



Filed by:

G. Scott Shepherd, Sr. Property Specialist - SBA Communications  
134 Flanders Rd., Suite 125, Westborough, MA 01581  
508.251.0720 x 3807 - GShepherd@sbsite.com

May 13, 2021

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

**Notice of Exempt Modification**  
**267 Norwich Westerly Road**  
**North Stonington, CT 06359**  
**T-Mobile Site #: CT11312A\_L600**  
**Latitude: 41.437066**  
**Longitude: -71.881488**

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 147-foot level of the existing 150-foot Monopole Tower at 267 Norwich Westerly Road, North Stonington, CT. The tower is owned by SBA Properties, LLC. The property is owned by the North Stonington Volunteer Fire Company. T-Mobile now intends to remove (3) three Antenna and replace them with (3) new L600/L700 MHz antennas.

**The new antennas would support 5G services and be installed at the 147-foot level of the tower.**

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

Planned Modifications:

- Please note the enclosed Construction Drawings (Exhibit 6) hereto attached, shows a total of five (5) platforms. However, one platform was empty and has since been removed in accordance with the original zoning approval. I have attached as Exhibit 10 a photograph of the Tower showing only four (4) platforms remaining.



## TOWER:

### Remove:

- N/A

### Remove and Replace:

- (3) LNX6515 Antenna (Remove) – (3) APXVAARR24\_43U-NA20 Antenna 600/700 MHz (Replace)
- (3) Ericsson S11B12 RRUS (Remove) - (3) Ericsson Radio 4449 B71+B12 RRUs (Replace)
- (3) 1-5/8" Coax (Remove) - (3) 1-3/4" Fiber (Replace)

### Install New:

- (1) V-brace kit (SitePro-SFS-L)
- (3) New 2.5 STD 8' Mount pipes
- (3) 1.9" Fiber

### Existing Equipment to Remain:

- Low profile mount w/handrail kit (Commscope MT-195-14 & VSR-MS-B)
- (1) Platform reinforcement kit (SitePro PRK-1245L)
- (6) AIR 21 KRC118023-1\_B2A-B4P 1900/2100 MHz Antenna
- (3) Ericsson KRY 112 144/1 TMAs
- (8) 1-5/8" Coax
- (1) 1-5/8" Fiber
- (1) 1/2" coax for GPS

### Entitlements:

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

## GROUND

### Install New:

- BB 6630 inside existing RBS 6102 equipment cabinet

This facility was approved prior to the Council's jurisdiction, on May 6, 1999, at a Special Meeting of the North Stonington Planning & Zoning Commission. Special Permit 99-031 allowed for a 150' multi-tenant monopole and related equipment on land at the intersection of Route 2 / Rocky Hollow Rd at 267 Norwich-Westerly Rd, aka Route 2. The tower was approved for (4) antenna support platforms each holding no more than twelve panel antennas. Additional support platforms and/or antennas would require an approved site plan modification. As indicated previously, a fifth (5<sup>th</sup>) empty platform was removed as evidenced by the accompanying photo as Exhibit 10 of the enclosed filing. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of North Stonington's First Selectman, Michael Urgo, and Planning and Zoning Official, Juliet Lodge, as well as to the property owner, North Stonington Volunteer Fire Co. (Separate notice is not being sent to tower owner, as it belongs to SBA.)



The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

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

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

Sincerely,

G. Scott Shepherd  
Sr. Property Specialist  
SBA COMMUNICATIONS CORPORATION  
134 Flanders Rd., Suite 125  
Westborough, MA 01581  
508.251.0720 x3807 + T  
508.366.2610 + F 508.868.6000 + C  
[GShepherd@sbsite.com](mailto:GShepherd@sbsite.com)

Attachments

cc: Michael Urgo, First Selectman / with attachments  
*Old Town Hall, 40 Main Street, North Stonington, CT 06359*  
Juliet Lodge, Planning and Zoning Official / with attachments  
*Old Town Hall, 40 Main Street, North Stonington, CT 06359*  
North Stonington Volunteer Fire Co. / with attachments  
*25 Rock Hollow Rd., North Stonington, CT 06359*



Exhibit List

Exhibit 1	Check Copy	To be invoiced at a later date per Covid Guidelines
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	North Stonington P&Z Special Permit 99-031
Exhibit 6	Construction Drawings	Chappell dated 3/22/21
Exhibit 7	Structural Analysis	TES dated 4/5/21
Exhibit 8	Mount Analysis	Geo Structural dated 3/19/21
Exhibit 9	EME Report	EBI Consulting 5/12/21
Exhibit 10	Photo of Platforms	8/20/19

## EXHIBIT 1

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

# EXHIBIT 2

ORIGIN ID:BBFA (508) 614-0389  
RICK WOODS  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

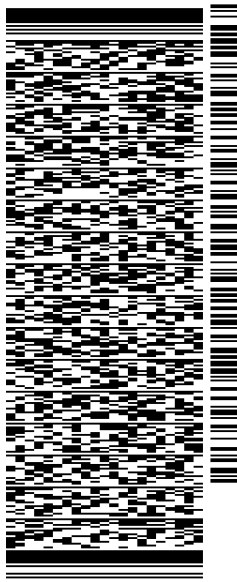
SHIP DATE: 13MAY21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4340

BILL SENDER

TO **MELANIE A. BACHMAN EXEC. DIR**  
**CONNECTICUT SITING COUNCIL**  
**TEN FRANKLIN SQUARE**

**NEW BRITAIN CT 06051**

(508) 251-0720 X.3807 REF: 1056-92009-6089  
INV. PO. DEPT.



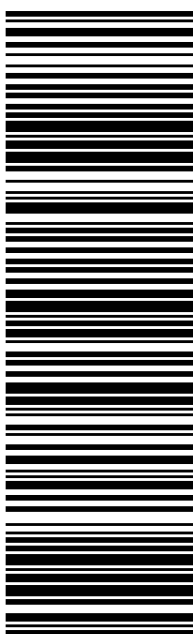
J211321033101uv

56DJ3/71DC/FE4A

TRK# 7737 1815 7589  
0201  
FRI - 14 MAY 10:30A  
PRIORITY OVERNIGHT

**EBBDLA**

06051  
CT-US BDL



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**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:BBFA (508) 614-0389  
RICK WOODS  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

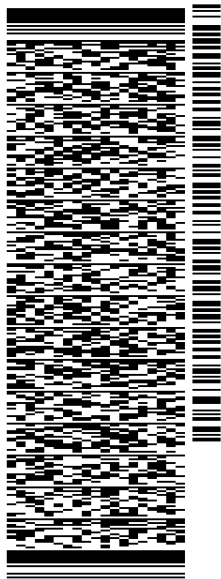
SHIP DATE: 13MAY21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4340  
BILL SENDER

TO

**NORTH STONINGTON VOL. FIRE DEPT.  
25 ROCK HOLLOW RD**

**NORTH STONINGTON CT 06359**

(508) 251-0720 X 3807 REF: 1056-92009-6089  
INV# PO: DEPT:

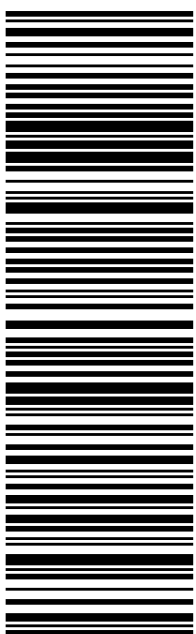


56DJ3/71DC/FE4A

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0201 PRIORITY OVERNIGHT

**EB GONA**

06359  
CT-US BDL



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ORIGIN ID:BFBA (508) 614-0389  
RICK WOODS  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

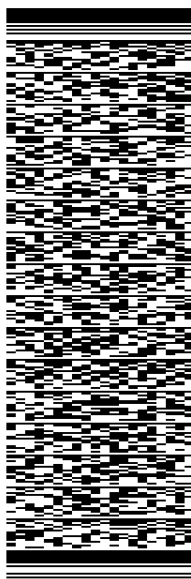
SHIP DATE: 13MAY21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4340

BILL SENDER

TO JULIET LODGE, P&Z OFFICIAL  
OLD TOWN HALL  
40 MAIN ST

NORTH STONNINGTON CT 06359  
(508) 251-0720 X 3807 REF: 1056-92009-6089  
INV# PO: DEPT:

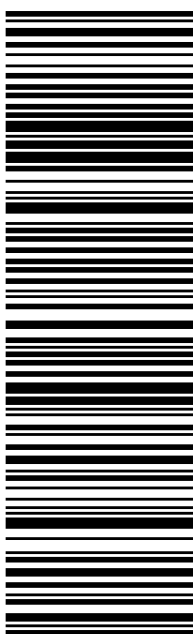
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**EB GONA**

06359  
CT-US BDL



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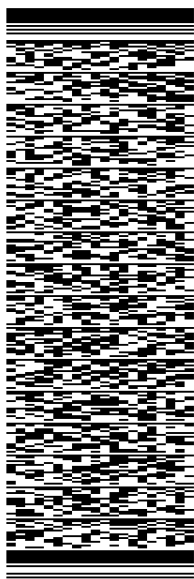
SHIP DATE: 13MAY21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4340

BILL SENDER

TO MICHAEL URGO, FIRST SELECTMAN  
OLD TOWN HALL  
40 MAIN ST

NORTH STONNINGTON CT 06359  
(508) 251-0720 X 3807  
INV# REF: 1056-92009-6089  
PO: DEPT:

56DJ371DC/FE4A

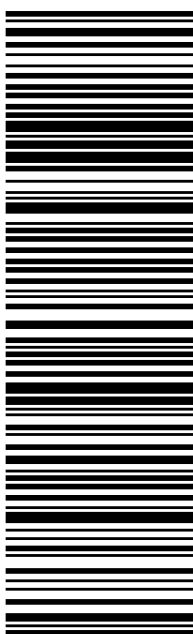


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0201  
FRI - 14 MAY 12:00P  
PRIORITY OVERNIGHT

**EB GONA**

06359  
CT-US BDL



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# EXHIBIT 3



# Town of North Stonington, CT

Property Listing Report

Map Block Lot 109-3238

Account

10182600

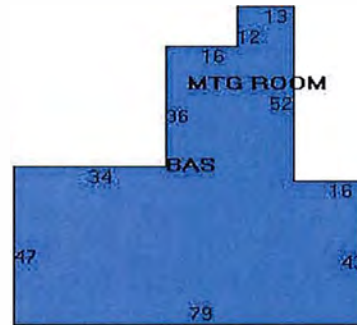
## Property Information

Property Location	267 NRWH WSTLY RD
Owner	NO STONINGTON VOL FIRE CO INC
Co-Owner	
Mailing Address	40 MAIN ST NORTH STONINGTON CT 06359-0279
Land Use	9030 MUNICIPAL MDL-94
Land Class	E
Zoning Code	R40
Census Tract	7071
Sub Lot	
Neighborhood	0400
Acreage	2.57
Utilities	Well,Septic
Lot Setting/Desc	Rural Level
Survey Map	
Additional Info	

## Photo



## Sketch



## Primary Construction Details

Year Built	1964
Stories	1
Building Style	Other Municip
Building Use	Ind/Comm
Building Condition	Below Average
Floors	Concr-Finished
Total Rooms	

Bedrooms	
Full Bathrooms	2
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Flat
Roof Cover	T&G/Rubber

Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	Hot Water
Heating Fuel	Oil/Gas
AC Type	None
Gross Bldg Area	5749
Total Living Area	4849



# Town of North Stonington, CT

Property Listing Report

Map Block Lot

109-3238

Account

10182600

## Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	305000	213500
Extras	0	0
Outbuildings	14200	9940
Land	100200	70140
<b>Total</b>	<b>419400</b>	<b>293580</b>

## Outbuilding and Extra Items

Type	Description
PAVING-ASPHALT	17500.00 S.F.

## Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	4849	4849
Basement, Finished	900	0
<b>Total Area</b>	<b>5749</b>	<b>4849</b>

## Sales History

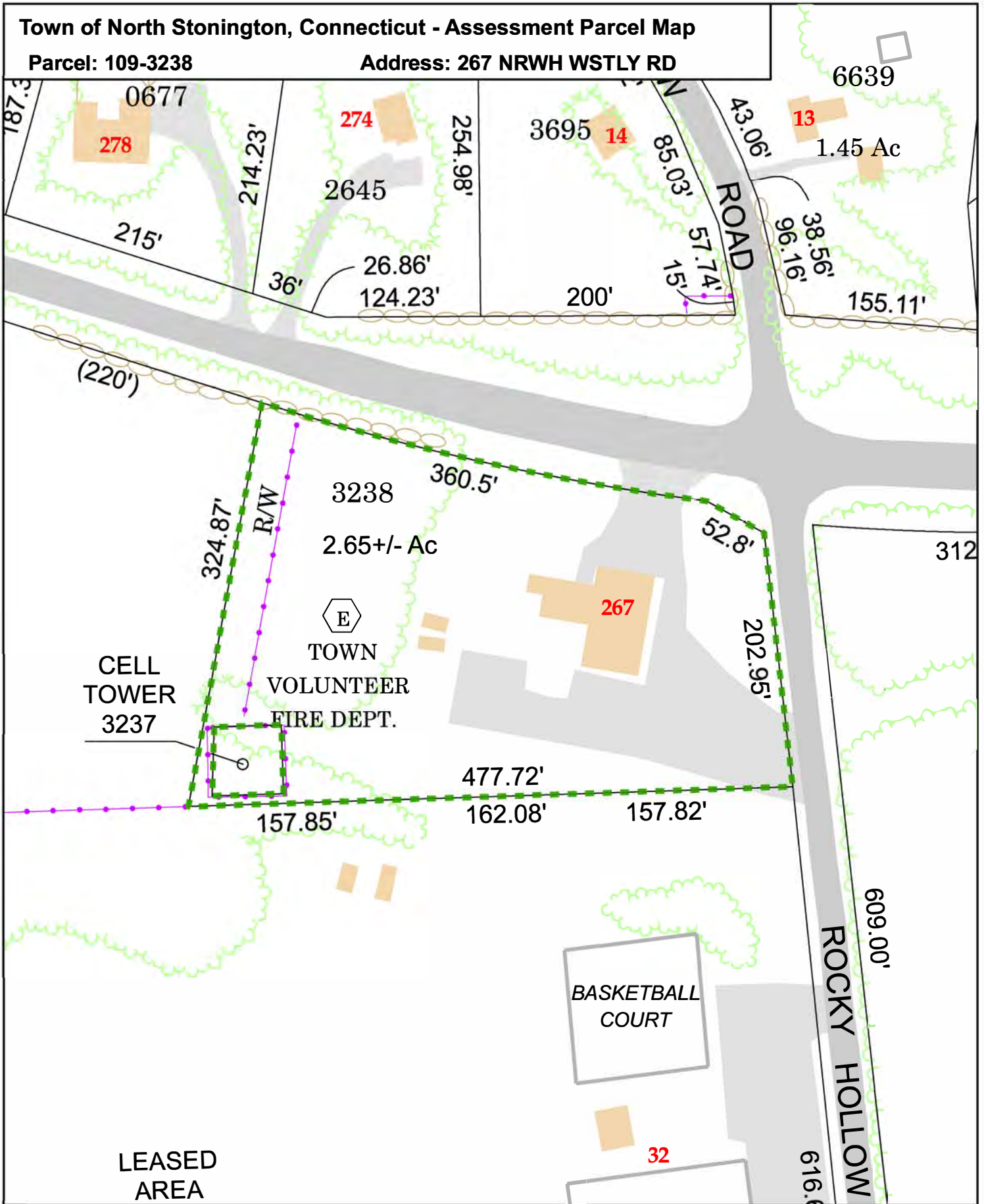
Owner of Record	Book/ Page	Sale Date	Sale Price
NO STONINGTON VOL FIRE CO INC	111/ 760	10/8/1996	0
TOWN OF NORTH STONINGTON	108/ 651	1/25/1996	0
STATE OF CONNECTICUT	26/ 498	12/17/1954	0

# EXHIBIT 4

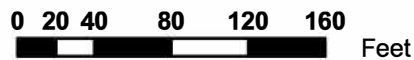
Town of North Stonington, Connecticut - Assessment Parcel Map

Parcel: 109-3238

Address: 267 NRWH WSTLY RD



Approximate Scale: 1:1,200



Map Produced  
November 2018

Disclaimer: This map is for informational purposes only.  
All information is subject to verification by any user.  
The Town of North Stonington and its mapping contractors assume  
no legal responsibility for the information contained herein.

# EXHIBIT 5





Town of

**NORTH STONINGTON, CT.**

PLANNING &amp; ZONING COMMISSION

May 13, 1999

**CERTIFIED MAIL**

SBA Inc.  
 125 Shaw Street  
 Suite 116  
 New London, Connecticut 06320

**NOTICE OF DECISION**

At the Special Meeting of the North Stonington Planning & Zoning Commission held on Thursday, May 6, 1999, at the New Town Hall located at 40 Main Street, North Stonington, Connecticut, the Commission acted as follows:

SP#99-031 Application of SBA Inc., of 125 Shaw Street, Suite 116, New London, Connecticut and Sprint Spectrum, LP (Sprint PCS) of 9 Barnes Industrial Road, Wallingford, Connecticut to allow a Special Permit for a 150' multi-tenant monopole and related equipment on land located at the intersection of Route 2/Rocky Hollow Road at 267 Norwich-Westerly Road (a.k.a. Route 2) land is owned by North Stonington Volunteer Fire Co. Inc., Tax map #221, Lot #1.01, was approved with the following conditions applied:

1). Iron Pins shall be set before signing and the proper symbol shall be shown on Sheet S-1, enlarged view.

2). Note shall be amended to the site plan indicating that no more than 4 antenna support platforms each holding no more than 12 panel antennas, are approved; and the installation of additional support platforms and/or antennas shall require an approved site plan modification.

3). Note symbols #8 through #10 on Sheet C-2 shall be removed from the site plan or labeled as "omitted".

4). SE&SC narrative note #17 on Sheet C-4 shall be moved to under note #10 and renumbered.

5). The words "with topsoil added" shall be inserted into note #13 on Sheet C-4 after the word "roughened."

6). A description of the lightening suppression system shall be added to the site plan.

\*No further pages were made available

# EXHIBIT 6

# N. STONINGTON / RT.2

267 NORWICH WESTERLY ROAD  
NORTH STONINGTON, CT 06379  
NEW LONDON COUNTY

## SITE NO.: CT11312A

SITE TYPE: 150'± MONOPOLE

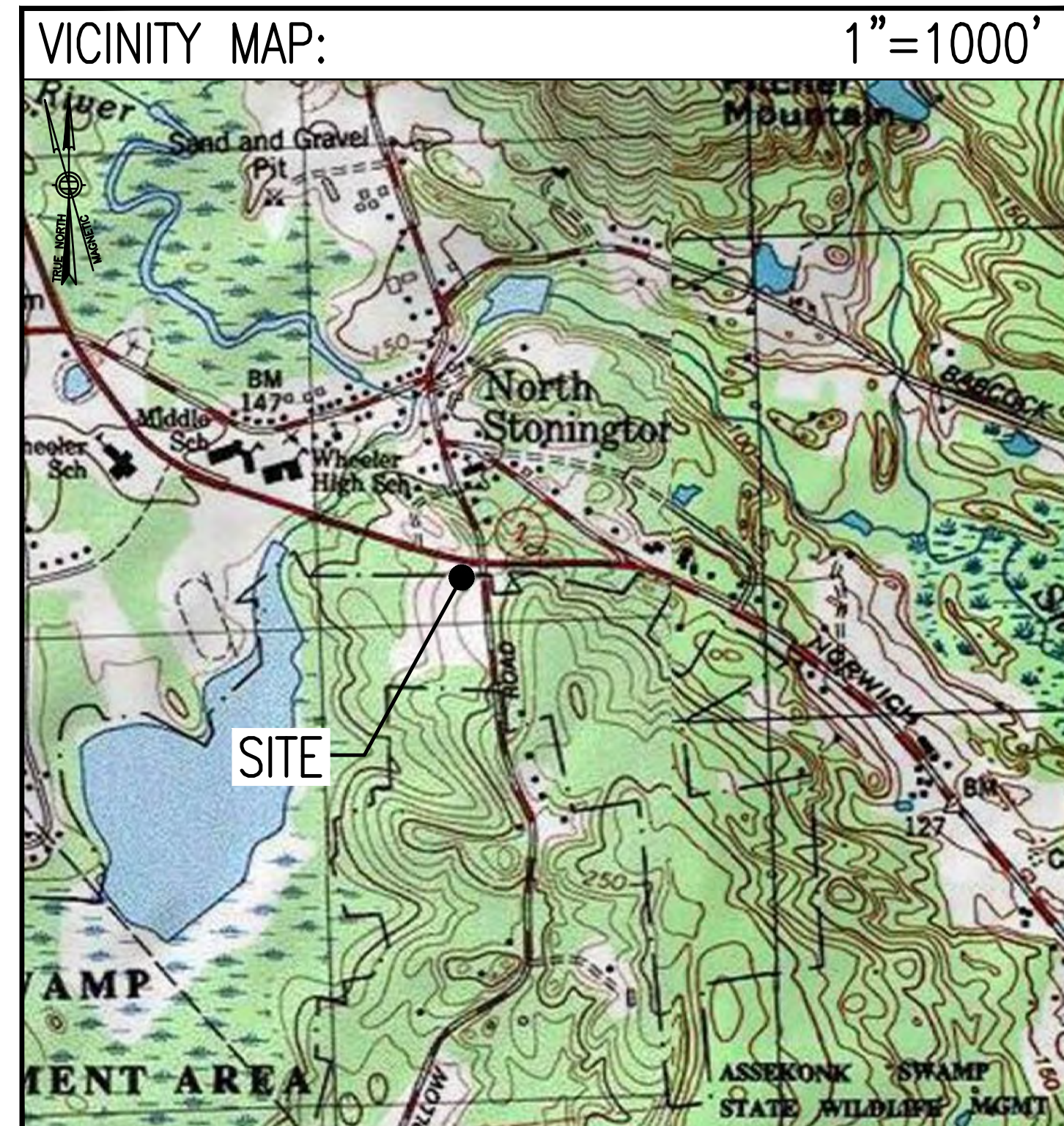
RF DESIGN GUIDELINE: 67D02C HYBRID

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

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

GENERAL NOTES	
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.	11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.	12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOTENT 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.	13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.	14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.	15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.	16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.	17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.	
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.	
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.	

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811



**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.

SHEET INDEX		
SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLANS	2
A-2	TOWER ELEVATION & ANTENNA PLANS	2
A-3	SITE DETAILS	2
A-4	ANTENNA & FEEDLINE CHARTS	2
S-1	ANTENNA MOUNTING DETAILS	2
E-1	ELECTRIC & GROUNDING DETAILS	2

**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).

SITE NOTES	
1.	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. <ul style="list-style-type: none"> <li>ADA COMPLIANCE NOT REQUIRED.</li> <li>POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.</li> <li>NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.</li> </ul>
2.	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.
3.	NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. <ul style="list-style-type: none"> <li>BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE</li> <li>ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE</li> <li>STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.</li> </ul>

PROJECT SCOPE OF WORK	
-	DECOM 3 ANTENNAS AND ANTENNA MOUNTS
-	DECOM 3 RRUS
-	DECOM 4 COAXIAL CABLES
-	INSTALL 3 ANTENNAS AND ANTENNA MOUNTS
-	INSTALL 3 RRUS
-	INSTALL 3 HYBRID FIBER CABLES
-	FURNISH AND INSTALL SLACKBOX
-	FURNISH AND INSTALL HANDRAIL AND REINFORCEMENT KITS

PROJECT SUMMARY	
SITE NUMBER:	CT11312A
SBA SITE NUMBER:	CT01210-S
SBA SITE NAME:	NORTH STONINGTON
SITE ADDRESS:	267 NORWICH WESTERLY ROAD NORTH STONINGTON, CT 06379
PROPERTY OWNER:	NORTH STONINGTON VOLUNTEER FIRE CO INC. 40 MAIN STREET NORTH STONINGTON, CT 06359-0279
TOWER OWNER:	SBA PROPERTIES, LLC. 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON COUNTY
ZONING DISTRICT:	R40, HIGH-DENSITY RESIDENTIAL
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	150'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SROTH@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.43711388° (41°-26'-13.61") LONGITUDE W.-71.8814667° (-71°-52'-53.28")

**T-Mobile**

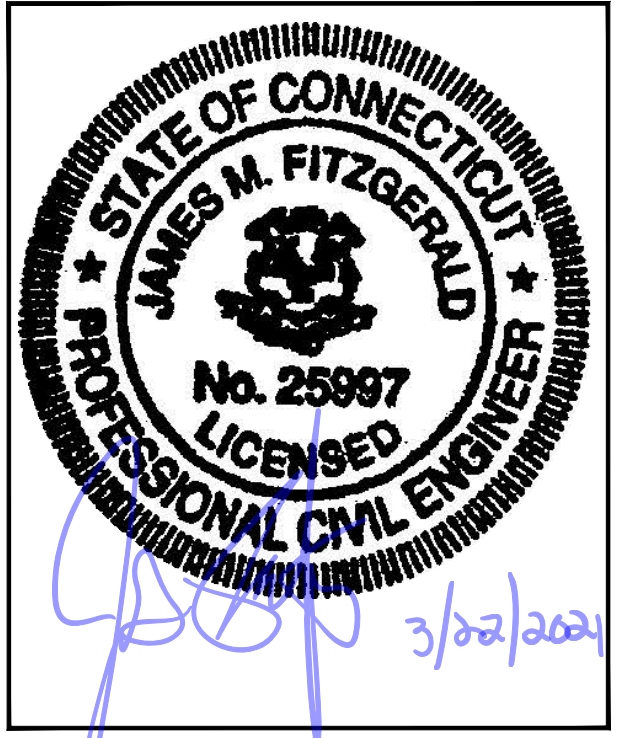
T-MOBILE NORTHEAST LLC  
15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
OFFICE: (508) 286-2700

**SBA**

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

**CHAPPELL ENGINEERING ASSOCIATES, LLC**  
Civil Structural-Land Surveying

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



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APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
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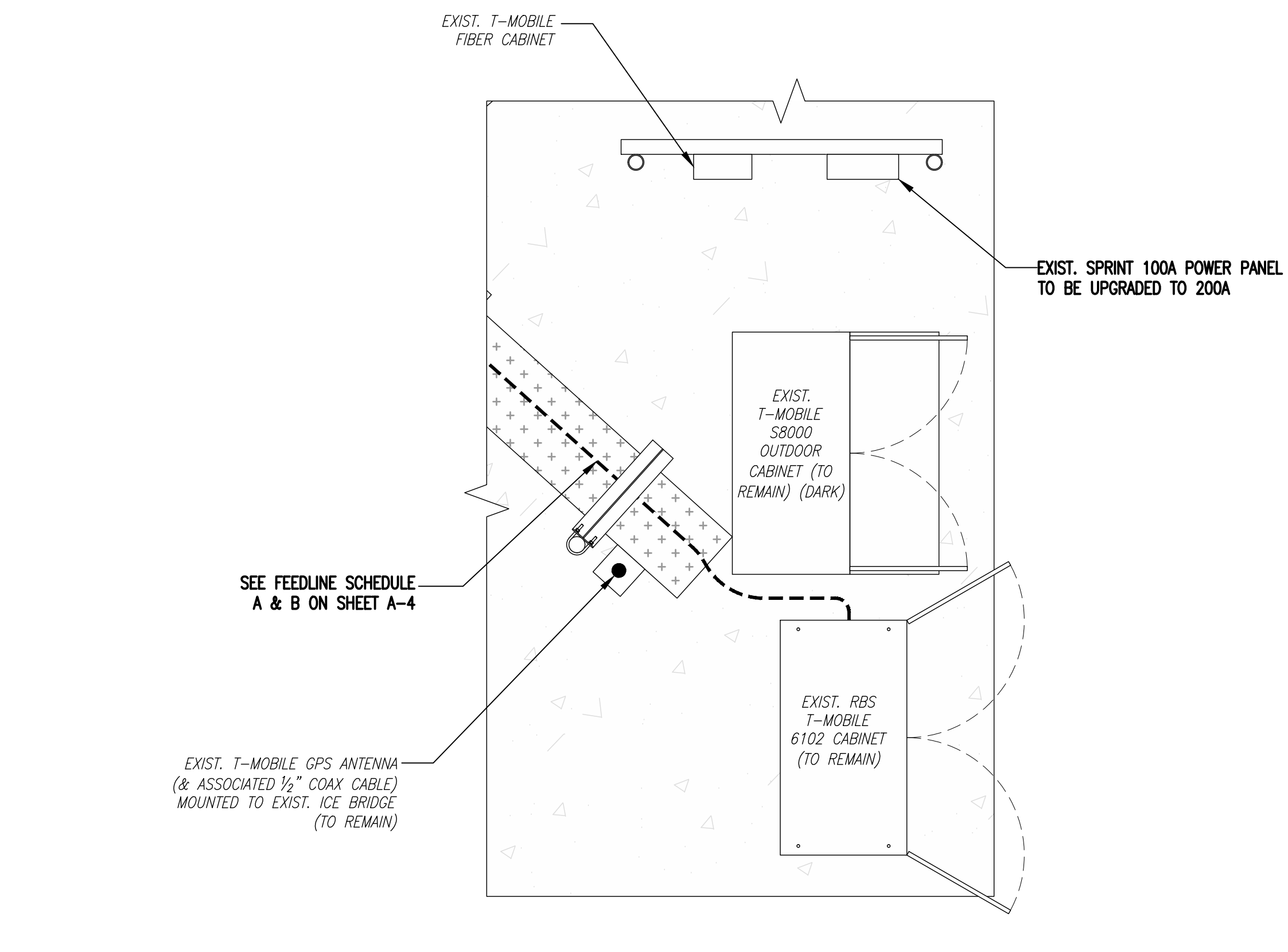
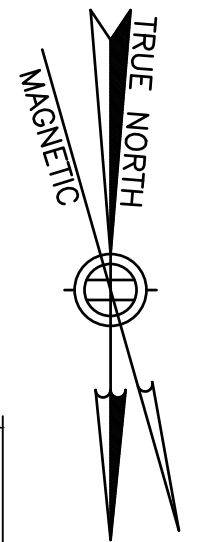
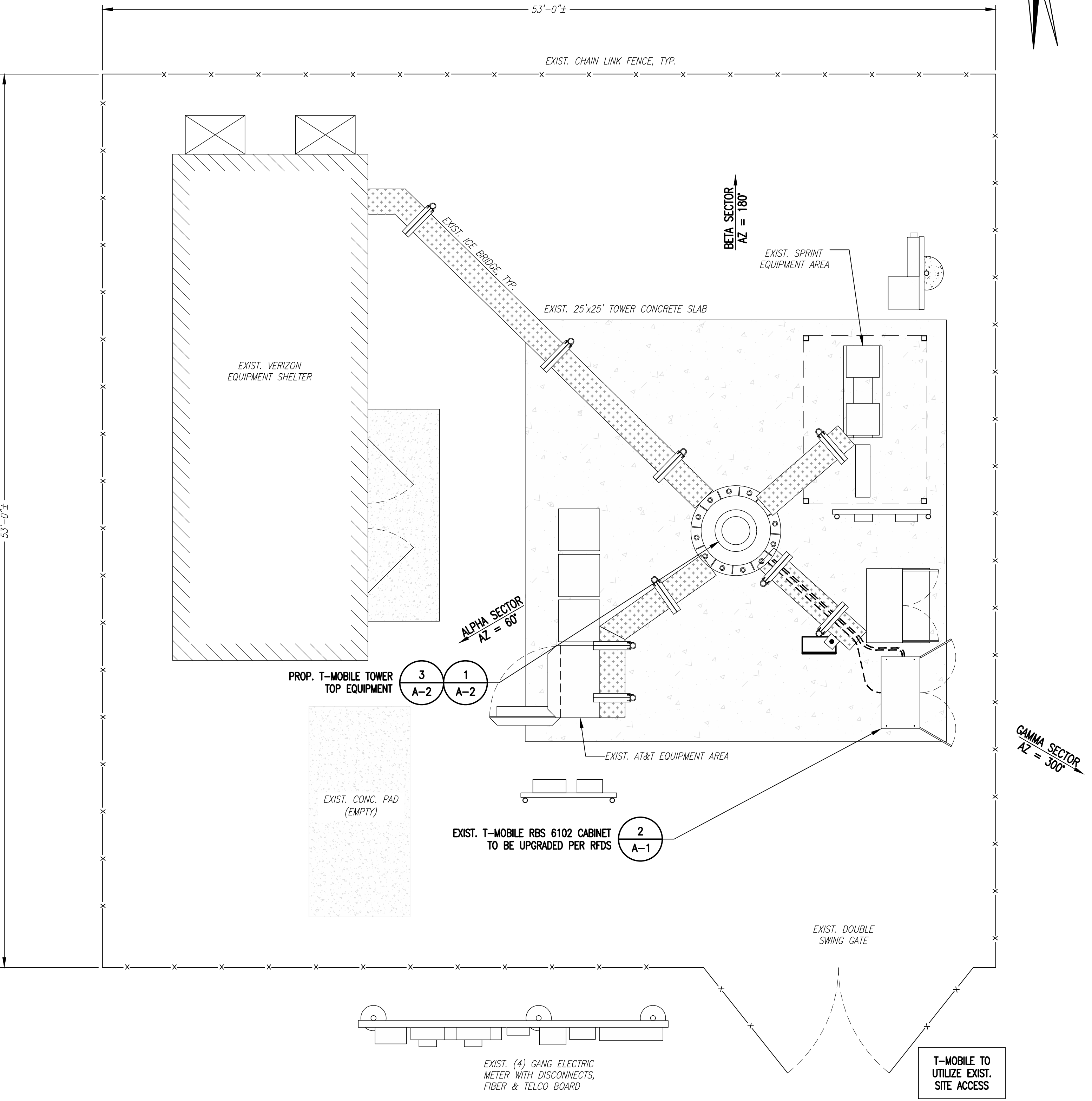
SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**



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

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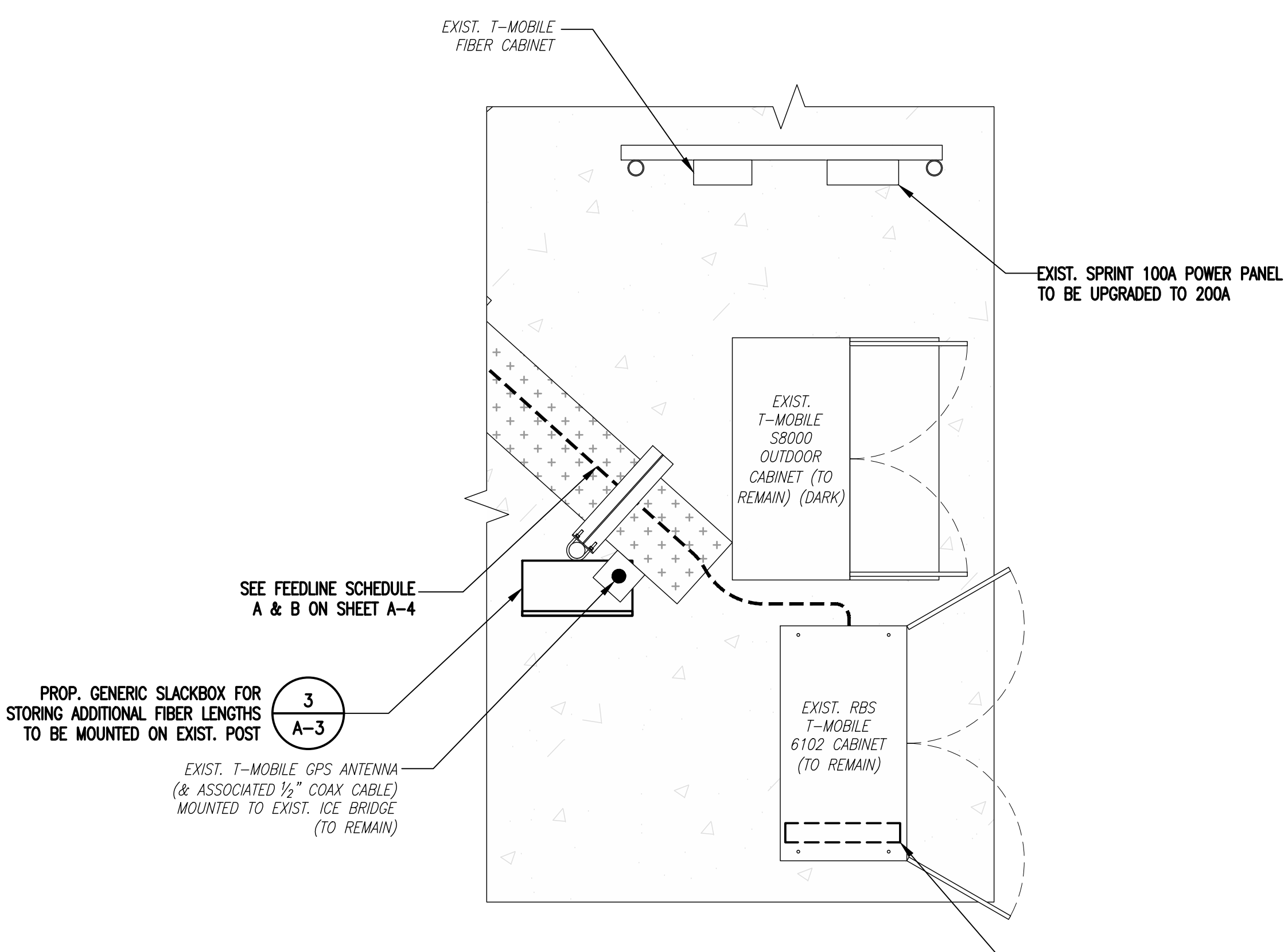


**EXISTING EQUIPMENT PLAN**

SCALE: 1/2" = 1'-0"

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

NORTH



**PROPOSED EQUIPMENT PLAN**

SCALE: 1/2" = 1'-0"

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

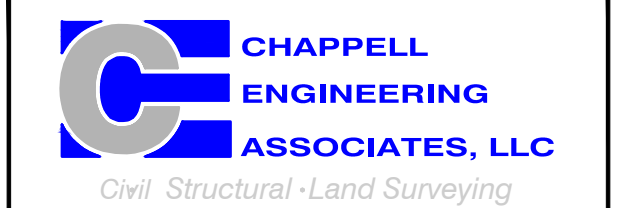
NORTH

**T-Mobile**

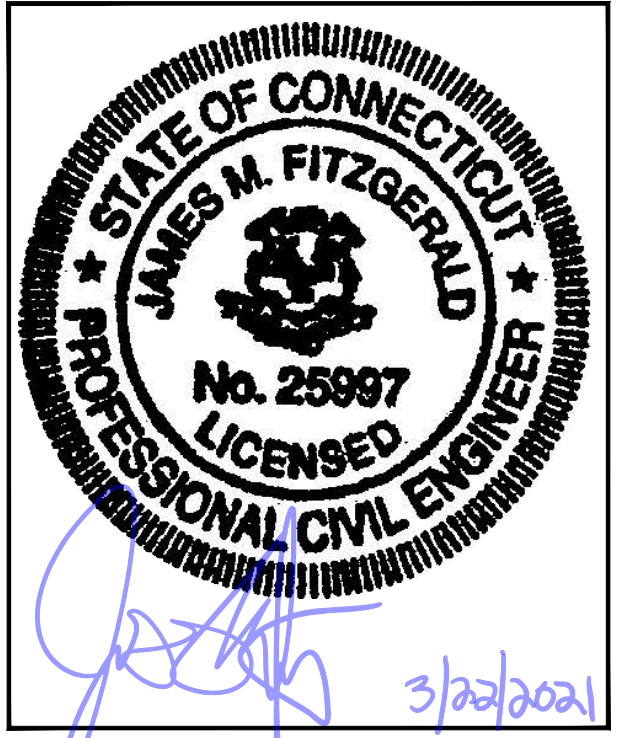
T-MOBILE NORTHEAST LLC  
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 NORTON, MA 02766  
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SHEET TITLE  
**COMPOUND & EQUIPMENT PLANS**

SHEET NUMBER  
**A-1**

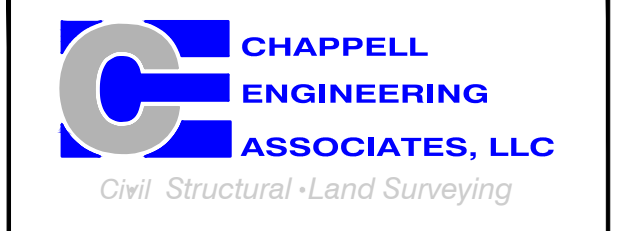
**RAD CENTER NOTE:**  
 T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

**SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):**  
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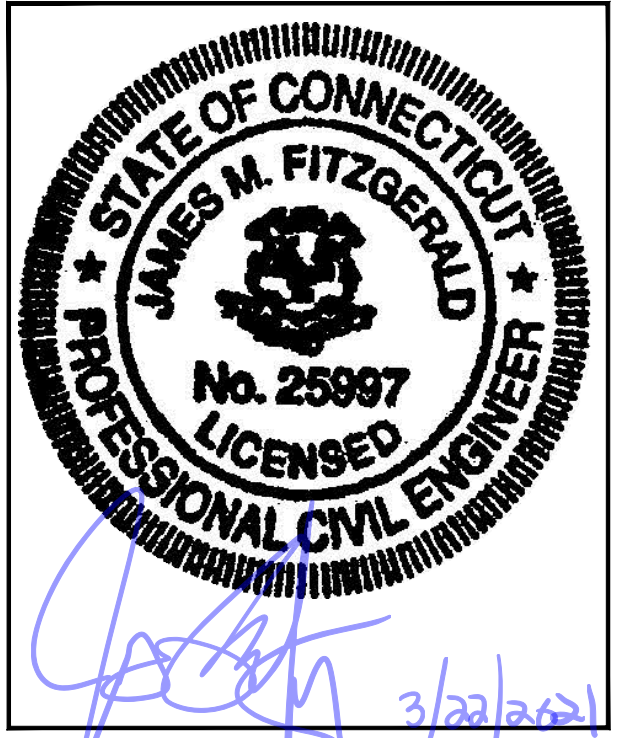
**T-Mobile**  
 T-MOBILE NORTHEAST LLC  
 15 COMMERCE WAY, SUITE B  
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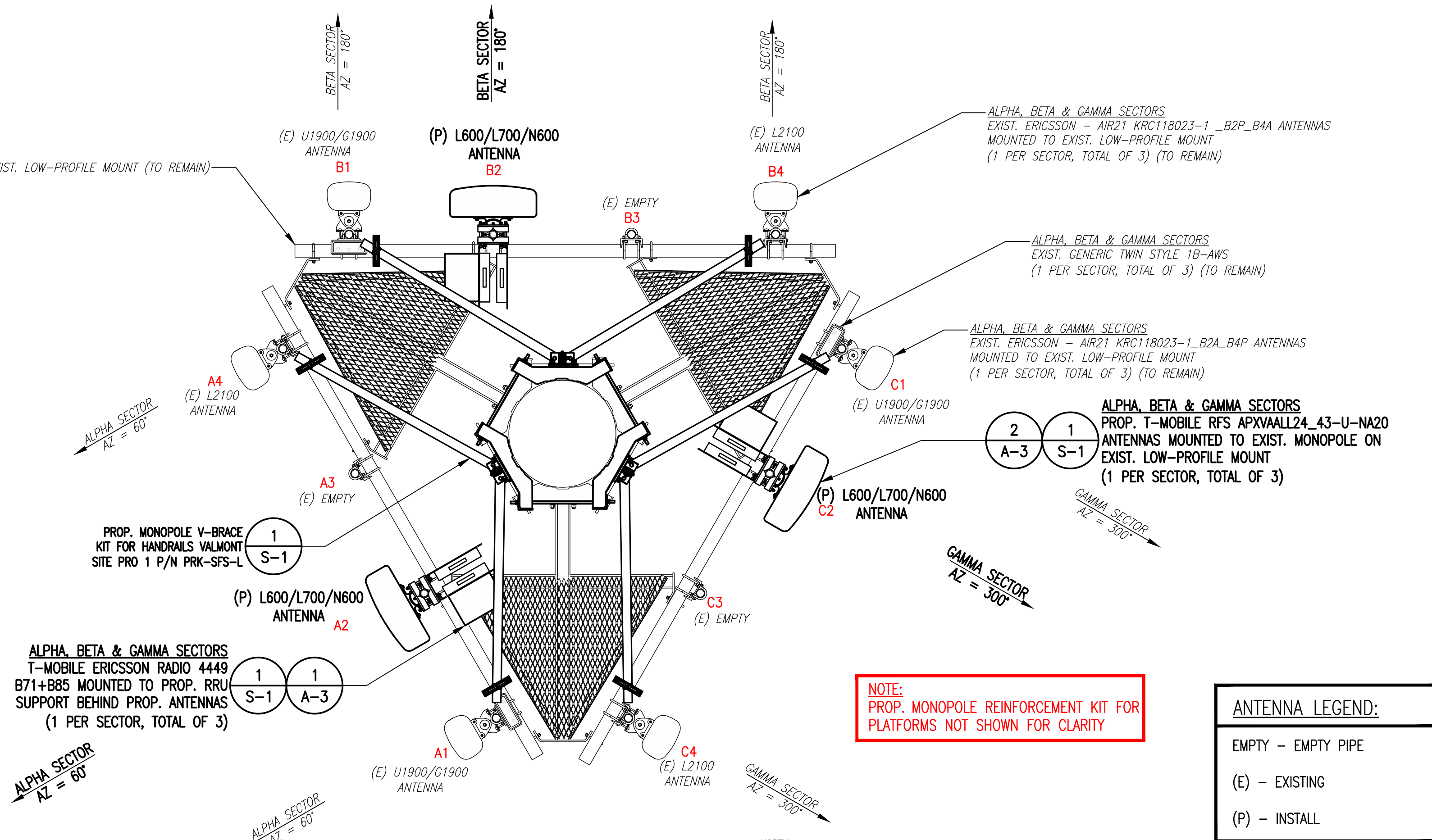
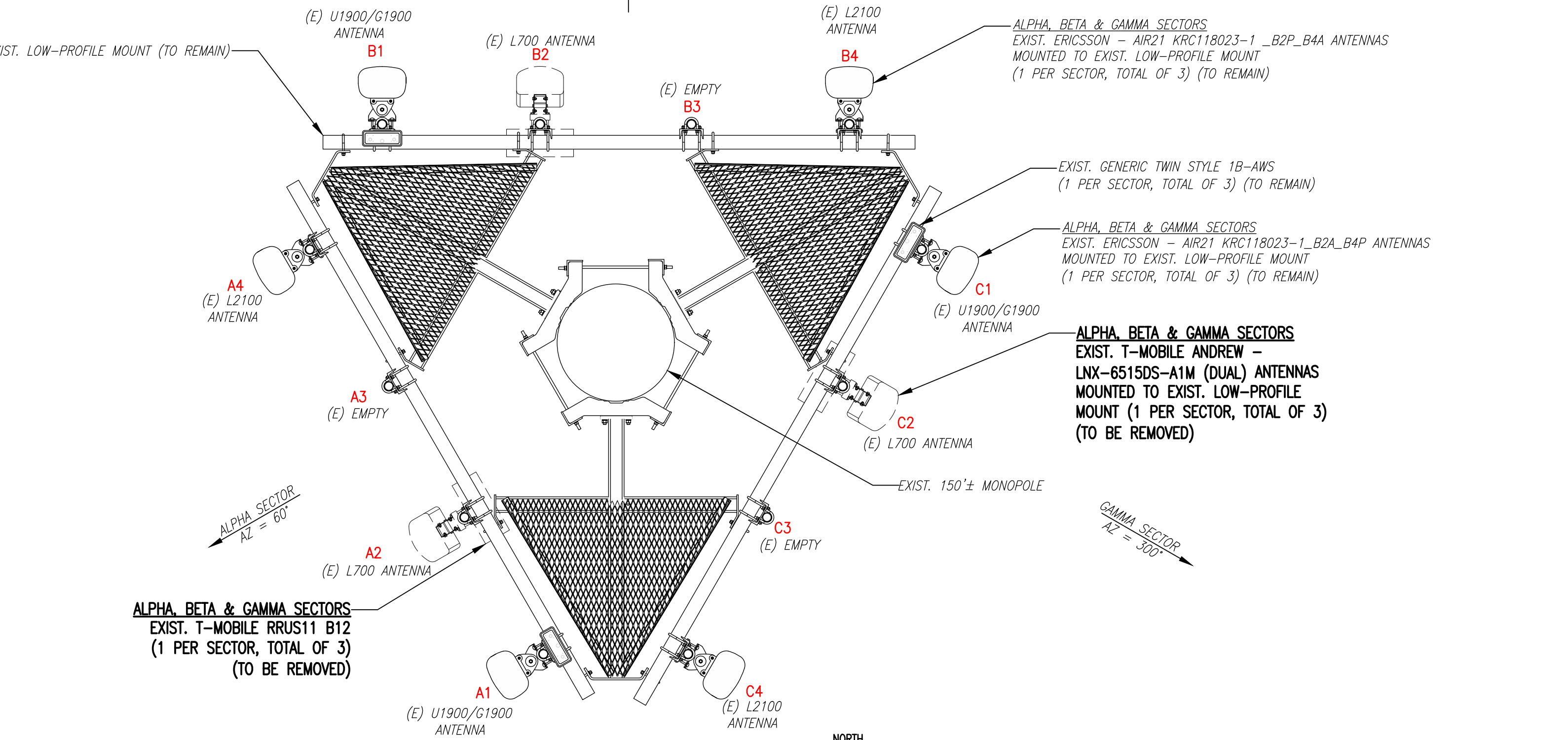
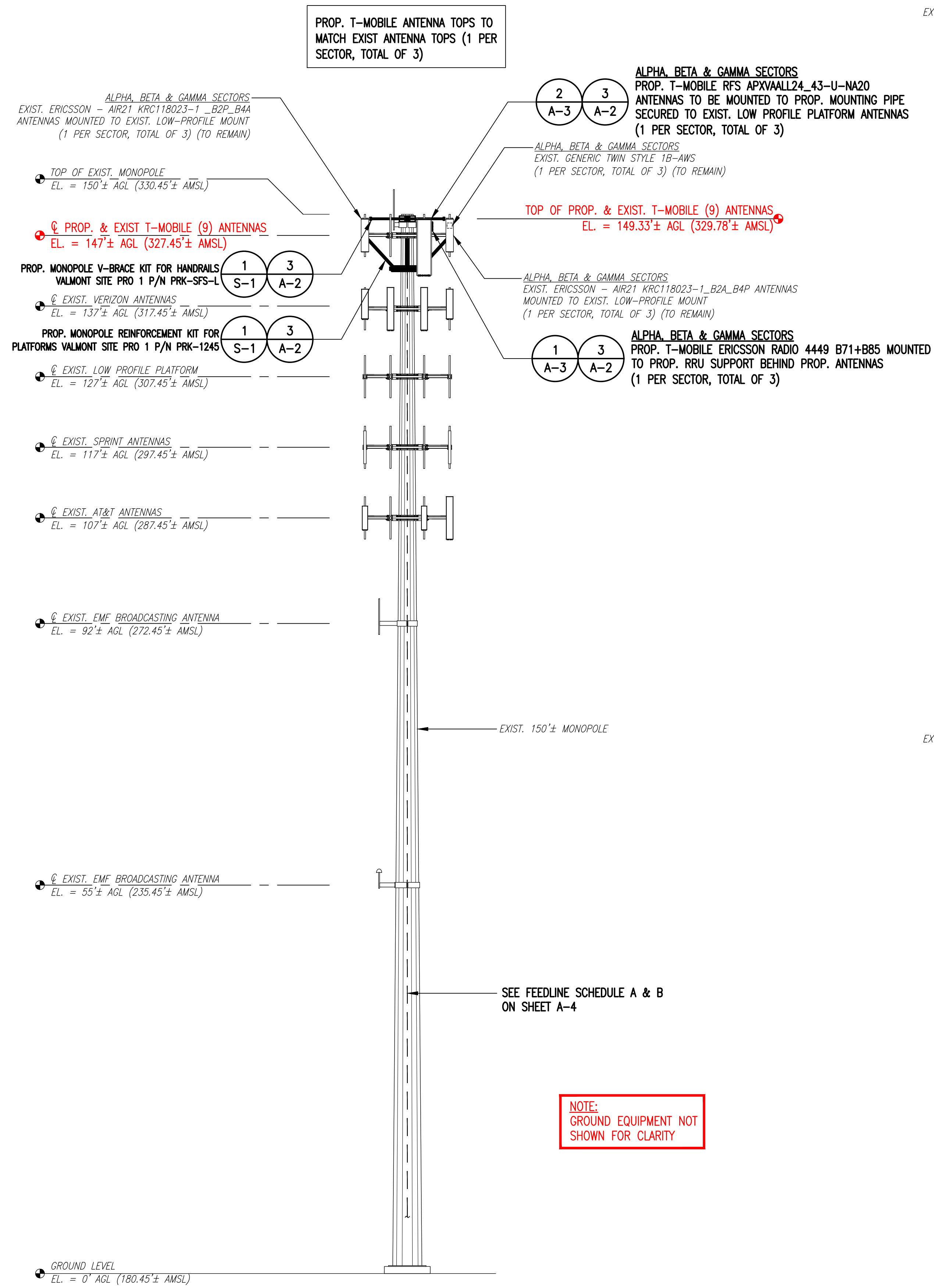
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 267 NORWICH WESTERLY ROAD  
 NORTH STONINGTON, CT 06379

SHEET TITLE  
**TOWER ELEVATION & ANTENNA PLANS**

SHEET NUMBER  
**A-2**



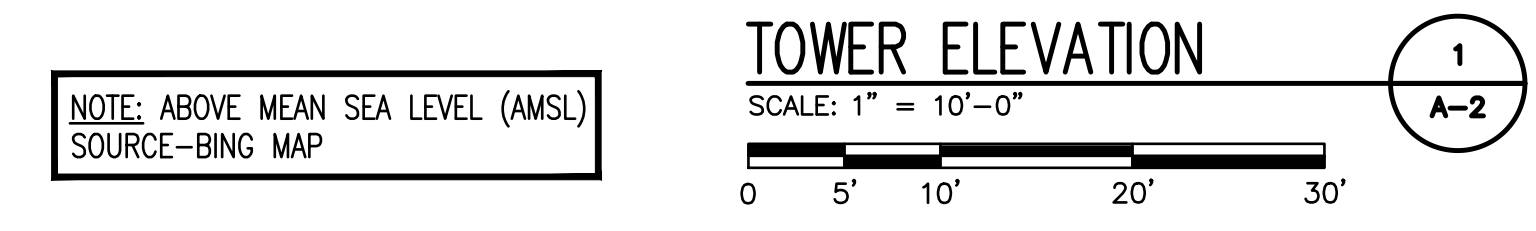
NOTE:  
 GROUND EQUIPMENT NOT SHOWN FOR CLARITY

NOTE:  
 PROP. MONOPOLE REINFORCEMENT KIT FOR PLATFORMS NOT SHOWN FOR CLARITY

**ANTENNA LEGEND:**

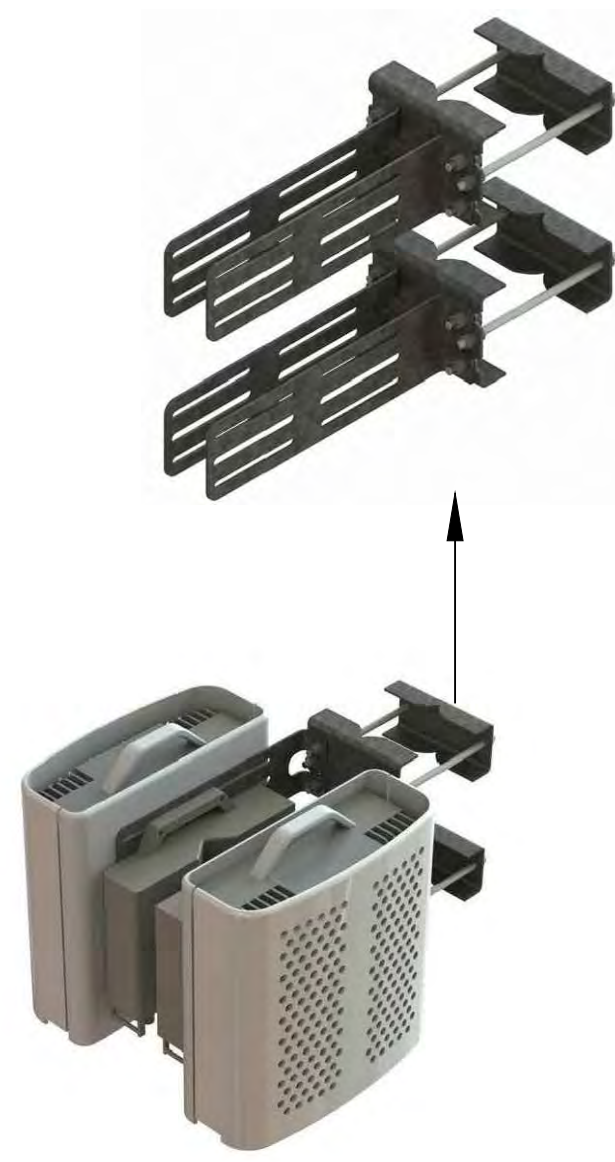
EMPTY	- EMPTY PIPE
(E)	- EXISTING
(P)	- INSTALL

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

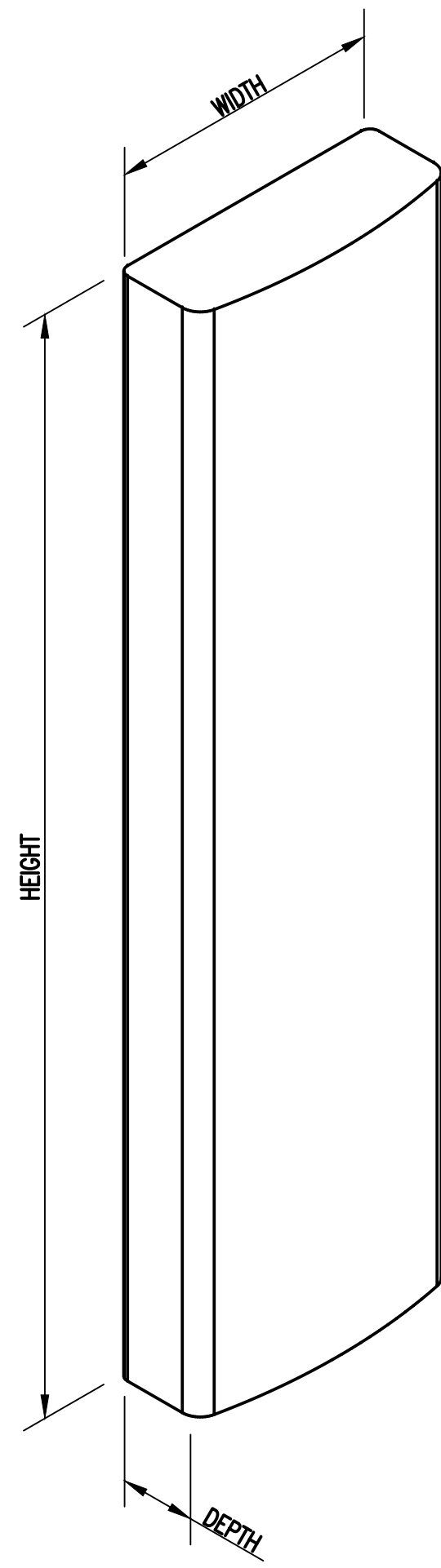




**ERICSSON RADIO 4449 B71+B85**  
 DIMENSIONS: 14.9"H x 13.2"W x 9.3"D  
 WEIGHT: 74.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3



**COMMSCOPE RADIO MOUNT RR-FA2**  
 DIMENSIONS: 16.4"H x 8.6"W x 18"L  
 WEIGHT: 36.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3



**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



**SLACKBOX - HOFFMAN 32FH91 NEMA 3R ENCLOSURE**  
 DIMENSIONS: 24.0"H x 24.0"W x 12.0"D  
 QUANTITY: TOTAL OF 1

**RADIO & MOUNT DETAILS** 1  
 SCALE: N.T.S. A-3

**ANTENNA DETAILS** 2  
 SCALE: N.T.S. A-3

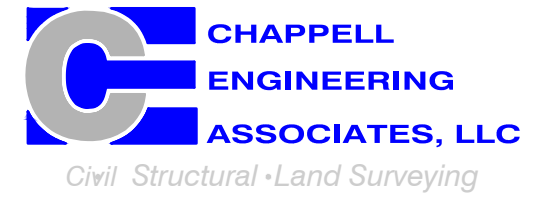
**SSC DETAILS** 3  
 SCALE: N.T.S. A-3



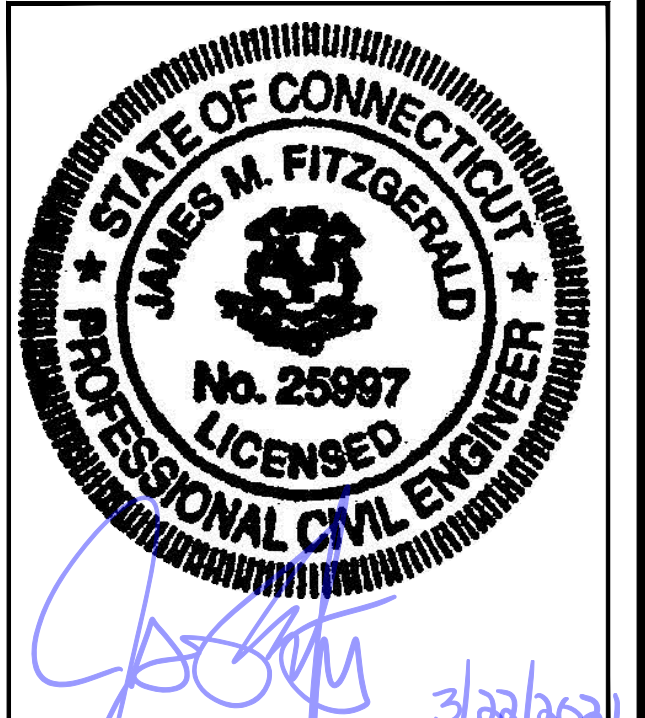
T-MOBILE NORTHEAST LLC  
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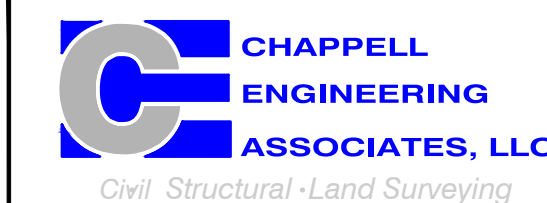
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 SITE ADDRESS:  
 287 NORWICH WESTERLY ROAD  
 NORTH STONINGTON, CT 06379

SHEET TITLE  
 SITE DETAILS

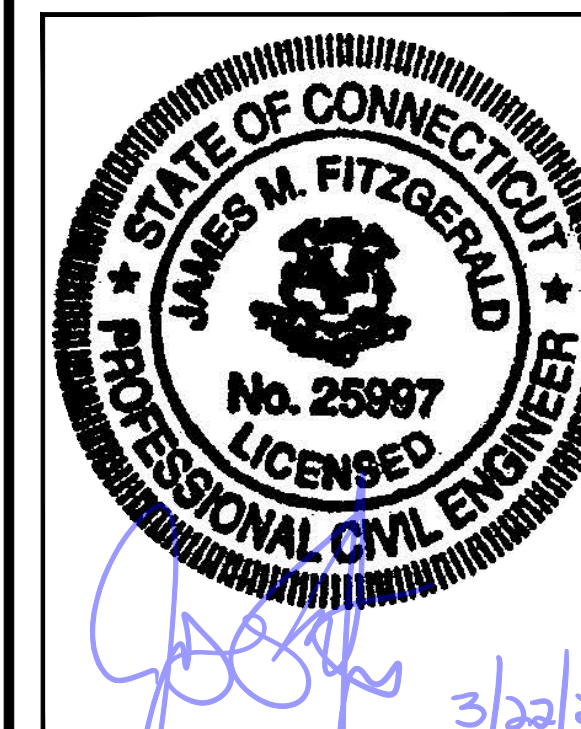
SHEET NUMBER  
**A-3**



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NORTH STONINGTON, CT 06379

SHEET TITLE  
**ANTENNA & FEEDLINE CHARTS**

SHEET NUMBER  
**A-4**

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_B2A_B4P	147± AGL	60°	0°	2°	U1900/G1900	GENERIC TWIN STYLE 1B-AWS TMA	(E) (1) 1-5/8" (6x12) HCS FIBER CABLE (E) (6) 1-3/8" COAXIAL CABLES (P) (3) 1-3/4" (6x24) HCS FIBER CABLES
	A2 RFS APXVALL24_43-U-NA20	147-0± AGL	60°	0°	2°	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
	A3 EMPTY	-	-	-	-	-	-	
	A4 ERICSSON AIR21 KRC118023-1_B2P_B4A	147± AGL	60°	0°	2°	L2100	-	
BETA	B1 ERICSSON AIR21 KRC118023-1_B2A_B4P	147± AGL	180°	0°	2°	U1900/G1900	GENERIC TWIN STYLE 1B-AWS TMA	
	B2 RFS APXVALL24_43-U-NA20	147-0± AGL	180°	0°	2°	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
	B3 EMPTY	-	-	-	-	-	-	
	B4 ERICSSON AIR21 KRC118023-1_B2P_B4A	147± AGL	180°	0°	2°	L2100	-	
GAMMA	C1 ERICSSON AIR21 KRC118023-1_B2A_B4P	147± AGL	300°	0°	2°	U1900/G1900	GENERIC TWIN STYLE 1B-AWS TMA	
	C2 RFS APXVALL24_43-U-NA20	147-0± AGL	300°	0°	2°	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
	C3 EMPTY	-	-	-	-	-	-	
	C4 ERICSSON AIR21 KRC118023-1_B2P_B4A	147± AGL	300°	0°	2°	L2100	-	

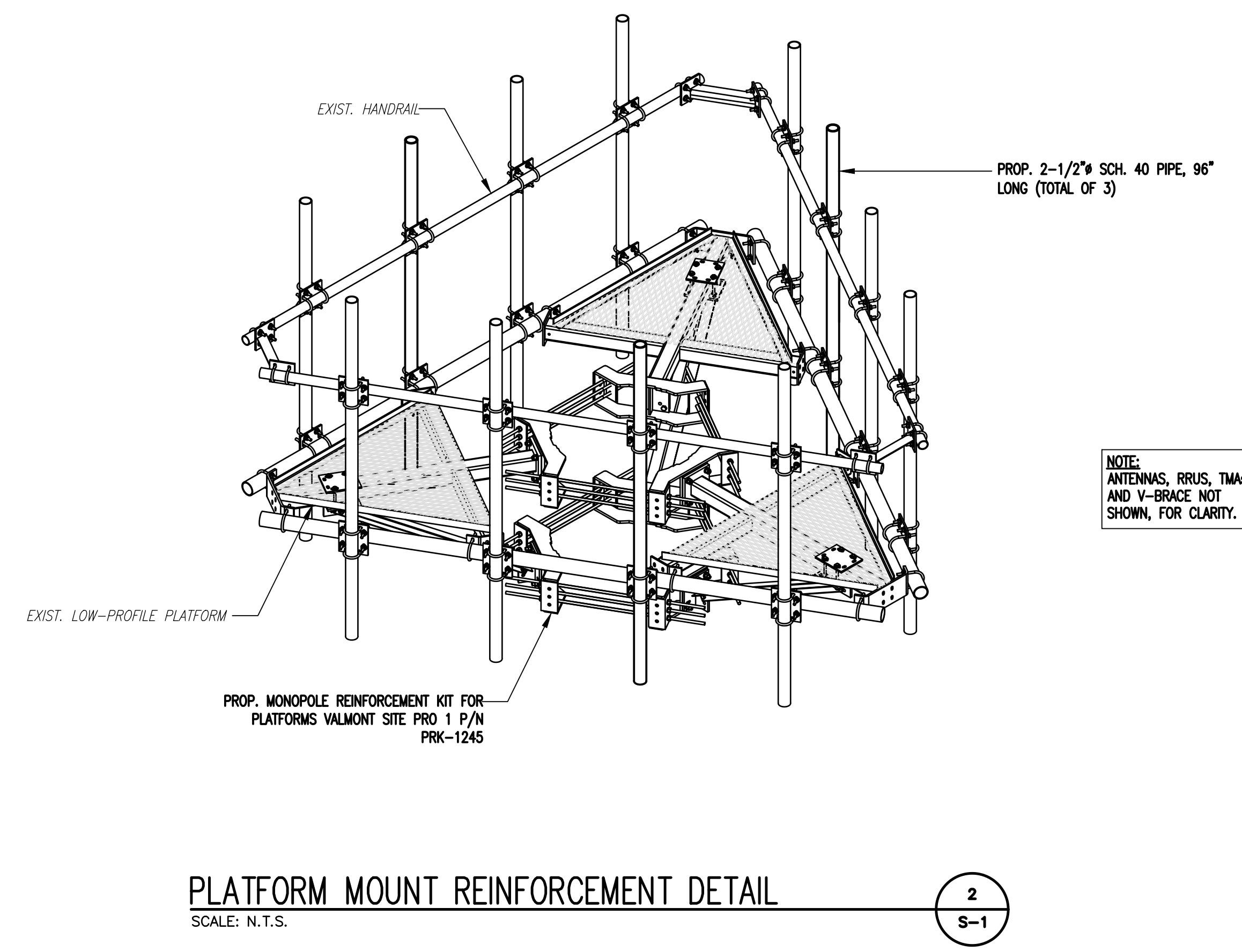
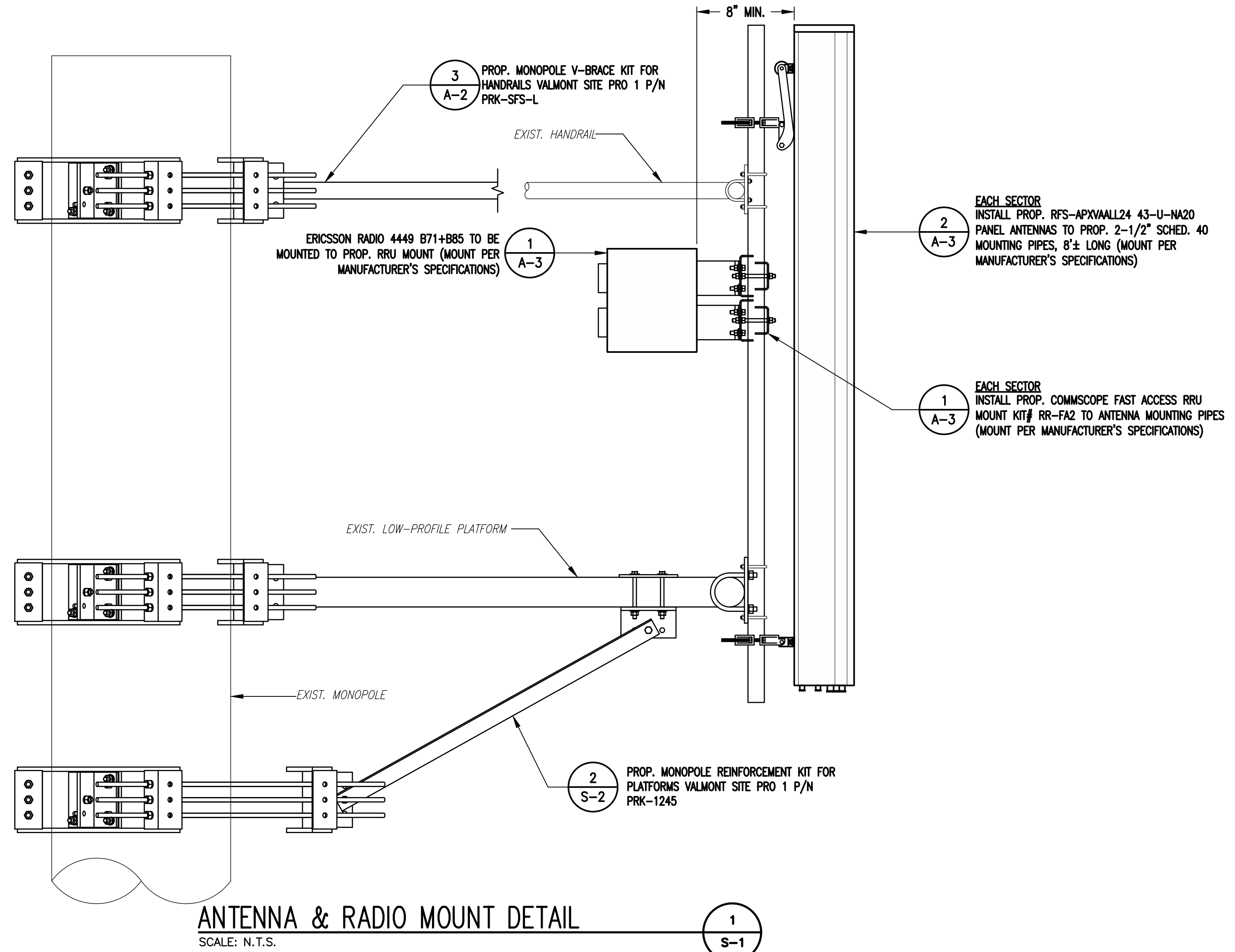
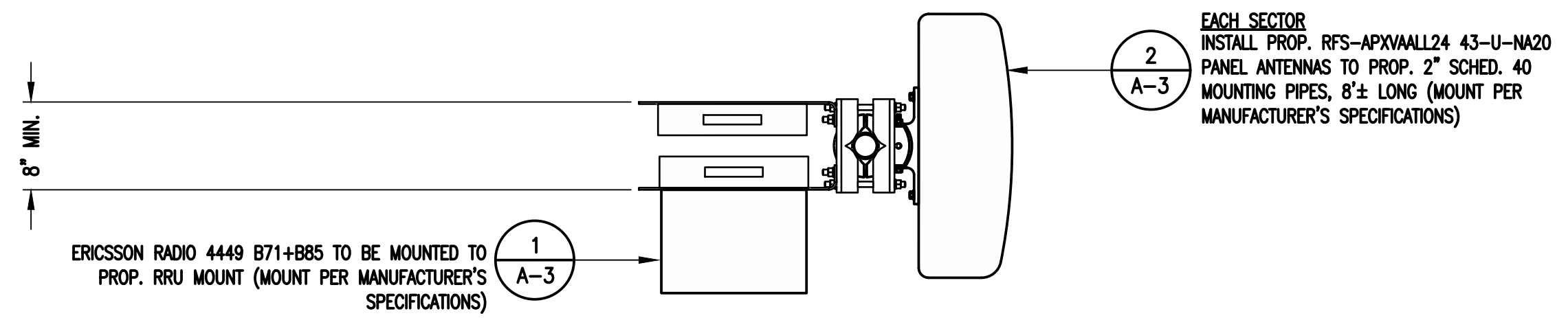
CABLE NOTE: EXISTING (2) 1-3/8" COAX CABLES (CAPPED & WRAPPED) TO BE REMOVED. EXISTING (2) 1-5/8" COAX CABLES (CAPPED & WRAPPED) TO REMAIN DISCONNECTED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV5 - 02/03/21

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1-5/8" HCS FIBER CABLE (8) 1-3/8" (6x12) HCS FIBER CABLES (1) 1/2" COAX CABLE FOR GPS ANTENNA  EXISTING TO BE REMOVED: (4) 1-3/8" COAX CABLES	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 1-3/4" (6x24) HCS FIBER CABLE	

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



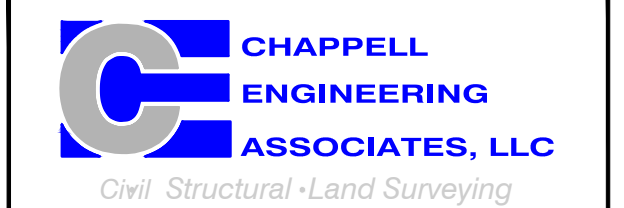


**T-Mobile**

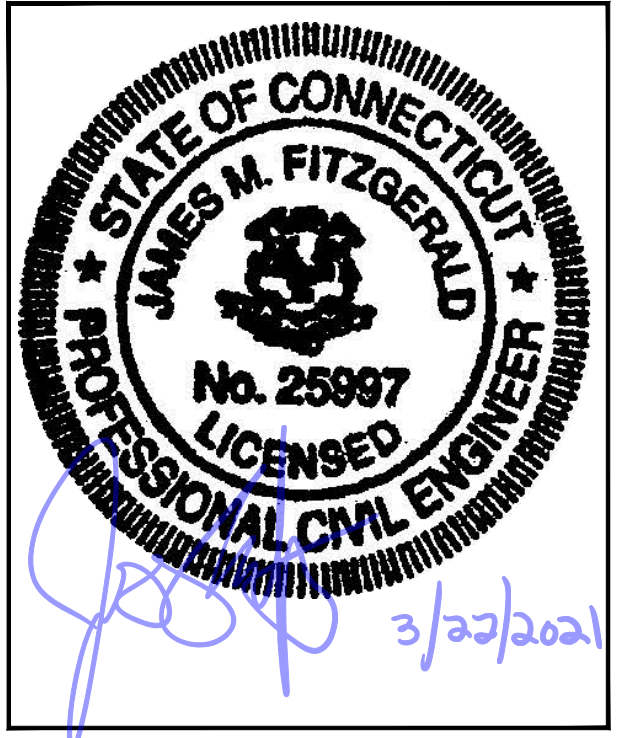
T-MOBILE NORTHEAST LLC  
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SHEET TITLE  
**ANTENNA MOUNTING  
DETAILS**

SHEET NUMBER  
**S-1**



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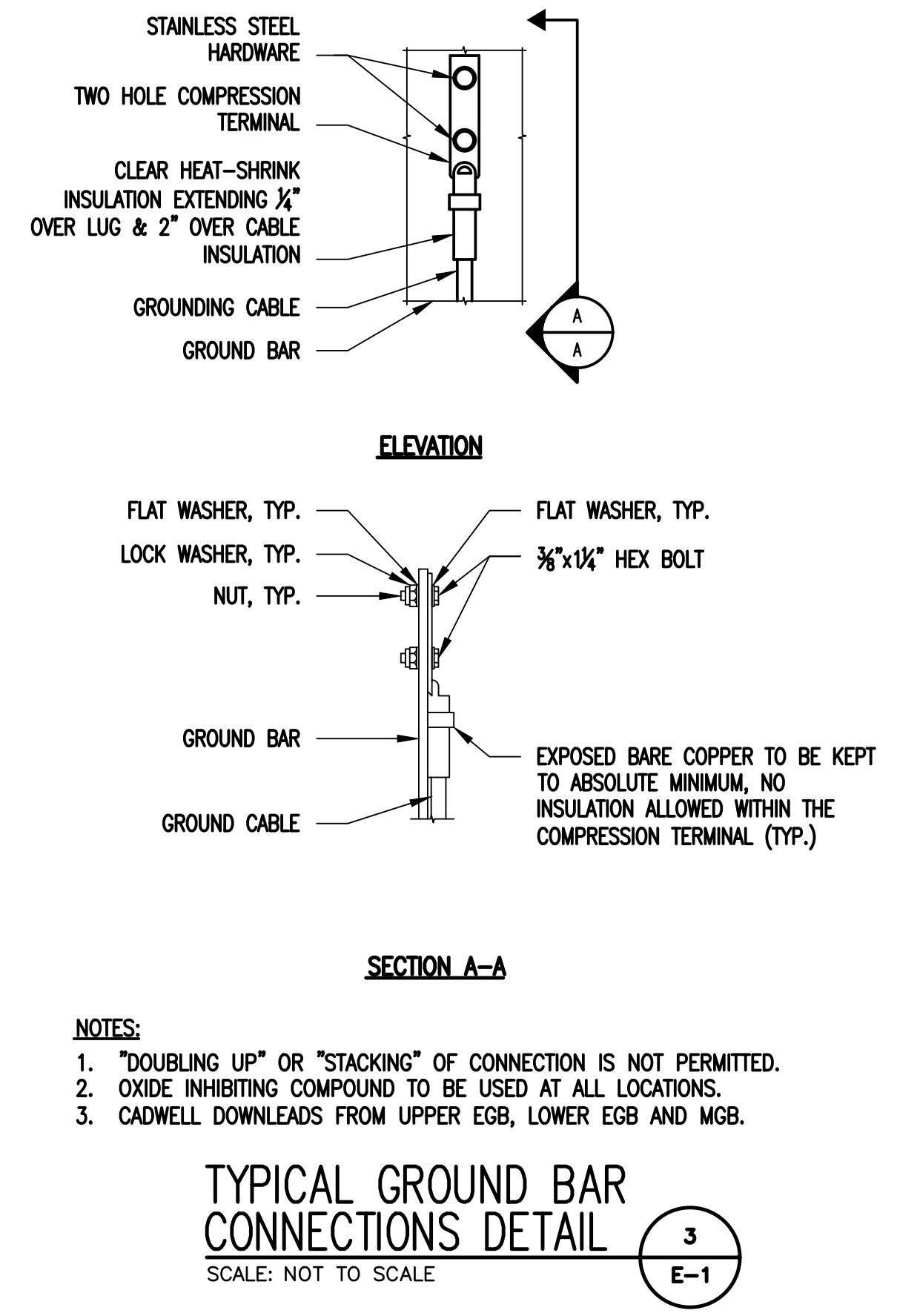
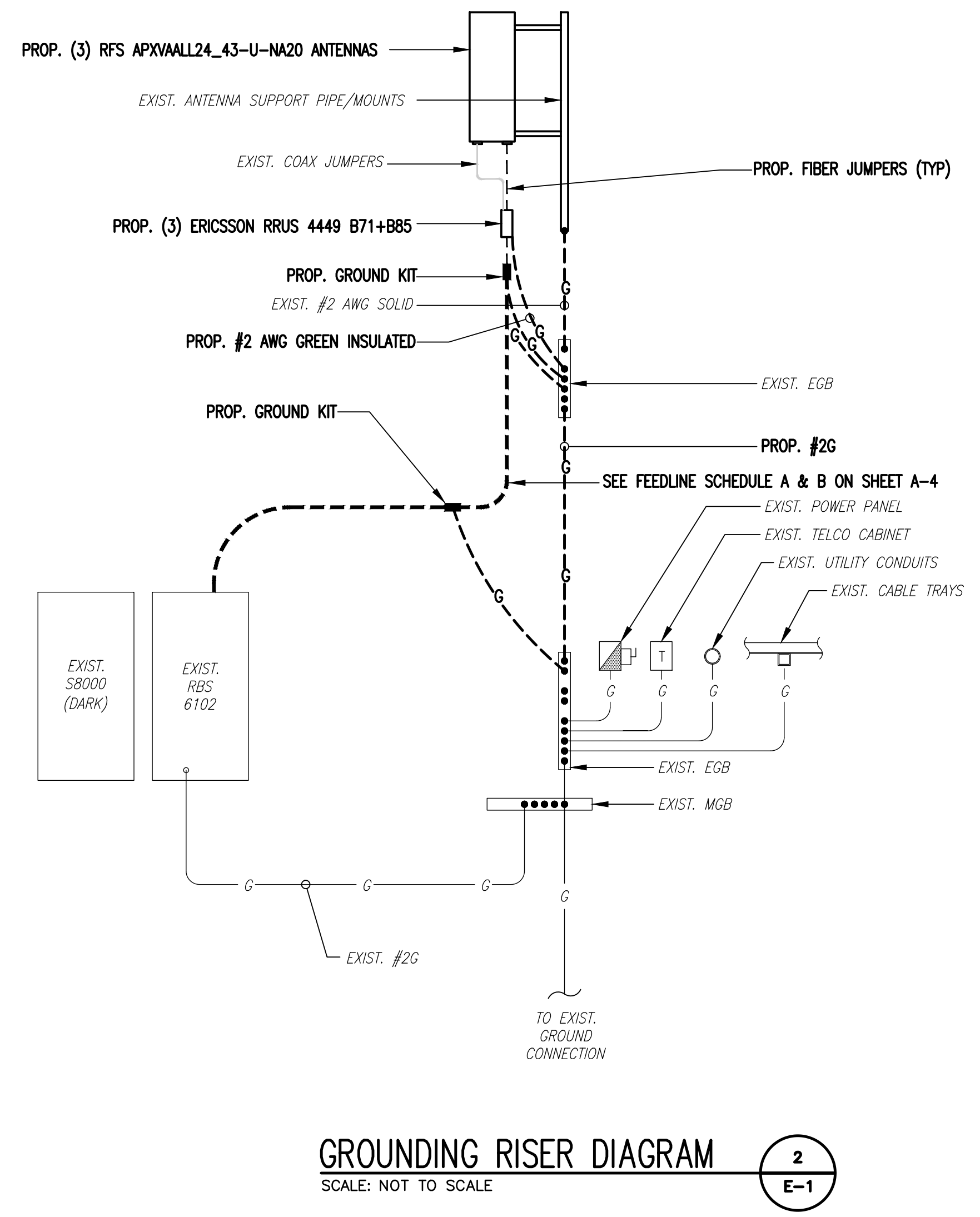
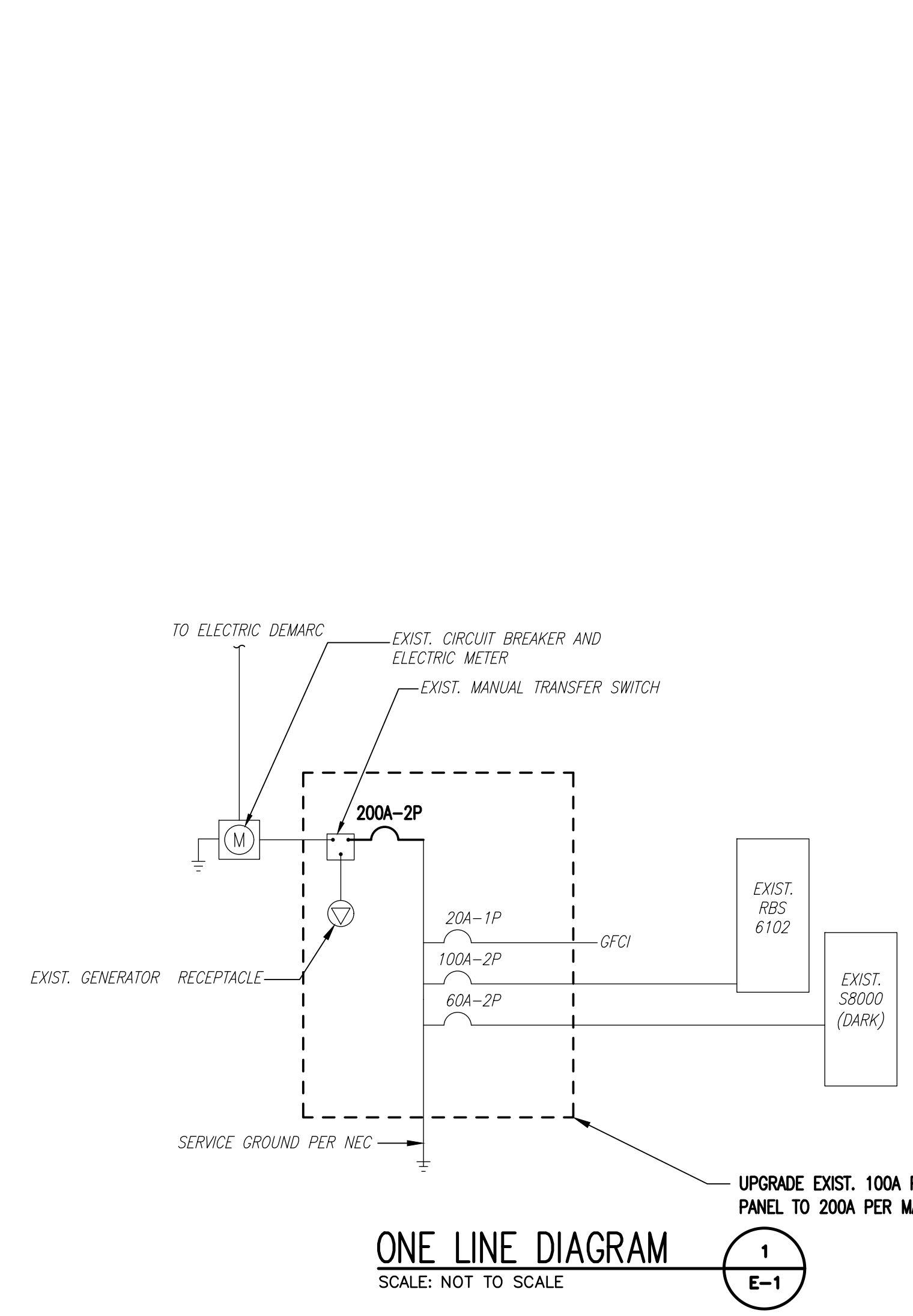
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SITE NUMBER:  
**CT11312A**

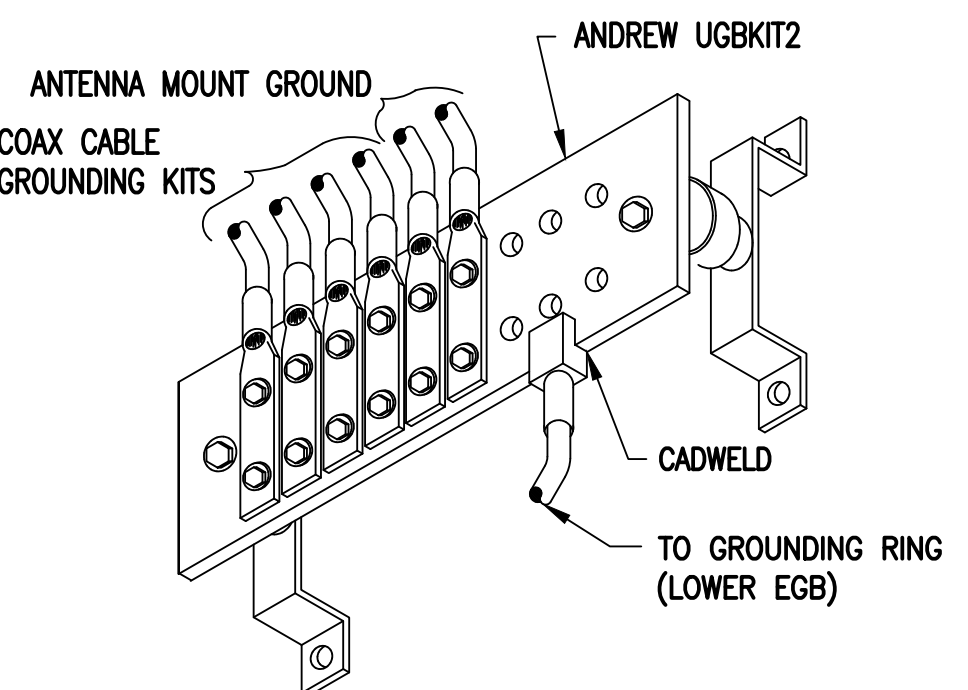
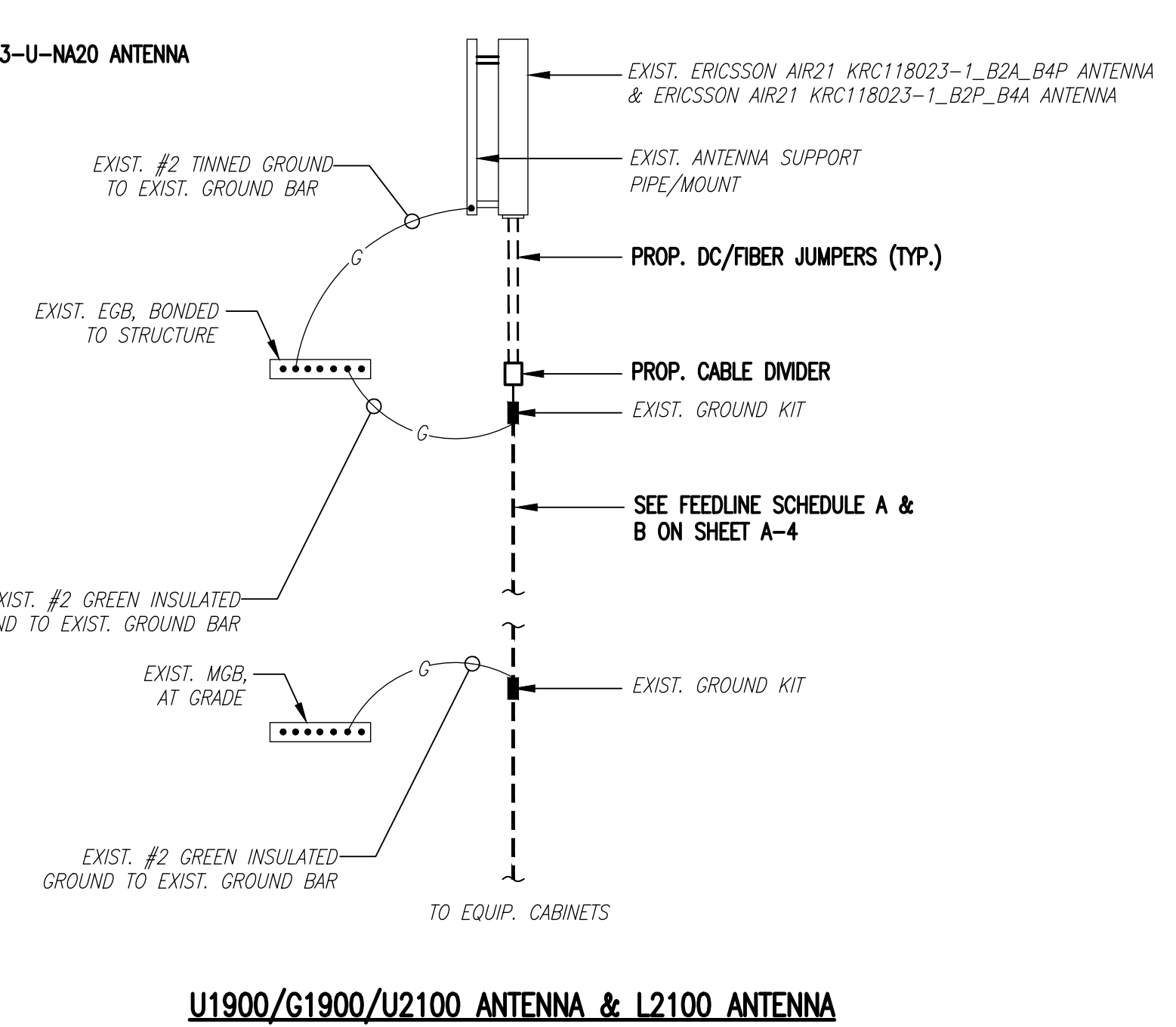
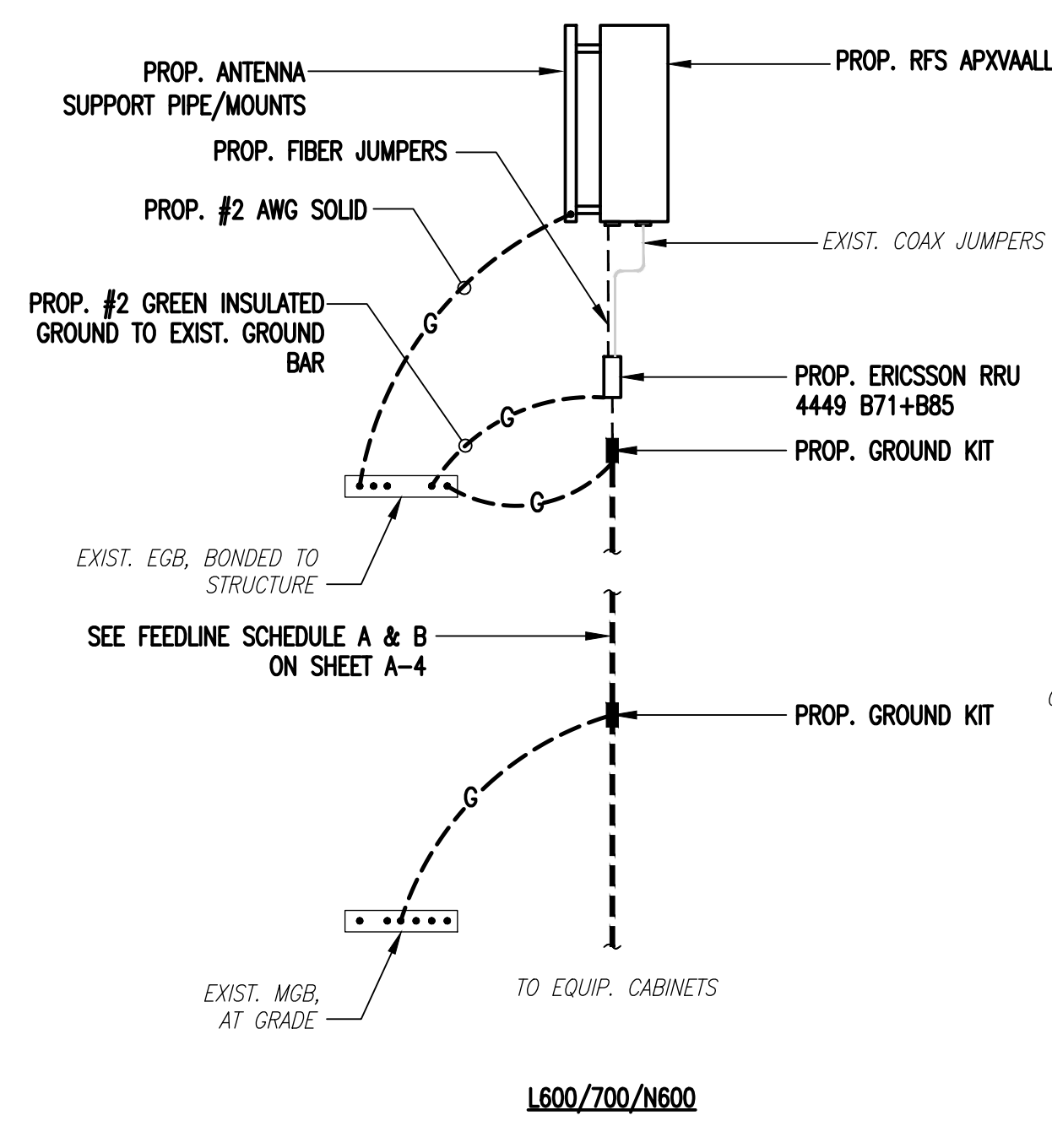
SITE ADDRESS:  
267 NORWICH WESTERLY ROAD  
NORTH STONINGTON, CT 06379

SHEET TITLE  
**ELECTRICAL & GROUNDING DETAILS**

SHEET NUMBER  
**E-1**



- 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.



**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, THIN, OR THININSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
- WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

# EXHIBIT 7



**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 150 ft Valmont Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT01210-S**

**Customer Site Name: North Stonington**

**Carrier Name: T-Mobile (App#: 116563, v3)**

**Carrier Site ID / Name: CT11312A / North Stonington**

**Site Location: 267 Norwich Westerly Road**

**N. Stonington, Connecticut**

**New London County**

**Latitude: 41.437066**

**Longitude: -71.881488**



### Analysis Result:

**Max Structural Usage: 94.6% [Pass]**

**Max Foundation Usage: 80.1% [Pass]**

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

**Report Prepared By: Walter Velez**

## Introduction

The purpose of this report is to summarize the analysis results on the 150 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Original structural design report prepared by Valmont. Dated 08-31-1999. Order No 18771-99. Previous structural report prepared by Tower Engineering Solutions. Dated 11-21-2019. TES Project No 89935.
<b>Foundation Drawing</b>	Original foundation drawings prepared by Valmont. Dated 07-15-1999. Order No 18771-99. Project No 2856. Drawing No 2856-F.
<b>Geotechnical Report</b>	Geotechnical report prepared by Jaworski Geotech, Inc. Dated 06-08-1999. Project No 99128G.
<b>Modification Drawings</b>	N/A
<b>Mount Analysis</b>	T-Mobile's App#: 116563, v3

## Analysis Criteria

The feasibility 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> <b>(Based on IBC 2015)</b>	Ultimate Design Wind Speed $V_{ult} = 135.0$ mph (3-Sec. Gust) Nominal Design Wind Speed $V_{asd} = 105.0$ 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>	$S_S = 0.162$ , $S_1 = 0.058$

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

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	147.0	3	Ericsson AIR 21 B2A/B4P	Low profile mount with handrail kit & tie back kit (1) Commscope MT-195-14 & VSR-MS-B (1) Sitepro PRK-1245L (1) Sitepro PRK-SFS-L	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
2		3	Ericsson AIR 21 B4A/B2P			
3		3	RFS APXVAARR24_43-U-NA20			
4		3	Ericsson KRY 112 144/1			
5		3	Ericsson Radio 4449 B71+B12			
6	137.0	3	Antel BXA-70063/6CF - Panel	Low Profile Platform	(12) 1 5/8"	Verizon
7		6	Antel LPA-80080/4CF - Panel			
8		3	Rymasa MGD5-800T2 - Panel			
9		6	RFS FD9R6004/2C-3L Diplexers			
10		2	Cleargain 850/1900 TMA's			
11	127.0	-	-	Low Profile Platform	-	-
12	120.0	3	Commscope NNVV-65B-R4 - Panel	Platform w/ Handrail (Sitepro RMQP-496-HK)	(4) 1-1/4" Fiber	Sprint Nextel
13	117.0	3	RFS APXVTM14-C-I20 - Panel			
14		3	ALU 1900 Mhz			
15		6	ALU 800 Mhz			
16		3	ALU TD-RRH8x20-25			
17	107.0	3	Kathrein 7770	Low Profile Platform w/Site Pro 1 HRK14	(12) 1 5/8" (3) 3" Conduit {Conduit 1: [(1) 1/2" Fiber + (2) 3/4" DC ] Conduit 2: [(1) 1/2" Fiber + (2) 1" DC ] Conduit 3: [(1) 1" DC ]}	AT&T
18		6	Cci DMP65R-BU8DA			
19		6	Powerwave LGP21401 TMA			
20		3	Ericsson RRUS 4449 B5/B12			
21		3	Ericsson RRUS 4478 B14			
22		3	Ericsson RRUS 8843 B2 B66A			
23		1	Raycap DC6-48-60-18-8F			
24		1	Raycap DC9-48-60-24-8C-EV			

**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
25	147.0	3	Ericsson Air 21 B2A/B4P - Panel	(1) Low Profile w/ Handrail Kit and Tie Back Kit (Commscope MT-195-14 & VSR-MS-B), (1) Platform Reinforcement Kit (Sitepro PRK-1245L), (1) V-Brace Kit (Sitepro PRK-SFS-L) & (3) New 2.5 STD 8' Mount Pipes	(8) 1 5/8" Coax; (1) 1 5/8" Fiber; (3) 1.9" Fiber	T-Mobile
26		3	Ericsson Air 21 B4A/B2P - Panel			
27		3	RFS APXVAALL24-43-U-NA20 - Panel			
28		3	Ericsson KRY 112 144/1 TMA's			
29		3	Ericsson 4449 B71 + B85 RRU's			

Please see the attached coax layout for the line placement considered in the analysis.

## **Analysis Results**

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

	Pole shafts <sup>1</sup>	Anchor Bolts	Base Plate
Max. Usage:	<b>94.6%</b>	<b>81.4%</b>	<b>67.8%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

<sup>1</sup> No existing information is available regarding flange connection at 120.0 elevation. Flange connection assumed to be adequate.

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	3715.0	33.1	47.9
Analysis Reactions	4926.7	45.0	54.6

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 1.5150 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

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



## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 94.59% at 99.7ft

**Structure:** CT01210-S-SBA  
**Site Name:** North Stonington  
**Height:** 150.00 (ft)  
**Base Elev:** 0.000 (ft)

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

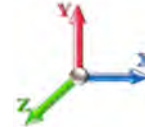
4/5/2021



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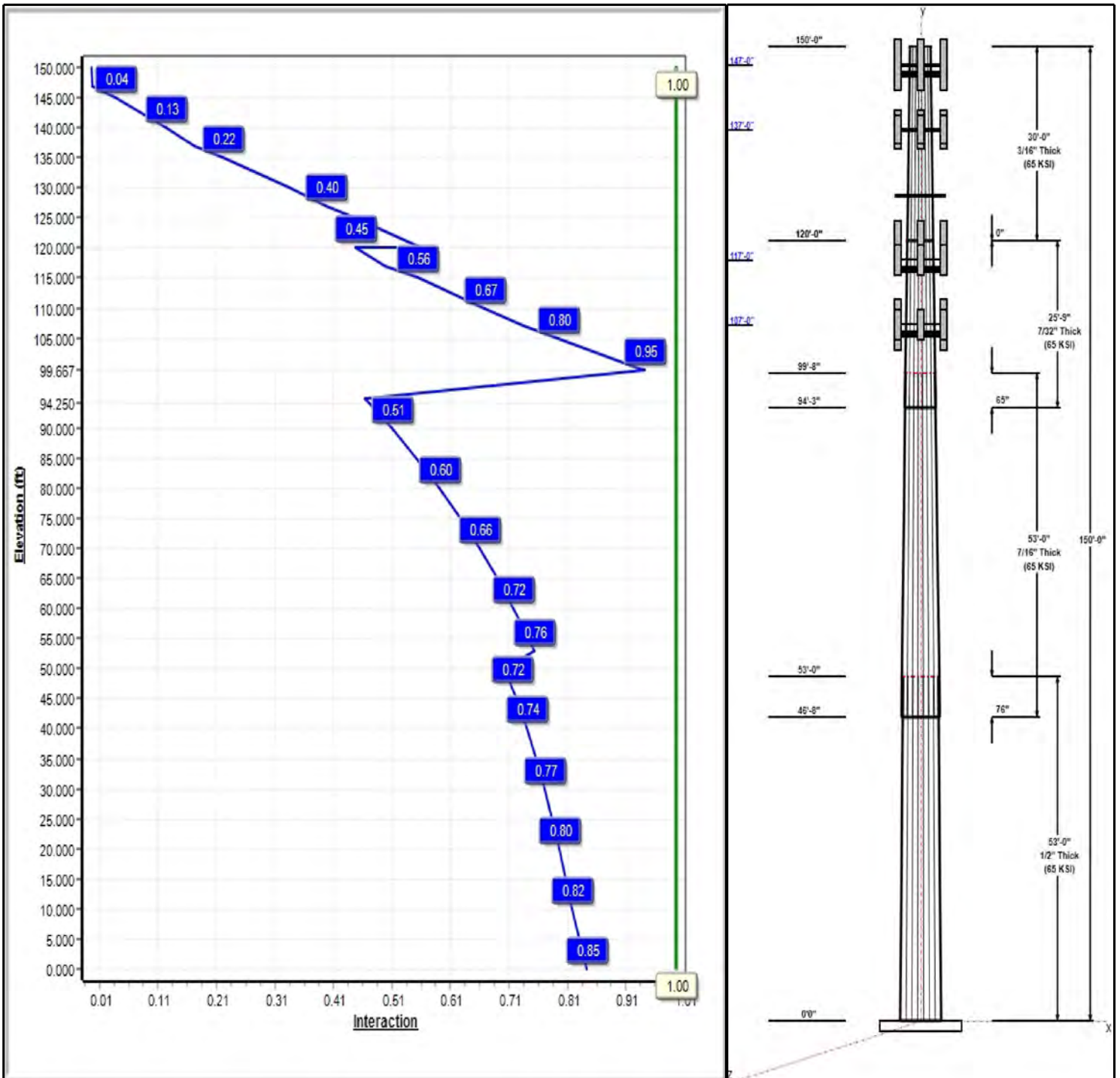
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 105 mph Wind**



**Iterations:** 24

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## Structure: CT01210-S-SBA

**Type:** Tapered  
**Site Name:** North Stonington  
**Height:** 150.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 16 Sided  
**Taper:** 0.18000

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### Shaft Properties

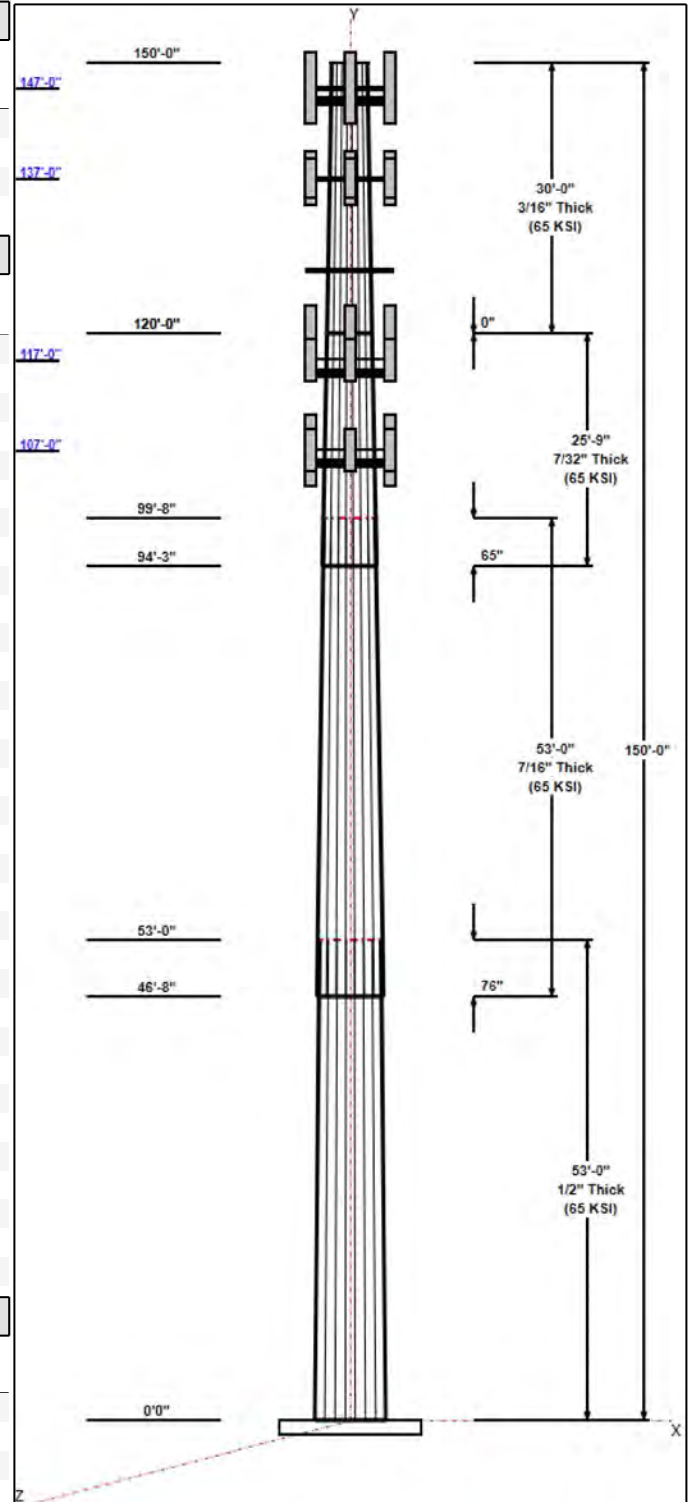
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.00	40.46	50.00	0.500		0.18000	65
2	53.00	32.93	42.47	0.438	Slip	0.18000	65
3	25.75	29.71	34.35	0.219	Slip	0.18000	65
4	30.00	24.31	29.71	0.188	Butt	0.18000	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
150.00	153.50	1	Lightning Rod	---
147.00	147.00	3	Ericsson Air 21 B2A/B4P	T-Mobile
147.00	147.00	3	Ericsson Air 21 B4A/B2P	T-Mobile
147.00	147.00	3	RFS	T-Mobile
147.00	147.00	3	Ericsson KRY 112 144/1	T-Mobile
147.00	147.00	3	Ericsson 4449 B71 + B85	T-Mobile
147.00	147.00	1	Platform w/ Hand Rail	T-Mobile
147.00	147.00	1	Tie Back Kit (Commscope)	T-Mobile
147.00	147.00	1	Rreinforcement Kit (Sitepro)	T-Mobile
147.00	147.00	1	V-Brace Kit (Sitepro)	T-Mobile
137.00	137.00	3	Antel BXA-70063/6CF	Verizon
137.00	137.00	6	Antel LPA-80080/4CF	Verizon
137.00	137.00	3	Rymsa MGD5-800T2	Verizon
137.00	137.00	6	RFS FD9R6004/2C-3L	Verizon
137.00	137.00	2	Cleargain 850/1900 TMA's	Verizon
137.00	137.00	1	Low Profile Platform	Verizon
127.00	127.00	1	Low Profile Platform	---
117.00	117.00	3	RFS APXVTM14-C-I20	Sprint Nextel
117.00	120.00	3	Commscope	Sprint Nextel
117.00	117.00	3	ALU 1900 Mhz	Sprint Nextel
117.00	117.00	6	ALU 800 Mhz	Sprint Nextel
117.00	117.00	3	ALU TD-RRH8x20-25	Sprint Nextel
117.00	117.00	1	Sitepro RMQP-496-HK	Sprint Nextel
107.00	107.00	3	Powerwave 7770	AT&T
107.00	107.00	6	Powerwave/LGP21401	AT&T
107.00	107.00	1	Low Profile Platform	AT&T
107.00	107.00	6	Cci DMP65R-BU8DA	AT&T
107.00	107.00	1	Raycap DC6-48-60-18-8F	AT&T
107.00	107.00	3	Ericsson 4449 B5/B12	AT&T
107.00	107.00	3	Ericsson RRUS 4478 B14	AT&T
107.00	107.00	3	Ericsson 8843 B2 B66A	AT&T
107.00	107.00	1	Raycap	AT&T
107.00	107.00	1	Site Pro HRK14	AT&T

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	147.00	Inside	1 5/8" Coax	T-Mobile
3.00	147.00	Inside	1 5/8" Fiber	T-Mobile
3.00	147.00	Inside	1.90" Fiber	T-Mobile
3.00	137.00	Inside	1 5/8" Coax	Verizon
3.00	117.00	Inside	1-1/4" Fiber	Sprint Nextel
3.00	107.00	Inside	1 5/8" Coax	AT&T
3.00	107.00	Inside	1" DC	AT&T
3.00	107.00	Inside	1/2" Fiber Cable	AT&T
3.00	107.00	Inside	3" Coax	AT&T



**Structure: CT01210-S-SBA**

**Type:** Tapered  
**Site Name:** North Stonington  
**Height:** 150.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 16 Sided  
**Taper:** 0.18000

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3.00 107.00 Inside 3/4" DC AT&T

**Anchor Bolts**

Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Radial

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	64.3	60.0	Polygon

**Reactions**

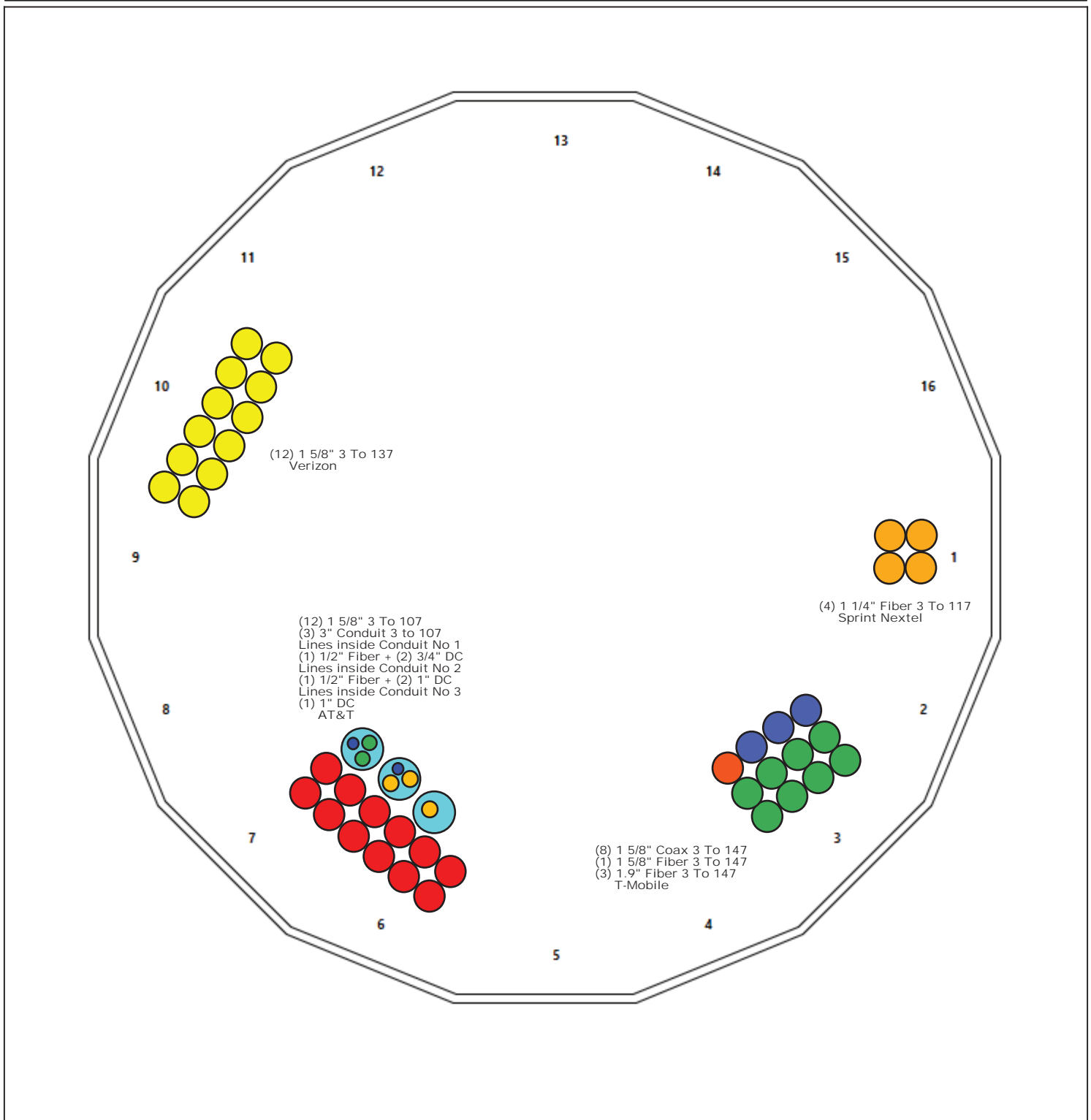
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	4926.7	45.0	54.6
0.9D + 1.6W 105 mph Wind	4868.0	45.0	41.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1214.6	10.8	82.1
1.2D + 1.0E	123.3	1.1	54.8
0.9D + 1.0E	121.7	1.1	41.1
1.0D + 1.0W 60 mph Wind	999.7	9.2	45.6

# Structure: CT01210-S-SBA - Coax Line Placement

Type: Monopole  
Site Name: North Stonington  
Height: 150.00 (ft)

4/5/2021

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## Shaft Properties

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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	16	53.000	0.5000	65		0.00	12,867
2	16	53.000	0.4375	65	Slip	76.00	9,380
3	16	25.750	0.2188	65	Slip	65.00	1,945
4	16	30.000	0.1875	65	Flange	0.00	1,638
<b>Total Shaft Weight:</b>							<b>25,830</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	50.00	0.00	78.95	24439.41	18.30	100.00	40.46	53.00	63.74	12857.1	14.50	80.92	0.180003
2	42.47	46.67	58.67	13097.52	17.72	97.09	32.93	99.67	45.35	6050.90	13.38	75.28	0.180003
3	34.35	94.25	23.82	3504.31	29.64	157.02	29.71	120.00	20.58	2261.65	25.43	135.8	0.180003
4	29.71	120.0	17.66	1944.73	29.93	158.46	24.31	150.00	14.43	1060.92	24.20	129.6	0.180003

## Load Summary

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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	150.00	Lightning Rod	1	35.00	1.05	1.00	66.41	3.424	1.00	0.00	3.50
2	147.00	Ericsson Air 21 B2A/B4P	3	91.50	6.04	0.85	258.15	7.126	0.85	0.00	0.00
3	147.00	Ericsson Air 21 B4A/B2P	3	90.30	6.04	0.85	256.95	7.126	0.85	0.00	0.00
4	147.00	RFS APXVAALL24-43-U-NA20	3	122.80	20.24	0.72	511.29	22.115	0.72	0.00	0.00
5	147.00	Ericsson KRY 112 144/1 TMA's	3	11.00	0.35	0.60	25.22	0.742	0.60	0.00	0.00
6	147.00	Ericsson 4449 B71 + B85 RRU's	3	75.00	1.95	0.67	156.29	2.538	0.67	0.00	0.00
7	147.00	Platform w/ Hand Rail	1	2000.00	40.00	1.00	4090.03	60.900	1.00	0.00	0.00
8	147.00	Tie Back Kit (Commscope	1	123.10	4.17	1.00	243.17	9.399	1.00	0.00	0.00
9	147.00	Rreinforcement Kit (Sitepro	1	464.91	9.50	1.00	788.80	19.428	1.00	0.00	0.00
10	147.00	V-Brace Kit (Sitepro PRK-SFS-L)	1	197.00	6.30	1.00	471.49	12.884	1.00	0.00	0.00
11	137.00	Antel BXA-70063/6CF	3	14.90	7.58	0.72	160.19	10.322	0.72	0.00	0.00
12	137.00	Antel LPA-80080/4CF	6	12.00	5.40	0.74	145.25	6.388	0.74	0.00	0.00
13	137.00	Rymsa MGD5-800T2	3	15.40	3.36	0.78	83.32	5.141	0.78	0.00	0.00
14	137.00	RFS FD9R6004/2C-3L	6	3.10	0.36	0.60	11.05	0.799	0.60	0.00	0.00
15	137.00	Cleargain 850/1900 TMA's	2	5.50	0.52	0.60	17.04	1.045	0.60	0.00	0.00
16	137.00	Low Profile Platform	1	1500.00	22.00	1.00	2797.10	39.502	1.00	0.00	0.00
17	127.00	Low Profile Platform (Abandoned)	1	1500.00	22.00	1.00	2787.31	39.370	1.00	0.00	0.00
18	117.00	RFS APXVTM14-C-I20	3	56.20	6.34	0.77	211.90	7.424	0.77	0.00	0.00
19	117.00	Commscope NNVV-65B-R4	3	77.40	12.27	0.80	355.95	13.690	0.80	0.00	3.00
20	117.00	ALU 1900 Mhz	3	60.00	2.77	0.67	141.39	4.007	0.67	0.00	0.00
21	117.00	ALU 800 Mhz	6	53.00	2.49	0.67	125.15	3.606	0.67	0.00	0.00
22	117.00	ALU TD-RRH8x20-25	3	70.00	4.05	0.67	177.20	4.842	0.67	0.00	0.00
23	117.00	Sitepro RMQP-496-HK	1	2449.00	46.00	1.00	4950.49	77.324	1.00	0.00	0.00
24	107.00	Powerwave 7770	3	35.00	5.50	0.73	164.70	6.527	0.73	0.00	0.00
25	107.00	Powerwave/LGP21401	6	5.50	0.27	0.60	13.65	0.654	0.60	0.00	0.00
26	107.00	Low Profile Platform	1	1500.00	22.00	1.00	2765.43	39.075	1.00	0.00	0.00
27	107.00	Cci DMP65R-BU8DA	6	39.00	13.49	1.00	376.28	36.369	1.00	0.00	0.00
28	107.00	Raycap DC6-48-60-18-8F	1	31.80	0.92	0.67	91.57	1.343	0.67	0.00	0.00
29	107.00	Ericsson 4449 B5/B12	3	70.00	1.65	0.67	135.42	2.168	0.67	0.00	0.00
30	107.00	Ericsson RRUS 4478 B14	3	59.90	1.84	0.67	105.34	2.349	0.67	0.00	0.00
31	107.00	Ericsson 8843 B2 B66A	3	75.00	1.65	0.67	146.63	2.168	0.67	0.00	0.00
32	107.00	Raycap DC9-48-60-18-8C-EV	1	16.00	4.78	0.67	135.62	5.635	0.67	0.00	0.00
33	107.00	Site Pro HRK14	1	302.36	8.13	1.00	649.27	15.812	1.00	0.00	0.00
<b>Totals:</b>			<b>89</b>	<b>13,578.97</b>			<b>32,568.84</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
3.00	147.00	(8) 1 5/8" Coax	0.00	Inside
3.00	147.00	(1) 1 5/8" Fiber	0.00	Inside
3.00	147.00	(3) 1.90" Fiber	0.00	Inside
3.00	137.00	(12) 1 5/8" Coax	0.00	Inside
3.00	117.00	(4) 1-1/4" Fiber	0.00	Inside
3.00	107.00	(12) 1 5/8" Coax	0.00	Inside
3.00	107.00	(3) 1" DC	0.00	Inside
3.00	107.00	(2) 1/2" Fiber Cable	0.00	Inside

## 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		
3.00	107.00	(3) 3" Coax		0.00		Inside					
3.00	107.00	(2) 3/4" DC		0.00		Inside					



## Shaft Section Properties

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.5000	50.000	78.953	24439.4	18.30	100.00	81.9	958.8	0.0
5.00		0.5000	49.100	77.517	23130.4	17.94	98.20	82.3	924.1	1331.1
10.00		0.5000	48.200	76.081	21869.0	17.58	96.40	82.5	890.0	1306.7
15.00		0.5000	47.300	74.646	20654.3	17.23	94.60	82.5	856.6	1282.2
20.00		0.5000	46.400	73.210	19485.5	16.87	92.80	82.5	823.8	1257.8
25.00		0.5000	45.500	71.775	18361.6	16.51	91.00	82.5	791.6	1233.4
30.00		0.5000	44.600	70.339	17281.8	16.15	89.20	82.5	760.1	1209.0
35.00		0.5000	43.700	68.904	16245.1	15.79	87.40	82.5	729.2	1184.5
40.00		0.5000	42.800	67.468	15250.8	15.44	85.60	82.5	699.0	1160.1
45.00		0.5000	41.900	66.033	14297.9	15.08	83.80	82.5	669.4	1135.7
46.67	Bot - Section 2	0.5000	41.600	65.554	13989.3	14.96	83.20	82.5	659.6	373.1
50.00		0.5000	41.000	64.597	13385.5	14.72	82.00	82.5	640.4	1398.8
53.00	Top - Section 1	0.4375	41.335	57.077	12060.6	17.20	94.48	0.0	0.0	1241.5
55.00		0.4375	40.975	56.575	11744.9	17.04	93.66	82.5	562.3	386.7
60.00		0.4375	40.075	55.319	10979.8	16.63	91.60	82.5	537.4	951.9
65.00		0.4375	39.175	54.063	10248.7	16.22	89.54	82.5	513.2	930.5
70.00		0.4375	38.275	52.807	9550.9	15.81	87.49	82.5	489.5	909.1
75.00		0.4375	37.375	51.551	8885.4	15.40	85.43	82.5	466.3	887.8
80.00		0.4375	36.475	50.294	8251.6	14.99	83.37	82.5	443.8	866.4
85.00		0.4375	35.575	49.038	7648.7	14.58	81.31	82.5	421.7	845.0
90.00		0.4375	34.675	47.782	7075.8	14.17	79.26	82.5	400.3	823.6
94.25	Bot - Section 3	0.4375	33.910	46.715	6612.0	13.83	77.51	82.5	382.5	683.3
95.00		0.4375	33.775	46.526	6532.4	13.76	77.20	82.5	379.4	179.6
99.67	Top - Section 2	0.2188	33.372	23.135	3212.5	28.75	152.56	0.0	0.0	1101.5
100.00		0.2188	33.312	23.093	3195.1	28.70	152.28	70.1	188.1	26.2
105.00		0.2188	32.412	22.465	2941.4	27.88	148.17	71.0	178.0	387.6
107.00		0.2188	32.052	22.214	2843.8	27.55	146.52	71.4	174.0	152.0
110.00		0.2188	31.512	21.837	2701.5	27.06	144.06	71.9	168.2	224.8
115.00		0.2188	30.612	21.209	2475.1	26.24	139.94	72.9	158.6	366.2
117.00		0.2188	30.252	20.958	2388.2	25.92	138.30	73.2	154.9	143.5
120.00	Top - Section 3	0.2188	29.712	20.581	2261.7	25.43	135.83	73.8	149.3	212.0
120.00	Bot - Section 4	0.1875	29.712	17.659	1944.7	29.66	158.46	68.7	128.4	
125.00		0.1875	28.812	17.121	1772.2	28.97	153.66	69.8	120.7	295.9
127.00		0.1875	28.452	16.906	1706.2	28.59	151.74	70.2	117.6	115.8
130.00		0.1875	27.912	16.583	1610.3	28.02	148.86	70.9	113.2	170.9
135.00		0.1875	27.012	16.044	1458.5	27.06	144.06	71.9	105.9	277.6
137.00		0.1875	26.652	15.829	1400.6	26.68	142.14	72.4	103.1	108.5
140.00		0.1875	26.112	15.506	1316.6	26.11	139.26	73.0	98.9	159.9
145.00		0.1875	25.212	14.968	1184.1	25.16	134.46	74.1	92.1	259.2
147.00		0.1875	24.852	14.752	1133.8	24.77	132.54	74.5	89.5	101.1
150.00		0.1875	24.312	14.429	1060.9	24.20	129.66	75.2	85.6	148.9

**25829.7**

## Wind Loading - Shaft

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.6W 105 mph Wind	<b>Iterations</b> 24
<b>Dead Load Factor</b> 1.20	
<b>Wind Load Factor</b> 1.60	

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	411.26	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	403.85	0.750	0.000	5.00	21.050	15.79	633.3	0.0	1597.3
10.00		1.00	0.85	22.791	25.07	396.45	0.750	0.000	5.00	20.668	15.50	621.8	0.0	1568.0
15.00		1.00	0.85	22.791	25.07	389.05	0.750	0.000	5.00	20.286	15.21	610.3	0.0	1538.7
20.00		1.00	0.90	24.182	26.60	393.12	0.750	0.000	5.00	19.903	14.93	635.3	0.0	1509.4
25.00		1.00	0.95	25.345	27.88	394.66	0.750	0.000	5.00	19.521	14.64	653.1	0.0	1480.1
30.00		1.00	0.98	26.337	28.97	394.35	0.750	0.000	5.00	19.139	14.35	665.3	0.0	1450.7
35.00		1.00	1.01	27.206	29.93	392.71	0.750	0.000	5.00	18.756	14.07	673.6	0.0	1421.4
40.00		1.00	1.04	27.981	30.78	390.07	0.750	0.000	5.00	18.374	13.78	678.6	0.0	1392.1
45.00		1.00	1.07	28.684	31.55	386.63	0.750	0.000	5.00	17.991	13.49	681.2	0.0	1362.8
46.67	Bot - Section 2	1.00	1.08	28.904	31.79	385.33	0.750	0.000	1.67	5.912	4.43	225.6	0.0	447.8
50.00		1.00	1.09	29.327	32.26	382.54	0.750	0.000	3.33	11.945	8.96	462.4	0.0	1678.6
53.00	Top - Section 1	1.00	1.11	29.689	32.66	379.83	0.750	0.000	3.00	10.605	7.95	415.6	0.0	1489.9
55.00		1.00	1.12	29.922	32.91	386.16	0.750	0.000	2.00	6.994	5.25	276.2	0.0	464.1
60.00		1.00	1.14	30.475	33.52	381.16	0.750	0.000	5.00	17.216	12.91	692.5	0.0	1142.2
65.00		1.00	1.16	30.993	34.09	375.75	0.750	0.000	5.00	16.834	12.63	688.7	0.0	1116.6
70.00		1.00	1.17	31.480	34.63	369.99	0.750	0.000	5.00	16.451	12.34	683.6	0.0	1091.0
75.00		1.00	1.19	31.941	35.13	363.93	0.750	0.000	5.00	16.069	12.05	677.5	0.0	1065.3
80.00		1.00	1.21	32.377	35.62	357.58	0.750	0.000	5.00	15.687	11.77	670.4	0.0	1039.7
85.00		1.00	1.22	32.793	36.07	350.99	0.750	0.000	5.00	15.304	11.48	662.5	0.0	1014.0
90.00		1.00	1.24	33.190	36.51	344.18	0.750	0.000	5.00	14.922	11.19	653.8	0.0	988.4
94.25	Bot - Section 3	1.00	1.25	33.514	36.87	338.22	0.750	0.000	4.25	12.383	9.29	547.8	0.0	820.0
95.00		1.00	1.25	33.570	36.93	337.16	0.750	0.000	0.75	2.184	1.64	96.8	0.0	215.6
99.67	Top - Section 2	1.00	1.26	33.911	37.30	330.44	0.750	0.000	4.67	13.399	10.05	599.8	0.0	1321.8
100.00		1.00	1.27	33.935	37.33	334.34	0.750	0.000	0.33	0.944	0.71	42.3	0.0	31.5
105.00		1.00	1.28	34.285	37.71	326.98	0.750	0.000	5.00	13.961	10.47	631.8	0.0	465.1
107.00	Appurtenance(s)	1.00	1.28	34.422	37.86	323.99	0.750	0.000	2.00	5.477	4.11	248.9	0.0	182.4
110.00		1.00	1.29	34.623	38.08	319.46	0.750	0.000	3.00	8.101	6.08	370.2	0.0	269.8
115.00		1.00	1.30	34.948	38.44	311.79	0.750	0.000	5.00	13.196	9.90	608.8	0.0	439.4
117.00	Appurtenance(s)	1.00	1.31	35.075	38.58	308.69	0.750	0.000	2.00	5.171	3.88	239.4	0.0	172.2
120.00	Top - Section 3	1.00	1.32	35.263	38.79	303.99	0.750	0.000	3.00	7.642	5.73	355.7	0.0	254.4
125.00		1.00	1.33	35.567	39.12	296.05	0.750	0.000	5.00	12.431	9.32	583.6	0.0	355.1
127.00	Appurtenance(s)	1.00	1.33	35.686	39.25	292.84	0.750	0.000	2.00	4.866	3.65	229.2	0.0	138.9
130.00		1.00	1.34	35.862	39.45	287.99	0.750	0.000	3.00	7.184	5.39	340.1	0.0	205.1
135.00		1.00	1.35	36.148	39.76	279.81	0.750	0.000	5.00	11.667	8.75	556.7	0.0	333.1
137.00	Appurtenance(s)	1.00	1.35	36.260	39.89	276.51	0.750	0.000	2.00	4.560	3.42	218.2	0.0	130.2
140.00		1.00	1.36	36.426	40.07	271.52	0.750	0.000	3.00	6.725	5.04	323.3	0.0	191.9
145.00		1.00	1.37	36.696	40.37	263.14	0.750	0.000	5.00	10.902	8.18	528.1	0.0	311.1
147.00	Appurtenance(s)	1.00	1.37	36.802	40.48	259.75	0.750	0.000	2.00	4.254	3.19	206.6	0.0	121.4
150.00	Appurtenance(s)	1.00	1.38	36.959	40.65	254.65	0.750	0.000	3.00	6.266	4.70	305.7	0.0	178.7
<b>Totals:</b>								<b>150.00</b>			<b>18,994.3</b>	<b>30,995.6</b>		

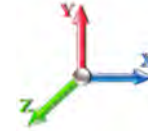
## Discrete Appurtenance Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
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**Load Case:** 1.2D + 1.6W 105 mph Wind

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



**Iterations** 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	150.00	Lightning Rod	1	37.139	40.852	1.00	1.00	1.05	42.00	0.000	3.500	68.63	0.00	240.21	
2	147.00	Ericsson 4449 B71 + B85	3	36.802	40.482	0.50	0.75	2.94	270.00	0.000	0.000	190.40	0.00	0.00	
3	147.00	Ericsson Air 21 B2A/B4P	3	36.802	40.482	0.64	0.75	11.55	329.40	0.000	0.000	748.21	0.00	0.00	
4	147.00	Ericsson Air 21 B4A/B2P	3	36.802	40.482	0.64	0.75	11.55	325.08	0.000	0.000	748.21	0.00	0.00	
5	147.00	Ericsson KRY 112 144/1	3	36.802	40.482	0.45	0.75	0.47	39.60	0.000	0.000	30.60	0.00	0.00	
6	147.00	RFS	3	36.802	40.482	0.54	0.75	32.79	442.08	0.000	0.000	2123.77	0.00	0.00	
7	147.00	Platform w/ Hand Rail	1	36.802	40.482	1.00	1.00	40.00	2400.00	0.000	0.000	2590.85	0.00	0.00	
8	147.00	Tie Back Kit (Commscope)	1	36.802	40.482	1.00	1.00	4.17	147.72	0.000	0.000	270.10	0.00	0.00	
9	147.00	Rreinforcement Kit	1	36.802	40.482	1.00	1.00	9.50	557.89	0.000	0.000	615.33	0.00	0.00	
10	147.00	V-Brace Kit (Sitepro)	1	36.802	40.482	1.00	1.00	6.30	236.40	0.000	0.000	408.06	0.00	0.00	
11	137.00	Low Profile Platform	1	36.260	39.886	1.00	1.00	22.00	1800.00	0.000	0.000	1403.99	0.00	0.00	
12	137.00	Cleargain 850/1900 TMA's	2	36.260	39.886	0.48	0.80	0.50	13.20	0.000	0.000	31.86	0.00	0.00	
13	137.00	RFS FD9R6004/2C-3L	6	36.260	39.886	0.48	0.80	1.04	22.32	0.000	0.000	66.17	0.00	0.00	
14	137.00	Rymsa MGD5-800T2	3	36.260	39.886	0.62	0.80	6.29	55.44	0.000	0.000	401.41	0.00	0.00	
15	137.00	Antel LPA-80080/4CF	6	36.260	39.886	0.59	0.80	19.18	86.40	0.000	0.000	1224.07	0.00	0.00	
16	137.00	Antel BXA-70063/6CF	3	36.260	39.886	0.58	0.80	13.10	53.64	0.000	0.000	835.90	0.00	0.00	
17	127.00	Low Profile Platform	1	35.686	39.255	1.00	1.00	22.00	1800.00	0.000	0.000	1381.76	0.00	0.00	
18	117.00	ALU TD-RRH8x20-25	3	35.075	38.583	0.50	0.75	6.11	252.00	0.000	0.000	376.90	0.00	0.00	
19	117.00	ALU 800 Mhz	6	35.075	38.583	0.50	0.75	7.51	381.60	0.000	0.000	463.45	0.00	0.00	
20	117.00	ALU 1900 Mhz	3	35.075	38.583	0.50	0.75	4.18	216.00	0.000	0.000	257.78	0.00	0.00	
21	117.00	Commscope	3	35.263	38.789	0.60	0.75	22.09	278.64	0.000	3.000	1370.71	0.00	4112.12	
22	117.00	RFS APXVTM14-C-I20	3	35.075	38.583	0.58	0.75	10.98	202.32	0.000	0.000	678.07	0.00	0.00	
23	117.00	Sitepro RMQP-496-HK	1	35.075	38.583	1.00	1.00	46.00	2938.80	0.000	0.000	2839.69	0.00	0.00	
24	107.00	Low Profile Platform	1	34.422	37.864	1.00	1.00	22.00	1800.00	0.000	0.000	1332.80	0.00	0.00	
25	107.00	Cci DMP65R-BU8DA	6	34.422	37.864	0.75	0.75	60.70	280.80	0.000	0.000	3677.63	0.00	0.00	
26	107.00	Raycap DC6-48-60-18-8F	1	34.422	37.864	0.50	0.75	0.46	38.16	0.000	0.000	28.01	0.00	0.00	
27	107.00	Powerwave/LGP21401	6	34.422	37.864	0.45	0.75	0.73	39.60	0.000	0.000	44.16	0.00	0.00	
28	107.00	Powerwave 7770	3	34.422	37.864	0.55	0.75	9.03	126.00	0.000	0.000	547.28	0.00	0.00	
29	107.00	Raycap	1	34.422	37.864	0.50	0.75	2.40	19.20	0.000	0.000	145.51	0.00	0.00	
30	107.00	Ericsson 4449 B5/B12	3	34.422	37.864	0.50	0.75	2.49	252.00	0.000	0.000	150.69	0.00	0.00	
31	107.00	Ericsson RRUS 4478 B14	3	34.422	37.864	0.50	0.75	2.77	215.64	0.000	0.000	168.04	0.00	0.00	
32	107.00	Ericsson 8843 B2 B66A	3	34.422	37.864	0.50	0.75	2.49	270.00	0.000	0.000	150.69	0.00	0.00	
33	107.00	Site Pro HRK14	1	34.422	37.864	1.00	1.00	8.13	362.83	0.000	0.000	492.53	0.00	0.00	
<b>Totals:</b>									<b>16,294.76</b>						<b>25,863.27</b>

## Total Applied Force Summary

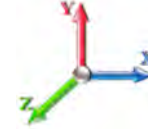
<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 105 mph Wind

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



**Iterations** 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
5.00		633.28	1719.59	0.00	0.00
10.00		621.77	1873.72	0.00	0.00
15.00		610.27	1844.41	0.00	0.00
20.00		635.32	1815.10	0.00	0.00
25.00		653.08	1785.79	0.00	0.00
30.00		665.35	1756.49	0.00	0.00
35.00		673.56	1727.18	0.00	0.00
40.00		678.64	1697.87	0.00	0.00
45.00		681.21	1668.56	0.00	0.00
46.67		225.57	549.67	0.00	0.00
50.00		462.40	1882.42	0.00	0.00
53.00		415.61	1673.30	0.00	0.00
55.00		276.22	586.37	0.00	0.00
60.00		692.55	1447.98	0.00	0.00
65.00		688.67	1422.34	0.00	0.00
70.00		683.62	1396.69	0.00	0.00
75.00		677.50	1371.05	0.00	0.00
80.00		670.42	1345.40	0.00	0.00
85.00		662.48	1319.76	0.00	0.00
90.00		653.75	1294.11	0.00	0.00
94.25		547.81	1079.83	0.00	0.00
95.00		96.80	261.43	0.00	0.00
99.67		599.77	1607.20	0.00	0.00
100.00		42.30	51.84	0.00	0.00
105.00		631.82	770.81	0.00	0.00
107.00	(28) attachments	6986.23	3708.96	0.00	0.00
110.00		370.24	374.27	0.00	0.00
115.00		608.76	613.52	0.00	0.00
117.00	(19) attachments	6226.02	4511.18	0.00	4112.12
120.00		355.73	345.14	0.00	0.00
125.00		583.63	506.25	0.00	0.00
127.00	(1) attachments	1610.96	1999.42	0.00	0.00
130.00		340.05	295.84	0.00	0.00
135.00		556.68	484.27	0.00	0.00
137.00	(21) attachments	4181.63	2221.63	0.00	0.00
140.00		323.34	237.72	0.00	0.00
145.00		528.08	387.41	0.00	0.00
147.00	(19) attachments	7932.16	4900.06	0.00	0.00
150.00	(1) attachments	374.32	220.74	0.00	240.21
	<b>Totals:</b>	<b>44,857.60</b>	<b>54,755.33</b>	<b>0.00</b>	<b>4,352.33</b>

## Calculated Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

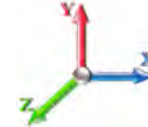


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**Load Case:** 1.2D + 1.6W 105 mph Wind

**Iterations** 24

**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	-54.64	-44.99	0.00	-4926.7	0.00	4926.72	5817.07	2908.54	11858.0	5886.84	0.00	0.000	0.000	0.847
5.00	-52.71	-44.62	0.00	-4701.7	0.00	4701.75	5739.57	2869.78	11485.2	5701.74	0.15	-0.280	0.000	0.834
10.00	-50.62	-44.23	0.00	-4478.6	0.00	4478.68	5652.47	2826.24	11099.3	5510.17	0.60	-0.563	0.000	0.822
15.00	-48.57	-43.84	0.00	-4257.5	0.00	4257.54	5545.82	2772.91	10682.2	5303.14	1.34	-0.847	0.000	0.812
20.00	-46.54	-43.41	0.00	-4038.3	0.00	4038.34	5439.17	2719.58	10273.2	5100.07	2.38	-1.132	0.000	0.801
25.00	-44.56	-42.94	0.00	-3821.3	0.00	3821.32	5332.51	2666.26	9872.18	4900.97	3.72	-1.419	0.000	0.788
30.00	-42.61	-42.44	0.00	-3606.6	0.00	3606.64	5225.86	2612.93	9479.11	4705.83	5.36	-1.707	0.000	0.775
35.00	-40.69	-41.92	0.00	-3394.4	0.00	3394.44	5119.21	2559.60	9094.03	4514.66	7.30	-1.995	0.000	0.760
40.00	-38.82	-41.37	0.00	-3184.8	0.00	3184.87	5012.56	2506.28	8716.92	4327.45	9.54	-2.283	0.000	0.744
45.00	-37.04	-40.74	0.00	-2978.0	0.00	2978.03	4905.90	2452.95	8347.81	4144.20	12.09	-2.571	0.000	0.726
46.67	-36.40	-40.58	0.00	-2910.1	0.00	2910.13	4870.35	2435.18	8226.55	4084.00	13.00	-2.668	0.000	0.720
50.00	-34.41	-40.14	0.00	-2774.8	0.00	2774.86	4799.25	2399.63	7986.68	3964.92	14.93	-2.861	0.000	0.707
53.00	-32.66	-39.72	0.00	-2654.4	0.00	2654.44	4240.56	2120.28	7137.82	3543.51	16.79	-3.034	0.000	0.757
55.00	-31.95	-39.53	0.00	-2574.9	0.00	2574.99	4203.23	2101.62	7012.05	3481.07	18.08	-3.150	0.000	0.748
60.00	-30.34	-38.92	0.00	-2377.3	0.00	2377.34	4109.91	2054.96	6702.51	3327.41	21.54	-3.450	0.000	0.722
65.00	-28.77	-38.29	0.00	-2182.7	0.00	2182.77	4016.59	2008.29	6399.97	3177.21	25.31	-3.745	0.000	0.695
70.00	-27.24	-37.65	0.00	-1991.3	0.00	1991.34	3923.27	1961.63	6104.41	3030.48	29.39	-4.035	0.000	0.664
75.00	-25.74	-37.00	0.00	-1803.1	0.00	1803.12	3829.95	1914.97	5815.84	2887.23	33.76	-4.317	0.000	0.632
80.00	-24.28	-36.34	0.00	-1618.1	0.00	1618.14	3736.63	1868.31	5534.25	2747.44	38.43	-4.591	0.000	0.596
85.00	-22.86	-35.67	0.00	-1436.4	0.00	1436.46	3643.31	1821.65	5259.66	2611.12	43.37	-4.854	0.000	0.557
90.00	-21.49	-34.99	0.00	-1258.1	0.00	1258.11	3549.99	1774.99	4992.05	2478.26	48.59	-5.105	0.000	0.514
94.25	-20.39	-34.39	0.00	-1109.4	0.00	1109.40	3470.66	1735.33	4770.08	2368.07	53.22	-5.307	0.000	0.475
95.00	-20.07	-34.31	0.00	-1083.6	0.00	1083.61	3456.66	1728.33	4731.43	2348.88	54.05	-5.343	0.000	0.468
99.67	-18.46	-33.60	0.00	-923.49	0.00	923.49	1458.24	729.12	1997.89	991.83	59.37	-5.547	0.000	0.946
100.00	-18.30	-33.61	0.00	-912.29	0.00	912.29	1456.89	728.44	1992.39	989.11	59.76	-5.561	0.000	0.937
105.00	-17.45	-32.98	0.00	-744.22	0.00	744.22	1435.99	717.99	1910.05	948.23	65.78	-5.930	0.000	0.799
107.00	-14.42	-25.69	0.00	-678.26	0.00	678.26	1427.33	713.67	1877.17	931.90	68.29	-6.067	0.000	0.739
110.00	-13.98	-25.34	0.00	-601.19	0.00	601.19	1414.04	707.02	1827.92	907.46	72.16	-6.259	0.000	0.674
115.00	-13.36	-24.71	0.00	-474.49	0.00	474.49	1391.05	695.52	1746.12	866.85	78.86	-6.543	0.000	0.558
117.00	-9.55	-18.03	0.00	-420.96	0.00	420.96	1381.56	690.78	1713.52	850.66	81.62	-6.646	0.000	0.502
120.00	-9.20	-17.66	0.00	-366.87	0.00	366.87	1367.01	683.50	1664.77	826.46	85.83	-6.787	0.000	0.451
120.00	-9.20	-17.66	0.00	-366.87	0.00	366.87	1091.99	545.99	1332.66	661.59	85.83	-6.787	0.000	0.564
125.00	-8.72	-17.04	0.00	-278.56	0.00	278.56	1075.35	537.67	1272.10	631.52	93.03	-6.990	0.000	0.450
127.00	-6.91	-15.21	0.00	-244.47	0.00	244.47	1068.40	534.20	1247.88	619.50	95.97	-7.074	0.000	0.402
130.00	-6.63	-14.85	0.00	-198.84	0.00	198.84	1057.66	528.83	1211.58	601.48	100.44	-7.185	0.000	0.338
135.00	-6.19	-14.25	0.00	-124.57	0.00	124.57	1038.92	519.46	1151.22	571.51	108.03	-7.327	0.000	0.225
137.00	-4.52	-9.82	0.00	-96.08	0.00	96.08	1031.13	515.57	1127.15	559.57	111.10	-7.370	0.000	0.176
140.00	-4.32	-9.47	0.00	-66.61	0.00	66.61	1019.14	509.57	1091.15	541.69	115.74	-7.420	0.000	0.128
145.00	-4.00	-8.90	0.00	-19.24	0.00	19.24	998.31	499.16	1031.47	512.07	123.52	-7.466	0.000	0.042
147.00	-0.17	-0.40	0.00	-1.44	0.00	1.44	989.69	494.84	1007.74	500.29	126.64	-7.471	0.000	0.003
150.00	0.00	-0.37	0.00	-0.24	0.00	0.24	976.44	488.22	972.32	482.70	131.32	-7.472	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

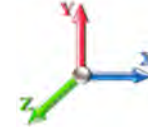


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**Load Case:** 0.9D + 1.6W 105 mph Wind

**Iterations** 24

**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		1.00	0.85	22.791	25.07	411.26	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	403.85	0.750	0.000	5.00	21.050	15.79	633.3	0.0	1198.0
10.00		1.00	0.85	22.791	25.07	396.45	0.750	0.000	5.00	20.668	15.50	621.8	0.0	1176.0
15.00		1.00	0.85	22.791	25.07	389.05	0.750	0.000	5.00	20.286	15.21	610.3	0.0	1154.0
20.00		1.00	0.90	24.182	26.60	393.12	0.750	0.000	5.00	19.903	14.93	635.3	0.0	1132.0
25.00		1.00	0.95	25.345	27.88	394.66	0.750	0.000	5.00	19.521	14.64	653.1	0.0	1110.0
30.00		1.00	0.98	26.337	28.97	394.35	0.750	0.000	5.00	19.139	14.35	665.3	0.0	1088.1
35.00		1.00	1.01	27.206	29.93	392.71	0.750	0.000	5.00	18.756	14.07	673.6	0.0	1066.1
40.00		1.00	1.04	27.981	30.78	390.07	0.750	0.000	5.00	18.374	13.78	678.6	0.0	1044.1
45.00		1.00	1.07	28.684	31.55	386.63	0.750	0.000	5.00	17.991	13.49	681.2	0.0	1022.1
46.67	Bot - Section 2	1.00	1.08	28.904	31.79	385.33	0.750	0.000	1.67	5.912	4.43	225.6	0.0	335.8
50.00		1.00	1.09	29.327	32.26	382.54	0.750	0.000	3.33	11.945	8.96	462.4	0.0	1258.9
53.00	Top - Section 1	1.00	1.11	29.689	32.66	379.83	0.750	0.000	3.00	10.605	7.95	415.6	0.0	1117.4
55.00		1.00	1.12	29.922	32.91	386.16	0.750	0.000	2.00	6.994	5.25	276.2	0.0	348.1
60.00		1.00	1.14	30.475	33.52	381.16	0.750	0.000	5.00	17.216	12.91	692.5	0.0	856.7
65.00		1.00	1.16	30.993	34.09	375.75	0.750	0.000	5.00	16.834	12.63	688.7	0.0	837.5
70.00		1.00	1.17	31.480	34.63	369.99	0.750	0.000	5.00	16.451	12.34	683.6	0.0	818.2
75.00		1.00	1.19	31.941	35.13	363.93	0.750	0.000	5.00	16.069	12.05	677.5	0.0	799.0
80.00		1.00	1.21	32.377	35.62	357.58	0.750	0.000	5.00	15.687	11.77	670.4	0.0	779.8
85.00		1.00	1.22	32.793	36.07	350.99	0.750	0.000	5.00	15.304	11.48	662.5	0.0	760.5
90.00		1.00	1.24	33.190	36.51	344.18	0.750	0.000	5.00	14.922	11.19	653.8	0.0	741.3
94.25	Bot - Section 3	1.00	1.25	33.514	36.87	338.22	0.750	0.000	4.25	12.383	9.29	547.8	0.0	615.0
95.00		1.00	1.25	33.570	36.93	337.16	0.750	0.000	0.75	2.184	1.64	96.8	0.0	161.7
99.67	Top - Section 2	1.00	1.26	33.911	37.30	330.44	0.750	0.000	4.67	13.399	10.05	599.8	0.0	991.4
100.00		1.00	1.27	33.935	37.33	334.34	0.750	0.000	0.33	0.944	0.71	42.3	0.0	23.6
105.00		1.00	1.28	34.285	37.71	326.98	0.750	0.000	5.00	13.961	10.47	631.8	0.0	348.8
107.00	Appurtenance(s)	1.00	1.28	34.422	37.86	323.99	0.750	0.000	2.00	5.477	4.11	248.9	0.0	136.8
110.00		1.00	1.29	34.623	38.08	319.46	0.750	0.000	3.00	8.101	6.08	370.2	0.0	202.4
115.00		1.00	1.30	34.948	38.44	311.79	0.750	0.000	5.00	13.196	9.90	608.8	0.0	329.6
117.00	Appurtenance(s)	1.00	1.31	35.075	38.58	308.69	0.750	0.000	2.00	5.171	3.88	239.4	0.0	129.1
120.00	Top - Section 3	1.00	1.32	35.263	38.79	303.99	0.750	0.000	3.00	7.642	5.73	355.7	0.0	190.8
125.00		1.00	1.33	35.567	39.12	296.05	0.750	0.000	5.00	12.431	9.32	583.6	0.0	266.3
127.00	Appurtenance(s)	1.00	1.33	35.686	39.25	292.84	0.750	0.000	2.00	4.866	3.65	229.2	0.0	104.2
130.00		1.00	1.34	35.862	39.45	287.99	0.750	0.000	3.00	7.184	5.39	340.1	0.0	153.8
135.00		1.00	1.35	36.148	39.76	279.81	0.750	0.000	5.00	11.667	8.75	556.7	0.0	249.8
137.00	Appurtenance(s)	1.00	1.35	36.260	39.89	276.51	0.750	0.000	2.00	4.560	3.42	218.2	0.0	97.6
140.00		1.00	1.36	36.426	40.07	271.52	0.750	0.000	3.00	6.725	5.04	323.3	0.0	143.9
145.00		1.00	1.37	36.696	40.37	263.14	0.750	0.000	5.00	10.902	8.18	528.1	0.0	233.3
147.00	Appurtenance(s)	1.00	1.37	36.802	40.48	259.75	0.750	0.000	2.00	4.254	3.19	206.6	0.0	91.0
150.00	Appurtenance(s)	1.00	1.38	36.959	40.65	254.65	0.750	0.000	3.00	6.266	4.70	305.7	0.0	134.1
<b>Totals:</b>								<b>150.00</b>			<b>18,994.3</b>	<b>23,246.7</b>		

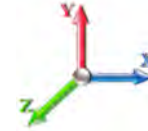
## Discrete Appurtenance Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 14



**Load Case:** 0.9D + 1.6W 105 mph Wind

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



**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	150.00	Lightning Rod	1	37.139	40.852	1.00	1.00	1.05	31.50	0.000	3.500	68.63	0.00	240.21			
2	147.00	Ericsson 4449 B71 + B85	3	36.802	40.482	0.50	0.75	2.94	202.50	0.000	0.000	190.40	0.00	0.00			
3	147.00	Ericsson Air 21 B2A/B4P	3	36.802	40.482	0.64	0.75	11.55	247.05	0.000	0.000	748.21	0.00	0.00			
4	147.00	Ericsson Air 21 B4A/B2P	3	36.802	40.482	0.64	0.75	11.55	243.81	0.000	0.000	748.21	0.00	0.00			
5	147.00	Ericsson KRY 112 144/1	3	36.802	40.482	0.45	0.75	0.47	29.70	0.000	0.000	30.60	0.00	0.00			
6	147.00	RFS	3	36.802	40.482	0.54	0.75	32.79	331.56	0.000	0.000	2123.77	0.00	0.00			
7	147.00	Platform w/ Hand Rail	1	36.802	40.482	1.00	1.00	40.00	1800.00	0.000	0.000	2590.85	0.00	0.00			
8	147.00	Tie Back Kit (Commscope)	1	36.802	40.482	1.00	1.00	4.17	110.79	0.000	0.000	270.10	0.00	0.00			
9	147.00	Rreinforcement Kit	1	36.802	40.482	1.00	1.00	9.50	418.42	0.000	0.000	615.33	0.00	0.00			
10	147.00	V-Brace Kit (Sitepro)	1	36.802	40.482	1.00	1.00	6.30	177.30	0.000	0.000	408.06	0.00	0.00			
11	137.00	Low Profile Platform	1	36.260	39.886	1.00	1.00	22.00	1350.00	0.000	0.000	1403.99	0.00	0.00			
12	137.00	Cleargain 850/1900 TMA's	2	36.260	39.886	0.48	0.80	0.50	9.90	0.000	0.000	31.86	0.00	0.00			
13	137.00	RFS FD9R6004/2C-3L	6	36.260	39.886	0.48	0.80	1.04	16.74	0.000	0.000	66.17	0.00	0.00			
14	137.00	Rymsa MGD5-800T2	3	36.260	39.886	0.62	0.80	6.29	41.58	0.000	0.000	401.41	0.00	0.00			
15	137.00	Antel LPA-80080/4CF	6	36.260	39.886	0.59	0.80	19.18	64.80	0.000	0.000	1224.07	0.00	0.00			
16	137.00	Antel BXA-70063/6CF	3	36.260	39.886	0.58	0.80	13.10	40.23	0.000	0.000	835.90	0.00	0.00			
17	127.00	Low Profile Platform	1	35.686	39.255	1.00	1.00	22.00	1350.00	0.000	0.000	1381.76	0.00	0.00			
18	117.00	ALU TD-RRH8x20-25	3	35.075	38.583	0.50	0.75	6.11	189.00	0.000	0.000	376.90	0.00	0.00			
19	117.00	ALU 800 Mhz	6	35.075	38.583	0.50	0.75	7.51	286.20	0.000	0.000	463.45	0.00	0.00			
20	117.00	ALU 1900 Mhz	3	35.075	38.583	0.50	0.75	4.18	162.00	0.000	0.000	257.78	0.00	0.00			
21	117.00	Commscope	3	35.263	38.789	0.60	0.75	22.09	208.98	0.000	3.000	1370.71	0.00	4112.12			
22	117.00	RFS APXVTM14-C-I20	3	35.075	38.583	0.58	0.75	10.98	151.74	0.000	0.000	678.07	0.00	0.00			
23	117.00	Sitepro RMQP-496-HK	1	35.075	38.583	1.00	1.00	46.00	2204.10	0.000	0.000	2839.69	0.00	0.00			
24	107.00	Low Profile Platform	1	34.422	37.864	1.00	1.00	22.00	1350.00	0.000	0.000	1332.80	0.00	0.00			
25	107.00	Cci DMP65R-BU8DA	6	34.422	37.864	0.75	0.75	60.70	210.60	0.000	0.000	3677.63	0.00	0.00			
26	107.00	Raycap DC6-48-60-18-8F	1	34.422	37.864	0.50	0.75	0.46	28.62	0.000	0.000	28.01	0.00	0.00			
27	107.00	Powerwave/LGP21401	6	34.422	37.864	0.45	0.75	0.73	29.70	0.000	0.000	44.16	0.00	0.00			
28	107.00	Powerwave 7770	3	34.422	37.864	0.55	0.75	9.03	94.50	0.000	0.000	547.28	0.00	0.00			
29	107.00	Raycap	1	34.422	37.864	0.50	0.75	2.40	14.40	0.000	0.000	145.51	0.00	0.00			
30	107.00	Ericsson 4449 B5/B12	3	34.422	37.864	0.50	0.75	2.49	189.00	0.000	0.000	150.69	0.00	0.00			
31	107.00	Ericsson RRUS 4478 B14	3	34.422	37.864	0.50	0.75	2.77	161.73	0.000	0.000	168.04	0.00	0.00			
32	107.00	Ericsson 8843 B2 B66A	3	34.422	37.864	0.50	0.75	2.49	202.50	0.000	0.000	150.69	0.00	0.00			
33	107.00	Site Pro HRK14	1	34.422	37.864	1.00	1.00	8.13	272.12	0.000	0.000	492.53	0.00	0.00			
<b>Totals:</b>								<b>12,221.07</b>							<b>25,863.27</b>		

## Total Applied Force Summary

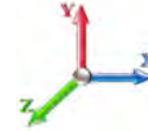
<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 105 mph Wind

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



**Iterations** 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
5.00		633.28	1289.69	0.00	0.00
10.00		621.77	1405.29	0.00	0.00
15.00		610.27	1383.31	0.00	0.00
20.00		635.32	1361.33	0.00	0.00
25.00		653.08	1339.35	0.00	0.00
30.00		665.35	1317.36	0.00	0.00
35.00		673.56	1295.38	0.00	0.00
40.00		678.64	1273.40	0.00	0.00
45.00		681.21	1251.42	0.00	0.00
46.67		225.57	412.26	0.00	0.00
50.00		462.40	1411.81	0.00	0.00
53.00		415.61	1254.97	0.00	0.00
55.00		276.22	439.78	0.00	0.00
60.00		692.55	1085.99	0.00	0.00
65.00		688.67	1066.75	0.00	0.00
70.00		683.62	1047.52	0.00	0.00
75.00		677.50	1028.29	0.00	0.00
80.00		670.42	1009.05	0.00	0.00
85.00		662.48	989.82	0.00	0.00
90.00		653.75	970.59	0.00	0.00
94.25		547.81	809.87	0.00	0.00
95.00		96.80	196.07	0.00	0.00
99.67		599.77	1205.40	0.00	0.00
100.00		42.30	38.88	0.00	0.00
105.00		631.82	578.11	0.00	0.00
107.00	(28) attachments	6986.23	2781.72	0.00	0.00
110.00		370.24	280.70	0.00	0.00
115.00		608.76	460.14	0.00	0.00
117.00	(19) attachments	6226.02	3383.38	0.00	4112.12
120.00		355.73	258.86	0.00	0.00
125.00		583.63	379.69	0.00	0.00
127.00	(1) attachments	1610.96	1499.57	0.00	0.00
130.00		340.05	221.88	0.00	0.00
135.00		556.68	363.20	0.00	0.00
137.00	(21) attachments	4181.63	1666.22	0.00	0.00
140.00		323.34	178.29	0.00	0.00
145.00		528.08	290.56	0.00	0.00
147.00	(19) attachments	7932.16	3675.04	0.00	0.00
150.00	(1) attachments	374.32	165.55	0.00	240.21
	<b>Totals:</b>	<b>44,857.60</b>	<b>41,066.50</b>	<b>0.00</b>	<b>4,352.33</b>



## Calculated Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.6W 105 mph Wind	<b>Iterations</b> 24
<b>Dead Load Factor</b> 0.90	
<b>Wind Load Factor</b> 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	-40.96	-44.96	0.00	-4868.0	0.00	4868.04	5817.07	2908.54	11858.0	5886.84	0.00	0.000	0.000	0.834
5.00	-39.45	-44.51	0.00	-4643.2	0.00	4643.25	5739.57	2869.78	11485.2	5701.74	0.15	-0.277	0.000	0.821
10.00	-37.84	-44.07	0.00	-4420.6	0.00	4420.69	5652.47	2826.24	11099.3	5510.17	0.59	-0.556	0.000	0.809
15.00	-36.25	-43.62	0.00	-4200.3	0.00	4200.36	5545.82	2772.91	10682.2	5303.14	1.32	-0.836	0.000	0.799
20.00	-34.68	-43.13	0.00	-3982.2	0.00	3982.28	5439.17	2719.58	10273.2	5100.07	2.35	-1.118	0.000	0.787
25.00	-33.15	-42.61	0.00	-3766.6	0.00	3766.62	5332.51	2666.26	9872.18	4900.97	3.67	-1.401	0.000	0.775
30.00	-31.64	-42.07	0.00	-3553.5	0.00	3553.56	5225.86	2612.93	9479.11	4705.83	5.29	-1.684	0.000	0.761
35.00	-30.16	-41.50	0.00	-3343.2	0.00	3343.22	5119.21	2559.60	9094.03	4514.66	7.20	-1.968	0.000	0.747
40.00	-28.71	-40.92	0.00	-3135.7	0.00	3135.70	5012.56	2506.28	8716.92	4327.45	9.42	-2.252	0.000	0.731
45.00	-27.36	-40.28	0.00	-2931.0	0.00	2931.09	4905.90	2452.95	8347.81	4144.20	11.93	-2.535	0.000	0.713
46.67	-26.86	-40.10	0.00	-2863.9	0.00	2863.96	4870.35	2435.18	8226.55	4084.00	12.83	-2.631	0.000	0.707
50.00	-25.35	-39.65	0.00	-2730.2	0.00	2730.28	4799.25	2399.63	7986.68	3964.92	14.73	-2.820	0.000	0.694
53.00	-24.02	-39.23	0.00	-2611.3	0.00	2611.32	4240.56	2120.28	7137.82	3543.51	16.56	-2.991	0.000	0.743
55.00	-23.45	-39.02	0.00	-2532.8	0.00	2532.86	4203.23	2101.62	7012.05	3481.07	17.84	-3.104	0.000	0.734
60.00	-22.21	-38.38	0.00	-2337.7	0.00	2337.76	4109.91	2054.96	6702.51	3327.41	21.24	-3.399	0.000	0.708
65.00	-21.00	-37.73	0.00	-2145.8	0.00	2145.86	4016.59	2008.29	6399.97	3177.21	24.96	-3.690	0.000	0.681
70.00	-19.82	-37.08	0.00	-1957.2	0.00	1957.20	3923.27	1961.63	6104.41	3030.48	28.97	-3.975	0.000	0.651
75.00	-18.67	-36.42	0.00	-1771.8	0.00	1771.81	3829.95	1914.97	5815.84	2887.23	33.28	-4.252	0.000	0.619
80.00	-17.55	-35.75	0.00	-1589.7	0.00	1589.71	3736.63	1868.31	5534.25	2747.44	37.88	-4.521	0.000	0.584
85.00	-16.46	-35.09	0.00	-1410.9	0.00	1410.94	3643.31	1821.65	5259.66	2611.12	42.75	-4.780	0.000	0.545
90.00	-15.42	-34.41	0.00	-1235.5	0.00	1235.51	3549.99	1774.99	4992.05	2478.26	47.88	-5.026	0.000	0.503
94.25	-14.59	-33.82	0.00	-1089.2	0.00	1089.26	3470.66	1735.33	4770.08	2368.07	52.44	-5.225	0.000	0.465
95.00	-14.34	-33.74	0.00	-1063.9	0.00	1063.90	3456.66	1728.33	4731.43	2348.88	53.26	-5.259	0.000	0.457
99.67	-13.13	-33.05	0.00	-906.45	0.00	906.45	1458.24	729.12	1997.89	991.83	58.50	-5.460	0.000	0.925
100.00	-12.98	-33.05	0.00	-895.43	0.00	895.43	1456.89	728.44	1992.39	989.11	58.88	-5.474	0.000	0.916
105.00	-12.33	-32.42	0.00	-730.17	0.00	730.17	1435.99	717.99	1910.05	948.23	64.81	-5.836	0.000	0.781
107.00	-10.21	-25.21	0.00	-665.33	0.00	665.33	1427.33	713.67	1877.17	931.90	67.28	-5.971	0.000	0.722
110.00	-9.87	-24.86	0.00	-589.70	0.00	589.70	1414.04	707.02	1827.92	907.46	71.08	-6.159	0.000	0.658
115.00	-9.40	-24.23	0.00	-465.42	0.00	465.42	1391.05	695.52	1746.12	866.85	77.68	-6.437	0.000	0.545
117.00	-6.71	-17.68	0.00	-412.85	0.00	412.85	1381.56	690.78	1713.52	850.66	80.39	-6.538	0.000	0.491
120.00	-6.44	-17.31	0.00	-359.82	0.00	359.82	1367.01	683.50	1664.77	826.46	84.54	-6.676	0.000	0.441
120.00	-6.44	-17.31	0.00	-359.82	0.00	359.82	1091.99	545.99	1332.66	661.59	84.54	-6.676	0.000	0.551
125.00	-6.09	-16.70	0.00	-273.26	0.00	273.26	1075.35	537.67	1272.10	631.52	91.62	-6.875	0.000	0.439
127.00	-4.77	-14.93	0.00	-239.85	0.00	239.85	1068.40	534.20	1247.88	619.50	94.52	-6.958	0.000	0.392
130.00	-4.56	-14.58	0.00	-195.06	0.00	195.06	1057.66	528.83	1211.58	601.48	98.91	-7.067	0.000	0.329
135.00	-4.25	-13.99	0.00	-122.18	0.00	122.18	1038.92	519.46	1151.22	571.51	106.38	-7.207	0.000	0.219
137.00	-3.11	-9.63	0.00	-94.21	0.00	94.21	1031.13	515.57	1127.15	559.57	109.40	-7.249	0.000	0.172
140.00	-2.97	-9.29	0.00	-65.32	0.00	65.32	1019.14	509.57	1091.15	541.69	113.96	-7.297	0.000	0.124
145.00	-2.75	-8.73	0.00	-18.88	0.00	18.88	998.31	499.16	1031.47	512.07	121.61	-7.343	0.000	0.040
147.00	-0.12	-0.39	0.00	-1.42	0.00	1.42	989.69	494.84	1007.74	500.29	124.68	-7.348	0.000	0.003
150.00	0.00	-0.37	0.00	-0.24	0.00	0.24	976.44	488.22	972.32	482.70	129.28	-7.348	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



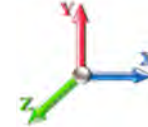
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**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		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	22.085	26.50	150.7	395.3	1992.5
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	21.777	26.13	148.6	416.8	1984.8
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	21.441	25.73	146.3	426.6	1965.3
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	21.092	25.31	152.7	431.3	1940.7
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	20.737	24.88	157.3	433.0	1913.1
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	20.377	24.45	160.6	432.8	1883.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	20.014	24.02	163.0	431.1	1852.6
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	19.648	23.58	164.6	428.4	1820.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	19.281	23.14	165.5	424.9	1787.7
46.67	Bot - Section 2	1.00	1.08	6.554	7.21	0.00	1.200	1.553	1.67	6.344	7.61	54.9	141.2	588.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	3.33	12.813	15.38	112.5	286.2	1964.8
53.00	Top - Section 1	1.00	1.11	6.732	7.41	0.00	1.200	1.573	3.00	11.391	13.67	101.2	255.9	1745.7
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	2.00	7.520	9.02	67.3	169.8	633.9
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	18.543	22.25	169.1	419.3	1561.6
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	18.171	21.81	168.6	413.7	1530.3
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	17.799	21.36	167.7	407.7	1498.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	17.426	20.91	166.6	401.3	1466.6
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	17.052	20.46	165.3	394.7	1434.4
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	16.678	20.01	163.7	387.8	1401.9
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	16.304	19.56	162.0	380.7	1369.1
94.25	Bot - Section 3	1.00	1.25	7.600	8.36	0.00	1.200	1.666	4.25	13.563	16.28	136.1	318.3	1138.3
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	0.75	2.393	2.87	24.0	56.7	272.3
99.67	Top - Section 2	1.00	1.26	7.690	8.46	0.00	1.200	1.675	4.67	14.702	17.64	149.2	346.3	1668.1
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	0.33	1.037	1.24	10.5	24.7	56.2
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	15.364	18.44	157.7	362.8	827.9
107.00	Appurtenance(s)	1.00	1.28	7.805	8.59	0.00	1.200	1.687	2.00	6.040	7.25	62.2	143.9	326.3
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	3.00	8.947	10.74	92.7	213.0	482.8
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	14.612	17.53	152.9	346.9	786.4
117.00	Appurtenance(s)	1.00	1.31	7.954	8.75	0.00	1.200	1.702	2.00	5.739	6.89	60.3	137.5	309.7
120.00	Top - Section 3	1.00	1.32	7.996	8.80	0.00	1.200	1.707	3.00	8.496	10.19	89.7	203.3	457.7
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	13.859	16.63	147.5	330.5	685.5
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	1.716	2.00	5.438	6.53	58.1	130.8	269.8
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	3.00	8.044	9.65	86.3	193.2	398.3
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	5.00	13.106	15.73	141.8	313.5	646.6
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	1.729	2.00	5.136	6.16	55.7	124.0	254.2
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	3.00	7.591	9.11	82.8	182.9	374.8
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	12.351	14.82	135.7	296.1	607.2
147.00	Appurtenance(s)	1.00	1.37	8.345	9.18	0.00	1.200	1.742	2.00	4.834	5.80	53.3	117.0	238.4
150.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	1.745	3.00	7.139	8.57	79.0	172.3	351.1
<b>Totals:</b>								<b>150.00</b>			<b>4,683.5</b>	<b>42,487.8</b>		

## Discrete Appurtenance Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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

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	150.00	Lightning Rod	1	8.421	9.264	1.00	1.00	3.42	64.41	0.000	3.500	31.71	0.00	111.00
2	147.00	Ericsson 4449 B71 + B85	3	8.345	9.180	0.50	0.75	3.83	513.88	0.000	0.000	35.12	0.00	0.00
3	147.00	Ericsson Air 21 B2A/B4P	3	8.345	9.180	0.64	0.75	13.63	829.35	0.000	0.000	125.11	0.00	0.00
4	147.00	Ericsson Air 21 B4A/B2P	3	8.345	9.180	0.64	0.75	13.63	825.03	0.000	0.000	125.11	0.00	0.00
5	147.00	Ericsson KRY 112 144/1	3	8.345	9.180	0.45	0.75	1.00	65.77	0.000	0.000	9.19	0.00	0.00
6	147.00	RFS	3	8.345	9.180	0.54	0.75	35.83	1975.95	0.000	0.000	328.88	0.00	0.00
7	147.00	Platform w/ Hand Rail	1	8.345	9.180	1.00	1.00	60.90	3890.03	0.000	0.000	559.04	0.00	0.00
8	147.00	Tie Back Kit (Commscope)	1	8.345	9.180	1.00	1.00	9.40	230.89	0.000	0.000	86.28	0.00	0.00
9	147.00	Rreinforcement Kit	1	8.345	9.180	1.00	1.00	19.43	786.69	0.000	0.000	178.34	0.00	0.00
10	147.00	V-Brace Kit (Sitepro)	1	8.345	9.180	1.00	1.00	12.88	423.89	0.000	0.000	118.27	0.00	0.00
11	137.00	Low Profile Platform	1	8.222	9.044	1.00	1.00	39.50	2797.10	0.000	0.000	357.28	0.00	0.00
12	137.00	Cleargain 850/1900 TMA's	2	8.222	9.044	0.48	0.80	1.00	29.67	0.000	0.000	9.08	0.00	0.00
13	137.00	RFS FD9R6004/2C-3L	6	8.222	9.044	0.48	0.80	2.30	56.24	0.000	0.000	20.82	0.00	0.00
14	137.00	Rymsa MGD5-800T2	3	8.222	9.044	0.62	0.80	9.62	200.09	0.000	0.000	87.03	0.00	0.00
15	137.00	Antel LPA-80080/4CF	6	8.222	9.044	0.59	0.80	22.69	885.93	0.000	0.000	205.23	0.00	0.00
16	137.00	Antel BXA-70063/6CF	3	8.222	9.044	0.58	0.80	17.84	363.50	0.000	0.000	161.33	0.00	0.00
17	127.00	Low Profile Platform	1	8.092	8.901	1.00	1.00	39.37	2787.31	0.000	0.000	350.44	0.00	0.00
18	117.00	ALU TD-RRH8x20-25	3	7.954	8.749	0.50	0.75	7.30	573.60	0.000	0.000	63.86	0.00	0.00
19	117.00	ALU 800 Mhz	6	7.954	8.749	0.50	0.75	10.87	687.87	0.000	0.000	95.11	0.00	0.00
20	117.00	ALU 1900 Mhz	3	7.954	8.749	0.50	0.75	6.04	388.46	0.000	0.000	52.85	0.00	0.00
21	117.00	Commscope	3	7.996	8.796	0.60	0.75	24.64	916.89	0.000	3.000	216.75	0.00	650.25
22	117.00	RFS APXVTM14-C-I20	3	7.954	8.749	0.58	0.75	12.86	669.42	0.000	0.000	112.53	0.00	0.00
23	117.00	Sitepro RMQP-496-HK	1	7.954	8.749	1.00	1.00	77.32	4650.29	0.000	0.000	676.50	0.00	0.00
24	107.00	Low Profile Platform	1	7.805	8.586	1.00	1.00	39.07	2765.43	0.000	0.000	335.49	0.00	0.00
25	107.00	Cci DMP65R-BU8DA	6	7.805	8.586	0.75	0.75	163.66	1704.47	0.000	0.000	1405.18	0.00	0.00
26	107.00	Raycap DC6-48-60-18-8F	1	7.805	8.586	0.50	0.75	0.68	80.23	0.000	0.000	5.80	0.00	0.00
27	107.00	Powerwave/LGP21401	6	7.805	8.586	0.45	0.75	1.77	74.09	0.000	0.000	15.17	0.00	0.00
28	107.00	Powerwave 7770	3	7.805	8.586	0.55	0.75	10.72	515.09	0.000	0.000	92.05	0.00	0.00
29	107.00	Raycap	1	7.805	8.586	0.50	0.75	2.83	109.02	0.000	0.000	24.31	0.00	0.00
30	107.00	Ericsson 4449 B5/B12	3	7.805	8.586	0.50	0.75	3.27	448.25	0.000	0.000	28.06	0.00	0.00
31	107.00	Ericsson RRUS 4478 B14	3	7.805	8.586	0.50	0.75	3.54	316.86	0.000	0.000	30.41	0.00	0.00
32	107.00	Ericsson 8843 B2 B66A	3	7.805	8.586	0.50	0.75	3.27	484.90	0.000	0.000	28.06	0.00	0.00
33	107.00	Site Pro HRK14	1	7.805	8.586	1.00	1.00	15.81	1012.10	0.000	0.000	135.76	0.00	0.00
<b>Totals:</b>								<b>32,122.70</b>				<b>6,106.16</b>		

## Total Applied Force Summary

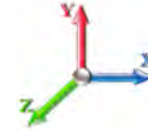
<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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
5.00		150.66	2114.84	0.00	0.00
10.00		148.56	2290.50	0.00	0.00
15.00		146.26	2271.02	0.00	0.00
20.00		152.67	2246.40	0.00	0.00
25.00		157.31	2218.81	0.00	0.00
30.00		160.63	2189.26	0.00	0.00
35.00		162.97	2158.30	0.00	0.00
40.00		164.56	2126.28	0.00	0.00
45.00		165.54	2093.41	0.00	0.00
46.67		54.88	690.84	0.00	0.00
50.00		112.48	2168.60	0.00	0.00
53.00		101.23	1929.19	0.00	0.00
55.00		67.35	756.19	0.00	0.00
60.00		169.14	1867.30	0.00	0.00
65.00		168.57	1836.02	0.00	0.00
70.00		167.71	1804.36	0.00	0.00
75.00		166.60	1772.39	0.00	0.00
80.00		165.26	1740.12	0.00	0.00
85.00		163.71	1707.59	0.00	0.00
90.00		161.97	1674.83	0.00	0.00
94.25		136.06	1398.15	0.00	0.00
95.00		24.04	318.12	0.00	0.00
99.67		149.23	1953.46	0.00	0.00
100.00		10.54	76.54	0.00	0.00
105.00		157.67	1133.60	0.00	0.00
107.00	(28) attachments	2162.52	7959.04	0.00	0.00
110.00		92.72	587.23	0.00	0.00
115.00		152.85	960.45	0.00	0.00
117.00	(19) attachments	1277.86	8265.82	0.00	650.25
120.00		89.67	548.41	0.00	0.00
125.00		147.55	836.73	0.00	0.00
127.00	(1) attachments	408.53	3117.58	0.00	0.00
130.00		86.34	489.07	0.00	0.00
135.00		141.80	797.78	0.00	0.00
137.00	(21) attachments	896.51	4647.18	0.00	0.00
140.00		82.77	420.63	0.00	0.00
145.00		135.67	683.50	0.00	0.00
147.00	(19) attachments	1618.59	9810.40	0.00	0.00
150.00	(1) attachments	110.68	415.49	0.00	111.00
	<b>Totals:</b>	<b>10,789.68</b>	<b>82,075.43</b>	<b>0.00</b>	<b>761.25</b>

## Calculated Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

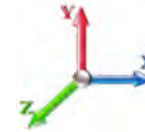


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 24

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



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	-82.07	-10.84	0.00	-1214.5	0.00	1214.58	5817.07	2908.54	11858.0	5886.84	0.00	0.000	0.000	0.220
5.00	-79.94	-10.78	0.00	-1160.3	0.00	1160.38	5739.57	2869.78	11485.2	5701.74	0.04	-0.069	0.000	0.217
10.00	-77.64	-10.73	0.00	-1106.4	0.00	1106.46	5652.47	2826.24	11099.3	5510.17	0.15	-0.139	0.000	0.215
15.00	-75.35	-10.67	0.00	-1052.8	0.00	1052.82	5545.82	2772.91	10682.2	5303.14	0.33	-0.209	0.000	0.212
20.00	-73.10	-10.59	0.00	-999.49	0.00	999.49	5439.17	2719.58	10273.2	5100.07	0.59	-0.280	0.000	0.209
25.00	-70.86	-10.51	0.00	-946.52	0.00	946.52	5332.51	2666.26	9872.18	4900.97	0.92	-0.351	0.000	0.206
30.00	-68.66	-10.42	0.00	-893.96	0.00	893.96	5225.86	2612.93	9479.11	4705.83	1.32	-0.422	0.000	0.203
35.00	-66.49	-10.33	0.00	-841.84	0.00	841.84	5119.21	2559.60	9094.03	4514.66	1.80	-0.493	0.000	0.199
40.00	-64.36	-10.22	0.00	-790.21	0.00	790.21	5012.56	2506.28	8716.92	4327.45	2.36	-0.565	0.000	0.195
45.00	-62.26	-10.09	0.00	-739.11	0.00	739.11	4905.90	2452.95	8347.81	4144.20	2.99	-0.636	0.000	0.191
46.67	-61.56	-10.06	0.00	-722.30	0.00	722.30	4870.35	2435.18	8226.55	4084.00	3.22	-0.661	0.000	0.190
50.00	-59.38	-9.97	0.00	-688.76	0.00	688.76	4799.25	2399.63	7986.68	3964.92	3.69	-0.708	0.000	0.186
53.00	-57.45	-9.88	0.00	-658.85	0.00	658.85	4240.56	2120.28	7137.82	3543.51	4.15	-0.751	0.000	0.199
55.00	-56.69	-9.85	0.00	-639.08	0.00	639.08	4203.23	2101.62	7012.05	3481.07	4.47	-0.780	0.000	0.197
60.00	-54.81	-9.73	0.00	-589.81	0.00	589.81	4109.91	2054.96	6702.51	3327.41	5.33	-0.854	0.000	0.191
65.00	-52.96	-9.60	0.00	-541.16	0.00	541.16	4016.59	2008.29	6399.97	3177.21	6.26	-0.928	0.000	0.184
70.00	-51.15	-9.47	0.00	-493.17	0.00	493.17	3923.27	1961.63	6104.41	3030.48	7.28	-0.999	0.000	0.176
75.00	-49.37	-9.33	0.00	-445.84	0.00	445.84	3829.95	1914.97	5815.84	2887.23	8.36	-1.069	0.000	0.167
80.00	-47.62	-9.18	0.00	-399.22	0.00	399.22	3736.63	1868.31	5534.25	2747.44	9.52	-1.137	0.000	0.158
85.00	-45.91	-9.03	0.00	-353.31	0.00	353.31	3643.31	1821.65	5259.66	2611.12	10.74	-1.202	0.000	0.148
90.00	-44.23	-8.88	0.00	-308.14	0.00	308.14	3549.99	1774.99	4992.05	2478.26	12.03	-1.263	0.000	0.137
94.25	-42.83	-8.73	0.00	-270.40	0.00	270.40	3470.66	1735.33	4770.08	2368.07	13.18	-1.313	0.000	0.127
95.00	-42.51	-8.72	0.00	-263.85	0.00	263.85	3456.66	1728.33	4731.43	2348.88	13.39	-1.321	0.000	0.125
99.67	-40.56	-8.55	0.00	-223.14	0.00	223.14	1458.24	729.12	1997.89	991.83	14.71	-1.371	0.000	0.253
100.00	-40.47	-8.57	0.00	-220.30	0.00	220.30	1456.89	728.44	1992.39	989.11	14.80	-1.374	0.000	0.251
105.00	-39.33	-8.42	0.00	-177.46	0.00	177.46	1435.99	717.99	1910.05	948.23	16.29	-1.463	0.000	0.215
107.00	-31.43	-6.08	0.00	-160.61	0.00	160.61	1427.33	713.67	1877.17	931.90	16.91	-1.496	0.000	0.194
110.00	-30.84	-6.00	0.00	-142.38	0.00	142.38	1414.04	707.02	1827.92	907.46	17.87	-1.541	0.000	0.179
115.00	-29.88	-5.84	0.00	-112.38	0.00	112.38	1391.05	695.52	1746.12	866.85	19.52	-1.608	0.000	0.151
117.00	-21.65	-4.34	0.00	-100.05	0.00	100.05	1381.56	690.78	1713.52	850.66	20.20	-1.633	0.000	0.133
120.00	-21.10	-4.25	0.00	-87.02	0.00	87.02	1367.01	683.50	1664.77	826.46	21.23	-1.666	0.000	0.121
120.00	-21.10	-4.25	0.00	-87.02	0.00	87.02	1091.99	545.99	1332.66	661.59	21.23	-1.666	0.000	0.151
125.00	-20.27	-4.09	0.00	-65.75	0.00	65.75	1075.35	537.67	1272.10	631.52	23.00	-1.714	0.000	0.123
127.00	-17.16	-3.60	0.00	-57.57	0.00	57.57	1068.40	534.20	1247.88	619.50	23.73	-1.734	0.000	0.109
130.00	-16.67	-3.51	0.00	-46.77	0.00	46.77	1057.66	528.83	1211.58	601.48	24.83	-1.760	0.000	0.094
135.00	-15.88	-3.34	0.00	-29.25	0.00	29.25	1038.92	519.46	1151.22	571.51	26.69	-1.794	0.000	0.067
137.00	-11.26	-2.30	0.00	-22.56	0.00	22.56	1031.13	515.57	1127.15	559.57	27.44	-1.804	0.000	0.051
140.00	-10.84	-2.21	0.00	-15.65	0.00	15.65	1019.14	509.57	1091.15	541.69	28.58	-1.815	0.000	0.040
145.00	-10.17	-2.05	0.00	-4.59	0.00	4.59	998.31	499.16	1031.47	512.07	30.49	-1.826	0.000	0.019
147.00	-0.41	-0.12	0.00	-0.48	0.00	0.48	989.69	494.84	1007.74	500.29	31.25	-1.828	0.000	0.001
150.00	0.00	-0.11	0.00	-0.11	0.00	0.11	976.44	488.22	972.32	482.70	32.40	-1.828	0.000	0.000

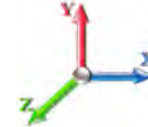
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 21
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.11	<b>Ss</b> 0.16
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.04	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b>	0.01	<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1331.0	0.00	0.03	0.02	18.03	
10.00		1306.6	0.01	0.05	0.03	24.02	
15.00		1282.2	0.02	0.06	0.04	26.41	
20.00		1257.8	0.03	0.07	0.04	27.28	
25.00		1233.3	0.05	0.07	0.04	27.55	
30.00		1208.9	0.08	0.07	0.04	27.67	
35.00		1184.5	0.10	0.07	0.04	27.82	
40.00		1160.1	0.13	0.07	0.03	28.01	
45.00		1135.6	0.17	0.07	0.03	28.11	
46.67	Bot - Section 2	373.13	0.18	0.06	0.03	9.29	
50.00		1398.8	0.21	0.06	0.02	34.99	
53.00	Top - Section 1	1241.5	0.24	0.06	0.02	30.83	
55.00		386.73	0.25	0.05	0.02	9.47	
60.00		951.87	0.30	0.04	0.01	21.37	
65.00		930.50	0.35	0.03	0.01	16.74	
70.00		909.13	0.41	0.01	0.01	9.37	
75.00		887.76	0.47	-0.01	0.01	-0.26	
80.00		866.39	0.54	-0.03	0.01	-10.09	
85.00		845.02	0.61	-0.06	0.02	-17.69	
90.00		823.65	0.68	-0.08	0.03	-22.00	
94.25	Bot - Section 3	683.30	0.75	-0.10	0.04	-19.65	
95.00		179.64	0.76	-0.10	0.04	-5.19	
99.67	Top - Section 2	1101.5	0.83	-0.12	0.06	-30.81	
100.00		26.22	0.84	-0.12	0.07	-0.73	
105.00		387.56	0.93	-0.12	0.10	-9.25	
107.00	Appurtenance(s)	2988.8	0.96	-0.12	0.11	-64.34	
110.00		224.84	1.02	-0.11	0.14	-3.87	
115.00		366.19	1.11	-0.06	0.19	-2.92	
117.00	Appurtenance(s)	3701.2	1.15	-0.04	0.22	-13.06	
120.00	Top - Section 3	212.02	1.21	0.01	0.26	0.83	
125.00		295.88	1.31	0.14	0.35	5.47	
127.00	Appurtenance(s)	1615.7	1.35	0.20	0.39	40.55	
130.00		170.93	1.42	0.32	0.45	6.12	
135.00		277.56	1.53	0.58	0.58	15.54	
137.00	Appurtenance(s)	1800.9	1.58	0.71	0.64	116.83	
140.00		159.94	1.65	0.93	0.73	12.65	
145.00		259.24	1.77	1.39	0.92	27.26	
147.00	Appurtenance(s)	4057.9	1.82	1.61	1.00	472.60	
150.00	Appurtenance(s)	183.95	1.89	1.98	1.14	24.71	
<b>Totals:</b>		<b>39,408.7</b>				<b>889.7</b>	<b>Total Wind: 44,857.6</b>

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

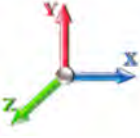
## Calculated Forces

**Structure:** CT01210-S-SBA  
**Site Name:** North Stonington  
**Height:** 150.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** B - Competent Rock  
**Struct Class:** II

4/5/2021  
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<b>Load Case:</b> 1.2D + 1.0E										<b>Iterations</b>	21			
<b>Gust Response Factor</b>		1.10				<b>Sds</b>		0.11			<b>Ss</b>	0.16		
<b>Dead Load Factor</b>		1.20		<b>Seismic Load Factor</b>		1.00		<b>Sd1</b>		0.04		<b>S1</b>	0.06	
<b>Wind Load Factor</b>		0.00		<b>Structure Frequency (f1)</b>		0.31		<b>SA</b>		0.01		<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	-54.76	-1.09	0.00	-123.26	0.00	123.26	5817.07	2908.54	11858.0	5886.84	0.00	0.00	0.00	0.030
5.00	-53.04	-1.08	0.00	-117.80	0.00	117.80	5739.57	2869.78	11485.2	5701.74	0.00	-0.01	-0.01	0.030
10.00	-51.16	-1.06	0.00	-112.40	0.00	112.40	5652.47	2826.24	11099.3	5510.17	0.01	-0.01	-0.01	0.029
15.00	-49.32	-1.04	0.00	-107.09	0.00	107.09	5545.82	2772.91	10682.2	5303.14	0.03	-0.02	-0.02	0.029
20.00	-47.50	-1.02	0.00	-101.88	0.00	101.88	5439.17	2719.58	10273.2	5100.07	0.06	-0.03	-0.03	0.029
25.00	-45.72	-1.00	0.00	-96.78	0.00	96.78	5332.51	2666.26	9872.18	4900.97	0.09	-0.04	-0.04	0.028
30.00	-43.96	-0.97	0.00	-91.80	0.00	91.80	5225.86	2612.93	9479.11	4705.83	0.13	-0.04	-0.04	0.028
35.00	-42.23	-0.95	0.00	-86.93	0.00	86.93	5119.21	2559.60	9094.03	4514.66	0.18	-0.05	-0.05	0.028
40.00	-40.53	-0.93	0.00	-82.18	0.00	82.18	5012.56	2506.28	8716.92	4327.45	0.24	-0.06	-0.06	0.027
45.00	-38.87	-0.90	0.00	-77.56	0.00	77.56	4905.90	2452.95	8347.81	4144.20	0.30	-0.07	-0.07	0.027
46.67	-38.32	-0.89	0.00	-76.06	0.00	76.06	4870.35	2435.18	8226.55	4084.00	0.33	-0.07	-0.07	0.026
50.00	-36.43	-0.86	0.00	-73.09	0.00	73.09	4799.25	2399.63	7986.68	3964.92	0.38	-0.07	-0.07	0.026
53.00	-34.76	-0.83	0.00	-70.52	0.00	70.52	4240.56	2120.28	7137.82	3543.51	0.42	-0.08	-0.08	0.028
55.00	-34.17	-0.82	0.00	-68.86	0.00	68.86	4203.23	2101.62	7012.05	3481.07	0.46	-0.08	-0.08	0.028
60.00	-32.73	-0.80	0.00	-64.76	0.00	64.76	4109.91	2054.96	6702.51	3327.41	0.55	-0.09	-0.09	0.027
65.00	-31.30	-0.79	0.00	-60.76	0.00	60.76	4016.59	2008.29	6399.97	3177.21	0.64	-0.10	-0.10	0.027
70.00	-29.91	-0.78	0.00	-56.83	0.00	56.83	3923.27	1961.63	6104.41	3030.48	0.75	-0.10	-0.10	0.026
75.00	-28.54	-0.78	0.00	-52.94	0.00	52.94	3829.95	1914.97	5815.84	2887.23	0.86	-0.11	-0.11	0.026
80.00	-27.19	-0.78	0.00	-49.04	0.00	49.04	3736.63	1868.31	5534.25	2747.44	0.99	-0.12	-0.12	0.025
85.00	-25.87	-0.78	0.00	-45.13	0.00	45.13	3643.31	1821.65	5259.66	2611.12	1.12	-0.13	-0.13	0.024
90.00	-24.58	-0.78	0.00	-41.22	0.00	41.22	3549.99	1774.99	4992.05	2478.26	1.26	-0.14	-0.14	0.024
94.25	-23.50	-0.78	0.00	-37.90	0.00	37.90	3470.66	1735.33	4770.08	2368.07	1.38	-0.14	-0.14	0.023
95.00	-23.23	-0.78	0.00	-37.31	0.00	37.31	3456.66	1728.33	4731.43	2348.88	1.40	-0.15	-0.15	0.023
99.67	-21.63	-0.78	0.00	-33.66	0.00	33.66	1458.24	729.12	1997.89	991.83	1.55	-0.15	-0.15	0.049
100.00	-21.58	-0.78	0.00	-33.40	0.00	33.40	1456.89	728.44	1992.39	989.11	1.56	-0.15	-0.15	0.049
105.00	-20.80	-0.78	0.00	-29.49	0.00	29.49	1435.99	717.99	1910.05	948.23	1.73	-0.17	-0.17	0.046
107.00	-17.10	-0.77	0.00	-27.92	0.00	27.92	1427.33	713.67	1877.17	931.90	1.80	-0.17	-0.17	0.042
110.00	-16.72	-0.78	0.00	-25.60	0.00	25.60	1414.04	707.02	1827.92	907.46	1.91	-0.18	-0.18	0.040
115.00	-16.11	-0.78	0.00	-21.72	0.00	21.72	1391.05	695.52	1746.12	866.85	2.11	-0.19	-0.19	0.037
117.00	-11.60	-0.76	0.00	-20.16	0.00	20.16	1381.56	690.78	1713.52	850.66	2.19	-0.20	-0.20	0.032
120.00	-11.25	-0.76	0.00	-17.87	0.00	17.87	1367.01	683.50	1664.77	826.46	2.32	-0.20	-0.20	0.030
120.00	-11.25	-0.76	0.00	-17.87	0.00	17.87	1091.99	545.99	1332.66	661.59	2.32	-0.20	-0.20	0.037
125.00	-10.74	-0.76	0.00	-14.06	0.00	14.06	1075.35	537.67	1272.10	631.52	2.54	-0.21	-0.21	0.032
127.00	-8.74	-0.71	0.00	-12.55	0.00	12.55	1068.40	534.20	1247.88	619.50	2.63	-0.22	-0.22	0.028
130.00	-8.45	-0.70	0.00	-10.42	0.00	10.42	1057.66	528.83	1211.58	601.48	2.77	-0.22	-0.22	0.025
135.00	-7.96	-0.69	0.00	-6.91	0.00	6.91	1038.92	519.46	1151.22	571.51	3.01	-0.23	-0.23	0.020
137.00	-5.74	-0.56	0.00	-5.53	0.00	5.53	1031.13	515.57	1127.15	559.57	3.10	-0.23	-0.23	0.015
140.00	-5.51	-0.55	0.00	-3.85	0.00	3.85	1019.14	509.57	1091.15	541.69	3.25	-0.24	-0.24	0.013
145.00	-5.12	-0.52	0.00	-1.11	0.00	1.11	998.31	499.16	1031.47	512.07	3.50	-0.24	-0.24	0.007
147.00	-0.22	-0.03	0.00	-0.08	0.00	0.08	989.69	494.84	1007.74	500.29	3.60	-0.24	-0.24	0.000
150.00	0.00	-0.02	0.00	0.00	0.00	0.00	976.44	488.22	972.32	482.70	3.76	-0.24	-0.24	0.000

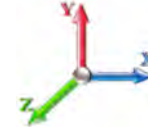
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 21
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.11	<b>Ss</b> 0.16
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.04	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b>	0.01	<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1331.0	0.00	0.03	0.02	18.03	
10.00		1306.6	0.01	0.05	0.03	24.02	
15.00		1282.2	0.02	0.06	0.04	26.41	
20.00		1257.8	0.03	0.07	0.04	27.28	
25.00		1233.3	0.05	0.07	0.04	27.55	
30.00		1208.9	0.08	0.07	0.04	27.67	
35.00		1184.5	0.10	0.07	0.04	27.82	
40.00		1160.1	0.13	0.07	0.03	28.01	
45.00		1135.6	0.17	0.07	0.03	28.11	
46.67	Bot - Section 2	373.13	0.18	0.06	0.03	9.29	
50.00		1398.8	0.21	0.06	0.02	34.99	
53.00	Top - Section 1	1241.5	0.24	0.06	0.02	30.83	
55.00		386.73	0.25	0.05	0.02	9.47	
60.00		951.87	0.30	0.04	0.01	21.37	
65.00		930.50	0.35	0.03	0.01	16.74	
70.00		909.13	0.41	0.01	0.01	9.37	
75.00		887.76	0.47	-0.01	0.01	-0.26	
80.00		866.39	0.54	-0.03	0.01	-10.09	
85.00		845.02	0.61	-0.06	0.02	-17.69	
90.00		823.65	0.68	-0.08	0.03	-22.00	
94.25	Bot - Section 3	683.30	0.75	-0.10	0.04	-19.65	
95.00		179.64	0.76	-0.10	0.04	-5.19	
99.67	Top - Section 2	1101.5	0.83	-0.12	0.06	-30.81	
100.00		26.22	0.84	-0.12	0.07	-0.73	
105.00		387.56	0.93	-0.12	0.10	-9.25	
107.00	Appurtenance(s)	2988.8	0.96	-0.12	0.11	-64.34	
110.00		224.84	1.02	-0.11	0.14	-3.87	
115.00		366.19	1.11	-0.06	0.19	-2.92	
117.00	Appurtenance(s)	3701.2	1.15	-0.04	0.22	-13.06	
120.00	Top - Section 3	212.02	1.21	0.01	0.26	0.83	
125.00		295.88	1.31	0.14	0.35	5.47	
127.00	Appurtenance(s)	1615.7	1.35	0.20	0.39	40.55	
130.00		170.93	1.42	0.32	0.45	6.12	
135.00		277.56	1.53	0.58	0.58	15.54	
137.00	Appurtenance(s)	1800.9	1.58	0.71	0.64	116.83	
140.00		159.94	1.65	0.93	0.73	12.65	
145.00		259.24	1.77	1.39	0.92	27.26	
147.00	Appurtenance(s)	4057.9	1.82	1.61	1.00	472.60	
150.00	Appurtenance(s)	183.95	1.89	1.98	1.14	24.71	
<b>Totals:</b>		<b>39,408.7</b>				<b>889.7</b>	<b>Total Wind: 44,857.6</b>

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



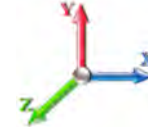
## Calculated Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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> 21
<b>Gust Response Factor</b>	1.10						<b>Sds</b>	0.11		<b>Ss</b> 0.16
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.04					<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b>	0.01	<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	-41.07	-1.09	0.00	-121.67	0.00	121.67	5817.07	2908.54	11858.0	5886.84	0.00	0.00	0.00	0.028
5.00	-39.78	-1.08	0.00	-116.21	0.00	116.21	5739.57	2869.78	11485.2	5701.74	0.00	-0.01	-0.01	0.027
10.00	-38.37	-1.06	0.00	-110.82	0.00	110.82	5652.47	2826.24	11099.3	5510.17	0.01	-0.01	-0.01	0.027
15.00	-36.99	-1.04	0.00	-105.53	0.00	105.53	5545.82	2772.91	10682.2	5303.14	0.03	-0.02	-0.02	0.027
20.00	-35.63	-1.01	0.00	-100.35	0.00	100.35	5439.17	2719.58	10273.2	5100.07	0.06	-0.03	-0.03	0.026
25.00	-34.29	-0.99	0.00	-95.29	0.00	95.29	5332.51	2666.26	9872.18	4900.97	0.09	-0.04	-0.04	0.026
30.00	-32.97	-0.96	0.00	-90.34	0.00	90.34	5225.86	2612.93	9479.11	4705.83	0.13	-0.04	-0.04	0.026
35.00	-31.67	-0.94	0.00	-85.52	0.00	85.52	5119.21	2559.60	9094.03	4514.66	0.18	-0.05	-0.05	0.025
40.00	-30.40	-0.91	0.00	-80.83	0.00	80.83	5012.56	2506.28	8716.92	4327.45	0.24	-0.06	-0.06	0.025
45.00	-29.15	-0.89	0.00	-76.26	0.00	76.26	4905.90	2452.95	8347.81	4144.20	0.30	-0.06	-0.06	0.024
46.67	-28.74	-0.88	0.00	-74.78	0.00	74.78	4870.35	2435.18	8226.55	4084.00	0.32	-0.07	-0.07	0.024
50.00	-27.32	-0.84	0.00	-71.85	0.00	71.85	4799.25	2399.63	7986.68	3964.92	0.37	-0.07	-0.07	0.024
53.00	-26.07	-0.81	0.00	-69.31	0.00	69.31	4240.56	2120.28	7137.82	3543.51	0.42	-0.08	-0.08	0.026
55.00	-25.63	-0.81	0.00	-67.69	0.00	67.69	4203.23	2101.62	7012.05	3481.07	0.45	-0.08	-0.08	0.026
60.00	-24.54	-0.79	0.00	-63.65	0.00	63.65	4109.91	2054.96	6702.51	3327.41	0.54	-0.09	-0.09	0.025
65.00	-23.48	-0.77	0.00	-59.72	0.00	59.72	4016.59	2008.29	6399.97	3177.21	0.63	-0.10	-0.10	0.025
70.00	-22.43	-0.76	0.00	-55.86	0.00	55.86	3923.27	1961.63	6104.41	3030.48	0.74	-0.10	-0.10	0.024
75.00	-21.40	-0.76	0.00	-52.04	0.00	52.04	3829.95	1914.97	5815.84	2887.23	0.85	-0.11	-0.11	0.024
80.00	-20.39	-0.77	0.00	-48.22	0.00	48.22	3736.63	1868.31	5534.25	2747.44	0.97	-0.12	-0.12	0.023
85.00	-19.40	-0.77	0.00	-44.39	0.00	44.39	3643.31	1821.65	5259.66	2611.12	1.10	-0.13	-0.13	0.022
90.00	-18.43	-0.77	0.00	-40.56	0.00	40.56	3549.99	1774.99	4992.05	2478.26	1.24	-0.14	-0.14	0.022
94.25	-17.62	-0.77	0.00	-37.30	0.00	37.30	3470.66	1735.33	4770.08	2368.07	1.36	-0.14	-0.14	0.021
95.00	-17.43	-0.77	0.00	-36.73	0.00	36.73	3456.66	1728.33	4731.43	2348.88	1.38	-0.14	-0.14	0.021
99.67	-16.22	-0.76	0.00	-33.15	0.00	33.15	1458.24	729.12	1997.89	991.83	1.53	-0.15	-0.15	0.045
100.00	-16.18	-0.77	0.00	-32.89	0.00	32.89	1456.89	728.44	1992.39	989.11	1.54	-0.15	-0.15	0.044
105.00	-15.60	-0.77	0.00	-29.06	0.00	29.06	1435.99	717.99	1910.05	948.23	1.70	-0.16	-0.16	0.042
107.00	-12.82	-0.76	0.00	-27.53	0.00	27.53	1427.33	713.67	1877.17	931.90	1.77	-0.17	-0.17	0.039
110.00	-12.54	-0.76	0.00	-25.24	0.00	25.24	1414.04	707.02	1827.92	907.46	1.88	-0.18	-0.18	0.037
115.00	-12.08	-0.76	0.00	-21.43	0.00	21.43	1391.05	695.52	1746.12	866.85	2.07	-0.19	-0.19	0.033
117.00	-8.70	-0.75	0.00	-19.91	0.00	19.91	1381.56	690.78	1713.52	850.66	2.15	-0.19	-0.19	0.030
120.00	-8.44	-0.75	0.00	-17.65	0.00	17.65	1367.01	683.50	1664.77	826.46	2.28	-0.20	-0.20	0.028
120.00	-8.44	-0.75	0.00	-17.65	0.00	17.65	1091.99	545.99	1332.66	661.59	2.28	-0.20	-0.20	0.034
125.00	-8.06	-0.75	0.00	-13.89	0.00	13.89	1075.35	537.67	1272.10	631.52	2.50	-0.21	-0.21	0.029
127.00	-6.56	-0.70	0.00	-12.40	0.00	12.40	1068.40	534.20	1247.88	619.50	2.59	-0.22	-0.22	0.026
130.00	-6.34	-0.69	0.00	-10.30	0.00	10.30	1057.66	528.83	1211.58	601.48	2.72	-0.22	-0.22	0.023
135.00	-5.97	-0.68	0.00	-6.83	0.00	6.83	1038.92	519.46	1151.22	571.51	2.96	-0.23	-0.23	0.018
137.00	-4.31	-0.55	0.00	-5.47	0.00	5.47	1031.13	515.57	1127.15	559.57	3.06	-0.23	-0.23	0.014
140.00	-4.13	-0.54	0.00	-3.81	0.00	3.81	1019.14	509.57	1091.15	541.69	3.20	-0.23	-0.23	0.011
145.00	-3.84	-0.51	0.00	-1.10	0.00	1.10	998.31	499.16	1031.47	512.07	3.45	-0.24	-0.24	0.006
147.00	-0.17	-0.03	0.00	-0.08	0.00	0.08	989.69	494.84	1007.74	500.29	3.55	-0.24	-0.24	0.000
150.00	0.00	-0.02	0.00	0.00	0.00	0.00	976.44	488.22	972.32	482.70	3.70	-0.24	-0.24	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.0D + 1.0W 60 mph Wind	<b>Iterations</b> 23
<b>Dead Load Factor</b> 1.00	
<b>Wind Load Factor</b> 1.00	

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	235.00	0.750	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	230.77	0.750	0.000	5.00	21.050	15.79	129.2	0.0	1331.1
10.00		1.00	0.85	7.442	8.19	226.54	0.750	0.000	5.00	20.668	15.50	126.9	0.0	1306.7
15.00		1.00	0.85	7.442	8.19	222.31	0.750	0.000	5.00	20.286	15.21	124.5	0.0	1282.2
20.00		1.00	0.90	7.896	8.69	224.64	0.750	0.000	5.00	19.903	14.93	129.7	0.0	1257.8
25.00		1.00	0.95	8.276	9.10	225.52	0.750	0.000	5.00	19.521	14.64	133.3	0.0	1233.4
30.00		1.00	0.98	8.600	9.46	225.34	0.750	0.000	5.00	19.139	14.35	135.8	0.0	1209.0
35.00		1.00	1.01	8.883	9.77	224.41	0.750	0.000	5.00	18.756	14.07	137.5	0.0	1184.5
40.00		1.00	1.04	9.137	10.05	222.90	0.750	0.000	5.00	18.374	13.78	138.5	0.0	1160.1
45.00		1.00	1.07	9.366	10.30	220.93	0.750	0.000	5.00	17.991	13.49	139.0	0.0	1135.7
46.67	Bot - Section 2	1.00	1.08	9.438	10.38	220.19	0.750	0.000	1.67	5.912	4.43	46.0	0.0	373.1
50.00		1.00	1.09	9.576	10.53	218.60	0.750	0.000	3.33	11.945	8.96	94.4	0.0	1398.8
53.00	Top - Section 1	1.00	1.11	9.694	10.66	217.04	0.750	0.000	3.00	10.605	7.95	84.8	0.0	1241.5
55.00		1.00	1.12	9.770	10.75	220.67	0.750	0.000	2.00	6.994	5.25	56.4	0.0	386.7
60.00		1.00	1.14	9.951	10.95	217.80	0.750	0.000	5.00	17.216	12.91	141.3	0.0	951.9
65.00		1.00	1.16	10.120	11.13	214.71	0.750	0.000	5.00	16.834	12.63	140.5	0.0	930.5
70.00		1.00	1.17	10.279	11.31	211.42	0.750	0.000	5.00	16.451	12.34	139.5	0.0	909.1
75.00		1.00	1.19	10.430	11.47	207.96	0.750	0.000	5.00	16.069	12.05	138.3	0.0	887.8
80.00		1.00	1.21	10.572	11.63	204.33	0.750	0.000	5.00	15.687	11.77	136.8	0.0	866.4
85.00		1.00	1.22	10.708	11.78	200.57	0.750	0.000	5.00	15.304	11.48	135.2	0.0	845.0
90.00		1.00	1.24	10.838	11.92	196.67	0.750	0.000	5.00	14.922	11.19	133.4	0.0	823.6
94.25	Bot - Section 3	1.00	1.25	10.943	12.04	193.27	0.750	0.000	4.25	12.383	9.29	111.8	0.0	683.3
95.00		1.00	1.25	10.962	12.06	192.66	0.750	0.000	0.75	2.184	1.64	19.8	0.0	179.6
99.67	Top - Section 2	1.00	1.26	11.073	12.18	188.82	0.750	0.000	4.67	13.399	10.05	122.4	0.0	1101.5
100.00		1.00	1.27	11.081	12.19	191.05	0.750	0.000	0.33	0.944	0.71	8.6	0.0	26.2
105.00		1.00	1.28	11.195	12.31	186.85	0.750	0.000	5.00	13.961	10.47	128.9	0.0	387.6
107.00	Appurtenance(s)	1.00	1.28	11.240	12.36	185.14	0.750	0.000	2.00	5.477	4.11	50.8	0.0	152.0
110.00		1.00	1.29	11.305	12.44	182.55	0.750	0.000	3.00	8.101	6.08	75.6	0.0	224.8
115.00		1.00	1.30	11.412	12.55	178.17	0.750	0.000	5.00	13.196	9.90	124.2	0.0	366.2
117.00	Appurtenance(s)	1.00	1.31	11.453	12.60	176.39	0.750	0.000	2.00	5.171	3.88	48.9	0.0	143.5
120.00	Top - Section 3	1.00	1.32	11.514	12.67	173.71	0.750	0.000	3.00	7.642	5.73	72.6	0.0	212.0
125.00		1.00	1.33	11.614	12.78	169.17	0.750	0.000	5.00	12.431	9.32	119.1	0.0	295.9
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	167.34	0.750	0.000	2.00	4.866	3.65	46.8	0.0	115.8
130.00		1.00	1.34	11.710	12.88	164.56	0.750	0.000	3.00	7.184	5.39	69.4	0.0	170.9
135.00		1.00	1.35	11.803	12.98	159.89	0.750	0.000	5.00	11.667	8.75	113.6	0.0	277.6
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	158.00	0.750	0.000	2.00	4.560	3.42	44.5	0.0	108.5
140.00		1.00	1.36	11.894	13.08	155.16	0.750	0.000	3.00	6.725	5.04	66.0	0.0	159.9
145.00		1.00	1.37	11.982	13.18	150.36	0.750	0.000	5.00	10.902	8.18	107.8	0.0	259.2
147.00	Appurtenance(s)	1.00	1.37	12.017	13.22	148.43	0.750	0.000	2.00	4.254	3.19	42.2	0.0	101.1
150.00	Appurtenance(s)	1.00	1.38	12.068	13.27	145.51	0.750	0.000	3.00	6.266	4.70	62.4	0.0	148.9
<b>Totals:</b>								<b>150.00</b>			<b>3,876.4</b>	<b>25,829.7</b>		

## Discrete Appurtenance Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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** 23

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	150.00	Lightning Rod	1	12.127	13.340	1.00	1.00	1.05	35.00	0.000	3.500	14.01	0.00	49.02
2	147.00	Ericsson 4449 B71 + B85	3	12.017	13.219	0.50	0.75	2.94	225.00	0.000	0.000	38.86	0.00	0.00
3	147.00	Ericsson Air 21 B2A/B4P	3	12.017	13.219	0.64	0.75	11.55	274.50	0.000	0.000	152.69	0.00	0.00
4	147.00	Ericsson Air 21 B4A/B2P	3	12.017	13.219	0.64	0.75	11.55	270.90	0.000	0.000	152.69	0.00	0.00
5	147.00	Ericsson KRY 112 144/1	3	12.017	13.219	0.45	0.75	0.47	33.00	0.000	0.000	6.25	0.00	0.00
6	147.00	RFS	3	12.017	13.219	0.54	0.75	32.79	368.40	0.000	0.000	433.42	0.00	0.00
7	147.00	Platform w/ Hand Rail	1	12.017	13.219	1.00	1.00	40.00	2000.00	0.000	0.000	528.75	0.00	0.00
8	147.00	Tie Back Kit (Commscope)	1	12.017	13.219	1.00	1.00	4.17	123.10	0.000	0.000	55.12	0.00	0.00
9	147.00	Rreinforcement Kit	1	12.017	13.219	1.00	1.00	9.50	464.91	0.000	0.000	125.58	0.00	0.00
10	147.00	V-Brace Kit (Sitepro)	1	12.017	13.219	1.00	1.00	6.30	197.00	0.000	0.000	83.28	0.00	0.00
11	137.00	Low Profile Platform	1	11.840	13.024	1.00	1.00	22.00	1500.00	0.000	0.000	286.53	0.00	0.00
12	137.00	Cleargain 850/1900 TMA's	2	11.840	13.024	0.48	0.80	0.50	11.00	0.000	0.000	6.50	0.00	0.00
13	137.00	RFS FD9R6004/2C-3L	6	11.840	13.024	0.48	0.80	1.04	18.60	0.000	0.000	13.50	0.00	0.00
14	137.00	Rymsa MGD5-800T2	3	11.840	13.024	0.62	0.80	6.29	46.20	0.000	0.000	81.92	0.00	0.00
15	137.00	Antel LPA-80080/4CF	6	11.840	13.024	0.59	0.80	19.18	72.00	0.000	0.000	249.81	0.00	0.00
16	137.00	Antel BXA-70063/6CF	3	11.840	13.024	0.58	0.80	13.10	44.70	0.000	0.000	170.59	0.00	0.00
17	127.00	Low Profile Platform	1	11.653	12.818	1.00	1.00	22.00	1500.00	0.000	0.000	281.99	0.00	0.00
18	117.00	ALU TD-RRH8x20-25	3	11.453	12.598	0.50	0.75	6.11	210.00	0.000	0.000	76.92	0.00	0.00
19	117.00	ALU 800 Mhz	6	11.453	12.598	0.50	0.75	7.51	318.00	0.000	0.000	94.58	0.00	0.00
20	117.00	ALU 1900 Mhz	3	11.453	12.598	0.50	0.75	4.18	180.00	0.000	0.000	52.61	0.00	0.00
21	117.00	Commscope	3	11.514	12.666	0.60	0.75	22.09	232.20	0.000	3.000	279.74	0.00	839.21
22	117.00	RFS APXVTM14-C-I20	3	11.453	12.598	0.58	0.75	10.98	168.60	0.000	0.000	138.38	0.00	0.00
23	117.00	Sitepro RMQP-496-HK	1	11.453	12.598	1.00	1.00	46.00	2449.00	0.000	0.000	579.53	0.00	0.00
24	107.00	Low Profile Platform	1	11.240	12.364	1.00	1.00	22.00	1500.00	0.000	0.000	272.00	0.00	0.00
25	107.00	Cci DMP65R-BU8DA	6	11.240	12.364	0.75	0.75	60.70	234.00	0.000	0.000	750.54	0.00	0.00
26	107.00	Raycap DC6-48-60-18-8F	1	11.240	12.364	0.50	0.75	0.46	31.80	0.000	0.000	5.72	0.00	0.00
27	107.00	Powerwave/LGP21401	6	11.240	12.364	0.45	0.75	0.73	33.00	0.000	0.000	9.01	0.00	0.00
28	107.00	Powerwave 7770	3	11.240	12.364	0.55	0.75	9.03	105.00	0.000	0.000	111.69	0.00	0.00
29	107.00	Raycap	1	11.240	12.364	0.50	0.75	2.40	16.00	0.000	0.000	29.70	0.00	0.00
30	107.00	Ericsson 4449 B5/B12	3	11.240	12.364	0.50	0.75	2.49	210.00	0.000	0.000	30.75	0.00	0.00
31	107.00	Ericsson RRUS 4478 B14	3	11.240	12.364	0.50	0.75	2.77	179.70	0.000	0.000	34.29	0.00	0.00
32	107.00	Ericsson 8843 B2 B66A	3	11.240	12.364	0.50	0.75	2.49	225.00	0.000	0.000	30.75	0.00	0.00
33	107.00	Site Pro HRK14	1	11.240	12.364	1.00	1.00	8.13	302.36	0.000	0.000	100.52	0.00	0.00
<b>Totals:</b>								<b>13,578.97</b>			<b>5,278.22</b>			

## Total Applied Force Summary

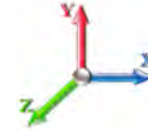
<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> 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** 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		129.24	1432.99	0.00	0.00
10.00		126.89	1561.43	0.00	0.00
15.00		124.55	1537.01	0.00	0.00
20.00		129.66	1512.59	0.00	0.00
25.00		133.28	1488.16	0.00	0.00
30.00		135.79	1463.74	0.00	0.00
35.00		137.46	1439.31	0.00	0.00
40.00		138.50	1414.89	0.00	0.00
45.00		139.02	1390.47	0.00	0.00
46.67		46.04	458.06	0.00	0.00
50.00		94.37	1568.68	0.00	0.00
53.00		84.82	1394.41	0.00	0.00
55.00		56.37	488.65	0.00	0.00
60.00		141.34	1206.65	0.00	0.00
65.00		140.55	1185.28	0.00	0.00
70.00		139.51	1163.91	0.00	0.00
75.00		138.26	1142.54	0.00	0.00
80.00		136.82	1121.17	0.00	0.00
85.00		135.20	1099.80	0.00	0.00
90.00		133.42	1078.43	0.00	0.00
94.25		111.80	899.86	0.00	0.00
95.00		19.75	217.85	0.00	0.00
99.67		122.40	1339.33	0.00	0.00
100.00		8.63	43.20	0.00	0.00
105.00		128.94	642.34	0.00	0.00
107.00	(28) attachments	1425.76	3090.80	0.00	0.00
110.00		75.56	311.89	0.00	0.00
115.00		124.24	511.27	0.00	0.00
117.00	(19) attachments	1270.62	3759.32	0.00	839.21
120.00		72.60	287.62	0.00	0.00
125.00		119.11	421.88	0.00	0.00
127.00	(1) attachments	328.77	1666.19	0.00	0.00
130.00		69.40	246.53	0.00	0.00
135.00		113.61	403.56	0.00	0.00
137.00	(21) attachments	853.39	1851.36	0.00	0.00
140.00		65.99	198.10	0.00	0.00
145.00		107.77	322.84	0.00	0.00
147.00	(19) attachments	1618.81	4083.38	0.00	0.00
150.00	(1) attachments	76.39	183.95	0.00	49.02
Totals:		9,154.61	45,629.44	0.00	888.23

## Calculated Forces

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

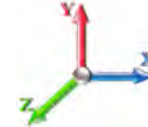


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 23

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



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.62	-9.18	0.00	-999.75	0.00	999.75	5817.07	2908.54	11858.0	5886.84	0.00	0.000	0.000	0.178
5.00	-44.18	-9.09	0.00	-953.86	0.00	953.86	5739.57	2869.78	11485.2	5701.74	0.03	-0.057	0.000	0.175
10.00	-42.61	-9.00	0.00	-908.41	0.00	908.41	5652.47	2826.24	11099.3	5510.17	0.12	-0.114	0.000	0.172
15.00	-41.07	-8.92	0.00	-863.38	0.00	863.38	5545.82	2772.91	10682.2	5303.14	0.27	-0.172	0.000	0.170
20.00	-39.55	-8.82	0.00	-818.80	0.00	818.80	5439.17	2719.58	10273.2	5100.07	0.48	-0.230	0.000	0.168
25.00	-38.05	-8.72	0.00	-774.68	0.00	774.68	5332.51	2666.26	9872.18	4900.97	0.75	-0.288	0.000	0.165
30.00	-36.58	-8.61	0.00	-731.08	0.00	731.08	5225.86	2612.93	9479.11	4705.83	1.09	-0.346	0.000	0.162
35.00	-35.13	-8.50	0.00	-688.00	0.00	688.00	5119.21	2559.60	9094.03	4514.66	1.48	-0.405	0.000	0.159
40.00	-33.71	-8.39	0.00	-645.48	0.00	645.48	5012.56	2506.28	8716.92	4327.45	1.94	-0.463	0.000	0.156
45.00	-32.31	-8.26	0.00	-603.54	0.00	603.54	4905.90	2452.95	8347.81	4144.20	2.45	-0.521	0.000	0.152
46.67	-31.85	-8.23	0.00	-589.77	0.00	589.77	4870.35	2435.18	8226.55	4084.00	2.64	-0.541	0.000	0.151
50.00	-30.28	-8.14	0.00	-562.36	0.00	562.36	4799.25	2399.63	7986.68	3964.92	3.03	-0.580	0.000	0.148
53.00	-28.88	-8.05	0.00	-537.95	0.00	537.95	4240.56	2120.28	7137.82	3543.51	3.40	-0.615	0.000	0.159
55.00	-28.39	-8.01	0.00	-521.85	0.00	521.85	4203.23	2101.62	7012.05	3481.07	3.67	-0.639	0.000	0.157
60.00	-27.17	-7.88	0.00	-481.79	0.00	481.79	4109.91	2054.96	6702.51	3327.41	4.37	-0.699	0.000	0.151
65.00	-25.98	-7.75	0.00	-442.38	0.00	442.38	4016.59	2008.29	6399.97	3177.21	5.13	-0.759	0.000	0.146
70.00	-24.81	-7.62	0.00	-403.60	0.00	403.60	3923.27	1961.63	6104.41	3030.48	5.96	-0.818	0.000	0.140
75.00	-23.67	-7.49	0.00	-365.48	0.00	365.48	3829.95	1914.97	5815.84	2887.23	6.85	-0.875	0.000	0.133
80.00	-22.54	-7.36	0.00	-328.02	0.00	328.02	3736.63	1868.31	5534.25	2747.44	7.79	-0.931	0.000	0.125
85.00	-21.44	-7.23	0.00	-291.22	0.00	291.22	3643.31	1821.65	5259.66	2611.12	8.80	-0.984	0.000	0.117
90.00	-20.35	-7.09	0.00	-255.09	0.00	255.09	3549.99	1774.99	4992.05	2478.26	9.86	-1.035	0.000	0.109
94.25	-19.45	-6.97	0.00	-224.96	0.00	224.96	3470.66	1735.33	4770.08	2368.07	10.80	-1.076	0.000	0.101
95.00	-19.23	-6.95	0.00	-219.73	0.00	219.73	3456.66	1728.33	4731.43	2348.88	10.97	-1.083	0.000	0.099
99.67	-17.89	-6.81	0.00	-187.28	0.00	187.28	1458.24	729.12	1997.89	991.83	12.05	-1.124	0.000	0.201
100.00	-17.85	-6.82	0.00	-185.01	0.00	185.01	1456.89	728.44	1992.39	989.11	12.13	-1.127	0.000	0.199
105.00	-17.20	-6.69	0.00	-150.94	0.00	150.94	1435.99	717.99	1910.05	948.23	13.35	-1.202	0.000	0.171
107.00	-14.14	-5.21	0.00	-137.56	0.00	137.56	1427.33	713.67	1877.17	931.90	13.86	-1.230	0.000	0.158
110.00	-13.82	-5.14	0.00	-121.94	0.00	121.94	1414.04	707.02	1827.92	907.46	14.64	-1.269	0.000	0.144
115.00	-13.31	-5.01	0.00	-96.27	0.00	96.27	1391.05	695.52	1746.12	866.85	16.00	-1.326	0.000	0.121
117.00	-9.58	-3.65	0.00	-85.41	0.00	85.41	1381.56	690.78	1713.52	850.66	16.56	-1.347	0.000	0.107
120.00	-9.29	-3.58	0.00	-74.45	0.00	74.45	1367.01	683.50	1664.77	826.46	17.42	-1.376	0.000	0.097
120.00	-9.29	-3.58	0.00	-74.45	0.00	74.45	1091.99	545.99	1332.66	661.59	17.42	-1.376	0.000	0.121
125.00	-8.87	-3.46	0.00	-56.55	0.00	56.55	1075.35	537.67	1272.10	631.52	18.88	-1.417	0.000	0.098
127.00	-7.21	-3.09	0.00	-49.64	0.00	49.64	1068.40	534.20	1247.88	619.50	19.48	-1.434	0.000	0.087
130.00	-6.97	-3.02	0.00	-40.37	0.00	40.37	1057.66	528.83	1211.58	601.48	20.39	-1.457	0.000	0.074
135.00	-6.57	-2.89	0.00	-25.29	0.00	25.29	1038.92	519.46	1151.22	571.51	21.93	-1.486	0.000	0.051
137.00	-4.74	-1.99	0.00	-19.50	0.00	19.50	1031.13	515.57	1127.15	559.57	22.56	-1.494	0.000	0.039
140.00	-4.54	-1.92	0.00	-13.52	0.00	13.52	1019.14	509.57	1091.15	541.69	23.50	-1.505	0.000	0.029
145.00	-4.22	-1.81	0.00	-3.91	0.00	3.91	998.31	499.16	1031.47	512.07	25.08	-1.514	0.000	0.012
147.00	-0.18	-0.08	0.00	-0.29	0.00	0.29	989.69	494.84	1007.74	500.29	25.72	-1.515	0.000	0.001
150.00	0.00	-0.08	0.00	-0.05	0.00	0.05	976.44	488.22	972.32	482.70	26.67	-1.515	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT01210-S-SBA	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<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 105 mph Wind	45.0	0.00	54.64	0.00	0.00	4926.72
0.9D + 1.6W 105 mph Wind	45.0	0.00	40.96	0.00	0.00	4868.04
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.8	0.00	82.07	0.00	0.00	1214.58
1.2D + 1.0E	1.1	0.00	54.76	0.00	0.00	123.26
0.9D + 1.0E	1.1	0.00	41.07	0.00	0.00	121.67
1.0D + 1.0W 60 mph Wind	9.2	0.00	45.62	0.00	0.00	999.75

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-18.46	-33.60	0.00	-923.49	0.00	-923.49	1458.24	729.12	1997.89	991.83	99.67	0.946
0.9D + 1.6W 105 mph Wind	-13.13	-33.05	0.00	-906.45	0.00	-906.45	1458.24	729.12	1997.89	991.83	99.67	0.925
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-40.56	-8.55	0.00	-223.14	0.00	-223.14	1458.24	729.12	1997.89	991.83	99.67	0.253
1.2D + 1.0E	-21.63	-0.78	0.00	-33.66	0.00	-33.66	1458.24	729.12	1997.89	991.83	99.67	0.049
0.9D + 1.0E	-16.22	-0.76	0.00	-33.15	0.00	-33.15	1458.24	729.12	1997.89	991.83	99.67	0.045
1.0D + 1.0W 60 mph Wind	-17.89	-6.81	0.00	-187.28	0.00	-187.28	1458.24	729.12	1997.89	991.83	99.67	0.201

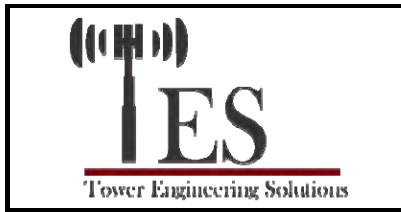
## Base Plate Summary

<b>Structure:</b> CT01210-S-SB	<b>Code:</b> EIA/TIA-222-G	4/5/2021
<b>Site Name:</b> North Stonington	<b>Exposure:</b> C	
<b>Height:</b> 150.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> B - Competent Rock	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 60.00	<b>Bolt Circle:</b> 58.26
<b>Moment (kip-ft):</b> 4272.00	<b>Width (in):</b> 64.26	<b>Number Bolts:</b> 20.00
<b>Axial (kip):</b> 55.10	<b>Style:</b> Polygon	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 28.10	<b>Polygon Sides:</b> 16.00	<b>Bolt Diameter (in):</b> 2.25
Analysis (1.2D + 1.6W)	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 4926.72	<b>Effective Len (in):</b> 12.35	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 54.64	<b>Moment (kip-in):</b> 855.15	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 44.99	<b>Allow Stress (ksi):</b> 81.00	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 55.08	<b>Start Angle (deg):</b> 0.00
	<b>Stress Ratio:</b> 0.68	Compression
		<b>Force (kip):</b> 207.06
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.81
		Tension
		<b>Force (kip):</b> 198.85
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.78



Monopole Mat Foundation Design			Date
Customer Name:	SBA Comunication Corp	EIA/TIA Standard:	EIA-222-G
Site Name:	North Stonington	Structure Height (Ft.):	150
Site Number:	104537	Engineer Name:	W. Velez
Engr. Number:		Engineer Login ID:	

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

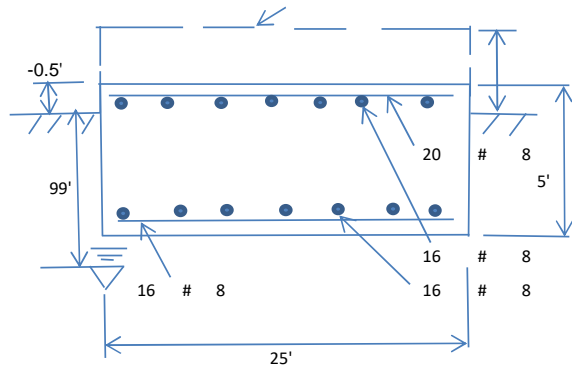
**Base Reactions (Factored):**

Axial Load (Kips):	54.6	Shear Force (Kips):	45.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4926.7

Allowable overstress %: 5.0%

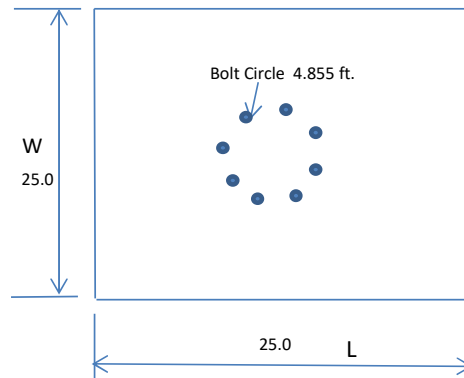
**Foundation Geometries:**

Anchor Bolt Circle (ft.):	4.86	Depth of Base BG (ft.):	5.50
Thickness of Pad (ft.):	5.00	Width of Pad (ft.):	25
Length of Pad (ft.):	25	Final Length of pad (ft):	25.0
		Final width of pad (ft):	25.0



**Material Properties and Reabr Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	12.0	
Pad Steel Rebar Size (#):	8	Unit Weight of Concrete:	150.0	pcf
Concrete Cover (in.):	3			
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	20	Qty. of Rebar in Pad (W):	20	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	16	Qty. of Rebar in Pad (W):	16	



Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

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):	18000	Ultimate Skin Friction:		Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	301.24	Total Dry Soil Weight (Kips):	30.12
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	30.12	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3125.00	Total Dry Concrete Weight (Kips):	468.75
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	468.75	Total Vertical Load on Base (Kips):	553.51

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	4053	<	Allowable Factored Soil Bearing (psf):	13500	0.30	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	6295.3	>	Design Factored Momont (kips-ft):	5044	0.80	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.25					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

**Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):	1392.6	>	One-Way Factored Shear (L-D. Kips):	284.5	0.20	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1392.6	>	One-Way Factored Shear (W-D., Kips):	284.5	0.20	OK!
One-Way Design Shear Capacity (Corner-Corner, Kips):	1671.1	>	One-Way Factored Shear (C-C, Kips):	687.0	0.41	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0009	OK!	Lower Steel Pad Reinf. Ratio (W-Direct	0.0009		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3973.1	>	Moment at Bottom ( L-Direct. K-Ft):	727.5	0.18	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3973.1	>	Moment at Bottom ( W-Direct. K-Ft):	727.5	0.18	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5607.7	>	Moment at Bottom ( C-C Dir. K-Ft):	1028.8	0.18	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0007	OK!	Upper Steel Reinf. Ratio (W-Direct. ):	0.0007		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3185.5	>	Moment at the top (L-Dir Kips-Ft):	289.7	0.09	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3185.5	>	Moment at the top (W-Dir Kips-Ft):	289.7	0.09	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4497.9	>	Moment at the top (C-C Direc. K-Ft):	721.2	0.16	OK!

# EXHIBIT 8

## Antenna Mount Structural Analysis



Source: SBA Date: 4.18.2019

SBA Site: CT01210-S North Stonington  
T-Mobile Site Number: CT11312A  
Project: L600 Project

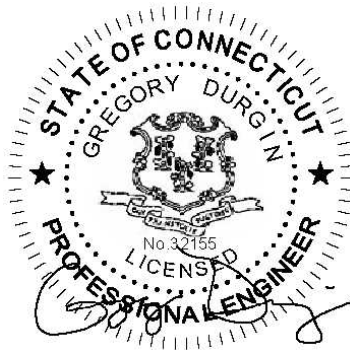
Prepared For: T-Mobile

Mount Description: (1) Platform w/ Handrail  
w/ V-Brace and Kicker Augments

Site Location: 267 Norwich Westerly Rd, North Stonington, CT  
New London County  
41.43711388°, -71.8814667°

Design Codes: ANSI/TIA-222-G  
IBC 2015 w/ 2018 CT Building Code

Analysis Load Case: T-Mobile Final Configuration  
Analysis Result: Adequate @ 64% - **Once Augmented**  
**See Conclusion**



Revision 1  
March 19, 2021

CT11312A\_A and E\_Structural\_L600 03.19.21 - Pass with Augments\_R1

## **1.0 Introduction**

An antenna mount structural analysis has been performed on T-Mobile's existing mount assembly **with augments** located at the CT01210-S North Stonington communications site in New London County, CT considering the final equipment loading configuration listed in Section 3.0.

## **2.0 Analysis Criteria**

An elastic three-dimensional model of the mount structure has been analyzed pursuant to the following criteria considering wind forces in 30° increments:

- 2018 Connecticut State Building Code.
- IBC 2015 - International Building Code.
- ANSI/TIA-222-G - Structural Standard for Antenna Supporting Structures and Antennas.
- AISC - Steel Construction Manual.
- ANSI/AWS D1.1 - Structural Welding Code.

Wind w/o ice = 135 mph (3-sec gust Ultimate Wind Speed)
Wind w/o ice = 105 mph (3-sec gust Basic Wind Speed)
Wind w/ ice = 50 mph (3-sec gust Basic) with 3/4" Design Ice, Escalated with Height
Topographic Category 1; Exposure Category C; Structure Class (Risk Category) II
Gust Effect Factor = 1.0; Directionality Factor = 0.95
Site Class D "Stiff Soil"; $F_a = 1.6$ ; $F_v = 2.4$ ; $S_{DS} = 0.173$
Maintenance Loads**:
$L_m = 500$ lb @ Worst Case Mount Pipe (Concurrent with 30 mph Wind Speed)
$L_v = 250$ lb @ Worst Case Member Location (Center Span or Cantilever)
** The mount face horizontal boom rails of T-Arm mount assemblies are not rated for rigging, hoisting or maintenance loading.

The following documents were provided:

- Mount and Tower Record Documents  
SBA
- Tower Structural Analysis  
FDH, 3/19/14.
- Construction Drawings  
Chappell, L600 Project, Rev-0, 5/13/19.
- Colo Application  
SBA 600 MHz, App # 116563 v1.
- RFDS  
T-Mobile L600 Project, V5.0, CT11312A, 2/3/21.

The results of the analysis are illustrated in Section 4.0. If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

### 3.0 Appurtenance Information

**Table 3.1 – T-Mobile Final Configuration<sup>1,2,3</sup>**

COR	(Quantity) Appurtenance Make/Model	Mount Description
147.0'±	(3) ERICSSON AIR21 B2A/B4P	(1) Platform w/ Handrail w/ V-Brace and Kicker Augments
	(3) RFS APXVAALL24_43-U-NA20	
	(3) ERICSSON AIR21 B2P/B4A	
	(3) ERICSSON 4449 B71+B85 RRH	
	(3) Twin Style 1B AWS TMA	

1. Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.
2. Panel antennas to be installed as follows:
  - 2.1. AIR21 panels to be installed on mount pipes in Positions 1 and 4 similar to existing.
  - 2.2. AALL panels to be installed on mount pipes in Positions 2 similar to existing.
3. RRH/TMA units to be installed as follows:
  - 3.1. TMAs to be installed on mount pipes behind panels in Position 1 similar to existing.
  - 3.2. 4449 RRHs to be installed on mount pipe behind panels in Position 2.

### 4.0 Analysis Results

**Table 4.1 – Augmented Mount Capacity**

Load Case	Governing Mount Component <sup>1</sup>	% Capacity <sup>2</sup>	Result
Final T-Mobile Configuration	New Handrail V-Brace Assembly	9%	<b>Adequate Once Augmented<sup>3</sup></b>
	Bracing	10%	
	Standoff	26%	
	Bottom Rail	43%	
	Pipe2.0STD Mount Pipes	42%	
	New Pipe2.5STD Mount Pipes	64%	
	New PRK Double Angles	57%	
	Connection Plates	43%	

1. Refer to the Calculations & Software Output portion of this report for mount component and structural information.
2. Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.2. 105% is an acceptable allowable stress percentage for mount components.
3. Refer to Section 5.0 for information regarding required mount augments.

**Table 4.2 – Structural Component Material Strengths**

Structural Component	Nominal Strength/Material <sup>1</sup>
Pipe	$F_y = 35$ ksi (A53, Gr. B)
Tube	$F_y = 46$ ksi (A500, Gr. B)
Structural Shapes (L, C, W, etc.), Plate / Bar	$F_y = 36$ ksi (A36)
Uni-Strut	$F_y = 33$ ksi (A570, Gr. 33)
Connection Bolts	A325
Stainless Steel Bolts	18-8 Stainless, Grade 316/304 $F_y = 74$ ksi (Yield) & $F_u = 29$ ksi (Tension)
U-Bolts / Threaded Rod	SAE J429 Grade 2 (Substitution: ASTM A449) $F_y = 57$ ksi (Yield) & $F_u = 74$ ksi (Tension)
Welds	E70XX Electrodes

1. Strengths listed were assumed for this analysis and are based upon ASTM, AISC, RCSC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents when available.

## **5.0 Conclusion & Recommendations**

Based on T-Mobile's final equipment loading configuration, the mount assemblies do not have sufficient capacity to support the loading considered in this analysis pursuant to the listed standards. Structural modifications (augments) will be required and are briefly summarized below:

- Install Platform Reinforcement Kit;
  - Sitepro1 PRK-1245L, (1) total.
- Install V-Brace Kit;
  - Sitepro1 PRK-SFS-L, (1) total.

Once the recommended augments are successfully implemented, the **augmented** mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

### **Augmentation Requirements:**

- Antennas and equipment shall be installed centered vertically on the mount front face bottom rail (limit vertical installation eccentricity) same as existing. This analysis accounts for vertical eccentricities necessary to install all panel antennas at the same relative top tip elevation.
- Panel antennas to be installed as follows:
  - AIR21 panels to be installed on mount pipes in Positions 1 and 4 similar to existing.
  - AARR panels to be installed on mount pipes in Positions 2 similar to existing.
- RRH/TMA units to be installed as follows:
  - TMAs to be installed on mount pipes behind panels in Position 1 similar to existing.
  - 4449 RRHs to be installed on mount pipe behind panels in Position 2.
- In order to obtain a mount structure capable of supporting the currently proposed final loading configuration, upgrade augments must be installed in accordance with GeoStructural's *mount augment CDs and recommendations*.

All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study, nor have they been provided a mount mapping to verify existing conditions and the results of this analysis are based solely on the information provided.

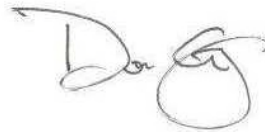
This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

Prepared by:



**Jesse Drennen, PE, MLE**  
208.761.7986  
[jesse.drennen@geostructural.com](mailto:jesse.drennen@geostructural.com)

Reviewed and Approved by:



**Don George, PE, SE, MLSE**  
208.602.6569  
[don.george@geostructural.com](mailto:don.george@geostructural.com)



## **6.0 Standard Conditions**

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.
- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.
- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.
- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.
- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.
- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.
- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.
- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.

## **7.0 Calculations & Software Output**

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**Basic Load Cases**

	BLC Description	Category	Y Gravity	Nodal	Distributed
1	D	DL	-1	24	6
2	Di	SL		24	39
3	Lm [500]	LL		1	
4	Lv [250]	LL		2	
5	Woz	WL		24	45
6	Wox	WL		24	45
7	Wiz	WL		24	45
8	Wix	WL		24	45
9	Ez	EL		24	
10	Ex	EL		24	

**Load Combination Design**

	Description	Service	Hot Rolled	Cold Formed	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
1	1) 1.4D		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2) 1.2D+1.0Wo [0deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2) 1.2D+1.0Wo [30deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2) 1.2D+1.0Wo [60deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2) 1.2D+1.0Wo [90deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	2) 1.2D+1.0Wo [120deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	2) 1.2D+1.0Wo [150deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	2) 1.2D+1.0Wo [180deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	2) 1.2D+1.0Wo [210deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	2) 1.2D+1.0Wo [240deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	2) 1.2D+1.0Wo [270deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	2) 1.2D+1.0Wo [300deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	2) 1.2D+1.0Wo [330deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	3) 0.9D+1.0Wo [0deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	3) 0.9D+1.0Wo [30deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	3) 0.9D+1.0Wo [60deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	3) 0.9D+1.0Wo [90deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	3) 0.9D+1.0Wo [120deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	3) 0.9D+1.0Wo [150deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	3) 0.9D+1.0Wo [180deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	3) 0.9D+1.0Wo [210deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	3) 0.9D+1.0Wo [240deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	3) 0.9D+1.0Wo [270deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	3) 0.9D+1.0Wo [300deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	3) 0.9D+1.0Wo [330deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	4) 1.2D+1.0Di+1.0Wi [0deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	4) 1.2D+1.0Di+1.0Wi [30deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	4) 1.2D+1.0Di+1.0Wi [60deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	4) 1.2D+1.0Di+1.0Wi [90deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	4) 1.2D+1.0Di+1.0Wi [120deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	4) 1.2D+1.0Di+1.0Wi [150deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	4) 1.2D+1.0Di+1.0Wi [180deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	4) 1.2D+1.0Di+1.0Wi [210deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	4) 1.2D+1.0Di+1.0Wi [240deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	4) 1.2D+1.0Di+1.0Wi [270deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	4) 1.2D+1.0Di+1.0Wi [300deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	4) 1.2D+1.0Di+1.0Wi [330deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	5) 1.2D+1.5Lm+1.0WL [0deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	5) 1.2D+1.5Lm+1.0WL [30deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	5) 1.2D+1.5Lm+1.0WL [60deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	5) 1.2D+1.5Lm+1.0WL [90deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
42	5) 1.2D+1.5Lm+1.0WL [120deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	5) 1.2D+1.5Lm+1.0WL [150deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44	5) 1.2D+1.5Lm+1.0WL [180deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	5) 1.2D+1.5Lm+1.0WL [210deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



**Load Combination Design (Continued)**

Description	Service	Hot Rolled	Cold Formed	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
46) 5) 1.2D+1.5Lm+1.0WL [240deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
47) 5) 1.2D+1.5Lm+1.0WL [270deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48) 5) 1.2D+1.5Lm+1.0WL [300deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
49) 5) 1.2D+1.5Lm+1.0WL [330deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50) 6) 1.2D+1.5Lv		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
51) 7) (1.2+0.2Sds)D+E [0deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
52) 7) (1.2+0.2Sds)D+E [30deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
53) 7) (1.2+0.2Sds)D+E [60deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
54) 7) (1.2+0.2Sds)D+E [90deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
55) 7) (1.2+0.2Sds)D+E [120deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
56) 7) (1.2+0.2Sds)D+E [150deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
57) 7) (1.2+0.2Sds)D+E [180deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
58) 7) (1.2+0.2Sds)D+E [210deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
59) 7) (1.2+0.2Sds)D+E [240deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
60) 7) (1.2+0.2Sds)D+E [270deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
61) 7) (1.2+0.2Sds)D+E [300deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62) 7) (1.2+0.2Sds)D+E [330deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63) 8) (0.9-0.2Sds)D+E [0deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64) 8) (0.9-0.2Sds)D+E [30deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65) 8) (0.9-0.2Sds)D+E [60deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66) 8) (0.9-0.2Sds)D+E [90deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
67) 8) (0.9-0.2Sds)D+E [120deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
68) 8) (0.9-0.2Sds)D+E [150deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
69) 8) (0.9-0.2Sds)D+E [180deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
70) 8) (0.9-0.2Sds)D+E [210deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
71) 8) (0.9-0.2Sds)D+E [240deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
72) 8) (0.9-0.2Sds)D+E [270deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
73) 8) (0.9-0.2Sds)D+E [300deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
74) 8) (0.9-0.2Sds)D+E [330deg]		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Hot Rolled Steel Properties**

Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>5</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1 A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2 A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3 A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4 A500 Gr.B RND	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
5 A500 Gr.B Rect	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
6 A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2

**Cold Formed Steel Properties**

Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>5</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Fu [ksi]
1 A653 Gr.33	29500	11346	0.3	0.65	0.49	33	45
2 A570 Gr.33	29500	11346	0.3	0.65	0.49	33	52
3 A607 C1 Gr.55	29500	11346	0.3	0.65	0.49	55	70

**Hot Rolled Steel Section Sets**

Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1 PIPE_1.5	PIPE_1.5	Beam	None	A53 Gr.B	Typical	0.749	0.293	0.293	0.586
2 PIPE_2.0	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3 PIPE_2.5	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
4 PIPE_3.0	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5 PIPE_3.5	PIPE_3.5	Beam	None	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
6 PIPE_4.0	PIPE_4.0	Beam	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
7 PIPE_2.0X	PIPE_2.0X	Beam	None	A53 Gr.B	Typical	1.4	0.827	0.827	1.65
8 HSS2x2x3	HSS2X2X3	Beam	None	A500 Gr.B Rect	Typical	1.19	0.641	0.641	1.09
9 HSS3x3x3	HSS3X3X3	Beam	None	A500 Gr.B Rect	Typical	1.89	2.46	2.46	4.03
10 HSS4x4x3	HSS4X4X3	Beam	None	A500 Gr.B Rect	Typical	2.58	6.21	6.21	10



**Hot Rolled Steel Section Sets (Continued)**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
11	HSS4x4x4	HSS4X4X4	Beam	None	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
12	HSS5x5x4	HSS5X5X4	Beam	None	A500 Gr.B Rect	Typical	4.3	16	16	25.8
13	C3x3.5	C3X3.5	Beam	None	A36 Gr.36	Typical	1.09	0.169	1.57	0.023
14	C4x4.5	C4X4.5_HRA	Beam	None	A36 Gr.36	Typical	1.38	0.289	3.65	0.032
15	C5x6.7	C5X6.7	Beam	None	A36 Gr.36	Typical	1.97	0.47	7.48	0.055
16	L2.5x2.5x3	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
17	L2.5x2.5x4	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	0.692	0.692	0.026
18	L3x3x3	L3X3X3	Beam	None	A36 Gr.36	Typical	1.09	0.948	0.948	0.014
19	L3x3x4	L3X3X4	Beam	None	A36 Gr.36	Typical	1.44	1.23	1.23	0.031
20	L3x3x6	L3X3X6	Beam	None	A36 Gr.36	Typical	2.11	1.75	1.75	0.101
21	L4x4x4	L4X4X4	Beam	None	A36 Gr.36	Typical	1.93	3	3	0.044
22	LL3x3x4x0	LL3x3x4x0	Beam	None	A36 Gr.36	Typical	2.88	4.5	2.46	0.063
23	1/2"x6"	1/2"x6"	Beam	None	A36 Gr.36	Typical	3	0.063	9	0.237
24	1/2"x9"	1/2"x9"	Beam	None	A36 Gr.36	Typical	4.5	0.094	30.375	0.362
25	1/2"x3"	1/2"x3"	Beam	None	A36 Gr.36	Typical	1.5	0.031	1.125	0.112
26	L6x3.5x5	L6X3.5X5	Beam	None	A36 Gr.36	Typical	2.89	2.84	10.9	0.099
27	L5x3.5x4	L5X3.5X4	Beam	None	A36 Gr.36	Typical	2.07	2.2	5.36	0.046
28	LL2.5x2.5x3x3	LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical	1.8	2.46	1.07	0.023

**Cold Formed Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	P1000UNI	P1000UNI	Beam	None	A653 Gr.33	Typical	0.555	0.185	0.236	0.002
2	CF1	1.5CU1.25X035	Beam	None	A570 Gr.33	Typical	0.131	0.022	0.052	5.4e-05

**Member Primary Data**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N2	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
2	M2	N3	N4		RIGID	None	None	RIGID	DR1
3	M3	N7	N8	90	HSS4x4x4	Beam	None	A500 Gr.B Rect	Typical
4	M4	N11	N12	90	HSS4x4x4	Beam	None	A500 Gr.B Rect	Typical
5	M5	N33	N34	90	L5x3.5x4	Beam	None	A36 Gr.36	Typical
6	M6	N15	N16	90	HSS4x4x4	Beam	None	A500 Gr.B Rect	Typical
7	M7	N17	N18		RIGID	None	None	RIGID	DR1
8	M8	N20	N19		RIGID	None	None	RIGID	DR1
9	M9	N21	N22	90	1/2"x9"	Beam	None	A36 Gr.36	Typical
10	M10	N23	N24		RIGID	None	None	RIGID	DR1
11	M11	N25	N26	90	1/2"x9"	Beam	None	A36 Gr.36	Typical
12	M12	N27	N28		RIGID	None	None	RIGID	DR1
13	M13	N29	N30	90	1/2"x9"	Beam	None	A36 Gr.36	Typical
14	M14	N31	N32		RIGID	None	None	RIGID	DR1
15	M15	N14	N34		1/2"x3"	Beam	None	A36 Gr.36	Typical
16	M16	N13	N33		1/2"x3"	Beam	None	A36 Gr.36	Typical
17	M17	N35	N36	90	L5x3.5x4	Beam	None	A36 Gr.36	Typical
18	M18	N6	N36		1/2"x3"	Beam	None	A36 Gr.36	Typical
19	M19	N5	N35		1/2"x3"	Beam	None	A36 Gr.36	Typical
20	M20	N37	N38	90	L5x3.5x4	Beam	None	A36 Gr.36	Typical
21	M21	N9	N38		1/2"x3"	Beam	None	A36 Gr.36	Typical
22	M22	N10	N37		1/2"x3"	Beam	None	A36 Gr.36	Typical
23	M23	N40	N39	180	L6x3.5x5	Beam	None	A36 Gr.36	Typical
24	M24	N41	N43	180	L6x3.5x5	Beam	None	A36 Gr.36	Typical
25	M25	N42	N44	180	L6x3.5x5	Beam	None	A36 Gr.36	Typical
26	M26	N47	N48	180	PIPE_2.5	Beam	None	A53 Gr.B	Typical
27	M27	N49	N50		RIGID	None	None	RIGID	DR1
28	M28	N51	N52		RIGID	None	None	RIGID	DR1
29	M29	N54	N53		RIGID	None	None	RIGID	DR1
30	M30	N57	N58	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
31	M31	N59	N60		RIGID	None	None	RIGID	DR1



**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
32	M32	N61	N62		RIGID	None	None	RIGID	DR1
33	M33	N64	N63		RIGID	None	None	RIGID	DR1
34	M34	N67	N68	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
35	M35	N69	N70		RIGID	None	None	RIGID	DR1
36	M36	N71	N72		RIGID	None	None	RIGID	DR1
37	M37	N74	N73		RIGID	None	None	RIGID	DR1
38	M38	N77	N78	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
39	M39	N79	N80		RIGID	None	None	RIGID	DR1
40	M40	N81	N82		RIGID	None	None	RIGID	DR1
41	M41	N84	N83		RIGID	None	None	RIGID	DR1
42	M42	N87	N88	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
43	M43	N89	N90		RIGID	None	None	RIGID	DR1
44	M44	N91	N92		RIGID	None	None	RIGID	DR1
45	M45	N94	N93		RIGID	None	None	RIGID	DR1
46	M46	N97	N98	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
47	M47	N99	N100		RIGID	None	None	RIGID	DR1
48	M48	N101	N102		RIGID	None	None	RIGID	DR1
49	M49	N104	N103		RIGID	None	None	RIGID	DR1
50	M50	N107	N108	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
51	M51	N109	N110		RIGID	None	None	RIGID	DR1
52	M52	N111	N112		RIGID	None	None	RIGID	DR1
53	M53	N114	N113		RIGID	None	None	RIGID	DR1
54	M54	N117	N118		RIGID	None	None	RIGID	DR1
55	M55	N120	N119	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
56	M56	N121	N123	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
57	M57	N122	N124	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
58	M58	N125	N126		RIGID	None	None	RIGID	DR1
59	M59	N127	N128		RIGID	None	None	RIGID	DR1
60	M60	N129	N130		RIGID	None	None	RIGID	DR1
61	M61	N131	N132		RIGID	None	None	RIGID	DR1
62	M62	N133	N134		RIGID	None	None	RIGID	DR1
63	M63	N135	N136		RIGID	None	None	RIGID	DR1
64	M64	N137	N138		RIGID	None	None	RIGID	DR1
65	M65	N146	N145		LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
66	M66	N154	N156	90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
67	M67	N149	N156	180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
68	M68	N150	N157	90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
69	M69	N151	N157	180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
70	M70	N152	N155	90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
71	M71	N153	N155	180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
72	M72	N139	N149		RIGID	None	None	RIGID	DR1
73	M73	N144	N154		RIGID	None	None	RIGID	DR1
74	M74	N141	N151		RIGID	None	None	RIGID	DR1
75	M75	N140	N150		RIGID	None	None	RIGID	DR1
76	M76	N143	N153		RIGID	None	None	RIGID	DR1
77	M77	N142	N152		RIGID	None	None	RIGID	DR1
78	M78	N164	N158		RIGID	None	None	RIGID	DR1
79	M79	N165	N159		RIGID	None	None	RIGID	DR1
80	M80	N166	N160		RIGID	None	None	RIGID	DR1
81	M81	N167	N161		RIGID	None	None	RIGID	DR1
82	M82	N168	N162		RIGID	None	None	RIGID	DR1
83	M83	N169	N163		RIGID	None	None	RIGID	DR1
84	M84	N169	N164		L3x3x3	Beam	None	A36 Gr.36	Typical
85	M85	N165	N166		L3x3x3	Beam	None	A36 Gr.36	Typical
86	M86	N167	N168		L3x3x3	Beam	None	A36 Gr.36	Typical
87	M87	N170	N171	180	PIPE_2.5	Beam	None	A53 Gr.B	Typical
88	M88	N172	N173		RIGID	None	None	RIGID	DR1
89	M89	N174	N175		RIGID	None	None	RIGID	DR1



**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
90	M90	N177	N176		RIGID	None	None	RIGID	DR1
91	M91	N180	N181	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
92	M92	N182	N183		RIGID	None	None	RIGID	DR1
93	M93	N184	N185		RIGID	None	None	RIGID	DR1
94	M94	N187	N186		RIGID	None	None	RIGID	DR1
95	M95	N190	N191		RIGID	None	None	RIGID	DR1
96	M96	N192	N193		RIGID	None	None	RIGID	DR1
97	M97	N194	N195	180	PIPE_2.5	Beam	None	A53 Gr.B	Typical
98	M98	N196	N197		RIGID	None	None	RIGID	DR1
99	M99	N198	N199		RIGID	None	None	RIGID	DR1
100	M100	N201	N200		RIGID	None	None	RIGID	DR1
101	M101	N204	N205	180	PIPE_2.0	Beam	None	A53 Gr.B	Typical
102	M102	N206	N207		RIGID	None	None	RIGID	DR1
103	M103	N208	N209		RIGID	None	None	RIGID	DR1
104	M104	N211	N210		RIGID	None	None	RIGID	DR1
105	M105	N214	N215		RIGID	None	None	RIGID	DR1
106	M106	N216	N217		RIGID	None	None	RIGID	DR1
107	M107	N218	N147		LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
108	M108	N219	N148		LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical

**Envelope Node Reactions**

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N7	max	5.884	18	0.685	24	4.174	12	0.653	5	1.188	12	1.102	6
2		min	-6.952	12	-1.13	6	-3.601	18	-0.369	23	-1.18	18	-0.697	24
3	N11	max	6.738	4	0.683	16	4.455	4	0.545	11	2.05	10	0.725	16
4		min	-5.676	22	-1.128	10	-3.866	22	-0.344	17	-2.047	16	-1.18	10
5	N15	max	0.885	5	0.648	20	6.391	14	0.736	20	2.953	11	0.424	11
6		min	-0.876	23	-1.097	2	-7.597	8	-1.232	2	-2.94	17	-0.379	17
7	N145	max	0.059	17	3.783	26	0.204	20	0	74	0	22	0	4
8		min	-0.059	23	-0.196	20	-4.924	26	0	1	0	4	0	22
9	N147	max	0.206	24	3.788	30	2.465	30	0	4	0	22	0	22
10		min	-4.267	30	-0.237	24	-0.12	24	0	22	0	4	0	4
11	N148	max	4.267	34	3.788	34	2.466	34	0	23	0	23	0	23
12		min	-0.204	16	-0.236	16	-0.119	16	0	5	0	5	0	5
13	N155	max	0.366	5	0.062	34	0.1	34	0.005	8	0	74	0.016	11
14		min	-0.367	11	0.01	65	-0.01	16	-0.005	14	0	1	-0.016	5
15	N156	max	0.182	3	0.062	26	0.27	15	0.013	15	0	74	0.008	20
16		min	-0.136	21	0.01	69	-0.295	9	-0.013	9	0	1	-0.008	2
17	N157	max	0.09	19	0.062	30	0.304	25	0.013	25	0	74	0.008	2
18		min	-0.135	13	0.01	73	-0.331	7	-0.013	7	0	1	-0.008	20
19	Totals:	max	10.002	5	8.977	31	9.353	14						
20		min	-10.002	23	2.671	74	-9.353	20						

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

Member	Shape	Code Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	M87	PIPE_2.5	0.644	4.25	11	0.108	4.25	3	30.038	50.715	3.596	3.596	1.559	H1-1b	
2	M26	PIPE_2.5	0.642	4.25	8	0.093	4.25	11	30.038	50.715	3.596	3.596	3	H1-1b	
3	M97	PIPE_2.5	0.641	4.25	11	0.111	4.25	6	30.038	50.715	3.596	3.596	1.516	H1-1b	
4	M23	L6X3.5X5	0.431	8.169	7	0.415	11.799	z	13	57.389	93.636	3.396	9.788	1.5	H2-1
5	M11	1/2"x9"	0.43	0.398	28	0.277	0.398	y	5	110.855	145.8	1.519	27.338	1.378	H1-1b
6	M13	1/2"x9"	0.43	0.398	32	0.249	0.398	y	11	110.855	145.8	1.519	27.338	1.389	H1-1b
7	M9	1/2"x9"	0.429	0.398	36	0.249	0.398	y	13	110.855	145.8	1.519	27.338	1.388	H1-1b
8	M24	L6X3.5X5	0.42	8.169	11	0.409	11.799	z	5	57.389	93.636	3.396	9.788	1.5	H2-1
9	M38	PIPE_2.0	0.418	2.539	4	0.093	2.539	4	20.114	32.13	1.872	1.872	2.005	H1-1b	
10	M25	L6X3.5X5	0.416	8.169	34	0.395	11.799	z	9	57.389	93.636	3.396	9.487	1.354	H2-1
11	M1	PIPE_2.0	0.385	2.539	12	0.081	2.539	12	20.114	32.13	1.872	1.872	2.194	H1-1b	
12	M46	PIPE_2.0	0.368	2.539	8	0.079	2.539	7	20.114	32.13	1.872	1.872	1.86	H1-1b	



**Envelope AISC 14TH (360-10): LRFD Member Steel Code Checks (Continued)**

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
13	M50	PIPE_2.0	0.366	2.539	12	0.071	2.539	37	20.114	32.13	1.872	1.872	1.966	H1-1b
14	M42	PIPE_2.0	0.357	2.539	9	0.071	2.539	33	20.114	32.13	1.872	1.872	2.621	H1-1b
15	M30	PIPE_2.0	0.35	2.539	5	0.07	2.539	29	20.114	32.13	1.872	1.872	2.259	H1-1b
16	M101	PIPE_2.0	0.345	2.539	13	0.132	2.539	13	20.114	32.13	1.872	1.872	2.249	H1-1b
17	M91	PIPE_2.0	0.343	2.539	9	0.128	2.539	9	20.114	32.13	1.872	1.872	2.145	H1-1b
18	M56	PIPE_2.0	0.321	8.169	4	0.052	8.687	3	22.943	32.13	1.872	1.872	3	H1-1b
19	M34	PIPE_2.0	0.291	2.539	5	0.109	2.539	5	20.114	32.13	1.872	1.872	2.164	H1-1b
20	M55	PIPE_2.0	0.284	8.169	13	0.049	8.687	11	22.943	32.13	1.872	1.872	2.948	H1-1b
21	M57	PIPE_2.0	0.274	8.039	11	0.05	4.408	13	22.943	32.13	1.872	1.872	3	H1-1b
22	M3	HSS4X4X4	0.264	3.956	6	0.078	4.023	z	13	117.309	139.518	16.181	1.515	H1-1b
23	M4	HSS4X4X4	0.255	5.699	3	0.079	4.023	z	33	117.309	139.518	16.181	2.353	H1-1b
24	M6	HSS4X4X4	0.233	5.699	7	0.08	4.023	z	36	117.309	139.518	16.181	2.356	H1-1b
25	M19	1/2"x3"	0.15	0	12	0.008	0	y	36	44.374	48.6	0.506	2.039	H1-1b
26	M107	LL2.5x2.5x3x3	0.148	5	30	0.01	5	z	4	41.904	58.32	3.954	1.136	H1-1b*
27	M108	LL2.5x2.5x3x3	0.148	5	34	0.009	5	z	6	41.904	58.32	3.954	1.136	H1-1b*
28	M65	LL2.5x2.5x3x3	0.148	5	26	0.005	5	z	5	41.904	58.32	3.954	1	H1-1b*
29	M16	1/2"x3"	0.126	0	8	0.008	0	y	34	44.374	48.6	0.506	2.247	H1-1b
30	M18	1/2"x3"	0.122	0.5	5	0.008	0	y	36	44.372	48.6	0.506	1.212	H1-1b
31	M22	1/2"x3"	0.118	0	4	0.008	0	y	26	44.374	48.6	0.506	2.222	H1-1b
32	M21	1/2"x3"	0.116	0	18	0.008	0	y	26	44.372	48.6	0.506	1.518	H1-1b
33	M5	L5X3.5X4	0.102	2.595	8	0.008	0	z	34	41.093	67.068	2.629	1.198	H2-1
34	M17	L5X3.5X4	0.097	2.648	12	0.008	0	z	36	41.093	67.068	2.629	1.21	H2-1
35	M20	L5X3.5X4	0.097	2.595	4	0.008	0	z	37	41.093	67.068	2.629	1.208	H2-1
36	M15	1/2"x3"	0.093	0	9	0.007	0	y	33	44.372	48.6	0.506	1.658	H1-1b
37	M66	L2.5x2.5x3	0.087	1.843	8	0.092	3.687	y	10	18.567	29.192	0.873	1.136	H2-1
38	M69	L2.5x2.5x3	0.087	1.844	8	0.093	3.687	z	6	18.564	29.192	0.873	1.136	H2-1
39	M70	L2.5x2.5x3	0.073	1.843	4	0.093	3.687	y	6	18.567	29.192	0.873	1.136	H2-1
40	M68	L2.5x2.5x3	0.072	1.843	12	0.082	3.687	y	2	18.567	29.192	0.873	1.136	H2-1
41	M71	L2.5x2.5x3	0.072	1.844	12	0.093	3.687	z	10	18.564	29.192	0.873	1.136	H2-1
42	M67	L2.5x2.5x3	0.072	1.844	4	0.082	3.687	z	2	18.564	29.192	0.873	1.136	H2-1
43	M86	L3X3X3	0.011	0.813	20	0.351	1.626	y	5	30.561	35.316	1.32	1.136	H2-1
44	M84	L3X3X3	0.011	0.813	24	0.336	1.626	y	9	30.561	35.316	1.32	1.136	H2-1
45	M85	L3X3X3	0.011	0.813	16	0.338	1.626	y	13	30.561	35.316	1.32	1.136	H2-1

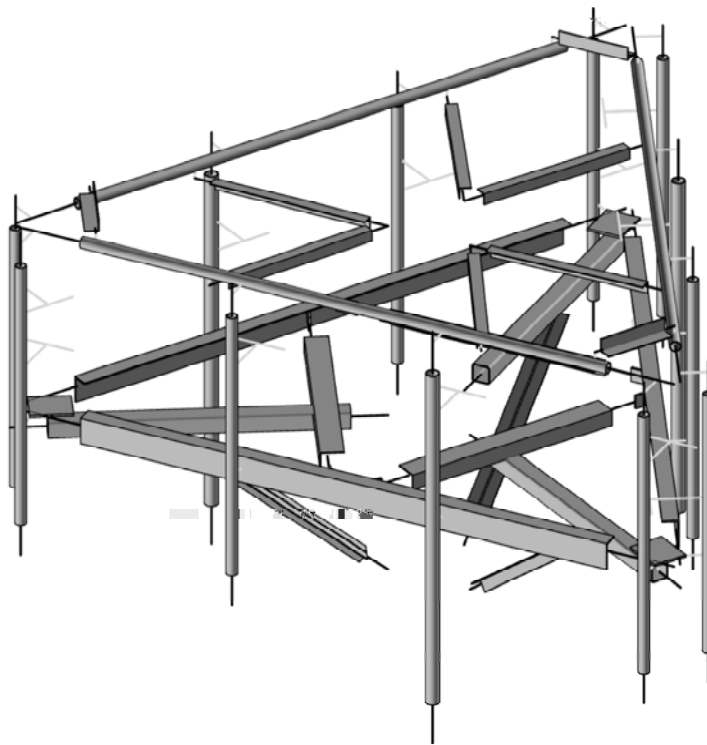
**Envelope AISI S100-10: ASD Member Cold Formed Steel Code Checks**

No Data to Print...

**Envelope Plate Principal Stresses**

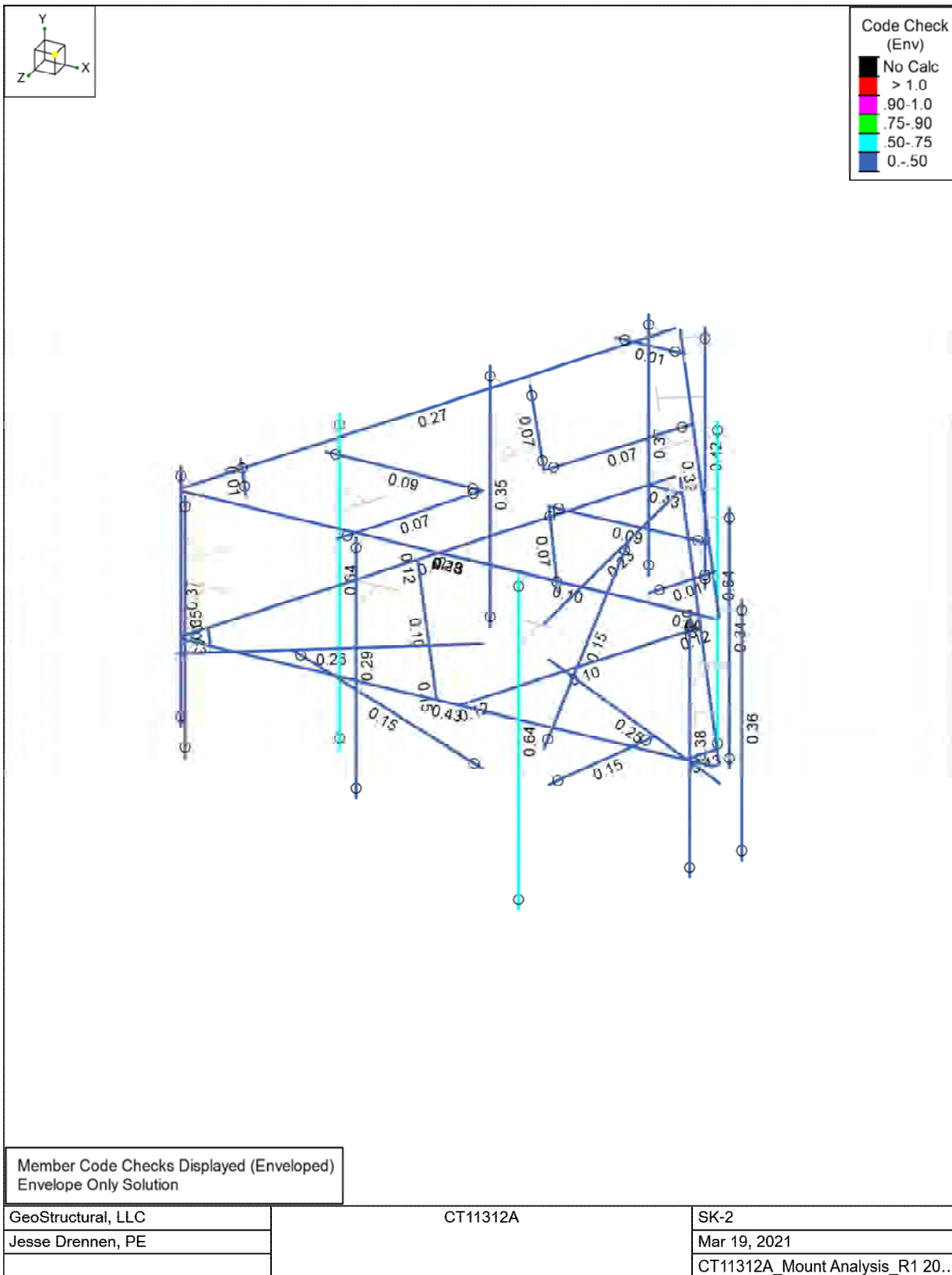
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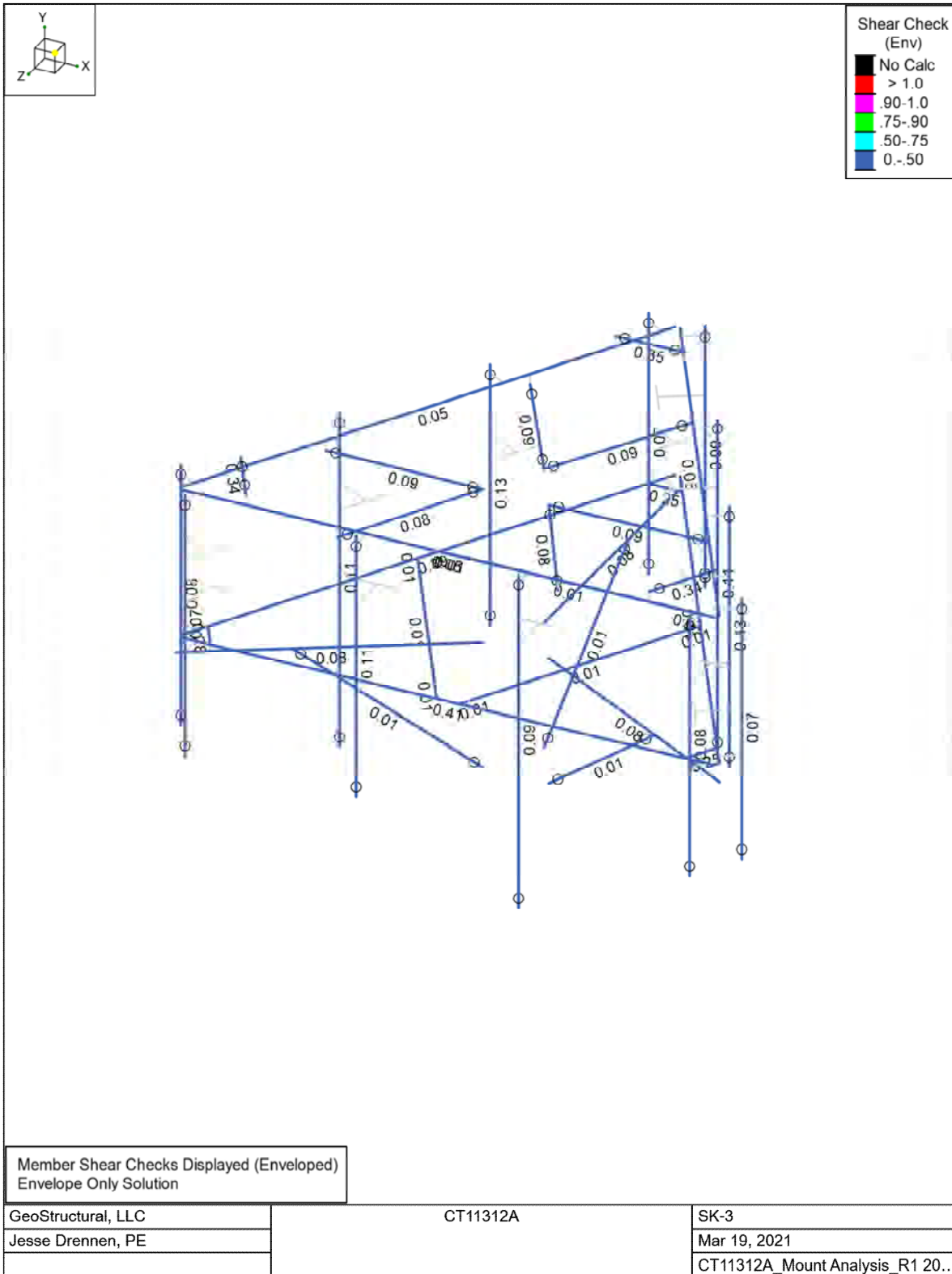


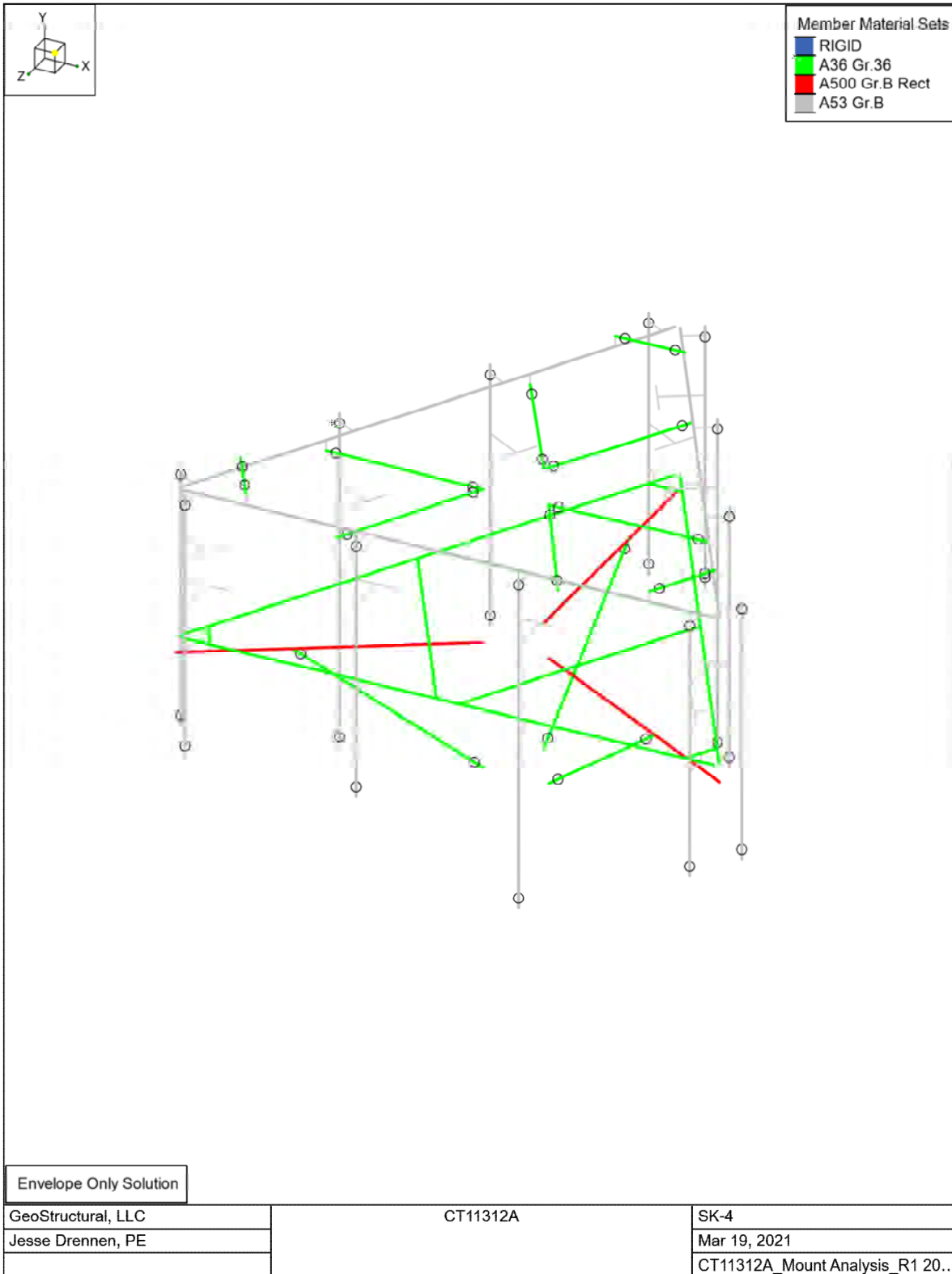


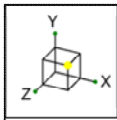
Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

GeoStructural, LLC	CT11312A	SK-1
Jesse Drennen, PE		Mar 19, 2021
		CT11312A_Mount Analysis_R1 20...

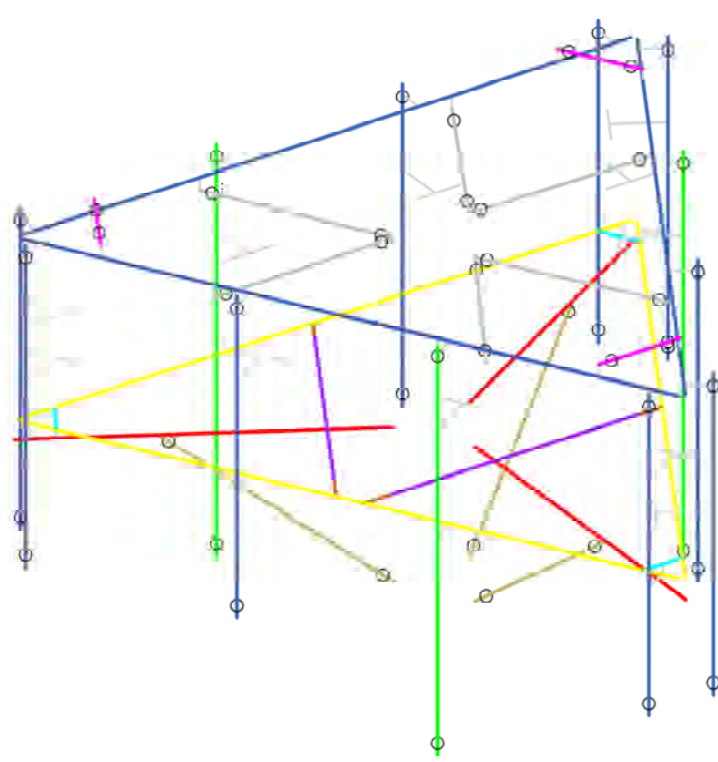




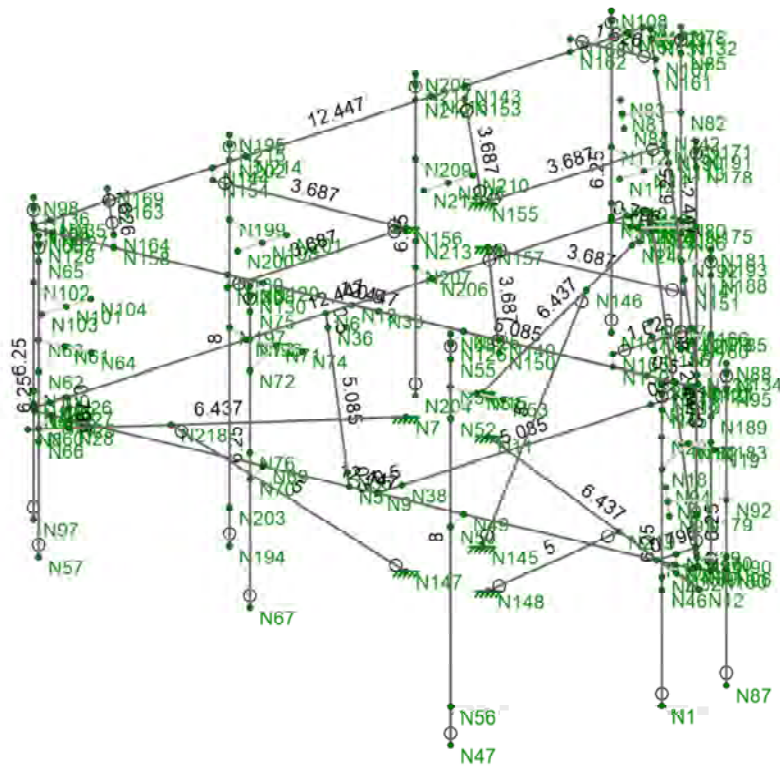
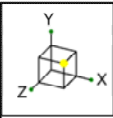




Section Sets	
<span style="color: blue;">■</span>	PIPE_2.0
<span style="color: green;">■</span>	PIPE_2.5
<span style="color: red;">■</span>	HSS4x4x4
<span style="color: grey;">■</span>	L2.5x2.5x3
<span style="color: magenta;">■</span>	L3x3x3
<span style="color: cyan;">■</span>	1/2"x9"
<span style="color: brown;">■</span>	1/2"x3"
<span style="color: yellow;">■</span>	L6x3.5x5
<span style="color: purple;">■</span>	L5x3.5x4
<span style="color: olive;">■</span>	LL2.5x2.5x3x3
<span style="color: olive;">■</span>	RIGID

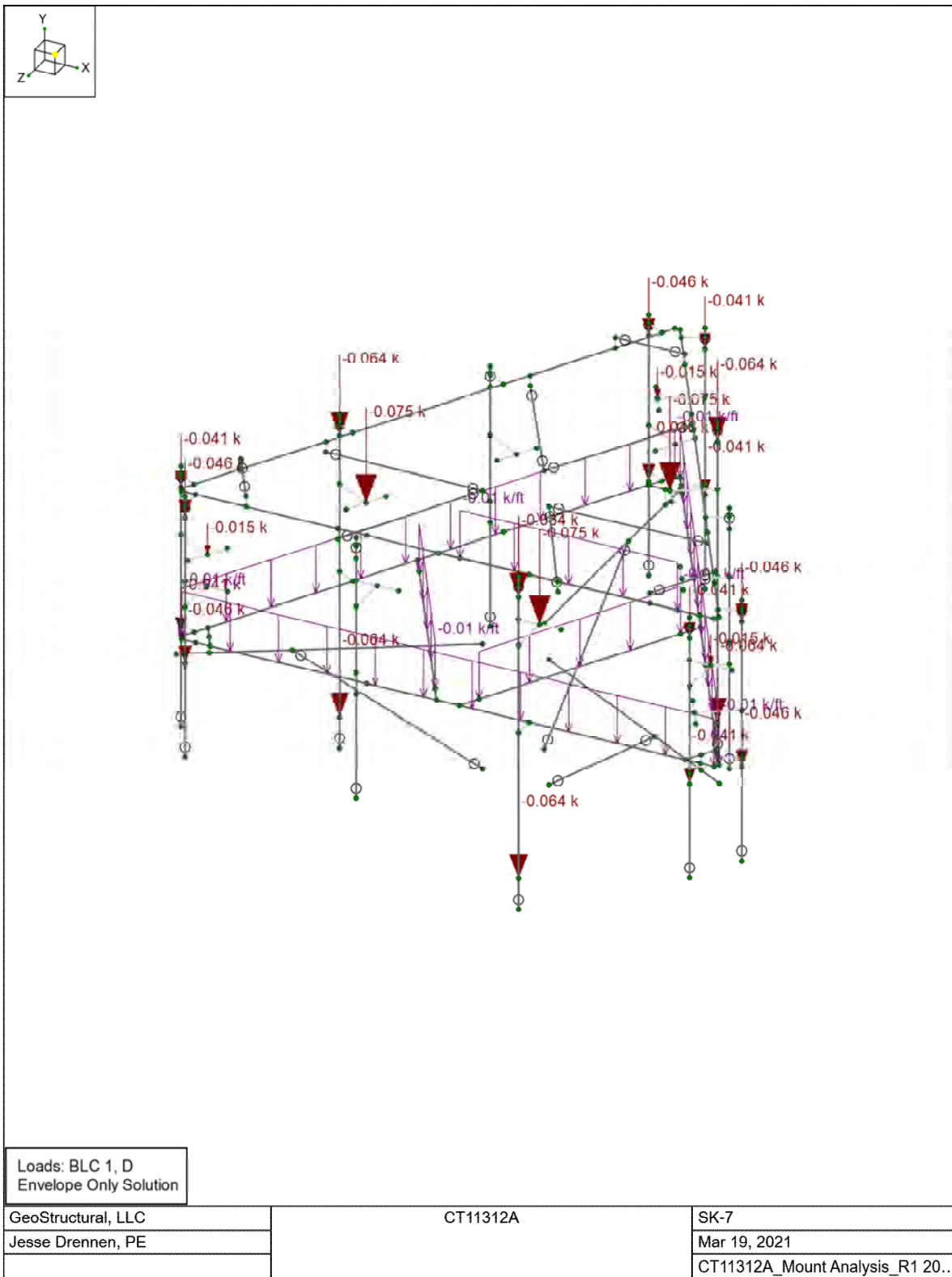


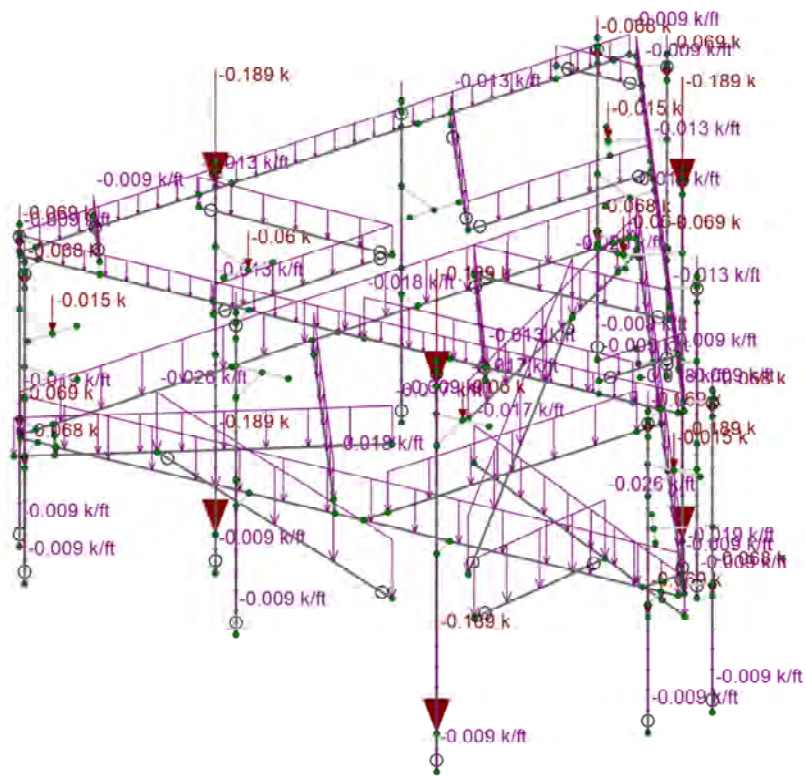
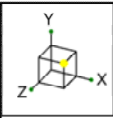
Envelope Only Solution		
GeoStructural, LLC	CT11312A	SK-5
Jesse Drennen, PE		Mar 19, 2021
		CT11312A_Mount Analysis_R1 20...



Member Length (ft) Displayed  
 Envelope Only Solution

GeoStructural, LLC	CT11312A	SK-6
Jesse Drennen, PE		Mar 19, 2021
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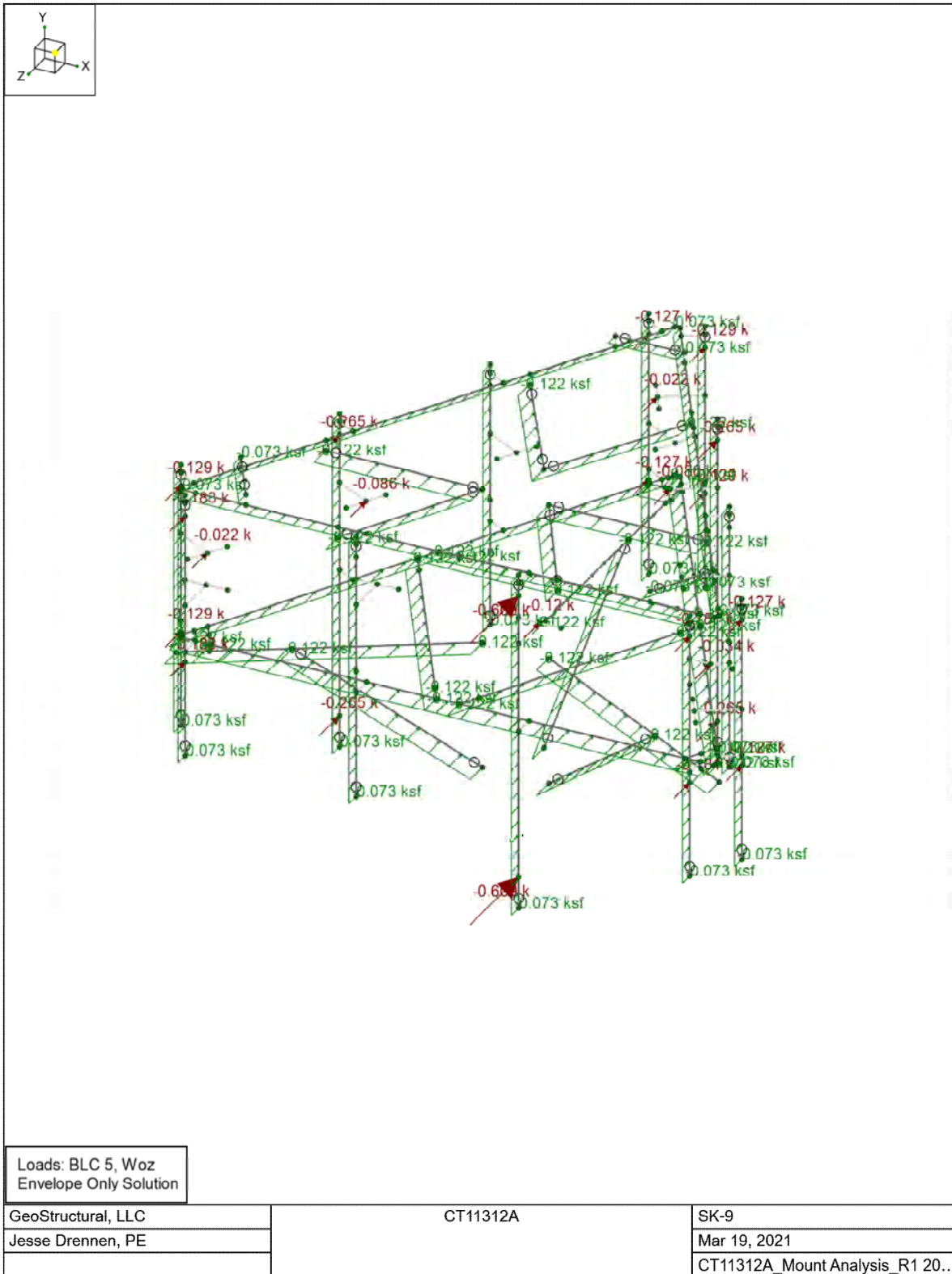


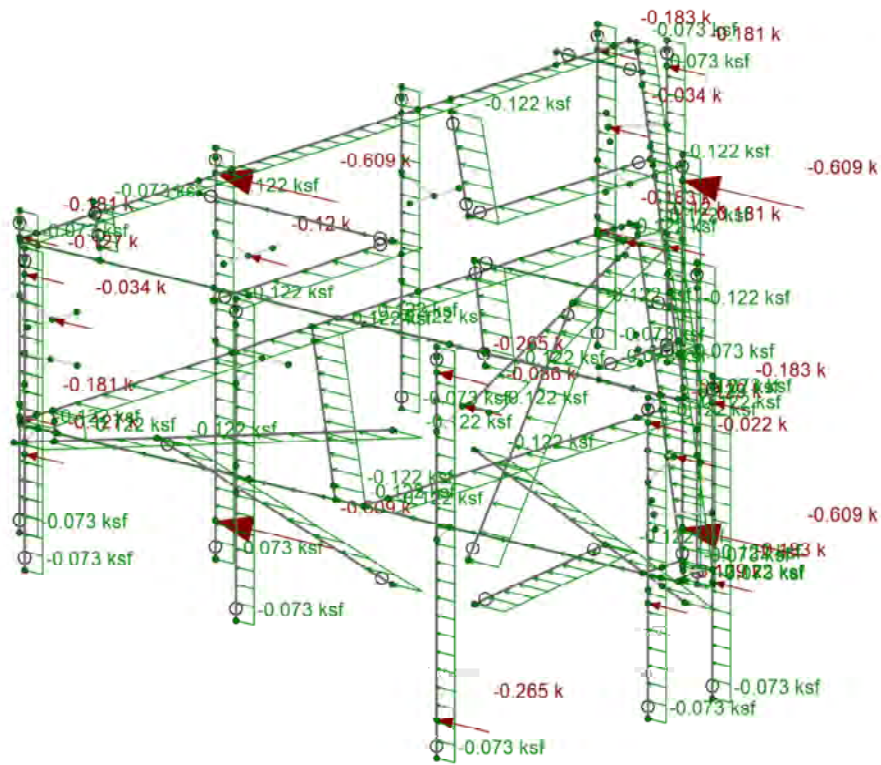
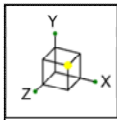


Loads: BLC 2, Di  
 Envelope Only Solution

GeoStructural, LLC	CT11312A	SK-8
Jesse Drennen, PE		Mar 19, 2021
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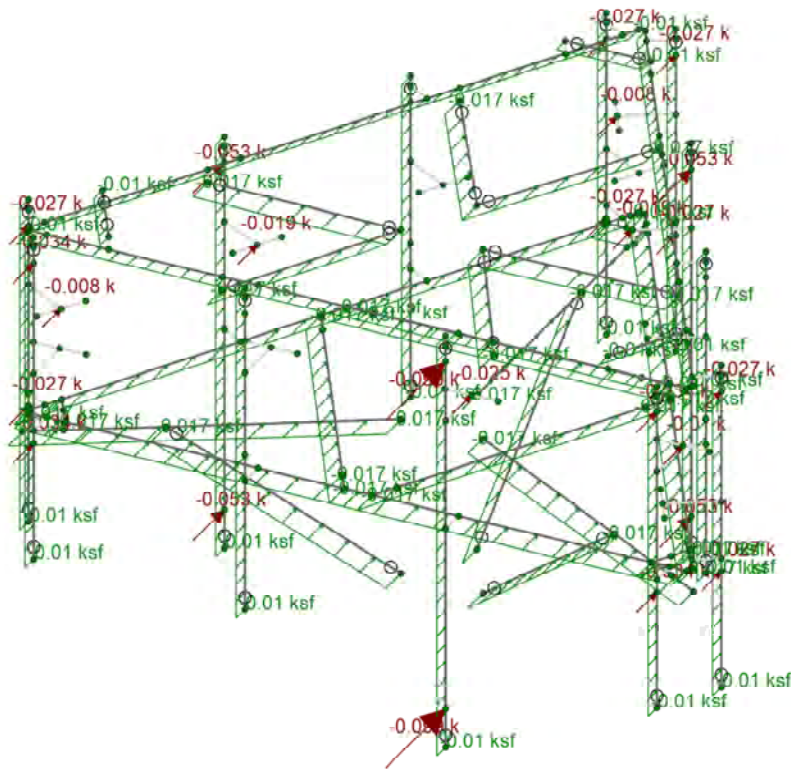
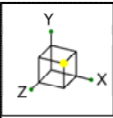






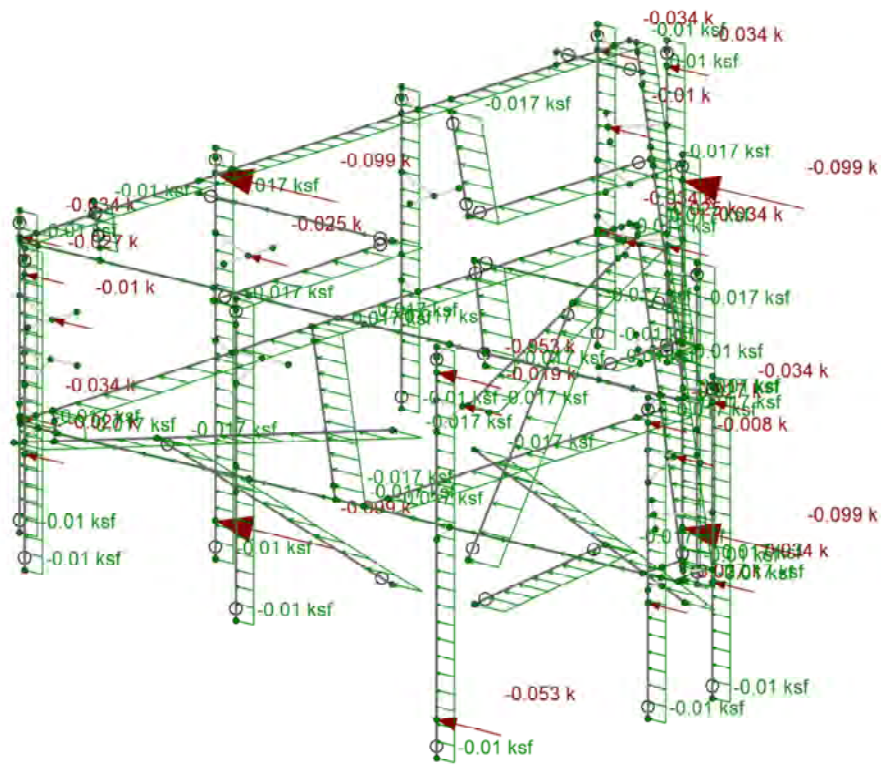
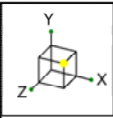
Loads: BLC 6, Wox  
 Envelope Only Solution

GeoStructural, LLC	CT11312A	SK-10
Jesse Drennen, PE		Mar 19, 2021
		CT11312A_Mount Analysis_R1 20...



Loads: BLC 7, Wiz  
 Envelope Only Solution

GeoStructural, LLC	CT11312A	SK-11
Jesse Drennen, PE		Mar 19, 2021
		CT11312A_Mount Analysis_R1 20...



Loads: BLC 8, Wix  
 Envelope Only Solution

GeoStructural, LLC	CT11312A	SK-12
Jesse Drennen, PE		Mar 19, 2021
		CT11312A_Mount Analysis_R1 20...

# EXHIBIT 9

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

T-Mobile Existing Facility

Site ID: CT11312A

N. Stonington/ RT 2  
267 Norwich Westerly Road  
North Stonington, Connecticut 06359

**May 12, 2021**

**EBI Project Number: 6221002303**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>18.28%</b>

May 12, 2021

T-Mobile

Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11312A - N. Stonington/ RT 2

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **267 Norwich Westerly Road in North Stonington, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 267 Norwich Westerly Road in North Stonington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 5) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.



- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s), the RFS APXVAALL24\_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerline of the proposed antennas is 147 feet above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	1.12%	Antenna B1 MPE %:	1.12%	Antenna C1 MPE %:	1.12%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	1.79%	Antenna B2 MPE %:	1.79%	Antenna C2 MPE %:	1.79%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	0.74%	Antenna B3 MPE %:	0.74%	Antenna C3 MPE %:	0.74%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	3.65%
Sprint	4.22%
AT&T	8.18%
Verizon	2.23%
<b>Site Total MPE % :</b>	<b>18.28%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	3.65%
T-Mobile Sector B Total:	3.65%
T-Mobile Sector C Total:	3.65%
<b>Site Total MPE % :</b>	<b>18.28%</b>

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	147.0	7.44	1900 MHz GSM	1000	0.74%
T-Mobile 1900 MHz UMTS	2	1028.30	147.0	3.72	1900 MHz UMTS	1000	0.37%
T-Mobile 600 MHz LTE	2	591.73	147.0	2.14	600 MHz LTE	400	0.54%
T-Mobile 600 MHz NR	1	1577.94	147.0	2.85	600 MHz NR	400	0.71%
T-Mobile 700 MHz LTE	2	695.22	147.0	2.51	700 MHz LTE	467	0.54%
T-Mobile 2100 MHz LTE	2	2056.61	147.0	7.44	2100 MHz LTE	1000	0.74%
						<b>Total:</b>	<b>3.65%</b>

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

## Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	3.65%
Sector B:	3.65%
Sector C:	3.65%
T-Mobile Maximum MPE % (Sector A):	3.65%
Site Total:	18.28%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **18.28%** 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.

# EXHIBIT 10

Aug 20, 2019 at 5:28:18 PM  
267 Norwich Westerly Rd  
North Stonington CT 06359  
United States

