	2.00	4.791	3.11	171.4	0.0	102.5
100.00 Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.650	0.000	2.00	4.739	3.08	170.2	0.0	101.4
102.00	1.00	1.27	31.530	34.68	265.30	0.650	0.000	2.00	4.686	3.05	169.0	0.0	100.2
104.00	1.00	1.28	31.659	34.82	262.84	0.650	0.000	2.00	4.634	3.01	167.8	0.0	99.1
106.00	1.00	1.28	31.786	34.96	260.37	0.650	0.000	2.00	4.581	2.98	166.6	0.0	98.0
108.00	1.00	1.29	31.911	35.10	257.87	0.650	0.000	2.00	4.529	2.94	165.3	0.0	96.9
110.00 Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.650	0.000	2.00	4.476	2.91	164.0	0.0	95.7
112.00	1.00	1.30	32.157	35.37	252.81	0.650	0.000	2.00	4.423	2.88	162.7	0.0	94.6
114.00	1.00	1.30	32.277	35.50	250.26	0.650	0.000	2.00	4.371	2.84	161.4	0.0	93.5
116.00	1.00	1.31	32.395	35.63	247.68	0.650	0.000	2.00	4.318	2.81	160.0	0.0	92.3
118.00	1.00	1.31	32.512	35.76	245.09	0.650	0.000	2.00	4.266	2.77	158.7	0.0	91.2
120.00 Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.650	0.000	2.00	4.213	2.74	157.3	0.0	90.1
122.00	1.00	1.32	32.741	36.01	174.04	0.620 *	0.000	2.00	3.000	1.86	107.2	0.0	85.4
124.00	1.00	1.32	32.853	36.14	174.34	0.620 *	0.000	2.00	3.000	1.86	107.5	0.0	85.4
126.00	1.00	1.33	32.964	36.26	174.63	0.620 *	0.000	2.00	3.000	1.86	107.9	0.0	85.4
128.00	1.00	1.33	33.073	36.38	174.92	0.620 *	0.000	2.00	3.000	1.86	108.3	0.0	85.4
130.00 Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.620 *	0.000	2.00	3.000	1.86	108.6	0.0	85.4
								<b>Totals:</b>	<b>130.00</b>		<b>11,059.9</b>		<b>11,409.5</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

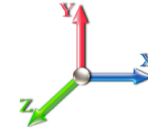
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

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	130.00	DC6-48-60-18-8F	2	33.182	36.500	0.38	0.75	0.69	57.24	0.000	0.000	40.30	0.00	0.00
2	130.00	6' Lightning rod	1	33.341	36.675	1.00	1.00	0.38	5.85	0.000	3.000	22.30	0.00	66.90
3	130.00	Cci DMP65R-BU6DA	3	33.182	36.500	0.54	0.75	20.62	170.91	0.000	0.000	1204.13	0.00	0.00
4	130.00	RRUS 32	6	33.182	36.500	0.38	0.75	3.71	415.80	0.000	0.000	216.81	0.00	0.00
5	130.00	RRUS 4478 B14	3	33.182	36.500	0.38	0.75	1.86	160.38	0.000	0.000	108.40	0.00	0.00
6	130.00	B2 B66A 8843	3	33.182	36.500	0.38	0.75	1.84	189.00	0.000	0.000	107.75	0.00	0.00
7	130.00	4449 B5/B12	3	33.182	36.500	0.38	0.75	2.22	191.70	0.000	0.000	129.43	0.00	0.00
8	130.00	RRUS E2 B29	3	33.182	36.500	0.38	0.75	3.54	160.38	0.000	0.000	206.95	0.00	0.00
9	130.00	Additional mount pipe	3	33.182	36.500	0.56	0.75	2.95	45.90	0.000	0.000	172.46	0.00	0.00
10	130.00	Ericsson AIR6449	3	33.073	36.381	0.64	0.75	7.90	237.60	0.000	-2.000	459.77	0.00	-919.55
11	130.00	(3) Horizontal bracing	1	33.182	36.500	0.75	0.75	4.45	123.53	0.000	0.000	260.06	0.00	0.00
12	130.00	Ericsson AIR6419	3	33.288	36.617	0.57	0.75	6.50	178.47	0.000	2.000	380.70	0.00	761.40
13	130.00	Quinte QD6616-7	3	33.182	36.500	0.56	0.75	22.92	159.57	0.000	0.000	1338.30	0.00	0.00
14	130.00	DC6-48-60-0-8C	2	33.182	36.500	0.38	0.75	3.58	28.80	0.000	0.000	209.36	0.00	0.00
15	130.00	Angle Reinforcement kit	1	33.182	36.500	1.00	1.00	5.80	225.00	0.000	0.000	338.72	0.00	0.00
16	130.00	PRK-1245 (kicker kit)	1	33.182	36.500	1.00	1.00	9.50	418.42	0.000	0.000	554.80	0.00	0.00
17	130.00	MTC3607 Platform + HR	1	33.182	36.500	1.00	1.00	45.40	1800.00	0.000	0.000	2651.34	0.00	0.00
18	120.00	MC-PK8-DSH	1	32.627	35.890	1.00	1.00	37.59	1554.30	0.000	0.000	2158.56	0.00	0.00
19	120.00	RDIDC-9181-OF-48	1	32.627	35.890	0.38	0.75	0.75	19.71	0.000	0.000	43.28	0.00	0.00
20	120.00	TA08025-B604	3	32.627	35.890	0.38	0.75	2.21	172.53	0.000	0.000	126.62	0.00	0.00
21	120.00	TA08025-B605	3	32.627	35.890	0.38	0.75	2.21	202.50	0.000	0.000	126.62	0.00	0.00
22	120.00	MX08FRO665-21	3	32.627	35.890	0.55	0.75	20.80	174.15	0.000	0.000	1194.18	0.00	0.00
23	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.40	0.80	4.03	148.50	0.000	0.000	227.33	0.00	0.00
24	110.00	SBNHH-1D65B	6	32.035	35.238	0.63	0.80	30.94	216.00	0.000	0.000	1744.59	0.00	0.00
25	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.40	0.80	2.26	124.20	0.000	0.000	127.20	0.00	0.00
26	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.40	0.80	2.59	154.44	0.000	0.000	146.14	0.00	0.00
27	110.00	CBC721-DF	3	31.973	35.171	0.40	0.80	0.54	11.88	0.000	-1.000	30.39	0.00	-30.39
28	110.00	DB-T1-6Z-8AB-0Z	2	32.035	35.238	0.40	0.80	3.84	34.02	0.000	0.000	216.50	0.00	0.00
29	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	945.00	0.000	0.000	761.15	0.00	0.00
30	110.00	CBC721-DF	3	32.096	35.306	0.40	0.80	0.54	11.88	0.000	1.000	30.50	0.00	30.50
31	100.00	Ericsson AIR21 B2A B4P	3	31.399	34.538	0.64	0.80	11.69	247.05	0.000	0.000	646.16	0.00	0.00
32	100.00	Ericsson AIR21 B4A B2P	3	31.399	34.538	0.64	0.80	11.69	244.08	0.000	0.000	646.16	0.00	0.00
33	100.00	Kathrein 782 11056	3	31.399	34.538	0.40	0.80	0.16	4.86	0.000	0.000	8.62	0.00	0.00
34	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	945.00	0.000	0.000	746.03	0.00	0.00
35	100.00	RFS	3	31.399	34.538	0.58	0.80	35.46	331.56	0.000	0.000	1959.60	0.00	0.00
36	100.00	Ericsson 4480 B71 + B85	3	31.399	34.538	0.59	0.80	5.06	251.10	0.000	0.000	279.71	0.00	0.00
37	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	47.70	0.000	0.000	93.38	0.00	0.00
38	90.00	F3P-10W	1	30.710	33.781	1.00	1.00	51.77	1909.80	0.000	0.000	2798.12	0.00	0.00
39	90.00	NNVV-65B-R4	3	30.710	33.781	0.55	0.75	20.43	208.98	0.000	0.000	1104.20	0.00	0.00
40	90.00	AAHC	3	30.710	33.781	0.56	0.75	7.09	280.80	0.000	0.000	383.07	0.00	0.00
41	90.00	ALU - 800 MHz - RRU	6	30.710	33.781	0.38	0.75	5.60	286.20	0.000	0.000	302.81	0.00	0.00
42	90.00	ALU - 1900MHz - RRU	3	30.710	33.781	0.38	0.75	4.27	118.80	0.000	0.000	231.06	0.00	0.00
43	90.00	Andrew - VHLP2-11	2	30.710	33.781	0.75	0.75	7.02	48.60	0.000	0.000	379.42	0.00	0.00

**Totals:** 13,262.18

24,913.00

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

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
2.00		172.88	347.02	0.00	0.00
4.00		171.61	345.14	0.00	0.00
6.00		170.35	343.25	0.00	0.00
8.00		169.08	341.36	0.00	0.00
10.00		167.81	339.48	0.00	0.00
10.25		20.89	42.30	0.00	0.00
12.00		145.65	295.29	0.00	0.00
14.00		165.27	335.70	0.00	0.00
16.00		166.03	333.82	0.00	0.00
18.00		168.88	331.93	0.00	0.00
20.00		171.33	330.04	0.00	0.00
20.50		42.84	82.22	0.00	0.00
22.00		129.94	245.94	0.00	0.00
24.00		175.23	326.27	0.00	0.00
25.96		173.21	317.91	0.00	0.00
26.00		3.52	6.47	0.00	0.00
27.88		167.33	303.20	0.00	0.00
28.00		10.65	19.30	0.00	0.00
30.00		179.27	320.61	0.00	0.00
32.00		180.23	318.72	0.00	0.00
34.00		181.04	316.84	0.00	0.00
36.00		181.71	314.95	0.00	0.00
38.00		182.25	313.06	0.00	0.00
40.00		182.67	311.17	0.00	0.00
40.50		45.54	77.50	0.00	0.00
40.71		19.12	32.51	0.00	0.00
42.00		117.85	199.27	0.00	0.00
43.33		121.92	205.14	0.00	0.00
44.00		61.74	160.53	0.00	0.00
46.00		185.90	479.32	0.00	0.00
48.00		185.96	475.92	0.00	0.00
48.12		11.11	15.79	0.00	0.00
50.00		174.73	246.67	0.00	0.00
52.00		185.83	260.95	0.00	0.00
54.00		185.65	259.44	0.00	0.00
56.00		185.41	257.93	0.00	0.00
58.00		185.10	256.42	0.00	0.00
60.00		184.73	254.91	0.00	0.00
60.71		65.33	90.13	0.00	0.00
60.75		3.67	5.07	0.00	0.00
62.00		114.99	158.20	0.00	0.00
64.00		183.82	251.90	0.00	0.00
66.00		183.28	250.39	0.00	0.00
68.00		182.70	248.88	0.00	0.00
70.00		182.06	247.37	0.00	0.00
72.00		181.38	245.86	0.00	0.00

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00		180.66	244.35	0.00	0.00
76.00		179.90	242.84	0.00	0.00
78.00		179.09	241.33	0.00	0.00
78.25		22.28	30.06	0.00	0.00
80.00		155.87	209.76	0.00	0.00
82.00		177.36	238.31	0.00	0.00
84.00		176.45	236.80	0.00	0.00
86.00		175.49	235.29	0.00	0.00
87.42		123.63	165.75	0.00	0.00
88.00		51.36	99.46	0.00	0.00
90.00	(18) attachments	5374.41	3192.49	0.00	0.00
91.33		116.48	219.72	0.00	0.00
92.00		58.02	63.23	0.00	0.00
94.00	(1) attachments	266.99	236.63	0.00	0.00
96.00		172.51	187.80	0.00	0.00
98.00		171.38	186.66	0.00	0.00
100.00	(18) attachments	4456.50	2209.18	0.00	0.00
102.00		169.03	167.23	0.00	0.00
104.00		167.82	166.09	0.00	0.00
106.00		166.59	164.96	0.00	0.00
108.00		165.32	163.83	0.00	0.00
110.00	(26) attachments	3447.85	1808.62	0.00	0.12
112.00		162.73	135.14	0.00	0.00
114.00		161.39	134.01	0.00	0.00
116.00		160.04	132.88	0.00	0.00
118.00		158.66	131.75	0.00	0.00
120.00	(11) attachments	3806.52	2253.80	0.00	0.00
122.00		107.18	122.67	0.00	0.00
124.00		107.55	122.67	0.00	0.00
126.00		107.91	122.67	0.00	0.00
128.00		108.27	122.67	0.00	0.00
130.00	(42) attachments	8510.21	4691.21	0.00	-91.25
<b>Totals:</b>		<b>35,972.90</b>	<b>29,941.96</b>	<b>0.00</b>	<b>-91.13</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



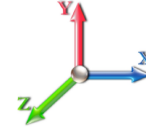
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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	21.088	0.00	8.69
2.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.070	0.000	21.088	0.00	0.00
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	21.088	0.00	0.00
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	21.088	0.00	8.69
4.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.070	0.000	21.088	0.00	0.00
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	21.088	0.00	0.00
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	21.088	0.00	8.69
6.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.071	0.000	21.088	0.00	0.00
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	21.088	0.00	0.00
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	21.088	0.00	8.69
8.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.071	0.000	21.088	0.00	0.00
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	21.088	0.00	0.00
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	21.088	0.00	8.69
10.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.072	0.000	21.088	0.00	0.00
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.072	0.000	21.088	0.00	0.00
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.072	0.000	21.088	0.00	1.09
10.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.02	0.00	0.072	0.000	21.088	0.00	0.00
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.072	0.000	21.088	0.00	0.00
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.072	0.000	21.088	0.00	7.61
12.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.15	0.00	0.072	0.000	21.088	0.00	0.00
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.072	0.000	21.088	0.00	0.00
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	21.088	0.00	8.69
14.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.073	0.000	21.088	0.00	0.00
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.073	0.000	21.088	0.00	0.00
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	21.348	0.00	8.69
16.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.074	0.000	21.348	0.00	0.00
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	21.348	0.00	0.00
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	21.884	0.00	8.69
18.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.074	0.000	21.884	0.00	0.00
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	21.884	0.00	0.00
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	22.375	0.00	8.69
20.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.075	0.000	22.375	0.00	0.00
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.075	0.000	22.375	0.00	0.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.075	0.000	22.491	0.00	2.17
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.075	0.000	22.491	0.00	0.00
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.075	0.000	22.491	0.00	0.00
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.075	0.000	22.828	0.00	6.52
22.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.075	0.000	22.828	0.00	0.00
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.075	0.000	22.828	0.00	0.00
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	23.250	0.00	8.69
24.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.076	0.000	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.076	0.000	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	23.250	0.00	0.00
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.33	0.00	0.076	0.000	23.638	0.00	8.52
25.96	1" Reinforcing plate	Yes	1.96	0.000	1.00	0.16	0.00	0.076	0.000	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	23.638	0.00	0.00



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



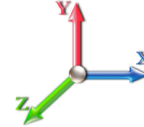
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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.077	0.000	23.645	0.00	0.17
26.00	1" Reinforcing plate	Yes	0.04	0.000	1.00	0.00	0.00	0.077	0.000	23.645	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.077	0.000	23.645	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.077	0.000	23.645	0.00	0.00
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.077	0.000	23.995	0.00	8.17
27.88	1" Reinforcing plate	Yes	1.88	0.000	1.00	0.16	0.00	0.077	0.000	23.995	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.077	0.000	23.995	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.077	0.000	23.995	0.00	0.00
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.077	0.000	24.017	0.00	0.52
28.00	1" Reinforcing plate	Yes	0.12	0.000	1.00	0.01	0.00	0.077	0.000	24.017	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.077	0.000	24.017	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.077	0.000	24.017	0.00	0.00
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	24.369	0.00	8.69
30.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.078	0.000	24.369	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	24.369	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	24.369	0.00	0.00
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	24.702	0.00	8.69
32.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.078	0.000	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.078	0.000	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.078	0.000	24.702	0.00	0.00
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	25.019	0.00	8.69
34.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.079	0.000	25.019	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.079	0.000	25.019	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.079	0.000	25.019	0.00	0.00
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.080	0.000	25.322	0.00	8.69
36.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.080	0.000	25.322	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	25.322	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	25.322	0.00	0.00
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.080	0.000	25.612	0.00	8.69
38.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.080	0.000	25.612	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	25.612	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	25.612	0.00	0.00
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.081	0.000	25.890	0.00	8.69
40.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.081	0.000	25.890	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.081	0.000	25.890	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.081	0.000	25.890	0.00	0.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.082	0.000	25.958	0.00	2.17
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.082	0.000	25.958	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	25.958	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	25.958	0.00	0.00
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.04	0.00	0.082	0.000	25.986	0.00	0.91
40.71	1" Reinforcing plate	Yes	0.21	0.000	1.00	0.02	0.00	0.082	0.000	25.986	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.082	0.000	25.986	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.082	0.000	25.986	0.00	0.00
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.21	0.00	0.082	0.000	26.157	0.00	5.61
42.00	1" Reinforcing plate	Yes	1.29	0.000	1.00	0.11	0.00	0.082	0.000	26.157	0.00	0.00

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

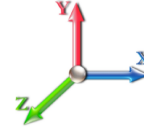


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60

**Iterations** 25



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.082	0.000	26.157	0.00	0.00
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.082	0.000	26.157	0.00	0.00
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.082	0.000	26.330	0.00	5.80
43.33	1" Reinforcing plate	Yes	1.33	0.000	1.00	0.11	0.00	0.082	0.000	26.330	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.082	0.000	26.330	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.082	0.000	26.330	0.00	0.00
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.083	0.000	26.415	0.00	2.90
44.00	1" Reinforcing plate	Yes	0.67	0.000	1.00	0.06	0.00	0.083	0.000	26.415	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.083	0.000	26.415	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.083	0.000	26.415	0.00	0.00
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.083	0.000	26.663	0.00	8.69
46.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.083	0.000	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	26.663	0.00	0.00
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.084	0.000	26.903	0.00	8.69
48.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.084	0.000	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	26.903	0.00	0.00
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.083	0.000	26.917	0.00	0.52
48.12	1" Reinforcing plate	Yes	0.12	0.000	1.00	0.01	0.00	0.083	0.000	26.917	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.083	0.000	26.917	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.083	0.000	26.917	0.00	0.00
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.084	0.000	27.135	0.00	8.17
50.00	1" Reinforcing plate	Yes	1.88	0.000	1.00	0.16	0.00	0.084	0.000	27.135	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.084	0.000	27.135	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.084	0.000	27.135	0.00	0.00
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.084	0.000	27.360	0.00	8.69
52.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.084	0.000	27.360	0.00	0.00
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	27.360	0.00	0.00
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.084	0.000	27.360	0.00	0.00
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.085	0.000	27.579	0.00	8.69
54.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.085	0.000	27.579	0.00	0.00
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.085	0.000	27.579	0.00	0.00
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.086	0.000	27.790	0.00	8.69
56.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.086	0.000	27.790	0.00	0.00
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.086	0.000	27.790	0.00	0.00
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.087	0.000	27.997	0.00	8.69
58.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.087	0.000	27.997	0.00	0.00
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.087	0.000	27.997	0.00	0.00
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.087	0.000	28.197	0.00	8.69
60.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.087	0.000	28.197	0.00	0.00
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.087	0.000	28.197	0.00	0.00
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.12	0.00	0.088	0.000	28.267	0.00	3.09
60.71	1" Reinforcing plate	Yes	0.71	0.000	1.00	0.06	0.00	0.088	0.000	28.267	0.00	0.00
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.088	0.000	28.267	0.00	0.00
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.088	0.000	28.271	0.00	0.17
60.75	1" Reinforcing plate	Yes	0.04	0.000	1.00	0.00	0.00	0.088	0.000	28.271	0.00	0.00

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.088	0.000	28.271	0.00	0.00
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.21	0.00	0.088	0.000	28.392	0.00	5.43
62.00	1" Reinforcing plate	Yes	1.25	0.000	1.00	0.10	0.00	0.088	0.000	28.392	0.00	0.00
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.088	0.000	28.392	0.00	0.00
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.089	0.000	28.583	0.00	8.69
64.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.089	0.000	28.583	0.00	0.00
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.089	0.000	28.583	0.00	0.00
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.090	0.000	28.769	0.00	8.69
66.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.090	0.000	28.769	0.00	0.00
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.091	0.000	28.950	0.00	8.69
68.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.091	0.000	28.950	0.00	0.00
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.092	0.000	29.127	0.00	8.69
70.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.092	0.000	29.127	0.00	0.00
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.092	0.000	29.300	0.00	8.69
72.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.092	0.000	29.300	0.00	0.00
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	29.470	0.00	8.69
74.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.093	0.000	29.470	0.00	0.00
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	29.636	0.00	8.69
76.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.094	0.000	29.636	0.00	0.00
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	29.798	0.00	8.69
78.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.095	0.000	29.798	0.00	0.00
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	29.818	0.00	1.09
78.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.02	0.00	0.096	0.000	29.818	0.00	0.00
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.096	0.000	29.958	0.00	7.61
80.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.15	0.00	0.096	0.000	29.958	0.00	0.00
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.081	0.000	30.114	0.00	8.69
82.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.081	0.000	30.114	0.00	0.00
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.065	0.000	30.267	0.00	8.69
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.066	0.000	30.417	0.00	8.69
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.24	0.00	0.067	0.000	30.522	0.00	6.16
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.10	0.00	0.067	0.000	30.565	0.00	2.54
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.710	0.00	8.69
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	30.805	0.00	5.80
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.068	0.000	30.852	0.00	2.90
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.992	0.00	8.69
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.069	0.000	31.130	0.00	8.69
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.265	0.00	8.69
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.399	0.00	8.69
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	31.530	0.00	8.69
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	31.659	0.00	8.69
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	31.786	0.00	8.69
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	31.911	0.00	8.69
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	32.035	0.00	8.69
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	32.157	0.00	8.69
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	32.277	0.00	8.69
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.077	0.000	32.395	0.00	8.69
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	32.512	0.00	8.69

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

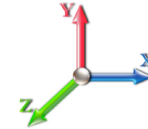


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	32.627	0.00	8.69
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.741	0.00	8.69
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.853	0.00	8.69
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.964	0.00	8.69
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	33.073	0.00	8.69
130.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	33.182	0.00	8.69
<b>Totals:</b>											<b>0.0</b>	<b>565.1</b>

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 25

**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	-29.91	-36.00	0.00	-3612.4	0.00	3612.43	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.703
2.00	-29.50	-35.88	0.00	-3540.4	0.00	3540.43	2805.89	1402.95	4830.09	2418.63	0.02	-0.102	0.000	0.695
4.00	-29.09	-35.76	0.00	-3468.6	0.00	3468.67	2792.73	1396.36	4771.51	2389.30	0.09	-0.204	0.000	0.686
6.00	-28.68	-35.64	0.00	-3397.1	0.00	3397.16	2779.45	1389.73	4713.08	2360.04	0.19	-0.306	0.000	0.677
8.00	-28.28	-35.52	0.00	-3325.8	0.00	3325.88	2766.06	1383.03	4654.80	2330.86	0.34	-0.408	0.000	0.669
10.00	-27.91	-35.37	0.00	-3254.8	0.00	3254.85	2752.56	1376.28	4596.67	2301.75	0.54	-0.509	0.000	0.660
10.25	-27.83	-35.38	0.00	-3246.0	0.00	3246.01	2750.86	1375.43	4589.41	2298.12	0.56	-0.522	0.000	0.691
12.00	-27.48	-35.28	0.00	-3184.1	0.00	3184.10	2738.94	1369.47	4538.70	2272.72	0.77	-0.614	0.000	0.682
14.00	-27.08	-35.16	0.00	-3113.5	0.00	3113.54	2725.20	1362.60	4480.89	2243.77	1.05	-0.720	0.000	0.673
16.00	-26.68	-35.04	0.00	-3043.2	0.00	3043.23	2711.35	1355.68	4423.25	2214.91	1.38	-0.825	0.000	0.664
18.00	-26.29	-34.91	0.00	-2973.1	0.00	2973.16	2697.39	1348.70	4365.78	2186.13	1.75	-0.929	0.000	0.654
20.00	-25.93	-34.76	0.00	-2903.3	0.00	2903.34	2683.32	1341.66	4308.48	2157.44	2.16	-1.033	0.000	0.644
20.50	-25.81	-34.74	0.00	-2885.9	0.00	2885.96	2679.78	1339.89	4294.19	2150.28	2.27	-1.059	0.000	0.642
22.00	-25.51	-34.65	0.00	-2833.8	0.00	2833.85	2669.12	1334.56	4251.37	2128.84	2.61	-1.137	0.000	0.634
24.00	-25.13	-34.51	0.00	-2764.5	0.00	2764.56	2654.82	1327.41	4194.44	2100.34	3.11	-1.240	0.000	0.624
25.96	-24.79	-34.35	0.00	-2696.9	0.00	2696.92	2640.69	1320.34	4138.83	2072.49	3.64	-1.341	0.000	0.540
26.00	-24.75	-34.37	0.00	-2695.5	0.00	2695.54	2640.40	1320.20	4137.70	2071.92	3.65	-1.343	0.000	0.540
27.88	-24.43	-34.21	0.00	-2630.9	0.00	2630.94	2626.74	1313.37	4084.54	2045.30	4.20	-1.427	0.000	0.663
28.00	-24.37	-34.23	0.00	-2626.8	0.00	2626.83	2625.87	1312.93	4081.15	2043.61	4.24	-1.434	0.000	0.662
30.00	-23.99	-34.08	0.00	-2558.3	0.00	2558.38	2611.22	1305.61	4024.80	2015.39	4.86	-1.545	0.000	0.651
32.00	-23.61	-33.94	0.00	-2490.2	0.00	2490.21	2596.46	1298.23	3968.65	1987.27	5.53	-1.655	0.000	0.640
34.00	-23.24	-33.79	0.00	-2422.3	0.00	2422.33	2581.58	1290.79	3912.71	1959.26	6.25	-1.765	0.000	0.629
36.00	-22.86	-33.65	0.00	-2354.7	0.00	2354.74	2566.59	1283.29	3856.98	1931.36	7.01	-1.874	0.000	0.617
38.00	-22.49	-33.50	0.00	-2287.4	0.00	2287.45	2551.48	1275.74	3801.46	1903.56	7.82	-1.982	0.000	0.605
40.00	-22.15	-33.33	0.00	-2220.4	0.00	2220.46	2536.26	1268.13	3746.17	1875.87	8.67	-2.089	0.000	0.594
40.50	-22.06	-33.29	0.00	-2203.8	0.00	2203.80	2532.44	1266.22	3732.38	1868.96	8.89	-2.116	0.000	0.591
40.71	-22.01	-33.28	0.00	-2196.8	0.00	2196.81	2530.83	1265.42	3726.59	1866.07	8.99	-2.127	0.000	0.589
42.00	-21.77	-33.18	0.00	-2153.8	0.00	2153.87	2520.93	1260.46	3691.10	1848.29	9.57	-2.196	0.000	0.582
43.33	-21.54	-33.07	0.00	-2109.6	0.00	2109.63	2510.64	1255.32	3654.51	1829.97	10.19	-2.266	0.000	0.573
44.00	-21.35	-33.03	0.00	-2087.5	0.00	2087.58	2505.48	1252.74	3636.25	1820.83	10.51	-2.301	0.000	0.562
46.00	-20.82	-32.86	0.00	-2021.5	0.00	2021.52	2489.92	1244.96	3581.64	1793.48	11.50	-2.404	0.000	0.549
48.00	-20.32	-32.68	0.00	-1955.8	0.00	1955.80	1854.44	927.22	2691.60	1347.80	12.53	-2.506	0.000	0.591
48.12	-20.27	-32.69	0.00	-1951.8	0.00	1951.87	1853.85	926.92	2689.31	1346.66	12.59	-2.512	0.000	0.722
50.00	-19.96	-32.54	0.00	-1890.4	0.00	1890.43	1844.56	922.28	2653.53	1328.74	13.60	-2.627	0.000	0.705
52.00	-19.64	-32.38	0.00	-1825.3	0.00	1825.35	1834.56	917.28	2615.56	1309.72	14.73	-2.748	0.000	0.687
54.00	-19.33	-32.23	0.00	-1760.5	0.00	1760.58	1824.45	912.23	2577.68	1290.76	15.90	-2.867	0.000	0.669
56.00	-19.01	-32.07	0.00	-1696.1	0.00	1696.12	1814.23	907.11	2539.90	1271.84	17.13	-2.985	0.000	0.651
58.00	-18.70	-31.91	0.00	-1631.9	0.00	1631.99	1803.89	901.94	2502.23	1252.97	18.41	-3.101	0.000	0.633
60.00	-18.42	-31.73	0.00	-1568.1	0.00	1568.18	1793.44	896.72	2464.66	1234.16	19.73	-3.215	0.000	0.614
60.71	-18.32	-31.67	0.00	-1545.6	0.00	1545.65	1789.70	894.85	2451.36	1227.50	20.21	-3.255	0.000	0.769
60.75	-18.29	-31.68	0.00	-1544.3	0.00	1544.38	1789.49	894.74	2450.61	1227.12	20.24	-3.258	0.000	0.769
62.00	-18.07	-31.59	0.00	-1504.7	0.00	1504.79	1782.87	891.44	2427.21	1215.41	21.10	-3.346	0.000	0.754
64.00	-17.76	-31.44	0.00	-1441.6	0.00	1441.60	1772.19	886.09	2389.88	1196.72	22.53	-3.485	0.000	0.731
66.00	-17.44	-31.28	0.00	-1378.7	0.00	1378.73	1761.39	880.70	2352.67	1178.08	24.02	-3.622	0.000	0.708
68.00	-17.14	-31.12	0.00	-1316.1	0.00	1316.18	1750.48	875.24	2315.58	1159.51	25.57	-3.755	0.000	0.683
70.00	-16.83	-30.96	0.00	-1253.9	0.00	1253.94	1739.46	869.73	2278.63	1141.01	27.17	-3.885	0.000	0.659
72.00	-16.53	-30.80	0.00	-1192.0	0.00	1192.02	1728.32	864.16	2241.81	1122.57	28.82	-4.013	0.000	0.634
74.00	-16.24	-30.64	0.00	-1130.4	0.00	1130.42	1717.07	858.54	2205.13	1104.20	30.53	-4.137	0.000	0.609

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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76.00	-15.94	-30.47	0.00	-1069.1	0.00	1069.15	1705.70	852.85	2168.59	1085.91	32.29	-4.257	0.000	0.583
78.00	-15.68	-30.29	0.00	-1008.2	0.00	1008.21	1694.22	847.11	2132.20	1067.69	34.09	-4.373	0.000	0.557
78.25	-15.62	-30.28	0.00	-1000.6	0.00	1000.64	1692.78	846.39	2127.67	1065.41	34.32	-4.388	0.000	0.553
78.25	-15.62	-30.28	0.00	-1000.6	0.00	1000.64	1692.78	846.39	2127.67	1065.41	34.32	-4.388	0.000	0.553
80.00	-15.35	-30.15	0.00	-947.64	0.00	947.64	1682.63	841.31	2095.97	1049.54	35.95	-4.486	0.000	0.913
82.00	-15.03	-30.00	0.00	-887.34	0.00	887.34	1670.92	835.46	2059.89	1031.48	37.87	-4.673	0.000	0.871
84.00	-14.72	-29.85	0.00	-827.34	0.00	827.34	1659.09	829.55	2023.98	1013.49	39.86	-4.853	0.000	0.826
86.00	-14.42	-29.69	0.00	-767.63	0.00	767.63	1647.16	823.58	1988.23	995.59	41.93	-5.026	0.000	0.781
87.42	-14.23	-29.58	0.00	-725.57	0.00	725.57	1638.63	819.32	1963.01	982.97	43.44	-5.144	0.000	0.748
88.00	-14.08	-29.54	0.00	-708.31	0.00	708.31	1635.10	817.55	1952.65	977.78	44.07	-5.192	0.000	0.734
90.00	-11.34	-23.92	0.00	-649.23	0.00	649.23	1622.94	811.47	1917.25	960.05	46.28	-5.348	0.000	0.684
91.33	-11.10	-23.80	0.00	-617.33	0.00	617.33	1099.39	549.70	1312.06	657.00	47.78	-5.449	0.000	0.952
92.00	-11.00	-23.76	0.00	-601.47	0.00	601.47	1097.24	548.62	1304.79	653.36	48.55	-5.498	0.000	0.932
94.00	-10.71	-23.50	0.00	-553.95	0.00	553.95	1090.71	545.35	1282.99	642.45	50.89	-5.679	0.000	0.874
96.00	-10.48	-23.34	0.00	-506.94	0.00	506.94	1084.06	542.03	1261.23	631.55	53.30	-5.851	0.000	0.814
98.00	-10.25	-23.18	0.00	-460.26	0.00	460.26	1077.30	538.65	1239.51	620.68	55.78	-6.013	0.000	0.753
100.00	-8.48	-18.54	0.00	-413.90	0.00	413.90	1070.43	535.22	1217.83	609.82	58.33	-6.164	0.000	0.688
102.00	-8.28	-18.37	0.00	-376.82	0.00	376.82	1063.44	531.72	1196.21	598.99	60.94	-6.306	0.000	0.638
104.00	-8.10	-18.20	0.00	-340.08	0.00	340.08	1056.34	528.17	1174.63	588.19	63.61	-6.438	0.000	0.587
106.00	-7.91	-18.04	0.00	-303.67	0.00	303.67	1049.12	524.56	1153.11	577.41	66.33	-6.561	0.000	0.535
108.00	-7.74	-17.87	0.00	-267.60	0.00	267.60	1041.79	520.90	1131.65	566.67	69.09	-6.675	0.000	0.481
110.00	-6.32	-14.24	0.00	-231.86	0.00	231.86	1034.34	517.17	1110.26	555.96	71.91	-6.777	0.000	0.424
112.00	-6.18	-14.07	0.00	-203.38	0.00	203.38	1026.79	513.39	1088.94	545.28	74.76	-6.870	0.000	0.380
114.00	-6.05	-13.91	0.00	-175.23	0.00	175.23	1019.11	509.56	1067.70	534.64	77.65	-6.953	0.000	0.334
116.00	-5.92	-13.74	0.00	-147.42	0.00	147.42	1011.32	505.66	1046.53	524.04	80.57	-7.027	0.000	0.288
118.00	-5.80	-13.57	0.00	-119.94	0.00	119.94	1003.42	501.71	1025.45	513.49	83.52	-7.090	0.000	0.240
120.00	-4.03	-9.52	0.00	-92.80	0.00	92.80	995.40	497.70	1004.45	502.97	86.50	-7.143	0.000	0.189
120.00	-4.03	-9.52	0.00	-92.80	0.00	92.80	735.22	367.61	535.89	335.79	86.50	-7.143	0.000	0.283
122.00	-3.91	-9.40	0.00	-73.76	0.00	73.76	735.22	367.61	535.89	335.79	89.49	-7.185	0.000	0.226
124.00	-3.79	-9.28	0.00	-54.96	0.00	54.96	735.22	367.61	535.89	335.79	92.51	-7.252	0.000	0.169
126.00	-3.68	-9.16	0.00	-36.40	0.00	36.40	735.22	367.61	535.89	335.79	95.55	-7.299	0.000	0.114
128.00	-3.57	-9.04	0.00	-18.08	0.00	18.08	735.22	367.61	535.89	335.79	98.61	-7.328	0.000	0.059
130.00	0.00	-8.51	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	101.67	-7.337	0.000	0.001

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



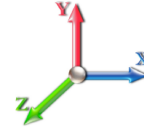
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 24

**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	RB1 RB2	1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	5.168	5.68	0.00	1.200	1.133	2.00	7.544	9.05	51.5	121.8	462.2
4.00		1.00	0.85	5.168	5.68	0.00	1.200	1.215	2.00	7.519	9.02	51.3	129.8	467.8
6.00		1.00	0.85	5.168	5.68	0.00	1.200	1.265	2.00	7.483	8.98	51.0	134.4	469.8
8.00		1.00	0.85	5.168	5.68	0.00	1.200	1.302	2.00	7.443	8.93	50.8	137.4	470.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	2.00	7.400	8.88	50.5	139.6	470.0
10.25	RT2 RB3	1.00	0.85	5.168	5.68	0.00	1.200	1.334	0.25	0.921	1.11	6.3	17.5	58.6
12.00		1.00	0.85	5.168	5.68	0.00	1.200	1.356	1.75	6.433	7.72	43.9	123.5	410.3
14.00		1.00	0.85	5.168	5.68	0.00	1.200	1.377	2.00	7.310	8.77	49.9	142.4	467.7
16.00		1.00	0.86	5.232	5.76	0.00	1.200	1.395	2.00	7.263	8.72	50.2	143.3	466.1
18.00		1.00	0.88	5.363	5.90	0.00	1.200	1.412	2.00	7.216	8.66	51.1	143.9	464.3
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	2.00	7.169	8.60	51.9	144.4	462.2
20.50	RT1 RB4	1.00	0.91	5.512	6.06	0.00	1.200	1.430	0.50	1.784	2.14	13.0	36.1	115.2
22.00		1.00	0.92	5.595	6.15	0.00	1.200	1.440	1.50	5.336	6.40	39.4	108.6	344.8
24.00		1.00	0.94	5.698	6.27	0.00	1.200	1.453	2.00	7.072	8.49	53.2	144.9	457.7
25.96	RB5	1.00	0.95	5.793	6.37	0.00	1.200	1.464	1.96	6.884	8.26	52.6	142.1	446.2
26.00		1.00	0.95	5.795	6.37	0.00	1.200	1.465	0.04	0.140	0.17	1.1	2.9	9.1
27.88	RT3 RB6	1.00	0.97	5.881	6.47	0.00	1.200	1.475	1.88	6.558	7.87	50.9	136.3	425.7
28.00		1.00	0.97	5.886	6.47	0.00	1.200	1.476	0.12	0.417	0.50	3.2	8.7	27.1
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	2.00	6.926	8.31	54.6	144.9	450.1
32.00		1.00	1.00	6.054	6.66	0.00	1.200	1.495	2.00	6.876	8.25	54.9	144.7	447.4
34.00		1.00	1.01	6.132	6.74	0.00	1.200	1.504	2.00	6.827	8.19	55.3	144.5	444.7
36.00		1.00	1.02	6.206	6.83	0.00	1.200	1.513	2.00	6.777	8.13	55.5	144.2	441.9
38.00		1.00	1.03	6.277	6.90	0.00	1.200	1.521	2.00	6.727	8.07	55.7	143.8	439.0
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	2.00	6.677	8.01	55.9	143.4	436.1
40.50	RT4 RB7	1.00	1.05	6.362	7.00	0.00	1.200	1.531	0.50	1.661	1.99	14.0	35.8	108.6
40.71	RT5 RB8	1.00	1.05	6.369	7.01	0.00	1.200	1.532	0.21	0.697	0.84	5.9	15.0	45.6
42.00		1.00	1.05	6.410	7.05	0.00	1.200	1.537	1.29	4.269	5.12	36.1	92.2	279.1
43.33	Bot - Section 2	1.00	1.06	6.453	7.10	0.00	1.200	1.541	1.33	4.390	5.27	37.4	95.1	287.1
44.00		1.00	1.06	6.474	7.12	0.00	1.200	1.544	0.67	2.215	2.66	18.9	48.1	221.4
46.00		1.00	1.07	6.534	7.19	0.00	1.200	1.551	2.00	6.611	7.93	57.0	143.8	660.7
48.00	Top - Section 1	1.00	1.08	6.593	7.25	0.00	1.200	1.557	2.00	6.561	7.87	57.1	143.3	655.6
48.12	RT6	1.00	1.08	6.597	7.26	0.00	1.200	1.558	0.12	0.392	0.47	3.4	8.6	22.3
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	1.88	6.119	7.34	53.7	134.1	348.1
52.00		1.00	1.10	6.705	7.38	0.00	1.200	1.570	2.00	6.460	7.75	57.2	142.0	367.7
54.00		1.00	1.11	6.759	7.43	0.00	1.200	1.576	2.00	6.410	7.69	57.2	141.4	365.1
56.00		1.00	1.12	6.811	7.49	0.00	1.200	1.581	2.00	6.359	7.63	57.2	140.7	362.4
58.00		1.00	1.13	6.861	7.55	0.00	1.200	1.587	2.00	6.308	7.57	57.1	140.0	359.7
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	2.00	6.257	7.51	57.1	139.3	356.9
60.71	RT8	1.00	1.14	6.928	7.62	0.00	1.200	1.594	0.71	2.209	2.65	20.2	49.3	126.1
60.75	RT7 RB9	1.00	1.14	6.928	7.62	0.00	1.200	1.594	0.04	0.124	0.15	1.1	2.8	7.1
62.00		1.00	1.14	6.958	7.65	0.00	1.200	1.598	1.25	3.873	4.65	35.6	86.6	221.1
64.00		1.00	1.15	7.005	7.71	0.00	1.200	1.603	2.00	6.156	7.39	56.9	137.7	351.4
66.00		1.00	1.16	7.050	7.76	0.00	1.200	1.608	2.00	6.105	7.33	56.8	137.0	348.6
68.00		1.00	1.17	7.095	7.80	0.00	1.200	1.612	2.00	6.054	7.26	56.7	136.1	345.7
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	2.00	6.003	7.20	56.6	135.3	342.9
72.00		1.00	1.18	7.181	7.90	0.00	1.200	1.622	2.00	5.952	7.14	56.4	134.5	340.0

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00	1.00	1.19	7.222	7.94	0.00	1.200	1.626	2.00	5.901	7.08	56.3	133.6	337.2
76.00	1.00	1.19	7.263	7.99	0.00	1.200	1.631	2.00	5.850	7.02	56.1	132.7	334.3
78.00	1.00	1.20	7.303	8.03	0.00	1.200	1.635	2.00	5.798	6.96	55.9	131.8	331.3
78.25 RT9	1.00	1.20	7.308	8.04	0.00	1.200	1.635	0.25	0.721	0.87	7.0	16.5	41.3
80.00	1.00	1.21	7.342	8.08	0.00	1.200	1.639	1.75	5.026	6.03	48.7	114.5	287.3
82.00	1.00	1.21	7.380	8.12	0.00	1.200	1.643	2.00	5.696	6.84	55.5	130.0	325.5
84.00	1.00	1.22	7.418	8.16	0.00	1.200	1.647	2.00	5.645	6.77	55.3	129.0	322.5
86.00	1.00	1.23	7.454	8.20	0.00	1.200	1.651	2.00	5.594	6.71	55.0	128.1	319.6
87.42 Bot - Section 3	1.00	1.23	7.480	8.23	0.00	1.200	1.653	1.42	3.931	4.72	38.8	90.2	224.7
88.00	1.00	1.23	7.491	8.24	0.00	1.200	1.655	0.58	1.630	1.96	16.1	37.5	134.5
90.00 Appurtenance(s)	1.00	1.24	7.526	8.28	0.00	1.200	1.658	2.00	5.554	6.67	55.2	127.7	457.9
91.33 Top - Section 2	1.00	1.24	7.549	8.30	0.00	1.200	1.661	1.33	3.674	4.41	36.6	84.7	302.8
92.00	1.00	1.24	7.561	8.32	0.00	1.200	1.662	0.67	1.829	2.19	18.2	42.2	89.1
94.00 Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.200	1.666	2.00	5.452	6.54	54.7	125.7	265.4
96.00	1.00	1.25	7.629	8.39	0.00	1.200	1.669	2.00	5.400	6.48	54.4	124.7	262.9
98.00	1.00	1.26	7.662	8.43	0.00	1.200	1.672	2.00	5.349	6.42	54.1	123.7	260.4
100.00 Appurtenance(s)	1.00	1.27	7.695	8.46	0.00	1.200	1.676	2.00	5.297	6.36	53.8	122.6	257.8
102.00	1.00	1.27	7.727	8.50	0.00	1.200	1.679	2.00	5.246	6.30	53.5	121.6	255.3
104.00	1.00	1.28	7.759	8.53	0.00	1.200	1.682	2.00	5.195	6.23	53.2	120.6	252.7
106.00	1.00	1.28	7.790	8.57	0.00	1.200	1.686	2.00	5.143	6.17	52.9	119.5	250.2
108.00	1.00	1.29	7.821	8.60	0.00	1.200	1.689	2.00	5.092	6.11	52.6	118.4	247.6
110.00 Appurtenance(s)	1.00	1.29	7.851	8.64	0.00	1.200	1.692	2.00	5.040	6.05	52.2	117.4	245.0
112.00	1.00	1.30	7.881	8.67	0.00	1.200	1.695	2.00	4.988	5.99	51.9	116.3	242.4
114.00	1.00	1.30	7.910	8.70	0.00	1.200	1.698	2.00	4.937	5.92	51.5	115.2	239.8
116.00	1.00	1.31	7.939	8.73	0.00	1.200	1.701	2.00	4.885	5.86	51.2	114.1	237.2
118.00	1.00	1.31	7.968	8.76	0.00	1.200	1.704	2.00	4.834	5.80	50.8	113.0	234.6
120.00 Top - Section 3	1.00	1.32	7.996	8.80	0.00	1.200	1.707	2.00	4.782	5.74	50.5	111.9	232.0
122.00	1.00	1.32	8.024	8.83	0.00	1.240 *	1.710	2.00	3.570	4.43	39.1	82.3	196.2
124.00	1.00	1.32	8.051	8.86	0.00	1.240 *	1.712	2.00	3.571	4.43	39.2	82.5	196.3
126.00	1.00	1.33	8.079	8.89	0.00	1.240 *	1.715	2.00	3.572	4.43	39.4	82.6	196.5
128.00	1.00	1.33	8.105	8.92	0.00	1.240 *	1.718	2.00	3.573	4.43	39.5	82.8	196.6
130.00 Appurtenance(s)	1.00	1.34	8.132	8.95	0.00	1.240 *	1.720	2.00	3.573	4.43	39.6	82.9	196.8
								<b>Totals:</b>	<b>130.00</b>			<b>3,451.9</b>	<b>23,650.8</b>

\* Cf Adjusted by Linear Load Ra Effect



## Discrete Appurtenance Forces

**Structure:** CT13064-A-SBA  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Topography:** 1

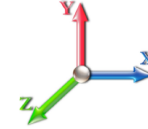
**Code:** TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

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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** 24

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	130.00	DC6-48-60-18-8F	2	8.132	8.945	0.38	0.75	1.01	162.81	0.000	0.000	9.07	0.00	0.00
2	130.00	6' Lightning rod	1	8.171	8.988	1.00	1.00	1.45	38.28	0.000	3.000	13.05	0.00	39.16
3	130.00	Cci DMP65R-BU6DA	3	8.132	8.945	0.56	0.75	23.64	916.72	0.000	0.000	211.47	0.00	0.00
4	130.00	RRUS 32	6	8.132	8.945	0.38	0.75	4.99	1135.07	0.000	0.000	44.64	0.00	0.00
5	130.00	RRUS 4478 B14	3	8.132	8.945	0.38	0.75	2.43	308.27	0.000	0.000	21.75	0.00	0.00
6	130.00	B2 B66A 8843	3	8.132	8.945	0.38	0.75	2.42	354.09	0.000	0.000	21.63	0.00	0.00
7	130.00	4449 B5/B12	3	8.132	8.945	0.38	0.75	2.82	372.67	0.000	0.000	25.25	0.00	0.00
8	130.00	RRUS E2 B29	3	8.132	8.945	0.38	0.75	4.32	352.05	0.000	0.000	38.68	0.00	0.00
9	130.00	Additional mount pipe	3	8.132	8.945	0.56	0.75	9.56	24.10	0.000	0.000	85.51	0.00	0.00
10	130.00	Ericsson AIR6449	3	8.105	8.916	0.64	0.75	9.51	722.50	0.000	-2.000	84.82	0.00	-169.64
11	130.00	(3) Horizontal bracing	1	8.132	8.945	0.75	0.75	9.97	254.18	0.000	0.000	89.18	0.00	0.00
12	130.00	Ericsson AIR6419	3	8.158	8.974	0.57	0.75	7.84	454.39	0.000	2.000	70.35	0.00	140.70
13	130.00	Quinte QD6616-7	3	8.132	8.945	0.57	0.75	26.63	1120.28	0.000	0.000	238.18	0.00	0.00
14	130.00	DC6-48-60-0-8C	2	8.132	8.945	0.38	0.75	4.24	222.75	0.000	0.000	37.92	0.00	0.00
15	130.00	Angle Reinforcement kit	1	8.132	8.945	1.00	1.00	11.39	842.47	0.000	0.000	101.87	0.00	0.00
16	130.00	PRK-1245 (kicker kit)	1	8.132	8.945	1.00	1.00	19.31	782.74	0.000	0.000	172.70	0.00	0.00
17	130.00	MTC3607 Platform + HR	1	8.132	8.945	1.00	1.00	78.52	3214.50	0.000	0.000	702.35	0.00	0.00
18	120.00	MC-PK8-DSH	1	7.996	8.796	1.00	1.00	83.78	3349.99	0.000	0.000	736.92	0.00	0.00
19	120.00	RDIDC-9181-OF-48	1	7.996	8.796	0.38	0.75	0.96	65.65	0.000	0.000	8.46	0.00	0.00
20	120.00	TA08025-B604	3	7.996	8.796	0.38	0.75	2.82	342.28	0.000	0.000	24.82	0.00	0.00
21	120.00	TA08025-B605	3	7.996	8.796	0.38	0.75	2.82	385.65	0.000	0.000	24.82	0.00	0.00
22	120.00	MX08FRO665-21	3	7.996	8.796	0.55	0.75	23.18	883.96	0.000	0.000	203.89	0.00	0.00
23	110.00	B4 RRH2X60-4R	3	7.851	8.636	0.40	0.80	4.94	388.05	0.000	0.000	42.64	0.00	0.00
24	110.00	SBNHH-1D65B	6	7.851	8.636	0.66	0.80	37.07	1462.67	0.000	0.000	320.12	0.00	0.00
25	110.00	RRH2X60-1900A-4R	3	7.851	8.636	0.40	0.80	2.94	364.99	0.000	0.000	25.35	0.00	0.00
26	110.00	B13 RRH4X30-4R	3	7.851	8.636	0.40	0.80	3.30	341.19	0.000	0.000	28.52	0.00	0.00
27	110.00	CBC721-DF	3	7.836	8.619	0.40	0.80	1.12	35.51	0.000	-1.000	9.67	0.00	-9.67
28	110.00	DB-T1-6Z-8AB-0Z	2	7.851	8.636	0.40	0.80	4.52	322.52	0.000	0.000	39.00	0.00	0.00
29	110.00	T-Arm (Round)	3	7.851	8.636	0.56	0.75	24.92	1760.61	0.000	0.000	215.21	0.00	0.00
30	110.00	CBC721-DF	3	7.866	8.652	0.40	0.80	1.12	35.51	0.000	1.000	9.70	0.00	9.70
31	100.00	Ericsson AIR21 B2A B4P	3	7.695	8.464	0.66	0.80	14.22	812.18	0.000	0.000	120.40	0.00	0.00
32	100.00	Ericsson AIR21 B4A B2P	3	7.695	8.464	0.66	0.80	14.22	808.22	0.000	0.000	120.40	0.00	0.00
33	100.00	Kathrein 782 11056	3	7.695	8.464	0.40	0.80	0.49	7.02	0.000	0.000	4.17	0.00	0.00
34	100.00	T-Arm (Round)	3	7.695	8.464	0.56	0.75	24.81	1753.86	0.000	0.000	210.02	0.00	0.00
35	100.00	RFS	3	7.695	8.464	0.58	0.80	38.65	1668.09	0.000	0.000	327.17	0.00	0.00
36	100.00	Ericsson 4480 B71 + B85	3	7.695	8.464	0.59	0.80	6.21	491.03	0.000	0.000	52.58	0.00	0.00
37	94.00	1'4"x6.5"x6" Surge	1	7.595	8.355	0.80	0.80	2.49	143.60	0.000	0.000	20.80	0.00	0.00
38	90.00	F3P-10W	1	7.526	8.279	1.00	1.00	113.58	3917.00	0.000	0.000	940.32	0.00	0.00
39	90.00	NNVV-65B-R4	3	7.526	8.279	0.55	0.75	22.73	895.25	0.000	0.000	188.20	0.00	0.00
40	90.00	AAHC	3	7.526	8.279	0.56	0.75	8.41	739.50	0.000	0.000	69.66	0.00	0.00
41	90.00	ALU - 800 MHz - RRU	6	7.526	8.279	0.38	0.75	8.05	676.66	0.000	0.000	66.63	0.00	0.00
42	90.00	ALU - 1900MHz - RRU	3	7.526	8.279	0.38	0.75	5.76	375.98	0.000	0.000	47.69	0.00	0.00
43	90.00	Andrew - VHLP2-11	2	7.526	8.279	0.75	0.75	8.84	194.77	0.000	0.000	73.15	0.00	0.00

**Totals:** 33,499.64

5,898.75

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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** 24

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
2.00		51.46	621.90	0.00	0.00
4.00		51.29	630.60	0.00	0.00
6.00		51.05	634.65	0.00	0.00
8.00		50.77	636.67	0.00	0.00
10.00		50.48	637.53	0.00	0.00
10.25		6.29	79.56	0.00	0.00
12.00		43.89	557.79	0.00	0.00
14.00		49.87	637.20	0.00	0.00
16.00		50.16	636.37	0.00	0.00
18.00		51.09	635.22	0.00	0.00
20.00		51.89	633.81	0.00	0.00
20.50		12.98	158.12	0.00	0.00
22.00		39.40	473.92	0.00	0.00
24.00		53.19	633.77	0.00	0.00
25.96		52.64	625.86	0.00	0.00
26.00		1.07	12.75	0.00	0.00
27.88		50.90	598.51	0.00	0.00
28.00		3.24	38.13	0.00	0.00
30.00		54.60	634.60	0.00	0.00
32.00		54.95	628.68	0.00	0.00
34.00		55.25	625.14	0.00	0.00
36.00		55.52	622.76	0.00	0.00
38.00		55.74	620.31	0.00	0.00
40.00		55.93	617.78	0.00	0.00
40.50		13.95	154.05	0.00	0.00
40.71		5.86	64.65	0.00	0.00
42.00		36.12	396.52	0.00	0.00
43.33		37.39	408.69	0.00	0.00
44.00		18.93	282.24	0.00	0.00
46.00		57.03	843.53	0.00	0.00
48.00		57.10	838.79	0.00	0.00
48.12		3.41	33.31	0.00	0.00
50.00		53.71	520.62	0.00	0.00
52.00		57.18	543.17	0.00	0.00
54.00		57.18	537.94	0.00	0.00
56.00		57.17	535.48	0.00	0.00
58.00		57.13	533.00	0.00	0.00
60.00		57.08	530.48	0.00	0.00
60.71		20.20	187.77	0.00	0.00
60.75		1.14	10.57	0.00	0.00
62.00		35.57	329.72	0.00	0.00
64.00		56.92	521.48	0.00	0.00
66.00		56.82	511.11	0.00	0.00
68.00		56.70	508.43	0.00	0.00
70.00		56.56	505.74	0.00	0.00
72.00		56.42	503.02	0.00	0.00

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00		56.25	500.28	0.00	0.00
76.00		56.08	497.52	0.00	0.00
78.00		55.90	494.74	0.00	0.00
78.25		6.96	61.69	0.00	0.00
80.00		48.71	430.35	0.00	0.00
82.00		55.49	480.40	0.00	0.00
84.00		55.27	468.77	0.00	0.00
86.00		55.04	465.87	0.00	0.00
87.42		38.81	328.32	0.00	0.00
88.00		16.11	177.18	0.00	0.00
90.00	(18) attachments	1440.84	7403.47	0.00	0.00
91.33		36.62	393.81	0.00	0.00
92.00		18.25	134.62	0.00	0.00
94.00	(1) attachments	75.46	545.53	0.00	0.00
96.00		54.38	399.47	0.00	0.00
98.00		54.10	397.01	0.00	0.00
100.00	(18) attachments	888.56	5934.94	0.00	0.00
102.00		53.51	369.15	0.00	0.00
104.00		53.20	366.65	0.00	0.00
106.00		52.88	364.14	0.00	0.00
108.00		52.56	361.62	0.00	0.00
110.00	(26) attachments	742.45	5070.14	0.00	0.04
112.00		51.89	321.32	0.00	0.00
114.00		51.55	318.77	0.00	0.00
116.00		51.20	316.22	0.00	0.00
118.00		50.84	313.66	0.00	0.00
120.00	(11) attachments	1049.39	5338.61	0.00	0.00
122.00		39.07	270.98	0.00	0.00
124.00		39.21	271.18	0.00	0.00
126.00		39.36	271.37	0.00	0.00
128.00		39.50	271.56	0.00	0.00
130.00	(42) attachments	2008.04	11549.62	0.00	10.22
<b>Totals:</b>		<b>9,350.67</b>	<b>66,820.87</b>	<b>0.00</b>	<b>10.25</b>

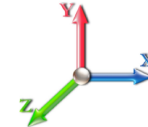
## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.71	0.00	0.070	0.000	5.168	0.00	27.31
2.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.54	0.00	0.070	0.000	5.168	0.00	10.86
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	5.168	0.00	10.86
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.74	0.00	0.070	0.000	5.168	0.00	28.54
4.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.57	0.00	0.070	0.000	5.168	0.00	11.83
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	5.168	0.00	11.83
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.75	0.00	0.071	0.000	5.168	0.00	29.31
6.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.59	0.00	0.071	0.000	5.168	0.00	12.45
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	5.168	0.00	12.45
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.77	0.00	0.071	0.000	5.168	0.00	29.89
8.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.60	0.00	0.071	0.000	5.168	0.00	12.91
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	5.168	0.00	12.91
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.78	0.00	0.072	0.000	5.168	0.00	30.35
10.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.61	0.00	0.072	0.000	5.168	0.00	13.28
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.072	0.000	5.168	0.00	13.28
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.10	0.00	0.072	0.000	5.168	0.00	3.80
10.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.08	0.00	0.072	0.000	5.168	0.00	1.67
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.072	0.000	5.168	0.00	1.67
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.69	0.00	0.072	0.000	5.168	0.00	26.90
12.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.54	0.00	0.072	0.000	5.168	0.00	11.89
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.072	0.000	5.168	0.00	11.89
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.79	0.00	0.073	0.000	5.168	0.00	31.08
14.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.63	0.00	0.073	0.000	5.168	0.00	13.87
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.073	0.000	5.168	0.00	13.87
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.80	0.00	0.074	0.000	5.232	0.00	31.37
16.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.63	0.00	0.074	0.000	5.232	0.00	14.11
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	5.232	0.00	14.11
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.80	0.00	0.074	0.000	5.363	0.00	31.64
18.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.64	0.00	0.074	0.000	5.363	0.00	14.32
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	5.363	0.00	14.32
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.81	0.00	0.075	0.000	5.483	0.00	31.88
20.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.64	0.00	0.075	0.000	5.483	0.00	14.52
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.075	0.000	5.483	0.00	14.52
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.20	0.00	0.075	0.000	5.512	0.00	7.99
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.16	0.00	0.075	0.000	5.512	0.00	3.64
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.075	0.000	5.512	0.00	3.64
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.61	0.00	0.075	0.000	5.595	0.00	24.08
22.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.49	0.00	0.075	0.000	5.595	0.00	11.02
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.075	0.000	5.595	0.00	11.02
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.82	0.00	0.076	0.000	5.698	0.00	32.31
24.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.65	0.00	0.076	0.000	5.698	0.00	14.87
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.076	0.000	5.698	0.00	3.35
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	5.698	0.00	14.87
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.81	0.00	0.076	0.000	5.793	0.00	31.85
25.96	1" Reinforcing plate	Yes	1.96	0.000	1.00	0.64	0.00	0.076	0.000	5.793	0.00	14.72
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	5.793	0.00	9.93
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	5.793	0.00	14.72

## Linear Appurtenance Segment Forces (Factored)

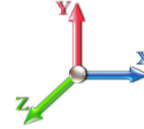
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Iterations** 24

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.02	0.00	0.077	0.000	5.795	0.00	0.65
26.00	1" Reinforcing plate	Yes	0.04	0.000	1.00	0.01	0.00	0.077	0.000	5.795	0.00	0.30
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.077	0.000	5.795	0.00	0.20
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.077	0.000	5.795	0.00	0.30
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.78	0.00	0.077	0.000	5.881	0.00	30.72
27.88	1" Reinforcing plate	Yes	1.88	0.000	1.00	0.62	0.00	0.077	0.000	5.881	0.00	14.25
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.077	0.000	5.881	0.00	9.62
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.077	0.000	5.881	0.00	14.25
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.05	0.00	0.077	0.000	5.886	0.00	1.96
28.00	1" Reinforcing plate	Yes	0.12	0.000	1.00	0.04	0.00	0.077	0.000	5.886	0.00	0.91
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.077	0.000	5.886	0.00	0.61
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.077	0.000	5.886	0.00	0.91
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.83	0.00	0.078	0.000	5.972	0.00	32.86
30.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.66	0.00	0.078	0.000	5.972	0.00	15.31
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	5.972	0.00	10.35
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	5.972	0.00	15.31
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.83	0.00	0.078	0.000	6.054	0.00	33.02
32.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.67	0.00	0.078	0.000	6.054	0.00	15.44
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	6.054	0.00	10.45
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.078	0.000	6.054	0.00	7.84
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.078	0.000	6.054	0.00	3.86
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.83	0.00	0.079	0.000	6.132	0.00	33.17
34.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.67	0.00	0.079	0.000	6.132	0.00	15.56
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.079	0.000	6.132	0.00	10.55
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.079	0.000	6.132	0.00	10.55
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.84	0.00	0.080	0.000	6.206	0.00	33.31
36.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.67	0.00	0.080	0.000	6.206	0.00	15.68
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	6.206	0.00	10.64
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	6.206	0.00	10.64
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.84	0.00	0.080	0.000	6.277	0.00	33.45
38.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.67	0.00	0.080	0.000	6.277	0.00	15.79
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	6.277	0.00	10.72
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	6.277	0.00	10.72
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.84	0.00	0.081	0.000	6.345	0.00	33.58
40.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.68	0.00	0.081	0.000	6.345	0.00	15.90
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.081	0.000	6.345	0.00	10.80
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.081	0.000	6.345	0.00	10.80
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.21	0.00	0.082	0.000	6.362	0.00	8.40
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.17	0.00	0.082	0.000	6.362	0.00	3.98
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	6.362	0.00	2.71
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	6.362	0.00	2.71
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.09	0.00	0.082	0.000	6.369	0.00	3.53
40.71	1" Reinforcing plate	Yes	0.21	0.000	1.00	0.07	0.00	0.082	0.000	6.369	0.00	1.67
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.082	0.000	6.369	0.00	1.14
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.082	0.000	6.369	0.00	1.14
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.55	0.00	0.082	0.000	6.410	0.00	21.74
42.00	1" Reinforcing plate	Yes	1.29	0.000	1.00	0.44	0.00	0.082	0.000	6.410	0.00	10.32

## Linear Appurtenance Segment Forces (Factored)

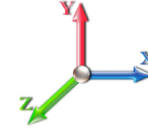
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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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** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.082	0.000	6.410	0.00	7.02
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.082	0.000	6.410	0.00	7.02
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.56	0.00	0.082	0.000	6.453	0.00	22.52
43.33	1" Reinforcing plate	Yes	1.33	0.000	1.00	0.45	0.00	0.082	0.000	6.453	0.00	10.71
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.082	0.000	6.453	0.00	7.29
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.082	0.000	6.453	0.00	7.29
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.28	0.00	0.083	0.000	6.474	0.00	11.28
44.00	1" Reinforcing plate	Yes	0.67	0.000	1.00	0.23	0.00	0.083	0.000	6.474	0.00	5.37
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.083	0.000	6.474	0.00	3.65
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.083	0.000	6.474	0.00	3.65
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.85	0.00	0.083	0.000	6.534	0.00	33.94
46.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.68	0.00	0.083	0.000	6.534	0.00	16.19
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	6.534	0.00	11.03
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	6.534	0.00	11.03
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.85	0.00	0.084	0.000	6.593	0.00	34.06
48.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.69	0.00	0.084	0.000	6.593	0.00	16.28
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	6.593	0.00	11.10
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	6.593	0.00	11.10
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.05	0.00	0.083	0.000	6.597	0.00	2.04
48.12	1" Reinforcing plate	Yes	0.12	0.000	1.00	0.04	0.00	0.083	0.000	6.597	0.00	0.98
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.083	0.000	6.597	0.00	0.67
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.083	0.000	6.597	0.00	0.67
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.80	0.00	0.084	0.000	6.650	0.00	32.11
50.00	1" Reinforcing plate	Yes	1.88	0.000	1.00	0.65	0.00	0.084	0.000	6.650	0.00	15.39
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.084	0.000	6.650	0.00	10.50
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.084	0.000	6.650	0.00	10.50
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.084	0.000	6.705	0.00	34.27
52.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.69	0.00	0.084	0.000	6.705	0.00	16.46
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	6.705	0.00	11.24
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.084	0.000	6.705	0.00	2.81
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.085	0.000	6.759	0.00	34.37
54.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.69	0.00	0.085	0.000	6.759	0.00	16.54
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.085	0.000	6.759	0.00	11.30
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.086	0.000	6.811	0.00	34.47
56.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.69	0.00	0.086	0.000	6.811	0.00	16.62
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.086	0.000	6.811	0.00	11.37
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.087	0.000	6.861	0.00	34.56
58.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.70	0.00	0.087	0.000	6.861	0.00	16.70
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.087	0.000	6.861	0.00	11.43
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.087	0.000	6.910	0.00	34.65
60.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.70	0.00	0.087	0.000	6.910	0.00	16.77
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.087	0.000	6.910	0.00	11.48
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.31	0.00	0.088	0.000	6.928	0.00	12.31
60.71	1" Reinforcing plate	Yes	0.71	0.000	1.00	0.25	0.00	0.088	0.000	6.928	0.00	5.96
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.088	0.000	6.928	0.00	4.08
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.02	0.00	0.088	0.000	6.928	0.00	0.69
60.75	1" Reinforcing plate	Yes	0.04	0.000	1.00	0.01	0.00	0.088	0.000	6.928	0.00	0.34

## Linear Appurtenance Segment Forces (Factored)

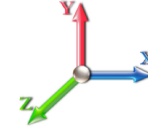
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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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** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.088	0.000	6.928	0.00	0.23
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.54	0.00	0.088	0.000	6.958	0.00	21.71
62.00	1" Reinforcing plate	Yes	1.25	0.000	1.00	0.44	0.00	0.088	0.000	6.958	0.00	10.53
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.088	0.000	6.958	0.00	7.21
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.089	0.000	7.005	0.00	34.83
64.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.70	0.00	0.089	0.000	7.005	0.00	16.92
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.089	0.000	7.005	0.00	7.71
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.090	0.000	7.050	0.00	34.92
66.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.70	0.00	0.090	0.000	7.050	0.00	16.99
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.091	0.000	7.095	0.00	35.00
68.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.70	0.00	0.091	0.000	7.095	0.00	17.05
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.092	0.000	7.138	0.00	35.08
70.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.71	0.00	0.092	0.000	7.138	0.00	17.12
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.092	0.000	7.181	0.00	35.16
72.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.71	0.00	0.092	0.000	7.181	0.00	17.18
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.093	0.000	7.222	0.00	35.23
74.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.71	0.00	0.093	0.000	7.222	0.00	17.25
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.094	0.000	7.263	0.00	35.31
76.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.71	0.00	0.094	0.000	7.263	0.00	17.31
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.095	0.000	7.303	0.00	35.38
78.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.71	0.00	0.095	0.000	7.303	0.00	17.37
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.11	0.00	0.096	0.000	7.308	0.00	4.42
78.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.09	0.00	0.096	0.000	7.308	0.00	2.17
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.77	0.00	0.096	0.000	7.342	0.00	31.02
80.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.62	0.00	0.096	0.000	7.342	0.00	15.25
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.081	0.000	7.380	0.00	35.52
82.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.36	0.00	0.081	0.000	7.380	0.00	8.74
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.065	0.000	7.418	0.00	35.59
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.066	0.000	7.454	0.00	35.66
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.63	0.00	0.067	0.000	7.480	0.00	25.29
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.26	0.00	0.067	0.000	7.491	0.00	10.42
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.068	0.000	7.526	0.00	35.79
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.59	0.00	0.068	0.000	7.549	0.00	23.89
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.30	0.00	0.068	0.000	7.561	0.00	11.95
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.068	0.000	7.595	0.00	35.92
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.069	0.000	7.629	0.00	35.98
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.070	0.000	7.662	0.00	36.04
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.070	0.000	7.695	0.00	36.10
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.071	0.000	7.727	0.00	36.16
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.072	0.000	7.759	0.00	36.21
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.073	0.000	7.790	0.00	36.27
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.074	0.000	7.821	0.00	36.33
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.074	0.000	7.851	0.00	36.38
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.075	0.000	7.881	0.00	36.43
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.076	0.000	7.910	0.00	36.49
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.077	0.000	7.939	0.00	36.54
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.078	0.000	7.968	0.00	36.59

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.079	0.000	7.996	0.00	36.64
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.111	1.033	8.024	0.00	36.69
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.111	1.033	8.051	0.00	36.74
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.91	0.00	0.111	1.033	8.079	0.00	36.79
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.91	0.00	0.111	1.033	8.105	0.00	36.84
130.00	2" Conduit	Yes	2.00	0.000	2.00	0.91	0.00	0.111	1.033	8.132	0.00	36.88
<b>Totals:</b>											<b>0.0</b>	<b>3,396.8</b>



## Calculated Forces

Structure: CT13064-A-SBA  
 Site Name: Middletown 2, CT  
 Height: 130.00 (ft)  
 Base Elev: 0.000 (ft)  
 Gh: 1.1

Topography: 1

Code: TIA-222-G  
 Exposure: C  
 Crest Height: 0.00  
 Site Class: D - Stiff Soil  
 Struct Class: II

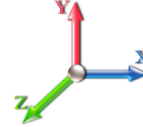
5/5/2022  
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 24

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	-66.82	-9.37	0.00	-962.25	0.00	962.25	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.197
2.00	-66.19	-9.35	0.00	-943.52	0.00	943.52	2805.89	1402.95	4830.09	2418.63	0.01	-0.027	0.000	0.194
4.00	-65.56	-9.32	0.00	-924.83	0.00	924.83	2792.73	1396.36	4771.51	2389.30	0.02	-0.054	0.000	0.192
6.00	-64.92	-9.30	0.00	-906.18	0.00	906.18	2779.45	1389.73	4713.08	2360.04	0.05	-0.082	0.000	0.190
8.00	-64.28	-9.28	0.00	-887.57	0.00	887.57	2766.06	1383.03	4654.80	2330.86	0.09	-0.109	0.000	0.187
10.00	-63.64	-9.25	0.00	-869.01	0.00	869.01	2752.56	1376.28	4596.67	2301.75	0.14	-0.136	0.000	0.185
10.25	-63.56	-9.26	0.00	-866.70	0.00	866.70	2750.86	1375.43	4589.41	2298.12	0.15	-0.139	0.000	0.194
12.00	-62.99	-9.24	0.00	-850.50	0.00	850.50	2738.94	1369.47	4538.70	2272.72	0.21	-0.164	0.000	0.191
14.00	-62.35	-9.22	0.00	-832.02	0.00	832.02	2725.20	1362.60	4480.89	2243.77	0.28	-0.192	0.000	0.189
16.00	-61.71	-9.20	0.00	-813.58	0.00	813.58	2711.35	1355.68	4423.25	2214.91	0.37	-0.220	0.000	0.186
18.00	-61.07	-9.17	0.00	-795.19	0.00	795.19	2697.39	1348.70	4365.78	2186.13	0.47	-0.248	0.000	0.184
20.00	-60.44	-9.14	0.00	-776.84	0.00	776.84	2683.32	1341.66	4308.48	2157.44	0.58	-0.276	0.000	0.181
20.50	-60.28	-9.14	0.00	-772.28	0.00	772.28	2679.78	1339.89	4294.19	2150.28	0.60	-0.283	0.000	0.180
22.00	-59.80	-9.12	0.00	-758.57	0.00	758.57	2669.12	1334.56	4251.37	2128.84	0.70	-0.304	0.000	0.178
24.00	-59.16	-9.09	0.00	-740.33	0.00	740.33	2654.82	1327.41	4194.44	2100.34	0.83	-0.331	0.000	0.176
25.96	-58.53	-9.05	0.00	-722.51	0.00	722.51	2640.69	1320.34	4138.83	2072.49	0.97	-0.358	0.000	0.152
26.00	-58.52	-9.06	0.00	-722.15	0.00	722.15	2640.40	1320.20	4137.70	2071.92	0.98	-0.359	0.000	0.152
27.88	-57.92	-9.02	0.00	-705.11	0.00	705.11	2626.74	1313.37	4084.54	2045.30	1.12	-0.381	0.000	0.186
28.00	-57.88	-9.03	0.00	-704.03	0.00	704.03	2625.87	1312.93	4081.15	2043.61	1.13	-0.383	0.000	0.186
30.00	-57.24	-9.00	0.00	-685.97	0.00	685.97	2611.22	1305.61	4024.80	2015.39	1.30	-0.413	0.000	0.183
32.00	-56.61	-8.97	0.00	-667.97	0.00	667.97	2596.46	1298.23	3968.65	1987.27	1.48	-0.443	0.000	0.180
34.00	-55.98	-8.94	0.00	-650.03	0.00	650.03	2581.58	1290.79	3912.71	1959.26	1.67	-0.472	0.000	0.177
36.00	-55.35	-8.91	0.00	-632.15	0.00	632.15	2566.59	1283.29	3856.98	1931.36	1.87	-0.501	0.000	0.174
38.00	-54.73	-8.87	0.00	-614.34	0.00	614.34	2551.48	1275.74	3801.46	1903.56	2.09	-0.530	0.000	0.171
40.00	-54.11	-8.83	0.00	-596.59	0.00	596.59	2536.26	1268.13	3746.17	1875.87	2.32	-0.559	0.000	0.167
40.50	-53.95	-8.82	0.00	-592.18	0.00	592.18	2532.44	1266.22	3732.38	1868.96	2.38	-0.566	0.000	0.167
40.71	-53.88	-8.82	0.00	-590.33	0.00	590.33	2530.83	1265.42	3726.59	1866.07	2.40	-0.569	0.000	0.166
42.00	-53.49	-8.80	0.00	-578.95	0.00	578.95	2520.93	1260.46	3691.10	1848.29	2.56	-0.588	0.000	0.164
43.33	-53.07	-8.77	0.00	-567.22	0.00	567.22	2510.64	1255.32	3654.51	1829.97	2.72	-0.607	0.000	0.162
44.00	-52.79	-8.76	0.00	-561.37	0.00	561.37	2505.48	1252.74	3636.25	1820.83	2.81	-0.616	0.000	0.159
46.00	-51.94	-8.72	0.00	-543.84	0.00	543.84	2489.92	1244.96	3581.64	1793.48	3.07	-0.644	0.000	0.155
48.00	-51.10	-8.67	0.00	-526.40	0.00	526.40	1854.44	927.22	2691.60	1347.80	3.35	-0.671	0.000	0.167
48.12	-51.07	-8.68	0.00	-525.36	0.00	525.36	1853.85	926.92	2689.31	1346.66	3.37	-0.673	0.000	0.205
50.00	-50.54	-8.65	0.00	-509.04	0.00	509.04	1844.56	922.28	2653.53	1328.74	3.64	-0.704	0.000	0.200
52.00	-49.99	-8.61	0.00	-491.74	0.00	491.74	1834.56	917.28	2615.56	1309.72	3.94	-0.736	0.000	0.195
54.00	-49.45	-8.58	0.00	-474.52	0.00	474.52	1824.45	912.23	2577.68	1290.76	4.25	-0.768	0.000	0.191
56.00	-48.91	-8.54	0.00	-457.36	0.00	457.36	1814.23	907.11	2539.90	1271.84	4.58	-0.800	0.000	0.186
58.00	-48.38	-8.50	0.00	-440.29	0.00	440.29	1803.89	901.94	2502.23	1252.97	4.93	-0.831	0.000	0.181
60.00	-47.84	-8.45	0.00	-423.29	0.00	423.29	1793.44	896.72	2464.66	1234.16	5.28	-0.862	0.000	0.176
60.71	-47.66	-8.43	0.00	-417.29	0.00	417.29	1789.70	894.85	2451.36	1227.50	5.41	-0.873	0.000	0.220
60.75	-47.64	-8.44	0.00	-416.95	0.00	416.95	1789.49	894.74	2450.61	1227.12	5.42	-0.874	0.000	0.220
62.00	-47.31	-8.43	0.00	-406.40	0.00	406.40	1782.87	891.44	2427.21	1215.41	5.65	-0.898	0.000	0.216
64.00	-46.78	-8.39	0.00	-389.54	0.00	389.54	1772.19	886.09	2389.88	1196.72	6.03	-0.935	0.000	0.210
66.00	-46.27	-8.36	0.00	-372.76	0.00	372.76	1761.39	880.70	2352.67	1178.08	6.43	-0.972	0.000	0.203
68.00	-45.76	-8.32	0.00	-356.04	0.00	356.04	1750.48	875.24	2315.58	1159.51	6.85	-1.008	0.000	0.197
70.00	-45.25	-8.28	0.00	-339.40	0.00	339.40	1739.46	869.73	2278.63	1141.01	7.28	-1.043	0.000	0.190
72.00	-44.74	-8.24	0.00	-322.84	0.00	322.84	1728.32	864.16	2241.81	1122.57	7.72	-1.078	0.000	0.183
74.00	-44.24	-8.20	0.00	-306.35	0.00	306.35	1717.07	858.54	2205.13	1104.20	8.18	-1.111	0.000	0.177

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 45



76.00	-43.73	-8.16	0.00	-289.95	0.00	289.95	1705.70	852.85	2168.59	1085.91	8.65	-1.144	0.000	0.170
78.00	-43.24	-8.11	0.00	-273.62	0.00	273.62	1694.22	847.11	2132.20	1067.69	9.14	-1.176	0.000	0.162
78.25	-43.18	-8.11	0.00	-271.60	0.00	271.60	1692.78	846.39	2127.67	1065.41	9.20	-1.180	0.000	0.162
78.25	-43.18	-8.11	0.00	-271.60	0.00	271.60	1692.78	846.39	2127.67	1065.41	9.20	-1.180	0.000	0.162
80.00	-42.74	-8.08	0.00	-257.40	0.00	257.40	1682.63	841.31	2095.97	1049.54	9.64	-1.206	0.000	0.271
82.00	-42.25	-8.06	0.00	-241.23	0.00	241.23	1670.92	835.46	2059.89	1031.48	10.16	-1.257	0.000	0.259
84.00	-41.78	-8.02	0.00	-225.12	0.00	225.12	1659.09	829.55	2023.98	1013.49	10.69	-1.306	0.000	0.247
86.00	-41.31	-7.99	0.00	-209.07	0.00	209.07	1647.16	823.58	1988.23	995.59	11.25	-1.353	0.000	0.235
87.42	-40.98	-7.96	0.00	-197.76	0.00	197.76	1638.63	819.32	1963.01	982.97	11.66	-1.385	0.000	0.226
88.00	-40.80	-7.96	0.00	-193.12	0.00	193.12	1635.10	817.55	1952.65	977.78	11.83	-1.398	0.000	0.223
90.00	-33.43	-6.35	0.00	-177.21	0.00	177.21	1622.94	811.47	1917.25	960.05	12.42	-1.441	0.000	0.205
91.33	-33.03	-6.32	0.00	-168.74	0.00	168.74	1099.39	549.70	1312.06	657.00	12.83	-1.468	0.000	0.287
92.00	-32.90	-6.31	0.00	-164.53	0.00	164.53	1097.24	548.62	1304.79	653.36	13.03	-1.482	0.000	0.282
94.00	-32.35	-6.25	0.00	-151.90	0.00	151.90	1090.71	545.35	1282.99	642.45	13.67	-1.532	0.000	0.266
96.00	-31.95	-6.21	0.00	-139.39	0.00	139.39	1084.06	542.03	1261.23	631.55	14.32	-1.579	0.000	0.250
98.00	-31.55	-6.17	0.00	-126.97	0.00	126.97	1077.30	538.65	1239.51	620.68	14.99	-1.623	0.000	0.234
100.00	-25.64	-5.13	0.00	-114.63	0.00	114.63	1070.43	535.22	1217.83	609.82	15.68	-1.665	0.000	0.212
102.00	-25.26	-5.08	0.00	-104.37	0.00	104.37	1063.44	531.72	1196.21	598.99	16.39	-1.704	0.000	0.198
104.00	-24.90	-5.03	0.00	-94.20	0.00	94.20	1056.34	528.17	1174.63	588.19	17.11	-1.741	0.000	0.184
106.00	-24.53	-4.98	0.00	-84.13	0.00	84.13	1049.12	524.56	1153.11	577.41	17.84	-1.775	0.000	0.169
108.00	-24.17	-4.93	0.00	-74.17	0.00	74.17	1041.79	520.90	1131.65	566.67	18.59	-1.806	0.000	0.154
110.00	-19.12	-4.04	0.00	-64.30	0.00	64.30	1034.34	517.17	1110.26	555.96	19.36	-1.835	0.000	0.134
112.00	-18.80	-3.98	0.00	-56.22	0.00	56.22	1026.79	513.39	1088.94	545.28	20.13	-1.861	0.000	0.121
114.00	-18.48	-3.93	0.00	-48.26	0.00	48.26	1019.11	509.56	1067.70	534.64	20.92	-1.884	0.000	0.108
116.00	-18.17	-3.87	0.00	-40.40	0.00	40.40	1011.32	505.66	1046.53	524.04	21.71	-1.904	0.000	0.095
118.00	-17.85	-3.82	0.00	-32.65	0.00	32.65	1003.42	501.71	1025.45	513.49	22.51	-1.921	0.000	0.081
120.00	-12.55	-2.59	0.00	-25.01	0.00	25.01	995.40	497.70	1004.45	502.97	23.32	-1.935	0.000	0.062
120.00	-12.55	-2.59	0.00	-25.01	0.00	25.01	735.22	367.61	535.89	335.79	23.32	-1.935	0.000	0.092
122.00	-12.28	-2.55	0.00	-19.83	0.00	19.83	735.22	367.61	535.89	335.79	24.13	-1.947	0.000	0.076
124.00	-12.01	-2.50	0.00	-14.74	0.00	14.74	735.22	367.61	535.89	335.79	24.95	-1.965	0.000	0.060
126.00	-11.74	-2.46	0.00	-9.73	0.00	9.73	735.22	367.61	535.89	335.79	25.78	-1.977	0.000	0.045
128.00	-11.47	-2.41	0.00	-4.82	0.00	4.82	735.22	367.61	535.89	335.79	26.61	-1.985	0.000	0.030
130.00	0.00	-2.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	27.44	-1.987	0.000	0.000

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E							<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10				<b>Sds</b>	0.19	<b>Ss</b> 0.18
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10		<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.25	<b>SA</b>	0.02	<b>Seismic Importance Factor</b>	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
2.00		283.72	0.00	0.02	0.01	3.80	
4.00		281.62	0.00	0.03	0.02	5.98	
6.00		279.53	0.00	0.04	0.02	7.37	
8.00		277.43	0.01	0.05	0.03	8.29	
10.00		275.33	0.01	0.06	0.03	8.91	
10.25	RT2 RB3	34.27	0.01	0.06	0.03	1.12	
12.00		238.97	0.02	0.06	0.04	8.15	
14.00		271.14	0.02	0.07	0.04	9.59	
16.00		269.04	0.03	0.07	0.04	9.77	
18.00		266.95	0.04	0.07	0.04	9.88	
20.00		264.85	0.04	0.07	0.04	9.95	
20.50	RT1 RB4	65.88	0.05	0.07	0.04	2.48	
22.00		196.87	0.05	0.07	0.04	7.49	
24.00		260.66	0.06	0.07	0.04	10.03	
25.96	RB5	253.41	0.08	0.07	0.04	9.85	
26.00		5.15	0.08	0.07	0.04	0.20	
27.88	RT3 RB6	241.14	0.09	0.07	0.04	9.48	
28.00		15.33	0.09	0.07	0.04	0.60	
30.00		254.37	0.10	0.07	0.04	10.12	
32.00		252.27	0.11	0.07	0.04	10.16	
34.00		250.18	0.13	0.07	0.03	10.20	
36.00		248.08	0.14	0.07	0.03	10.22	
38.00		245.98	0.16	0.07	0.03	10.24	
40.00		243.89	0.18	0.07	0.03	10.22	
40.50	RT4 RB7	60.64	0.18	0.06	0.03	2.55	
40.71	RT5 RB8	25.43	0.19	0.06	0.03	1.07	
42.00		155.71	0.20	0.06	0.02	6.55	
43.33	Bot - Section 2	160.03	0.21	0.06	0.02	6.73	
44.00		144.41	0.22	0.06	0.02	6.06	
46.00		430.71	0.24	0.06	0.02	17.90	
48.00	Top - Section 1	426.94	0.26	0.05	0.02	17.39	
48.12	RT6	11.43	0.26	0.05	0.02	0.46	
50.00		178.33	0.28	0.05	0.01	7.02	
52.00		188.08	0.30	0.04	0.01	7.02	
54.00		186.41	0.33	0.04	0.01	6.43	
56.00		184.73	0.35	0.03	0.01	5.67	
58.00		183.05	0.38	0.03	0.01	4.74	
60.00		181.37	0.40	0.02	0.01	3.64	
60.71	RT8	63.98	0.41	0.01	0.01	1.13	
60.75	RT7 RB9	3.60	0.41	0.01	0.01	0.06	
62.00		112.11	0.43	0.01	0.01	1.48	
64.00		178.02	0.46	0.00	0.01	0.98	
66.00		176.34	0.49	-0.01	0.01	-0.48	
68.00		174.67	0.52	-0.02	0.01	-1.93	
70.00		172.99	0.55	-0.03	0.01	-3.31	

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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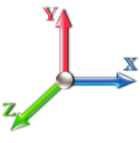
72.00		171.31	0.58	-0.05	0.01	-4.55
74.00		169.63	0.61	-0.06	0.02	-5.60
76.00		167.96	0.65	-0.07	0.02	-6.44
78.00		166.28	0.68	-0.08	0.03	-7.06
78.25	RT9	20.67	0.68	-0.08	0.03	-0.89
80.00		143.94	0.72	-0.09	0.03	-6.52
82.00		162.93	0.75	-0.10	0.04	-7.63
84.00		161.25	0.79	-0.11	0.05	-7.61
86.00		159.57	0.83	-0.12	0.06	-7.41
87.42	Bot - Section 3	112.02	0.85	-0.12	0.07	-5.06
88.00		80.81	0.87	-0.12	0.07	-3.60
90.00	Appurtenance(s)	3445.3	0.91	-0.12	0.09	-142.97
91.33	Top - Section 2	181.80	0.93	-0.12	0.10	-7.07
92.00		39.09	0.95	-0.12	0.11	-1.46
94.00	Appurtenance(s)	169.42	0.99	-0.11	0.13	-5.48
96.00		115.16	1.03	-0.10	0.15	-3.02
98.00		113.90	1.07	-0.08	0.17	-2.18
100.00	Appurtenance(s)	2361.1	1.12	-0.06	0.20	-25.99
102.00		111.39	1.16	-0.03	0.23	-0.21
104.00		110.13	1.21	0.01	0.26	0.91
106.00		108.87	1.26	0.06	0.30	2.12
108.00		107.61	1.30	0.13	0.34	3.41
110.00	Appurtenance(s)	1935.1	1.35	0.20	0.39	87.00
112.00		105.10	1.40	0.29	0.43	6.23
114.00		103.84	1.45	0.39	0.49	7.75
116.00		102.58	1.50	0.51	0.55	9.35
118.00		101.32	1.56	0.65	0.61	11.02
120.00	Top - Section 3	2459.1	1.61	0.81	0.68	313.38
122.00		94.88	1.66	0.99	0.76	13.97
124.00		94.88	1.72	1.20	0.84	15.96
126.00		94.88	1.78	1.43	0.94	18.06
128.00		94.88	1.83	1.69	1.03	20.27
130.00	Appurtenance(s)	5171.0	1.89	1.98	1.14	1231.22
<b>Totals:</b>		<b>27,413.0</b>				<b>1,765.1</b>
						<b>Total Wind: 35,972.9</b>

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E								<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10				<b>Sds</b> 0.19				<b>Ss</b> 0.18
<b>Dead Load Factor</b> 1.20	<b>Seismic Load Factor</b> 1.00	<b>Sd1</b> 0.10						<b>S1</b> 0.06
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency (f1)</b> 0.25	<b>SA</b> 0.02	<b>Seismic Importance Factor</b> 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	-39.92	-2.02	0.00	-241.45	0.00	241.45	2818.94	1409.47	4888.80	2448.04	0.00	0.00	0.00	0.053
2.00	-39.46	-2.02	0.00	-237.41	0.00	237.41	2805.89	1402.95	4830.09	2418.63	0.00	-0.01	-0.01	0.053
4.00	-39.00	-2.02	0.00	-233.36	0.00	233.36	2792.73	1396.36	4771.51	2389.30	0.01	-0.01	-0.01	0.052
6.00	-38.54	-2.02	0.00	-229.31	0.00	229.31	2779.45	1389.73	4713.08	2360.04	0.01	-0.02	-0.02	0.052
8.00	-38.09	-2.02	0.00	-225.28	0.00	225.28	2766.06	1383.03	4654.80	2330.86	0.02	-0.03	-0.03	0.051
10.00	-37.63	-2.01	0.00	-221.24	0.00	221.24	2752.56	1376.28	4596.67	2301.75	0.04	-0.03	-0.03	0.050
10.25	-37.58	-2.01	0.00	-220.74	0.00	220.74	2750.86	1375.43	4589.41	2298.12	0.04	-0.04	-0.04	0.053
12.00	-37.18	-2.01	0.00	-217.22	0.00	217.22	2738.94	1369.47	4538.70	2272.72	0.05	-0.04	-0.04	0.052
14.00	-36.73	-2.00	0.00	-213.21	0.00	213.21	2725.20	1362.60	4480.89	2243.77	0.07	-0.05	-0.05	0.052
16.00	-36.29	-2.00	0.00	-209.21	0.00	209.21	2711.35	1355.68	4423.25	2214.91	0.09	-0.06	-0.06	0.051
18.00	-35.85	-1.99	0.00	-205.22	0.00	205.22	2697.39	1348.70	4365.78	2186.13	0.12	-0.06	-0.06	0.051
20.00	-35.41	-1.98	0.00	-201.24	0.00	201.24	2683.32	1341.66	4308.48	2157.44	0.15	-0.07	-0.07	0.050
20.50	-35.30	-1.98	0.00	-200.25	0.00	200.25	2679.78	1339.89	4294.19	2150.28	0.15	-0.07	-0.07	0.050
22.00	-34.97	-1.98	0.00	-197.28	0.00	197.28	2669.12	1334.56	4251.37	2128.84	0.18	-0.08	-0.08	0.050
24.00	-34.53	-1.97	0.00	-193.32	0.00	193.32	2654.82	1327.41	4194.44	2100.34	0.21	-0.08	-0.08	0.049
25.96	-34.11	-1.96	0.00	-189.46	0.00	189.46	2640.69	1320.34	4138.83	2072.49	0.25	-0.09	-0.09	0.043
26.00	-34.10	-1.96	0.00	-189.38	0.00	189.38	2640.40	1320.20	4137.70	2071.92	0.25	-0.09	-0.09	0.043
27.88	-33.70	-1.96	0.00	-185.69	0.00	185.69	2626.74	1313.37	4084.54	2045.30	0.29	-0.10	-0.10	0.052
28.00	-33.67	-1.96	0.00	-185.45	0.00	185.45	2625.87	1312.93	4081.15	2043.61	0.29	-0.10	-0.10	0.052
30.00	-33.24	-1.95	0.00	-181.54	0.00	181.54	2611.22	1305.61	4024.80	2015.39	0.33	-0.11	-0.11	0.051
32.00	-32.82	-1.95	0.00	-177.63	0.00	177.63	2596.46	1298.23	3968.65	1987.27	0.38	-0.11	-0.11	0.051
34.00	-32.39	-1.94	0.00	-173.74	0.00	173.74	2581.58	1290.79	3912.71	1959.26	0.43	-0.12	-0.12	0.050
36.00	-31.97	-1.93	0.00	-169.87	0.00	169.87	2566.59	1283.29	3856.98	1931.36	0.48	-0.13	-0.13	0.050
38.00	-31.56	-1.92	0.00	-166.00	0.00	166.00	2551.48	1275.74	3801.46	1903.56	0.53	-0.14	-0.14	0.049
40.00	-31.14	-1.92	0.00	-162.15	0.00	162.15	2536.26	1268.13	3746.17	1875.87	0.59	-0.15	-0.15	0.048
40.50	-31.04	-1.91	0.00	-161.19	0.00	161.19	2532.44	1266.22	3732.38	1868.96	0.61	-0.15	-0.15	0.048
40.71	-30.99	-1.91	0.00	-160.79	0.00	160.79	2530.83	1265.42	3726.59	1866.07	0.62	-0.15	-0.15	0.048
42.00	-30.73	-1.91	0.00	-158.32	0.00	158.32	2520.93	1260.46	3691.10	1848.29	0.66	-0.15	-0.15	0.048
43.33	-30.46	-1.90	0.00	-155.78	0.00	155.78	2510.64	1255.32	3654.51	1829.97	0.70	-0.16	-0.16	0.047
44.00	-30.24	-1.90	0.00	-154.51	0.00	154.51	2505.48	1252.74	3636.25	1820.83	0.72	-0.16	-0.16	0.046
46.00	-29.60	-1.88	0.00	-150.71	0.00	150.71	2489.92	1244.96	3581.64	1793.48	0.79	-0.17	-0.17	0.046
48.00	-28.97	-1.87	0.00	-146.94	0.00	146.94	1854.44	927.22	2691.60	1347.80	0.86	-0.18	-0.18	0.049
48.12	-28.95	-1.87	0.00	-146.71	0.00	146.71	1853.85	926.92	2689.31	1346.66	0.87	-0.18	-0.18	0.061
50.00	-28.62	-1.87	0.00	-143.20	0.00	143.20	1844.56	922.28	2653.53	1328.74	0.94	-0.19	-0.19	0.060
52.00	-28.27	-1.86	0.00	-139.47	0.00	139.47	1834.56	917.28	2615.56	1309.72	1.02	-0.19	-0.19	0.059
54.00	-27.92	-1.86	0.00	-135.74	0.00	135.74	1824.45	912.23	2577.68	1290.76	1.10	-0.20	-0.20	0.058
56.00	-27.58	-1.86	0.00	-132.02	0.00	132.02	1814.23	907.11	2539.90	1271.84	1.19	-0.21	-0.21	0.057
58.00	-27.24	-1.85	0.00	-128.31	0.00	128.31	1803.89	901.94	2502.23	1252.97	1.28	-0.22	-0.22	0.056
60.00	-26.90	-1.85	0.00	-124.60	0.00	124.60	1793.44	896.72	2464.66	1234.16	1.38	-0.23	-0.23	0.055
60.71	-26.78	-1.85	0.00	-123.29	0.00	123.29	1789.70	894.85	2451.36	1227.50	1.41	-0.23	-0.23	0.069
60.75	-26.77	-1.85	0.00	-123.21	0.00	123.21	1789.49	894.74	2450.61	1227.12	1.41	-0.23	-0.23	0.069
62.00	-26.56	-1.86	0.00	-120.89	0.00	120.89	1782.87	891.44	2427.21	1215.41	1.47	-0.24	-0.24	0.068
64.00	-26.22	-1.86	0.00	-117.18	0.00	117.18	1772.19	886.09	2389.88	1196.72	1.58	-0.25	-0.25	0.067
66.00	-25.89	-1.86	0.00	-113.47	0.00	113.47	1761.39	880.70	2352.67	1178.08	1.69	-0.26	-0.26	0.065
68.00	-25.56	-1.86	0.00	-109.74	0.00	109.74	1750.48	875.24	2315.58	1159.51	1.80	-0.27	-0.27	0.064
70.00	-25.23	-1.87	0.00	-106.01	0.00	106.01	1739.46	869.73	2278.63	1141.01	1.92	-0.29	-0.29	0.063
72.00	-24.90	-1.87	0.00	-102.28	0.00	102.28	1728.32	864.16	2241.81	1122.57	2.04	-0.30	-0.30	0.061

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



74.00	-24.57	-1.87	0.00	-98.54	0.00	98.54	1717.07	858.54	2205.13	1104.20	2.17	-0.31	0.060
76.00	-24.25	-1.88	0.00	-94.79	0.00	94.79	1705.70	852.85	2168.59	1085.91	2.30	-0.32	0.058
78.00	-23.92	-1.88	0.00	-91.03	0.00	91.03	1694.22	847.11	2132.20	1067.69	2.43	-0.33	0.057
78.25	-23.88	-1.88	0.00	-90.57	0.00	90.57	1692.78	846.39	2127.67	1065.41	2.45	-0.33	0.057
78.25	-23.88	-1.88	0.00	-90.57	0.00	90.57	1692.78	846.39	2127.67	1065.41	2.45	-0.33	0.057
80.00	-23.60	-1.88	0.00	-87.28	0.00	87.28	1682.63	841.31	2095.97	1049.54	2.57	-0.34	0.097
82.00	-23.29	-1.89	0.00	-83.51	0.00	83.51	1670.92	835.46	2059.89	1031.48	2.72	-0.36	0.095
84.00	-22.97	-1.89	0.00	-79.73	0.00	79.73	1659.09	829.55	2023.98	1013.49	2.87	-0.37	0.093
86.00	-22.66	-1.90	0.00	-75.95	0.00	75.95	1647.16	823.58	1988.23	995.59	3.03	-0.39	0.090
87.42	-22.43	-1.90	0.00	-73.26	0.00	73.26	1638.63	819.32	1963.01	982.97	3.15	-0.40	0.088
88.00	-22.30	-1.90	0.00	-72.15	0.00	72.15	1635.10	817.55	1952.65	977.78	3.20	-0.41	0.087
90.00	-18.04	-1.88	0.00	-68.35	0.00	68.35	1622.94	811.47	1917.25	960.05	3.37	-0.42	0.082
91.33	-17.75	-1.88	0.00	-65.85	0.00	65.85	1099.39	549.70	1312.06	657.00	3.49	-0.43	0.116
92.00	-17.67	-1.88	0.00	-64.60	0.00	64.60	1097.24	548.62	1304.79	653.36	3.55	-0.44	0.115
94.00	-17.35	-1.88	0.00	-60.84	0.00	60.84	1090.71	545.35	1282.99	642.45	3.74	-0.46	0.111
96.00	-17.10	-1.89	0.00	-57.08	0.00	57.08	1084.06	542.03	1261.23	631.55	3.94	-0.48	0.106
98.00	-16.85	-1.89	0.00	-53.31	0.00	53.31	1077.30	538.65	1239.51	620.68	4.14	-0.50	0.102
100.00	-13.90	-1.87	0.00	-49.53	0.00	49.53	1070.43	535.22	1217.83	609.82	4.35	-0.51	0.094
102.00	-13.68	-1.87	0.00	-45.80	0.00	45.80	1063.44	531.72	1196.21	598.99	4.57	-0.53	0.089
104.00	-13.46	-1.87	0.00	-42.06	0.00	42.06	1056.34	528.17	1174.63	588.19	4.80	-0.55	0.084
106.00	-13.24	-1.87	0.00	-38.32	0.00	38.32	1049.12	524.56	1153.11	577.41	5.03	-0.56	0.079
108.00	-13.02	-1.87	0.00	-34.58	0.00	34.58	1041.79	520.90	1131.65	566.67	5.27	-0.58	0.074
110.00	-10.61	-1.76	0.00	-30.85	0.00	30.85	1034.34	517.17	1110.26	555.96	5.51	-0.59	0.066
112.00	-10.43	-1.75	0.00	-27.33	0.00	27.33	1026.79	513.39	1088.94	545.28	5.76	-0.60	0.060
114.00	-10.25	-1.74	0.00	-23.83	0.00	23.83	1019.11	509.56	1067.70	534.64	6.02	-0.61	0.055
116.00	-10.07	-1.73	0.00	-20.34	0.00	20.34	1011.32	505.66	1046.53	524.04	6.28	-0.62	0.049
118.00	-9.90	-1.72	0.00	-16.87	0.00	16.87	1003.42	501.71	1025.45	513.49	6.54	-0.63	0.043
120.00	-6.89	-1.38	0.00	-13.43	0.00	13.43	995.40	497.70	1004.45	502.97	6.81	-0.64	0.034
120.00	-6.89	-1.38	0.00	-13.43	0.00	13.43	735.22	367.61	535.89	335.79	6.81	-0.64	0.049
122.00	-6.73	-1.36	0.00	-10.67	0.00	10.67	735.22	367.61	535.89	335.79	7.08	-0.65	0.041
124.00	-6.57	-1.35	0.00	-7.95	0.00	7.95	735.22	367.61	535.89	335.79	7.35	-0.66	0.033
126.00	-6.40	-1.33	0.00	-5.26	0.00	5.26	735.22	367.61	535.89	335.79	7.63	-0.66	0.024
128.00	-6.24	-1.30	0.00	-2.61	0.00	2.61	735.22	367.61	535.89	335.79	7.91	-0.67	0.016
130.00	0.00	-1.23	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	8.19	-0.67	0.000

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 0.9D + 1.0E							<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10		<b>Sds</b>	0.19			<b>Ss</b> 0.18
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10		<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.25	<b>SA</b>	0.02	<b>Seismic Importance Factor</b>	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	
							<b>R: 1.50</b>
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
2.00		283.72	0.00	0.02	0.01	3.80	
4.00		281.62	0.00	0.03	0.02	5.98	
6.00		279.53	0.00	0.04	0.02	7.37	
8.00		277.43	0.01	0.05	0.03	8.29	
10.00		275.33	0.01	0.06	0.03	8.91	
10.25	RT2 RB3	34.27	0.01	0.06	0.03	1.12	
12.00		238.97	0.02	0.06	0.04	8.15	
14.00		271.14	0.02	0.07	0.04	9.59	
16.00		269.04	0.03	0.07	0.04	9.77	
18.00		266.95	0.04	0.07	0.04	9.88	
20.00		264.85	0.04	0.07	0.04	9.95	
20.50	RT1 RB4	65.88	0.05	0.07	0.04	2.48	
22.00		196.87	0.05	0.07	0.04	7.49	
24.00		260.66	0.06	0.07	0.04	10.03	
25.96	RB5	253.41	0.08	0.07	0.04	9.85	
26.00		5.15	0.08	0.07	0.04	0.20	
27.88	RT3 RB6	241.14	0.09	0.07	0.04	9.48	
28.00		15.33	0.09	0.07	0.04	0.60	
30.00		254.37	0.10	0.07	0.04	10.12	
32.00		252.27	0.11	0.07	0.04	10.16	
34.00		250.18	0.13	0.07	0.03	10.20	
36.00		248.08	0.14	0.07	0.03	10.22	
38.00		245.98	0.16	0.07	0.03	10.24	
40.00		243.89	0.18	0.07	0.03	10.22	
40.50	RT4 RB7	60.64	0.18	0.06	0.03	2.55	
40.71	RT5 RB8	25.43	0.19	0.06	0.03	1.07	
42.00		155.71	0.20	0.06	0.02	6.55	
43.33	Bot - Section 2	160.03	0.21	0.06	0.02	6.73	
44.00		144.41	0.22	0.06	0.02	6.06	
46.00		430.71	0.24	0.06	0.02	17.90	
48.00	Top - Section 1	426.94	0.26	0.05	0.02	17.39	
48.12	RT6	11.43	0.26	0.05	0.02	0.46	
50.00		178.33	0.28	0.05	0.01	7.02	
52.00		188.08	0.30	0.04	0.01	7.02	
54.00		186.41	0.33	0.04	0.01	6.43	
56.00		184.73	0.35	0.03	0.01	5.67	
58.00		183.05	0.38	0.03	0.01	4.74	
60.00		181.37	0.40	0.02	0.01	3.64	
60.71	RT8	63.98	0.41	0.01	0.01	1.13	
60.75	RT7 RB9	3.60	0.41	0.01	0.01	0.06	
62.00		112.11	0.43	0.01	0.01	1.48	
64.00		178.02	0.46	0.00	0.01	0.98	
66.00		176.34	0.49	-0.01	0.01	-0.48	
68.00		174.67	0.52	-0.02	0.01	-1.93	
70.00		172.99	0.55	-0.03	0.01	-3.31	

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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72.00		171.31	0.58	-0.05	0.01	-4.55
74.00		169.63	0.61	-0.06	0.02	-5.60
76.00		167.96	0.65	-0.07	0.02	-6.44
78.00		166.28	0.68	-0.08	0.03	-7.06
78.25	RT9	20.67	0.68	-0.08	0.03	-0.89
80.00		143.94	0.72	-0.09	0.03	-6.52
82.00		162.93	0.75	-0.10	0.04	-7.63
84.00		161.25	0.79	-0.11	0.05	-7.61
86.00		159.57	0.83	-0.12	0.06	-7.41
87.42	Bot - Section 3	112.02	0.85	-0.12	0.07	-5.06
88.00		80.81	0.87	-0.12	0.07	-3.60
90.00	Appurtenance(s)	3445.3	0.91	-0.12	0.09	-142.97
91.33	Top - Section 2	181.80	0.93	-0.12	0.10	-7.07
92.00		39.09	0.95	-0.12	0.11	-1.46
94.00	Appurtenance(s)	169.42	0.99	-0.11	0.13	-5.48
96.00		115.16	1.03	-0.10	0.15	-3.02
98.00		113.90	1.07	-0.08	0.17	-2.18
100.00	Appurtenance(s)	2361.1	1.12	-0.06	0.20	-25.99
102.00		111.39	1.16	-0.03	0.23	-0.21
104.00		110.13	1.21	0.01	0.26	0.91
106.00		108.87	1.26	0.06	0.30	2.12
108.00		107.61	1.30	0.13	0.34	3.41
110.00	Appurtenance(s)	1935.1	1.35	0.20	0.39	87.00
112.00		105.10	1.40	0.29	0.43	6.23
114.00		103.84	1.45	0.39	0.49	7.75
116.00		102.58	1.50	0.51	0.55	9.35
118.00		101.32	1.56	0.65	0.61	11.02
120.00	Top - Section 3	2459.1	1.61	0.81	0.68	313.38
122.00		94.88	1.66	0.99	0.76	13.97
124.00		94.88	1.72	1.20	0.84	15.96
126.00		94.88	1.78	1.43	0.94	18.06
128.00		94.88	1.83	1.69	1.03	20.27
130.00	Appurtenance(s)	5171.0	1.89	1.98	1.14	1231.22
<b>Totals:</b>		<b>27,413.0</b>				<b>1,765.1</b>
						<b>Total Wind: 35,972.9</b>



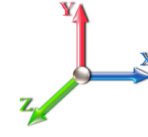
## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E										<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10					<b>Sds</b> 0.19					<b>Ss</b> 0.18
<b>Dead Load Factor</b> 0.90			<b>Seismic Load Factor</b> 1.00			<b>Sd1</b> 0.10			<b>S1</b> 0.06	
<b>Wind Load Factor</b> 0.00		<b>Structure Frequency (f1)</b> 0.25		<b>SA</b> 0.02		<b>Seismic Importance Factor</b> 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	-29.94	-2.02	0.00	-238.26	0.00	238.26	2818.94	1409.47	4888.80	2448.04	0.00	0.00	0.00	0.051
2.00	-29.59	-2.02	0.00	-234.22	0.00	234.22	2805.89	1402.95	4830.09	2418.63	0.00	-0.01	0.050	
4.00	-29.25	-2.02	0.00	-230.17	0.00	230.17	2792.73	1396.36	4771.51	2389.30	0.01	-0.01	0.050	
6.00	-28.91	-2.02	0.00	-226.13	0.00	226.13	2779.45	1389.73	4713.08	2360.04	0.01	-0.02	0.049	
8.00	-28.56	-2.01	0.00	-222.10	0.00	222.10	2766.06	1383.03	4654.80	2330.86	0.02	-0.03	0.049	
10.00	-28.22	-2.00	0.00	-218.08	0.00	218.08	2752.56	1376.28	4596.67	2301.75	0.04	-0.03	0.048	
10.25	-28.18	-2.00	0.00	-217.58	0.00	217.58	2750.86	1375.43	4589.41	2298.12	0.04	-0.03	0.051	
12.00	-27.89	-2.00	0.00	-214.07	0.00	214.07	2738.94	1369.47	4538.70	2272.72	0.05	-0.04	0.050	
14.00	-27.55	-1.99	0.00	-210.08	0.00	210.08	2725.20	1362.60	4480.89	2243.77	0.07	-0.05	0.050	
16.00	-27.22	-1.99	0.00	-206.09	0.00	206.09	2711.35	1355.68	4423.25	2214.91	0.09	-0.06	0.049	
18.00	-26.88	-1.98	0.00	-202.12	0.00	202.12	2697.39	1348.70	4365.78	2186.13	0.12	-0.06	0.049	
20.00	-26.55	-1.97	0.00	-198.16	0.00	198.16	2683.32	1341.66	4308.48	2157.44	0.14	-0.07	0.048	
20.50	-26.47	-1.97	0.00	-197.18	0.00	197.18	2679.78	1339.89	4294.19	2150.28	0.15	-0.07	0.048	
22.00	-26.23	-1.96	0.00	-194.22	0.00	194.22	2669.12	1334.56	4251.37	2128.84	0.17	-0.08	0.048	
24.00	-25.90	-1.96	0.00	-190.29	0.00	190.29	2654.82	1327.41	4194.44	2100.34	0.21	-0.08	0.047	
25.96	-25.58	-1.95	0.00	-186.46	0.00	186.46	2640.69	1320.34	4138.83	2072.49	0.24	-0.09	0.041	
26.00	-25.57	-1.95	0.00	-186.38	0.00	186.38	2640.40	1320.20	4137.70	2071.92	0.24	-0.09	0.041	
27.88	-25.27	-1.94	0.00	-182.71	0.00	182.71	2626.74	1313.37	4084.54	2045.30	0.28	-0.10	0.050	
28.00	-25.25	-1.94	0.00	-182.48	0.00	182.48	2625.87	1312.93	4081.15	2043.61	0.28	-0.10	0.050	
30.00	-24.93	-1.93	0.00	-178.60	0.00	178.60	2611.22	1305.61	4024.80	2015.39	0.33	-0.10	0.049	
32.00	-24.61	-1.93	0.00	-174.73	0.00	174.73	2596.46	1298.23	3968.65	1987.27	0.37	-0.11	0.049	
34.00	-24.30	-1.92	0.00	-170.87	0.00	170.87	2581.58	1290.79	3912.71	1959.26	0.42	-0.12	0.048	
36.00	-23.98	-1.91	0.00	-167.03	0.00	167.03	2566.59	1283.29	3856.98	1931.36	0.47	-0.13	0.047	
38.00	-23.67	-1.90	0.00	-163.21	0.00	163.21	2551.48	1275.74	3801.46	1903.56	0.53	-0.14	0.047	
40.00	-23.36	-1.90	0.00	-159.40	0.00	159.40	2536.26	1268.13	3746.17	1875.87	0.59	-0.14	0.046	
40.50	-23.28	-1.89	0.00	-158.45	0.00	158.45	2532.44	1266.22	3732.38	1868.96	0.60	-0.15	0.046	
40.71	-23.25	-1.89	0.00	-158.05	0.00	158.05	2530.83	1265.42	3726.59	1866.07	0.61	-0.15	0.046	
42.00	-23.05	-1.89	0.00	-155.61	0.00	155.61	2520.93	1260.46	3691.10	1848.29	0.65	-0.15	0.046	
43.33	-22.84	-1.88	0.00	-153.09	0.00	153.09	2510.64	1255.32	3654.51	1829.97	0.69	-0.16	0.045	
44.00	-22.68	-1.88	0.00	-151.84	0.00	151.84	2505.48	1252.74	3636.25	1820.83	0.71	-0.16	0.044	
46.00	-22.20	-1.86	0.00	-148.08	0.00	148.08	2489.92	1244.96	3581.64	1793.48	0.78	-0.17	0.044	
48.00	-21.72	-1.84	0.00	-144.36	0.00	144.36	2474.44	1237.22	3527.03	1766.13	0.85	-0.17	0.047	
48.12	-21.71	-1.85	0.00	-144.14	0.00	144.14	2473.85	1236.92	3526.31	1765.66	0.86	-0.17	0.058	
50.00	-21.46	-1.84	0.00	-140.67	0.00	140.67	2458.96	1229.58	3472.46	1738.80	0.93	-0.18	0.057	
52.00	-21.20	-1.84	0.00	-136.99	0.00	136.99	2444.70	1222.24	3418.59	1711.94	1.00	-0.19	0.056	
54.00	-20.94	-1.83	0.00	-133.31	0.00	133.31	2430.04	1214.90	3364.80	1685.08	1.09	-0.20	0.055	
56.00	-20.68	-1.83	0.00	-129.65	0.00	129.65	2415.96	1207.56	3311.59	1658.22	1.17	-0.21	0.054	
58.00	-20.43	-1.83	0.00	-125.99	0.00	125.99	2402.46	1200.22	3258.94	1631.36	1.26	-0.22	0.053	
60.00	-20.17	-1.82	0.00	-122.34	0.00	122.34	2388.54	1192.88	3206.84	1604.50	1.35	-0.23	0.052	
60.71	-20.08	-1.82	0.00	-121.04	0.00	121.04	2389.70	1192.88	3206.84	1604.50	1.39	-0.23	0.066	
60.75	-20.08	-1.82	0.00	-120.97	0.00	120.97	2389.49	1192.88	3206.61	1604.27	1.39	-0.23	0.066	
62.00	-19.92	-1.83	0.00	-118.69	0.00	118.69	2376.77	1185.44	3154.16	1577.44	1.45	-0.24	0.065	
64.00	-19.66	-1.83	0.00	-115.04	0.00	115.04	2363.63	1177.99	3102.05	1550.60	1.55	-0.25	0.064	
66.00	-19.41	-1.83	0.00	-111.38	0.00	111.38	2350.07	1170.54	3050.04	1523.76	1.66	-0.26	0.062	
68.00	-19.16	-1.83	0.00	-107.72	0.00	107.72	2336.08	1163.09	3000.00	1496.92	1.77	-0.27	0.061	
70.00	-18.92	-1.83	0.00	-104.06	0.00	104.06	2321.66	1155.64	2950.00	1470.08	1.89	-0.28	0.060	
72.00	-18.67	-1.84	0.00	-100.39	0.00	100.39	2306.81	1148.19	2900.00	1443.24	2.01	-0.29	0.058	

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00	-18.43	-1.84	0.00	-96.72	0.00	96.72	1717.07	858.54	2205.13	1104.20	2.13	-0.30	0.057
76.00	-18.18	-1.84	0.00	-93.04	0.00	93.04	1705.70	852.85	2168.59	1085.91	2.26	-0.31	0.056
78.00	-17.94	-1.84	0.00	-89.36	0.00	89.36	1694.22	847.11	2132.20	1067.69	2.39	-0.32	0.054
78.25	-17.91	-1.84	0.00	-88.90	0.00	88.90	1692.78	846.39	2127.67	1065.41	2.41	-0.32	0.054
78.25	-17.91	-1.84	0.00	-88.90	0.00	88.90	1692.78	846.39	2127.67	1065.41	2.41	-0.32	0.054
80.00	-17.70	-1.85	0.00	-85.67	0.00	85.67	1682.63	841.31	2095.97	1049.54	2.53	-0.33	0.092
82.00	-17.46	-1.85	0.00	-81.98	0.00	81.98	1670.92	835.46	2059.89	1031.48	2.67	-0.35	0.090
84.00	-17.22	-1.85	0.00	-78.28	0.00	78.28	1659.09	829.55	2023.98	1013.49	2.82	-0.37	0.088
86.00	-16.99	-1.86	0.00	-74.58	0.00	74.58	1647.16	823.58	1988.23	995.59	2.98	-0.38	0.085
87.42	-16.82	-1.86	0.00	-71.95	0.00	71.95	1638.63	819.32	1963.01	982.97	3.10	-0.39	0.083
88.00	-16.72	-1.86	0.00	-70.87	0.00	70.87	1635.10	817.55	1952.65	977.78	3.15	-0.40	0.083
90.00	-13.53	-1.84	0.00	-67.15	0.00	67.15	1622.94	811.47	1917.25	960.05	3.32	-0.42	0.078
91.33	-13.31	-1.84	0.00	-64.69	0.00	64.69	1099.39	549.70	1312.06	657.00	3.43	-0.43	0.111
92.00	-13.25	-1.84	0.00	-63.47	0.00	63.47	1097.24	548.62	1304.79	653.36	3.49	-0.43	0.109
94.00	-13.01	-1.84	0.00	-59.78	0.00	59.78	1090.71	545.35	1282.99	642.45	3.68	-0.45	0.105
96.00	-12.82	-1.85	0.00	-56.09	0.00	56.09	1084.06	542.03	1261.23	631.55	3.87	-0.47	0.101
98.00	-12.63	-1.85	0.00	-52.40	0.00	52.40	1077.30	538.65	1239.51	620.68	4.07	-0.49	0.096
100.00	-10.42	-1.83	0.00	-48.70	0.00	48.70	1070.43	535.22	1217.83	609.82	4.28	-0.50	0.090
102.00	-10.26	-1.84	0.00	-45.03	0.00	45.03	1063.44	531.72	1196.21	598.99	4.50	-0.52	0.085
104.00	-10.09	-1.84	0.00	-41.36	0.00	41.36	1056.34	528.17	1174.63	588.19	4.72	-0.54	0.080
106.00	-9.92	-1.83	0.00	-37.69	0.00	37.69	1049.12	524.56	1153.11	577.41	4.95	-0.55	0.075
108.00	-9.76	-1.83	0.00	-34.02	0.00	34.02	1041.79	520.90	1131.65	566.67	5.18	-0.57	0.069
110.00	-7.95	-1.73	0.00	-30.36	0.00	30.36	1034.34	517.17	1110.26	555.96	5.42	-0.58	0.062
112.00	-7.82	-1.72	0.00	-26.90	0.00	26.90	1026.79	513.39	1088.94	545.28	5.67	-0.59	0.057
114.00	-7.68	-1.71	0.00	-23.46	0.00	23.46	1019.11	509.56	1067.70	534.64	5.92	-0.60	0.051
116.00	-7.55	-1.71	0.00	-20.03	0.00	20.03	1011.32	505.66	1046.53	524.04	6.17	-0.61	0.046
118.00	-7.42	-1.69	0.00	-16.62	0.00	16.62	1003.42	501.71	1025.45	513.49	6.43	-0.62	0.040
120.00	-5.17	-1.36	0.00	-13.23	0.00	13.23	995.40	497.70	1004.45	502.97	6.69	-0.63	0.032
120.00	-5.17	-1.36	0.00	-13.23	0.00	13.23	735.22	367.61	535.89	335.79	6.69	-0.63	0.046
122.00	-5.04	-1.34	0.00	-10.52	0.00	10.52	735.22	367.61	535.89	335.79	6.96	-0.64	0.038
124.00	-4.92	-1.33	0.00	-7.83	0.00	7.83	735.22	367.61	535.89	335.79	7.23	-0.65	0.030
126.00	-4.80	-1.31	0.00	-5.18	0.00	5.18	735.22	367.61	535.89	335.79	7.50	-0.65	0.022
128.00	-4.68	-1.28	0.00	-2.57	0.00	2.57	735.22	367.61	535.89	335.79	7.77	-0.66	0.014
130.00	0.00	-1.23	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	8.05	-0.66	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



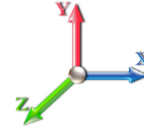
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00

**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	RB1 RB2	1.00	0.85	7.442	8.19	198.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	7.442	8.19	197.48	0.650	0.000	2.00	7.166	4.66	38.1	0.0	283.7
4.00		1.00	0.85	7.442	8.19	196.03	0.650	0.000	2.00	7.114	4.62	37.9	0.0	281.6
6.00		1.00	0.85	7.442	8.19	194.58	0.650	0.000	2.00	7.061	4.59	37.6	0.0	279.5
8.00		1.00	0.85	7.442	8.19	193.12	0.650	0.000	2.00	7.009	4.56	37.3	0.0	277.4
10.00		1.00	0.85	7.442	8.19	191.67	0.650	0.000	2.00	6.956	4.52	37.0	0.0	275.3
10.25	RT2 RB3	1.00	0.85	7.442	8.19	191.49	0.650	0.000	0.25	0.866	0.56	4.6	0.0	34.3
12.00		1.00	0.85	7.442	8.19	190.21	0.650	0.000	1.75	6.038	3.92	32.1	0.0	239.0
14.00		1.00	0.85	7.442	8.19	188.76	0.650	0.000	2.00	6.851	4.45	36.5	0.0	271.1
16.00		1.00	0.86	7.534	8.29	188.46	0.650	0.000	2.00	6.798	4.42	36.6	0.0	269.0
18.00		1.00	0.88	7.723	8.50	189.33	0.650	0.000	2.00	6.746	4.38	37.2	0.0	266.9
20.00		1.00	0.90	7.896	8.69	189.94	0.650	0.000	2.00	6.693	4.35	37.8	0.0	264.9
20.50	RT1 RB4	1.00	0.91	7.937	8.73	190.06	0.650	0.000	0.50	1.665	1.08	9.4	0.0	65.9
22.00		1.00	0.92	8.056	8.86	190.35	0.650	0.000	1.50	4.976	3.23	28.7	0.0	196.9
24.00		1.00	0.94	8.205	9.03	190.57	0.650	0.000	2.00	6.588	4.28	38.7	0.0	260.7
25.96	RB5	1.00	0.95	8.342	9.18	190.64	0.650	0.000	1.96	6.405	4.16	38.2	0.0	253.4
26.00		1.00	0.95	8.345	9.18	190.64	0.650	0.000	0.04	0.130	0.08	0.8	0.0	5.2
27.88	RT3 RB6	1.00	0.97	8.468	9.31	190.59	0.650	0.000	1.88	6.096	3.96	36.9	0.0	241.1
28.00		1.00	0.97	8.476	9.32	190.59	0.650	0.000	0.12	0.387	0.25	2.3	0.0	15.3
30.00		1.00	0.98	8.600	9.46	190.41	0.650	0.000	2.00	6.430	4.18	39.5	0.0	254.4
32.00		1.00	1.00	8.717	9.59	190.14	0.650	0.000	2.00	6.378	4.15	39.8	0.0	252.3
34.00		1.00	1.01	8.829	9.71	189.77	0.650	0.000	2.00	6.325	4.11	39.9	0.0	250.2
36.00		1.00	1.02	8.936	9.83	189.32	0.650	0.000	2.00	6.273	4.08	40.1	0.0	248.1
38.00		1.00	1.03	9.039	9.94	188.80	0.650	0.000	2.00	6.220	4.04	40.2	0.0	246.0
40.00		1.00	1.04	9.137	10.05	188.21	0.650	0.000	2.00	6.168	4.01	40.3	0.0	243.9
40.50	RT4 RB7	1.00	1.05	9.161	10.08	188.06	0.650	0.000	0.50	1.534	1.00	10.0	0.0	60.6
40.71	RT5 RB8	1.00	1.05	9.171	10.09	187.99	0.650	0.000	0.21	0.643	0.42	4.2	0.0	25.4
42.00		1.00	1.05	9.231	10.15	187.56	0.650	0.000	1.29	3.938	2.56	26.0	0.0	155.7
43.33	Bot - Section 2	1.00	1.06	9.292	10.22	187.10	0.650	0.000	1.33	4.048	2.63	26.9	0.0	160.0
44.00		1.00	1.06	9.322	10.25	186.86	0.650	0.000	0.67	2.043	1.33	13.6	0.0	144.4
46.00		1.00	1.07	9.410	10.35	186.10	0.650	0.000	2.00	6.095	3.96	41.0	0.0	430.7
48.00	Top - Section 1	1.00	1.08	9.494	10.44	185.29	0.650	0.000	2.00	6.042	3.93	41.0	0.0	426.9
48.12	RT6	1.00	1.08	9.499	10.45	187.89	0.650	0.000	0.12	0.361	0.23	2.5	0.0	11.4
50.00		1.00	1.09	9.576	10.53	187.09	0.650	0.000	1.88	5.629	3.66	38.5	0.0	178.3
52.00		1.00	1.10	9.656	10.62	186.21	0.650	0.000	2.00	5.937	3.86	41.0	0.0	188.1
54.00		1.00	1.11	9.733	10.71	185.29	0.650	0.000	2.00	5.884	3.82	40.9	0.0	186.4
56.00		1.00	1.12	9.807	10.79	184.33	0.650	0.000	2.00	5.832	3.79	40.9	0.0	184.7
58.00		1.00	1.13	9.880	10.87	183.34	0.650	0.000	2.00	5.779	3.76	40.8	0.0	183.1
60.00		1.00	1.14	9.951	10.95	182.31	0.650	0.000	2.00	5.727	3.72	40.7	0.0	181.4
60.71	RT8	1.00	1.14	9.976	10.97	181.94	0.650	0.000	0.71	2.020	1.31	14.4	0.0	64.0
60.75	RT7 RB9	1.00	1.14	9.977	10.97	181.92	0.650	0.000	0.04	0.114	0.07	0.8	0.0	3.6
62.00		1.00	1.14	10.020	11.02	181.26	0.650	0.000	1.25	3.540	2.30	25.4	0.0	112.1
64.00		1.00	1.15	10.087	11.10	180.17	0.650	0.000	2.00	5.622	3.65	40.5	0.0	178.0
66.00		1.00	1.16	10.153	11.17	179.06	0.650	0.000	2.00	5.569	3.62	40.4	0.0	176.3
68.00		1.00	1.17	10.217	11.24	177.92	0.650	0.000	2.00	5.516	3.59	40.3	0.0	174.7
70.00		1.00	1.17	10.279	11.31	176.75	0.650	0.000	2.00	5.464	3.55	40.2	0.0	173.0
72.00		1.00	1.18	10.340	11.37	175.57	0.650	0.000	2.00	5.411	3.52	40.0	0.0	171.3

## Wind Loading - Shaft

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00	1.00	1.19	10.400	11.44	174.35	0.650	0.000	2.00	5.359	3.48	39.8	0.0	169.6	
76.00	1.00	1.19	10.459	11.50	173.12	0.650	0.000	2.00	5.306	3.45	39.7	0.0	168.0	
78.00	1.00	1.20	10.516	11.57	171.87	0.650	0.000	2.00	5.254	3.41	39.5	0.0	166.3	
78.25 RT9	1.00	1.20	10.523	11.58	171.71	0.650	0.000	0.25	0.653	0.42	4.9	0.0	20.7	
80.00	1.00	1.21	10.572	11.63	170.59	0.650	0.000	1.75	4.548	2.96	34.4	0.0	143.9	
82.00	1.00	1.21	10.627	11.69	169.30	0.650	0.000	2.00	5.148	3.35	39.1	0.0	162.9	
84.00	1.00	1.22	10.681	11.75	167.99	0.650	0.000	2.00	5.096	3.31	38.9	0.0	161.2	
86.00	1.00	1.23	10.734	11.81	166.66	0.650	0.000	2.00	5.043	3.28	38.7	0.0	159.6	
87.42 Bot - Section 3	1.00	1.23	10.771	11.85	165.71	0.650	0.000	1.42	3.541	2.30	27.3	0.0	112.0	
88.00	1.00	1.23	10.787	11.87	165.31	0.650	0.000	0.58	1.469	0.95	11.3	0.0	80.8	
90.00 Appurtenance(s)	1.00	1.24	10.838	11.92	163.95	0.650	0.000	2.00	5.002	3.25	38.8	0.0	275.2	
91.33 Top - Section 2	1.00	1.24	10.871	11.96	163.03	0.650	0.000	1.33	3.305	2.15	25.7	0.0	181.8	
92.00	1.00	1.24	10.888	11.98	164.69	0.650	0.000	0.67	1.644	1.07	12.8	0.0	39.1	
94.00 Appurtenance(s)	1.00	1.25	10.937	12.03	163.30	0.650	0.000	2.00	4.897	3.18	38.3	0.0	116.4	
96.00	1.00	1.25	10.986	12.08	161.90	0.650	0.000	2.00	4.844	3.15	38.0	0.0	115.2	
98.00	1.00	1.26	11.034	12.14	160.48	0.650	0.000	2.00	4.791	3.11	37.8	0.0	113.9	
100.00 Appurtenance(s)	1.00	1.27	11.081	12.19	159.05	0.650	0.000	2.00	4.739	3.08	37.5	0.0	112.6	
102.00	1.00	1.27	11.127	12.24	157.60	0.650	0.000	2.00	4.686	3.05	37.3	0.0	111.4	
104.00	1.00	1.28	11.173	12.29	156.14	0.650	0.000	2.00	4.634	3.01	37.0	0.0	110.1	
106.00	1.00	1.28	11.218	12.34	154.67	0.650	0.000	2.00	4.581	2.98	36.7	0.0	108.9	
108.00	1.00	1.29	11.262	12.39	153.19	0.650	0.000	2.00	4.529	2.94	36.5	0.0	107.6	
110.00 Appurtenance(s)	1.00	1.29	11.305	12.44	151.69	0.650	0.000	2.00	4.476	2.91	36.2	0.0	106.4	
112.00	1.00	1.30	11.348	12.48	150.19	0.650	0.000	2.00	4.423	2.88	35.9	0.0	105.1	
114.00	1.00	1.30	11.391	12.53	148.67	0.650	0.000	2.00	4.371	2.84	35.6	0.0	103.8	
116.00	1.00	1.31	11.432	12.58	147.14	0.650	0.000	2.00	4.318	2.81	35.3	0.0	102.6	
118.00	1.00	1.31	11.474	12.62	145.60	0.650	0.000	2.00	4.266	2.77	35.0	0.0	101.3	
120.00 Top - Section 3	1.00	1.32	11.514	12.67	144.05	0.650	0.000	2.00	4.213	2.74	34.7	0.0	100.1	
122.00	1.00	1.32	11.554	12.71	103.39	0.620 *	0.000	2.00	3.000	1.86	23.6	0.0	94.9	
124.00	1.00	1.32	11.594	12.75	103.57	0.620 *	0.000	2.00	3.000	1.86	23.7	0.0	94.9	
126.00	1.00	1.33	11.633	12.80	103.74	0.620 *	0.000	2.00	3.000	1.86	23.8	0.0	94.9	
128.00	1.00	1.33	11.672	12.84	103.92	0.620 *	0.000	2.00	3.000	1.86	23.9	0.0	94.9	
130.00 Appurtenance(s)	1.00	1.34	11.710	12.88	104.08	0.620 *	0.000	2.00	3.000	1.86	24.0	0.0	94.9	
<b>Totals:</b>								<b>130.00</b>				<b>2,439.4</b>		<b>12,677.2</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

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	130.00	DC6-48-60-18-8F	2	11.710	12.881	0.38	0.75	0.69	63.60	0.000	0.000	8.89	0.00	0.00
2	130.00	6' Lightning rod	1	11.766	12.943	1.00	1.00	0.38	6.50	0.000	3.000	4.92	0.00	14.76
3	130.00	Cci DMP65R-BU6DA	3	11.710	12.881	0.54	0.75	20.62	189.90	0.000	0.000	265.59	0.00	0.00
4	130.00	RRUS 32	6	11.710	12.881	0.38	0.75	3.71	462.00	0.000	0.000	47.82	0.00	0.00
5	130.00	RRUS 4478 B14	3	11.710	12.881	0.38	0.75	1.86	178.20	0.000	0.000	23.91	0.00	0.00
6	130.00	B2 B66A 8843	3	11.710	12.881	0.38	0.75	1.84	210.00	0.000	0.000	23.77	0.00	0.00
7	130.00	4449 B5/B12	3	11.710	12.881	0.38	0.75	2.22	213.00	0.000	0.000	28.55	0.00	0.00
8	130.00	RRUS E2 B29	3	11.710	12.881	0.38	0.75	3.54	178.20	0.000	0.000	45.65	0.00	0.00
9	130.00	Additional mount pipe	3	11.710	12.881	0.56	0.75	2.95	51.00	0.000	0.000	38.04	0.00	0.00
10	130.00	Ericsson AIR6449	3	11.672	12.839	0.64	0.75	7.90	264.00	0.000	-2.000	101.41	0.00	-202.82
11	130.00	(3) Horizontal bracing	1	11.710	12.881	0.75	0.75	4.45	137.25	0.000	0.000	57.36	0.00	0.00
12	130.00	Ericsson AIR6419	3	11.748	12.922	0.57	0.75	6.50	198.30	0.000	2.000	83.97	0.00	167.94
13	130.00	Quinte QD6616-7	3	11.710	12.881	0.56	0.75	22.92	177.30	0.000	0.000	295.18	0.00	0.00
14	130.00	DC6-48-60-0-8C	2	11.710	12.881	0.38	0.75	3.58	32.00	0.000	0.000	46.18	0.00	0.00
15	130.00	Angle Reinforcement kit	1	11.710	12.881	1.00	1.00	5.80	250.00	0.000	0.000	74.71	0.00	0.00
16	130.00	PRK-1245 (kicker kit)	1	11.710	12.881	1.00	1.00	9.50	464.91	0.000	0.000	122.37	0.00	0.00
17	130.00	MTC3607 Platform + HR	1	11.710	12.881	1.00	1.00	45.40	2000.00	0.000	0.000	584.80	0.00	0.00
18	120.00	MC-PK8-DSH	1	11.514	12.666	1.00	1.00	37.59	1727.00	0.000	0.000	476.11	0.00	0.00
19	120.00	RDIDC-9181-OF-48	1	11.514	12.666	0.38	0.75	0.75	21.90	0.000	0.000	9.55	0.00	0.00
20	120.00	TA08025-B604	3	11.514	12.666	0.38	0.75	2.21	191.70	0.000	0.000	27.93	0.00	0.00
21	120.00	TA08025-B605	3	11.514	12.666	0.38	0.75	2.21	225.00	0.000	0.000	27.93	0.00	0.00
22	120.00	MX08FRO665-21	3	11.514	12.666	0.55	0.75	20.80	193.50	0.000	0.000	263.40	0.00	0.00
23	110.00	B4 RRH2X60-4R	3	11.305	12.436	0.40	0.80	4.03	165.00	0.000	0.000	50.14	0.00	0.00
24	110.00	SBNHH-1D65B	6	11.305	12.436	0.63	0.80	30.94	240.00	0.000	0.000	384.80	0.00	0.00
25	110.00	RRH2X60-1900A-4R	3	11.305	12.436	0.40	0.80	2.26	138.00	0.000	0.000	28.06	0.00	0.00
26	110.00	B13 RRH4X30-4R	3	11.305	12.436	0.40	0.80	2.59	171.60	0.000	0.000	32.23	0.00	0.00
27	110.00	CBC721-DF	3	11.284	12.412	0.40	0.80	0.54	13.20	0.000	-1.000	6.70	0.00	-6.70
28	110.00	DB-T1-6Z-8AB-0Z	2	11.305	12.436	0.40	0.80	3.84	37.80	0.000	0.000	47.75	0.00	0.00
29	110.00	T-Arm (Round)	3	11.305	12.436	0.56	0.75	13.50	1050.00	0.000	0.000	167.88	0.00	0.00
30	110.00	CBC721-DF	3	11.327	12.460	0.40	0.80	0.54	13.20	0.000	1.000	6.73	0.00	6.73
31	100.00	Ericsson AIR21 B2A B4P	3	11.081	12.189	0.64	0.80	11.69	274.50	0.000	0.000	142.52	0.00	0.00
32	100.00	Ericsson AIR21 B4A B2P	3	11.081	12.189	0.64	0.80	11.69	271.20	0.000	0.000	142.52	0.00	0.00
33	100.00	Kathrein 782 11056	3	11.081	12.189	0.40	0.80	0.16	5.40	0.000	0.000	1.90	0.00	0.00
34	100.00	T-Arm (Round)	3	11.081	12.189	0.56	0.75	13.50	1050.00	0.000	0.000	164.55	0.00	0.00
35	100.00	RFS	3	11.081	12.189	0.58	0.80	35.46	368.40	0.000	0.000	432.22	0.00	0.00
36	100.00	Ericsson 4480 B71 + B85	3	11.081	12.189	0.59	0.80	5.06	279.00	0.000	0.000	61.69	0.00	0.00
37	94.00	1'4"x6.5"x6" Surge	1	10.937	12.031	0.80	0.80	1.71	53.00	0.000	0.000	20.60	0.00	0.00
38	90.00	F3P-10W	1	10.838	11.921	1.00	1.00	51.77	2122.00	0.000	0.000	617.17	0.00	0.00
39	90.00	NNVV-65B-R4	3	10.838	11.921	0.55	0.75	20.43	232.20	0.000	0.000	243.55	0.00	0.00
40	90.00	AAHC	3	10.838	11.921	0.56	0.75	7.09	312.00	0.000	0.000	84.49	0.00	0.00
41	90.00	ALU - 800 MHz - RRU	6	10.838	11.921	0.38	0.75	5.60	318.00	0.000	0.000	66.79	0.00	0.00
42	90.00	ALU - 1900MHz - RRU	3	10.838	11.921	0.38	0.75	4.27	132.00	0.000	0.000	50.96	0.00	0.00
43	90.00	Andrew - VHLP2-11	2	10.838	11.921	0.75	0.75	7.02	54.00	0.000	0.000	83.69	0.00	0.00

**Totals: 14,735.76**

**5,494.98**

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

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
2.00		38.13	385.58	0.00	0.00
4.00		37.85	383.49	0.00	0.00
6.00		37.57	381.39	0.00	0.00
8.00		37.29	379.29	0.00	0.00
10.00		37.01	377.20	0.00	0.00
10.25		4.61	47.00	0.00	0.00
12.00		32.13	328.10	0.00	0.00
14.00		36.45	373.00	0.00	0.00
16.00		36.62	370.91	0.00	0.00
18.00		37.25	368.81	0.00	0.00
20.00		37.79	366.71	0.00	0.00
20.50		9.45	91.35	0.00	0.00
22.00		28.66	273.27	0.00	0.00
24.00		38.65	362.52	0.00	0.00
25.96		38.20	353.24	0.00	0.00
26.00		0.78	7.19	0.00	0.00
27.88		36.91	336.89	0.00	0.00
28.00		2.35	21.44	0.00	0.00
30.00		39.54	356.23	0.00	0.00
32.00		39.75	354.14	0.00	0.00
34.00		39.93	352.04	0.00	0.00
36.00		40.08	349.94	0.00	0.00
38.00		40.20	347.85	0.00	0.00
40.00		40.29	345.75	0.00	0.00
40.50		10.05	86.11	0.00	0.00
40.71		4.22	36.13	0.00	0.00
42.00		25.99	221.42	0.00	0.00
43.33		26.89	227.94	0.00	0.00
44.00		13.62	178.36	0.00	0.00
46.00		41.00	532.58	0.00	0.00
48.00		41.02	528.80	0.00	0.00
48.12		2.45	17.54	0.00	0.00
50.00		38.54	274.08	0.00	0.00
52.00		40.99	289.95	0.00	0.00
54.00		40.95	288.27	0.00	0.00
56.00		40.89	286.59	0.00	0.00
58.00		40.83	284.92	0.00	0.00
60.00		40.74	283.24	0.00	0.00
60.71		14.41	100.15	0.00	0.00
60.75		0.81	5.64	0.00	0.00
62.00		25.36	175.78	0.00	0.00
64.00		40.54	279.88	0.00	0.00
66.00		40.43	278.21	0.00	0.00
68.00		40.30	276.53	0.00	0.00
70.00		40.16	274.85	0.00	0.00
72.00		40.01	273.18	0.00	0.00

## Total Applied Force Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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74.00		39.85	271.50	0.00	0.00
76.00		39.68	269.82	0.00	0.00
78.00		39.50	268.14	0.00	0.00
78.25		4.91	33.40	0.00	0.00
80.00		34.38	233.07	0.00	0.00
82.00		39.12	264.79	0.00	0.00
84.00		38.92	263.11	0.00	0.00
86.00		38.71	261.44	0.00	0.00
87.42		27.27	184.17	0.00	0.00
88.00		11.33	110.52	0.00	0.00
90.00	(18) attachments	1185.42	3547.22	0.00	0.00
91.33		25.69	244.14	0.00	0.00
92.00		12.80	70.25	0.00	0.00
94.00	(1) attachments	58.89	262.92	0.00	0.00
96.00		38.05	208.66	0.00	0.00
98.00		37.80	207.40	0.00	0.00
100.00	(18) attachments	982.95	2454.65	0.00	0.00
102.00		37.28	185.81	0.00	0.00
104.00		37.02	184.55	0.00	0.00
106.00		36.74	183.29	0.00	0.00
108.00		36.46	182.03	0.00	0.00
110.00	(26) attachments	760.48	2009.58	0.00	0.03
112.00		35.89	150.16	0.00	0.00
114.00		35.60	148.90	0.00	0.00
116.00		35.30	147.64	0.00	0.00
118.00		35.00	146.38	0.00	0.00
120.00	(11) attachments	839.59	2504.23	0.00	0.00
122.00		23.64	136.30	0.00	0.00
124.00		23.72	136.30	0.00	0.00
126.00		23.80	136.30	0.00	0.00
128.00		23.88	136.30	0.00	0.00
130.00	(42) attachments	1877.07	5212.46	0.00	-20.13
<b>Totals:</b>		<b>7,934.42</b>	<b>33,268.84</b>	<b>0.00</b>	<b>-20.10</b>

## Linear Appurtenance Segment Forces (Factored)

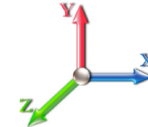
<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	7.442	0.00	9.66
2.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.070	0.000	7.442	0.00	0.00
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	7.442	0.00	0.00
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	7.442	0.00	9.66
4.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.070	0.000	7.442	0.00	0.00
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.070	0.000	7.442	0.00	0.00
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	7.442	0.00	9.66
6.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.071	0.000	7.442	0.00	0.00
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	7.442	0.00	0.00
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	7.442	0.00	9.66
8.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.071	0.000	7.442	0.00	0.00
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.071	0.000	7.442	0.00	0.00
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	7.442	0.00	9.66
10.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.072	0.000	7.442	0.00	0.00
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.072	0.000	7.442	0.00	0.00
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.072	0.000	7.442	0.00	1.21
10.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.02	0.00	0.072	0.000	7.442	0.00	0.00
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.072	0.000	7.442	0.00	0.00
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.072	0.000	7.442	0.00	8.45
12.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.15	0.00	0.072	0.000	7.442	0.00	0.00
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.072	0.000	7.442	0.00	0.00
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	7.442	0.00	9.66
14.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.073	0.000	7.442	0.00	0.00
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.073	0.000	7.442	0.00	0.00
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	7.534	0.00	9.66
16.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.074	0.000	7.534	0.00	0.00
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	7.534	0.00	0.00
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	7.723	0.00	9.66
18.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.074	0.000	7.723	0.00	0.00
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.074	0.000	7.723	0.00	0.00
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	7.896	0.00	9.66
20.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.075	0.000	7.896	0.00	0.00
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.075	0.000	7.896	0.00	0.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.075	0.000	7.937	0.00	2.42
20.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.075	0.000	7.937	0.00	0.00
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.075	0.000	7.937	0.00	0.00
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.075	0.000	8.056	0.00	7.25
22.00	1" Reinforcing plate	Yes	1.50	0.000	1.00	0.13	0.00	0.075	0.000	8.056	0.00	0.00
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.075	0.000	8.056	0.00	0.00
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	8.205	0.00	9.66
24.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.076	0.000	8.205	0.00	0.00
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.076	0.000	8.205	0.00	0.00
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	8.205	0.00	0.00
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.33	0.00	0.076	0.000	8.342	0.00	9.47
25.96	1" Reinforcing plate	Yes	1.96	0.000	1.00	0.16	0.00	0.076	0.000	8.342	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	8.342	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.076	0.000	8.342	0.00	0.00



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



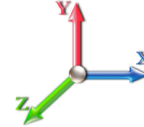
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.077	0.000	8.345	0.00	0.19
26.00	1" Reinforcing plate	Yes	0.04	0.000	1.00	0.00	0.00	0.077	0.000	8.345	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.077	0.000	8.345	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.077	0.000	8.345	0.00	0.00
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.077	0.000	8.468	0.00	9.08
27.88	1" Reinforcing plate	Yes	1.88	0.000	1.00	0.16	0.00	0.077	0.000	8.468	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.077	0.000	8.468	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.077	0.000	8.468	0.00	0.00
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.077	0.000	8.476	0.00	0.58
28.00	1" Reinforcing plate	Yes	0.12	0.000	1.00	0.01	0.00	0.077	0.000	8.476	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.077	0.000	8.476	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.077	0.000	8.476	0.00	0.00
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	8.600	0.00	9.66
30.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.078	0.000	8.600	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	8.600	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	8.600	0.00	0.00
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	8.717	0.00	9.66
32.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.078	0.000	8.717	0.00	0.00
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.078	0.000	8.717	0.00	0.00
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.078	0.000	8.717	0.00	0.00
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.078	0.000	8.717	0.00	0.00
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	8.829	0.00	9.66
34.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.079	0.000	8.829	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.079	0.000	8.829	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.079	0.000	8.829	0.00	0.00
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.080	0.000	8.936	0.00	9.66
36.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.080	0.000	8.936	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	8.936	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	8.936	0.00	0.00
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.080	0.000	9.039	0.00	9.66
38.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.080	0.000	9.039	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	9.039	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.080	0.000	9.039	0.00	0.00
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.081	0.000	9.137	0.00	9.66
40.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.081	0.000	9.137	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.081	0.000	9.137	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.081	0.000	9.137	0.00	0.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.082	0.000	9.161	0.00	2.42
40.50	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.082	0.000	9.161	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	9.161	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	9.161	0.00	0.00
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.04	0.00	0.082	0.000	9.171	0.00	1.01
40.71	1" Reinforcing plate	Yes	0.21	0.000	1.00	0.02	0.00	0.082	0.000	9.171	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.082	0.000	9.171	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.082	0.000	9.171	0.00	0.00
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.21	0.00	0.082	0.000	9.231	0.00	6.23
42.00	1" Reinforcing plate	Yes	1.29	0.000	1.00	0.11	0.00	0.082	0.000	9.231	0.00	0.00

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



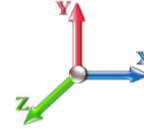
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.082	0.000	9.231	0.00	0.00
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.082	0.000	9.231	0.00	0.00
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.082	0.000	9.292	0.00	6.44
43.33	1" Reinforcing plate	Yes	1.33	0.000	1.00	0.11	0.00	0.082	0.000	9.292	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.082	0.000	9.292	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.082	0.000	9.292	0.00	0.00
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.083	0.000	9.322	0.00	3.22
44.00	1" Reinforcing plate	Yes	0.67	0.000	1.00	0.06	0.00	0.083	0.000	9.322	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.083	0.000	9.322	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.083	0.000	9.322	0.00	0.00
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.083	0.000	9.410	0.00	9.66
46.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.083	0.000	9.410	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	9.410	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.083	0.000	9.410	0.00	0.00
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.084	0.000	9.494	0.00	9.66
48.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.084	0.000	9.494	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	9.494	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	9.494	0.00	0.00
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.083	0.000	9.499	0.00	0.58
48.12	1" Reinforcing plate	Yes	0.12	0.000	1.00	0.01	0.00	0.083	0.000	9.499	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.083	0.000	9.499	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.083	0.000	9.499	0.00	0.00
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.084	0.000	9.576	0.00	9.08
50.00	1" Reinforcing plate	Yes	1.88	0.000	1.00	0.16	0.00	0.084	0.000	9.576	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.084	0.000	9.576	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.084	0.000	9.576	0.00	0.00
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.084	0.000	9.656	0.00	9.66
52.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.084	0.000	9.656	0.00	0.00
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.084	0.000	9.656	0.00	0.00
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.084	0.000	9.656	0.00	0.00
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.085	0.000	9.733	0.00	9.66
54.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.085	0.000	9.733	0.00	0.00
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.085	0.000	9.733	0.00	0.00
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.086	0.000	9.807	0.00	9.66
56.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.086	0.000	9.807	0.00	0.00
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.086	0.000	9.807	0.00	0.00
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.087	0.000	9.880	0.00	9.66
58.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.087	0.000	9.880	0.00	0.00
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.087	0.000	9.880	0.00	0.00
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.087	0.000	9.951	0.00	9.66
60.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.087	0.000	9.951	0.00	0.00
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.087	0.000	9.951	0.00	0.00
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.12	0.00	0.088	0.000	9.976	0.00	3.43
60.71	1" Reinforcing plate	Yes	0.71	0.000	1.00	0.06	0.00	0.088	0.000	9.976	0.00	0.00
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.088	0.000	9.976	0.00	0.00
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.088	0.000	9.977	0.00	0.19
60.75	1" Reinforcing plate	Yes	0.04	0.000	1.00	0.00	0.00	0.088	0.000	9.977	0.00	0.00

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.088	0.000	9.977	0.00	0.00
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.21	0.00	0.088	0.000	10.020	0.00	6.04
62.00	1" Reinforcing plate	Yes	1.25	0.000	1.00	0.10	0.00	0.088	0.000	10.020	0.00	0.00
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.088	0.000	10.020	0.00	0.00
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.089	0.000	10.087	0.00	9.66
64.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.089	0.000	10.087	0.00	0.00
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.089	0.000	10.087	0.00	0.00
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.090	0.000	10.153	0.00	9.66
66.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.090	0.000	10.153	0.00	0.00
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.091	0.000	10.217	0.00	9.66
68.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.091	0.000	10.217	0.00	0.00
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.092	0.000	10.279	0.00	9.66
70.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.092	0.000	10.279	0.00	0.00
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.092	0.000	10.340	0.00	9.66
72.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.092	0.000	10.340	0.00	0.00
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	10.400	0.00	9.66
74.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.093	0.000	10.400	0.00	0.00
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	10.459	0.00	9.66
76.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.094	0.000	10.459	0.00	0.00
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	10.516	0.00	9.66
78.00	1" Reinforcing plate	Yes	2.00	0.000	1.00	0.17	0.00	0.095	0.000	10.516	0.00	0.00
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	10.523	0.00	1.21
78.25	1" Reinforcing plate	Yes	0.25	0.000	1.00	0.02	0.00	0.096	0.000	10.523	0.00	0.00
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.096	0.000	10.572	0.00	8.45
80.00	1" Reinforcing plate	Yes	1.75	0.000	1.00	0.15	0.00	0.096	0.000	10.572	0.00	0.00
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.081	0.000	10.627	0.00	9.66
82.00	1" Reinforcing plate	Yes	1.00	0.000	1.00	0.08	0.00	0.081	0.000	10.627	0.00	0.00
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.065	0.000	10.681	0.00	9.66
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.066	0.000	10.734	0.00	9.66
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.24	0.00	0.067	0.000	10.771	0.00	6.84
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.10	0.00	0.067	0.000	10.787	0.00	2.82
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	10.838	0.00	9.66
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	10.871	0.00	6.44
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.068	0.000	10.888	0.00	3.22
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	10.937	0.00	9.66
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.069	0.000	10.986	0.00	9.66
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	11.034	0.00	9.66
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	11.081	0.00	9.66
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	11.127	0.00	9.66
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	11.173	0.00	9.66
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	11.218	0.00	9.66
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	11.262	0.00	9.66
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	11.305	0.00	9.66
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	11.348	0.00	9.66
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	11.391	0.00	9.66
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.077	0.000	11.432	0.00	9.66
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	11.474	0.00	9.66

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	11.514	0.00	9.66
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.554	0.00	9.66
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.594	0.00	9.66
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.633	0.00	9.66
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.672	0.00	9.66
130.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.710	0.00	9.66
<b>Totals:</b>											<b>0.0</b>	<b>627.9</b>

## Calculated Forces

**Structure:** CT13064-A-SBA  
**Site Name:** Middletown 2, CT  
**Height:** 130.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

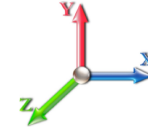
**Topography:** 1

**Code:** TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

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<b>Load Case:</b> 1.0D + 1.0W 60 mph Wind	<b>Iterations</b>	24
<b>Dead Load Factor</b>	1.00	
<b>Wind Load Factor</b>	1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.27	-7.94	0.00	-801.46	0.00	801.46	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.160
2.00	-32.88	-7.92	0.00	-785.58	0.00	785.58	2805.89	1402.95	4830.09	2418.63	0.00	-0.023	0.000	0.158
4.00	-32.49	-7.89	0.00	-769.75	0.00	769.75	2792.73	1396.36	4771.51	2389.30	0.02	-0.045	0.000	0.156
6.00	-32.11	-7.86	0.00	-753.97	0.00	753.97	2779.45	1389.73	4713.08	2360.04	0.04	-0.068	0.000	0.154
8.00	-31.73	-7.84	0.00	-738.24	0.00	738.24	2766.06	1383.03	4654.80	2330.86	0.08	-0.090	0.000	0.152
10.00	-31.35	-7.81	0.00	-722.56	0.00	722.56	2752.56	1376.28	4596.67	2301.75	0.12	-0.113	0.000	0.150
10.25	-31.30	-7.81	0.00	-720.61	0.00	720.61	2750.86	1375.43	4589.41	2298.12	0.13	-0.116	0.000	0.157
12.00	-30.97	-7.79	0.00	-706.94	0.00	706.94	2738.94	1369.47	4538.70	2272.72	0.17	-0.136	0.000	0.156
14.00	-30.59	-7.76	0.00	-691.36	0.00	691.36	2725.20	1362.60	4480.89	2243.77	0.23	-0.160	0.000	0.153
16.00	-30.22	-7.74	0.00	-675.83	0.00	675.83	2711.35	1355.68	4423.25	2214.91	0.31	-0.183	0.000	0.151
18.00	-29.84	-7.71	0.00	-660.35	0.00	660.35	2697.39	1348.70	4365.78	2186.13	0.39	-0.206	0.000	0.149
20.00	-29.48	-7.68	0.00	-644.93	0.00	644.93	2683.32	1341.66	4308.48	2157.44	0.48	-0.229	0.000	0.147
20.50	-29.38	-7.68	0.00	-641.09	0.00	641.09	2679.78	1339.89	4294.19	2150.28	0.50	-0.235	0.000	0.146
22.00	-29.11	-7.66	0.00	-629.57	0.00	629.57	2669.12	1334.56	4251.37	2128.84	0.58	-0.253	0.000	0.145
24.00	-28.74	-7.63	0.00	-614.26	0.00	614.26	2654.82	1327.41	4194.44	2100.34	0.69	-0.275	0.000	0.142
25.96	-28.39	-7.59	0.00	-599.31	0.00	599.31	2640.69	1320.34	4138.83	2072.49	0.81	-0.298	0.000	0.123
26.00	-28.38	-7.60	0.00	-599.01	0.00	599.01	2640.40	1320.20	4137.70	2071.92	0.81	-0.298	0.000	0.123
27.88	-28.04	-7.56	0.00	-584.72	0.00	584.72	2626.74	1313.37	4084.54	2045.30	0.93	-0.317	0.000	0.151
28.00	-28.02	-7.57	0.00	-583.81	0.00	583.81	2625.87	1312.93	4081.15	2043.61	0.94	-0.318	0.000	0.151
30.00	-27.66	-7.54	0.00	-568.68	0.00	568.68	2611.22	1305.61	4024.80	2015.39	1.08	-0.343	0.000	0.148
32.00	-27.30	-7.51	0.00	-553.60	0.00	553.60	2596.46	1298.23	3968.65	1987.27	1.23	-0.368	0.000	0.146
34.00	-26.95	-7.48	0.00	-538.59	0.00	538.59	2581.58	1290.79	3912.71	1959.26	1.39	-0.392	0.000	0.143
36.00	-26.59	-7.45	0.00	-523.63	0.00	523.63	2566.59	1283.29	3856.98	1931.36	1.56	-0.416	0.000	0.141
38.00	-26.24	-7.41	0.00	-508.74	0.00	508.74	2551.48	1275.74	3801.46	1903.56	1.74	-0.440	0.000	0.138
40.00	-25.90	-7.38	0.00	-493.91	0.00	493.91	2536.26	1268.13	3746.17	1875.87	1.93	-0.464	0.000	0.135
40.50	-25.81	-7.37	0.00	-490.22	0.00	490.22	2532.44	1266.22	3732.38	1868.96	1.97	-0.470	0.000	0.135
40.71	-25.77	-7.37	0.00	-488.68	0.00	488.68	2530.83	1265.42	3726.59	1866.07	2.00	-0.473	0.000	0.134
42.00	-25.55	-7.35	0.00	-479.17	0.00	479.17	2520.93	1260.46	3691.10	1848.29	2.13	-0.488	0.000	0.133
43.33	-25.32	-7.32	0.00	-469.38	0.00	469.38	2510.64	1255.32	3654.51	1829.97	2.26	-0.503	0.000	0.131
44.00	-25.14	-7.32	0.00	-464.49	0.00	464.49	2505.48	1252.74	3636.25	1820.83	2.33	-0.511	0.000	0.128
46.00	-24.60	-7.28	0.00	-449.86	0.00	449.86	2489.92	1244.96	3581.64	1793.48	2.55	-0.534	0.000	0.126
48.00	-24.07	-7.24	0.00	-435.30	0.00	435.30	2484.44	1244.96	3581.64	1793.48	2.78	-0.557	0.000	0.135
48.12	-24.06	-7.24	0.00	-434.44	0.00	434.44	2483.85	1244.96	3581.64	1793.48	2.80	-0.558	0.000	0.165
50.00	-23.78	-7.21	0.00	-420.82	0.00	420.82	2474.56	1244.96	3581.64	1793.48	3.02	-0.584	0.000	0.161
52.00	-23.49	-7.18	0.00	-406.40	0.00	406.40	2464.56	1244.96	3581.64	1793.48	3.27	-0.611	0.000	0.157
54.00	-23.19	-7.14	0.00	-392.05	0.00	392.05	2454.45	1244.96	3581.64	1793.48	3.53	-0.637	0.000	0.153
56.00	-22.91	-7.11	0.00	-377.76	0.00	377.76	2444.23	1244.96	3581.64	1793.48	3.81	-0.663	0.000	0.149
58.00	-22.62	-7.08	0.00	-363.54	0.00	363.54	2433.89	1244.96	3581.64	1793.48	4.09	-0.689	0.000	0.145
60.00	-22.33	-7.04	0.00	-349.38	0.00	349.38	2423.44	1244.96	3581.64	1793.48	4.38	-0.715	0.000	0.141
60.71	-22.23	-7.03	0.00	-344.39	0.00	344.39	2412.70	1244.96	3581.64	1793.48	4.49	-0.724	0.000	0.177
60.75	-22.23	-7.03	0.00	-344.10	0.00	344.10	2412.49	1244.96	3581.64	1793.48	4.50	-0.724	0.000	0.176
62.00	-22.05	-7.01	0.00	-335.32	0.00	335.32	2402.87	1244.96	3581.64	1793.48	4.69	-0.744	0.000	0.173
64.00	-21.76	-6.98	0.00	-321.30	0.00	321.30	2392.19	1244.96	3581.64	1793.48	5.01	-0.775	0.000	0.168
66.00	-21.48	-6.95	0.00	-307.34	0.00	307.34	2381.39	1244.96	3581.64	1793.48	5.34	-0.805	0.000	0.163
68.00	-21.20	-6.91	0.00	-293.45	0.00	293.45	2370.48	1244.96	3581.64	1793.48	5.68	-0.835	0.000	0.157
70.00	-20.93	-6.88	0.00	-279.63	0.00	279.63	2359.46	1244.96	3581.64	1793.48	6.04	-0.864	0.000	0.152
72.00	-20.65	-6.84	0.00	-265.87	0.00	265.87	2348.32	1244.96	3581.64	1793.48	6.41	-0.893	0.000	0.146
74.00	-20.38	-6.81	0.00	-252.19	0.00	252.19	2337.07	1244.96	3581.64	1793.48	6.79	-0.920	0.000	0.141

## Calculated Forces

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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76.00	-20.10	-6.77	0.00	-238.57	0.00	238.57	1705.70	852.85	2168.59	1085.91	7.18	-0.947	0.000	0.135
78.00	-19.83	-6.74	0.00	-225.02	0.00	225.02	1694.22	847.11	2132.20	1067.69	7.58	-0.973	0.000	0.129
78.25	-19.80	-6.73	0.00	-223.33	0.00	223.33	1692.78	846.39	2127.67	1065.41	7.63	-0.976	0.000	0.128
78.25	-19.80	-6.73	0.00	-223.33	0.00	223.33	1692.78	846.39	2127.67	1065.41	7.63	-0.976	0.000	0.128
80.00	-19.56	-6.71	0.00	-211.55	0.00	211.55	1682.63	841.31	2095.97	1049.54	7.99	-0.998	0.000	0.213
82.00	-19.29	-6.68	0.00	-198.14	0.00	198.14	1670.92	835.46	2059.89	1031.48	8.42	-1.040	0.000	0.204
84.00	-19.03	-6.65	0.00	-184.78	0.00	184.78	1659.09	829.55	2023.98	1013.49	8.87	-1.080	0.000	0.194
86.00	-18.76	-6.61	0.00	-171.49	0.00	171.49	1647.16	823.58	1988.23	995.59	9.33	-1.119	0.000	0.184
87.42	-18.58	-6.59	0.00	-162.12	0.00	162.12	1638.63	819.32	1963.01	982.97	9.66	-1.145	0.000	0.176
88.00	-18.46	-6.58	0.00	-158.28	0.00	158.28	1635.10	817.55	1952.65	977.78	9.80	-1.156	0.000	0.173
90.00	-14.94	-5.33	0.00	-145.11	0.00	145.11	1622.94	811.47	1917.25	960.05	10.30	-1.191	0.000	0.160
91.33	-14.69	-5.31	0.00	-138.00	0.00	138.00	1099.39	549.70	1312.06	657.00	10.63	-1.213	0.000	0.224
92.00	-14.62	-5.30	0.00	-134.47	0.00	134.47	1097.24	548.62	1304.79	653.36	10.80	-1.224	0.000	0.219
94.00	-14.36	-5.24	0.00	-123.87	0.00	123.87	1090.71	545.35	1282.99	642.45	11.32	-1.265	0.000	0.206
96.00	-14.15	-5.21	0.00	-113.38	0.00	113.38	1084.06	542.03	1261.23	631.55	11.86	-1.303	0.000	0.193
98.00	-13.94	-5.18	0.00	-102.97	0.00	102.97	1077.30	538.65	1239.51	620.68	12.42	-1.339	0.000	0.179
100.00	-11.50	-4.14	0.00	-92.61	0.00	92.61	1070.43	535.22	1217.83	609.82	12.98	-1.373	0.000	0.163
102.00	-11.32	-4.11	0.00	-84.33	0.00	84.33	1063.44	531.72	1196.21	598.99	13.57	-1.405	0.000	0.151
104.00	-11.13	-4.07	0.00	-76.12	0.00	76.12	1056.34	528.17	1174.63	588.19	14.16	-1.435	0.000	0.140
106.00	-10.95	-4.03	0.00	-67.98	0.00	67.98	1049.12	524.56	1153.11	577.41	14.77	-1.462	0.000	0.128
108.00	-10.76	-4.00	0.00	-59.91	0.00	59.91	1041.79	520.90	1131.65	566.67	15.39	-1.487	0.000	0.116
110.00	-8.77	-3.19	0.00	-51.92	0.00	51.92	1034.34	517.17	1110.26	555.96	16.02	-1.510	0.000	0.102
112.00	-8.62	-3.15	0.00	-45.55	0.00	45.55	1026.79	513.39	1088.94	545.28	16.65	-1.531	0.000	0.092
114.00	-8.47	-3.11	0.00	-39.25	0.00	39.25	1019.11	509.56	1067.70	534.64	17.30	-1.550	0.000	0.082
116.00	-8.33	-3.08	0.00	-33.02	0.00	33.02	1011.32	505.66	1046.53	524.04	17.95	-1.566	0.000	0.071
118.00	-8.18	-3.04	0.00	-26.87	0.00	26.87	1003.42	501.71	1025.45	513.49	18.61	-1.581	0.000	0.061
120.00	-5.70	-2.13	0.00	-20.79	0.00	20.79	995.40	497.70	1004.45	502.97	19.28	-1.592	0.000	0.047
120.00	-5.70	-2.13	0.00	-20.79	0.00	20.79	735.22	367.61	535.89	335.79	19.28	-1.592	0.000	0.070
122.00	-5.56	-2.11	0.00	-16.52	0.00	16.52	735.22	367.61	535.89	335.79	19.95	-1.602	0.000	0.057
124.00	-5.43	-2.08	0.00	-12.31	0.00	12.31	735.22	367.61	535.89	335.79	20.62	-1.617	0.000	0.044
126.00	-5.29	-2.05	0.00	-8.15	0.00	8.15	735.22	367.61	535.89	335.79	21.30	-1.627	0.000	0.032
128.00	-5.16	-2.03	0.00	-4.05	0.00	4.05	735.22	367.61	535.89	335.79	21.98	-1.634	0.000	0.019
130.00	0.00	-1.88	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	22.67	-1.636	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT13064-A-SBA	<b>Code:</b> TIA-222-G	5/5/2022
<b>Site Name:</b> Middletown 2, CT	<b>Exposure:</b> C	
<b>Height:</b> 130.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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 101 mph Wind	36.0	0.00	39.89	0.00	0.00	3654.36
0.9D + 1.6W 101 mph Wind	36.0	0.00	29.91	0.00	0.00	3612.43
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.4	0.00	66.82	0.00	0.00	962.25
1.2D + 1.0E	2.0	0.00	39.92	0.00	0.00	241.45
0.9D + 1.0E	2.0	0.00	29.94	0.00	0.00	238.26
1.0D + 1.0W 60 mph Wind	7.9	0.00	33.27	0.00	0.00	801.46

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-15.48	-24.25	0.00	-630.92	0.00	-630.92	1099.39	549.70	1312.06	657.00	91.33	0.976
0.9D + 1.6W 101 mph Wind	-11.10	-23.80	0.00	-617.33	0.00	-617.33	1099.39	549.70	1312.06	657.00	91.33	0.952
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-33.03	-6.32	0.00	-168.74	0.00	-168.74	1099.39	549.70	1312.06	657.00	91.33	0.287
1.2D + 1.0E	-17.75	-1.88	0.00	-65.85	0.00	-65.85	1099.39	549.70	1312.06	657.00	91.33	0.116
0.9D + 1.0E	-13.31	-1.84	0.00	-64.69	0.00	-64.69	1099.39	549.70	1312.06	657.00	91.33	0.111
1.0D + 1.0W 60 mph Wind	-14.69	-5.31	0.00	-138.00	0.00	-138.00	1099.39	549.70	1312.06	657.00	91.33	0.224

### Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member				
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio	
0.0	20.5	(4) PLT-6"x1" (1.25" Hole)	258.9	4.14	37.1	270.5	37.1	8	8	260.3	37.1			8	275.97	326.3	281.25	0.981
0.0	10.3	(4) PLT-5.5"x1 1/4" (1.25" hol	266.6	4.80	37.1	311.9	37.1	9	9	296.5	25.3			9	311.89	379.1	314.06	0.993
10.3	27.9	(4) LNP-LP6X100-G-20CT	266.6	6.40	25.3	276.0	25.3			227.4	25.3	10	8	8	275.97	297.8	288.75	0.956
20.5	40.5	(4) PLT-6"x1" (1.25" Hole)	-314.8	-5.04	37.1	260.3	37.1			8	251.8	37.1		8	277.44	326.3	281.25	0.986
26.0	40.7	(2) LNP-LP6X100-G-20CT	-258.8	-6.21	25.3	210.0	25.3	9	0	206.4	25.3			8	228.57	297.8	288.75	0.792
27.9	48.1	(2) LNP-LP6X100-G-20TT	280.2	6.72	25.3	226.3	25.3	9	8	202.0	25.3	8		8	226.29	297.8	288.75	0.784
40.5	60.8	(4) PLT-6"x1" (1.25" Hole)	-469.7	-7.51	37.1	251.8	37.1			8	276.2	37.1		8	276.35	326.3	281.25	0.983
40.7	60.7	(2) LNP-LP6X100-G-20TT	-388.8	-9.33	25.3	206.4	25.3			10	228.9	25.3	10	10	265.93	297.8	288.75	0.921
60.8	78.3	(4) PLT-6"x1" (1.25" Hole)	-512.4	-8.20	37.1	276.2	37.1			8	204.0	37.1	6	10	276.21	326.3	281.25	0.982



# Monopole Mat Foundation Design

Date

5/5/2022

<b>Customer Name:</b>	T-Mobile	<b>TIA Standard:</b>	TIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	130
<b>Site Number:</b>	CT13064-A-SBA	<b>Engineer Name:</b>	K. Azisllari
<b>Engr. Number:</b>	128743	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

**Base Reactions (Factored):**

Axial Load (Kips):	39.9	Shear Force (Kips):	36.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3654.4

Allowable overstress %: 5.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	Yes
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	20	Width of Pad (ft.):	20
Add Concrete Width & Length (ft.)	14	Add Concrete Thick. (ft)	1
Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0

**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 #:	5	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	6	
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):	26	Qty. of Rebar in Pad (W):	26
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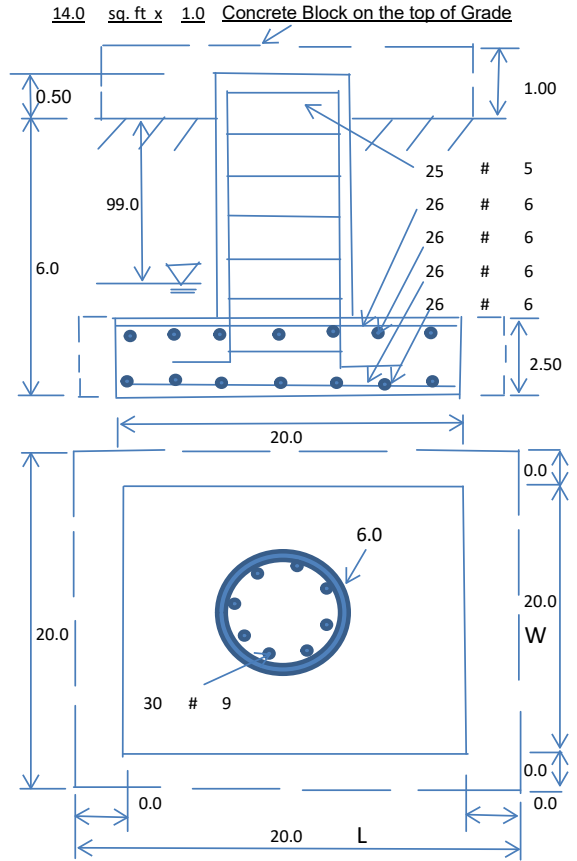
Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26
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Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

Soil Unit Weight (pcf):	130.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	16000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			



**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1301.04	Total Dry Soil Weight (Kips):	169.14
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	169.14	Weight from the Concrete Block at Top (K):	27.28
Total Dry Concrete Volume (cu. Ft.):	1294.96	Total Dry Concrete Weight (Kips):	194.24
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	194.24	Total Vertical Load on Base (Kips):	403.28

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	6760	<	Allowable Factored Soil Bearing (psf):	12000	0.56	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3669.4	<	Design Factored Momont (kips-ft):	3772	1.03	NG!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	0.97					OK!

Load/  
Capacity  
Ratio



**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00		
				Load/ Capacity Ratio	
<b>(1) Concrete Pier:</b>					
Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4245.7	> Design Factored Moment (Mu, Kips-F	3798.4	0.89	OK!
Calculated Shear Capacity (Kips):	1100.5	> Design Factored Shear (Kips):	36.0	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1620.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7145.4	> Design Factored Axial Load (Pu Kips):	39.9	0.01	OK!
Moment & Axial Strength Combination:	0.89	OK! Check Tie Spacing (Design/Required):		0.25	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			
<b>(2).Concrete Pad:</b>					
One-Way Design Shear Capacity (L-Direction, Kips):	606.2	> One-Way Factored Shear (L-D. Kips):	291.4	0.48	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	606.2	> One-Way Factored Shear (W-D., Kips)	291.4	0.48	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	540.9	> One-Way Factored Shear (C-C, Kips):	295.9	0.55	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0018	NG! Lower Steel Pad Reinf. Ratio (W-Direc	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1349.0	> Moment at Bottom ( L-Dir. K-Ft):	1247.3	0.92	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1349.0	> Moment at Bottom ( W-Dir. K-Ft):	1247.3	0.92	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1899.5	> Moment at Bottom ( C-C Dir. K-Ft):	1763.9	0.93	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0018	OK! Upper Steel Reinf. Ratio (W-Dir. ):	0.0018		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1349.0	> Moment at the top (L-Dir K-Ft):	488.0	0.36	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1349.0	> Moment at the top (W-Dir K-Ft):	488.0	0.36	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1899.5	> Moment at the top (C-C Dir. K-Ft):	459.2	0.24	OK!
<b>(3).Check Punching Shear Capacity due to Moment in the Pier:</b>					
Moment transferred by punching shear:	1461.8	k-ft. Max. factored shear stress $v_{u,CD}$ :		7.8	Psi
Max. factored shear stress $v_{u,AB}$ :	15.4	Psi Factored shear Strength $\phi v_n$ :		189.7	Psi
Max. factored shear stress $v_u$ :	15.4	Psi Check Usage of Punching Shear Capacity:		0.08	OK!



# Exhibit E

## **Mount Analysis**



**Tower Engineering Solutions**

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

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**Post-Mod Antenna Mount Analysis Report**

**Existing 130-Ft Monopole Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13064-A-SBA / Middletown 2, CT**

**Customer Site Name: Middletown 2, CT**

**Carrier Name: T-Mobile (App#: 194474-1)**

**Carrier Site ID / Name: CTHA537A / Middletown**

**Site Location: 67 Fairchild Road**

**Middletown, Connecticut**

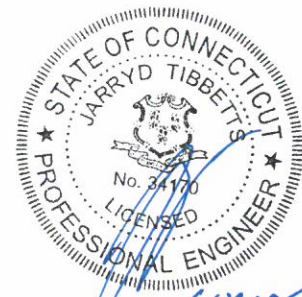
**Middlesex County**

**Latitude: 41.545011**

**Longitude: -72.620766**

**Analysis Result:**

**Max Structural Usage: 82.3% [Pass]**



**Report Prepared By: Jian Ma**



**Tower Engineering Solutions**

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

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## **Post-Mod Antenna Mount Analysis Report**

**Existing 130-Ft Monopole Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13064-A-SBA / Middletown 2, CT**

**Customer Site Name: Middletown 2, CT**

**Carrier Name: T-Mobile (App#: 194474-1)**

**Carrier Site ID / Name: CTHA537A / Middletown**

**Site Location: 67 Fairchild Road**

**Middletown, Connecticut**

**Middlesex County**

**Latitude: 41.545011**

**Longitude: -72.620766**

### **Analysis Result:**

**Max Structural Usage: 82.3% [Pass]**

**Report Prepared By: Jian Ma**

## Introduction

The purpose of this report is to summarize the analysis results on the (1) RMV12-3xx at 100.00' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

## Sources of Information

Mount Drawings	Hudson Design Group, LLC, dated 05/26/2022
Antenna Loading	SBA Application #: 194474, v1, dated 05/19/2022
Existing Modification	N/A
Proposed Modification	TES Project No. 130391

## Analysis Criteria

Basic Wind Speed Used in the Analysis:  $V_{ULT} = 130$  mph (3-Sec. Gust) / Equivalent to  
 $V_{ASD} = 101$  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/EIA 222-G

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) RMV12-3xx at 100.00' elevation

## Final Antenna Configuration

3 Ericsson AIR21 B2A B4P  
3 Ericsson AIR21 B4A B2P  
3 RFS APXVAALL24\_43-U-NA20  
3 Ericsson 4480 B71+ B85  
3 Kathrein Scala 782 11056

## **Analysis Results**

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 82.3%, which occurs in the connection. 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 Before Modification
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: CT13064-A-SBA - Middletown 2, CT**

**Sector: A**

6/28/2022

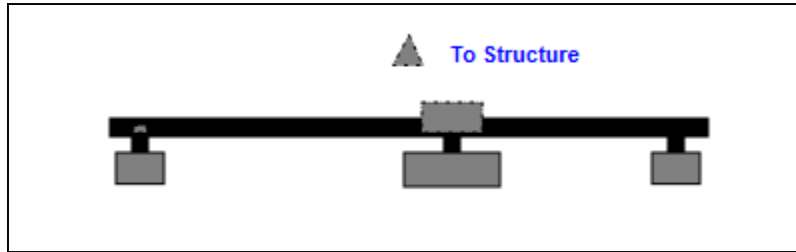
**Structure Type:** Monopole

**Mount Elev:** 100.00

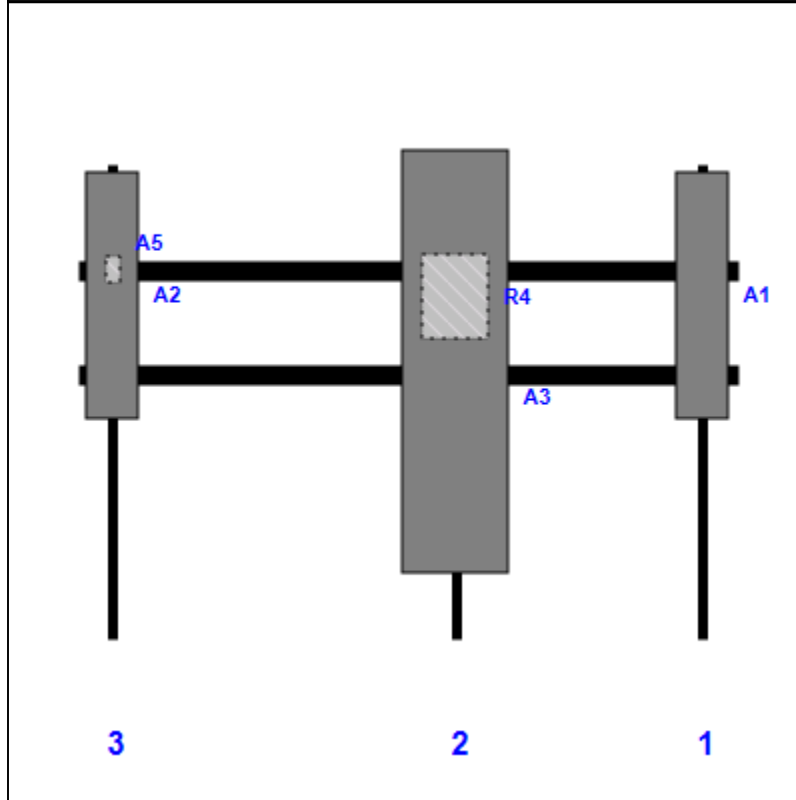
Page: 1



**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	AIR21 B2A B4P	55.90	12.00	142.00	1	a	Front	30.00		Retained	
A3	APXVAALL24_43-U-NA20	95.90	24.00	86.00	2	a	Front	45.00		Added	
R4	4480 B71+ B85	19.20	15.10	86.00	2	a	Behind	30.00		Added	
A2	AIR21 B4A B2P	55.90	12.00	8.00	3	a	Front	30.00		Retained	
A5	782 11056	5.50	3.20	8.00	3	a	Behind	24.00		Leased	

**Structure: CT13064-A-SBA - Middletown 2, CT**

**Sector: B**

6/28/2022

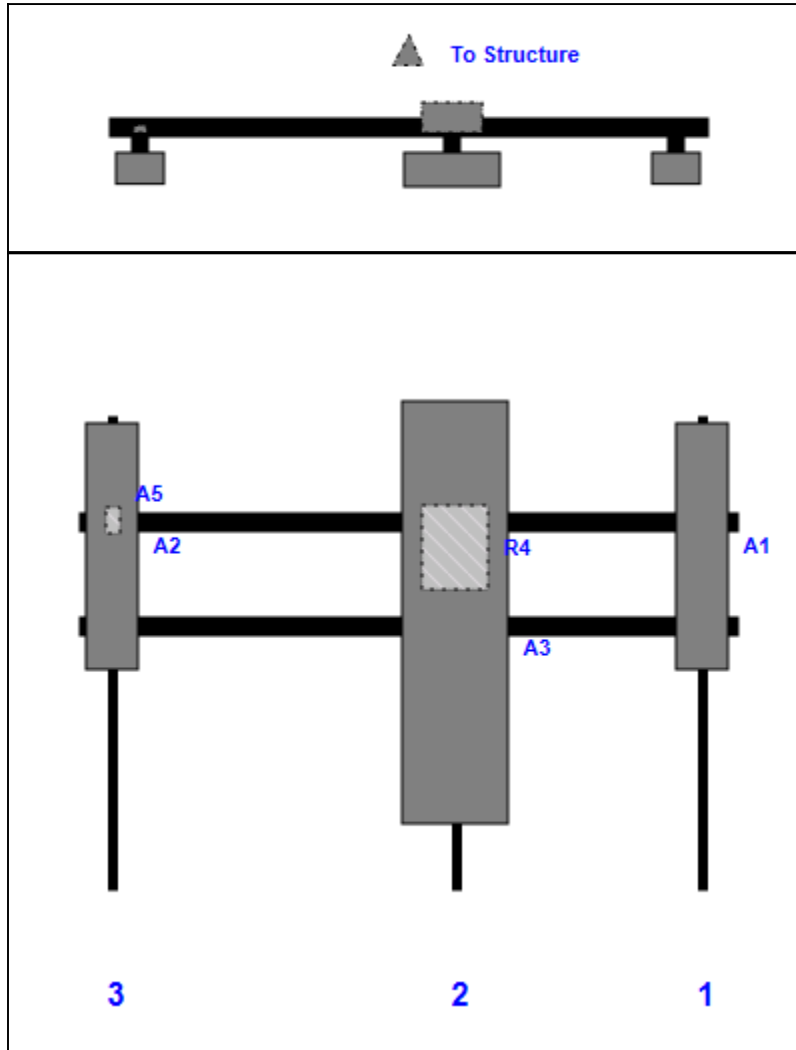
**Structure Type:** Monopole

**Mount Elev:** 100.00

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	AIR21 B2A B4P	55.90	12.00	142.00	1	a	Front	30.00		Retained	
A3	APXVAALL24_43-U-NA20	95.90	24.00	86.00	2	a	Front	45.00		Added	
R4	4480 B71+ B85	19.20	15.10	86.00	2	a	Behind	30.00		Added	
A2	AIR21 B4A B2P	55.90	12.00	8.00	3	a	Front	30.00		Retained	
A5	782 11056	5.50	3.20	8.00	3	a	Behind	24.00		Leased	

**Structure: CT13064-A-SBA - Middletown 2, CT**

**Sector: C**

6/28/2022

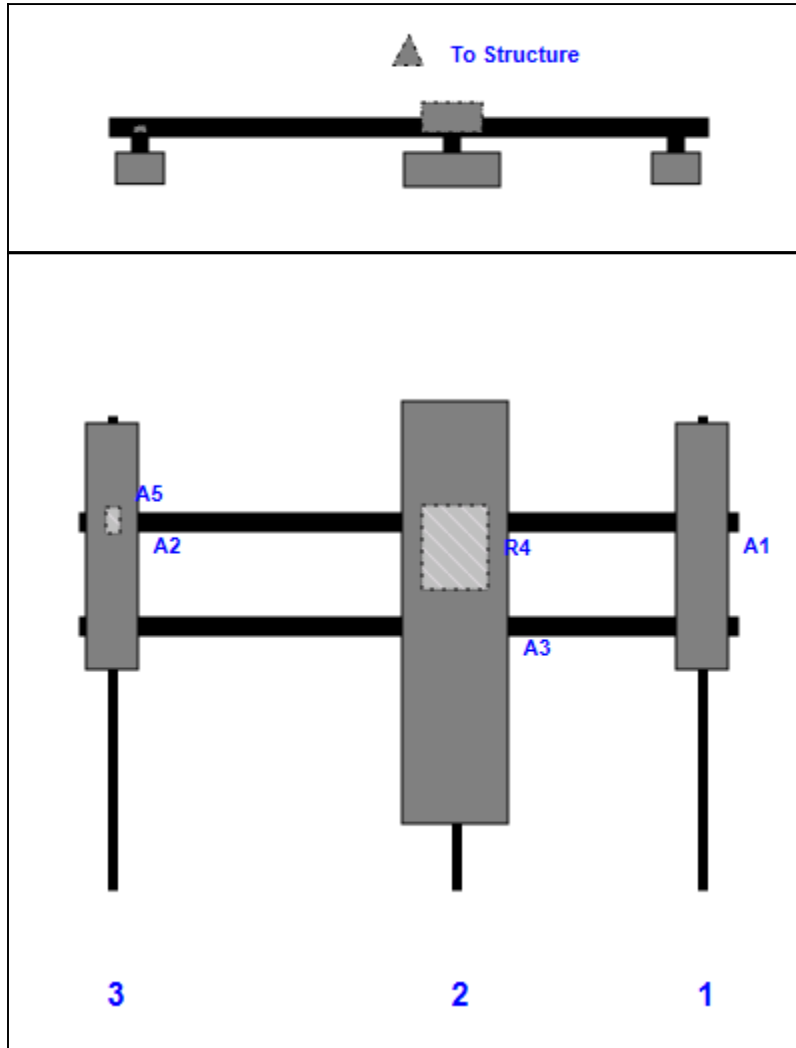
**Structure Type:** Monopole

**Mount Elev:** 100.00

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	AIR21 B2A B4P	55.90	12.00	142.00	1	a	Front	30.00		Retained	
A3	APXVAALL24_43-U-NA20	95.90	24.00	86.00	2	a	Front	45.00		Added	
R4	4480 B71+ B85	19.20	15.10	86.00	2	a	Behind	30.00		Added	
A2	AIR21 B4A B2P	55.90	12.00	8.00	3	a	Front	30.00		Retained	
A5	782 11056	5.50	3.20	8.00	3	a	Behind	24.00		Leased	



### Antenna Mount Mapping Form (PATENT PENDING)

**FCC #**  
1258197

<b>Tower Owner:</b>	SBA	<b>Mapping Date:</b>	5/26/2022
<b>Site Name:</b>	CTHA537A	<b>Tower Type:</b>	Monopole
<b>Site Number or ID:</b>	CT13064	<b>Tower Height (Ft.):</b>	120
<b>Mapping Contractor:</b>	HUDSON DESIGN GROUP, LLC.	<b>Mount Elevation (Ft.):</b>	100.5

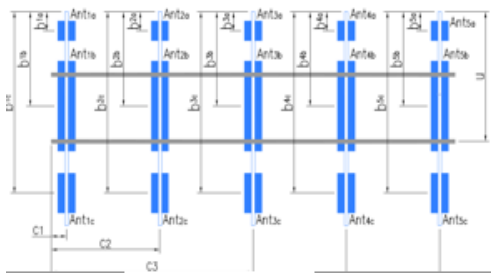
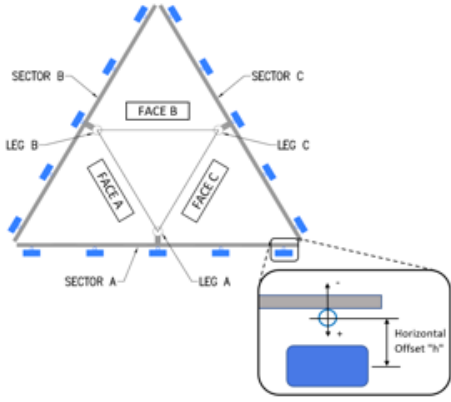
This antenna mapping form is the property of TES and under **PATENT PENDING**. The information contained herein is considered confidential in nature and is to be used only for the specific customer it was intended for. Reproduction, transmission, publication, modification or disclosure by any method 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 ANSISASSE 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.

Please insert the sketches of the antenna mount from the "Sketches" tab with dimensions and members here.

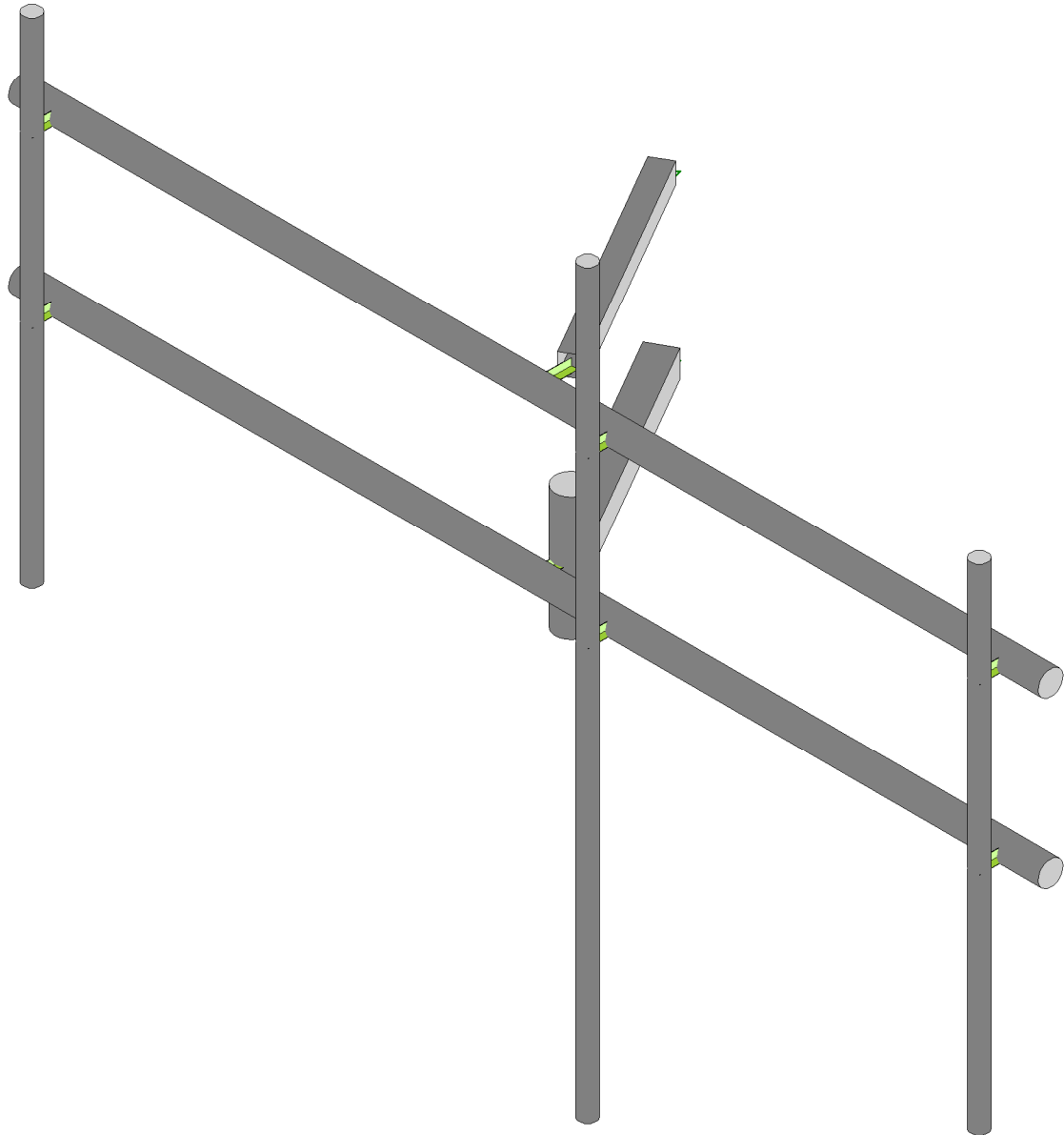
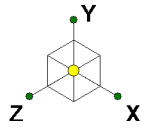
Mount Pipe Configuration and Geometries [Unit = Inches]							
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension	Horizontal Offset "C1, C2, C3, etc."
A1	2.375"Ø X .125" WALL X 72"	39.00	8.00	C1	2.375"Ø X .125" WALL X 72" LONG	39.00	8.00
A2	2.375"Ø X .188" WALL X 108"	48.00	64.00	C2	2.375"Ø X .188" WALL X 108" LONG	48.00	64.00
A3	2.375"Ø X .125" WALL X 72"	39.00	142.00	C3	2.375"Ø X .125" WALL X 72" LONG	39.00	142.00
A4				C4			
A5				C5			
A6				C6			
B1	2.375"Ø X .125" WALL X 72"	39.00	8.00	D1			
B2	2.375"Ø X .188" WALL X 108"	48.00	64.00	D2			
B3	2.375"Ø X .125" WALL X 72"	39.00	142.00	D3			
B4				D4			
B5				D5			
B6				D6			

Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.): 1.66  
 Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.): 0.33  
 Please enter additional information or comments below.

Tower Face Width at Mount Elev. (ft): Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.): 30.5

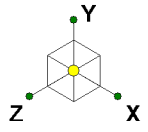


Ants. Items	Enter antenna model. If not labeled, enter "Unknown".				Mounting Locations [Units are inches and degrees]				Photos of antennas	
	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Centerline (Ft.)	Vertical Distances "b1, b2, b3, b4, b5, b6, b7, b8, b9, b10, b11, b12, b13, b14, b15, b16, b17, b18, b19, b20" (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)		Antenna Azimuth (Degrees)
<b>Sector A</b>										
Ant1a										
Ant1b	AIR21B4A B2P	11.50	7.50	57.00		101.7	24.50	10.00	30.00	14,38,92
Ant1c										
Ant2a										
Ant2b	LNX-6515DS-A1	12.00	7.00	104.00		100.2	52.00	9.00	30.00	15,39,92
Ant2c										
Ant3a										
Ant3b	AIR21B4A B2P	11.50	7.50	57.00		101.7	24.50	10.00	30.00	16,40,94
Ant3c										
Ant4a										
Ant4b										
Ant4c										
Ant5a										
Ant5b										
Ant5c										
Ant Off Standoff										
Ant On Standoff										

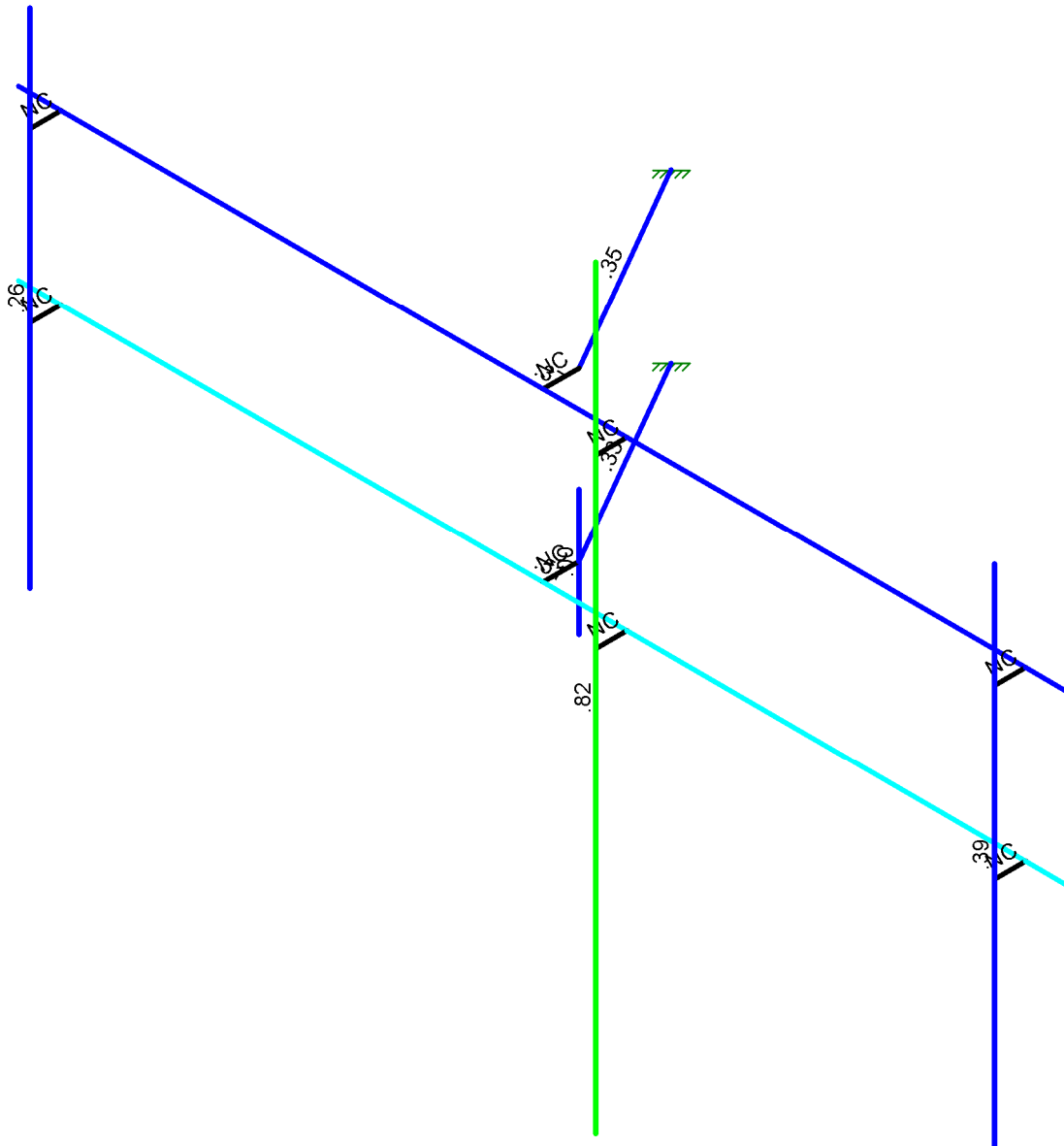


Envelope Only Solution

Tower Engineering Solutio...	CT13064-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 1
KW		June 28, 2022 at 9:46 AM
TES Project No. 130391		CT13064-A-SBA_130391_G_RISA_...



Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Tower Engineering Solutio...

KW

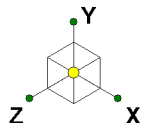
TES Project No. 130391

CT13064-A-SBA\_MT\_LOT\_Loads Only\_Sector A\_G

SK - 2

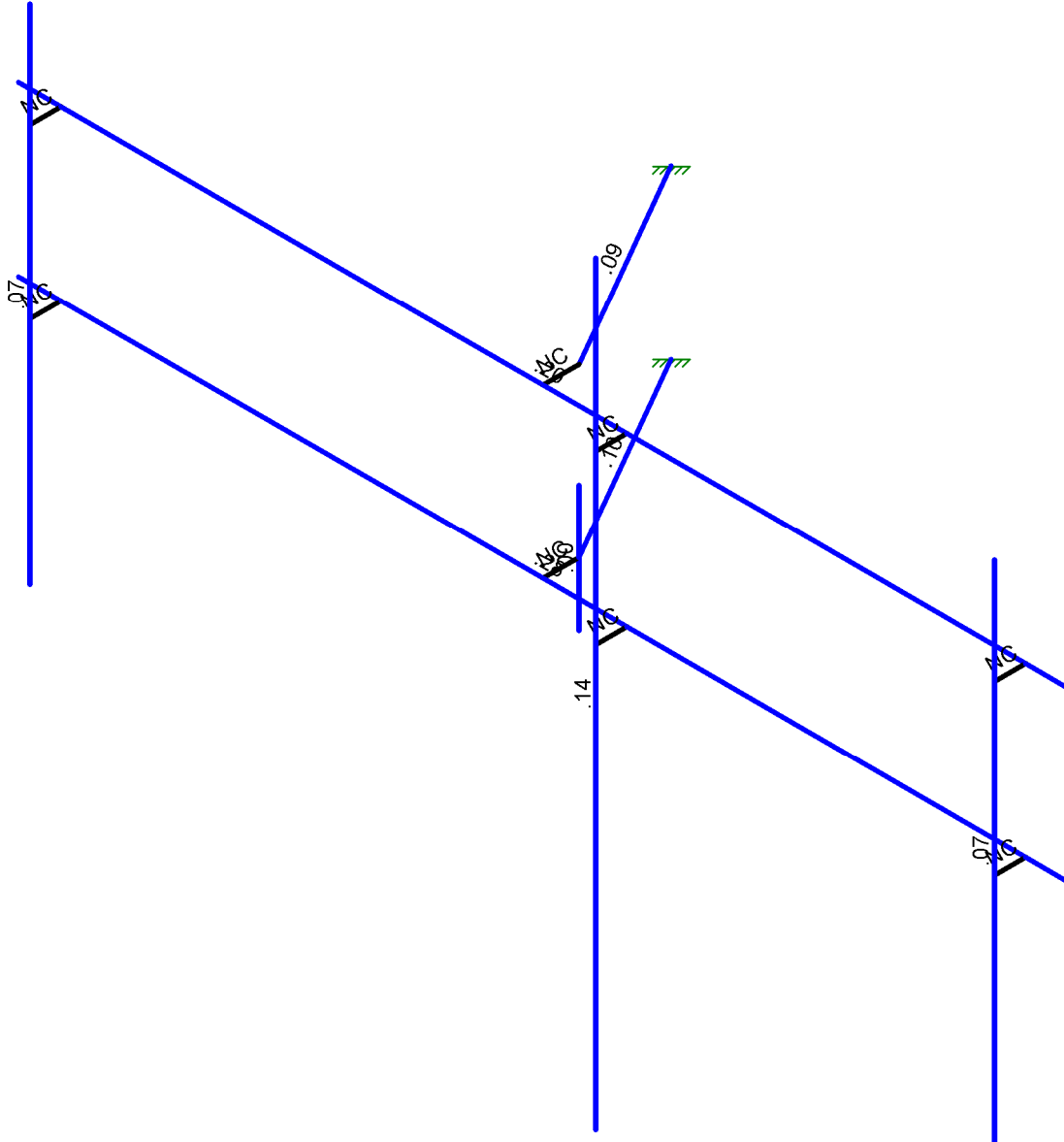
June 28, 2022 at 9:46 AM

CT13064-A-SBA\_130391\_G\_RISA\_...



Shear Check (Env)

Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

Tower Engineering Solutio...	CT13064-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
KW		June 28, 2022 at 9:46 AM
TES Project No. 130391		CT13064-A-SBA_130391_G_RISA_...



### Basic Load Cases

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

### Load Combinations

	Description	S...	P...	S...	BLC Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	
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 (Maintai...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16								
10	1.2D+1.5L2+.16W (Maintai...	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	-1.5026	0	0.402621	0	
2	N2	0	0	3.432284	0	
3	N3	-6.25	0	3.432284	0	
4	N4	6.25	0	3.432284	0	
5	N5	-5.75	3.25	3.802075	0	
6	N6	-5.75	-2.75	3.802075	0	
7	N7	5.75	3.25	3.802075	0	
8	N8	5.75	-2.75	3.802075	0	
9	N9	0	.75	3.0052	0	
10	N10	0	-.75	3.0052	0	
11	N11	-5.75	0	3.802075	0	
12	N12	5.75	0	3.802075	0	
13	N13	-5.75	0	3.432284	0	
14	N14	5.75	0	3.432284	0	
15	N15	0	0	3.0052	0	
16	N16	1	4	3.802075	0	
17	N17	1	-5	3.802075	0	
18	N18	1	0	3.802075	0	
19	N19	1	0	3.432284	0	
20	N20	-1.5026	2	0.402621	0	
21	N21	0	2	3.432284	0	
22	N22	0	2	3.0052	0	





### Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
23	N23	-6.25	2	3.432284	0	
24	N24	6.25	2	3.432284	0	
25	N25	-5.75	2	3.802075	0	
26	N26	5.75	2	3.802075	0	
27	N27	-5.75	2	3.432284	0	
28	N28	5.75	2	3.432284	0	
29	N29	1	2	3.802075	0	
30	N30	1	2	3.432284	0	

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design L...	Material	Design R...	A [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	Standoff Arm	HSS4X4X4	Beam	SquareT...	A500 Gr...	Typical	3.37	7.8	7.8	12.8
2	New T Arm	HSS3X3X4	Beam	SquareT...	A500 Gr...	Typical	2.44	3.02	3.02	5.08
3	Vertical Pipe	PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	Face Horizontal	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	Support Rail	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
6	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 R...	A [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	CF	4CU5.25X0375	Beam	CU	A570 Gr.33	Typical	4.854	13.238	12.817	.228

### Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
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



**Aluminum Properties (Continued)**

	Label	E [ksi]	G [ksi]	Nu	Therm (...Density[...Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct		
6	6061-T6 W	10100	3787.5	.33	1.3	.173	Table B...	1	24	15	15	15	141

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N1	N15			Standoff Arm	Beam	SquareTube	A500 Gr.B Rect	Typical
2	MP3A	N5	N6			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
3	MP1A	N7	N8			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
4	M4	N3	N4			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
5	M5	N9	N10			Vertical Pipe	Beam	Pipe	A53 Gr.B	Typical
6	M6	N13	N11			RIGID	Beam	None	RIGID	DR1
7	M7	N15	N2			RIGID	Beam	None	RIGID	DR1
8	M8	N14	N12			RIGID	Beam	None	RIGID	DR1
9	MP2A	N16	N17			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
10	M10	N19	N18			RIGID	Beam	None	RIGID	DR1
11	M11	N22	N21			RIGID	Beam	None	RIGID	DR1
12	M12	N27	N25			RIGID	Beam	None	RIGID	DR1
13	M13	N28	N26			RIGID	Beam	None	RIGID	DR1
14	M14	N30	N29			RIGID	Beam	None	RIGID	DR1
15	M15	N23	N24			Support Rail	Beam	Pipe	A53 Gr.B	Typical
16	M16	N20	N22			New T Arm	Beam	SquareTube	A500 Gr.B Rect	Typical

**Member Advanced Data**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	MP3A						Yes				None
3	MP1A						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6						Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	MP2A						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	Standoff Arm	3.005			Lbyy						Lateral
2	MP3A	Mount Pipe	6			Lbyy						Lateral
3	MP1A	Mount Pipe	6			Lbyy						Lateral
4	M4	Face Horizo...	12.5			Lbyy						Lateral
5	M5	Vertical Pipe	1.5			Lbyy						Lateral
6	MP2A	Mount Pipe	9			Lbyy						Lateral
7	M15	Support Rail	12.5			Lbyy						Lateral
8	M16	New T Arm	3.005			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...
No Data to Print ...																

### Aluminum Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	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 N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2 N20	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

### 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 N1	max 1331.849	4	1451.234	6	2129.554	1	-1.22	2	3.745	2	2.472	10
2	min -829.067	3	244.865	1	-1437.094	2	-3.56	5	-3.644	1	.421	1
3 N20	max 172.957	4	883.607	5	669.924	1	-.272	2	1.574	2	1.195	10
4	min -1142.499	10	20.633	2	-1362.384	2	-1.776	5	-1.75	1	-.03	2
5 Totals:	max 1504.806	4	2223.583	7	2799.479	1						
6	min -1504.806	3	872.867	4	-2799.478	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 Mom...	LC
M1	1	max 1952.823	1	1453.657	6	891.826	3	1.003	10	3.745	2	3.983	5
		min -1102.199	2	247.846	1	-984.735	4	-.391	1	-3.644	1	1.519	1
	2	max 1940.838	1	1431.421	6	876.274	1	1.003	10	3.025	2	2.981	5
		min -1090.213	2	236.727	1	-963.976	4	-.391	1	-2.983	1	.924	2
	3	max 1928.853	1	1409.185	6	869.354	1	1.003	10	2.31	2	1.996	5
		min -1078.228	2	225.608	1	-947.633	2	-.391	1	-2.327	1	.297	2
	4	max 1916.868	1	1386.949	6	862.435	1	1.003	10	1.601	2	1.028	5
		min -1066.243	2	214.488	1	-940.713	2	-.391	1	-1.677	1	-.322	2
	5	max 1904.883	1	1364.714	6	855.515	1	1.003	10	.897	2	.841	1
		min -1054.258	2	203.369	1	-933.794	2	-.391	1	-1.032	1	-.932	2
MP3A	1	max 133.766	8	117.663	4	166.878	1	0	11	0	11	0	11
		min 54.18	1	-117.628	3	-167.052	2	0	1	0	1	0	1
	2	max 43.704	4	-130.099	4	80.944	6	.01	2	.158	1	-.079	2
		min -46.738	3	-446.272	7	-9.74	10	-.042	9	-.199	2	-.322	5
	3	max 52.112	4	-105.76	4	80.44	5	.01	2	.211	1	.363	7
		min -38.33	3	-455.71	7	-5.782	10	-.042	9	-.163	2	.049	4
	4	max -60.427	10	137.19	3	186.448	2	0	11	.098	1	.073	3
		min -152.454	5	-137.218	4	-186.345	1	0	1	-.098	2	-.073	4
5	max 0	11	.122	10	.44	5	0	11	0	11	0	11	
	min 0	1	-.133	7	-.129	2	0	1	0	1	0	1	
MP1A	1	max 134.486	8	117.577	4	166.935	1	0	11	0	11	0	11
		min 54.9	1	-117.689	3	-167.056	2	0	1	0	1	0	1
2	max 71.439	3	652.385	10	106.389	10	.034	1	.248	1	.548	10	
	min -259.117	10	139.761	3	17.682	3	-.033	2	-.281	2	.127	3	
3	max 77.687	3	652.385	10	108.358	10	.034	1	.292	1	-.068	3	
	min -252.87	10	120.075	3	10.547	2	-.033	2	-.25	2	-.43	10	
4	max -61.147	10	137.237	3	186.391	2	0	11	.098	1	.073	3	
	min -153.174	5	-137.177	4	-186.318	1	0	1	-.098	2	-.073	4	



**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 Mom...	LC	
29	5	max	0	11	.237	8	.358	5	0	11	0	11	0	11	
30		min	0	1	-.043	3	-.186	2	0	1	0	1	0	1	
31	M4	1	max	0	11	0	11	0	11	0	11	0	11	11	
32		min	0	1	0	1	0	1	0	1	0	1	0	1	
33		2	max	492.271	7	-55.027	3	259.072	2	.13	1	.664	2	.16	6
34		min	-51.218	4	-260.432	8	-318.341	1	-.138	2	-.665	1	-.033	1	
35		3	max	1296.234	10	1010.556	6	1661.724	1	1.136	2	2.347	2	1.353	10
36		min	401.995	3	95.308	1	-1028.506	2	-.713	1	-2.873	1	.28	1	
37		4	max	651.298	10	596.262	10	308.386	1	.126	10	.657	2	.078	1
38		min	-36.872	3	3	4	-258.912	2	-.075	1	-.638	1	-.088	10	
39		5	max	0	11	0	11	0	11	0	11	0	11	0	11
40		min	0	1	0	1	0	1	0	1	0	1	0	1	
41	M5	1	max	0	11	-.002	3	-.001	2	0	11	0	11	0	11
42		min	0	1	-.021	10	-.042	5	0	1	0	1	0	1	
43		2	max	9.274	8	9.321	4	9.312	1	0	11	.002	1	.002	3
44		min	4.532	1	-9.327	3	-9.326	2	0	1	-.002	2	-.002	4	
45		3	max	18.549	8	18.646	4	18.637	1	0	11	.007	1	.007	3
46		min	9.065	1	-18.652	3	-18.652	2	0	1	-.007	2	-.007	4	
47		4	max	-4.532	10	9.327	3	9.326	2	0	11	.002	1	.002	3
48		min	-9.274	5	-9.321	4	-9.312	1	0	1	-.002	2	-.002	4	
49		5	max	0	11	.021	10	.042	5	0	11	0	11	0	11
50		min	0	1	.002	3	.001	2	0	1	0	1	0	1	
51	M6	1	max	257.66	1	200.802	8	492.347	7	.485	8	-.003	4	.13	1
52		min	-198.502	2	28.39	3	-51.386	4	.032	3	-.215	7	-.138	2	
53		2	max	257.66	1	200.802	8	492.347	7	.485	8	-.008	4	.127	1
54		min	-198.502	2	28.39	3	-51.386	4	.032	3	-.17	7	-.149	2	
55		3	max	257.66	1	200.802	8	492.347	7	.485	8	-.013	4	.123	1
56		min	-198.502	2	28.39	3	-51.386	4	.032	3	-.124	7	-.159	2	
57		4	max	257.66	1	200.802	8	492.347	7	.485	8	-.004	2	.12	1
58		min	-198.502	2	28.39	3	-51.386	4	.032	3	-.082	5	-.17	2	
59		5	max	257.66	1	200.802	8	492.347	7	.485	8	.01	2	.117	1
60		min	-198.502	2	28.39	3	-51.386	4	.032	3	-.042	9	-.18	2	
61	M7	1	max	2036.896	1	1327.29	6	697.566	3	1.004	10	.897	2	.924	1
62		min	-1344.437	2	188.395	1	-1200.346	4	-.293	9	-1.032	1	-.937	2	
63		2	max	2036.896	1	1327.29	6	697.566	3	1.004	10	.867	2	.904	1
64		min	-1344.437	2	188.395	1	-1200.346	4	-.293	9	-1.054	1	-1.022	2	
65		3	max	2036.896	1	1327.29	6	697.566	3	1.004	10	.838	2	.884	1
66		min	-1344.437	2	188.395	1	-1200.346	4	-.293	9	-1.076	1	-1.106	2	
67		4	max	2036.896	1	1327.29	6	697.566	3	1.004	10	.808	2	.864	1
68		min	-1344.437	2	188.395	1	-1200.346	4	-.293	9	-1.097	1	-1.19	2	
69		5	max	2036.896	1	1327.29	6	697.566	3	1.004	10	.778	2	.843	1
70		min	-1344.437	2	188.395	1	-1200.346	4	-.293	9	-1.126	10	-1.274	2	
71	M8	1	max	245.056	1	171.102	7	36.978	3	-.045	4	.238	10	.075	1
72		min	-195.618	2	-185.591	10	-651.023	10	-.594	10	-.005	3	-.126	10	
73		2	max	245.056	1	171.102	7	36.978	3	-.045	4	.178	10	.066	1
74		min	-195.618	2	-185.591	10	-651.023	10	-.594	10	-.001	3	-.109	10	
75		3	max	245.056	1	171.102	7	36.978	3	-.045	4	.118	10	.057	1
76		min	-195.618	2	-185.591	10	-651.023	10	-.594	10	.002	3	-.092	10	
77		4	max	245.056	1	171.102	7	36.978	3	-.045	4	.058	5	.048	1
78		min	-195.618	2	-185.591	10	-651.023	10	-.594	10	-.014	2	-.091	2	
79		5	max	245.056	1	171.102	7	36.978	3	-.045	4	.034	1	.039	1
80		min	-195.618	2	-185.591	10	-651.023	10	-.594	10	-.033	2	-.093	2	
81	MP2A	1	max	0	11	.014	4	.114	1	0	11	0	11	0	11
82		min	0	1	-.359	7	-.495	6	0	1	0	1	0	1	
83		2	max	332.369	2	644.721	10	812.237	5	.051	5	-.202	2	.459	10
84		min	-266.73	1	139.321	3	39.57	2	-.026	10	-.559	5	.1	3	
85		3	max	-92.422	10	299.978	3	617.419	2	0	11	1.247	1	.614	3



**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 Mom...	LC	
86		min	-334.081	5	-299.881	4	-617.311	1	0	1	-1.247	2	-.613	4	
87	4	max	-9.371	10	29.145	3	28.643	2	0	11	.031	1	.032	3	
88		min	-28.033	5	-29.048	4	-28.536	1	0	1	-.031	2	-.032	4	
89	5	max	0	11	.802	8	1.146	5	0	11	0	11	0	11	
90		min	0	1	-.385	3	-.887	2	0	1	0	1	0	1	
91	M10	1	max	1292.389	1	743.183	6	258.67	3	.32	4	.299	8	.638	1
92		min	-708.496	2	-47.351	1	-707.308	4	-789	3	-.077	3	-1.052	2	
93	2	max	1292.389	1	743.183	6	258.67	3	.32	4	.235	8	.643	1	
94		min	-708.496	2	-47.351	1	-707.308	4	-789	3	-.053	3	-1.103	2	
95	3	max	1292.389	1	743.183	6	258.67	3	.32	4	.172	8	.647	1	
96		min	-708.496	2	-47.351	1	-707.308	4	-789	3	-.029	3	-1.154	2	
97	4	max	1292.389	1	743.183	6	258.67	3	.32	4	.108	8	.651	1	
98		min	-708.496	2	-47.351	1	-707.308	4	-789	3	-.005	3	-1.204	2	
99	5	max	1292.389	1	743.183	6	258.67	3	.32	4	.051	5	.656	1	
100		min	-708.496	2	-47.351	1	-707.308	4	-789	3	-.026	10	-1.255	2	
101	M11	1	max	628.407	1	811.915	5	1140.624	10	.282	10	.518	10	.262	2
102		min	-1320.868	2	-13.846	2	-99.336	4	-.343	5	-.269	3	-.545	1	
103	2	max	628.407	1	811.915	5	1140.624	10	.282	10	.64	10	.263	2	
104		min	-1320.868	2	-13.846	2	-99.336	4	-.343	5	-.205	3	-.609	1	
105	3	max	628.407	1	811.915	5	1140.624	10	.282	10	.761	10	.265	2	
106		min	-1320.868	2	-13.846	2	-99.336	4	-.343	5	-.157	1	-.672	1	
107	4	max	628.407	1	811.915	5	1140.624	10	.282	10	.883	10	.266	2	
108		min	-1320.868	2	-13.846	2	-99.336	4	-.343	5	-.133	1	-.736	1	
109	5	max	628.407	1	811.915	5	1140.624	10	.282	10	1.005	10	.268	2	
110		min	-1320.868	2	-13.846	2	-99.336	4	-.343	5	-.11	1	-.8	1	
111	M12	1	max	174.747	1	170.963	7	-83.587	3	.456	7	.207	8	.041	10
112		min	-233.91	2	16.681	4	-458.067	8	.002	4	.034	3	-.026	1	
113	2	max	174.747	1	170.963	7	-83.587	3	.456	7	.165	8	.034	10	
114		min	-233.91	2	16.681	4	-458.067	8	.002	4	.027	3	-.035	1	
115	3	max	174.747	1	170.963	7	-83.587	3	.456	7	.123	5	.027	10	
116		min	-233.91	2	16.681	4	-458.067	8	.002	4	.019	3	-.044	1	
117	4	max	174.747	1	170.963	7	-83.587	3	.456	7	.082	5	.019	10	
118		min	-233.91	2	16.681	4	-458.067	8	.002	4	.005	2	-.059	5	
119	5	max	174.747	1	170.963	7	-83.587	3	.456	7	.042	9	.012	10	
120		min	-233.91	2	16.681	4	-458.067	8	.002	4	-.01	2	-.075	5	
121	M13	1	max	167.358	1	320.316	10	651.107	10	-.005	3	-.039	4	.039	1
122		min	-216.766	2	-10.308	3	127.861	4	-711	10	-.238	10	-.029	2	
123	2	max	167.358	1	320.316	10	651.107	10	-.005	3	-.025	2	.036	1	
124		min	-216.766	2	-10.308	3	127.861	4	-711	10	-.178	10	-.056	10	
125	3	max	167.358	1	320.316	10	651.107	10	-.005	3	-.005	2	.032	1	
126		min	-216.766	2	-10.308	3	127.861	4	-711	10	-.118	10	-.086	10	
127	4	max	167.358	1	320.316	10	651.107	10	-.005	3	.014	2	.029	1	
128		min	-216.766	2	-10.308	3	127.861	4	-711	10	-.058	5	-.116	10	
129	5	max	167.358	1	320.316	10	651.107	10	-.005	3	.033	2	.025	1	
130		min	-216.766	2	-10.308	3	127.861	4	-711	10	-.034	1	-.145	10	
131	M14	1	max	44.525	1	349.769	1	643.664	10	.132	3	-.03	4	.281	2
132		min	-813.874	6	-250.76	2	40.209	4	-.626	8	-.275	7	-.814	1	
133	2	max	44.525	1	349.769	1	643.664	10	.132	3	-.026	4	.304	2	
134		min	-813.874	6	-250.76	2	40.209	4	-.626	8	-.218	7	-.846	1	
135	3	max	44.525	1	349.769	1	643.664	10	.132	3	-.023	4	.328	2	
136		min	-813.874	6	-250.76	2	40.209	4	-.626	8	-.161	7	-.878	1	
137	4	max	44.525	1	349.769	1	643.664	10	.132	3	-.014	2	.351	2	
138		min	-813.874	6	-250.76	2	40.209	4	-.626	8	-.105	5	-.911	1	
139	5	max	44.525	1	349.769	1	643.664	10	.132	3	.026	10	.374	2	
140		min	-813.874	6	-250.76	2	40.209	4	-.626	8	-.051	5	-.943	1	
141	M15	1	max	0	11	0	11	0	11	0	11	0	11	0	11
142		min	0	1	0	1	0	1	0	1	0	1	0	1	1



**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 Mom...	LC	
143	2	max	-83.406	3	-43.091	4	294.228	2	.041	10	.659	2	.104	8	
144		min	-458.132	8	-230.348	7	-235.167	1	-.026	1	-.66	1	-.018	2	
145	3	max	-267.37	4	524.217	5	329.638	1	.78	10	2.111	2	.91	5	
146		min	-1296.234	10	-87.104	2	-962.607	2	-.252	2	-1.599	1	.177	2	
147	4	max	-127.668	4	341.407	10	225.172	1	.029	2	.613	2	.157	10	
148		min	-651.299	10	15.848	3	-274.49	2	-.039	1	-.636	1	-.043	1	
149	5	max	0	11	0	11	0	11	0	11	0	11	0	11	
150		min	0	1	0	1	0	1	0	1	0	1	0	1	
151	M16	1	max	471.594	1	880.327	5	620.437	10	.487	10	1.574	2	2.002	5
152		min	-1322.219	2	19.794	2	-429.952	2	-.162	2	-1.75	1	.22	2	
153	2	max	462.605	1	863.118	5	619.918	10	.487	10	1.252	2	1.347	5	
154		min	-1313.23	2	11.743	2	-424.762	2	-.162	2	-1.357	1	.208	2	
155	3	max	453.617	1	845.91	5	619.399	10	.487	10	.935	2	.705	5	
156		min	-1304.241	2	3.692	2	-419.573	2	-.162	2	-.969	1	.202	2	
157	4	max	444.628	1	828.701	5	618.88	10	.487	10	.622	2	.203	2	
158		min	-1295.252	2	-4.358	2	-414.383	2	-.162	2	-.584	1	-.133	1	
159	5	max	435.639	1	811.492	5	618.361	10	.487	10	.518	10	.209	2	
160		min	-1291.501	6	-12.409	2	-409.193	2	-.162	2	-.269	3	-.584	1	

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[...Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn	
1	M4	PIPE 3.0	.511	6.25	2	.283	6.25	2	28250.5...	65205	5.749	5.749	1.. H3-6	
2	M15	PIPE 3.0	.372	6.25	2	.199	6.25	10	28250.5...	65205	5.749	5.749	2.. H1-1b	
3	MP2A	PIPE 2.0	.823	4.031	2	.137	3.938	5	12143.9...	32130	1.872	1.872	3.. H1-1b	
4	M1	HSS4X4X4	.332	0	2	.099	0	y	10	134343...	139518	16.181	16.181	2.. H1-1b
5	M16	HSS3X3X4	.354	0	1	.089	0	y	10	94122.6...	101016	8.556	8.556	2.. H1-1b
6	MP3A	PIPE 2.0	.261	3.25	7	.071	3.25	5	20866.7...	32130	1.872	1.872	1.. H1-1b	
7	MP1A	PIPE 2.0	.390	1.25	10	.070	3.25	10	20866.7...	32130	1.872	1.872	1.. H1-1b	
8	M5	PIPE 4.0	.001	.75	3	.001	.75	3	92571.3...	93240	10.631	10.631	1.. H1-1b	

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

Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

**Envelope AA ADM1-15: LRFD - Building Aluminum Code Checks**

Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt[...]	phi*Mn...	phi*Mn...	phi*Vny...	phi*Vnz...	Cb	Eqn
No Data to Print ...																

**Wood Wall Panel Parameters**

Label	Top Plate	Sill Plate	Studs	Min Stud Sp...	Max Stud Sp...	Green Lumb...	Header Size	Header Matl
1	Typical	2-2X6	2X6	2X6	16	16	6x8	Same as Wall

**Additional Wood Wall Panel Parameters**


Label	Schedule	Min. Pan...	Max. Pa...	Double S...	Max. Nai...	Min. Nail...	HD Chor...	HD Chor...	Hold Down	Chord...	Eccen...
1	Typical	IBC2012 Pan...	.375	.75	Optimum	6-in.	2-in.	2-2X6	Same as...	CAN SIMPS...	SIMP... Yes



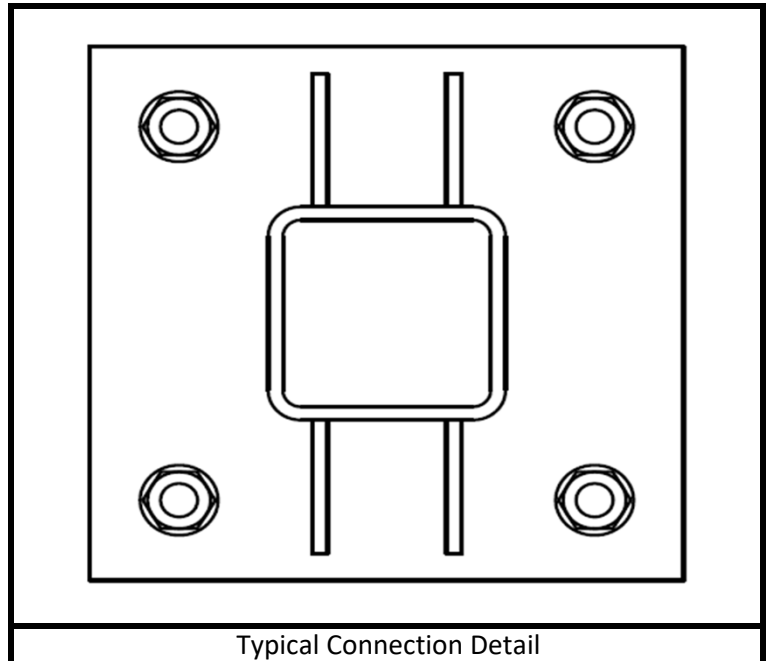
Company : Tower Engineering Solutions, LLC  
Designer : KW  
Job Number : TES Project No. 130391  
Model Name : CT13064-A-SBA\_MT\_LOT\_Loads Only\_Sector A\_G

June 28, 2022  
9:46 AM  
Checked By: \_\_\_\_\_

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	<b>Standoff Arm Flange Connection Check</b>		Date	
			6/28/2022	
	Customer:		TIA Standard:	ANSI/TIA-222-H
	Carrier:		Mount Elev. [ft]:	
	Site Name:		Engineer Name:	Jian Ma
Site Number:		Project #:		
<p><i>NOTE: The calculations shown below are for a single representative load combination for example purposes. The results for all load combinations are presented in the Results Summary Table.</i></p>				

RISA Member Label =	M1	
I or J End?	I	
Load Combination # =	2	
Plate Width, Wp =	8	[In]
Plate Height, Hp =	8	[In]
Plate Thickness, tp =	0.75	[In]
Plate Fy =	36	[KSI]
Bolt Diameter, db =	0.625	[In]
Bolt Fu =	120	[KSI]
Bolt Horizontal Spacing, Sbh =	6	[In]
Bolt Vertical Spacing, Sbv =	6	[In]
Standoff Member Shape =	Rect Tube	
Member Width, Wm =	3	[In]
Member Depth, Dm =	4	[In]
Member Thickness, tm =	0.25	[In]
Standoff Weld Size =	0.1875	[In]
# Standoff Welds =	1	
Length of Stiffener, Ls =	3	[In]
Width of Stiffener, Ws =	3	[In]
Width of Notch, Wn =	0.5	[In]
Stiffener Dim 1, ds1 =	0	[In]
Stiffener Dim 2, ds2 =	0	[In]
Stiffener Fy =	36	[KSI]
Stiffener Weld Size =	0.1875	[In]
# Stiffener Welds =	2	



<b>NOTES</b>
Standoff and Stiffener welds are assumed 0.1875 in.

**Capacity Checks:**

Max Bolt Shear =	0.504	[Kips]
Bolt Shear Capacity =	13.81	[Kips]
Max Bolt Shear Usage =	3.7%	PASS
Max Bolt Tension =	5.57	[Kips]
Bolt Tension Capacity =	20.34	[Kips]
Max Bolt Tension Usage =	27.4%	PASS
Max Bolt Interaction =	27.5%	PASS
Max Plate Bending Moment =	12.03	[Kip-In]
Length of Yield Line =	7.94	[In]
Plate Moment Capacity =	36.16	[Kip-In]
Max Plate Usage =	33.3%	PASS
Max Weld Usage =	37.5%	PASS



# Exhibit F

## **Power Density/RF Emissions Report**



# Radio Frequency Emissions Analysis Report



**Site ID: CTHA537A**

SBA Middletown Monopole  
67 Fairchild Road  
Middletown, CT 06457

**June 3, 2022**

**Fox Hill Telecom Project Number: 221287**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>26.43 %</b>



June 3, 2022

T-MOBILE  
Attn: RF Manager  
35 Griffin Road South  
Bloomfield, CT 06009

### Emissions Analysis for Site: **CTHA537A – SBA Middletown Monopole**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed upgrades to the T-MOBILE facility located at **67 Fairchild Road, Middletown, CT**, 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.

General population 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 & 700 MHz 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) and 2100 MHz (AWS) 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 performed for the proposed upgrades to the T-MOBILE antenna facility located at **67 Fairchild Road, Middletown, CT**, 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20
UMTS	2100 MHz (AWS)	4	40
LTE	2100 MHz (AWS)	1	15

*Table 1: Channel Data Table*



The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	100
A	2	Ericsson AIR21 B2A/B4P	100
A	3	Ericsson AIR21 B4A/B2P	100
B	1	RFS APXVAALL24_43-U-NA20	100
B	2	Ericsson AIR21 B2A/B4P	100
B	3	Ericsson AIR21 B4A/B2P	100
C	1	RFS APXVAALL24_43-U-NA20	100
C	2	Ericsson AIR21 B2A/B4P	100
C	3	Ericsson AIR21 B4A/B2P	100

*Table 2: Antenna Data*

All calculations were done with respect to uncontrolled / general population threshold limits.



## RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.8	4	120	2,824.56	2.74
Antenna A2	Ericsson AIR21 B2A/B4P	2100 MHz (AWS)	15.9	1	40	1,556.18	0.63
Antenna A3	Ericsson AIR21 B4A/B2P	2100 MHz (AWS)	15.9	4	160	6,224.72	2.53
Sector A Composite MPE%							<b>5.90</b>
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.8	4	120	2,824.56	2.74
Antenna B2	Ericsson AIR21 B2A/B4P	2100 MHz (AWS)	15.9	1	40	1,556.18	0.63
Antenna B3	Ericsson AIR21 B4A/B2P	2100 MHz (AWS)	15.9	4	160	6,224.72	2.53
Sector B Composite MPE%							<b>5.90</b>
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.8	4	120	2,824.56	2.74
Antenna C2	Ericsson AIR21 B2A/B4P	2100 MHz (AWS)	15.9	1	40	1,556.18	0.63
Antenna C3	Ericsson AIR21 B4A/B2P	2100 MHz (AWS)	15.9	4	160	6,224.72	2.53
Sector C Composite MPE%							<b>5.90</b>

*Table 3: T-MOBILE Emissions Levels*



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite MPE value for the site.

<b>Site Composite MPE%</b>	
<b>Carrier</b>	<b>MPE%</b>
T-MOBILE – Max Per Sector Value	<b>5.90 %</b>
Sprint	8.96 %
AT&T	7.07 %
Clearwire	0.26 %
Verizon Wireless	4.24 %
<b>Site Total MPE %:</b>	<b>26.43 %</b>

*Table 4: All Carrier MPE Contributions*

T-MOBILE Sector A Total:	5.90 %
T-MOBILE Sector B Total:	5.90 %
T-MOBILE Sector C Total:	5.90 %
Site Total:	26.43 %

*Table 5: Site MPE Summary*





FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# 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 600 MHz LTE / 5G NR	2	926.96	100	7.54	600 MHz	400	1.89%
T-Mobile 700 MHz LTE	2	485.32	100	3.95	700 MHz	467	0.85%
T-Mobile 2100 MHz (AWS) UMTS	1	1,556.18	100	6.33	2100 MHz (AWS)	1000	0.63%
T-Mobile 2100 MHz (AWS) LTE	4	1,556.18	100	25.33	2100 MHz (AWS)	1000	2.53%
						<b>Total:</b>	<b>5.90%</b>

*Table 6: T-MOBILE Maximum Sector MPE Power Values*



## 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:	5.90 %
Sector B:	5.90 %
Sector C:	5.90 %
T-MOBILE Maximum Total (per sector):	5.90 %
Site Total:	26.43 %
Site Compliance Status:	<b>COMPLIANT</b>

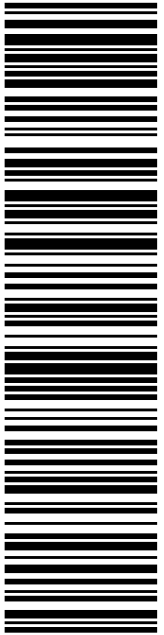
The anticipated composite MPE value for this site assuming all carriers present is **26.43 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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.

Scott Heffernan  
Principal RF Engineer  
**Fox Hill Telecom, Inc**  
Holden, MA 01520  
(978)660-3998

# Exhibit G


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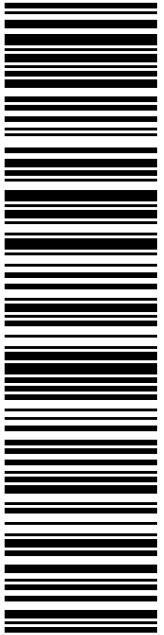
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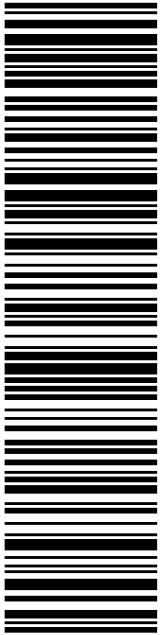
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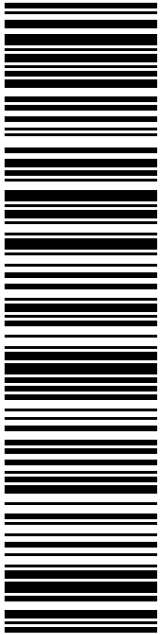


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