



*Filed by:*  
*G. Scott Shepherd, Site Development Specialist II - SBA Communications*  
*134 Flanders Rd., Suite 125, Westborough, MA 01581*  
*508.251.0720 x 3807 - gshepherd@sbsite.com*

June 27, 2021

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

**Notice of Exempt Modification**  
**131 Gifford Lane, Bozrah, CT**  
**Latitude: 41.552517**  
**Longitude: -72.150708**  
**T-Mobile #: CT11311A**

Dear Ms. Bachman:

T-Mobile currently maintains rights to eleven (11) antennas, of which only three (3) are currently installed at the 195-foot level of the existing 195-foot Self Support Tower at 131 Gifford Lane in Bozrah, CT. The tower is owned by SBA Towers, LLC. The property is owned by Richard Orr and & Patti Duerrler. T-Mobile now intends to remove three (3) L1900 MHz antennas install three (3) new L600/L700M/L1900/L2100 MHz antennas.

**The new antennas would support 5G services and would be installed at the 191-foot level of the tower.**

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) EMS RR90-17-02DP antennas (remove) – (3) RFS APXVAALL24\_43-U-NA20 600/700/1900/2100 MHz antenna (replace)
- (3) 1-5/8" Coax (remove) – (3) 1.9" Fiber (replace)

Install New:

- SitePro PRK-1245L, (3) TAP-472 and (1) HRK12-U (to low profile Platform)
- (3) Commscope SDX1926Q-43 Diplexers
- (3) Ericsson 4449 B71 + B85 RRUs



- (3) Ericsson 4424 B25 RRUs
- (3) Ericsson 4415 B66A RRUs

Existing Equipment to Remain:

- Low profile Platform
- (3) EMS RR90-17-02DP antennas
- (2) Andrew PC1N0F-0190B-002M antennas
- (3) Sector Frames
- (8) 1-5/8" Coax

Entitlements:

- (6) EMS RR90-17-02DP antennas
- (2) Andrew PC1N0F-0190B-002ME911 Omni antennas
- (1) 1-5/8" Coax

GROUND

Remove:

- (1) RBS6201 Equipment cabinet
- (1) 100A Power Panel to Existing H-Frame

Remove and Replace:

- N/A

Install New:

- (4) 2" RGS Conduits
- (1) Ericsson 6160 Cabinet
- (1) Ericsson B160 Battery Cabinet
- (1) 200A PPC to existing H-Frame
- 

Existing to Remain:

- (2) 1/2" Coax
- (1) GPS antenna
- (1) 12' x 12" Concrete Pad
- (1) Telco box to existing H-Frame
- (1) Emerson 2416 Cabinet

Entitlements:

- N/A



This facility was originally approved by the Town of Bozrah on February 11, 1999. The Planning & Zoning Commission approved Special Permit for a 196' telecom tower with the condition that the drive/access road be constructed per the Town's guidelines. No post construction stipulations were 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 Bozrah's First Selectman, Glenn Pianka, and Katey DeCarli, PE, Wetlands & Zoning Agent, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

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

Sincerely,

G. Scott Shepherd  
Site Development Specialist II  
SBA COMMUNICATIONS CORPORATION  
134 Flanders Rd., Suite 125  
Westborough, MA 01581  
508.251.0720 x3807 + T  
508.366.2610 + F  
508.868.6000 + C  
gshepherd@sbsite.com

Attachments



cc: Glenn Painka, First Selectman / with attachments  
*Town of Bozrah, Town Hall, 1 River Road, Bozrah, CT 06334*  
Katey Decarli, PE, Wetlands & Zoning Agent / with attachments  
*Town of Bozrah, Town Hall, 1 River Road, Bozrah, CT 06334*  
Patti Duerrler and Richard Orr / with attachments  
*131 Gifford Lane, Bozrah, CT 06334*

**EXHIBIT LIST**

Exhibit 1	Check Copy	x
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	Town of Bozrah P&Z Commission 2/11/99
Exhibit 6	Construction Drawings	Chappell Engineering 7/21/21
Exhibit 7	Modification Drawings	GeoStructural 5/17/21
Exhibit 8	Structural Analysis	TES 5/6/21
Exhibit 9	Mount Analysis	GeoStructural 3/19/21
Exhibit 10	EME Report	EBI Consulting 6/8/21

EXHIBIT 1

Copy of check

# SBA Network Services, LLC

To: CONNECTICUT SITING COUNCIL

129986

Check Number:

2158674

Date:

07/23/2021

Invoice Number	Invoice Date	Description	Gross Amount	Taxes Withheld	Net Amount
PRSF07232112	07/23/2021	CSC FEE_CT11313A_L600	\$ 625.00	\$ 0.00	\$ 625.00

\$ 625.00

\$ 0.00

\$ 625.00

## SBA Network Services, LLC

8051 Congress Avenue  
Boca Raton, FL 33487

(800) 487-7483

## Wells Fargo Bank

061209756

2158674

129986

DATE

AMOUNT

07/23/2021

\$ 625.00

Six Hundred Twenty Five Dollars And 00 Cents

Void After 120 Days

Pay to the Order of:

CONNECTICUT SITING COUNCIL  
ACCOUNTS RECEIVABLE  
TEN FRANKLIN SQUARE

NEW BRITAIN, CT 06051

*Brian Lagunas*

⑈ 2158674⑈ ⑆ 061209756 ⑆ 2079900424566⑈

# EXHIBIT 2

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

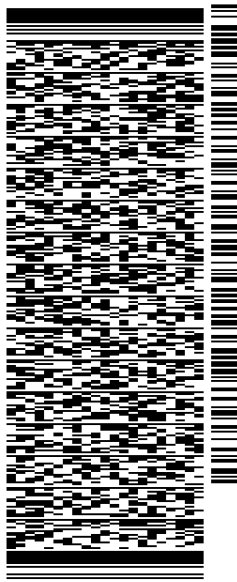
SHIP DATE: 27 JUL 21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4400

BILL SENDER

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

NEW BRITAIN CT 06051

(508) 251-0720 X 3807 REF: 105692009-6089  
INV. PO. DEPT:



J212021070901uv

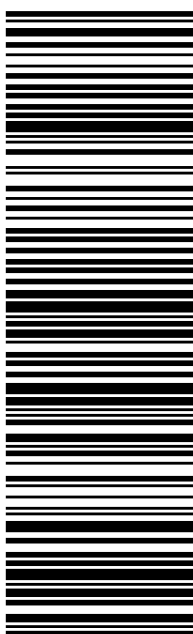
56D.J20265/FE4A

TRK# 7743 6939 8032  
0201

WED - 28 JUL 10:30A  
PRIORITY OVERNIGHT

EB BDLA

06051  
CT-US BDL



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**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.





TRACK ANOTHER SHIPMENT

774369398032

[ADD NICKNAME](#)

Delivered  
Friday, July 30, 2021 at 9:57 am

**DELIVERED**

Signature not required

[GET STATUS UPDATES](#)[OBTAIN PROOF OF DELIVERY](#)**FROM**

WESTBOROUGH, MA US

**TO**

NEW BRITAIN, CT US

## Travel History

**TIME ZONE**

Local Scan Time



## Friday, July 30, 2021

9:57 AM	NEW BRITAIN, CT	Delivered Package delivered to recipient address - release authorized
8:24 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:24 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:39 AM	EAST GRANBY, CT	At destination sort facility
4:45 AM	NEWARK, NJ	Departed FedEx hub
12:04 AM	NEWARK, NJ	Arrived at FedEx hub

## Thursday, July 29, 2021

8:35 PM	FRAMINGHAM, MA	Left FedEx origin facility
1:07 PM	FRAMINGHAM, MA	Picked up

## Tuesday, July 27, 2021

12:52 PM		Shipment information sent to FedEx
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## Shipment Facts

**TRACKING NUMBER****SERVICE****WEIGHT**

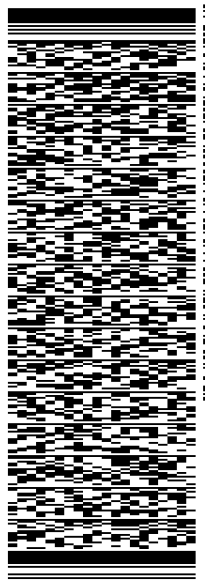
774369398032	FedEx Priority Overnight	1 lbs / 0.45 kgs
Residence	1	1 lbs / 0.45 kgs
Distribuidor	10-56-92009-6089	FedEx Pak
Deliver Weekday, Residential Delivery	7/29/21 <a href="#">?</a>	7/30/21 before 12:00 pm <a href="#">?</a>
7/30/21 at 9:57 am		

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

SHIP DATE: 27 JUL 21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4400  
BILL SENDER

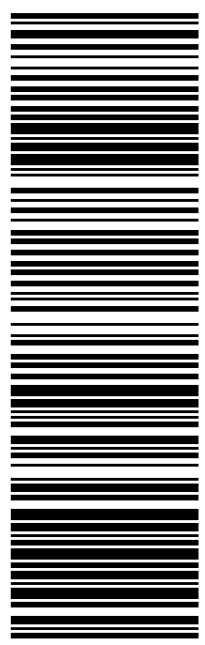
TO GLENN PAINKA  
TOWN OF BOZRAH, TOWN HALL  
FIRST SELECTMAN  
1 RIVER RD  
BOZRAH CT 06334  
(508) 251-0720 X 3807  
REF: 105692009-6089  
PO: DEPT:

56D.J20265/FE4A



TRK# 7743 6945 7790  
0201  
WED - 28 JUL 10:30A  
PRIORITY OVERNIGHT

EB SKKA  
06334  
BDL  
CT-US



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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TRACK ANOTHER SHIPMENT

774369457790

[ADD NICKNAME](#)



**DELAYED**

No scheduled delivery date available at this time.

# Updated delivery: Pending

Initially expected: Monday, 8/2/2021



**DELAY**  
NORWICH, CT

[GET STATUS UPDATES](#)

**FROM**  
WESTBOROUGH, MA US

**TO**  
BOZRAH, CT US  
[MANAGE DELIVERY](#)

## Travel History

**TIME ZONE**  
Local Scan Time

### Friday, July 30, 2021

8:50 AM	NORWICH, CT	Delay Business closed- No delivery attempt
8:16 AM	NORWICH, CT	At local FedEx facility
3:21 AM	NEWARK, NJ	Departed FedEx hub
12:04 AM	NEWARK, NJ	Arrived at FedEx hub

### Thursday, July 29, 2021

8:35 PM	FRAMINGHAM, MA	Left FedEx origin facility
1:07 PM	FRAMINGHAM, MA	Picked up

### Tuesday, July 27, 2021

12:55 PM

Shipment information sent to FedEx

## Shipment Facts

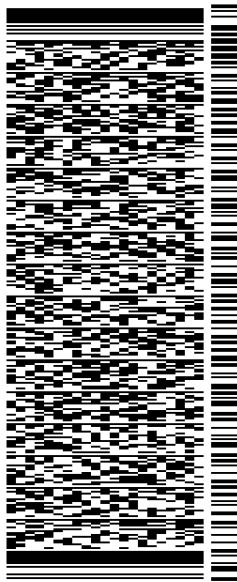
<b>TRACKING NUMBER</b> 774369457790	<b>SERVICE</b> FedEx Priority Overnight	<b>WEIGHT</b> 1 lbs / 0.45 kgs
<b>TOTAL PIECES</b> 1	<b>TOTAL SHIPMENT WEIGHT</b> 1 lbs / 0.45 kgs	<b>TERMS</b> Shipper
<b>SHIPPER REFERENCE</b> 10-56-92009-6089	<b>PACKAGING</b> FedEx Envelope	<b>SPECIAL HANDLING SECTION</b> Deliver Weekday
<b>SHIP DATE</b> 7/29/21 <a href="#">?</a>	<b>STANDARD TRANSIT</b> 8/2/21 before 10:30 am <a href="#">?</a>	<b>SHIPMENT-DATES- DISPLAY.UPDATED-DELIVERY</b> Pending

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

SHIP DATE: 27 JUL 21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4400  
BILL SENDER

TO KATEY DECARLI  
TOWN OF BOZRAH, TOWN HALL  
PE, WETLANDS & ZONING AGENT  
1 RIVER RD  
BOZRAH CT 06334  
(508) 251-0720 X 3807 REF: 105692009-6089  
INV.  
PO: DEPT:

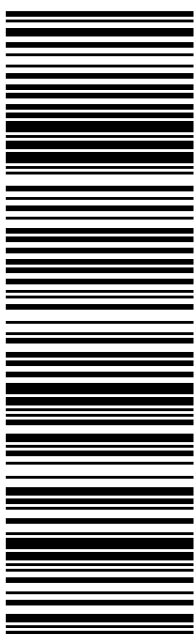
56D.J20265/FE4A



TRK# 7743 6947 3877  
0201  
WED - 28 JUL 10:30A  
PRIORITY OVERNIGHT

EB SKKA

06334  
BDL  
CT-US



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TRACK ANOTHER SHIPMENT

774369473877

[ADD NICKNAME](#)**POTENTIALLY DELAYED**

Updated delivery:  
Monday, August 2, 2021 before 10:30 am

Initially expected: Friday, 7/30/2021



**IN TRANSIT**  
LINTHICUM HEIGHTS, MD

[GET STATUS UPDATES](#)

**FROM**  
WESTBOROUGH, MA US

**TO**  
BOZRAH, CT US

[MANAGE DELIVERY](#)

## Travel History

**TIME ZONE**  
Local Scan Time



Friday, July 30, 2021

7:51 AM	LINTHICUM HEIGHTS, MD	In transit
12:04 AM	NEWARK, NJ	Arrived at FedEx hub

Thursday, July 29, 2021

8:35 PM	FRAMINGHAM, MA	Left FedEx origin facility
1:07 PM	FRAMINGHAM, MA	Picked up

Tuesday, July 27, 2021

12:56 PM		Shipment information sent to FedEx
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## Shipment Facts

**TRACKING NUMBER**  
774369473877

**SERVICE**  
FedEx Priority Overnight

**WEIGHT**  
0.5 lbs / 0.23 kgs





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

SHIP DATE: 27 JUL 21  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4400

BILL SENDER

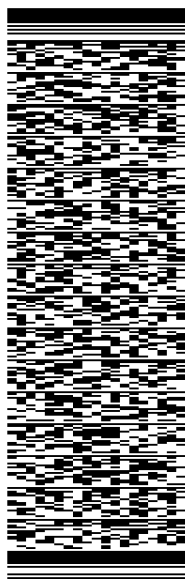
TO RICHARD ORR & PATTI DUERRLER

131 GIFFORD LN

BOZRAH CT 06334

(508) 251-0720 X 3807 REF: 105692009-6089  
INV. PO. DEPT:

56D.J20265/FE4A



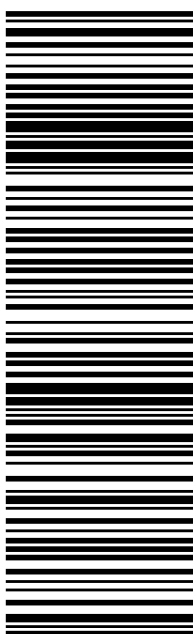
J212021070901uv

TRK# 7743 6950 0830  
0201

WED - 28 JUL 10:30A  
PRIORITY OVERNIGHT

EB SKKA

06334  
BDL  
CT-US



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TRACK ANOTHER SHIPMENT

774369500830

[ADD NICKNAME](#)

Delivered  
Friday, July 30, 2021 at 12:00 pm

**DELIVERED**

Signature not required

[GET STATUS UPDATES](#)[OBTAIN PROOF OF DELIVERY](#)**FROM**

WESTBOROUGH, MA US

**TO**

BOZRAH, CT US

## Travel History

**TIME ZONE**

Local Scan Time



## Friday, July 30, 2021

12:00 PM	BOZRAH, CT	Delivered Package delivered to recipient address - release authorized
9:18 AM	NORWICH, CT	On FedEx vehicle for delivery
8:19 AM	NORWICH, CT	At local FedEx facility
3:21 AM	NEWARK, NJ	Departed FedEx hub
12:04 AM	NEWARK, NJ	Arrived at FedEx hub

## Thursday, July 29, 2021

8:35 PM	FRAMINGHAM, MA	Left FedEx origin facility
1:07 PM	FRAMINGHAM, MA	Picked up

## Tuesday, July 27, 2021

12:57 PM		Shipment information sent to FedEx
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## Shipment Facts

**TRACKING NUMBER**

774369500830

**SERVICE**

FedEx Priority Overnight

**WEIGHT**

1 lbs / 0.45 kgs



# EXHIBIT 3

All information is for assessment purposes only. Assessments are calculated at 70% of the estimated October 1, 2017 market value which was the date of the last revaluation as completed by eQuality Valuation Services, LLC.



Information on the Property Records for the Municipality of Bozrah was last updated on 6/14/2019.

### Parcel Information

Location:	131 GIFFORD LA	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00083400	Map Block Lot:	07/119-B	Acres:	1.97
490 Acres:	0.00	Zone:	R-1	Volume / Page:	0092/0318
Developers Map / Lot:		Census:	7131		

### Value Information

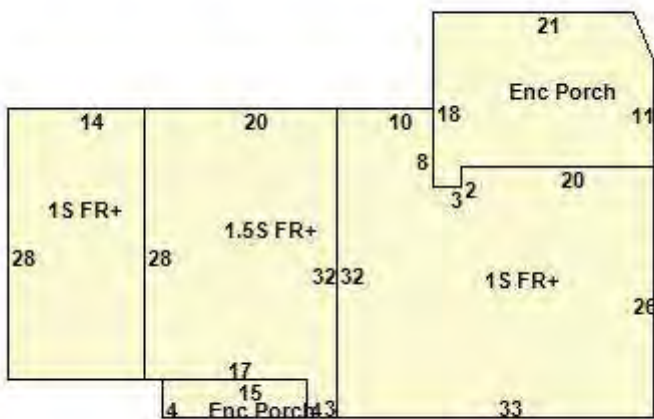
	Appraised Value	Assessed Value
Land	67,710	47,390
Buildings	152,597	106,820
Detached Outbuildings	1,094	770
Total	221,401	154,980

# Owner's Information

## Owner's Data

ORR RICHARD & DUERRLER PATTI  
 131 GIFFORD LANE  
 BOZRAH, CT 06334

## Building 1



Building Use:	Single Family	Style:	Ranch	Living Area:	2,162
Stories:	1.00	Construction:	Wood Frame	Year Built:	1962
Total Rooms:	9	Bedrooms:	4	Full Baths:	2

Half Baths:	0	Fireplaces:	1	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	0	Basement Area:	1,876
Basement Finished Area:	0	Basement Garages:	2	Roof Material:	Asphalt
Siding:	Vinyl Siding	Units:	One w/In Law		

## Special Features

## Attached Components

Type:	Year Built:	Area:
Enclosed Porch	1962	369
Enclosed Porch	1962	60

## Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Patio	2000	10.00	10.00	100

## Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
ORR RICHARD & DUERRLER PATTI	0092	0318	04/20/2010		No	\$0
ORR BETTY L	0087	0788	10/24/2007		No	\$0
ORR JOHN E + BETTY L	0078	0846	11/23/2004		No	\$0
ORR JOHN E + BETTY L	0028	0660	10/23/1974		No	\$0

## Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
803-16	Mechanical	08/11/2016		Needs Visit	LP GAS TANK WITH PIPING
1206-05		12/08/2005		Visit for Grand List	VINYL SIDING/WINDOWS
303-04		03/06/2004		Visit for Grand List	ANTENNAS/12 X 20 BLDG
902-03		09/04/2003	11/15/2003	Closed	REPLACE CABINET/4 NEW ANTENNAE
413-02		04/20/2002		Closed	CELL TOWER

Information Published With Permission From The Assessor



# EXHIBIT 4

Google Maps 131 Gifford Ln



Map data ©2019 100 ft



# 131 Gifford Ln

Bozrah, CT 06334



Directions



Save



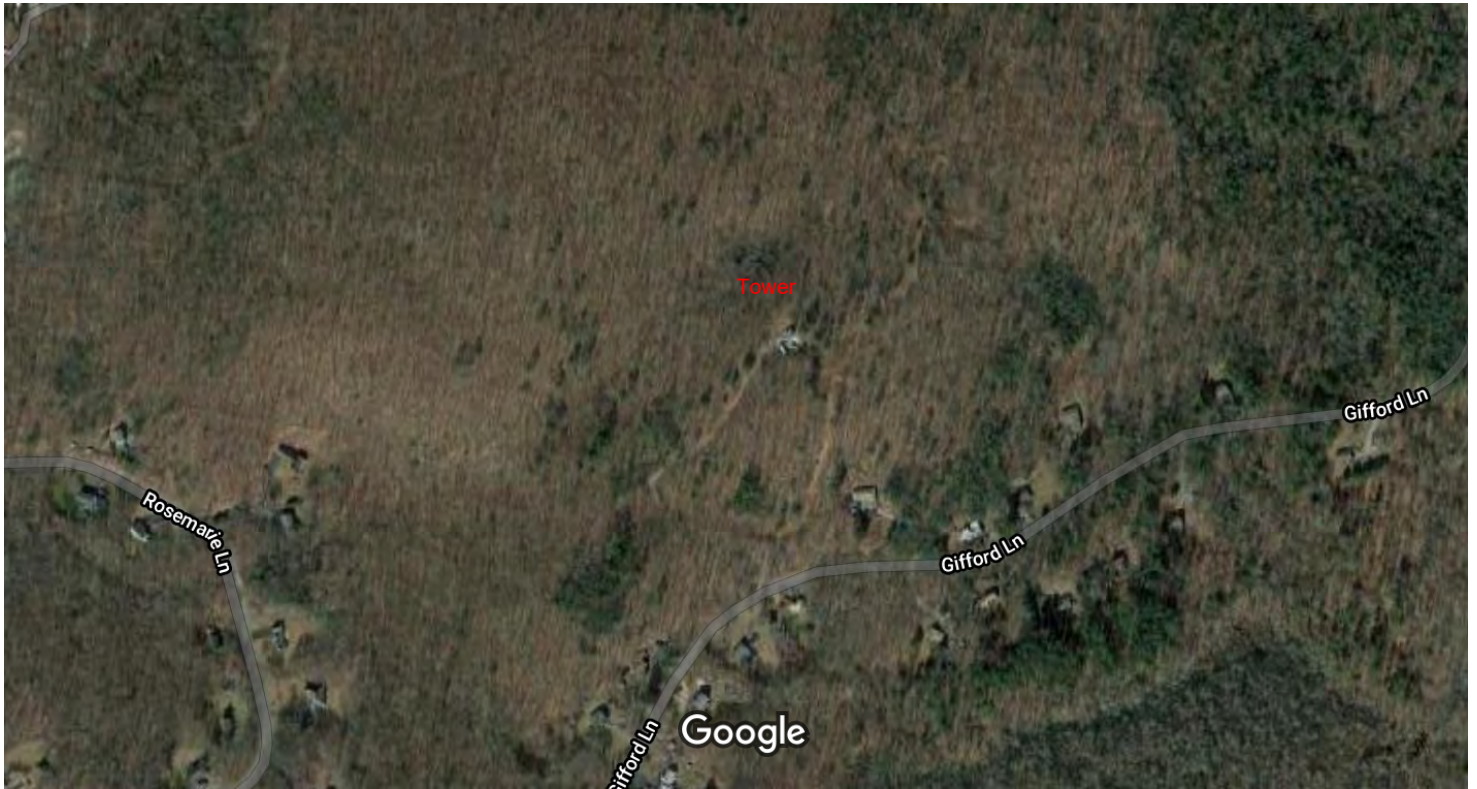
Nearby



Send to your phone



Share



Imagery ©2021 CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 500 ft

# EXHIBIT 5

**TOWN OF BOZRAH  
PLANNING & ZONING COMMISSION  
TOWN HALL, 1 RIVER ROAD  
BOZRAH, CONNECTICUT 06334**

Notice of Decision

At their regular meeting of February 11, 1999 the Bozrah Planning & Zoning Commission rendered the following decisions:

Fargo Family Partnership, Stockhouse Road. Subdivision creating two building lots on Stockhouse Road which is zoned for Industrial use. **ACTION - Approved.**

SBA Inc., Boca Raton, Florida. Application for a special permit to construct a 196' telecommunications tower at 131 Gifford Lane on property owned by John and Betty Orr. **ACTION - Approved with conditions.**

Town of Bozrah. Proposal to extend a 16" water main northeasterly along Stockhouse Road. This application is submitted in accordance with Section 8-24 of the Connecticut General Statutes as a municipal improvement. **ACTION - The Commission approved the plan and strongly supports the proposal to extend this water main along Stockhouse Road.**

Seymour Adelman, Chairman  
Stephen Seder, Vice-Chairman  
Planning & Zoning Commission

\*\*\*\*\*  
PLEASE PUBLISH THE "BULLETIN" "ONCE AS SOON AS POSSIBLE"  
\*\*\*\*\*

cc:: First Selectman  
Applicant by "Certified Mail"  
Bulletin Board  
Town Clerk  
File

Post-It® Fax Note	7671	Date	2/12/99	# of pages	1
To	R. Barber, First Selectman	From	R. Seder		
Co./Dept	Town of Bozrah	Co.	SCCOG		
Phone #		Phone #	889-2324		
Fax #	887-5449	Fax #	889-1222		

TRANSMISSION VERIFICATION REPORT

TIME : 02/12/1999 10:09  
NAME : SCCOG  
FAX : 860-889-1222  
TEL : 860-889-2324

DATE, TIME	02/12 10:09
FAX NO./NAME	BULLETIN
DURATION	00:00:37
PAGE(S)	01
RESULT	OK
MODE	STANDARD
	ECM

TOWN OF BOZRAH  
BOZRAH, CONNECTICUT

DRIVEWAY PERMIT

ISSUED TO SBA, Inc. DATE \_\_\_\_\_

ADDRESS 125 Shaw Street, New London CT 06320

FOR: driveway/access road to telecommunications site at 131 Gifford Lane

YOUR REQUEST TO CONSTRUCT A DRIVEWAY ON LOT NO. 119

MAP NO. 7 TO: Gifford Lane

WHICH IS TOWN PROPERTY, IS GRANTED SUBJECT TO THE FOLLOWING PROVISIONS:

1. THE DRIVEWAY SHALL BE CONSTRUCTED IN SUCH A MANNER THAT IT DOES NOT INTERFERE WITH THE EXISTING DRAINAGE, THE MOVEMENT OF TRAFFIC, OR THE REMOVAL OF SNOW FROM \_\_\_\_\_
2. THE DRIVEWAY SHALL BE CONSTRUCTED IN SUCH A MANNER THAT IT DOES NOT PERMIT THE RUNOFF OF WATER FROM \_\_\_\_\_ TO ENTER INTO THE PROPERTY OF THE OWNER THEREBY CREATING A NUISANCE TO THE TOWN AND THE OWNER.
3. THE OWNER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLAIMS OF DAMAGE RESULTING FROM THE CONSTRUCTION OF THE DRIVEWAY.
4. THE DRIVEWAY SHALL BE STABILIZED FOR A SUFFICIENT DISTANCE IN FROM TOWN PROPERTY TO PREVENT EROSION ON TO TOWN PROPERTY AND SHALL BE DESIGNED IN A MANNER TO CONFINE THE SURFACE WATER TO THE GUTTER AREAS AND PERMIT FREE FLOWAGE OF THE WATER IN THE WATERWAYS.
5. IF THE DRIVEWAY IS TO BE HARDTOPPED AT A LATER DATE ALLOWANCES MUST BE MADE FOR THE ADDITIONAL CHANGE OF GRADE WHERE THE DRIVEWAY CONNECTS WITH EXISTING WATERWAYS OR TRAVELLED PORTION OF THE TOWN ROAD.
6. THE DISTURBED AREAS WITHIN THE TOWN'S RIGHT-OF-WAY SHALL BE REPAIRED BY THE OWNER OR THE CONTRACTOR
7. WHERE EXISTING EXCAVATIONS OR FILLS WITHIN THE TOWN'S RIGHT-OF-WAY ENDANGER THE LIFE OF EXISTING TREES OR OTHER GROWTHS OR STONES EXIST AS OBSTACLES TO THE ACCESS OR EGRESS TO PROPERTY, SUCH OBSTACLES, TREES, OR GROWTHS, SHALL BE REMOVED AT THE OWNER'S EXPENSE.

  
\_\_\_\_\_  
APPLICANT

\_\_\_\_\_  
FIRST SELECTMAN

ITEM NO. 3 - TOWN MEETING - JUNE 2, 1987

RESOLVED: THAT EFFECTIVE JULY 1, 1987 ALL NEW DRIVEWAYS AND PARKING LOTS THAT ABUT TOWN OWNED ROADS SHALL BE PAVED. DRIVEWAYS SHALL BE PAVED A DISTANCE OF 15 FEET ALONG THE ROAD WITH CLASS 2 BITUMINOUS CONCRETE, 2 INCHES THICK. THE LENGTH OF THE PAVED DRIVEWAY WILL BE 15 FEET FROM THE EDGE OF THE TOWN ROAD. AFTER THE FIRST 5 FEET OF LENGTH THE PAVED AREA WILL NECK DOWN TO 10 FEET WIDE X 2 INCHES THICK FOR THE FINAL 10 FEET OF LENGTH. PARKING LOTS THAT ABUT ON TOWN OWNED ROADS WILL BE PAVED WITH CLASS 2 BITUMINOUS CONCRETE, 2 INCHES THICK X 15 FEET DEEP. THE WIDTH ALONG THE ROAD WILL BE DETERMINED BY THE AREA GRADED FOR VEHICLE USE.

# EXHIBIT 6



**SCOPE OF WORK**  
 REMOVE 4 COAX CABLES, ADD 3 HYBRID; REMOVE 6 ANTENNAS, ADD 3 ANTENNAS; REMOVE 6 TMAS, INSTALL 9 RRRHS; REMOVE 6201, REMOVE POWERPANEL, INSTALL 6160 AND B160; ADD PPC

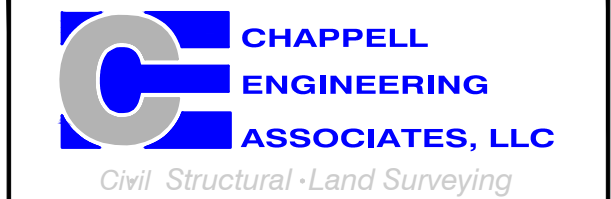
# BOZRAH-2 / RT-2

## T-MOBILE NORTHEAST LLC

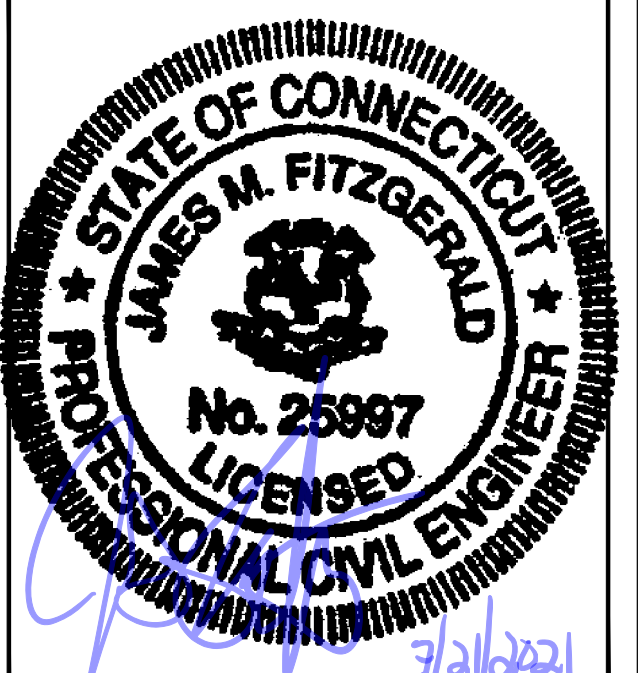
15 COMMERCE WAY, SUITE B  
 NORTON, MA 02766  
 (508) 286-2700



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



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



### APPROVALS

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

131 GIFFORD LANE  
 BOZRAH, CT 06334  
 NEW LONDON COUNTY

## SITE NO.: CT11313A

SITE TYPE: 195'± SELF-SUPPORT TOWER

RF DESIGN GUIDELINE: 67D98C 6160

### SITE NOTES

- THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
  - ADA COMPLIANCE NOT REQUIRED.
  - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
  - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
- NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
  - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
  - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
  - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

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

### GENERAL NOTES

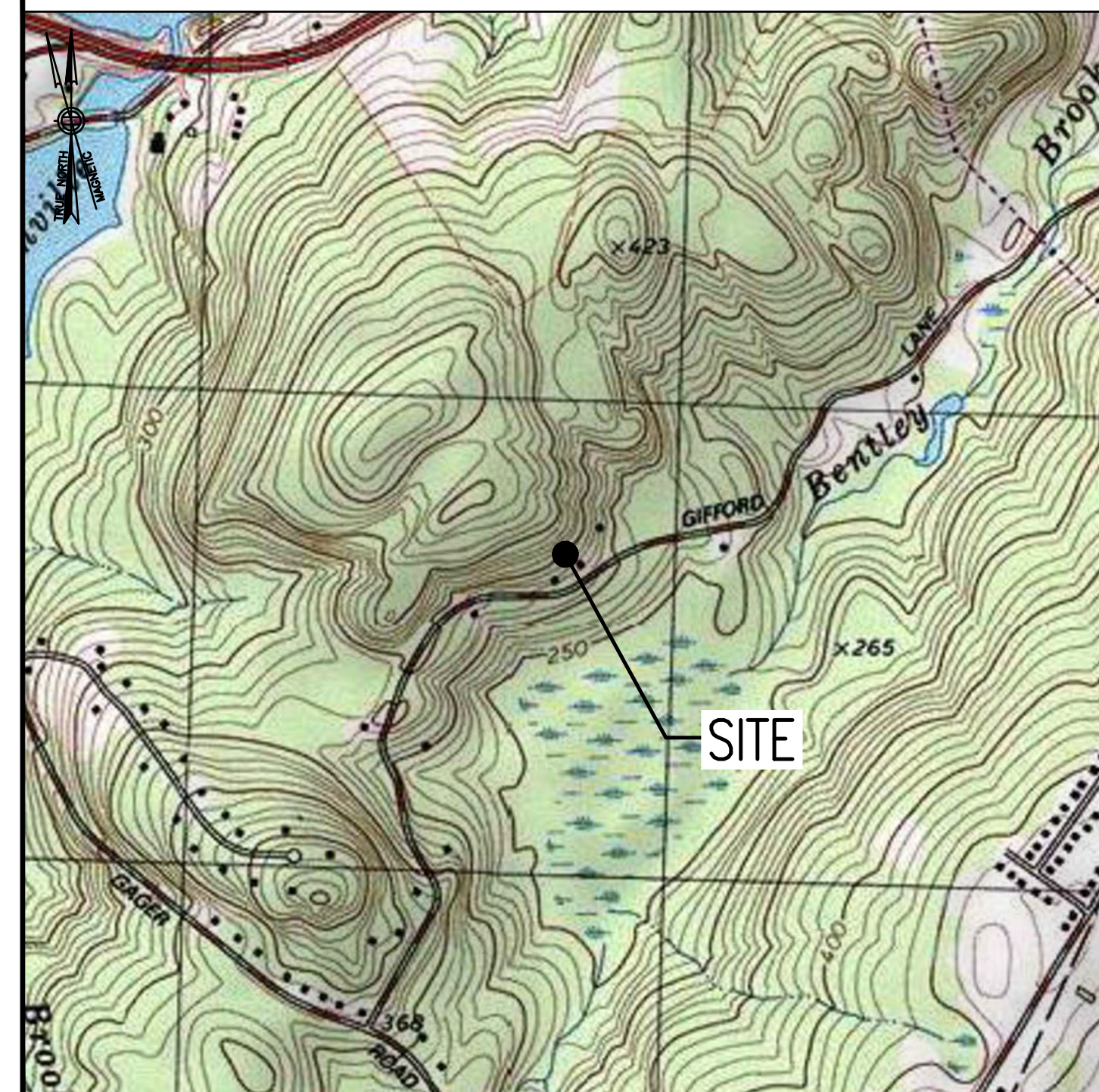
- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT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

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



### VICINITY MAP

SCALE: 1" = 1000'-0"



### DIRECTIONS

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 13B TO MERGE ONTO I-95 SOUTH. TAKE EXIT 4 FOR I-295 SOUTH TOWARD WOONSOCKET. TAKE EXIT 9C-A FOR US-6 WEST. TAKE RIGHT AT THE FORK TO MERGE ONTO US-6 WEST. SLIGHT LEFT ONTO CT TURNPIKE. TAKE EXIT ON THE LEFT ONTO I-395 SOUTH. TAKE EXIT 14 TOWARD CT-2 WEST. TURN RIGHT ONTO WEST TOWN STREET. TURN LEFT ONTO FITCHVILLE ROAD. TURN LEFT ONTO GIFFORD LANE. SITE WILL BE ON THE RIGHT.

### SHEET INDEX

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

### DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

### PROJECT SUMMARY

SITE NUMBER: CT11313A  
 SBA SITE NUMBER: CTO1105-S  
 SBA SITE NAME: BOZRAH  
 SITE ADDRESS: 131 GIFFORD LANE  
 BOAZRAH, CT 06334  
 PROPERTY OWNER: NATHAN G. ADELMAN  
 38 BOZRAH STREET  
 BOZRAH, CT 06634  
 TOWER OWNER: SBA TOWERS, LLC  
 8501 CONGRESS AVENUE  
 BOCA RATON, FL 33487  
 PHONE: 561-226-9523  
 COUNTY: NEW LONDON  
 ZONING DISTRICT: N/A  
 STRUCTURE TYPE: SELF-SUPPORT TOWER  
 STRUCTURE HEIGHT: 193'±  
 APPLICANT: T-MOBILE NORTHEAST LLC  
 15 COMMERCE WAY, SUITE B  
 NORTON, MA 02766  
 SBA RSM: STEPHEN ROTH  
 PHONE: 860-539-4920  
 EMAIL: SRoth@sbsite.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.41.5525° N41°33'09.06"  
 LONGITUDE W.72.1507° W72°09'02.55"

### 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).

CHECKED BY: JMT

APPROVED BY: JMT

### SUBMITTALS

REV.	DATE	DESCRIPTION	BY
4	07/21/21	REVISED CONSTRUCTION	JRV
3	06/14/21	REVISED CONSTRUCTION	JRV
2	05/12/21	REVISED CONSTRUCTION	JRV
1	03/22/21	ISSUED FOR CONSTRUCTION	JRV
0	06/07/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:  
**CT11313A**

SITE ADDRESS:  
 131 GIFFORD LANE  
 BOZRAH, CT 06334

SHEET TITLE

TITLE SHEET

SHEET NUMBER

**T-1**

**GENERAL NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR – T-MOBILE  
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
OWNER – T-MOBILE  
OEM – ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
- THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
- CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
- SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
- IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

**SITE WORK GENERAL NOTES:**

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

**CONCRETE AND REINFORCING STEEL NOTES:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:  
CONCRETE CAST AGAINST EARTH.....3 IN.  
CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6 AND LARGER .....2 IN.  
#5 AND SMALLER & WWF .....1½ IN.  
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:  
SLAB AND WALL .....¾ IN.  
BEAMS AND COLUMNS .....½ IN.
- A CHAMFER ¼" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
- CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;  
(A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIER'S PLANT.  
(B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.  
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
- AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
- EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

**STRUCTURAL STEEL NOTES:**

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

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

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

**COMPACTION EQUIPMENT:**

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

**CONSTRUCTION NOTES:**

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

**ELECTRICAL INSTALLATION NOTES:**

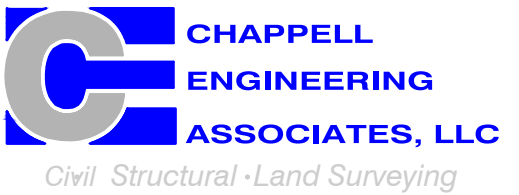
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR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

**T-MOBILE  
NORTHEAST LLC**

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



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



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SHEET TITLE

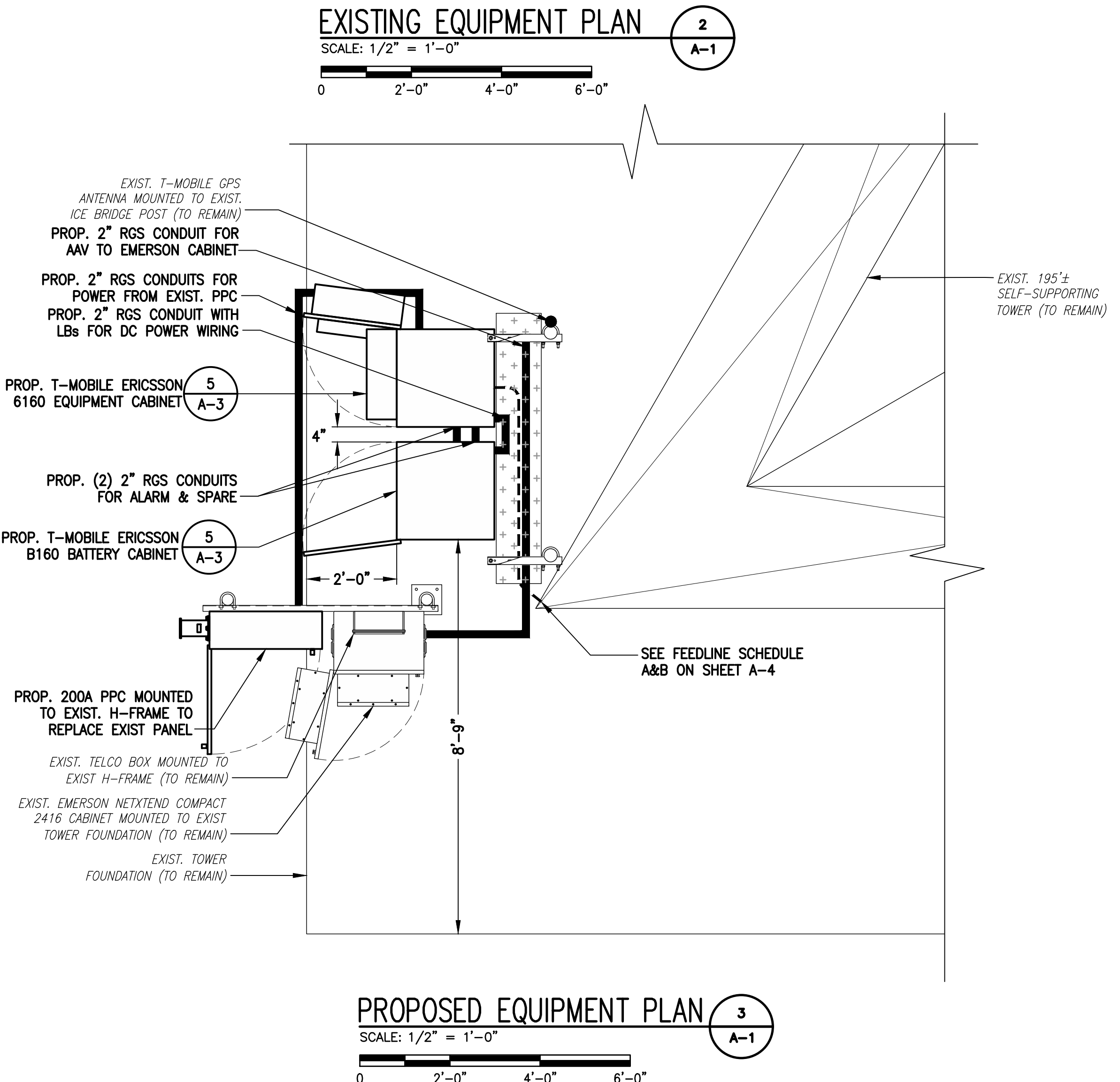
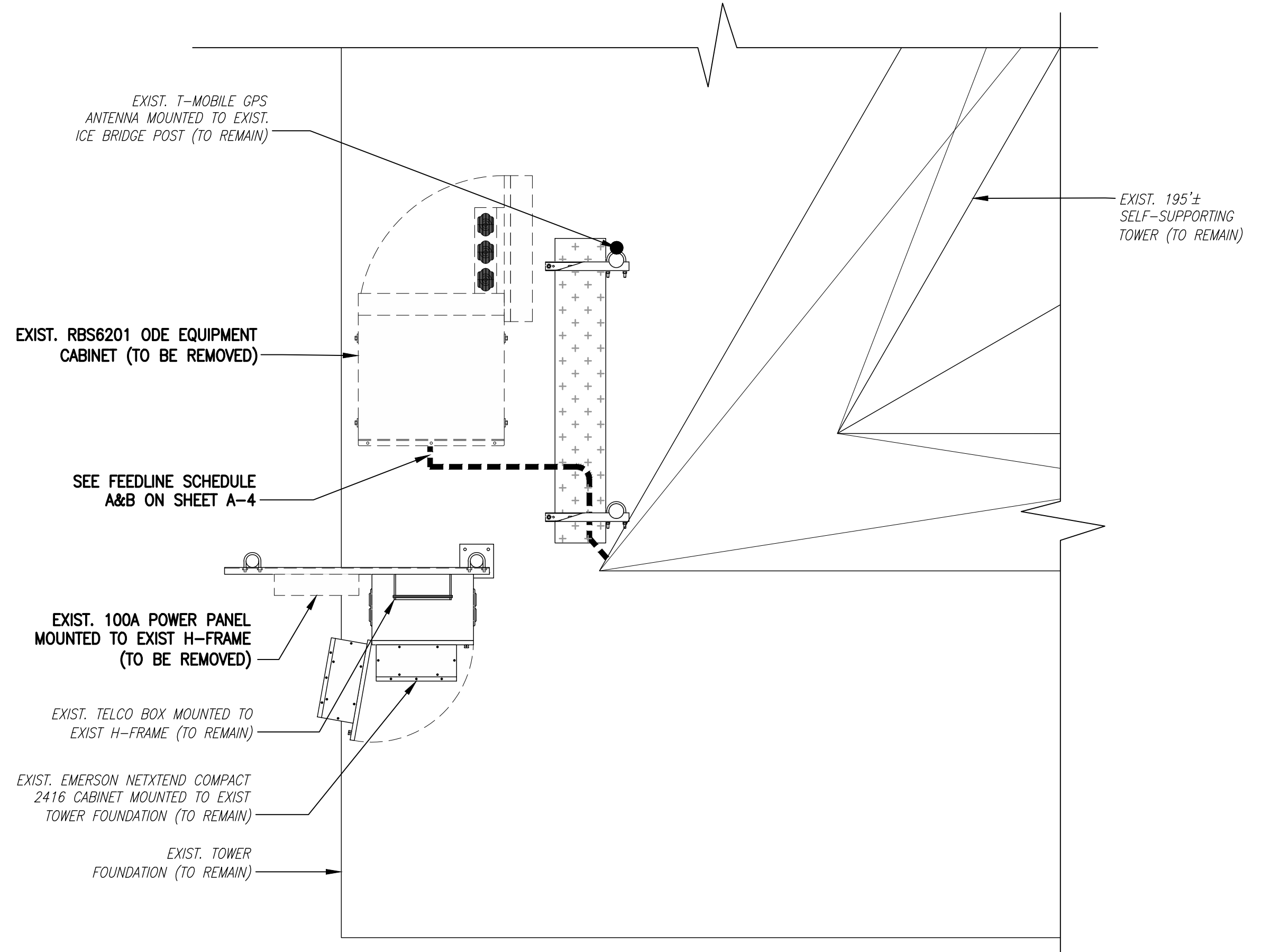
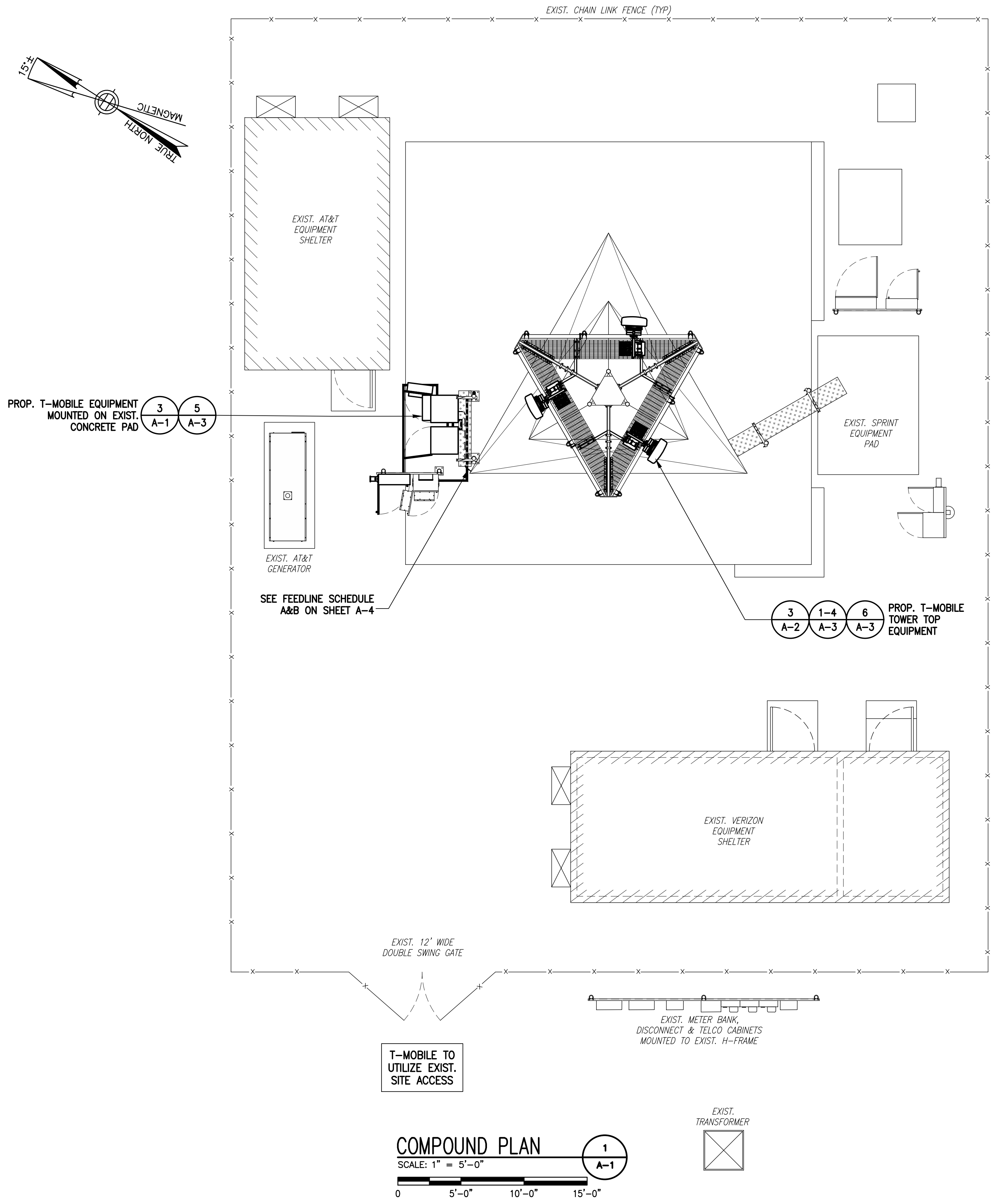
GENERAL NOTES

SHEET NUMBER

**GN-1**

**SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):**  
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**SPECIAL CONSTRUCTION NOTE:**  
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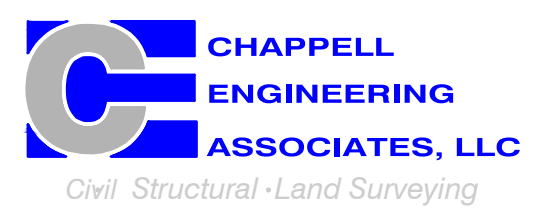


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 NORTON, MA 02766  
 (508) 286-2700



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SHEET TITLE  
**COMPOUND & EQUIPMENT PLAN**

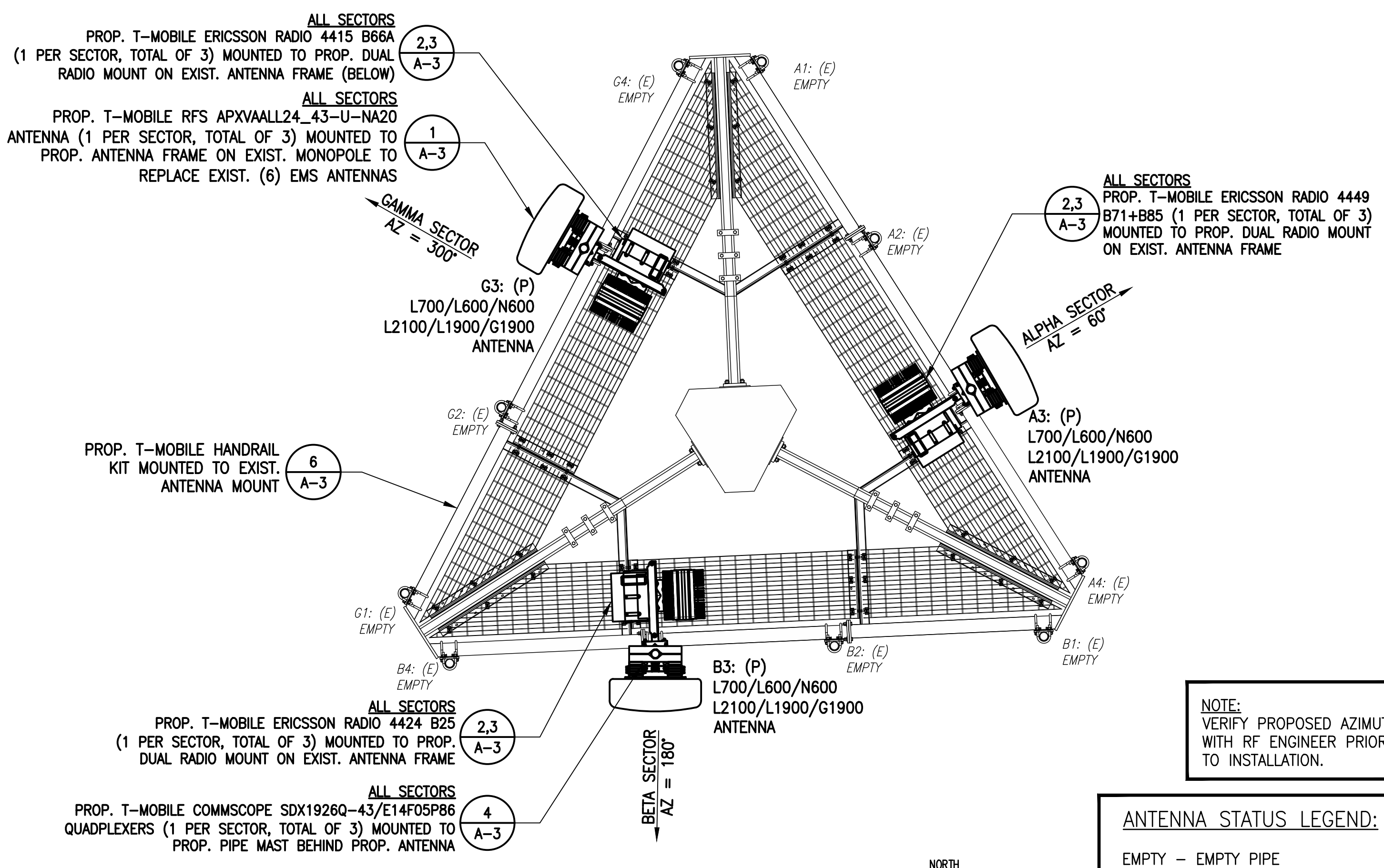
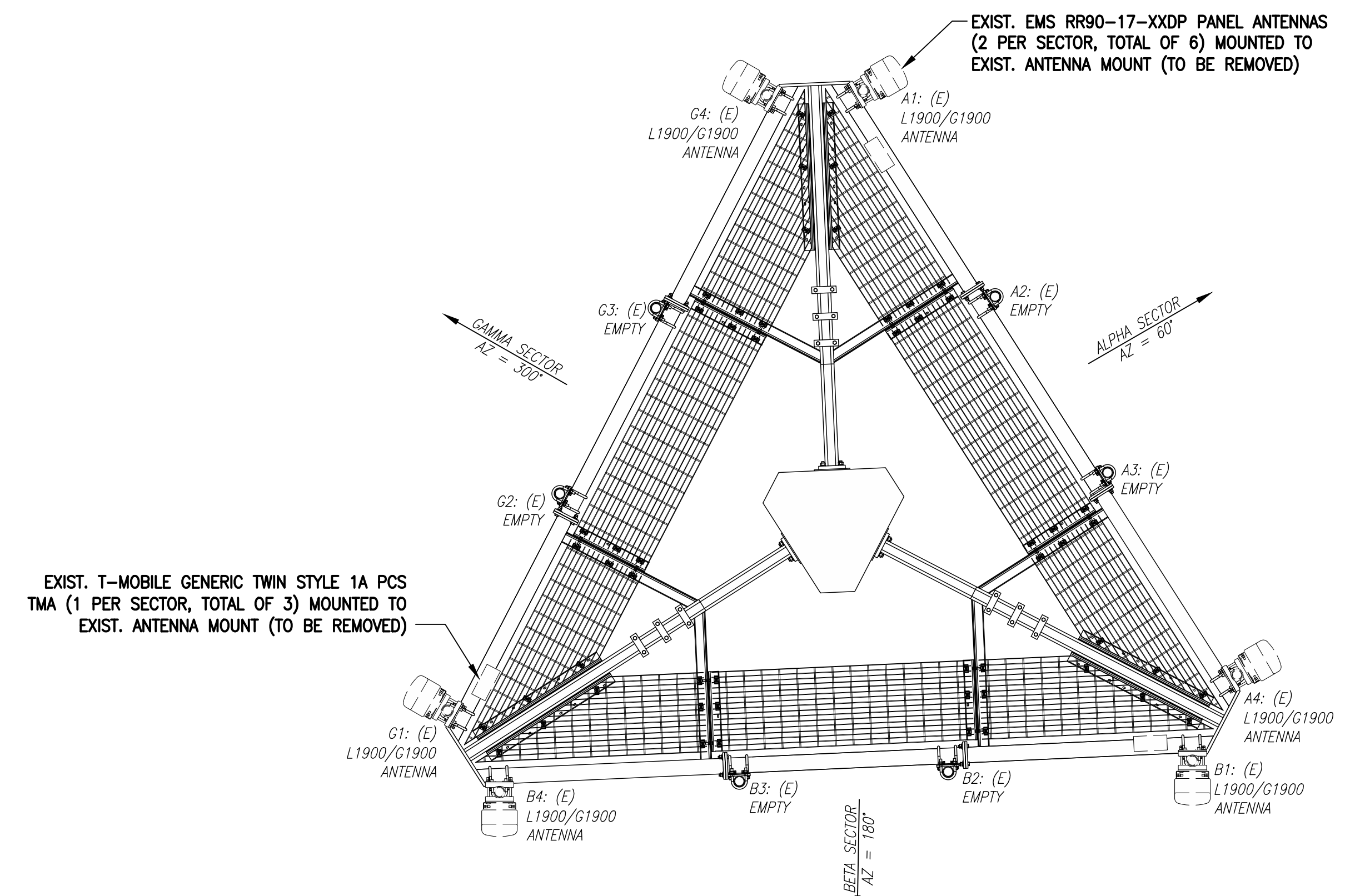
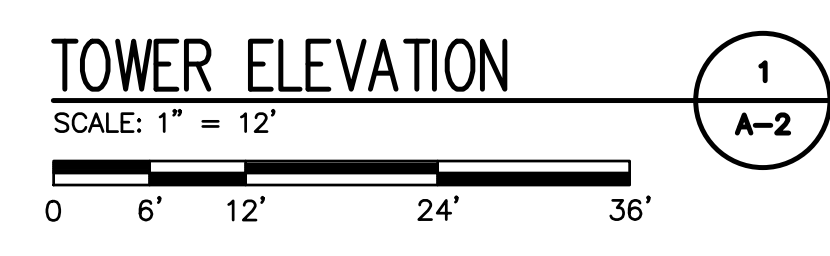
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**RAD CENTER NOTE:**  
 T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE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

- ALL SECTORS  
 PROP. T-MOBILE ERICSSON RADIO 4449 B71+B85 (1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROP. DUAL RADIO MOUNT ON EXIST. ANTENNA FRAME
- TOP OF PROP. (3) T-MOBILE ANTENNAS  
 EL. = 195.0'± AGL
- TOP OF EXIST. LATTICE TOWER  
 EL. = 193'-0"± AGL
- PROP. (3) T-MOBILE ANTENNAS  
 EL. = 191.0'± AGL
- EXIST. (9) AT&T ANTENNAS  
 EL. = 182'-0"± AGL
- EXIST. (6) SPRINT ANTENNAS  
 EL. = 175'-0"± AGL
- EXIST. (12) VERIZON ANTENNAS  
 EL. = 162'-0"± AGL

NOTE:  
 GROUND EQUIPMENT &  
 DISH ANTENNAS NOT  
 SHOWN, FOR CLARITY.



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

**ANTENNA STATUS LEGEND:**

EMPTY - EMPTY PIPE

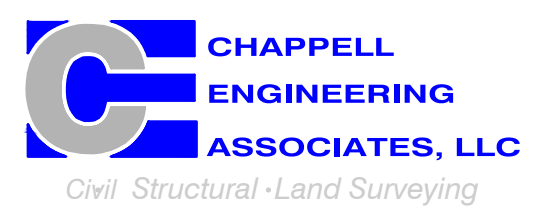
(E) - EXISTING  
 (P) - INSTALL  
 (F) - FUTURE

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 (508) 286-2700



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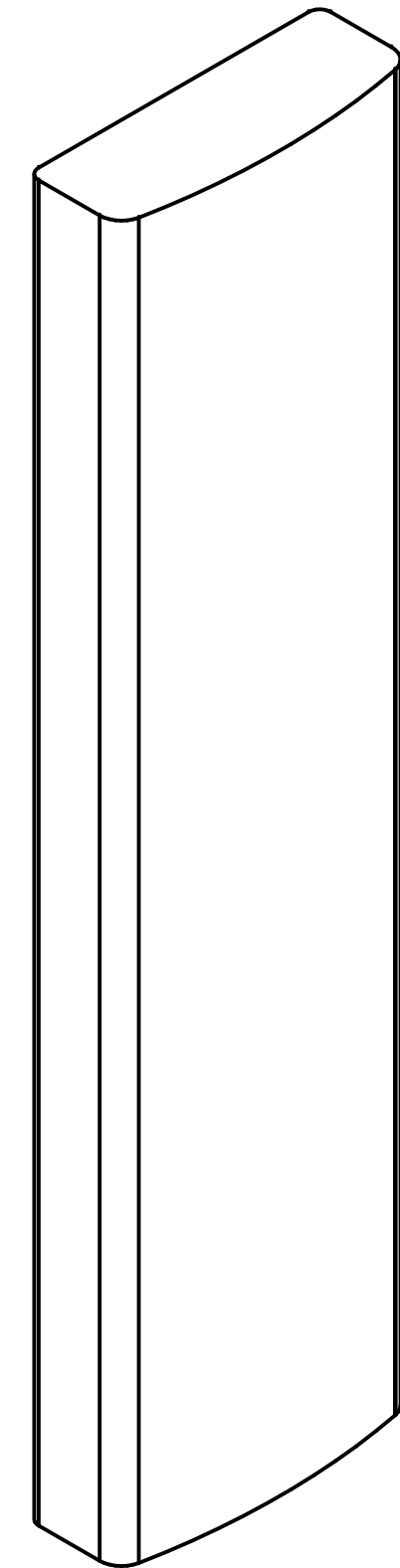
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SHEET TITLE  
**TOWER ELEVATIONS &  
 ANTENNA PLAN**

SHEET NUMBER  
**A-2**



**RFS APXVAALL24 43-U-NA20 ANTENNA**  
 DIMENSIONS: 95.9"H x 24.0"W x 8.7"D  
 WEIGHT: 128.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

**ANTENNA DETAILS** 1  
 SCALE: N.T.S. A-3



**ERICSSON RADIO 4424 B25**  
 DIMENSIONS: 16.5"H x 13.5"W x 9.6"D  
 WEIGHT: 88.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3



**ERICSSON RADIO 4415 B66A**  
 DIMENSIONS: 16.5"H x 13.4"W x 5.9"D  
 WEIGHT: 46.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

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



**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 RR-FA2 FAST ACCESS  
 DUAL RRU MOUNT KIT**  
 DIMENSIONS: 16.4"H x 8.6"W x 18"L  
 WEIGHT: 36.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

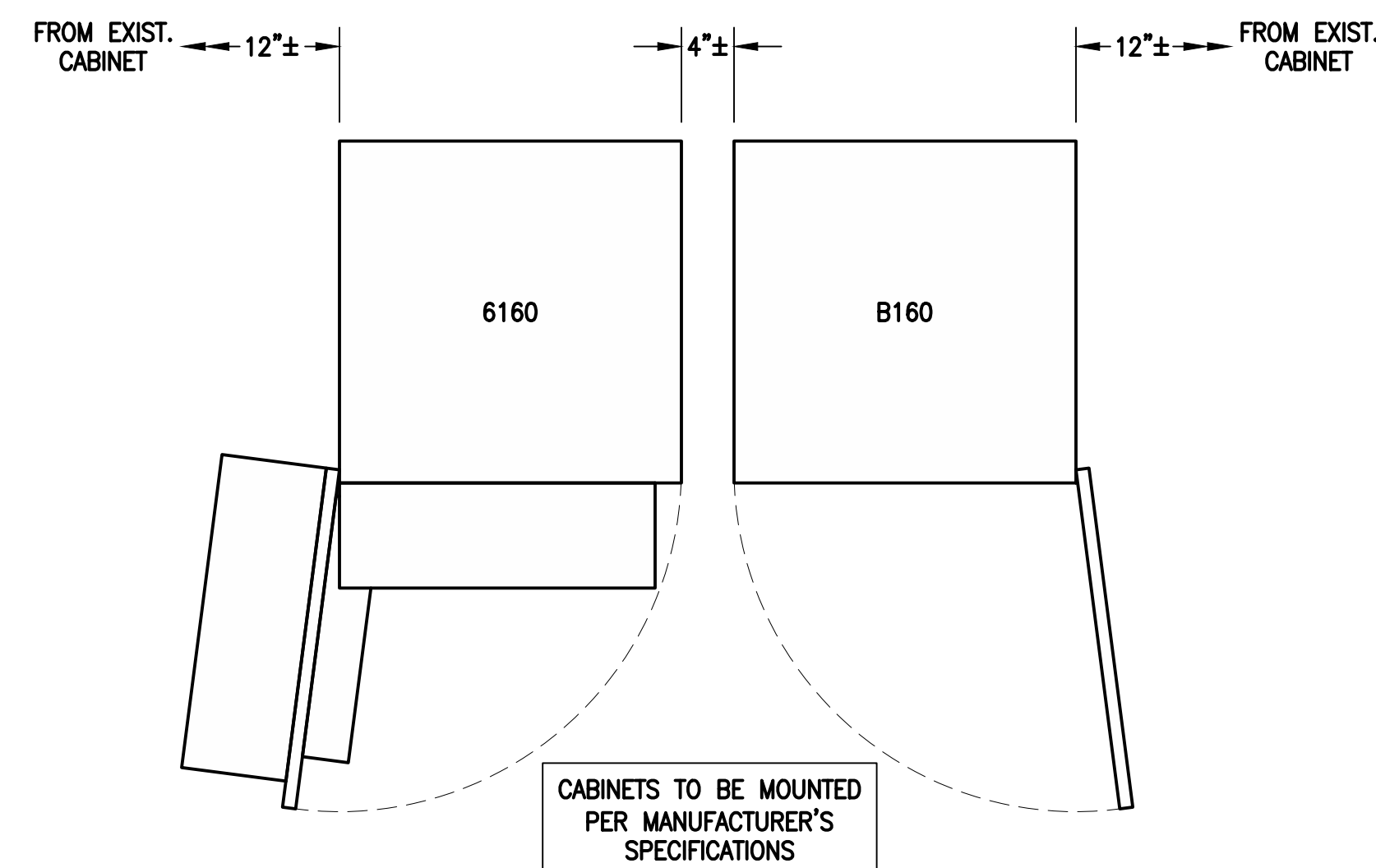
**RADIO MOUNT DETAIL** 3  
 SCALE: N.T.S. A-5



**COMMSCOPE SDX1926Q-43 QUADPLEXER**  
 DIMENSIONS: 4.2"H x 6.9"W x 2.9"D  
 WEIGHT: 6.2 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

**DIPLEXER DETAIL** 4  
 SCALE: N.T.S. A-3

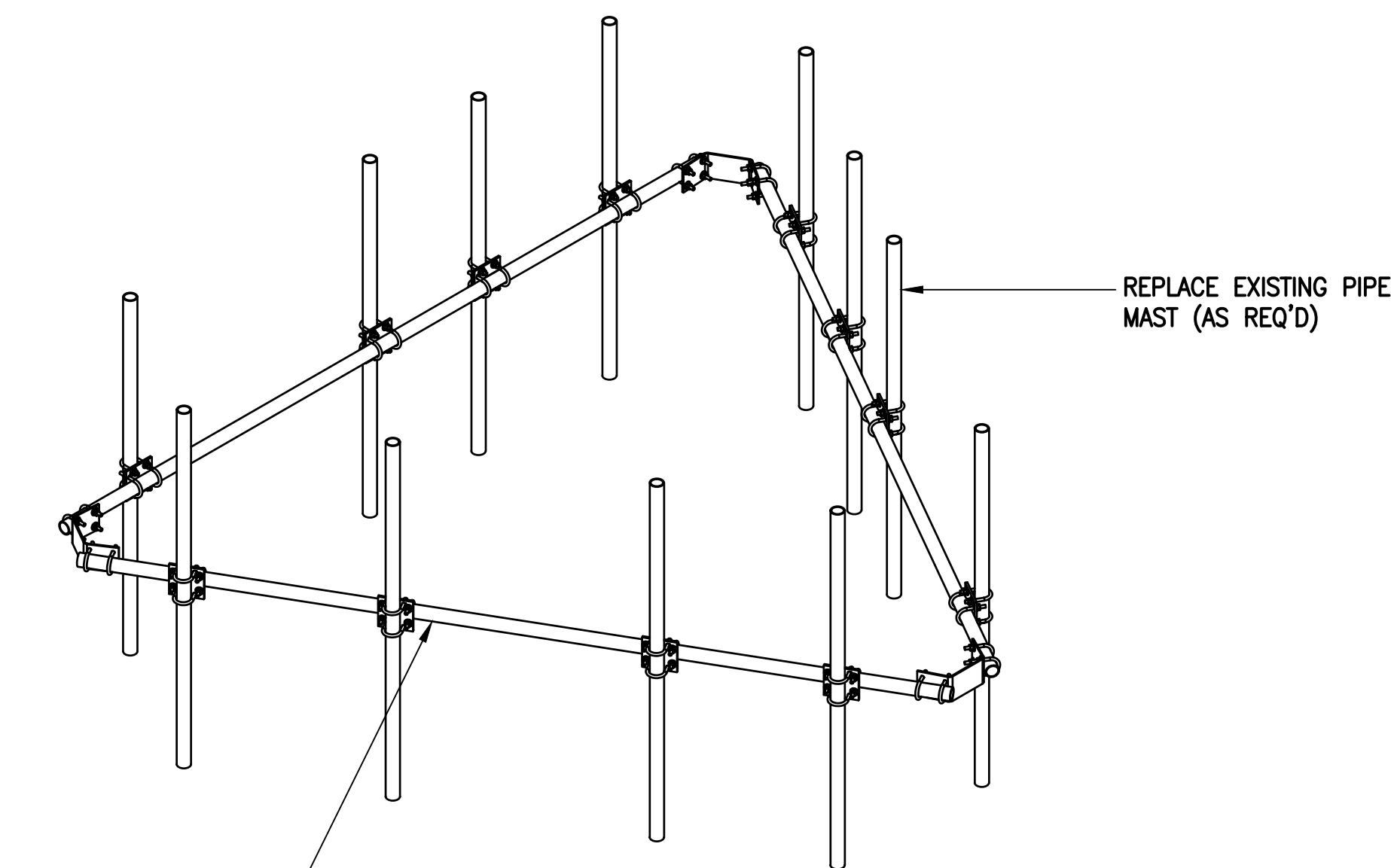
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**ERICSSON 6160 SITE SUPPORT CABINET**  
 DIMENSIONS: 63.25"H x 26.0"W x 34.0"D  
 WEIGHT: 680.0 lbs  
 QUANTITY: TOTAL OF 1

**ERICSSON B160 BATTERY CABINET**  
 DIMENSIONS: 63.25"H x 26.0"W x 26.0"D  
 WEIGHT: 1771.0 lbs  
 QUANTITY: TOTAL OF 1

**EQUIPMENT DETAIL** 5  
 SCALE: N.T.S. A-3



NOTE:  
 ANTENNAS & ANTENNA MOUNT NOT SHOWN, FOR CLARITY.

**SITE-PRO HANDRAIL KIT**  
 PART NUMBER: HRK12

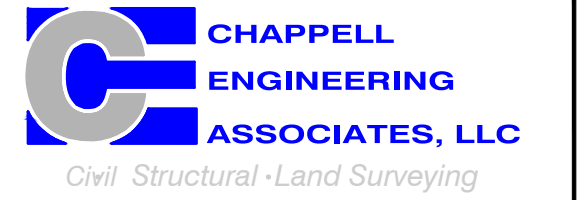
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 SCALE: N.T.S. A-3

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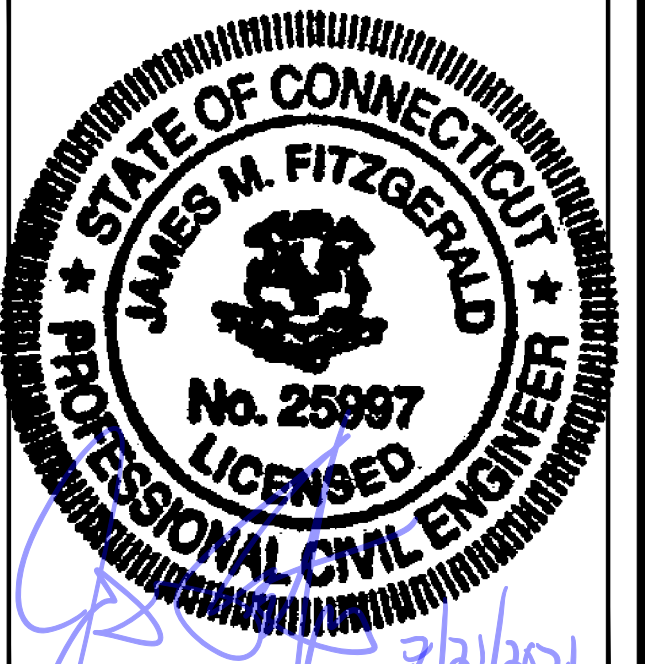
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SHEET TITLE  
**SITE DETAILS**

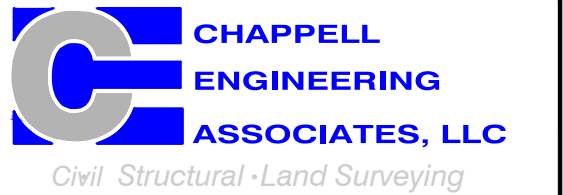
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**A-3**

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NORTON, MA 02766  
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SHEET TITLE  
**ANTENNA & FEEDLINE  
CHARTS**

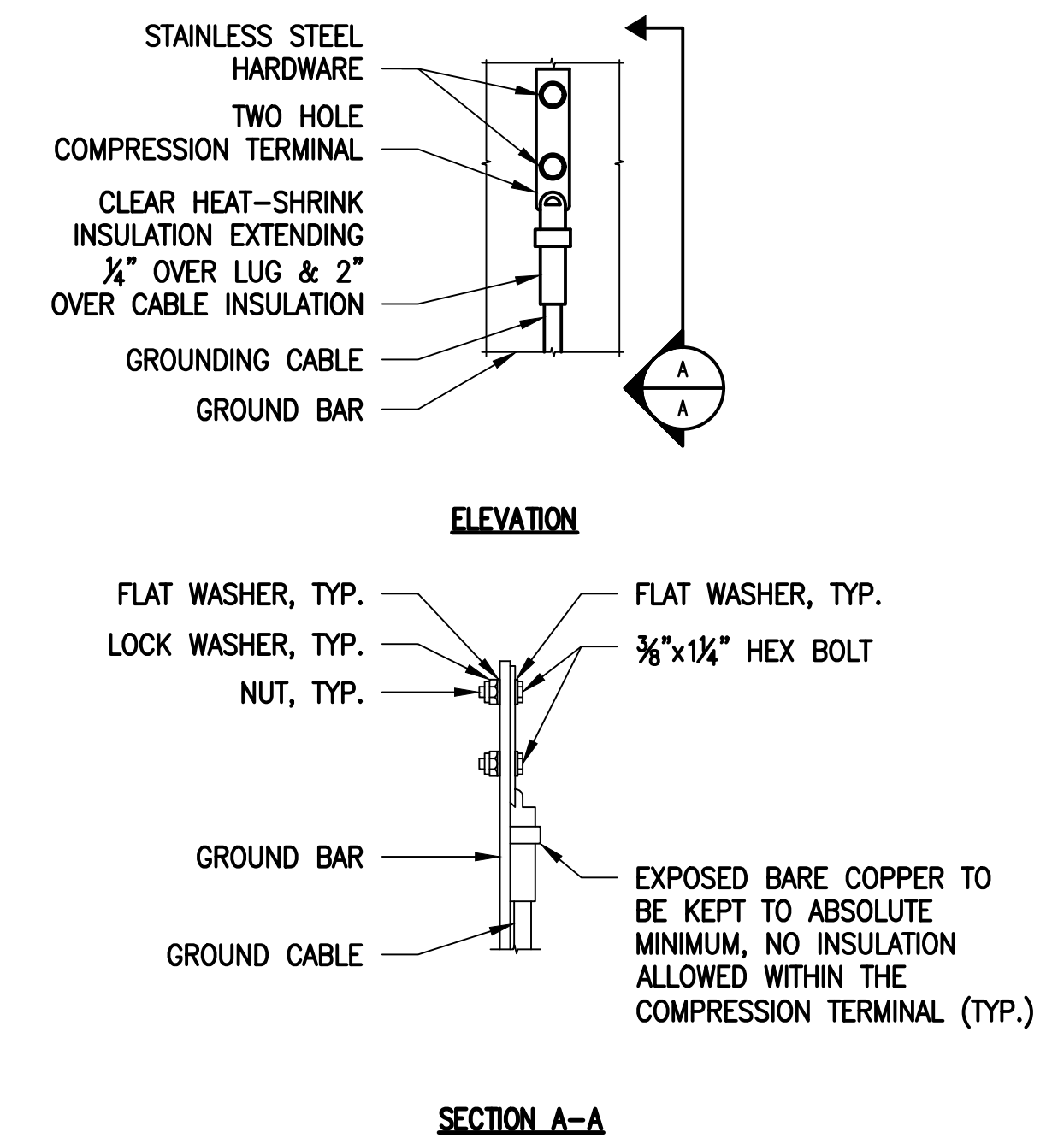
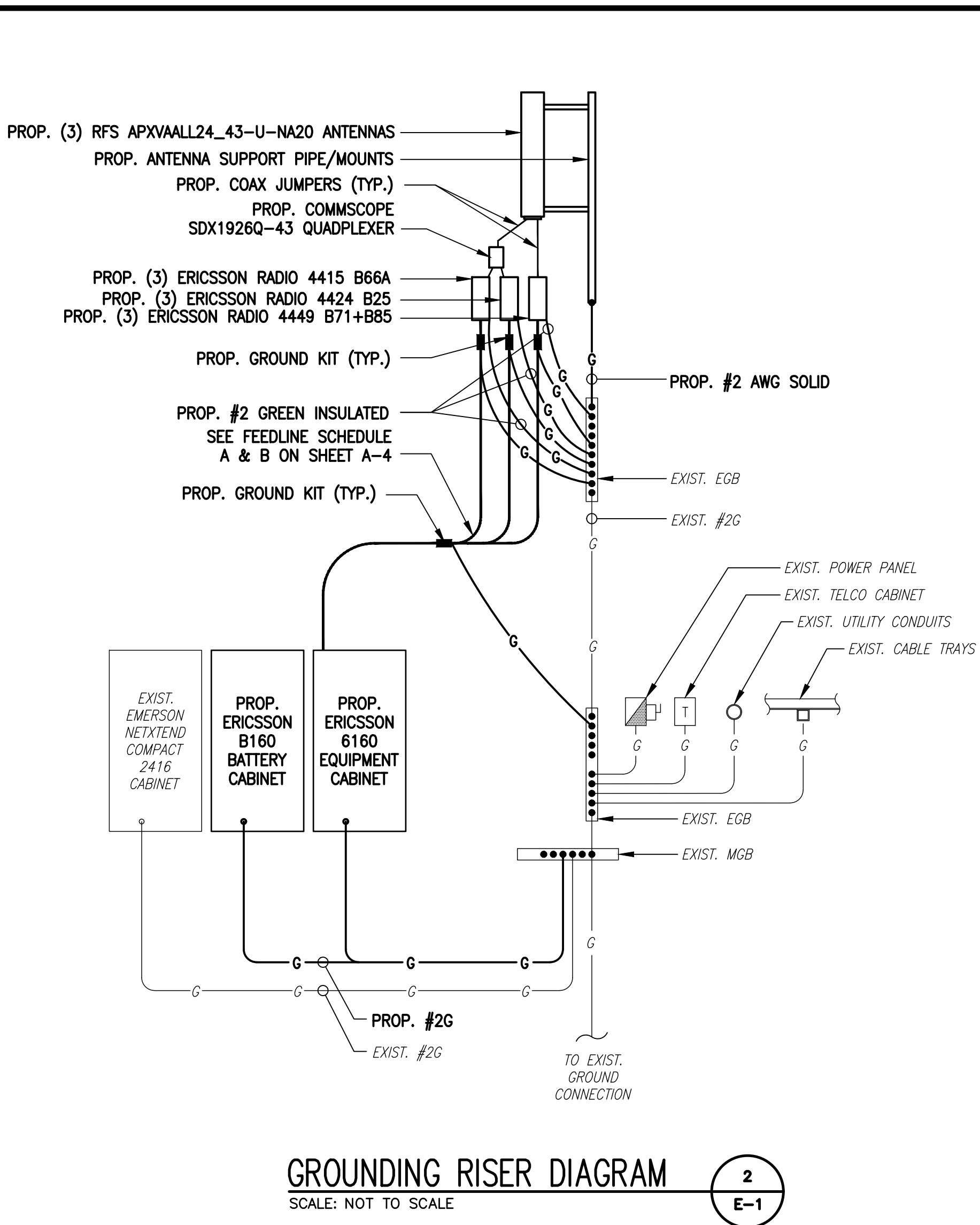
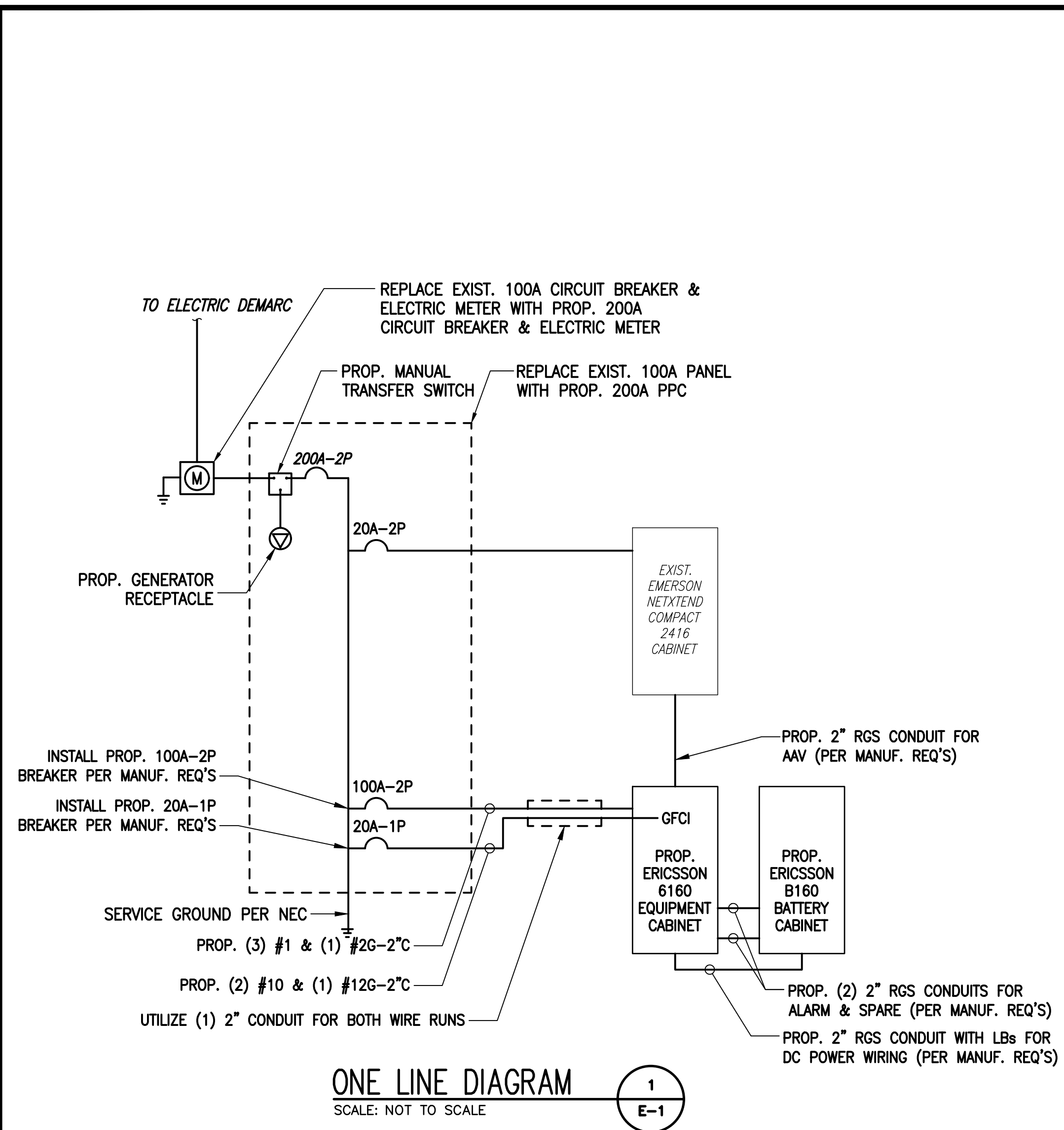
SHEET NUMBER  
**A-4**

FINAL ANTENNA CONFIGURATION										
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES		
ALPHA	A1	EMPTY	-	-	-	-	-	(3) 2" (6x24) HCS FIBER CABLES		
	A2	EMPTY	-	-	-	-	-			
	A3	RFS APXVAALL24_43-U-NA20	191'± AGL	60°	0°	-	L700/L600/N600		RADIO 4449 B71+B85	
							L2100/L1900/G1900		RADIO 4424 B25	
									RADIO 4415 B66A	
A4	EMPTY	-	-	-	-	-	-			
BETA	B1	EMPTY	-	-	-	-	-		(3) 2" (6x24) HCS FIBER CABLES	
	B2	EMPTY	-	-	-	-	-			
	B3	RFS APXVAALL24_43-U-NA20	191'± AGL	180°	0°	-	L700/L600/N600			RADIO 4449 B71+B85
							L2100/L1900/G1900			RADIO 4424 B25
								RADIO 4415 B66A		
B4	EMPTY	-	-	-	-	-	-			
GAMMA	C1	EMPTY	-	-	-	-	-	(3) 2" (6x24) HCS FIBER CABLES		
	C2	EMPTY	-	-	-	-	-			
	C3	RFS APXVAALL24_43-U-NA20	191'± AGL	300°	0°	-	L700/L600/N600			RADIO 4449 B71+B85
							L2100/L1900/G1900			RADIO 4424 B25
									RADIO 4415 B66A	
C4	EMPTY	-	-	-	-	-	-			

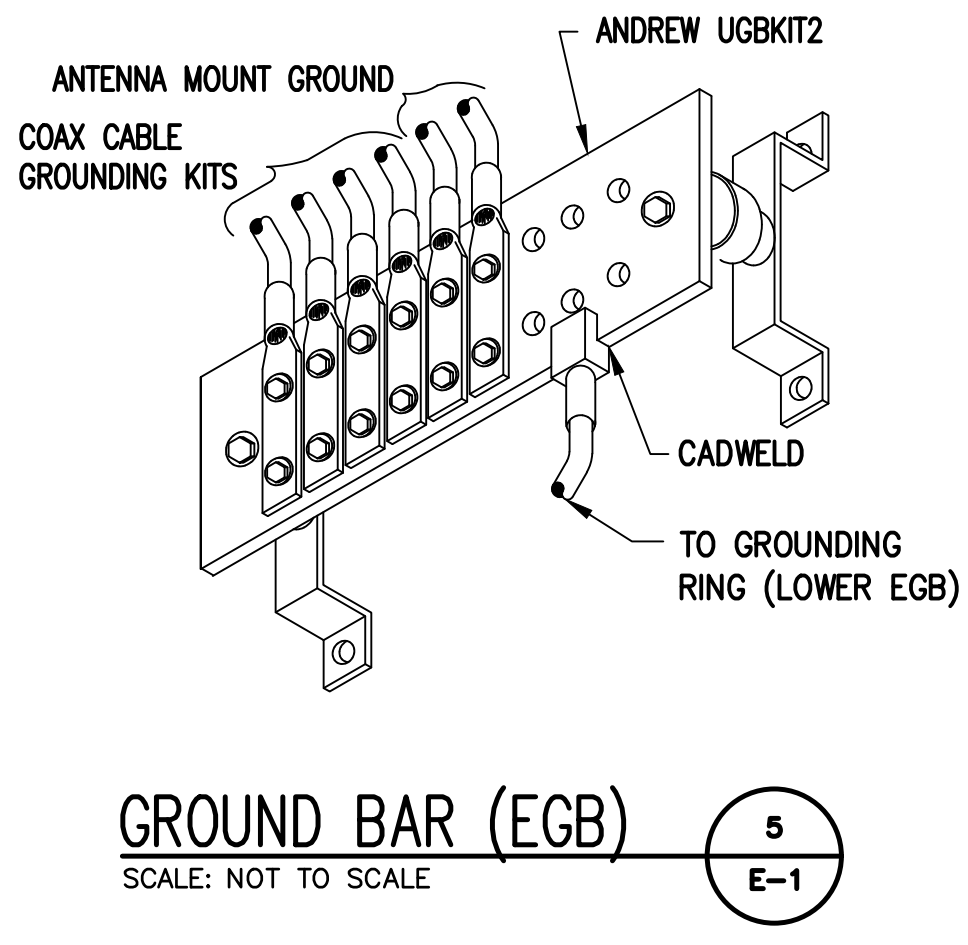
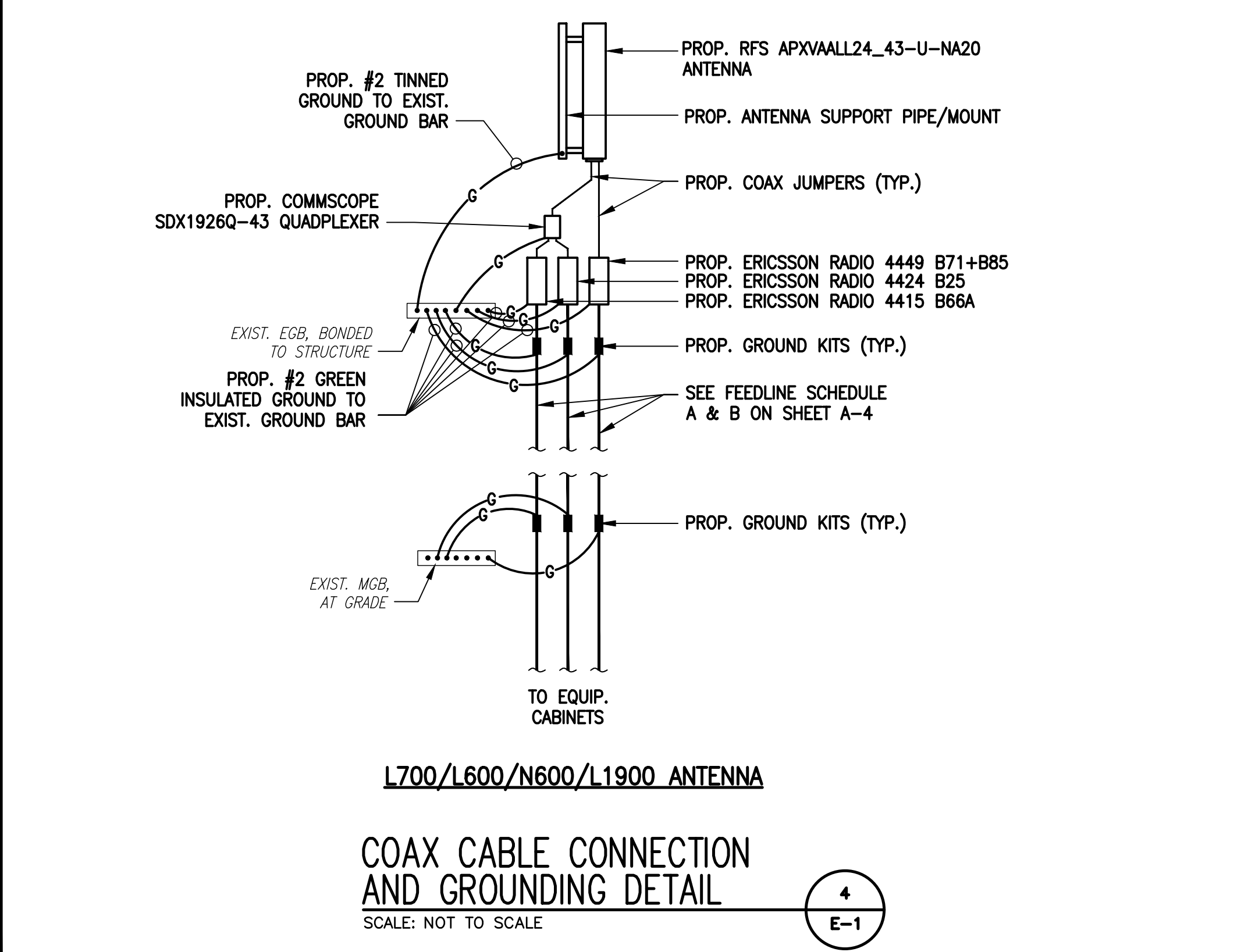
CABLE NOTE: EXISTING (4) 1-3/8" COAX CABLES TO BE REMOVED. EXISTING (8) 1-1/2" COAX CABLES TO REMAIN CAPPED & WRAPPED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV3 - 03/04/21

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (2) 1/2" COAX CABLE (8) 1-1/2" COAX CABLES (CAPPED & WRAPPED)  EXISTING TO BE REMOVED: (4) 1-3/8" COAX CABLES	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES	
NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.		



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



**ELECTRICAL AND GROUNDING NOTES**

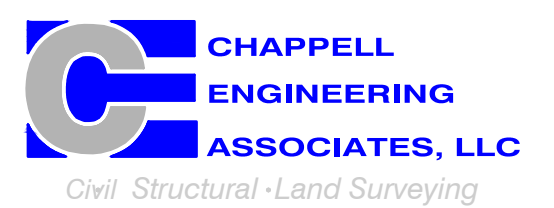
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED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

**T-MOBILE NORTHEAST LLC**

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



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



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



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
4	07/21/21	REVISED CONSTRUCTION	JRV
3	06/14/21	REVISED CONSTRUCTION	JRV
2	05/12/21	REVISED CONSTRUCTION	JRV
1	03/22/21	ISSUED FOR CONSTRUCTION	JRV
0	06/07/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:  
**CT11313A**

SITE ADDRESS:  
131 GIFFORD LANE  
BOZRAH, CT 06334

SHEET TITLE  
**ELECTRIC & GROUNDING DETAILS**

SHEET NUMBER  
**E-1**

# EXHIBIT 7



T-MOBILE: CT11313A  
SBA: CT01105-S BOZRAH

**MOUNT AUGMENTATION @ 189' (LOWERED FROM 191')**

SELF SUPPORT TOWER

BOZRAH, CT  
NEW LONDON COUNTY

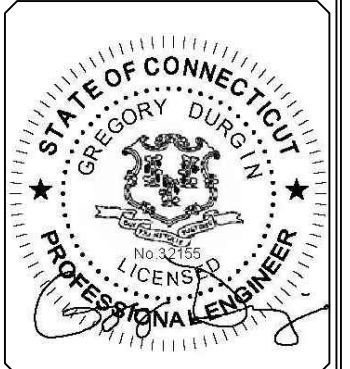


PO BOX 2621, BOISE, ID 83701  
530.539.4787  
CONTACT@GEOSTRUCTURAL.COM  
WWW.GEOSTRUCTURAL.COM

REVISIONS:			
0	05/17/21	ISSUE FOR CONSTRUCTION	RWR

CHECKED BY: \_\_\_\_\_ DWG

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SITE INFORMATION:  
MOUNT AUGMENTATION  
T-MOBILE: CT11313A  
SBA: CT01105-S BOZRAH  
  
BOZRAH, CT  
LATITUDE: 41.552588  
LONGITUDE: -72.150833

SHEET TITLE:  
  
TITLE SHEET

SHEET NUMBER:  
**S-1**

**SITE INFORMATION**

STRUCTURE TYPE: SELF SUPPORT  
MOUNT TYPE: TOP-MOUNTED PLATFORM  
LATITUDE: 41.552588 (NAD 83)  
LONGITUDE: -72.150833 (NAD 83)  
CITY / STATE: BOZRAH, CT  
COUNTY: NEW LONDON  
  
COORDINATES ARE FOR NAVIGATIONAL PURPOSES ONLY, NOT TO 1A ACCURACY.

**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE LABOR & MATERIALS FOR THE DISCREPANCIES.

**CODE COMPLIANCE**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.  
  
BUILDING CODE AND DESIGN STANDARD: 2015 IBC / TIA-222 / 2018 CT BUILDING CODE

**A&E INFORMATION**

DON GEORGE, SE  
PO BOX 2621, BOISE, ID 83701  
530.539.4787  
CONTACT@GEOSTRUCTURAL.COM  
WWW.GEOSTRUCTURAL.COM

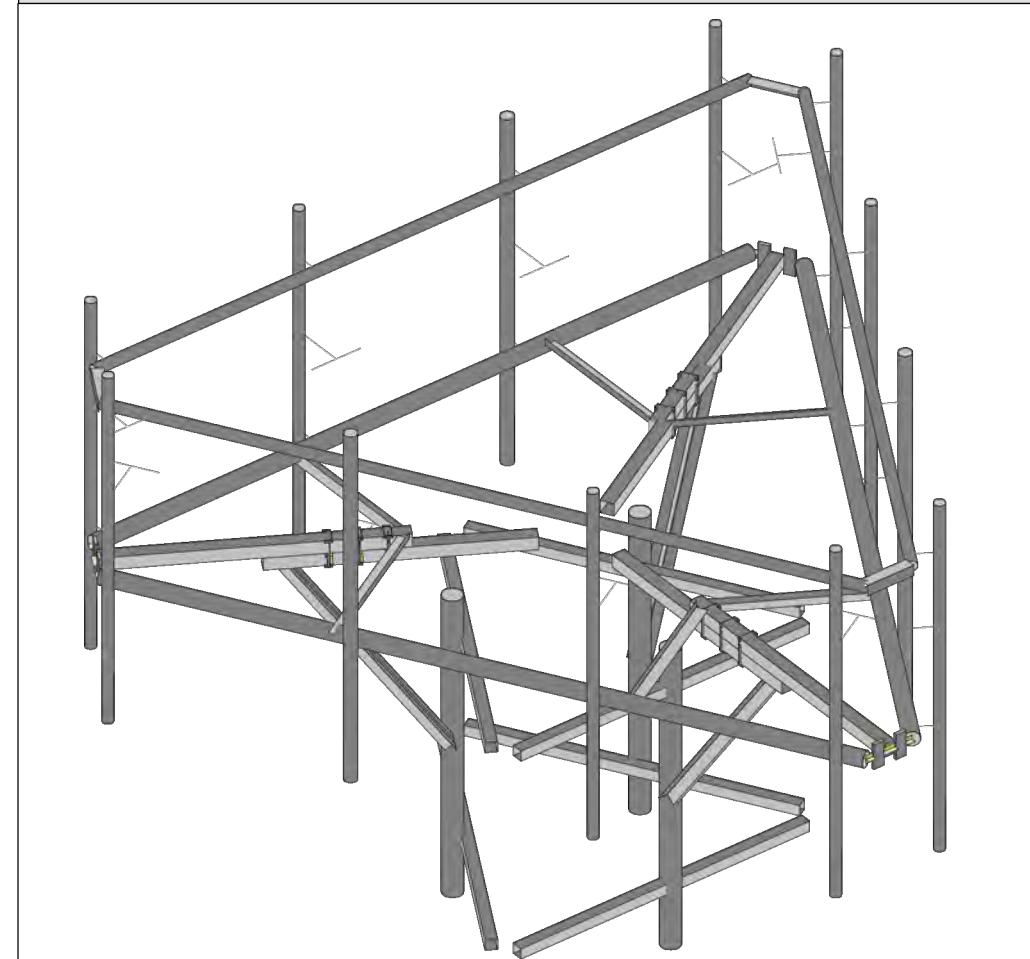
**GENERAL DESIGN NOTES**

- THIS PLAN HAS BEEN DESIGNED UTILIZING THE CORRESPONDING MOUNT STRUCTURAL ANALYSIS.
- THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
- ALL STRUCTURE INFORMATION OBTAINED IN THE FORM OF INFORMATION PROVIDED BY THE CLIENT. CONTRACTOR SHALL OBTAIN AND BECOME FAMILIAR WITH THE REFERENCED DOCUMENTS. CONTRACTOR SHALL ISSUE A REQUEST FOR INFORMATION (RFI) IN THE EVENT ANY DISCREPANCIES ARE DISCOVERED BETWEEN THESE DOCUMENTS AND THE AS-BUILT CONDITIONS IN THE FIELD IN A SITE VISIT THAT SHALL BE PERFORMED PRIOR TO STARTING FABRICATION OR CONSTRUCTION.
- ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
- ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION (ONLY IF SPECIFICALLY REQUESTED BY ENGINEER).
- UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
- ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

**SHEET INDEX**

SHEET	DESCRIPTION
S-1	TITLE SHEET
S-2	NOTES AND SPECIFICATIONS
S-3	INSPECTION NOTES
S-4	AUGMENTATIONS, SECTIONS & DETAILS

**MOUNT AUGMENTATION CONFIGURATION**



**AUGMENTATION SCOPE**

MODIFY ALL SECTORS OF CARRIER'S EXISTING MOUNT INSTALLATION AS REQUIRED (UNLESS NOTED OTHERWISE)

**GENERAL PROJECT NOTES**

- CONTRACTOR IS RESPONSIBLE FOR ERECTING TEMPORARY BARRICADES AND/OR FENCING TO PROTECT THE SAFETY OF THE PUBLIC DURING CONSTRUCTION. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY BARRIERS AND REPAIR ALL DAMAGE TO PROPERTY ON THE SITE CAUSED BY THIS CONSTRUCTION. THE COST OF REPAIR IS THE CONTRACTOR'S RESPONSIBILITY.
- ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL MEASUREMENTS AT THE SITE PRIOR TO ORDERING ANY MATERIALS OR CONDUCTING ANY WORK.
- THESE PLANS DO NOT ADDRESS THE SAFETY AND STABILITY OF THE STRUCTURE DURING ASSEMBLY AND ERECTION, WHICH ARE THE RESPONSIBILITY OF THE ERECTOR, BASED ON THE MEANS AND METHODS CHOSEN BY THE ERECTOR.

**CONTRACTOR NOTES**

- PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
- IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
- THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED AUGMENTATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE AUGMENTATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "AUGMENTATION INSPECTION NOTES" SHEET.
- THE CONTRACTOR SHALL NOTIFY THE TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED AUGMENTATION INSPECTIONS & TESTING (WHEN APPLICABLE).
- IT IS ASSUMED THAT ANY STRUCTURAL AUGMENTATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, ET CETERA.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

**STRUCTURAL ERECTION AND BRACING REQUIREMENTS**

- THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED.
- THE CONTRACTOR SHALL PROVIDE SHORING AND BRACING AS REQUIRED DURING CONSTRUCTION TO ENSURE STABILITY. DESIGN AND SEQUENCING OF CONSTRUCTION SHORING AND BRACING IS OUTSIDE THE SCOPE OF THIS WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, GUYING, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.

**STRUCTURAL STEEL**

- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC STEEL CONSTRUCTION MANUAL AND SECTION 4 OF THE TIA CODE.
- PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM GRADES UNLESS OTHERWISE NOTED:
  - CHANNELS & ANGLES ..... ASTM A36, (Fy = 36 KSI)
  - PLATES ..... ASTM A36, (Fy = 36 KSI)
  - PIPES ..... ASTM A53 GR.B, (Fy = 35 KSI)
  - HSS ROUND ..... ASTM A500 GR.B, (Fy = 42 KSI)
  - HSS RECTANGULAR ..... ASTM A500 GR.B, (Fy = 46 KSI)
  - W-FLANGE ..... ASTM A992 (Fy = 50 KSI)
  - STRUCTURAL BOLTS ..... ASTM A325
  - U-BOLTS ..... ASTM A307 GR.A
  - NUTS FOR BOLTS ..... ASTM A563 (THREADING TO MATCH BOLT)
  - WASHERS FOR BOLTS ..... ASTM F436
  - SEE TABLE 5-1 OF THE TIA CODE FOR ADDITIONAL SHAPES AND STANDARDS THAT ARE NOT LISTED ABOVE.
- NON PRE-QUALIFIED STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS PER THE TIA CODE:
  - THE CARBON EQUIVALENT OF STEEL SHALL NOT EXCEED 0.65 PER SECTION 5.4.2 OF THE TIA CODE
  - ELONGATION OF STEEL SHALL NOT BE LESS THAN 18%
  - TEST REPORTS SHALL BE IN ACCORDANCE WITH ASTM A6 OR A568
  - TOLERANCES SHALL BE IN ACCORDANCE WITH ASTM A6
- FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH AND COLD GALVANIZED.
- ALL WELDING WORK SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY. WELDING ELECTRODES SHALL BE E70XX.
- ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO AISC SPECS AND CODES, LATEST EDITION.
- UPON REQUEST, THE CONTRACTOR SHALL SUBMIT DETAILED, ENGINEERED, COORDINATED AND CHECKED SHOP DRAWINGS FOR ALL STRUCTURAL STEEL TO THE ENGINEER OF RECORD TO REVIEW FOR COMPLIANCE WITH DESIGN INTENT PRIOR TO THE START OF FABRICATION AND/OR ERECTION. GEOSTRUCTURAL IS ABSOLVED OF ALL LIABILITY ASSOCIATED WITH THE MISINTERPRETATION OF THE CONSTRUCTION DOCUMENTS IF CONTRACTOR CHOOSES NOT TO SUBMIT SHOP DRAWINGS.
- TORCH-CUTTING OF ANY KIND SHALL NOT BE PERMITTED.
- ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED (3/16" MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
- ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN 1/2" SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZINC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
- MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

**STRUCTURAL BOLTS**

- ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED GALVANIZED HIGH STRENGTH ASTM A325 OR A490 BOLTS WITH THREADS EXCLUDED FROM SHEAR PLANE.
- FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES, WITH BOLT HEADS FACING DOWN WHERE APPLICABLE.
- ALL BOLTS AT EVERY CONNECTION SHALL BE INSTALLED SNUG-TIGHT UNTIL THE SECTION IS FULLY COMPACTED AND ALL PLIES ARE JOINED, AND THEN TIGHTENED FURTHER BY AISC - "TURN OF THE NUT" METHOD. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
- BOLT LENGTHS UP TO AND INCLUDING 4 DIAMETERS SHALL BE TENSIONED 1/3 TURN BEYOND SNUG-TIGHT. BOLT LENGTHS OVER 4 DIAMETERS SHALL BE 1 1/2 TURNS BEYOND SNUG-TIGHT.
- ALL BOLTED CONNECTIONS SHALL USE LOCK WASHERS.
- MINIMUM EDGE DISTANCE FOR BOLTS SHALL BE 1 1/2" CENTER TO EDGE UNLESS OTHERWISE NOTED.

**NOMINAL HOLE DIMENSIONS:**

BOLT Ø	STANDARD HOLE Ø
1/2"Ø	9/16"Ø
5/8"Ø	11/16"Ø
3/4"Ø	13/16"Ø
7/8"Ø	15/16"Ø
1"Ø	1 1/8"Ø

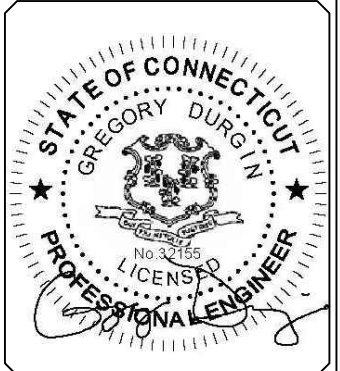


REVISIONS:

NO.	DATE	DESCRIPTION	BY
0	05/17/21	ISSUE FOR CONSTRUCTION	RWR

CHECKED BY: DWG

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SITE INFORMATION:  
**MOUNT AUGMENTATION**  
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 SBA: CT01105-S BOZRAH  
 BOZRAH, CT  
 LATITUDE: 41.552588  
 LONGITUDE: -72.150833

SHEET TITLE:  
**NOTES AND SPECIFICATIONS**

SHEET NUMBER:  
**S-2**

PRE-CONSTRUCTION INSPECTION CHECKLIST	
CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	AUGMENTATION INSPECTION CHECKLIST
√	APPROVED SHOP DRAWINGS (LATEST REVISION)
√	FABRICATION INSPECTION
	FABRICATOR'S CERTIFIED WELD INSPECTOR (CWI)
	FABRICATOR'S QUALIFIED PERSONNEL FOR WELDING
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
	FABRICATOR'S NON-DESTRUCTIVE TESTING (NDT) TECHNICIAN
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

CONSTRUCTION INSPECTION CHECKLIST	
CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	FOUNDATION INSPECTIONS
	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTING RESULTS/CERTIFICATES
	ADHESIVE ANCHOR ROD(S) INSTALLATION INSPECTION
	BASE PLATE GROUT INSPECTION
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
	SOIL EXCAVATION — DENSITY TESTING, COMPACTION INSPECTION/VERIFICATION, USE OF SUITABLE FILL
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
	GUY WIRE (RE-)TENSION REPORT AND INSPECTION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)

POST-CONSTRUCTION INSPECTION CHECKLIST	
CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	AUGMENTATION INSPECTOR'S ISSUE LIST (INCLUDING CORRECTIVE ACTIONS TAKEN) AND/OR REDLINED RECORD DRAWINGS
	POST-INSTALLED ADHESIVE ANCHOR ROD PULL-OUT TESTING
√	PHOTOGRAPHS OF AUGMENTATIONS (INCLUDE PHOTOS OF BOTH SIDES OF WELDED OR BOLTED CONNECTIONS, OF OVERALL AND DETAIL VIEWS OF INSTALLED AUGMENTATIONS, AND BEFORE/AFTER PHOTOS OF ANY ISSUES IDENTIFIED BY THE INSPECTOR)

GENERAL NOTES
1. THE POST-AUGMENTATION INSPECTION IS A VISUAL EXAMINATION OF STRUCTURE AUGMENTATIONS AND A REVIEW OF ANY REQUIRED CONSTRUCTION INSPECTIONS, TESTING, AND OTHER DATA TO VERIFY THAT THE AUGMENTATIONS ARE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS DESIGNED BY THE ENGINEER OF RECORD. THE CONTRACT DOCUMENTS INCLUDE THESE AUGMENTATION DRAWINGS, ANY PROJECT SPECIFICATIONS REFERENCED TO IN THE PROJECT NOTES OR OTHERWISE PROVIDED WITH THE DRAWINGS, AND OTHER DOCUMENTS OR DRAWINGS PROVIDED WITH THE AUGMENTATION DRAWINGS WITH THE INTENT THAT THEY BE USED AS A DESIGN AID OR GUIDELINE FOR CONSTRUCTION.
2. THE POST-AUGMENTATION INSPECTION SHALL CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A QUALITATIVE REVIEW OF THE ENGINEERING ASPECTS OF THE DESIGN OR THE DESIGN DRAWINGS. THE AUGMENTATION INSPECTOR IS NOT TAKING OWNERSHIP OF THE AUGMENTATION DESIGN IN THE PERFORMANCE OF THEIR DUTIES. OWNERSHIP OF THE AUGMENTATION DESIGN'S EFFECTIVENESS AND INTENT, LIES WITH THE ENGINEER OF RECORD.
3. TO ENSURE THAT THE REQUIREMENTS OF THE POST-AUGMENTATION INSPECTION ARE MET, IT IS ESSENTIAL THAT COORDINATION BETWEEN THE PRIME CONTRACTOR AND THE AUGMENTATION INSPECTOR BEGIN AS SOON AS THE PROJECT IS FUNDED AND WORK ENTERS THE PLANNING STAGE. THE PRIME CONTRACTOR AND AUGMENTATION INSPECTOR SHALL BE PROACTIVE IN IDENTIFYING CONSTRUCTION ISSUES AND COMMUNICATING THESE ISSUES TO EACH OTHER AND TO THE ENGINEER OF RECORD AND STRUCTURE OWNER AND/OR CUSTOMER, AS REQUIRED.

INSPECTION AND REPORT RECOMMENDATIONS
1. THE FOLLOWING ARE PROVIDED IN THE INTENT OF ENHANCING THE EFFECTIVENESS OF THE AUGMENTATION INSPECTION AND IMPROVING THE EFFICIENCY OF THE PROCESS OF COLLECTING AND COMPILING THE INFORMATION INTO A USABLE REPORT:
1.1. IT IS RECOMMENDED THAT THE PRIME CONTRACTOR PROVIDE THE AUGMENTATION INSPECTOR AT LEAST 5 BUSINESS DAYS NOTICE FOR WHEN THE SITE WILL BE READY FOR THE AUGMENTATION INSPECTION.
1.2. THE PRIME CONTRACTOR AND THE AUGMENTATION INSPECTOR SHALL COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
1.3. THE PRIME CONTRACTOR AND AUGMENTATION INSPECTOR SHALL BOTH BE PRESENT DURING THE INITIAL INSPECTION IN ORDER TO ALLOW FOR THE REMEDIATION OF DEFICIENCIES DURING THE INSPECTION, AS PRACTICABLE. IT MAY BE PREFERABLE TO KEEP WORK CREWS AND THEIR EQUIPMENT ON SITE TO REMEDIATE DEFICIENCIES DURING INSPECTIONS.

INSPECTION RESCHEDULING AND CANCELLATION
1. IF THE PRIME CONTRACTOR AND AUGMENTATION INSPECTOR HAVE AGREED UPON A TIME AND DATE FOR A GIVEN INSPECTION AND EITHER PARTY RESCHEDULES OR CANCELS THE INSPECTION, THE STRUCTURE OWNER SHALL NOT BE RESPONSIBLE FOR COSTS, FEES, LOST DEPOSITS, OR OTHER EXPENSES INCURRED BY THE PRIME CONTRACTOR, THEIR SUBCONTRACTOR(S), OR THE AUGMENTATION INSPECTOR DUE TO THESE SCHEDULING CHANGES. EXCEPTIONS MAY BE MADE IN THE EVENT OF UNCONTROLLABLE SITUATIONS SUCH AS NATURAL DISASTERS, SEVERE WEATHER, OR OTHER CONDITIONS THAT COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.




REMEDICATION OF FAILING INSPECTION
1. IN THE EVENT THAT ANY PORTION OF THE AUGMENTATION WORK IS DETERMINED TO BE UNSATISFACTORY BY THE MODIFICATION INSPECTOR, THE PRIME CONTRACTOR SHALL WORK WITH THE AUGMENTATION INSPECTOR TO CREATE A PLAN OF ACTION THAT WILL EITHER:
1.1. REPAIR THE DEFICIENT WORK TO SATISFACTORY CONDITION AND INCLUDE A SUBSEQUENT RE-INSPECTION OF THE WORK TO VERIFY THAT IT IS SATISFACTORY.
1.2. OR, WITH THE PERMISSION OF THE STRUCTURE OWNER AND/OR CUSTOMER, THE PRIME CONTRACTOR MAY WORK WITH THE ENGINEER OF RECORD TO REVIEW THE AS-BUILT CONDITION OF THE AUGMENTATION TO DETERMINE IF IT IS STRUCTURALLY ACCEPTABLE. IF THIS ACTION IS NOT ACCEPTABLE TO ANY PARTY, THE PRIME CONTRACTOR SHALL PROCEED TO REPAIR THE DEFICIENT WORK TO A SATISFACTORY CONDITION.

AUGMENTATION INSPECTOR'S RESPONSIBILITIES
1. THE AUGMENTATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION.
2. THE AUGMENTATION INSPECTOR SHALL CONTACT THE PRIME CONTRACTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THIS INSPECTION. THE AUGMENTATION INSPECTOR SHALL REVIEW THE REQUIREMENTS OF THE INSPECTION CHECKLIST, SHALL WORK WITH THE PRIME CONTRACTOR TO DEVELOP A SCHEDULE OF NECESSARY ON-SITE INSPECTIONS, AND SHALL DISCUSS ANY SITE-SPECIFIC INSPECTION REQUIREMENTS OR OTHER CONCERNS.
3. THE AUGMENTATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL PRIME CONTRACTOR INSPECTION AND TEST REPORTS (INCLUDING THOSE OF ASSIGNED SUB-CONTRACTORS), SHALL REVIEW THE REPORTS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHALL CONDUCT THE NECESSARY ON-SITE INSPECTIONS.

PRIME CONTRACTOR'S RESPONSIBILITIES
1. THE PRIME CONTRACTOR SHALL CONTACT THE AUGMENTATION INSPECTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THE AUGMENTATION INSTALLATION OR PROJECT. THE PRIME CONTRACTOR SHALL REVIEW THE REQUIREMENTS OF THE AUGMENTATION INSPECTION CHECKLIST, SHALL WORK WITH THE AUGMENTATION INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, AND SHALL DISCUSS SPECIFIC INSPECTION AND TESTING REQUIREMENTS WITH THE AUGMENTATION INSPECTOR IN DETAIL TO OBTAIN A FULL UNDERSTANDING OF THE REQUIRED INSPECTIONS AND TESTING.
2. THE PRIME CONTRACTOR SHALL PERFORM AND RECORD THE TESTING AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUGMENTATION INSPECTION CHECKLIST.

PHOTOGRAPHY REQUIREMENTS
1. THE PRIME CONTRACTOR AND AUGMENTATION INSPECTOR SHALL BETWEEN THE EFFORTS OF BOTH PARTIES AND THEIR EMPLOYED PERSONNEL PROVIDE PHOTOGRAPHS WITH THE INSPECTION REPORT TO INCLUDE THE FOLLOWING:
a. GENERAL SITE PHOTOGRAPHS PRE-CONSTRUCTION
b. AUGMENTATION INSTALLATION PHOTOGRAPHS DURING CONSTRUCTION/ERECTION OPERATIONS AND INSPECTIONS
b.1. RAW MATERIALS
b.2. PHOTOS OF DETAILED WORK REQUIRED ON THE DRAWINGS (CONNECTIONS, WELDMENTS, FIELD-FABRICATED MEMBERS, ETC)
b.3. BOLT INSTALLATION AND TORQUE/PRE-TENSION.
b.4. FINAL INSTALLED CONDITION (AFTER DEFICIENT CONDITIONS, IF ANY, ARE REMEDIATED).
b.5. REPAIR OF SURFACE COATINGS (INCLUDING GALVANIZING AND/OR PAINT COATING)
c. POST-AUGMENTATION PHOTOGRAPHS OF THE SITE & WORK.
d. PHOTOGRAPHS OF THE FINAL STATE OF THE SITE AT CONCLUSION OF THE WORK BY THE PRIME CONTRACTOR, ASSOCIATED SUBCONTRACTORS, AND THE AUGMENTATION INSPECTOR.
e. OTHER PHOTOS MAY BE INCLUDED AT PRIME CONTRACTOR & AUGMENTATION INSPECTOR'S DISCRETION.
NOTE: PHOTOS OF AUGMENTATIONS INSTALLED ON THE STRUCTURE ABOVE AN ELEVATION OF 20 FT SHALL REQUIRE PHOTOS TAKEN FROM THE STRUCTURE AS WELL AS OVERALL PHOTOGRAPHS OF THE AUGMENTATIONS TAKEN FROM THE GROUND.

OWNER INSPECTIONS
1. THE STRUCTURE OWNER MAY CONDUCT INSPECTIONS TO VERIFY THE QUALITY AND COMPLETENESS OF THE PREVIOUSLY COMPLETED AUGMENTATION INSPECTION REPORTS FOR THE AUGMENTATION INSTALLATION WORK.
2. INSPECTIONS MAY BE COMPLETED BY A 3RD-PARTY FIRM OF THE STRUCTURE OWNER'S CHOOSING AFTER A AUGMENTATION PROJECT IS COMPLETED AND A PASSING AUGMENTATION INSPECTION REPORT IS ISSUED.






PO BOX 2621, BOISE, ID 83701  
530.539.4787  
CONTACT@GEOSTRUCTURAL.COM  
WWW.GEOSTRUCTURAL.COM

REVISIONS:			
0	05/17/21	ISSUE FOR CONSTRUCTION	RWR

CHECKED BY: \_\_\_\_\_ DWG

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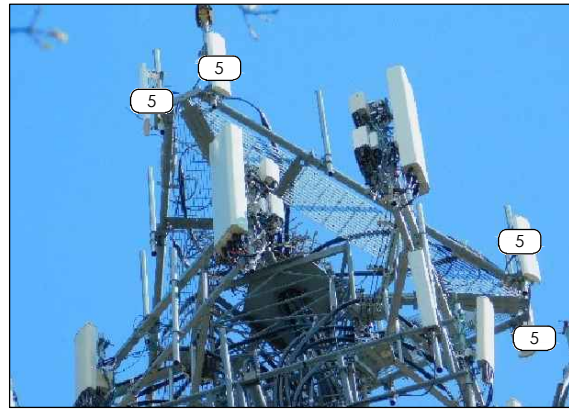
SITE INFORMATION:  
MOUNT AUGMENTATION  
T-MOBILE: CT11313A  
SBA: CT01105-S BOZRAH  
BOZRAH, CT  
LATITUDE: 41.552588  
LONGITUDE: -72.150833

SHEET TITLE:  
INSPECTION NOTES

SHEET NUMBER:  
**S-3**

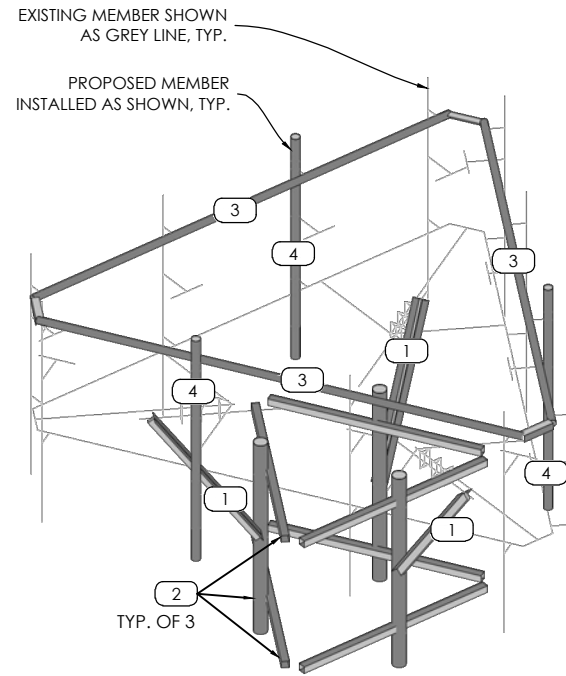
NEW MOUNT AUGMENTATIONS	
1	INSTALL PLATFORM REINFORCEMENT KIT; LOCATED 4.0' BELOW THE EXISTING STANDOFF CENTERLINE TO VERTICAL PIPES OF TAP-472 KITS AND ATTACHING TO THE TERMINAL END OF THE LOWER STANDOFF MEMBER. - SITEPRO1 PRK-1245L, (1) TOTAL.
2	INSTALL FACE MOUNT KITS; LOCATED BELOW MOUNT TO RECEIVE PRK KIT ON TOWER FACE. - SITEPRO1 TAP-472, (3) KITS TOTAL. VERIFY REQUIRED SIZE IN FIELD.
3	INSTALL HANDRAIL KIT; LOCATED 3.5' ABOVE THE EXISTING PLATFORM RAIL AND ATTACHING TO THE MOUNT PIPES. - SITEPRO1 HRK12-U OR 14-U, (1) TOTAL. VERIFY REQUIRED SIZE IN FIELD. ATTACH ALL MOUNT PIPES TO NEW HANDRAIL WITH KIT-PROVIDED CROSS-OVER PLATES.
4	INSTALL (3) PIPE2.5STD x 8'-0" MOUNT PIPES AT POSITION 3 MOUNT PIPE LOCATION (SUPPORTING RFS APXVAARR24_43-U-NA20 AND 4449 RRH). ATTACH NEW PIPE2.5STD MOUNT PIPES TO EXISTING BOTTOM RAIL PIPE AND TO NEW TOP HANDRAIL PIPE W/ NEW SITEPRO1 SCX x -43 CROSS-OVER PLATE ASSEMBLIES.
5	REINSTALL ALL EXISTING MOUNT PIPES APPROXIMATELY 24" DOWN. THE NEW CENTERLINE WILL BE APPROXIMATELY 189" FROM THE EXISTING 191".

AUGMENTATIONS SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY NEW EQUIPMENT.

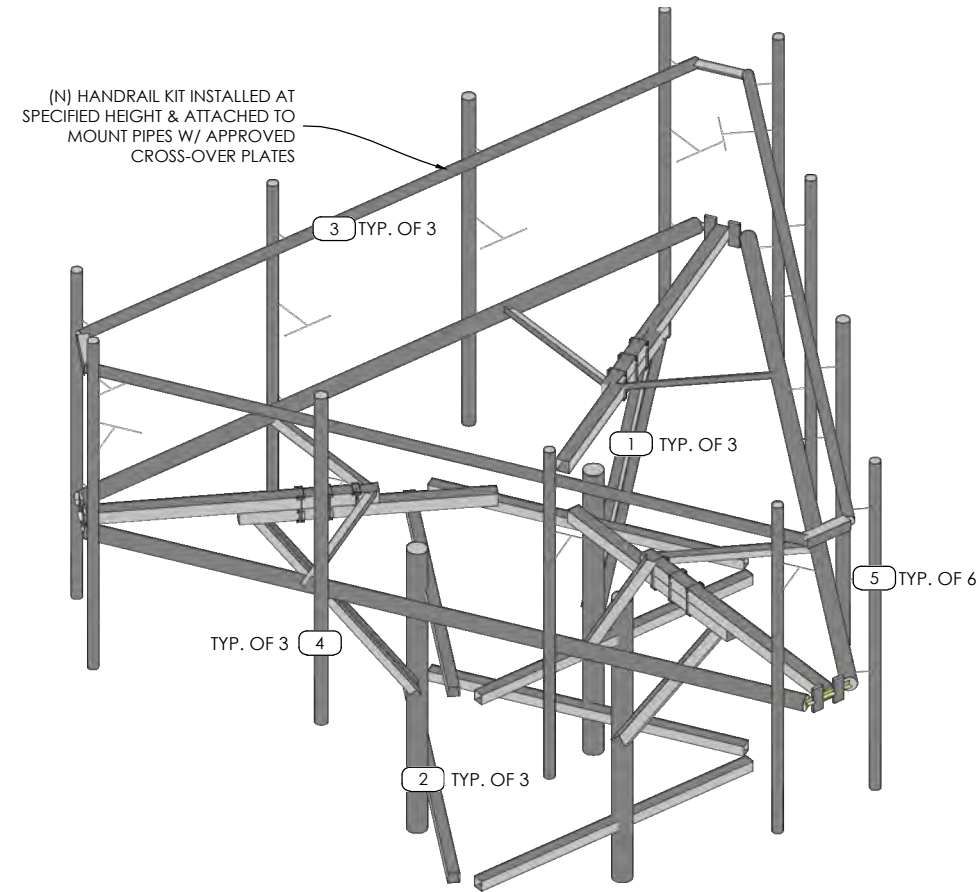


EXISTING MOUNT

### TOP-MOUNTED PLATFORM AUGMENTATION



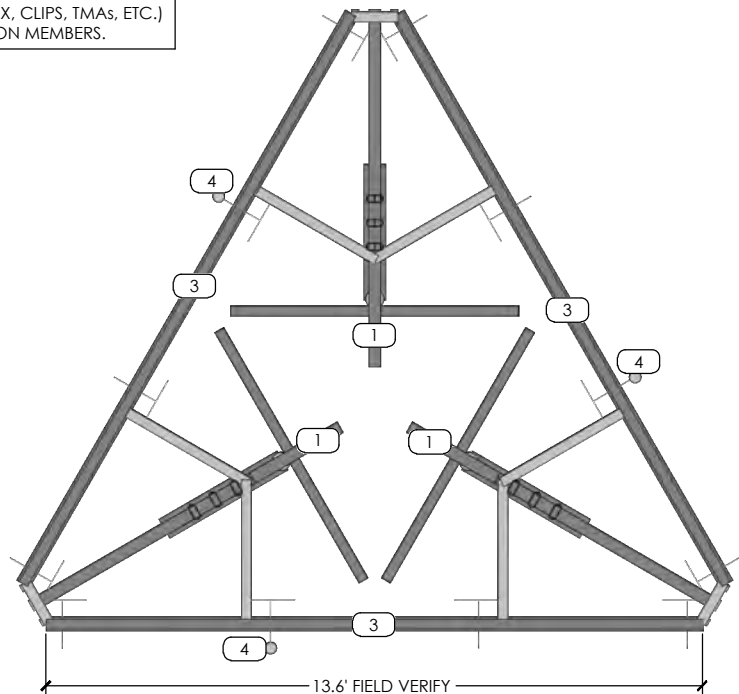
MOUNT AUGMENTATION ISOLATION  
SCALE: N.T.S.



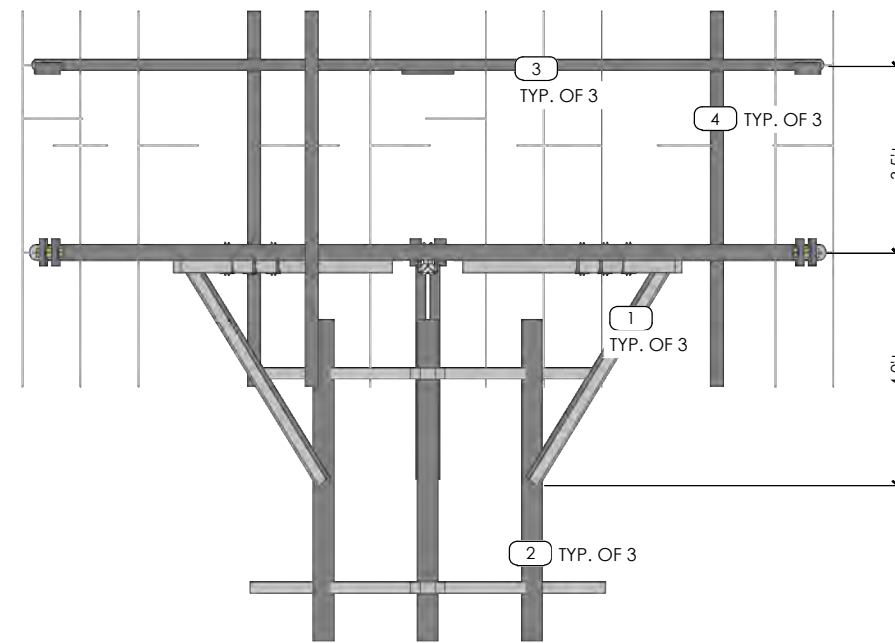
AUGMENTED MOUNT ISOMETRIC  
SCALE: N.T.S.

CONSTRUCTION NOTES	
1.	SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
2.	ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD-VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
3.	CONTRACTOR TO COORDINATE THE TEMPORARY REMOVAL/RELOCATION/REPLACEMENT OF ELEMENTS (E.G. COAX, CLIPS, TMAs, ETC.) CONNECTED TO, OR IN THE DIRECT PATH, OF NEW AUGMENTATION MEMBERS.

INSTALLATION NOTES	
1.	AUGMENTATION MEMBER(S) MAY NEED TO BE FIELD-CUT TO LENGTH TO ACCOMMODATE THIS INSTALLATION. CONTRACTOR TO CUT AND DRILL TO SUIT AS REQUIRED AND APPLY (2) COATS OF COLD-GALV. COMPOUND TO CUT MEMBER ENDS.
2.	CONTRACTOR TO CHECK ALL EXISTING MEMBER CONNECTION BOLTS, PARTICULARLY STANDOFF TO TOWER BOLTS, FOR PROPER INSTALLATION AND TIGHTNESS.
3.	COORDINATE PLACEMENT OF NEW AUGMENTATION MEMBERS WITH EXISTING TOWER AND CLIMBING FACILITY ELEMENTS (E.G. STEP PEGS, COAX PORTS, ETC.)
4.	REFER TO CONSTRUCTION DRAWINGS (BY OTHERS) AND MOUNT STRUCTURAL ANALYSIS FOR APPROVED INSTALLATION LOCATIONS AND QUANTITIES OF APPURTENANCES.



AUGMENTED MOUNT PLAN  
SCALE: N.T.S.



AUGMENTED MOUNT FRONT ELEVATION  
SCALE: N.T.S.

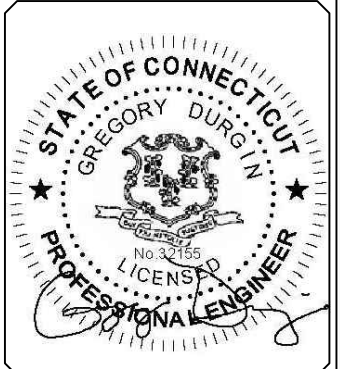


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SITE INFORMATION:  
MOUNT AUGMENTATION  
T-MOBILE: CT11313A  
SBA: CT01105-S BOZRAH  
BOZRAH, CT  
LATITUDE: 41.552588  
LONGITUDE: -72.150833

SHEET TITLE:  
AUGMENTATIONS  
SECTIONS &  
DETAILS

SHEET NUMBER:  
S-4

# EXHIBIT 8



**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 193 ft PIROD Self Supporting Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT01105-S**

**Customer Site Name: Bozrah**

**Carrier Name: T-Mobile (App#: 117006-3)**

**Carrier Site ID / Name: CT11313A / Bozrah**

**Site Location: 131 Gifford Lane**

**Bozrah, Connecticut**

**New London County**

**Latitude: 41.552517**

**Longitude: -72.150708**

Exp.10/31/2021

### **Analysis Result:**

**Max Structural Usage: 90.7% [Pass]**

**Max Foundation Usage: 73.0% [Pass]**

**Additional Usage Caused by Mount Modification: 4.4+%**



05/06/2021

**Report Prepared By : Tawfeeq Alajaj**

## Introduction

The purpose of this report is to summarize the analysis results on the 193 ft PIROD Self Supporting Tower 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>	PIROD Inc, dwg# 105243-b, date: 04/07/1999
<b>Foundation Drawing</b>	PIROD Inc, dwg# 204669-B, date: 04/07/1999
<b>Geotechnical Report</b>	JGI, Project# C98492G, Date: 12/4/1998
<b>Modification Drawings</b>	N/A

## Analysis Criteria

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

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 136.0$ 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>	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.17, S_1 = 0.061$

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

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	195.0	9	EMS RR90-17-02DP panels	Low profile Platform	(12) 1 5/8"	T-Mobile
2	182.0	3	Powerwave 7770	(3) Sector Frame (Commscope MTC3615)	(12) 1 5/8" Coax (4) 3/4" DC (3) 3/8" RET (2) 5/8" Fiber	AT&T
3		3	Cci HPA-65R-BUU-H8			
4		3	Cci DMP65R-BU8DA			
5		6	Powerwave LGP21401 TMA			
6		6	Powerwave LGP21902 Diplexer			
7		3	Ericsson 4449 B5/B12			
8		3	Ericsson RRUS 12			
9		3	Ericsson RRUS 11			
10		3	Ericsson RRUS 32			
11		3	Ericsson RRUS A2			
12		1	Raycap DC6-48-60-18-8F			
13		1	Raycap DC6-48-60-0-8C-EV			
14		175.0	3			
15	3		Commscope NNVV-65B-R4 Antenna			
16	3		ALU 1900 MHz RRH			
17	6		ALU 800 MHz RRH			
18	3		ALU TD-RRH 8X20-25			
19	162.0	6	Commscope HBXX-6517DS-A2M - Panel	(3) Sector Frame w/ Handrails	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
20		3	Commscope LNX-6514DS-A1M - Panel			
21		3	Amphenol QUAD656C0000x - Panel			
22		3	Alcatel Lucent RRH2x60-AWS – RRU			
23		3	Alcatel Lucent RRH2x60-1900 – RRU			
24		3	Alcatel Lucent RRH2x60-700 – RRU			
25		6	RFS FD9R6004/2CL-3CL - TMA/TTA			
26		2	RFS DB-T1-6Z-8AB-OZ – SP			
27	100.0	1	Lucent KS24019-L112A GPS	Direct Mount	(1) GPS Line	
28	30.0	2	Andrew PC1N0F-0190B-002ME911 Omni	Direct mount	(2) 1/2"	T-Mobile



**Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines**

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	191.0	6	EMS - EMS RR90-17-02DP - Panel	Modified Low Profile Platform with PRK-1245L, (3) TAP-472 and (1) HRK12-U	(8) 1 5/8" (3) 1.9" Fiber	T-Mobile
2		3	RFS - RFS APXVAARR24_43-U-NA20 - Panel			
3		3	CommScope SDX1926Q-43 Diplexers			
4		3	Ericsson Radio 4449 B71 + B85			
5		3	Ericsson 4424 B25			
6		3	Ericsson 4415 B66A			
28	30.0	2	Andrew PC1N0F-0190B-002ME911 Omnis	Direct mount	(2) 1/2"	

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:

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	<b>77.0%</b>	<b>90.7%</b>	<b>6.3%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	425.4	371.7	44.7

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

### **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2813 degrees under the operational wind speed as specified in the Analysis Criteria.

### **Conclusions**

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

## Standard Conditions

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

## Structure: CT01105-S-SBA

**Site Name:** Bozrah  
**Type:** Self Support  
**Height:** 193.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** Triangle  
**Base Width:** 22.00  
**Top Width:** 5.00

**Code:** EIA/TIA-222-G  
**Basic WS:** 105.00  
**Basic Ice WS:** 50.00  
**Operational WS:** 60.00

5/5/2021

Page: 1

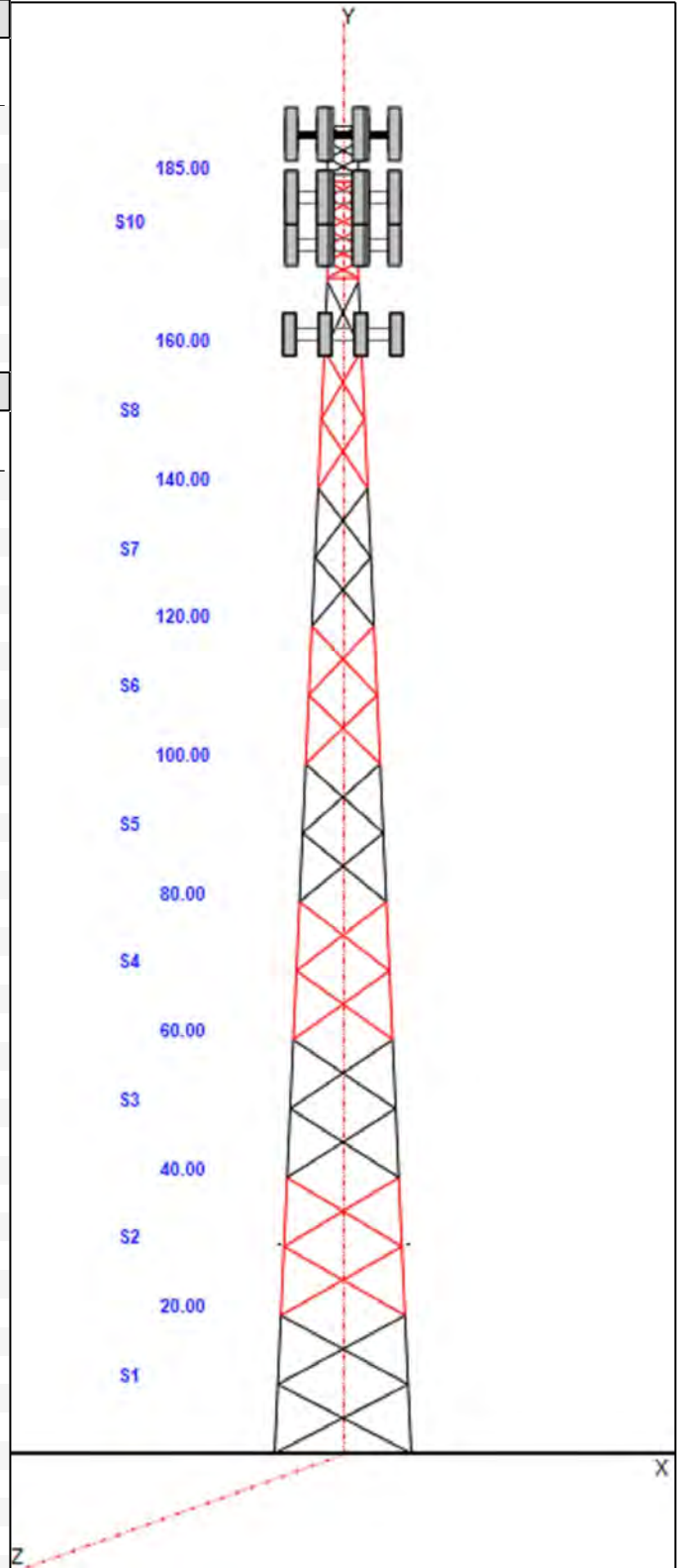


### Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1	18B 18"BD 2.5"	DAE 3.5X3.5X0.3125	
2-3	12B 12"BD 2.25"	SAE 3.5X3.5X0.3125	
4	12B 12"BD 2"	SAE 3.5X3.5X0.3125	
5	12B 12"BD 2"	SAE 3X3X0.3125	SAE
6	12B 12"BD 1.75"	SAE 3X3X0.3125	
7	12B 12"BD 1.5"	SAE 3X3X0.1875	SAE
8	12B 12"BD 1.5"	SAE 3X3X0.1875	
9	12B 12"BD 1.25"	SAE 2.5X2.5X0.1875	SAE
10-11	SOL 2" SOLID	SOL 1" SOLID	SOL 1 1/4" SOLID

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
191.00	191.00	1	Low Profile Platform
191.00	191.00	1	PRK-1245 (kicker kit)
191.00	191.00	1	TAP-472
191.00	191.00	1	HRA12
191.00	191.00	3	Commscope SDX1926Q-43
191.00	191.00	3	Ericsson 4449 B71 + B85
191.00	191.00	6	RR90-17-02DP
191.00	191.00	3	APXVAALL24_43-U-NA20
191.00	191.00	3	Ericsson 4424 B25
191.00	191.00	3	Ericsson 4415 B66A
182.00	182.00	3	DMP65R-BU8DA
182.00	182.00	3	4449 B5/B12
182.00	182.00	1	DC6-48-60-0-8C-EV
182.00	182.00	3	Sector Frame w/ Handrails
182.00	182.00	3	CCI HPA-65R-BUU-H8 Antennas
182.00	182.00	3	Powerwave 7770 Antennas
182.00	182.00	6	Powerwave LGP21401 TMAs
182.00	182.00	3	Ericsson RRUS 11
182.00	182.00	3	Ericsson RRUS 12
182.00	182.00	3	Ericsson RRUS A2
182.00	182.00	3	Ericsson RRUS 32
182.00	182.00	6	Powerwave LGP21903
182.00	182.00	1	Raycap DC6-48-60-18-8F
175.00	175.00	3	RFS APXVTM14-C-I20 Antennas
175.00	175.00	3	Commscope NNVV-65B-R4 Antenna
175.00	175.00	3	ALU 1900 MHz RRH
175.00	175.00	6	ALU 800 MHz RRH
175.00	175.00	3	ALU TD-RRH 8X20-25
175.00	175.00	3	Sector Frame w/ Handrails
175.00	175.00	1	(3) SFS-H-L (V-Braces)
162.00	162.00	3	Sector Frame w/ Handrails
162.00	162.00	6	Commscope HBXX-6517DS-A2M
162.00	162.00	3	Commscope LNX-6514DS-A1M
162.00	162.00	3	Amphenol QUAD656C0000x
162.00	162.00	3	Alcatel Lucent RRH2x60-AWS
162.00	162.00	3	Alcatel Lucent RRH2x60-1900
162.00	162.00	3	Alcatel Lucent RRH2x60-700
162.00	162.00	6	RFS FD9R6004/2CL-3CL
162.00	162.00	2	RFS DB-T1-6Z-8AB-0Z
100.00	100.00	1	Lucent KS24019-L112A GPS



**Structure: CT01105-S-SBA**

<b>Site Name:</b> Bozrah	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Type:</b> Self Support	<b>Base Shape:</b> Triangle	<b>Basic WS:</b> 105.00
<b>Height:</b> 193.00 (ft)	<b>Base Width:</b> 22.00	<b>Basic Ice WS:</b> 50.00
<b>Base Elev:</b> 0.00 (ft)	<b>Top Width:</b> 5.00	<b>Operational WS:</b> 60.00



100.00	100.00	1	Direct Mount
30.00	30.00	1	Direct Mount
30.00	30.00	2	Andrew PC1N0F-0190B-002M

**Linear Appurtenances**

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	191.00	8	1 5/8" Coax
0.00	191.00	3	1.9" Fiber
0.00	191.00	1	W/G Ladder
0.00	182.00	12	1 5/8" Coax
0.00	182.00	4	3/4" DC
0.00	182.00	3	3/8" RET
0.00	182.00	2	5/8" Fiber
0.00	182.00	1	W/G Ladder
0.00	175.00	4	1 1/4" Coax
0.00	162.00	12	1 5/8" Coax
0.00	162.00	2	1 5/8" Hybrid
0.00	100.00	1	GPS Line
0.00	100.00	1	W/G Ladder
0.00	30.00	2	1/2" Coax

**Base Reactions**

	Leg	Overturning
Max Uplift:	-371.69 (kips)	Moment: 7639.67 (ft-kips)
Max Down:	425.36 (kips)	Total Down: 73.15 (kips)
Max Shear:	44.68 (kips)	Total Shear: 65.90 (kips)

# Structure: CT01105-S-SBA

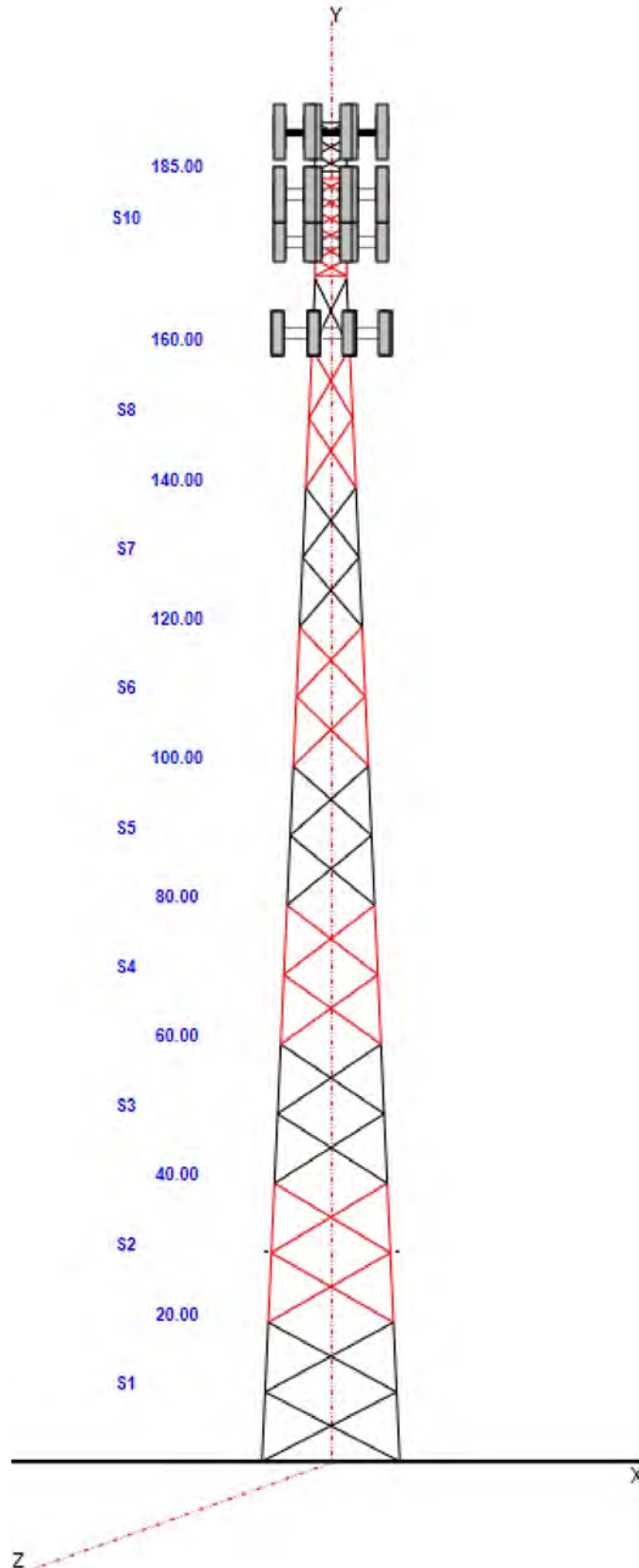
**Site Name:** Bozrah  
**Type:** Self Support  
**Height:** 193.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** Triangle  
**Base Width:** 22.00  
**Top Width:** 5.00

**Code:** EIA/TIA-222-G  
**Basic WS:** 105.00  
**Basic Ice WS:** 50.00  
**Operational WS:** 60.00

5/5/2021

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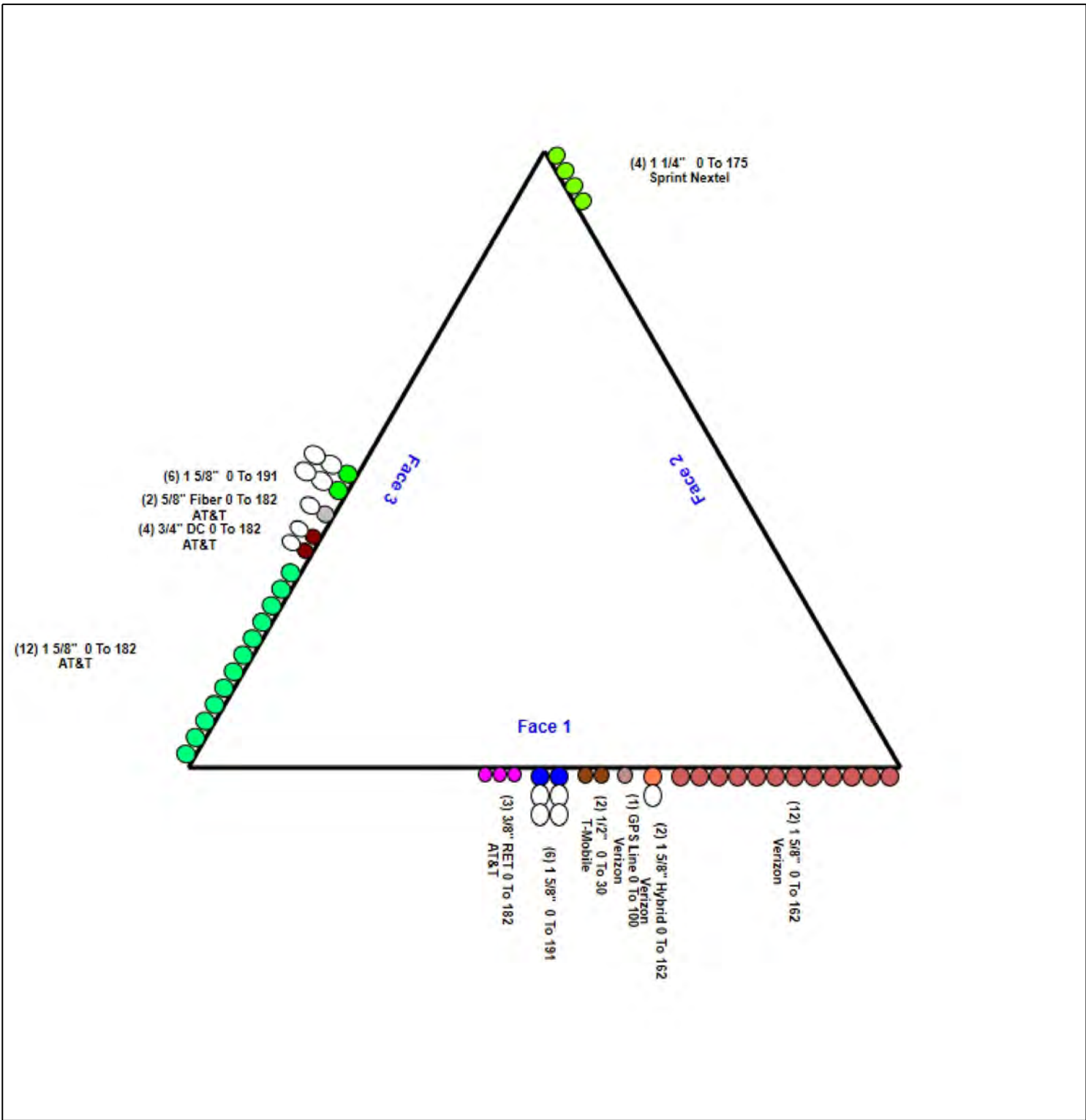


# Structure: CT01105-S-SBA - Coax Line Placement

Type: Self Support  
Site Name: Bozrah  
Height: 193.00 (ft)

5/5/2021

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## Loading Summary

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
191.00	Low Profile Platform	1	1500.0	22.000	2839.51	40.075	0.000	0.000	0.000	1.00	1.00	0.000
191.00	PRK-1245 (kicker kit)	1	464.91	9.500	797.05	19.680	0.000	0.000	0.000	1.00	1.00	0.000
191.00	TAP-472	1	240.00	6.400	582.92	13.258	0.000	0.000	0.000	1.00	1.00	0.000
191.00	HRA12	1	415.06	9.850	830.19	22.516	0.000	0.000	0.000	1.00	1.00	0.000
191.00	Commscope SDX1926Q-43	3	5.00	0.700	22.13	1.360	12.000	6.000	3.000	0.75	1.00	0.000
191.00	Ericsson 4449 B71 + B85	3	70.00	1.650	140.26	2.202	15.000	13.200	9.300	0.75	0.67	0.000
191.00	RR90-17-02DP	6	13.50	4.360	115.20	5.371	56.000	8.000	2.800	0.75	0.68	0.000
191.00	APXVAALL24_43-U-NA20	3	128.00	20.240	556.98	22.186	95.900	24.000	7.800	0.75	0.70	0.000
191.00	Ericsson 4424 B25	3	88.00	2.050	176.88	2.661	17.100	14.400	11.300	0.75	0.67	0.000
191.00	Ericsson 4415 B66A	3	49.60	1.640	108.46	2.202	15.000	13.200	6.200	0.75	0.67	0.000
182.00	DMP65R-BU8DA	3	39.00	12.850	393.79	38.448	96.000	20.500	8.500	0.80	0.50	0.000
182.00	4449 B5/B12	3	71.00	1.970	125.29	2.527	17.900	13.200	9.400	0.80	0.67	0.000
182.00	DC6-48-60-0-8C-EV	1	16.00	4.780	141.83	5.679	31.400	18.300	10.200	0.80	0.50	0.000
182.00	Sector Frame w/ Handrails	3	550.00	21.500	1252.84	41.343	0.000	0.000	0.000	0.75	0.75	0.000
182.00	CCI HPA-65R-BUU-H8 Antennas	3	68.00	12.980	364.82	14.624	92.400	14.800	7.400	0.80	0.79	0.000
182.00	Powerwave 7770 Antennas	3	16.00	1.730	72.03	2.339	28.000	7.000	4.000	0.80	0.79	0.000
182.00	Powerwave LGP21401 TMAs	6	14.10	1.290	39.53	2.140	14.400	9.200	2.600	0.80	1.00	0.000
182.00	Ericsson RRUS 11	3	51.00	2.520	124.50	3.164	17.000	17.800	7.200	0.80	0.67	0.000
182.00	Ericsson RRUS 12	3	60.00	2.700	135.57	3.795	18.200	17.800	8.000	0.80	0.67	0.000
182.00	Ericsson RRUS A2	3	21.20	1.860	57.92	2.850	12.800	15.000	3.400	0.80	0.67	0.000
182.00	Ericsson RRUS 32	3	77.00	1.650	126.59	2.240	20.900	9.500	3.300	0.80	0.67	0.000
182.00	Powerwave LGP21903	6	5.50	0.270	14.07	0.674	4.400	6.300	3.000	0.80	0.84	0.000
182.00	Raycap DC6-48-60-18-8F	1	31.80	0.920	94.67	1.365	24.000	11.000	11.000	0.80	1.00	0.000
175.00	RFS APXVTM14-C-I20 Antennas	3	56.00	6.340	219.69	7.473	56.300	12.600	6.300	0.80	0.79	0.000
175.00	Commscope NNVV-65B-R4 Antenna	3	77.40	12.270	367.81	13.751	72.000	19.600	7.800	0.80	0.74	0.000
175.00	ALU 1900 MHz RRH	3	44.00	3.800	155.02	5.214	23.000	13.000	17.000	0.80	0.67	0.000
175.00	ALU 800 MHz RRH	6	53.00	2.490	128.22	3.653	19.700	13.000	10.800	0.80	0.67	0.000
175.00	ALU TD-RRH 8X20-25	3	70.00	4.050	182.74	4.878	26.100	18.600	6.700	0.80	0.67	0.000
175.00	Sector Frame w/ Handrails	3	550.00	21.500	1252.84	41.343	0.000	0.000	0.000	0.75	0.75	0.000
175.00	(3) SFS-H-L (V-Braces)	1	230.00	6.700	556.57	13.835	0.000	0.000	0.000	0.75	0.75	0.000
162.00	Sector Frame w/ Handrails	3	550.00	21.500	1241.11	41.011	0.000	0.000	0.000	0.75	0.75	0.000
162.00	Commscope HBXX-6517DS-A2M	6	40.80	8.550	217.05	11.469	74.900	12.000	6.500	0.80	0.77	0.000
162.00	Commscope LNX-6514DS-A1M	3	38.40	8.170	214.68	10.993	72.700	11.900	7.100	0.80	0.83	0.000
162.00	Amphenol QUAD656C0000x	3	54.00	13.240	345.50	14.771	74.400	20.500	7.200	0.80	0.71	0.000
162.00	Alcatel Lucent RRH2x60-AWS	3	55.00	3.500	135.01	4.289	37.000	11.000	6.000	0.80	0.67	0.000
162.00	Alcatel Lucent RRH2x60-1900	3	19.50	1.510	79.37	2.061	20.100	9.000	7.200	0.80	0.67	0.000
162.00	Alcatel Lucent RRH2x60-700	3	19.50	1.510	79.37	2.061	20.100	9.000	7.200	0.80	0.67	0.000
162.00	RFS FD9R6004/2CL-3CL	6	3.10	0.370	11.13	0.826	5.800	6.500	1.500	0.80	0.62	0.000
162.00	RFS DB-T1-6Z-8AB-OZ	2	18.90	4.800	162.63	5.674	24.000	24.000	10.000	0.80	0.71	0.000
100.00	Lucent KS24019-L112A GPS	1	0.50	0.120	6.82	0.315	6.000	3.600	3.600	1.00	1.00	0.000
100.00	Direct Mount	1	87.00	4.310	213.96	9.428	0.000	0.000	0.000	1.00	1.00	0.000
30.00	Direct Mount	1	87.00	4.310	200.75	8.895	0.000	0.000	0.000	1.00	1.00	0.000
30.00	Andrew PC1N0F-0190B-002M	2	0.40	0.030	2.15	0.123	3.900	1.600	1.600	1.00	1.00	0.000
<b>Totals:</b>		<b>125</b>	<b>12,373.67</b>		<b>33,538.54</b>					<b>Number of Appurtenances :</b>		<b>43</b>

## Loading Summary

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	191.00	1 5/8" Coax	8	1.98	1.04	33.30	1,3	Block		N	1.00	1.00	
0.00	191.00	1.9" Fiber	3	1.90	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	191.00	W/G Ladder	1	3.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	182.00	1 5/8" Coax	12	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	182.00	3/4" DC	4	0.75	0.40	50.00	3	Block		N	1.00	1.00	
0.00	182.00	3/8" RET	3	0.38	0.06	100.00	1	Individual NR		N	1.00	1.00	
0.00	182.00	5/8" Fiber	2	1.11	0.52	50.00	3	Block		N	1.00	1.00	
0.00	182.00	W/G Ladder	1	3.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	175.00	1 1/4" Coax	4	1.55	0.66	100.00	2	Individual NR		N	1.00	1.00	
0.00	162.00	1 5/8" Coax	12	1.98	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	162.00	1 5/8" Hybrid	2	2.00	1.10	50.00	1	Block		N	1.00	1.00	
0.00	100.00	GPS Line	1	0.96	0.40	100.00	1	Individual NR		N	1.00	1.00	
0.00	100.00	W/G Ladder	1	3.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	30.00	1/2" Coax	2	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	

## Section Forces

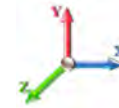
**Structure:** CT01105-S-SBA

**Code:** EIA/TIA-222-G

5/5/2021

**Site Name:** Bozrah

**Exposure:** B



**Height:** 193.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 0.85

**Topography:** 1

**Struct Class:** II

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**Load Case:** 1.2D + 1.6W Normal Wind

1.2D + 1.6W 105 mph Wind at Normal To Face

Wind Load Factor: 1.60

Wind Importance Factor: 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00

Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
1	10.0	16.79	26.376	26.21	0.00	0.12	2.88	1.00	1.00	0.00	37.84	143.09	0.00	12,186.	0.0	2488.69	2593.15	5,081.83	
2	30.0	16.81	24.346	23.64	0.00	0.12	2.88	1.00	1.00	0.00	35.36	142.01	0.00	7,695.9	0.0	2324.19	2577.51	4,901.70	
3	50.0	19.45	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	32.95	140.92	0.00	7,510.9	0.0	2478.56	2961.90	5,440.46	
4	70.0	21.41	20.384	22.04	0.00	0.14	2.82	1.00	1.00	0.00	30.47	140.92	0.00	6,686.1	0.0	2503.61	3260.78	5,764.39	
5	90.0	23.01	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	25.76	140.92	0.00	6,257.7	0.0	2263.75	3503.53	5,767.28	
6	110.0	24.36	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	23.49	134.32	0.00	5,197.7	0.0	2171.62	3473.30	5,644.93	
7	130.0	25.55	13.022	17.23	0.00	0.16	2.73	1.00	1.00	0.00	21.68	134.32	0.00	4,156.1	0.0	2059.88	3643.10	5,702.99	
8	150.0	26.62	11.787	17.23	0.00	0.20	2.61	1.00	1.00	0.00	20.58	134.32	0.00	4,089.6	0.0	1945.67	3795.14	5,740.82	
9	165.0	27.35	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	8.73	49.99	0.00	1,613.5	0.0	832.11	1481.02	2,313.13	
10	177.5	27.93	0.000	11.36	0.00	0.15	2.78	1.00	1.00	0.00	6.56	55.38	0.00	2,001.2	0.0	693.43	1713.16	2,406.60	
11	189.0	28.44	0.000	6.35	0.00	0.15	2.76	1.00	1.00	0.00	3.67	8.32	0.00	902.3	0.0	391.80	287.16	678.95	
														<b>58,297.6</b>	<b>0.0</b>				<b>49,443.07</b>

**Load Case:** 1.2D + 1.6W 60° Wind

1.2D + 1.6W 105 mph Wind at 60° From Face

Wind Load Factor: 1.60

Wind Importance Factor: 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00

Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
1	10.0	16.79	26.376	26.21	0.00	0.12	2.88	0.80	1.00	0.00	32.57	143.09	0.00	12,186.	0.0	2141.77	2593.15	4,734.92	
2	30.0	16.81	24.346	23.64	0.00	0.12	2.88	0.80	1.00	0.00	30.49	142.01	0.00	7,695.9	0.0	2004.16	2577.51	4,581.67	
3	50.0	19.45	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	28.48	140.92	0.00	7,510.9	0.0	2142.67	2961.90	5,104.57	
4	70.0	21.41	20.384	22.04	0.00	0.14	2.82	0.80	1.00	0.00	26.39	140.92	0.00	6,686.1	0.0	2168.58	3260.78	5,429.36	
5	90.0	23.01	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	22.58	140.92	0.00	6,257.7	0.0	1985.02	3503.53	5,488.55	
6	110.0	24.36	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	20.61	134.32	0.00	5,197.7	0.0	1905.64	3473.30	5,378.94	
7	130.0	25.55	13.022	17.23	0.00	0.16	2.73	0.80	1.00	0.00	19.08	134.32	0.00	4,156.1	0.0	1812.47	3643.10	5,455.57	
8	150.0	26.62	11.787	17.23	0.00	0.20	2.61	0.80	1.00	0.00	18.22	134.32	0.00	4,089.6	0.0	1722.76	3795.14	5,517.90	
9	165.0	27.35	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	7.82	49.99	0.00	1,613.5	0.0	744.71	1481.02	2,225.74	
10	177.5	27.93	0.000	11.36	0.00	0.15	2.78	0.80	1.00	0.00	6.56	55.38	0.00	2,001.2	0.0	693.43	1713.16	2,406.60	
11	189.0	28.44	0.000	6.35	0.00	0.15	2.76	0.80	1.00	0.00	3.67	8.32	0.00	902.3	0.0	391.80	287.16	678.95	
														<b>58,297.6</b>	<b>0.0</b>				<b>47,002.76</b>

## Section Forces

**Structure:** CT01105-S-SBA  
**Site Name:** Bozrah  
**Height:** 193.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 0.85

**Topography:** 1

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

5/5/2021  
  
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<b>Load Case:</b> 1.2D + 1.6W 90° Wind	1.2D + 1.6W 105 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	16.79	26.376	26.21	0.00	0.12	2.88	0.85	1.00	0.00	33.89	143.09	0.00	12,186.	0.0	2228.50	2593.15	4,821.65
2	30.0	16.81	24.346	23.64	0.00	0.12	2.88	0.85	1.00	0.00	31.71	142.01	0.00	7,695.9	0.0	2084.17	2577.51	4,661.67
3	50.0	19.45	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	29.60	140.92	0.00	7,510.9	0.0	2226.64	2961.90	5,188.54
4	70.0	21.41	20.384	22.04	0.00	0.14	2.82	0.85	1.00	0.00	27.41	140.92	0.00	6,686.1	0.0	2252.33	3260.78	5,513.11
5	90.0	23.01	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	23.38	140.92	0.00	6,257.7	0.0	2054.70	3503.53	5,558.23
6	110.0	24.36	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	21.33	134.32	0.00	5,197.7	0.0	1972.13	3473.30	5,445.44
7	130.0	25.55	13.022	17.23	0.00	0.16	2.73	0.85	1.00	0.00	19.73	134.32	0.00	4,156.1	0.0	1874.32	3643.10	5,517.43
8	150.0	26.62	11.787	17.23	0.00	0.20	2.61	0.85	1.00	0.00	18.81	134.32	0.00	4,089.6	0.0	1778.49	3795.14	5,573.63
9	165.0	27.35	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.04	49.99	0.00	1,613.5	0.0	766.56	1481.02	2,247.59
10	177.5	27.93	0.000	11.36	0.00	0.15	2.78	0.85	1.00	0.00	6.56	55.38	0.00	2,001.2	0.0	693.43	1713.16	2,406.60
11	189.0	28.44	0.000	6.35	0.00	0.15	2.76	0.85	1.00	0.00	3.67	8.32	0.00	902.3	0.0	391.80	287.16	678.95
														<b>58,297.6</b>	<b>0.0</b>			<b>47,612.84</b>

<b>Load Case:</b> 0.9D + 1.6W Normal Wind	0.9D + 1.6W 105 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1	10.0	16.79	26.376	26.21	0.00	0.12	2.88	1.00	1.00	0.00	37.84	143.09	0.00	9,139.9	0.0	2488.69	2593.15	5,081.83
2	30.0	16.81	24.346	23.64	0.00	0.12	2.88	1.00	1.00	0.00	35.36	142.01	0.00	5,771.9	0.0	2324.19	2577.51	4,901.70
3	50.0	19.45	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	32.95	140.92	0.00	5,633.2	0.0	2478.56	2961.90	5,440.46
4	70.0	21.41	20.384	22.04	0.00	0.14	2.82	1.00	1.00	0.00	30.47	140.92	0.00	5,014.6	0.0	2503.61	3260.78	5,764.39
5	90.0	23.01	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	25.76	140.92	0.00	4,693.3	0.0	2263.75	3503.53	5,767.28
6	110.0	24.36	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	23.49	134.32	0.00	3,898.3	0.0	2171.62	3473.30	5,644.93
7	130.0	25.55	13.022	17.23	0.00	0.16	2.73	1.00	1.00	0.00	21.68	134.32	0.00	3,117.1	0.0	2059.88	3643.10	5,702.99
8	150.0	26.62	11.787	17.23	0.00	0.20	2.61	1.00	1.00	0.00	20.58	134.32	0.00	3,067.2	0.0	1945.67	3795.14	5,740.82
9	165.0	27.35	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	8.73	49.99	0.00	1,210.1	0.0	832.11	1481.02	2,313.13
10	177.5	27.93	0.000	11.36	0.00	0.15	2.78	1.00	1.00	0.00	6.56	55.38	0.00	1,500.9	0.0	693.43	1713.16	2,406.60
11	189.0	28.44	0.000	6.35	0.00	0.15	2.76	1.00	1.00	0.00	3.67	8.32	0.00	676.8	0.0	391.80	287.16	678.95
														<b>43,723.2</b>	<b>0.0</b>			<b>49,443.07</b>

## Section Forces

**Structure:** CT01105-S-SBA

**Code:** EIA/TIA-222-G

5/5/2021

**Site Name:** Bozrah

**Exposure:** B



**Height:** 193.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 0.85

**Topography:** 1

**Struct Class:** II

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**Load Case:** 0.9D + 1.6W 60° Wind

0.9D + 1.6W 105 mph Wind at 60° From Face

**Wind Load Factor:** 1.60

**Wind Importance Factor:** 1.00

**Dead Load Factor:** 0.90

**Ice Dead Load Factor:** 0.00

**Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
1	10.0	16.79	26.376	26.21	0.00	0.12	2.88	0.80	1.00	0.00	32.57	143.09	0.00	9,139.9	0.0	2141.77	2593.15	4,734.92	
2	30.0	16.81	24.346	23.64	0.00	0.12	2.88	0.80	1.00	0.00	30.49	142.01	0.00	5,771.9	0.0	2004.16	2577.51	4,581.67	
3	50.0	19.45	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	28.48	140.92	0.00	5,633.2	0.0	2142.67	2961.90	5,104.57	
4	70.0	21.41	20.384	22.04	0.00	0.14	2.82	0.80	1.00	0.00	26.39	140.92	0.00	5,014.6	0.0	2168.58	3260.78	5,429.36	
5	90.0	23.01	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	22.58	140.92	0.00	4,693.3	0.0	1985.02	3503.53	5,488.55	
6	110.0	24.36	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	20.61	134.32	0.00	3,898.3	0.0	1905.64	3473.30	5,378.94	
7	130.0	25.55	13.022	17.23	0.00	0.16	2.73	0.80	1.00	0.00	19.08	134.32	0.00	3,117.1	0.0	1812.47	3643.10	5,455.57	
8	150.0	26.62	11.787	17.23	0.00	0.20	2.61	0.80	1.00	0.00	18.22	134.32	0.00	3,067.2	0.0	1722.76	3795.14	5,517.90	
9	165.0	27.35	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	7.82	49.99	0.00	1,210.1	0.0	744.71	1481.02	2,225.74	
10	177.5	27.93	0.000	11.36	0.00	0.15	2.78	0.80	1.00	0.00	6.56	55.38	0.00	1,500.9	0.0	693.43	1713.16	2,406.60	
11	189.0	28.44	0.000	6.35	0.00	0.15	2.76	0.80	1.00	0.00	3.67	8.32	0.00	676.8	0.0	391.80	287.16	678.95	
														<b>43,723.2</b>	<b>0.0</b>				<b>47,002.76</b>

**Load Case:** 0.9D + 1.6W 90° Wind

0.9D + 1.6W 105 mph Wind at 90° From Face

**Wind Load Factor:** 1.60

**Wind Importance Factor:** 1.00

**Dead Load Factor:** 0.90

**Ice Dead Load Factor:** 0.00

**Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
1	10.0	16.79	26.376	26.21	0.00	0.12	2.88	0.85	1.00	0.00	33.89	143.09	0.00	9,139.9	0.0	2228.50	2593.15	4,821.65	
2	30.0	16.81	24.346	23.64	0.00	0.12	2.88	0.85	1.00	0.00	31.71	142.01	0.00	5,771.9	0.0	2084.17	2577.51	4,661.67	
3	50.0	19.45	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	29.60	140.92	0.00	5,633.2	0.0	2226.64	2961.90	5,188.54	
4	70.0	21.41	20.384	22.04	0.00	0.14	2.82	0.85	1.00	0.00	27.41	140.92	0.00	5,014.6	0.0	2252.33	3260.78	5,513.11	
5	90.0	23.01	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	23.38	140.92	0.00	4,693.3	0.0	2054.70	3503.53	5,558.23	
6	110.0	24.36	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	21.33	134.32	0.00	3,898.3	0.0	1972.13	3473.30	5,445.44	
7	130.0	25.55	13.022	17.23	0.00	0.16	2.73	0.85	1.00	0.00	19.73	134.32	0.00	3,117.1	0.0	1874.32	3643.10	5,517.43	
8	150.0	26.62	11.787	17.23	0.00	0.20	2.61	0.85	1.00	0.00	18.81	134.32	0.00	3,067.2	0.0	1778.49	3795.14	5,573.63	
9	165.0	27.35	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.04	49.99	0.00	1,210.1	0.0	766.56	1481.02	2,247.59	
10	177.5	27.93	0.000	11.36	0.00	0.15	2.78	0.85	1.00	0.00	6.56	55.38	0.00	1,500.9	0.0	693.43	1713.16	2,406.60	
11	189.0	28.44	0.000	6.35	0.00	0.15	2.76	0.85	1.00	0.00	3.67	8.32	0.00	676.8	0.0	391.80	287.16	678.95	
														<b>43,723.2</b>	<b>0.0</b>				<b>47,612.84</b>

## Section Forces

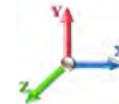
**Structure:** CT01105-S-SBA

**Code:** EIA/TIA-222-G

5/5/2021

**Site Name:** Bozrah

**Exposure:** B



**Height:** 193.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 0.85

**Topography:** 1

**Struct Class:** II

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**Load Case:** 1.2D + 1.0Di + 1.0Wi Normal Wind

1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

**Wind Load Factor:** 1.00

**Wind Importance Factor:** 1.00

**Dead Load Factor:** 1.20

**Ice Dead Load Factor:** 1.00

**Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Area (sqft)	Area (sqft)						
1	10.0	3.81	26.376	55.74	29.53	0.19	2.64	1.00	1.00	1.33	58.29	173.32	164.1	21,784.	9598.0	497.61	1075.73	1,573.34	
2	30.0	3.81	24.346	54.83	31.19	0.20	2.60	1.00	1.00	1.49	55.84	175.84	178.2	16,787.	9092.0	469.88	1116.80	1,586.68	
3	50.0	4.41	22.326	54.64	31.01	0.22	2.54	1.00	1.00	1.56	53.88	176.58	182.4	16,936.	9425.6	513.94	1289.72	1,803.66	
4	70.0	4.86	20.384	52.28	30.24	0.23	2.50	1.00	1.00	1.62	50.72	177.83	188.6	16,267.	9581.2	523.27	1429.14	1,952.42	
5	90.0	5.22	15.857	51.25	29.21	0.24	2.46	1.00	1.00	1.66	45.75	178.79	193.4	15,697.	9439.4	498.93	1539.10	2,038.03	
6	110.0	5.52	14.383	46.91	28.07	0.26	2.41	1.00	1.00	1.69	41.95	167.33	191.7	14,290.	9092.6	473.87	1529.77	2,003.64	
7	130.0	5.79	13.022	44.16	26.93	0.29	2.31	1.00	1.00	1.72	39.39	167.90	194.9	13,224.	9068.4	448.44	1562.94	2,010.02	
8	150.0	6.04	11.787	43.10	25.87	0.36	2.16	1.00	1.00	1.75	38.43	168.40	197.7	13,182.	9092.9	425.66	1530.38	1,956.04	
9	165.0	6.20	4.586	20.40	12.59	0.40	2.06	1.00	1.00	1.76	17.60	64.84	71.65	5,161.6	3548.1	190.81	560.21	751.02	
10	177.5	6.33	0.000	42.78	31.42	0.52	1.87	1.00	1.00	1.77	29.96	74.40	72.47	6,494.5	4493.2	302.12	503.19	805.31	
11	189.0	6.45	0.000	23.94	17.59	0.55	1.85	1.00	1.00	1.79	17.13	11.89	5.36	2,255.4	1353.1	173.28	62.11	235.39	
														<b>142,082.0</b>	<b>83784.4</b>				<b>16,715.55</b>

**Load Case:** 1.2D + 1.0Di + 1.0Wi 60° Wind

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

**Wind Load Factor:** 1.00

**Wind Importance Factor:** 1.00

**Dead Load Factor:** 1.20

**Ice Dead Load Factor:** 1.00

**Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Area (sqft)	Area (sqft)						
1	10.0	3.81	26.376	55.74	29.53	0.19	2.64	0.80	1.00	1.33	53.01	173.32	164.1	21,784.	9598.0	452.57	1075.73	1,528.31	
2	30.0	3.81	24.346	54.83	31.19	0.20	2.60	0.80	1.00	1.49	50.97	175.84	178.2	16,787.	9092.0	428.91	1116.80	1,545.70	
3	50.0	4.41	22.326	54.64	31.01	0.22	2.54	0.80	1.00	1.56	49.41	176.58	182.4	16,936.	9425.6	471.35	1289.72	1,761.07	
4	70.0	4.86	20.384	52.28	30.24	0.23	2.50	0.80	1.00	1.62	46.64	177.83	188.6	16,267.	9581.2	481.21	1429.14	1,910.36	
5	90.0	5.22	15.857	51.25	29.21	0.24	2.46	0.80	1.00	1.66	42.58	178.79	193.4	15,697.	9439.4	464.34	1539.10	2,003.44	
6	110.0	5.52	14.383	46.91	28.07	0.26	2.41	0.80	1.00	1.69	39.07	167.33	191.7	14,290.	9092.6	441.37	1529.77	1,971.15	
7	130.0	5.79	13.022	44.16	26.93	0.29	2.31	0.80	1.00	1.72	36.79	167.90	194.9	13,224.	9068.4	418.79	1562.94	1,981.73	
8	150.0	6.04	11.787	43.10	25.87	0.36	2.16	0.80	1.00	1.75	36.07	168.40	197.7	13,182.	9092.9	399.54	1530.38	1,929.92	
9	165.0	6.20	4.586	20.40	12.59	0.40	2.06	0.80	1.00	1.76	16.68	64.84	71.65	5,161.6	3548.1	180.87	560.21	741.08	
10	177.5	6.33	0.000	42.78	31.42	0.52	1.87	0.80	1.00	1.77	29.96	74.40	72.47	6,494.5	4493.2	302.12	503.19	805.31	
11	189.0	6.45	0.000	23.94	17.59	0.55	1.85	0.80	1.00	1.79	17.13	11.89	5.36	2,255.4	1353.1	173.28	62.11	235.39	
														<b>142,082.0</b>	<b>83784.4</b>				<b>16,413.45</b>

## Section Forces

**Structure:** CT01105-S-SBA  
**Site Name:** Bozrah  
**Height:** 193.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 0.85

**Topography:** 1

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

5/5/2021  
  
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 90° Wind

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

**Wind Load Factor:** 1.00  
**Dead Load Factor:** 1.20  
**Ice Dead Load Factor:** 1.00

**Wind Importance Factor:** 1.00  
**Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	3.81	26.376	55.74	29.53	0.19	2.64	0.85	1.00	1.33	54.33	173.32	164.1	21,784.	9598.0	463.83	1075.73	1,539.57
2	30.0	3.81	24.346	54.83	31.19	0.20	2.60	0.85	1.00	1.49	52.19	175.84	178.2	16,787.	9092.0	439.15	1116.80	1,555.95
3	50.0	4.41	22.326	54.64	31.01	0.22	2.54	0.85	1.00	1.56	50.53	176.58	182.4	16,936.	9425.6	482.00	1289.72	1,771.72
4	70.0	4.86	20.384	52.28	30.24	0.23	2.50	0.85	1.00	1.62	47.66	177.83	188.6	16,267.	9581.2	491.73	1429.14	1,920.87
5	90.0	5.22	15.857	51.25	29.21	0.24	2.46	0.85	1.00	1.66	43.37	178.79	193.4	15,697.	9439.4	472.99	1539.10	2,012.09
6	110.0	5.52	14.383	46.91	28.07	0.26	2.41	0.85	1.00	1.69	39.79	167.33	191.7	14,290.	9092.6	449.50	1529.77	1,979.27
7	130.0	5.79	13.022	44.16	26.93	0.29	2.31	0.85	1.00	1.72	37.44	167.90	194.9	13,224.	9068.4	426.20	1562.94	1,989.14
8	150.0	6.04	11.787	43.10	25.87	0.36	2.16	0.85	1.00	1.75	36.66	168.40	197.7	13,182.	9092.9	406.07	1530.38	1,936.45
9	165.0	6.20	4.586	20.40	12.59	0.40	2.06	0.85	1.00	1.76	16.91	64.84	71.65	5,161.6	3548.1	183.35	560.21	743.56
10	177.5	6.33	0.000	42.78	31.42	0.52	1.87	0.85	1.00	1.77	29.96	74.40	72.47	6,494.5	4493.2	302.12	503.19	805.31
11	189.0	6.45	0.000	23.94	17.59	0.55	1.85	0.85	1.00	1.79	17.13	11.89	5.36	2,255.4	1353.1	173.28	62.11	235.39
														<b>142,082.0</b>	<b>83784.4</b>			<b>16,489.31</b>

**Load Case:** 1.0D + 1.0W Normal Wind

1.0D + 1.0W 60 mph Wind at Normal To Face

**Wind Load Factor:** 1.00  
**Dead Load Factor:** 1.00  
**Ice Dead Load Factor:** 0.00

**Wind Importance Factor:** 1.00  
**Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	5.48	26.376	26.21	0.00	0.12	2.88	1.00	1.00	0.00	41.08	143.09	0.00	10,155.	0.0	551.35	529.21	1,080.57
2	30.0	5.49	24.346	23.64	0.00	0.12	2.88	1.00	1.00	0.00	37.71	142.01	0.00	6,413.3	0.0	505.82	526.02	1,031.84
3	50.0	6.35	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	35.70	140.92	0.00	6,259.1	0.0	548.09	604.47	1,152.56
4	70.0	6.99	20.384	22.04	0.00	0.14	2.82	1.00	1.00	0.00	32.86	140.92	0.00	5,571.8	0.0	551.16	665.47	1,216.63
5	90.0	7.51	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	28.31	140.92	0.00	5,214.8	0.0	507.79	715.01	1,222.80
6	110.0	7.96	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	25.06	134.32	0.00	4,331.4	0.0	472.91	708.84	1,181.75
7	130.0	8.34	13.022	17.23	0.00	0.16	2.73	1.00	1.00	0.00	22.82	134.32	0.00	3,463.4	0.0	442.42	743.49	1,185.91
8	150.0	8.69	11.787	17.23	0.00	0.20	2.61	1.00	1.00	0.00	21.67	134.32	0.00	3,408.0	0.0	418.19	774.52	1,192.71
9	165.0	8.93	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	9.09	49.99	0.00	1,344.6	0.0	176.75	302.25	479.00
10	177.5	9.12	0.000	11.36	0.00	0.15	2.78	1.00	1.00	0.00	6.56	55.38	0.00	1,667.7	0.0	141.52	349.62	491.14
11	189.0	9.29	0.000	6.35	0.00	0.15	2.76	1.00	1.00	0.00	3.67	8.32	0.00	752.0	0.0	79.96	58.60	138.56
														<b>48,581.4</b>	<b>0.0</b>			<b>10,373.47</b>

## Section Forces

**Structure:** CT01105-S-SBA

**Code:** EIA/TIA-222-G

5/5/2021

**Site Name:** Bozrah

**Exposure:** B



**Height:** 193.00 (ft)

**Crest Height:** 0.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 0.85

**Topography:** 1

**Struct Class:** II

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**Load Case:** 1.0D + 1.0W 60° Wind

1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00

Wind Importance Factor: 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00

Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
1	10.0	5.48	26.376	26.21	0.00	0.12	2.88	0.80	1.00	0.00	35.81	143.09	0.00	10,155.	0.0	480.55	529.21	1,009.77	
2	30.0	5.49	24.346	23.64	0.00	0.12	2.88	0.80	1.00	0.00	32.84	142.01	0.00	6,413.3	0.0	440.50	526.02	966.52	
3	50.0	6.35	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	31.24	140.92	0.00	6,259.1	0.0	479.54	604.47	1,084.01	
4	70.0	6.99	20.384	22.04	0.00	0.14	2.82	0.80	1.00	0.00	28.79	140.92	0.00	5,571.8	0.0	482.79	665.47	1,148.25	
5	90.0	7.51	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	25.14	140.92	0.00	5,214.8	0.0	450.91	715.01	1,165.91	
6	110.0	7.96	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	22.18	134.32	0.00	4,331.4	0.0	418.63	708.84	1,127.47	
7	130.0	8.34	13.022	17.23	0.00	0.16	2.73	0.80	1.00	0.00	20.22	134.32	0.00	3,463.4	0.0	391.93	743.49	1,135.42	
8	150.0	8.69	11.787	17.23	0.00	0.20	2.61	0.80	1.00	0.00	19.31	134.32	0.00	3,408.0	0.0	372.70	774.52	1,147.22	
9	165.0	8.93	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	8.17	49.99	0.00	1,344.6	0.0	158.92	302.25	461.17	
10	177.5	9.12	0.000	11.36	0.00	0.15	2.78	0.80	1.00	0.00	6.56	55.38	0.00	1,667.7	0.0	141.52	349.62	491.14	
11	189.0	9.29	0.000	6.35	0.00	0.15	2.76	0.80	1.00	0.00	3.67	8.32	0.00	752.0	0.0	79.96	58.60	138.56	
														<b>48,581.4</b>	<b>0.0</b>				<b>9,875.44</b>

**Load Case:** 1.0D + 1.0W 90° Wind

1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00

Wind Importance Factor: 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00

Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
1	10.0	5.48	26.376	26.21	0.00	0.12	2.88	0.85	1.00	0.00	37.12	143.09	0.00	10,155.	0.0	498.25	529.21	1,027.47	
2	30.0	5.49	24.346	23.64	0.00	0.12	2.88	0.85	1.00	0.00	34.06	142.01	0.00	6,413.3	0.0	456.83	526.02	982.85	
3	50.0	6.35	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	32.35	140.92	0.00	6,259.1	0.0	496.68	604.47	1,101.15	
4	70.0	6.99	20.384	22.04	0.00	0.14	2.82	0.85	1.00	0.00	29.81	140.92	0.00	5,571.8	0.0	499.88	665.47	1,165.35	
5	90.0	7.51	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	25.93	140.92	0.00	5,214.8	0.0	465.13	715.01	1,180.13	
6	110.0	7.96	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	22.90	134.32	0.00	4,331.4	0.0	432.20	708.84	1,141.04	
7	130.0	8.34	13.022	17.23	0.00	0.16	2.73	0.85	1.00	0.00	20.87	134.32	0.00	3,463.4	0.0	404.55	743.49	1,148.04	
8	150.0	8.69	11.787	17.23	0.00	0.20	2.61	0.85	1.00	0.00	19.90	134.32	0.00	3,408.0	0.0	384.07	774.52	1,158.59	
9	165.0	8.93	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.40	49.99	0.00	1,344.6	0.0	163.38	302.25	465.63	
10	177.5	9.12	0.000	11.36	0.00	0.15	2.78	0.85	1.00	0.00	6.56	55.38	0.00	1,667.7	0.0	141.52	349.62	491.14	
11	189.0	9.29	0.000	6.35	0.00	0.15	2.76	0.85	1.00	0.00	3.67	8.32	0.00	752.0	0.0	79.96	58.60	138.56	
														<b>48,581.4</b>	<b>0.0</b>				<b>9,999.95</b>



## Force/Stress Compression Summary

**Structure:** CT01105-S-SBA  
**Site Name:** Bozrah  
**Height:** 193.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 0.85

**Code:** EIA/TIA-222-G  
**Exposure:** B  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II  
**Topography:** 1

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### LEG MEMBERS

Sect	Top Elev	Member	Force		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls	
			(kips)				X	Y	Z					KL/R
1	20	18B - 18"BD 2.5"	-414.97	1.2D + 1.6W	Normal Wind	10.02	100	100	100	16.30	50.00	649.66	63.9	Member X
2	40	12B - 12"BD 2.25"	-381.34	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.38	50.00	514.03	74.2	Member X
3	60	12B - 12"BD 2.25"	-342.99	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.38	50.00	514.03	66.7	Member X
4	80	12B - 12"BD 2"	-302.73	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.41	50.00	405.83	74.6	Member X
5	100	12B - 12"BD 2"	-261.19	1.2D + 1.6W	Normal Wind	10.02	100	100	100	24.41	50.00	405.83	64.4	Member X
6	120	12B - 12"BD 1.75"	-217.66	1.2D + 1.6W	Normal Wind	10.02	100	100	100	25.99	50.00	308.82	70.5	Member X
7	140	12B - 12"BD 1.5"	-171.69	1.2D + 1.6W	Normal Wind	10.02	100	100	100	30.32	50.00	222.99	77.0	Member X
8	160	12B - 12"BD 1.5"	-119.80	1.2D + 1.6W	Normal Wind	10.02	100	100	100	30.32	50.00	222.99	53.7	Member X
9	170	12B - 12"BD 1.25"	-56.82	1.2D + 1.6W	Normal Wind	10.02	100	100	100	36.38	50.00	150.33	37.8	Member X
10	185	SOL - 2" SOLID	-42.11	1.2D + 1.6W	Normal Wind	2.33	100	100	100	56.00	50.00	112.40	37.5	Member X
11	193	SOL - 2" SOLID	-7.40	1.2D + 1.6W	Normal Wind	0.50	100	100	100	12.00	50.00	139.89	5.3	Member X

### Splices

Sect	Top Elev	Load Case	Top Splice				Load Case	Bottom Splice					
			Force (kips)	Cap (kips)	Use %	Bolt Type		Num Bolts	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	1.2D + 1.6W Normal Wind	390.54	0.00	0.0		1.2D + 1.6W Normal Wind	425.84	0.00				
2	40	1.2D + 1.6W Normal Wind	353.04	0.00	0.0		1.2D + 1.6W Normal Wind	390.54	0.00		1/4 A325	6	
3	60	1.2D + 1.6W Normal Wind	313.39	0.00	0.0		1.2D + 1.6W Normal Wind	353.04	0.00		1/4 A325	6	
4	80	1.2D + 1.6W Normal Wind	272.15	0.00	0.0		1.2D + 1.6W Normal Wind	313.39	0.00		1/4 A325	6	
5	100	1.2D + 1.6W Normal Wind	229.56	0.00	0.0		1.2D + 1.6W Normal Wind	272.15	0.00		1/4 A325	6	
6	120	1.2D + 1.6W Normal Wind	184.43	0.00	0.0		1.2D + 1.6W Normal Wind	229.56	0.00		1 A325	6	
7	140	1.2D + 1.6W Normal Wind	134.65	0.00	0.0		1.2D + 1.6W Normal Wind	184.43	0.00		1 A325	6	
8	160	1.2D + 1.6W Normal Wind	75.01	0.00	0.0		1.2D + 1.6W Normal Wind	134.65	0.00		1 A325	6	
9	170	1.2D + 1.6W Normal Wind	46.78	0.00	0.0		1.2D + 1.6W Normal Wind	75.01	0.00		1 A325	6	
10	185	1.2D + 1.6W Normal Wind	7.48	0.00	0.0		1.2D + 1.6W Normal Wind	46.78	0.00		1 A325	6	
11	193	1.2D + 1.0E	0.36	0.00	0.0		1.2D + 1.6W Normal Wind	7.48	0.00		5/8 A325	4	

### HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force		Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Bear		Use %	Controls
			(kips)			X	Y	Z					KL/R	(kips)		
1	20								0.00	0	0					
2	40								0.00	0	0					
3	60								0.00	0	0					
4	80								0.00	0	0					
5	100								0.00	0	0					
6	120								0.00	0	0					
7	140								0.00	0	0					
8	160								0.00	0	0					
9	170								0.00	0	0					
10	185	SOL - 1 1/4" SOLID	-0.85	1.2D + 1.6W	60° Wind	5.00	100	100	100	134.40	50.00	15.35	0	0		6 Member X
11	193	SOL - 1 1/4" SOLID	-0.96	1.2D + 1.6W	Normal Wind	5.00	100	100	100	134.40	50.00	15.35	0	0		6 Member X

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force		Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Bear		Use %	Controls		
			(kips)			X	Y	Z					KL/R	(kips)			(kips)	
1	20	DAE - 3.5X3.5X0.3125	-11.6	1.2D + 1.6W	Normal Wind	23.71	50	50	25	134.95	36.00	51.85	4	2	127.24	278.	22	Member Y
2	40	SAE - 3.5X3.5X0.3125	-10.4	1.2D + 1.6W	90° Wind	21.92	50	50	50	190.58	36.00	13.00	1	1	43.49	37.5	80	Member Z
3	60	SAE - 3.5X3.5X0.3125	-10.5	1.2D + 1.6W	90° Wind	20.16	50	50	50	175.28	36.00	15.37	4	2	127.24	139.	68	Member Z

## Force/Stress Compression Summary

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



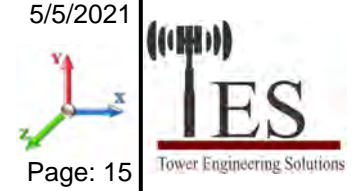
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### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %			KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap		Bear Cap (kips)	Use %	Controls
						X	Y	Z						(kips)	(kips)			
4	80	SAE - 3.5X3.5X0.3125	-10.1	1.2D + 1.6W 90° Wind	18.45	50	50	50	160.42	36.00	18.35	1	1	43.49	37.5	55	Member Z	
5	100	SAE - 3X3X0.3125	-9.60	1.2D + 1.6W 90° Wind	16.80	50	50	50	171.17	36.00	13.73	1	1	43.49	33.1	70	Member Z	
6	120	SAE - 3X3X0.3125	-9.31	1.2D + 1.6W 90° Wind	15.24	50	50	50	155.27	36.00	16.68	1	1	31.81	29.9	56	Member Z	
7	140	SAE - 3X3X0.1875	-9.28	1.2D + 1.6W 90° Wind	13.80	50	50	50	138.89	36.00	12.77	1	1	31.81	17.9	73	Member Z	
8	160	SAE - 3X3X0.1875	-10.0	1.2D + 1.6W 90° Wind	12.50	50	50	50	125.87	36.00	15.34	1	1	31.81	17.9	66	Member Z	
9	170	SAE - 2.5X2.5X0.1875	-9.65	1.2D + 1.6W Normal Wind	11.42	50	50	50	138.38	36.00	10.64	1	1	31.81	17.9	91	Member Z	
10	185	SOL - 1" SOLID	-5.82	1.2D + 1.6W 90° Wind	5.52	50	50	50	132.42	50.00	10.12	0	0			57	Member X	
11	193	SOL - 1" SOLID	-2.20	1.2D + 1.6W 90° Wind	5.52	50	50	50	119.18	50.00	12.49	0	0			18	Member X	

## Force/Stress Tension Summary

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



### LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	18B - 18"BD 2.5"	364.64	0.9D + 1.6W 60° Wind	50	662.40	55.0	Member
2	40	12B - 12"BD 2.25"	337.04	0.9D + 1.6W 60° Wind	50	536.85	62.8	Member
3	60	12B - 12"BD 2.25"	304.81	0.9D + 1.6W 60° Wind	50	536.85	56.8	Member
4	80	12B - 12"BD 2"	270.58	0.9D + 1.6W 60° Wind	50	423.90	63.8	Member
5	100	12B - 12"BD 2"	234.40	0.9D + 1.6W 60° Wind	50	423.90	55.3	Member
6	120	12B - 12"BD 1.75"	196.01	0.9D + 1.6W 60° Wind	50	324.45	60.4	Member
7	140	12B - 12"BD 1.5"	154.44	0.9D + 1.6W 60° Wind	50	238.50	64.8	Member
8	160	12B - 12"BD 1.5"	106.00	0.9D + 1.6W 60° Wind	50	238.50	44.4	Member
9	170	12B - 12"BD 1.25"	48.48	0.9D + 1.6W 60° Wind	50	165.60	29.3	Member
10	185	SOL - 2" SOLID	37.94	0.9D + 1.6W 60° Wind	50	141.37	26.8	Member
11	193	SOL - 2" SOLID	4.32	0.9D + 1.6W 60° Wind	50	141.37	3.1	Member

### Splices

Sect	Top Elev	Load Case	Top Splice				Load Case	Bottom Splice			
			Force (kips)	Cap (kips)	Use %	Bolt Type		Num Bolts	Force (kips)	Cap (kips)	Use %
1	20	0.9D + 1.6W 60° Wind	343.15	0.00	0.0		0.9D + 1.6W 60° Wind	374.3	0.00		
2	40	0.9D + 1.6W 60° Wind	311.94	0.00	0.0		0.9D + 1.6W 60° Wind	343.1	457.92	74.9	1 1/4 A325 6
3	60	0.9D + 1.6W 60° Wind	278.31	0.00	0.0		0.9D + 1.6W 60° Wind	311.9	457.92	68.1	1 1/4 A325 6
4	80	0.9D + 1.6W 60° Wind	242.70	0.00	0.0		0.9D + 1.6W 60° Wind	278.3	457.92	60.8	1 1/4 A325 6
5	100	0.9D + 1.6W 60° Wind	205.26	0.00	0.0		0.9D + 1.6W 60° Wind	242.7	457.92	53.0	1 1/4 A325 6
6	120	0.9D + 1.6W 60° Wind	164.80	0.00	0.0		0.9D + 1.6W 60° Wind	205.2	318.06	64.5	1 A325 6
7	140	0.9D + 1.6W 60° Wind	118.86	0.00	0.0		0.9D + 1.6W 60° Wind	164.8	318.06	51.8	1 A325 6
8	160	0.9D + 1.6W 60° Wind	62.46	0.00	0.0		0.9D + 1.6W 60° Wind	118.8	318.06	37.4	1 A325 6
9	170	0.9D + 1.6W 60° Wind	37.31	0.00	0.0		0.9D + 1.6W 60° Wind	62.46	318.06	19.6	1 A325 6
10	185	0.9D + 1.6W 60° Wind	4.26	0.00	0.0		0.9D + 1.6W 60° Wind	37.31	318.06	11.7	1 A325 6
11	193		0.00	0.00	0.0		0.9D + 1.6W 60° Wind	4.26	82.80	5.1	5/8 A325 4

### HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	SAE -			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	SAE -			36	0.00	0	0					
8	160	-			36	0.00	0	0					
9	170	SAE -			36	0.00	0	0					
10	185	SOL - 1 1/4" SOLID	0.86	1.2D + 1.6W Normal Wi	50	55.22	0	0				1.6	Member
11	193	SOL - 1 1/4" SOLID	0.96	1.2D + 1.6W 60° Wind	50	55.22	0	0				1.7	Member

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	DAE - 3.5X3.5X0.3125	11.74	0.9D + 1.0E	36	113.43	4	2	127.24	278.40	134.33	10.3	Member
2	40	SAE - 3.5X3.5X0.3125	10.47	0.9D + 1.6W 90° Wind	36	54.17	1	1	43.49	37.52	23.70	44.2	Blck Shear
3	60	SAE - 3.5X3.5X0.3125	10.16	0.9D + 1.6W 90° Wind	36	45.25	4	2	127.24	139.20	67.17	22.5	Member
4	80	SAE - 3.5X3.5X0.3125	9.75	0.9D + 1.6W 90° Wind	36	54.17	1	1	43.49	37.52	23.70	41.1	Blck Shear

## Force/Stress Tension Summary

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



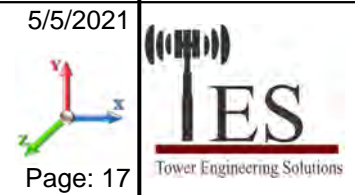
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### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
5	100	SAE - 3X3X0.3125	9.23	0.9D + 1.6W 90° Wind	36	44.05	1	1	43.49	33.17	19.04	48.5	Blck Shear
6	120	SAE - 3X3X0.3125	8.90	0.9D + 1.6W 90° Wind	36	46.60	1	1	31.81	29.91	19.47	45.7	Blck Shear
7	140	SAE - 3X3X0.1875	9.23	1.2D + 1.6W 90° Wind	36	28.68	1	1	31.81	17.94	11.68	79.0	Blck Shear
8	160	SAE - 3X3X0.1875	10.47	1.2D + 1.6W 90° Wind	36	28.68	1	1	31.81	17.94	11.68	89.6	Blck Shear
9	170	SAE - 2.5X2.5X0.1875	8.90	0.9D + 1.6W 60° Wind	36	22.55	1	1	31.81	17.94	10.66	83.5	Blck Shear
10	185	SOL - 1" SOLID	5.76	1.2D + 1.6W 90° Wind	50	35.34	0	0				16.3	Member
11	193	SOL - 1" SOLID	2.19	1.2D + 1.6W 90° Wind	50	35.34	0	0				6.2	Member

## Seismic Section Forces

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case: 1.2D + 1.0E**

<b>Dead Load Factor</b>	1.20	<b>Sds</b> 0.181	<b>Ss</b> 0.1700	<b>Fa</b> 1.6000	<b>Ke</b> 0.0000
<b>Seismic Load Factor</b>	1.00	<b>Sd1</b> 0.097	<b>S1</b> 0.0610	<b>Fv</b> 2.4000	<b>Kg</b> 0.0000
<b>Seismic Importance Factor</b>	1.00	<b>SA</b> 0.138	<b>R</b> 3.0000	<b>Vs</b> 3.3661	<b>f1</b> 1.4138

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	10155.	0.01	0.04	0.03	37.72
2	30.00	6501.0	0.05	0.07	0.04	48.51
3	50.00	6259.0	0.13	0.07	0.03	69.17
4	70.00	5571.7	0.25	0.06	0.02	87.05
5	90.00	5302.2	0.41	0.01	0.01	105.87
6	110.00	4331.4	0.61	-0.06	0.02	101.01
7	130.00	3463.4	0.86	-0.12	0.07	97.80
8	150.00	3407.9	1.14	-0.04	0.21	142.98
9	165.00	3855.0	1.38	0.25	0.41	245.66
10	177.50	7632.8	1.60	0.77	0.67	702.61
11	189.00	4474.7	1.81	1.60	1.00	569.86

**Load Case: 0.9D + 1.0E**

<b>Dead Load Factor</b>	0.90	<b>Sds</b> 0.181	<b>Ss</b> 0.1700	<b>Fa</b> 1.6000	<b>Ke</b> 0.0000
<b>Seismic Load Factor</b>	1.00	<b>Sd1</b> 0.097	<b>S1</b> 0.0610	<b>Fv</b> 2.4000	<b>Kg</b> 0.0000
<b>Seismic Importance Factor</b>	1.00	<b>SA</b> 0.138	<b>R</b> 3.0000	<b>Vs</b> 3.3661	<b>f1</b> 1.4138

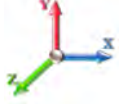
Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	10155.	0.01	0.04	0.03	37.72
2	30.00	6501.0	0.05	0.07	0.04	48.51
3	50.00	6259.0	0.13	0.07	0.03	69.17
4	70.00	5571.7	0.25	0.06	0.02	87.05
5	90.00	5302.2	0.41	0.01	0.01	105.87
6	110.00	4331.4	0.61	-0.06	0.02	101.01
7	130.00	3463.4	0.86	-0.12	0.07	97.80
8	150.00	3407.9	1.14	-0.04	0.21	142.98
9	165.00	3855.0	1.38	0.25	0.41	245.66
10	177.50	7632.8	1.60	0.77	0.67	702.61
11	189.00	4474.7	1.81	1.60	1.00	569.86

## Support Forces Summary

**Structure:** CT01105-S-SBA  
**Site Name:** Bozrah  
**Height:** 193.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 0.85

**Topography:** 1

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

5/5/2021  
  
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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	0.00	425.36	-44.68	
	1a	16.18	-176.11	-10.61	
	1b	-16.18	-176.11	-10.61	
1.2D + 1.6W 60° Wind	1	-0.85	219.71	-22.69	
	1a	-20.07	219.71	10.61	
	1b	-34.04	-366.27	-19.66	
1.2D + 1.6W 90° Wind	1	-1.08	24.39	-2.08	
	1a	-33.20	364.93	18.60	
	1b	-29.80	-316.17	-16.53	
0.9D + 1.6W Normal Wind	1	0.00	418.58	-44.13	
	1a	16.61	-181.86	-10.89	
	1b	-16.61	-181.86	-10.89	
0.9D + 1.6W 60° Wind	1	-0.86	213.28	-22.15	
	1a	-19.61	213.28	10.33	
	1b	-34.48	-371.69	-19.91	
0.9D + 1.6W 90° Wind	1	-1.10	18.30	-1.55	
	1a	-32.73	358.24	18.32	
	1b	-30.24	-321.68	-16.77	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	178.66	-5.98	
	1a	11.68	-2.38	-7.22	
	1b	-11.68	-2.38	-7.22	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.38	117.68	0.67	
	1a	0.39	117.68	-0.66	
	1b	-17.43	-61.47	-10.06	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.45	57.97	7.15	
	1a	-3.67	161.68	1.86	
	1b	-16.07	-45.75	-9.01	
1.2D + 1.0E	1	0.00	42.28	22.54	
	1a	21.58	15.43	-12.35	
	1b	-21.58	15.43	-12.35	
0.9D + 1.0E	1	0.00	36.15	23.07	
	1a	22.04	9.36	-12.62	
	1b	-22.04	9.36	-12.62	
1.0D + 1.0W Normal Wind	1	0.00	103.19	-10.63	
	1a	2.21	-21.12	-1.55	
	1b	-2.21	-21.12	-1.55	
1.0D + 1.0W 60° Wind	1	-0.20	60.69	-6.05	
	1a	-5.34	60.69	2.85	
	1b	-5.92	-60.42	-3.42	
1.0D + 1.0W 90° Wind	1	-0.25	20.32	-1.76	
	1a	-8.07	90.72	4.52	
	1b	-5.04	-50.08	-2.77	

### Max Reactions

Leg

Overturing

---

Max Uplift: -371.69 (kips)

Max Down: 425.36 (kips)

Max Shear: 44.68 (kips)

Moment: 7639.67 (ft-kips)

Total Down: 73.15 (kips)

Total Shear: 65.90 (kips)

## Analysis Summary

<b>Structure:</b> CT01105-S-SBA	<b>Code:</b> EIA/TIA-222-G	5/5/2021
<b>Site Name:</b> Bozrah	<b>Exposure:</b> B	
<b>Height:</b> 193.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
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### Max Reactions

	Leg	Overturning
Max Uplift:	-371.69 (kips)	Moment: 7639.67 (ft-kips)
Max Down:	425.36 (kips)	Total Down: 73.15 (kips)
Max Shear:	44.68 (kips)	Total Shear: 65.90 (kips)

### Anchor Bolts

Bolt Size (in.): 2.00	Number Bolts: 6
Yield Strength (Ksi): 105.00	Tensile Strength (Ksi): 150.00
Detail Type: A	

**Interaction Ratio: 0.23**

### Max Usages


Max Leg: 77.0% (1.2D + 1.6W Normal Wind - Sect 7)  
 Max Diag: 90.7% (1.2D + 1.6W Normal Wind - Sect 9)  
 Max Horiz: 6.3% (1.2D + 1.6W Normal Wind - Sect 11)

### Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	30.00	0.0052	0.0003	0.0132
	100.00	0.0240	0.0009	0.0295
	160.00	0.0738	0.0020	0.0701
	175.17	0.0947	0.0019	0.0825
	182.17	0.1048	0.0015	0.0771
	190.17	0.1171	0.0012	0.0840
0.9D + 1.6W 105 mph Wind at 60° From Face	30.00	0.0419	-0.0066	0.1571
	100.00	0.4675	-0.0206	0.5604
	160.00	1.3512	-0.0358	1.1205
	175.17	1.6658	-0.0365	1.2487
	182.17	1.8179	0.0364	1.1967
	190.17	1.9968	0.0364	1.2583
0.9D + 1.6W 105 mph Wind at 90° From Face	30.00	0.0416	-0.0077	0.1583
	100.00	0.4689	-0.0240	0.5623
	160.00	1.3555	-0.0418	1.1267
	175.17	1.6719	-0.0423	1.2499
	182.17	1.8242	-0.0422	1.2003
	190.17	2.0035	-0.0422	1.2604
0.9D + 1.6W 105 mph Wind at Normal To Face	30.00	0.0433	0.0068	0.1616
	100.00	0.4776	0.0213	0.5713
	160.00	1.3743	0.0371	1.1334
	175.17	1.6927	0.0371	1.2608
	182.17	1.8461	0.0371	1.2097
	190.17	2.0269	0.0370	1.2705



1.0D + 1.0W 60 mph Wind at 60° From Face	30.00	0.0086	-0.0014	0.0326
	100.00	0.0964	-0.0042	0.1154
	160.00	0.2779	-0.0073	0.2302
	175.17	0.3428	-0.0069	0.2568
	182.17	0.3740	-0.0064	0.2456
	190.17	0.4107	-0.0060	0.2586
-----				
1.0D + 1.0W 60 mph Wind at 90° From Face	30.00	0.0088	-0.0016	0.0329
	100.00	0.0971	-0.0049	0.1161
	160.00	0.2799	-0.0086	0.2317
	175.17	0.3445	-0.0082	0.2573
	182.17	0.3757	-0.0077	0.2467
	190.17	0.4126	-0.0074	0.2593
-----				
1.0D + 1.0W 60 mph Wind at Normal To Face	30.00	0.0091	0.0014	0.0336
	100.00	0.0990	0.0044	0.1180
	160.00	0.2840	0.0076	0.2332
	175.17	0.3490	0.0072	0.2588
	182.17	0.3805	0.0068	0.2489
	190.17	0.4177	0.0065	0.2613
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	30.00	0.0146	-0.0021	0.0522
	100.00	0.1421	-0.0065	0.1665
	160.00	0.3975	-0.0109	0.3195
	175.17	0.4877	-0.0108	0.3543
	182.17	0.5306	-0.0104	0.3391
	190.17	0.5810	-0.0102	0.3555
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	30.00	0.0142	-0.0024	0.0518
	100.00	0.1420	-0.0075	0.1673
	160.00	0.3990	-0.0126	0.3206
	175.17	0.4885	-0.0126	0.3541
	182.17	0.5314	-0.0123	0.3400
	190.17	0.5819	-0.0121	0.3556
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	30.00	0.0134	0.0021	0.0510
	100.00	0.1421	0.0065	0.1686
	160.00	0.4016	0.0110	0.3208
	175.17	0.4909	0.0110	0.3541
	182.17	0.5339	0.0107	0.3413
	190.17	0.5846	0.0106	0.3563
-----				
1.2D + 1.0E - Normal To Face	30.00	0.0052	0.0003	0.0132
	100.00	0.0241	-0.0009	0.0297
	160.00	0.0739	0.0020	0.0705
	175.17	0.0950	0.0019	0.0828
	182.17	0.1051	0.0015	0.0774
	190.17	0.1174	0.0012	0.0843
-----				
1.2D + 1.6W 105 mph Wind at 60° From Face	30.00	0.0419	-0.0066	0.1574
	100.00	0.4684	-0.0207	0.5618
	160.00	1.3547	-0.0358	1.1244
	175.17	1.6706	-0.0366	1.2536
	182.17	1.8232	0.0365	1.2010
	190.17	2.0028	0.0365	1.2632
-----				
1.2D + 1.6W 105 mph Wind at 90° From Face	30.00	0.0417	-0.0077	0.1585
	100.00	0.4699	-0.0241	0.5637
	160.00	1.3591	-0.0419	1.1306
	175.17	1.6767	-0.0424	1.2547
	182.17	1.8296	-0.0423	1.2045
	190.17	2.0096	-0.0423	1.2652
-----				
1.2D + 1.6W 105 mph Wind at Normal To Face	30.00	0.0434	0.0068	0.1619
	100.00	0.4787	0.0213	0.5728
	160.00	1.3782	0.0372	1.1372
	175.17	1.6976	0.0372	1.2653
	182.17	1.8515	0.0372	1.2140
	190.17	2.0330	0.0371	1.2751
-----				

	<b>Mat Foundation Design for Self Supporting Tower</b>			Date
				5/5/2021
	Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
	Site Name:		Structure Height (Ft.):	193
	Site Nmber:	CT01105-S-SBA	Engineer Name:	T. Alajaj
Engr. Number:	106787	Engineer Login ID:		

**Foundation Info Obtained from:**

**Analysis or Design?**

**Number of Tower Legs:**

**Base Reactions (Factored):**

(1). Individual Leg:

Axial Load (Kips):	425.4	Uplift Force (Kips):	371.7
Shear Force (Kips):	44.7		

(2). Tower Base:

Total Vertical Load (Kips):	73.2	Total Shear Force (Kips):	65.9
Moment (Kips-ft):	7639.7		

**Foundation Geometries:**

Leg distance (Center-to-Center ft.):	22.0	Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	Round 3.0	Pier Height A. G. (ft.):	0.00
Tower center to mat center (ft):	3.17	Depth of Base BG (ft.):	5.0
Length of Pad (ft.):	32.5	Width of Pad (ft.):	32.5
Thickness of Pad (ft):	4.99		

**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi):	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	12	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	11	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

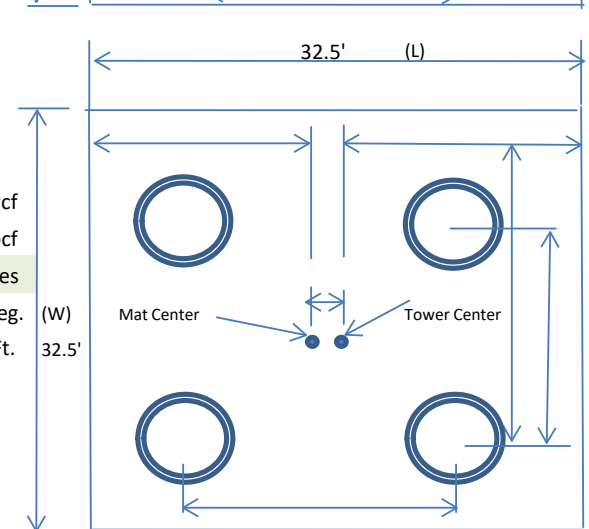
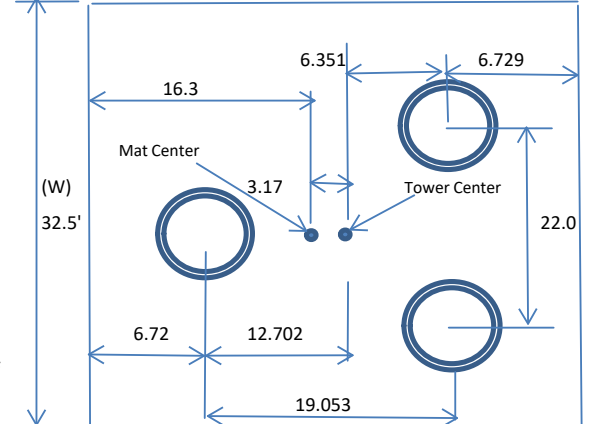
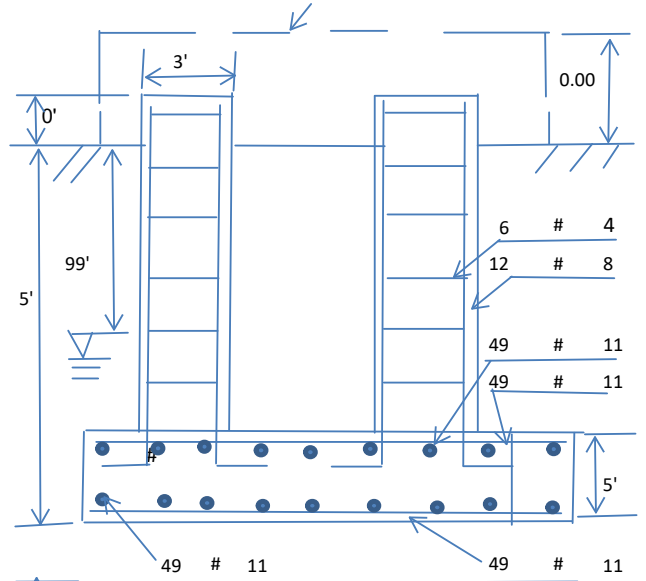
Qty. of Rebar in Pad (L):	49	Qty. of Rebar in Pad (W):	49
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	49	Qty. of Rebar in Pad (W):	49
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**Soil Design Parameters:**

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	40000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?	Yes	Enter soil C (psf) or Phi (deg.):	30.0	Deg. (W)
		Depth to ignor lateral resistance	1.0	Ft. 32.5'



Apply 1.35 for e/w per G/H: 1.35

<b>Foundation Analysis and Design:</b>	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	10.35	Total Dry Soil Weight (Kips):	1.04	
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00	
Total Effective Soil Weight (Kips):	1.04	Weight from the Concrete Block at Top (K):	0.00	
Total Dry Concrete Volume (cu. Ft.):	5271.01	Total Dry Concrete Weight (Kips):	790.65	
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00	
Total Effective Concrete Weight (Kips):	790.65	Total Vertical Load on Base (Kips):	864.84	

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2782.90	<	Allowable Factored Soil Bearing (psf):	30000	0.09	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	12767.1	>	Design Factored Momont (kips-ft):	8201	0.64	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.56					OK!

**Check the capacities of Reinforceing Concrete:**

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

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	186.2	>	Design Factored Moment (Mu, Kips-Ft)	0.7	0.00 OK!
Calculated Shear Capacity (Kips):	62.7	>	Design Factored Shear (Kips):	44.7	0.71 OK!
Calculated Tension Capacity (Tn, Kips):	511.9	>	Design Factored Tension (Tu Kips):	371.7	0.73 OK!
Calculated Compression Capacity (Pn, Kips):	1337.1	>	Design Factored Axial Load (Pu Kips):	425.4	0.32 OK!
Moment & Tension Strength Combination:	0.00	OK!	Check Tie Spacing (Design/Req'd):	1.00	
Pier Reinforcement Ratio:	0.009		Reinforcement Ratio is satisfied per ACI		

(2).Concrete Pad:

One-Way Design Shear Capacity (L or W Direction, Kips):	1800.5	>	One-Way Factored Shear (L/W-Dir Kips)	299.2	0.17	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	1439.3	>	One-Way Factored Shear (Dia. Dir, Kips)	373.1	0.26	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct. ):	0.0035		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0031		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	18535.9	>	Moment at Bottom ( L-Direct. K-Ft):	1741.9	0.09	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	18453.0	>	Moment at Bottom ( Dia. Dir. K-Ft):	3227.8	0.17	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0035		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0031		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	18535.9	>	Moment at the top (L-Dir Kips-Ft):	746.9	0.04	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	18453.0	>	Moment at the top (Dia. Dir., K-Ft):	1124.0	0.06	OK!
Punching Failure Capacity (Kips):	2674.3	>	Punch. Failure Factored Shear (K):	425.4	0.16	OK!

# EXHIBIT 9

## Antenna Mount Structural Analysis



Source: SBA Date: 4.23.2019

**SBA Site:** CT01105-S Bozrah  
**T-Mobile Site Number:** CT11313A  
**Project:** L600 Project

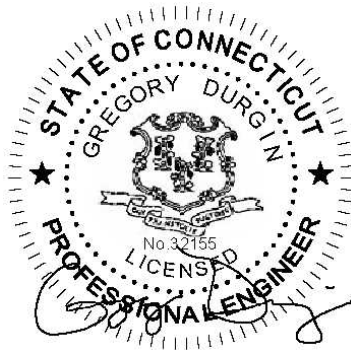
**Prepared For:** T-Mobile

**Mount Description:** (1) Top-Mounted Platform  
w/ Centerline Drop, Handrail and Kicker Augments

**Site Location:** 131 Gifford Ln, Bozrah, CT  
New London County  
41.552517°, -71.099314°

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

**Analysis Load Case:** T-Mobile Final Configuration  
**Analysis Result:** Adequate @ 97% - **Once Augmented**  
**See Conclusion**



Revision 1  
March 19, 2021

CT11313A\_A and E\_Structural\_L600 03.19.21\_R1 - Pass with Augments

## **1.0 Introduction**

An antenna mount structural analysis has been performed on T-Mobile's existing mount assembly **with augments and centerline drop** located at the CT01105-S Bozrah 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 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 0.75" Design Ice, Escalated with Height
Topographic Category 1; Exposure Category B; Structure Class (Risk Category) II
Gust Effect Factor = 1.0; Directionality Factor = 0.95
Site Class D "Stiff Soil"; $F_a = 1.6$ ; $F_v = 2.4$ ; $S_{DS} = 0.181$
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:

- |  |
|--|
| <ul style="list-style-type: none"> <li>• <u>Mount and Tower Record Documents</u><br/>SBA</li> <li>• <u>Construction Drawings</u><br/>Chappell, Rev-0, 6/7/19.</li> <li>• <u>Tower Structural Analysis</u><br/>Allpro, 5/25/18.</li> <li>• <u>Colo Application</u><br/>SBA 600 MHz, App # 117006 v1.</li> <li>• <u>RFDS</u><br/>T-Mobile L600 Project, V3.0, CT11313A, 3/4/21.</li> </ul> |
|--|

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
191.0'	(3) RFS APXVAALL24_43-U-NA20	(1) Top-Mounted Platform w/ Centerline Drop, Handrail and Kicker Augments
	(3) ERICSSON 4449 B71+B85 RRH	
	(3) ERICSSON 4424 B25 RRH	
	(3) ERICSSON 4415 B66A RRH	
	(3) COMMSCOPE SDX1926Q-43 DIPLEXER	

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. AALL panels to be installed on New Pipe2.5STD (2.875"OD Schedule 40) x 8'-0" mount pipe in Position 3.
3. RRH/TMA units to be installed as follows:
  - 3.1. 4449 RRHs to be installed on mount pipe behind panel in Position 3.
  - 3.2. Diplexers to be installed on mount pipe behind panel in Position 3.
  - 3.3. 4415 and 4424 RRHs to be installed on vacant (empty) mount pipe in Position 4 (due to lack of physical space at position 3).

### 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 Kit	27%	Adequate Once Augmented <sup>3</sup>
	Bracing	97%	
	Standoff	49%	
	Bottom Rail	29%	
	New Pipe2.5STD Mount Pipes	56%	
	Pipe2.0STD Mount Pipes	39%	
	New PRK Double Angles	28%	
	Connection Plates	80%	
	New TAP Face Mounts	49%	

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 (augmentations) will be required and are briefly summarized below:

- Install Platform Reinforcement Kit;
  - Sitepro1 PRK-1245L, (1) total.
- Install Face Mount Kits;
  - Sitepro1 TAP-472, (3) kits total.
- Install Handrail Kit;
  - Sitepro1 HRK12-U or 14-U, (1) total.

Once the recommended augmentations 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:**

- Panel antennas and existing mount pipes shall be lowered on the existing boom rail approximately 2.0' (centerline drop), such that the final installed centerline is 191' (or 24" lower than current installation centerline).
- Panel antennas to be installed as follows:
  - AALL panels to be installed on New Pipe2.5STD (2.875"OD Schedule 40) x 8'-0" mount pipe in Position 3.
- RRH/TMA units to be installed as follows:
  - 4449 RRHs to be installed on mount pipe behind panel in Position 3.
  - Diplexers to be installed on mount pipe behind panel in Position 3.
  - 4415 and 4424 RRHs to be installed on vacant (empty) mount pipe in Position 4 (due to lack of physical space at position 3).
- In order to obtain a mount structure capable of supporting the currently proposed final loading configuration, upgrade augmentations 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.

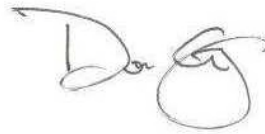
This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, 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	18	12
2	Di	SL		18	134
3	Lm [500]	LL		1	
4	Lv [250]	LL		2	
5	Woz	WL		18	131
6	Wox	WL		18	131
7	Wiz	WL		18	131
8	Wix	WL		18	131
9	Ez	EL		18	
10	Ex	EL		18	

**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
7 A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.3	58	1.1
8 A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.2	58	1.1
9 Q235	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
10 Grade 2	29000	11154	0.3	0.65	0.49	57	1.1	58	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 33	29500	11346	0.3	0.65	0.49	33	52
3 A607 C1 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



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**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> ]
7	PIPE 5.0	PIPE 5.0	Beam	None	A53 Gr.B	Typical	4.01	14.3	14.3	28.6
8	HSS2.5x2.5x3	HSS2.5X2.5X3	Beam	None	A500 Gr.B Rect	Typical	1.54	1.35	1.35	2.25
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
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	L3.5x3.5x4	L3.5X3.5X4	Beam	None	A36 Gr.36	Typical	1.7	2	2	0.039
22	L4x4x4	L4X4X4	Beam	None	A36 Gr.36	Typical	1.93	3	3	0.044
23	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_33	Typical_APP_APP	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	N65	N124		RIGID_1	None	None	RIGID_1	Typical
2	M2	N62	N123		RIGID_1	None	None	RIGID_1	Typical
3	M3	N60	N120		RIGID_1	None	None	RIGID_1	Typical
4	M4	N60	N119		RIGID_1	None	None	RIGID_1	Typical
5	M5	N62	N118		RIGID_1	None	None	RIGID_1	Typical
6	M6	N65	N117		RIGID_1	None	None	RIGID_1	Typical
7	M7	N55	N121		RIGID_1	None	None	RIGID_1	Typical
8	M8	N53	N122		RIGID_1	None	None	RIGID_1	Typical
9	M9	N51	N116		RIGID_1	None	None	RIGID_1	Typical
10	M10	N125	N51		RIGID_1	None	None	RIGID_1	Typical
11	M11	N115	N53		RIGID_1	None	None	RIGID_1	Typical
12	M12	N55	N114		RIGID_1	None	None	RIGID_1	Typical
13	M13	N44	N107		RIGID_1	None	None	RIGID_1	Typical
14	M14	N41	N112		RIGID_1	None	None	RIGID_1	Typical
15	M15	N39	N105		RIGID_1	None	None	RIGID_1	Typical
16	M16	N39	N111		RIGID_1	None	None	RIGID_1	Typical
17	M17	N41	N106		RIGID_1	None	None	RIGID_1	Typical
18	M18	N44	N113		RIGID_1	None	None	RIGID_1	Typical
19	M19	N34	N110		RIGID_1	None	None	RIGID_1	Typical
20	M20	N32	N103		RIGID_1	None	None	RIGID_1	Typical
21	M21	N30	N102		RIGID_1	None	None	RIGID_1	Typical
22	M22	N108	N30		RIGID_1	None	None	RIGID_1	Typical
23	M23	N109	N32		RIGID_1	None	None	RIGID_1	Typical
24	M24	N34	N104		RIGID_1	None	None	RIGID_1	Typical
25	M25	N22	N96		RIGID_1	None	None	RIGID_1	Typical
26	M26	N19	N101		RIGID_1	None	None	RIGID_1	Typical
27	M27	N17	N92		RIGID_1	None	None	RIGID_1	Typical
28	M28	N17	N93		RIGID_1	None	None	RIGID_1	Typical
29	M29	N19	N94		RIGID_1	None	None	RIGID_1	Typical
30	M30	N22	N99		RIGID_1	None	None	RIGID_1	Typical
31	M31	N11	N91		RIGID_1	None	None	RIGID_1	Typical
32	M32	N9	N100		RIGID_1	None	None	RIGID_1	Typical



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**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
33	M33	N7	N97		RIGID 1	None	None	RIGID 1	Typical
34	M34	N98	N7		RIGID 1	None	None	RIGID 1	Typical
35	M35	N95	N9		RIGID 1	None	None	RIGID 1	Typical
36	M36	N11	N90		RIGID 1	None	None	RIGID 1	Typical
37	M37	N34	N39		RIGID 1	None	None	RIGID 1	Typical
38	M38	N32	N41		RIGID 1	None	None	RIGID 1	Typical
39	M39	N30	N44		RIGID 1	None	None	RIGID 1	Typical
40	M40	N11	N17		RIGID 1	None	None	RIGID 1	Typical
41	M41	N9	N19		RIGID 1	None	None	RIGID 1	Typical
42	M42	N7	N22		RIGID 1	None	None	RIGID 1	Typical
43	M43	N60	N55		RIGID 1	None	None	RIGID 1	Typical
44	M44	N62	N53		RIGID 1	None	None	RIGID 1	Typical
45	M45	N65	N51		RIGID 1	None	None	RIGID 1	Typical
46	M46	N50	N59		RB .5	Beam	None	Q235	DR1
47	M47	N56	N61		RB .5	Beam	None	Q235	DR1
48	M48	N54	N63		RB .5	Beam	None	Q235	DR1
49	M49	N49	N58		RB .5	Beam	None	Q235	DR1
50	M50	N52	N57		RB .5	Beam	None	Q235	DR1
51	M51	N48	N64		RB .5	Beam	None	Q235	DR1
52	M52	N29	N38		RB .5	Beam	None	Q235	DR1
53	M53	N35	N40		RB .5	Beam	None	Q235	DR1
54	M54	N33	N42		RB .5	Beam	None	Q235	DR1
55	M55	N28	N37		RB .5	Beam	None	Q235	DR1
56	M56	N31	N36		RB .5	Beam	None	Q235	DR1
57	M57	N27	N43		RB .5	Beam	None	Q235	DR1
58	M58	N6	N15		RB .5	Beam	None	Q235	DR1
59	M59	N12	N18		RB .5	Beam	None	Q235	DR1
60	M60	N10	N20		RB .5	Beam	None	Q235	DR1
61	M61	N5	N14		RB .5	Beam	None	Q235	DR1
62	M62	N8	N13		RB .5	Beam	None	Q235	DR1
63	M63	N4	N21		RB .5	Beam	None	Q235	DR1
64	M64	N82	N89		PIPE 3.0	Beam	None	Q235	Typical APP APP
65	M65	N74	N81		PIPE 3.0	Beam	None	Q235	Typical APP APP
66	M66	N66	N73		PIPE 3.0	Beam	None	Q235	Typical APP APP
67	M67	N47	N68	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
68	M68	N26	N84	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
69	M69	N3	N76	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
70	M70	N79	N325A	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
71	M71	N87	N326A	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
72	M72	N71	N26	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
73	M73	N16	N23		HSS3X3X5	Beam	None	A500 Gr.42	Typical APP APP
74	M74	N46	N45		HSS3X3X5	Beam	None	A500 Gr.42	Typical APP APP
75	M75	N2	N1		HSS3X3X5	Beam	None	A500 Gr.42	Typical APP APP
76	M76	N25	N24		HSS3X3X5	Beam	None	A500 Gr.42	Typical APP APP
77	M77	N66	N145	90	RIGID 1	None	None	RIGID 1	Typical
78	M78	N73	N146	90	RIGID 1	None	None	RIGID 1	Typical
79	M79	N142	N143	90	5/8 X 6	Beam	None	Q235	Typical APP APP
80	M80	N18	N92		1/2 X 1.5	Beam	None	Q235	Typical APP APP
81	M81	N6	N90		1/2 X 1.5	Beam	None	Q235	Typical APP APP
82	M82	N5	N95		1/2 X 1.5	Beam	None	Q235	Typical APP APP
83	M83	N14	N94		1/2 X 1.5	Beam	None	Q235	Typical APP APP
84	M84	N21	N96		1/2 X 1.5	Beam	None	Q235	Typical APP APP
85	M85	N8	N97		1/2 X 1.5	Beam	None	Q235	Typical APP APP
86	M86	N43	N107		1/2 X 1.5	Beam	None	Q235	Typical APP APP
87	M87	N31	N102		1/2 X 1.5	Beam	None	Q235	Typical APP APP
88	M88	N37	N106		1/2 X 1.5	Beam	None	Q235	Typical APP APP
89	M89	N33	N103		1/2 X 1.5	Beam	None	Q235	Typical APP APP
90	M90	N29	N104		1/2 X 1.5	Beam	None	Q235	Typical APP APP





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**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
91	M91	N40	N105		1/2 X 1.5	Beam	None	Q235	Typical APP APP
92	M92	N59	N119		1/2 X 1.5	Beam	None	Q235	Typical APP APP
93	M93	N58	N118		1/2 X 1.5	Beam	None	Q235	Typical APP APP
94	M94	N57	N117		1/2 X 1.5	Beam	None	Q235	Typical APP APP
95	M95	N52	N116		1/2 X 1.5	Beam	None	Q235	Typical APP APP
96	M96	N49	N115		1/2 X 1.5	Beam	None	Q235	Typical APP APP
97	M97	N50	N114		1/2 X 1.5	Beam	None	Q235	Typical APP APP
98	M98	N90	N131		1/2 X 1.5	Beam	None	Q235	Typical APP APP
99	M99	N91	N12		1/2 X 1.5	Beam	None	Q235	Typical APP APP
100	M100	N92	N130		1/2 X 1.5	Beam	None	Q235	Typical APP APP
101	M101	N93	N15		1/2 X 1.5	Beam	None	Q235	Typical APP APP
102	M102	N94	N129		1/2 X 1.5	Beam	None	Q235	Typical APP APP
103	M103	N95	N128		1/2 X 1.5	Beam	None	Q235	Typical APP APP
104	M104	N96	N127		1/2 X 1.5	Beam	None	Q235	Typical APP APP
105	M105	N97	N126		1/2 X 1.5	Beam	None	Q235	Typical APP APP
106	M106	N98	N4		1/2 X 1.5	Beam	None	Q235	Typical APP APP
107	M107	N99	N13		1/2 X 1.5	Beam	None	Q235	Typical APP APP
108	M108	N100	N10		1/2 X 1.5	Beam	None	Q235	Typical APP APP
109	M109	N101	N20		1/2 X 1.5	Beam	None	Q235	Typical APP APP
110	M110	N102	N108		1/2 X 1.5	Beam	None	Q235	Typical APP APP
111	M111	N103	N109		1/2 X 1.5	Beam	None	Q235	Typical APP APP
112	M112	N104	N110		1/2 X 1.5	Beam	None	Q235	Typical APP APP
113	M113	N105	N111		1/2 X 1.5	Beam	None	Q235	Typical APP APP
114	M114	N106	N112		1/2 X 1.5	Beam	None	Q235	Typical APP APP
115	M115	N107	N113		1/2 X 1.5	Beam	None	Q235	Typical APP APP
116	M116	N108	N27		1/2 X 1.5	Beam	None	Q235	Typical APP APP
117	M117	N109	N28		1/2 X 1.5	Beam	None	Q235	Typical APP APP
118	M118	N110	N35		1/2 X 1.5	Beam	None	Q235	Typical APP APP
119	M119	N111	N38		1/2 X 1.5	Beam	None	Q235	Typical APP APP
120	M120	N112	N42		1/2 X 1.5	Beam	None	Q235	Typical APP APP
121	M121	N113	N36		1/2 X 1.5	Beam	None	Q235	Typical APP APP
122	M122	N114	N121		1/2 X 1.5	Beam	None	Q235	Typical APP APP
123	M123	N115	N122		1/2 X 1.5	Beam	None	Q235	Typical APP APP
124	M124	N116	N125		1/2 X 1.5	Beam	None	Q235	Typical APP APP
125	M125	N117	N124		1/2 X 1.5	Beam	None	Q235	Typical APP APP
126	M126	N118	N123		1/2 X 1.5	Beam	None	Q235	Typical APP APP
127	M127	N119	N120		1/2 X 1.5	Beam	None	Q235	Typical APP APP
128	M128	N120	N61		1/2 X 1.5	Beam	None	Q235	Typical APP APP
129	M129	N121	N56		1/2 X 1.5	Beam	None	Q235	Typical APP APP
130	M130	N122	N54		1/2 X 1.5	Beam	None	Q235	Typical APP APP
131	M131	N123	N63		1/2 X 1.5	Beam	None	Q235	Typical APP APP
132	M132	N124	N64		1/2 X 1.5	Beam	None	Q235	Typical APP APP
133	M133	N125	N48		1/2 X 1.5	Beam	None	Q235	Typical APP APP
134	M134	N126	N98		1/2 X 1.5	Beam	None	Q235	Typical APP APP
135	M135	N127	N99		1/2 X 1.5	Beam	None	Q235	Typical APP APP
136	M136	N128	N100		1/2 X 1.5	Beam	None	Q235	Typical APP APP
137	M137	N129	N101		1/2 X 1.5	Beam	None	Q235	Typical APP APP
138	M138	N130	N93		1/2 X 1.5	Beam	None	Q235	Typical APP APP
139	M139	N131	N91		1/2 X 1.5	Beam	None	Q235	Typical APP APP
140	M140	N142	N141		RIGID_1	None	None	RIGID_1	Typical
141	M141	N89	N144		RIGID_1	None	None	RIGID_1	Typical
142	M142	N74	N143		RIGID_1	None	None	RIGID_1	Typical
143	M143	N144	N141	90	5/8 X 6	Beam	None	A36 Gr.36	Typical APP APP
144	M144	N145	N149	90	5/8 X 6	Beam	None	Q235	Typical APP APP
145	M145	N146	N150	90	5/8 X 6	Beam	None	Q235	Typical APP APP
146	M146	N147	N81	90	RIGID_1	None	None	RIGID_1	Typical
147	M147	N148	N82	90	RIGID_1	None	None	RIGID_1	Typical
148	M148	N149	N151	90	RIGID_1	None	None	RIGID_1	Typical



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**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
149	M149	N150	N152	90	RIGID_1	None	None	RIGID_1	Typical
150	M150	N151	N147	90	5/8 X 6	Beam	None	Q235	Typical_APP_APP
151	M151	N152	N148	90	5/8 X 6	Beam	None	Q235	Typical_APP_APP
152	M152	N72	N156		RIGID	None	None	RIGID	Typical
153	M153	N70	N155		RIGID	None	None	RIGID	Typical
154	M154	N69	N154		RIGID	None	None	RIGID	Typical
155	M155	N67	N153		RIGID	None	None	RIGID	Typical
156	M156	N160	N164		PIPE_2.0	Beam	None	A53 Gr.B	Typical
157	M157	N159	N163		PIPE_2.5	Beam	None	A53 Gr.B	Typical
158	M158	N158	N162		PIPE_2.0	Beam	None	A53 Gr.B	Typical
159	M159	N157	N161		PIPE_2.0	Beam	None	A53 Gr.B	Typical
160	M160	N171	N172		RIGID	None	None	RIGID	Typical
161	M161	N174	N173		RIGID	None	None	RIGID	Typical
162	M162	N80	N180		RIGID	None	None	RIGID	Typical
163	M163	N78	N179		RIGID	None	None	RIGID	Typical
164	M164	N77	N178		RIGID	None	None	RIGID	Typical
165	M165	N75	N177		RIGID	None	None	RIGID	Typical
166	M166	N184	N188		PIPE_2.0	Beam	None	A53 Gr.B	Typical
167	M167	N183	N187		PIPE_2.5	Beam	None	A53 Gr.B	Typical
168	M168	N182	N186		PIPE_2.0	Beam	None	A53 Gr.B	Typical
169	M169	N181	N185		PIPE_2.0	Beam	None	A53 Gr.B	Typical
170	M170	N88	N198		RIGID	None	None	RIGID	Typical
171	M171	N86	N197		RIGID	None	None	RIGID	Typical
172	M172	N85	N196		RIGID	None	None	RIGID	Typical
173	M173	N83	N195		RIGID	None	None	RIGID	Typical
174	M174	N202	N206		PIPE_2.0	Beam	None	A53 Gr.B	Typical
175	M175	N201	N205		PIPE_2.5	Beam	None	A53 Gr.B	Typical
176	M176	N200	N204		PIPE_2.0	Beam	None	A53 Gr.B	Typical
177	M177	N199	N203		PIPE_2.0	Beam	None	A53 Gr.B	Typical
178	M178	N225	N230		PIPE_2.0	Beam	None	A53 Gr.B	Typical
179	M179	N219	N224		PIPE_2.0	Beam	None	A53 Gr.B	Typical
180	M180	N213	N218		PIPE_2.0	Beam	None	A53 Gr.B	Typical
181	M181	N217	N234		RIGID	None	None	RIGID	Typical
182	M182	N216	N233		RIGID	None	None	RIGID	Typical
183	M183	N215	N232		RIGID	None	None	RIGID	Typical
184	M184	N214	N231		RIGID	None	None	RIGID	Typical
185	M185	N223	N238		RIGID	None	None	RIGID	Typical
186	M186	N222	N237		RIGID	None	None	RIGID	Typical
187	M187	N221	N236		RIGID	None	None	RIGID	Typical
188	M188	N220	N235		RIGID	None	None	RIGID	Typical
189	M189	N229	N242		RIGID	None	None	RIGID	Typical
190	M190	N228	N241		RIGID	None	None	RIGID	Typical
191	M191	N227	N240		RIGID	None	None	RIGID	Typical
192	M192	N226	N239		RIGID	None	None	RIGID	Typical
193	M193	N218	N225	90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
194	M194	N230	N219	90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
195	M195	N224	N213	90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
196	M196	N243	N244		LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
197	M197	N247	N175		HSS3X3X5	Beam	None	A500 Gr.42	Typical_APP_APP
198	M199	N249	N176		HSS3X3X5	Beam	None	A500 Gr.42	Typical_APP_APP
199	M201	N251	N252		RIGID	None	None	RIGID	Typical
200	M202	N254	N253		RIGID	None	None	RIGID	Typical
201	M203	N255	N256		RIGID	None	None	RIGID	Typical
202	M204	N258	N257		RIGID	None	None	RIGID	Typical
203	M205	N259	N260		RIGID	None	None	RIGID	Typical
204	M206	N262	N261		RIGID	None	None	RIGID	Typical
205	M207	N263	N264		RIGID	None	None	RIGID	Typical
206	M208	N266	N265		RIGID	None	None	RIGID	Typical



**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
207	M209	N267	N268		RIGID	None	None	RIGID	Typical
208	M210	N270	N269		RIGID	None	None	RIGID	Typical
209	M211	N271	N272		RIGID	None	None	RIGID	Typical
210	M212	N274	N273		RIGID	None	None	RIGID	Typical
211	M213	N275	N276		RIGID	None	None	RIGID	Typical
212	M214	N278	N277		RIGID	None	None	RIGID	Typical
213	M215	N279	N280		RIGID	None	None	RIGID	Typical
214	M216	N282	N281		RIGID	None	None	RIGID	Typical
215	M217	N283	N284		RIGID	None	None	RIGID	Typical
216	M218	N286	N285		RIGID	None	None	RIGID	Typical
217	M219	N287	N288		RIGID	None	None	RIGID	Typical
218	M220	N290	N289		RIGID	None	None	RIGID	Typical
219	M221	N291	N292		RIGID	None	None	RIGID	Typical
220	M222	N294	N293		RIGID	None	None	RIGID	Typical
221	M222A	N295	N296		HSS2.5x2.5x3	Beam	None	A500 Gr.B Rect	Typical
222	M223	N297	N298		HSS2.5x2.5x3	Beam	None	A500 Gr.B Rect	Typical
223	M223A	N297A	N299		RIGID	None	None	RIGID	Typical
224	M224	N298A	N300		RIGID	None	None	RIGID	Typical
225	M225	N301	N302		PIPE 4.0	Beam	None	A53 Gr.B	Typical
226	M226	N248	N304		LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
227	M227	N305	N306		HSS2.5x2.5x3	Beam	None	A500 Gr.B Rect	Typical
228	M228	N307	N308		HSS2.5x2.5x3	Beam	None	A500 Gr.B Rect	Typical
229	M229	N309	N311		RIGID	None	None	RIGID	Typical
230	M230	N310	N312		RIGID	None	None	RIGID	Typical
231	M231	N313	N314		PIPE 4.0	Beam	None	A53 Gr.B	Typical
232	M232	N250	N316		LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
233	M233	N317	N318		HSS2.5x2.5x3	Beam	None	A500 Gr.B Rect	Typical
234	M234	N319	N320		HSS2.5x2.5x3	Beam	None	A500 Gr.B Rect	Typical
235	M235	N321	N323		RIGID	None	None	RIGID	Typical
236	M236	N322	N324		RIGID	None	None	RIGID	Typical
237	M237	N325	N326		PIPE 4.0	Beam	None	A53 Gr.B	Typical
238	M238	N325A	N47	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP
239	M239	N326A	N3	270	L2.5X1.5X.25	Beam	None	Q235	Typical APP APP

**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	N23	max	1.736	17	1.226	32	1.332	14	3.281	26	2.987	11	0.745	23
2		min	-1.732	23	0.16	14	-6.717	32	0.513	20	-2.993	5	-0.829	5
3	N175	max	0.922	18	1.234	36	3.676	13	0.153	14	1.886	13	-0.325	23
4		min	-5.778	36	0.114	18	-1.523	19	-1.819	32	-1.877	7	-2.795	29
5	N176	max	5.848	29	1.233	28	3.37	27	0.134	14	1.149	8	2.93	35
6		min	-1.352	23	0.108	22	-0.817	21	-1.595	32	-1.158	2	0.292	17
7	N295	max	0.048	17	0.479	26	-0.055	69	0.087	26	0	74	0	74
8		min	-0.048	23	-0.058	20	-0.212	26	-0.013	20	0	1	0	1
9	N296	max	0.048	17	0.479	26	-0.055	69	0.087	26	0	74	0	74
10		min	-0.048	23	-0.058	20	-0.212	27	-0.013	20	0	1	0	1
11	N297	max	0.048	17	0.488	26	-0.054	20	0	14	0	74	0	74
12		min	-0.048	23	-0.059	20	-0.274	26	-0.002	8	0	1	0	1
13	N298	max	0.048	17	0.488	26	-0.053	21	0	14	0	74	0	74
14		min	-0.048	23	-0.059	20	-0.274	26	-0.002	8	0	1	0	1
15	N305	max	0.002	15	0.481	30	0.122	4	0.008	24	0	74	0.014	24
16		min	-0.189	32	-0.076	24	-0.048	22	-0.044	30	0	1	-0.076	30
17	N306	max	0.011	15	0.481	30	0.118	4	0.008	24	0	74	0.014	24
18		min	-0.19	32	-0.077	24	-0.044	22	-0.044	30	0	1	-0.076	30
19	N307	max	0	14	0.491	30	0.146	28	0.003	47	0	74	0.005	47
20		min	-0.242	31	-0.078	24	-0.046	22	0	17	0	1	0	17
21	N308	max	0.007	14	0.491	30	0.145	28	0.003	47	0	74	0.005	47
22		min	-0.243	31	-0.078	24	-0.042	22	0	17	0	1	0	17



Company : GeoStructural, LLC  
 Designer : Jesse Drennen, PE  
 Job Number :  
 Model Name : CT11313A

3/19/2021  
 10:36:56 AM  
 Checked By : DWG

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**Envelope Node Reactions (Continued)**

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
23	N317	max	0.19	32	0.482	34	0.122	12	0.008	16	0	74	0.076	34
24		min	-0.004	25	-0.078	16	-0.047	18	-0.044	34	0	1	-0.015	16
25	N318	max	0.189	32	0.482	34	0.126	13	0.008	16	0	74	0.076	34
26		min	0.004	14	-0.077	16	-0.051	19	-0.044	34	0	1	-0.015	16
27	N319	max	0.243	33	0.491	34	0.146	36	0.002	50	0	74	0	22
28		min	0	14	-0.079	16	-0.046	18	0	22	0	1	-0.004	50
29	N320	max	0.242	33	0.491	34	0.146	36	0.002	50	0	74	0	22
30		min	0.006	14	-0.079	16	-0.05	18	0	22	0	1	-0.004	50
31	Totals:	max	7.295	17	8.972	34	6.907	2						
32		min	-7.295	11	2.657	65	-6.907	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	M72	L2.5X1.5X.25	0.968	29	2.996	29	z	27	30.315	30.375	1.531	1.054	1	H2-1
2	M71	L2.5X1.5X.25	0.939	37	2.917	37	z	35	30.315	30.375	1.531	1.054	1	H2-1
3	M70	L2.5X1.5X.25	0.937	34	2.917	34	z	31	30.315	30.375	1.531	1.054	1	H2-1
4	M68	L2.5X1.5X.25	0.924	30	0	0	z	32	30.315	30.375	1.531	1.054	1	H2-1
5	M69	L2.5X1.5X.25	0.921	27	0	0	z	28	30.315	30.375	1.531	1.054	1	H2-1
6	M67	L2.5X1.5X.25	0.91	34	0	0	z	36	30.315	30.375	1.531	1.054	1	H2-1
7	M157	PIPE 2.5	0.555	2	2.552	2	z	3	33.962	50.715	3.596	3.596	1.992	H1-1b
8	M175	PIPE 2.5	0.517	11	2.552	11	z	12	33.962	50.715	3.596	3.596	1.911	H1-1b
9	M167	PIPE 2.5	0.503	5	2.552	5	z	3	33.962	50.715	3.596	3.596	1.978	H1-1b
10	M234	HSS2.5X2.5X3	0.489	34	3	34	y	34	42.831	63.756	4.554	4.554	1.302	H1-1b
11	M228	HSS2.5X2.5X3	0.488	30	3	30	y	30	42.831	63.756	4.554	4.554	1.302	H1-1b
12	M223	HSS2.5X2.5X3	0.485	26	3	26	y	26	42.831	63.756	4.554	4.554	1.302	H1-1b
13	M73	HSS3X3X5	0.484	11	4.584	11	z	5	108.941	111.132	9.135	9.135	2.782	H1-1b
14	M79	5/8 X 6	0.457	33	0	0	y	28	120.755	121.5	15.188	1.582	1	H1-1b
15	M151	5/8 X 6	0.453	37	0	0	y	32	120.755	121.5	15.188	1.582	1	H1-1b
16	M144	5/8 X 6	0.452	30	0.21	30	y	36	120.755	121.5	15.188	1.582	1.014	H1-1b
17	M143	5/8 X 6	0.451	30	0.21	30	y	35	120.257	121.5	15.188	1.582	1.038	H1-1b
18	M145	5/8 X 6	0.447	34	0.21	34	y	27	120.755	121.5	15.188	1.582	1	H1-1b
19	M150	5/8 X 6	0.446	27	0	0	y	31	120.755	121.5	15.188	1.582	1.04	H1-1b
20	M233	HSS2.5X2.5X3	0.441	34	3	34	y	34	42.831	63.756	4.554	4.554	1.302	H1-1b
21	M227	HSS2.5X2.5X3	0.441	30	3	30	y	30	42.831	63.756	4.554	4.554	1.302	H1-1b
22	M222A	HSS2.5X2.5X3	0.438	26	3	26	y	26	42.831	63.756	4.554	4.554	1.302	H1-1b
23	M197	HSS3X3X5	0.416	31	4.584	31	z	8	108.941	111.132	9.135	9.135	2.383	H1-1b
24	M199	HSS3X3X5	0.403	32	4.584	32	z	13	108.939	111.132	9.135	9.135	2.45	H1-1b
25	M168	PIPE 2.0	0.352	5	2.552	5	z	3	17.855	32.13	1.872	1.872	2.246	H1-1b
26	M74	HSS3X3X5	0.329	35	1.416	35	y	12	109.84	111.132	9.135	9.135	2.619	H1-1b
27	M76	HSS3X3X5	0.329	31	1.416	31	y	8	109.84	111.132	9.135	9.135	2.619	H1-1b
28	M158	PIPE 2.0	0.325	2	2.552	2	z	10	17.855	32.13	1.872	1.872	2.261	H1-1b
29	M75	HSS3X3X5	0.325	27	1.416	27	y	4	109.84	111.132	9.135	9.135	2.618	H1-1b
30	M176	PIPE 2.0	0.318	6	2.552	6	z	6	17.855	32.13	1.872	1.872	2.309	H1-1b
31	M174	PIPE 2.0	0.305	10	2.552	10	z	7	17.855	32.13	1.872	1.872	2.149	H1-1b
32	M166	PIPE 2.0	0.304	6	2.552	6	z	3	17.855	32.13	1.872	1.872	2.393	H1-1b
33	M156	PIPE 2.0	0.296	2	2.552	2	z	11	17.855	32.13	1.872	1.872	2.249	H1-1b
34	M64	PIPE 3.0	0.29	31	0	0	z	10	23.947	67.068	5.913	5.913	3	H1-1b
35	M66	PIPE 3.0	0.289	35	0	0	z	2	23.945	67.068	5.913	5.913	3	H1-1b
36	M65	PIPE 3.0	0.287	27	0	0	z	11	23.942	67.068	5.913	5.913	3	H1-1b
37	M180	PIPE 2.0	0.271	8	9.11	8	z	11	5.268	32.13	1.872	1.872	2.87	H1-1b
38	M179	PIPE 2.0	0.266	11	9.11	11	z	3	5.267	32.13	1.872	1.872	2.689	H1-1b
39	M178	PIPE 2.0	0.265	6	8.967	6	z	7	5.268	32.13	1.872	1.872	3	H1-1b
40	M177	PIPE 2.0	0.219	47	2.552	47	z	48	17.855	32.13	1.872	1.872	2.451	H1-1b
41	M169	PIPE 2.0	0.202	31	2.552	31	z	8	17.855	32.13	1.872	1.872	2.282	H1-1b
42	M159	PIPE 2.0	0.201	26	2.552	26	z	28	17.855	32.13	1.872	1.872	2.272	H1-1b
43	M232	LL2.5x2.5x3x3	0.122	17	2.451	17	y	11	42.419	58.32	3.954	1.593	1.136	H1-1b
44	M226	LL2.5x2.5x3x3	0.122	23	2.451	23	z	10	42.419	58.32	3.954	1.593	1.136	H1-1b
45	M195	L2.5x2.5x3	0.1	4	0.962	4	y	6	27.882	29.192	0.873	1.972	1.093	H2-1



**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	
46	M193	L2.5x2.5x3	0.096	0	11	0.12	0.962	y	2	27.882	29.192	0.873	1.972	1.129	H2-1
47	M237	PIPE 4.0	0.093	3	34	0.021	3	34	83.098	93.24	10.631	10.631	1.653	H1-1b	
48	M231	PIPE 4.0	0.093	3	30	0.021	3	30	83.098	93.24	10.631	10.631	1.653	H1-1b	
49	M225	PIPE 4.0	0.092	3	26	0.021	3	26	83.098	93.24	10.631	10.631	1.761	H1-1b	
50	M194	L2.5x2.5x3	0.089	0.912	8	0.116	0.962	y	10	27.881	29.192	0.873	1.972	1.046	H2-1
51	M196	LL2.5x2.5x3x3	0.061	2.451	3	0.005	4.902	y	2	42.419	58.32	3.954	2.55	1.136	H1-1b
52	M50	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
53	M49	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
54	M46	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
55	M51	RB .5	0.002	0.5	2	0	0	8	6.027	6.35	0.052	0.052	1	H1-1b	
56	M56	RB .5	0.002	0.5	2	0	0.5	2	6.027	6.35	0.052	0.052	1	H1-1b	
57	M48	RB .5	0.002	0.5	2	0	0	8	6.027	6.35	0.052	0.052	1	H1-1b	
58	M55	RB .5	0.002	0.5	2	0	0.5	2	6.027	6.35	0.052	0.052	1	H1-1b	
59	M47	RB .5	0.002	0.5	2	0	0	8	6.027	6.35	0.052	0.052	1	H1-1b	
60	M52	RB .5	0.002	0.5	2	0	0.5	2	6.027	6.35	0.052	0.052	1	H1-1b	
61	M57	RB .5	0.002	0.5	8	0	0	2	6.027	6.35	0.052	0.052	1	H1-1b	
62	M54	RB .5	0.002	0.5	8	0	0	2	6.027	6.35	0.052	0.052	1	H1-1b	
63	M53	RB .5	0.002	0.5	8	0	0	2	6.027	6.35	0.052	0.052	1	H1-1b	
64	M62	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
65	M60	RB .5	0.002	0.5	2	0	0.5	2	6.027	6.35	0.052	0.052	1	H1-1b	
66	M63	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
67	M58	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
68	M61	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
69	M59	RB .5	0.002	0.5	8	0	0.5	8	6.027	6.35	0.052	0.052	1	H1-1b	
70	M95	1/2 X 1.5	0	0.031	32	0	0.031	y	26	24.296	24.3	0.759	0.253	1	H1-1b
71	M96	1/2 X 1.5	0	0.031	32	0	0.031	y	26	24.296	24.3	0.759	0.253	1	H1-1b
72	M97	1/2 X 1.5	0	0.031	32	0	0.031	y	26	24.296	24.3	0.759	0.253	1	H1-1b
73	M132	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
74	M131	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
75	M128	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
76	M116	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
77	M121	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
78	M89	1/2 X 1.5	0	0.031	32	0	0.031	y	26	24.296	24.3	0.759	0.253	1	H1-1b
79	M88	1/2 X 1.5	0	0.031	32	0	0.031	y	26	24.296	24.3	0.759	0.253	1	H1-1b
80	M118	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
81	M119	1/2 X 1.5	0	0	32	0	0	y	26	24.296	24.3	0.759	0.253	1	H1-1b
82	M117	1/2 X 1.5	0	0	26	0	0	y	32	24.296	24.3	0.759	0.253	1	H1-1b
83	M90	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
84	M87	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
85	M91	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
86	M86	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
87	M120	1/2 X 1.5	0	0	26	0	0	y	32	24.296	24.3	0.759	0.253	1	H1-1b
88	M133	1/2 X 1.5	0	0	26	0	0	y	32	24.296	24.3	0.759	0.253	1	H1-1b
89	M94	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
90	M130	1/2 X 1.5	0	0	26	0	0	y	32	24.296	24.3	0.759	0.253	1	H1-1b
91	M93	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
92	M129	1/2 X 1.5	0	0	26	0	0	y	32	24.296	24.3	0.759	0.253	1	H1-1b
93	M92	1/2 X 1.5	0	0.031	26	0	0.031	y	32	24.296	24.3	0.759	0.253	1	H1-1b
94	M101	1/2 X 1.5	0	0	26	0	0	y	2	24.296	24.3	0.759	0.253	1	H1-1b
95	M83	1/2 X 1.5	0	0.031	26	0	0.031	y	2	24.296	24.3	0.759	0.253	1	H1-1b
96	M107	1/2 X 1.5	0	0	26	0	0	y	2	24.296	24.3	0.759	0.253	1	H1-1b
97	M99	1/2 X 1.5	0	0	26	0	0	y	2	24.296	24.3	0.759	0.253	1	H1-1b
98	M108	1/2 X 1.5	0	0	26	0	0	y	2	24.296	24.3	0.759	0.253	1	H1-1b
99	M106	1/2 X 1.5	0	0	26	0	0	y	2	24.296	24.3	0.759	0.253	1	H1-1b
100	M84	1/2 X 1.5	0	0.031	32	0	0.031	y	8	24.296	24.3	0.759	0.253	1	H1-1b
101	M109	1/2 X 1.5	0	0	32	0	0	y	8	24.296	24.3	0.759	0.253	1	H1-1b
102	M80	1/2 X 1.5	0	0.031	32	0	0.031	y	8	24.296	24.3	0.759	0.253	1	H1-1b
103	M85	1/2 X 1.5	0	0.031	32	0	0.031	y	8	24.296	24.3	0.759	0.253	1	H1-1b



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

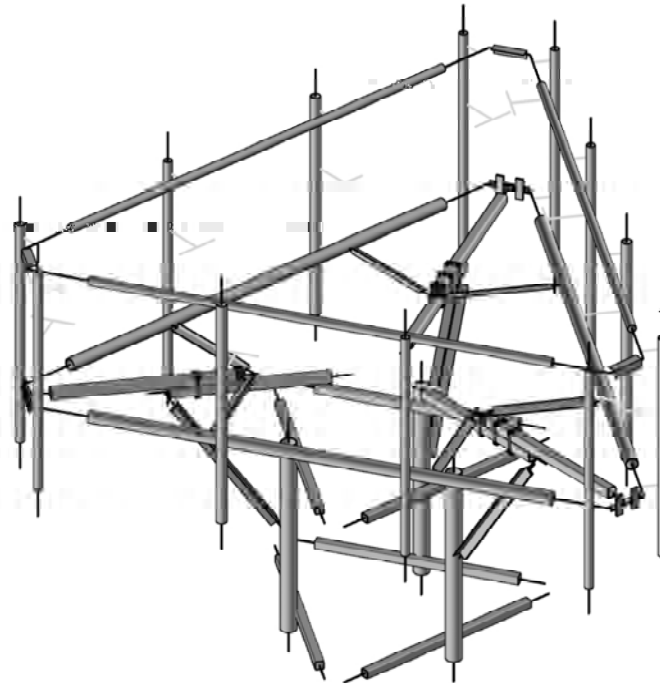
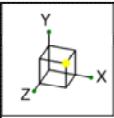
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104	M82	1/2 X 1.5	0	0.031	32	0	0.031	y	8	24.296	24.3	0.759	0.253	1	H1-1b	
105	M81	1/2 X 1.5	0	0.031	32	0	0.031	y	8	24.296	24.3	0.759	0.253	1	H1-1b	
106	M100	1/2 X 1.5	0	0	26	0	0	y	31	24.242	24.3	0.759	0.253	1	H1-1b	
107	M139	1/2 X 1.5	0	0.125	32	0	0.125	y	34	24.242	24.3	0.759	0.253	1	H1-1b	
108	M136	1/2 X 1.5	0	0.125	32	0	0.125	y	27	24.242	24.3	0.759	0.253	1	H1-1b	
109	M103	1/2 X 1.5	0	0	26	0	0	y	37	24.242	24.3	0.759	0.253	1	H1-1b	
110	M137	1/2 X 1.5	0	0.125	26	0	0.125	y	29	24.242	24.3	0.759	0.253	1	H1-1b	
111	M104	1/2 X 1.5	0	0	26	0	0	y	35	24.242	24.3	0.759	0.253	1	H1-1b	
112	M135	1/2 X 1.5	0	0.125	26	0	0.125	y	26	24.242	24.3	0.759	0.253	1	H1-1b	
113	M134	1/2 X 1.5	0	0.125	32	0	0.125	y	26	24.242	24.3	0.759	0.253	1	H1-1b	
114	M105	1/2 X 1.5	0	0	32	0	0	y	36	24.242	24.3	0.759	0.253	1	H1-1b	
115	M138	1/2 X 1.5	0	0.125	32	0	0.125	y	37	24.242	24.3	0.759	0.253	1	H1-1b	
116	M98	1/2 X 1.5	0	0	32	0	0	y	34	24.242	24.3	0.759	0.253	1	H1-1b	
117	M102	1/2 X 1.5	0	0	32	0	0	y	37	24.242	24.3	0.759	0.253	1	H1-1b	
118	M126	1/2 X 1.5	0	0.25	29	0	0.25	y	31	24.068	24.3	0.759	0.253	1	H1-1b	
119	M115	1/2 X 1.5	0	0.25	35	0	0.25	y	33	24.068	24.3	0.759	0.253	1	H1-1b	
120	M127	1/2 X 1.5	0	0.25	29	0	0.25	y	34	24.068	24.3	0.759	0.253	1	H1-1b	
121	M125	1/2 X 1.5	0	0.25	29	0	0.25	y	31	24.068	24.3	0.759	0.253	1	H1-1b	
122	M113	1/2 X 1.5	0	0.25	35	0	0.25	y	31	24.068	24.3	0.759	0.253	1	H1-1b	
123	M122	1/2 X 1.5	0	0.25	29	0	0.25	y	35	24.068	24.3	0.759	0.253	1	H1-1b	
124	M123	1/2 X 1.5	0	0.25	29	0	0.25	y	26	24.068	24.3	0.759	0.253	1	H1-1b	
125	M124	1/2 X 1.5	0	0.25	29	0	0.25	y	37	24.068	24.3	0.759	0.253	1	H1-1b	
126	M111	1/2 X 1.5	0	0.25	35	0	0.25	y	26	24.068	24.3	0.759	0.253	1	H1-1b	
127	M114	1/2 X 1.5	0	0.25	29	0	0.25	y	37	24.068	24.3	0.759	0.253	1	H1-1b	
128	M112	1/2 X 1.5	0	0.25	29	0	0.25	y	33	24.068	24.3	0.759	0.253	1	H1-1b	
129	M110	1/2 X 1.5	0	0.25	29	0	0.25	y	31	24.068	24.3	0.759	0.253	1	H1-1b	

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

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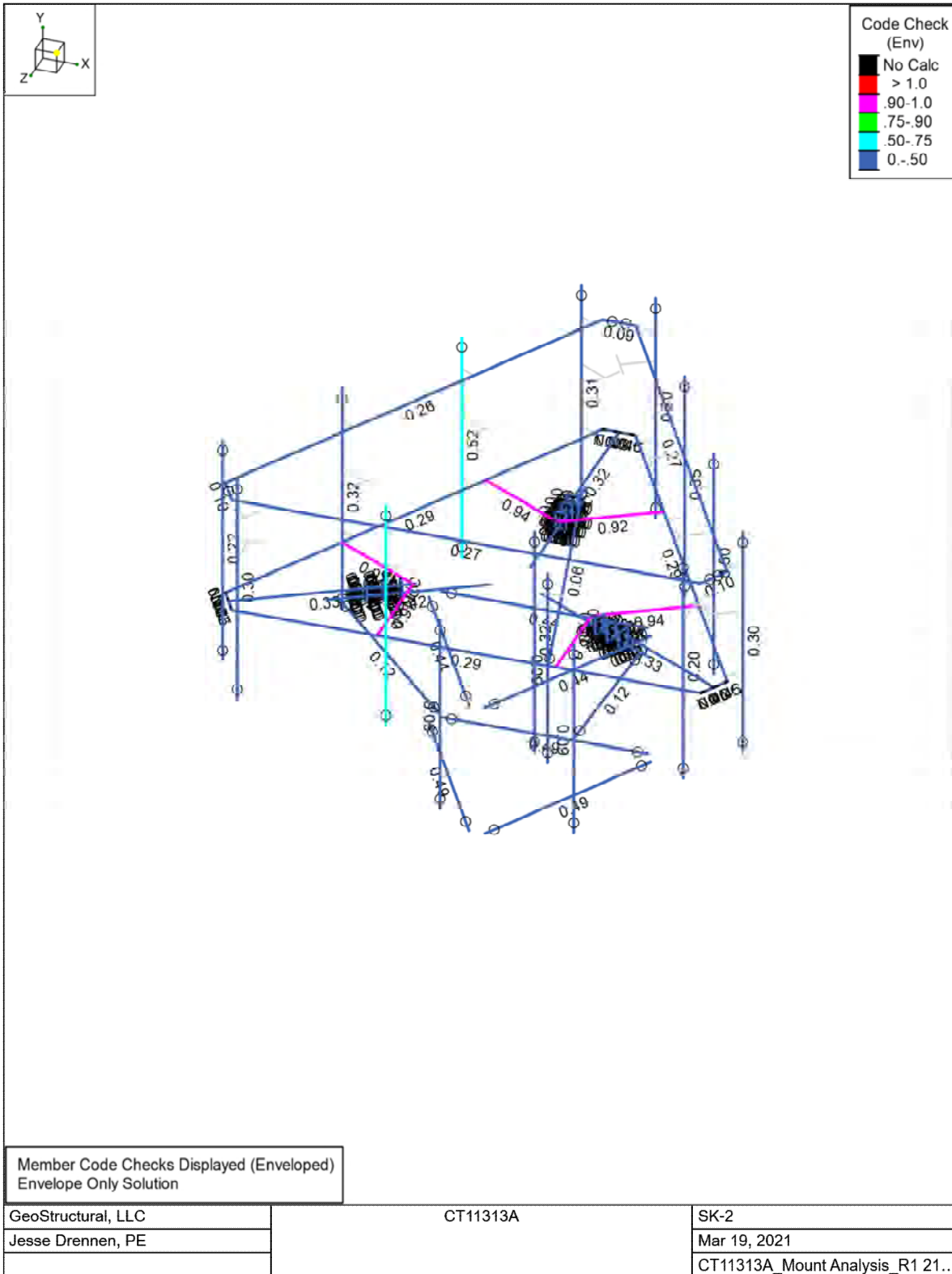
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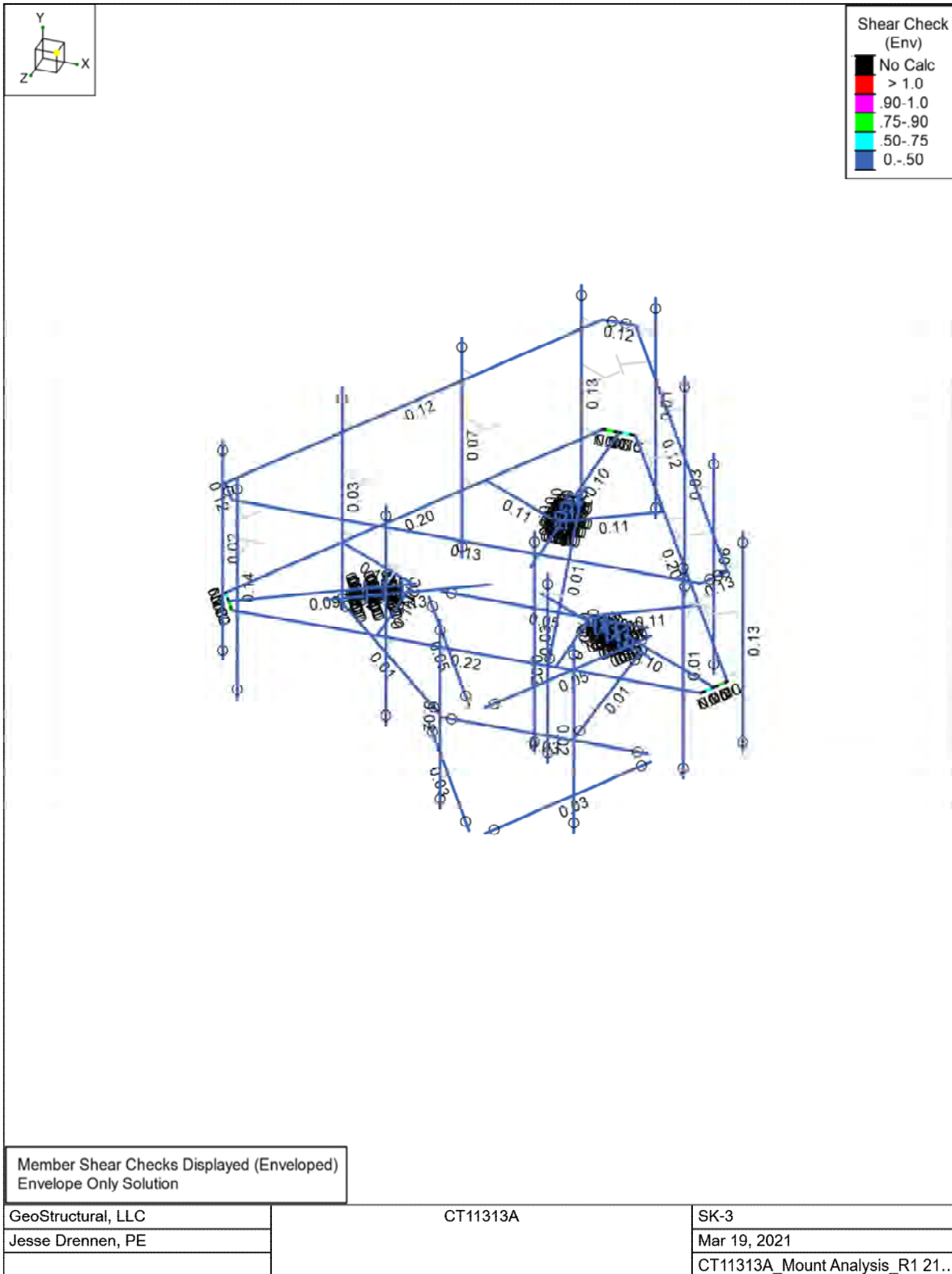


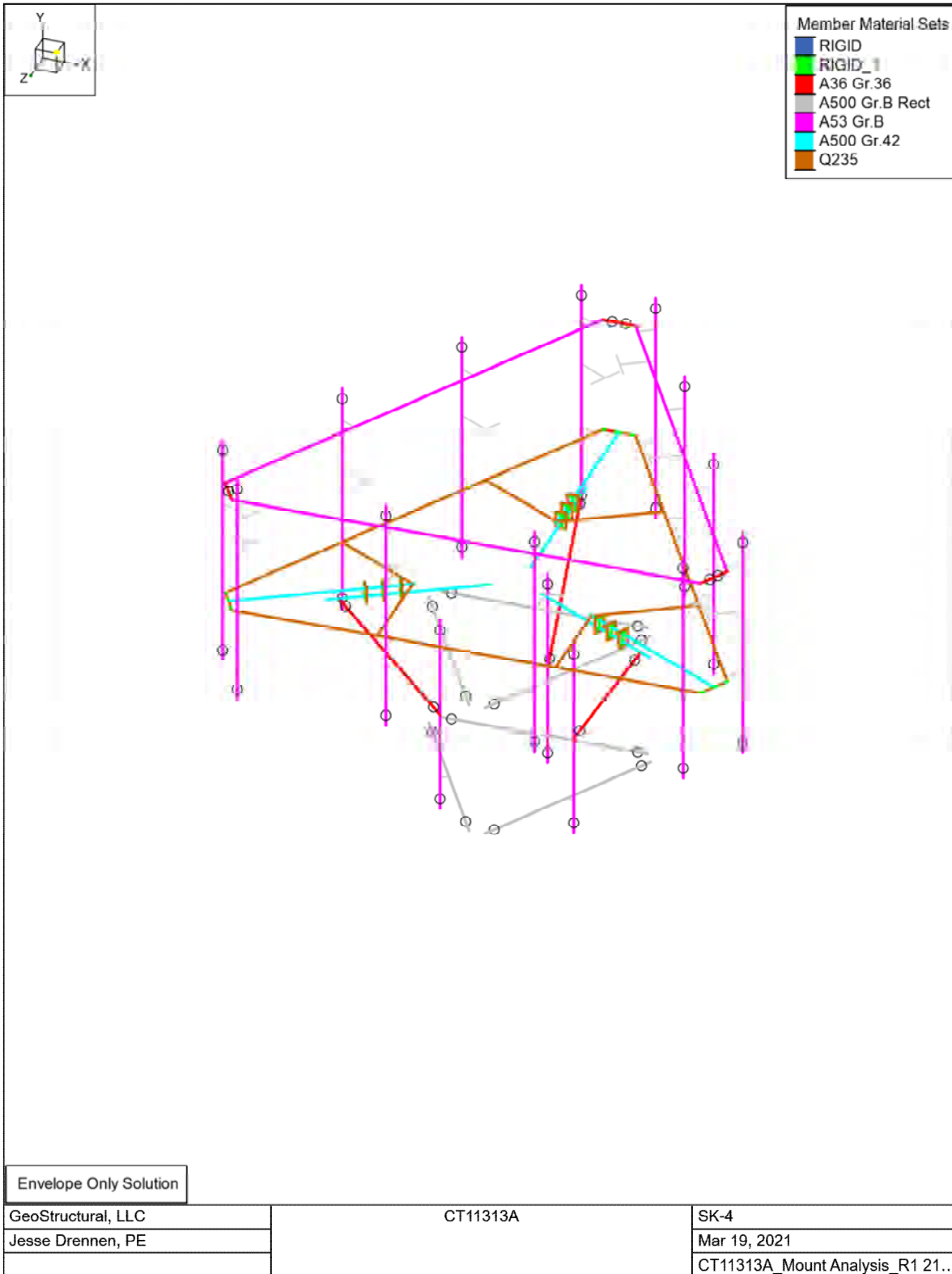
Member Code Checks Displayed (Enveloped)  
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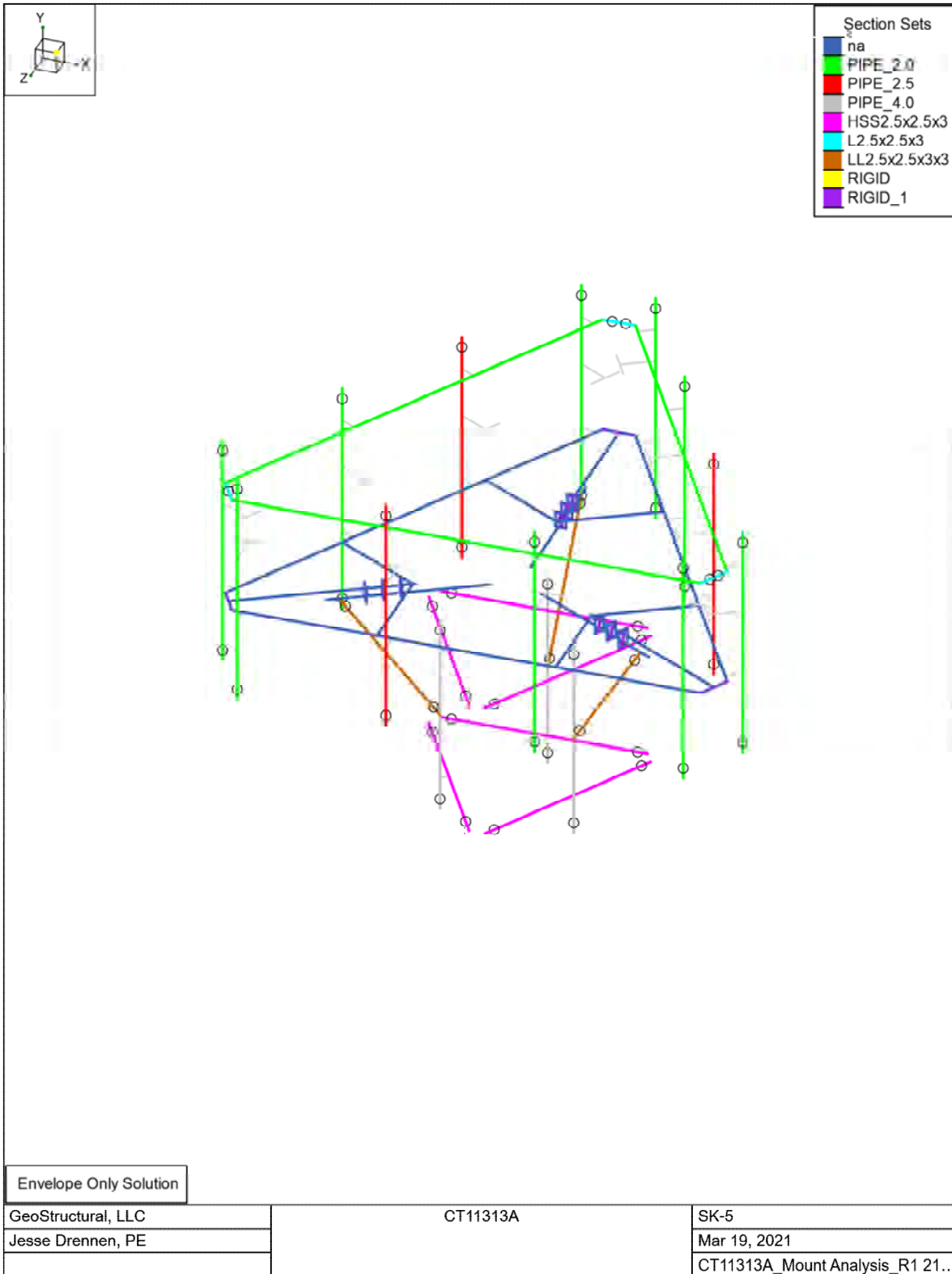
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Jesse Drennen, PE		Mar 19, 2021
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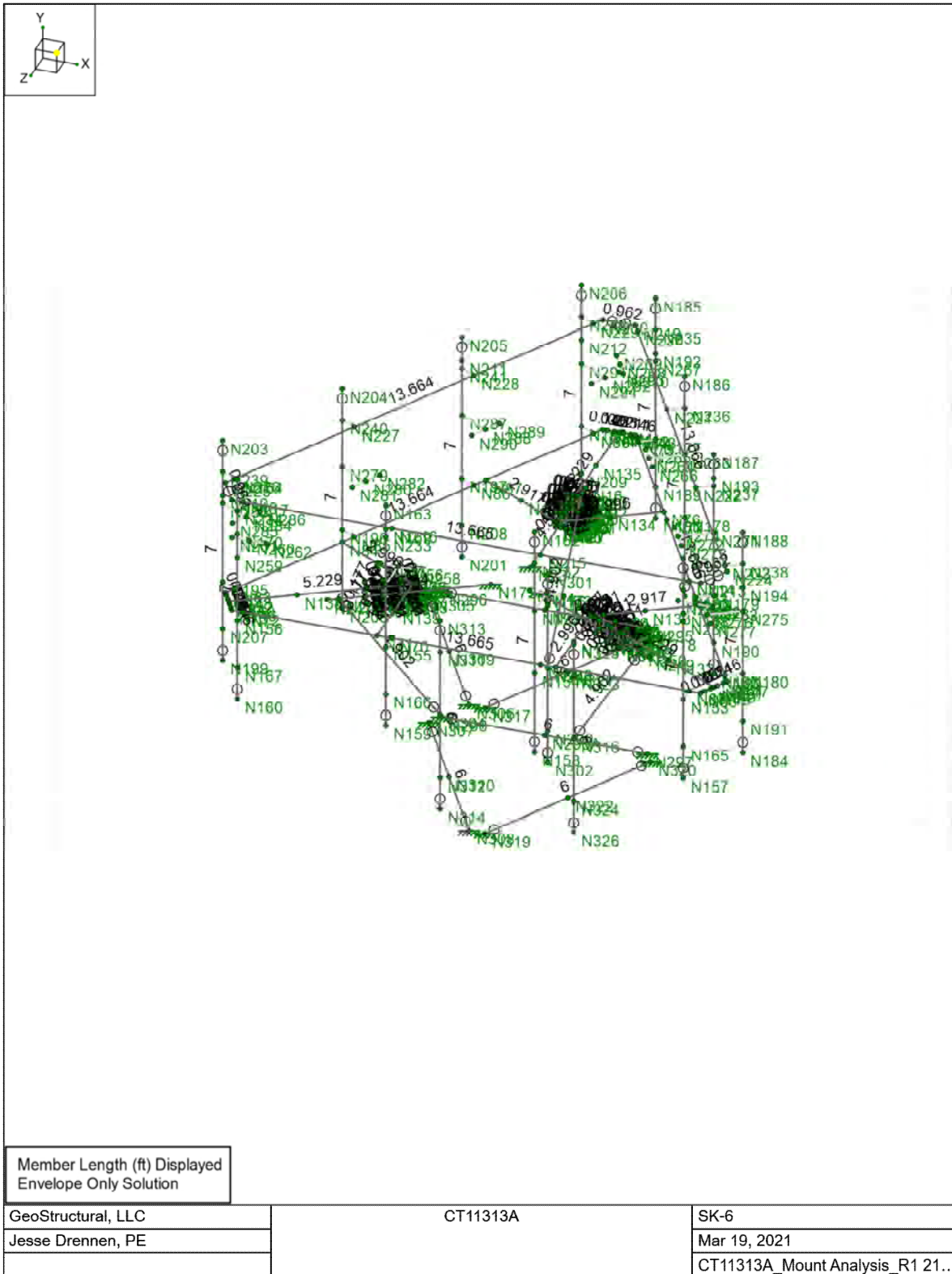


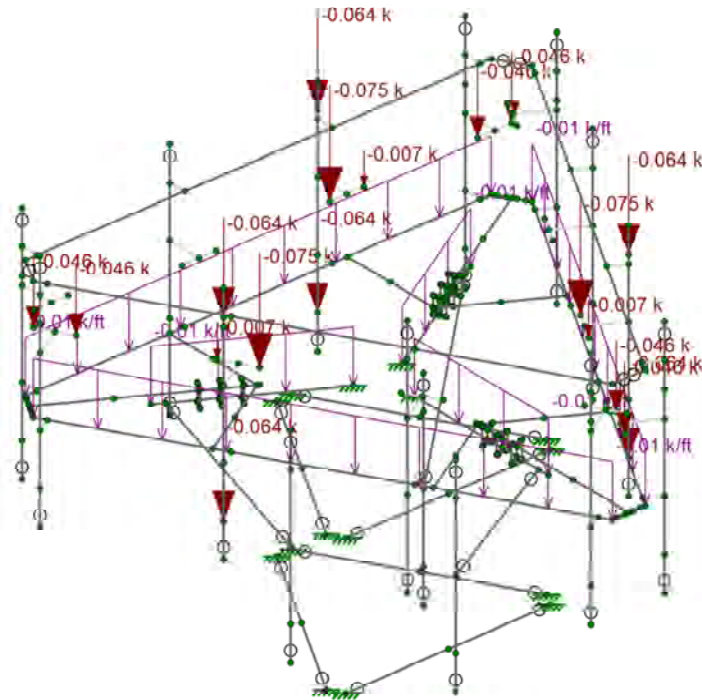
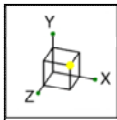






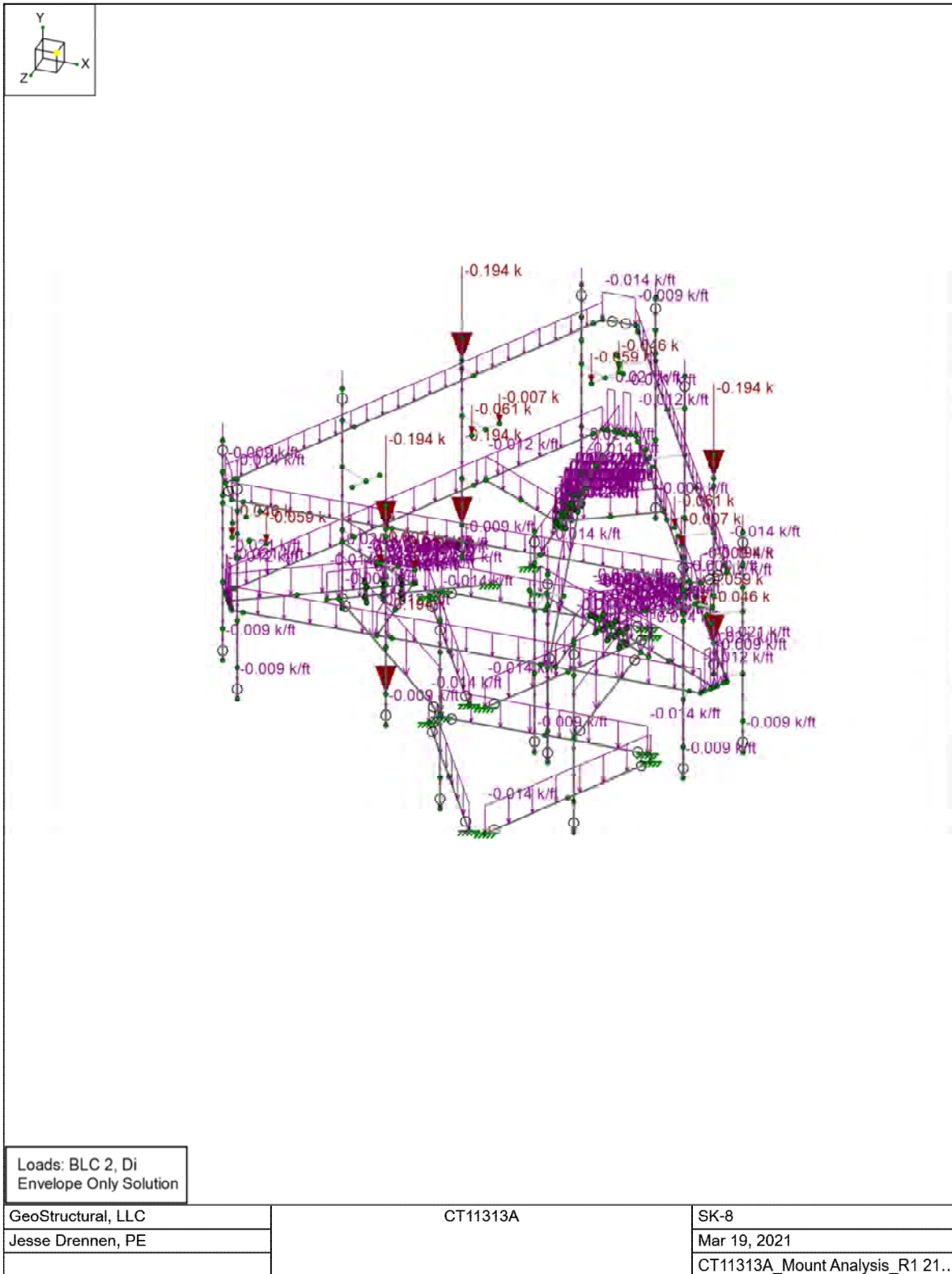




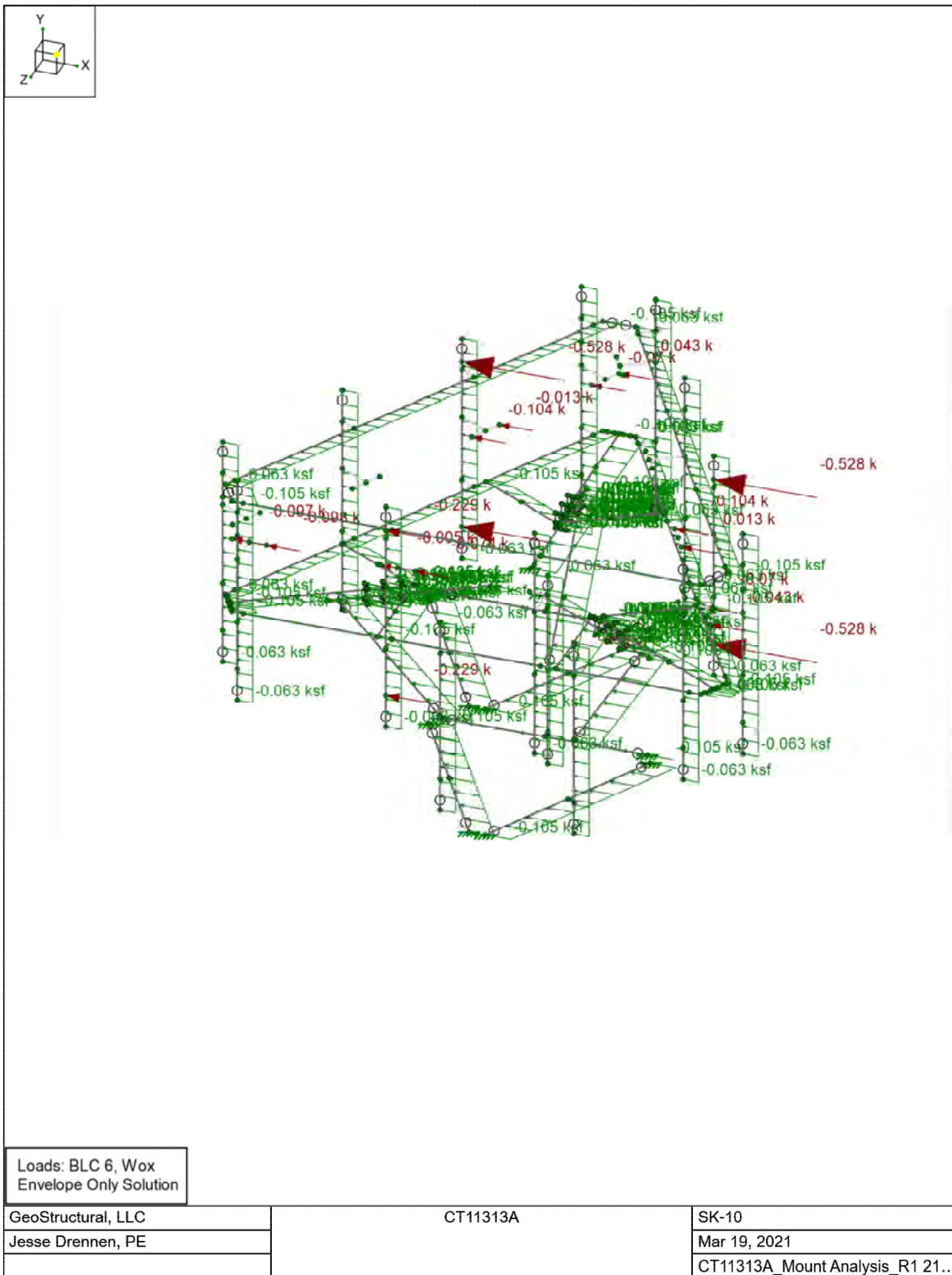


Loads: BLC 1, D  
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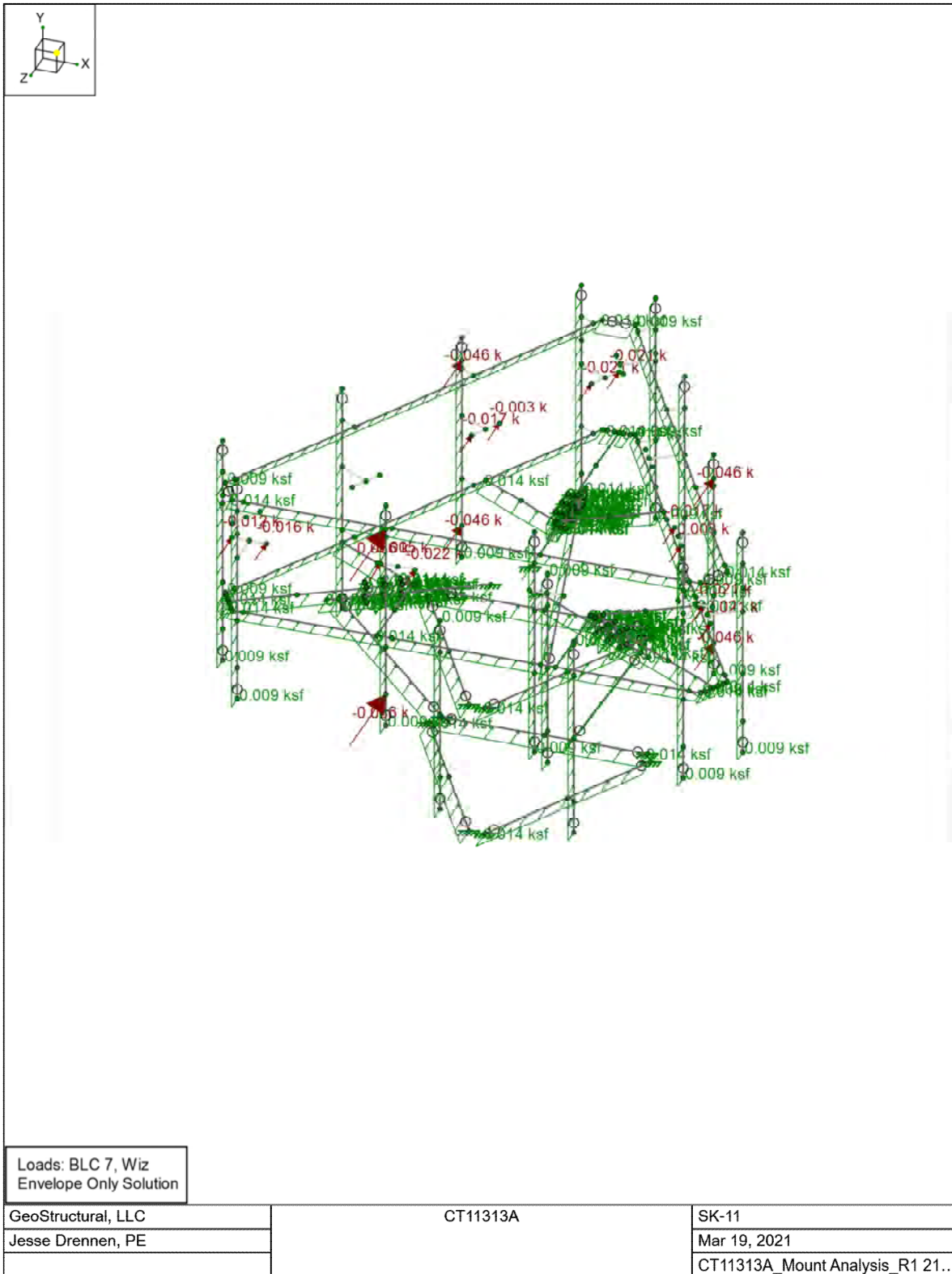
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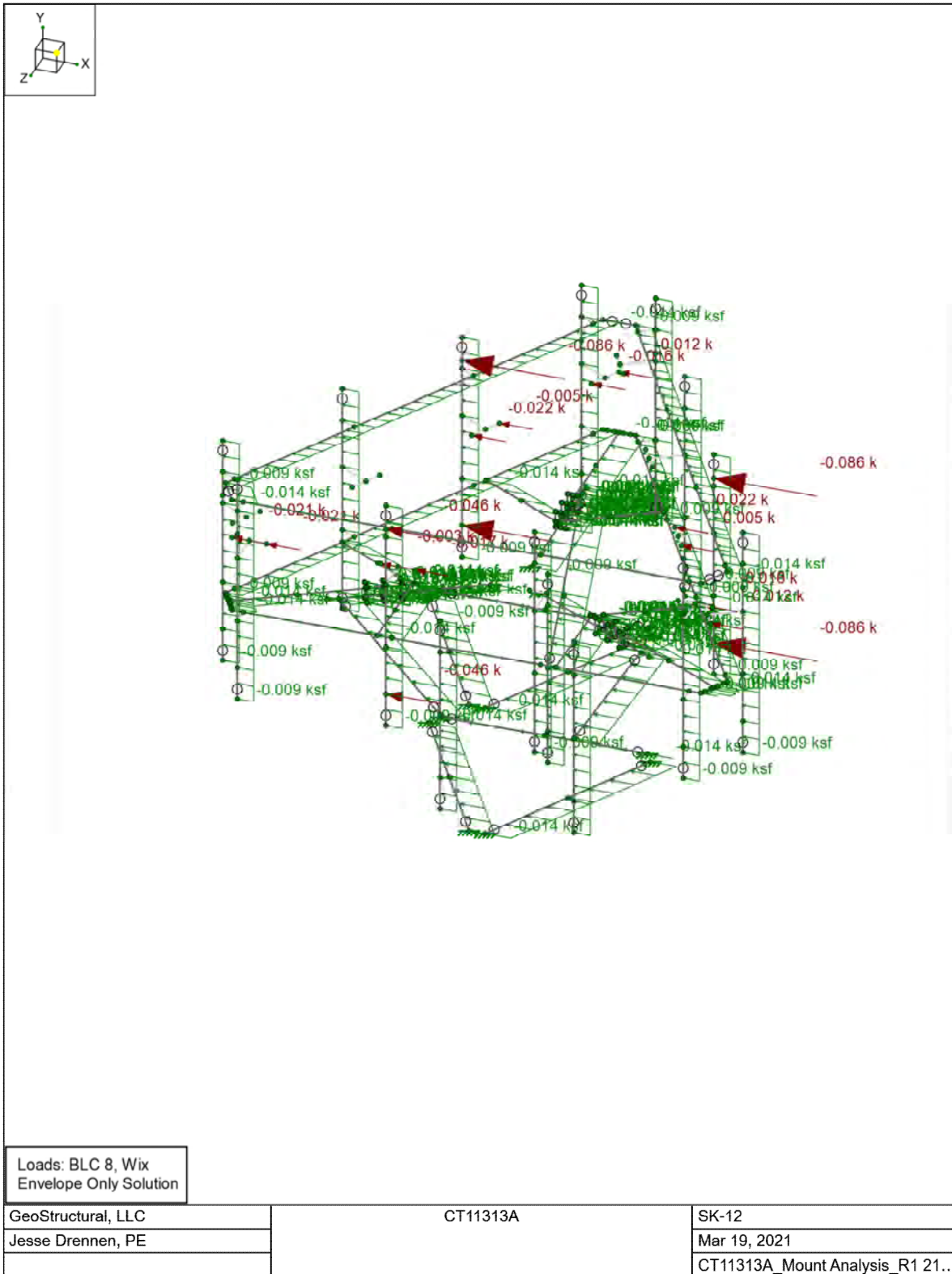












# EXHIBIT 10

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

T-Mobile Existing Facility

Site ID: CT11313A

Bozrah-2/ Rt 2  
131 Gifford Lane  
Bozrah, Connecticut 06334

**June 8, 2021**

**EBI Project Number: 6221002883**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>8.40%</b>

June 8, 2021

T-Mobile

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

Emissions Analysis for Site: CT11313A - Bozrah-2/ Rt 2

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **131 Gifford Lane in Bozrah, 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 131 Gifford Lane in Bozrah, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

- value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
  - 8) The antennas used in this modeling are the RFS APXVAARR24\_43-U-NA20 for the 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAARR24\_43-U-NA20 for the 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAARR24\_43-U-NA20 for the 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
  - 9) The antenna mounting height centerline of the proposed antennas is 191 feet above ground level (AGL).
  - 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
  - 11) All calculations were done with respect to uncontrolled / general population threshold limits.

## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	RFS APXVAARR24_43- U-NA20	Make / Model:	RFS APXVAARR24_43- U-NA20	Make / Model:	RFS APXVAARR24_43- U-NA20
Frequency Bands:	600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	191 feet	Height (AGL):	191 feet	Height (AGL):	191 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	480 Watts	Total TX Power (W):	480 Watts	Total TX Power (W):	480 Watts
ERP (W):	16,474.09	ERP (W):	16,474.09	ERP (W):	16,474.09
Antenna AI MPE %:	<b>2.07%</b>	Antenna BI MPE %:	<b>2.07%</b>	Antenna CI MPE %:	<b>2.07%</b>



Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	2.07%
Omnipoint	0.08%
Verizon	1.91%
Sprint	1.92%
AT&T	2.42%
<b>Site Total MPE % :</b>	<b>8.40%</b>

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	2.07%
T-Mobile Sector B Total:	2.07%
T-Mobile Sector C Total:	2.07%
Site Total MPE % :	8.40%

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 600 MHz LTE	2	591.73	191.0	1.24	600 MHz LTE	400	0.31%
T-Mobile 700 MHz LTE	2	648.82	191.0	1.36	700 MHz LTE	467	0.29%
T-Mobile 1900 MHz GSM	4	1101.85	191.0	4.63	1900 MHz GSM	1000	0.46%
T-Mobile 1900 MHz LTE	2	2203.69	191.0	4.63	1900 MHz LTE	1000	0.46%
T-Mobile 2100 MHz LTE	2	2589.11	191.0	5.44	2100 MHz LTE	1000	0.54%
						<b>Total:</b>	<b>2.07%</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:	2.07%
Sector B:	2.07%
Sector C:	2.07%
T-Mobile Maximum MPE % (Sector A):	2.07%
Site Total:	8.40%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **8.40%** 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.