



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

October 26, 2020

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

RE: Notice of Exempt Modification
1925-1931 East Main Street, Torrington, CT [address on prop map is 1927]
Latitude: 41.822991
Longitude: -73.077199
T-Mobile Site #: CT11536A_L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 131-foot level of the existing 153-foot Monopole Tower at 1925-1931 East Main St., Torrington, CT. The 162-foot tower is owned by SBA Towers, LLC. The property is owned by TEP Incorporated. T-Mobile now intends to remove three (3) L1900 MHz antennas and replace with three (3) new L700/L600/L1900/L2100 MHz antennas. The new antennas would be installed at the 131-foot level of the tower.

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

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) EMS RR90-17-02DP – (Remove) – (3) RFS APXAARR24_43-U-NA20 – (Replace)

Install New:

- (3) Ericsson KRY 112 489/2 – TMA
- (3) Ericsson Radio 4449 B71+B12 - RRU
- (1) 1-5/8" Fiber
- MetroSite Heavy Collar Mount (MS-H1436),
- (1) MetroSite Support Rail Kit (MS-HR35-18)
- MetroSite Rotatable TArm Kit (MS-TAW-350RO)
- (6) 2" Antenna Mount Pipes (PX2375-10)

Existing Equipment to Remain:

- (3) Ericsson KRY 112 144/1 – TMA
- (1) Low Profile Platform
- (6) 1-5/8" Coax

Entitlements:

- (6) 1-5/8" Coax

GROUND

Install New:

- Equipment inside existing 6102 cabinet

This facility was approved by the Town of Torrington's Planning and Zoning Commission on August 9, 2000. Approval was given for a 155' expandable monopole tower and associated improvements. Structural work was to be performed on the tower to support a vertical expansion to 163' should expansion be required in the future to accommodate co-locators. The tower was to be located in full compliance with fall zone setback requirements and the lease area to include the area of the proposed tower and full radius of the fall zone. Any hazardous materials were to be handled using best management practices. Space was to be made available, at no charge, for municipal services. A removal bond was to be placed. A secure lock box was to be added. Bollards were to be placed in the parking lot. A fence and pines were to be added. Per correspondence with the City, Special Exception did not need to be renewed provided the required removal bond remained in place. RF reports were to be provided annually. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the City of Torrington's Mayor, Elinor Carbone, Jeremy Leifert, Zoning & Wetlands Enforcement Officer, 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: The Honorable Elinor Carbone / with attachments
City of Torrington, 140 Main Street, Torrington, CT 06790
 Jeremy Leifert, Zoning & Wetlands Enforcement Officer / with attachments
City of Torrington, 140 Main Street, Torrington, CT 06790
 TEP Incorporated / with attachments
PO Box 876, Torrington, CT 06790

Exhibit List

Exhibit 1	Check Copy	x To be invoiced at a later date per COVID 19 Guidelines
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	City of Torrington P&Z 8/9/2000
Exhibit 6	Construction Drawings	Chappell Engineering Assoc. 9/13/19
Exhibit 7	Structural Analysis	TES 7/26/19
Exhibit 8	Modification Drawings	TES 7/22/19
Exhibit 9	Post-Mod Mount Analysis	TES 7/25/19
Exhibit 10	EME Report	Transcom Engineering 6/10/19

EXHIBIT 1

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

EXHIBIT 2

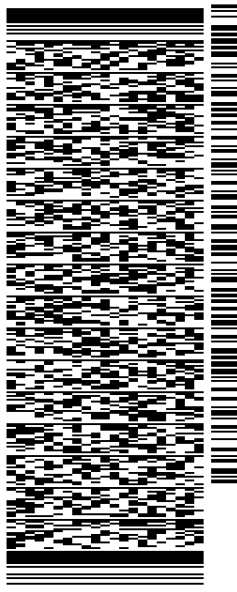
ORIGIN ID:BFBA (508) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 26OCT20
ACTWGT: 1.00 LB
CAD: 105843304/NET4280
BILL SENDER

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

NEW BRITAIN CT 06051

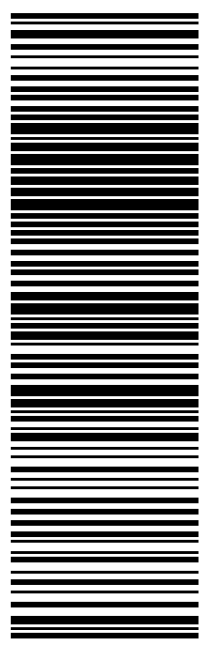
(508) 251-0720 X.3807 REF: 105692009-6089
INV# PO: DEPT:



J202008080701uv

TRK# 7719 0404 0234
0201
TUE - 27 OCT 10:30A
PRIORITY OVERNIGHT

EB BDLA
06051
CT-US BDL



56B.I2/A27E/B766

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TO
MAYOR ELINOR CARBONE
TOWN OF TORRINGTON
140 MAIN ST

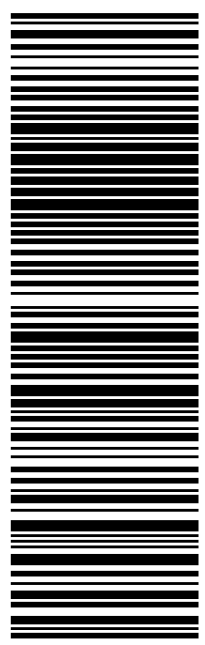
TORRINGTON CT 06790
(508) 251-0720 X 3807 REF: 105692009-6089
INV# PO: DEPT:

56B.I2/A27E/B766



TRK# 7719 0419 7980
0201
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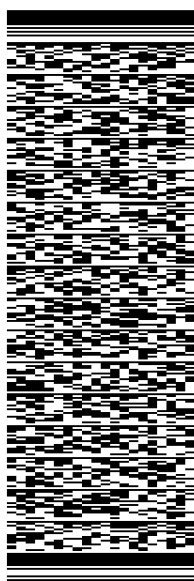
BILL SENDER

TO JEREMY LEIFERT, ZONE ENF. OFFICER
TOWN OF TORRINGTON
140 MAIN ST

TORRINGTON CT 06790

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

56B.I2/A27E/B766

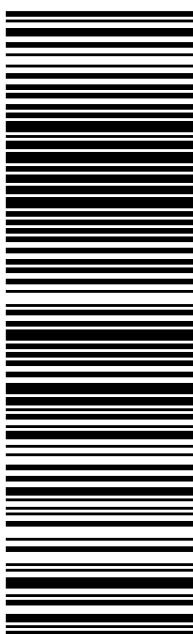


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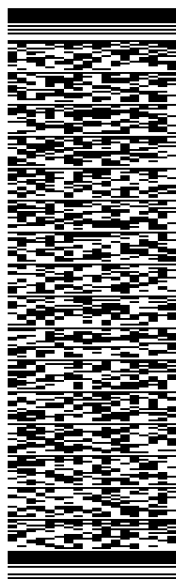
TO

TEP INCORPORATED
PO OX 876

TORRINGTON CT 06790

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

56B.I2/A27E/B766

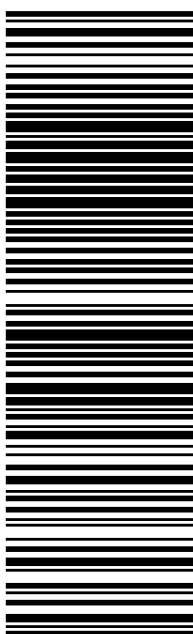


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EXHIBIT 3

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2014.



Information on the Property Records for the Municipality of Torrington was last updated on 6/17/2019.

Parcel Information

Location:	1927 E MAIN ST	Property Use:	Retail	Primary Use:	Neighborhood Shopping Center
Unique ID:	5571	Map Block Lot:	247/002/024	Acres:	9.39
490 Acres:	0.00	Zone:	LB	Volume / Page:	0697/0859
Developers Map / Lot:	5047/4913	Census:	H		

Value Information

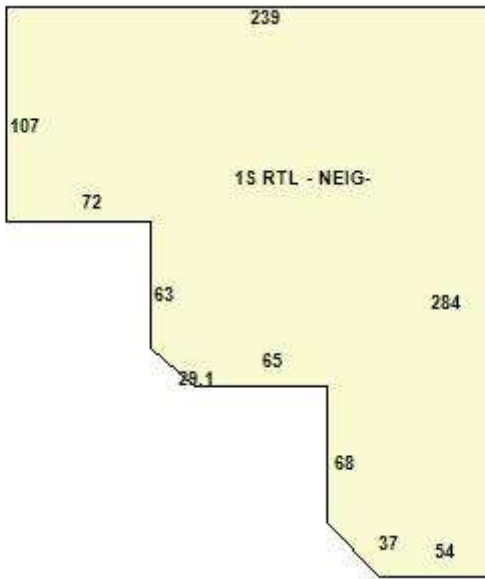
	Appraised Value	Assessed Value
Land	1,257,418	880,190
Buildings	3,073,910	2,151,740
Detached Outbuildings	227,816	159,470
Total	4,559,144	3,191,400

Owner's Information

Owner's Data

TEP INCORPORATED
PO BOX 876
TORRINGTON CT 06790

Building 1



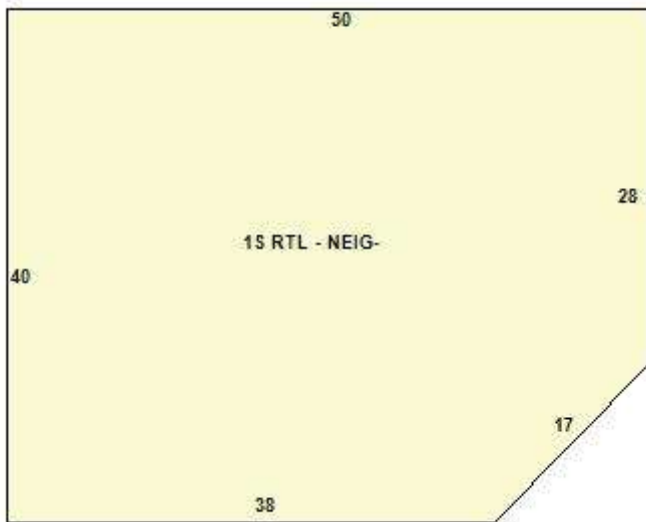
Category:	Retail	Use:	Neighborhood Shopping Center	GLA:	46,307
Stories:	1.00	Construction:	Masonry and Wood Frame	Year Built:	1994
Heating:	FHA Non Duct	Fuel:	Gas	Cooling Percent:	100
Siding:	Concrete Block	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Mezzanine Finished Area	950
Mezzanine Unfinished Area	950
Wet Sprinklers	46200

Attached Components

Building 2



Category:	Retail	Use:	Neighborhood Shopping Center	GLA:	1,926
Stories:	1.00	Construction:	Reinforced Concrete	Year Built:	2006
Heating:	FHA	Fuel:	Gas	Cooling Percent:	100
Siding:	Concrete Block	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Canopy	1994	0.00	0.00	1,834
Canopy	2006	0.00	0.00	404
Fencing	1994	0.00	0.00	240
Loading Dock Cov	1994	0.00	0.00	480
Loading Dock Un	1994	0.00	0.00	80
Concrete Patio	1994	0.00	0.00	220
Paving	1994	0.00	0.00	122,022
Poles	1994	0.00	0.00	7
Frame Shed	1994	0.00	0.00	600
Frame Shed	1994	0.00	0.00	200

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
TEP INCORPORATED	0697	0859	04/20/1999		No	\$0
PERGOLA HEATHER A	0697	0857	04/20/1999		No	\$0
TEP INCORPORATED	0599	0410	05/27/1994		Yes	\$699,000

Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
19-951	Building	05/29/2019		Closed	CELL TOWER MODIFICATION- 6 ANTENNAS/REMOTE HEADS= PP
18-1934	Electrical	10/17/2018			ELECTRICAL
17-1935	Certificate of Completion	10/10/2017		Closed	CERT OF COMPL- REPL ANTENNA PANELS/HEADS-VERIZON
17-1850	Building	09/27/2017		Closed	REMOVE & REPLACE 2 WALL SIGNS/ 1 PYLON FACE
17-1849	Electrical	09/27/2017		Closed	FINAL ELEC FOR SIGNS
17-1082	Certificate of Completion	06/14/2017		Closed	CERT OF COMPL-MODIFY AT&T ANTENNA & REPL 3 RADIO HEADS
17-882	Building	05/23/2017		Closed	AT&T SIGNAGE & 3 LETTER SETS/1 PYLON SIGN =PP
17-441	Commercial	04/07/2017		Closed	VERIZON- REPL PANELS WITH NEW MODELS/REMOTE RADIO HEADS=PP
17-425 Z	Commercial	03/30/2017		Closed	REPL EXISTING ANTENNAS WITH NEW MODELS
17-345	Building	03/16/2017		Closed	MODIFY AT&T ANTENNA SITE- REPL 3 REMOTE RADIO UNITS
17-341 Z	Commercial	03/10/2017		Closed	ANTENNA MODIFICATION ON EXISTING TOWER
16-1966	Electrical	10/14/2016		Closed	DISCONNECT EXHAUST FAN/ADD QUAD OUTLET & REWIRE GFI & LIGHT SWITCH
16-1954	Plumbing	10/13/2016		Closed	REM TOILET & INSTALL 15 X 15 SINK
16-1389	Building	08/01/2016		Closed	REMOVE 1 TOILET & SINK IN RESTROOM/TURN INTO DRAW ROOM/COUNTER & SINK
15-2412	Building	12/23/2015		Closed	REPL ANTENNA PANELS & ADD REMOTE RADIO HEADS= PP
15-1825	Certificate of Completion	10/07/2015		Closed	CERT OF COMPL- MAINTENANCE/NEW FLAT PLATE REINFORCEMENT
15-1353	Building	08/12/2015		Closed	INSTALL NEW FLAT PLATE REINFORCEMENT & MAINTENANCE= PP
15-760	Building	05/22/2015		Closed	ADD 3 NEW ANTENNA/MODUALS/CABLES/ETC=PP
14-1909	Building	09/23/2014		Closed	AWNING FOR OUTER SEATING AREA=PP
14-1752 Z	Residential	08/27/2014		Closed	23 X 20 CANOPY OVER DINING AREA
14-1369	Building	07/11/2014		Closed	ADD 3 CELL ANTENNAS & ASSOC EQUIP= PP

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
13-5588	Building	08/13/2013		Closed	SWAP OUT ANTENNA @CELL TOWER
12-3174	Building	01/04/2013		Closed	INSTALL 3 NEW ANTENNAS & SUPPORT EQUIP/I NEW CABINET IN EXISTING SHELTER
12-3032	Commercial	12/07/2012		Closed	REPL 6 ANTENNA W/3 NEW & EQUIP CABINETS=PP
12-2968	Commercial	11/27/2012		Closed	REPL 6 ANTENNAS W/ NEW
12-1056	Mechanical	04/18/2012		Closed	6 FT HOOD/EXHAUST FAN FOR HIBACHI TABLE
12-470	Commercial	03/13/2012		Closed	ADD 1 NEW HIBACHI GRIDDLE
11-807	Commercial	07/21/2011		Closed	10 PEDICURE CHAIRS/2 MASSAGE ROOMS/1 BATH
11-1174	Certificate of Completion	07/15/2011		Closed	CERT OF COMPL-BLOOD DRAWING OFFICE
11-808	Commercial	06/01/2011		Closed	64' PARTITION WALL
11-771	Commercial	05/26/2011		Closed	OFFICE FITOUT- BLOOD DRAWING OFFICE
11-364	Commercial	04/08/2011		Closed	REPL EXISTING PANEL ANTENNA
10-1094	Certificate of Completion	07/02/2010		Closed	WALK IN COOLER/CHECKOUT COUNTER DRY SPRINKLERS
10-1003	Commercial	06/22/2010		Closed	ADD 3 DRY SPRINKLERS AND RELOCATE 3 SPRINKLERS
10-183	Commercial	03/17/2010		Closed	NEON WALL SIGN & PANEL FACE REPLCMNT
09-1397	Certificate of Completion	08/12/2009		Closed	CHG USE FROM AIG OFFICE TO H&R BLOCK OFFICE
07-000436	Commercial	04/12/2007		Closed	WALL SIGN
06-1133CO	Certificate of Occupancy	11/16/2006		Closed	NEW BLDG
06-1277CO	Certificate of Occupancy	11/16/2006		Closed	CINGULAR WIRELESS IN NEW BLDG
06-1277	Commercial	07/28/2006		Closed	TENANT FIT OUT
06-1133	Commercial	07/13/2006		Closed	CONSTRUCT NEW BLDG
06-458CO	Certificate of Occupancy	05/08/2006		Closed	CO PERMIT #06-458

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
06-458	Commercial	03/31/2006		Closed	INTERIOR ALTERATIONS
05-80	Commercial	04/07/2005		Closed	FREE-STANDING ATM
04-470	Commercial	09/16/2004		Closed	INT PARTITIONS - VERIZON
04-208A	Commercial	05/28/2004		Closed	INTERIOR ALTERATIONS
04-172A	Commercial	05/12/2004		Closed	WORK ON FOUNDATION - CHINESE REST
04-92	Commercial	04/06/2004		Closed	INSTALL PRE-FAB SHELTER & ANTENNAE (1925 E MAIN)
04-37	Commercial	02/10/2004		Closed	INT FRAMING
03-582	Commercial	11/24/2003		Closed	WIRELESS FACILITY
02-300	Commercial	07/18/2002		Closed	TOWER MODIFICATION
02-05	Commercial	01/10/2002		Closed	NEW ANTENNAE
00-416	Commercial	12/14/2000		Closed	CONCRETE PAD FOR TELECOM TOWER
00-402	Commercial	11/29/2000		Closed	ADD ANTENNAE TO TOWER
00-326	Commercial	09/14/2000		Closed	TELECOM TOWER
04-037CO	Certificate of Occupancy			Closed	04-037 CO ISSUED

Information Published With Permission From The Assessor

EXHIBIT 4

Google Maps 1927 E Main St



Map data ©2019 100 ft



1927 E Main St

Torrington, CT 06790



Directions



Save



Nearby



Send to your phone



Share



RWFF+35 Torrington, Litchfield, CT

EXHIBIT 5

City Of Torrington



PLANNING AND ZONING COMMISSION
140 Main Street • Room 311
Torrington, CT 06790

Tel.: (860) 489-2220
Fax: (860) 489-2550

August 16, 2000

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Thomas Flynn, III
SBA, Inc., and Sprint PCS
49 Leavenworth Street - Suite 200
Waterbury, CT 06702

Re: Special Exception 00-20 and Site Plan 00-21
Applicant: SBA, Inc., and Sprint PCS;
Location: 1925 East Main Street, Torrington, CT
Proposal: Construct 155' telecommunication facility and associated
equipment area.

Dear Mr. Flynn:

This is to confirm that at its August 9, 2000 meeting, the Planning and Zoning Commission approved the above referenced proposal with the following conditions:

The application is modified to allow for construction of a 155' expandable monopole wireless telecommunications tower and associated improvements. Structural work shall be performed on the tower to support vertical expansion to 163' should expansion be required in the future to accommodate co-location at this site. The tower is to be located 30 feet closer to the rear property line (northerly direction) and to be located in full compliance with fall zone setback requirements. The 155' height is to be adjusted downward for any increase in elevation gained by moving the tower toward the rear of the property. The recording mylar Site Plan will be modified to include these changes and the certified letter of approval containing all conditions of approval shall be reproduced and included on the recording mylar Site Plan. The lease area from the property owner T.E.P. Inc, must include the area of the proposed tower and full radius of the fall zone.

...rried mail fee
right of the re
post office serv
the right of li
article.
and address
ans of the
of article
of the
this

The 155' monopole wireless telecommunications tower and associated improvements are approved with the following conditions:

1. Per Section A 12.0 of the Regulations, the special exception shall be valid for 15 years. At the end of this time period, the tower shall be removed by Sprint Spectrum LP d/b/a Sprint PCS or SBA, Inc., a new special exception permit shall be required.
2. Per Section A 4.4.1 of the Regulations, the applicant must provide a plan for the handling of any hazardous materials using best management practices. If any hazardous materials are to be used on site, there shall be provisions for full containment of such materials. An enclosed containment area shall be provided with a sealed floor, designed to contain at least 110% of the volume of hazardous materials stored or used on the site. A 110% containment area specifically designed for the Sprint back up batteries shall be installed.
3. Per Section A 9.0. of the Regulations, within 90 days of beginning operations, the applicant shall submit existing measurements of radio frequency radiation (RFR) from the facility, signed and sealed by an RF Engineer, stating that the RFR measurements are accurate and below the maximum permissible exposure (MPE) limits as established by the FCC guidelines. The report shall be submitted to the office of the City Planner. This information shall be provided on an annual basis thereafter.
4. As offered by the applicant during the public hearing process, space shall be made available, at no charge, for municipal services equipment.
5. Per Section A 10.3 of the Regulations. the applicant shall submit a bond in an amount sufficient to cover the costs of removal of the regulated facility in the event the City must remove the facility. The bond amount must be approved by the City Engineer in a form acceptable to the Torrington Corporation Counsel.
6. As recommended by Torrington Fire Chief the applicant shall install a secure Knox-brand lock box on the exterior of the fence near the main entrance to allow the Fire Department quick access. The driveway must be maintained in all weather conditions in order to allow emergency access.
7. The area within the existing parking lot which is part of the fall zone perimeter will be cordoned off using 6" concrete filled bollards 48" height 48" on center which will act as a barrier to vehicular traffic.
8. The Landscaping plan will be revised to include both a stockade fence and 3 white pines 6'-8' in height planted 6' OC to screen the dumpster area and to contain debris from the lands N/F Daniel & Gina Masciarelli.
9. The applicant shall submit a bond estimate to be reviewed and approved by the City Planner for the proposed landscaping. A bond in a form acceptable to the Corporation Counsel be shall posted prior to issuance of the Zoning Permit. 25% of the posted bond shall remain in place for one year after the landscaping plan has been fully implemented to ensure successful growth of the plantings.

10. The applicant shall apply for a grading permit prior to issuance of the Zoning Permit and post the required bond for erosion and sedimentation in an amount approved by the City Engineer and in a form acceptable to the Corporation Counsel.

Enclosed please find three copies of the completed Certification of Special Exception form. Take all three copies to the City Clerk's Office where they will time stamp and record on the City Land Records one copy. Deliver one copy to the Planning and Zoning Department and retain one copy for your records.

Your Special Exception approval does not take effect until it is recorded on the Land Records. You can obtain a Zoning Permit only after the Certification is filed and certain conditions are complied with.

The applicant shall provide the Planning and Zoning Office with a recording mylar and three paper copies of the approved plan.

If you have any questions regarding this matter, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Connor', with a stylized flourish extending to the right.

Martin J. Connor, AICP
City Planner

**CITY OF TORRINGTON
CERTIFICATION OF SPECIAL EXCEPTION**

- a. Applicant's Name: SBA, Inc. and Sprint PCS, Thomas Flynn, III
- b. Applicant's Address: 49 Leavenworth Street, Suite 200, Waterbury, CT 06702
- c. Address of the Property: 1925-1931 East Main Street, Torrington, CT
- d. Owner of Record: T.E.P., Inc.
- e. Owner's Address: 1925-1931 East Main Street, Torrington, CT
- f. Date of Special Exception: August 9, 2000
- g. Nature of Special Exception: Construct 155' telecommunication facility and associated equipment area.
- h. Section(s) of the Regulations which are applicable for the Special Exception: Addendum A, wireless communications facilities, A.1.0 et seg.
- i. Conditions attached to the approval:

The application is modified to allow for construction of a 155' expandable monopole wireless telecommunications tower and associated improvements. Structural work shall be performed on the tower to support vertical expansion to 163' should expansion be required in the future to accommodate co-location at this site. The tower is to be located 30 feet closer to the rear property line (northerly direction) and to be located in full compliance with fall zone setback requirements. The 155' height is to be adjusted downward for any increase in elevation gained by moving the tower toward the rear of the property. The recording mylar Site Plan will be modified to include these changes and the certified letter of approval containing all conditions of approval shall be reproduced and included on the recording mylar Site Plan. The lease area from the property owner T.E.P. Inc, must include the area of the proposed tower and full radius of the fall zone.

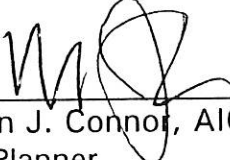
The 155' monopole wireless telecommunications tower and associated improvements are approved with the following conditions:

- 1. Per Section A 12.0 of the Regulations, the special exception shall be valid for 15 years. At the end of this time period, the tower shall be removed by Sprint Spectrum LP d/b/a Sprint PCS or SBA, Inc., a new special exception permit shall be required.
- 2. Per Section A 4.4.1 of the Regulations, the applicant must provide a plan for the handling of any hazardous materials using best management practices. If any hazardous materials

are to be used on site, there shall be provisions for full containment of such materials. An enclosed containment area shall be provided with a sealed floor, designed to contain at least 110% of the volume of hazardous materials stored or used on the site. A 110% containment area specifically designed for the Sprint back up batteries shall be installed.

3. Per Section A 9.0. of the Regulations, within 90 days of beginning operations, the applicant shall submit existing measurements of radio frequency radiation (RFR) from the facility, signed and sealed by an RF Engineer, stating that the RFR measurements are accurate and below the maximum permissible exposure (MPE) limits as established by the FCC guidelines. The report shall be submitted to the office of the City Planner. This information shall be provided on an annual basis thereafter.
4. As offered by the applicant during the public hearing process, space shall be made available, at no charge, for municipal services equipment.
5. Per Section A 10.3 of the Regulations. the applicant shall submit a bond in an amount sufficient to cover the costs of removal of the regulated facility in the event the City must remove the facility. The bond amount must be approved by the City Engineer in a form acceptable to the Torrington Corporation Counsel.
6. As recommended by Torrington Fire Chief the applicant shall install a secure Knox-brand lock box on the exterior of the fence near the main entrance to allow the Fire Department quick access. The driveway must be maintained in all weather conditions in order to allow emergency access.
7. The area within the existing parking lot which is part of the fall zone perimeter will be cordoned off using 6" concrete filled bollards 48" height 48" on center which will act as a barrier to vehicular traffic.
8. The Landscaping plan will be revised to include both a stockade fence and 3 white pines 6'-8' in height planted 6' OC to screen the dumpster area and to contain debris from the lands N/F Daniel & Gina Masciarelli.
9. The applicant shall submit a bond estimate to be reviewed and approved by the City Planner for the proposed landscaping. A bond in a form acceptable to the Corporation Counsel be shall posted prior to issuance of the Zoning Permit. 25% of the posted bond shall remain in place for one year after the landscaping plan has been fully implemented to ensure successful growth of the plantings.
10. The applicant shall apply for a grading permit prior to issuance of the Zoning Permit and post the required bond for erosion and sedimentation in an amount approved by the City Engineer and in a form acceptable to the Corporation Counsel.

THIS CERTIFICATION IS FILED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 8-3D OF THE CONNECTICUT GENERAL STATUTES



Martin J. Connor, AICP
City Planner

CITY OF TORRINGTON

MARTIN J. CONNOR, AICP
CITY PLANNER
LAND USE OFFICE
140 Main Street • City Hall
Torrington, CT 06790-5245



Phone: (860) 489-2221
Fax: (860) 496-5928
e-mail: martin_connor@torringtonct.org

Sent via e-mail & regular mail

August 21, 2018

Michael Zearing
SAC Wireless
540 W. Madison, 9th Floor
Chicago, IL 60661

Re: SP#474, Minor Modification, Sprint Telecommunications Facility, 1927 E. Main St.,
install underground fiber optic cable

Dear Mr. Zearing:

I am in receipt of your request dated August 14, 2018, requesting a minor modification to Site Plan #474 to improve the Sprint equipment located on the SBA Towers, Inc. telecommunications tower at the property above. You have requested a minor modification to trench and install underground fiber optics cable that will be housed in conduit for Sprint's cell tower equipment. This minor modification is required in order to help increase the network's data transfer speeds, allow for fewer dropped calls and result in higher capacity. The minor modifications are shown on plans titled, "Sprint Dark Fiber, 1927 East Main Street, Torrington, CT 06790," by SAC Wireless, dated 7/31/18 revised 8/6/18, sheets T-1, AAV-1 and AAV-2.

I am approving this minor site plan modification as requested. If you have any questions, please call me at (860) 489-2220.

Sincerely yours,

Martin J Connor, AICP
City Planner

Cc: Planning & Zoning Commission
Rista Malanca, AICP, CZ&WEO
Brett Zuraitis, Building Official

Patches Estes

From: Martin J Connor <Martin_Connor@torringtonct.org>
Sent: Monday, February 6, 2017 10:57 AM
To: Patches Estes
Cc: Rista Malanca; Lona Kirk
Subject: RE: Telecommunication tower located @ 1925 East Main Street

Hi Patches, provided the required removal bond for the cell tower in the amount of \$59,759.00 remains in place no further Special Exception renewal is required. Thanks,

Martin J Connor, AICP, City Planner
City of Torrington
140 Main Street
Torrington, CT 06790
860-489-2220

From: Patches Estes [mailto:PEstes@sbsite.com]
Sent: Monday, February 06, 2017 10:39 AM
To: Martin J Connor <Martin_Connor@torringtonct.org>
Subject: Telecommunication tower located @ 1925 East Main Street

Good morning Mr. Connor~

Our company has an existing cell tower in the City of Torrington that we are uncertain of the current status/expiration date of the site. There is a note in our database from our previous Zoning Manager dated 5/11/2015 that says:

"The Special Exception does not expire. As long as the tower continues to be used, no renewal is required pursuant to Martin Connor, City Planner, 860-489-2220. The 15 years condition was placed so the tower had to be constructed within that time frame."

I have listed below the tower in question. Please advise as to whether or not we will need to renew the towers approval, or if the current permit is a permanent permit requiring no renewal. We would like to update our records and submit whatever is required of us **as soon as possible**.

1. SBA site: Torrington/CT01499-S
 - a. Site Address: 1925 East Main Street
 - b. Special Exception granted August 9, 2000.

Please feel free to contact me should you have any questions or require additional information. Your time and assistance is much appreciated.

Patches

Patches Estes
Zoning Compliance Specialist

EXHIBIT 6

TORRINGTON/RT 202/RT 183

1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790
LICHFIELD COUNTY

SITE NO.: CT11536A

SITE TYPE: 153'± MONOPOLE

RF DESIGN GUIDELINE: CUSTOM

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

T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
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

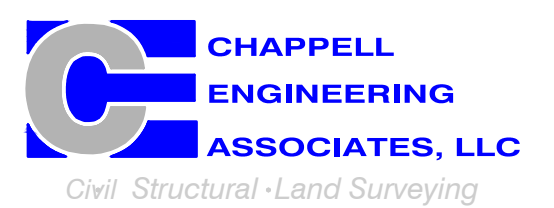
SITE NOTES	
1.	THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE. <ul style="list-style-type: none"> • ADA COMPLIANCE NOT REQUIRED. • POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED. • NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2.	CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3.	NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. <ul style="list-style-type: none"> • 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
NORTHEAST LLC

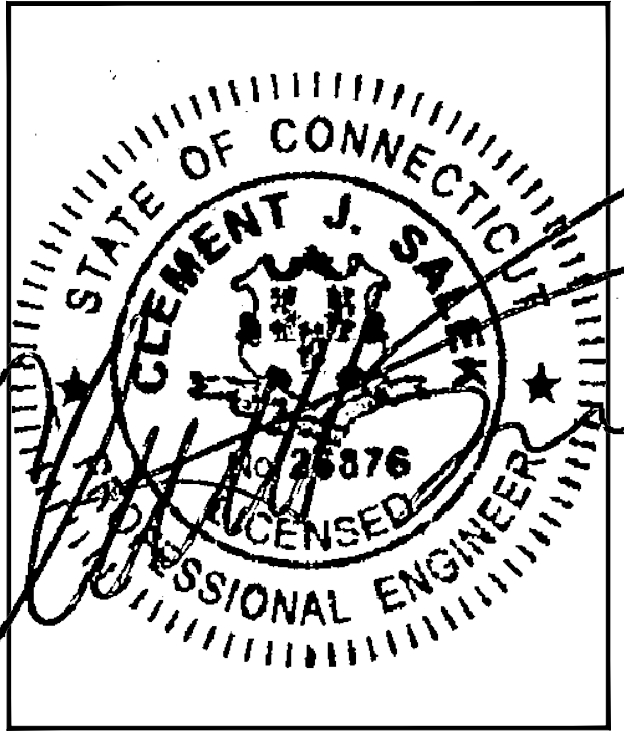
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



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

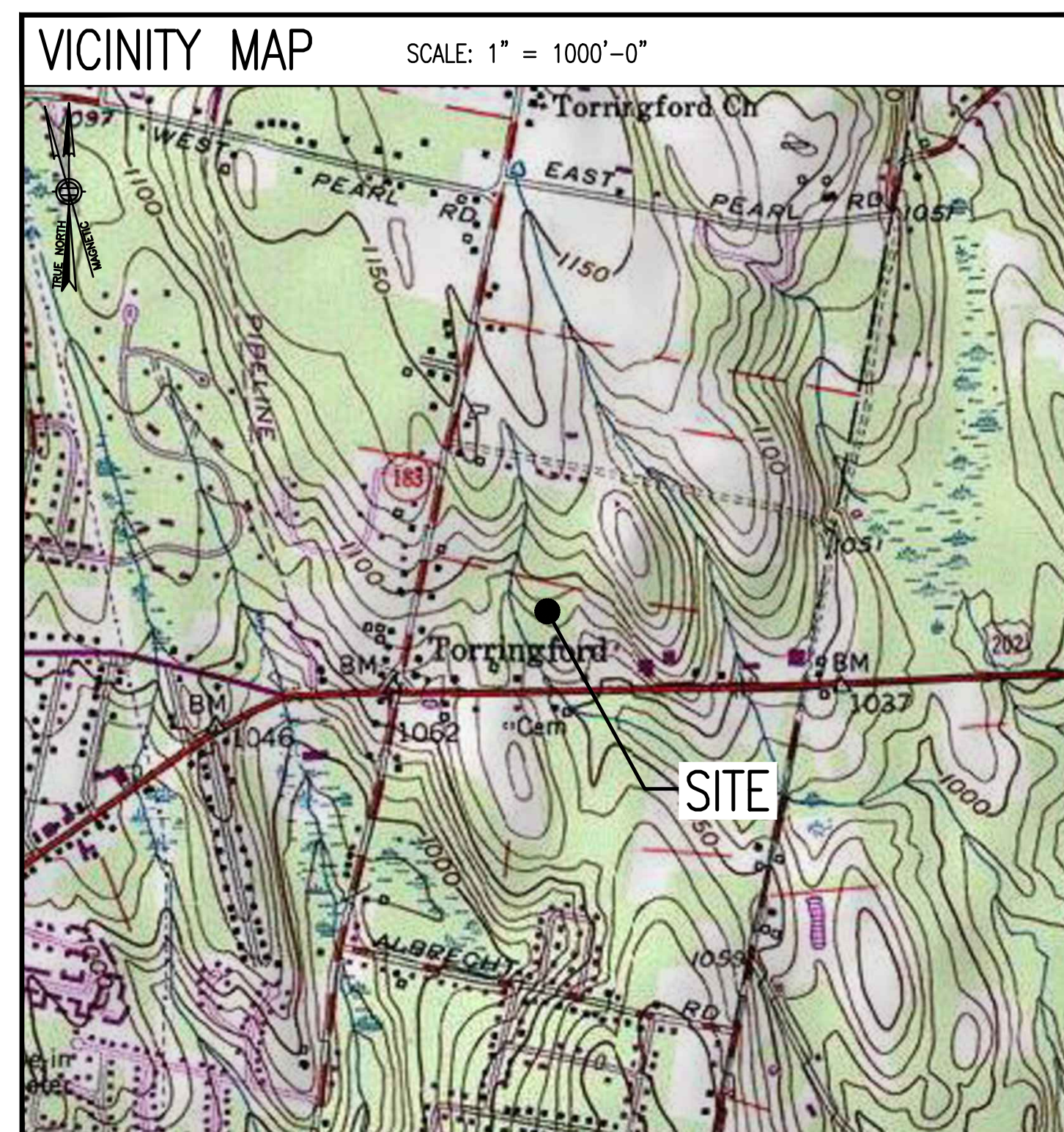


R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com



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

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



DO NOT SCALE DRAWINGS

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

SHEET INDEX		
SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	TOWER ELEVATIONS & ANTENNA PLAN	1
A-3	SITE DETAILS	1
E-1	ELECTRIC & GROUNDING DETAILS	1
-	MOUNT MODIFICATION AND DESIGN DRAWINGS (BY OTHERS)	0

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

PROJECT SUMMARY	
SITE NUMBER:	CT11536A
SBA SITE NUMBER:	CT01499-S
SBA SITE NAME:	TORRINGTON
SITE ADDRESS:	1925-1931 EAST MAIN STREET TORRINGTON, CT 06790
PROPERTY OWNER:	TEP INC. PO BOX 876 TORRINGTON, CT 06790
TOWER OWNER:	SBA TOWERS, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	LICHFIELD
ZONING DISTRICT:	LB (LOCAL BUSINESS)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	153'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SROth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.823259° N41°49'23.73" LONGITUDE: W.73.076721° W73°04'36.20"

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	09/13/19	ISSUED FOR CONSTRUCTION	JRV
0	06/13/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11536A

SITE ADDRESS:
1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790

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 LARGER2 IN.
#5 AND SMALLER & WWF1½ IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
SLAB AND WALL¾ IN.
BEAMS AND COLUMNS½ IN.
- 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:

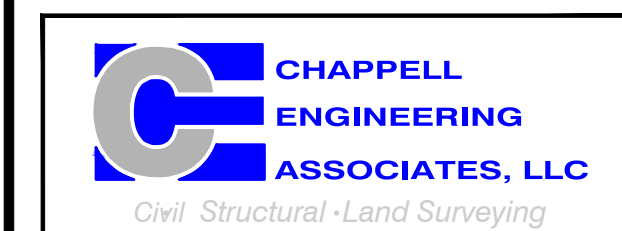
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR 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**

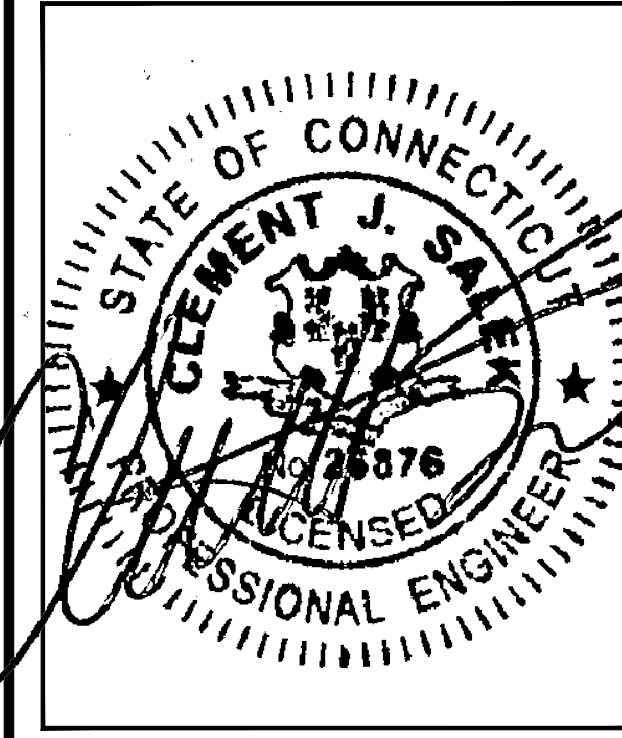
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SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
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R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
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(508) 481-7400
www.chappellengineering.com



CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	08/13/19	ISSUED FOR CONSTRUCTION	JRV
0	06/13/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11536A

SITE ADDRESS:
1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-1

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

FEEDLINE SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (6) 1/4" COAX CABLES	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (1) 1-5/8" HCS FIBER CABLE (6) 1 1/2" COAX CABLES	

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

**T-MOBILE
 NORTHEAST LLC**

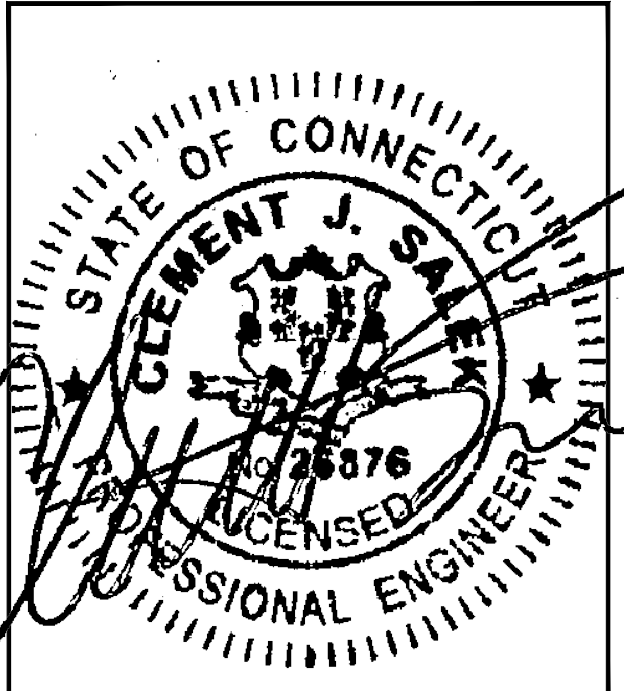
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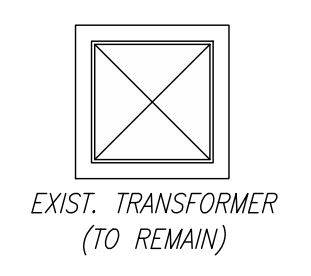
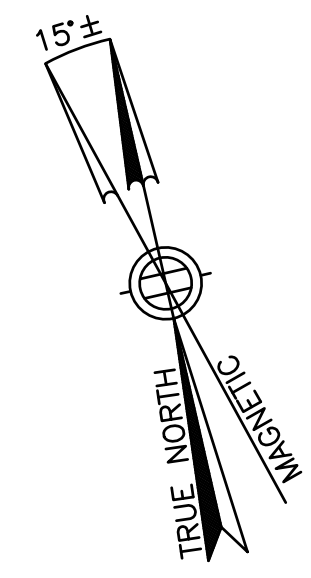
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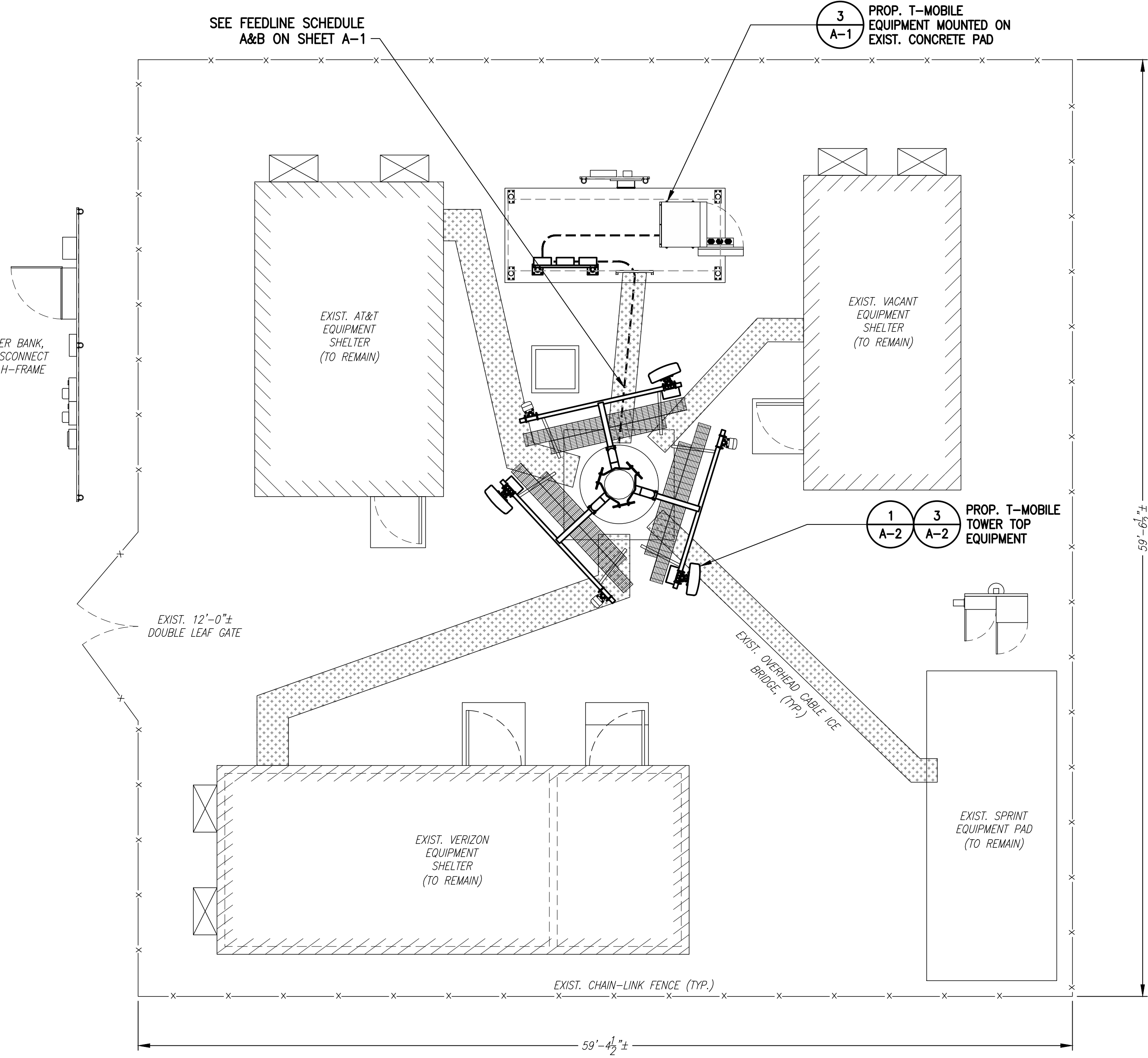
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 1925-1931 EAST MAIN STREET
 TORRINGTON, CT 06790

SHEET TITLE
**COMPOUND &
 EQUIPMENT PLAN**

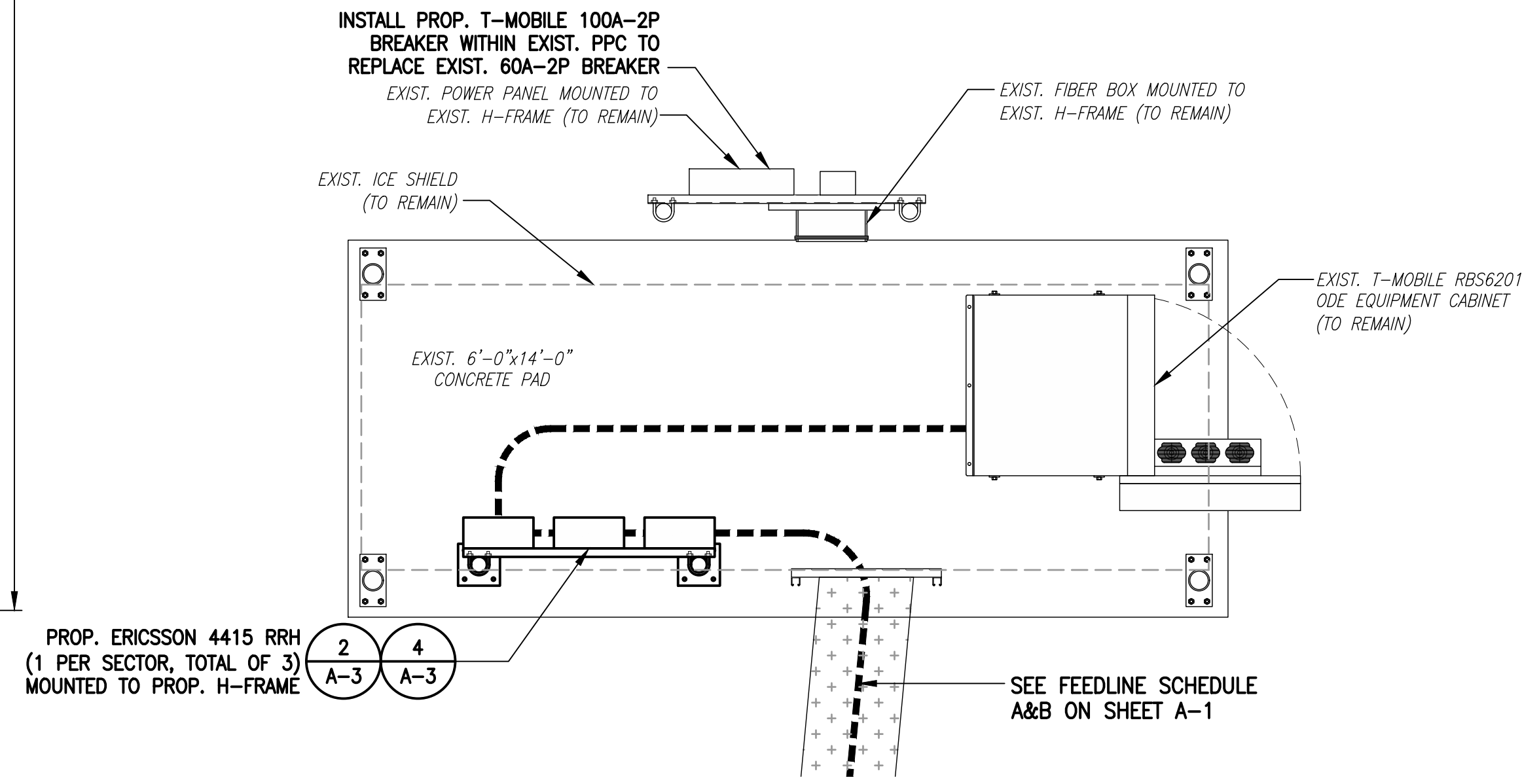
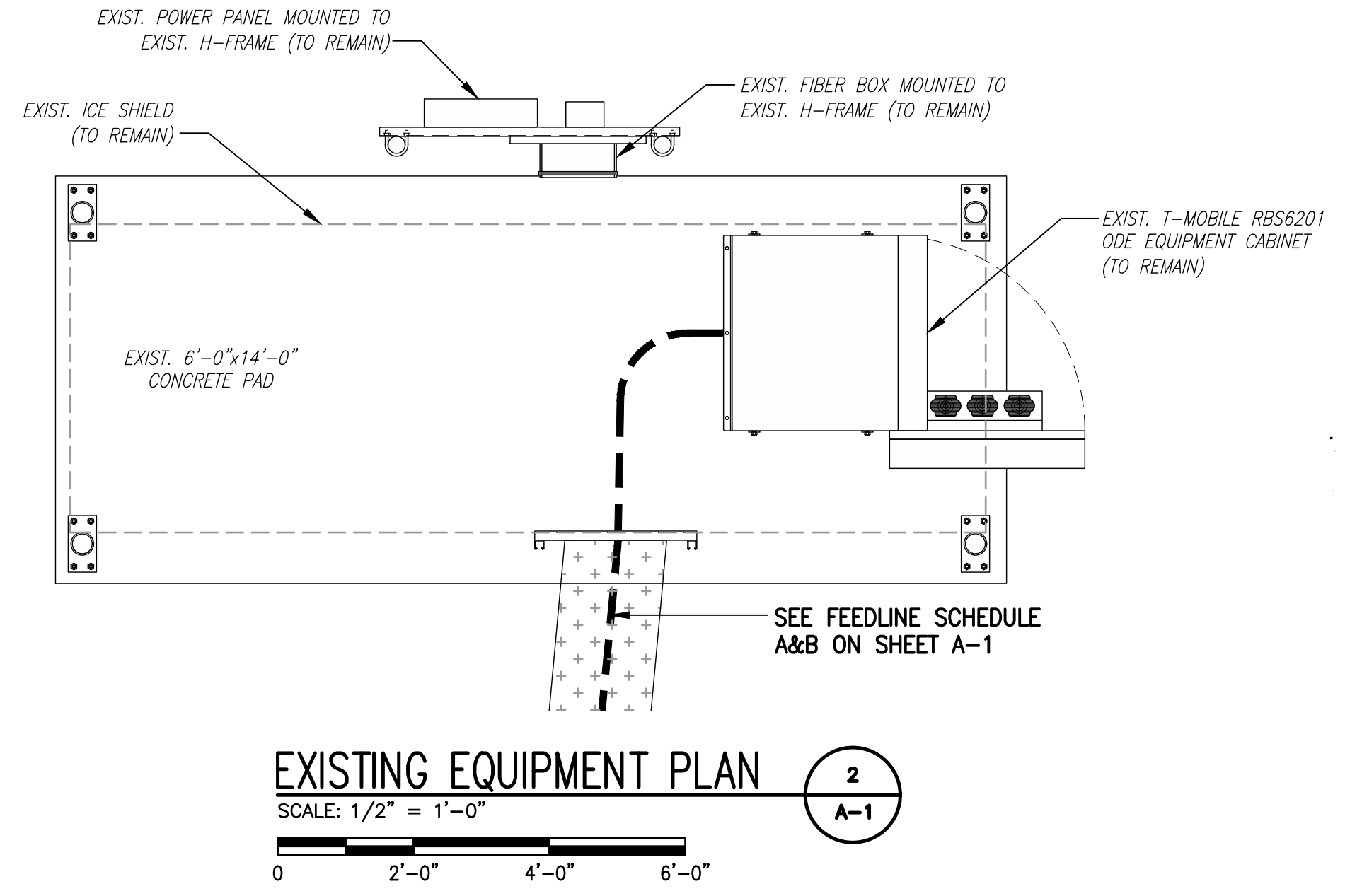
SHEET NUMBER
A-1



EXIST. 6-GANG METER BANK, TELCO CABINET, & DISCONNECT MOUNTED TO EXIST. H-FRAME



COMPOUND PLAN 1 A-1
 SCALE: 1" = 5'-0"
 0 5'-0" 10'-0" 15'-0"

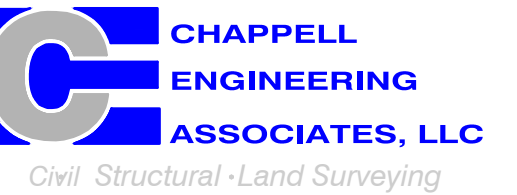


T-MOBILE NORTHEAST LLC

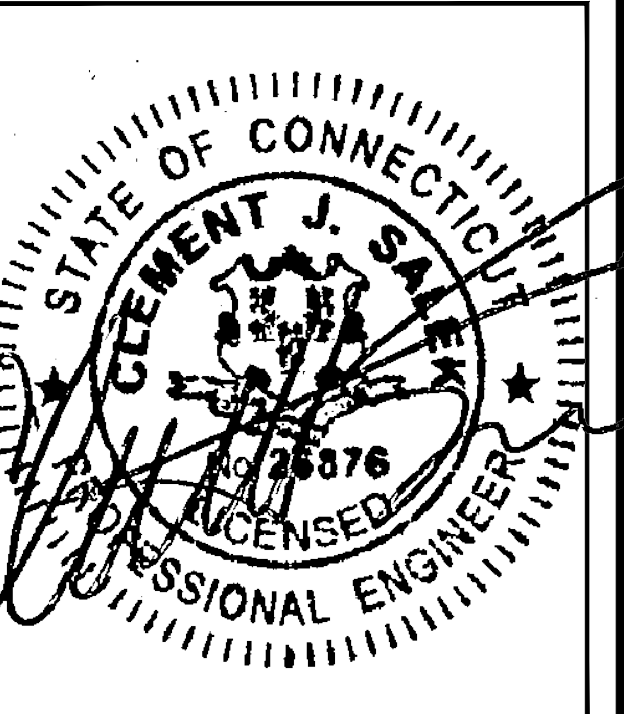
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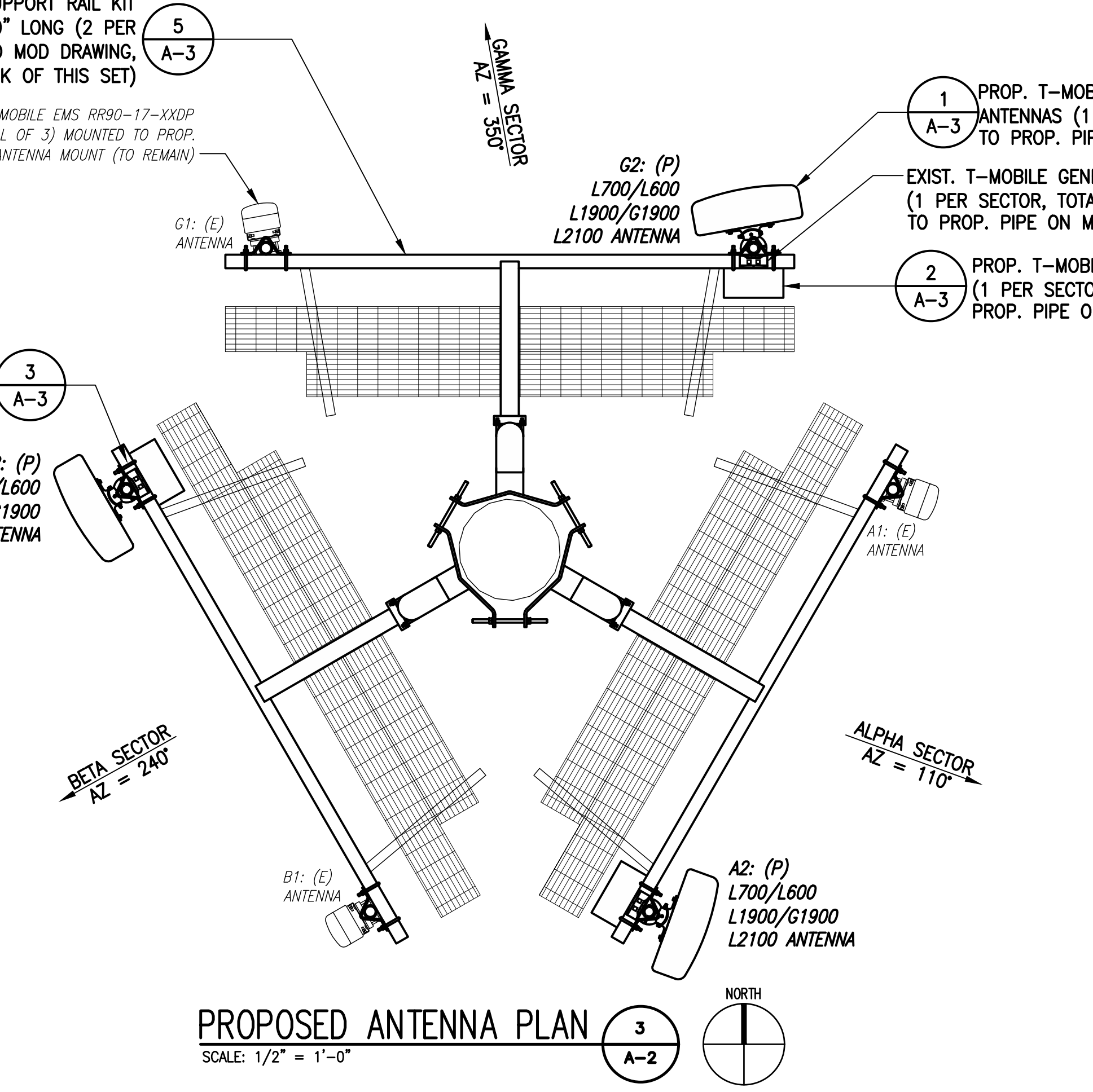
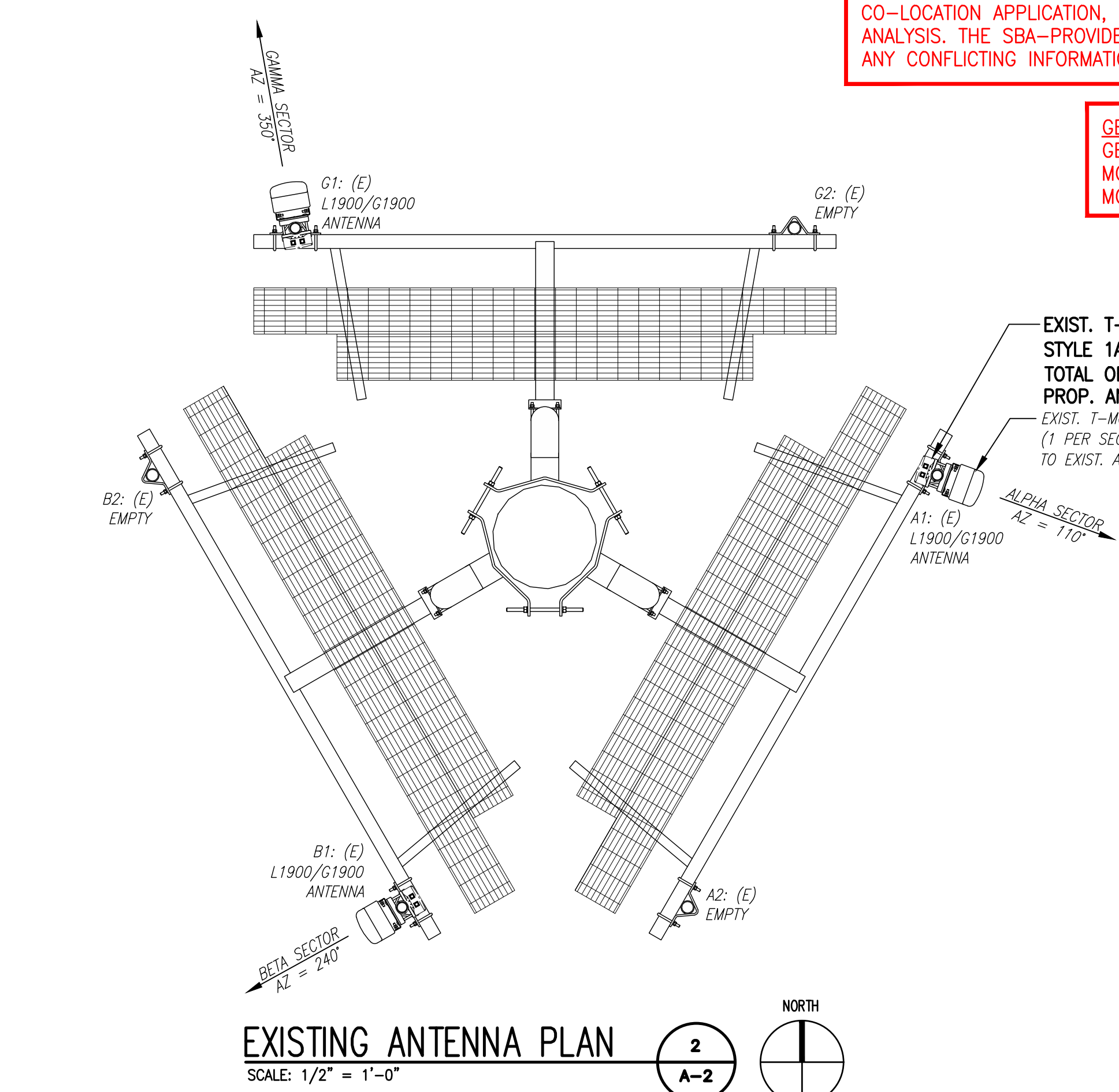
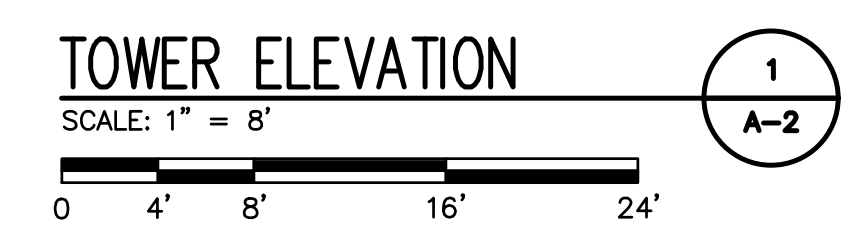
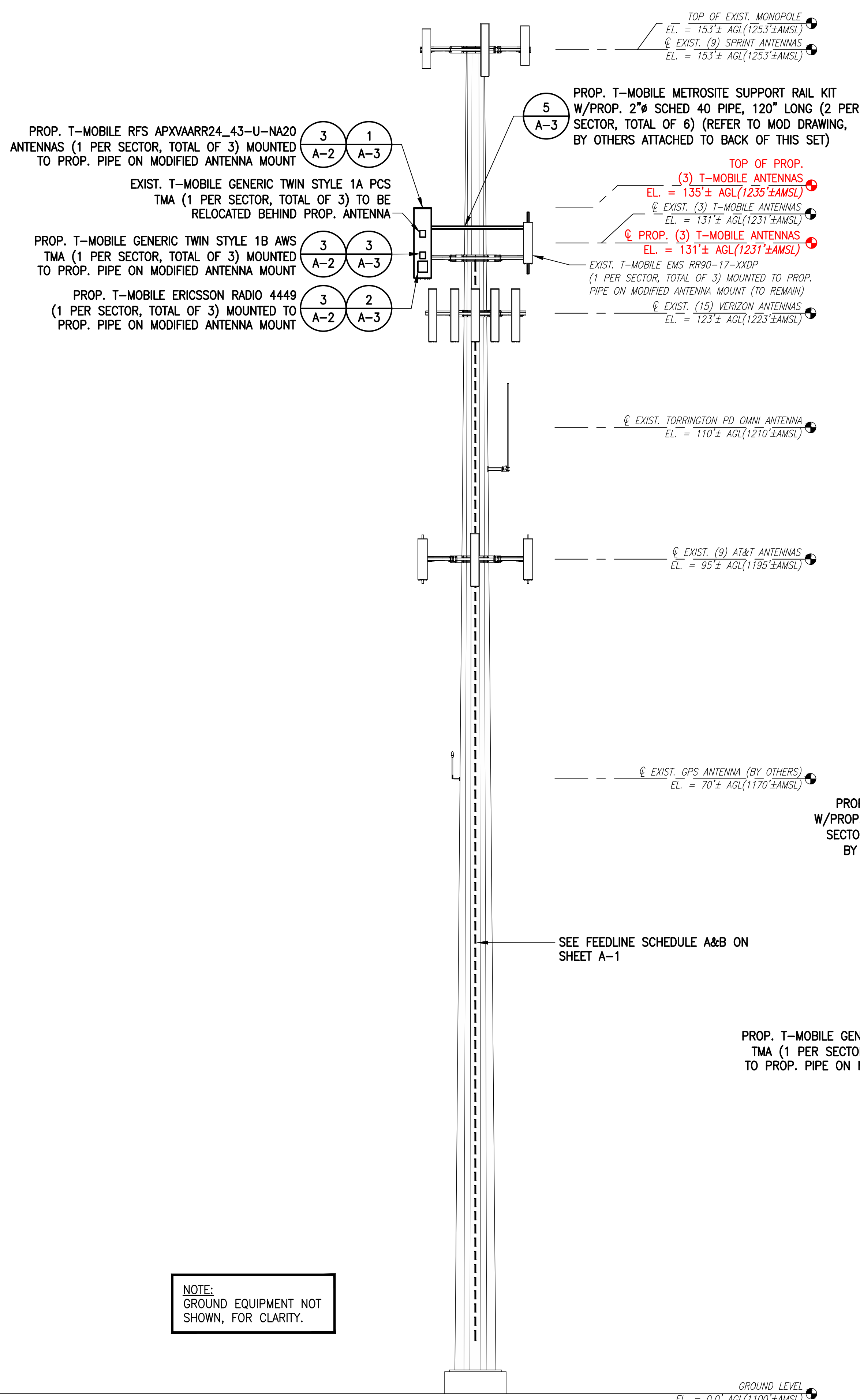
SHEET TITLE
**TOWER ELEVATIONS &
ANTENNA PLAN**

SHEET NUMBER
A-2

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

GENERAL CONTRACTOR NOTE:
GENERAL CONTRACTOR SHALL REFER TO MOUNT STRUCTURAL ANALYSIS AND ANY MOUNT MODIFICATION DESIGN PROVIDED BY SBA



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

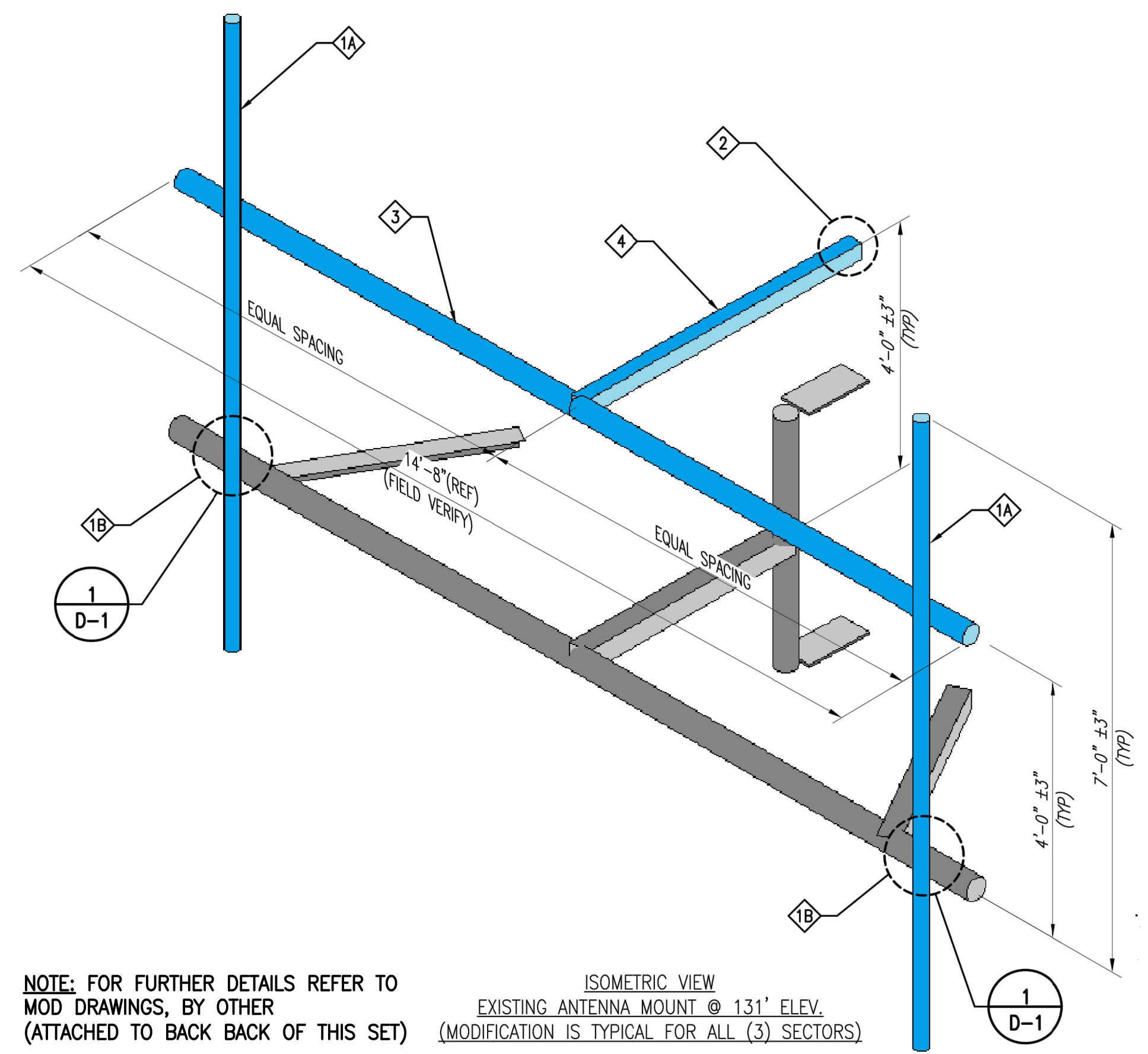
ANTENNA STATUS LEGEND:
EMPTY - EMPTY PIPE
(E) - EXISTING
(P) - INSTALL
(F) - FUTURE

NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	RADIOS/TMAS	CABLES
ALPHA	EMS RR90-17-XXDP	133'± AGL	110°	0°	2°	-	-	-
	RFS APXVAARR24_43-U-NA20	133'± AGL	110°	0°	2°	L600/L700	RADIO 4449 B71+B12	(1) 6x12 (1-5/8") HCS CABLE (SHARED)
						L1900/G1900	(2) TWIN STYLE 1A PCS TMA	(2) 1/4" COAX CABLE
BETA	EMS RR90-17-XXDP	133'± AGL	240°	0°	2°	-	-	-
	RFS APXVAARR24_43-U-NA20	133'± AGL	240°	0°	2°	L600/L700	RADIO 4449 B71+B12	(1) 6x12 (1-5/8") HCS CABLE (SHARED)
						L1900/G1900	(2) TWIN STYLE 1A PCS TMA	(2) 1/4" COAX CABLE
GAMMA	EMS RR90-17-XXDP	133'± AGL	350°	0°	2°	-	-	-
	RFS APXVAARR24_43-U-NA20	133'± AGL	350°	0°	2°	L600/L700	RADIO 4449 B71+B12	(1) 6x12 (1-5/8") HCS CABLE (SHARED)
						L1900/G1900	(2) TWIN STYLE 1A PCS TMA	(2) 1/4" COAX CABLE
						L2100	RADIO 4415 B66A (AT CABINET) TWIN STYLE 1B AWS TMA	(2) 1 5/8" COAX CABLE

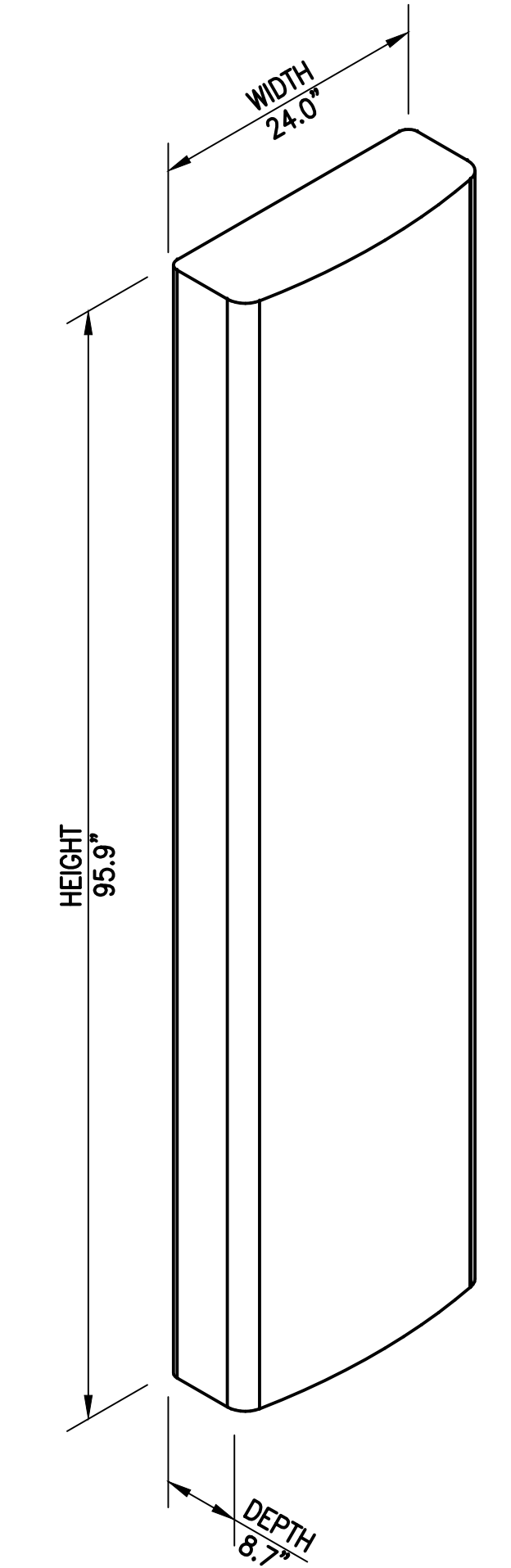
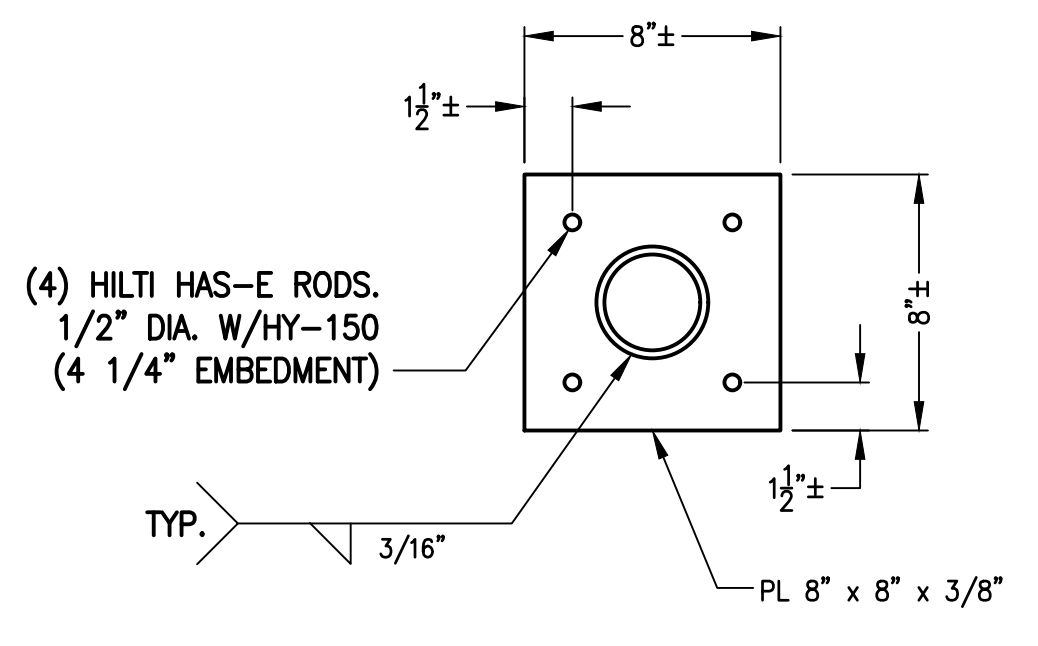
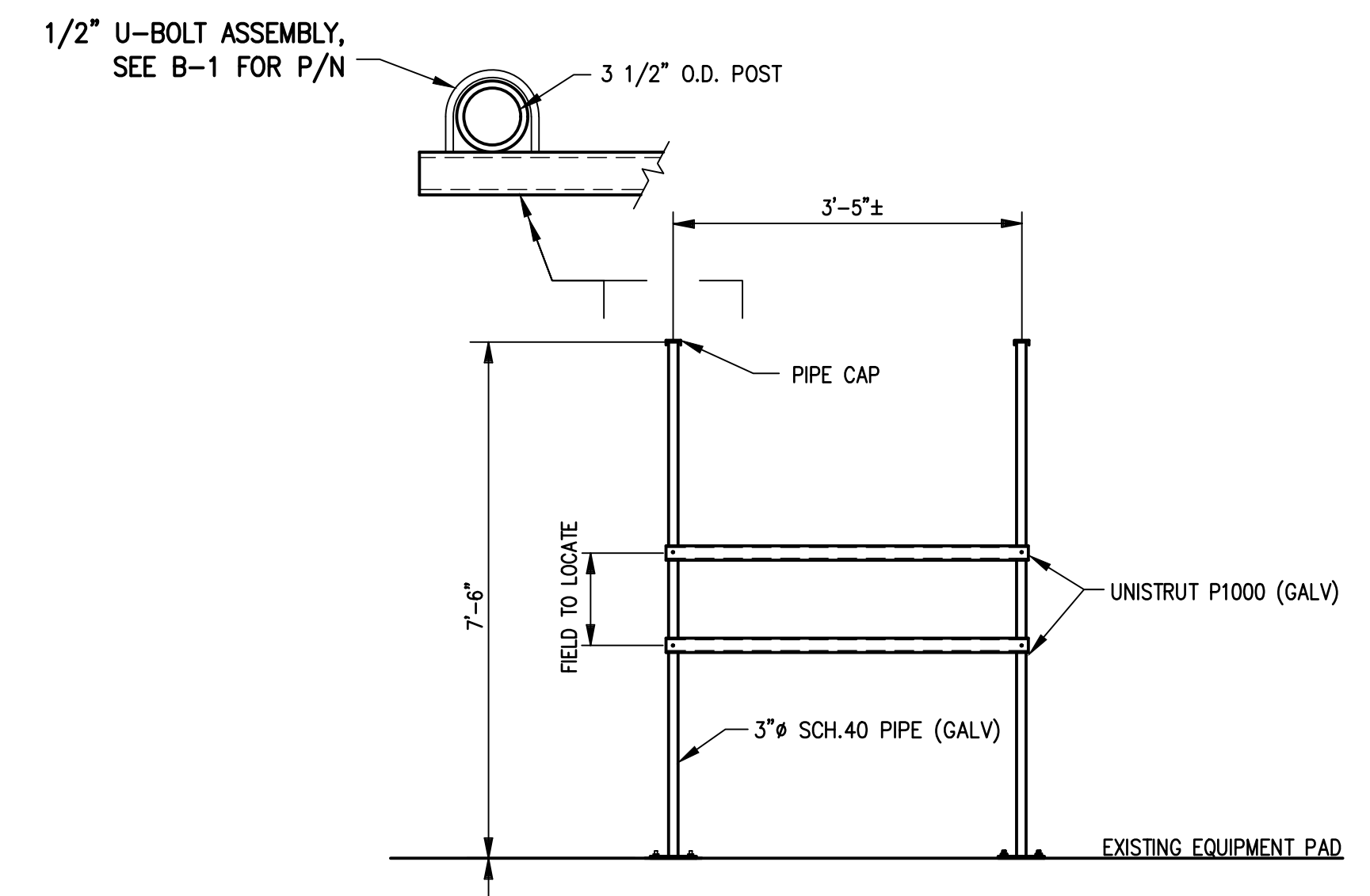
CABLE NOTE: SEE FEEDLINE SCHEDULE A&B ON SHEET A-1

NOTE: RFDS REV1.1 - 05/14/19



NOTE: FOR FURTHER DETAILS REFER TO MOD DRAWINGS, BY OTHER (ATTACHED TO BACK BACK OF THIS SET)

ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 131' ELEV.
(MODIFICATION IS TYPICAL FOR ALL (3) SECTORS)



RFS APXVAARR24_43-NA20 PANEL ANTENNA
DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 LBS
1 PER SECTOR, TOTAL OF 3



ERICSSON RADIO 4449 B12+B71
DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 LBS
1 PER SECTOR, TOTAL OF 3



ERICSSON RRUS 4415 B66A
DIMENSIONS: 16.5"H x 13.4"W x 5.9"D
WEIGHT: 46 LBS
(1 PER SECTOR, TOTAL OF 3)



ERICSSON KRY 112 144/2 DOUBLE TMA
DIMENSIONS: 3.1"H x 8.6"W x 6.6"D
WEIGHT: 9.7 LBS
1 PER SECTOR, TOTAL OF 3

ANTENNA DETAILS
SCALE: N.T.S.

RRUS DETAILS
SCALE: N.T.S.

TMA DETAIL
SCALE: N.T.S.

H-FRAME DETAILS
SCALE: NOT TO SCALE

T-MOBILE
NORTHEAST LLC

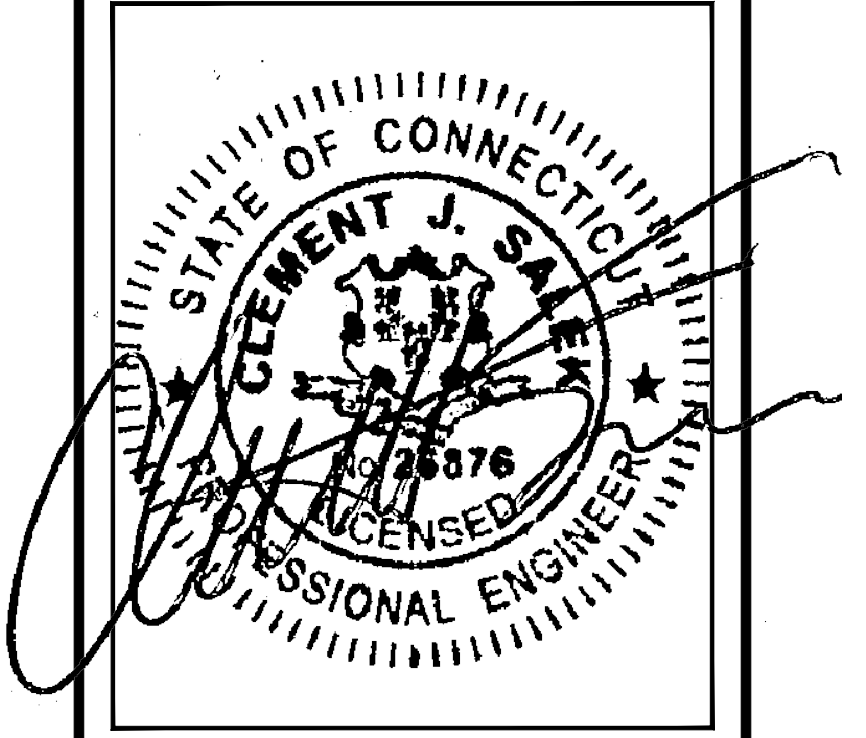
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



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

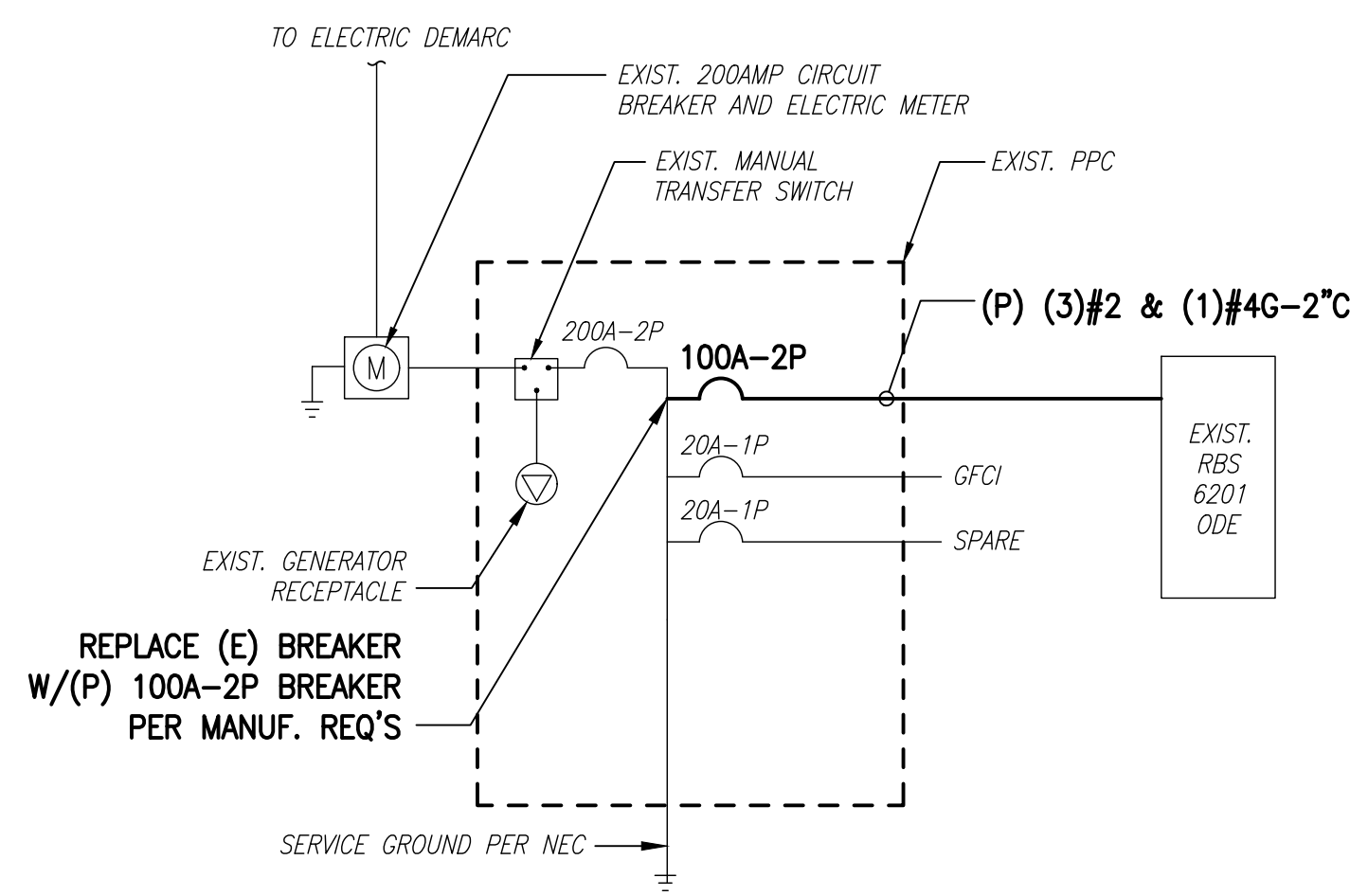
SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	09/13/19	ISSUED FOR CONSTRUCTION	JRV
0	06/13/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11536A

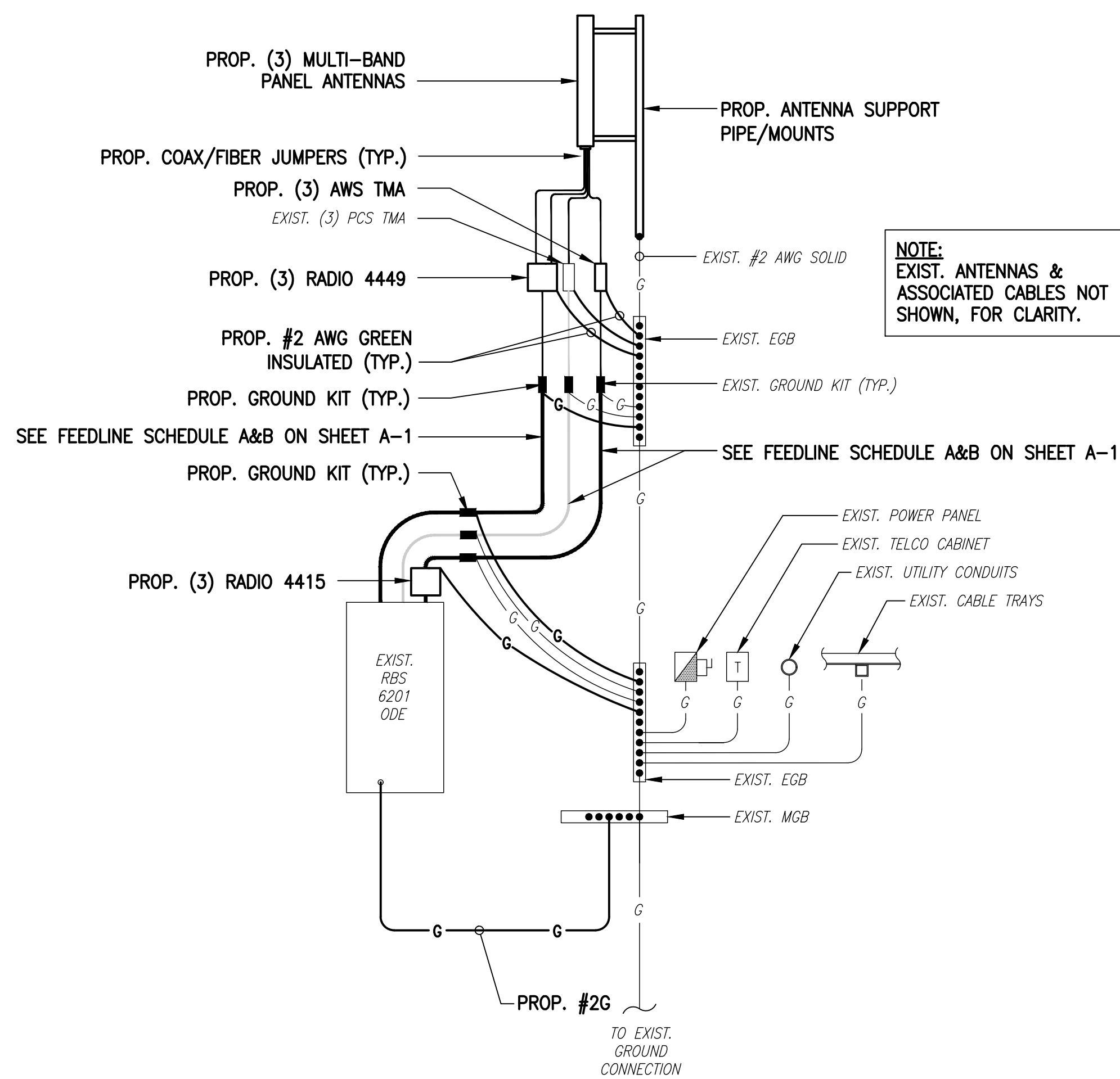
SITE ADDRESS:
1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790

SHEET TITLE
SITE DETAILS

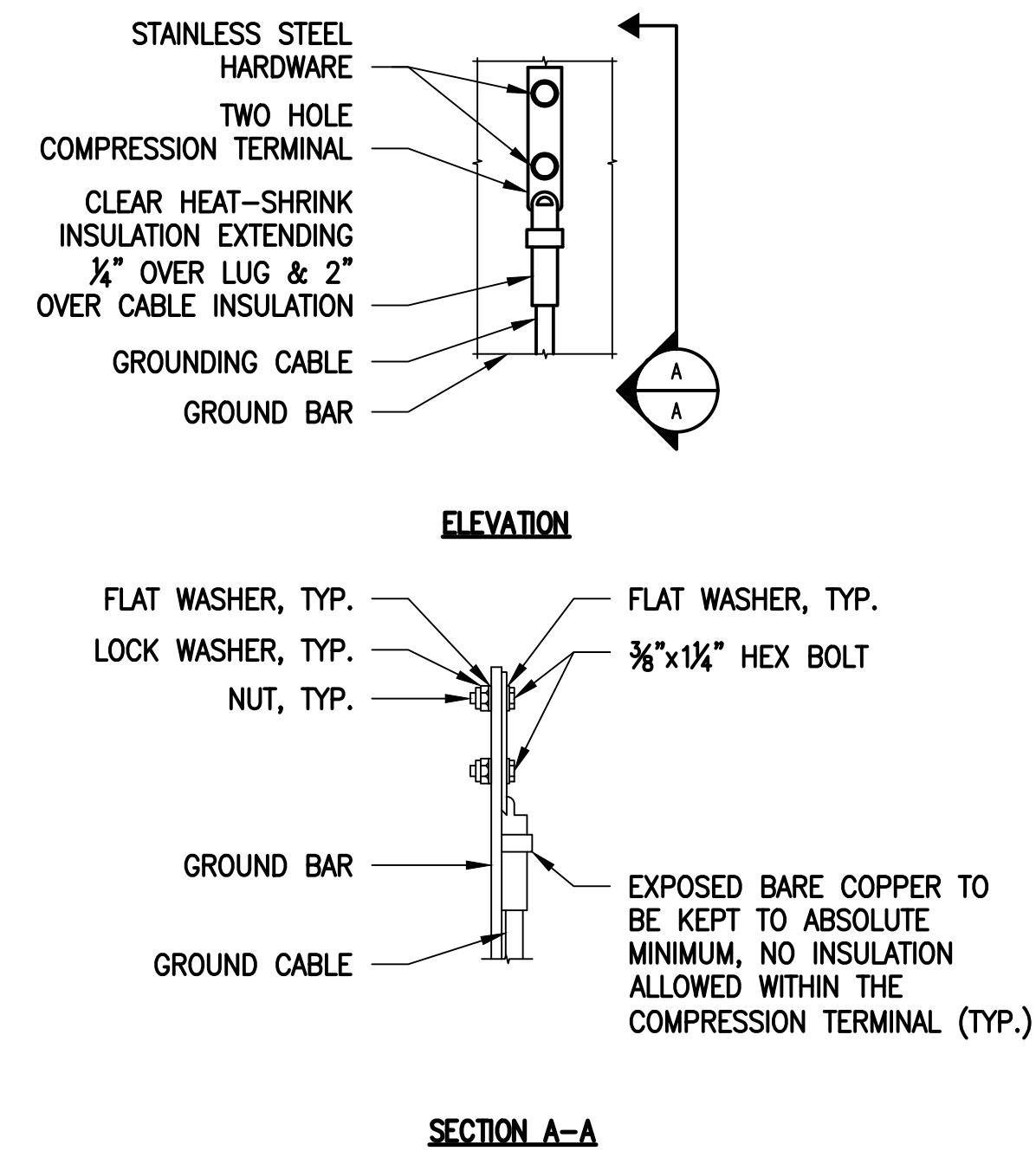
SHEET NUMBER
A-3



ONE LINE DIAGRAM
SCALE: NOT TO SCALE

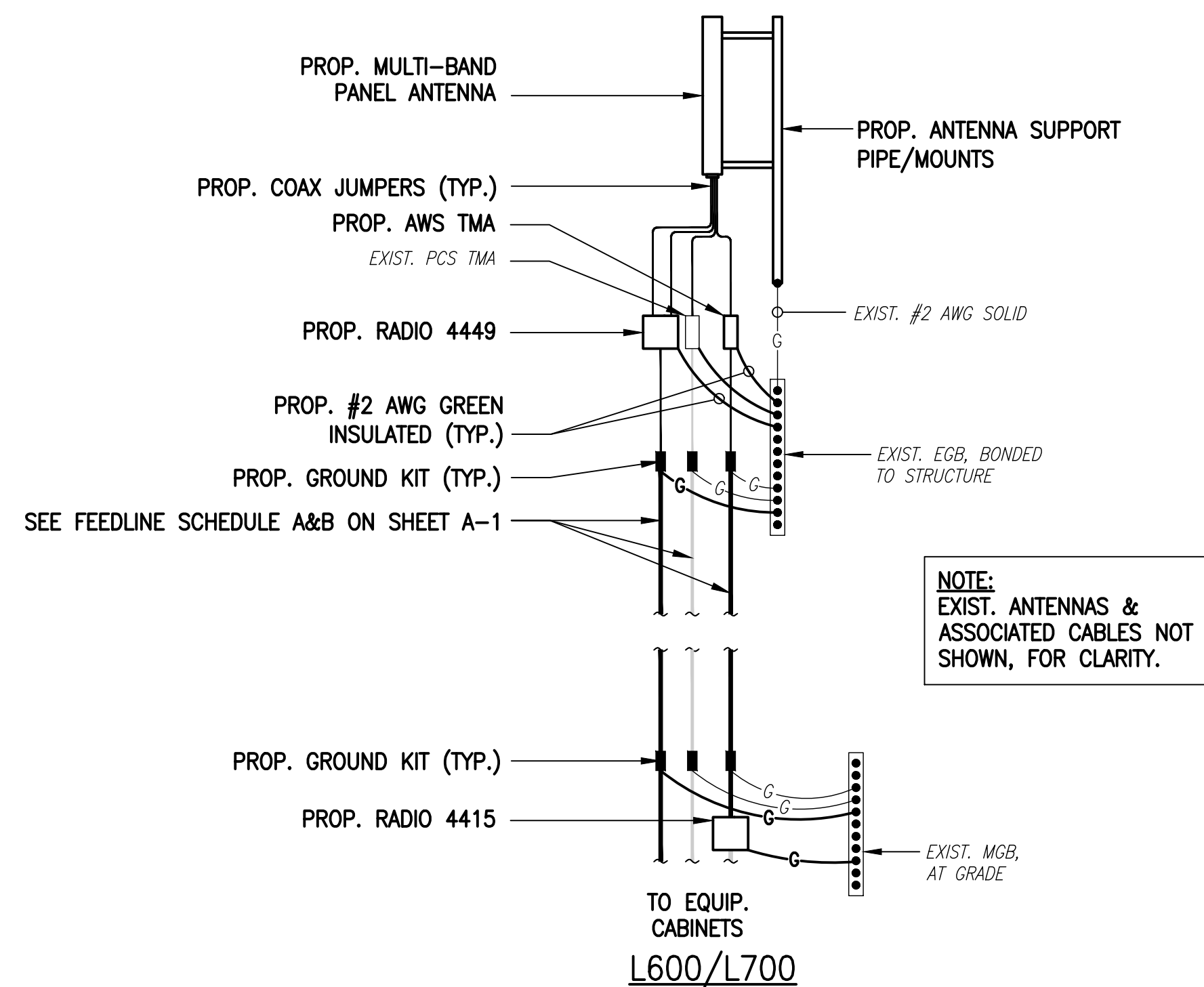


GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE

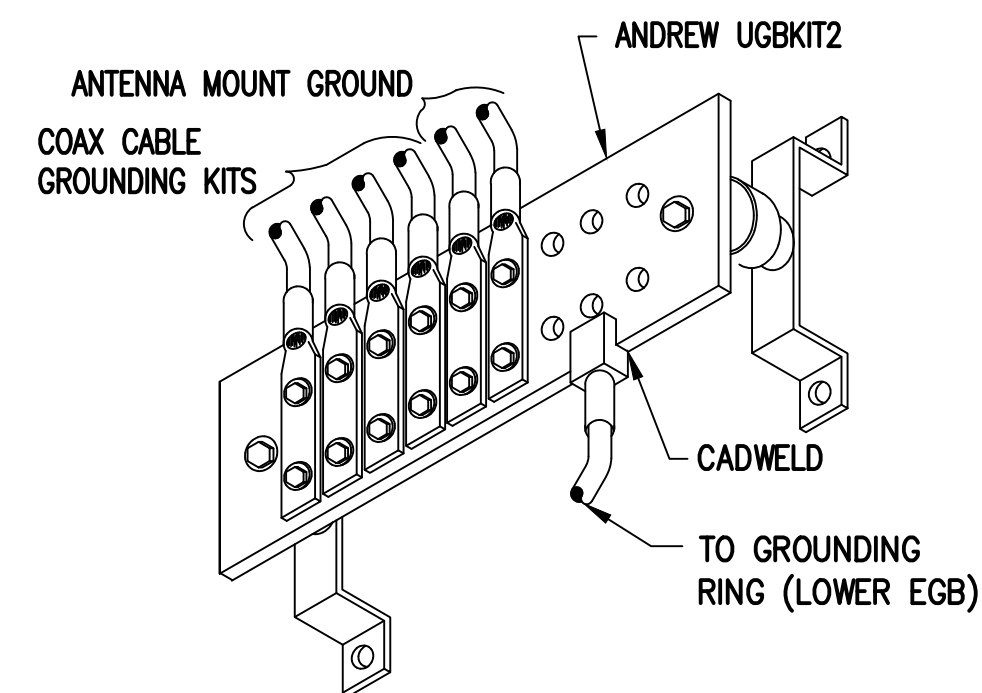


- NOTES:**
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NOT TO SCALE



COAX CABLE CONNECTION AND GROUNDING DETAIL
SCALE: NOT TO SCALE



GROUND BAR (EGB)
SCALE: NOT TO SCALE

ELECTRICAL AND GROUNDING NOTES

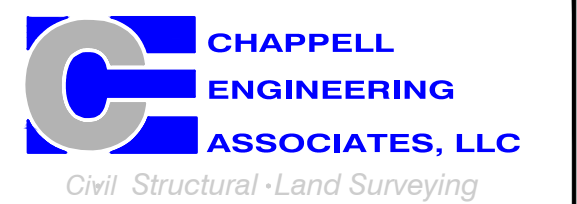
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THHN, OR THHN/INSULATION.
- 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

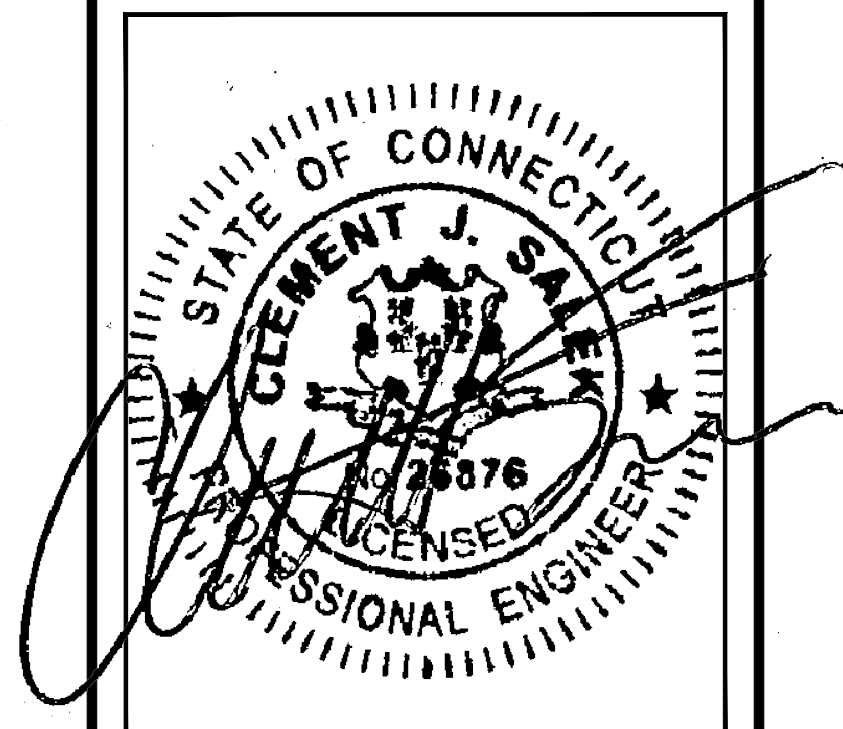
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
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R.K. EXECUTIVE CENTRE
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MARLBOROUGH, MA 01752
(508) 481-7400
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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	09/13/19	ISSUED FOR CONSTRUCTION	JRV
0	06/13/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CT11536A

SITE ADDRESS:
1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

EXHIBIT 7



Tower Engineering Solutions

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

Structural Analysis Report

Existing 153 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01499-S

Customer Site Name: Torrington

Carrier Name: T-Mobile (App#: 117025, V1)

Carrier Site ID / Name: CT11536A / Torrington

Site Location: 1925-1931 East Main Street

Torrington, Connecticut

Litchfield County

Latitude: 41.822991

Longitude: -73.077199

Analysis Result:

Max Structural Usage: 94.0% [Pass]

Max Foundation Usage: 58.0% [Pass]

Additional Usage Caused by Mount Modification: +2.4%



Handwritten signature and date:
7/26/19

Report Prepared By : Dipika Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 153 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Fred A. Nudd Corporation (Project No. 7783) original design drawings dated August 18, 2000
Foundation Drawing	Fred A. Nudd Corporation (Project No. 7783) foundation design drawings dated August 18, 2000
Geotechnical Report	Jaworski Geotech, Inc., Project # 99335G, Dated 11/3/1999
Modification Drawings	Vertical Structures, Inc., Site: Torrington, CT, Dated 9/9/2003 FDH Engineering, Inc. (Project No. 15BFJD1400) Modification Drawings for a 153' Monopole dated March 10, 2015

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 117.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	40 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_S = 0.181$, $S_1 = 0.065$

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	153.0	3	ALU 1900 MHz RRUs	Low Profile Platform	(4) 1 1/4"	Sprint
2		3	ALU 800 MHz Filters			
3		3	ALU 800 MHz RRUs			
4		4	RFS ACU-A20-N RETs			
5		3	RFS APXVSP18-C-A20 - Panel			
6		3	RFS APXV/TM14-C-I20 - Panel			
7		3	TD-RRH8x20-25 RRHs			
-	133.0	6	EMS - RR90-17-02DP - Panel	Low Profile Platform	(12) 1 5/8"	T-Mobile
13	126.0	3	Alcatel Lucent RRH2x60-700	Low Profile Platform	(16) 1 5/8" (2) 1 5/8" Fiber	Verizon
14	123.0	9	Commscope SBNHH-1D65B - Panel			
15		6	Antel LPA-80063/6CF - Panel			
16		3	Alcatel Lucent B66 4X45 AWS			
17		3	Alcatel Lucent RRH2x60-700			
18		3	Alcatel Lucent RRH2X60-PCS			
19		2	RFS DB-T1-6Z-8AB-OZ			
20	110.0	1	10' Omni	(1) Standoff	(1) 1/2"	Torrington PD
21	95.0	3	Powerwave 7770	(3) Sector Frame Commscope P/N MTC3615	(12) 1 5/8" (2) 1/2" Fiber (4) 3/4" DC	AT&T
22		2	KMW AM-X-CW-16-65-00T-RET			
23		1	Kathrein 800 10764 K			
24		4	Cci HPA-65R-BUU-H6			
25		2	Andrew SBNHH-1D65A			
26		6	Powerwave LGP17201 TMA			
27		6	Powerwave LGP21901 Diplexer			
28		3	PolyPhaser 1000860			
29		3	Ericsson RRUS 11			
30		3	Ericsson RRUS 12			
31		3	Ericsson 4426 B66			
32		3	Ericsson RRUS32			
33		3	Ericsson RRUS E2			
34		3	Ericsson RRUS A2			
35		2	Raycap DC6-48-60-18-8F			
36	70.0	1	GPS	(1) Standoff	(1) 1/2"	Unknown

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
8	131.0	3	EMS RR90-17-XXDP	Low Profile Platform w/ (1) MetroSite Heavy Collar Mount (MS-H1436) (1) MetroSite Support Rail Kit (MS-HR35-18) (1) MetroSite Rotatable T-Arm Kit (MS-TAW-350RO) (6) 2" Antenna Mount Pipes (PX2375-10)	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
9		3	RFS APXVAARR24_43-U-NA20			
10		3	Ericsson KRY 112 144/1			
11		3	Ericsson KRY 112 489/2			
12		3	Ericsson Radio 4449 B71+B12			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	94.0%	83.0%	87.8%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	4922.4	47.0	82.2

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.0827 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

Usage Diagram - Max Ratio 93.97% at 45.0ft

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)

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

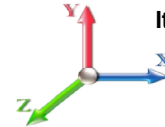
7/9/2019



Page: 1

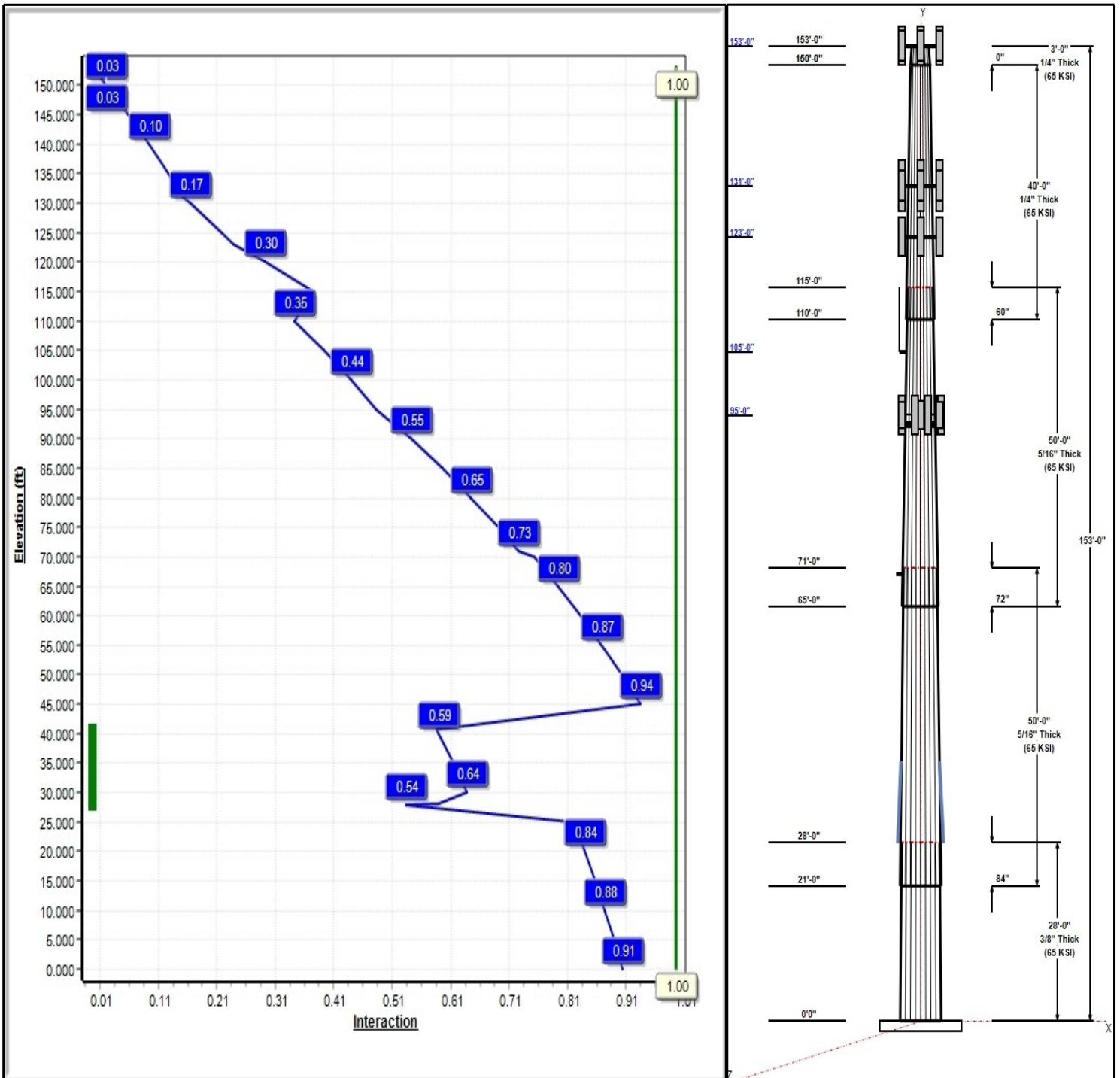
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 105 mph Wind



Iterations: 22

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Structure: CT01499-S-SBA

Type: Tapered
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24673

7/9/2019

Page: 2

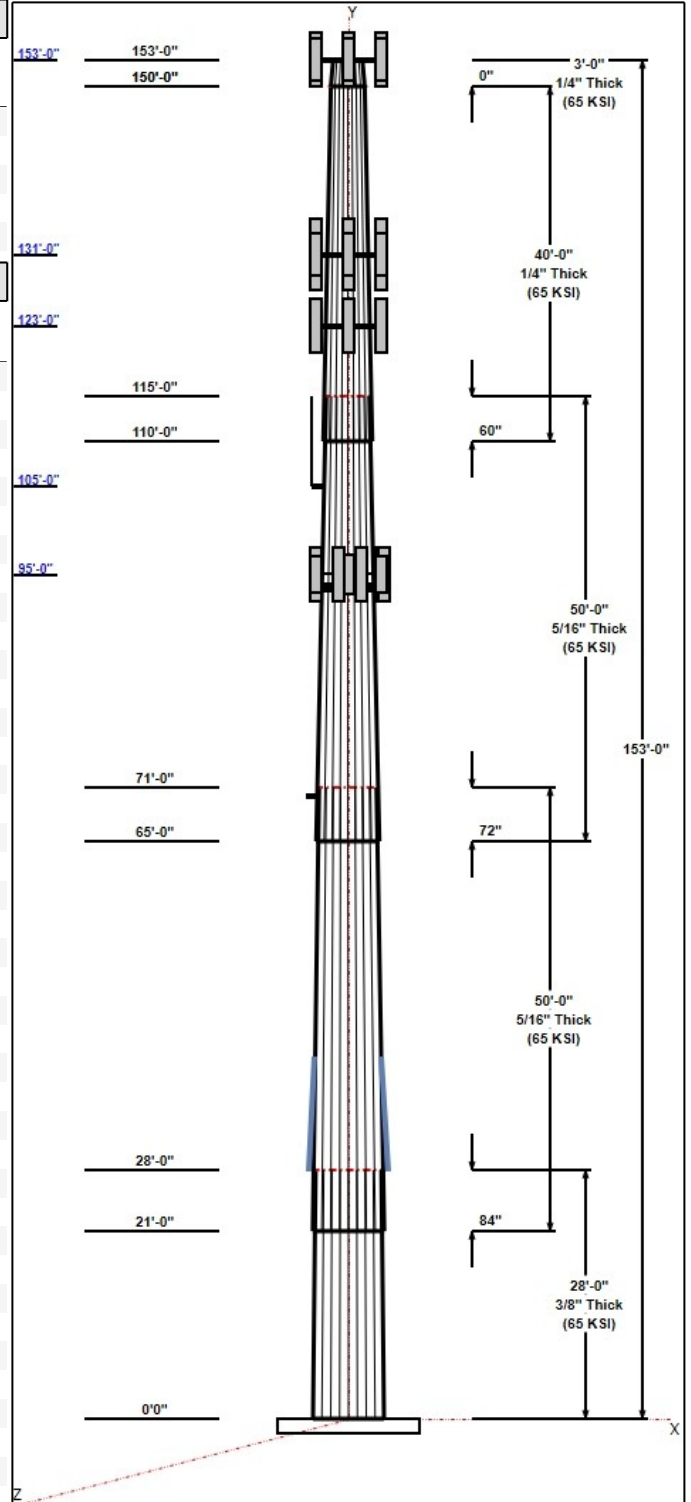


Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	28.00	53.09	60.00	0.375		0.24673	65
2	50.00	43.11	55.44	0.313	Slip	0.24673	65
3	50.00	32.88	45.21	0.313	Slip	0.24673	65
4	40.00	24.74	34.61	0.250	Slip	0.24673	65
5	3.00	24.00	24.74	0.250	Butt	0.24673	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
153.00	153.00	3	APXVTM14-C-I20	Sprint
153.00	153.00	3	APXVSP18-C-A20	Sprint
153.00	153.00	3	1900 MHz RRUs	Sprint
153.00	153.00	3	800 MHz RRUs	Sprint
153.00	153.00	3	800 MHz Filters	Sprint
153.00	153.00	4	ACU-A20-N	Sprint
153.00	153.00	3	TD-RRH8x20-25	Sprint
153.00	153.00	1	Low Profile Platform	Sprint
153.00	153.00	1	Lightning Rod	
131.00	131.00	3	APXVAARR24_43-U-NA20	T-Mobile
131.00	131.00	3	KRY 112 144/1	T-Mobile
131.00	131.00	3	KRY 112 489/2	T-Mobile
131.00	131.00	3	4449	T-Mobile
131.00	131.00	1	HRK12 (Handrail Kit)	T-Mobile
131.00	131.00	1	(3) Stabilizer Kit (12' FW)	T-Mobile
131.00	131.00	3	RR90-17-02DP	T-Mobile
131.00	131.00	1	Low Profile Platform	T-Mobile
123.00	123.00	3	B66 4X45 AWS	Verizon
123.00	123.00	9	SBNHH-1D65B	Verizon
123.00	123.00	6	LPA-80063/6CF	Verizon
123.00	123.00	3	RRH2X60-PCS	Verizon
123.00	126.00	3	RRH2x60-700	Verizon
123.00	123.00	2	DB-T1-6Z-8AB-0Z	Verizon
123.00	123.00	1	Low Profile Platform	Verizon
105.00	110.00	1	10' Omni	Torrington PD
105.00	105.00	1	Standoff	Torrington PD
95.00	95.00	4	HPA-65R-BUU-H6	AT&T
95.00	95.00	3	7770	AT&T
95.00	95.00	2	SBNH-1D65A	AT&T
95.00	95.00	2	AM-X-CW-16-65-00T-RET	AT&T
95.00	95.00	6	LGP17201	AT&T
95.00	95.00	6	LGP21901	AT&T
95.00	95.00	3	RRUS-11	AT&T
95.00	95.00	3	RRUS-12	AT&T
95.00	95.00	3	RRUS-A2	AT&T
95.00	95.00	3	RRUS-32	AT&T
95.00	95.00	3	RRUS-E2	AT&T
95.00	95.00	3	1000860	AT&T
95.00	95.00	2	Raycap/Squid	AT&T
95.00	95.00	3	Sector Frame	AT&T
95.00	95.00	1	800 10764	AT&T
95.00	95.00	3	4426 B66	AT&T
70.00	70.00	1	GPS	Unknown
70.00	70.00	1	Standoff	Unknown



Structure: CT01499-S-SBA

Type: Tapered
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.24673

7/9/2019

Page: 3



Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	153.00	Inside	1 1/4" Coax	Sprint
0.00	153.00	Outside	Safety Cable	
0.00	131.00	Inside	1 5/8" Coax	T-Mobile
0.00	123.00	Inside	1 5/8" Coax	Verizon
0.00	123.00	Inside	1 5/8" Coax	Verizon
0.00	123.00	Inside	1 5/8" Fiber	Verizon
0.00	105.00	Inside	1/2" Coax	Torrington PD
0.00	95.00	Outside	1 5/8" Coax	AT&T
0.00	95.00	Outside	1/2" Fiber	AT&T
0.00	95.00	Outside	3/4" DC	AT&T
24.25	44.25	Outside	1.25" Reinforcing plate	

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	73.0	50.0	Round

Reactions

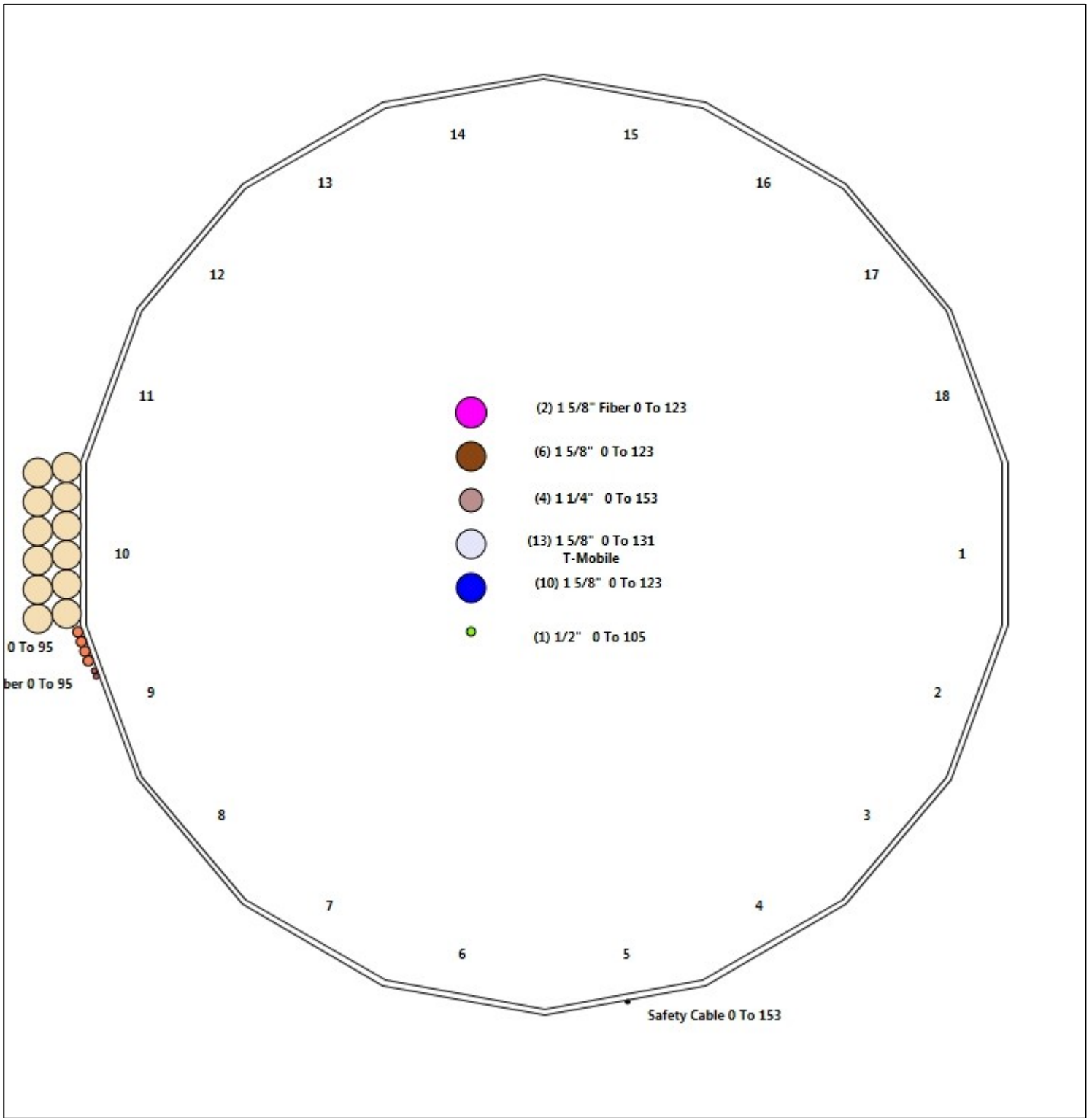
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	4922.4	47.0	48.6
0.9D + 1.6W 105 mph Wind	4885.1	47.0	36.4
1.2D + 1.0Di + 1.0Wi 40 mph Wind	736.5	7.1	82.2
1.2D + 1.0E	100.9	0.9	48.7
0.9D + 1.0E	100.1	0.9	36.5
1.0D + 1.0W 60 mph Wind	1000.7	9.6	40.5

Structure: CT01499-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Torrington
Height: 153.00 (ft)

7/9/2019

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Shaft Properties

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	28.000	0.3750	65		0.00	6,370
2	18	50.000	0.3125	65	Slip	84.00	8,262
3	18	50.000	0.3125	65	Slip	72.00	6,536
4	18	40.000	0.2500	65	Slip	60.00	3,178
5	18	3.000	0.2500	65	Flange	0.00	195
Total Shaft Weight:							24,542

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	60.00	0.00	70.97	31875.78	26.80	160.00	53.09	28.00	62.74	22030.0	23.55	141.5	0.246732
2	55.44	21.00	54.68	20998.34	29.87	177.42	43.11	71.00	42.45	9821.08	22.91	137.9	0.246732
3	45.21	65.00	44.53	11343.08	24.10	144.68	32.88	115.00	32.30	4326.93	17.14	105.2	0.246732
4	34.61	110.0	27.26	4066.53	23.00	138.44	24.74	150.00	19.43	1472.52	16.04	98.96	0.246732
5	24.74	150.0	19.43	1472.52	16.04	98.96	24.00	153.00	18.84	1343.00	15.52	96.00	0.246732

Additional Steel

Elev From (ft)		Elev To (ft)		Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors		Termination Connectors		
									Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty
27.75	40.75	3	PLT 8"x1.25"(1.25Hole)		65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	14	14

Load Summary

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	153.00	APXVTM14-C-I20	3	56.00	6.34	0.79	216.79	7.456	0.79	0.00	0.00
2	153.00	APXVSP18-C-A20	3	57.00	8.02	0.83	230.19	10.819	0.83	0.00	0.00
3	153.00	1900 MHz RRUUs	3	44.00	3.80	0.88	153.38	5.193	0.88	0.00	0.00
4	153.00	800 MHz RRUUs	3	53.00	2.49	0.92	127.11	3.636	0.92	0.00	0.00
5	153.00	800 MHz Filters	3	8.80	0.78	0.69	26.48	1.428	0.69	0.00	0.00
6	153.00	ACU-A20-N	4	1.00	0.14	0.90	5.30	0.437	0.90	0.00	0.00
7	153.00	TD-RRH8x20-25	3	70.00	4.05	0.69	180.73	4.865	0.69	0.00	0.00
8	153.00	Low Profile Platform	1	1200.00	25.00	1.00	2249.20	45.984	1.00	0.00	0.00
9	153.00	Lightning Rod	1	5.00	0.50	1.00	25.98	2.249	1.00	0.00	0.00
10	131.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	539.60	22.114	0.70	0.00	0.00
11	131.00	KRY 112 144/1	3	11.00	0.41	0.67	21.64	0.879	0.67	0.00	0.00
12	131.00	KRY 112 489/2	3	16.10	0.70	0.67	38.13	1.336	0.67	0.00	0.00
13	131.00	4449	3	70.00	1.65	0.67	137.10	2.180	0.67	0.00	0.00
14	131.00	HRK12 (Handrail Kit)	1	261.72	6.75	1.00	568.14	13.258	1.00	0.00	0.00
15	131.00	(3) Stabilizer Kit (12' FW)	1	180.00	6.10	1.00	403.14	12.402	1.00	0.00	0.00
16	131.00	RR90-17-02DP	3	13.50	4.36	0.68	110.48	5.331	0.68	0.00	0.00
17	131.00	Low Profile Platform	1	1200.00	25.00	1.00	2233.04	45.661	1.00	0.00	0.00
18	123.00	B66 4X45 AWS	3	64.00	2.60	0.80	145.55	3.289	0.80	0.00	0.00
19	123.00	SBNHH-1D65B	9	40.60	8.08	0.83	237.50	9.345	0.83	0.00	0.00
20	123.00	LPA-80063/6CF	6	27.00	9.60	0.94	308.59	10.924	0.94	0.00	0.00
21	123.00	RRH2X60-PCS	3	55.00	2.20	0.89	137.48	2.822	0.89	0.00	0.00
22	123.00	RRH2x60-700	3	60.00	3.50	0.76	145.57	4.274	0.76	0.00	3.00
23	123.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.90	159.31	5.655	0.90	0.00	0.00
24	123.00	Low Profile Platform	1	1200.00	25.00	1.00	2226.55	45.531	1.00	0.00	0.00
25	105.00	10' Omni	1	25.00	3.00	1.00	98.39	6.480	1.00	0.00	5.00
26	105.00	Standoff	1	40.00	2.63	1.00	117.47	8.389	1.00	0.00	0.00
27	95.00	HPA-65R-BUU-H6	4	51.00	9.66	0.90	286.30	10.962	0.90	0.00	0.00
28	95.00	7770	3	35.00	5.50	0.73	162.83	6.515	0.73	0.00	0.00
29	95.00	SBNH-1D65A	2	38.40	5.38	0.90	159.53	7.274	0.90	0.00	0.00
30	95.00	AM-X-CW-16-65-00T-RET	2	41.80	8.02	0.75	196.85	10.689	0.75	0.00	0.00
31	95.00	LGP17201	6	31.00	1.95	1.00	67.51	2.902	1.00	0.00	0.00
32	95.00	LGP21901	6	5.50	0.23	0.75	12.85	0.582	0.75	0.00	0.00
33	95.00	RRUS-11	3	55.00	4.42	0.68	140.94	5.853	0.68	0.00	0.00
34	95.00	RRUS-12	3	60.00	3.15	0.67	130.99	4.350	0.67	0.00	0.00
35	95.00	RRUS-A2	3	21.20	1.86	0.62	55.70	2.790	0.62	0.00	0.00
36	95.00	RRUS-32	3	77.00	3.87	0.87	184.52	4.068	0.87	0.00	0.00
37	95.00	RRUS-E2	3	57.30	2.81	0.70	139.69	3.455	0.70	0.00	0.00
38	95.00	1000860	3	2.00	0.06	1.00	4.59	0.260	1.00	0.00	0.00
39	95.00	Raycap/Squid	2	31.80	1.47	0.90	90.86	2.139	0.90	0.00	0.00
40	95.00	Sector Frame	3	500.00	17.50	0.75	1166.92	30.805	0.75	0.00	0.00
41	95.00	800 10764	1	40.80	5.88	0.75	162.62	7.927	0.75	0.00	0.00
42	95.00	4426 B66	3	48.50	1.15	0.73	85.30	1.601	0.73	0.00	0.00
43	70.00	GPS	1	10.00	1.00	1.00	37.17	1.660	1.00	0.00	0.00
44	70.00	Standoff	1	40.00	2.63	1.00	114.39	8.161	1.00	0.00	0.00
Totals:			123	10,105.92			27,931.96				

Linear Appurtenances

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
Bottom	Top										
Elev.	Elev.	Description		Exposed							
(ft)	(ft)			Width	Exposed						
0.00	153.00	(4) 1 1/4" Coax		0.00	Inside						
0.00	153.00	(1) Safety Cable		0.38	Outside						
0.00	131.00	(13) 1 5/8" Coax		0.00	Inside						
0.00	123.00	(6) 1 5/8" Coax		0.00	Inside						
0.00	123.00	(10) 1 5/8" Coax		0.00	Inside						
0.00	123.00	(2) 1 5/8" Fiber		0.00	Inside						
0.00	105.00	(1) 1/2" Coax		0.00	Inside						
0.00	95.00	(12) 1 5/8" Coax		3.96	Outside						
0.00	95.00	(2) 1/2" Fiber		0.38	Outside						
0.00	95.00	(4) 3/4" DC		0.75	Outside						
24.25	44.25	(3) 1.25" Reinforcing plate		1.25	Outside						

Shaft Section Properties

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00		0.3750	60.000	70.966	31875.8	26.80	160.00	65	70	0.0				
5.00		0.3750	58.766	69.498	29937.9	26.22	156.71	65	71	1194.9				
10.00		0.3750	57.533	68.029	28080.1	25.64	153.42	65	71	1169.9				
15.00		0.3750	56.299	66.561	26300.9	25.06	150.13	65	72	1145.0				
20.00		0.3750	55.065	65.093	24598.5	24.48	146.84	65	73	1120.0				
21.00	Bot - Section 2	0.3750	54.819	64.799	24267.0	24.37	146.18	65	73	221.0				
25.00		0.3750	53.832	63.625	22971.1	23.90	143.55	65	73	1611.6				
27.75	RB1	0.3750	53.153	62.817	22107.5	23.58	141.74	65	74	1091.0	30.00	11437.3	11437.3	280.7
28.00	Top - Section 1	0.3125	53.717	52.968	19086.0	28.90	171.89	65	67	98.5	30.00	11411.9	11411.9	25.5
30.00		0.3125	53.223	52.479	18561.8	28.62	170.31	65	68	358.8	30.00	11209.4	11209.4	204.2
35.00		0.3125	51.989	51.255	17293.5	27.92	166.37	65	69	882.5	30.00	10711.1	10711.1	510.5
40.00		0.3125	50.756	50.032	16084.3	27.23	162.42	65	69	861.6	30.00	10224.2	10224.2	510.5
40.75	RT1	0.3125	50.571	49.848	15908.0	27.12	161.83	65	69	127.5	30.00	10152.1	10152.1	76.6
45.00		0.3125	49.522	48.808	14932.9	26.53	158.47	65	70	713.4				
50.00		0.3125	48.288	47.584	13837.7	25.84	154.52	65	71	820.0				
55.00		0.3125	47.055	46.361	12797.4	25.14	150.58	65	72	799.2				
60.00		0.3125	45.821	45.137	11810.7	24.44	146.63	65	73	778.4				
65.00	Bot - Section 3	0.3125	44.587	43.914	10876.0	23.75	142.68	65	73	757.6				
70.00		0.3125	43.354	42.690	9991.9	23.05	138.73	65	74	1484.0				
71.00	Top - Section 2	0.3125	43.732	43.065	10257.7	23.27	139.94	65	74	291.8				
75.00		0.3125	42.745	42.086	9574.0	22.71	136.78	65	75	579.5				
80.00		0.3125	41.511	40.863	8763.0	22.01	132.84	65	76	705.6				
85.00		0.3125	40.278	39.639	7999.1	21.32	128.89	65	76	684.8				
90.00		0.3125	39.044	38.416	7281.0	20.62	124.94	65	77	664.0				
95.00		0.3125	37.810	37.192	6607.2	19.92	120.99	65	78	643.2				
100.00		0.3125	36.577	35.968	5976.3	19.23	117.05	65	79	622.4				
105.00		0.3125	35.343	34.745	5386.9	18.53	113.10	65	80	601.6				
110.00	Bot - Section 4	0.3125	34.109	33.521	4837.6	17.84	109.15	65	80	580.7				
115.00	Top - Section 3	0.2500	33.376	26.284	3644.0	22.13	133.50	65	75	1015.4				
120.00		0.2500	32.142	25.306	3251.9	21.26	128.57	65	76	438.9				
123.00		0.2500	31.402	24.718	3030.7	20.74	125.61	65	77	255.3				
125.00		0.2500	30.908	24.327	2888.9	20.39	123.63	65	77	166.9				
130.00		0.2500	29.675	23.348	2554.0	19.52	118.70	65	78	405.6				
131.00		0.2500	29.428	23.152	2490.3	19.35	117.71	65	79	79.1				
135.00		0.2500	28.441	22.369	2246.1	18.65	113.76	65	79	309.8				
140.00		0.2500	27.208	21.390	1963.9	17.78	108.83	65	80	372.3				
145.00		0.2500	25.974	20.411	1706.4	16.91	103.90	65	82	355.6				
150.00	Top - Section 4	0.2500	24.740	19.432	1472.5	16.04	98.96	65	83	338.9				
150.00	Bot - Section 5	0.2500	24.740	19.432	1472.5	16.04	98.96	65	83					
153.00		0.2500	24.000	18.845	1343.0	15.52	96.00	65	83	195.4				
Total Weight										24541.5				
											1607.9			

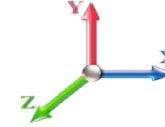
Wind Loading - Shaft

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	491.49	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	481.39	0.650	0.000	5.00	25.125	16.33	655.1	0.0	1433.9
10.00		1.00	0.85	22.791	25.07	471.28	0.650	0.000	5.00	24.603	15.99	641.5	0.0	1403.9
15.00		1.00	0.85	22.791	25.07	461.18	0.650	0.000	5.00	24.081	15.65	627.9	0.0	1373.9
20.00		1.00	0.90	24.182	26.60	464.63	0.650	0.000	5.00	23.559	15.31	651.7	0.0	1344.0
21.00	Bot - Section 2	1.00	0.91	24.432	26.87	464.93	0.650	0.000	1.00	4.649	3.02	129.9	0.0	265.2
25.00		1.00	0.95	25.345	27.88	465.02	0.657 *	0.000	4.00	18.599	12.21	544.8	0.0	1933.9
27.75	RB1	1.00	0.97	25.908	28.50	464.23	0.696 *	0.000	2.75	12.593	8.77	399.8	0.0	1309.2
28.00	Top - Section 1	1.00	0.97	25.957	28.55	464.13	0.698 *	0.000	0.25	1.137	0.79	36.3	0.0	118.2
30.00		1.00	0.98	26.337	28.97	468.67	0.696 *	0.000	2.00	9.049	6.30	292.1	0.0	430.6
35.00		1.00	1.01	27.206	29.93	465.30	0.700 *	0.000	5.00	22.257	15.59	746.3	0.0	1059.0
40.00		1.00	1.04	27.981	30.78	460.69	0.706 *	0.000	5.00	21.735	15.35	755.9	0.0	1034.0
40.75	RT1	1.00	1.05	28.091	30.90	459.90	0.710 *	0.000	0.75	3.215	2.28	112.8	0.0	152.9
45.00		1.00	1.07	28.684	31.55	455.10	0.704 *	0.000	4.25	17.998	12.68	640.0	0.0	856.0
50.00		1.00	1.09	29.327	32.26	448.71	0.670 *	0.000	5.00	20.692	13.86	715.3	0.0	984.0
55.00		1.00	1.12	29.922	32.91	441.65	0.675 *	0.000	5.00	20.170	13.62	717.3	0.0	959.0
60.00		1.00	1.14	30.475	33.52	434.03	0.681 *	0.000	5.00	19.648	13.38	717.9	0.0	934.0
65.00	Bot - Section 3	1.00	1.16	30.993	34.09	425.92	0.687 *	0.000	5.00	19.126	13.15	717.1	0.0	909.1
70.00	Appurtenance(s)	1.00	1.17	31.480	34.63	417.38	0.694 *	0.000	5.00	18.868	13.09	725.4	0.0	1780.8
71.00	Top - Section 2	1.00	1.18	31.574	34.73	415.62	0.698 *	0.000	1.00	3.711	2.59	143.9	0.0	350.2
75.00		1.00	1.19	31.941	35.13	414.52	0.698 *	0.000	4.00	14.635	10.21	574.2	0.0	695.4
80.00		1.00	1.21	32.377	35.62	405.30	0.704 *	0.000	5.00	17.824	12.55	715.4	0.0	846.8
85.00		1.00	1.22	32.793	36.07	395.77	0.712 *	0.000	5.00	17.302	12.32	710.9	0.0	821.8
90.00		1.00	1.24	33.190	36.51	385.96	0.720 *	0.000	5.00	16.780	12.08	705.6	0.0	796.8
95.00	Appurtenance(s)	1.00	1.25	33.570	36.93	375.90	0.728 *	0.000	5.00	16.258	11.84	699.7	0.0	771.8
100.00		1.00	1.27	33.935	37.33	365.61	0.650	0.000	5.00	15.736	10.23	610.9	0.0	746.8
105.00	Appurtenance(s)	1.00	1.28	34.285	37.71	355.09	0.650	0.000	5.00	15.214	9.89	596.7	0.0	721.9
110.00	Bot - Section 4	1.00	1.29	34.623	38.08	344.38	0.650	0.000	5.00	14.693	9.55	581.9	0.0	696.9
115.00	Top - Section 3	1.00	1.30	34.948	38.44	333.48	0.650	0.000	5.00	14.382	9.35	575.0	0.0	1218.5
120.00		1.00	1.32	35.263	38.79	327.50	0.650	0.000	5.00	13.860	9.01	559.1	0.0	526.6
123.00	Appurtenance(s)	1.00	1.32	35.446	38.99	320.80	0.650	0.000	3.00	8.066	5.24	327.1	0.0	306.4
125.00		1.00	1.33	35.567	39.12	316.29	0.650	0.000	2.00	5.273	3.43	214.5	0.0	200.3
130.00		1.00	1.34	35.862	39.45	304.92	0.650	0.000	5.00	12.816	8.33	525.8	0.0	486.7
131.00	Appurtenance(s)	1.00	1.34	35.920	39.51	302.63	0.650	0.000	1.00	2.501	1.63	102.8	0.0	94.9
135.00		1.00	1.35	36.148	39.76	293.41	0.650	0.000	4.00	9.794	6.37	405.0	0.0	371.8
140.00		1.00	1.36	36.426	40.07	281.76	0.650	0.000	5.00	11.772	7.65	490.6	0.0	446.7
145.00		1.00	1.37	36.696	40.37	269.98	0.650	0.000	5.00	11.250	7.31	472.3	0.0	426.7
150.00	Top - Section 4	1.00	1.38	36.959	40.65	258.08	0.650	0.000	5.00	10.728	6.97	453.6	0.0	406.7
153.00	Appurtenance(s)	1.00	1.38	37.113	40.82	250.88	0.650	0.000	3.00	6.187	4.02	262.7	0.0	234.4
Totals:									153.00			19,554.9		29,449.8

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

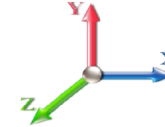
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRUs	3	37.113	40.824	0.83	0.90	6.19	190.80	0.000	0.000	404.01	0.00	0.00
2	153.00	APXVTM14-C-I20	3	37.113	40.824	0.71	0.90	13.52	201.60	0.000	0.000	883.32	0.00	0.00
3	153.00	APXVSP18-C-A20	3	37.113	40.824	0.75	0.90	17.97	205.20	0.000	0.000	1173.97	0.00	0.00
4	153.00	1900 MHz RRUs	3	37.113	40.824	0.79	0.90	9.03	158.40	0.000	0.000	589.75	0.00	0.00
5	153.00	Lightning Rod	1	37.113	40.824	1.00	1.00	0.50	6.00	0.000	0.000	32.66	0.00	0.00
6	153.00	800 MHz Filters	3	37.113	40.824	0.62	0.90	1.45	31.68	0.000	0.000	94.92	0.00	0.00
7	153.00	ACU-A20-N	4	37.113	40.824	0.81	0.90	0.45	4.80	0.000	0.000	29.63	0.00	0.00
8	153.00	TD-RRH8x20-25	3	37.113	40.824	0.62	0.90	7.55	252.00	0.000	0.000	492.84	0.00	0.00
9	153.00	Low Profile Platform	1	37.113	40.824	1.00	1.00	25.00	1440.00	0.000	0.000	1632.98	0.00	0.00
10	131.00	KRY 112 489/2	3	35.920	39.512	0.50	0.75	1.06	57.96	0.000	0.000	66.71	0.00	0.00
11	131.00	KRY 112 144/1	3	35.920	39.512	0.50	0.75	0.62	39.60	0.000	0.000	39.07	0.00	0.00
12	131.00	4449	3	35.920	39.512	0.50	0.75	2.49	252.00	0.000	0.000	157.25	0.00	0.00
13	131.00	APXVAARR24_43-U-NA2	3	35.920	39.512	0.52	0.75	31.88	460.80	0.000	0.000	2015.29	0.00	0.00
14	131.00	RR90-17-02DP	3	35.920	39.512	0.51	0.75	6.67	48.60	0.000	0.000	421.72	0.00	0.00
15	131.00	HRK12 (Handrail Kit)	1	35.920	39.512	1.00	1.00	6.75	314.06	0.000	0.000	426.73	0.00	0.00
16	131.00	(3) Stabilizer Kit (12' FW)	1	35.920	39.512	1.00	1.00	6.10	216.00	0.000	0.000	385.63	0.00	0.00
17	131.00	Low Profile Platform	1	35.920	39.512	1.00	1.00	25.00	1440.00	0.000	0.000	1580.47	0.00	0.00
18	123.00	Low Profile Platform	1	35.446	38.991	1.00	1.00	25.00	1440.00	0.000	0.000	1559.64	0.00	0.00
19	123.00	DB-T1-6Z-8AB-0Z	2	35.446	38.991	0.72	0.80	6.91	45.36	0.000	0.000	431.21	0.00	0.00
20	123.00	RRH2x60-700	3	35.627	39.189	0.61	0.80	6.38	216.00	0.000	3.000	400.30	0.00	1200.89
21	123.00	RRH2X60-PCS	3	35.446	38.991	0.71	0.80	4.70	198.00	0.000	0.000	293.16	0.00	0.00
22	123.00	LPA-80063/6CF	6	35.446	38.991	0.75	0.80	43.32	194.40	0.000	0.000	2702.25	0.00	0.00
23	123.00	SBNHH-1D65B	9	35.446	38.991	0.66	0.80	48.29	438.48	0.000	0.000	3012.36	0.00	0.00
24	123.00	B66 4X45 AWS	3	35.446	38.991	0.64	0.80	4.99	230.40	0.000	0.000	311.43	0.00	0.00
25	105.00	Standoff	1	34.285	37.714	1.00	1.00	2.63	48.00	0.000	0.000	158.70	0.00	0.00
26	105.00	10' Omni	1	34.623	38.085	1.00	1.00	3.00	30.00	0.000	5.000	182.81	0.00	914.04
27	95.00	LGP17201	6	33.570	36.927	0.80	0.80	9.36	223.20	0.000	0.000	553.02	0.00	0.00
28	95.00	RRUS-12	3	33.570	36.927	0.54	0.80	5.07	216.00	0.000	0.000	299.27	0.00	0.00
29	95.00	RRUS-11	3	33.570	36.927	0.54	0.80	7.21	198.00	0.000	0.000	426.20	0.00	0.00
30	95.00	LGP21901	6	33.570	36.927	0.60	0.80	0.83	39.60	0.000	0.000	48.92	0.00	0.00
31	95.00	SBNH-1D65A	2	33.570	36.927	0.72	0.80	7.75	92.16	0.000	0.000	457.73	0.00	0.00
32	95.00	AM-X-CW-16-65-00T-RET	2	33.570	36.927	0.60	0.80	9.62	100.32	0.000	0.000	568.62	0.00	0.00
33	95.00	7770	3	33.570	36.927	0.58	0.80	9.64	126.00	0.000	0.000	569.33	0.00	0.00
34	95.00	HPA-65R-BUU-H6	4	33.570	36.927	0.72	0.80	27.82	244.80	0.000	0.000	1643.76	0.00	0.00
35	95.00	RRUS-A2	3	33.570	36.927	0.50	0.80	2.77	76.32	0.000	0.000	163.52	0.00	0.00
36	95.00	RRUS-32	3	33.570	36.927	0.70	0.80	8.08	277.20	0.000	0.000	477.43	0.00	0.00
37	95.00	RRUS-E2	3	33.570	36.927	0.56	0.80	4.72	206.28	0.000	0.000	278.92	0.00	0.00
38	95.00	1000860	3	33.570	36.927	1.00	1.00	0.18	7.20	0.000	0.000	10.64	0.00	0.00
39	95.00	Raycap/Squid	2	33.570	36.927	0.72	0.80	2.12	76.32	0.000	0.000	125.07	0.00	0.00
40	95.00	Sector Frame	3	33.570	36.927	0.56	0.75	29.53	1800.00	0.000	0.000	1744.82	0.00	0.00
41	95.00	800 10764	1	33.570	36.927	0.60	0.80	3.53	48.96	0.000	0.000	208.45	0.00	0.00
42	95.00	4426 B66	3	33.570	36.927	0.58	0.80	2.01	174.60	0.000	0.000	119.04	0.00	0.00
43	70.00	Standoff	1	31.480	34.628	1.00	1.00	2.63	48.00	0.000	0.000	145.71	0.00	0.00
44	70.00	GPS	1	31.480	34.628	1.00	1.00	1.00	12.00	0.000	0.000	55.40	0.00	0.00

Totals: 12,127.10

27,374.68

Total Applied Force Summary

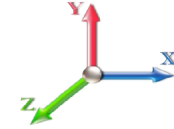
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		655.07	1731.70	0.00	0.00
10.00		641.46	1701.72	0.00	0.00
15.00		627.85	1671.74	0.00	0.00
20.00		651.74	1641.77	0.00	0.00
21.00		129.94	324.76	0.00	0.00
25.00		544.80	2172.16	0.00	0.00
27.75		399.81	1472.96	0.00	0.00
28.00		36.25	133.08	0.00	0.00
30.00		292.09	549.69	0.00	0.00
35.00		746.34	1356.75	0.00	0.00
40.00		755.92	1331.77	0.00	0.00
40.75		112.82	197.61	0.00	0.00
45.00		640.02	1109.17	0.00	0.00
50.00		715.35	1281.80	0.00	0.00
55.00		717.34	1256.82	0.00	0.00
60.00		717.86	1231.84	0.00	0.00
65.00		717.11	1206.86	0.00	0.00
70.00	(2) attachments	926.51	2138.61	0.00	0.00
71.00		143.94	409.73	0.00	0.00
75.00		574.21	933.64	0.00	0.00
80.00		715.40	1144.57	0.00	0.00
85.00		710.89	1119.59	0.00	0.00
90.00		705.62	1094.61	0.00	0.00
95.00	(50) attachments	8394.41	4976.58	0.00	0.00
100.00		610.91	959.44	0.00	0.00
105.00	(2) attachments	938.25	1012.46	0.00	914.04
110.00		581.94	908.52	0.00	0.00
115.00		575.01	1430.17	0.00	0.00
120.00		559.12	738.28	0.00	0.00
123.00	(27) attachments	9037.42	3196.02	0.00	1200.89
125.00		214.54	239.71	0.00	0.00
130.00		525.80	585.27	0.00	0.00
131.00	(18) attachments	5195.63	2943.68	0.00	0.00
135.00		405.00	385.74	0.00	0.00
140.00		490.57	464.18	0.00	0.00
145.00		472.29	444.20	0.00	0.00
150.00		453.61	424.21	0.00	0.00
153.00	(24) attachments	5596.74	2735.41	0.00	0.00
Totals:		46,929.57	48,656.84	0.00	2,114.92

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	22.791	0.00	1.64
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.091	0.000	22.791	0.00	74.88
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	22.791	0.00	0.72
5.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.091	0.000	22.791	0.00	9.60
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	22.791	0.00	1.64
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.093	0.000	22.791	0.00	74.88
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	22.791	0.00	0.72
10.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.093	0.000	22.791	0.00	9.60
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	22.791	0.00	1.64
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.095	0.000	22.791	0.00	74.88
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	22.791	0.00	0.72
15.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.095	0.000	22.791	0.00	9.60
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	24.182	0.00	1.64
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.097	0.000	24.182	0.00	74.88
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	24.182	0.00	0.72
20.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.097	0.000	24.182	0.00	9.60
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	24.432	0.00	0.33
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.098	0.000	24.432	0.00	14.98
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	24.432	0.00	0.14
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.098	0.000	24.432	0.00	1.92
25.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	25.345	0.00	1.31
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.103	1.010	25.345	0.00	59.90
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	25.345	0.00	0.58
25.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.103	1.010	25.345	0.00	7.68
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.103	1.010	25.345	0.00	0.00
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	25.908	0.00	0.90
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	0.91	0.00	0.124	1.071	25.908	0.00	41.18
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	25.908	0.00	0.40
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.17	0.00	0.124	1.071	25.908	0.00	5.28
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.29	0.00	0.124	1.071	25.908	0.00	0.00
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	25.957	0.00	0.08
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.125	1.074	25.957	0.00	3.74
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	25.957	0.00	0.04
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.02	0.00	0.125	1.074	25.957	0.00	0.48
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.03	0.00	0.125	1.074	25.957	0.00	0.00
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	26.337	0.00	0.66
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	0.66	0.00	0.124	1.071	26.337	0.00	29.95
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	26.337	0.00	0.29
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.13	0.00	0.124	1.071	26.337	0.00	3.84
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.21	0.00	0.124	1.071	26.337	0.00	0.00
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	27.206	0.00	1.64
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.126	1.077	27.206	0.00	74.88
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	27.206	0.00	0.72
35.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.126	1.077	27.206	0.00	9.60
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.126	1.077	27.206	0.00	0.00
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	27.981	0.00	1.64
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.129	1.086	27.981	0.00	74.88

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	27.981	0.00	0.72
40.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.129	1.086	27.981	0.00	9.60
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.129	1.086	27.981	0.00	0.00
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	28.091	0.00	0.25
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.25	0.00	0.131	1.092	28.091	0.00	11.23
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	28.091	0.00	0.11
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.05	0.00	0.131	1.092	28.091	0.00	1.44
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.131	1.092	28.091	0.00	0.00
45.00	Safety Cable	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	28.684	0.00	1.39
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	1.40	0.00	0.128	1.084	28.684	0.00	63.65
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	28.684	0.00	0.61
45.00	3/4" DC	Yes	4.25	0.000	0.75	0.27	0.00	0.128	1.084	28.684	0.00	8.16
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	0.36	0.00	0.128	1.084	28.684	0.00	0.00
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	29.327	0.00	1.64
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.110	1.030	29.327	0.00	74.88
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	29.327	0.00	0.72
50.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.110	1.030	29.327	0.00	9.60
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	29.922	0.00	1.64
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.113	1.039	29.922	0.00	74.88
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	29.922	0.00	0.72
55.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.113	1.039	29.922	0.00	9.60
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	30.475	0.00	1.64
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.116	1.048	30.475	0.00	74.88
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	30.475	0.00	0.72
60.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.116	1.048	30.475	0.00	9.60
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	30.993	0.00	1.64
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.119	1.058	30.993	0.00	74.88
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	30.993	0.00	0.72
65.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.119	1.058	30.993	0.00	9.60
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	31.480	0.00	1.64
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.123	1.068	31.480	0.00	74.88
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	31.480	0.00	0.72
70.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.123	1.068	31.480	0.00	9.60
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	31.574	0.00	0.33
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.125	1.074	31.574	0.00	14.98
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	31.574	0.00	0.14
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.125	1.074	31.574	0.00	1.92
75.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	31.941	0.00	1.31
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.125	1.074	31.941	0.00	59.90
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	31.941	0.00	0.58
75.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.125	1.074	31.941	0.00	7.68
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	32.377	0.00	1.64
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.128	1.084	32.377	0.00	74.88
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	32.377	0.00	0.72
80.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.128	1.084	32.377	0.00	9.60
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	32.793	0.00	1.64
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.132	1.095	32.793	0.00	74.88

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

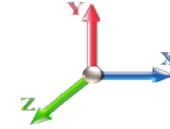


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Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	32.793	0.00	0.72
85.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.132	1.095	32.793	0.00	9.60
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	33.190	0.00	1.64
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.136	1.107	33.190	0.00	74.88
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	33.190	0.00	0.72
90.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.136	1.107	33.190	0.00	9.60
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	33.570	0.00	1.64
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.140	1.121	33.570	0.00	74.88
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	33.570	0.00	0.72
95.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.140	1.121	33.570	0.00	9.60
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	33.935	0.00	1.64
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	34.285	0.00	1.64
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	34.623	0.00	1.64
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	34.948	0.00	1.64
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	35.263	0.00	1.64
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.012	0.000	35.446	0.00	0.98
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.012	0.000	35.567	0.00	0.66
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	35.862	0.00	1.64
131.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.013	0.000	35.920	0.00	0.33
135.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.013	0.000	36.148	0.00	1.31
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	36.426	0.00	1.64
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	36.696	0.00	1.64
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	36.959	0.00	1.64
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.015	0.000	37.113	0.00	0.98
Totals:											0.0	1,668.9

Calculated Forces

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

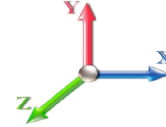


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Load Case: 1.2D + 1.6W 105 mph Wind

Iterations 22

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-48.57	-47.02	0.00	-4922.4	0.00	4922.43	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.909
5.00	-46.66	-46.54	0.00	-4687.3	0.00	4687.33	4413.36	2206.68	10604.1	5309.95	0.12	-0.214	0.000	0.894
10.00	-44.79	-46.06	0.00	-4454.6	0.00	4454.63	4361.89	2180.94	10257.6	5136.44	0.46	-0.432	0.000	0.878
15.00	-42.95	-45.58	0.00	-4224.3	0.00	4224.33	4308.61	2154.31	9912.23	4963.48	1.03	-0.651	0.000	0.861
20.00	-41.21	-45.00	0.00	-3996.4	0.00	3996.43	4253.53	2126.77	9568.22	4791.22	1.83	-0.874	0.000	0.844
21.00	-40.80	-44.95	0.00	-3951.4	0.00	3951.42	4242.30	2121.15	9499.61	4756.87	2.02	-0.920	0.000	0.841
25.00	-38.52	-44.47	0.00	-3771.6	0.00	3771.62	4196.65	2098.33	9225.87	4619.79	2.87	-1.101	0.000	0.826
27.75	-37.00	-44.08	0.00	-3649.3	0.00	3649.33	4164.60	2082.30	9038.39	4525.91	3.54	-1.227	0.000	0.538
28.00	-36.84	-44.07	0.00	-3638.3	0.00	3638.31	4213.57	1606.78	7065.87	3538.19	3.61	-1.235	0.000	0.594
30.00	-36.21	-43.84	0.00	-3550.1	0.00	3550.17	3199.34	1599.67	6969.21	3489.78	4.14	-1.296	0.000	0.642
35.00	-34.75	-43.16	0.00	-3331.0	0.00	3331.00	3162.51	1581.26	6727.41	3368.71	5.58	-1.460	0.000	0.618
40.00	-33.37	-42.42	0.00	-3115.2	0.00	3115.23	3123.88	1561.94	6485.64	3247.64	7.20	-1.624	0.000	0.594
40.75	-33.11	-42.35	0.00	-3083.4	0.00	3083.41	3117.93	1558.96	6449.39	3229.49	7.46	-1.649	0.000	0.590
40.75	-33.11	-42.35	0.00	-3083.4	0.00	3083.41	3117.93	1558.96	6449.39	3229.49	7.46	-1.649	0.000	0.590
45.00	-31.88	-41.79	0.00	-2903.4	0.00	2903.43	3083.44	1541.72	6244.17	3126.72	8.99	-1.788	0.000	0.940
50.00	-30.43	-41.17	0.00	-2694.4	0.00	2694.49	3041.20	1520.60	6003.26	3006.09	11.01	-2.055	0.000	0.907
55.00	-29.01	-40.54	0.00	-2488.6	0.00	2488.63	2997.16	1498.58	5763.21	2885.89	13.30	-2.321	0.000	0.873
60.00	-27.63	-39.90	0.00	-2285.9	0.00	2285.91	2951.32	1475.66	5524.28	2766.24	15.88	-2.587	0.000	0.836
65.00	-26.28	-39.25	0.00	-2086.4	0.00	2086.41	2903.67	1451.83	5286.75	2647.30	18.73	-2.850	0.000	0.798
70.00	-24.09	-38.28	0.00	-1890.1	0.00	1890.17	2854.22	1427.11	5050.90	2529.20	21.85	-3.110	0.000	0.756
71.00	-23.60	-38.17	0.00	-1851.8	0.00	1851.89	2869.57	1434.79	5123.02	2565.32	22.51	-3.163	0.000	0.731
75.00	-22.55	-37.63	0.00	-1699.2	0.00	1699.24	2829.16	1414.58	4935.24	2471.29	25.25	-3.369	0.000	0.696
80.00	-21.30	-36.93	0.00	-1511.1	0.00	1511.11	2777.01	1388.51	4702.41	2354.70	28.91	-3.608	0.000	0.650
85.00	-20.09	-36.23	0.00	-1326.4	0.00	1326.46	2723.06	1361.53	4471.94	2239.29	32.81	-3.838	0.000	0.600
90.00	-18.91	-35.52	0.00	-1145.3	0.00	1145.33	2667.31	1333.66	4244.12	2125.22	36.95	-4.058	0.000	0.547
95.00	-14.47	-26.84	0.00	-967.74	0.00	967.74	2609.76	1304.88	4019.22	2012.60	41.31	-4.264	0.000	0.487
100.00	-13.47	-26.20	0.00	-833.56	0.00	833.56	2550.40	1275.20	3797.52	1901.58	45.87	-4.458	0.000	0.444
105.00	-12.46	-25.22	0.00	-701.66	0.00	701.66	2489.24	1244.62	3579.29	1792.30	50.64	-4.641	0.000	0.397
110.00	-11.53	-24.60	0.00	-575.56	0.00	575.56	2426.28	1213.14	3364.80	1684.90	55.59	-4.809	0.000	0.347
115.00	-10.10	-23.93	0.00	-452.58	0.00	452.58	1783.00	891.50	2427.68	1215.65	60.70	-4.961	0.000	0.379
120.00	-9.37	-23.32	0.00	-332.94	0.00	332.94	1739.91	869.95	2280.12	1141.75	65.96	-5.090	0.000	0.298
123.00	-6.98	-14.04	0.00	-261.77	0.00	261.77	1713.19	856.59	2192.59	1097.92	69.19	-5.168	0.000	0.243
125.00	-6.74	-13.82	0.00	-233.68	0.00	233.68	1695.01	847.51	2134.69	1068.93	71.36	-5.214	0.000	0.223
130.00	-6.20	-13.25	0.00	-164.60	0.00	164.60	1648.31	824.16	1991.67	997.31	76.87	-5.312	0.000	0.169
131.00	-3.74	-7.80	0.00	-151.36	0.00	151.36	1638.75	819.38	1963.38	983.15	77.98	-5.330	0.000	0.156
135.00	-3.39	-7.37	0.00	-120.15	0.00	120.15	1599.81	799.90	1851.33	927.04	82.47	-5.392	0.000	0.132
140.00	-2.96	-6.84	0.00	-83.32	0.00	83.32	1549.50	774.75	1713.96	858.25	88.14	-5.457	0.000	0.099
145.00	-2.56	-6.33	0.00	-49.13	0.00	49.13	1497.39	748.69	1579.82	791.09	93.88	-5.504	0.000	0.064
150.00	-2.18	-5.83	0.00	-17.50	0.00	17.50	1443.48	721.74	1449.20	725.68	99.65	-5.532	0.000	0.026
150.00	-2.18	-5.83	0.00	-17.50	0.00	17.50	1443.48	721.74	1449.20	725.68	99.65	-5.532	0.000	0.026
153.00	0.00	-5.60	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	103.12	-5.537	0.000	0.000

Wind Loading - Shaft

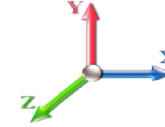
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.791	25.07	491.49	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.791	25.07	481.39	0.650	0.000	5.00	25.125	16.33	655.1	0.0	1075.4
10.00		1.00	0.85	22.791	25.07	471.28	0.650	0.000	5.00	24.603	15.99	641.5	0.0	1052.9
15.00		1.00	0.85	22.791	25.07	461.18	0.650	0.000	5.00	24.081	15.65	627.9	0.0	1030.5
20.00		1.00	0.90	24.182	26.60	464.63	0.650	0.000	5.00	23.559	15.31	651.7	0.0	1008.0
21.00	Bot - Section 2	1.00	0.91	24.432	26.87	464.93	0.650	0.000	1.00	4.649	3.02	129.9	0.0	198.9
25.00		1.00	0.95	25.345	27.88	465.02	0.657 *	0.000	4.00	18.599	12.21	544.8	0.0	1450.4
27.75	RB1	1.00	0.97	25.908	28.50	464.23	0.696 *	0.000	2.75	12.593	8.77	399.8	0.0	981.9
28.00	Top - Section 1	1.00	0.97	25.957	28.55	464.13	0.698 *	0.000	0.25	1.137	0.79	36.3	0.0	88.6
30.00		1.00	0.98	26.337	28.97	468.67	0.696 *	0.000	2.00	9.049	6.30	292.1	0.0	322.9
35.00		1.00	1.01	27.206	29.93	465.30	0.700 *	0.000	5.00	22.257	15.59	746.3	0.0	794.2
40.00		1.00	1.04	27.981	30.78	460.69	0.706 *	0.000	5.00	21.735	15.35	755.9	0.0	775.5
40.75	RT1	1.00	1.05	28.091	30.90	459.90	0.710 *	0.000	0.75	3.215	2.28	112.8	0.0	114.7
45.00		1.00	1.07	28.684	31.55	455.10	0.704 *	0.000	4.25	17.998	12.68	640.0	0.0	642.0
50.00		1.00	1.09	29.327	32.26	448.71	0.670 *	0.000	5.00	20.692	13.86	715.3	0.0	738.0
55.00		1.00	1.12	29.922	32.91	441.65	0.675 *	0.000	5.00	20.170	13.62	717.3	0.0	719.3
60.00		1.00	1.14	30.475	33.52	434.03	0.681 *	0.000	5.00	19.648	13.38	717.9	0.0	700.5
65.00	Bot - Section 3	1.00	1.16	30.993	34.09	425.92	0.687 *	0.000	5.00	19.126	13.15	717.1	0.0	681.8
70.00	Appurtenance(s)	1.00	1.17	31.480	34.63	417.38	0.694 *	0.000	5.00	18.868	13.09	725.4	0.0	1335.6
71.00	Top - Section 2	1.00	1.18	31.574	34.73	415.62	0.698 *	0.000	1.00	3.711	2.59	143.9	0.0	262.6
75.00		1.00	1.19	31.941	35.13	414.52	0.698 *	0.000	4.00	14.635	10.21	574.2	0.0	521.6
80.00		1.00	1.21	32.377	35.62	405.30	0.704 *	0.000	5.00	17.824	12.55	715.4	0.0	635.1
85.00		1.00	1.22	32.793	36.07	395.77	0.712 *	0.000	5.00	17.302	12.32	710.9	0.0	616.3
90.00		1.00	1.24	33.190	36.51	385.96	0.720 *	0.000	5.00	16.780	12.08	705.6	0.0	597.6
95.00	Appurtenance(s)	1.00	1.25	33.570	36.93	375.90	0.728 *	0.000	5.00	16.258	11.84	699.7	0.0	578.9
100.00		1.00	1.27	33.935	37.33	365.61	0.650	0.000	5.00	15.736	10.23	610.9	0.0	560.1
105.00	Appurtenance(s)	1.00	1.28	34.285	37.71	355.09	0.650	0.000	5.00	15.214	9.89	596.7	0.0	541.4
110.00	Bot - Section 4	1.00	1.29	34.623	38.08	344.38	0.650	0.000	5.00	14.693	9.55	581.9	0.0	522.7
115.00	Top - Section 3	1.00	1.30	34.948	38.44	333.48	0.650	0.000	5.00	14.382	9.35	575.0	0.0	913.9
120.00		1.00	1.32	35.263	38.79	327.50	0.650	0.000	5.00	13.860	9.01	559.1	0.0	395.0
123.00	Appurtenance(s)	1.00	1.32	35.446	38.99	320.80	0.650	0.000	3.00	8.066	5.24	327.1	0.0	229.8
125.00		1.00	1.33	35.567	39.12	316.29	0.650	0.000	2.00	5.273	3.43	214.5	0.0	150.2
130.00		1.00	1.34	35.862	39.45	304.92	0.650	0.000	5.00	12.816	8.33	525.8	0.0	365.0
131.00	Appurtenance(s)	1.00	1.34	35.920	39.51	302.63	0.650	0.000	1.00	2.501	1.63	102.8	0.0	71.2
135.00		1.00	1.35	36.148	39.76	293.41	0.650	0.000	4.00	9.794	6.37	405.0	0.0	278.8
140.00		1.00	1.36	36.426	40.07	281.76	0.650	0.000	5.00	11.772	7.65	490.6	0.0	335.0
145.00		1.00	1.37	36.696	40.37	269.98	0.650	0.000	5.00	11.250	7.31	472.3	0.0	320.0
150.00	Top - Section 4	1.00	1.38	36.959	40.65	258.08	0.650	0.000	5.00	10.728	6.97	453.6	0.0	305.1
153.00	Appurtenance(s)	1.00	1.38	37.113	40.82	250.88	0.650	0.000	3.00	6.187	4.02	262.7	0.0	175.8
Totals:									153.00			19,554.9		22,087.4

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

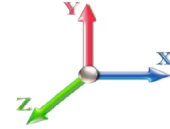
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

7/9/2019
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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRUs	3	37.113	40.824	0.83	0.90	6.19	143.10	0.000	0.000	404.01	0.00	0.00
2	153.00	APXVTM14-C-I20	3	37.113	40.824	0.71	0.90	13.52	151.20	0.000	0.000	883.32	0.00	0.00
3	153.00	APXVSP18-C-A20	3	37.113	40.824	0.75	0.90	17.97	153.90	0.000	0.000	1173.97	0.00	0.00
4	153.00	1900 MHz RRUs	3	37.113	40.824	0.79	0.90	9.03	118.80	0.000	0.000	589.75	0.00	0.00
5	153.00	Lightning Rod	1	37.113	40.824	1.00	1.00	0.50	4.50	0.000	0.000	32.66	0.00	0.00
6	153.00	800 MHz Filters	3	37.113	40.824	0.62	0.90	1.45	23.76	0.000	0.000	94.92	0.00	0.00
7	153.00	ACU-A20-N	4	37.113	40.824	0.81	0.90	0.45	3.60	0.000	0.000	29.63	0.00	0.00
8	153.00	TD-RRH8x20-25	3	37.113	40.824	0.62	0.90	7.55	189.00	0.000	0.000	492.84	0.00	0.00
9	153.00	Low Profile Platform	1	37.113	40.824	1.00	1.00	25.00	1080.00	0.000	0.000	1632.98	0.00	0.00
10	131.00	KRY 112 489/2	3	35.920	39.512	0.50	0.75	1.06	43.47	0.000	0.000	66.71	0.00	0.00
11	131.00	KRY 112 144/1	3	35.920	39.512	0.50	0.75	0.62	29.70	0.000	0.000	39.07	0.00	0.00
12	131.00	4449	3	35.920	39.512	0.50	0.75	2.49	189.00	0.000	0.000	157.25	0.00	0.00
13	131.00	APXVAARR24_43-U-NA2	3	35.920	39.512	0.52	0.75	31.88	345.60	0.000	0.000	2015.29	0.00	0.00
14	131.00	RR90-17-02DP	3	35.920	39.512	0.51	0.75	6.67	36.45	0.000	0.000	421.72	0.00	0.00
15	131.00	HRK12 (Handrail Kit)	1	35.920	39.512	1.00	1.00	6.75	235.55	0.000	0.000	426.73	0.00	0.00
16	131.00	(3) Stabilizer Kit (12' FW)	1	35.920	39.512	1.00	1.00	6.10	162.00	0.000	0.000	385.63	0.00	0.00
17	131.00	Low Profile Platform	1	35.920	39.512	1.00	1.00	25.00	1080.00	0.000	0.000	1580.47	0.00	0.00
18	123.00	Low Profile Platform	1	35.446	38.991	1.00	1.00	25.00	1080.00	0.000	0.000	1559.64	0.00	0.00
19	123.00	DB-T1-6Z-8AB-0Z	2	35.446	38.991	0.72	0.80	6.91	34.02	0.000	0.000	431.21	0.00	0.00
20	123.00	RRH2x60-700	3	35.627	39.189	0.61	0.80	6.38	162.00	0.000	3.000	400.30	0.00	1200.89
21	123.00	RRH2X60-PCS	3	35.446	38.991	0.71	0.80	4.70	148.50	0.000	0.000	293.16	0.00	0.00
22	123.00	LPA-80063/6CF	6	35.446	38.991	0.75	0.80	43.32	145.80	0.000	0.000	2702.25	0.00	0.00
23	123.00	SBNHH-1D65B	9	35.446	38.991	0.66	0.80	48.29	328.86	0.000	0.000	3012.36	0.00	0.00
24	123.00	B66 4X45 AWS	3	35.446	38.991	0.64	0.80	4.99	172.80	0.000	0.000	311.43	0.00	0.00
25	105.00	Standoff	1	34.285	37.714	1.00	1.00	2.63	36.00	0.000	0.000	158.70	0.00	0.00
26	105.00	10' Omni	1	34.623	38.085	1.00	1.00	3.00	22.50	0.000	5.000	182.81	0.00	914.04
27	95.00	LGP17201	6	33.570	36.927	0.80	0.80	9.36	167.40	0.000	0.000	553.02	0.00	0.00
28	95.00	RRUS-12	3	33.570	36.927	0.54	0.80	5.07	162.00	0.000	0.000	299.27	0.00	0.00
29	95.00	RRUS-11	3	33.570	36.927	0.54	0.80	7.21	148.50	0.000	0.000	426.20	0.00	0.00
30	95.00	LGP21901	6	33.570	36.927	0.60	0.80	0.83	29.70	0.000	0.000	48.92	0.00	0.00
31	95.00	SBNH-1D65A	2	33.570	36.927	0.72	0.80	7.75	69.12	0.000	0.000	457.73	0.00	0.00
32	95.00	AM-X-CW-16-65-00T-RET	2	33.570	36.927	0.60	0.80	9.62	75.24	0.000	0.000	568.62	0.00	0.00
33	95.00	7770	3	33.570	36.927	0.58	0.80	9.64	94.50	0.000	0.000	569.33	0.00	0.00
34	95.00	HPA-65R-BUU-H6	4	33.570	36.927	0.72	0.80	27.82	183.60	0.000	0.000	1643.76	0.00	0.00
35	95.00	RRUS-A2	3	33.570	36.927	0.50	0.80	2.77	57.24	0.000	0.000	163.52	0.00	0.00
36	95.00	RRUS-32	3	33.570	36.927	0.70	0.80	8.08	207.90	0.000	0.000	477.43	0.00	0.00
37	95.00	RRUS-E2	3	33.570	36.927	0.56	0.80	4.72	154.71	0.000	0.000	278.92	0.00	0.00
38	95.00	1000860	3	33.570	36.927	1.00	1.00	0.18	5.40	0.000	0.000	10.64	0.00	0.00
39	95.00	Raycap/Squid	2	33.570	36.927	0.72	0.80	2.12	57.24	0.000	0.000	125.07	0.00	0.00
40	95.00	Sector Frame	3	33.570	36.927	0.56	0.75	29.53	1350.00	0.000	0.000	1744.82	0.00	0.00
41	95.00	800 10764	1	33.570	36.927	0.60	0.80	3.53	36.72	0.000	0.000	208.45	0.00	0.00
42	95.00	4426 B66	3	33.570	36.927	0.58	0.80	2.01	130.95	0.000	0.000	119.04	0.00	0.00
43	70.00	Standoff	1	31.480	34.628	1.00	1.00	2.63	36.00	0.000	0.000	145.71	0.00	0.00
44	70.00	GPS	1	31.480	34.628	1.00	1.00	1.00	9.00	0.000	0.000	55.40	0.00	0.00

Totals: 9,095.33

27,374.68

Total Applied Force Summary

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II

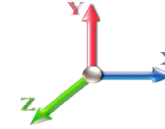


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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		655.07	1298.78	0.00	0.00
10.00		641.46	1276.29	0.00	0.00
15.00		627.85	1253.81	0.00	0.00
20.00		651.74	1231.32	0.00	0.00
21.00		129.94	243.57	0.00	0.00
25.00		544.80	1629.12	0.00	0.00
27.75		399.81	1104.72	0.00	0.00
28.00		36.25	99.81	0.00	0.00
30.00		292.09	412.27	0.00	0.00
35.00		746.34	1017.56	0.00	0.00
40.00		755.92	998.82	0.00	0.00
40.75		112.82	148.21	0.00	0.00
45.00		640.02	831.88	0.00	0.00
50.00		715.35	961.35	0.00	0.00
55.00		717.34	942.62	0.00	0.00
60.00		717.86	923.88	0.00	0.00
65.00		717.11	905.14	0.00	0.00
70.00	(2) attachments	926.51	1603.96	0.00	0.00
71.00		143.94	307.30	0.00	0.00
75.00		574.21	700.23	0.00	0.00
80.00		715.40	858.43	0.00	0.00
85.00		710.89	839.69	0.00	0.00
90.00		705.62	820.95	0.00	0.00
95.00	(50) attachments	8394.41	3732.44	0.00	0.00
100.00		610.91	719.58	0.00	0.00
105.00	(2) attachments	938.25	759.35	0.00	914.04
110.00		581.94	681.39	0.00	0.00
115.00		575.01	1072.63	0.00	0.00
120.00		559.12	553.71	0.00	0.00
123.00	(27) attachments	9037.42	2397.01	0.00	1200.89
125.00		214.54	179.78	0.00	0.00
130.00		525.80	438.96	0.00	0.00
131.00	(18) attachments	5195.63	2207.76	0.00	0.00
135.00		405.00	289.30	0.00	0.00
140.00		490.57	348.14	0.00	0.00
145.00		472.29	333.15	0.00	0.00
150.00		453.61	318.16	0.00	0.00
153.00	(24) attachments	5596.74	2051.56	0.00	0.00
Totals:		46,929.57	36,492.63	0.00	2,114.92

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	22.791	0.00	1.23
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.091	0.000	22.791	0.00	56.16
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	22.791	0.00	0.54
5.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.091	0.000	22.791	0.00	7.20
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	22.791	0.00	1.23
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.093	0.000	22.791	0.00	56.16
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	22.791	0.00	0.54
10.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.093	0.000	22.791	0.00	7.20
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	22.791	0.00	1.23
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.095	0.000	22.791	0.00	56.16
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	22.791	0.00	0.54
15.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.095	0.000	22.791	0.00	7.20
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	24.182	0.00	1.23
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.097	0.000	24.182	0.00	56.16
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	24.182	0.00	0.54
20.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.097	0.000	24.182	0.00	7.20
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	24.432	0.00	0.25
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.098	0.000	24.432	0.00	11.23
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	24.432	0.00	0.11
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.098	0.000	24.432	0.00	1.44
25.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	25.345	0.00	0.98
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.103	1.010	25.345	0.00	44.93
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	25.345	0.00	0.43
25.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.103	1.010	25.345	0.00	5.76
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.103	1.010	25.345	0.00	0.00
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	25.908	0.00	0.68
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	0.91	0.00	0.124	1.071	25.908	0.00	30.89
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	25.908	0.00	0.30
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.17	0.00	0.124	1.071	25.908	0.00	3.96
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.29	0.00	0.124	1.071	25.908	0.00	0.00
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	25.957	0.00	0.06
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.125	1.074	25.957	0.00	2.81
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	25.957	0.00	0.03
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.02	0.00	0.125	1.074	25.957	0.00	0.36
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.03	0.00	0.125	1.074	25.957	0.00	0.00
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	26.337	0.00	0.49
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	0.66	0.00	0.124	1.071	26.337	0.00	22.46
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	26.337	0.00	0.22
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.13	0.00	0.124	1.071	26.337	0.00	2.88
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.21	0.00	0.124	1.071	26.337	0.00	0.00
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	27.206	0.00	1.23
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.126	1.077	27.206	0.00	56.16
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	27.206	0.00	0.54
35.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.126	1.077	27.206	0.00	7.20
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.126	1.077	27.206	0.00	0.00
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	27.981	0.00	1.23
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.129	1.086	27.981	0.00	56.16

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	27.981	0.00	0.54
40.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.129	1.086	27.981	0.00	7.20
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.129	1.086	27.981	0.00	0.00
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	28.091	0.00	0.18
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.25	0.00	0.131	1.092	28.091	0.00	8.42
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	28.091	0.00	0.08
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.05	0.00	0.131	1.092	28.091	0.00	1.08
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.131	1.092	28.091	0.00	0.00
45.00	Safety Cable	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	28.684	0.00	1.04
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	1.40	0.00	0.128	1.084	28.684	0.00	47.74
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	28.684	0.00	0.46
45.00	3/4" DC	Yes	4.25	0.000	0.75	0.27	0.00	0.128	1.084	28.684	0.00	6.12
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	0.36	0.00	0.128	1.084	28.684	0.00	0.00
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	29.327	0.00	1.23
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.110	1.030	29.327	0.00	56.16
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	29.327	0.00	0.54
50.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.110	1.030	29.327	0.00	7.20
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	29.922	0.00	1.23
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.113	1.039	29.922	0.00	56.16
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	29.922	0.00	0.54
55.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.113	1.039	29.922	0.00	7.20
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	30.475	0.00	1.23
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.116	1.048	30.475	0.00	56.16
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	30.475	0.00	0.54
60.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.116	1.048	30.475	0.00	7.20
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	30.993	0.00	1.23
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.119	1.058	30.993	0.00	56.16
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	30.993	0.00	0.54
65.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.119	1.058	30.993	0.00	7.20
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	31.480	0.00	1.23
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.123	1.068	31.480	0.00	56.16
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	31.480	0.00	0.54
70.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.123	1.068	31.480	0.00	7.20
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	31.574	0.00	0.25
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.125	1.074	31.574	0.00	11.23
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	31.574	0.00	0.11
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.125	1.074	31.574	0.00	1.44
75.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	31.941	0.00	0.98
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.125	1.074	31.941	0.00	44.93
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	31.941	0.00	0.43
75.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.125	1.074	31.941	0.00	5.76
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	32.377	0.00	1.23
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.128	1.084	32.377	0.00	56.16
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	32.377	0.00	0.54
80.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.128	1.084	32.377	0.00	7.20
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	32.793	0.00	1.23
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.132	1.095	32.793	0.00	56.16

Linear Appurtenance Segment Forces (Factored)

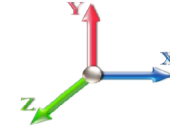
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	32.793	0.00	0.54
85.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.132	1.095	32.793	0.00	7.20
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	33.190	0.00	1.23
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.136	1.107	33.190	0.00	56.16
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	33.190	0.00	0.54
90.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.136	1.107	33.190	0.00	7.20
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	33.570	0.00	1.23
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.140	1.121	33.570	0.00	56.16
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	33.570	0.00	0.54
95.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.140	1.121	33.570	0.00	7.20
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	33.935	0.00	1.23
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	34.285	0.00	1.23
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	34.623	0.00	1.23
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	34.948	0.00	1.23
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	35.263	0.00	1.23
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.012	0.000	35.446	0.00	0.74
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.012	0.000	35.567	0.00	0.49
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	35.862	0.00	1.23
131.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.013	0.000	35.920	0.00	0.25
135.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.013	0.000	36.148	0.00	0.98
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	36.426	0.00	1.23
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	36.696	0.00	1.23
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	36.959	0.00	1.23
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.015	0.000	37.113	0.00	0.74
Totals:											0.0	1,251.7

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

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

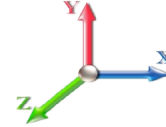
7/9/2019
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Load Case: 0.9D + 1.6W 105 mph Wind

Iterations 22

Dead Load Factor 0.90
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.40	-47.00	0.00	-4885.0	0.00	4885.06	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.899
5.00	-34.93	-46.47	0.00	-4650.0	0.00	4650.08	4413.36	2206.68	10604.1	5309.95	0.12	-0.213	0.000	0.884
10.00	-33.49	-45.95	0.00	-4417.7	0.00	4417.72	4361.89	2180.94	10257.6	5136.44	0.45	-0.428	0.000	0.868
15.00	-32.06	-45.43	0.00	-4187.9	0.00	4187.97	4308.61	2154.31	9912.23	4963.48	1.02	-0.646	0.000	0.852
20.00	-30.74	-44.84	0.00	-3960.8	0.00	3960.81	4253.53	2126.77	9568.22	4791.22	1.82	-0.867	0.000	0.834
21.00	-30.41	-44.76	0.00	-3915.9	0.00	3915.97	4242.30	2121.15	9499.61	4756.87	2.00	-0.912	0.000	0.831
25.00	-28.67	-44.27	0.00	-3736.9	0.00	3736.93	4196.65	2098.33	9225.87	4619.79	2.85	-1.092	0.000	0.816
27.75	-27.53	-43.88	0.00	-3615.2	0.00	3615.20	4164.60	2082.30	9038.39	4525.91	3.51	-1.217	0.000	0.531
28.00	-27.40	-43.85	0.00	-3604.2	0.00	3604.23	4213.57	1606.78	7065.87	3538.19	3.58	-1.224	0.000	0.587
30.00	-26.91	-43.61	0.00	-3516.5	0.00	3516.52	3199.34	1599.67	6969.21	3489.78	4.10	-1.285	0.000	0.634
35.00	-25.79	-42.91	0.00	-3298.5	0.00	3298.50	3162.51	1581.26	6727.41	3368.71	5.54	-1.448	0.000	0.611
40.00	-24.74	-42.17	0.00	-3083.9	0.00	3083.96	3123.88	1561.94	6485.64	3247.64	7.14	-1.610	0.000	0.586
40.75	-24.54	-42.08	0.00	-3052.3	0.00	3052.34	3117.93	1558.96	6449.39	3229.49	7.40	-1.635	0.000	0.583
40.75	-24.54	-42.08	0.00	-3052.3	0.00	3052.34	3117.93	1558.96	6449.39	3229.49	7.40	-1.635	0.000	0.583
45.00	-23.58	-41.50	0.00	-2873.4	0.00	2873.49	3083.44	1541.72	6244.17	3126.72	8.91	-1.772	0.000	0.927
50.00	-22.45	-40.86	0.00	-2665.9	0.00	2665.97	3041.20	1520.60	6003.26	3006.09	10.91	-2.036	0.000	0.895
55.00	-21.35	-40.21	0.00	-2461.6	0.00	2461.68	2997.16	1498.58	5763.21	2885.89	13.19	-2.300	0.000	0.861
60.00	-20.28	-39.54	0.00	-2260.6	0.00	2260.65	2951.32	1475.66	5524.28	2766.24	15.74	-2.562	0.000	0.825
65.00	-19.23	-38.87	0.00	-2062.9	0.00	2062.95	2903.67	1451.83	5286.75	2647.30	18.56	-2.822	0.000	0.787
70.00	-17.58	-37.91	0.00	-1868.6	0.00	1868.60	2854.22	1427.11	5050.90	2529.20	21.66	-3.080	0.000	0.746
71.00	-17.19	-37.79	0.00	-1830.6	0.00	1830.69	2869.57	1434.79	5123.02	2565.32	22.31	-3.132	0.000	0.720
75.00	-16.38	-37.24	0.00	-1679.5	0.00	1679.53	2829.16	1414.58	4935.24	2471.29	25.02	-3.336	0.000	0.686
80.00	-15.42	-36.54	0.00	-1493.3	0.00	1493.34	2777.01	1388.51	4702.41	2354.70	28.64	-3.571	0.000	0.640
85.00	-14.49	-35.83	0.00	-1310.6	0.00	1310.67	2723.06	1361.53	4471.94	2239.29	32.50	-3.799	0.000	0.591
90.00	-13.59	-35.12	0.00	-1131.5	0.00	1131.53	2667.31	1333.66	4244.12	2125.22	36.60	-4.016	0.000	0.538
95.00	-10.38	-26.51	0.00	-955.93	0.00	955.93	2609.76	1304.88	4019.22	2012.60	40.91	-4.220	0.000	0.479
100.00	-9.63	-25.88	0.00	-823.37	0.00	823.37	2550.40	1275.20	3797.52	1901.58	45.43	-4.412	0.000	0.437
105.00	-8.87	-24.91	0.00	-693.05	0.00	693.05	2489.24	1244.62	3579.29	1792.30	50.15	-4.592	0.000	0.391
110.00	-8.17	-24.30	0.00	-568.48	0.00	568.48	2426.28	1213.14	3364.80	1684.90	55.05	-4.759	0.000	0.341
115.00	-7.09	-23.65	0.00	-446.98	0.00	446.98	1783.00	891.50	2427.68	1215.65	60.11	-4.908	0.000	0.372
120.00	-6.55	-23.06	0.00	-328.70	0.00	328.70	1739.91	869.95	2280.12	1141.75	65.31	-5.036	0.000	0.292
123.00	-4.95	-13.85	0.00	-258.32	0.00	258.32	1713.19	856.59	2192.59	1097.92	68.50	-5.113	0.000	0.238
125.00	-4.77	-13.63	0.00	-230.62	0.00	230.62	1695.01	847.51	2134.69	1068.93	70.65	-5.159	0.000	0.219
130.00	-4.37	-13.07	0.00	-162.47	0.00	162.47	1648.31	824.16	1991.67	997.31	76.10	-5.255	0.000	0.166
131.00	-2.64	-7.69	0.00	-149.40	0.00	149.40	1638.75	819.38	1963.38	983.15	77.20	-5.273	0.000	0.154
135.00	-2.38	-7.27	0.00	-118.62	0.00	118.62	1599.81	799.90	1851.33	927.04	81.64	-5.334	0.000	0.130
140.00	-2.07	-6.75	0.00	-82.29	0.00	82.29	1549.50	774.75	1713.96	858.25	87.25	-5.398	0.000	0.097
145.00	-1.78	-6.25	0.00	-48.54	0.00	48.54	1497.39	748.69	1579.82	791.09	92.93	-5.445	0.000	0.063
150.00	-1.51	-5.77	0.00	-17.30	0.00	17.30	1443.48	721.74	1449.20	725.68	98.64	-5.472	0.000	0.025
150.00	-1.51	-5.77	0.00	-17.30	0.00	17.30	1443.48	721.74	1449.20	725.68	98.64	-5.472	0.000	0.025
153.00	0.00	-5.60	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	102.07	-5.477	0.000	0.000

Wind Loading - Shaft

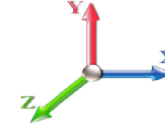
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	3.308	3.64	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	3.308	3.64	0.00	1.200	1.242	5.00	26.160	31.39	114.2	466.9	1900.8
10.00		1.00	0.85	3.308	3.64	0.00	1.200	1.331	5.00	25.712	30.85	112.3	490.9	1894.8
15.00		1.00	0.85	3.308	3.64	0.00	1.200	1.386	5.00	25.236	30.28	110.2	500.9	1874.9
20.00		1.00	0.90	3.509	3.86	0.00	1.200	1.427	5.00	24.748	29.70	114.6	504.9	1848.9
21.00	Bot - Section 2	1.00	0.91	3.546	3.90	0.00	1.200	1.434	1.00	4.888	5.87	22.9	101.0	366.2
25.00		1.00	0.95	3.678	4.05	0.00	1.212 *	1.459	4.00	19.572	23.73	96.0	408.8	2342.7
27.75	RB1	1.00	0.97	3.760	4.14	0.00	1.285 *	1.474	2.75	13.269	17.06	70.5	280.6	1589.8
28.00	Top - Section 1	1.00	0.97	3.767	4.14	0.00	1.288 *	1.476	0.25	1.198	1.54	6.4	25.5	143.7
30.00		1.00	0.98	3.822	4.20	0.00	1.286 *	1.486	2.00	9.544	12.27	51.6	203.7	634.2
35.00		1.00	1.01	3.948	4.34	0.00	1.293 *	1.509	5.00	23.515	30.40	132.0	505.6	1564.6
40.00		1.00	1.04	4.061	4.47	0.00	1.304 *	1.529	5.00	23.010	30.00	134.0	500.8	1534.8
40.75	RT1	1.00	1.05	4.077	4.48	0.00	1.310 *	1.532	0.75	3.407	4.46	20.0	75.0	227.9
45.00		1.00	1.07	4.163	4.58	0.00	1.300 *	1.547	4.25	19.094	24.83	113.7	420.7	1276.7
50.00		1.00	1.09	4.256	4.68	0.00	1.237 *	1.564	5.00	21.995	27.20	127.3	488.3	1472.3
55.00		1.00	1.12	4.342	4.78	0.00	1.247 *	1.579	5.00	21.485	26.79	128.0	480.9	1439.9
60.00		1.00	1.14	4.423	4.86	0.00	1.258 *	1.592	5.00	20.975	26.38	128.3	472.9	1406.9
65.00	Bot - Section 3	1.00	1.16	4.498	4.95	0.00	1.269 *	1.605	5.00	20.463	25.97	128.5	464.4	1373.5
70.00	Appurtenance(s)	1.00	1.17	4.569	5.03	0.00	1.281 *	1.617	5.00	20.216	25.90	130.1	461.8	2242.6
71.00	Top - Section 2	1.00	1.18	4.582	5.04	0.00	1.289 *	1.619	1.00	3.981	5.13	25.9	92.0	442.2
75.00		1.00	1.19	4.635	5.10	0.00	1.289 *	1.628	4.00	15.721	20.26	103.3	362.0	1057.4
80.00		1.00	1.21	4.699	5.17	0.00	1.300 *	1.639	5.00	19.190	24.95	129.0	442.9	1289.7
85.00		1.00	1.22	4.759	5.24	0.00	1.314 *	1.649	5.00	18.676	24.54	128.5	433.0	1254.7
90.00		1.00	1.24	4.817	5.30	0.00	1.329 *	1.658	5.00	18.162	24.14	127.9	422.7	1219.5
95.00	Appurtenance(s)	1.00	1.25	4.872	5.36	0.00	1.345 *	1.667	5.00	17.648	23.73	127.2	412.2	1184.0
100.00		1.00	1.27	4.925	5.42	0.00	1.200	1.676	5.00	17.133	20.56	111.4	401.5	1148.3
105.00	Appurtenance(s)	1.00	1.28	4.976	5.47	0.00	1.200	1.684	5.00	16.618	19.94	109.1	390.5	1112.4
110.00	Bot - Section 4	1.00	1.29	5.025	5.53	0.00	1.200	1.692	5.00	16.102	19.32	106.8	379.3	1076.2
115.00	Top - Section 3	1.00	1.30	5.072	5.58	0.00	1.200	1.699	5.00	15.798	18.96	105.8	373.3	1591.8
120.00		1.00	1.32	5.117	5.63	0.00	1.200	1.707	5.00	15.282	18.34	103.2	361.7	888.4
123.00	Appurtenance(s)	1.00	1.32	5.144	5.66	0.00	1.200	1.711	3.00	8.921	10.71	60.6	212.8	519.2
125.00		1.00	1.33	5.162	5.68	0.00	1.200	1.714	2.00	5.844	7.01	39.8	140.0	340.3
130.00		1.00	1.34	5.204	5.72	0.00	1.200	1.720	5.00	14.250	17.10	97.9	338.2	824.9
131.00	Appurtenance(s)	1.00	1.34	5.213	5.73	0.00	1.200	1.722	1.00	2.788	3.35	19.2	67.2	162.1
135.00		1.00	1.35	5.246	5.77	0.00	1.200	1.727	4.00	10.945	13.13	75.8	261.0	632.7
140.00		1.00	1.36	5.286	5.81	0.00	1.200	1.733	5.00	13.217	15.86	92.2	314.1	760.8
145.00		1.00	1.37	5.325	5.86	0.00	1.200	1.739	5.00	12.700	15.24	89.3	301.8	728.5
150.00	Top - Section 4	1.00	1.38	5.364	5.90	0.00	1.200	1.745	5.00	12.183	14.62	86.3	289.4	696.1
153.00	Appurtenance(s)	1.00	1.38	5.386	5.92	0.00	1.200	1.749	3.00	7.061	8.47	50.2	169.1	403.6
Totals:									153.00			3,529.9		42,468.2

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

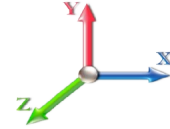
Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: B - Competent Rock
Struct Class: II

7/9/2019
 Page: 24



Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRUs	3	5.386	5.925	0.83	0.90	9.03	349.82	0.000	0.000	53.51	0.00	0.00
2	153.00	APXVTM14-C-I20	3	5.386	5.925	0.71	0.90	15.90	683.98	0.000	0.000	94.22	0.00	0.00
3	153.00	APXVSP18-C-A20	3	5.386	5.925	0.75	0.90	24.25	576.28	0.000	0.000	143.65	0.00	0.00
4	153.00	1900 MHz RRUs	3	5.386	5.925	0.79	0.90	12.34	392.94	0.000	0.000	73.10	0.00	0.00
5	153.00	Lightning Rod	1	5.386	5.925	1.00	1.00	2.25	20.98	0.000	0.000	13.32	0.00	0.00
6	153.00	800 MHz Filters	3	5.386	5.925	0.62	0.90	2.66	69.71	0.000	0.000	15.76	0.00	0.00
7	153.00	ACU-A20-N	4	5.386	5.925	0.81	0.90	1.42	16.82	0.000	0.000	8.39	0.00	0.00
8	153.00	TD-RRH8x20-25	3	5.386	5.925	0.62	0.90	9.06	584.18	0.000	0.000	53.70	0.00	0.00
9	153.00	Low Profile Platform	1	5.386	5.925	1.00	1.00	45.98	2189.20	0.000	0.000	272.44	0.00	0.00
10	131.00	KRY 112 489/2	3	5.213	5.734	0.50	0.75	2.01	104.86	0.000	0.000	11.55	0.00	0.00
11	131.00	KRY 112 144/1	3	5.213	5.734	0.50	0.75	1.32	62.21	0.000	0.000	7.60	0.00	0.00
12	131.00	4449	3	5.213	5.734	0.50	0.75	3.29	453.29	0.000	0.000	18.84	0.00	0.00
13	131.00	APXVAARR24_43-U-NA2	3	5.213	5.734	0.52	0.75	34.83	1695.61	0.000	0.000	199.71	0.00	0.00
14	131.00	RR90-17-02DP	3	5.213	5.734	0.51	0.75	8.16	339.55	0.000	0.000	46.77	0.00	0.00
15	131.00	HRK12 (Handrail Kit)	1	5.213	5.734	1.00	1.00	13.26	882.20	0.000	0.000	76.02	0.00	0.00
16	131.00	(3) Stabilizer Kit (12' FW)	1	5.213	5.734	1.00	1.00	12.40	369.14	0.000	0.000	71.11	0.00	0.00
17	131.00	Low Profile Platform	1	5.213	5.734	1.00	1.00	45.66	2173.04	0.000	0.000	261.83	0.00	0.00
18	123.00	Low Profile Platform	1	5.144	5.659	1.00	1.00	45.53	2166.55	0.000	0.000	257.64	0.00	0.00
19	123.00	DB-T1-6Z-8AB-0Z	2	5.144	5.659	0.72	0.80	8.14	326.18	0.000	0.000	46.08	0.00	0.00
20	123.00	RRH2x60-700	3	5.170	5.687	0.61	0.80	7.80	412.42	0.000	3.000	44.33	0.00	133.00
21	123.00	RRH2X60-PCS	3	5.144	5.659	0.71	0.80	6.03	445.45	0.000	0.000	34.11	0.00	0.00
22	123.00	LPA-80063/6CF	6	5.144	5.659	0.75	0.80	49.29	1883.92	0.000	0.000	278.91	0.00	0.00
23	123.00	SBNHH-1D65B	9	5.144	5.659	0.66	0.80	55.84	2210.58	0.000	0.000	316.00	0.00	0.00
24	123.00	B66 4X45 AWS	3	5.144	5.659	0.64	0.80	6.31	475.05	0.000	0.000	35.73	0.00	0.00
25	105.00	Standoff	1	4.976	5.473	1.00	1.00	8.39	102.47	0.000	0.000	45.92	0.00	0.00
26	105.00	10' Omni	1	5.025	5.527	1.00	1.00	6.48	81.69	0.000	5.000	35.82	0.00	179.08
27	95.00	LGP17201	6	4.872	5.359	0.80	0.80	13.93	376.87	0.000	0.000	74.65	0.00	0.00
28	95.00	RRUS-12	3	4.872	5.359	0.54	0.80	6.99	365.36	0.000	0.000	37.48	0.00	0.00
29	95.00	RRUS-11	3	4.872	5.359	0.54	0.80	9.55	378.73	0.000	0.000	51.19	0.00	0.00
30	95.00	LGP21901	6	4.872	5.359	0.60	0.80	2.09	70.48	0.000	0.000	11.22	0.00	0.00
31	95.00	SBNH-1D65A	2	4.872	5.359	0.72	0.80	10.48	261.83	0.000	0.000	56.14	0.00	0.00
32	95.00	AM-X-CW-16-65-00T-RET	2	4.872	5.359	0.60	0.80	12.83	317.43	0.000	0.000	68.74	0.00	0.00
33	95.00	7770	3	4.872	5.359	0.58	0.80	11.41	509.48	0.000	0.000	61.17	0.00	0.00
34	95.00	HPA-65R-BUU-H6	4	4.872	5.359	0.72	0.80	31.57	1185.99	0.000	0.000	169.19	0.00	0.00
35	95.00	RRUS-A2	3	4.872	5.359	0.50	0.80	4.15	149.21	0.000	0.000	22.25	0.00	0.00
36	95.00	RRUS-32	3	4.872	5.359	0.70	0.80	8.49	599.75	0.000	0.000	45.52	0.00	0.00
37	95.00	RRUS-E2	3	4.872	5.359	0.56	0.80	5.80	453.46	0.000	0.000	31.10	0.00	0.00
38	95.00	1000860	3	4.872	5.359	1.00	1.00	0.78	12.58	0.000	0.000	4.18	0.00	0.00
39	95.00	Raycap/Squid	2	4.872	5.359	0.72	0.80	3.08	159.05	0.000	0.000	16.50	0.00	0.00
40	95.00	Sector Frame	3	4.872	5.359	0.56	0.75	51.98	3200.75	0.000	0.000	278.58	0.00	0.00
41	95.00	800 10764	1	4.872	5.359	0.60	0.80	4.76	134.28	0.000	0.000	25.49	0.00	0.00
42	95.00	4426 B66	3	4.872	5.359	0.58	0.80	2.81	285.00	0.000	0.000	15.03	0.00	0.00
43	70.00	Standoff	1	4.569	5.025	1.00	1.00	8.16	99.39	0.000	0.000	41.01	0.00	0.00
44	70.00	GPS	1	4.569	5.025	1.00	1.00	1.66	31.17	0.000	0.000	8.34	0.00	0.00

Totals: 27,658.96

3,533.87

Total Applied Force Summary

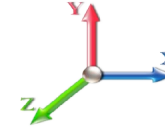
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		114.21	2391.81	0.00	0.00
10.00		112.26	2401.06	0.00	0.00
15.00		110.18	2390.78	0.00	0.00
20.00		114.64	2371.92	0.00	0.00
21.00		22.88	471.10	0.00	0.00
25.00		96.00	2771.23	0.00	0.00
27.75		70.54	1902.37	0.00	0.00
28.00		6.40	172.13	0.00	0.00
30.00		51.59	862.55	0.00	0.00
35.00		132.04	2140.31	0.00	0.00
40.00		134.00	2114.87	0.00	0.00
40.75		20.02	315.05	0.00	0.00
45.00		113.70	1767.31	0.00	0.00
50.00		127.33	2020.18	0.00	0.00
55.00		127.95	1990.59	0.00	0.00
60.00		128.33	1960.20	0.00	0.00
65.00		128.48	1929.12	0.00	0.00
70.00	(2) attachments	179.49	2931.07	0.00	0.00
71.00		25.86	553.83	0.00	0.00
75.00		103.28	1505.42	0.00	0.00
80.00		128.97	1851.65	0.00	0.00
85.00		128.49	1818.60	0.00	0.00
90.00		127.89	1785.16	0.00	0.00
95.00	(50) attachments	1095.61	10211.63	0.00	0.00
100.00		111.38	1380.57	0.00	0.00
105.00	(2) attachments	190.88	1528.95	0.00	179.08
110.00		106.80	1307.85	0.00	0.00
115.00		105.77	1823.62	0.00	0.00
120.00		103.23	1120.37	0.00	0.00
123.00	(27) attachments	1073.40	8578.65	0.00	133.00
125.00		39.82	387.93	0.00	0.00
130.00		97.90	944.12	0.00	0.00
131.00	(18) attachments	712.62	6265.85	0.00	0.00
135.00		75.79	663.33	0.00	0.00
140.00		92.22	799.17	0.00	0.00
145.00		89.27	767.05	0.00	0.00
150.00		86.25	734.79	0.00	0.00
153.00	(24) attachments	778.29	5310.76	0.00	0.00
Totals:		7,063.74	82,242.93	0.00	312.08

Linear Appurtenance Segment Forces (Factored)

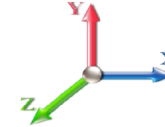
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	1.19	0.00	0.091	0.000	3.308	0.00	12.93
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.69	0.00	0.091	0.000	3.308	0.00	218.70
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.19	0.00	0.091	0.000	3.308	0.00	13.94
5.00	3/4" DC	Yes	5.00	0.000	0.75	1.35	0.00	0.091	0.000	3.308	0.00	34.45
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.27	0.00	0.093	0.000	3.308	0.00	14.46
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.76	0.00	0.093	0.000	3.308	0.00	228.34
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.27	0.00	0.093	0.000	3.308	0.00	15.60
10.00	3/4" DC	Yes	5.00	0.000	0.75	1.42	0.00	0.093	0.000	3.308	0.00	36.89
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.31	0.00	0.095	0.000	3.308	0.00	15.46
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.81	0.00	0.095	0.000	3.308	0.00	234.34
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.31	0.00	0.095	0.000	3.308	0.00	16.68
15.00	3/4" DC	Yes	5.00	0.000	0.75	1.47	0.00	0.095	0.000	3.308	0.00	38.45
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.35	0.00	0.097	0.000	3.509	0.00	16.21
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.84	0.00	0.097	0.000	3.509	0.00	238.78
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.35	0.00	0.097	0.000	3.509	0.00	17.49
20.00	3/4" DC	Yes	5.00	0.000	0.75	1.50	0.00	0.097	0.000	3.509	0.00	39.62
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.27	0.00	0.098	0.000	3.546	0.00	3.27
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.57	0.00	0.098	0.000	3.546	0.00	47.91
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.27	0.00	0.098	0.000	3.546	0.00	3.53
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.30	0.00	0.098	0.000	3.546	0.00	7.96
25.00	Safety Cable	Yes	4.00	0.000	0.38	1.10	0.00	0.103	1.010	3.678	0.00	13.46
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	2.29	0.00	0.103	1.010	3.678	0.00	193.85
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	1.10	0.00	0.103	1.010	3.678	0.00	14.52
25.00	3/4" DC	Yes	4.00	0.000	0.75	1.22	0.00	0.103	1.010	3.678	0.00	32.45
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.26	0.00	0.103	1.010	3.678	0.00	5.44
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.76	0.00	0.124	1.071	3.760	0.00	9.42
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	1.58	0.00	0.124	1.071	3.760	0.00	134.20
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.76	0.00	0.124	1.071	3.760	0.00	10.16
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.85	0.00	0.124	1.071	3.760	0.00	22.56
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.96	0.00	0.124	1.071	3.760	0.00	20.20
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.07	0.00	0.125	1.074	3.767	0.00	0.86
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.14	0.00	0.125	1.074	3.767	0.00	12.21
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.07	0.00	0.125	1.074	3.767	0.00	0.93
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.08	0.00	0.125	1.074	3.767	0.00	2.05
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.09	0.00	0.125	1.074	3.767	0.00	1.84
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.56	0.00	0.124	1.071	3.822	0.00	6.94
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	1.16	0.00	0.124	1.071	3.822	0.00	98.11
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.56	0.00	0.124	1.071	3.822	0.00	7.49
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.62	0.00	0.124	1.071	3.822	0.00	16.54
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.70	0.00	0.124	1.071	3.822	0.00	14.84
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.42	0.00	0.126	1.077	3.948	0.00	17.80
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.91	0.00	0.126	1.077	3.948	0.00	247.84
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.42	0.00	0.126	1.077	3.948	0.00	19.21
35.00	3/4" DC	Yes	5.00	0.000	0.75	1.57	0.00	0.126	1.077	3.948	0.00	42.05
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.78	0.00	0.126	1.077	3.948	0.00	37.87
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.43	0.00	0.129	1.086	4.061	0.00	18.21
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.92	0.00	0.129	1.086	4.061	0.00	250.09

Linear Appurtenance Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.43	0.00	0.129	1.086	4.061	0.00	19.64
40.00	3/4" DC	Yes	5.00	0.000	0.75	1.59	0.00	0.129	1.086	4.061	0.00	42.66
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.80	0.00	0.129	1.086	4.061	0.00	38.54
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.22	0.00	0.131	1.092	4.077	0.00	2.74
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.44	0.00	0.131	1.092	4.077	0.00	37.56
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.22	0.00	0.131	1.092	4.077	0.00	2.96
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.24	0.00	0.131	1.092	4.077	0.00	6.41
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.27	0.00	0.131	1.092	4.077	0.00	5.80
45.00	Safety Cable	Yes	4.25	0.000	0.38	1.23	0.00	0.128	1.084	4.163	0.00	15.79
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	2.50	0.00	0.128	1.084	4.163	0.00	214.29
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	1.23	0.00	0.128	1.084	4.163	0.00	17.03
45.00	3/4" DC	Yes	4.25	0.000	0.75	1.36	0.00	0.128	1.084	4.163	0.00	36.73
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	1.27	0.00	0.128	1.084	4.163	0.00	27.40
50.00	Safety Cable	Yes	5.00	0.000	0.38	1.46	0.00	0.110	1.030	4.256	0.00	18.91
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.95	0.00	0.110	1.030	4.256	0.00	253.93
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.46	0.00	0.110	1.030	4.256	0.00	20.40
50.00	3/4" DC	Yes	5.00	0.000	0.75	1.62	0.00	0.110	1.030	4.256	0.00	43.72
55.00	Safety Cable	Yes	5.00	0.000	0.38	1.47	0.00	0.113	1.039	4.342	0.00	19.22
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.97	0.00	0.113	1.039	4.342	0.00	255.60
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.47	0.00	0.113	1.039	4.342	0.00	20.73
55.00	3/4" DC	Yes	5.00	0.000	0.75	1.63	0.00	0.113	1.039	4.342	0.00	44.18
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.49	0.00	0.116	1.048	4.423	0.00	19.51
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.98	0.00	0.116	1.048	4.423	0.00	257.14
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.49	0.00	0.116	1.048	4.423	0.00	21.04
60.00	3/4" DC	Yes	5.00	0.000	0.75	1.64	0.00	0.116	1.048	4.423	0.00	44.61
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.50	0.00	0.119	1.058	4.498	0.00	19.78
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.99	0.00	0.119	1.058	4.498	0.00	258.57
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.50	0.00	0.119	1.058	4.498	0.00	21.32
65.00	3/4" DC	Yes	5.00	0.000	0.75	1.65	0.00	0.119	1.058	4.498	0.00	45.01
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.51	0.00	0.123	1.068	4.569	0.00	20.03
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.00	0.00	0.123	1.068	4.569	0.00	259.91
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.51	0.00	0.123	1.068	4.569	0.00	21.60
70.00	3/4" DC	Yes	5.00	0.000	0.75	1.66	0.00	0.123	1.068	4.569	0.00	45.38
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.30	0.00	0.125	1.074	4.582	0.00	4.02
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.60	0.00	0.125	1.074	4.582	0.00	52.03
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.30	0.00	0.125	1.074	4.582	0.00	4.33
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.33	0.00	0.125	1.074	4.582	0.00	9.09
75.00	Safety Cable	Yes	4.00	0.000	0.38	1.21	0.00	0.125	1.074	4.635	0.00	16.21
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	2.41	0.00	0.125	1.074	4.635	0.00	208.93
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	1.21	0.00	0.125	1.074	4.635	0.00	17.48
75.00	3/4" DC	Yes	4.00	0.000	0.75	1.34	0.00	0.125	1.074	4.635	0.00	36.59
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.128	1.084	4.699	0.00	20.49
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.02	0.00	0.128	1.084	4.699	0.00	262.35
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.52	0.00	0.128	1.084	4.699	0.00	22.09
80.00	3/4" DC	Yes	5.00	0.000	0.75	1.68	0.00	0.128	1.084	4.699	0.00	46.07
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.53	0.00	0.132	1.095	4.759	0.00	20.71
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.02	0.00	0.132	1.095	4.759	0.00	263.47

Linear Appurtenance Segment Forces (Factored)

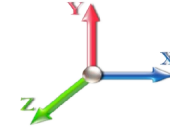
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.53	0.00	0.132	1.095	4.759	0.00	22.32
85.00	3/4" DC	Yes	5.00	0.000	0.75	1.69	0.00	0.132	1.095	4.759	0.00	46.38
90.00	Safety Cable	Yes	5.00	0.000	0.38	1.54	0.00	0.136	1.107	4.817	0.00	20.91
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.03	0.00	0.136	1.107	4.817	0.00	264.54
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.54	0.00	0.136	1.107	4.817	0.00	22.54
90.00	3/4" DC	Yes	5.00	0.000	0.75	1.69	0.00	0.136	1.107	4.817	0.00	46.68
95.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.140	1.121	4.872	0.00	21.11
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.04	0.00	0.140	1.121	4.872	0.00	265.55
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	1.55	0.00	0.140	1.121	4.872	0.00	22.75
95.00	3/4" DC	Yes	5.00	0.000	0.75	1.70	0.00	0.140	1.121	4.872	0.00	46.97
100.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.010	0.000	4.925	0.00	21.30
105.00	Safety Cable	Yes	5.00	0.000	0.38	1.56	0.00	0.010	0.000	4.976	0.00	21.48
110.00	Safety Cable	Yes	5.00	0.000	0.38	1.57	0.00	0.011	0.000	5.025	0.00	21.65
115.00	Safety Cable	Yes	5.00	0.000	0.38	1.57	0.00	0.011	0.000	5.072	0.00	21.82
120.00	Safety Cable	Yes	5.00	0.000	0.38	1.58	0.00	0.011	0.000	5.117	0.00	21.98
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.95	0.00	0.012	0.000	5.144	0.00	13.24
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.63	0.00	0.012	0.000	5.162	0.00	8.85
130.00	Safety Cable	Yes	5.00	0.000	0.38	1.59	0.00	0.012	0.000	5.204	0.00	22.29
131.00	Safety Cable	Yes	1.00	0.000	0.38	0.32	0.00	0.013	0.000	5.213	0.00	4.46
135.00	Safety Cable	Yes	4.00	0.000	0.38	1.28	0.00	0.013	0.000	5.246	0.00	17.95
140.00	Safety Cable	Yes	5.00	0.000	0.38	1.60	0.00	0.013	0.000	5.286	0.00	22.57
145.00	Safety Cable	Yes	5.00	0.000	0.38	1.61	0.00	0.014	0.000	5.325	0.00	22.71
150.00	Safety Cable	Yes	5.00	0.000	0.38	1.61	0.00	0.015	0.000	5.364	0.00	22.85
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.97	0.00	0.015	0.000	5.386	0.00	13.76
Totals:											0.0	6,704.8

Calculated Forces

Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

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

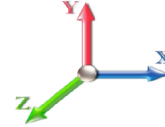
7/9/2019
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Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Iterations 21

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-82.24	-7.09	0.00	-736.48	0.00	736.48	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.153
5.00	-79.85	-7.02	0.00	-701.05	0.00	701.05	4413.36	2206.68	10604.1	5309.95	0.02	-0.032	0.000	0.150
10.00	-77.44	-6.95	0.00	-665.96	0.00	665.96	4361.89	2180.94	10257.6	5136.44	0.07	-0.065	0.000	0.147
15.00	-75.05	-6.88	0.00	-631.23	0.00	631.23	4308.61	2154.31	9912.23	4963.48	0.15	-0.097	0.000	0.145
20.00	-72.67	-6.78	0.00	-596.85	0.00	596.85	4253.53	2126.77	9568.22	4791.22	0.27	-0.131	0.000	0.142
21.00	-72.20	-6.78	0.00	-590.07	0.00	590.07	4242.30	2121.15	9499.61	4756.87	0.30	-0.137	0.000	0.141
25.00	-69.42	-6.70	0.00	-562.95	0.00	562.95	4196.65	2098.33	9225.87	4619.79	0.43	-0.165	0.000	0.138
27.75	-67.52	-6.64	0.00	-544.51	0.00	544.51	4164.60	2082.30	9038.39	4525.91	0.53	-0.183	0.000	0.090
28.00	-67.35	-6.64	0.00	-542.85	0.00	542.85	3213.57	1606.78	7065.87	3538.19	0.54	-0.185	0.000	0.100
30.00	-66.48	-6.60	0.00	-529.58	0.00	529.58	3199.34	1599.67	6969.21	3489.78	0.62	-0.194	0.000	0.108
35.00	-64.34	-6.49	0.00	-496.56	0.00	496.56	3162.51	1581.26	6727.41	3368.71	0.83	-0.218	0.000	0.104
40.00	-62.23	-6.36	0.00	-464.10	0.00	464.10	3123.88	1561.94	6485.64	3247.64	1.08	-0.243	0.000	0.100
40.75	-61.91	-6.36	0.00	-459.33	0.00	459.33	3117.93	1558.96	6449.39	3229.49	1.11	-0.246	0.000	0.099
40.75	-61.91	-6.36	0.00	-459.33	0.00	459.33	3117.93	1558.96	6449.39	3229.49	1.11	-0.246	0.000	0.099
45.00	-60.14	-6.27	0.00	-432.32	0.00	432.32	3083.44	1541.72	6244.17	3126.72	1.34	-0.267	0.000	0.158
50.00	-58.12	-6.17	0.00	-400.99	0.00	400.99	3041.20	1520.60	6003.26	3006.09	1.64	-0.307	0.000	0.153
55.00	-56.12	-6.07	0.00	-370.14	0.00	370.14	2997.16	1498.58	5763.21	2885.89	1.99	-0.346	0.000	0.147
60.00	-54.16	-5.97	0.00	-339.80	0.00	339.80	2951.32	1475.66	5524.28	2766.24	2.37	-0.386	0.000	0.141
65.00	-52.23	-5.86	0.00	-309.97	0.00	309.97	2903.67	1451.83	5286.75	2647.30	2.80	-0.425	0.000	0.135
70.00	-49.29	-5.68	0.00	-280.68	0.00	280.68	2854.22	1427.11	5050.90	2529.20	3.26	-0.464	0.000	0.128
71.00	-48.74	-5.66	0.00	-275.01	0.00	275.01	2869.57	1434.79	5123.02	2565.32	3.36	-0.471	0.000	0.124
75.00	-47.23	-5.57	0.00	-252.36	0.00	252.36	2829.16	1414.58	4935.24	2471.29	3.77	-0.502	0.000	0.119
80.00	-45.38	-5.46	0.00	-224.49	0.00	224.49	2777.01	1388.51	4702.41	2354.70	4.31	-0.537	0.000	0.112
85.00	-43.56	-5.33	0.00	-197.22	0.00	197.22	2723.06	1361.53	4471.94	2239.29	4.90	-0.572	0.000	0.104
90.00	-41.77	-5.21	0.00	-170.55	0.00	170.55	2667.31	1333.66	4244.12	2125.22	5.51	-0.604	0.000	0.096
95.00	-31.57	-4.02	0.00	-144.49	0.00	144.49	2609.76	1304.88	4019.22	2012.60	6.16	-0.635	0.000	0.084
100.00	-30.19	-3.91	0.00	-124.38	0.00	124.38	2550.40	1275.20	3797.52	1901.58	6.84	-0.664	0.000	0.077
105.00	-28.66	-3.71	0.00	-104.66	0.00	104.66	2489.24	1244.62	3579.29	1792.30	7.55	-0.691	0.000	0.070
110.00	-27.35	-3.60	0.00	-86.09	0.00	86.09	2426.28	1213.14	3364.80	1684.90	8.29	-0.717	0.000	0.062
115.00	-25.53	-3.48	0.00	-68.08	0.00	68.08	1783.00	891.50	2427.68	1215.65	9.06	-0.739	0.000	0.070
120.00	-24.41	-3.37	0.00	-50.67	0.00	50.67	1739.91	869.95	2280.12	1141.75	9.84	-0.759	0.000	0.058
123.00	-15.84	-2.19	0.00	-40.42	0.00	40.42	1713.19	856.59	2192.59	1097.92	10.32	-0.771	0.000	0.046
125.00	-15.46	-2.14	0.00	-36.05	0.00	36.05	1695.01	847.51	2134.69	1068.93	10.65	-0.778	0.000	0.043
130.00	-14.51	-2.04	0.00	-25.33	0.00	25.33	1648.31	824.16	1991.67	997.31	11.47	-0.793	0.000	0.034
131.00	-8.26	-1.24	0.00	-23.29	0.00	23.29	1638.75	819.38	1963.38	983.15	11.64	-0.796	0.000	0.029
135.00	-7.60	-1.15	0.00	-18.34	0.00	18.34	1599.81	799.90	1851.33	927.04	12.31	-0.805	0.000	0.025
140.00	-6.80	-1.05	0.00	-12.58	0.00	12.58	1549.50	774.75	1713.96	858.25	13.16	-0.815	0.000	0.019
145.00	-6.03	-0.95	0.00	-7.32	0.00	7.32	1497.39	748.69	1579.82	791.09	14.01	-0.822	0.000	0.013
150.00	-5.30	-0.85	0.00	-2.56	0.00	2.56	1443.48	721.74	1449.20	725.68	14.88	-0.826	0.000	0.007
150.00	-5.30	-0.85	0.00	-2.56	0.00	2.56	1443.48	721.74	1449.20	725.68	14.88	-0.826	0.000	0.007
153.00	0.00	-0.78	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	15.40	-0.827	0.000	0.000

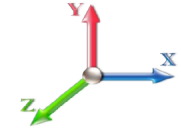
Seismic Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E						Iterations 19
Gust Response Factor	1.10			Sds	0.12	Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.04	S1 0.07
Wind Load Factor	0.00	Structure Frequency (f1)	0.41	SA	0.02	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1194.9	0.00	0.03	0.02	15.52	
10.00		1169.9	0.01	0.05	0.03	21.50	
15.00		1144.9	0.02	0.06	0.04	24.01	
20.00		1119.9	0.03	0.07	0.04	24.96	
21.00	Bot - Section 2	221.00	0.04	0.07	0.04	4.97	
25.00		1611.6	0.05	0.07	0.04	37.14	
27.75	RB1	1090.9	0.06	0.07	0.04	25.50	
28.00	Top - Section 1	98.49	0.06	0.07	0.04	2.30	
30.00		358.81	0.07	0.07	0.04	8.48	
35.00		882.46	0.10	0.07	0.04	21.35	
40.00		861.64	0.13	0.07	0.03	21.35	
40.75	RT1	127.45	0.13	0.07	0.03	3.17	
45.00		713.37	0.16	0.07	0.03	18.03	
50.00		820.00	0.20	0.06	0.02	20.86	
55.00		799.19	0.24	0.06	0.02	19.90	
60.00		778.37	0.29	0.05	0.01	17.99	
65.00	Bot - Section 3	757.55	0.34	0.04	0.01	14.74	
70.00	Appurtenance(s)	1534.0	0.40	0.02	0.01	20.54	
71.00	Top - Section 2	291.81	0.41	0.02	0.01	3.46	
75.00		579.50	0.45	0.00	0.01	2.83	
80.00		705.64	0.52	-0.02	0.01	-3.60	
85.00		684.82	0.58	-0.05	0.01	-10.08	
90.00		664.01	0.65	-0.07	0.02	-14.74	
95.00	Appurtenance(s)	3898.9	0.73	-0.10	0.04	-103.53	
100.00		622.37	0.81	-0.11	0.06	-17.15	
105.00	Appurtenance(s)	666.55	0.89	-0.12	0.08	-16.86	
110.00	Bot - Section 4	580.73	0.98	-0.11	0.12	-11.59	
115.00	Top - Section 3	1015.4	1.07	-0.09	0.17	-11.80	
120.00		438.87	1.16	-0.03	0.23	-0.15	
123.00	Appurtenance(s)	2557.5	1.22	0.03	0.27	20.02	
125.00		166.89	1.26	0.07	0.30	2.32	
130.00		405.56	1.36	0.22	0.40	12.61	
131.00	Appurtenance(s)	2436.6	1.39	0.26	0.42	85.03	
135.00		309.79	1.47	0.43	0.51	15.91	
140.00		372.25	1.58	0.73	0.65	27.83	
145.00		355.60	1.70	1.11	0.81	36.05	
150.00	Top - Section 4	338.95	1.82	1.62	1.01	44.50	
153.00	Appurtenance(s)	2270.7	1.89	1.98	1.14	342.56	

Totals:	34,647.4	725.9	Total Wind:	46,929.6
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Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

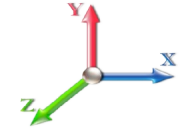
Calculated Forces

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E										Iterations 19
Gust Response Factor 1.10					Sds 0.12					Ss 0.18
Dead Load Factor 1.20			Seismic Load Factor 1.00			Sd1 0.04			S1 0.07	
Wind Load Factor 0.00		Structure Frequency (f1) 0.41		SA 0.02		Seismic Importance Factor 1.00				



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-48.66	-0.92	0.00	-100.91	0.00	100.91	4463.02	2231.51	10951.4	5483.88	0.00	0.00	0.00	0.029
5.00	-46.92	-0.90	0.00	-96.32	0.00	96.32	4413.36	2206.68	10604.1	5309.95	0.00	0.00	0.00	0.029
10.00	-45.22	-0.89	0.00	-91.80	0.00	91.80	4361.89	2180.94	10257.6	5136.44	0.01	-0.01	-0.01	0.028
15.00	-43.55	-0.87	0.00	-87.37	0.00	87.37	4308.61	2154.31	9912.23	4963.48	0.02	-0.01	-0.01	0.028
20.00	-41.91	-0.84	0.00	-83.05	0.00	83.05	4253.53	2126.77	9568.22	4791.22	0.04	-0.02	-0.02	0.027
21.00	-41.58	-0.84	0.00	-82.21	0.00	82.21	4242.30	2121.15	9499.61	4756.87	0.04	-0.02	-0.02	0.027
25.00	-39.41	-0.80	0.00	-78.85	0.00	78.85	4196.65	2098.33	9225.87	4619.79	0.06	-0.02	-0.02	0.026
27.75	-37.94	-0.78	0.00	-76.64	0.00	76.64	4164.60	2082.30	9038.39	4525.91	0.07	-0.03	-0.03	0.017
28.00	-37.81	-0.78	0.00	-76.45	0.00	76.45	3213.57	1606.78	7065.87	3538.19	0.07	-0.03	-0.03	0.019
30.00	-37.26	-0.77	0.00	-74.90	0.00	74.90	3199.34	1599.67	6969.21	3489.78	0.09	-0.03	-0.03	0.021
35.00	-35.90	-0.75	0.00	-71.06	0.00	71.06	3162.51	1581.26	6727.41	3368.71	0.12	-0.03	-0.03	0.020
40.00	-34.57	-0.73	0.00	-67.31	0.00	67.31	3123.88	1561.94	6485.64	3247.64	0.15	-0.03	-0.03	0.020
40.75	-34.37	-0.73	0.00	-66.77	0.00	66.77	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	-0.03	0.020
40.75	-34.37	-0.73	0.00	-66.77	0.00	66.77	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	-0.03	0.020
45.00	-33.26	-0.71	0.00	-63.68	0.00	63.68	3083.44	1541.72	6244.17	3126.72	0.19	-0.04	-0.04	0.031
50.00	-31.98	-0.69	0.00	-60.13	0.00	60.13	3041.20	1520.60	6003.26	3006.09	0.23	-0.04	-0.04	0.031
55.00	-30.72	-0.67	0.00	-56.68	0.00	56.68	2997.16	1498.58	5763.21	2885.89	0.28	-0.05	-0.05	0.030
60.00	-29.49	-0.66	0.00	-53.31	0.00	53.31	2951.32	1475.66	5524.28	2766.24	0.33	-0.06	-0.06	0.029
65.00	-28.28	-0.64	0.00	-50.03	0.00	50.03	2903.67	1451.83	5286.75	2647.30	0.39	-0.06	-0.06	0.029
70.00	-26.15	-0.62	0.00	-46.80	0.00	46.80	2854.22	1427.11	5050.90	2529.20	0.46	-0.07	-0.07	0.028
71.00	-25.74	-0.62	0.00	-46.18	0.00	46.18	2869.57	1434.79	5123.02	2565.32	0.48	-0.07	-0.07	0.027
75.00	-24.80	-0.62	0.00	-43.69	0.00	43.69	2829.16	1414.58	4935.24	2471.29	0.54	-0.07	-0.07	0.026
80.00	-23.66	-0.62	0.00	-40.60	0.00	40.60	2777.01	1388.51	4702.41	2354.70	0.62	-0.08	-0.08	0.026
85.00	-22.54	-0.62	0.00	-37.50	0.00	37.50	2723.06	1361.53	4471.94	2239.29	0.71	-0.09	-0.09	0.025
90.00	-21.44	-0.62	0.00	-34.39	0.00	34.39	2667.31	1333.66	4244.12	2125.22	0.80	-0.09	-0.09	0.024
95.00	-16.47	-0.62	0.00	-31.28	0.00	31.28	2609.76	1304.88	4019.22	2012.60	0.90	-0.10	-0.10	0.022
100.00	-15.51	-0.62	0.00	-28.20	0.00	28.20	2550.40	1275.20	3797.52	1901.58	1.01	-0.11	-0.11	0.021
105.00	-14.49	-0.62	0.00	-25.12	0.00	25.12	2489.24	1244.62	3579.29	1792.30	1.12	-0.11	-0.11	0.020
110.00	-13.59	-0.62	0.00	-22.04	0.00	22.04	2426.28	1213.14	3364.80	1684.90	1.25	-0.12	-0.12	0.019
115.00	-12.16	-0.61	0.00	-18.97	0.00	18.97	1783.00	891.50	2427.68	1215.65	1.37	-0.12	-0.12	0.022
120.00	-11.42	-0.61	0.00	-15.90	0.00	15.90	1739.91	869.95	2280.12	1141.75	1.51	-0.13	-0.13	0.020
123.00	-8.22	-0.59	0.00	-14.07	0.00	14.07	1713.19	856.59	2192.59	1097.92	1.59	-0.13	-0.13	0.018
125.00	-7.98	-0.58	0.00	-12.89	0.00	12.89	1695.01	847.51	2134.69	1068.93	1.65	-0.14	-0.14	0.017
130.00	-7.40	-0.57	0.00	-9.98	0.00	9.98	1648.31	824.16	1991.67	997.31	1.80	-0.14	-0.14	0.014
131.00	-4.45	-0.48	0.00	-9.41	0.00	9.41	1638.75	819.38	1963.38	983.15	1.83	-0.14	-0.14	0.012
135.00	-4.07	-0.46	0.00	-7.50	0.00	7.50	1599.81	799.90	1851.33	927.04	1.95	-0.15	-0.15	0.011
140.00	-3.60	-0.43	0.00	-5.19	0.00	5.19	1549.50	774.75	1713.96	858.25	2.10	-0.15	-0.15	0.008
145.00	-3.16	-0.40	0.00	-3.03	0.00	3.03	1497.39	748.69	1579.82	791.09	2.27	-0.15	-0.15	0.006
150.00	-2.73	-0.35	0.00	-1.05	0.00	1.05	1443.48	721.74	1449.20	725.68	2.43	-0.16	-0.16	0.003
150.00	-2.73	-0.35	0.00	-1.05	0.00	1.05	1443.48	721.74	1449.20	725.68	2.43	-0.16	-0.16	0.003
153.00	0.00	-0.34	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	2.53	-0.16	-0.16	0.000

Seismic Segment Forces (Factored)

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E

Iterations 19

Gust Response Factor 1.10	Sds 0.12	Ss 0.18	
Dead Load Factor 0.90	Seismic Load Factor 1.00	Sd1 0.04	
Wind Load Factor 0.00	Structure Frequency (f1) 0.41	SA 0.02	

Seismic Importance Factor 1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1194.9	0.00	0.03	0.02	15.52	
10.00		1169.9	0.01	0.05	0.03	21.50	
15.00		1144.9	0.02	0.06	0.04	24.01	
20.00		1119.9	0.03	0.07	0.04	24.96	
21.00	Bot - Section 2	221.00	0.04	0.07	0.04	4.97	
25.00		1611.6	0.05	0.07	0.04	37.14	
27.75	RB1	1090.9	0.06	0.07	0.04	25.50	
28.00	Top - Section 1	98.49	0.06	0.07	0.04	2.30	
30.00		358.81	0.07	0.07	0.04	8.48	
35.00		882.46	0.10	0.07	0.04	21.35	
40.00		861.64	0.13	0.07	0.03	21.35	
40.75	RT1	127.45	0.13	0.07	0.03	3.17	
45.00		713.37	0.16	0.07	0.03	18.03	
50.00		820.00	0.20	0.06	0.02	20.86	
55.00		799.19	0.24	0.06	0.02	19.90	
60.00		778.37	0.29	0.05	0.01	17.99	
65.00	Bot - Section 3	757.55	0.34	0.04	0.01	14.74	
70.00	Appurtenance(s)	1534.0	0.40	0.02	0.01	20.54	
71.00	Top - Section 2	291.81	0.41	0.02	0.01	3.46	
75.00		579.50	0.45	0.00	0.01	2.83	
80.00		705.64	0.52	-0.02	0.01	-3.60	
85.00		684.82	0.58	-0.05	0.01	-10.08	
90.00		664.01	0.65	-0.07	0.02	-14.74	
95.00	Appurtenance(s)	3898.9	0.73	-0.10	0.04	-103.53	
100.00		622.37	0.81	-0.11	0.06	-17.15	
105.00	Appurtenance(s)	666.55	0.89	-0.12	0.08	-16.86	
110.00	Bot - Section 4	580.73	0.98	-0.11	0.12	-11.59	
115.00	Top - Section 3	1015.4	1.07	-0.09	0.17	-11.80	
120.00		438.87	1.16	-0.03	0.23	-0.15	
123.00	Appurtenance(s)	2557.5	1.22	0.03	0.27	20.02	
125.00		166.89	1.26	0.07	0.30	2.32	
130.00		405.56	1.36	0.22	0.40	12.61	
131.00	Appurtenance(s)	2436.6	1.39	0.26	0.42	85.03	
135.00		309.79	1.47	0.43	0.51	15.91	
140.00		372.25	1.58	0.73	0.65	27.83	
145.00		355.60	1.70	1.11	0.81	36.05	
150.00	Top - Section 4	338.95	1.82	1.62	1.01	44.50	
153.00	Appurtenance(s)	2270.7	1.89	1.98	1.14	342.56	

Totals:	34,647.4	725.9	Total Wind: 46,929.6
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Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

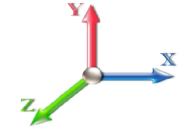
Calculated Forces

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E		Iterations 19
Gust Response Factor 1.10	Sds 0.12	Ss 0.18
Dead Load Factor 0.90	Seismic Load Factor 1.00	S1 0.07
Wind Load Factor 0.00	Structure Frequency (f1) 0.41	SA 0.02
	Seismic Importance Factor 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.49	-0.92	0.00	-100.05	0.00	100.05	4463.02	2231.51	10951.4	5483.88	0.00	0.00	0.00	0.026
5.00	-35.19	-0.90	0.00	-95.48	0.00	95.48	4413.36	2206.68	10604.1	5309.95	0.00	0.00	0.00	0.026
10.00	-33.92	-0.88	0.00	-90.96	0.00	90.96	4361.89	2180.94	10257.6	5136.44	0.01	-0.01	-0.01	0.025
15.00	-32.66	-0.86	0.00	-86.54	0.00	86.54	4308.61	2154.31	9912.23	4963.48	0.02	-0.01	-0.01	0.025
20.00	-31.43	-0.84	0.00	-82.23	0.00	82.23	4253.53	2126.77	9568.22	4791.22	0.04	-0.02	-0.02	0.025
21.00	-31.19	-0.83	0.00	-81.39	0.00	81.39	4242.30	2121.15	9499.61	4756.87	0.04	-0.02	-0.02	0.024
25.00	-29.56	-0.80	0.00	-78.05	0.00	78.05	4196.65	2098.33	9225.87	4619.79	0.06	-0.02	-0.02	0.024
27.75	-28.45	-0.77	0.00	-75.86	0.00	75.86	4164.60	2082.30	9038.39	4525.91	0.07	-0.03	-0.03	0.016
28.00	-28.35	-0.77	0.00	-75.66	0.00	75.66	3213.57	1606.78	7065.87	3538.19	0.07	-0.03	-0.03	0.017
30.00	-27.94	-0.76	0.00	-74.12	0.00	74.12	3199.34	1599.67	6969.21	3489.78	0.08	-0.03	-0.03	0.019
35.00	-26.92	-0.74	0.00	-70.30	0.00	70.30	3162.51	1581.26	6727.41	3368.71	0.11	-0.03	-0.03	0.018
40.00	-25.93	-0.72	0.00	-66.59	0.00	66.59	3123.88	1561.94	6485.64	3247.64	0.15	-0.03	-0.03	0.018
40.75	-25.78	-0.72	0.00	-66.04	0.00	66.04	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	-0.03	0.018
40.75	-25.78	-0.72	0.00	-66.04	0.00	66.04	3117.93	1558.96	6449.39	3229.49	0.15	-0.03	-0.03	0.018
45.00	-24.95	-0.70	0.00	-62.98	0.00	62.98	3083.44	1541.72	6244.17	3126.72	0.18	-0.04	-0.04	0.028
50.00	-23.98	-0.68	0.00	-59.47	0.00	59.47	3041.20	1520.60	6003.26	3006.09	0.23	-0.04	-0.04	0.028
55.00	-23.04	-0.67	0.00	-56.04	0.00	56.04	2997.16	1498.58	5763.21	2885.89	0.27	-0.05	-0.05	0.027
60.00	-22.12	-0.65	0.00	-52.71	0.00	52.71	2951.32	1475.66	5524.28	2766.24	0.33	-0.05	-0.05	0.027
65.00	-21.21	-0.64	0.00	-49.46	0.00	49.46	2903.67	1451.83	5286.75	2647.30	0.39	-0.06	-0.06	0.026
70.00	-19.61	-0.62	0.00	-46.28	0.00	46.28	2854.22	1427.11	5050.90	2529.20	0.46	-0.07	-0.07	0.025
71.00	-19.30	-0.61	0.00	-45.67	0.00	45.67	2869.57	1434.79	5123.02	2565.32	0.47	-0.07	-0.07	0.025
75.00	-18.60	-0.61	0.00	-43.22	0.00	43.22	2829.16	1414.58	4935.24	2471.29	0.53	-0.07	-0.07	0.024
80.00	-17.74	-0.61	0.00	-40.16	0.00	40.16	2777.01	1388.51	4702.41	2354.70	0.61	-0.08	-0.08	0.023
85.00	-16.90	-0.61	0.00	-37.10	0.00	37.10	2723.06	1361.53	4471.94	2239.29	0.70	-0.09	-0.09	0.023
90.00	-16.08	-0.61	0.00	-34.04	0.00	34.04	2667.31	1333.66	4244.12	2125.22	0.79	-0.09	-0.09	0.022
95.00	-12.35	-0.61	0.00	-30.98	0.00	30.98	2609.76	1304.88	4019.22	2012.60	0.89	-0.10	-0.10	0.020
100.00	-11.63	-0.61	0.00	-27.94	0.00	27.94	2550.40	1275.20	3797.52	1901.58	1.00	-0.11	-0.11	0.019
105.00	-10.87	-0.61	0.00	-24.90	0.00	24.90	2489.24	1244.62	3579.29	1792.30	1.11	-0.11	-0.11	0.018
110.00	-10.19	-0.61	0.00	-21.86	0.00	21.86	2426.28	1213.14	3364.80	1684.90	1.23	-0.12	-0.12	0.017
115.00	-9.12	-0.61	0.00	-18.82	0.00	18.82	1783.00	891.50	2427.68	1215.65	1.36	-0.12	-0.12	0.021
120.00	-8.56	-0.61	0.00	-15.79	0.00	15.79	1739.91	869.95	2280.12	1141.75	1.49	-0.13	-0.13	0.019
123.00	-6.17	-0.58	0.00	-13.97	0.00	13.97	1713.19	856.59	2192.59	1097.92	1.58	-0.13	-0.13	0.016
125.00	-5.99	-0.58	0.00	-12.81	0.00	12.81	1695.01	847.51	2134.69	1068.93	1.63	-0.14	-0.14	0.016
130.00	-5.55	-0.57	0.00	-9.92	0.00	9.92	1648.31	824.16	1991.67	997.31	1.78	-0.14	-0.14	0.013
131.00	-3.34	-0.47	0.00	-9.35	0.00	9.35	1638.75	819.38	1963.38	983.15	1.81	-0.14	-0.14	0.012
135.00	-3.05	-0.46	0.00	-7.45	0.00	7.45	1599.81	799.90	1851.33	927.04	1.93	-0.15	-0.15	0.010
140.00	-2.70	-0.43	0.00	-5.16	0.00	5.16	1549.50	774.75	1713.96	858.25	2.08	-0.15	-0.15	0.008
145.00	-2.37	-0.39	0.00	-3.01	0.00	3.01	1497.39	748.69	1579.82	791.09	2.24	-0.15	-0.15	0.005
150.00	-2.05	-0.35	0.00	-1.04	0.00	1.04	1443.48	721.74	1449.20	725.68	2.40	-0.15	-0.15	0.003
150.00	-2.05	-0.35	0.00	-1.04	0.00	1.04	1443.48	721.74	1449.20	725.68	2.40	-0.15	-0.15	0.003
153.00	0.00	-0.34	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	2.50	-0.16	-0.16	0.000

Wind Loading - Shaft

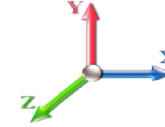
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	280.85	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	275.08	0.650	0.000	5.00	25.125	16.33	133.7	0.0	1194.9
10.00		1.00	0.85	7.442	8.19	269.30	0.650	0.000	5.00	24.603	15.99	130.9	0.0	1169.9
15.00		1.00	0.85	7.442	8.19	263.53	0.650	0.000	5.00	24.081	15.65	128.1	0.0	1145.0
20.00		1.00	0.90	7.896	8.69	265.50	0.650	0.000	5.00	23.559	15.31	133.0	0.0	1120.0
21.00	Bot - Section 2	1.00	0.91	7.978	8.78	265.68	0.650	0.000	1.00	4.649	3.02	26.5	0.0	221.0
25.00		1.00	0.95	8.276	9.10	265.73	0.657 *	0.000	4.00	18.599	12.21	111.2	0.0	1611.6
27.75	RB1	1.00	0.97	8.460	9.31	265.27	0.696 *	0.000	2.75	12.593	8.77	81.6	0.0	1091.0
28.00	Top - Section 1	1.00	0.97	8.476	9.32	265.22	0.698 *	0.000	0.25	1.137	0.79	7.4	0.0	98.5
30.00		1.00	0.98	8.600	9.46	267.81	0.696 *	0.000	2.00	9.049	6.30	59.6	0.0	358.8
35.00		1.00	1.01	8.883	9.77	265.88	0.700 *	0.000	5.00	22.257	15.59	152.3	0.0	882.5
40.00		1.00	1.04	9.137	10.05	263.25	0.706 *	0.000	5.00	21.735	15.35	154.3	0.0	861.6
40.75	RT1	1.00	1.05	9.173	10.09	262.80	0.710 *	0.000	0.75	3.215	2.28	23.0	0.0	127.5
45.00		1.00	1.07	9.366	10.30	260.05	0.704 *	0.000	4.25	17.998	12.68	130.6	0.0	713.4
50.00		1.00	1.09	9.576	10.53	256.40	0.670 *	0.000	5.00	20.692	13.86	146.0	0.0	820.0
55.00		1.00	1.12	9.770	10.75	252.37	0.675 *	0.000	5.00	20.170	13.62	146.4	0.0	799.2
60.00		1.00	1.14	9.951	10.95	248.02	0.681 *	0.000	5.00	19.648	13.38	146.5	0.0	778.4
65.00	Bot - Section 3	1.00	1.16	10.120	11.13	243.38	0.687 *	0.000	5.00	19.126	13.15	146.3	0.0	757.6
70.00	Appurtenance(s)	1.00	1.17	10.279	11.31	238.50	0.694 *	0.000	5.00	18.868	13.09	148.0	0.0	1484.0
71.00	Top - Section 2	1.00	1.18	10.310	11.34	237.50	0.698 *	0.000	1.00	3.711	2.59	29.4	0.0	291.8
75.00		1.00	1.19	10.430	11.47	236.87	0.698 *	0.000	4.00	14.635	10.21	117.2	0.0	579.5
80.00		1.00	1.21	10.572	11.63	231.60	0.704 *	0.000	5.00	17.824	12.55	146.0	0.0	705.6
85.00		1.00	1.22	10.708	11.78	226.15	0.712 *	0.000	5.00	17.302	12.32	145.1	0.0	684.8
90.00		1.00	1.24	10.838	11.92	220.55	0.720 *	0.000	5.00	16.780	12.08	144.0	0.0	664.0
95.00	Appurtenance(s)	1.00	1.25	10.962	12.06	214.80	0.728 *	0.000	5.00	16.258	11.84	142.8	0.0	643.2
100.00		1.00	1.27	11.081	12.19	208.92	0.650	0.000	5.00	15.736	10.23	124.7	0.0	622.4
105.00	Appurtenance(s)	1.00	1.28	11.195	12.31	202.91	0.650	0.000	5.00	15.214	9.89	121.8	0.0	601.6
110.00	Bot - Section 4	1.00	1.29	11.305	12.44	196.79	0.650	0.000	5.00	14.693	9.55	118.8	0.0	580.7
115.00	Top - Section 3	1.00	1.30	11.412	12.55	190.56	0.650	0.000	5.00	14.382	9.35	117.3	0.0	1015.4
120.00		1.00	1.32	11.514	12.67	187.15	0.650	0.000	5.00	13.860	9.01	114.1	0.0	438.9
123.00	Appurtenance(s)	1.00	1.32	11.574	12.73	183.31	0.650	0.000	3.00	8.066	5.24	66.7	0.0	255.3
125.00		1.00	1.33	11.614	12.78	180.74	0.650	0.000	2.00	5.273	3.43	43.8	0.0	166.9
130.00		1.00	1.34	11.710	12.88	174.24	0.650	0.000	5.00	12.816	8.33	107.3	0.0	405.6
131.00	Appurtenance(s)	1.00	1.34	11.729	12.90	172.93	0.650	0.000	1.00	2.501	1.63	21.0	0.0	79.1
135.00		1.00	1.35	11.803	12.98	167.66	0.650	0.000	4.00	9.794	6.37	82.7	0.0	309.8
140.00		1.00	1.36	11.894	13.08	161.01	0.650	0.000	5.00	11.772	7.65	100.1	0.0	372.3
145.00		1.00	1.37	11.982	13.18	154.27	0.650	0.000	5.00	11.250	7.31	96.4	0.0	355.6
150.00	Top - Section 4	1.00	1.38	12.068	13.27	147.47	0.650	0.000	5.00	10.728	6.97	92.6	0.0	338.9
153.00	Appurtenance(s)	1.00	1.38	12.119	13.33	143.36	0.650	0.000	3.00	6.187	4.02	53.6	0.0	195.4
Totals:									153.00			3,990.8		24,541.5

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

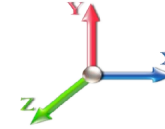
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	153.00	800 MHz RRUs	3	12.119	13.330	0.83	0.90	6.19	159.00	0.000	0.000	82.45	0.00	0.00
2	153.00	APXVTM14-C-I20	3	12.119	13.330	0.71	0.90	13.52	168.00	0.000	0.000	180.27	0.00	0.00
3	153.00	APXVSP18-C-A20	3	12.119	13.330	0.75	0.90	17.97	171.00	0.000	0.000	239.59	0.00	0.00
4	153.00	1900 MHz RRUs	3	12.119	13.330	0.79	0.90	9.03	132.00	0.000	0.000	120.36	0.00	0.00
5	153.00	Lightning Rod	1	12.119	13.330	1.00	1.00	0.50	5.00	0.000	0.000	6.67	0.00	0.00
6	153.00	800 MHz Filters	3	12.119	13.330	0.62	0.90	1.45	26.40	0.000	0.000	19.37	0.00	0.00
7	153.00	ACU-A20-N	4	12.119	13.330	0.81	0.90	0.45	4.00	0.000	0.000	6.05	0.00	0.00
8	153.00	TD-RRH8x20-25	3	12.119	13.330	0.62	0.90	7.55	210.00	0.000	0.000	100.58	0.00	0.00
9	153.00	Low Profile Platform	1	12.119	13.330	1.00	1.00	25.00	1200.00	0.000	0.000	333.26	0.00	0.00
10	131.00	KRY 112 489/2	3	11.729	12.902	0.50	0.75	1.06	48.30	0.000	0.000	13.61	0.00	0.00
11	131.00	KRY 112 144/1	3	11.729	12.902	0.50	0.75	0.62	33.00	0.000	0.000	7.97	0.00	0.00
12	131.00	4449	3	11.729	12.902	0.50	0.75	2.49	210.00	0.000	0.000	32.09	0.00	0.00
13	131.00	APXVAARR24_43-U-NA2	3	11.729	12.902	0.52	0.75	31.88	384.00	0.000	0.000	411.28	0.00	0.00
14	131.00	RR90-17-02DP	3	11.729	12.902	0.51	0.75	6.67	40.50	0.000	0.000	86.07	0.00	0.00
15	131.00	HRK12 (Handrail Kit)	1	11.729	12.902	1.00	1.00	6.75	261.72	0.000	0.000	87.09	0.00	0.00
16	131.00	(3) Stabilizer Kit (12' FW)	1	11.729	12.902	1.00	1.00	6.10	180.00	0.000	0.000	78.70	0.00	0.00
17	131.00	Low Profile Platform	1	11.729	12.902	1.00	1.00	25.00	1200.00	0.000	0.000	322.55	0.00	0.00
18	123.00	Low Profile Platform	1	11.574	12.732	1.00	1.00	25.00	1200.00	0.000	0.000	318.29	0.00	0.00
19	123.00	DB-T1-6Z-8AB-0Z	2	11.574	12.732	0.72	0.80	6.91	37.80	0.000	0.000	88.00	0.00	0.00
20	123.00	RRH2x60-700	3	11.633	12.797	0.61	0.80	6.38	180.00	0.000	3.000	81.69	0.00	245.08
21	123.00	RRH2X60-PCS	3	11.574	12.732	0.71	0.80	4.70	165.00	0.000	0.000	59.83	0.00	0.00
22	123.00	LPA-80063/6CF	6	11.574	12.732	0.75	0.80	43.32	162.00	0.000	0.000	551.48	0.00	0.00
23	123.00	SBNHH-1D65B	9	11.574	12.732	0.66	0.80	48.29	365.40	0.000	0.000	614.77	0.00	0.00
24	123.00	B66 4X45 AWS	3	11.574	12.732	0.64	0.80	4.99	192.00	0.000	0.000	63.56	0.00	0.00
25	105.00	Standoff	1	11.195	12.315	1.00	1.00	2.63	40.00	0.000	0.000	32.39	0.00	0.00
26	105.00	10' Omni	1	11.305	12.436	1.00	1.00	3.00	25.00	0.000	5.000	37.31	0.00	186.54
27	95.00	LGP17201	6	10.962	12.058	0.80	0.80	9.36	186.00	0.000	0.000	112.86	0.00	0.00
28	95.00	RRUS-12	3	10.962	12.058	0.54	0.80	5.07	180.00	0.000	0.000	61.08	0.00	0.00
29	95.00	RRUS-11	3	10.962	12.058	0.54	0.80	7.21	165.00	0.000	0.000	86.98	0.00	0.00
30	95.00	LGP21901	6	10.962	12.058	0.60	0.80	0.83	33.00	0.000	0.000	9.98	0.00	0.00
31	95.00	SBNH-1D65A	2	10.962	12.058	0.72	0.80	7.75	76.80	0.000	0.000	93.42	0.00	0.00
32	95.00	AM-X-CW-16-65-00T-RET	2	10.962	12.058	0.60	0.80	9.62	83.60	0.000	0.000	116.05	0.00	0.00
33	95.00	7770	3	10.962	12.058	0.58	0.80	9.64	105.00	0.000	0.000	116.19	0.00	0.00
34	95.00	HPA-65R-BUU-H6	4	10.962	12.058	0.72	0.80	27.82	204.00	0.000	0.000	335.46	0.00	0.00
35	95.00	RRUS-A2	3	10.962	12.058	0.50	0.80	2.77	63.60	0.000	0.000	33.37	0.00	0.00
36	95.00	RRUS-32	3	10.962	12.058	0.70	0.80	8.08	231.00	0.000	0.000	97.43	0.00	0.00
37	95.00	RRUS-E2	3	10.962	12.058	0.56	0.80	4.72	171.90	0.000	0.000	56.92	0.00	0.00
38	95.00	1000860	3	10.962	12.058	1.00	1.00	0.18	6.00	0.000	0.000	2.17	0.00	0.00
39	95.00	Raycap/Squid	2	10.962	12.058	0.72	0.80	2.12	63.60	0.000	0.000	25.52	0.00	0.00
40	95.00	Sector Frame	3	10.962	12.058	0.56	0.75	29.53	1500.00	0.000	0.000	356.09	0.00	0.00
41	95.00	800 10764	1	10.962	12.058	0.60	0.80	3.53	40.80	0.000	0.000	42.54	0.00	0.00
42	95.00	4426 B66	3	10.962	12.058	0.58	0.80	2.01	145.50	0.000	0.000	24.29	0.00	0.00
43	70.00	Standoff	1	10.279	11.307	1.00	1.00	2.63	40.00	0.000	0.000	29.74	0.00	0.00
44	70.00	GPS	1	10.279	11.307	1.00	1.00	1.00	10.00	0.000	0.000	11.31	0.00	0.00

Totals: 10,105.92

5,586.67

Total Applied Force Summary

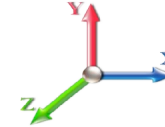
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		133.69	1443.08	0.00	0.00
10.00		130.91	1418.10	0.00	0.00
15.00		128.13	1393.12	0.00	0.00
20.00		133.01	1368.14	0.00	0.00
21.00		26.52	270.63	0.00	0.00
25.00		111.18	1810.14	0.00	0.00
27.75		81.59	1227.47	0.00	0.00
28.00		7.40	110.90	0.00	0.00
30.00		59.61	458.08	0.00	0.00
35.00		152.31	1130.62	0.00	0.00
40.00		154.27	1109.81	0.00	0.00
40.75		23.02	164.68	0.00	0.00
45.00		130.62	924.31	0.00	0.00
50.00		145.99	1068.17	0.00	0.00
55.00		146.40	1047.35	0.00	0.00
60.00		146.50	1026.53	0.00	0.00
65.00		146.35	1005.72	0.00	0.00
70.00	(2) attachments	189.08	1782.18	0.00	0.00
71.00		29.38	341.44	0.00	0.00
75.00		117.19	778.04	0.00	0.00
80.00		146.00	953.81	0.00	0.00
85.00		145.08	932.99	0.00	0.00
90.00		144.00	912.17	0.00	0.00
95.00	(50) attachments	1713.14	4147.15	0.00	0.00
100.00		124.68	799.54	0.00	0.00
105.00	(2) attachments	191.48	843.72	0.00	186.54
110.00		118.76	757.10	0.00	0.00
115.00		117.35	1191.81	0.00	0.00
120.00		114.11	615.24	0.00	0.00
123.00	(27) attachments	1844.37	2663.35	0.00	245.08
125.00		43.78	199.75	0.00	0.00
130.00		107.31	487.73	0.00	0.00
131.00	(18) attachments	1060.33	2453.07	0.00	0.00
135.00		82.65	321.45	0.00	0.00
140.00		100.12	386.82	0.00	0.00
145.00		96.39	370.17	0.00	0.00
150.00		92.57	353.51	0.00	0.00
153.00	(24) attachments	1142.19	2279.51	0.00	0.00
Totals:		9,577.46	40,547.37	0.00	431.62

Linear Appurtenance Segment Forces (Factored)

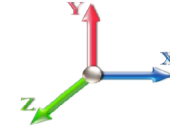
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 37

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	7.442	0.00	1.37
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.091	0.000	7.442	0.00	62.40
5.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.091	0.000	7.442	0.00	0.60
5.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.091	0.000	7.442	0.00	8.00
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	7.442	0.00	1.37
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.093	0.000	7.442	0.00	62.40
10.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.093	0.000	7.442	0.00	0.60
10.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.093	0.000	7.442	0.00	8.00
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	7.442	0.00	1.37
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.095	0.000	7.442	0.00	62.40
15.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.095	0.000	7.442	0.00	0.60
15.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.095	0.000	7.442	0.00	8.00
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	7.896	0.00	1.37
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.097	0.000	7.896	0.00	62.40
20.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.097	0.000	7.896	0.00	0.60
20.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.097	0.000	7.896	0.00	8.00
21.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	7.978	0.00	0.27
21.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.098	0.000	7.978	0.00	12.48
21.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.098	0.000	7.978	0.00	0.12
21.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.098	0.000	7.978	0.00	1.60
25.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	8.276	0.00	1.09
25.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.103	1.010	8.276	0.00	49.92
25.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.103	1.010	8.276	0.00	0.48
25.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.103	1.010	8.276	0.00	6.40
25.00	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.103	1.010	8.276	0.00	0.00
27.75	Safety Cable	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	8.460	0.00	0.75
27.75	1 5/8" Coax	Yes	2.75	0.000	3.96	0.91	0.00	0.124	1.071	8.460	0.00	34.32
27.75	1/2" Fiber	Yes	2.75	0.000	0.38	0.09	0.00	0.124	1.071	8.460	0.00	0.33
27.75	3/4" DC	Yes	2.75	0.000	0.75	0.17	0.00	0.124	1.071	8.460	0.00	4.40
27.75	1.25" Reinforcing	Yes	2.75	0.000	1.25	0.29	0.00	0.124	1.071	8.460	0.00	0.00
28.00	Safety Cable	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	8.476	0.00	0.07
28.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.125	1.074	8.476	0.00	3.12
28.00	1/2" Fiber	Yes	0.25	0.000	0.38	0.01	0.00	0.125	1.074	8.476	0.00	0.03
28.00	3/4" DC	Yes	0.25	0.000	0.75	0.02	0.00	0.125	1.074	8.476	0.00	0.40
28.00	1.25" Reinforcing	Yes	0.25	0.000	1.25	0.03	0.00	0.125	1.074	8.476	0.00	0.00
30.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	8.600	0.00	0.55
30.00	1 5/8" Coax	Yes	2.00	0.000	3.96	0.66	0.00	0.124	1.071	8.600	0.00	24.96
30.00	1/2" Fiber	Yes	2.00	0.000	0.38	0.06	0.00	0.124	1.071	8.600	0.00	0.24
30.00	3/4" DC	Yes	2.00	0.000	0.75	0.13	0.00	0.124	1.071	8.600	0.00	3.20
30.00	1.25" Reinforcing	Yes	2.00	0.000	1.25	0.21	0.00	0.124	1.071	8.600	0.00	0.00
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	8.883	0.00	1.37
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.126	1.077	8.883	0.00	62.40
35.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.126	1.077	8.883	0.00	0.60
35.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.126	1.077	8.883	0.00	8.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.126	1.077	8.883	0.00	0.00
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	9.137	0.00	1.37
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.129	1.086	9.137	0.00	62.40

Linear Appurtenance Segment Forces (Factored)

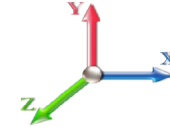
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
40.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.129	1.086	9.137	0.00	0.60
40.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.129	1.086	9.137	0.00	8.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.129	1.086	9.137	0.00	0.00
40.75	Safety Cable	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	9.173	0.00	0.20
40.75	1 5/8" Coax	Yes	0.75	0.000	3.96	0.25	0.00	0.131	1.092	9.173	0.00	9.36
40.75	1/2" Fiber	Yes	0.75	0.000	0.38	0.02	0.00	0.131	1.092	9.173	0.00	0.09
40.75	3/4" DC	Yes	0.75	0.000	0.75	0.05	0.00	0.131	1.092	9.173	0.00	1.20
40.75	1.25" Reinforcing	Yes	0.75	0.000	1.25	0.08	0.00	0.131	1.092	9.173	0.00	0.00
45.00	Safety Cable	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	9.366	0.00	1.16
45.00	1 5/8" Coax	Yes	4.25	0.000	3.96	1.40	0.00	0.128	1.084	9.366	0.00	53.04
45.00	1/2" Fiber	Yes	4.25	0.000	0.38	0.13	0.00	0.128	1.084	9.366	0.00	0.51
45.00	3/4" DC	Yes	4.25	0.000	0.75	0.27	0.00	0.128	1.084	9.366	0.00	6.80
45.00	1.25" Reinforcing	Yes	3.50	0.000	1.25	0.36	0.00	0.128	1.084	9.366	0.00	0.00
50.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	9.576	0.00	1.37
50.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.110	1.030	9.576	0.00	62.40
50.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.110	1.030	9.576	0.00	0.60
50.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.110	1.030	9.576	0.00	8.00
55.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	9.770	0.00	1.37
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.113	1.039	9.770	0.00	62.40
55.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.113	1.039	9.770	0.00	0.60
55.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.113	1.039	9.770	0.00	8.00
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	9.951	0.00	1.37
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.116	1.048	9.951	0.00	62.40
60.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.116	1.048	9.951	0.00	0.60
60.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.116	1.048	9.951	0.00	8.00
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	10.120	0.00	1.37
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.119	1.058	10.120	0.00	62.40
65.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.119	1.058	10.120	0.00	0.60
65.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.119	1.058	10.120	0.00	8.00
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	10.279	0.00	1.37
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.123	1.068	10.279	0.00	62.40
70.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.123	1.068	10.279	0.00	0.60
70.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.123	1.068	10.279	0.00	8.00
71.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	10.310	0.00	0.27
71.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.125	1.074	10.310	0.00	12.48
71.00	1/2" Fiber	Yes	1.00	0.000	0.38	0.03	0.00	0.125	1.074	10.310	0.00	0.12
71.00	3/4" DC	Yes	1.00	0.000	0.75	0.06	0.00	0.125	1.074	10.310	0.00	1.60
75.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	10.430	0.00	1.09
75.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.125	1.074	10.430	0.00	49.92
75.00	1/2" Fiber	Yes	4.00	0.000	0.38	0.13	0.00	0.125	1.074	10.430	0.00	0.48
75.00	3/4" DC	Yes	4.00	0.000	0.75	0.25	0.00	0.125	1.074	10.430	0.00	6.40
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	10.572	0.00	1.37
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.128	1.084	10.572	0.00	62.40
80.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.128	1.084	10.572	0.00	0.60
80.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.128	1.084	10.572	0.00	8.00
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	10.708	0.00	1.37
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.132	1.095	10.708	0.00	62.40

Linear Appurtenance Segment Forces (Factored)

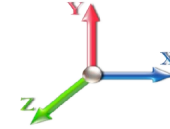
Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 21

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.132	1.095	10.708	0.00	0.60
85.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.132	1.095	10.708	0.00	8.00
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	10.838	0.00	1.37
90.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.136	1.107	10.838	0.00	62.40
90.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.136	1.107	10.838	0.00	0.60
90.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.136	1.107	10.838	0.00	8.00
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	10.962	0.00	1.37
95.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.140	1.121	10.962	0.00	62.40
95.00	1/2" Fiber	Yes	5.00	0.000	0.38	0.16	0.00	0.140	1.121	10.962	0.00	0.60
95.00	3/4" DC	Yes	5.00	0.000	0.75	0.31	0.00	0.140	1.121	10.962	0.00	8.00
100.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	11.081	0.00	1.37
105.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.010	0.000	11.195	0.00	1.37
110.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	11.305	0.00	1.37
115.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	11.412	0.00	1.37
120.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.011	0.000	11.514	0.00	1.37
123.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.012	0.000	11.574	0.00	0.82
125.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.012	0.000	11.614	0.00	0.55
130.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.012	0.000	11.710	0.00	1.37
131.00	Safety Cable	Yes	1.00	0.000	0.38	0.03	0.00	0.013	0.000	11.729	0.00	0.27
135.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.013	0.000	11.803	0.00	1.09
140.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.013	0.000	11.894	0.00	1.37
145.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.014	0.000	11.982	0.00	1.37
150.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.015	0.000	12.068	0.00	1.37
153.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.015	0.000	12.119	0.00	0.82
Totals:											0.0	1,390.8

Calculated Forces

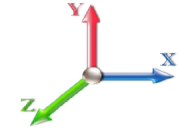
Structure: CT01499-S-SBA
Site Name: Torrington
Height: 153.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

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

7/9/2019
 Page: 40



Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 21
Dead Load Factor 1.00	
Wind Load Factor 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-40.54	-9.59	0.00	-1000.7	0.00	1000.73	4463.02	2231.51	10951.4	5483.88	0.00	0.000	0.000	0.192
5.00	-39.09	-9.49	0.00	-952.77	0.00	952.77	4413.36	2206.68	10604.1	5309.95	0.02	-0.044	0.000	0.188
10.00	-37.67	-9.38	0.00	-905.33	0.00	905.33	4361.89	2180.94	10257.6	5136.44	0.09	-0.088	0.000	0.185
15.00	-36.27	-9.28	0.00	-858.41	0.00	858.41	4308.61	2154.31	9912.23	4963.48	0.21	-0.132	0.000	0.181
20.00	-34.90	-9.16	0.00	-812.00	0.00	812.00	4253.53	2126.77	9568.22	4791.22	0.37	-0.178	0.000	0.178
21.00	-34.62	-9.15	0.00	-802.83	0.00	802.83	4242.30	2121.15	9499.61	4756.87	0.41	-0.187	0.000	0.177
25.00	-32.81	-9.05	0.00	-766.24	0.00	766.24	4196.65	2098.33	9225.87	4619.79	0.58	-0.224	0.000	0.174
27.75	-31.58	-8.97	0.00	-741.35	0.00	741.35	4164.60	2082.30	9038.39	4525.91	0.72	-0.249	0.000	0.113
28.00	-31.47	-8.97	0.00	-739.11	0.00	739.11	3213.57	1606.78	7065.87	3538.19	0.73	-0.251	0.000	0.125
30.00	-31.00	-8.92	0.00	-721.18	0.00	721.18	3199.34	1599.67	6969.21	3489.78	0.84	-0.263	0.000	0.135
35.00	-29.87	-8.78	0.00	-676.60	0.00	676.60	3162.51	1581.26	6727.41	3368.71	1.13	-0.297	0.000	0.130
40.00	-28.76	-8.63	0.00	-632.72	0.00	632.72	3123.88	1561.94	6485.64	3247.64	1.46	-0.330	0.000	0.125
40.75	-28.59	-8.61	0.00	-626.25	0.00	626.25	3117.93	1558.96	6449.39	3229.49	1.52	-0.335	0.000	0.124
40.75	-28.59	-8.61	0.00	-626.25	0.00	626.25	3117.93	1558.96	6449.39	3229.49	1.52	-0.335	0.000	0.124
45.00	-27.66	-8.49	0.00	-589.66	0.00	589.66	3083.44	1541.72	6244.17	3126.72	1.83	-0.363	0.000	0.198
50.00	-26.59	-8.37	0.00	-547.19	0.00	547.19	3041.20	1520.60	6003.26	3006.09	2.24	-0.417	0.000	0.191
55.00	-25.53	-8.24	0.00	-505.36	0.00	505.36	2997.16	1498.58	5763.21	2885.89	2.70	-0.472	0.000	0.184
60.00	-24.50	-8.10	0.00	-464.19	0.00	464.19	2951.32	1475.66	5524.28	2766.24	3.23	-0.525	0.000	0.176
65.00	-23.49	-7.97	0.00	-423.68	0.00	423.68	2903.67	1451.83	5286.75	2647.30	3.81	-0.579	0.000	0.168
70.00	-21.70	-7.77	0.00	-383.84	0.00	383.84	2854.22	1427.11	5050.90	2529.20	4.44	-0.632	0.000	0.159
71.00	-21.36	-7.75	0.00	-376.07	0.00	376.07	2869.57	1434.79	5123.02	2565.32	4.57	-0.643	0.000	0.154
75.00	-20.58	-7.64	0.00	-345.07	0.00	345.07	2829.16	1414.58	4935.24	2471.29	5.13	-0.684	0.000	0.147
80.00	-19.62	-7.50	0.00	-306.88	0.00	306.88	2777.01	1388.51	4702.41	2354.70	5.87	-0.733	0.000	0.137
85.00	-18.68	-7.36	0.00	-269.39	0.00	269.39	2723.06	1361.53	4471.94	2239.29	6.67	-0.780	0.000	0.127
90.00	-17.77	-7.21	0.00	-232.61	0.00	232.61	2667.31	1333.66	4244.12	2125.22	7.51	-0.824	0.000	0.116
95.00	-13.64	-5.45	0.00	-196.56	0.00	196.56	2609.76	1304.88	4019.22	2012.60	8.40	-0.866	0.000	0.103
100.00	-12.84	-5.32	0.00	-169.32	0.00	169.32	2550.40	1275.20	3797.52	1901.58	9.32	-0.906	0.000	0.094
105.00	-12.00	-5.12	0.00	-142.54	0.00	142.54	2489.24	1244.62	3579.29	1792.30	10.29	-0.943	0.000	0.084
110.00	-11.24	-5.00	0.00	-116.93	0.00	116.93	2426.28	1213.14	3364.80	1684.90	11.30	-0.977	0.000	0.074
115.00	-10.05	-4.86	0.00	-91.95	0.00	91.95	1783.00	891.50	2427.68	1215.65	12.34	-1.008	0.000	0.081
120.00	-9.43	-4.74	0.00	-67.64	0.00	67.64	1739.91	869.95	2280.12	1141.75	13.41	-1.034	0.000	0.065
123.00	-6.80	-2.85	0.00	-53.17	0.00	53.17	1713.19	856.59	2192.59	1097.92	14.06	-1.050	0.000	0.052
125.00	-6.60	-2.80	0.00	-47.47	0.00	47.47	1695.01	847.51	2134.69	1068.93	14.51	-1.059	0.000	0.048
130.00	-6.11	-2.69	0.00	-33.44	0.00	33.44	1648.31	824.16	1991.67	997.31	15.63	-1.079	0.000	0.037
131.00	-3.68	-1.58	0.00	-30.75	0.00	30.75	1638.75	819.38	1963.38	983.15	15.85	-1.083	0.000	0.034
135.00	-3.36	-1.50	0.00	-24.42	0.00	24.42	1599.81	799.90	1851.33	927.04	16.77	-1.095	0.000	0.028
140.00	-2.98	-1.39	0.00	-16.94	0.00	16.94	1549.50	774.75	1713.96	858.25	17.92	-1.108	0.000	0.022
145.00	-2.61	-1.29	0.00	-9.99	0.00	9.99	1497.39	748.69	1579.82	791.09	19.09	-1.118	0.000	0.014
150.00	-2.26	-1.19	0.00	-3.56	0.00	3.56	1443.48	721.74	1449.20	725.68	20.26	-1.124	0.000	0.006
150.00	-2.26	-1.19	0.00	-3.56	0.00	3.56	1443.48	721.74	1449.20	725.68	20.26	-1.124	0.000	0.006
153.00	0.00	-1.14	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	20.97	-1.125	0.000	0.000

Final Analysis Summary

Structure: CT01499-S-SBA	Code: EIA/TIA-222-G	7/9/2019
Site Name: Torrington	Exposure: C	
Height: 153.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: B - Competent Rock	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 41



Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	47.0	0.00	48.57	0.00	0.00	4922.43
0.9D + 1.6W 105 mph Wind	47.0	0.00	36.40	0.00	0.00	4885.06
1.2D + 1.0Di + 1.0Wi 40 mph Wind	7.1	0.00	82.24	0.00	0.00	736.48
1.2D + 1.0E	0.9	0.00	48.66	0.00	0.00	100.91
0.9D + 1.0E	0.9	0.00	36.49	0.00	0.00	100.05
1.0D + 1.0W 60 mph Wind	9.6	0.00	40.54	0.00	0.00	1000.73

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-31.88	-41.79	0.00	-2903.4	0.00	-2903.4	3083.44	1541.7	6244.17	3126.72	45.00	0.940
0.9D + 1.6W 105 mph Wind	-23.58	-41.50	0.00	-2873.4	0.00	-2873.4	3083.44	1541.7	6244.17	3126.72	45.00	0.927
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-60.14	-6.27	0.00	-432.32	0.00	-432.32	3083.44	1541.7	6244.17	3126.72	45.00	0.158
1.2D + 1.0E	-33.26	-0.71	0.00	-63.68	0.00	-63.68	3083.44	1541.7	6244.17	3126.72	45.00	0.031
0.9D + 1.0E	-24.95	-0.70	0.00	-62.98	0.00	-62.98	3083.44	1541.7	6244.17	3126.72	45.00	0.028
1.0D + 1.0W 60 mph Wind	-27.66	-8.49	0.00	-589.66	0.00	-589.66	3083.44	1541.7	6244.17	3126.72	45.00	0.198

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Req'd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Req'd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
27.8	40.8	(3) PLT-8"x1.25"(1.25Hole)	421.0	7.58	37.1	359.2	37.1	10	14	367.9	37.1	10	14	389.75	551.4	506.25	0.770



Monopole Mat Foundation Design

Date
7/8/2019

Customer Name:	T-Mobile	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	153
Site Number:	CT01499-S-SBA	Engineer Name:	J. Chen
Engr. Number:	77998	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	82.2	Shear Force (Kips):	47.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4922.4

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	0.25	Thickness of Pad (ft):	4.00
Length of Pad (ft.):	29	Width of Pad (ft.):	29

Final Length of pad (ft)	29.0	Final width of pad (ft):	29.0
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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 #:	10	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	47	Tie Spacing (in):	8.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26
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Rebar at the top of the concrete pad:

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

Soil Design Parameters:

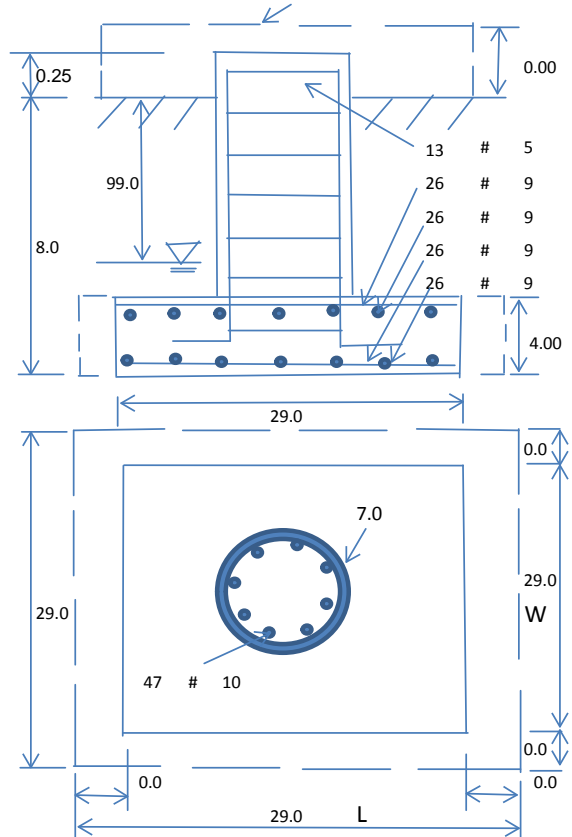
Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	4500	Ultimate Skin Friction:	425	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	3210.06	Total Dry Soil Weight (Kips):	353.11
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	353.11	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3527.56	Total Dry Concrete Weight (Kips):	529.13
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	529.13	Total Vertical Load on Base (Kips):	964.44

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1969	<	Allowable Factored Soil Bearing (psf):	3375	0.58	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	12705.1	>	Design Factored Momont (kips-ft):	4944	0.39	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.57					OK!



Check the capacities of Reinforcing Concrete:

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

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.27	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	9234.8	> Design Factored Moment (Mu, Kips-F	5122.2	0.55	OK!
Calculated Shear Capacity (Kips):	767.8	> Design Factored Shear (Kips):	47.0	0.06	OK!
Calculated Tension Capacity (Tn, Kips):	3223.3	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7269.2	> Design Factored Axial Load (Pu Kips):	82.2	0.01	OK!
Moment & Axial Strength Combination:	0.55	OK! Check Tie Spacing (Design/Required):		0.6667	OK!
Pier Reinforcement Ratio:	0.011	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1270.5	> One-Way Factored Shear (L-D. Kips):	308.8	0.24	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1270.5	> One-Way Factored Shear (W-D., Kips)	308.8	0.24	OK!
One-Way Design Shear Capacity (Corner-Corner, Kips):	1165.6	> One-Way Factored Shear (C-C, Kips):	287.8	0.25	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0017	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0017		
Lower Steel Pad Moment Capacity (L-Direction, Kips-ft):	5096.3	> Moment at Bottom (L-Dir. K-Ft):	2189.2	0.43	OK!
Lower Steel Pad Moment Capacity (W-Direction, Kips-ft):	5096.3	> Moment at Bottom (W-Dir. K-Ft):	2189.2	0.43	OK!
Lower Steel Pad Moment Capacity (Corner-Corner, K-ft):	7177.4	> Moment at Bottom (C-C Dir. K-Ft):	3096.0	0.43	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0017	OK! Upper Steel Reinf. Ratio (W-Dir.):	0.0017		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5096.3	> Moment at the top (L-Dir K-Ft):	852.0	0.17	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5096.3	> Moment at the top (W-Dir K-Ft):	852.0	0.17	OK!
Upper Steel Pad Moment Capacity (Corner-Corner, K-ft):	7177.4	> Moment at the top (C-C Dir. K-Ft):	796.1	0.11	OK!

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

Moment transferred by punching shear:	1969.0	k-ft.	Max. factored shear stress $v_{u,CD}$:	3.6	Psi
Max. factored shear stress $v_{u,AB}$:	10.4	Psi	Factored shear Strength ϕv_n :	164.3	Psi
Max. factored shear stress v_u :	10.4	Psi	Check Usage of Punching Shear Capacity:	0.06	OK!

EXHIBIT 8

MODIFICATION AND DESIGN DRAWINGS FOR EXISTING ANTENNA MOUNTS EXISTING MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: CT01499-S
CARRIER SITE #/NAME: CT11536A / TORRINGTON
COORDINATES (LATITUDE: 41.822991°, LONGITUDE: -73.077199°)

PLEASE NOTE THIS SET OF DRAWINGS ARE FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	ANTENNA MOUNT MODIFICATION DETAILS	0
A-2	ANTENNA MOUNT PHOTOS	0
D-1	STANDARD DETAILS	0
MS-HR35-18	METROSITE SUPPORT RAIL KIT	
MS-H1436	METROSITE HEAVY COLLAR MOUNT PLATE ASSEMBLY DETAIL	
MPHW-1	METROSITE HEAVY COLLAR MOUNT PLATE WELDMENT DETAIL	
MS-TAW-350RO	METROSITE ROTATABLE T-ARM KIT	

NOTE:
1. THE MODIFICATION DRAWINGS ARE BASED ON THE
TES PROJECT NO. 77894, DATED 06/20/19.



Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PH: (972) 483-0607



5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
81226
CUSTOMER SITE NO:
CT01499-S-SBA
CUSTOMER SITE NAME:
TORRINGTON
1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790



DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	RK	07/22/19

SHEET TITLE:
TITLE SHEET

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SHEET NUMBER: **T-1** | REV #: **0**

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	SHEET LIST	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
MATERIAL & HARDWARE							
1	1	MS-H1436	METROSITE HEAVY COLLAR MOUNT ASSEMBLY	A-1, MS-H1436	138.0	138.0	Galvanized
1	1	MS-HR35-18	METROSITE SUPPORT RAIL KIT	A-1, MS-HR35-18	523.0	523.0	Galvanized
FOLLOWING ITEMS ARE "CUSTOM" PARTS							
6	6	PX2375-10	2" PST (2.375" O.D. X 0.218" THK) X 10'-0" A53 GR-B	A-1	51.34	308.0	GALVANIZED
1	1	MS-TAW-350RO	METROSITE ROTATABLE T-ARM KIT	A-1	284.00	284.0	GALVANIZED
6	6	PL400-2375	PL 3/8" X 7 1/8" X 11" A36	D-1	8.50	51.0	GALVANIZED
12	13	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	D-1	1.17	16.0	(2) HHN & LKW-EA GALVANIZED
12	13	MS02-625-4625-700	RU-BOLT 5/8" X 4 5/8" I.W. X 7" I.L. A36 (OR EQUIV.)	D-1	1.60	21.8	(2) HHN & LKW-EA GALVANIZED
ALL METROSITE PARTS ARE AVAILABLE FROM METROSITE, LLC.							
180 IND PARK BLVD COMMERCE, GA 30529							
OFFICE: (706) 335-7045							
FAX: (706) 335-7056							
NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.							
TOTAL WEIGHT (LBS) =						1341.9	



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 BOCA RATON, FL 33487
 (800)-487-SITE

TES JOB NO:
81226

CUSTOMER SITE NO:
CT01499-S-SBA
 CUSTOMER SITE NAME:
TORRINGTON
 1925-1931 EAST MAIN STREET
 TORRINGTON, CT 06790

DRAWN BY: RK CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	RK	07/22/19

SHEET TITLE:

BILL OF MATERIALS

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SHEET NUMBER: **BOM** REV #: **0**

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.
7. IT IS THE RESPONSIBILITY OF THE GC TO VERIFY THAT THERE IS NO INTERFERENCES (WITH SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.
8. PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESCONSTRUCTION@TESTOWER.US

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RSCC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2015 SECTION 1705 FOR STEEL CONSTRUCTION AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING^{a,b}

BOLT LENGTH ^f	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 ^d	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS ^d
NOT MORE THAN 4d _b	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN 4d _b BUT NOT MORE THAN 8d _b	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN 8d _b BUT NOT MORE THAN 12d _b	2/3 TURN	5/6 TURN	1 TURN

^a NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

^b APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

^c WHEN THE BOLT LENGTH EXCEEDS 12d_b, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

^d BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004 RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.



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(800)-487-SITE

TES JOB NO:
81226

CUSTOMER SITE NO:
CT01499-S-SBA
CUSTOMER SITE NAME:
TORRINGTON

1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790

DRAWN BY: RK | CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	RK	07/22/19

SHEET TITLE:

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SHEET NUMBER:

GN-1

REV #:

0

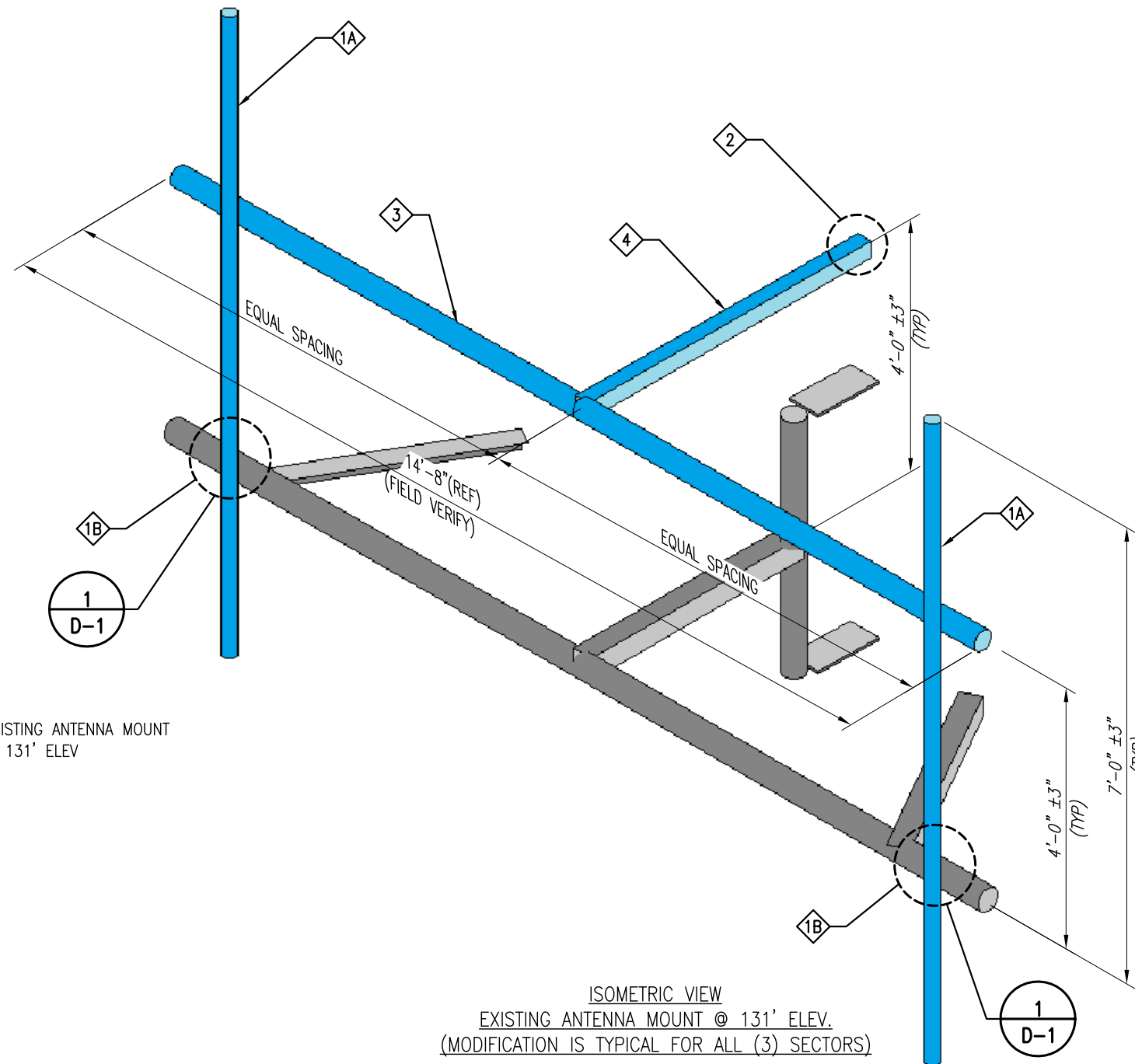
SCOPE OF WORK

- 1 A. REPLACE ALL EXISTING ANTENNA MOUNT PIPES WITH NEW 2" PX PIPES (10'-0" LONG) THEN RELOCATE EXISTING ANTENNAS TO NEW MOUNT PIPES (TYP). (2) PER SECTOR. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.
- B. INSTALL NEW CROSSOVER PLATE. (2) PER SECTOR. SEE SHEET D-1 FOR DETAILS.
- 2 INSTALL NEW HEAVY COLLAR MOUNT (NOT SHOWN FOR CLARITY). SEE SHEET MS-H1436 FOR DETAILS.
- 3 INSTALL NEW SUPPORT RAIL KIT. SEE SHEET MS-HR35-18 FOR DETAILS.
- 4 INSTALL NEW ROTATABLE T-ARM KIT. SEE SHEET MS-TAW-350RO FOR DETAILS.
- 5 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.



PHOTO 1

EXISTING ANTENNA MOUNT @ 131' ELEV



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 131' ELEV.
(MODIFICATION IS TYPICAL FOR ALL (3) SECTORS)

GC NOTE:

- 1. IT IS THE RESPONSIBILITY OF THE GC TO VERIFY THAT THERE IS NO INTERFERENCES WITH (PORT HOLES, SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.
- 2. PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESCONSTRUCTION@TESTOWER.US

NOTES:

- 1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
- 2. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS.
- 3. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
- 4. MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS.

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	6	PX2375-10	2" PST (2.375" O.D. X 0.218" THK) X 10'-0" A53 GR-B
2	1	MS-H1436	METROSITE HEAVY COLLAR MOUNT ASSEMBLY
3	1	MS-HR35-18	METROSITE SUPPORT RAIL KIT
4	1	MS-TAW-350RO	METROSITE ROTATABLE T-ARM KIT



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TES JOB NO:
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CUSTOMER SITE NO:
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CUSTOMER SITE NAME:
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1925-1931 EAST MAIN STREET
TORRINGTON, CT 06790

DRAWN BY: RK CHECKED BY: KN/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	RK	07/22/19

SHEET TITLE:

ANTENNA MOUNT
MODIFICATION DETAILS

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SHEET NUMBER: A-1 REV #: 0



PHOTO 1

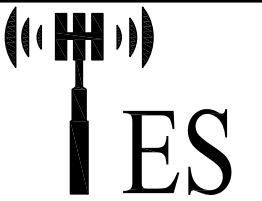


PHOTO 2

EXISTING EQUIPMENT MUST BE RELOCATED UP OR DOWN ALONG THE MEMBER TO ACCOMMODATE INSTALLATION OF MOUNT MODIFICATION



PHOTO 3



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 BOCA RATON, FL 33487
 (800)-487-SITE

TES JOB NO:
 81226
 CUSTOMER SITE NO:
 CT01499-S-SBA
 CUSTOMER SITE NAME:
 TORRINGTON
 1925-1931 EAST MAIN STREET
 TORRINGTON, CT 06790

DRAWN BY: RK | CHECKED BY: KN/HMA

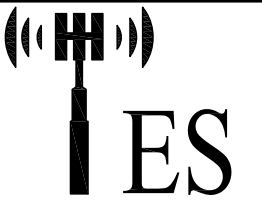
REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	RK	07/22/19

SHEET TITLE:

ANTENNA MOUNT
 PHOTOS

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CUSTOMER SITE NAME:
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1	FIRST ISSUE	RK	07/22/19

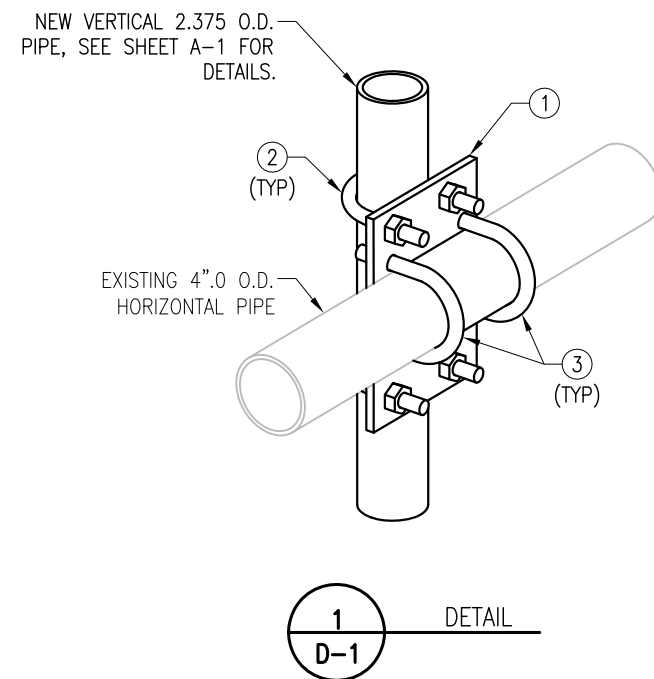
SHEET TITLE:

STANDARD DETAILS

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SHEET NUMBER: | REV #:

D-1 | 0



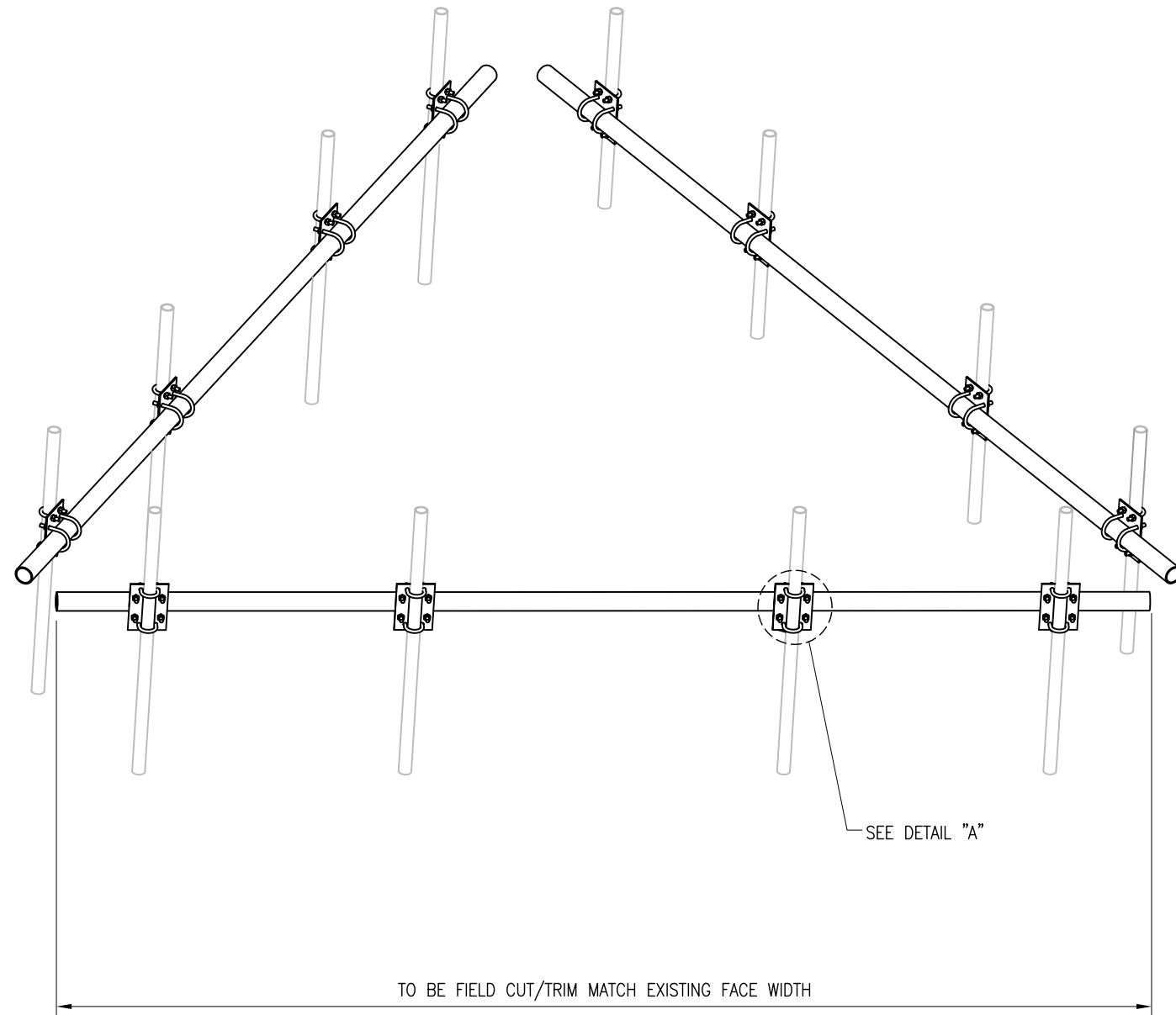
- NOTES:
- HOT-DIPPED GALVANIZED PER ASTM A123.
 - ALL HOLES ARE 11/16" DIA. U.N.O

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	6	PL400-2375	PL 3/8" X 7 1/8" X 11" A36
2	12	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)
3	12	MS02-625-4625-700	RU-BOLT 5/8" X 4 5/8" I.W. X 7" I.L. A36 (OR EQUIV.)

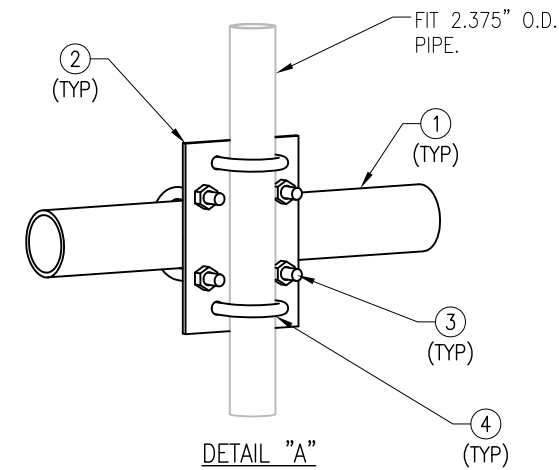
THE FOLLOWING DRAWINGS ARE INCLUDED FOR REFERENCE ONLY
PLEASE REFER TO THE INSTALLATION DRAWINGS FOR ACTUAL INSTALLATION DETAILS

MS-HR35-18

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	3PST-216	3" PST (3.50" O.D X .216" THICK) X 18'-0"	A53 GR-B	HR35-18	430.2
2	12	PL375-10	PL 3/8" X 7 1/8" X 10"	A36	TAF-1	92.4
3	24	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
4	24	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
GALVANIZED WT						523



ELEVATION VIEW



NOTES:

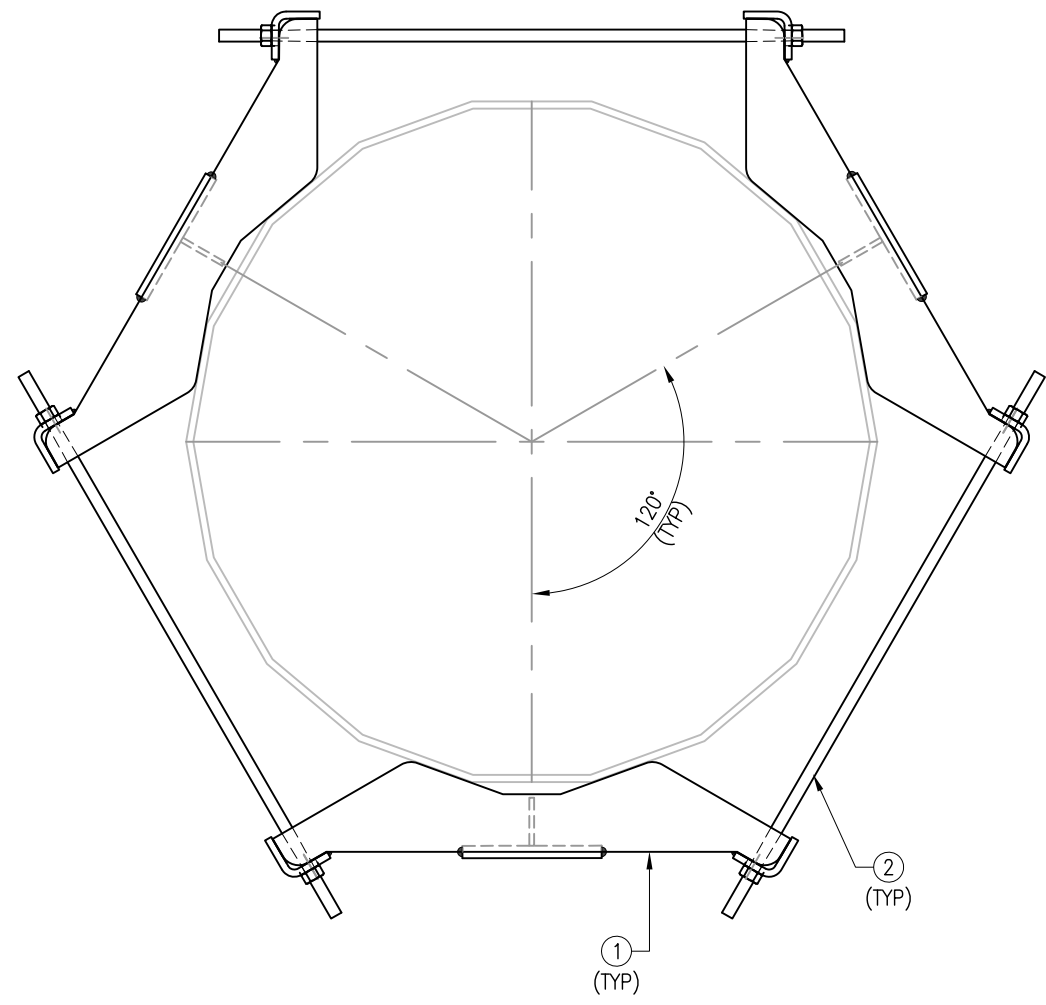
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.

THIRD ANGLE PROJECTION			METROSITE FABRICATORS LLC 180 INDUSTRIAL PARK BLVD. COMMERCE GA 30529	
			TITLE MS-HR35-18 SUPPORT RAIL KIT	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH		CONFIDENTIAL ALL INFORMATION ON THIS DOCUMENT IS PROPERTY OF METROSITE FABRICATORS LLC		SIZE/DWG NO B MS-HR35-18
STANDARD SHEET TOLERANCES		APPROVAL / SIGNATURES	DATE	REV 0
DECIMALS .X ± 0.1 .XX ± 0.02 .XXX ± 0.005	ANGLES ± 1° FRACTIONS ± 1/32	DRAWN BY XXX REVIEWED XXX APPROVED XXX	05/12/17 - -	SCALE -
			SHEET 1 OF 1	

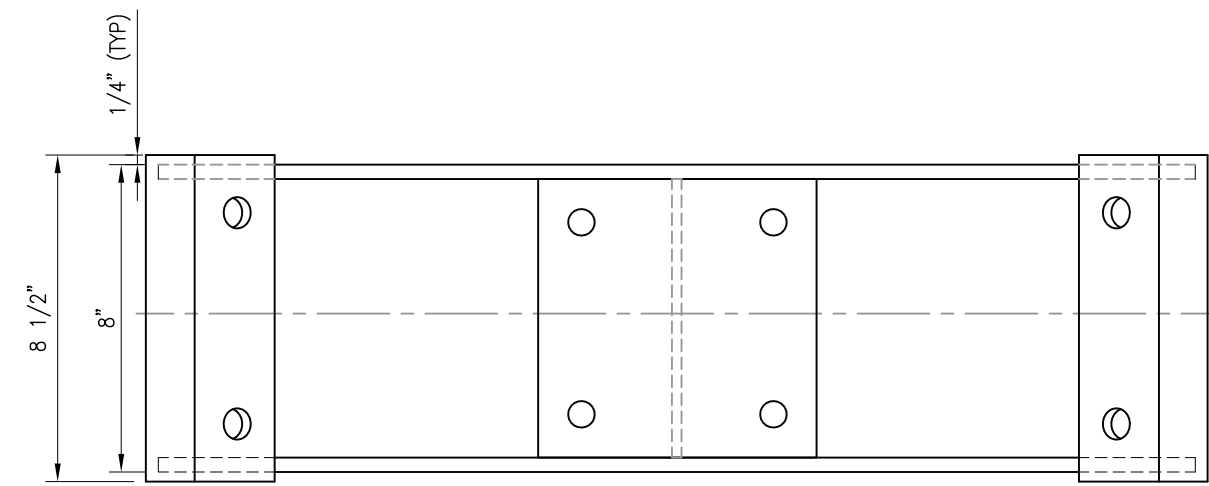
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	MPHW-1	MOUNT PLATE WELDMENT A36
2	6	---	THREADED ROD 3/4" X 2'-4 3/4" W/ 2 HHN & LW EA A36

GALVANIZED WEIGHT: 136.7 LBS

NOTE:
1) FITS 12" DIA TO 32" DIA.



TOP VIEW

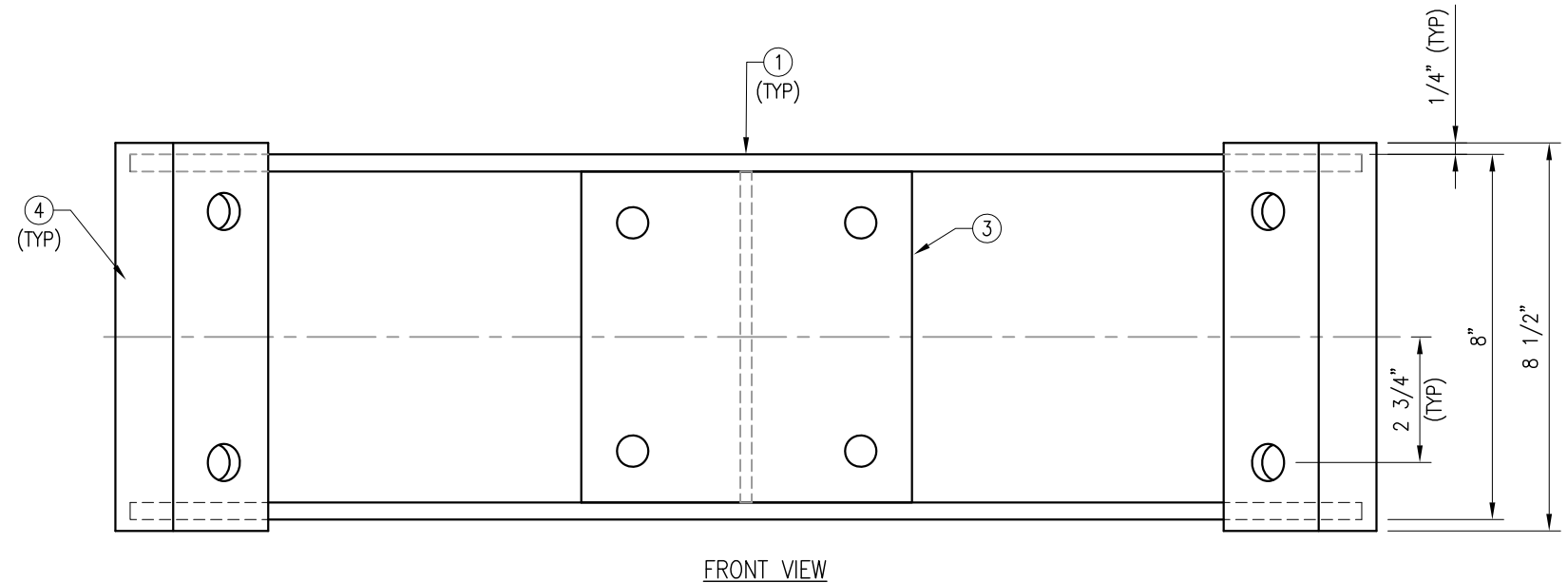
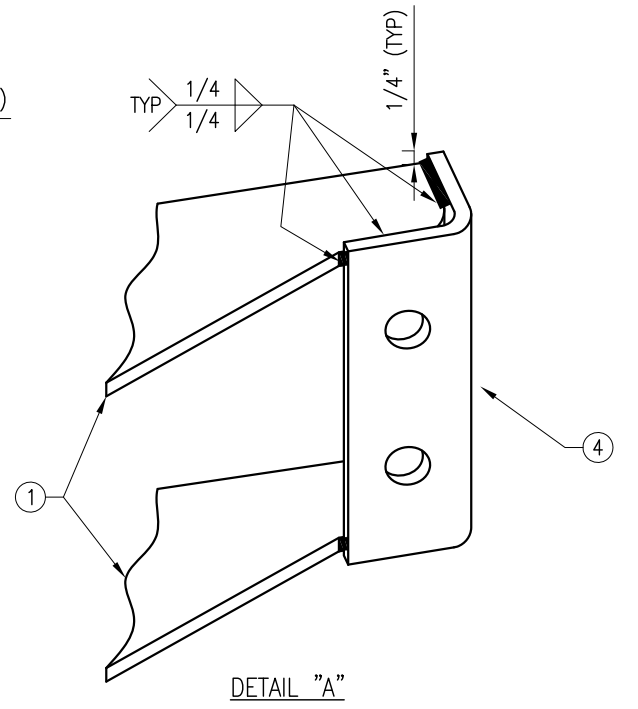
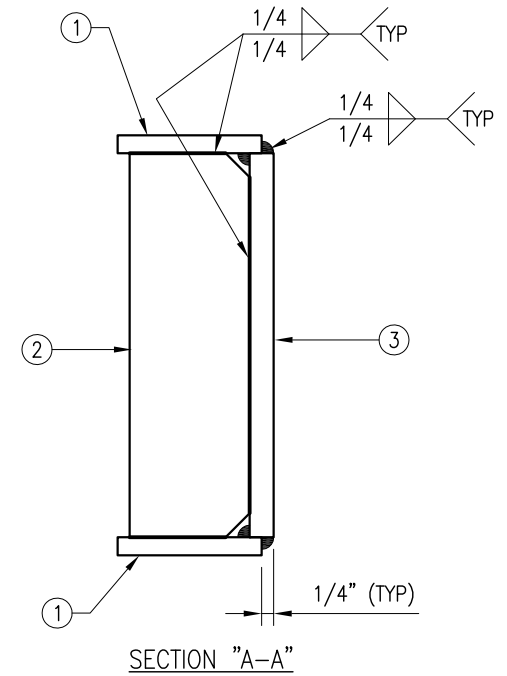
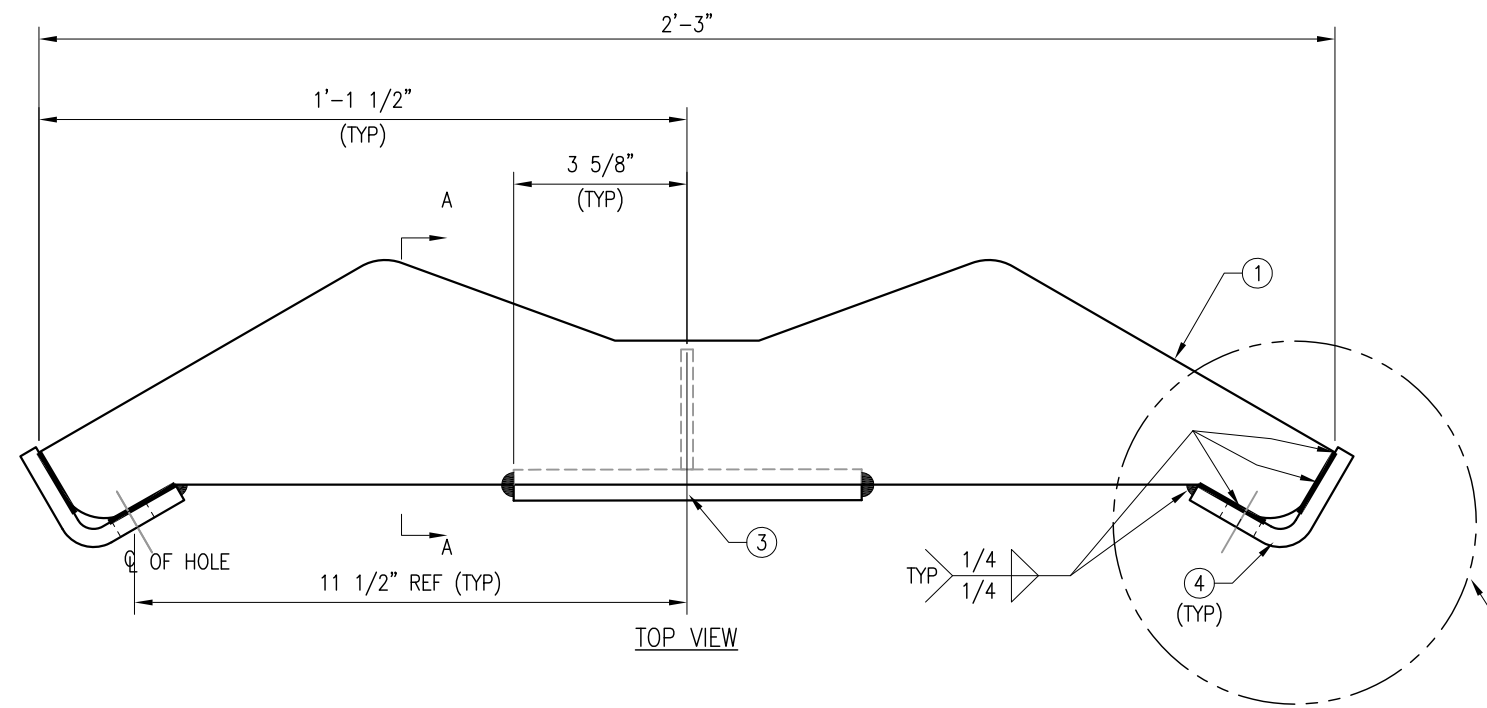


FRONT VIEW

THIRD ANGLE PROJECTION 		 METROSITE FABRICATORS LLC 180 INDUSTRIAL PARK BLVD. COMMERCE GA 30529
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH		CONFIDENTIAL ALL INFORMATION ON THIS DOCUMENT IS PROPERTY OF METROSITE FABRICATORS LLC
STANDARD SHEET TOLERANCES DECIMALS .X ± 0.1 .XX ± 0.02 .XXX ± 0.005 ANGLES ± 1° FRACTIONS ± 1/32		TITLE HEAVY COLLAR MOUNT PLATE ASSEMBLY DETAIL MS-H1436
APPROVAL / SIGNATURES DRAWN BY: XXX REVIEWED: XXX APPROVED: XXX		DATE 05/12/17 - -
SIZE/DWG NO B MS-H1436		REV 1
SCALE -		SHEET 1 OF 1

- NOTES:
 1. HOT-DIPPED GALVANIZED PER ASTM A123.
 2. WELD TYPE: E70XX.

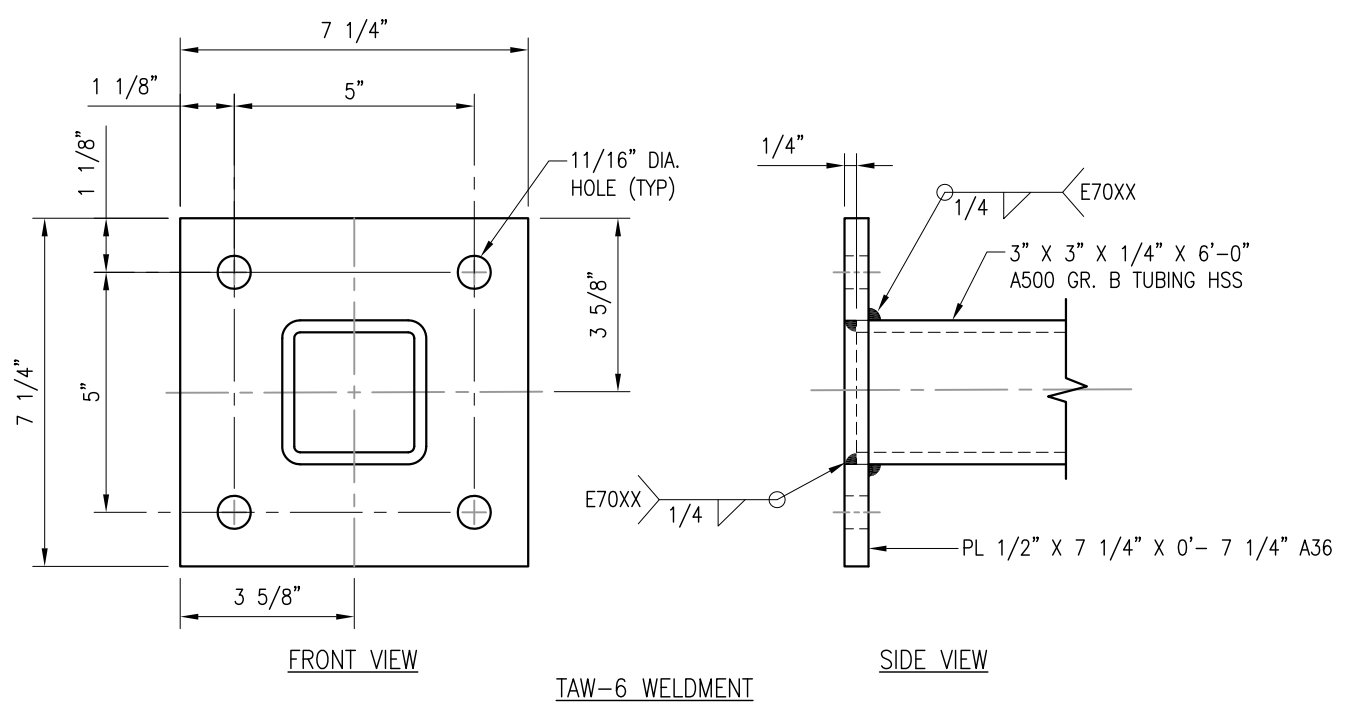
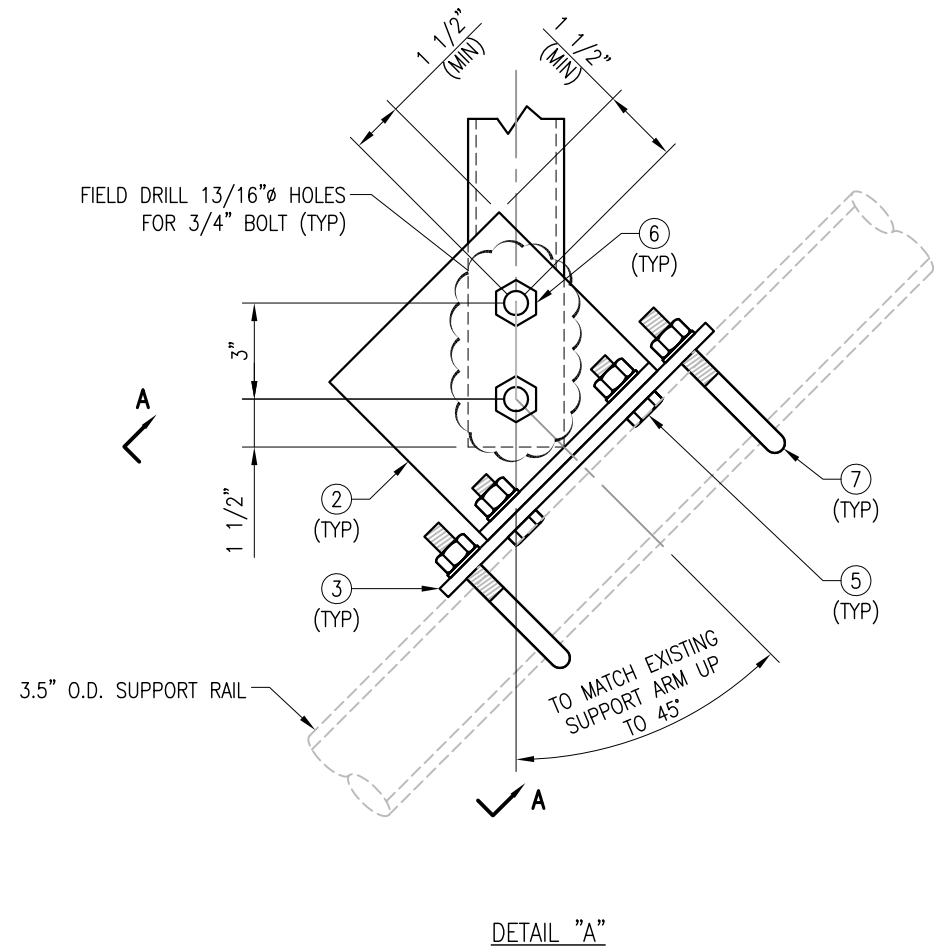
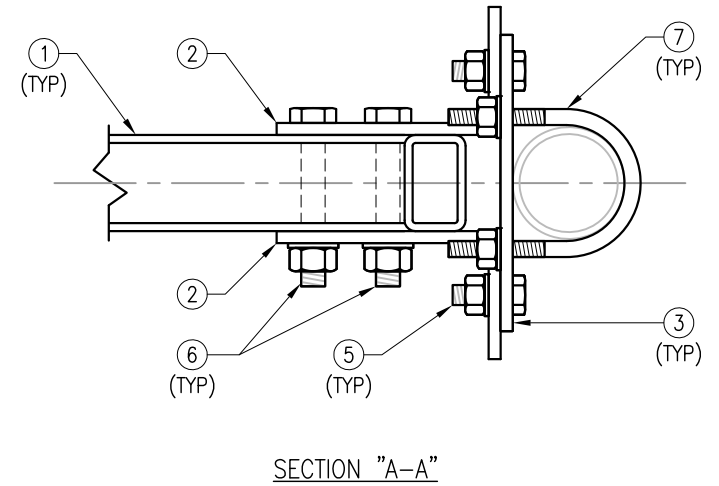
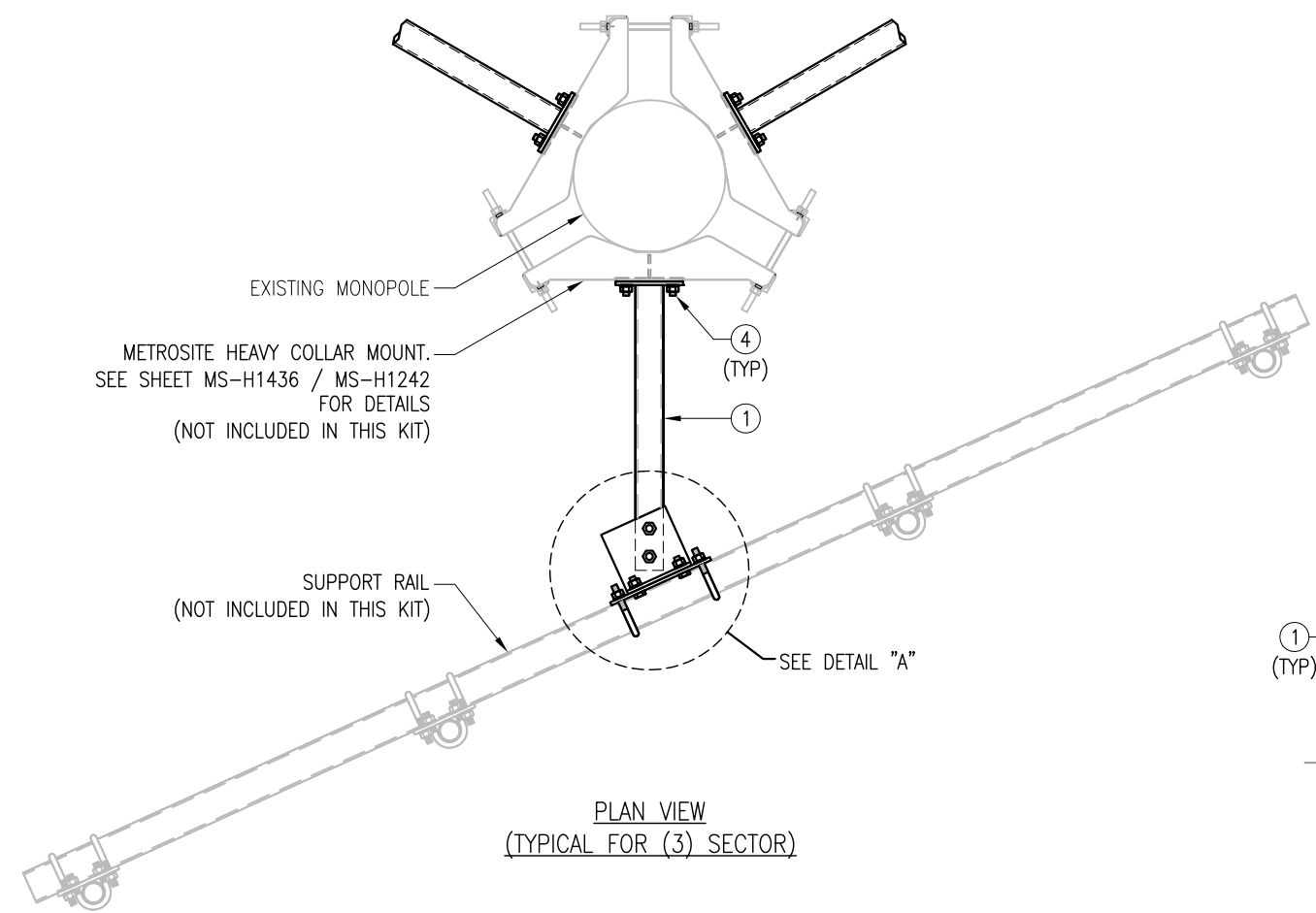
MPHW-1 WELDMENT						
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	2	PL-4	PL 3/8" X 5 3/8" X 2'-3"	A36	F-2	18.8
2	1	PL-5	PL 3/8" X 2 1/2" X 0'-7 1/4"	A36	F-2	1.9
3	1	PL-6	PL 1/2" X 7 1/4" X 0'-7 1/4"	A36	F-2	7.5
4	2	PL-7	PL 3/8" X 4 3/8" X 8 1/2"	A36	F-2	7.8
BLACK WT						36
GALVANIZED WT						38



FRONT VIEW
 MPW-1 WELDMENT

THIRD ANGLE PROJECTION						METROSITE FABRICATORS LLC 180 INDUSTRIAL PARK BLVD. COMMERCE GA 30529	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH				CONFIDENTIAL ALL INFORMATION ON THIS DOCUMENT IS PROPERTY OF METROSITE FABRICATORS LLC			
STANDARD SHEET TOLERANCES DECIMALS .X ± 0.1 .XX ± 0.02 .XXX ± 0.005				ANGLES ± 1° FRACTIONS ± 1/32		TITLE HEAVY COLLAR MOUNT PLATE WELDMENT DETAIL	
APPROVAL / SIGNATURES		DATE		SIZE/DWG NO		REV	
DRAWN BY: XXX		05/12/17		B MPHW-1		0	
REVIEWED: XXX		-		SCALE		-	
APPROVED: XXX		-		SHEET 1 OF 1			

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	TAW-6	T-ARM WELDMENT	A36	TAW-6	192
2	6	TARM-CPL-750	PL 3/8" X 7 1/2" X 9 7/16" A36 BENT PLATE	A36	BK-5	47.4
3	3	TARM-CPL-1175	PL 3/8" X 9 1/4" X 11 3/4"	A36	BK-5	36.3
4	12	---	BOLT 5/8" X 2 1/4" A325 W/ HHN & LKW EA.	A325	---	---
5	12	---	BOLT 5/8" X 2" A325 W/ HHN & LKW EA.	A325	---	---
6	6	---	BOLT 3/4" X 5" A325 W/ HHN & LKW EA.	A325	---	---
7	6	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	---	RBC-1	8.7
GALVANIZED WT						284



- NOTES:
- HOT-DIPPED GALVANIZED PER ASTM A123.
 - ALL HOLES ARE 11/16" DIA. U.N.O

THIRD ANGLE PROJECTION						METROSITE FABRICATORS LLC 180 INDUSTRIAL PARK BLVD. COMMERCE GA 30529	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH				CONFIDENTIAL ALL INFORMATION ON THIS DOCUMENT IS PROPERTY OF METROSITE FABRICATORS LLC			
STANDARD SHEET TOLERANCES		APPROVAL / SIGNATURES		DATE		TITLE	
DECIMALS	ANGLES	DRAWN BY XXX		11/19/18		SIZE DWG NO	
.X ± 0.1	± 1°	REVIEWED XXX		-		B MS-TAW-350RO	
.XX ± 0.02	FRACTIONS	APPROVED XXX		-		SCALE	
.XXX ± 0.005	± 1/32					SHEET 1 OF 1	

EXHIBIT 9



Tower Engineering Solutions

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

Post-Mod Antenna Mount Analysis Report

Existing 153-ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT01499-S-SBA

Customer Site Name: Torrington

Carrier Name: T-Mobile (App#: 117025, V1)

Carrier Site ID / Name: CT11536A / Torrington

Site Location: 1925-1931 East Main Street

Torrington, Connecticut

Litchfield County

Latitude: 41.822991

Longitude: -73.077199

Exp.

01/31/2020



Analysis Result:

07/25/2019

Max Structural Usage: 76% [Pass]

Report Prepared By: Khaibar Noorzad

Introduction

The purpose of this report is to summarize the analysis results on the (3) T-Frame w/ Platform at 131.00' elevation including the proposed modifications to support the proposed antenna configuration. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

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

Sources of Information

Mount Drawings	Mapping by Full Metal Tower Services; Dated 04/24/2019
Antenna Loading	Provided by SBA; Application #: 117025, v1
Existing Modification	N/A
Proposed Modification	TES Project No. 81226

Analysis Criteria

Wind Speed Used in the Analysis: $V_{ULT} = 120$ mph (3-Sec. Gust) / Equivalent to
 $V_{ASD} = 93$ mph (3-Sec. Gust)

Wind Speed with Ice: 40 mph (3-Sec. Gust) with 1" radial ice concurrent

Operational Wind Speed: 60 mph +0" Radial ice

Standard/Codes: ANSI/TIA 222-G/2015 IBC / 2018 CSBC

Exposure Category: C

Structure Class: II

Topographic Category: 1

Crest Height (Ft): 0

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

Mount Information

(3) T-Frame w/ Platform at 131.00' elevation

Proposed Modifications

- (1) MetroSite Heavy Collar Mount (MS-H1436)
- (1) MetroSite Support Rail Kit (MS-HR35-18)
- (1) MetroSite Rotatable T-Arm Kit (MS-TAW-350RO)
- (6) 2" Antenna Mount Pipes (PX2375-10)

Final Antenna Configuration

- 3 EMS RR90-17-XXDP
- 3 RFS APXVAARR24_43-U-NA20
- 3 Ericsson KRY 112 144/1
- 3 Ericsson KRY 112 489/2
- 3 Ericsson Radio 4449 B71+B12

Any proposed antennas not currently installed should be mounted such that the centers of the antennas do not exceed 0.5 ft vertically from the center of the T-Frame w/ Platform.

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

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 76%, which occurs in the face horizontal. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos Before Modification
2. Antenna Placement Diagram
3. Analysis Calculations

Standard Conditions

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



Structure: CT01499-S-SBA - Torrington

Sector: A

7/19/2019

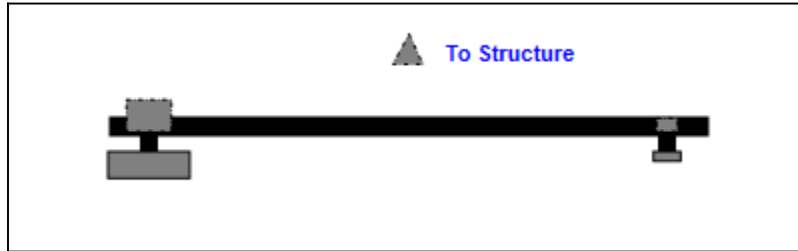
Structure Type: Monopole



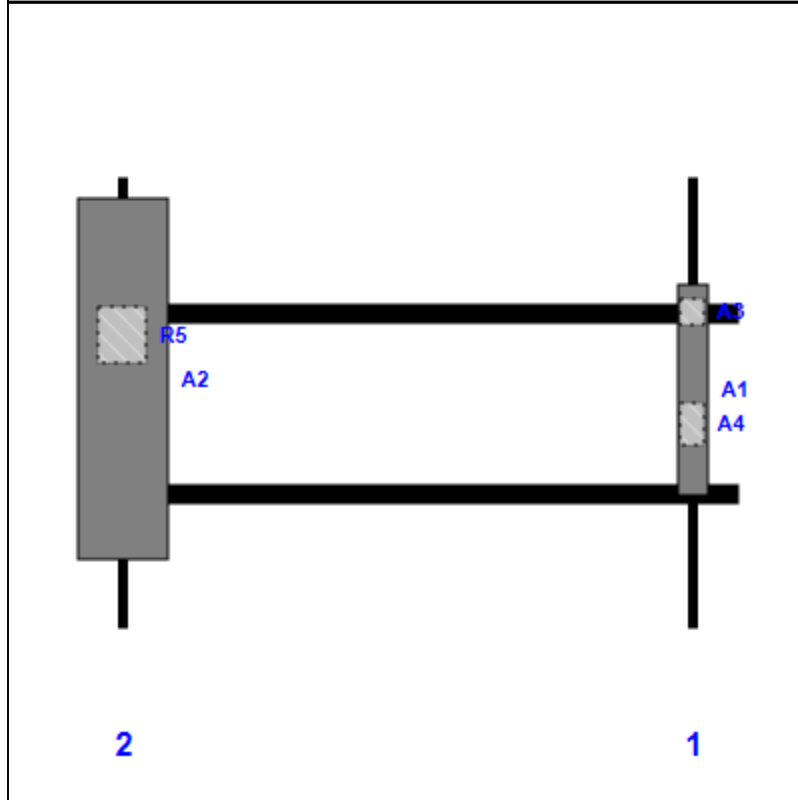
Mount Elev: 131.00

Page: 1

Plan View



Front View
Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	RR90-17-XXDP	56.00	8.00	164.00	1	a	Front	57.00	0.00
A3	KRY 112 144/1	6.90	6.10	164.00	1	a	Behind	36.00	0.00
A4	KRY 112 489/2	11.00	6.10	164.00	1	a	Behind	66.00	0.00
A2	APXVAARR24_43-U-NA20	95.90	24.00	12.00	2	a	Front	54.00	0.00
R5	Radio 4449 B71+B12	15.00	13.20	12.00	2	a	Behind	42.00	0.00

Structure: CT01499-S-SBA - Torrington

Sector: B

7/19/2019

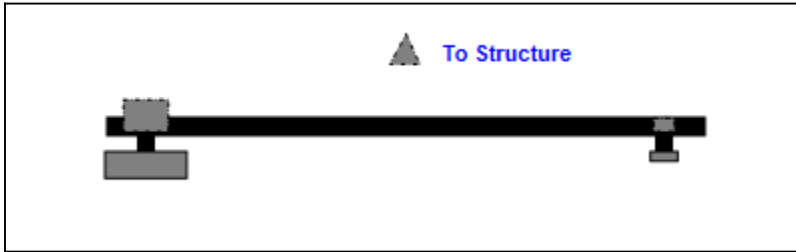
Structure Type: Monopole

Mount Elev: 131.00

Page: 2

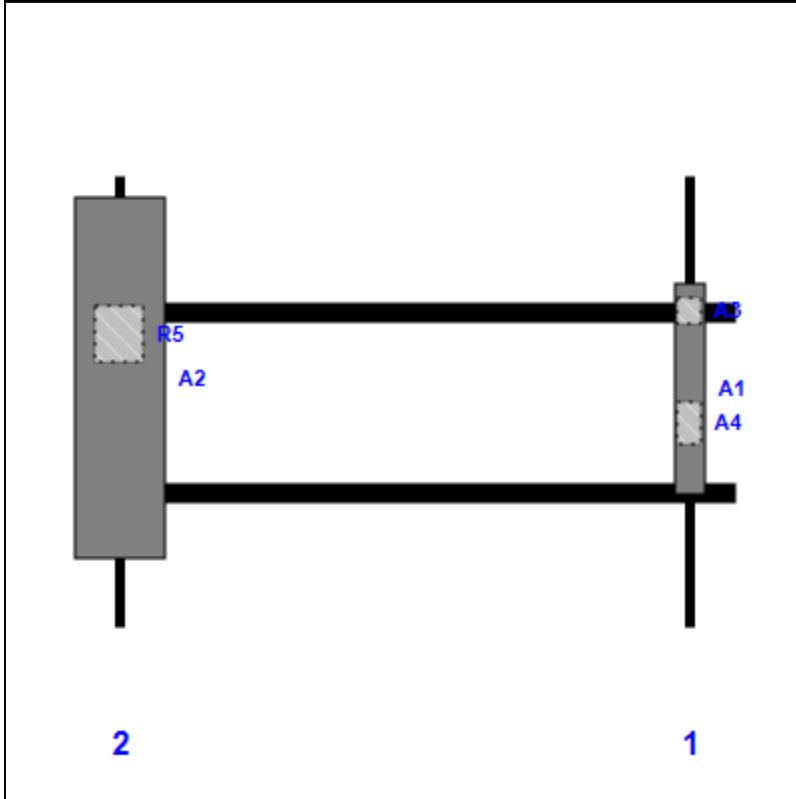


Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	RR90-17-XXDP	56.00	8.00	164.00	1	a	Front	57.00	0.00
A3	KRY 112 144/1	6.90	6.10	164.00	1	a	Behind	36.00	0.00
A4	KRY 112 489/2	11.00	6.10	164.00	1	a	Behind	66.00	0.00
A2	APXVAARR24_43-U-NA20	95.90	24.00	12.00	2	a	Front	54.00	0.00
R5	Radio 4449 B71+B12	15.00	13.20	12.00	2	a	Behind	42.00	0.00

Sector: C

7/19/2019

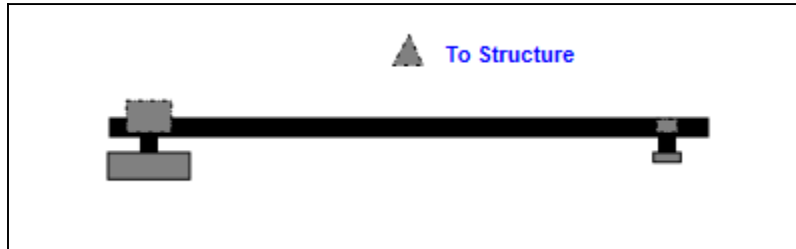
Structure Type: Monopole

Mount Elev: 131.00

Page: 3

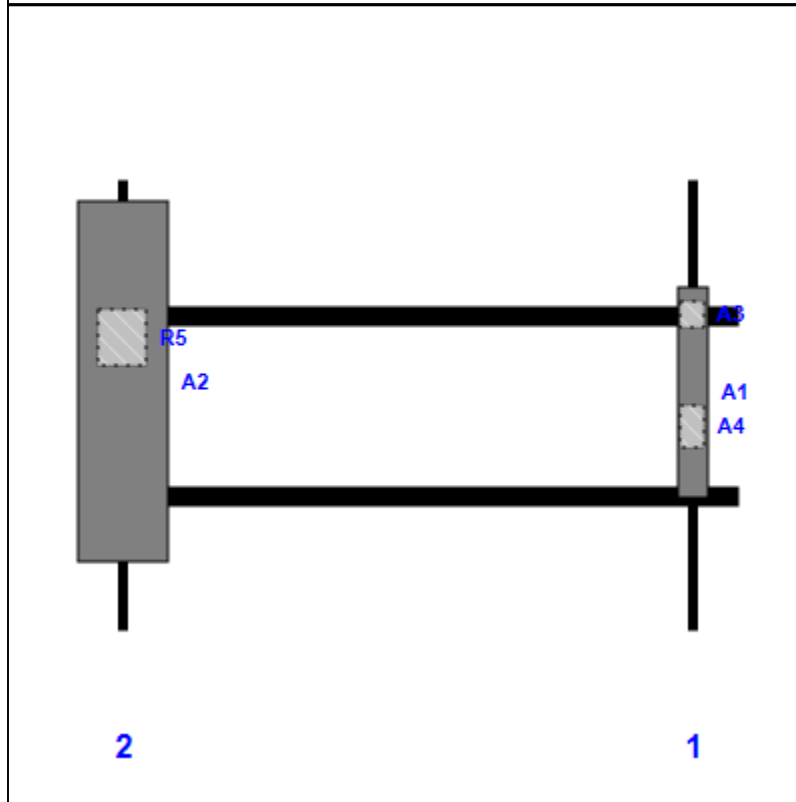


Plan View

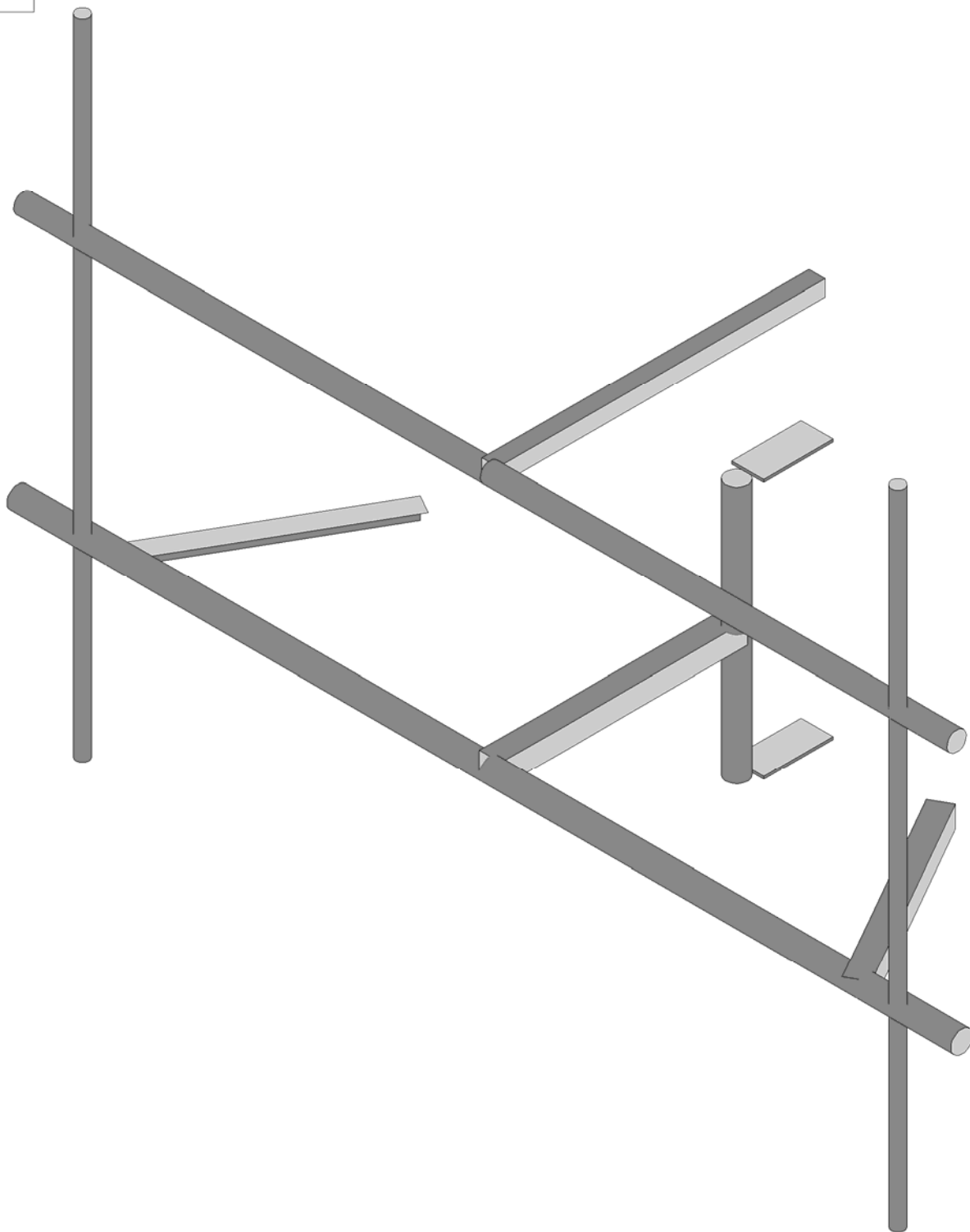
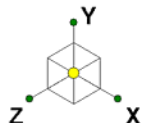


Front View

Looking Toward Structure

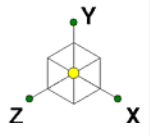


Ref #	Model	Height (in)	Width (in)	H Dist From Left	Pipe #	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	RR90-17-XXDP	56.00	8.00	164.00	1	a	Front	57.00	0.00
A3	KRY 112 144/1	6.90	6.10	164.00	1	a	Behind	36.00	0.00
A4	KRY 112 489/2	11.00	6.10	164.00	1	a	Behind	66.00	0.00
A2	APXVAARR24_43-U-NA20	95.90	24.00	12.00	2	a	Front	54.00	0.00
R5	Radio 4449 B71+B12	15.00	13.20	12.00	2	a	Behind	42.00	0.00



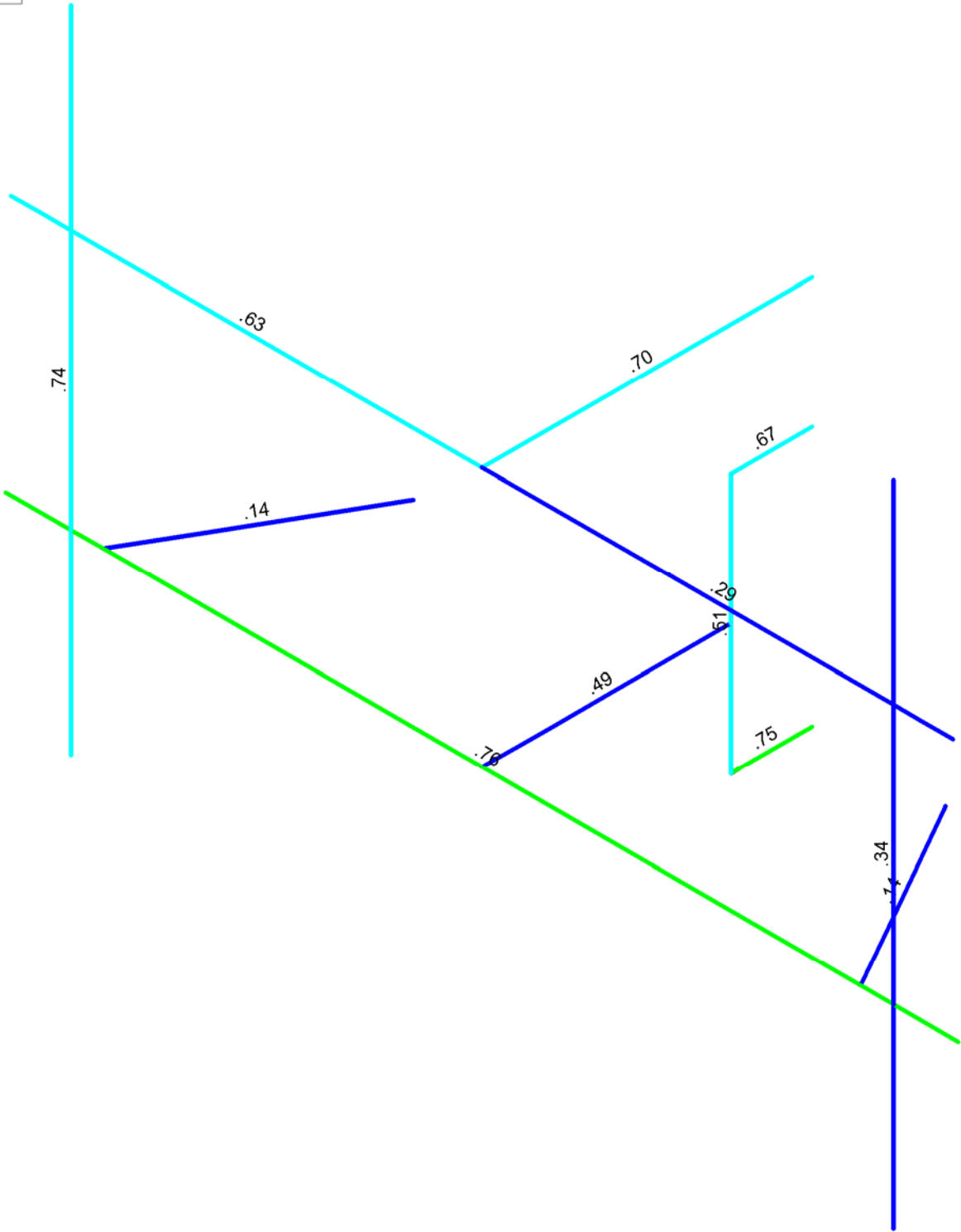
Loads: BLC 18,

Tower Engineering Solutio...	CT01499-S-SBA_MT_LOT_Loads Only_Sector A_G	SK - 1
TES Project No. 81226		July 19, 2019 at 8:33 AM
		CT01499-S-SBA_81226_G_RISA_L...



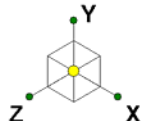
Code Check (Env)

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

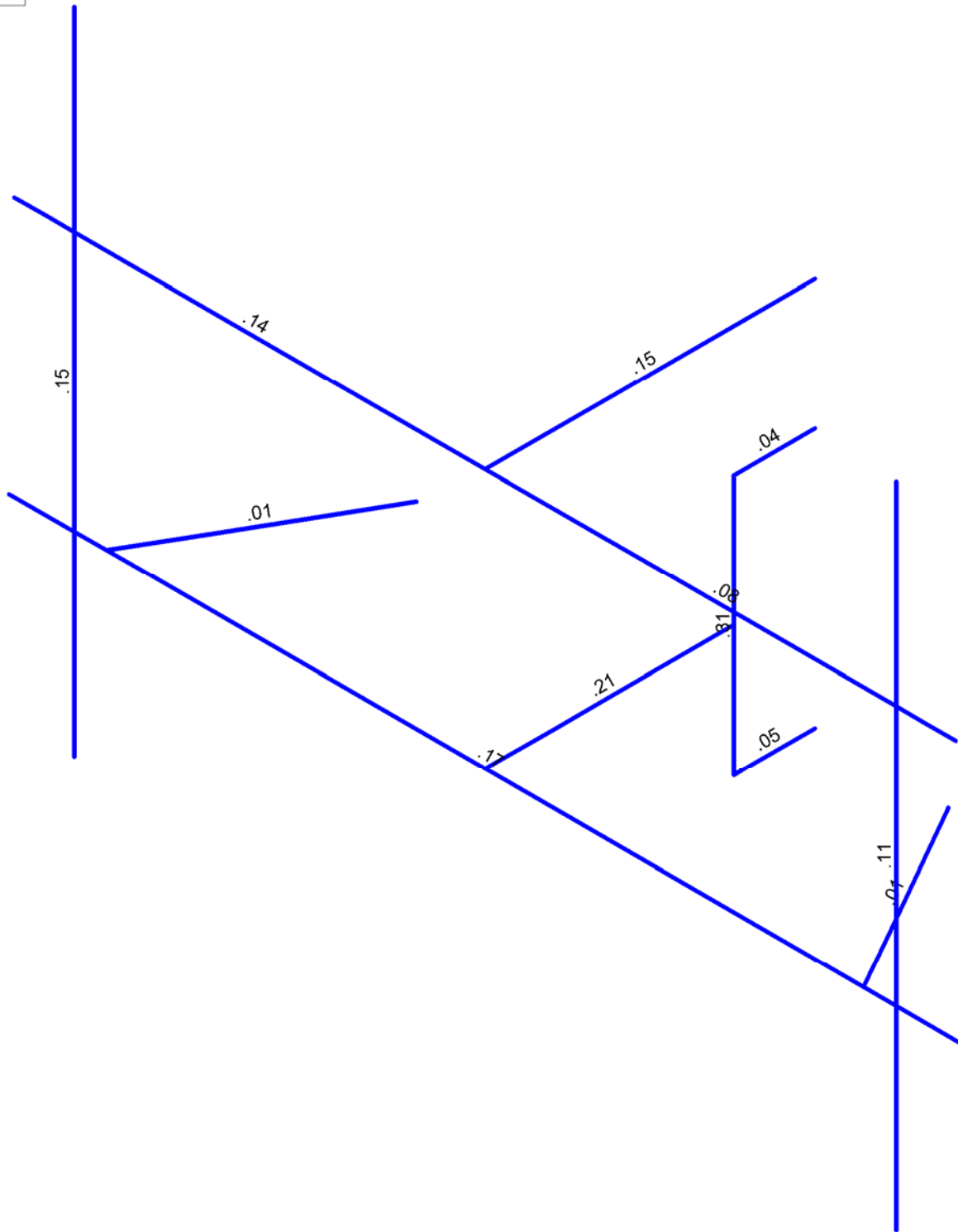


Member Code Checks Displayed (Enveloped)
 Loads: BLC 18,
 Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT01499-S-SBA_MT_LOT_Loads Only_Sector A_G	SK - 2
TES Project No. 81226		July 19, 2019 at 8:34 AM
		CT01499-S-SBA_81226_G_RISA_L...



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



Member Shear Checks Displayed (Enveloped)
 Loads: BLC 18,
 Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT01499-S-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
		July 19, 2019 at 8:34 AM
TES Project No. 81226		CT01499-S-SBA_81226_G_RISA_L...



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 81226
 Model Name : CT01499-S-SBA_MT_LOT_Loads Only_Sector A_G

July 19, 2019
 8:35 AM
 Checked By: _____

Basic Load Cases

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

Load Combinations

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

Joint Coordinates and Temperatures

Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
1	N1	0	-1.25	1.25	0
2	N2	0	3.875	1.25	0
3	N3	0	1.875	2.5	0
4	N4	0	1.875	6.333333	0
5	N5	7.333333	1.875	6.333333	0
6	N6	-7.333333	1.875	6.333333	0
7	N7	-5.833333	1.875	6.333333	0
8	N8	5.833333	1.875	6.333333	0
9	N9	-4.096847	1.875	3.294482	0
10	N10	4.096847	1.875	3.294482	0
11	N11	-6.333333	1.875	6.333333	0
12	N12	0	-1.25	2.5	0
13	N13	0	3.875	2.5	0
14	N14	0	1.875	4.333333	0
15	N15	0	1.875	5.333333	0
16	N16	0	1.875	3.333333	0
17	N17	-5.261905	1.875	5.333333	0



Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
18	N18	-4.119047	1.875	3.333333	0	
19	N19	5.261905	1.875	5.333333	0	
20	N20	4.119047	1.875	3.333333	0	
21	N21	6.333333	1.875	6.333333	0	
22	N22	-6.333333	8.875	6.333333	0	
23	N23	6.333333	8.875	6.333333	0	
24	N24	-6.333333	-1.125	6.333333	0	
25	N25	6.333333	-1.125	6.333333	0	
26	N26	7.25	5.875	6.333333	0	
27	N27	-7.25	5.875	6.333333	0	
28	N28	0	5.875	1.25	0	
29	N29	0	5.875	6.333333	0	
30	N30	-6.333333	5.875	6.333333	0	
31	N31	6.333333	5.875	6.333333	0	
32	N94	6.75	5.875	6.333333	0	
33	N99	-6.75	5.875	6.333333	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Standoff Vertical	PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
2	Antenna Mount Pipe	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Standoff Arm	HSS4X4X4	Beam	SquareTube	A500 Gr.B	Typical	3.37	7.8	7.8	12.8
4	Standoff Arm End Plate	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
5	Face Horizontal	PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
6	Grating Angle	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical	1.93	3	3	.044
7	New Support Rail	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
8	New SR End Connection	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
9	New Stronger Pipes	PIPE 2.0X	Beam	Pipe	A53 Gr.B	Typical	1.4	.827	.827	1.65
10	New Rotatable T-Arm	HSS3X3X4	Beam	SquareTube	A500 Gr.B	Typical	2.44	3.02	3.02	5.08

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	CF	4CU5.25X0375	Beam	CU	A570 Gr.33	Typical	4.854	13.238	12.817	.228

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	AL1A	AACS14...	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

Hot Rolled Steel Properties

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



Cold Formed Steel Properties

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

Aluminum Properties

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotat...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N2	N13		90	Standoff Arm End Plate	Beam	RECT	A36 Gr.36	Typical
2	M2	N1	N12		90	Standoff Arm End Plate	Beam	RECT	A36 Gr.36	Typical
3	M3	N13	N12			Standoff Vertical	Beam	Pipe	A53 Gr.B	Typical
4	M4	N6	N5			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
5	M5	N4	N3			Standoff Arm	Beam	SquareTube	A500 Gr.B Rect	Typical
6	M6	N7	N9		90	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N8	N10		180	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
8	MP2A	N22	N24			New Stronger Pipes	Beam	Pipe	A53 Gr.B	Typical
9	MP1A	N23	N25			New Stronger Pipes	Beam	Pipe	A53 Gr.B	Typical
10	M10	N27	N29			New Support Rail	Beam	Pipe	A53 Gr.B	Typical
11	M11	N28	N29			New Rotatable T-Arm	Beam	SquareTube	A500 Gr.B Rect	Typical
12	M12	N29	N26			New Support Rail	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	M1				M3		Yes				None
2	M2				M3		Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6						Yes				None
7	M7						Yes				None
8	MP2A						Yes				None
9	MP1A						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...]	Lcomp bot[...]	L-torqu...	Kyy	Kzz	Cb	Functi...
1	M1	Standoff Arm End Pl...	1.25			Lbyy			.65	.65		Lateral
2	M2	Standoff Arm End Pl...	1.25			Lbyy			.65	.65		Lateral
3	M3	Standoff Vertical	4			Lbyy			1	1		Lateral
4	M4	Face Horizontal	14.667	Segment	Segment	Lbyy			2.1	2.1		Lateral
5	M5	Standoff Arm	3.833			Lbyy						Lateral
6	M6	Grating Angle	3.5			Lbyy			2.1	2.1		Lateral



Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...]	Lcomp bot[...]	L-torqu...	Kyy	Kzz	Cb	Funci...
7	M7	Grating Angle	3.5						Lbyy	2.1	2.1	Lateral
8	MP2A	New Stronger Pipes	10						Lbyy	2.1	2.1	Lateral
9	MP1A	New Stronger Pipes	10						Lbyy	2.1	2.1	Lateral
10	M10	New Support Rail	7.25	Segment	Segment				Lbyy			Lateral
11	M11	New Rotatable T-Arm	5.083						Lbyy			Lateral
12	M12	New Support Rail	7.25	Segment	Segment				Lbyy			Lateral

Cold Formed Steel Design Parameters

Label	Shape	Len...	Lbyy[ft]	Lbzz[ft]	Lcomp..	Lcomp..	L-torqu...	Kyy	Kzz	Cm...Cm...	Cb	R	a[ft]	y s...	z s...
No Data to Print ...															

Aluminum Design Parameters

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

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
No Data to Print ...			

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Y	-11	1
2	MP1A	Y	-15.4	2.5
3	MP1A	Y	-9	4
4	MP1A	Y	-9	8.5
5	MP2A	Y	-64	2
6	MP2A	Y	-64	10
7	MP2A	Y	-70	5.5

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Y	-25.347	1
2	MP1A	Y	-37.39	2.5
3	MP1A	Y	-71.047	4
4	MP1A	Y	-71.047	8.5
5	MP2A	Y	-285.994	2
6	MP2A	Y	-285.994	10
7	MP2A	Y	-97.238	5.5

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Z	-9.531	1
2	MP1A	Z	-15.111	2.5
3	MP1A	Z	-67.573	4
4	MP1A	Z	-67.573	8.5
5	MP2A	Z	-313.685	2
6	MP2A	Z	-313.685	10
7	MP2A	Z	-51.144	5.5



Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Z	-3.197	1
2	MP1A	Z	-4.487	2.5
3	MP1A	Z	-16.332	4
4	MP1A	Z	-16.332	8.5
5	MP2A	Z	-65.28	2
6	MP2A	Z	-65.28	10
7	MP2A	Z	-13.658	5.5

Member Point Loads (BLC 5 : Antenna W Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	X	4.822	1
2	MP1A	X	11.213	2.5
3	MP1A	X	30.939	4
4	MP1A	X	30.939	8.5
5	MP2A	X	126.919	2
6	MP2A	X	126.919	10
7	MP2A	X	36.034	5.5

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	X	2.706	1
2	MP1A	X	4.544	2.5
3	MP1A	X	9.285	4
4	MP1A	X	9.285	8.5
5	MP2A	X	29.565	2
6	MP2A	X	29.565	10
7	MP2A	X	10.363	5.5

Member Point Loads (BLC 7 : Service Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M4	Y	-500	%7

Member Point Loads (BLC 8 : Service Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M4	Y	-500	%50

Member Distributed Loads (BLC 10 : Structure Di)

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-19.804	-19.804	0	%100
2	M2	Y	-19.804	-19.804	0	%100
3	M3	Y	-17.657	-17.657	0	%100
4	M4	Y	-17.657	-17.657	0	%100
5	M5	Y	-22.482	-22.482	0	%100
6	M6	Y	-18.383	-18.383	0	%100
7	M7	Y	-18.383	-18.383	0	%100
8	MP2A	Y	-13.1	-13.1	0	%100
9	MP1A	Y	-13.1	-13.1	0	%100
10	M10	Y	-16.255	-16.255	0	%100
11	M11	Y	-18.911	-18.911	0	%100
12	M12	Y	-16.255	-16.255	0	%100

Member Distributed Loads (BLC 11 : Structure W Front)

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[ft,%]	End Location[ft,%]
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Member Distributed Loads (BLC 11 : Structure W Front) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[ft.%]	End Location[ft.%]
1	M1	PZ	-30.997	-30.997	0	%100
2	M2	PZ	-30.997	-30.997	0	%100
3	M3	PZ	-12.399	-12.399	0	%100
4	M4	PZ	-12.399	-12.399	0	%100
5	M5	PZ	-20.664	-20.664	0	%100
6	M6	PZ	-20.664	-20.664	0	%100
7	M7	PZ	-20.664	-20.664	0	%100
8	MP2A	PZ	-7.362	-7.362	0	%100
9	MP1A	PZ	-7.362	-7.362	0	%100
10	M10	PZ	-10.849	-10.849	0	%100
11	M11	PZ	-15.498	-15.498	0	%100
12	M12	PZ	-10.849	-10.849	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front)

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[ft.%]	End Location[ft.%]
1	M1	PZ	-8.367	-8.367	0	%100
2	M2	PZ	-8.367	-8.367	0	%100
3	M3	PZ	-4.926	-4.926	0	%100
4	M4	PZ	-4.926	-4.926	0	%100
5	M5	PZ	-6.455	-6.455	0	%100
6	M6	PZ	-6.455	-6.455	0	%100
7	M7	PZ	-6.455	-6.455	0	%100
8	MP2A	PZ	-3.995	-3.995	0	%100
9	MP1A	PZ	-3.995	-3.995	0	%100
10	M10	PZ	-4.64	-4.64	0	%100
11	M11	PZ	-5.5	-5.5	0	%100
12	M12	PZ	-4.64	-4.64	0	%100

Member Distributed Loads (BLC 13 : Structure W Side)

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[ft.%]	End Location[ft.%]
1	M1	PX	30.997	30.997	0	%100
2	M2	PX	30.997	30.997	0	%100
3	M3	PX	12.399	12.399	0	%100
4	M4	PX	12.399	12.399	0	%100
5	M5	PX	20.664	20.664	0	%100
6	M6	PX	20.664	20.664	0	%100
7	M7	PX	20.664	20.664	0	%100
8	MP2A	PX	7.362	7.362	0	%100
9	MP1A	PX	7.362	7.362	0	%100
10	M10	PX	10.849	10.849	0	%100
11	M11	PX	15.498	15.498	0	%100
12	M12	PX	10.849	10.849	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side)

	Member Label	Direction	Start Magnitude[lb/ft....]	End Magnitude[lb/ft....]	Start Location[ft.%]	End Location[ft.%]
1	M1	PX	8.367	8.367	0	%100
2	M2	PX	8.367	8.367	0	%100
3	M3	PX	4.926	4.926	0	%100
4	M4	PX	4.926	4.926	0	%100
5	M5	PX	6.455	6.455	0	%100
6	M6	PX	6.455	6.455	0	%100
7	M7	PX	6.455	6.455	0	%100
8	MP2A	PX	3.995	3.995	0	%100
9	MP1A	PX	3.995	3.995	0	%100
10	M10	PX	4.64	4.64	0	%100



Member Distributed Loads (BLC 14 : Structure Wi Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[ft.-%]	End Location[ft.-%]
11	M11	PX	5.5	5.5	0	%100
12	M12	PX	4.64	4.64	0	%100

Member Distributed Loads (BLC 15 : BLC 9 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[ft.-%]	End Location[ft.-%]
1	M4	Y	-4.205	-4.205	3.854	5.474
2	M5	Y	-9.96	-9.96	1.003	2.99
3	M6	Y	-2.167	-9.051	1.05	2.275
4	M6	Y	-9.051	-15.934	2.275	3.5
5	M4	Y	-4.204	-4.204	9.193	10.813
6	M5	Y	-9.835	-9.835	.99	3.002
7	M7	Y	-2.168	-9.051	1.05	2.275
8	M7	Y	-9.051	-15.934	2.275	3.5

Member Distributed Loads (BLC 16 : BLC 10 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...]	End Magnitude[lb/ft,...]	Start Location[ft.-%]	End Location[ft.-%]
1	M4	Y	-12.438	-12.438	3.854	5.474
2	M5	Y	-29.459	-29.459	1.003	2.99
3	M6	Y	-6.41	-26.769	1.05	2.275
4	M6	Y	-26.769	-47.128	2.275	3.5
5	M4	Y	-12.435	-12.435	9.193	10.813
6	M5	Y	-29.09	-29.09	.99	3.002
7	M7	Y	-6.412	-26.769	1.05	2.275
8	M7	Y	-26.769	-47.127	2.275	3.5

Member Area Loads (BLC 9 : Structure D)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N17	N15	N16	N18	Y	Two Way	-.005
2	N15	N19	N20	N16	Y	Two Way	-.005

Member Area Loads (BLC 10 : Structure Di)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N17	N15	N16	N18	Y	Two Way	-.015
2	N15	N19	N20	N16	Y	Two Way	-.015

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N12						
4	N13						
5	N28	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N2	max	549.631	4	1167.188	6	16.574	1	-.123	1	1.87	4	.018	4
2		min	-427.877	3	206.058	1	-2005.591	6	-.611	6	-2.002	3	-.021	3
3	N1	max	341.407	4	1166.642	5	2325.756	5	-.159	2	1.641	4	.024	3
4		min	-926.22	9	272.898	2	-202.82	2	-.625	5	-2.314	3	-.016	4
5	N28	max	618.071	9	1088.187	5	791.418	1	-1.116	4	2.254	4	-.117	4
6		min	-327.435	3	268.62	2	-959.32	2	-4.264	7	-1.486	3	-.965	9



Envelope Joint Reactions (Continued)

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
7	Totals:	max	1464.578	4	3372.118	7	2313.683	1					
8		min	-1464.578	3	1028.316	2	-2313.683	2					

Envelope Member Section Forces

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
1	M1	1	max	16.574	1	427.46	3	-206.1	1	.018	4	.611	6	2.002	3
2			min	-2005.591	6	-549.198	4	-1148.663	6	-.021	3	.123	1	-1.87	4
3		2	max	16.574	1	414.029	3	-202.782	1	.018	4	.301	6	1.889	3
4			min	-2005.591	6	-535.767	4	-1139.982	6	-.021	3	.067	1	-1.723	4
5		3	max	16.574	1	400.597	3	-199.464	1	.018	4	.013	1	1.826	2
6			min	-2005.591	6	-522.335	4	-1131.301	6	-.021	3	-.016	2	-1.699	1
7		4	max	16.574	1	387.165	3	-196.147	1	.018	4	-.041	1	1.841	2
8			min	-2005.591	6	-508.903	4	-1122.62	6	-.021	3	-.312	6	-1.681	1
9		5	max	16.574	1	373.733	3	-192.829	1	.018	4	-.093	1	1.857	2
10			min	-2005.591	6	-495.471	4	-1113.939	6	-.021	3	-.615	6	-1.663	1
11	M2	1	max	2325.756	5	926.866	9	-272.266	2	.024	3	.625	5	2.314	3
12			min	-202.82	2	-341.851	4	-1187.961	5	-.016	4	.159	2	-1.641	4
13		2	max	2325.756	5	926.866	9	-268.948	2	.024	3	.305	5	2.124	3
14			min	-202.82	2	-328.419	4	-1179.279	5	-.016	4	.086	2	-1.55	4
15		3	max	2325.756	5	926.866	9	-265.63	2	.024	3	.014	2	1.96	2
16			min	-202.82	2	-314.987	4	-1170.598	5	-.016	4	-.02	1	-1.559	1
17		4	max	2325.756	5	926.866	9	-262.312	2	.024	3	-.058	2	1.911	2
18			min	-202.82	2	-301.556	4	-1161.917	5	-.016	4	-.329	5	-1.609	1
19		5	max	2325.756	5	926.866	9	-258.995	2	.024	3	-.128	2	1.861	2
20			min	-202.82	2	-288.124	4	-1153.236	5	-.016	4	-.643	5	-1.659	1
21	M3	1	max	-192.787	1	373.862	3	2005.628	6	1.866	2	-.125	1	.021	3
22			min	-1132.463	6	-495.675	4	-16.34	1	-1.653	1	-.801	6	-.018	4
23		2	max	-182.579	1	354.024	3	2000.702	6	1.866	2	1.203	6	.468	4
24			min	-1104.597	6	-475.837	4	3.498	1	-1.653	1	-.132	1	-.343	3
25		3	max	1076.186	5	-56.268	2	2316.402	5	1.866	2	1.912	2	.934	4
26			min	-1076.732	6	-926.478	9	604.348	4	.077	10	-3.808	5	-1.833	9
27		4	max	1104.052	5	268.092	4	2321.328	5	1.689	1	.365	2	.262	4
28			min	249.418	2	-926.478	9	-183.266	2	-1.831	2	-1.489	5	-.906	9
29		5	max	1131.917	5	287.93	4	2326.255	5	1.689	1	.835	5	.024	3
30			min	259.627	2	-926.478	9	-203.103	2	-1.831	2	.172	2	-.016	4
31	M4	1	max	0	11	0	11	0	11	0	11	0	11	0	11
32			min	0	1	0	1	0	1	0	1	0	1	0	1
33		2	max	845.051	7	-232.512	10	826.819	2	.556	1	2.116	2	.568	7
34			min	-252.132	4	-993.875	8	-948.479	1	-.928	2	-2.321	1	-.118	4
35		3	max	845.051	7	-278.117	10	899.557	2	.556	1	5.281	2	4.433	6
36			min	211.319	2	-1124.372	8	-1021.218	1	-.928	2	-5.932	1	1.013	10
37		4	max	379.452	8	572.192	6	354.972	1	.345	6	.745	2	.362	6
38			min	-143.817	3	114.133	10	-308.406	2	.001	9	-.763	1	.017	10
39		5	max	0	11	0	11	0	11	0	11	0	11	0	11
40			min	0	1	0	1	0	1	0	1	0	1	0	1
41	M5	1	max	1442.914	1	-482.248	1	824.43	3	-.413	4	3.271	2	.491	1
42			min	-1275.012	2	-1812.417	6	-578.153	4	-2.457	9	-3.734	1	-1.078	6
43		2	max	1442.914	1	-496.431	1	856.115	3	-.413	4	3.373	2	.96	1
44			min	-1275.012	2	-1848.145	6	-609.839	4	-2.457	9	-3.642	1	-.501	2
45		3	max	1442.914	1	-531.354	1	887.772	3	-.413	4	3.478	2	2.681	5
46			min	-1275.012	2	-1959.614	6	-641.485	4	-2.457	9	-3.545	1	.091	2
47		4	max	1442.914	1	-566.584	1	919.368	3	-.413	4	3.586	2	4.602	5
48			min	-1275.012	2	-2074.147	6	-673.092	4	-2.457	9	-3.445	1	.719	2
49		5	max	1442.914	1	-581.523	1	950.916	3	-.413	4	3.697	2	6.603	5
50			min	-1275.012	2	-2119.737	6	-704.669	4	-2.457	9	-3.342	1	1.374	2



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
51	M6	1	max	49.849	4	86.888	4	-54.069	4	0	11	.304	7	.303	8
52			min	-49.849	3	-87.524	3	-184.231	5	0	1	-.025	4	-.025	3
53		2	max	37.387	4	65.079	4	-47.173	4	0	11	.187	7	.187	8
54			min	-37.387	3	-65.715	3	-161.25	5	0	1	-.009	4	-.009	3
55		3	max	24.924	4	43.478	4	-36.879	4	0	11	.091	7	.091	8
56			min	-24.924	3	-43.728	3	-126.167	5	0	1	-.002	4	-.002	3
57		4	max	12.462	4	21.669	4	-20.996	4	0	11	.025	7	.024	8
58			min	-12.462	3	-21.919	3	-72.048	5	0	1	0	4	0	3
59		5	max	0	11	.013	1	0	4	0	11	0	11	0	11
60			min	0	1	-.003	4	-.003	1	0	1	0	1	0	1
61	M7	1	max	49.849	3	-54.13	3	86.883	3	0	11	.303	8	.025	4
62			min	-49.849	1	-184.168	5	-87.522	4	0	1	-.025	3	-.303	7
63		2	max	37.387	3	-47.235	3	65.074	3	0	11	.187	8	.01	4
64			min	-37.387	1	-161.187	5	-65.714	4	0	1	-.009	3	-.187	7
65		3	max	24.924	3	-36.904	3	43.476	3	0	11	.091	8	.002	4
66			min	-24.924	1	-126.141	5	-43.727	4	0	1	-.002	3	-.091	7
67		4	max	12.462	3	-21.021	3	21.667	3	0	11	.025	8	0	4
68			min	-12.462	1	-72.021	5	-21.918	4	0	1	0	3	-.024	7
69		5	max	0	11	0	3	0	5	0	11	0	11	0	11
70			min	0	1	-.001	1	-.003	2	0	1	0	1	0	1
71	MP2A	1	max	0	11	2.45	8	.215	1	0	11	0	11	0	11
72			min	0	1	.086	3	-2.199	6	0	1	0	1	0	1
73		2	max	409.835	8	232.732	4	531.558	1	0	11	.288	1	.138	3
74			min	91.092	1	-232.431	3	-531.819	2	0	1	-.289	2	-.139	4
75		3	max	58.235	8	-167.826	4	218.778	5	-.042	4	.411	1	.203	7
76			min	-278.348	9	-764.665	7	-47.413	2	-.193	7	-.487	2	-.013	4
77		4	max	-91.092	10	231.479	3	529.717	2	0	11	1.287	1	.542	3
78			min	-409.835	5	-232.31	4	-529.438	1	0	1	-1.287	2	-.544	4
79		5	max	-76.8	10	202.032	3	500.27	2	0	11	0	11	0	11
80			min	-362.794	5	-202.863	4	-499.991	1	0	1	0	1	0	1
81	MP1A	1	max	0	11	.404	8	-.07	1	0	11	0	11	0	11
82			min	0	1	.012	10	-.991	6	0	1	0	1	0	1
83		2	max	141.458	8	55.136	4	68.805	1	0	11	.06	1	.048	3
84			min	45.972	1	-55.062	3	-68.987	2	0	1	-.06	2	-.048	4
85		3	max	110.52	6	330.981	8	83.264	5	.187	6	.036	1	.025	10
86			min	-16.762	10	35.71	9	-12.359	2	.044	3	-.171	6	-.139	6
87		4	max	-25.092	10	78.928	3	137.543	2	0	11	.145	1	.086	3
88			min	-128.887	5	-78.938	4	-137.477	1	0	1	-.145	2	-.086	4
89		5	max	0	11	.012	4	.593	5	0	11	0	11	0	11
90			min	0	1	-.114	9	-.019	2	0	1	0	1	0	1
91	M10	1	max	0	11	0	11	0	11	0	11	0	11	0	11
92			min	0	1	0	1	0	1	0	1	0	1	0	1
93		2	max	2.278	3	-72.156	4	537.854	2	.141	2	.436	2	-.051	4
94			min	-799.37	8	-450.487	7	-416.597	1	-.58	5	-.44	1	-.955	7
95		3	max	2.278	3	-87.476	4	569.315	2	.141	2	1.44	2	.094	4
96			min	-799.37	8	-495.269	7	-448.059	1	-.58	5	-1.224	1	-.146	3
97		4	max	2.278	3	-102.796	4	600.777	2	.141	2	2.5	2	.859	5
98			min	-799.37	8	-540.051	7	-479.52	1	-.58	5	-2.065	1	.153	2
99		5	max	2.278	3	-118.116	4	632.238	2	.141	2	3.617	2	1.869	5
100			min	-799.37	8	-584.833	7	-510.982	1	-.58	5	-2.962	1	.393	2
101	M11	1	max	791.418	1	1086.797	5	326.981	3	-.117	4	2.254	4	4.264	7
102			min	-959.32	2	264.671	2	-617.58	9	-.965	9	-1.486	3	1.116	4
103		2	max	791.418	1	1049.147	5	295.467	3	-.117	4	2.001	1	2.914	7
104			min	-959.32	2	251.053	2	-617.58	9	-.965	9	-1.477	2	.758	4
105		3	max	791.418	1	1011.497	5	263.954	3	-.117	4	1.84	1	1.623	6
106			min	-959.32	2	237.435	2	-617.58	9	-.965	9	-1.648	2	.372	1
107		4	max	791.418	1	973.846	5	232.441	3	-.117	4	1.679	1	.388	6



Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mom...	LC	
108		min	-959.32	2	223.817	2	-617.58	9	-.965	9	-1.818	2	-.074	1	
109	5	max	791.418	1	936.196	5	200.928	3	-.117	4	1.518	1	.003	2	
110		min	-959.32	2	210.2	2	-617.58	9	-.965	9	-1.989	2	-.888	5	
111	M12	1	max	17.562	4	348.82	5	274.644	1	.309	7	1.629	2	1.198	5
112		min	-356.93	7	73.548	2	-320.891	2	.045	1	-1.444	1	.205	2	
113	2	max	17.562	4	304.037	5	243.183	1	.309	7	1.076	2	.606	5	
114		min	-356.93	7	58.228	2	-289.429	2	.045	1	-.975	1	.086	2	
115	3	max	17.562	4	259.255	5	211.721	1	.309	7	.579	2	.145	9	
116		min	-356.93	7	42.908	2	-257.968	2	.045	1	-.563	1	-.013	4	
117	4	max	17.562	4	214.473	5	180.26	1	.309	7	.14	2	.032	9	
118		min	-356.93	7	27.588	2	-226.506	2	.045	1	-.208	1	-.348	8	
119	5	max	0	11	0	11	0	11	0	11	0	11	0	11	
120		min	0	1	0	1	0	1	0	1	0	1	0	1	

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

Member	Shape	Code Ch...	Loc[ft]	LC	Shear Ch...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn y-y [...]	phi*Mn z-z ...	Cb	Eqn	
1	M4	PIPE_3.5	.761	7.333	1	.171	7.333		2	42715.2...	78750	7.954	7.954	1.813	H1-1b
2	M2	PL1/2x6	.752	0	7	.050	0	y	9	81153.4...	97200	1.012	12.15	1.261	H1-1b
3	MP2A	PIPE_2.0X	.740	6.979	7	.149	6.979		7	2942.011	44100	2.531	2.531	4.003	H1-1b
4	M11	HSS3X3...	.703	0	8	.154	0	z	9	82520.4...	101016	8.556	8.556	1.979	H1-1b
5	M1	PL1/2x6	.672	1.083	6	.038	0	y	3	81153.4...	97200	1.012	12.15	1.162	H1-1b
6	M10	PIPE_3.0	.635	7.25	2	.143	7.25		5	52605.3...	65205	5.749	5.749	2.037	H1-1b
7	M3	PIPE_3.5	.512	2	5	.311	0		2	73777.5...	78750	7.954	7.954	1.471	H1-1b
8	M5	HSS4X4...	.489	3.833	7	.209	3.833	y	9	131196...	139518	16.181	16.181	1.917	H1-1b
9	MP1A	PIPE_2.0X	.338	6.979	8	.111	3.021		6	2942.011	44100	2.531	2.531	3.776	H1-1b
10	M12	PIPE_3.0	.286	0	2	.078	0		7	52605.3...	65205	5.749	5.749	2.56	H1-1b
11	M6	L4X4X4	.136	0	7	.009	0	z	5	31005.8...	62532	3.138	6.715	2.134	H2-1
12	M7	L4X4X4	.136	0	8	.009	0	y	5	31005.8...	62532	3.138	6.715	2.134	H2-1

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

Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*Pn...	phi*Tn...	phi*Mn...	phi*Mn...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

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

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

EXHIBIT 10

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11536A

Torrington/Rt 202/Rt 183
1925-1931 East Main Street
Torrington, CT 06790

June 10, 2019

Transcom Engineering Project Number: 737001-0086

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	23.82 %

Transcom Engineering, Inc.

Wireless Network Design and Deployment

June 10, 2019

T-MOBILE

Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11536A – Torrington/Rt 202/Rt 183**

Transcom Engineering, Inc (“Transcom”) was directed to analyze the proposed upgrades to the T-MOBILE facility located at **1925-1931 East Main Street, Torrington, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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Wireless Network Design and Deployment

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.

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Wireless Network Design and Deployment

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **1925-1931 East Main Street, Torrington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

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The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAARR24_43-U-NA20	131
A	2	EMS RR90-17-XXDP (Dormant)	131
B	1	RFS APXVAARR24_43-U-NA20	131
B	2	EMS RR90-17-XXDP (Dormant)	131
C	1	RFS APXVAARR24_43-U-NA20	131
C	2	EMS RR90-17-XXDP (Dormant)	131

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **1900 MHz (PCS) & 2100 MHz (AWS)** radios are ground mounted the following cable loss values were used. For each ground mounted **1900 MHz (PCS)** radio there was **1.65 dB** of cable loss calculated into the system gains / losses for this site. For each ground mounted **2100 MHz (AWS)** radio there was **1.70 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **160 feet of 1-5/8"** coax.

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RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAARR24_43-U-NA20	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	15.65 / 16.35 / 12.95 / 13.35	11	415	10,339.74	3.16
Antenna A2	EMS RR90-17-XXDP	Dormant	N/A	0	0	0.00	0.00
Sector A Composite MPE%							3.16
Antenna B1	RFS APXVAARR24_43-U-NA20	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	15.65 / 16.35 / 12.95 / 13.35	11	415	10,339.74	3.16
Antenna B2	EMS RR90-17-XXDP	Dormant	N/A	0	0	0.00	0.00
Sector B Composite MPE%							3.16
Antenna C1	RFS APXVAARR24_43-U-NA20	1900 MHz (PCS) / 2100 MHz (AWS) / 600 MHz / 700 MHz	15.65 / 16.35 / 12.95 / 13.35	11	415	10,339.74	3.16
Antenna C2	EMS RR90-17-XXDP	Dormant	N/A	0	0	0.00	0.00
Sector C Composite MPE%							3.16

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	MPE%
T-MOBILE – Max Per Sector Value	3.16 %
Nextel	0.30 %
Sprint	0.02 %
MetroPCS	1.09 %
Verizon Wireless	6.30 %
Town	2.00 %
AT&T	10.95 %
Site Total MPE %:	23.82 %

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.16 %
T-MOBILE Sector B Total:	3.16 %
T-MOBILE Sector C Total:	3.16 %
Site Total:	23.82 %

Table 5: Site MPE Summary

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Wireless Network Design and Deployment

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,004.75	131	9.25	1900 MHz (PCS)	1000	0.92%
T-Mobile 2100 MHz (AWS) LTE	2	1,750.46	131	8.06	2100 MHz (AWS)	1000	0.81%
T-Mobile 1900 MHz (PCS) GSM	1	376.78	131	0.87	1900 MHz (PCS)	1000	0.09%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	131	3.63	600 MHz	400	0.91%
T-Mobile 700 MHz LTE	2	432.54	131	1.99	700 MHz	467	0.43%
						Total:	3.16%

Table 6: T-MOBILE Maximum Sector MPE Power Values

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Wireless Network Design and Deployment

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	3.16 %
Sector B:	3.16 %
Sector C:	3.16 %
T-MOBILE Maximum Total (per sector):	3.16 %
Site Total:	23.82 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **23.82 %** 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.



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