



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

July 10, 2020

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

RE: Notice of Exempt Modification
60 Adams Street, Manchester, CT 06042
41.794050 N
-72.55599 W
T-Mobile #: CTHA039A_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 135-foot level of the existing 141-foot Monopole Tower at 60 Adams St, Manchester, CT. The 141-foot tower is owned by SBA Towers VIII, LLC. The property is owned by Porn-Porn Gali. T-Mobile now intends to remove (3) L700/L600/1900/2100 MHz antennas and install three (3) new 2500 MHz antennas. The new antennas would be installed at the 135-foot level of the tower.

Planned Modifications:

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.*

TOWER

Remove:

- N/A

Remove and Replace:

- (3) RFS APX16DWV-16DWVS-E-A20 antennas (Remove) – (3) Ericsson AIR6449 B41 antennas (Replace)

Install New:

- (1) 1-5/8" fiber
- (3) Commscope CBC1923Q-43 Diplexer
- (3) Ericsson 4415 B25 RRU

Existing Equipment to Remain:

- (3) Ericsson AIR32 KRD901146-1_B66A_B2A antenna
- (3) RFS APXVAARR24_43-U-NA20 antenna
- (3) Ericsson RRUS11 B4 RRU
- (3) Ericsson Radio 4449 B71+B85 RRU
- (2) 1-5/8" fiber

Entitlements:

- (2) 1-1/4" fiber

GROUND

Install New:

- Equipment inside existing 6102 equipment cabinet
- 6160 Equipment cabinet mounted on existing concrete pad.

This facility was approved on December 17, 1998 by the Council in Case #TS-BAMSCLP-077-981208 and the Town of Manchester on April 19, 1999 with Zoning Permit 99-1764. Approval was given for a 140' replacement monopole tower with two modular buildings. Fencing surrounding the base of the tower was to consist of black vinyl chain link. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Manchester's General Manager, Scott Shanley, and Zoning Enforcement Officer, James Davis, 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 x3804 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbsite.com

Attachments

cc: Scott Shanley, General Manager/ with attachments
The Town of Manchester, 41 Center Street, Manchester, CT 06040
James Davis, Zoning Enforcement Officer/ with attachments
The Town of Manchester, 41 Center Street, Manchester, CT 06040
Pom-Pom Gali, LLC / with attachments
79 Boston Post Road, Willimantic CT 06226 {SBA overnight address on file}
PO Box 133 Willimantic, CT 06226 (Town address on file)

Exhibit List

Exhibit 1	Check Copy	X
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	Town of Manchester 4/19/99
Exhibit 6	Construction Drawings	Chappell Engineering 7/7/20
Exhibit 7	Structural Analysis	TES dated 6/30/20
Exhibit 8	Mount Analysis	TES dated 7/1/20
Exhibit 9	EME Report	EBI Consulting 7/7/20

EXHIBIT 1

Normally, Exhibit 1 would contain a copy of the check to CSC

EXHIBIT 2

ORIGIN ID:BBFA (508) 251-0720
KRI PELLETIER
SBA NETWORK SERVICES INC
134 FLANDERS RD.
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

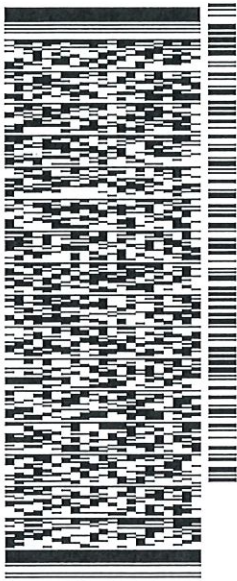
SHIP DATE: 09 JUL 20
ACT WGT: 1.00 LB
CAD: 105843304NINET4220

BILL SENDER

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

NEW BRITAIN CT 06051

(508) 251-0720 X.302 REF: 10-56-92009-6089
IN/ DEPT:
PO.



J201120042401uv

TRK# 7709 1552 2300
#0201

FRI - 10 JUL 10:30A
PRIORITY OVERNIGHT

EB BDLA

06051
BDL
CT-US



56B.Q217B7/FE4A

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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

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

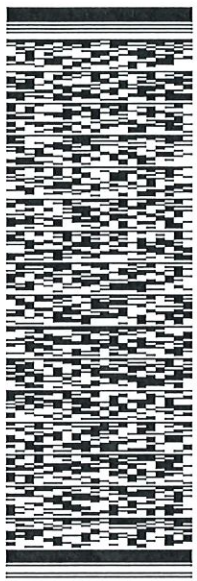
SHIP DATE: 09 JUL 20
ACT WT/GT: 1.00 LB
CAD: 105843304/N/E/4220

BILL SENDER

TO **SCOTT SHANLEY**
TOWN OF MANCHESTER GENERAL MANAGER
41 CENTER ST

MANCHESTER CT 06045

(860) 647-3130 REF: 10-56-92009-6089
NV DEPT:
PO:



56BJ217B7/FE4A

TRK# 7709 1555 2699 FRI - 10 JUL 10:30A
#201 PRIORITY OVERNIGHT

EB QCWA

CT-US 06045
BDL



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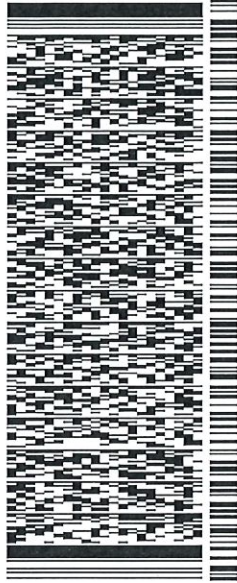
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless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

ORIGIN ID: 98FA (509) 614-0389
RICK WOODS
SBA COMMUNICATIONS CORPORATION
134 FLANDERS RD
SUITE 125
WESTBOROUGH, MA 01581
UNITED STATES US

SHIP DATE: 09 JUL 20
ACT WGT: 1.00 LB
CAD: 105843304INET4220
BILL SENDER

TO JAMES DAVIS, ZONING OFFICER
TOWN OF MANCHESTER
LINCOLN CENTER 2ND FLOOR
494 MAIN ST
MANCHESTER CT 06045
(860) 647-3130
REF: 10-56-92009-6089
PO: DEPT:

56B.J2/17B7/FE4A



J201120042401uv

TRK# 7709 1557 1812
0201
FRI - 10 JUL 10:30A
PRIORITY OVERNIGHT

EB QCWA

06045
CT-US BDL



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

SHIP DATE: 09 JUL 20
ACT WGT: 1.00 LB
CAD: 105843304N/ET4220
BILL SENDER

TO

POM-POM GALL, LLC
79 BOSTON POST RD

WILLIMANTIC CT 06226

(508) 251-0820

REF: 10-56-92009-6089

PO:

DEPT:

56BJ217B7FE4A



TRK# 7709 1562 6157
#201

FRI - 10 JUL 10:30A
PRIORITY OVERNIGHT

EB GONA

06226
CT-US BDL



After printing this label:

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EXHIBIT 3

60 ADAMS STREET

Location 60 ADAMS STREET

Mblu 28/ 20/ 60/ /

Acct# 002000060

Owner POM-POM GALI LLC

Assessment \$1,144,100

Appraisal \$1,634,300

PID 26

Building Count 3

DISTRICT E

CONCRETE

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$520,100	\$1,114,200	\$1,634,300

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$364,200	\$779,900	\$1,144,100

Owner of Record

Owner POM-POM GALI LLC
Address PO BOX 133
WILLIMANTIC, CT 06226

Sale Price \$1,551,222
Certificate C
Book & Page 3204/ 184
Sale Date 12/23/2005
Instrument 36

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
POM-POM GALI LLC	\$1,551,222	C	3204/ 184	36	12/23/2005
THORNTON WILLIAM B EST	\$0		3130/ 054	35	08/25/2005
THORNTON WILLIAM B	\$0		492/ 089		

Building Information

Building 1 : Section 1

Year Built: 1965
Living Area: 1,863
Replacement Cost: \$223,203

Replacement Cost
Less Depreciation: \$84,800

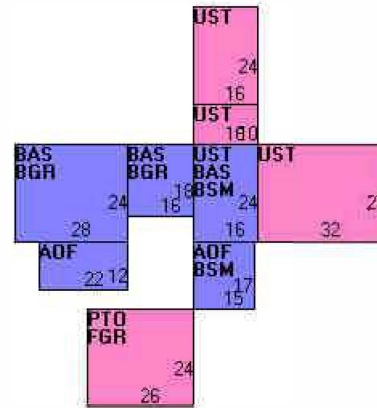
Building Attributes	
Field	Description
STYLE	Light Indust
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	Tar + Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall/Sheetr
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Electr Basebrd
AC Type	None
Bldg Use	Industrial 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceiling & Wall
Rooms/Prtns	Average
Wall Height	9
% Comn Wall	0

Building Photo



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//\00\02\6>)

Building Layout



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//Sketches>)

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	1,344	1,344
AOF	Office, (Average)	519	519
BGR	Basement Garage	960	0
BSM	Basement	639	0
FGR	Garage	624	0
PTO	Patio	624	0
UST	Utility, Storage, Unfinished	1,696	0
		6,406	1,863

Building 2 : Section 1

Year Built: 1965
Living Area: 8,658
Replacement Cost: \$367,995
Replacement Cost
Less Depreciation: \$139,800

Building Attributes : Bldg 2 of 3

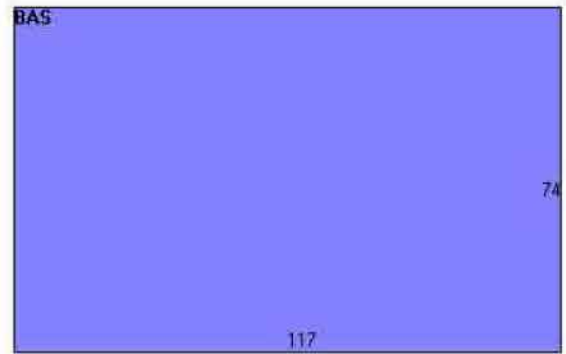
Field	Description
STYLE	Service Shop
MODEL	Serv Station
Grade	Minimum
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	Industrial 96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceiling & Wall
Rooms/Prtns	Average
Wall Height	18
% Comn Wall	0

Building Photo



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//\00\02\6>)

Building Layout



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//Sketches>)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	8,658	8,658
		8,658	8,658

Building 3 : Section 1

Year Built: 1965
Living Area: 6,398
Replacement Cost: \$454,584
Replacement Cost Less Depreciation: \$172,700

Building Attributes : Bldg 3 of 3

Field	Description
STYLE	Office Bldg
MODEL	Comm/Ind
Grade	Below Average

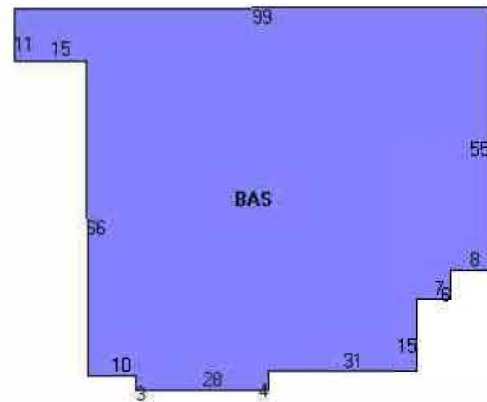
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Drywall/Sheetr
Interior Wall 2	
Interior Floor 1	Tile/Vinyl Cmp
Interior Floor 2	Carpet
Heating Fuel	Electric
Heating Type	Electr Basebrd
AC Type	Central
Bldg Use	Industrial 94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300C
Heat/AC	Heat AC Split
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Susp Ceil & WI
Rooms/Prtns	Average
Wall Height	10
% Comn Wall	0

Building Photo



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//\00\02\6>)

Building Layout



(<http://images.vgsi.com/photos2/ManchesterCTPhotos//Sketches>)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	6,398	6,398
		6,398	6,398

Extra Features

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

Land

Land Use

Use Code	300
Description	Industrial 96
Zone	IND

Land Line Valuation

Size (Acres)	26.45
Frontage	0
Depth	0

Neighborhood 4000
Alt Land Appr No
Category

Assessed Value \$779,900
Appraised Value \$1,114,200

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FGR1	Garage Average			1440 S.F.	\$13,000	2
PAV2	Paving Concrete			40000 S.F.	\$54,000	1
PAV2	Paving Concrete			11498 S.F.	\$25,900	3
SHD1	Shed			1680 S.F.	\$15,100	1
PAV1	Paving Asphalt			8000 S.F.	\$10,000	3
TNK5	Tank Elevated			240 GALS	\$400	1
FN4	Fence 8' Chain			290 L.F.	\$4,400	1

Valuation History

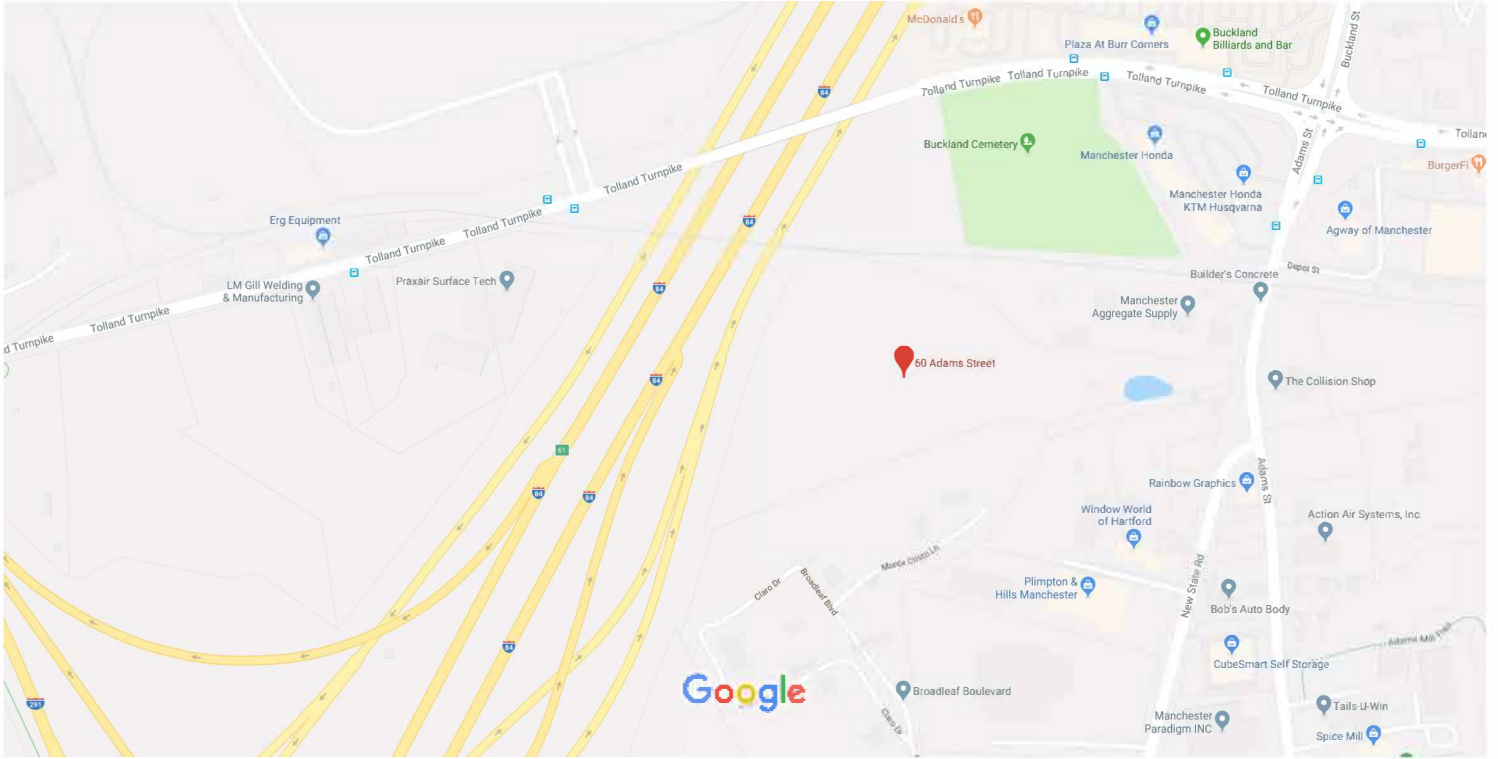
Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$440,800	\$1,114,200	\$1,555,000
2010	\$527,000	\$1,156,400	\$1,683,400
2005	\$458,400	\$795,200	\$1,253,600

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$308,600	\$779,900	\$1,088,500
2010	\$369,000	\$809,400	\$1,178,400
2005	\$320,900	\$556,600	\$877,500

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EXHIBIT 4

Google Maps 60 Adams St



Map data ©2019 200 ft



60 Adams St

Manchester, CT 06040



Directions



Save



Nearby



Send to your phone



Share



QCVV+95 Manchester, CT

At this location

1-800 Dump Runs

3.0 ★★☆☆☆ (1)

Garbage dump service · 60 Adams St



A Aiudi & Sons LLC

Concrete contractor · 60 Adams St



Builder's Concrete Inc

3.7 ★★★★★ (3)

Ready mix concrete supplier · 60 Adams St



Manchester Aggregate Supply

4.3 ★★★★★ (3)

Aggregate supplier · 60 Adams St

EXHIBIT 5



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

December 22, 1998

Jennifer Young Gaudet
Manager-Regulatory
Bell Atlantic Mobile
20 Alexander Drive
Wallingford, CT 06492

RE: TS-BAM/SCLP-077-981208 - Celco Partnership d/b/a Bell Atlantic Mobile and Springwiche Cellular Limited Partnership request for an order to approve tower sharing on a telecommunications tower to be replaced at 60 Adams Street, Manchester, Connecticut.

Dear Ms. Gaudet:

At a public meeting held on December 17, 1998, the Connecticut Siting Council (Council) ruled that the shared use of this replacement tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. The proposed shared use is to be implemented as specified in your letter dated December 8, 1998, with the condition that fencing surrounding the base of the tower will consist of black vinyl chainlink fencing as requested by the Town of Manchester.

This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequency now used on this tower. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please notify the Council when all work is complete.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/jlh

c: Honorable Stephen T. Cassano, Mayor, Town of Manchester
Peter Van wilgen, Springwiche
Mark Pellegrini, Director of Planning & Economic Development, Town of Manchester

99-1764

TOWN OF MANCHESTER ZONING PERMIT

41 Center Street

Please Print or Type

Telephone: 647-3052

TO: ZONING ENFORCEMENT OFFICER

Certification of Zoning Approval is hereby requested for:

application of a Building Permit

Other:

Decision is based on the following information:

- 1.) Location: (street and no. or lot no.) 60 ADAMS ST
- 2.) Owner's Name: BELL ATLANTIC MOBILE
- 3.) Builder: BELL ATLANTIC MOBILE
Address: 20 ALEXANDER DR WALLINGFORD CT 06492
- 4.) Check Type of Construction: New Building Addition Alteration
 Repair Miscellaneous
- 5.) Job Description* CONSTRUCT A 140-0 MONOPOLE TOWER WITH TWO MODULAR BUILDINGS
(*Plot Plan required for all additions to buildings and accessory structures)
- 6.) Other Buildings Not Shown: _____
- 7.) Merestones or Stakes Indicating Lot Boundaries? ON PLANS
- 8.) Distance from Street Line: 500 FT
- 9.) Distance from Side Line: Left 100 + Right 100 +
- 10.) Distance from Building to Rear Lot Line: 100 +
- 11.) Proposed Use: CELLULAR COMMUNICATION FACILITY
(For example: manufacturing, office, storage, dwelling, school, bath, garage)
- 12.) Sewer Septic Water Well

THIS PERMIT SHALL NOT BE EFFECTIVE FOR 24 HOURS AFTER APPROVAL

I hereby certify that the above statements are true to the best of my knowledge and belief.

4-19-99
Date

Mark D. Gungor
Signature

203-494-0023
Tele.

FOR OFFICE USE ONLY

This is to certify that the above-stated information is a permitted and lawful use as controlled by the Zoning Regulations of the Town of Manchester, Connecticut, upon authorized signature of the Zoning Enforcement Officer.

Zoning Permit Issued: 4/29/99

Conditions: _____

Zone: IND

Approved By: Thomas J. [Signature]
Zoning Enforcement Officer

ADDITIONAL APPROVAL FOR BUSINESS AND INDUSTRIAL USE

Date	Engineering	Date	Police	Date	Fire
------	-------------	------	--------	------	------

Comments: approved by select council

Additional Permits May Be Required From: _____ Dept(s)
for _____

EXHIBIT 6

CTHA039A

60 ADAMS STREET
MANCHESTER, CT 06040
HARTFORD COUNTY

SITE NO.: CTHA039A

SITE TYPE: 141'± MONOPOLE

RF DESIGN GUIDELINE: 67D5A997DB

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

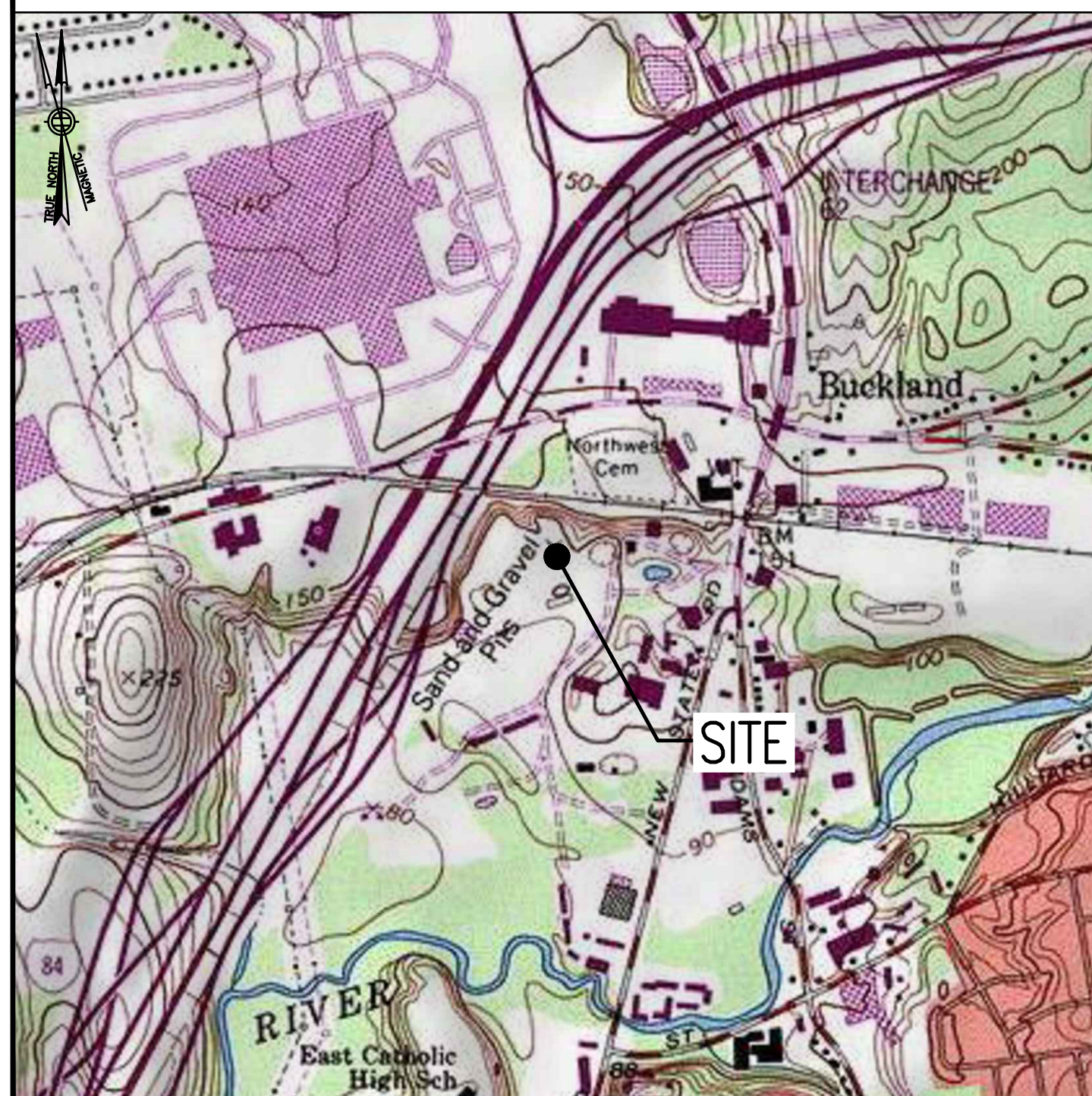
GENERAL NOTES

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

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



VICINITY MAP SCALE: 1" = 1000'-0"



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.

SITE NOTES

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

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
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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

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

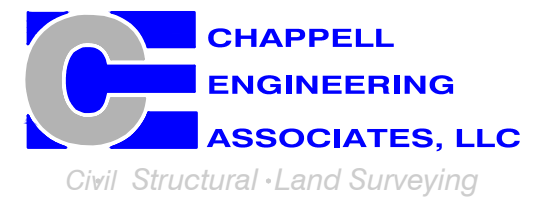
SITE NUMBER:	CTHA039A
SBA SITE NUMBER:	CT16504-A
SBA SITE NAME:	MANCHESTER 12, CT
SITE ADDRESS:	60 ADAMS STREET MANCHESTER, CT 06040
PROPERTY OWNER:	POM-POM GALI LLC PO BOX 133 WILLIMANTIC, CT 06226
TOWER OWNER:	SBA TOWERS VIII, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	HARTFORD
ZONING DISTRICT:	INDUSTRIAL 96
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	141'±
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: 41.794050° N41°47'38.58" LONGITUDE: -72.555999° W72°33'21.60"

T-MOBILE NORTHEAST LLC

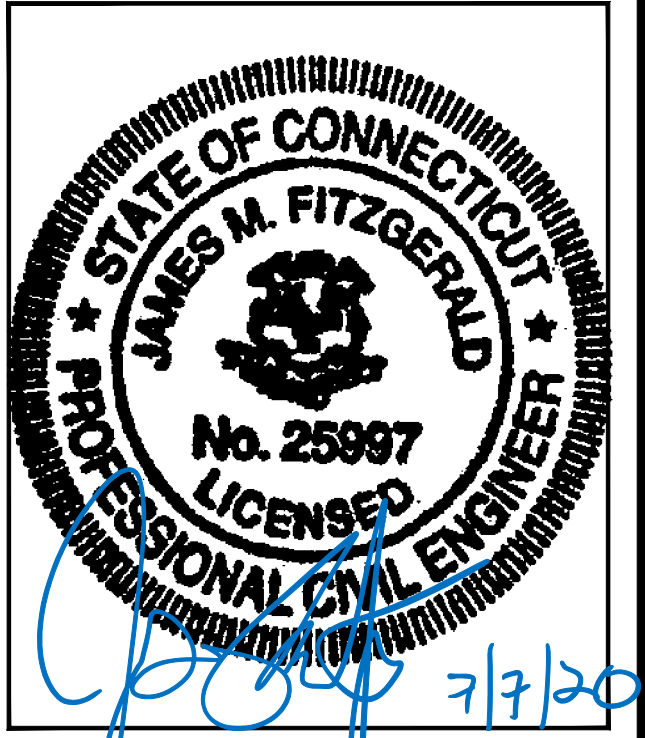
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700



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	07/06/20	ISSUED FOR CONSTRUCTION	JRV
0	06/23/20	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTHA039A

SITE ADDRESS:
60 ADAMS STREET
MANCHESTER, CT 06040

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:

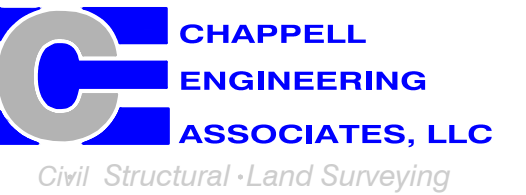
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR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

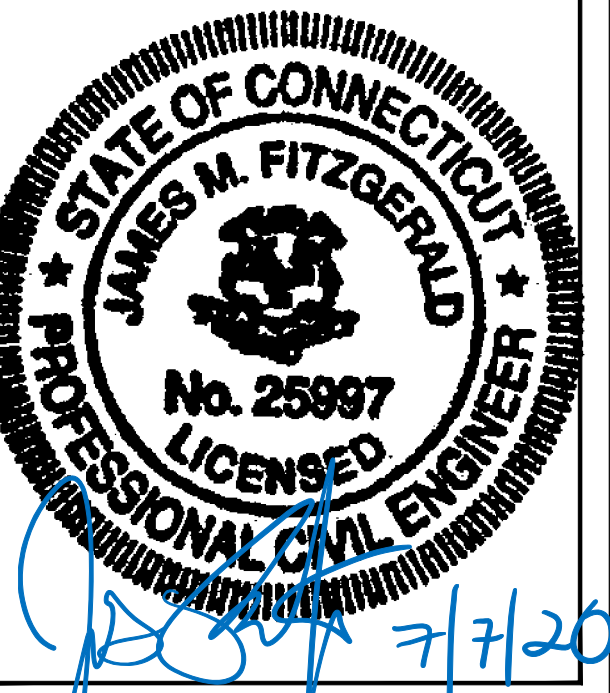
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SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	07/06/20	ISSUED FOR CONSTRUCTION	JRV
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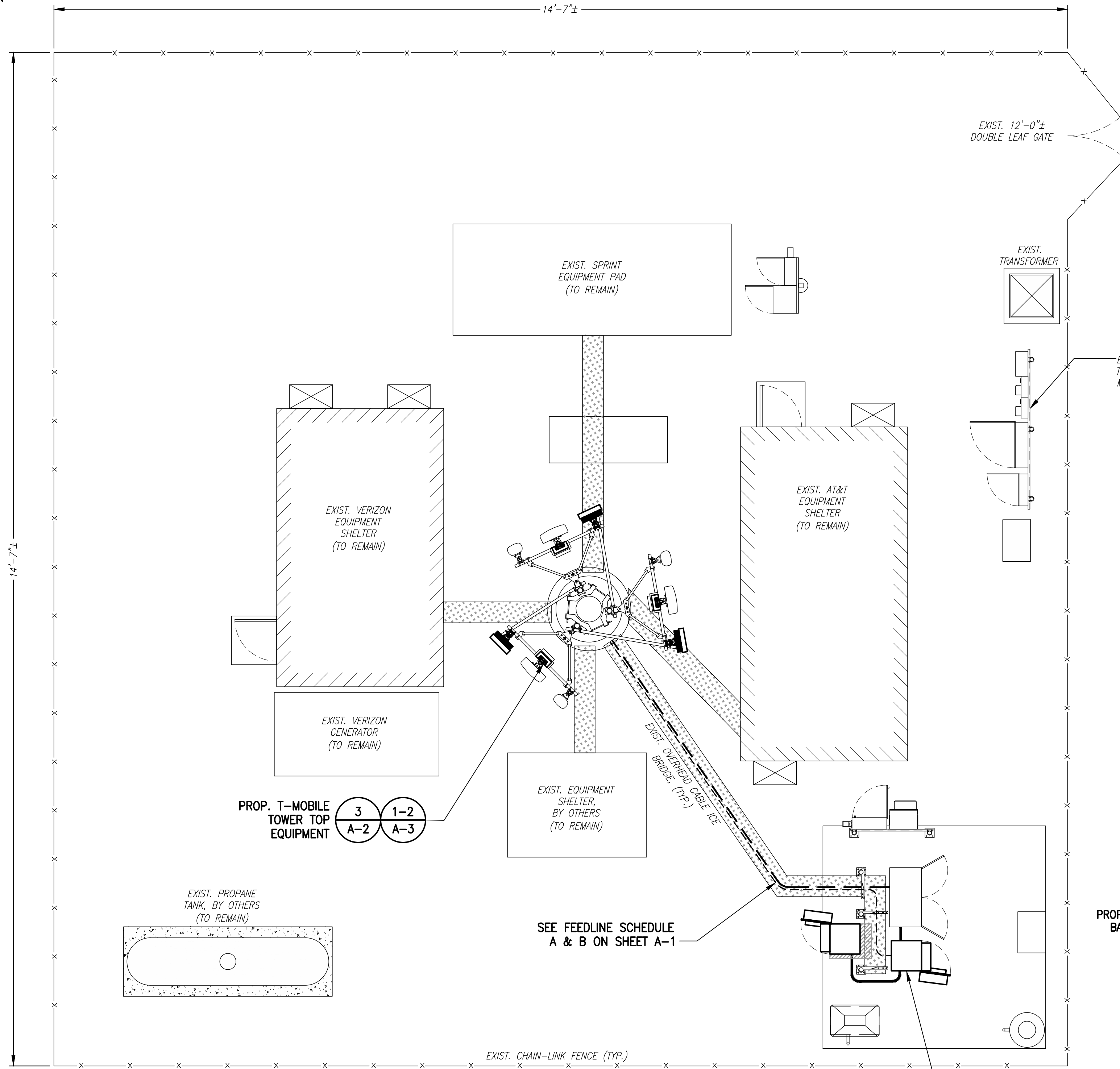
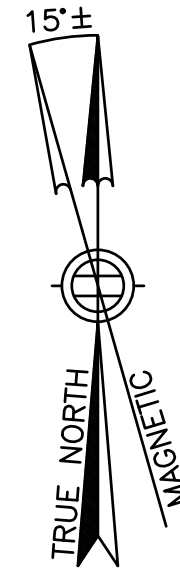
SITE NUMBER:
CTHA039A

SITE ADDRESS:
 60 ADAMS STREET
 MANCHESTER, CT 06040

SHEET TITLE
 GENERAL NOTES

SHEET NUMBER
GN-1

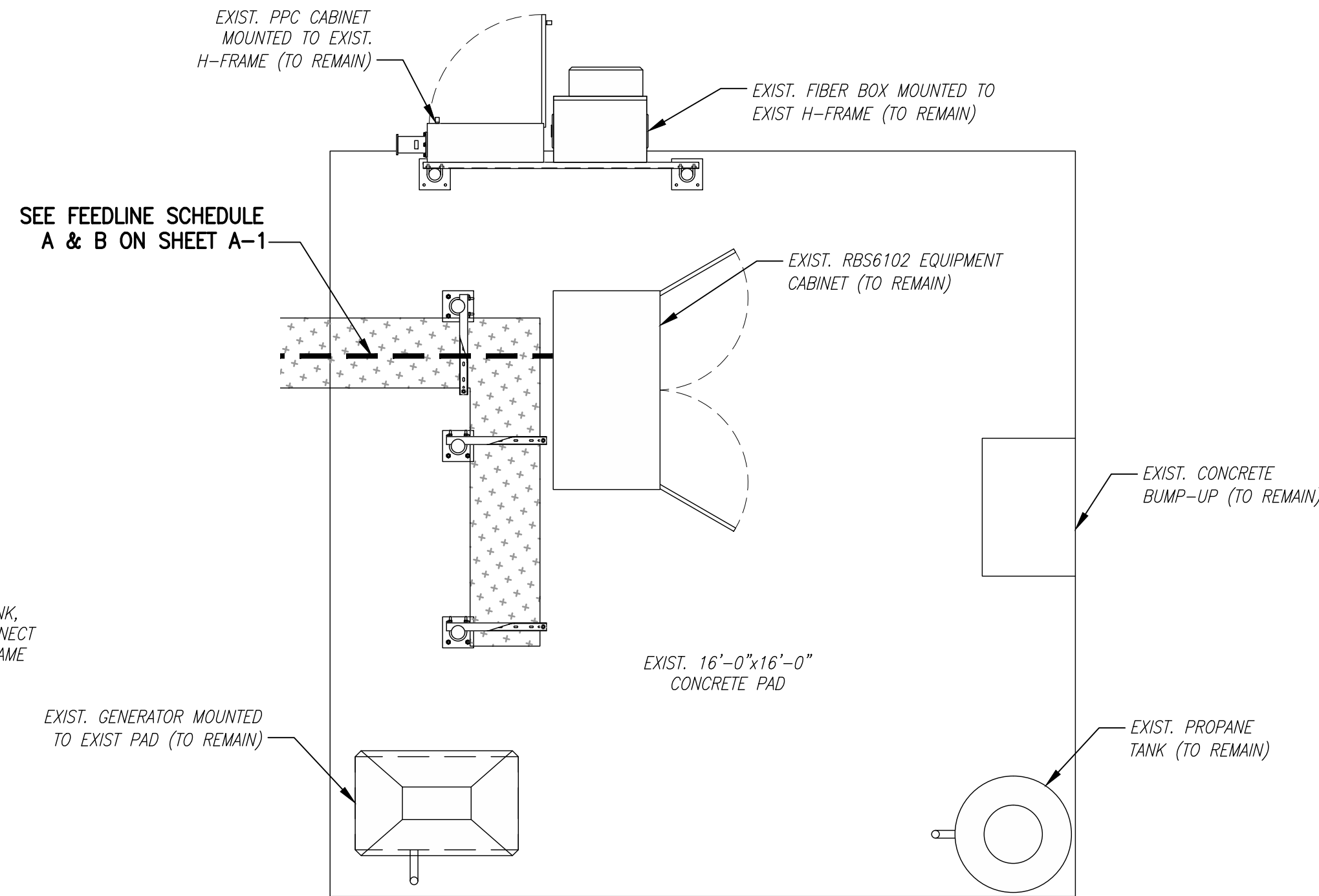
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



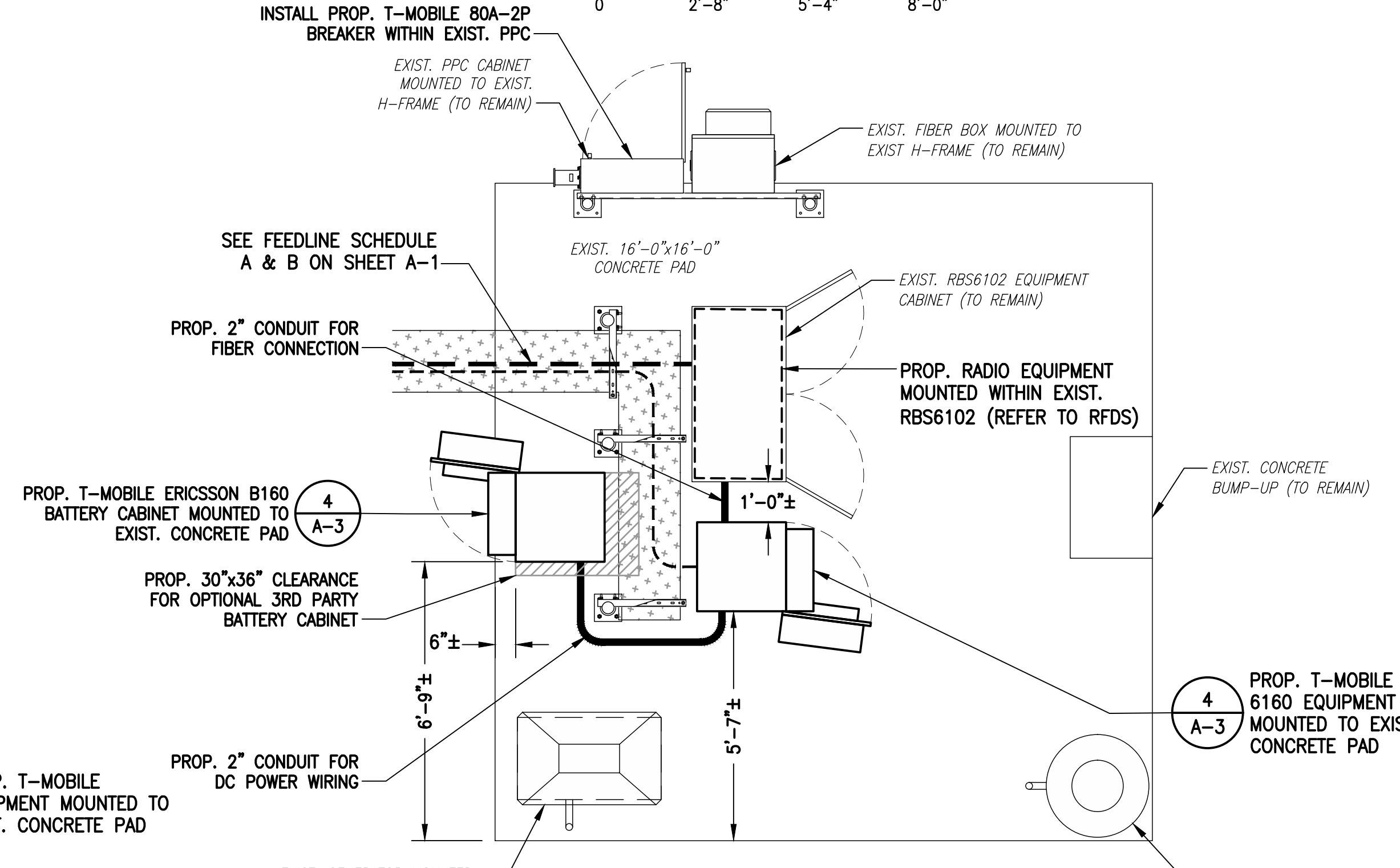
COMPOUND PLAN 1
 SCALE: 1" = 5'-0"
 0 5'-0" 10'-0" 15'-0"

FEEDLINE SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (2) 1-5/8" HCS FIBER CABLE EXISTING TO BE REMOVED: NONE	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (1) 1-5/8" HCS FIBER CABLE	

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



EXISTING EQUIPMENT PLAN 2
 SCALE: 3/8" = 1'-0"
 0 2'-8" 5'-4" 8'-0"



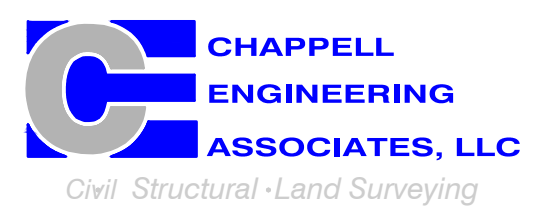
PROPOSED EQUIPMENT PLAN 3
 SCALE: 3/8" = 1'-0"
 0 2'-8" 5'-4" 8'-0"

**T-MOBILE
 NORTHEAST LLC**

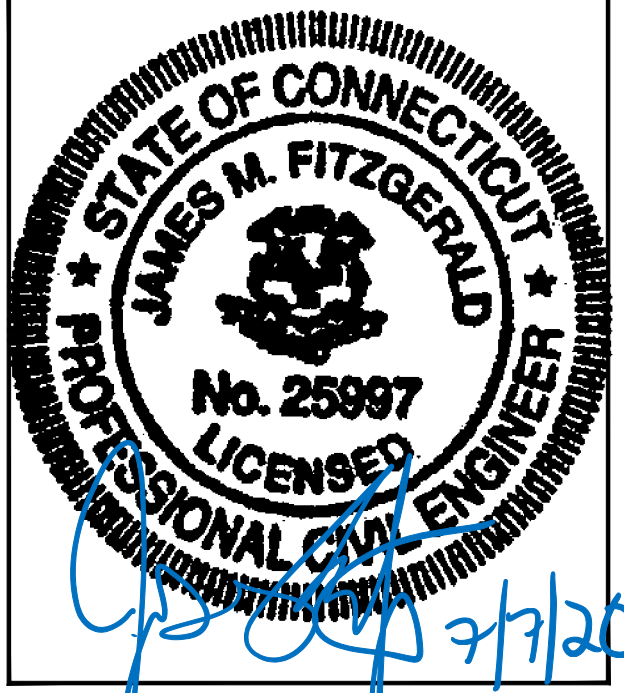
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CTHA039A

SITE ADDRESS:
 60 ADAMS STREET
 MANCHESTER, CT 06040

SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-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.

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

PROP. T-MOBILE ERICSSON AIR6449 B41 M-MIMO ANTENNAS MOUNTED TO EXIST. ANTENNA MOUNT TO REPLACE EXIST. ANTENNA (1 PER SECTOR, TOTAL OF 3)

EXIST. T-MOBILE ERICSSON RADIO 4449 B71+B85 MOUNTED BEHIND PROP. ANTENNAS (1 PER SECTOR, TOTAL OF 3) (TO REMAIN)

EXIST. T-MOBILE ERICSSON RRUS11 B4 (1 PER SECTOR, TOTAL OF 3) TO BE RELOCATED TO POSITION 2

PROP. T-MOBILE COMMSCOPE CBC1923Q-43 DIPLEXER MOUNTED TO EXIST. ANTENNA MOUNT (1 PER SECTOR, TOTAL OF 3)

TOP OF EXIST. MONOPOLE
 EL. = 141' ± AGL (274' ± AMSL)

TOP OF EXIST. (3) T-MOBILE ANTENNAS
 EL. = 139' ± AGL (272' ± AMSL)

EXIST. (6) T-MOBILE ANTENNAS
 EL. = 135' ± AGL (268' ± AMSL)

PROP. (3) T-MOBILE ANTENNAS
 EL. = 135' ± AGL (268' ± AMSL)

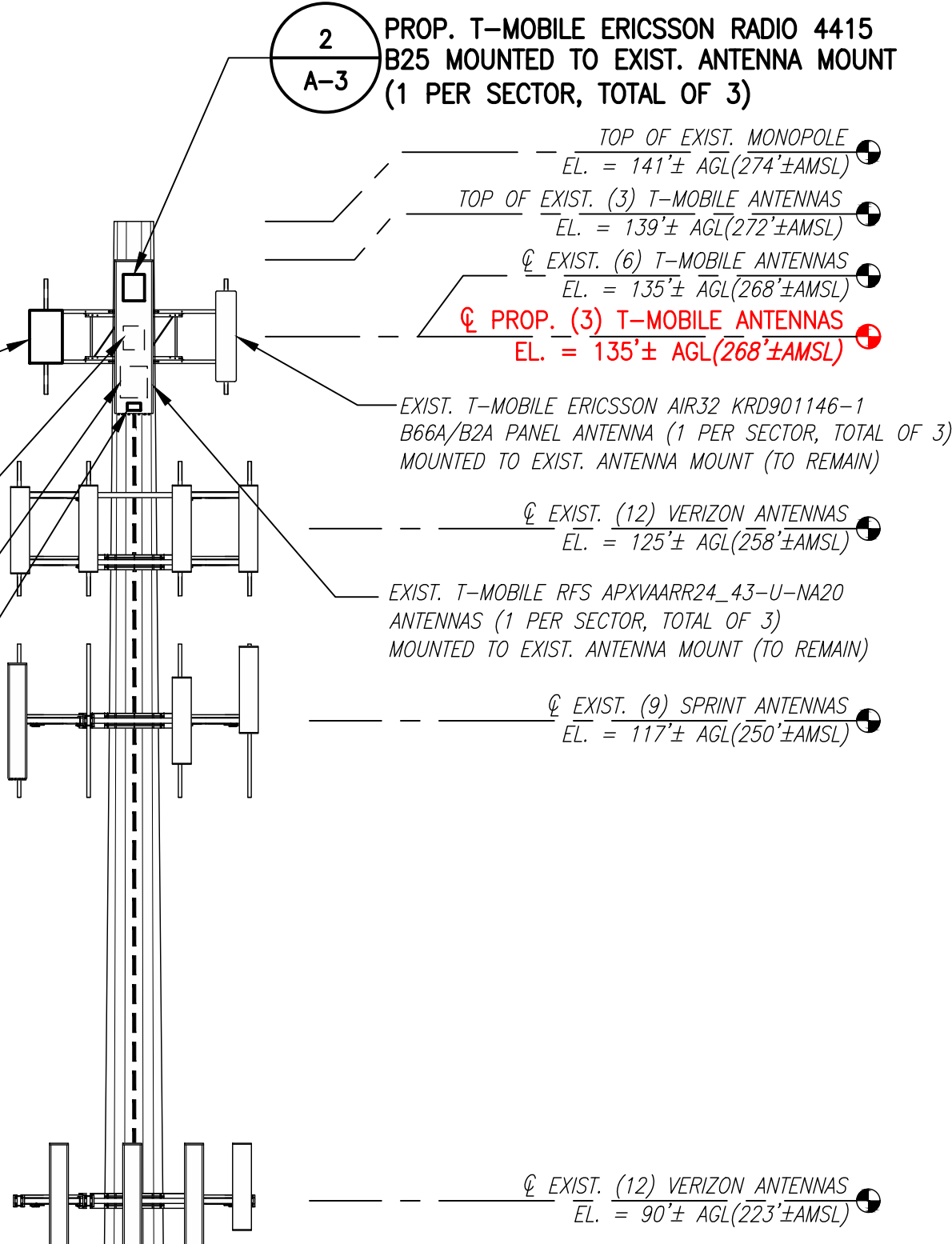
EXIST. T-MOBILE ERICSSON AIR32 KR0901146-1 B66A/B2A PANEL ANTENNA (1 PER SECTOR, TOTAL OF 3) MOUNTED TO EXIST. ANTENNA MOUNT (TO REMAIN)

EXIST. (12) VERIZON ANTENNAS
 EL. = 125' ± AGL (258' ± AMSL)

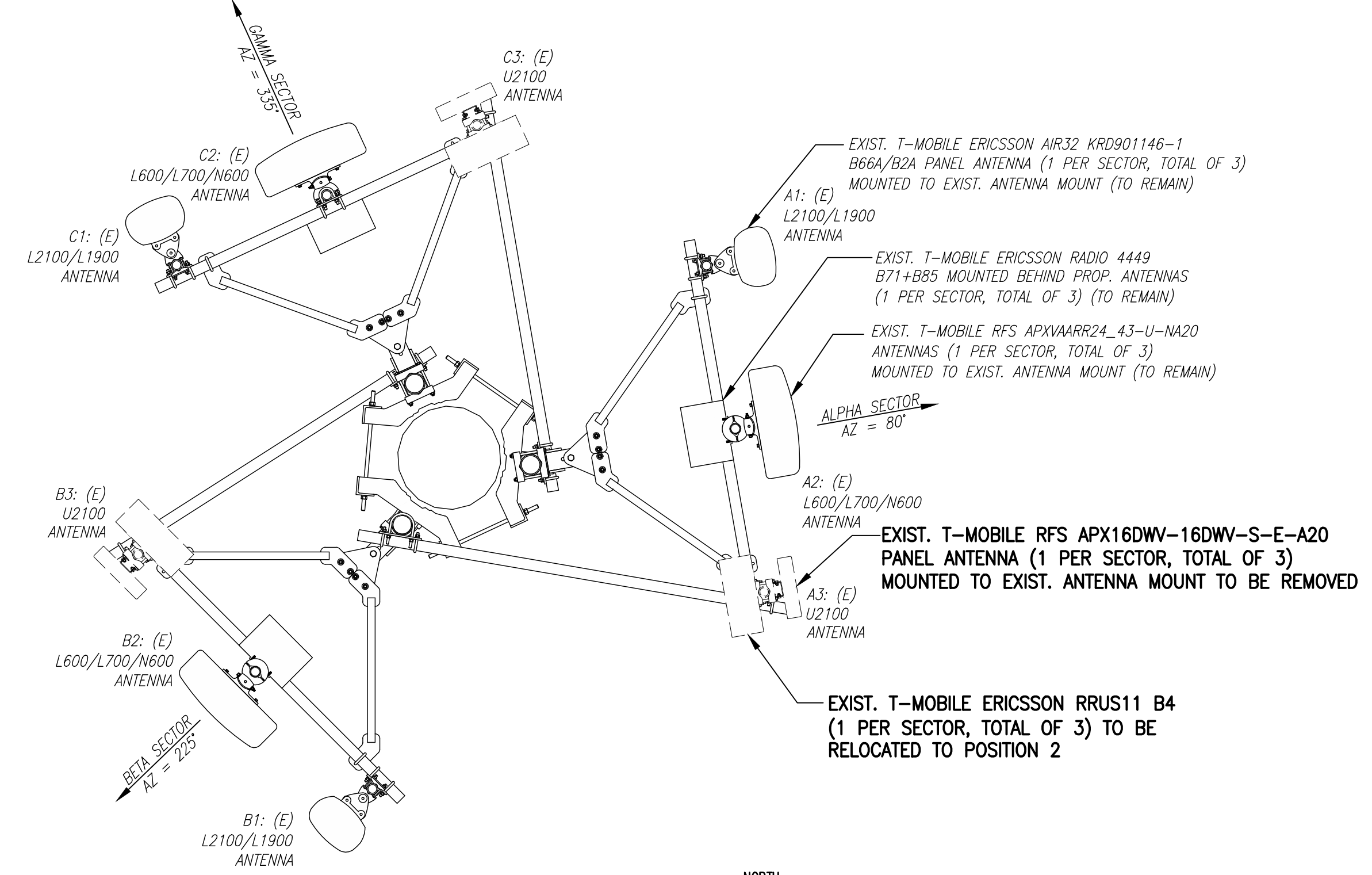
EXIST. T-MOBILE RFS APXVAARR24_43-U-NA20 ANTENNAS (1 PER SECTOR, TOTAL OF 3) MOUNTED TO EXIST. ANTENNA MOUNT (TO REMAIN)

EXIST. (9) SPRINT ANTENNAS
 EL. = 117' ± AGL (250' ± AMSL)

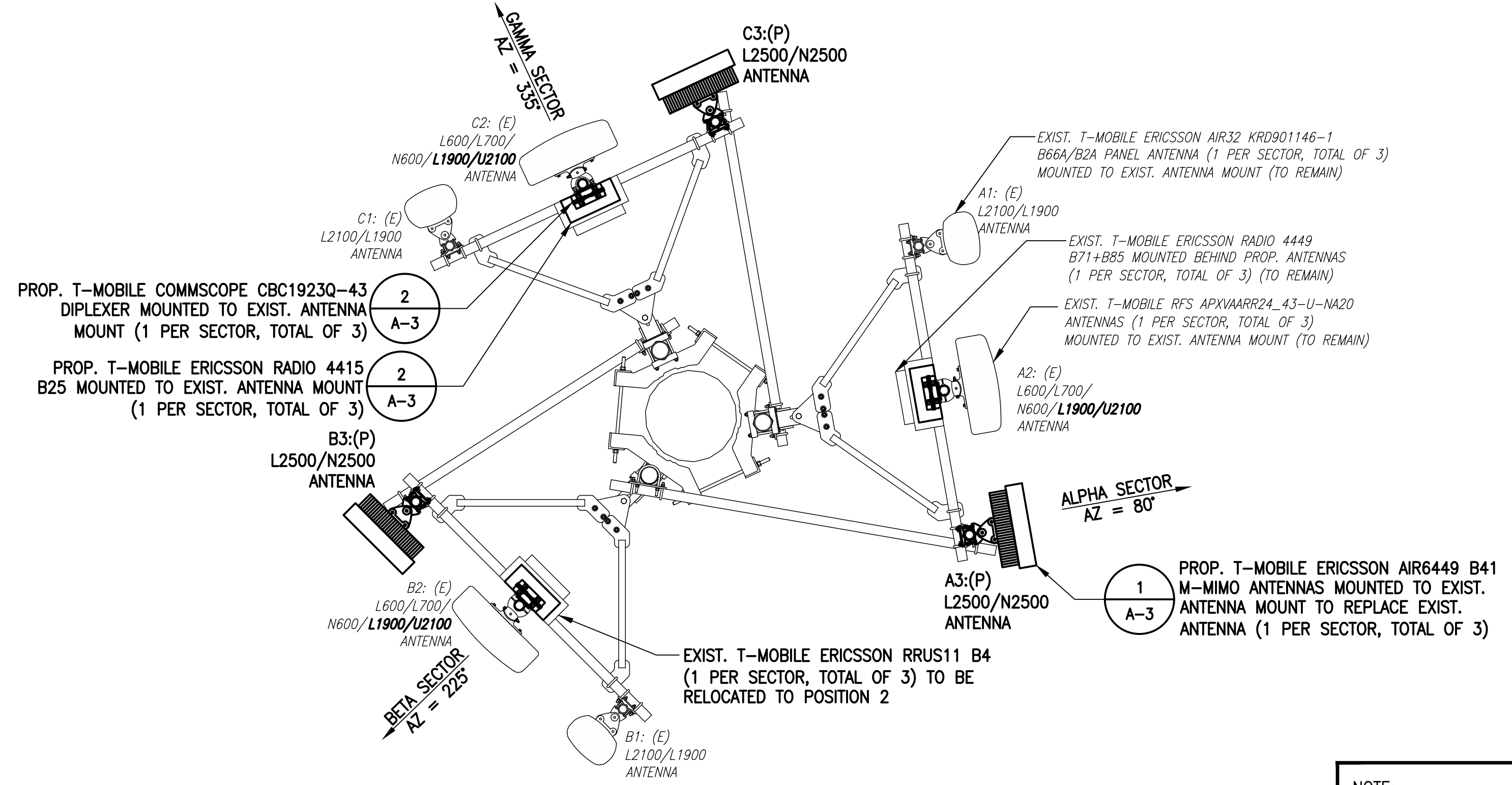
EXIST. (12) VERIZON ANTENNAS
 EL. = 90' ± AGL (223' ± AMSL)



TOWER ELEVATION
 SCALE: 1" = 8'
 1 A-2



EXISTING ANTENNA PLAN
 SCALE: 1/2" = 1'-0"
 2 A-2



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

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

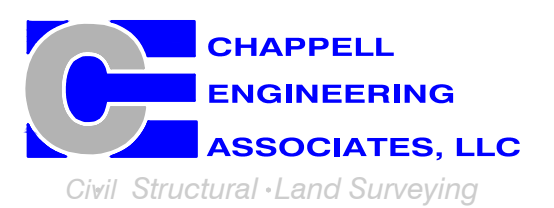
ANTENNA STATUS LEGEND:
 EMPTY - EMPTY PIPE
 (E) - EXISTING
 (P) - INSTALL
 (F) - FUTURE

T-MOBILE NORTHEAST LLC

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CTHA039A

SITE ADDRESS:
 60 ADAMS STREET
 MANCHESTER, CT 06040

SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

SHEET NUMBER
A-2

FINAL ANTENNA CONFIGURATION								
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	RADIOS/TMAS	CABLES
ALPHA	ERICSSON AIR32 KRD901146-1 B66A/B2A	135'± AGL	80°	0°	4'	L2100/L1900	-	(2) 1-5/8" HCS CABLES (1) 1-3/8" HCS CABLES
	RFS APXVAARR24_43-U-NA20	135'± AGL	80°	0°	4'	L600/L700/N600	RADIO 4449 B71+B85	
	ERICSSON M-MIMO AIR6449 B41	135'± AGL	80°	0°	4'	L1900/U2100	RRUST11 B4 RADIO 4415 B25 COMMSCOPE CBC1923Q-43	
BETA	ERICSSON AIR32 KRD901146-1 B66A/B2A	135'± AGL	225°	0°	4'	L2100/L1900	-	
	RFS APXVAARR24_43-U-NA20	135'± AGL	225°	0°	4'	L600/L700/N600	RADIO 4449 B71+B85	
	ERICSSON M-MIMO AIR6449 B41	135'± AGL	225°	0°	4'	L1900/U2100	RRUST11 B4 RADIO 4415 B25 COMMSCOPE CBC1923Q-43	
GAMMA	ERICSSON AIR32 KRD901146-1 B66A/B2A	135'± AGL	335°	0°	4'	L2100/L1900	-	
	RFS APXVAARR24_43-U-NA20	135'± AGL	335°	0°	4'	L600/L700/N600	RADIO 4449 B71+B85	
	ERICSSON M-MIMO AIR6449 B41	135'± AGL	335°	0°	4'	L1900/U2100	RRUST11 B4 RADIO 4415 B25 COMMSCOPE CBC1923Q-43	

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

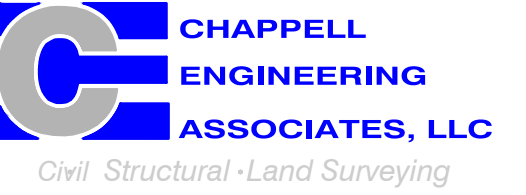
NOTE: RFDS REV3 - 05/11/20

T-MOBILE
NORTHEAST LLC

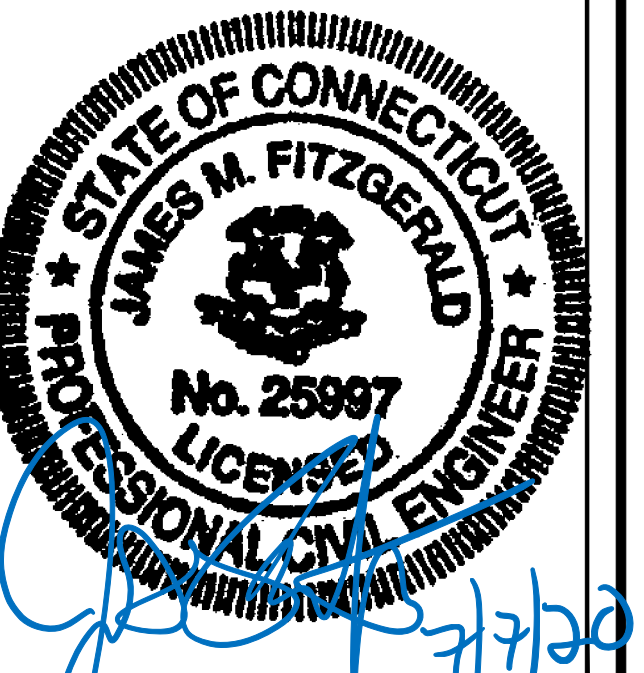
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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3



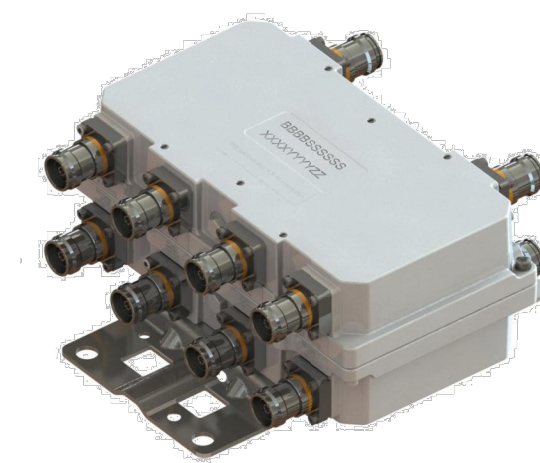
ERICSSON M-MIMO AIR6449 B41 PANEL ANTENNA
DIMENSIONS: 33.1"H x 20.5"W x 8.3"D
WEIGHT: 103.0 LBS
1 PER SECTOR, TOTAL OF 3

ANTENNA DETAIL 1
SCALE: N.T.S. A-3



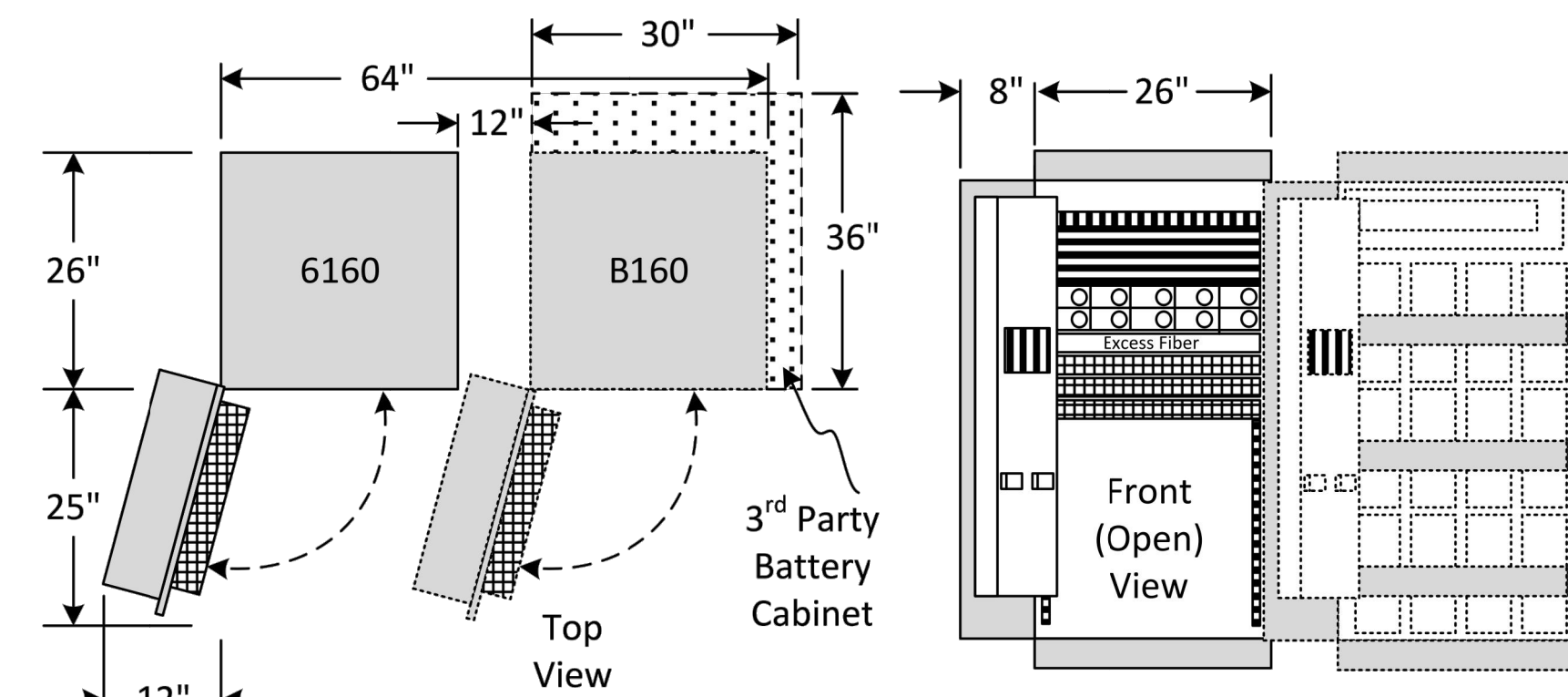
ERICSSON RRUS 4415 B25
DIMENSIONS: 16.5"H x 13.4"W x 5.9"D
WEIGHT: 46 LBS
1 PER SECTOR, TOTAL OF 3

RRUS DETAIL 2
SCALE: N.T.S. A-3



COMMSCOPE 1923Q-43 DIPLEXER
DIMENSIONS: 4.6"H x 8.4"W x 3.3"D
WEIGHT: 7.3 LBS
1 PER SECTOR, TOTAL OF 3

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



ERICSSON 6160 SITE SUPPORT CABINET
DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
TOTAL OF 1

ERICSSON B160 BATTERY CABINET
DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
TOTAL OF 1

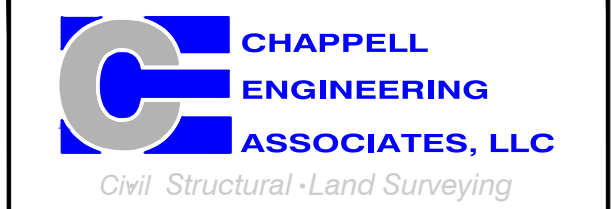
EQUIPMENT DETAIL 4
SCALE: N.T.S. A-3

T-MOBILE
NORTHEAST LLC

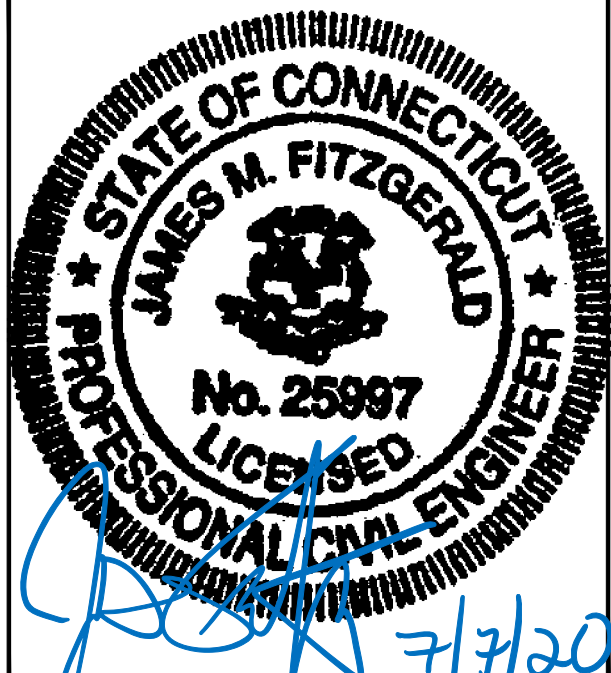
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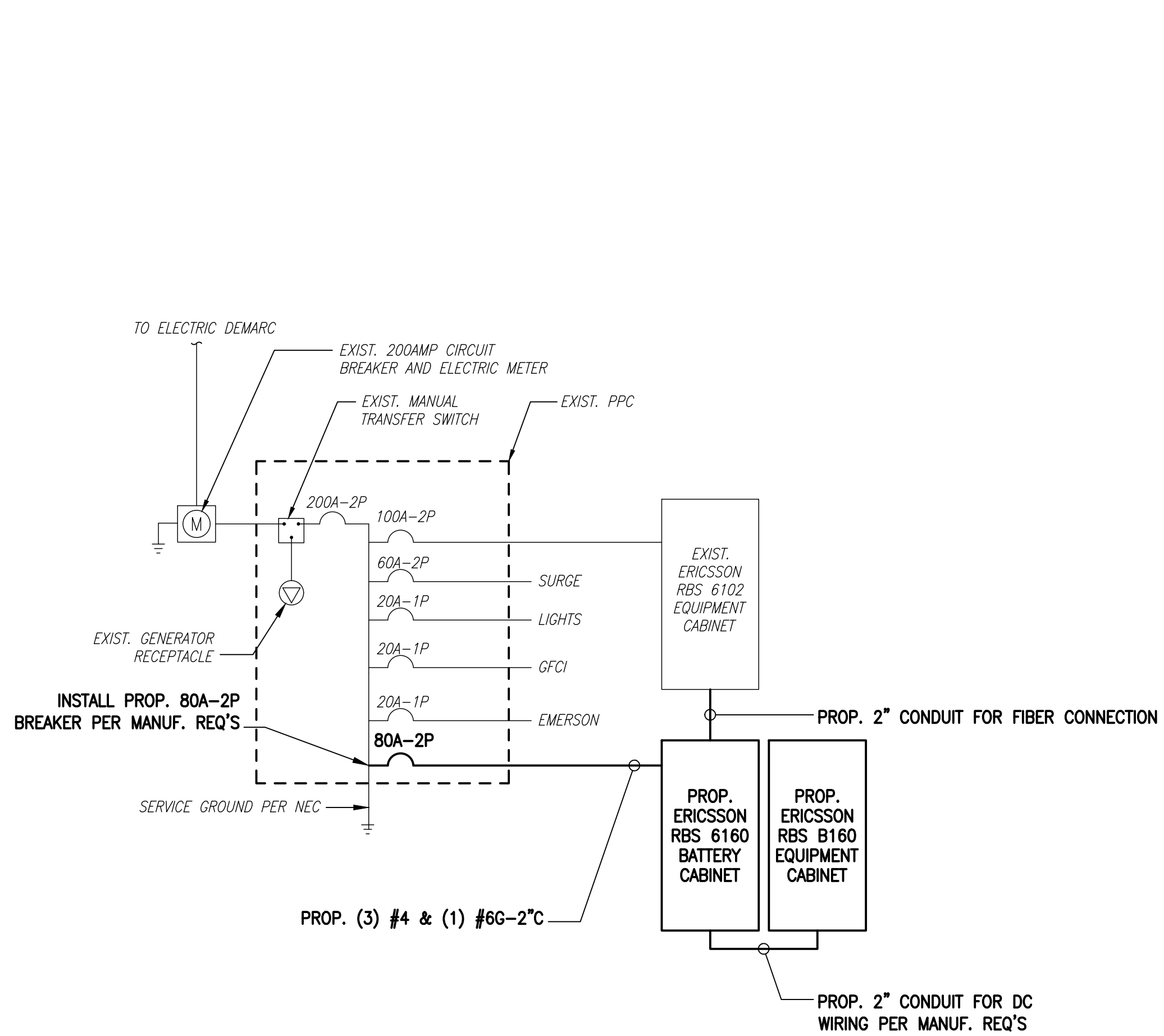
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MANCHESTER, CT 06040

SHEET TITLE

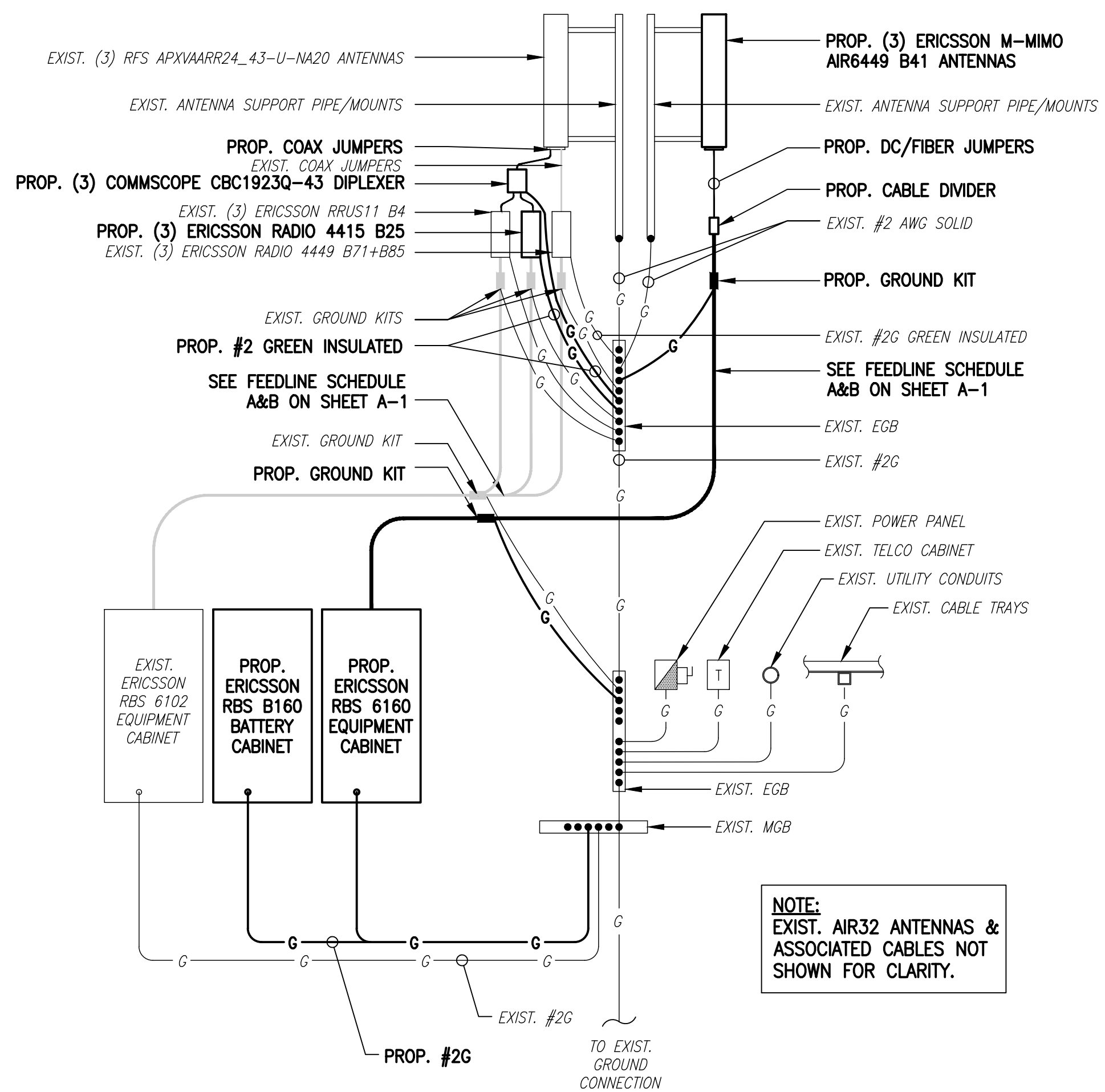
ELECTRIC & GROUNDING
DETAILS

SHEET NUMBER

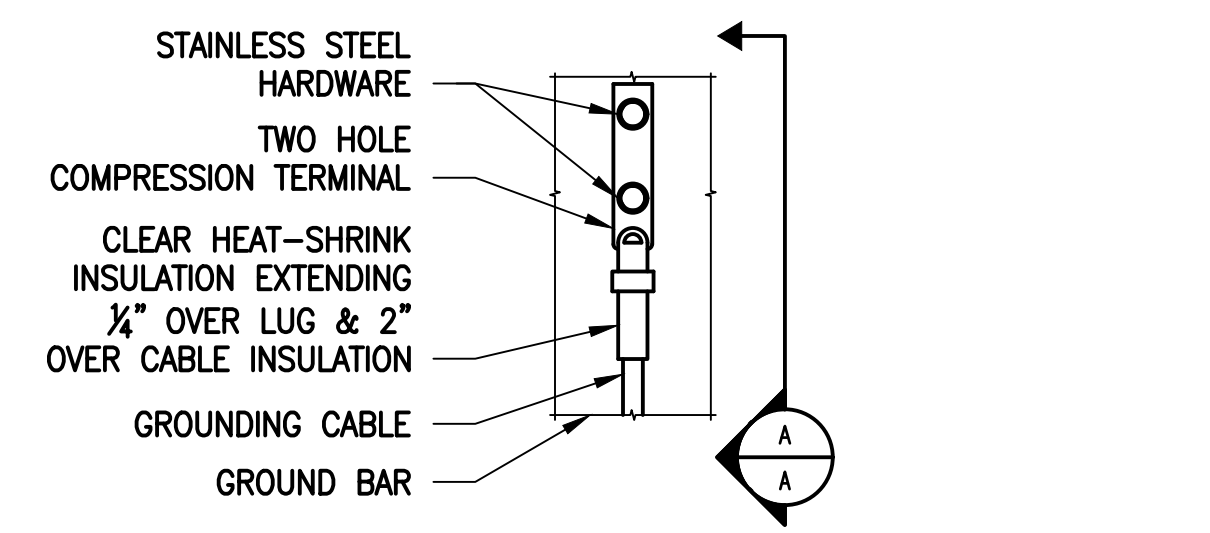
E-1



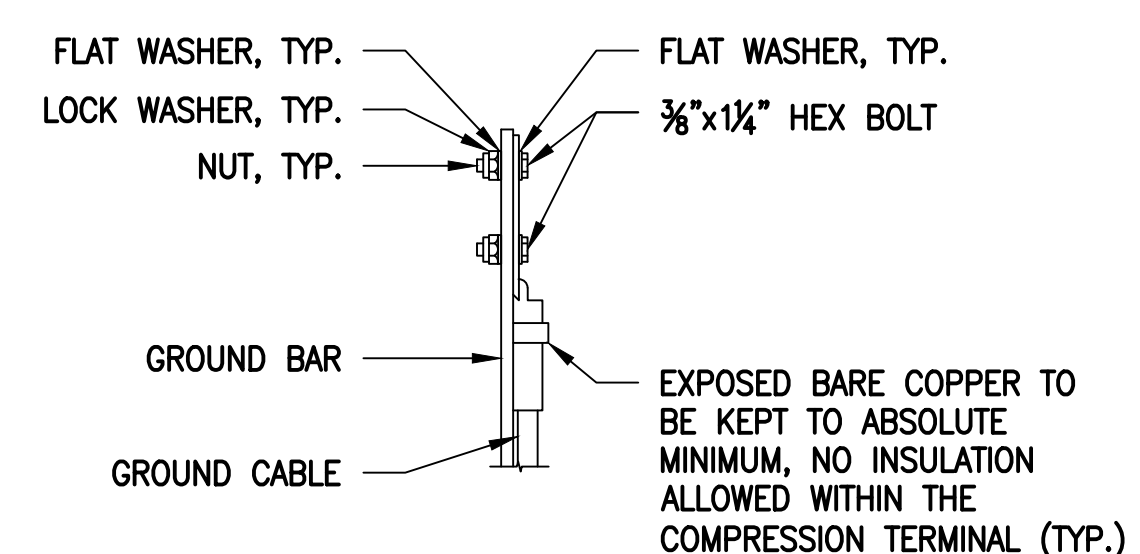
ONE LINE DIAGRAM
SCALE: NOT TO SCALE
1
E-1



GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE
2
E-1



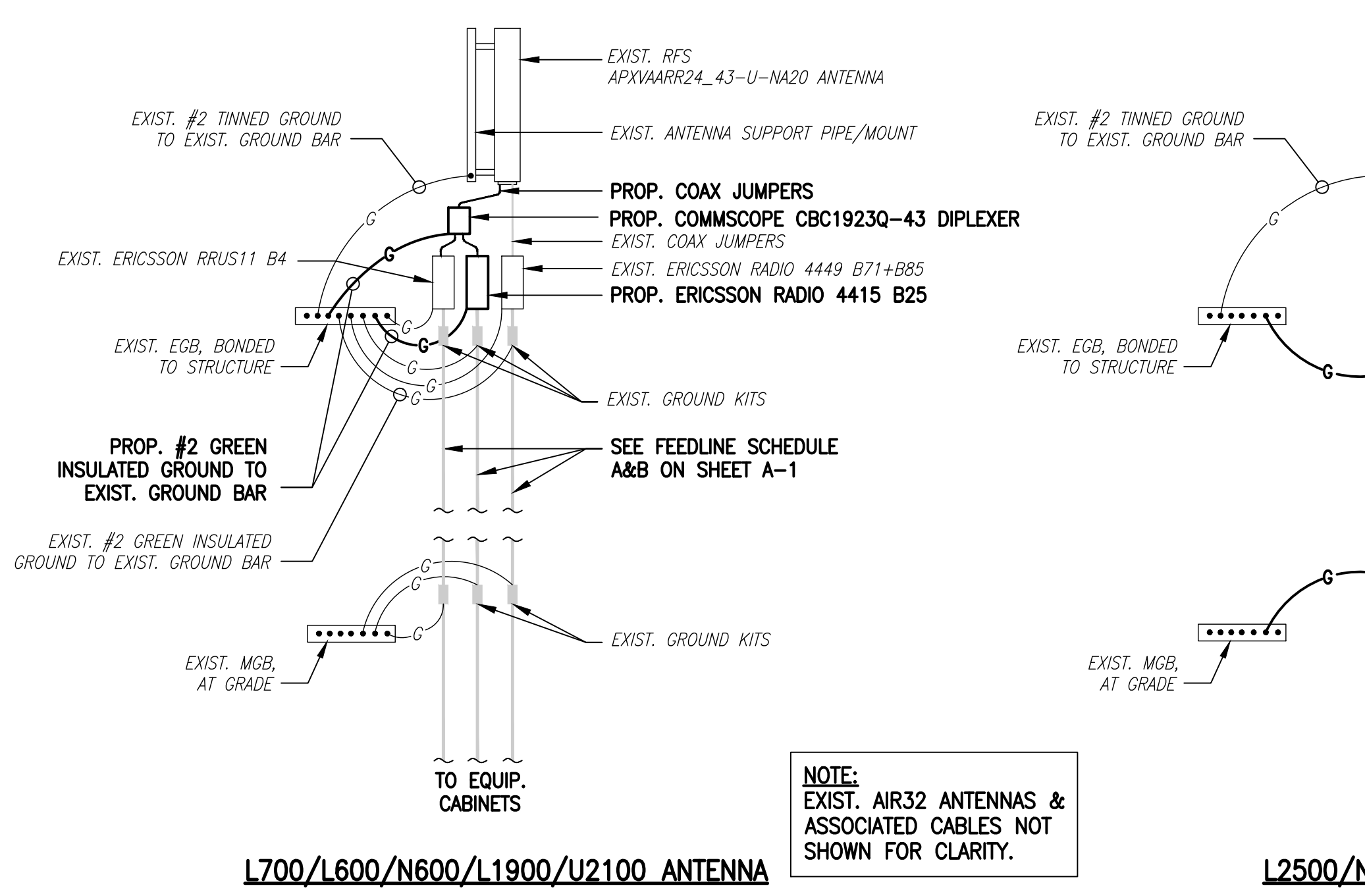
ELEVATION



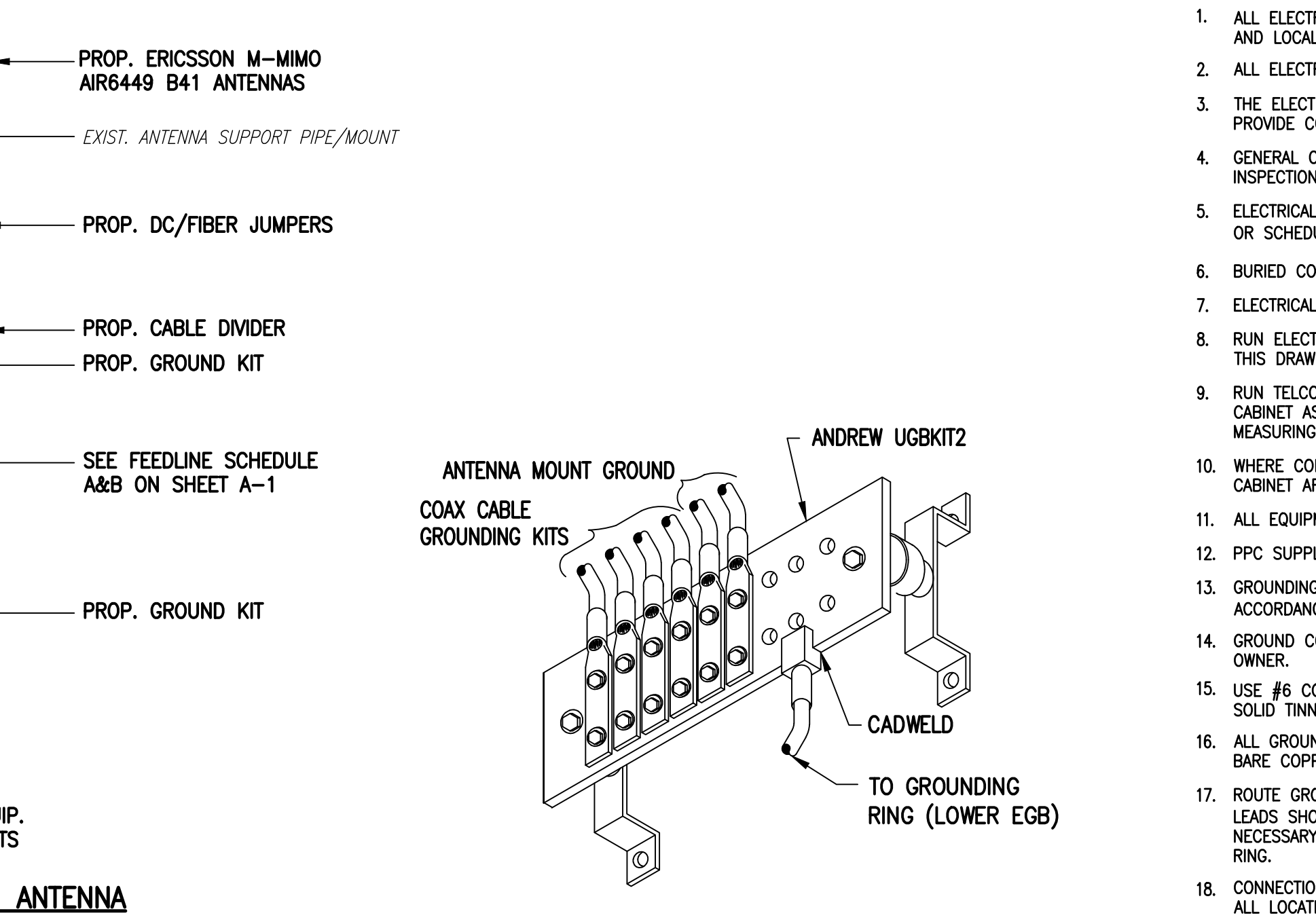
SECTION A-A

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

TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NOT TO SCALE
3
E-1



COAX CABLE CONNECTION AND GROUNDING DETAIL
SCALE: NOT TO SCALE
4
E-1



GROUND BAR (EGB)
SCALE: NOT TO SCALE
5
E-1

ELECTRICAL AND GROUNDING NOTES

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

EXHIBIT 7



Tower Engineering Solutions

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

Structural Analysis Report

Existing 141 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT16504-A

Customer Site Name: Manchester 12, CT

Carrier Name: T-Mobile (App#: 134814-2)

Carrier Site ID / Name: CTHA039A / Manchester

Site Location: 60 Adams Street

Manchester, Connecticut

Hartford County

Latitude: 41.794100

Longitude: -72.555300

Exp.01/31/2021



Analysis Result:

Max Structural Usage: 93.5% [Pass]

Max Foundation Usage: 89.0% [Pass]

06/30/2020

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

Report Prepared By: Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 141 ft EEI 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	FDH, Mapping Report #15BRLA1500, dated June 15, 2015
Foundation Drawing	FDH, Mapping Report # 15BRLC1500, dated June 16, 2015
Geotechnical Report	FDH, Project # 15BRNG1600, dated June 17, 2015
Modification Drawings	TES, Job # 36710, dated December 14, 2017

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-H. 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:	118.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1"1/2 radial ice concurrent
Service Load Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_5 = 0.188, S_1 = 0.055$

This structural analysis is based upon the tower being classified as a Risk Category 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	135.0	3	Ericsson Air 32 KRD901146-1_B66A_B2A - Panel	(3) Sector frames w/ (1) low profile platform sitepro RMQP-396*	(2) 1 1/4" Fiber (2) 1 5/8" Fiber	T-Mobile
2		3	RFS APXVAARR24_43-U-NA20 - Panel			
3		3	RFS APX16DWV-16DWVS-E-A20 - Panel			
4		3	Ericsson RRUS11 B4 RRUs			
5		3	Ericsson RRUS 32 B66A RRUs			
6		3	Ericsson Radio 4449 B71+B12 RRUs			
7	125.0	3	Quintel QS66512-2 - Panel	Platform w/ Hand Rails	(12) 1 1/4" (4) 0.625" DC (2) 0.40" Fiber (2) 2" Conduit	AT&T
8		3	Kathrein 800-10121 - Panel			
9		3	CCI OPA-65R-LCUU-H6 - Panel			
10		3	CCI HPA-65R-BUU-H6 - Panel			
11		6	CCI DTMAPB7819VG12A			
12		6	Kathrein 782 10250			
13		6	Ericsson RRUS-32			
14		3	Ericsson RRUS-11			
15		3	Ericsson B14 4478			
16		3	Ericsson RRUS 32 B66			
17		6	Kaelus DBC0061F1V51-2			
18		3	Raycap DC6-48-60-18-8F			
19	118.5	1	Andrew VHLP1-23-DW1 - Dish	Low Profile Platform*	(3) 1-1/4" (2) 2 1/8" F.C. (1) 3/4" Fiber (2) 5/8"	Sprint-Clearwire
20		1	Andrew VHLP2-23-DW1 - Dish			
21	117.0	3	RFS APXVTM14 - Panel			
22		3	RFS APXVSP18 - Panel			
23		3	Alcatel Lucent RRH8x20-25-FEU			
24		3	Alcatel Lucent RRH1900-4X45			
25	114.5	3	Argus LLPX310R-V1 - Panel			
26	114.0	1	20" x 18" x 9" Junction Box			
27	113.0	3	Samsung SPI-22132825WB			
28	112.5	3	Alcatel Lucent RRH2X50-800			
29	90.0	3	Swedcom SLCP 2x6014 - Panel	Platform w/ Hand Rails	(12) 1 5/8" (2) 1 5/8" Fiber	Verizon
30		6	Commscope SBNHH-1D65B - Panel			
31		3	Antel BXA-70063-6CF-EDIN-x - Panel			
32		3	Alcatel Lucent RRH2X60-AWS			
33		3	Alcatel Lucent RRH2X60-700			
34		3	Alcatel Lucent RRH2X60-PCS			
35		1	RFS DB-T1-6Z-8AB-0Z			

*Mount is at 114'.

*According to Mapping and Mount Analysis.

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	135.0	3	Ericsson - Air 32 KRD901146-1_B66A_B2A - Panel	(3) Sector frames w/ (1) low profile platform sitepro RMQP-396	(2) 1 1/4" Fiber (2) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - AIR6449 B41 - Panel			
3		3	RFS - APXVAARR24_43-U-NA20 - Panel			
4		3	CommScope CBC192-3Q-43 Diplexers			
5		3	Ericsson RRUS11 B4			
6		3	Ericsson 4415 B25			
7		3	Ericsson Radio 4449 B71+B85			

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:	93.5%	70.1%	68.6%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3397.2	32.4	41.5

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.

Service Load Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-H for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.8032 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-H Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

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

Usage Diagram - Max Ratio 93.16% at 70.0ft

Structure: CT16504-A-SBA
Site Name: Manchester 12, CT
Height: 140.50 (ft)
Base Elev: 0.000 (ft)

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

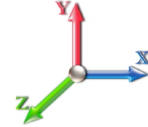
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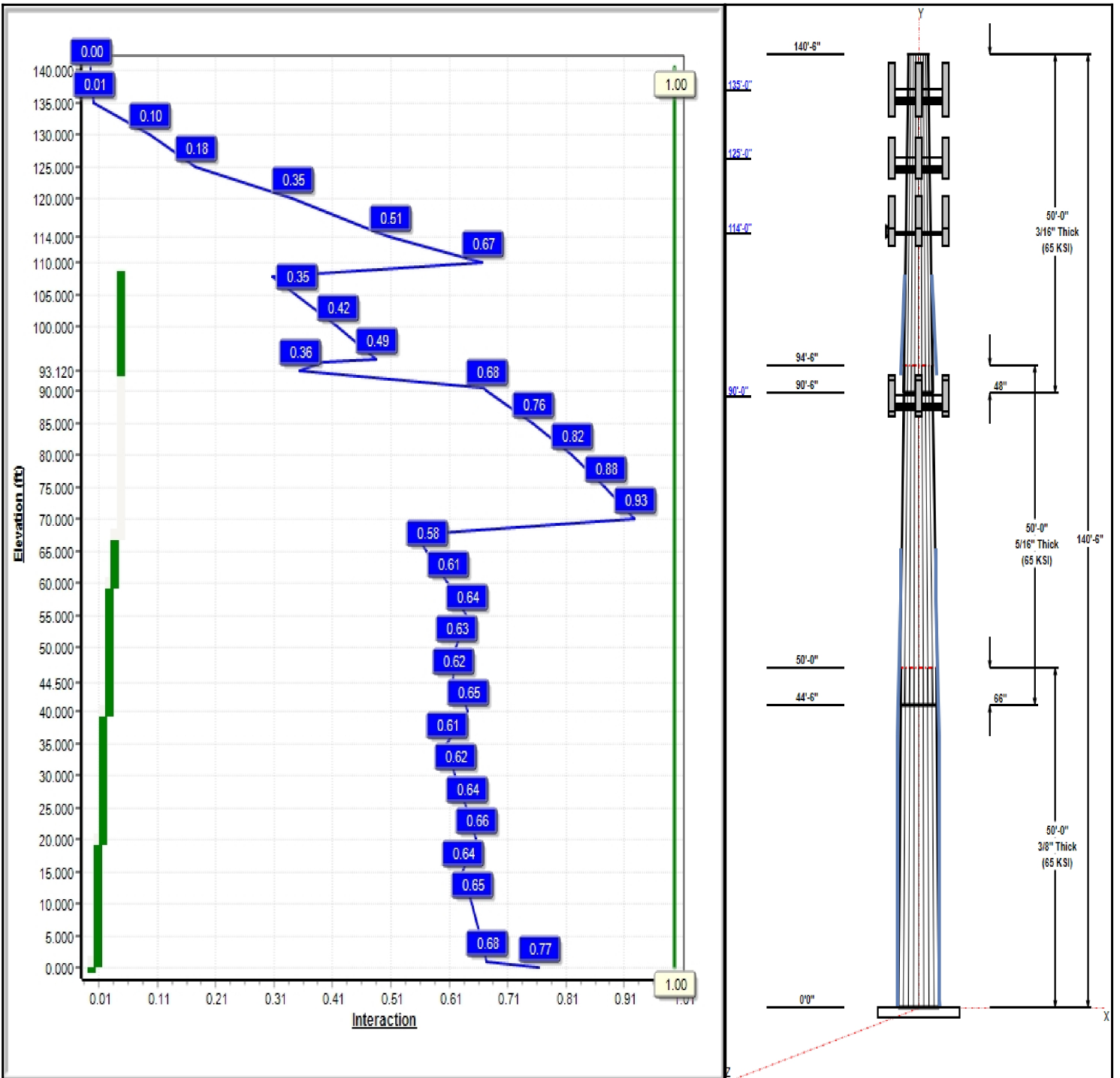
Dead Load Factor: 1.20
 Wind Load Factor: 1.00

Load Case : 1.2D + 1.0W 118 mph Wind



Iterations: 25

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Structure: CT16504-A-SBA

Type: Tapered
Site Name: Manchester 12, CT
Height: 140.50 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18206

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Shaft Properties

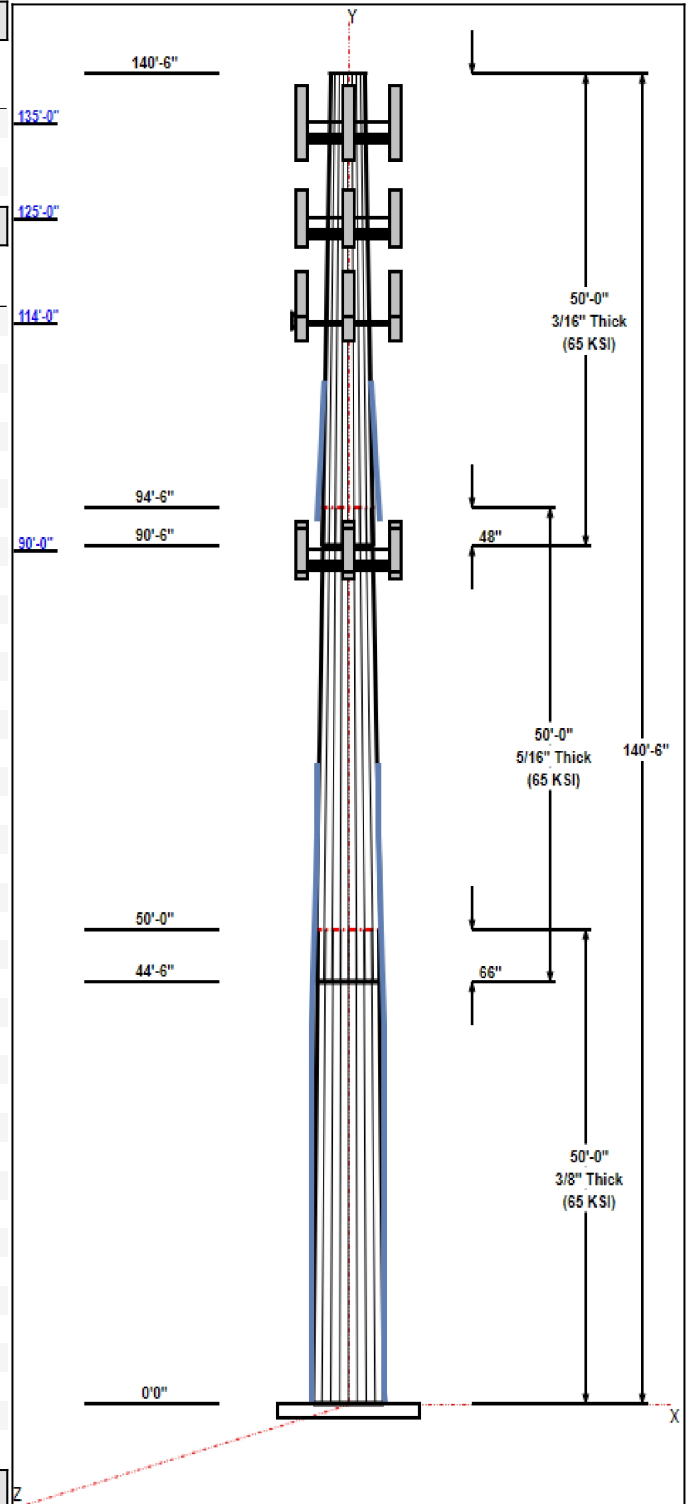
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	33.44	42.54	0.375		0.18206	65
2	50.00	25.96	35.06	0.313	Slip	0.18206	65
3	50.00	17.96	27.06	0.188	Slip	0.18206	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
135.00	135.00	3	Sector Frame	T-Mobile
135.00	135.00	3	Air 32	T-Mobile
135.00	135.00	3	AIR6449 B41	T-Mobile
135.00	135.00	3	APXVAARR24_43-U-NA20	T-Mobile
135.00	135.00	3	Commscope	T-Mobile
135.00	135.00	3	Ericsson RRUS11 B4	T-Mobile
135.00	135.00	3	Ericsson 4415 B25	T-Mobile
135.00	135.00	3	Ericsson Radio 4449	T-Mobile
125.00	125.00	1	Platform w/ Hand Rails	AT&T
125.00	125.00	3	QS66512-2	AT&T
125.00	125.00	3	CCI OPA-65R-LCUU-H6	AT&T
125.00	125.00	6	Kathrein 782 10250	AT&T
125.00	125.00	3	Raycap DC6-48-60-18-8F	AT&T
125.00	125.00	6	CCI DTMAPB7819VG12A	AT&T
125.00	125.00	3	Ericsson RRUS-11	AT&T
125.00	125.00	6	Ericsson RRUS-32	AT&T
125.00	125.00	3	Kathrein 800-10121	AT&T
125.00	125.00	3	HPA-65R-BUU-H6	AT&T
125.00	125.00	3	B14 4478	AT&T
125.00	125.00	3	RRUS 32 B66	AT&T
125.00	125.00	6	DBC0061F1V51-2	AT&T
114.00	118.50	1	Andrew VHLP1-23-DW1	Sprint-Clearwire
114.00	118.50	1	Andrew VHLP2-23-DW1	Sprint-Clearwire
114.00	114.50	3	Argus LLPX310R-V1	Sprint-Clearwire
114.00	113.00	3	Samsung	Sprint-Clearwire
114.00	114.00	1	20" x 18" x 9" Junction Box	Sprint-Clearwire
114.00	117.00	3	RFS APXVTM14	Sprint-Clearwire
114.00	115.00	3	RFS APXVSP18	Sprint-Clearwire
114.00	117.00	3	Alcatel Lucent	Sprint-Clearwire
114.00	112.50	3	Alcatel Lucent	Sprint-Clearwire
114.00	117.00	3	Alcatel Lucent	Sprint-Clearwire
114.00	114.00	1	Low Profile Platform	Sprint-Clearwire
90.00	90.00	3	Swedcom SLCP 2x6014	Verizon
90.00	90.00	6	Commscope	Verizon
90.00	90.00	3	Antel	Verizon
90.00	90.00	3	Alcatel Lucent	Verizon
90.00	90.00	3	Alcatel Lucent	Verizon
90.00	90.00	3	Alcatel Lucent	Verizon
90.00	90.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
90.00	90.00	1	Platform w/ Hand Rails	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	135.00	Outside	1 1/4" Fiber	T-Mobile
0.00	135.00	Outside	1 5/8" Fiber	T-Mobile
0.00	125.00	Inside	0.40" Fiber	AT&T



Structure: CT16504-A-SBA

Type: Tapered
Site Name: Manchester 12, CT
Height: 140.50 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18206

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0.00	125.00	Inside	0.625" DC	AT&T
0.00	125.00	Inside	1 1/4" Coax	AT&T
0.00	125.00	Inside	2" Conduit	AT&T
0.00	114.00	Inside	1-1/4"	Sprint-Clearwire
0.00	114.00	Inside	2 1/8" F.C.	Sprint-Clearwire
0.00	114.00	Inside	3/4"	Sprint-Clearwire
0.00	114.00	Inside	5/8"	Sprint-Clearwire
90.50	110.50	Outside	1" Reinforcing plate	
90.50	110.50	Outside	1" Reinforcing plate	
0.00	90.00	Inside	1 5/8" Coax	Verizon
0.00	90.00	Inside	1 5/8" Fiber	Verizon
40.00	70.00	Outside	1" Reinforcing plate	
40.00	70.00	Outside	1" Reinforcing plate	
0.00	40.00	Outside	1.25" Reinforcing plate	
0.00	40.00	Outside	1.25" Reinforcing plate	

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	57.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 118 mph Wind	3397.2	32.4	41.5
0.9D + 1.0W 118 mph Wind	3348.7	32.4	31.1
1.2D + 1.0Di + 1.0Wi 50 mph Wind	937.8	8.7	72.9
1.2D + 1.0Ev + 1.0Eh	57.3	0.5	42.9
0.9D + 1.0Ev + 1.0Eh	56.6	0.5	32.5
1.0D + 1.0W 60 mph Wind	780.1	7.5	34.6

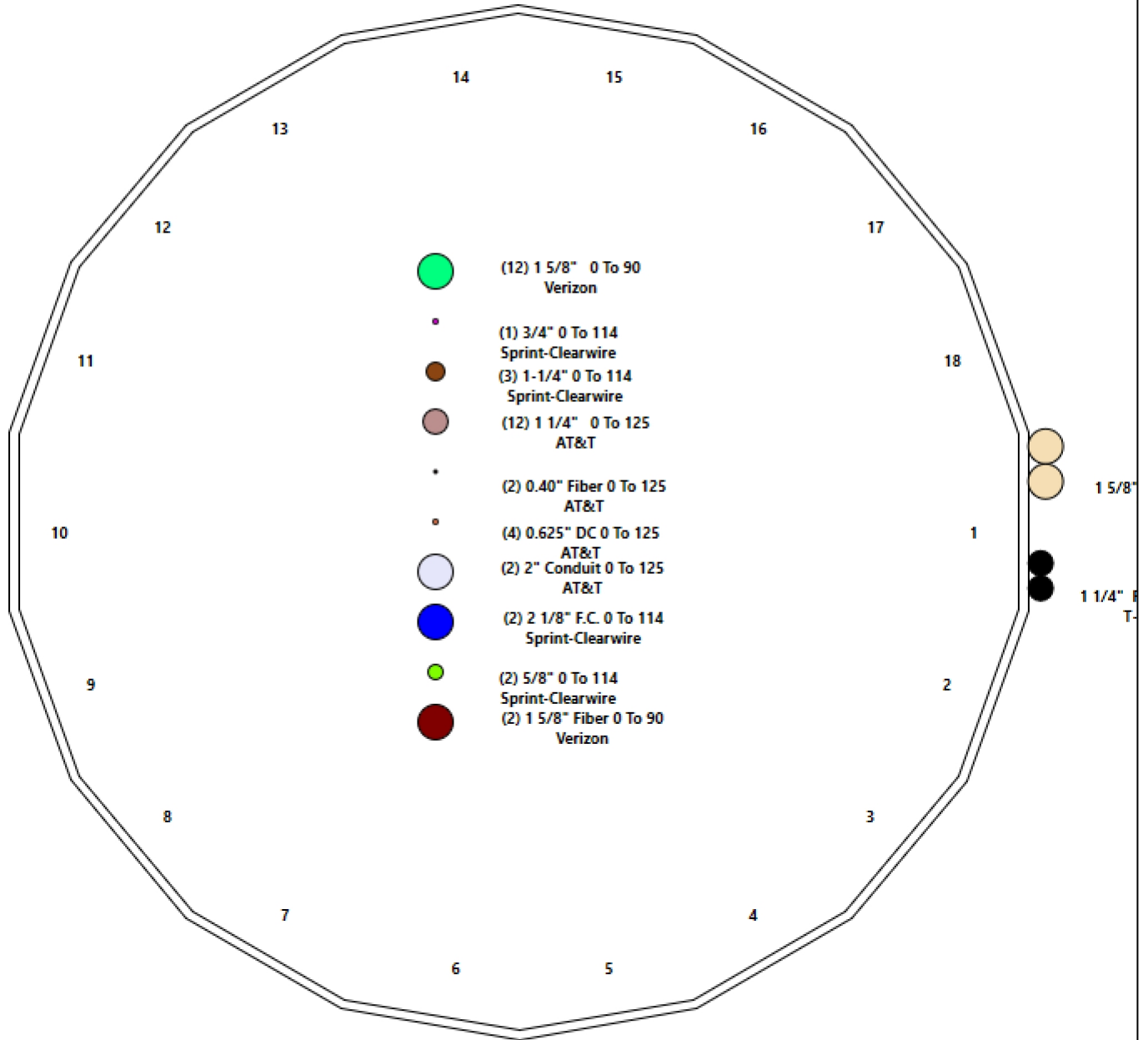
Structure: CT16504-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Manchester 12, CT
Height: 140.50 (ft)

6/30/2020



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Shaft Properties

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.3750	65		0.00	7,617
2	18	50.000	0.3125	65	Slip	66.00	5,096
3	18	50.000	0.1875	65	Slip	48.00	2,260
Total Shaft Weight:							14,973

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	42.54	0.00	50.19	11272.80	18.59	113.44	33.44	50.00	39.35	5434.44	14.31	89.16	0.182064
2	35.06	44.50	34.47	5258.76	18.37	112.20	25.96	94.50	25.44	2114.11	13.24	83.07	0.182064
3	27.06	90.50	15.99	1459.57	24.04	144.34	17.96	140.50	10.58	422.08	15.48	95.79	0.182064

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors		Termination Connectors			
							Description	Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty
0.00	1.00	4	SOL 2 1/4" William R71	105	125	4.75	5/8" Hollo Bolt	18.00	5/8" Hollo Bolt	3.00		
1.00	20.00	4	LNP LP7X125-B-20A	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
20.00	40.00	4	LNP LP6X125-G-20AB	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
40.00	60.00	4	LNP LP6X100-G-20BC	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
60.00	67.50	4	LNP LP6X100-G-10CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		
93.12	107.8	3	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	8	8

Load Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	135.00	Sector Frame	3	817.00	15.00	0.75	1449.08	22.460	0.75	0.00	0.00
2	135.00	Air 32 KRD901146-1_B66A_B2A	3	132.20	6.51	0.87	314.29	7.677	0.87	0.00	0.00
3	135.00	AIR6449 B41	3	103.00	5.65	0.80	254.01	6.612	0.81	0.00	0.00
4	135.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	541.00	22.119	0.70	0.00	0.00
5	135.00	Commscope CBC192-3Q-43	3	11.00	0.32	0.91	21.40	0.579	0.91	0.00	0.00
6	135.00	Ericsson RRUS11 B4	3	44.00	2.57	0.67	106.61	3.209	0.67	0.00	0.00
7	135.00	Ericsson 4415 B25	3	44.10	1.86	0.67	91.04	2.427	0.67	0.00	0.00
8	135.00	Ericsson Radio 4449 B71+B85	3	70.00	1.65	0.00	137.35	2.182	0.67	0.00	0.00
9	125.00	Platform w/ Hand Rails	1	2000.00	40.00	1.00	4056.42	60.564	1.00	0.00	0.00
10	125.00	QS66512-2	3	111.00	8.13	0.92	333.47	9.404	0.92	0.00	0.00
11	125.00	CCI OPA-65R-LCUU-H6	3	73.00	9.66	0.79	299.87	11.000	0.79	0.00	0.00
12	125.00	Kathrein 782 10250	6	6.40	0.52	0.67	18.96	1.079	0.67	0.00	0.00
13	125.00	Raycap DC6-48-60-18-8F	3	32.80	1.47	0.67	93.51	2.157	0.67	0.00	0.00
14	125.00	CCI DTMABP7819VG12A	6	19.00	1.14	0.67	43.80	1.896	0.67	0.00	0.00
15	125.00	Ericsson RRUS-11	3	54.00	2.52	0.67	141.23	3.159	0.67	0.00	0.00
16	125.00	Ericsson RRUS-32	6	77.00	2.52	0.67	190.98	4.250	0.67	0.00	0.00
17	125.00	Kathrein 800-10121	3	44.10	5.15	0.79	177.13	6.175	0.79	0.00	0.00
18	125.00	HPA-65R-BUU-H6	3	51.00	9.66	0.85	293.90	11.000	0.85	0.00	0.00
19	125.00	B14 4478	3	59.40	1.65	0.67	119.08	2.177	0.67	0.00	0.00
20	125.00	RRUS 32 B66	3	53.00	2.74	0.67	139.04	3.454	0.67	0.00	0.00
21	125.00	DBC0061F1V51-2	6	25.40	0.43	0.67	39.68	0.710	0.67	0.00	0.00
22	114.00	Andrew VHLP1-23-DW1	1	14.00	1.61	1.00	48.45	2.348	1.00	0.00	4.50
23	114.00	Andrew VHLP2-23-DW1	1	31.00	4.69	1.00	126.21	5.932	1.00	0.00	4.50
24	114.00	Argus LLPX310R-V1	3	50.70	4.31	0.69	156.26	5.244	0.69	0.00	0.50
25	114.00	Samsung SPI-22132825WB	3	33.10	1.82	0.76	75.84	2.769	0.76	0.00	-1.00
26	114.00	20" x 18" x 9" Junction Box	1	20.00	3.15	1.00	114.45	4.372	1.00	0.00	0.00
27	114.00	RFS APXVTM14	3	116.70	6.34	0.79	271.92	7.421	0.79	0.00	3.00
28	114.00	RFS APXVSP18	3	125.30	8.02	0.83	318.56	9.277	0.83	0.00	1.00
29	114.00	Alcatel Lucent RRR8x20-25-FEU	3	70.00	4.05	0.69	176.87	4.840	0.69	0.00	3.00
30	114.00	Alcatel Lucent RRH2X50-800	3	64.00	2.40	0.97	139.11	3.489	0.97	0.00	-1.50
31	114.00	Alcatel Lucent RRH1900-4X45	3	60.00	2.71	0.98	138.57	3.939	0.98	0.00	3.00
32	114.00	Low Profile Platform	1	1800.00	25.00	1.00	3328.17	45.376	1.00	0.00	0.00
33	90.00	Swedcom SLCP 2x6014	3	45.60	6.49	0.89	233.55	7.516	0.89	0.00	0.00
34	90.00	Commscope SBNHH-1D65B	6	76.40	8.08	0.83	265.70	9.275	0.83	0.00	0.00
35	90.00	Antel BXA-70063-6CF-EDIN-x	3	42.60	7.57	0.73	206.35	8.763	0.73	0.00	0.00
36	90.00	Alcatel Lucent RRH2X60-AWS	3	90.00	3.50	0.76	214.41	4.250	0.76	0.00	0.00
37	90.00	Alcatel Lucent RRH2X60-700	3	90.00	3.50	0.76	214.41	4.250	0.76	0.00	0.00
38	90.00	Alcatel Lucent RRH2X60-PCS	3	55.00	1.51	0.90	134.38	2.802	0.90	0.00	0.00
39	90.00	RFS DB-T1-6Z-8AB-OZ	1	44.00	4.80	1.00	179.36	5.627	1.00	0.00	0.00
40	90.00	Platform w/ Hand Rails	1	2200.00	42.00	1.00	4388.96	62.895	1.00	0.00	0.00
Totals:			121	15,346.00			35,973.40				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	135.00	(2) 1 1/4" Fiber	0.00	Outside

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)		
0.00	135.00	(2) 1 5/8" Fiber		1.98						
0.00	125.00	(2) 0.40" Fiber		0.00						
0.00	125.00	(4) 0.625" DC		0.00						
0.00	125.00	(12) 1 1/4" Coax		0.00						
0.00	125.00	(2) 2" Conduit		0.00						
0.00	114.00	(3) 1-1/4"		0.00						
0.00	114.00	(2) 2 1/8" F.C.		0.00						
0.00	114.00	(1) 3/4"		0.00						
0.00	114.00	(2) 5/8"		0.00						
90.50	110.50	(1) 1" Reinforcing plate		1.00						
90.50	110.50	(2) 1" Reinforcing plate		1.00						
0.00	90.00	(12) 1 5/8" Coax		0.00						
0.00	90.00	(2) 1 5/8" Fiber		0.00						
40.00	70.00	(2) 1" Reinforcing plate		1.00						
40.00	70.00	(2) 1" Reinforcing plate		1.00						
0.00	40.00	(2) 1.25" Reinforcing plate		1.25						
0.00	40.00	(2) 1.25" Reinforcing plate		1.25						

Shaft Section Properties

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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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	RB1	0.3750	42.540	50.185	11272.8	18.59	113.44	65	80	0.0	16.32	7061.8	4973.6	
1.00	RT1 RB2	0.3750	42.358	49.968	11127.4	18.51	112.95	65	80	170.4	35.00	9835.2	6951.8	119.1
5.00		0.3750	41.630	49.102	10558.3	18.16	111.01	65	80	674.2	35.00	9511.8	6724.0	476.4
10.00		0.3750	40.719	48.018	9874.7	17.74	108.58	65	81	826.2	35.00	9115.2	6444.8	595.5
15.00		0.3750	39.809	46.935	9221.2	17.31	106.16	65	81	807.8	35.00	8727.1	6171.5	595.5
20.00	RT2 RB3	0.3750	38.899	45.851	8597.3	16.88	103.73	65	82	789.3	30.00	7139.4	5043.9	510.4
25.00		0.3750	37.988	44.768	8002.1	16.45	101.30	65	82	770.9	30.00	6821.4	4819.9	510.4
30.00		0.3750	37.078	43.684	7435.0	16.02	98.87	65	83	752.5	30.00	6510.6	4601.1	510.4
35.00		0.3750	36.168	42.601	6895.4	15.60	96.45	65	83	734.0	30.00	6207.1	4387.4	510.4
40.00	RT3 RB4	0.3750	35.257	41.517	6382.6	15.17	94.02	65	83	715.6	24.00	4664.1	3297.5	408.3
44.50	Bot - Section 2	0.3750	34.438	40.542	5943.3	14.78	91.84	65	83	628.3	24.00	4457.3	3151.9	367.5
45.00		0.3750	34.347	40.434	5895.8	14.74	91.59	65	83	127.5	24.00	4591.6	3246.4	40.8
50.00	Top - Section 1	0.3125	34.062	33.474	4817.1	17.81	109.00	65	80	1255.9	24.00	4363.9	3086.1	408.3
55.00		0.3125	33.151	32.571	4437.8	17.29	106.08	65	81	561.8	24.00	4142.0	2929.9	408.3
60.00	RT4 RB5	0.3125	32.241	31.668	4078.8	16.78	103.17	65	82	546.5	24.00	3926.0	2777.8	408.3
65.00		0.3125	31.331	30.765	3739.8	16.27	100.26	65	82	531.1	24.00	3715.9	2629.8	408.3
67.50	RT5	0.3125	30.876	30.314	3577.6	16.01	98.80	65	83	259.8	24.00	3613.0	2557.4	204.2
70.00		0.3125	30.421	29.862	3420.1	15.75	97.35	65	83	256.0				
75.00		0.3125	29.510	28.959	3119.2	15.24	94.43	65	83	500.4				
80.00		0.3125	28.600	28.057	2836.4	14.73	91.52	65	83	485.0				
85.00		0.3125	27.690	27.154	2571.3	14.21	88.61	65	83	469.7				
90.00		0.3125	26.779	26.251	2323.2	13.70	85.69	65	83	454.3				
90.50	Bot - Section 3	0.3125	26.688	26.160	2299.4	13.65	85.40	65	83	44.6				
93.12	RB6	0.3125	26.211	25.687	2176.8	13.38	83.88	65	83	372.4	18.00	1740.0	1740.0	160.5
94.50	Top - Section 2	0.1875	26.335	15.560	1344.1	23.36	140.45	65	74	193.5	18.00	1708.9	1708.9	84.5
95.00		0.1875	26.244	15.506	1330.1	23.27	139.97	65	74	26.4	18.00	1697.8	1697.8	30.6
100.00		0.1875	25.334	14.965	1195.5	22.41	135.11	65	75	259.2	18.00	1588.0	1588.0	306.2
105.00		0.1875	24.423	14.423	1070.3	21.56	130.26	65	76	250.0	18.00	1482.0	1482.0	306.2
107.87	RT6	0.1875	23.901	14.112	1002.6	21.07	127.47	65	77	139.3	18.00	1422.9	1422.9	175.8
110.00		0.1875	23.513	13.881	954.2	20.70	125.40	65	77	101.4				
114.00		0.1875	22.785	13.448	867.6	20.02	121.52	65	78	186.0				
115.00		0.1875	22.603	13.339	846.8	19.85	120.55	65	78	45.6				
120.00		0.1875	21.692	12.798	747.7	18.99	115.69	65	79	222.3				
125.00		0.1875	20.782	12.256	656.7	18.13	110.84	65	80	213.1				
130.00		0.1875	19.872	11.714	573.5	17.28	105.98	65	81	203.9				
135.00		0.1875	18.961	11.172	497.5	16.42	101.13	65	82	194.7				
140.00		0.1875	18.051	10.631	428.6	15.56	96.27	65	83	185.5				
140.50		0.1875	17.960	10.576	422.1	15.48	95.79	65	83	18.0				
Total Weight										14973.2	7546.2			

Wind Loading - Shaft

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 9
	Struct Class: II	



Load Case: 1.2D + 1.0W 118 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	28.680	31.55	390.90	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	28.680	31.55	389.23	0.739 *	0.000	1.00	3.592	2.65	83.7	0.0	204.5
5.00		1.00	0.85	28.680	31.55	382.54	0.741 *	0.000	4.00	14.214	10.53	332.3	0.0	809.1
10.00		1.00	0.85	28.680	31.55	374.17	0.746 *	0.000	5.00	17.421	12.99	409.8	0.0	991.4
15.00		1.00	0.85	28.680	31.55	365.81	0.751 *	0.000	5.00	17.036	12.79	403.6	0.0	969.3
20.00	RT2 RB3	1.00	0.90	30.430	33.47	368.19	0.757 *	0.000	5.00	16.650	12.60	421.6	0.0	947.2
25.00		1.00	0.95	31.894	35.08	368.12	0.762 *	0.000	5.00	16.265	12.40	435.0	0.0	925.1
30.00		1.00	0.98	33.142	36.46	366.26	0.768 *	0.000	5.00	15.880	12.20	444.9	0.0	902.9
35.00		1.00	1.01	34.235	37.66	363.12	0.775 *	0.000	5.00	15.495	12.01	452.1	0.0	880.8
40.00	RT3 RB4	1.00	1.04	35.211	38.73	358.99	0.782 *	0.000	5.00	15.110	11.81	457.4	0.0	858.7
44.50	Bot - Section 2	1.00	1.07	36.011	39.61	354.60	0.757 *	0.000	4.50	13.270	10.05	398.1	0.0	753.9
45.00		1.00	1.07	36.095	39.70	354.08	0.761 *	0.000	0.50	1.482	1.13	44.7	0.0	152.9
50.00	Top - Section 1	1.00	1.09	36.905	40.60	348.54	0.764 *	0.000	5.00	14.604	11.16	453.1	0.0	1507.1
55.00		1.00	1.12	37.653	41.42	349.05	0.766 *	0.000	5.00	14.219	10.90	451.4	0.0	674.2
60.00	RT4 RB5	1.00	1.14	38.349	42.18	342.59	0.774 *	0.000	5.00	13.834	10.70	451.4	0.0	655.8
65.00		1.00	1.16	39.001	42.90	335.73	0.781 *	0.000	5.00	13.448	10.50	450.6	0.0	637.3
67.50	RT5	1.00	1.17	39.312	43.24	332.17	0.787 *	0.000	2.50	6.580	5.18	223.9	0.0	311.8
70.00		1.00	1.17	39.614	43.58	328.53	0.791 *	0.000	2.50	6.484	5.13	223.5	0.0	307.1
75.00		1.00	1.19	40.194	44.21	321.02	0.730	0.000	5.00	12.678	9.26	409.2	0.0	600.5
80.00		1.00	1.21	40.743	44.82	313.24	0.730	0.000	5.00	12.293	8.97	402.2	0.0	582.0
85.00		1.00	1.22	41.267	45.39	305.21	0.730	0.000	5.00	11.908	8.69	394.6	0.0	563.6
90.00	Appurtenance(s)	1.00	1.24	41.766	45.94	296.96	0.730	0.000	5.00	11.523	8.41	386.5	0.0	545.2
90.50	Bot - Section 3	1.00	1.24	41.815	46.00	296.12	0.730	0.000	0.50	1.131	0.83	38.0	0.0	53.5
93.12	RB6	1.00	1.25	42.067	46.27	291.70	0.836 *	0.000	2.62	5.947	4.97	229.9	0.0	446.9
94.50	Top - Section 2	1.00	1.25	42.198	46.42	289.36	0.840 *	0.000	1.38	3.090	2.60	120.5	0.0	232.2
95.00		1.00	1.25	42.244	46.47	292.68	0.838 *	0.000	0.50	1.112	0.93	43.3	0.0	31.7
100.00		1.00	1.27	42.703	46.97	284.06	0.844 *	0.000	5.00	10.911	9.21	432.5	0.0	311.1
105.00		1.00	1.28	43.144	47.46	275.26	0.856 *	0.000	5.00	10.526	9.01	427.6	0.0	300.0
107.87	RT6	1.00	1.29	43.390	47.73	270.14	0.866 *	0.000	2.87	5.868	5.08	242.6	0.0	167.2
110.00		1.00	1.29	43.569	47.93	266.31	0.873 *	0.000	2.13	4.273	3.73	178.8	0.0	121.7
114.00	Appurtenance(s)	1.00	1.30	43.898	48.29	259.03	0.730	0.000	4.00	7.835	5.72	276.2	0.0	223.2
115.00		1.00	1.30	43.978	48.38	257.20	0.730	0.000	1.00	1.920	1.40	67.8	0.0	54.7
120.00		1.00	1.32	44.374	48.81	247.95	0.730	0.000	5.00	9.370	6.84	333.9	0.0	266.8
125.00	Appurtenance(s)	1.00	1.33	44.757	49.23	238.56	0.730	0.000	5.00	8.985	6.56	322.9	0.0	255.8
130.00		1.00	1.34	45.128	49.64	229.06	0.730	0.000	5.00	8.600	6.28	311.7	0.0	244.7
135.00	Appurtenance(s)	1.00	1.35	45.488	50.04	219.43	0.731 *	0.000	5.00	8.215	6.00	300.5	0.0	233.6
140.00		1.00	1.36	45.838	50.42	209.70	0.730	0.000	5.00	7.830	5.72	288.2	0.0	222.6
140.50		1.00	1.36	45.872	50.46	208.72	0.730	0.000	0.50	0.762	0.56	28.1	0.0	21.6
								Totals:	140.50			11,372.0	17,967.8	

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

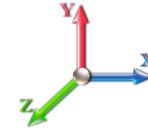
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0W 118 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	135.00	Ericsson Radio 4449	3	45.488	50.037	0.00	0.80	4.95	252.00	0.000	0.000	247.68	0.00	0.00
2	135.00	Ericsson 4415 B25	3	45.488	50.037	0.54	0.80	2.99	158.76	0.000	0.000	149.65	0.00	0.00
3	135.00	Ericsson RRUS11 B4	3	45.488	50.037	0.54	0.80	4.13	158.40	0.000	0.000	206.78	0.00	0.00
4	135.00	Commscope	3	45.488	50.037	0.73	0.80	0.70	39.60	0.000	0.000	34.97	0.00	0.00
5	135.00	APXVAARR24_43-U-NA2	3	45.488	50.037	0.56	0.80	34.00	460.80	0.000	0.000	1701.42	0.00	0.00
6	135.00	AIR6449 B41	3	45.488	50.037	0.64	0.80	10.85	370.80	0.000	0.000	542.80	0.00	0.00
7	135.00	Air 32	3	45.488	50.037	0.70	0.80	13.59	475.92	0.000	0.000	680.15	0.00	0.00
8	135.00	Sector Frame	3	45.488	50.037	0.56	0.75	25.31	2941.20	0.000	0.000	1266.56	0.00	0.00
9	125.00	Raycap DC6-48-60-18-8F	3	44.757	49.233	0.50	0.75	2.22	118.08	0.000	0.000	109.10	0.00	0.00
10	125.00	Kathrein 782 10250	6	44.757	49.233	0.50	0.75	1.57	46.08	0.000	0.000	77.19	0.00	0.00
11	125.00	CCI DTMAPB7819VG12A	6	44.757	49.233	0.50	0.75	3.44	136.80	0.000	0.000	169.22	0.00	0.00
12	125.00	Ericsson RRUS-11	3	44.757	49.233	0.50	0.75	3.80	194.40	0.000	0.000	187.03	0.00	0.00
13	125.00	CCI OPA-65R-LCUU-H6	3	44.757	49.233	0.59	0.75	17.17	262.80	0.000	0.000	845.36	0.00	0.00
14	125.00	QS66512-2	3	44.757	49.233	0.69	0.75	16.83	399.60	0.000	0.000	828.54	0.00	0.00
15	125.00	RRUS 32 B66	3	44.757	49.233	0.50	0.75	4.13	190.80	0.000	0.000	203.36	0.00	0.00
16	125.00	Ericsson RRUS-32	6	44.757	49.233	0.50	0.75	7.60	554.40	0.000	0.000	374.06	0.00	0.00
17	125.00	Kathrein 800-10121	3	44.757	49.233	0.59	0.75	9.15	158.76	0.000	0.000	450.68	0.00	0.00
18	125.00	HPA-65R-BUU-H6	3	44.757	49.233	0.64	0.75	18.47	183.60	0.000	0.000	909.56	0.00	0.00
19	125.00	B14 4478	3	44.757	49.233	0.50	0.75	2.49	213.84	0.000	0.000	122.46	0.00	0.00
20	125.00	DBC0061F1V51-2	6	44.757	49.233	0.50	0.75	1.30	182.88	0.000	0.000	63.83	0.00	0.00
21	125.00	Platform w/ Hand Rails	1	44.757	49.233	1.00	1.00	40.00	2400.00	0.000	0.000	1969.31	0.00	0.00
22	114.00	20" x 18" x 9" Junction Box	1	43.898	48.287	1.00	1.00	3.15	24.00	0.000	0.000	152.10	0.00	0.00
23	114.00	Andrew VHLP1-23-DW1	1	44.257	48.682	1.00	1.00	1.61	16.80	0.000	4.500	78.38	0.00	352.70
24	114.00	Andrew VHLP2-23-DW1	1	44.257	48.682	1.00	1.00	4.69	37.20	0.000	4.500	228.32	0.00	1027.44
25	114.00	Argus LLPX310R-V1	3	43.938	48.332	0.55	0.80	7.14	182.52	0.000	0.500	344.96	0.00	172.48
26	114.00	Samsung	3	43.816	48.198	0.61	0.80	3.32	119.16	0.000	-1.000	160.00	0.00	-160.00
27	114.00	Low Profile Platform	1	43.898	48.287	1.00	1.00	25.00	2160.00	0.000	0.000	1207.18	0.00	0.00
28	114.00	RFS APXVSP18	3	43.978	48.376	0.66	0.80	15.98	451.08	0.000	1.000	772.85	0.00	772.85
29	114.00	Alcatel Lucent	3	44.138	48.552	0.55	0.80	6.71	252.00	0.000	3.000	325.63	0.00	976.89
30	114.00	Alcatel Lucent	3	43.775	48.153	0.78	0.80	5.59	230.40	0.000	-1.500	269.04	0.00	-403.56
31	114.00	Alcatel Lucent	3	44.138	48.552	0.78	0.80	6.37	216.00	0.000	3.000	309.47	0.00	928.40
32	114.00	RFS APXVTM14	3	44.138	48.552	0.63	0.80	12.02	420.12	0.000	3.000	583.63	0.00	1750.88
33	90.00	Alcatel Lucent	3	41.766	45.943	0.57	0.75	5.99	324.00	0.000	0.000	274.97	0.00	0.00
34	90.00	Swedcom SCLP 2x6014	3	41.766	45.943	0.67	0.75	13.00	164.16	0.000	0.000	597.09	0.00	0.00
35	90.00	Commscope	6	41.766	45.943	0.62	0.75	30.18	550.08	0.000	0.000	1386.50	0.00	0.00
36	90.00	Antel	3	41.766	45.943	0.55	0.75	12.43	153.36	0.000	0.000	571.24	0.00	0.00
37	90.00	RFS DB-T1-6Z-8AB-0Z	1	41.766	45.943	1.00	1.00	4.80	52.80	0.000	0.000	220.53	0.00	0.00
38	90.00	Alcatel Lucent	3	41.766	45.943	0.57	0.75	5.99	324.00	0.000	0.000	274.97	0.00	0.00
39	90.00	Alcatel Lucent	3	41.766	45.943	0.68	0.75	3.06	198.00	0.000	0.000	140.48	0.00	0.00
40	90.00	Platform w/ Hand Rails	1	41.766	45.943	1.00	1.00	42.00	2640.00	0.000	0.000	1929.61	0.00	0.00

Totals: 18,415.20

20,966.67

Total Applied Force Summary

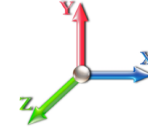
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0W 118 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		83.70	250.63	0.00	0.00
5.00		332.31	993.69	0.00	0.00
10.00		409.80	1222.20	0.00	0.00
15.00		403.60	1200.08	0.00	0.00
20.00		421.64	1177.96	0.00	0.00
25.00		435.02	1155.84	0.00	0.00
30.00		444.87	1133.72	0.00	0.00
35.00		452.13	1111.60	0.00	0.00
40.00		457.40	1089.48	0.00	0.00
44.50		398.07	961.62	0.00	0.00
45.00		44.74	176.02	0.00	0.00
50.00		453.10	1737.88	0.00	0.00
55.00		451.36	904.98	0.00	0.00
60.00		451.40	886.55	0.00	0.00
65.00		450.63	868.11	0.00	0.00
67.50		223.92	427.14	0.00	0.00
70.00		223.50	422.53	0.00	0.00
75.00		409.19	831.24	0.00	0.00
80.00		402.19	812.81	0.00	0.00
85.00		394.59	794.38	0.00	0.00
90.00	(23) attachments	5781.84	5182.34	0.00	0.00
90.50		37.98	67.77	0.00	0.00
93.12		229.93	521.70	0.00	0.00
94.50		120.49	271.53	0.00	0.00
95.00		43.29	45.98	0.00	0.00
100.00		432.50	453.75	0.00	0.00
105.00		427.62	442.69	0.00	0.00
107.87		242.61	249.11	0.00	0.00
110.00		178.79	182.52	0.00	0.00
114.00	(25) attachments	4707.75	4446.62	0.00	5418.08
115.00		67.82	74.20	0.00	0.00
120.00		333.89	364.37	0.00	0.00
125.00	(49) attachments	6632.64	5395.35	0.00	0.00
130.00		311.65	265.09	0.00	0.00
135.00	(24) attachments	5130.47	5111.51	0.00	0.00
140.00		288.20	222.57	0.00	0.00
140.50		28.06	21.65	0.00	0.00
Totals:		32,338.70	41,477.24	0.00	5,418.08

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



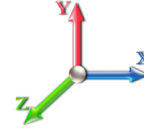
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Load Case: 1.2D + 1.0W 118 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.104	1.012	28.680	0.00	1.58
1.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.17	0.00	0.104	1.012	28.680	0.00	2.50
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.10	0.00	0.104	1.012	28.680	0.00	0.00
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.10	0.00	0.104	1.012	28.680	0.00	0.00
5.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.105	1.015	28.680	0.00	6.34
5.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	0.66	0.00	0.105	1.015	28.680	0.00	9.98
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	0.42	0.00	0.105	1.015	28.680	0.00	0.00
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	0.42	0.00	0.105	1.015	28.680	0.00	0.00
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	28.680	0.00	7.92
10.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.107	1.021	28.680	0.00	12.48
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	28.680	0.00	0.00
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	28.680	0.00	0.00
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	28.680	0.00	7.92
15.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.110	1.029	28.680	0.00	12.48
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	28.680	0.00	0.00
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	28.680	0.00	0.00
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	30.430	0.00	7.92
20.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.112	1.036	30.430	0.00	12.48
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	30.430	0.00	0.00
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	30.430	0.00	0.00
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	31.894	0.00	7.92
25.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.115	1.044	31.894	0.00	12.48
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	31.894	0.00	0.00
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	31.894	0.00	0.00
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	33.142	0.00	7.92
30.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.118	1.053	33.142	0.00	12.48
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	33.142	0.00	0.00
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	33.142	0.00	0.00
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	34.235	0.00	7.92
35.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.061	34.235	0.00	12.48
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	34.235	0.00	0.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	34.235	0.00	0.00
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	35.211	0.00	7.92
40.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.124	1.071	35.211	0.00	12.48
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	35.211	0.00	0.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	35.211	0.00	0.00
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	36.011	0.00	7.13
44.50	1 5/8" Fiber	Yes	4.50	0.000	1.98	0.74	0.00	0.112	1.037	36.011	0.00	11.23
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	36.011	0.00	0.00
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	36.011	0.00	0.00
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	36.095	0.00	0.79
45.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.114	1.042	36.095	0.00	1.25
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	36.095	0.00	0.00
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	36.095	0.00	0.00
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	36.905	0.00	7.92
50.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.116	1.047	36.905	0.00	12.48
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	36.905	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



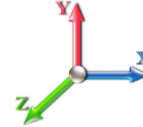
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Load Case: 1.2D + 1.0W 118 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	36.905	0.00	0.00
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	37.653	0.00	7.92
55.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.117	1.050	37.653	0.00	12.48
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	37.653	0.00	0.00
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	37.653	0.00	0.00
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	38.349	0.00	7.92
60.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.060	38.349	0.00	12.48
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	38.349	0.00	0.00
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	38.349	0.00	0.00
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	39.001	0.00	7.92
65.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.123	1.070	39.001	0.00	12.48
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	39.001	0.00	0.00
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	39.001	0.00	0.00
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	39.312	0.00	3.96
67.50	1 5/8" Fiber	Yes	2.50	0.000	1.98	0.41	0.00	0.126	1.078	39.312	0.00	6.24
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	39.312	0.00	0.00
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	39.312	0.00	0.00
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	39.614	0.00	3.96
70.00	1 5/8" Fiber	Yes	2.50	0.000	1.98	0.41	0.00	0.128	1.084	39.614	0.00	6.24
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	39.614	0.00	0.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	39.614	0.00	0.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	40.194	0.00	7.92
75.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.065	0.000	40.194	0.00	12.48
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	40.743	0.00	7.92
80.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.067	0.000	40.743	0.00	12.48
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	41.267	0.00	7.92
85.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.069	0.000	41.267	0.00	12.48
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	41.766	0.00	7.92
90.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.072	0.000	41.766	0.00	12.48
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	41.815	0.00	0.79
90.50	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.073	0.000	41.815	0.00	1.25
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	42.067	0.00	4.15
93.12	1 5/8" Fiber	Yes	2.62	0.000	1.98	0.43	0.00	0.148	1.145	42.067	0.00	6.54
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	42.067	0.00	0.00
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	42.067	0.00	0.00
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	42.198	0.00	2.19
94.50	1 5/8" Fiber	Yes	1.38	0.000	1.98	0.23	0.00	0.150	1.151	42.198	0.00	3.44
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	42.198	0.00	0.00
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	42.198	0.00	0.00
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	42.244	0.00	0.79
95.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.149	1.147	42.244	0.00	1.25
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	42.244	0.00	0.00
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	42.244	0.00	0.00
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	42.703	0.00	7.92
100.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.152	1.156	42.703	0.00	12.48
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	42.703	0.00	0.00
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	42.703	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

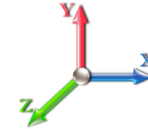
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0W 118 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	43.144	0.00	7.92
105.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.158	1.173	43.144	0.00	12.48
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	43.144	0.00	0.00
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	43.144	0.00	0.00
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	43.390	0.00	4.55
107.87	1 5/8" Fiber	Yes	2.87	0.000	1.98	0.47	0.00	0.162	1.187	43.390	0.00	7.16
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	43.390	0.00	0.00
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	43.390	0.00	0.00
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	43.569	0.00	3.37
110.00	1 5/8" Fiber	Yes	2.13	0.000	1.98	0.35	0.00	0.165	1.196	43.569	0.00	5.32
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	43.569	0.00	0.00
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	43.569	0.00	0.00
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	43.898	0.00	6.34
114.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	0.66	0.00	0.095	0.000	43.898	0.00	9.98
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	43.898	0.00	0.00
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	43.898	0.00	0.00
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	43.978	0.00	1.58
115.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.17	0.00	0.086	0.000	43.978	0.00	2.50
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	44.374	0.00	7.92
120.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.088	0.000	44.374	0.00	12.48
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	44.757	0.00	7.92
125.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.092	0.000	44.757	0.00	12.48
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	45.128	0.00	7.92
130.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.096	0.000	45.128	0.00	12.48
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	45.488	0.00	7.92
135.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.100	1.001	45.488	0.00	12.48
Totals:											0.0	550.8

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

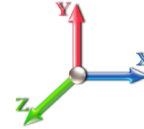


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Load Case: 1.2D + 1.0W 118 mph Wind

Iterations 25

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	-41.46	-32.36	0.00	-3397.2	0.00	3397.23	3592.24	880.75	3081.19	3113.33	0.00	0.000	0.000	0.767
1.00	-41.13	-32.37	0.00	-3364.8	0.00	3364.87	3581.26	876.95	3054.64	3090.29	0.01	-0.059	0.000	0.678
5.00	-40.01	-32.20	0.00	-3235.3	0.00	3235.38	3536.93	861.73	2949.58	2998.63	0.15	-0.267	0.000	0.667
10.00	-38.65	-31.96	0.00	-3074.3	0.00	3074.37	3480.64	842.72	2820.85	2885.21	0.56	-0.527	0.000	0.653
15.00	-37.31	-31.71	0.00	-2914.5	0.00	2914.58	3423.37	823.70	2694.99	2773.12	1.25	-0.788	0.000	0.637
20.00	-35.99	-31.44	0.00	-2756.0	0.00	2756.02	3365.12	804.69	2572.00	2662.41	2.22	-1.050	0.000	0.660
25.00	-34.69	-31.15	0.00	-2598.8	0.00	2598.80	3305.89	785.67	2451.88	2553.15	3.47	-1.329	0.000	0.643
30.00	-33.42	-30.84	0.00	-2443.0	0.00	2443.04	3245.52	766.66	2334.64	2445.26	5.01	-1.609	0.000	0.625
35.00	-32.17	-30.51	0.00	-2288.8	0.00	2288.83	3165.03	747.64	2220.26	2324.87	6.84	-1.888	0.000	0.609
40.00	-30.95	-30.17	0.00	-2136.2	0.00	2136.26	3084.53	728.63	2108.76	2207.52	8.97	-2.167	0.000	0.646
44.50	-29.93	-29.81	0.00	-2000.5	0.00	2000.50	3012.08	711.52	2010.87	2104.51	11.14	-2.441	0.000	0.629
45.00	-29.67	-29.84	0.00	-1985.6	0.00	1985.60	3004.03	709.61	2000.14	2093.21	11.40	-2.472	0.000	0.620
50.00	-27.80	-29.46	0.00	-1836.3	0.00	1836.37	2423.81	587.47	1644.99	1680.79	14.15	-2.769	0.000	0.626
55.00	-26.77	-29.10	0.00	-1689.0	0.00	1689.09	2376.14	571.62	1557.44	1602.88	17.20	-3.063	0.000	0.644
60.00	-25.75	-28.74	0.00	-1543.5	0.00	1543.59	2327.49	555.78	1472.29	1526.13	20.58	-3.376	0.000	0.611
65.00	-24.80	-28.34	0.00	-1399.8	0.00	1399.89	2277.86	539.93	1389.54	1450.59	24.28	-3.681	0.000	0.575
67.50	-24.32	-28.15	0.00	-1329.0	0.00	1329.05	2252.16	532.01	1349.06	1412.97	26.24	-3.833	0.000	0.557
67.50	-24.32	-28.15	0.00	-1329.0	0.00	1329.05	2252.16	532.01	1349.06	1412.97	26.24	-3.833	0.000	0.557
70.00	-23.75	-28.03	0.00	-1258.6	0.00	1258.68	2218.62	524.08	1309.17	1370.99	28.29	-3.983	0.000	0.932
75.00	-22.72	-27.76	0.00	-1118.5	0.00	1118.51	2151.54	508.24	1231.20	1288.93	32.72	-4.478	0.000	0.881
80.00	-21.72	-27.47	0.00	-979.73	0.00	979.73	2084.46	492.39	1155.63	1209.39	37.67	-4.956	0.000	0.824
85.00	-20.75	-27.16	0.00	-842.39	0.00	842.39	2017.38	476.55	1082.45	1132.40	43.10	-5.413	0.000	0.757
90.00	-16.08	-20.97	0.00	-706.57	0.00	706.57	1950.30	460.70	1011.66	1057.93	48.99	-5.841	0.000	0.678
90.50	-15.97	-20.96	0.00	-696.09	0.00	696.09	1943.59	459.12	1004.71	1050.62	49.61	-5.884	0.000	0.673
93.12	-15.42	-20.71	0.00	-641.18	0.00	641.18	1908.44	450.81	968.70	1012.75	52.89	-6.101	0.000	0.359
94.50	-15.15	-20.57	0.00	-612.59	0.00	612.59	1035.36	273.09	592.44	557.40	54.66	-6.164	0.000	0.397
95.00	-15.06	-20.56	0.00	-602.31	0.00	602.31	1033.16	272.13	588.32	554.27	55.31	-6.187	0.000	0.490
100.00	-14.57	-20.15	0.00	-499.48	0.00	499.48	1010.63	262.63	547.93	523.10	61.91	-6.445	0.000	0.423
105.00	-14.12	-19.71	0.00	-398.75	0.00	398.75	987.11	253.12	508.98	492.30	68.77	-6.675	0.000	0.352
107.87	-13.87	-19.47	0.00	-342.17	0.00	342.17	973.17	247.66	487.27	474.80	72.82	-6.793	0.000	0.310
107.87	-13.87	-19.47	0.00	-342.17	0.00	342.17	973.17	247.66	487.27	474.80	72.82	-6.793	0.000	0.310
110.00	-13.64	-19.32	0.00	-300.70	0.00	300.70	962.61	243.61	471.46	461.91	75.86	-6.874	0.000	0.671
114.00	-9.75	-14.13	0.00	-218.02	0.00	218.02	942.31	236.01	442.48	437.94	81.74	-7.186	0.000	0.512
115.00	-9.64	-14.09	0.00	-203.88	0.00	203.88	937.13	234.11	435.38	431.99	83.25	-7.255	0.000	0.486
120.00	-9.27	-13.75	0.00	-133.45	0.00	133.45	910.67	224.60	400.73	402.61	90.99	-7.539	0.000	0.345
125.00	-4.79	-6.47	0.00	-64.72	0.00	64.72	883.23	215.09	367.52	373.80	98.98	-7.727	0.000	0.179
130.00	-4.56	-6.13	0.00	-32.39	0.00	32.39	854.80	205.58	335.75	345.64	107.11	-7.833	0.000	0.100
135.00	-0.20	-0.35	0.00	-1.75	0.00	1.75	825.39	196.08	305.42	318.16	115.31	-7.875	0.000	0.006
140.00	-0.02	-0.03	0.00	-0.02	0.00	0.02	789.80	186.57	276.52	289.54	123.54	-7.877	0.000	0.000
140.50	0.00	-0.03	0.00	0.00	0.00	0.00	785.78	185.62	273.70	286.58	124.36	-7.877	0.000	0.000

Wind Loading - Shaft

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

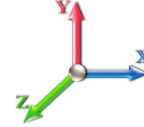


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Load Case: 0.9D + 1.0W 118 mph Wind

Iterations 25

Dead Load Factor 0.90
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	28.680	31.55	390.90	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	28.680	31.55	389.23	0.739 *	0.000	1.00	3.592	2.65	83.7	0.0	153.4
5.00		1.00	0.85	28.680	31.55	382.54	0.741 *	0.000	4.00	14.214	10.53	332.3	0.0	606.8
10.00		1.00	0.85	28.680	31.55	374.17	0.746 *	0.000	5.00	17.421	12.99	409.8	0.0	743.6
15.00		1.00	0.85	28.680	31.55	365.81	0.751 *	0.000	5.00	17.036	12.79	403.6	0.0	727.0
20.00	RT2 RB3	1.00	0.90	30.430	33.47	368.19	0.757 *	0.000	5.00	16.650	12.60	421.6	0.0	710.4
25.00		1.00	0.95	31.894	35.08	368.12	0.762 *	0.000	5.00	16.265	12.40	435.0	0.0	693.8
30.00		1.00	0.98	33.142	36.46	366.26	0.768 *	0.000	5.00	15.880	12.20	444.9	0.0	677.2
35.00		1.00	1.01	34.235	37.66	363.12	0.775 *	0.000	5.00	15.495	12.01	452.1	0.0	660.6
40.00	RT3 RB4	1.00	1.04	35.211	38.73	358.99	0.782 *	0.000	5.00	15.110	11.81	457.4	0.0	644.0
44.50	Bot - Section 2	1.00	1.07	36.011	39.61	354.60	0.757 *	0.000	4.50	13.270	10.05	398.1	0.0	565.4
45.00		1.00	1.07	36.095	39.70	354.08	0.761 *	0.000	0.50	1.482	1.13	44.7	0.0	114.7
50.00	Top - Section 1	1.00	1.09	36.905	40.60	348.54	0.764 *	0.000	5.00	14.604	11.16	453.1	0.0	1130.3
55.00		1.00	1.12	37.653	41.42	349.05	0.766 *	0.000	5.00	14.219	10.90	451.4	0.0	505.7
60.00	RT4 RB5	1.00	1.14	38.349	42.18	342.59	0.774 *	0.000	5.00	13.834	10.70	451.4	0.0	491.8
65.00		1.00	1.16	39.001	42.90	335.73	0.781 *	0.000	5.00	13.448	10.50	450.6	0.0	478.0
67.50	RT5	1.00	1.17	39.312	43.24	332.17	0.787 *	0.000	2.50	6.580	5.18	223.9	0.0	233.8
70.00		1.00	1.17	39.614	43.58	328.53	0.791 *	0.000	2.50	6.484	5.13	223.5	0.0	230.4
75.00		1.00	1.19	40.194	44.21	321.02	0.730	0.000	5.00	12.678	9.26	409.2	0.0	450.4
80.00		1.00	1.21	40.743	44.82	313.24	0.730	0.000	5.00	12.293	8.97	402.2	0.0	436.5
85.00		1.00	1.22	41.267	45.39	305.21	0.730	0.000	5.00	11.908	8.69	394.6	0.0	422.7
90.00	Appurtenance(s)	1.00	1.24	41.766	45.94	296.96	0.730	0.000	5.00	11.523	8.41	386.5	0.0	408.9
90.50	Bot - Section 3	1.00	1.24	41.815	46.00	296.12	0.730	0.000	0.50	1.131	0.83	38.0	0.0	40.1
93.12	RB6	1.00	1.25	42.067	46.27	291.70	0.836 *	0.000	2.62	5.947	4.97	229.9	0.0	335.2
94.50	Top - Section 2	1.00	1.25	42.198	46.42	289.36	0.840 *	0.000	1.38	3.090	2.60	120.5	0.0	174.1
95.00		1.00	1.25	42.244	46.47	292.68	0.838 *	0.000	0.50	1.112	0.93	43.3	0.0	23.8
100.00		1.00	1.27	42.703	46.97	284.06	0.844 *	0.000	5.00	10.911	9.21	432.5	0.0	233.3
105.00		1.00	1.28	43.144	47.46	275.26	0.856 *	0.000	5.00	10.526	9.01	427.6	0.0	225.0
107.87	RT6	1.00	1.29	43.390	47.73	270.14	0.866 *	0.000	2.87	5.868	5.08	242.6	0.0	125.4
110.00		1.00	1.29	43.569	47.93	266.31	0.873 *	0.000	2.13	4.273	3.73	178.8	0.0	91.3
114.00	Appurtenance(s)	1.00	1.30	43.898	48.29	259.03	0.730	0.000	4.00	7.835	5.72	276.2	0.0	167.4
115.00		1.00	1.30	43.978	48.38	257.20	0.730	0.000	1.00	1.920	1.40	67.8	0.0	41.0
120.00		1.00	1.32	44.374	48.81	247.95	0.730	0.000	5.00	9.370	6.84	333.9	0.0	200.1
125.00	Appurtenance(s)	1.00	1.33	44.757	49.23	238.56	0.730	0.000	5.00	8.985	6.56	322.9	0.0	191.8
130.00		1.00	1.34	45.128	49.64	229.06	0.730	0.000	5.00	8.600	6.28	311.7	0.0	183.5
135.00	Appurtenance(s)	1.00	1.35	45.488	50.04	219.43	0.731 *	0.000	5.00	8.215	6.00	300.5	0.0	175.2
140.00		1.00	1.36	45.838	50.42	209.70	0.730	0.000	5.00	7.830	5.72	288.2	0.0	166.9
140.50		1.00	1.36	45.872	50.46	208.72	0.730	0.000	0.50	0.762	0.56	28.1	0.0	16.2
Totals:									140.50			11,372.0		13,475.8

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

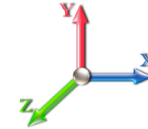
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0W 118 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	135.00	Ericsson Radio 4449	3	45.488	50.037	0.00	0.80	4.95	189.00	0.000	0.000	247.68	0.00	0.00
2	135.00	Ericsson 4415 B25	3	45.488	50.037	0.54	0.80	2.99	119.07	0.000	0.000	149.65	0.00	0.00
3	135.00	Ericsson RRUS11 B4	3	45.488	50.037	0.54	0.80	4.13	118.80	0.000	0.000	206.78	0.00	0.00
4	135.00	Commscope	3	45.488	50.037	0.73	0.80	0.70	29.70	0.000	0.000	34.97	0.00	0.00
5	135.00	APXVAARR24_43-U-NA2	3	45.488	50.037	0.56	0.80	34.00	345.60	0.000	0.000	1701.42	0.00	0.00
6	135.00	AIR6449 B41	3	45.488	50.037	0.64	0.80	10.85	278.10	0.000	0.000	542.80	0.00	0.00
7	135.00	Air 32	3	45.488	50.037	0.70	0.80	13.59	356.94	0.000	0.000	680.15	0.00	0.00
8	135.00	Sector Frame	3	45.488	50.037	0.56	0.75	25.31	2205.90	0.000	0.000	1266.56	0.00	0.00
9	125.00	Raycap DC6-48-60-18-8F	3	44.757	49.233	0.50	0.75	2.22	88.56	0.000	0.000	109.10	0.00	0.00
10	125.00	Kathrein 782 10250	6	44.757	49.233	0.50	0.75	1.57	34.56	0.000	0.000	77.19	0.00	0.00
11	125.00	CCI DTMAPB7819VG12A	6	44.757	49.233	0.50	0.75	3.44	102.60	0.000	0.000	169.22	0.00	0.00
12	125.00	Ericsson RRUS-11	3	44.757	49.233	0.50	0.75	3.80	145.80	0.000	0.000	187.03	0.00	0.00
13	125.00	CCI OPA-65R-LCUU-H6	3	44.757	49.233	0.59	0.75	17.17	197.10	0.000	0.000	845.36	0.00	0.00
14	125.00	QS66512-2	3	44.757	49.233	0.69	0.75	16.83	299.70	0.000	0.000	828.54	0.00	0.00
15	125.00	RRUS 32 B66	3	44.757	49.233	0.50	0.75	4.13	143.10	0.000	0.000	203.36	0.00	0.00
16	125.00	Ericsson RRUS-32	6	44.757	49.233	0.50	0.75	7.60	415.80	0.000	0.000	374.06	0.00	0.00
17	125.00	Kathrein 800-10121	3	44.757	49.233	0.59	0.75	9.15	119.07	0.000	0.000	450.68	0.00	0.00
18	125.00	HPA-65R-BUU-H6	3	44.757	49.233	0.64	0.75	18.47	137.70	0.000	0.000	909.56	0.00	0.00
19	125.00	B14 4478	3	44.757	49.233	0.50	0.75	2.49	160.38	0.000	0.000	122.46	0.00	0.00
20	125.00	DBC0061F1V51-2	6	44.757	49.233	0.50	0.75	1.30	137.16	0.000	0.000	63.83	0.00	0.00
21	125.00	Platform w/ Hand Rails	1	44.757	49.233	1.00	1.00	40.00	1800.00	0.000	0.000	1969.31	0.00	0.00
22	114.00	20" x 18" x 9" Junction Box	1	43.898	48.287	1.00	1.00	3.15	18.00	0.000	0.000	152.10	0.00	0.00
23	114.00	Andrew VHLP1-23-DW1	1	44.257	48.682	1.00	1.00	1.61	12.60	0.000	4.500	78.38	0.00	352.70
24	114.00	Andrew VHLP2-23-DW1	1	44.257	48.682	1.00	1.00	4.69	27.90	0.000	4.500	228.32	0.00	1027.44
25	114.00	Argus LLPX310R-V1	3	43.938	48.332	0.55	0.80	7.14	136.89	0.000	0.500	344.96	0.00	172.48
26	114.00	Samsung	3	43.816	48.198	0.61	0.80	3.32	89.37	0.000	-1.000	160.00	0.00	-160.00
27	114.00	Low Profile Platform	1	43.898	48.287	1.00	1.00	25.00	1620.00	0.000	0.000	1207.18	0.00	0.00
28	114.00	RFS APXVSP18	3	43.978	48.376	0.66	0.80	15.98	338.31	0.000	1.000	772.85	0.00	772.85
29	114.00	Alcatel Lucent	3	44.138	48.552	0.55	0.80	6.71	189.00	0.000	3.000	325.63	0.00	976.89
30	114.00	Alcatel Lucent	3	43.775	48.153	0.78	0.80	5.59	172.80	0.000	-1.500	269.04	0.00	-403.56
31	114.00	Alcatel Lucent	3	44.138	48.552	0.78	0.80	6.37	162.00	0.000	3.000	309.47	0.00	928.40
32	114.00	RFS APXVTM14	3	44.138	48.552	0.63	0.80	12.02	315.09	0.000	3.000	583.63	0.00	1750.88
33	90.00	Alcatel Lucent	3	41.766	45.943	0.57	0.75	5.99	243.00	0.000	0.000	274.97	0.00	0.00
34	90.00	Swedcom SCLP 2x6014	3	41.766	45.943	0.67	0.75	13.00	123.12	0.000	0.000	597.09	0.00	0.00
35	90.00	Commscope	6	41.766	45.943	0.62	0.75	30.18	412.56	0.000	0.000	1386.50	0.00	0.00
36	90.00	Antel	3	41.766	45.943	0.55	0.75	12.43	115.02	0.000	0.000	571.24	0.00	0.00
37	90.00	RFS DB-T1-6Z-8AB-0Z	1	41.766	45.943	1.00	1.00	4.80	39.60	0.000	0.000	220.53	0.00	0.00
38	90.00	Alcatel Lucent	3	41.766	45.943	0.57	0.75	5.99	243.00	0.000	0.000	274.97	0.00	0.00
39	90.00	Alcatel Lucent	3	41.766	45.943	0.68	0.75	3.06	148.50	0.000	0.000	140.48	0.00	0.00
40	90.00	Platform w/ Hand Rails	1	41.766	45.943	1.00	1.00	42.00	1980.00	0.000	0.000	1929.61	0.00	0.00

Totals: 13,811.40

20,966.67

Total Applied Force Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0W 118 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		83.70	187.98	0.00	0.00
5.00		332.31	745.27	0.00	0.00
10.00		409.80	916.65	0.00	0.00
15.00		403.60	900.06	0.00	0.00
20.00		421.64	883.47	0.00	0.00
25.00		435.02	866.88	0.00	0.00
30.00		444.87	850.29	0.00	0.00
35.00		452.13	833.70	0.00	0.00
40.00		457.40	817.11	0.00	0.00
44.50		398.07	721.21	0.00	0.00
45.00		44.74	132.01	0.00	0.00
50.00		453.10	1303.41	0.00	0.00
55.00		451.36	678.73	0.00	0.00
60.00		451.40	664.91	0.00	0.00
65.00		450.63	651.08	0.00	0.00
67.50		223.92	320.36	0.00	0.00
70.00		223.50	316.90	0.00	0.00
75.00		409.19	623.43	0.00	0.00
80.00		402.19	609.61	0.00	0.00
85.00		394.59	595.78	0.00	0.00
90.00	(23) attachments	5781.84	3886.76	0.00	0.00
90.50		37.98	50.83	0.00	0.00
93.12		229.93	391.28	0.00	0.00
94.50		120.49	203.65	0.00	0.00
95.00		43.29	34.49	0.00	0.00
100.00		432.50	340.31	0.00	0.00
105.00		427.62	332.02	0.00	0.00
107.87		242.61	186.83	0.00	0.00
110.00		178.79	136.89	0.00	0.00
114.00	(25) attachments	4707.75	3334.96	0.00	5418.08
115.00		67.82	55.65	0.00	0.00
120.00		333.89	273.28	0.00	0.00
125.00	(49) attachments	6632.64	4046.52	0.00	0.00
130.00		311.65	198.82	0.00	0.00
135.00	(24) attachments	5130.47	3833.63	0.00	0.00
140.00		288.20	166.93	0.00	0.00
140.50		28.06	16.24	0.00	0.00
	Totals:	32,338.70	31,107.93	0.00	5,418.08

Linear Appurtenance Segment Forces (Factored)

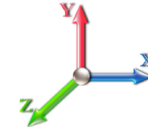
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0W 118 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.104	1.012	28.680	0.00	1.19
1.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.17	0.00	0.104	1.012	28.680	0.00	1.87
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.10	0.00	0.104	1.012	28.680	0.00	0.00
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.10	0.00	0.104	1.012	28.680	0.00	0.00
5.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.105	1.015	28.680	0.00	4.75
5.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	0.66	0.00	0.105	1.015	28.680	0.00	7.49
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	0.42	0.00	0.105	1.015	28.680	0.00	0.00
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	0.42	0.00	0.105	1.015	28.680	0.00	0.00
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	28.680	0.00	5.94
10.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.107	1.021	28.680	0.00	9.36
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	28.680	0.00	0.00
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	28.680	0.00	0.00
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	28.680	0.00	5.94
15.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.110	1.029	28.680	0.00	9.36
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	28.680	0.00	0.00
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	28.680	0.00	0.00
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	30.430	0.00	5.94
20.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.112	1.036	30.430	0.00	9.36
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	30.430	0.00	0.00
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	30.430	0.00	0.00
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	31.894	0.00	5.94
25.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.115	1.044	31.894	0.00	9.36
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	31.894	0.00	0.00
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	31.894	0.00	0.00
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	33.142	0.00	5.94
30.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.118	1.053	33.142	0.00	9.36
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	33.142	0.00	0.00
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	33.142	0.00	0.00
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	34.235	0.00	5.94
35.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.061	34.235	0.00	9.36
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	34.235	0.00	0.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	34.235	0.00	0.00
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	35.211	0.00	5.94
40.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.124	1.071	35.211	0.00	9.36
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	35.211	0.00	0.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	35.211	0.00	0.00
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	36.011	0.00	5.35
44.50	1 5/8" Fiber	Yes	4.50	0.000	1.98	0.74	0.00	0.112	1.037	36.011	0.00	8.42
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	36.011	0.00	0.00
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	36.011	0.00	0.00
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	36.095	0.00	0.59
45.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.114	1.042	36.095	0.00	0.94
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	36.095	0.00	0.00
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	36.095	0.00	0.00
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	36.905	0.00	5.94
50.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.116	1.047	36.905	0.00	9.36
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	36.905	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

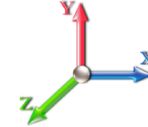
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0W 118 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	36.905	0.00	0.00
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	37.653	0.00	5.94
55.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.117	1.050	37.653	0.00	9.36
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	37.653	0.00	0.00
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	37.653	0.00	0.00
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	38.349	0.00	5.94
60.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.060	38.349	0.00	9.36
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	38.349	0.00	0.00
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	38.349	0.00	0.00
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	39.001	0.00	5.94
65.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.123	1.070	39.001	0.00	9.36
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	39.001	0.00	0.00
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	39.001	0.00	0.00
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	39.312	0.00	2.97
67.50	1 5/8" Fiber	Yes	2.50	0.000	1.98	0.41	0.00	0.126	1.078	39.312	0.00	4.68
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	39.312	0.00	0.00
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	39.312	0.00	0.00
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	39.614	0.00	2.97
70.00	1 5/8" Fiber	Yes	2.50	0.000	1.98	0.41	0.00	0.128	1.084	39.614	0.00	4.68
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	39.614	0.00	0.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	39.614	0.00	0.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	40.194	0.00	5.94
75.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.065	0.000	40.194	0.00	9.36
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	40.743	0.00	5.94
80.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.067	0.000	40.743	0.00	9.36
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	41.267	0.00	5.94
85.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.069	0.000	41.267	0.00	9.36
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	41.766	0.00	5.94
90.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.072	0.000	41.766	0.00	9.36
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	41.815	0.00	0.59
90.50	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.073	0.000	41.815	0.00	0.94
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	42.067	0.00	3.11
93.12	1 5/8" Fiber	Yes	2.62	0.000	1.98	0.43	0.00	0.148	1.145	42.067	0.00	4.90
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	42.067	0.00	0.00
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	42.067	0.00	0.00
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	42.198	0.00	1.64
94.50	1 5/8" Fiber	Yes	1.38	0.000	1.98	0.23	0.00	0.150	1.151	42.198	0.00	2.58
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	42.198	0.00	0.00
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	42.198	0.00	0.00
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	42.244	0.00	0.59
95.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.149	1.147	42.244	0.00	0.94
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	42.244	0.00	0.00
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	42.244	0.00	0.00
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	42.703	0.00	5.94
100.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.152	1.156	42.703	0.00	9.36
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	42.703	0.00	0.00
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	42.703	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

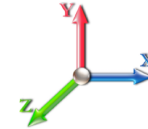
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0W 118 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.00



Iterations 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	43.144	0.00	5.94
105.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.158	1.173	43.144	0.00	9.36
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	43.144	0.00	0.00
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	43.144	0.00	0.00
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	43.390	0.00	3.41
107.87	1 5/8" Fiber	Yes	2.87	0.000	1.98	0.47	0.00	0.162	1.187	43.390	0.00	5.37
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	43.390	0.00	0.00
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	43.390	0.00	0.00
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	43.569	0.00	2.53
110.00	1 5/8" Fiber	Yes	2.13	0.000	1.98	0.35	0.00	0.165	1.196	43.569	0.00	3.99
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	43.569	0.00	0.00
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	43.569	0.00	0.00
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	43.898	0.00	4.75
114.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	0.66	0.00	0.095	0.000	43.898	0.00	7.49
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	43.898	0.00	0.00
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	43.898	0.00	0.00
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	43.978	0.00	1.19
115.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.17	0.00	0.086	0.000	43.978	0.00	1.87
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	44.374	0.00	5.94
120.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.088	0.000	44.374	0.00	9.36
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	44.757	0.00	5.94
125.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.092	0.000	44.757	0.00	9.36
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	45.128	0.00	5.94
130.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.096	0.000	45.128	0.00	9.36
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	45.488	0.00	5.94
135.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.100	1.001	45.488	0.00	9.36
Totals:											0.0	413.1

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

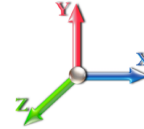


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Load Case: 0.9D + 1.0W 118 mph Wind

Iterations 25

Dead Load Factor 0.90
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	-31.09	-32.36	0.00	-3348.6	0.00	3348.69	3592.24	880.75	3081.19	3113.33	0.00	0.000	0.000	0.754
1.00	-30.83	-32.34	0.00	-3316.3	0.00	3316.34	3581.26	876.95	3054.64	3090.29	0.01	-0.058	0.000	0.667
5.00	-29.95	-32.13	0.00	-3186.9	0.00	3186.97	3536.93	861.73	2949.58	2998.63	0.14	-0.263	0.000	0.656
10.00	-28.90	-31.84	0.00	-3026.3	0.00	3026.33	3480.64	842.72	2820.85	2885.21	0.56	-0.519	0.000	0.641
15.00	-27.86	-31.55	0.00	-2867.1	0.00	2867.12	3423.37	823.70	2694.99	2773.12	1.24	-0.776	0.000	0.625
20.00	-26.84	-31.24	0.00	-2709.3	0.00	2709.35	3365.12	804.69	2572.00	2662.41	2.19	-1.033	0.000	0.648
25.00	-25.83	-30.91	0.00	-2553.1	0.00	2553.13	3305.89	785.67	2451.88	2553.15	3.41	-1.308	0.000	0.630
30.00	-24.85	-30.57	0.00	-2398.5	0.00	2398.56	3245.52	766.66	2334.64	2445.26	4.93	-1.582	0.000	0.612
35.00	-23.89	-30.21	0.00	-2245.7	0.00	2245.72	3165.03	747.64	2220.26	2324.87	6.73	-1.857	0.000	0.596
40.00	-22.94	-29.83	0.00	-2094.6	0.00	2094.69	3084.53	728.63	2108.76	2207.52	8.82	-2.130	0.000	0.632
44.50	-22.16	-29.46	0.00	-1960.4	0.00	1960.46	3012.08	711.52	2010.87	2104.51	10.96	-2.399	0.000	0.615
45.00	-21.95	-29.47	0.00	-1945.7	0.00	1945.73	3004.03	709.61	2000.14	2093.21	11.21	-2.429	0.000	0.606
50.00	-20.52	-29.07	0.00	-1798.3	0.00	1798.37	2423.81	587.47	1644.99	1680.79	13.91	-2.720	0.000	0.612
55.00	-19.72	-28.68	0.00	-1653.0	0.00	1653.05	2376.14	571.62	1557.44	1602.88	16.92	-3.009	0.000	0.628
60.00	-18.93	-28.30	0.00	-1509.6	0.00	1509.63	2327.49	555.78	1472.29	1526.13	20.23	-3.314	0.000	0.596
65.00	-18.20	-27.88	0.00	-1368.1	0.00	1368.16	2277.86	539.93	1389.54	1450.59	23.86	-3.612	0.000	0.561
67.50	-17.82	-27.68	0.00	-1298.4	0.00	1298.46	2252.16	532.01	1349.06	1412.97	25.79	-3.761	0.000	0.543
67.50	-17.82	-27.68	0.00	-1298.4	0.00	1298.46	2252.16	532.01	1349.06	1412.97	25.79	-3.761	0.000	0.543
70.00	-17.37	-27.53	0.00	-1229.2	0.00	1229.27	2218.62	524.08	1309.17	1370.99	27.80	-3.908	0.000	0.907
75.00	-16.55	-27.22	0.00	-1091.6	0.00	1091.61	2151.54	508.24	1231.20	1288.93	32.15	-4.390	0.000	0.857
80.00	-15.76	-26.89	0.00	-955.52	0.00	955.52	2084.46	492.39	1155.63	1209.39	36.99	-4.857	0.000	0.801
85.00	-15.00	-26.56	0.00	-821.05	0.00	821.05	2017.38	476.55	1082.45	1132.40	42.31	-5.303	0.000	0.736
90.00	-11.61	-20.48	0.00	-688.24	0.00	688.24	1950.30	460.70	1011.66	1057.93	48.09	-5.720	0.000	0.658
90.50	-11.52	-20.46	0.00	-678.01	0.00	678.01	1943.59	459.12	1004.71	1050.62	48.69	-5.762	0.000	0.653
93.12	-11.11	-20.22	0.00	-624.40	0.00	624.40	1908.44	450.81	968.70	1012.75	51.90	-5.973	0.000	0.348
94.50	-10.90	-20.09	0.00	-596.50	0.00	596.50	1035.36	273.09	592.44	557.40	53.64	-6.034	0.000	0.385
95.00	-10.82	-20.07	0.00	-586.45	0.00	586.45	1033.16	272.13	588.32	554.27	54.27	-6.056	0.000	0.475
100.00	-10.45	-19.64	0.00	-486.13	0.00	486.13	1010.63	262.63	547.93	523.10	60.74	-6.308	0.000	0.409
105.00	-10.11	-19.21	0.00	-387.92	0.00	387.92	987.11	253.12	508.98	492.30	67.45	-6.532	0.000	0.341
107.87	-9.92	-18.96	0.00	-332.79	0.00	332.79	973.17	247.66	487.27	474.80	71.41	-6.647	0.000	0.300
107.87	-9.92	-18.96	0.00	-332.79	0.00	332.79	973.17	247.66	487.27	474.80	71.41	-6.647	0.000	0.300
110.00	-9.74	-18.80	0.00	-292.40	0.00	292.40	962.61	243.61	471.46	461.91	74.38	-6.725	0.000	0.649
114.00	-6.95	-13.75	0.00	-211.76	0.00	211.76	942.31	236.01	442.48	437.94	80.14	-7.029	0.000	0.494
115.00	-6.86	-13.70	0.00	-198.01	0.00	198.01	937.13	234.11	435.38	431.99	81.62	-7.096	0.000	0.469
120.00	-6.58	-13.36	0.00	-129.51	0.00	129.51	910.67	224.60	400.73	402.61	89.19	-7.371	0.000	0.332
125.00	-3.42	-6.27	0.00	-62.71	0.00	62.71	883.23	215.09	367.52	373.80	97.00	-7.554	0.000	0.172
130.00	-3.25	-5.93	0.00	-31.38	0.00	31.38	854.80	205.58	335.75	345.64	104.94	-7.656	0.000	0.095
135.00	-0.14	-0.34	0.00	-1.70	0.00	1.70	825.39	196.08	305.42	318.16	112.97	-7.697	0.000	0.006
140.00	-0.01	-0.03	0.00	-0.01	0.00	0.01	789.80	186.57	276.52	289.54	121.00	-7.699	0.000	0.000
140.50	0.00	-0.03	0.00	0.00	0.00	0.00	785.78	185.62	273.70	286.58	121.81	-7.699	0.000	0.000

Wind Loading - Shaft

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



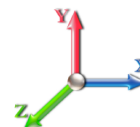
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 24

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	5.149	5.66	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	5.149	5.66	0.00	1.214 *	1.057	1.00	3.768	4.58	25.9	57.5	262.0
5.00		1.00	0.85	5.149	5.66	0.00	1.218 *	1.242	4.00	15.042	18.32	103.8	266.8	1075.9
10.00		1.00	0.85	5.149	5.66	0.00	1.226 *	1.331	5.00	18.530	22.71	128.7	350.6	1342.1
15.00		1.00	0.85	5.149	5.66	0.00	1.234 *	1.386	5.00	18.191	22.46	127.2	357.7	1327.0
20.00	RT2 RB3	1.00	0.90	5.464	6.01	0.00	1.244 *	1.427	5.00	17.839	22.18	133.3	360.3	1307.5
25.00		1.00	0.95	5.726	6.30	0.00	1.253 *	1.459	5.00	17.481	21.91	138.0	360.4	1285.5
30.00		1.00	0.98	5.951	6.55	0.00	1.263 *	1.486	5.00	17.118	21.62	141.5	358.9	1261.8
35.00		1.00	1.01	6.147	6.76	0.00	1.274 *	1.509	5.00	16.752	21.34	144.3	356.0	1236.9
40.00	RT3 RB4	1.00	1.04	6.322	6.95	0.00	1.285 *	1.529	5.00	16.384	21.05	146.4	352.3	1211.0
44.50	Bot - Section 2	1.00	1.07	6.466	7.11	0.00	1.245 *	1.546	4.50	14.429	17.96	127.8	313.5	1067.4
45.00		1.00	1.07	6.481	7.13	0.00	1.250 *	1.547	0.50	1.611	2.01	14.4	35.4	188.3
50.00	Top - Section 1	1.00	1.09	6.626	7.29	0.00	1.256 *	1.564	5.00	15.907	19.98	145.7	348.9	1856.0
55.00		1.00	1.12	6.760	7.44	0.00	1.260 *	1.579	5.00	15.534	19.57	145.5	343.3	1017.5
60.00	RT4 RB5	1.00	1.14	6.885	7.57	0.00	1.272 *	1.592	5.00	15.161	19.28	146.0	337.4	993.2
65.00		1.00	1.16	7.002	7.70	0.00	1.284 *	1.605	5.00	14.786	18.98	146.2	331.1	968.4
67.50	RT5	1.00	1.17	7.058	7.76	0.00	1.294 *	1.611	2.50	7.251	9.38	72.8	163.9	475.6
70.00		1.00	1.17	7.113	7.82	0.00	1.300 *	1.617	2.50	7.157	9.31	72.8	162.2	469.4
75.00		1.00	1.19	7.217	7.94	0.00	1.200	1.628	5.00	14.035	16.84	133.7	317.5	918.0
80.00		1.00	1.21	7.315	8.05	0.00	1.200	1.639	5.00	13.659	16.39	131.9	310.3	892.3
85.00		1.00	1.22	7.409	8.15	0.00	1.200	1.649	5.00	13.282	15.94	129.9	302.9	866.5
90.00	Appurtenance(s)	1.00	1.24	7.499	8.25	0.00	1.200	1.658	5.00	12.905	15.49	127.7	295.3	840.4
90.50	Bot - Section 3	1.00	1.24	7.508	8.26	0.00	1.200	1.659	0.50	1.269	1.52	12.6	29.4	83.0
93.12	RB6	1.00	1.25	7.553	8.31	0.00	1.373 *	1.664	2.62	6.674	9.17	76.2	154.2	601.2
94.50	Top - Section 2	1.00	1.25	7.576	8.33	0.00	1.381 *	1.666	1.38	3.473	4.80	40.0	80.6	312.8
95.00		1.00	1.25	7.585	8.34	0.00	1.377 *	1.667	0.50	1.251	1.72	14.4	29.1	60.9
100.00		1.00	1.27	7.667	8.43	0.00	1.387 *	1.676	5.00	12.308	17.07	144.0	283.4	594.4
105.00		1.00	1.28	7.746	8.52	0.00	1.407 *	1.684	5.00	11.929	16.79	143.0	275.3	575.2
107.87	RT6	1.00	1.29	7.790	8.57	0.00	1.424 *	1.689	2.87	6.676	9.51	81.5	155.3	322.5
110.00		1.00	1.29	7.823	8.60	0.00	1.435 *	1.692	2.13	4.874	6.99	60.2	113.7	235.5
114.00	Appurtenance(s)	1.00	1.30	7.882	8.67	0.00	1.200	1.698	4.00	8.967	10.76	93.3	208.2	431.4
115.00		1.00	1.30	7.896	8.69	0.00	1.200	1.699	1.00	2.204	2.64	23.0	51.7	106.4
120.00		1.00	1.32	7.967	8.76	0.00	1.200	1.707	5.00	10.793	12.95	113.5	250.0	516.8
125.00	Appurtenance(s)	1.00	1.33	8.036	8.84	0.00	1.200	1.714	5.00	10.413	12.50	110.5	241.3	497.1
130.00		1.00	1.34	8.103	8.91	0.00	1.200	1.720	5.00	10.034	12.04	107.3	232.5	477.2
135.00	Appurtenance(s)	1.00	1.35	8.167	8.98	0.00	1.202 *	1.727	5.00	9.654	11.60	104.2	223.6	457.2
140.00		1.00	1.36	8.230	9.05	0.00	1.200	1.733	5.00	9.274	11.13	100.8	214.6	437.2
140.50		1.00	1.36	8.236	9.06	0.00	1.200	1.734	0.50	0.906	1.09	9.9	21.4	43.0
Totals:									140.50			3,717.6	26,614.3	

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



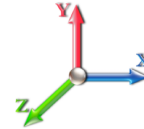
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 24

Dead Load Factor 1.20

Wind Load Factor 1.00



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	135.00	Ericsson Radio 4449	3	8.167	8.984	0.54	0.80	3.51	454.05	0.000	0.000	31.51	0.00	0.00
2	135.00	Ericsson 4415 B25	3	8.167	8.984	0.54	0.80	3.90	268.99	0.000	0.000	35.06	0.00	0.00
3	135.00	Ericsson RRUS11 B4	3	8.167	8.984	0.54	0.80	5.16	302.43	0.000	0.000	46.36	0.00	0.00
4	135.00	Commscope	3	8.167	8.984	0.73	0.80	1.27	63.61	0.000	0.000	11.37	0.00	0.00
5	135.00	APXVAARR24_43-U-NA2	3	8.167	8.984	0.56	0.80	37.16	1699.80	0.000	0.000	333.85	0.00	0.00
6	135.00	AIR6449 B41	3	8.167	8.984	0.65	0.80	12.85	823.83	0.000	0.000	115.49	0.00	0.00
7	135.00	Air 32	3	8.167	8.984	0.70	0.80	16.03	1022.20	0.000	0.000	144.02	0.00	0.00
8	135.00	Sector Frame	3	8.167	8.984	0.56	0.75	37.90	5638.45	0.000	0.000	340.51	0.00	0.00
9	125.00	Raycap DC6-48-60-18-8F	3	8.036	8.840	0.50	0.75	3.25	247.10	0.000	0.000	28.75	0.00	0.00
10	125.00	Kathrein 782 10250	6	8.036	8.840	0.50	0.75	3.25	99.81	0.000	0.000	28.75	0.00	0.00
11	125.00	CCI DTMAPB7819VG12A	6	8.036	8.840	0.50	0.75	5.72	252.29	0.000	0.000	50.52	0.00	0.00
12	125.00	Ericsson RRUS-11	3	8.036	8.840	0.50	0.75	4.76	456.08	0.000	0.000	42.09	0.00	0.00
13	125.00	CCI OPA-65R-LCUU-H6	3	8.036	8.840	0.59	0.75	19.55	943.40	0.000	0.000	172.84	0.00	0.00
14	125.00	QS66512-2	3	8.036	8.840	0.69	0.75	19.47	1067.02	0.000	0.000	172.08	0.00	0.00
15	125.00	RRUS 32 B66	3	8.036	8.840	0.50	0.75	5.21	448.93	0.000	0.000	46.03	0.00	0.00
16	125.00	Ericsson RRUS-32	6	8.036	8.840	0.50	0.75	12.81	1238.25	0.000	0.000	113.27	0.00	0.00
17	125.00	Kathrein 800-10121	3	8.036	8.840	0.59	0.75	10.98	557.86	0.000	0.000	97.02	0.00	0.00
18	125.00	HPA-65R-BUU-H6	3	8.036	8.840	0.64	0.75	21.04	912.31	0.000	0.000	185.97	0.00	0.00
19	125.00	B14 4478	3	8.036	8.840	0.50	0.75	3.28	392.87	0.000	0.000	29.01	0.00	0.00
20	125.00	DBC0061F1V51-2	6	8.036	8.840	0.50	0.75	2.14	247.54	0.000	0.000	18.92	0.00	0.00
21	125.00	Platform w/ Hand Rails	1	8.036	8.840	1.00	1.00	60.56	3856.42	0.000	0.000	535.36	0.00	0.00
22	114.00	20" x 18" x 9" Junction Box	1	7.882	8.670	1.00	1.00	4.37	100.45	0.000	0.000	37.90	0.00	0.00
23	114.00	Andrew VHLP1-23-DW1	1	7.946	8.741	1.00	1.00	2.35	41.15	0.000	4.500	20.52	0.00	92.36
24	114.00	Andrew VHLP2-23-DW1	1	7.946	8.741	1.00	1.00	5.93	104.41	0.000	4.500	51.85	0.00	233.34
25	114.00	Argus LLPX310R-V1	3	7.889	8.678	0.55	0.80	8.68	499.21	0.000	0.500	75.36	0.00	37.68
26	114.00	Samsung	3	7.867	8.654	0.61	0.80	5.05	209.87	0.000	-1.000	43.71	0.00	-43.71
27	114.00	Low Profile Platform	1	7.882	8.670	1.00	1.00	45.38	3288.17	0.000	0.000	393.40	0.00	0.00
28	114.00	RFS APXVSP18	3	7.896	8.686	0.66	0.80	18.48	1030.87	0.000	1.000	160.52	0.00	160.52
29	114.00	Alcatel Lucent	3	7.925	8.717	0.55	0.80	8.01	572.60	0.000	3.000	69.86	0.00	209.59
30	114.00	Alcatel Lucent	3	7.860	8.646	0.78	0.80	8.12	389.44	0.000	-1.500	70.22	0.00	-105.33
31	114.00	Alcatel Lucent	3	7.925	8.717	0.78	0.80	9.27	382.41	0.000	3.000	80.77	0.00	242.32
32	114.00	RFS APXVTM14	3	7.925	8.717	0.63	0.80	14.07	885.77	0.000	3.000	122.66	0.00	367.98
33	90.00	Alcatel Lucent	3	7.499	8.249	0.57	0.75	7.27	605.44	0.000	0.000	59.95	0.00	0.00
34	90.00	Swedcom SCLP 2x6014	3	7.499	8.249	0.67	0.75	15.05	728.02	0.000	0.000	124.16	0.00	0.00
35	90.00	Commscope	6	7.499	8.249	0.62	0.75	34.64	1685.86	0.000	0.000	285.75	0.00	0.00
36	90.00	Antel	3	7.499	8.249	0.55	0.75	14.39	644.61	0.000	0.000	118.73	0.00	0.00
37	90.00	RFS DB-T1-6Z-8AB-0Z	1	7.499	8.249	1.00	1.00	5.63	188.16	0.000	0.000	46.42	0.00	0.00
38	90.00	Alcatel Lucent	3	7.499	8.249	0.57	0.75	7.27	605.44	0.000	0.000	59.95	0.00	0.00
39	90.00	Alcatel Lucent	3	7.499	8.249	0.68	0.75	5.67	436.14	0.000	0.000	46.80	0.00	0.00
40	90.00	Platform w/ Hand Rails	1	7.499	8.249	1.00	1.00	62.89	4628.96	0.000	0.000	518.81	0.00	0.00

Totals: 38,020.20

4,966.10

Total Applied Force Summary

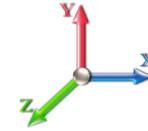
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		25.92	325.11	0.00	0.00
5.00		103.79	1343.59	0.00	0.00
10.00		128.65	1686.44	0.00	0.00
15.00		127.20	1677.63	0.00	0.00
20.00		133.33	1662.85	0.00	0.00
25.00		137.99	1644.61	0.00	0.00
30.00		141.54	1624.08	0.00	0.00
35.00		144.27	1601.91	0.00	0.00
40.00		146.38	1578.50	0.00	0.00
44.50		127.75	1393.68	0.00	0.00
45.00		14.35	224.60	0.00	0.00
50.00		145.66	2220.67	0.00	0.00
55.00		145.54	1384.05	0.00	0.00
60.00		146.01	1361.33	0.00	0.00
65.00		146.23	1338.13	0.00	0.00
67.50		72.83	660.88	0.00	0.00
70.00		72.82	654.95	0.00	0.00
75.00		133.70	1231.12	0.00	0.00
80.00		131.89	1206.20	0.00	0.00
85.00		129.90	1181.03	0.00	0.00
90.00	(23) attachments	1388.30	10678.24	0.00	0.00
90.50		12.58	105.67	0.00	0.00
93.12		76.15	751.82	0.00	0.00
94.50		39.97	392.23	0.00	0.00
95.00		14.37	89.64	0.00	0.00
100.00		143.99	883.45	0.00	0.00
105.00		143.04	865.27	0.00	0.00
107.87		81.46	489.27	0.00	0.00
110.00		60.19	359.43	0.00	0.00
114.00	(25) attachments	1220.07	8125.75	0.00	1194.73
115.00		22.97	143.35	0.00	0.00
120.00		113.50	702.08	0.00	0.00
125.00	(49) attachments	1631.07	11402.70	0.00	0.00
130.00		107.32	586.27	0.00	0.00
135.00	(24) attachments	1162.37	10840.12	0.00	0.00
140.00		100.75	437.17	0.00	0.00
140.50		9.85	43.02	0.00	0.00
	Totals:	8,683.71	72,896.82	0.00	1,194.73

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



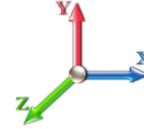
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 24

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.104	1.012	5.149	0.00	5.90
1.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.34	0.00	0.104	1.012	5.149	0.00	7.77
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.28	0.00	0.104	1.012	5.149	0.00	3.68
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.28	0.00	0.104	1.012	5.149	0.00	3.68
5.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.105	1.015	5.149	0.00	27.46
5.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	1.49	0.00	0.105	1.015	5.149	0.00	35.44
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	1.24	0.00	0.105	1.015	5.149	0.00	18.24
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	1.24	0.00	0.105	1.015	5.149	0.00	18.24
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	5.149	0.00	36.80
10.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	1.93	0.00	0.107	1.021	5.149	0.00	47.08
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.63	0.00	0.107	1.021	5.149	0.00	25.07
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.63	0.00	0.107	1.021	5.149	0.00	25.07
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	5.149	0.00	38.38
15.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	1.98	0.00	0.110	1.029	5.149	0.00	48.84
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.68	0.00	0.110	1.029	5.149	0.00	26.52
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.68	0.00	0.110	1.029	5.149	0.00	26.52
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	5.464	0.00	39.56
20.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.01	0.00	0.112	1.036	5.464	0.00	50.16
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.71	0.00	0.112	1.036	5.464	0.00	27.61
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.71	0.00	0.112	1.036	5.464	0.00	27.61
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	5.726	0.00	40.52
25.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.04	0.00	0.115	1.044	5.726	0.00	51.22
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.74	0.00	0.115	1.044	5.726	0.00	28.49
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.74	0.00	0.115	1.044	5.726	0.00	28.49
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	5.951	0.00	41.32
30.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.06	0.00	0.118	1.053	5.951	0.00	52.12
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.76	0.00	0.118	1.053	5.951	0.00	29.23
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.76	0.00	0.118	1.053	5.951	0.00	29.23
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	6.147	0.00	42.02
35.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.08	0.00	0.120	1.061	6.147	0.00	52.90
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.78	0.00	0.120	1.061	6.147	0.00	29.88
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.78	0.00	0.120	1.061	6.147	0.00	29.88
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	6.322	0.00	42.64
40.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.10	0.00	0.124	1.071	6.322	0.00	53.58
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.80	0.00	0.124	1.071	6.322	0.00	30.45
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	1.80	0.00	0.124	1.071	6.322	0.00	30.45
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	6.466	0.00	38.83
44.50	1 5/8" Fiber	Yes	4.50	0.000	1.98	1.90	0.00	0.112	1.037	6.466	0.00	48.73
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	1.53	0.00	0.112	1.037	6.466	0.00	24.70
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	1.53	0.00	0.112	1.037	6.466	0.00	24.70
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	6.481	0.00	4.32
45.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.21	0.00	0.114	1.042	6.481	0.00	5.42
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.17	0.00	0.114	1.042	6.481	0.00	2.75
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.17	0.00	0.114	1.042	6.481	0.00	2.75
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	6.626	0.00	43.71
50.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.13	0.00	0.116	1.047	6.626	0.00	54.77
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.72	0.00	0.116	1.047	6.626	0.00	27.93

Linear Appurtenance Segment Forces (Factored)

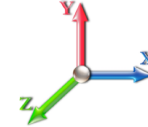
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.72	0.00	0.116	1.047	6.626	0.00	27.93
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	6.760	0.00	44.18
55.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.14	0.00	0.117	1.050	6.760	0.00	55.29
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.73	0.00	0.117	1.050	6.760	0.00	28.34
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.73	0.00	0.117	1.050	6.760	0.00	28.34
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	6.885	0.00	44.61
60.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.15	0.00	0.120	1.060	6.885	0.00	55.77
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.74	0.00	0.120	1.060	6.885	0.00	28.71
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.74	0.00	0.120	1.060	6.885	0.00	28.71
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	7.002	0.00	45.02
65.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.16	0.00	0.123	1.070	7.002	0.00	56.21
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.75	0.00	0.123	1.070	7.002	0.00	29.06
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.75	0.00	0.123	1.070	7.002	0.00	29.06
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	7.058	0.00	22.60
67.50	1 5/8" Fiber	Yes	2.50	0.000	1.98	1.08	0.00	0.126	1.078	7.058	0.00	28.21
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.88	0.00	0.126	1.078	7.058	0.00	14.61
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.88	0.00	0.126	1.078	7.058	0.00	14.61
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	7.113	0.00	22.70
70.00	1 5/8" Fiber	Yes	2.50	0.000	1.98	1.09	0.00	0.128	1.084	7.113	0.00	28.32
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.88	0.00	0.128	1.084	7.113	0.00	14.69
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.88	0.00	0.128	1.084	7.113	0.00	14.69
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	7.217	0.00	45.75
75.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.18	0.00	0.065	0.000	7.217	0.00	57.03
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	7.315	0.00	46.09
80.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.19	0.00	0.067	0.000	7.315	0.00	57.40
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	7.409	0.00	46.41
85.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.20	0.00	0.069	0.000	7.409	0.00	57.75
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	7.499	0.00	46.72
90.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.21	0.00	0.072	0.000	7.499	0.00	58.09
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	7.508	0.00	4.67
90.50	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.22	0.00	0.073	0.000	7.508	0.00	5.81
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	7.553	0.00	24.57
93.12	1 5/8" Fiber	Yes	2.62	0.000	1.98	1.16	0.00	0.148	1.145	7.553	0.00	30.54
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.94	0.00	0.148	1.145	7.553	0.00	13.44
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.94	0.00	0.148	1.145	7.553	0.00	18.02
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	7.576	0.00	12.97
94.50	1 5/8" Fiber	Yes	1.38	0.000	1.98	0.61	0.00	0.150	1.151	7.576	0.00	16.11
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.50	0.00	0.150	1.151	7.576	0.00	7.10
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.50	0.00	0.150	1.151	7.576	0.00	9.51
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	7.585	0.00	4.70
95.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.22	0.00	0.149	1.147	7.585	0.00	5.84
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.18	0.00	0.149	1.147	7.585	0.00	2.57
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.18	0.00	0.149	1.147	7.585	0.00	3.45
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	7.667	0.00	47.28
100.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.22	0.00	0.152	1.156	7.667	0.00	58.72
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.81	0.00	0.152	1.156	7.667	0.00	25.95
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.81	0.00	0.152	1.156	7.667	0.00	34.75

Linear Appurtenance Segment Forces (Factored)

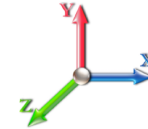
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	7.746	0.00	47.55
105.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.23	0.00	0.158	1.173	7.746	0.00	59.01
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.82	0.00	0.158	1.173	7.746	0.00	26.16
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	1.82	0.00	0.158	1.173	7.746	0.00	35.00
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	7.790	0.00	27.38
107.87	1 5/8" Fiber	Yes	2.87	0.000	1.98	1.28	0.00	0.162	1.187	7.790	0.00	33.97
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	1.05	0.00	0.162	1.187	7.790	0.00	15.08
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	1.05	0.00	0.162	1.187	7.790	0.00	20.17
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	7.823	0.00	20.37
110.00	1 5/8" Fiber	Yes	2.13	0.000	1.98	0.95	0.00	0.165	1.196	7.823	0.00	25.26
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.78	0.00	0.165	1.196	7.823	0.00	11.23
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.78	0.00	0.165	1.196	7.823	0.00	15.01
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	7.882	0.00	38.41
114.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	1.79	0.00	0.095	0.000	7.882	0.00	47.61
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.18	0.00	0.095	0.000	7.882	0.00	2.65
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.18	0.00	0.095	0.000	7.882	0.00	3.54
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	7.896	0.00	9.61
115.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.45	0.00	0.086	0.000	7.896	0.00	11.91
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	7.967	0.00	48.29
120.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.25	0.00	0.088	0.000	7.967	0.00	59.83
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	8.036	0.00	48.52
125.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.25	0.00	0.092	0.000	8.036	0.00	60.08
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	8.103	0.00	48.75
130.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.26	0.00	0.096	0.000	8.103	0.00	60.33
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	8.167	0.00	48.96
135.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	2.26	0.00	0.100	1.001	8.167	0.00	60.56
Totals:											0.0	3,718.9

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

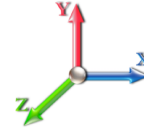


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 24

Dead Load Factor 1.20
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-72.90	-8.69	0.00	-937.85	0.00	937.85	3592.24	880.75	3081.19	3113.33	0.00	0.000	0.000	0.224
1.00	-72.56	-8.71	0.00	-929.15	0.00	929.15	3581.26	876.95	3054.64	3090.29	0.00	-0.016	0.000	0.197
5.00	-71.21	-8.69	0.00	-894.30	0.00	894.30	3536.93	861.73	2949.58	2998.63	0.04	-0.074	0.000	0.194
10.00	-69.51	-8.65	0.00	-850.84	0.00	850.84	3480.64	842.72	2820.85	2885.21	0.16	-0.146	0.000	0.190
15.00	-67.83	-8.60	0.00	-807.61	0.00	807.61	3423.37	823.70	2694.99	2773.12	0.35	-0.218	0.000	0.186
20.00	-66.15	-8.55	0.00	-764.62	0.00	764.62	3365.12	804.69	2572.00	2662.41	0.61	-0.290	0.000	0.193
25.00	-64.50	-8.49	0.00	-721.89	0.00	721.89	3305.89	785.67	2451.88	2553.15	0.96	-0.368	0.000	0.188
30.00	-62.86	-8.42	0.00	-679.47	0.00	679.47	3245.52	766.66	2334.64	2445.26	1.39	-0.446	0.000	0.183
35.00	-61.25	-8.34	0.00	-637.38	0.00	637.38	3165.03	747.64	2220.26	2324.87	1.89	-0.524	0.000	0.179
40.00	-59.66	-8.26	0.00	-595.67	0.00	595.67	3084.53	728.63	2108.76	2207.52	2.48	-0.601	0.000	0.190
44.50	-58.27	-8.16	0.00	-558.49	0.00	558.49	3012.08	711.52	2010.87	2104.51	3.09	-0.678	0.000	0.186
45.00	-58.03	-8.19	0.00	-554.41	0.00	554.41	3004.03	709.61	2000.14	2093.21	3.16	-0.686	0.000	0.183
50.00	-55.80	-8.10	0.00	-513.46	0.00	513.46	2423.81	587.47	1644.99	1680.79	3.92	-0.769	0.000	0.185
55.00	-54.41	-8.01	0.00	-472.97	0.00	472.97	2376.14	571.62	1557.44	1602.88	4.77	-0.852	0.000	0.191
60.00	-53.04	-7.93	0.00	-432.91	0.00	432.91	2327.49	555.78	1472.29	1526.13	5.71	-0.939	0.000	0.182
65.00	-51.70	-7.81	0.00	-393.28	0.00	393.28	2277.86	539.93	1389.54	1450.59	6.74	-1.025	0.000	0.172
67.50	-51.03	-7.77	0.00	-373.74	0.00	373.74	2252.16	532.01	1349.06	1412.97	7.29	-1.068	0.000	0.167
67.50	-51.03	-7.77	0.00	-373.74	0.00	373.74	2252.16	532.01	1349.06	1412.97	7.29	-1.068	0.000	0.167
70.00	-50.36	-7.76	0.00	-354.33	0.00	354.33	2218.62	524.08	1309.17	1370.99	7.86	-1.110	0.000	0.281
75.00	-49.12	-7.72	0.00	-315.51	0.00	315.51	2151.54	508.24	1231.20	1288.93	9.10	-1.249	0.000	0.268
80.00	-47.90	-7.67	0.00	-276.90	0.00	276.90	2084.46	492.39	1155.63	1209.39	10.48	-1.384	0.000	0.252
85.00	-46.70	-7.62	0.00	-238.54	0.00	238.54	2017.38	476.55	1082.45	1132.40	12.00	-1.514	0.000	0.234
90.00	-36.06	-5.97	0.00	-200.46	0.00	200.46	1950.30	460.70	1011.66	1057.93	13.65	-1.635	0.000	0.208
90.50	-35.95	-5.98	0.00	-197.48	0.00	197.48	1943.59	459.12	1004.71	1050.62	13.82	-1.647	0.000	0.207
93.12	-35.20	-5.91	0.00	-181.80	0.00	181.80	1908.44	450.81	968.70	1012.75	14.74	-1.709	0.000	0.111
94.50	-34.81	-5.86	0.00	-173.65	0.00	173.65	1035.36	273.09	592.44	557.40	15.24	-1.726	0.000	0.122
95.00	-34.71	-5.87	0.00	-170.72	0.00	170.72	1033.16	272.13	588.32	554.27	15.42	-1.733	0.000	0.151
100.00	-33.83	-5.74	0.00	-141.36	0.00	141.36	1010.63	262.63	547.93	523.10	17.28	-1.806	0.000	0.132
105.00	-32.96	-5.60	0.00	-112.65	0.00	112.65	987.11	253.12	508.98	492.30	19.20	-1.871	0.000	0.111
107.87	-32.47	-5.52	0.00	-96.58	0.00	96.58	973.17	247.66	487.27	474.80	20.34	-1.905	0.000	0.099
107.87	-32.47	-5.52	0.00	-96.58	0.00	96.58	973.17	247.66	487.27	474.80	20.34	-1.905	0.000	0.099
110.00	-32.11	-5.48	0.00	-84.83	0.00	84.83	962.61	243.61	471.46	461.91	21.19	-1.927	0.000	0.218
114.00	-24.03	-4.00	0.00	-61.73	0.00	61.73	942.31	236.01	442.48	437.94	22.85	-2.015	0.000	0.167
115.00	-23.88	-3.99	0.00	-57.73	0.00	57.73	937.13	234.11	435.38	431.99	23.27	-2.035	0.000	0.159
120.00	-23.18	-3.88	0.00	-37.76	0.00	37.76	910.67	224.60	400.73	402.61	25.45	-2.115	0.000	0.120
125.00	-11.85	-1.83	0.00	-18.35	0.00	18.35	883.23	215.09	367.52	373.80	27.69	-2.168	0.000	0.063
130.00	-11.26	-1.71	0.00	-9.19	0.00	9.19	854.80	205.58	335.75	345.64	29.98	-2.198	0.000	0.040
135.00	-0.48	-0.13	0.00	-0.65	0.00	0.65	825.39	196.08	305.42	318.16	32.29	-2.211	0.000	0.003
140.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	789.80	186.57	276.52	289.54	34.61	-2.211	0.000	0.000
140.50	0.00	-0.01	0.00	0.00	0.00	0.00	785.78	185.62	273.70	286.58	34.84	-2.211	0.000	0.000

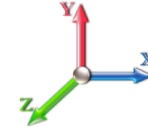
Seismic Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Ev + 1.0Eh						Iterations 21
Gust Response Factor	1.10			Sds	0.20	Ss 0.19
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.09	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.25	SA	0.02	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	
1.00	RT1 RB2	216.55	0.50	8.69	0.00	
5.00		858.84	3.00	34.45	0.00	
10.00		1056.9	7.50	42.39	0.03	
15.00		1038.5	12.50	41.65	0.08	
20.00	RT2 RB3	1020.1	17.50	40.91	0.15	
25.00		1001.6	22.50	40.17	0.23	
30.00		983.23	27.50	39.43	0.34	
35.00		964.79	32.50	38.69	0.45	
40.00	RT3 RB4	946.36	37.50	37.96	0.58	
44.50	Bot - Section 2	835.96	42.25	33.53	0.58	
45.00		150.53	44.75	6.04	0.02	
50.00	Top - Section 1	1486.6	47.50	59.63	2.30	
55.00		792.61	52.50	31.79	0.80	
60.00	RT4 RB5	777.25	57.50	31.17	0.92	
65.00		761.89	62.50	30.56	1.05	
67.50	RT5	375.18	66.25	15.05	0.28	
70.00		371.34	68.75	14.89	0.30	
75.00		731.17	72.50	29.32	1.30	
80.00		715.80	77.50	28.71	1.42	
85.00		700.44	82.50	28.09	1.54	
90.00	Appurtenance(s)	4357.0	87.50	174.75	67.05	
90.50	Bot - Section 3	58.86	90.25	2.36	0.01	
93.12	RB6	447.21	91.81	17.94	0.78	
94.50	Top - Section 2	232.84	93.81	9.34	0.22	
95.00		40.70	94.75	1.63	0.01	
100.00		401.91	97.50	16.12	0.71	
105.00		392.69	102.50	15.75	0.75	
107.87	RT6	221.24	106.44	8.87	0.26	
110.00		162.23	108.94	6.51	0.14	
114.00	Appurtenance(s)	3724.5	112.00	149.38	80.27	
115.00		65.09	114.50	2.61	0.03	
120.00		319.91	117.50	12.83	0.65	
125.00	Appurtenance(s)	4512.3	122.50	180.98	140.94	
130.00		224.31	127.50	9.00	0.38	
135.00	Appurtenance(s)	4262.9	132.50	170.97	147.17	
140.00		185.48	137.50	7.44	0.30	
140.50		18.04	140.25	0.72	0.00	
Totals:		35,413.4		1,420.3	452.0	Total Wind: 32,338.7

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

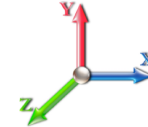
Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0Ev + 1.0Eh										Iterations 21
Gust Response Factor 1.10					Sds 0.20					Ss 0.19
Dead Load Factor 1.20			Seismic Load Factor 1.00			Sd1 0.09			S1 0.06	
Wind Load Factor 0.00		Structure Frequency (f1) 0.25		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	-42.90	-0.45	0.00	-57.31	0.00	57.31	3592.24	880.75	3081.19	3113.33	0.00	0.00	0.00	0.022
1.00	-42.64	-0.45	0.00	-56.86	0.00	56.86	3581.26	876.95	3054.64	3090.29	0.00	0.00	0.00	0.018
5.00	-41.61	-0.46	0.00	-55.05	0.00	55.05	3536.93	861.73	2949.58	2998.63	0.00	0.00	0.00	0.018
10.00	-40.35	-0.46	0.00	-52.77	0.00	52.77	3480.64	842.72	2820.85	2885.21	0.01	-0.01	0.018	0.018
15.00	-39.10	-0.46	0.00	-50.47	0.00	50.47	3423.37	823.70	2694.99	2773.12	0.02	-0.01	0.017	0.017
20.00	-37.88	-0.46	0.00	-48.16	0.00	48.16	3365.12	804.69	2572.00	2662.41	0.04	-0.02	0.018	0.018
25.00	-36.69	-0.47	0.00	-45.84	0.00	45.84	3305.89	785.67	2451.88	2553.15	0.06	-0.02	0.018	0.018
30.00	-35.52	-0.47	0.00	-43.50	0.00	43.50	3245.52	766.66	2334.64	2445.26	0.09	-0.03	0.017	0.017
35.00	-34.37	-0.47	0.00	-41.16	0.00	41.16	3165.03	747.64	2220.26	2324.87	0.12	-0.03	0.017	0.017
40.00	-33.24	-0.47	0.00	-38.80	0.00	38.80	3084.53	728.63	2108.76	2207.52	0.15	-0.04	0.018	0.018
44.50	-32.24	-0.47	0.00	-36.67	0.00	36.67	3012.08	711.52	2010.87	2104.51	0.19	-0.04	0.018	0.018
45.00	-32.06	-0.47	0.00	-36.44	0.00	36.44	3004.03	709.61	2000.14	2093.21	0.20	-0.04	0.018	0.018
50.00	-30.26	-0.47	0.00	-34.06	0.00	34.06	2423.81	587.47	1644.99	1680.79	0.25	-0.05	0.018	0.018
55.00	-29.33	-0.48	0.00	-31.70	0.00	31.70	2376.14	571.62	1557.44	1602.88	0.30	-0.05	0.019	0.019
60.00	-28.41	-0.48	0.00	-29.32	0.00	29.32	2327.49	555.78	1472.29	1526.13	0.36	-0.06	0.018	0.018
65.00	-27.51	-0.48	0.00	-26.94	0.00	26.94	2277.86	539.93	1389.54	1450.59	0.43	-0.07	0.018	0.018
67.50	-27.07	-0.48	0.00	-25.75	0.00	25.75	2252.16	532.01	1349.06	1412.97	0.46	-0.07	0.017	0.017
67.50	-27.07	-0.48	0.00	-25.75	0.00	25.75	2252.16	532.01	1349.06	1412.97	0.46	-0.07	0.017	0.017
70.00	-26.63	-0.48	0.00	-24.56	0.00	24.56	2218.62	524.08	1309.17	1370.99	0.50	-0.07	0.030	0.030
75.00	-25.77	-0.48	0.00	-22.16	0.00	22.16	2151.54	508.24	1231.20	1288.93	0.58	-0.08	0.029	0.029
80.00	-24.93	-0.48	0.00	-19.76	0.00	19.76	2084.46	492.39	1155.63	1209.39	0.67	-0.09	0.028	0.028
85.00	-24.11	-0.48	0.00	-17.35	0.00	17.35	2017.38	476.55	1082.45	1132.40	0.77	-0.10	0.027	0.027
90.00	-18.75	-0.41	0.00	-14.93	0.00	14.93	1950.30	460.70	1011.66	1057.93	0.88	-0.11	0.024	0.024
90.50	-18.68	-0.41	0.00	-14.73	0.00	14.73	1943.59	459.12	1004.71	1050.62	0.89	-0.11	0.024	0.024
93.12	-18.14	-0.41	0.00	-13.65	0.00	13.65	1908.44	450.81	968.70	1012.75	0.96	-0.12	0.013	0.013
94.50	-17.86	-0.41	0.00	-13.09	0.00	13.09	1035.36	273.09	592.44	557.40	0.99	-0.12	0.014	0.014
95.00	-17.81	-0.41	0.00	-12.89	0.00	12.89	1033.16	272.13	588.32	554.27	1.00	-0.12	0.018	0.018
100.00	-17.34	-0.41	0.00	-10.85	0.00	10.85	1010.63	262.63	547.93	523.10	1.13	-0.12	0.017	0.017
105.00	-16.88	-0.41	0.00	-8.81	0.00	8.81	987.11	253.12	508.98	492.30	1.26	-0.13	0.015	0.015
107.87	-16.62	-0.41	0.00	-7.64	0.00	7.64	973.17	247.66	487.27	474.80	1.33	-0.13	0.014	0.014
107.87	-16.62	-0.41	0.00	-7.64	0.00	7.64	973.17	247.66	487.27	474.80	1.33	-0.13	0.014	0.014
110.00	-16.43	-0.41	0.00	-6.77	0.00	6.77	962.61	243.61	471.46	461.91	1.39	-0.13	0.032	0.032
114.00	-11.84	-0.32	0.00	-5.13	0.00	5.13	942.31	236.01	442.48	437.94	1.51	-0.14	0.024	0.024
115.00	-11.76	-0.32	0.00	-4.82	0.00	4.82	937.13	234.11	435.38	431.99	1.54	-0.14	0.024	0.024
120.00	-11.38	-0.32	0.00	-3.22	0.00	3.22	910.67	224.60	400.73	402.61	1.69	-0.15	0.021	0.021
125.00	-5.81	-0.16	0.00	-1.63	0.00	1.63	883.23	215.09	367.52	373.80	1.84	-0.15	0.011	0.011
130.00	-5.53	-0.16	0.00	-0.82	0.00	0.82	854.80	205.58	335.75	345.64	2.01	-0.15	0.009	0.009
135.00	-0.25	0.00	0.00	0.00	0.00	0.00	825.39	196.08	305.42	318.16	2.17	-0.16	0.000	0.000
140.00	-0.02	0.00	0.00	0.00	0.00	0.00	789.80	186.57	276.52	289.54	2.33	-0.16	0.000	0.000
140.50	0.00	0.00	0.00	0.00	0.00	0.00	785.78	185.62	273.70	286.58	2.35	-0.16	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0Ev + 1.0Eh							Iterations 21
Gust Response Factor	1.10			Sds	0.20	Ss	0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.09	S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.25	SA	0.02	Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	
1.00	RT1 RB2	205.02	0.50	8.22	0.00	
5.00		812.69	3.00	32.59	0.00	
10.00		999.27	7.50	40.08	0.03	
15.00		980.84	12.50	39.34	0.07	
20.00	RT2 RB3	962.40	17.50	38.60	0.13	
25.00		943.97	22.50	37.86	0.21	
30.00		925.54	27.50	37.12	0.30	
35.00		907.10	32.50	36.38	0.41	
40.00	RT3 RB4	888.67	37.50	35.64	0.52	
44.50	Bot - Section 2	784.04	42.25	31.45	0.51	
45.00		144.76	44.75	5.81	0.02	
50.00	Top - Section 1	1429.0	47.50	57.31	2.16	
55.00		734.92	52.50	29.48	0.70	
60.00	RT4 RB5	719.56	57.50	28.86	0.80	
65.00		704.20	62.50	28.24	0.91	
67.50	RT5	346.34	66.25	13.89	0.25	
70.00		342.50	68.75	13.74	0.26	
75.00		673.47	72.50	27.01	1.12	
80.00		658.11	77.50	26.39	1.22	
85.00		642.75	82.50	25.78	1.32	
90.00	Appurtenance(s)	4299.3	87.50	172.43	66.31	
90.50	Bot - Section 3	55.29	90.25	2.22	0.01	
93.12	RB6	428.52	91.81	17.19	0.73	
94.50	Top - Section 2	223.00	93.81	8.94	0.21	
95.00		37.13	94.75	1.49	0.01	
100.00		366.23	97.50	14.69	0.60	
105.00		357.02	102.50	14.32	0.63	
107.87	RT6	200.76	106.44	8.05	0.21	
110.00		147.04	108.94	5.90	0.12	
114.00	Appurtenance(s)	3696.0	112.00	148.23	80.28	
115.00		60.21	114.50	2.41	0.02	
120.00		295.52	117.50	11.85	0.56	
125.00	Appurtenance(s)	4488.0	122.50	180.00	141.61	
130.00		219.21	127.50	8.79	0.37	
135.00	Appurtenance(s)	4257.8	132.50	170.77	149.12	
140.00		185.48	137.50	7.44	0.30	
140.50		18.04	140.25	0.72	0.00	
Totals:		34,139.8		1,369.2	452.0	Total Wind: 32,338.7

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

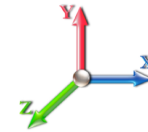
Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0Ev + 1.0Eh						Iterations 21
Gust Response Factor 1.10		Seismic Load Factor 1.00		Sds 0.20		Ss 0.19
Dead Load Factor 0.90		Structure Frequency (f1) 0.25		Sd1 0.09		S1 0.06
Wind Load Factor 0.00		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	-32.48	-0.45	0.00	-56.57	0.00	56.57	3592.24	880.75	3081.19	3113.33	0.00	0.00	0.00	0.019
1.00	-32.28	-0.45	0.00	-56.11	0.00	56.11	3581.26	876.95	3054.64	3090.29	0.00	0.00	0.00	0.016
5.00	-31.50	-0.45	0.00	-54.30	0.00	54.30	3536.93	861.73	2949.58	2998.63	0.00	0.00	0.00	0.016
10.00	-30.55	-0.46	0.00	-52.03	0.00	52.03	3480.64	842.72	2820.85	2885.21	0.01	-0.01	0.016	0.016
15.00	-29.61	-0.46	0.00	-49.74	0.00	49.74	3423.37	823.70	2694.99	2773.12	0.02	-0.01	0.016	0.016
20.00	-28.68	-0.46	0.00	-47.45	0.00	47.45	3365.12	804.69	2572.00	2662.41	0.04	-0.02	0.016	0.016
25.00	-27.78	-0.46	0.00	-45.14	0.00	45.14	3305.89	785.67	2451.88	2553.15	0.06	-0.02	0.016	0.016
30.00	-26.89	-0.46	0.00	-42.83	0.00	42.83	3245.52	766.66	2334.64	2445.26	0.08	-0.03	0.016	0.016
35.00	-26.02	-0.47	0.00	-40.50	0.00	40.50	3165.03	747.64	2220.26	2324.87	0.12	-0.03	0.015	0.015
40.00	-25.17	-0.47	0.00	-38.17	0.00	38.17	3084.53	728.63	2108.76	2207.52	0.15	-0.04	0.017	0.017
44.50	-24.42	-0.47	0.00	-36.07	0.00	36.07	3012.08	711.52	2010.87	2104.51	0.19	-0.04	0.016	0.016
45.00	-24.28	-0.47	0.00	-35.84	0.00	35.84	3004.03	709.61	2000.14	2093.21	0.19	-0.04	0.016	0.016
50.00	-22.92	-0.47	0.00	-33.49	0.00	33.49	2423.81	587.47	1644.99	1680.79	0.24	-0.05	0.016	0.016
55.00	-22.21	-0.47	0.00	-31.16	0.00	31.16	2376.14	571.62	1557.44	1602.88	0.30	-0.05	0.017	0.017
60.00	-21.52	-0.47	0.00	-28.82	0.00	28.82	2327.49	555.78	1472.29	1526.13	0.36	-0.06	0.016	0.016
65.00	-20.84	-0.47	0.00	-26.47	0.00	26.47	2277.86	539.93	1389.54	1450.59	0.42	-0.07	0.016	0.016
67.50	-20.50	-0.47	0.00	-25.30	0.00	25.30	2252.16	532.01	1349.06	1412.97	0.46	-0.07	0.016	0.016
67.50	-20.50	-0.47	0.00	-25.30	0.00	25.30	2252.16	532.01	1349.06	1412.97	0.46	-0.07	0.016	0.016
70.00	-20.17	-0.47	0.00	-24.13	0.00	24.13	2218.62	524.08	1309.17	1370.99	0.49	-0.07	0.027	0.027
75.00	-19.52	-0.47	0.00	-21.77	0.00	21.77	2151.54	508.24	1231.20	1288.93	0.57	-0.08	0.026	0.026
80.00	-18.89	-0.47	0.00	-19.41	0.00	19.41	2084.46	492.39	1155.63	1209.39	0.66	-0.09	0.025	0.025
85.00	-18.26	-0.47	0.00	-17.05	0.00	17.05	2017.38	476.55	1082.45	1132.40	0.76	-0.10	0.024	0.024
90.00	-14.20	-0.40	0.00	-14.68	0.00	14.68	1950.30	460.70	1011.66	1057.93	0.87	-0.11	0.021	0.021
90.50	-14.15	-0.40	0.00	-14.48	0.00	14.48	1943.59	459.12	1004.71	1050.62	0.88	-0.11	0.021	0.021
93.12	-13.74	-0.40	0.00	-13.43	0.00	13.43	1908.44	450.81	968.70	1012.75	0.94	-0.11	0.012	0.012
94.50	-13.53	-0.40	0.00	-12.88	0.00	12.88	1035.36	273.09	592.44	557.40	0.97	-0.11	0.013	0.013
95.00	-13.49	-0.40	0.00	-12.68	0.00	12.68	1033.16	272.13	588.32	554.27	0.99	-0.11	0.016	0.016
100.00	-13.14	-0.40	0.00	-10.67	0.00	10.67	1010.63	262.63	547.93	523.10	1.11	-0.12	0.015	0.015
105.00	-12.79	-0.40	0.00	-8.67	0.00	8.67	987.11	253.12	508.98	492.30	1.24	-0.13	0.013	0.013
107.87	-12.60	-0.40	0.00	-7.52	0.00	7.52	973.17	247.66	487.27	474.80	1.31	-0.13	0.012	0.012
107.87	-12.60	-0.40	0.00	-7.52	0.00	7.52	973.17	247.66	487.27	474.80	1.31	-0.13	0.012	0.012
110.00	-12.46	-0.40	0.00	-6.66	0.00	6.66	962.61	243.61	471.46	461.91	1.37	-0.13	0.027	0.027
114.00	-8.97	-0.31	0.00	-5.06	0.00	5.06	942.31	236.01	442.48	437.94	1.48	-0.14	0.021	0.021
115.00	-8.91	-0.31	0.00	-4.75	0.00	4.75	937.13	234.11	435.38	431.99	1.51	-0.14	0.021	0.021
120.00	-8.63	-0.31	0.00	-3.18	0.00	3.18	910.67	224.60	400.73	402.61	1.66	-0.15	0.017	0.017
125.00	-4.40	-0.16	0.00	-1.61	0.00	1.61	883.23	215.09	367.52	373.80	1.81	-0.15	0.009	0.009
130.00	-4.20	-0.16	0.00	-0.81	0.00	0.81	854.80	205.58	335.75	345.64	1.97	-0.15	0.007	0.007
135.00	-0.19	0.00	0.00	0.00	0.00	0.00	825.39	196.08	305.42	318.16	2.13	-0.15	0.000	0.000
140.00	-0.02	0.00	0.00	0.00	0.00	0.00	789.80	186.57	276.52	289.54	2.29	-0.15	0.000	0.000
140.50	0.00	0.00	0.00	0.00	0.00	0.00	785.78	185.62	273.70	286.58	2.31	-0.15	0.000	0.000

Wind Loading - Shaft

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

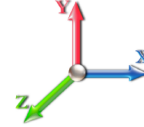


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 23

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	0.85	6.635	7.30	198.77	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	6.635	7.30	197.91	0.739 *	0.000	1.00	3.592	2.65	19.4	0.0	170.4
5.00		1.00	0.85	6.635	7.30	194.51	0.741 *	0.000	4.00	14.214	10.53	76.9	0.0	674.2
10.00		1.00	0.85	6.635	7.30	190.26	0.746 *	0.000	5.00	17.421	12.99	94.8	0.0	826.2
15.00		1.00	0.85	6.635	7.30	186.00	0.751 *	0.000	5.00	17.036	12.79	93.4	0.0	807.8
20.00	RT2 RB3	1.00	0.90	7.040	7.74	187.22	0.757 *	0.000	5.00	16.650	12.60	97.5	0.0	789.3
25.00		1.00	0.95	7.378	8.12	187.18	0.762 *	0.000	5.00	16.265	12.40	100.6	0.0	770.9
30.00		1.00	0.98	7.667	8.43	186.24	0.768 *	0.000	5.00	15.880	12.20	102.9	0.0	752.5
35.00		1.00	1.01	7.920	8.71	184.63	0.775 *	0.000	5.00	15.495	12.01	104.6	0.0	734.0
40.00	RT3 RB4	1.00	1.04	8.145	8.96	182.54	0.782 *	0.000	5.00	15.110	11.81	105.8	0.0	715.6
44.50	Bot - Section 2	1.00	1.07	8.330	9.16	180.31	0.757 *	0.000	4.50	13.270	10.05	92.1	0.0	628.3
45.00		1.00	1.07	8.350	9.18	180.04	0.761 *	0.000	0.50	1.482	1.13	10.4	0.0	127.5
50.00	Top - Section 1	1.00	1.09	8.537	9.39	177.22	0.764 *	0.000	5.00	14.604	11.16	104.8	0.0	1255.9
55.00		1.00	1.12	8.710	9.58	177.48	0.766 *	0.000	5.00	14.219	10.90	104.4	0.0	561.8
60.00	RT4 RB5	1.00	1.14	8.871	9.76	174.20	0.774 *	0.000	5.00	13.834	10.70	104.4	0.0	546.5
65.00		1.00	1.16	9.022	9.92	170.71	0.781 *	0.000	5.00	13.448	10.50	104.2	0.0	531.1
67.50	RT5	1.00	1.17	9.094	10.00	168.90	0.787 *	0.000	2.50	6.580	5.18	51.8	0.0	259.8
70.00		1.00	1.17	9.164	10.08	167.05	0.791 *	0.000	2.50	6.484	5.13	51.7	0.0	256.0
75.00		1.00	1.19	9.298	10.23	163.23	0.730	0.000	5.00	12.678	9.26	94.7	0.0	500.4
80.00		1.00	1.21	9.425	10.37	159.28	0.730	0.000	5.00	12.293	8.97	93.0	0.0	485.0
85.00		1.00	1.22	9.546	10.50	155.19	0.730	0.000	5.00	11.908	8.69	91.3	0.0	469.7
90.00	Appurtenance(s)	1.00	1.24	9.662	10.63	151.00	0.730	0.000	5.00	11.523	8.41	89.4	0.0	454.3
90.50	Bot - Section 3	1.00	1.24	9.673	10.64	150.57	0.730	0.000	0.50	1.131	0.83	8.8	0.0	44.6
93.12	RB6	1.00	1.25	9.731	10.70	148.32	0.836 *	0.000	2.62	5.947	4.97	53.2	0.0	372.4
94.50	Top - Section 2	1.00	1.25	9.762	10.74	147.13	0.840 *	0.000	1.38	3.090	2.60	27.9	0.0	193.5
95.00		1.00	1.25	9.772	10.75	148.82	0.838 *	0.000	0.50	1.112	0.93	10.0	0.0	26.4
100.00		1.00	1.27	9.879	10.87	144.44	0.844 *	0.000	5.00	10.911	9.21	100.1	0.0	259.2
105.00		1.00	1.28	9.981	10.98	139.96	0.856 *	0.000	5.00	10.526	9.01	98.9	0.0	250.0
107.87	RT6	1.00	1.29	10.037	11.04	137.36	0.866 *	0.000	2.87	5.868	5.08	56.1	0.0	139.3
110.00		1.00	1.29	10.079	11.09	135.41	0.873 *	0.000	2.13	4.273	3.73	41.4	0.0	101.4
114.00	Appurtenance(s)	1.00	1.30	10.155	11.17	131.71	0.730	0.000	4.00	7.835	5.72	63.9	0.0	186.0
115.00		1.00	1.30	10.174	11.19	130.78	0.730	0.000	1.00	1.920	1.40	15.7	0.0	45.6
120.00		1.00	1.32	10.265	11.29	126.07	0.730	0.000	5.00	9.370	6.84	77.2	0.0	222.3
125.00	Appurtenance(s)	1.00	1.33	10.354	11.39	121.30	0.730	0.000	5.00	8.985	6.56	74.7	0.0	213.1
130.00		1.00	1.34	10.440	11.48	116.47	0.730	0.000	5.00	8.600	6.28	72.1	0.0	203.9
135.00	Appurtenance(s)	1.00	1.35	10.523	11.58	111.58	0.731 *	0.000	5.00	8.215	6.00	69.5	0.0	194.7
140.00		1.00	1.36	10.604	11.66	106.63	0.730	0.000	5.00	7.830	5.72	66.7	0.0	185.5
140.50		1.00	1.36	10.612	11.67	106.13	0.730	0.000	0.50	0.762	0.56	6.5	0.0	18.0
Totals:									140.50			2,630.7		14,973.2

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

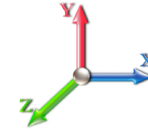
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	135.00	Ericsson Radio 4449	3	10.523	11.575	0.00	0.80	4.95	210.00	0.000	0.000	57.30	0.00	0.00
2	135.00	Ericsson 4415 B25	3	10.523	11.575	0.54	0.80	2.99	132.30	0.000	0.000	34.62	0.00	0.00
3	135.00	Ericsson RRUS11 B4	3	10.523	11.575	0.54	0.80	4.13	132.00	0.000	0.000	47.83	0.00	0.00
4	135.00	Commscope	3	10.523	11.575	0.73	0.80	0.70	33.00	0.000	0.000	8.09	0.00	0.00
5	135.00	APXVAARR24_43-U-NA2	3	10.523	11.575	0.56	0.80	34.00	384.00	0.000	0.000	393.59	0.00	0.00
6	135.00	AIR6449 B41	3	10.523	11.575	0.64	0.80	10.85	309.00	0.000	0.000	125.57	0.00	0.00
7	135.00	Air 32	3	10.523	11.575	0.70	0.80	13.59	396.60	0.000	0.000	157.34	0.00	0.00
8	135.00	Sector Frame	3	10.523	11.575	0.56	0.75	25.31	2451.00	0.000	0.000	292.99	0.00	0.00
9	125.00	Raycap DC6-48-60-18-8F	3	10.354	11.389	0.50	0.75	2.22	98.40	0.000	0.000	25.24	0.00	0.00
10	125.00	Kathrein 782 10250	6	10.354	11.389	0.50	0.75	1.57	38.40	0.000	0.000	17.86	0.00	0.00
11	125.00	CCI DTMAPB7819VG12A	6	10.354	11.389	0.50	0.75	3.44	114.00	0.000	0.000	39.15	0.00	0.00
12	125.00	Ericsson RRUS-11	3	10.354	11.389	0.50	0.75	3.80	162.00	0.000	0.000	43.27	0.00	0.00
13	125.00	CCI OPA-65R-LCUU-H6	3	10.354	11.389	0.59	0.75	17.17	219.00	0.000	0.000	195.56	0.00	0.00
14	125.00	QS66512-2	3	10.354	11.389	0.69	0.75	16.83	333.00	0.000	0.000	191.67	0.00	0.00
15	125.00	RRUS 32 B66	3	10.354	11.389	0.50	0.75	4.13	159.00	0.000	0.000	47.04	0.00	0.00
16	125.00	Ericsson RRUS-32	6	10.354	11.389	0.50	0.75	7.60	462.00	0.000	0.000	86.53	0.00	0.00
17	125.00	Kathrein 800-10121	3	10.354	11.389	0.59	0.75	9.15	132.30	0.000	0.000	104.26	0.00	0.00
18	125.00	HPA-65R-BUU-H6	3	10.354	11.389	0.64	0.75	18.47	153.00	0.000	0.000	210.41	0.00	0.00
19	125.00	B14 4478	3	10.354	11.389	0.50	0.75	2.49	178.20	0.000	0.000	28.33	0.00	0.00
20	125.00	DBC0061F1V51-2	6	10.354	11.389	0.50	0.75	1.30	152.40	0.000	0.000	14.77	0.00	0.00
21	125.00	Platform w/ Hand Rails	1	10.354	11.389	1.00	1.00	40.00	2000.00	0.000	0.000	455.56	0.00	0.00
22	114.00	20" x 18" x 9" Junction Box	1	10.155	11.170	1.00	1.00	3.15	20.00	0.000	0.000	35.19	0.00	0.00
23	114.00	Andrew VHLP1-23-DW1	1	10.238	11.262	1.00	1.00	1.61	14.00	0.000	4.500	18.13	0.00	81.59
24	114.00	Andrew VHLP2-23-DW1	1	10.238	11.262	1.00	1.00	4.69	31.00	0.000	4.500	52.82	0.00	237.68
25	114.00	Argus LLPX310R-V1	3	10.164	11.181	0.55	0.80	7.14	152.10	0.000	0.500	79.80	0.00	39.90
26	114.00	Samsung	3	10.136	11.150	0.61	0.80	3.32	99.30	0.000	-1.000	37.01	0.00	-37.01
27	114.00	Low Profile Platform	1	10.155	11.170	1.00	1.00	25.00	1800.00	0.000	0.000	279.26	0.00	0.00
28	114.00	RFS APXVSP18	3	10.174	11.191	0.66	0.80	15.98	375.90	0.000	1.000	178.78	0.00	178.78
29	114.00	Alcatel Lucent	3	10.211	11.232	0.55	0.80	6.71	210.00	0.000	3.000	75.33	0.00	225.98
30	114.00	Alcatel Lucent	3	10.127	11.139	0.78	0.80	5.59	192.00	0.000	-1.500	62.24	0.00	-93.36
31	114.00	Alcatel Lucent	3	10.211	11.232	0.78	0.80	6.37	180.00	0.000	3.000	71.59	0.00	214.77
32	114.00	RFS APXVTM14	3	10.211	11.232	0.63	0.80	12.02	350.10	0.000	3.000	135.01	0.00	405.03
33	90.00	Alcatel Lucent	3	9.662	10.628	0.57	0.75	5.99	270.00	0.000	0.000	63.61	0.00	0.00
34	90.00	Swedcom SCLP 2x6014	3	9.662	10.628	0.67	0.75	13.00	136.80	0.000	0.000	138.12	0.00	0.00
35	90.00	Commscope	6	9.662	10.628	0.62	0.75	30.18	458.40	0.000	0.000	320.74	0.00	0.00
36	90.00	Antel	3	9.662	10.628	0.55	0.75	12.43	127.80	0.000	0.000	132.15	0.00	0.00
37	90.00	RFS DB-T1-6Z-8AB-0Z	1	9.662	10.628	1.00	1.00	4.80	44.00	0.000	0.000	51.01	0.00	0.00
38	90.00	Alcatel Lucent	3	9.662	10.628	0.57	0.75	5.99	270.00	0.000	0.000	63.61	0.00	0.00
39	90.00	Alcatel Lucent	3	9.662	10.628	0.68	0.75	3.06	165.00	0.000	0.000	32.50	0.00	0.00
40	90.00	Platform w/ Hand Rails	1	9.662	10.628	1.00	1.00	42.00	2200.00	0.000	0.000	446.38	0.00	0.00

Totals: 15,346.00

4,850.24

Total Applied Force Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

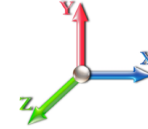


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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		19.36	208.86	0.00	0.00
5.00		76.87	828.07	0.00	0.00
10.00		94.80	1018.50	0.00	0.00
15.00		93.36	1000.07	0.00	0.00
20.00		97.54	981.63	0.00	0.00
25.00		100.63	963.20	0.00	0.00
30.00		102.91	944.77	0.00	0.00
35.00		104.59	926.33	0.00	0.00
40.00		105.81	907.90	0.00	0.00
44.50		92.09	801.35	0.00	0.00
45.00		10.35	146.68	0.00	0.00
50.00		104.82	1448.23	0.00	0.00
55.00		104.41	754.15	0.00	0.00
60.00		104.42	738.79	0.00	0.00
65.00		104.24	723.43	0.00	0.00
67.50		51.80	355.95	0.00	0.00
70.00		51.70	352.11	0.00	0.00
75.00		94.66	692.70	0.00	0.00
80.00		93.04	677.34	0.00	0.00
85.00		91.28	661.98	0.00	0.00
90.00	(23) attachments	1337.52	4318.62	0.00	0.00
90.50		8.79	56.48	0.00	0.00
93.12		53.19	434.75	0.00	0.00
94.50		27.87	226.28	0.00	0.00
95.00		10.01	38.32	0.00	0.00
100.00		100.05	378.12	0.00	0.00
105.00		98.92	368.91	0.00	0.00
107.87		56.12	207.59	0.00	0.00
110.00		41.36	152.10	0.00	0.00
114.00	(25) attachments	1089.05	3705.52	0.00	1253.37
115.00		15.69	61.84	0.00	0.00
120.00		77.24	303.65	0.00	0.00
125.00	(49) attachments	1534.34	4496.13	0.00	0.00
130.00		72.09	220.91	0.00	0.00
135.00	(24) attachments	1186.84	4259.59	0.00	0.00
140.00		66.67	185.48	0.00	0.00
140.50		6.49	18.04	0.00	0.00
	Totals:	7,480.94	34,564.36	0.00	1,253.37

Linear Appurtenance Segment Forces (Factored)

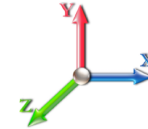
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

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)
1.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.104	1.012	6.635	0.00	1.32
1.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.17	0.00	0.104	1.012	6.635	0.00	2.08
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.10	0.00	0.104	1.012	6.635	0.00	0.00
1.00	1.25" Reinforcing	Yes	1.00	0.000	1.25	0.10	0.00	0.104	1.012	6.635	0.00	0.00
5.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.105	1.015	6.635	0.00	5.28
5.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	0.66	0.00	0.105	1.015	6.635	0.00	8.32
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	0.42	0.00	0.105	1.015	6.635	0.00	0.00
5.00	1.25" Reinforcing	Yes	4.00	0.000	1.25	0.42	0.00	0.105	1.015	6.635	0.00	0.00
10.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.107	1.021	6.635	0.00	6.60
10.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.107	1.021	6.635	0.00	10.40
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	6.635	0.00	0.00
10.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.107	1.021	6.635	0.00	0.00
15.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.110	1.029	6.635	0.00	6.60
15.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.110	1.029	6.635	0.00	10.40
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	6.635	0.00	0.00
15.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.110	1.029	6.635	0.00	0.00
20.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.112	1.036	7.040	0.00	6.60
20.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.112	1.036	7.040	0.00	10.40
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	7.040	0.00	0.00
20.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.112	1.036	7.040	0.00	0.00
25.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.115	1.044	7.378	0.00	6.60
25.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.115	1.044	7.378	0.00	10.40
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	7.378	0.00	0.00
25.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.115	1.044	7.378	0.00	0.00
30.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.118	1.053	7.667	0.00	6.60
30.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.118	1.053	7.667	0.00	10.40
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	7.667	0.00	0.00
30.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.118	1.053	7.667	0.00	0.00
35.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.061	7.920	0.00	6.60
35.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.061	7.920	0.00	10.40
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	7.920	0.00	0.00
35.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.120	1.061	7.920	0.00	0.00
40.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.124	1.071	8.145	0.00	6.60
40.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.124	1.071	8.145	0.00	10.40
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	8.145	0.00	0.00
40.00	1.25" Reinforcing	Yes	5.00	0.000	1.25	0.52	0.00	0.124	1.071	8.145	0.00	0.00
44.50	1 1/4" Fiber	Yes	4.50	0.000	0.00	0.00	0.00	0.112	1.037	8.330	0.00	5.94
44.50	1 5/8" Fiber	Yes	4.50	0.000	1.98	0.74	0.00	0.112	1.037	8.330	0.00	9.36
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	8.330	0.00	0.00
44.50	1" Reinforcing plate	Yes	4.50	0.000	1.00	0.38	0.00	0.112	1.037	8.330	0.00	0.00
45.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.114	1.042	8.350	0.00	0.66
45.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.114	1.042	8.350	0.00	1.04
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	8.350	0.00	0.00
45.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.114	1.042	8.350	0.00	0.00
50.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.116	1.047	8.537	0.00	6.60
50.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.116	1.047	8.537	0.00	10.40
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	8.537	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

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)
50.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.116	1.047	8.537	0.00	0.00
55.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.050	8.710	0.00	6.60
55.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.117	1.050	8.710	0.00	10.40
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	8.710	0.00	0.00
55.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.117	1.050	8.710	0.00	0.00
60.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.120	1.060	8.871	0.00	6.60
60.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.120	1.060	8.871	0.00	10.40
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	8.871	0.00	0.00
60.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.120	1.060	8.871	0.00	0.00
65.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.123	1.070	9.022	0.00	6.60
65.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.123	1.070	9.022	0.00	10.40
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	9.022	0.00	0.00
65.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.123	1.070	9.022	0.00	0.00
67.50	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.126	1.078	9.094	0.00	3.30
67.50	1 5/8" Fiber	Yes	2.50	0.000	1.98	0.41	0.00	0.126	1.078	9.094	0.00	5.20
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	9.094	0.00	0.00
67.50	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.126	1.078	9.094	0.00	0.00
70.00	1 1/4" Fiber	Yes	2.50	0.000	0.00	0.00	0.00	0.128	1.084	9.164	0.00	3.30
70.00	1 5/8" Fiber	Yes	2.50	0.000	1.98	0.41	0.00	0.128	1.084	9.164	0.00	5.20
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	9.164	0.00	0.00
70.00	1" Reinforcing plate	Yes	2.50	0.000	1.00	0.21	0.00	0.128	1.084	9.164	0.00	0.00
75.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	9.298	0.00	6.60
75.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.065	0.000	9.298	0.00	10.40
80.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	9.425	0.00	6.60
80.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.067	0.000	9.425	0.00	10.40
85.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.069	0.000	9.546	0.00	6.60
85.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.069	0.000	9.546	0.00	10.40
90.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.072	0.000	9.662	0.00	6.60
90.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.072	0.000	9.662	0.00	10.40
90.50	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.073	0.000	9.673	0.00	0.66
90.50	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.073	0.000	9.673	0.00	1.04
93.12	1 1/4" Fiber	Yes	2.62	0.000	0.00	0.00	0.00	0.148	1.145	9.731	0.00	3.46
93.12	1 5/8" Fiber	Yes	2.62	0.000	1.98	0.43	0.00	0.148	1.145	9.731	0.00	5.45
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	9.731	0.00	0.00
93.12	1" Reinforcing plate	Yes	2.62	0.000	1.00	0.22	0.00	0.148	1.145	9.731	0.00	0.00
94.50	1 1/4" Fiber	Yes	1.38	0.000	0.00	0.00	0.00	0.150	1.151	9.762	0.00	1.82
94.50	1 5/8" Fiber	Yes	1.38	0.000	1.98	0.23	0.00	0.150	1.151	9.762	0.00	2.87
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	9.762	0.00	0.00
94.50	1" Reinforcing plate	Yes	1.38	0.000	1.00	0.11	0.00	0.150	1.151	9.762	0.00	0.00
95.00	1 1/4" Fiber	Yes	0.50	0.000	0.00	0.00	0.00	0.149	1.147	9.772	0.00	0.66
95.00	1 5/8" Fiber	Yes	0.50	0.000	1.98	0.08	0.00	0.149	1.147	9.772	0.00	1.04
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	9.772	0.00	0.00
95.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.149	1.147	9.772	0.00	0.00
100.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.152	1.156	9.879	0.00	6.60
100.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.152	1.156	9.879	0.00	10.40
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	9.879	0.00	0.00
100.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.152	1.156	9.879	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

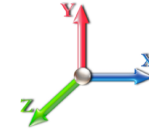
Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 23

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)
105.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.158	1.173	9.981	0.00	6.60
105.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.158	1.173	9.981	0.00	10.40
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	9.981	0.00	0.00
105.00	1" Reinforcing plate	Yes	5.00	0.000	1.00	0.42	0.00	0.158	1.173	9.981	0.00	0.00
107.87	1 1/4" Fiber	Yes	2.87	0.000	0.00	0.00	0.00	0.162	1.187	10.037	0.00	3.79
107.87	1 5/8" Fiber	Yes	2.87	0.000	1.98	0.47	0.00	0.162	1.187	10.037	0.00	5.97
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	10.037	0.00	0.00
107.87	1" Reinforcing plate	Yes	2.87	0.000	1.00	0.24	0.00	0.162	1.187	10.037	0.00	0.00
110.00	1 1/4" Fiber	Yes	2.13	0.000	0.00	0.00	0.00	0.165	1.196	10.079	0.00	2.81
110.00	1 5/8" Fiber	Yes	2.13	0.000	1.98	0.35	0.00	0.165	1.196	10.079	0.00	4.43
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	10.079	0.00	0.00
110.00	1" Reinforcing plate	Yes	2.13	0.000	1.00	0.18	0.00	0.165	1.196	10.079	0.00	0.00
114.00	1 1/4" Fiber	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	10.155	0.00	5.28
114.00	1 5/8" Fiber	Yes	4.00	0.000	1.98	0.66	0.00	0.095	0.000	10.155	0.00	8.32
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	10.155	0.00	0.00
114.00	1" Reinforcing plate	Yes	0.50	0.000	1.00	0.04	0.00	0.095	0.000	10.155	0.00	0.00
115.00	1 1/4" Fiber	Yes	1.00	0.000	0.00	0.00	0.00	0.086	0.000	10.174	0.00	1.32
115.00	1 5/8" Fiber	Yes	1.00	0.000	1.98	0.17	0.00	0.086	0.000	10.174	0.00	2.08
120.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	10.265	0.00	6.60
120.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.088	0.000	10.265	0.00	10.40
125.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.092	0.000	10.354	0.00	6.60
125.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.092	0.000	10.354	0.00	10.40
130.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.096	0.000	10.440	0.00	6.60
130.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.096	0.000	10.440	0.00	10.40
135.00	1 1/4" Fiber	Yes	5.00	0.000	0.00	0.00	0.00	0.100	1.001	10.523	0.00	6.60
135.00	1 5/8" Fiber	Yes	5.00	0.000	1.98	0.82	0.00	0.100	1.001	10.523	0.00	10.40
Totals:											0.0	459.0

Calculated Forces

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

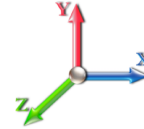


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 23

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-34.56	-7.48	0.00	-780.13	0.00	780.13	3592.24	880.75	3081.19	3113.33	0.00	0.000	0.000	0.181
1.00	-34.35	-7.48	0.00	-772.64	0.00	772.64	3581.26	876.95	3054.64	3090.29	0.00	-0.014	0.000	0.160
5.00	-33.52	-7.44	0.00	-742.71	0.00	742.71	3536.93	861.73	2949.58	2998.63	0.03	-0.061	0.000	0.157
10.00	-32.49	-7.37	0.00	-705.52	0.00	705.52	3480.64	842.72	2820.85	2885.21	0.13	-0.121	0.000	0.153
15.00	-31.48	-7.31	0.00	-668.65	0.00	668.65	3423.37	823.70	2694.99	2773.12	0.29	-0.181	0.000	0.150
20.00	-30.49	-7.24	0.00	-632.09	0.00	632.09	3365.12	804.69	2572.00	2662.41	0.51	-0.241	0.000	0.155
25.00	-29.52	-7.17	0.00	-595.88	0.00	595.88	3305.89	785.67	2451.88	2553.15	0.80	-0.305	0.000	0.151
30.00	-28.57	-7.09	0.00	-560.02	0.00	560.02	3245.52	766.66	2334.64	2445.26	1.15	-0.369	0.000	0.147
35.00	-27.64	-7.01	0.00	-524.54	0.00	524.54	3165.03	747.64	2220.26	2324.87	1.57	-0.433	0.000	0.143
40.00	-26.72	-6.93	0.00	-489.47	0.00	489.47	3084.53	728.63	2108.76	2207.52	2.06	-0.497	0.000	0.152
44.50	-25.92	-6.85	0.00	-458.28	0.00	458.28	3012.08	711.52	2010.87	2104.51	2.56	-0.560	0.000	0.148
45.00	-25.77	-6.85	0.00	-454.86	0.00	454.86	3004.03	709.61	2000.14	2093.21	2.62	-0.567	0.000	0.146
50.00	-24.31	-6.76	0.00	-420.60	0.00	420.60	2423.81	587.47	1644.99	1680.79	3.25	-0.635	0.000	0.147
55.00	-23.55	-6.68	0.00	-386.79	0.00	386.79	2376.14	571.62	1557.44	1602.88	3.95	-0.702	0.000	0.151
60.00	-22.80	-6.59	0.00	-353.41	0.00	353.41	2327.49	555.78	1472.29	1526.13	4.72	-0.774	0.000	0.143
65.00	-22.08	-6.50	0.00	-320.45	0.00	320.45	2277.86	539.93	1389.54	1450.59	5.57	-0.844	0.000	0.135
67.50	-21.72	-6.45	0.00	-304.21	0.00	304.21	2252.16	532.01	1349.06	1412.97	6.02	-0.879	0.000	0.131
67.50	-21.72	-6.45	0.00	-304.21	0.00	304.21	2252.16	532.01	1349.06	1412.97	6.02	-0.879	0.000	0.131
70.00	-21.36	-6.42	0.00	-288.08	0.00	288.08	2218.62	524.08	1309.17	1370.99	6.49	-0.913	0.000	0.220
75.00	-20.66	-6.36	0.00	-255.96	0.00	255.96	2151.54	508.24	1231.20	1288.93	7.51	-1.026	0.000	0.208
80.00	-19.97	-6.29	0.00	-224.18	0.00	224.18	2084.46	492.39	1155.63	1209.39	8.64	-1.136	0.000	0.195
85.00	-19.30	-6.22	0.00	-192.74	0.00	192.74	2017.38	476.55	1082.45	1132.40	9.89	-1.240	0.000	0.180
90.00	-15.01	-4.80	0.00	-161.65	0.00	161.65	1950.30	460.70	1011.66	1057.93	11.24	-1.338	0.000	0.161
90.50	-14.95	-4.79	0.00	-159.25	0.00	159.25	1943.59	459.12	1004.71	1050.62	11.38	-1.348	0.000	0.159
93.12	-14.51	-4.74	0.00	-146.69	0.00	146.69	1908.44	450.81	968.70	1012.75	12.13	-1.398	0.000	0.085
94.50	-14.28	-4.71	0.00	-140.15	0.00	140.15	1035.36	273.09	592.44	557.40	12.54	-1.412	0.000	0.094
95.00	-14.24	-4.71	0.00	-137.79	0.00	137.79	1033.16	272.13	588.32	554.27	12.69	-1.417	0.000	0.116
100.00	-13.86	-4.61	0.00	-114.26	0.00	114.26	1010.63	262.63	547.93	523.10	14.20	-1.476	0.000	0.100
105.00	-13.49	-4.51	0.00	-91.22	0.00	91.22	987.11	253.12	508.98	492.30	15.78	-1.529	0.000	0.084
107.87	-13.29	-4.45	0.00	-78.27	0.00	78.27	973.17	247.66	487.27	474.80	16.71	-1.556	0.000	0.074
107.87	-13.29	-4.45	0.00	-78.27	0.00	78.27	973.17	247.66	487.27	474.80	16.71	-1.556	0.000	0.074
110.00	-13.13	-4.42	0.00	-68.78	0.00	68.78	962.61	243.61	471.46	461.91	17.40	-1.574	0.000	0.163
114.00	-9.46	-3.23	0.00	-49.85	0.00	49.85	942.31	236.01	442.48	437.94	18.76	-1.646	0.000	0.124
115.00	-9.39	-3.22	0.00	-46.62	0.00	46.62	937.13	234.11	435.38	431.99	19.10	-1.662	0.000	0.118
120.00	-9.09	-3.15	0.00	-30.51	0.00	30.51	910.67	224.60	400.73	402.61	20.88	-1.726	0.000	0.086
125.00	-4.64	-1.48	0.00	-14.78	0.00	14.78	883.23	215.09	367.52	373.80	22.71	-1.769	0.000	0.045
130.00	-4.42	-1.40	0.00	-7.40	0.00	7.40	854.80	205.58	335.75	345.64	24.58	-1.793	0.000	0.027
135.00	-0.20	-0.08	0.00	-0.40	0.00	0.40	825.39	196.08	305.42	318.16	26.47	-1.803	0.000	0.002
140.00	-0.02	-0.01	0.00	0.00	0.00	0.00	789.80	186.57	276.52	289.54	28.35	-1.804	0.000	0.000
140.50	0.00	-0.01	0.00	0.00	0.00	0.00	785.78	185.62	273.70	286.58	28.54	-1.804	0.000	0.000

Final Analysis Summary

Structure: CT16504-A-SBA	Code: EIA/TIA-222-H	6/30/2020
Site Name: Manchester 12, CT	Exposure: C	
Height: 140.50 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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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 + 1.0W 118 mph Wind	32.4	0.00	41.46	0.00	0.00	3397.23
0.9D + 1.0W 118 mph Wind	32.4	0.00	31.09	0.00	0.00	3348.69
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.7	0.00	72.90	0.00	0.00	937.85
1.2D + 1.0Ev + 1.0Eh	0.5	0.00	42.90	0.00	0.00	57.31
0.9D + 1.0Ev + 1.0Eh	0.5	0.00	32.48	0.00	0.00	56.57
1.0D + 1.0W 60 mph Wind	7.5	0.00	34.56	0.00	0.00	780.13

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 + 1.0W 118 mph Wind	-23.75	-28.03	0.00	-1258.6	0.00	-1258.6	2218.62	524.08	1309.17	1370.99	70.00	0.932
0.9D + 1.0W 118 mph Wind	-17.37	-27.53	0.00	-1229.2	0.00	-1229.2	2218.62	524.08	1309.17	1370.99	70.00	0.907
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-50.36	-7.76	0.00	-354.33	0.00	-354.33	2218.62	524.08	1309.17	1370.99	70.00	0.281
1.2D + 1.0Ev + 1.0Eh	-16.43	-0.41	0.00	-6.77	0.00	-6.77	962.61	243.61	471.46	461.91	110.00	0.032
0.9D + 1.0Ev + 1.0Eh	-12.46	-0.40	0.00	-6.66	0.00	-6.66	962.61	243.61	471.46	461.91	110.00	0.027
1.0D + 1.0W 60 mph Wind	-21.36	-6.42	0.00	-288.08	0.00	-288.08	2218.62	524.08	1309.17	1370.99	70.00	0.220

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	1.0	(4) SOL-2 1/4" William R71	-315.0	-5.67	25.3	259.8	25.3	11	0	392.9	25.3			259.79	370.7	385.56	0.701
1.0	20.0	(4) LNP-LP7X125-B-20A	-349.8	-8.39	25.3	392.9	25.3			367.9	25.3			392.87	460.8	435.94	0.901
20.0	40.0	(4) LNP-LP6X125-G-20AB	-359.8	-8.64	25.3	337.4	25.3			305.8	25.3			337.42	395.0	360.94	0.935
40.0	60.0	(4) LNP-LP6X100-G-20BC	-384.1	-9.22	25.3	267.8	25.3			247.5	25.3			267.78	297.8	288.75	0.927
60.0	67.5	(4) LNP-LP6X100-G-10CT	-402.4	-9.66	25.3	247.5	25.3			228.0	25.3	10	0	247.54	297.8	288.75	0.857
93.1	107.9	(3) LNP-LP6X100-G-20TT	599.6	14.39	22.7	162.6	22.7	8	8	126.5	22.7	6	8	195.10	297.8	288.75	0.676



Pier Foundation Design For Monopole			Date
			6/30/2020
Customer Name:	T-Mobile	EIA/TIA Standard:	EIA-222-H
Site Name:		Structure Height (Ft.):	140.5
Site Number:	CT16504-A-SBA	Engineer Name:	T. Alajaj
Engr. Number:	94591	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations	Monopole
Analysis	

Acceptable overstress (\leq 5.0%

Structure Type:

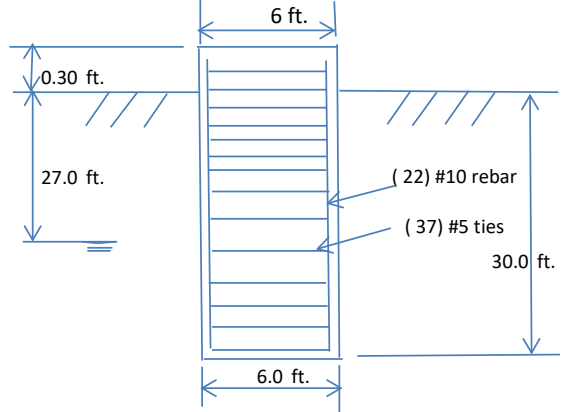
Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	41.5	Shear Force (Kips):	32.4
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3397.2

Foundation Geometries:

Diameter of Pier (ft.):	6.0	Depth of Base B. G. S. :	30.0 ft.
Pier Height A. G. (ft.):	0.30		



Monopole Pier Foundation

Material Properties and Rebar Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000 ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40 ksi
Vertical Rebar Size #:	10	Tie / Stirrup Size #:	5
Qty. of Vertical Rebars:	22	Tie Spacing:	12.0 in.
Concrete Cover (in.):	4	Concrete unit weight:	150.0 pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	27.0	Unit weight of water:	62.4 psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30 (°)
Soil Frictions are to be obtained from:	Calculations	Please Enter Ultimate End Bearing Pressure (psf):	11600
Kc = 1.15 For Sand		Kt = 0.7 For Sand and Silt	Friction δ Between Pier & Soil = 0.95
Kc = 1.0 Silt/Clay		Kt = 0.85 For Clay	

Depth of Layers (ft)		γ_{soil}	ϕ	Cohesion			Soil Types	Ultimate Uplift Skin Friction (psf)	Ultimate Axial Skin Friction (psf)	Kc	Kt	α
Top	Bottom	(pcf)	(°)	(psf)								
0.0	1.0	100	0	0		0	Sand			1.15	0.70	
1.0	5.0	135	40	0		0	Sand	175.0	287.5	1.15	0.70	
5.0	7.0	120	33	0		0	Sand	187.6	308.3	1.15	0.70	
7.0	10.0	130	38	0		0	Sand	324.1	532.5	1.15	0.70	
10.0	15.0	128	37	0		0	Sand	470.7	773.3	1.15	0.70	
15.0	30.0	132	39	0		11600	Sand	988.8	1624.5	1.15	0.70	
30.0	35.0	127	36	0		11600	Sand	982.1	1613.4	1.15	0.70	

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75
Total Dry Soil Volume from Conical Failure (cu. Ft.):	14255	Dry Soil Weight from Conical Failure:	1845 Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	58	Buoyant Soil Weight from Conical Failure (Kips):	5 Kips
Total Dry Concrete Volume (cu. Ft.):	772	Total Dry Concrete Weight:	115.8 Kips
Total Buoyant Concrete Volume (cu. Ft.):	84.8	Total Buoyant Concrete Weight:	7.43 Kips
Total Effective Concrete Weight (Kips):	123.2	Total Effective Soil Weight:	1849.7 Kips
Total Effective Vertical Load on Base (Kips):	58.6		

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft):	16167.6	>	Design Factored Moment (kips-ft):	4070	Usage	0.25	OK!
Factor of Safety of Passive Soil Resistance against Moment:	3.97	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

Reinforcing Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.27	Tie / Stirrup Area (sq. in./each):	0.31	Usage	
Calculated Moment Capacity (Mn,Kips-Ft):	3931.4	>	Design Factored Moment (Mu, K-Ft):	3487.9	0.89 OK!
Calculated Shear Capacity (Kips):	707.8	>	Design Factored Shear (Kips):	292.1	0.41 OK!
Calculated Tension Capacity (Tn, Kips):	1508.8	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	5362	>	Design Factored Axial Load (Pu Kips):	41.5	0.01 OK!
Moment & Axial Strength Combination:	0.89	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			

EXHIBIT 8



Tower Engineering Solutions

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

Antenna Mount Analysis Report

Existing 141-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT16504-A-SBA

Customer Site Name: Manchester 12, CT

Carrier Name: T-Mobile (App#: 134814, V2)

Carrier Site ID / Name: CTHA039A / Manchester

Site Location: 60 Adams Street

Manchester, Connecticut

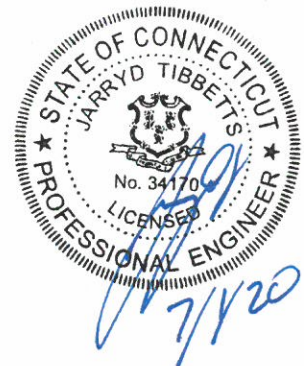
Hartford County

Latitude: 41.794100

Longitude: -72.555300

Analysis Result:

Max Structural Usage: 57% [Pass]



Report Prepared By: Khaibar Noorzad

Introduction

The purpose of this report is to summarize the analysis results on the (3) Sector Frames at 135.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Mapping	Provided by Full Metal Tower Services; Dated 04/28/2019
Antenna Loading	Provided by SBA; Application #: 134814, v2

Analysis Criteria

Wind Speed Used in the Analysis: 118 mph (3-Sec. Gust) (Ultimate Wind Speed)
Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1.5" radial ice concurrent
Service Load Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA 222-H/2015 IBC/2018 CSBC
Exposure Category: C
Risk Category: II
Topographic Category: 1
Crest Height (Ft): 0
Ground Elevation Factor: 0.996

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

Mount Information

(3) Sector Frames at 135.00' elevation at azimuths 80/225/335

Final Antenna Configuration

- 3 Ericsson Air 32 KRD901146-1_B66A_B2A
- 3 RFS APXVAARR24_43-U-NA20
- 3 Ericsson RRUS11 B4
- 3 Ericsson Radio 4449 B71+B85
- 3 Ericsson AIR6449 B41
- 3 Commscope CBC192-3Q-43
- 3 Ericsson 4415 B25

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

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 57%, which occurs in the standoff v-arms connections. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

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

Standard Conditions

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



Structure: CT16504-A-SBA - Manchester 12, CT

Sector: **A**

6/19/2020

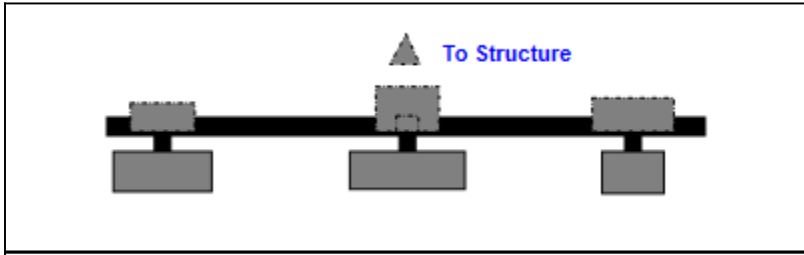
Structure Type: Monopole

Mount Elev: 135.00

Page: 1

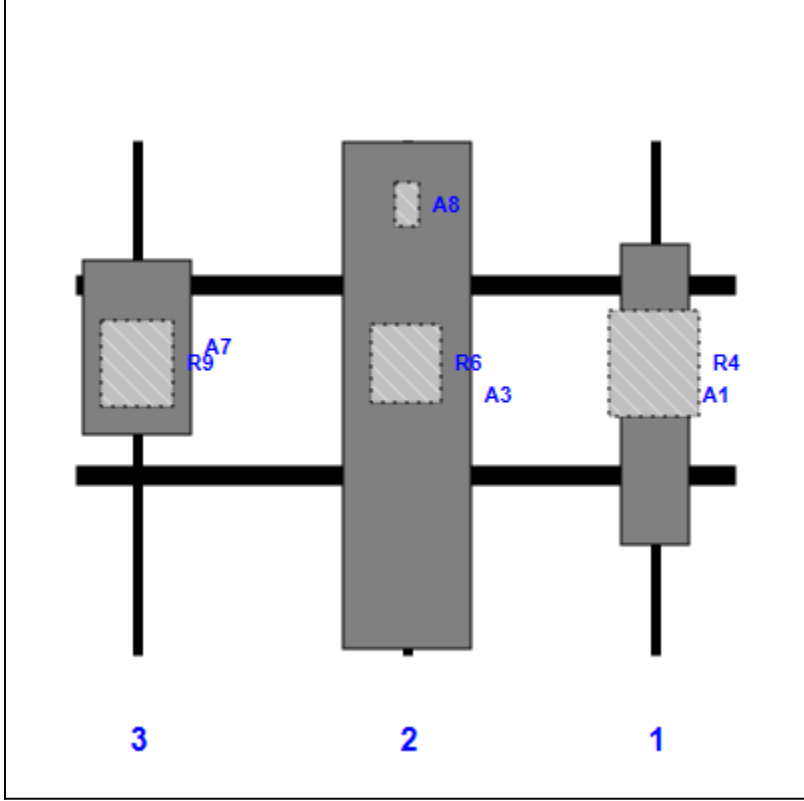


Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	Air 32	57.00	12.90	110.0	1	a	Front	48.00			
R4	RRUS11 B4	20.00	17.00	110.0	1	a	Behind	42.00			
A3	APXVAARR24_43-U-NA20	95.90	24.00	63.00	2	a	Front	48.00			
R6	Radio 4449 B71+B85	15.00	13.20	63.00	2	a	Behind	42.00			
A8	CBC192-3Q-43	8.30	4.60	63.00	2	a	Behind	12.00			
A7	AIR6449 B41	33.10	20.50	12.00	3	a	Front	39.00			
R9	4415 B25	16.50	13.40	12.00	3	a	Behind	42.00			

Structure: CT16504-A-SBA - Manchester 12, CT

Sector: B

6/19/2020

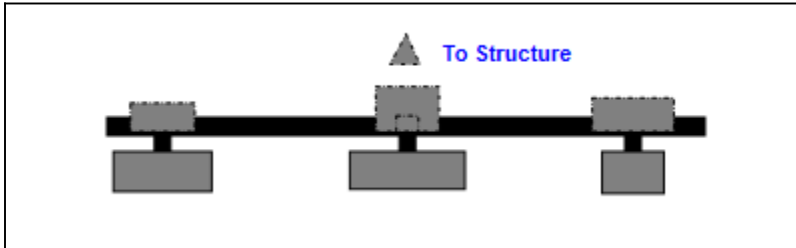
Structure Type: Monopole

Mount Elev: 135.00

Page: 2

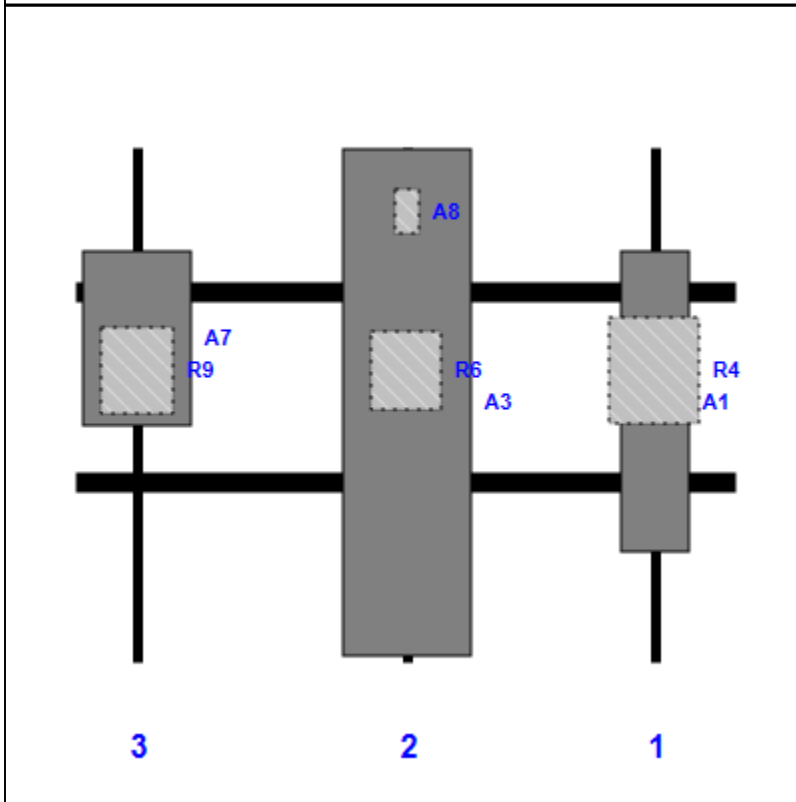


Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	Air 32	57.00	12.90	110.0	1	a	Front	48.00			
R4	RRUS11 B4	20.00	17.00	110.0	1	a	Behind	42.00			
A3	APXVAARR24_43-U-NA20	95.90	24.00	63.00	2	a	Front	48.00			
R6	Radio 4449 B71+B85	15.00	13.20	63.00	2	a	Behind	42.00			
A8	CBC192-3Q-43	8.30	4.60	63.00	2	a	Behind	12.00			
A7	AIR6449 B41	33.10	20.50	12.00	3	a	Front	36.00			
R9	4415 B25	16.50	13.40	12.00	3	a	Behind	42.00			

Structure: CT16504-A-SBA - Manchester 12, CT

Sector: C

6/19/2020

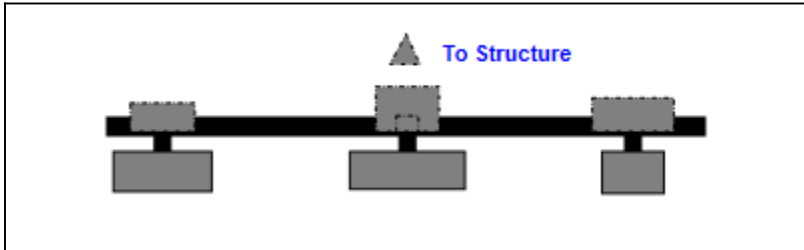
Structure Type: Monopole



Mount Elev: 135.00

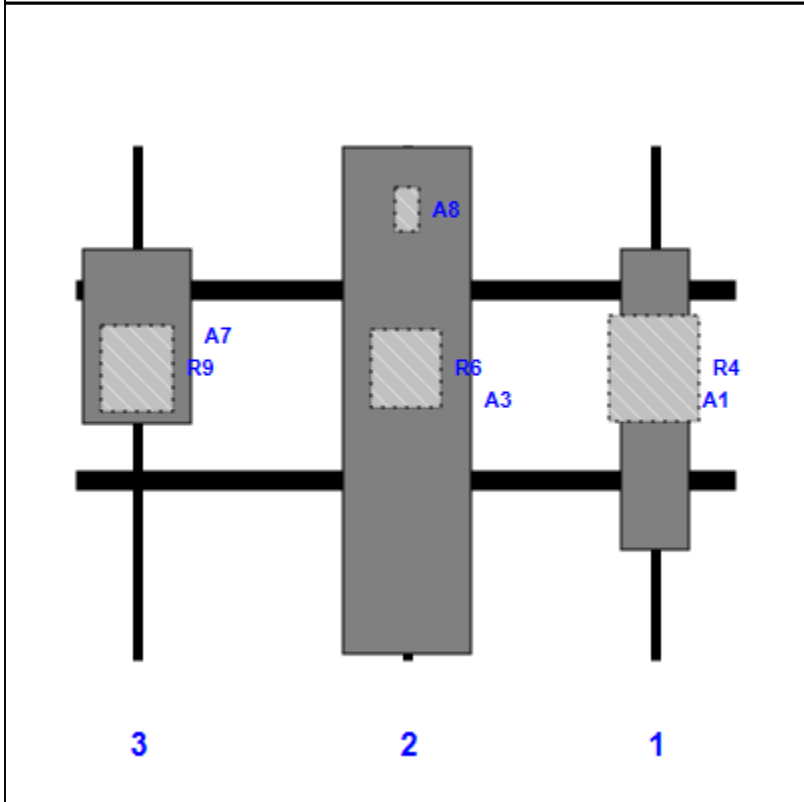
Page: 3

Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	Air 32	57.00	12.90	110.0	1	a	Front	48.00			
R4	RRUS11 B4	20.00	17.00	110.0	1	a	Behind	42.00			
A3	APXVAARR24_43-U-NA20	95.90	24.00	63.00	2	a	Front	48.00			
R6	Radio 4449 B71+B85	15.00	13.20	63.00	2	a	Behind	42.00			
A8	CBC192-3Q-43	8.30	4.60	63.00	2	a	Behind	12.00			
A7	AIR6449 B41	33.10	20.50	12.00	3	a	Front	36.00			
R9	4415 B25	16.50	13.40	12.00	3	a	Behind	42.00			

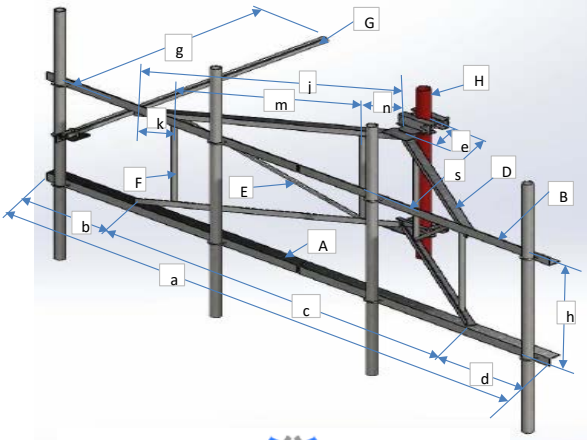


Antenna Mount Type "MT-R" Mapping Form (PATENT PENDING)

FCC #
Not Posted

Tower Owner:	SBA Communications	Mapping Date:	4/28/19
Site Name:	Manchester 12, CT	Structure Type:	Other
Site Number or ID:	CT16504-A-SBA	Structure Height (Ft.):	144
Mapping Contractor:	Full Metal Tower Services	Mount Height (Ft.):	137.4

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



Geometries (Unit: inches)									
a	125	e	10	j	50	o		s	45
b	26	f		k	6	p		t	18
c	74	g	92	m	36	q		u*	63
d	25	h	36	n	8	r		v*	97

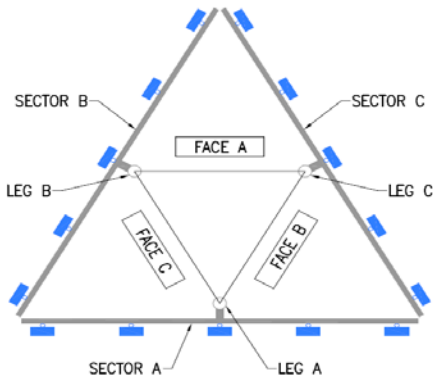
Members (Unit: inches)									
* - See Ant. Layout for "u", "v" and member "k" (pipe)									
Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	2.875 OD x 0.203 Pipe	2.875	2.469	0.203	F	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
B	2.875 OD x 0.203 Pipe	2.875	2.469	0.203	G	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
C					H	4.5 OD x 0.237 Pipe	4.5	4.026	0.237
D	2.875 OD x 0.203 Pipe	2.875	2.469	0.203	J				
E	0.75" Solid Rod	0.75	0.75	N/A	K (pipe)*	2.875 OD x 0.203 Pipe	2.875	2.469	0.203

Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) N/A

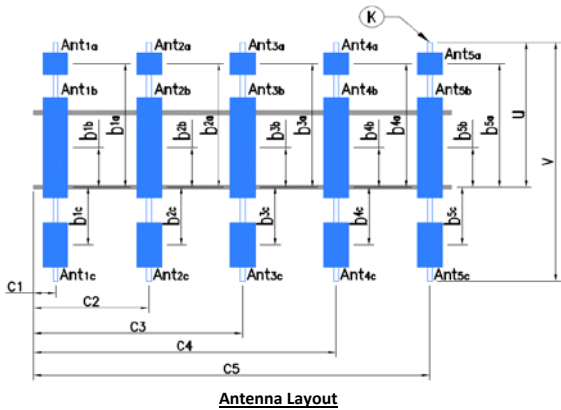
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) 2.5'

Please enter the information below if members can't be found from the drop down lists

Collar All-Thread is 3/4"x18"	
Structure is a MONOPOLE	
Tower Face Width at the mount (ft.):	N/A
Tower Leg Size at the mount (in.):	N/A



Climbing facility is Outside Face C, at 335° Degree Azimuth



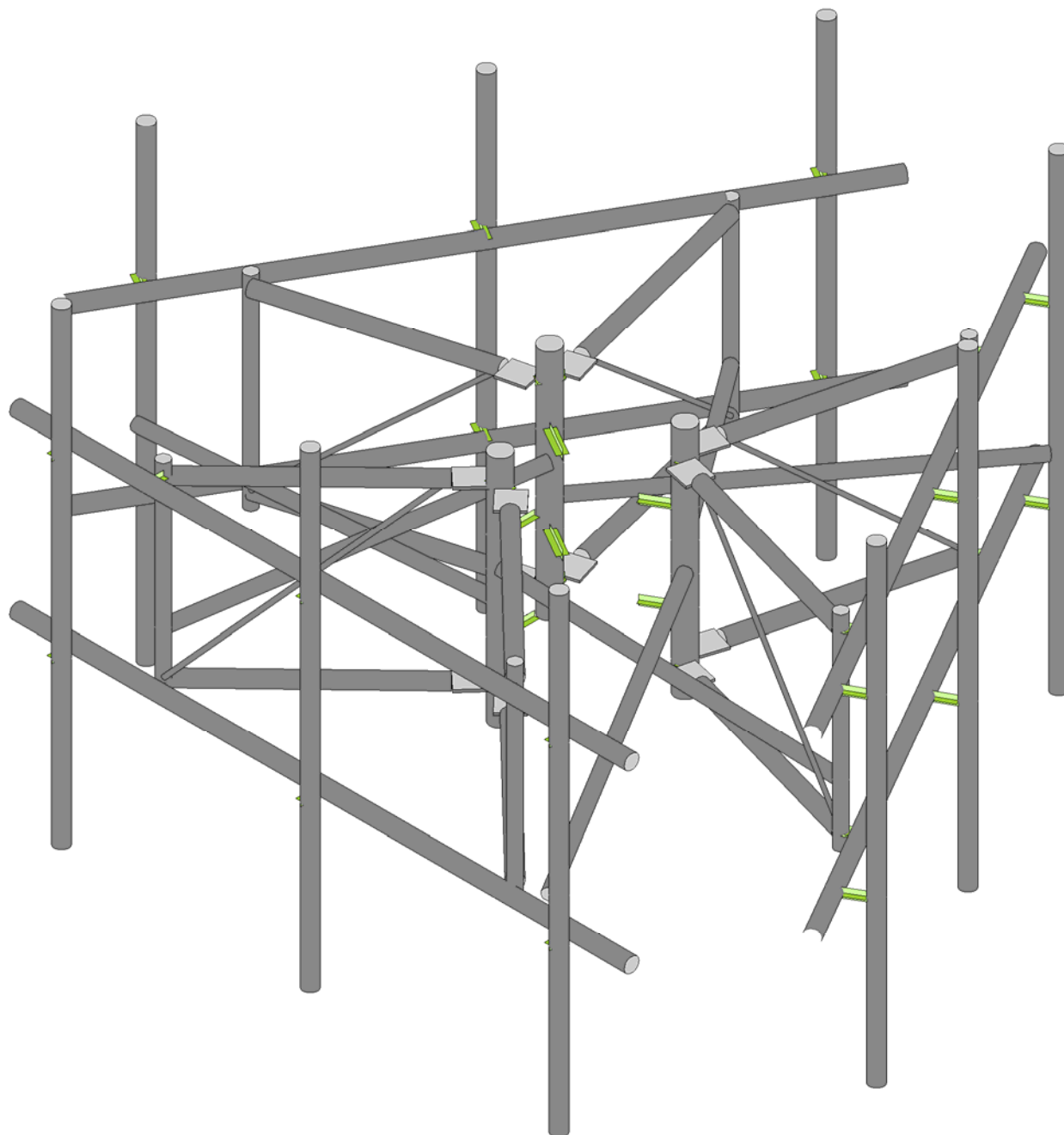
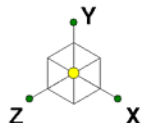
Antenna Layout

Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.						Mounting Locations (Unit: inches)			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Vertical Distances "b _{1a} , b _{2a} , b _{3a} , b _{1b} ..." (In.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C ₁ , C ₂ , C ₃ , C ₄ , C ₅ " (in.)	Photo Numbers
Sector A									
Ant _{1a}								110	
Ant _{1b}	Antenna A	13	9	56	1/2" (2)	+20"	8	12	
Ant _{1c}									
Ant _{2a}								63	
Ant _{2b}	Antenna B	24	9	96	1/2" (2)	+18"	8	63	
Ant _{2c}	RRH A	17	7	20	1/2" (2)	+25"		63	
Ant _{3a}								12	
Ant _{3b}	Antenna C	13	3.5	56	1/2" (2)	+19"	6.5	116	
Ant _{3c}	RRH A	17	7	20	1/2" (2)	+24"		116	
Ant _{4a}									
Ant _{4b}									
Ant _{4c}									
Ant _{5a}									
Ant _{5b}									
Ant _{5c}									

Are Ant same as sector A? Yes **Antennas on Sector B are the same as Sector A**

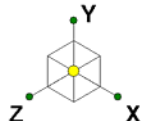
Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	350°	↻	Deg	
Sector B:	90°		Deg	
Sector C:	225°		Deg	
Climbing	335°		Deg	Outside Face C
Climbing Facility	Corrosion Type:	No corrosion observed		
	Access:	Climbing path was unobstructed.		
	Condition:	N/A		

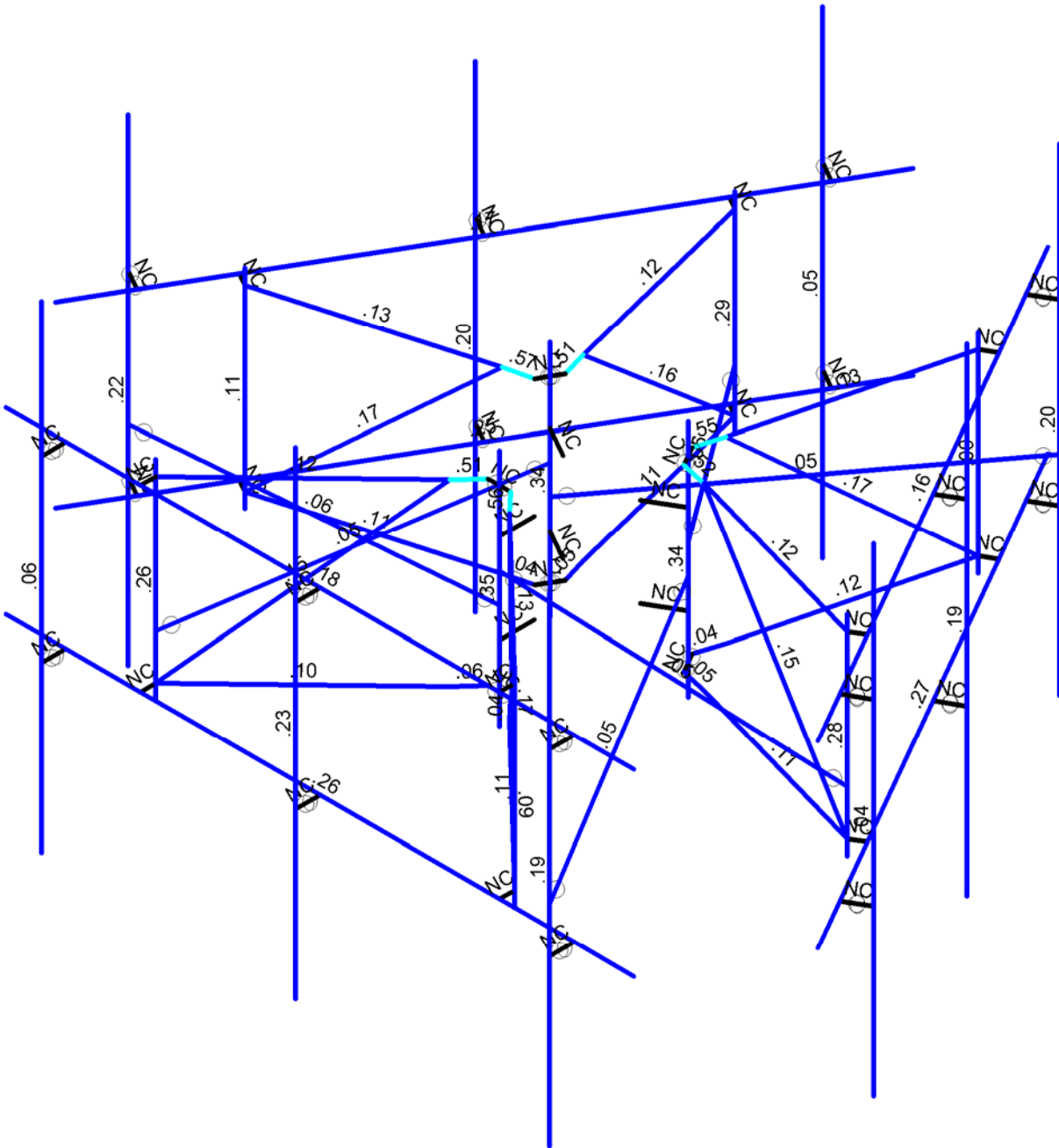


Loads: BLC 24,

Tower Engineering Solutio...	CT16504-A-SBA_MT_LO_Loads Only_H	SK - 1
TES Project No. 94590		June 19, 2020 at 3:42 PM
		CT16504-A-SBA_94590_H_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 24,
 Results for LC 1, 1.2D+1.0W (Front)

Tower Engineering Solutio...

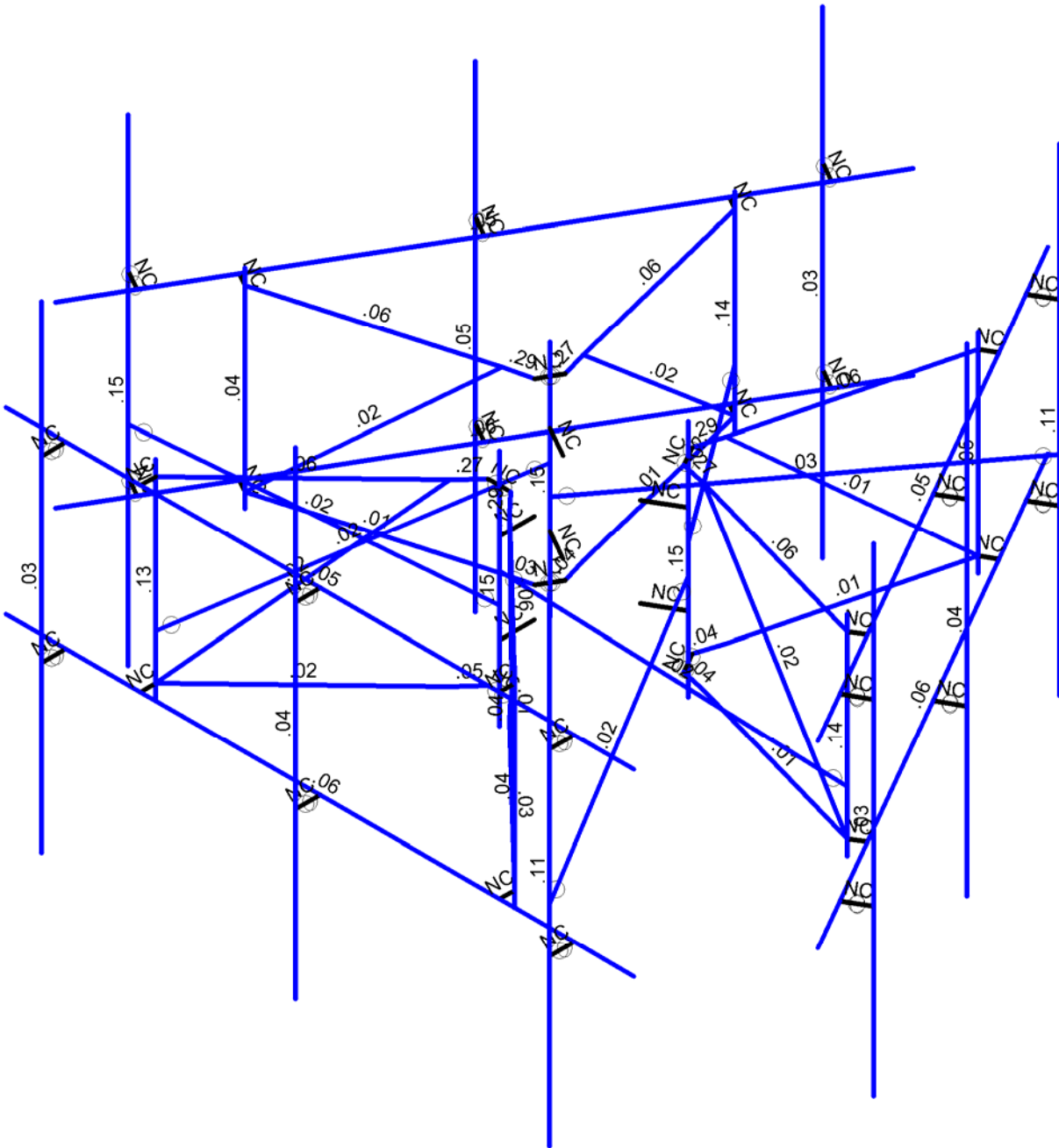
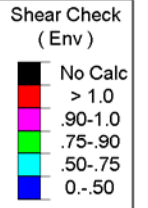
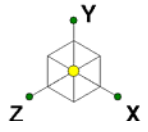
CT16504-A-SBA_MT_LO_Loads Only_H

SK - 2

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TES Project No. 94590

CT16504-A-SBA_94590_H_RISA_L...



Member Shear Checks Displayed (Enveloped)
 Loads: BLC 24,
 Results for LC 1, 1.2D+1.0W (Front)

Tower Engineering Solutio...

CT16504-A-SBA_MT_LO_Loads Only_H

SK - 3

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TES Project No. 94590

CT16504-A-SBA_94590_H_RISA_L...



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 94590
 Model Name : CT16504-A-SBA_MT_LO_Loads Only_H

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Basic Load Cases

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Member)	Surface(...)
1	Antenna D	None				30			
2	Antenna Di	None				30			
3	Antenna W Front	None				30			
4	Antenna Wi Front	None				30			
5	Antenna W Side	None				30			
6	Antenna Wi Side	None				30			
7	Service Lm1	None				1			
8	Service Lm2	None				1			
9	Structure D	None		-1					
10	Structure Di	None					60		
11	Structure W Front	None					60		
12	Structure Wi Front	None					60		
13	Structure W Side	None					60		
14	Structure Wi Side	None					60		
15	Antenna Wm Front	None				30			
16	Antenna Wm Side	None				30			
17	Structure Wm Front	None					60		
18	Structure Wm Side	None					60		
19	Service Lv1	None				1			
20	Service Lv2	None				1			

Load Combinations

Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D+1.0W (Front)	Yes	Y	1	1.2	9	1.2	3	1	11	1								
2	1.2D+1.0W (Back)	Yes	Y	1	1.2	9	1.2	3	-1	11	-1								
3	1.2D+1.0W (Left)	Yes	Y	1	1.2	9	1.2	5	1	13	1								
4	1.2D+1.0W (Right)	Yes	Y	1	1.2	9	1.2	5	-1	13	-1								
5	1.2D+1.0Di+1.0Wi (Fro...	Yes	Y	1	1.2	9	1.2	2	1	10	1	4	1	12	1				
6	1.2D+1.0Di+1.0Wi (Ba...	Yes	Y	1	1.2	9	1.2	2	1	10	1	4	-1	12	-1				
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y	1	1.2	9	1.2	2	1	10	1	6	1	14	1				
8	1.2D+1.0Di+1.0Wi (Rig...	Yes	Y	1	1.2	9	1.2	2	1	10	1	6	-1	14	-1				
9	1.2D+1.5Lm1+1.0Wm ...	Yes	Y	1	1.2	9	1.2	7	1.5	15	1	17	1						
10	1.2D+1.5LmL2+1.0Wm...	Yes	Y	1	1.2	9	1.2	8	1.5	15	1	17	1						
11	1.2D+1.5Lv1 (Mainten...	Yes	Y	1	1.2	9	1.2	19	1.5										
12	1.2D+1.5Lv2 (Mainten...	Yes	Y	1	1.2	9	1.2	20	1.5										
13	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	3	1.333333	0
2	N2	0	0	1.333333	0
3	N3	-5.25	3	4.333331	0
4	N4	-5.25	0	4.333331	0
5	N5	5.25	3	4.333331	0
6	N6	5.25	0	4.333331	0
7	N7	-0.186384	3	1.333333	0
8	N8	-0.186384	0	1.333333	0
9	N9	0.186384	3	1.333333	0
10	N10	0.186384	0	1.333333	0
11	N11	-4.25	5.25	4.744831	0



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 94590
 Model Name : CT16504-A-SBA_MT_LO_Loads Only_H

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Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
12	N12	-4.25	-2.75	4.744831	0	
13	N13	0	5.25	4.744831	0	
14	N14	0	-2.75	4.744831	0	
15	N15	4.25	5.25	4.744831	0	
16	N16	4.25	-2.75	4.744831	0	
17	N17	-4.25	3	4.333331	0	
18	N18	0	3	4.333331	0	
19	N19	4.25	3	4.333331	0	
20	N20	-4.25	0	4.333331	0	
21	N21	0	0	4.333331	0	
22	N22	4.25	0	4.333331	0	
23	N23	0	3.5	1.333333	0	
24	N24	0	-.5	1.333333	0	
25	N25	0	2.25	.75	0	
26	N26	0	2.25	1.333333	0	
27	N27	0	.75	.75	0	
28	N28	0	.75	1.333333	0	
29	N29	3	3	4.333331	0	
30	N30	-3	3	4.333331	0	
31	N31	3	0	4.333331	0	
32	N32	-3	0	4.333331	0	
33	N33	3	3	4.083331	0	
34	N34	-3	3	4.083331	0	
35	N35	3	0	4.083331	0	
36	N36	-3	0	4.083331	0	
37	N37	-3	3.25	4.083331	0	
38	N38	-3	-.25	4.083331	0	
39	N39	-0.494223	3	1.661564	0	
40	N40	-0.494223	0	1.661564	0	
41	N41	3	3.25	4.083331	0	
42	N42	3	-.25	4.083331	0	
43	N43	0.494223	3	1.661564	0	
44	N44	0.494223	0	1.661564	0	
45	N45	4.25	.75	4.744831	0	
46	N46	-3	.75	4.083331	0	
47	N47	1.154701	3	-0.666667	0	
48	N48	1.154701	0	-0.666667	0	
49	N49	6.377774	3	2.379968	0	
50	N50	6.377774	0	2.379968	0	
51	N51	1.127774	3	-6.713299	0	
52	N52	1.127774	0	-6.713299	0	
53	N53	1.247893	3	-0.505253	0	
54	N54	1.247893	0	-0.505253	0	
55	N55	1.061509	3	-0.82808	0	
56	N56	1.061509	0	-0.82808	0	
57	N57	6.234144	5.25	1.308192	0	
58	N58	6.234144	-2.75	1.308193	0	
59	N59	4.109144	5.25	-2.372415	0	
60	N60	4.109144	-2.75	-2.372415	0	
61	N61	1.984144	5.25	-6.053023	0	
62	N62	1.984144	-2.75	-6.053023	0	
63	N63	5.877774	3	1.513943	0	
64	N64	3.752774	3	-2.166665	0	
65	N65	1.627774	3	-5.847273	0	
66	N66	5.877774	0	1.513943	0	
67	N67	3.752774	0	-2.166665	0	
68	N68	1.627774	0	-5.847273	0	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 94590
 Model Name : CT16504-A-SBA_MT_LO_Loads Only_H

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Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
69	N69	1.154701	3.5	-0.666667	0	
70	N70	1.154701	-.5	-0.666667	0	
71	N71	0.649519	2.25	-.375	0	
72	N72	1.154701	2.25	-0.666667	0	
73	N73	0.649519	.75	-.375	0	
74	N74	1.154701	.75	-0.666667	0	
75	N75	2.252774	3	-4.764742	0	
76	N76	5.252774	3	0.431411	0	
77	N77	2.252774	0	-4.764742	0	
78	N78	5.252774	0	0.431411	0	
79	N79	2.036268	3	-4.639742	0	
80	N80	5.036268	3	0.556411	0	
81	N81	2.036268	0	-4.639742	0	
82	N82	5.036268	0	0.556411	0	
83	N83	5.036268	3.25	0.556411	0	
84	N84	5.036268	-.25	0.556411	0	
85	N85	1.686068	3	-0.402773	0	
86	N86	1.686068	0	-0.402773	0	
87	N87	2.036268	3.25	-4.639742	0	
88	N88	2.036268	-.25	-4.639742	0	
89	N89	1.191845	3	-1.258792	0	
90	N90	1.191845	0	-1.258792	0	
91	N91	1.984144	.75	-6.053023	0	
92	N92	5.036268	.75	0.556411	0	
93	N93	-1.154701	3	-0.666667	0	
94	N94	-1.154701	0	-0.666667	0	
95	N95	-1.127774	3	-6.713299	0	
96	N96	-1.127774	0	-6.713299	0	
97	N97	-6.377774	3	2.379968	0	
98	N98	-6.377774	0	2.379968	0	
99	N99	-1.061509	3	-0.82808	0	
100	N100	-1.061509	0	-0.82808	0	
101	N101	-1.247893	3	-0.505253	0	
102	N102	-1.247893	0	-0.505253	0	
103	N103	-1.983711	5.25	-6.052773	0	
104	N104	-1.983711	-2.75	-6.052773	0	
105	N105	-4.108711	5.25	-2.372165	0	
106	N106	-4.108711	-2.75	-2.372165	0	
107	N107	-6.233711	5.25	1.308443	0	
108	N108	-6.233711	-2.75	1.308443	0	
109	N109	-1.627774	3	-5.847273	0	
110	N110	-3.752774	3	-2.166665	0	
111	N111	-5.877774	3	1.513943	0	
112	N112	-1.627774	0	-5.847273	0	
113	N113	-3.752774	0	-2.166665	0	
114	N114	-5.877774	0	1.513943	0	
115	N115	-1.154701	3.5	-0.666667	0	
116	N116	-1.154701	-.5	-0.666667	0	
117	N117	-0.649519	2.25	-.375	0	
118	N118	-1.154701	2.25	-0.666667	0	
119	N119	-0.649519	.75	-.375	0	
120	N120	-1.154701	.75	-0.666667	0	
121	N121	-5.252774	3	0.431411	0	
122	N122	-2.252774	3	-4.764742	0	
123	N123	-5.252774	0	0.431411	0	
124	N124	-2.252774	0	-4.764742	0	
125	N125	-5.036268	3	0.556411	0	



Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
126	N126	-2.036268	3	-4.639742	0	
127	N127	-5.036268	0	0.556411	0	
128	N128	-2.036268	0	-4.639742	0	
129	N129	-2.036268	3.25	-4.639742	0	
130	N130	-2.036268	-.25	-4.639742	0	
131	N131	-1.191845	3	-1.258792	0	
132	N132	-1.191845	0	-1.258792	0	
133	N133	-5.036268	3.25	0.556411	0	
134	N134	-5.036268	-.25	0.556411	0	
135	N135	-1.686068	3	-0.402773	0	
136	N136	-1.686068	0	-0.402773	0	
137	N137	-6.233711	.75	1.308443	0	
138	N138	-2.036268	.75	-4.639742	0	
139	N139	0	1.25	1.333333	0	
140	N140	0	1.75	1.333333	0	
141	N141	1.154701	1.25	-0.666667	0	
142	N142	1.154701	1.75	-0.666667	0	
143	N143	-1.154701	1.25	-0.666667	0	
144	N144	-1.154701	1.75	-0.666667	0	
145	N145	-4.25	3	4.744831	0	
146	N146	0	3	4.744831	0	
147	N147	4.25	3	4.744831	0	
148	N148	-4.25	0	4.744831	0	
149	N149	0	0	4.744831	0	
150	N150	4.25	0	4.744831	0	
151	N151	6.234144	3	1.308192	0	
152	N152	4.109144	3	-2.372415	0	
153	N153	1.984144	3	-6.053023	0	
154	N154	6.234144	0	1.308192	0	
155	N155	4.109144	0	-2.372415	0	
156	N156	1.984144	0	-6.053023	0	
157	N157	-1.983711	3	-6.052773	0	
158	N158	-4.108711	3	-2.372165	0	
159	N159	-6.233711	3	1.308443	0	
160	N160	-1.983711	0	-6.052773	0	
161	N161	-4.108711	0	-2.372165	0	
162	N162	-6.233711	0	1.308443	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	xxxxx	HSS16x0.438	Beam	None	A572 Gr.50	Typical	19.9	606	606	1210

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
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 [in2]	Iyy [in4]	Izz [in4]	J [in4]
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	N3	N5			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
2	M2	N4	N6			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
3	M3	N7	N39		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
4	M4	N8	N40		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
5	M5	N39	N36			SR 0.75	Beam	BAR	A36 Gr.36	DR1
6	MP3A	N11	N12			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
7	MP2A	N13	N14			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
8	MP1A	N15	N16			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
9	M9	N23	N24			PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical
10	M10	N25	N26			RIGID	Beam	None	RIGID	DR1
11	M11	N27	N28			RIGID	Beam	None	RIGID	DR1
12	M12	N9	N7			RIGID	Beam	None	RIGID	DR1
13	M13	N10	N8			RIGID	Beam	None	RIGID	DR1
14	M14	N34	N30			RIGID	Beam	None	RIGID	DR1
15	M15	N36	N32			RIGID	Beam	None	RIGID	DR1
16	M16	N33	N29			RIGID	Beam	None	RIGID	DR1
17	M17	N35	N31			RIGID	Beam	None	RIGID	DR1
18	M18	N37	N38			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
19	M19	N40	N36			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
20	M20	N39	N34			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
21	M21	N43	N35			SR 0.75	Beam	BAR	A36 Gr.36	DR1
22	M22	N41	N42			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
23	M23	N44	N35			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
24	M24	N43	N33			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
25	M25	N9	N43		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
26	M26	N10	N44		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
27	M27	N49	N51			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 94590
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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotat...	Section/Shape	Type	Design List	Material	Design ...
28	M28	N50	N52			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
29	M29	N53	N85		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
30	M30	N54	N86		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
31	M31	N85	N82			SR 0.75	Beam	BAR	A36 Gr.36	DR1
32	MP3C	N57	N58			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
33	MP2C	N59	N60			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
34	MP1C	N61	N62			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
35	M35	N69	N70			PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical
36	M36	N71	N72			RIGID	Beam	None	RIGID	DR1
37	M37	N73	N74			RIGID	Beam	None	RIGID	DR1
38	M38	N55	N53			RIGID	Beam	None	RIGID	DR1
39	M39	N56	N54			RIGID	Beam	None	RIGID	DR1
40	M40	N80	N76			RIGID	Beam	None	RIGID	DR1
41	M41	N82	N78			RIGID	Beam	None	RIGID	DR1
42	M42	N79	N75			RIGID	Beam	None	RIGID	DR1
43	M43	N81	N77			RIGID	Beam	None	RIGID	DR1
44	M44	N83	N84			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
45	M45	N86	N82			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
46	M46	N85	N80			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
47	M47	N89	N81			SR 0.75	Beam	BAR	A36 Gr.36	DR1
48	M48	N87	N88			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
49	M49	N90	N81			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
50	M50	N89	N79			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
51	M51	N55	N89		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
52	M52	N56	N90		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
53	M53	N95	N97			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
54	M54	N96	N98			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
55	M55	N99	N131		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
56	M56	N100	N132		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
57	M57	N131	N128			SR 0.75	Beam	BAR	A36 Gr.36	DR1
58	MP3B	N103	N104			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
59	MP2B	N105	N106			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
60	MP1B	N107	N108			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
61	M61	N115	N116			PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical
62	M62	N117	N118			RIGID	Beam	None	RIGID	DR1
63	M63	N119	N120			RIGID	Beam	None	RIGID	DR1
64	M64	N101	N99			RIGID	Beam	None	RIGID	DR1
65	M65	N102	N100			RIGID	Beam	None	RIGID	DR1
66	M66	N126	N122			RIGID	Beam	None	RIGID	DR1
67	M67	N128	N124			RIGID	Beam	None	RIGID	DR1
68	M68	N125	N121			RIGID	Beam	None	RIGID	DR1
69	M69	N127	N123			RIGID	Beam	None	RIGID	DR1
70	M70	N129	N130			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
71	M71	N132	N128			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
72	M72	N131	N126			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
73	M73	N135	N127			SR 0.75	Beam	BAR	A36 Gr.36	DR1
74	M74	N133	N134			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
75	M75	N136	N127			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
76	M76	N135	N125			PIPE 2.5	Beam	Pipe	A53 Gr.B	DR1
77	M77	N101	N135		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
78	M78	N102	N136		90	PL1/2x5	Beam	RECT	A36 Gr.36	Typical
79	M79	N46	N144			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
80	M80	N45	N141			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
81	M81	N92	N140			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
82	M82	N91	N143			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
83	M83	N138	N142			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
84	M84	N137	N139			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotat...	Section/Shape	Type	Design List	Material	Design ...
85	M85	N22	N150			RIGID	Beam	None	RIGID	DR1
86	M86	N19	N147			RIGID	Beam	None	RIGID	DR1
87	M87	N21	N149			RIGID	Beam	None	RIGID	DR1
88	M88	N18	N146			RIGID	Beam	None	RIGID	DR1
89	M89	N20	N148			RIGID	Beam	None	RIGID	DR1
90	M90	N17	N145			RIGID	Beam	None	RIGID	DR1
91	M91	N68	N156			RIGID	Beam	None	RIGID	DR1
92	M92	N65	N153			RIGID	Beam	None	RIGID	DR1
93	M93	N67	N155			RIGID	Beam	None	RIGID	DR1
94	M94	N64	N152			RIGID	Beam	None	RIGID	DR1
95	M95	N66	N154			RIGID	Beam	None	RIGID	DR1
96	M96	N63	N151			RIGID	Beam	None	RIGID	DR1
97	M97	N114	N162			RIGID	Beam	None	RIGID	DR1
98	M98	N111	N159			RIGID	Beam	None	RIGID	DR1
99	M99	N113	N161			RIGID	Beam	None	RIGID	DR1
100	M100	N110	N158			RIGID	Beam	None	RIGID	DR1
101	M101	N112	N160			RIGID	Beam	None	RIGID	DR1
102	M102	N109	N157			RIGID	Beam	None	RIGID	DR1

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	MP3A						Yes		-z		None
7	MP2A						Yes		-z		None
8	MP1A						Yes		-z		None
9	M9						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12	BenPIN	BenPIN				Yes				None
13	M13	BenPIN	BenPIN				Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25						Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes				None
29	M29						Yes				None
30	M30						Yes				None
31	M31						Yes				None
32	MP3C						Yes		-z		None
33	MP2C						Yes		-z		None
34	MP1C						Yes		-z		None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
35	M35						Yes				None
36	M36						Yes				None
37	M37						Yes				None
38	M38	BenPIN	BenPIN				Yes				None
39	M39	BenPIN	BenPIN				Yes				None
40	M40						Yes				None
41	M41						Yes				None
42	M42						Yes				None
43	M43						Yes				None
44	M44						Yes				None
45	M45						Yes				None
46	M46						Yes				None
47	M47						Yes				None
48	M48						Yes				None
49	M49						Yes				None
50	M50						Yes				None
51	M51						Yes				None
52	M52						Yes				None
53	M53						Yes				None
54	M54						Yes				None
55	M55						Yes				None
56	M56						Yes				None
57	M57						Yes				None
58	MP3B						Yes		-z		None
59	MP2B						Yes		-z		None
60	MP1B						Yes		-z		None
61	M61						Yes				None
62	M62						Yes				None
63	M63						Yes				None
64	M64	BenPIN	BenPIN				Yes				None
65	M65	BenPIN	BenPIN				Yes				None
66	M66						Yes				None
67	M67						Yes				None
68	M68						Yes				None
69	M69						Yes				None
70	M70						Yes				None
71	M71						Yes				None
72	M72						Yes				None
73	M73						Yes				None
74	M74						Yes				None
75	M75						Yes				None
76	M76						Yes				None
77	M77						Yes				None
78	M78						Yes				None
79	M79	BenPIN	BenPIN				Yes				None
80	M80	BenPIN	BenPIN				Yes				None
81	M81	BenPIN	BenPIN				Yes				None
82	M82	BenPIN	BenPIN				Yes				None
83	M83	BenPIN	BenPIN				Yes				None
84	M84	BenPIN	BenPIN				Yes				None
85	M85	OOOOOX	OOOXOX				Yes				None
86	M86	OOOOOX	OOOXOX				Yes				None
87	M87	OOOOOX	OOOXOX				Yes				None
88	M88	OOOOOX	OOOXOX				Yes				None
89	M89	OOOOOX	OOOXOX				Yes				None
90	M90	OOOOOX	OOOXOX				Yes				None
91	M91	OOOOOX	OOOXOX				Yes				None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
92	M92	OOOOOX	OOOXOX				Yes				None
93	M93	OOOOOX	OOOXOX				Yes				None
94	M94	OOOOOX	OOOXOX				Yes				None
95	M95	OOOOOX	OOOXOX				Yes				None
96	M96	OOOOOX	OOOXOX				Yes				None
97	M97	OOOOOX	OOOXOX				Yes				None
98	M98	OOOOOX	OOOXOX				Yes				None
99	M99	OOOOOX	OOOXOX				Yes				None
100	M100	OOOOOX	OOOXOX				Yes				None
101	M101	OOOOOX	OOOXOX				Yes				None
102	M102	OOOOOX	OOOXOX				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	PIPE 2.5	10.5			Lbyy			2.1	2.1		Lateral
2	M2	PIPE 2.5	10.5			Lbyy			2.1	2.1		Lateral
3	M3	PL1/2x5	.45			Lbyy			.8	.8		Lateral
4	M4	PL1/2x5	.45			Lbyy			.8	.8		Lateral
5	M5	SR 0.75	4.598			Lbyy			.65	.65		Lateral
6	MP3A	PIPE 2.5	8			Lbyy			2.1	2.1		Lateral
7	MP2A	PIPE 2.5	8			Lbyy			2.1	2.1		Lateral
8	MP1A	PIPE 2.5	8			Lbyy			2.1	2.1		Lateral
9	M9	PIPE 3.5	4			Lbyy			2.1	2.1		Lateral
10	M18	PIPE 2.0	3.5			Lbyy						Lateral
11	M19	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
12	M20	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
13	M21	SR 0.75	4.598			Lbyy			.65	.65		Lateral
14	M22	PIPE 2.0	3.5			Lbyy						Lateral
15	M23	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
16	M24	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
17	M25	PL1/2x5	.45			Lbyy			.8	.8		Lateral
18	M26	PL1/2x5	.45			Lbyy			.8	.8		Lateral
19	M27	PIPE 2.5	10.5			Lbyy			2.1	2.1		Lateral
20	M28	PIPE 2.5	10.5			Lbyy			2.1	2.1		Lateral
21	M29	PL1/2x5	.45			Lbyy			.8	.8		Lateral
22	M30	PL1/2x5	.45			Lbyy			.8	.8		Lateral
23	M31	SR 0.75	4.598			Lbyy			.65	.65		Lateral
24	MP3C	PIPE 2.5	8			Lbyy			2.1	2.1		Lateral
25	MP2C	PIPE 2.5	8			Lbyy			2.1	2.1		Lateral
26	MP1C	PIPE 2.5	8			Lbyy			2.1	2.1		Lateral
27	M35	PIPE 3.5	4			Lbyy			2.1	2.1		Lateral
28	M44	PIPE 2.0	3.5			Lbyy						Lateral
29	M45	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
30	M46	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
31	M47	SR 0.75	4.598			Lbyy			.65	.65		Lateral
32	M48	PIPE 2.0	3.5			Lbyy						Lateral
33	M49	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
34	M50	PIPE 2.5	3.485			Lbyy			.8	.8		Lateral
35	M51	PL1/2x5	.45			Lbyy			.8	.8		Lateral
36	M52	PL1/2x5	.45			Lbyy			.8	.8		Lateral
37	M53	PIPE 2.5	10.5			Lbyy			2.1	2.1		Lateral
38	M54	PIPE 2.5	10.5			Lbyy			2.1	2.1		Lateral
39	M55	PL1/2x5	.45			Lbyy			.8	.8		Lateral
40	M56	PL1/2x5	.45			Lbyy			.8	.8		Lateral
41	M57	SR 0.75	4.598			Lbyy			.65	.65		Lateral



Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Funci...
42	MP3B	PIPE 2.5	8				Lbyy	2.1	2.1		Lateral
43	MP2B	PIPE 2.5	8				Lbyy	2.1	2.1		Lateral
44	MP1B	PIPE 2.5	8				Lbyy	2.1	2.1		Lateral
45	M61	PIPE 3.5	4				Lbyy	2.1	2.1		Lateral
46	M70	PIPE 2.0	3.5				Lbyy				Lateral
47	M71	PIPE 2.5	3.485				Lbyy	.8	.8		Lateral
48	M72	PIPE 2.5	3.485				Lbyy	.8	.8		Lateral
49	M73	SR 0.75	4.598				Lbyy	.65	.65		Lateral
50	M74	PIPE 2.0	3.5				Lbyy				Lateral
51	M75	PIPE 2.5	3.485				Lbyy	.8	.8		Lateral
52	M76	PIPE 2.5	3.485				Lbyy	.8	.8		Lateral
53	M77	PL1/2x5	.45				Lbyy	.8	.8		Lateral
54	M78	PL1/2x5	.45				Lbyy	.8	.8		Lateral
55	M79	PIPE 2.0	5.193				Lbyy				Lateral
56	M80	PIPE 2.0	6.254				Lbyy				Lateral
57	M81	PIPE 2.0	5.193				Lbyy				Lateral
58	M82	PIPE 2.0	6.254				Lbyy				Lateral
59	M83	PIPE 2.0	5.193				Lbyy				Lateral
60	M84	PIPE 2.0	6.254				Lbyy				Lateral

Cold Formed Steel Design Parameters

Label	Shape	Leng...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torqu...	Kyy	Kzz	Cb	R	a[ft]	Fun...
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 Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Joint Boundary Conditions

Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N25	Reaction	Reaction	Reaction	Reaction	Reaction
2	N27	Reaction	Reaction	Reaction	Reaction	Reaction
3	N71	Reaction	Reaction	Reaction	Reaction	Reaction
4	N73	Reaction	Reaction	Reaction	Reaction	Reaction
5	N117	Reaction	Reaction	Reaction	Reaction	Reaction
6	N119	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	N25	max	785.778	9	2892.174	8	222.373	1	-1.118	1	.307	2	1.344	3
2		min	-774.308	1	762.113	3	-2904.237	6	-4.211	6	-.44	1	-1.239	4
3	N27	max	655.574	1	272.664	5	3508.628	5	-.23	2	.374	1	1.182	4
4		min	-780.109	9	-65.361	2	202.643	2	-2.791	5	-.294	9	-1.079	3
5	N71	max	1010.011	4	2915.975	6	1644.342	8	2.356	5	.675	3	3.674	7
6		min	-2564.464	3	660.815	1	-169.132	3	-.197	2	-.78	4	.387	4
7	N73	max	2807.902	8	283.793	8	288.725	1	1.59	6	.416	2	2.406	8
8		min	4.082	3	-102.395	3	-2079.561	6	-.44	1	-.303	1	-.179	3
9	N117	max	2567.952	8	2915.425	7	1622.663	1	2.216	5	.37	1	-.806	3
10		min	-36.449	3	680.636	4	-939.647	2	-5.59	2	-.522	2	-3.719	8
11	N119	max	187.204	4	270.433	6	267.577	3	1.582	2	.688	3	-.126	4
12		min	-3221.862	7	-56.509	1	-1387.444	8	-.724	1	-.538	4	-2.442	7
13	Totals:	max	5783.293	4	9057.01	5	5713.456	1						
14		min	-5783.289	3	3569.741	2	-5713.455	2						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn y-y [...]	phi*Mn z-z...	Cb	Eqn	
1	M77	PL1/2x5	.566	.45	6	.292	0	y	6	77268.8...	81000	.844	8.438	1.663	H1-1b
2	M25	PL1/2x5	.558	.45	7	.290	0	y	5	77268.8...	81000	.844	8.438	1.664	H1-1b
3	M51	PL1/2x5	.550	.45	5	.292	0	y	8	77268.8...	81000	.844	8.438	1.666	H1-1b
4	M29	PL1/2x5	.519	.45	6	.271	0	y	6	77268.8...	81000	.844	8.438	1.662	H1-1b
5	M3	PL1/2x5	.511	.45	8	.267	0	y	8	77268.8...	81000	.844	8.438	1.664	H1-1b
6	M55	PL1/2x5	.505	.45	5	.269	0	y	7	77268.8...	81000	.844	8.438	1.666	H1-1b
7	M9	PIPE_3.5	.354	1.25	6	.151	2.75		5	59065.3...	78750	7.954	7.954	1.866	H1-1b
8	M35	PIPE_3.5	.344	1.25	7	.146	2.75		6	59065.3...	78750	7.954	7.954	1.999	H1-1b
9	M61	PIPE_3.5	.339	1.25	8	.151	2.75		7	59065.3...	78750	7.954	7.954	1.976	H1-1b
10	M70	PIPE_2.0	.287	2.479	2	.139	3.245		2	27741.09	32130	1.872	1.872	1.759	H1-1b
11	M44	PIPE_2.0	.275	2.479	1	.141	2.516		1	27741.09	32130	1.872	1.872	1.817	H1-1b
12	M28	PIPE_2.5	.267	8.312	2	.060	8.312		2	4678.732	50715	3.596	3.596	2.122	H1-1b
13	M18	PIPE_2.0	.262	2.479	3	.130	3.245		3	27741.09	32130	1.872	1.872	3.796	H1-1b
14	M2	PIPE_2.5	.258	8.313	4	.059	8.313		4	4678.732	50715	3.596	3.596	2.062	H1-1b
15	M54	PIPE_2.5	.249	8.312	1	.055	9.406		1	4678.732	50715	3.596	3.596	2.002	H1-1b
16	MP2A	PIPE_2.5	.231	5.25	2	.036	2.25		2	8059.847	50715	3.596	3.596	1.16	H1-1b
17	MP1B	PIPE_2.5	.219	4.5	1	.147	5.25		1	8059.847	50715	3.596	3.596	2.232	H1-1b
18	MP1C	PIPE_2.5	.199	4.5	3	.108	4.5		2	8059.847	50715	3.596	3.596	2.155	H1-1b
19	MP2B	PIPE_2.5	.198	5.25	4	.053	2.25		4	8059.847	50715	3.596	3.596	1.409	H1-1b
20	MP2C	PIPE_2.5	.193	5.25	3	.043	2.25		2	8059.847	50715	3.596	3.596	1.383	H1-1b
21	MP1A	PIPE_2.5	.187	4.5	4	.111	4.5		4	8059.847	50715	3.596	3.596	2.133	H1-1b
22	M1	PIPE_2.5	.185	5.25	2	.045	8.203		3	4678.732	50715	3.596	3.596	1.671	H1-1b
23	M73	SR_0.75	.169	4.598	7	.016	4.598		6	2809.869	14320.8	.184	.184	2.432	H1-1b
24	M21	SR_0.75	.169	4.598	8	.014	4.598		7	2809.869	14320.8	.184	.184	2.441	H1-1b
25	M47	SR_0.75	.167	4.598	6	.014	4.598		8	2809.869	14320.8	.184	.184	2.449	H1-1b
26	M53	PIPE_2.5	.165	8.203	4	.053	8.203		4	4678.732	50715	3.596	3.596	1.649	H1-1b
27	M27	PIPE_2.5	.163	5.25	3	.049	2.297		2	4678.732	50715	3.596	3.596	2.082	H1-1b
28	M57	SR_0.75	.155	4.598	7	.016	4.598		3	2809.869	14320.8	.184	.184	2.4	H1-1b
29	M31	SR_0.75	.151	4.598	6	.018	4.598		2	2809.869	14320.8	.184	.184	2.344	H1-1b
30	M5	SR_0.75	.150	4.598	5	.016	4.598		4	2809.869	14320.8	.184	.184	2.324	H1-1b
31	M76	PIPE_2.5	.135	0	8	.061	3.485		6	47589.8...	50715	3.596	3.596	1.837	H1-1b
32	M24	PIPE_2.5	.133	0	7	.061	3.485		5	47589.8...	50715	3.596	3.596	1.894	H1-1b
33	M50	PIPE_2.5	.131	0	5	.062	3.485		8	47589.8...	50715	3.596	3.596	1.898	H1-1b
34	M46	PIPE_2.5	.123	0	6	.056	3.485		6	47589.8...	50715	3.596	3.596	1.724	H1-1b
35	M20	PIPE_2.5	.122	0	8	.056	3.485		8	47589.8...	50715	3.596	3.596	1.729	H1-1b
36	M72	PIPE_2.5	.120	0	5	.056	3.485		5	47589.8...	50715	3.596	3.596	1.731	H1-1b
37	M49	PIPE_2.5	.118	3.485	3	.013	0		3	47589.8...	50715	3.596	3.596	1.632	H1-1b



Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[ft]	LC	Shear C...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn y-v	I...phi*Mn z-z...	Cb	Eqn	
38	M45	PIPE_2.5	.114	3.485	4	.011	0	5	47589.8...	50715	3.596	3.596	1.43	H1-1b	
39	M75	PIPE_2.5	.112	3.485	1	.010	0	1	47589.8...	50715	3.596	3.596	1.657	H1-1b	
40	M71	PIPE_2.5	.110	3.485	2	.012	0	8	47589.8...	50715	3.596	3.596	1.476	H1-1b	
41	M22	PIPE_2.0	.107	3.245	10	.040	3.245	4	27741.09	32130	1.872	1.872	2.071	H1-1b	
42	M74	PIPE_2.0	.106	3.245	8	.042	3.245	2	27741.09	32130	1.872	1.872	1.985	H1-1b	
43	M19	PIPE_2.5	.095	1.742	11	.024	3.485	11	47589.8...	50715	3.596	3.596	1.36	H1-1b	
44	M23	PIPE_2.5	.093	3.485	4	.027	3.485	12	47589.8...	50715	3.596	3.596	1.685	H1-1b	
45	M48	PIPE_2.0	.092	3.245	6	.046	3.245	2	27741.09	32130	1.872	1.872	1.289	H1-1b	
46	MP3A	PIPE_2.5	.063	2.25	9	.026	2.25	2	8059.847	50715	3.596	3.596	1.536	H1-1b	
47	M84	PIPE_2.0	.059	0	2	.024	0	2	20103.03	32130	1.872	1.872	1.136	H1-...	
48	M4	PL1/2x5	.058	.45	11	.046	0	y	11	77268.8...	81000	.844	8.438	1.667	H1-1b
49	M83	PIPE_2.0	.054	0	1	.024	5.193	2	23253.44	32130	1.872	1.872	1.136	H1-...	
50	M81	PIPE_2.0	.054	5.193	2	.023	0	1	23253.44	32130	1.872	1.872	1.136	H1-...	
51	M80	PIPE_2.0	.052	0	3	.024	0	4	20101.7...	32130	1.872	1.872	1.136	H1-...	
52	M30	PL1/2x5	.052	.45	4	.036	0	y	7	77268.8...	81000	.844	8.438	1.674	H1-1b
53	M56	PL1/2x5	.050	.45	2	.040	0	y	8	77268.8...	81000	.844	8.438	1.66	H1-1b
54	M79	PIPE_2.0	.050	0	4	.022	5.193	3	23253.44	32130	1.872	1.872	1.136	H1-...	
55	M82	PIPE_2.0	.048	6.254	4	.026	0	2	20101.7...	32130	1.872	1.872	1.136	H1-...	
56	MP3B	PIPE_2.5	.046	4	4	.035	2.25	4	8059.847	50715	3.596	3.596	1.627	H1-1b	
57	MP3C	PIPE_2.5	.044	2.25	7	.026	2.25	1	8059.847	50715	3.596	3.596	3.397	H1-1b	
58	M52	PL1/2x5	.044	0	7	.040	0	y	7	77268.8...	81000	.844	8.438	1.664	H1-1b
59	M26	PL1/2x5	.041	0	8	.037	.45	y	10	77268.8...	81000	.844	8.438	1.665	H1-1b
60	M78	PL1/2x5	.041	.45	1	.035	0	y	5	77268.8...	81000	.844	8.438	1.655	H1-1b

Envelope AISI S100-16: 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...	phi*...phi*...	Cb	Eqn
No Data to Print ...															

Envelope AA ADM1-15: ASD - Building Aluminum Code Checks

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

EXHIBIT 9

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

T-Mobile Existing Facility

Site ID: CTHA039A

60 Adams Street
Manchester, Connecticut 06040

July 7, 2020

EBI Project Number: 6220003006

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	27.70%

July 7, 2020

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

Emissions Analysis for Site: CTHA039A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **60 Adams Street in Manchester, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 60 Adams Street in Manchester, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 8) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 12) The antenna mounting height centerline of the proposed antennas is 135 feet above ground level (AGL).
- 13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 14) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A1 MPE %:	1.72%	Antenna B1 MPE %:	1.72%	Antenna C1 MPE %:	1.72%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 16.35 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,055.53	ERP (W):	11,055.53	ERP (W):	11,055.53
Antenna A2 MPE %:	3.29%	Antenna B2 MPE %:	3.29%	Antenna C2 MPE %:	3.29%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	25,651.93	ERP (W):	25,651.93
Antenna A3 MPE %:	5.06%	Antenna B3 MPE %:	5.06%	Antenna C3 MPE %:	5.06%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	10.07%
AT&T	6.44%
Nextel	0.65%
PageNet	0.4%
Verizon	9.91%
Clearwire	0.16%
Sprint	0.07%
Site Total MPE % :	27.70%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.07%
T-Mobile Sector B Total:	10.07%
T-Mobile Sector C Total:	10.07%
Site Total MPE % :	27.70%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz LTE	2	2056.61	135.0	8.11	1900 MHz LTE	1000	0.81%
T-Mobile 2100 MHz LTE	2	2307.55	135.0	9.10	2100 MHz LTE	1000	0.91%
T-Mobile 600 MHz LTE	2	591.73	135.0	2.33	600 MHz LTE	400	0.58%
T-Mobile 600 MHz NR	1	1577.94	135.0	3.11	600 MHz NR	400	0.78%
T-Mobile 700 MHz LTE	2	648.82	135.0	2.56	700 MHz LTE	467	0.55%
T-Mobile 1900 MHz LTE	2	2203.69	135.0	8.69	1900 MHz LTE	1000	0.87%
T-Mobile 2100 MHz UMTS	2	1294.56	135.0	5.11	2100 MHz UMTS	1000	0.51%
T-Mobile 2500 MHz LTE	2	6412.98	135.0	25.30	2500 MHz LTE	1000	2.53%
T-Mobile 2500 MHz NR	2	6412.98	135.0	25.30	2500 MHz NR	1000	2.53%
						Total:	10.07%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	10.07%
Sector B:	10.07%
Sector C:	10.07%
T-Mobile Maximum MPE % (Sector A):	10.07%
Site Total:	27.70%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **27.70%** 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.