



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

January 26, 2022

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

Notice of Exempt Modification
60 Commerce St.
East Haven, CT 06512
Sprint, now a part of T-Mobile USA #: CTNH723A_Sprint Keep
Latitude: 41.251233
Longitude: -72.882094

Dear Ms. Bachman:

Sprint, now a part of T-Mobile USA, hereinafter referred to as "Sprint/T-Mobile" currently maintains none (9) antennas at the 67-foot level of the existing 70-foot Monopole Tower at 60 Commerce Street., East Haven, CT. The tower is owned by SBA 2012 TC Assets, LLC. The property is owned by the Perrelli Associates, LLC. T-Mobile/T-Mobile now intends to remove six (6) RRUs and replace with six (6) new RRUs. There is no change to the antennas.

The new equipment support 5G services and would be installed at the 67-foot level of the tower.

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) Ericsson 4449 B71+B85 RRUs (remove) – (3) Ericsson 4480 B71+B85 RRUs (replace)
- (3) Ericsson 4415 B66A RRUs (remove) – (3) Ericsson 4460 B25+B66 RRUs (replace)

Install New:

- N/A



Existing Equipment to Remain:

- (3) RFS APX16DWV-16DWVS-E-A20 antennas
- (3) RFS APXVAALL24_43-U-NA20 antennas
- (3) Ericsson AIR6449 B41 antennas
- (1) Low Profile Platform w/Handrail SitePro1 RMQP-4096-HK
- (3) 1.99" Hybrid – 6 x 24

Entitlements Only:

- (4) RFS ACU-A20-N RETS
- (3) ALU 800 MHz Filter
- (3) 1-5/8" coax
- (1) 1-1/4" Fiber

GROUND

Install New:

- (2) T-Mobile B160 Battery Cabinet
- (1) AAV cabinet
- (2) 2" conduits

Remain:

- (1) 20' x 8' 6" Shelter
- Generator Pad
- Empty cable port
- Telco board
- Cable tray
- Unused Ice Bridge
- 200A Transfer switch
- 200A PPC
- (2) Existing cabinets
- Natural gas meter
- Galaxy power meter
- GPS antenna

Remove:

- T-Mobile FMB

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 East Haven's Mayor, Joseph A. Carfora, Zoning Enforcement Officer, Joseph Budrow, and to the property owner, Perrelli Associates, LLC. (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
Property Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbsite.com

Attachments

cc: Joseph A. Carfora, Mayor / with attachments
Town of East Haven, 250 Main St., East Haven, CT 06512
Joseph Budrow, Zoning Enforcement Officer / with attachments
Town of East Haven, 250 Main St., East Haven, CT 06512
Perrelli Associates, LLC / with attachments
Attention: George Perrelli, 60 Commerce St., East Haven, CT 06512



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 East Haven Permit#60320 (2/16/10)
Exhibit 6	Construction Drawings	Centerline 12/8/21
Exhibit 7	Structural Analysis	TES dated 12/20/21
Exhibit 8	Mount Analysis	TES dated 12/10/21
Exhibit 9	EME Report	Centerline 1/25/22

EXHIBIT 1

Copy of check

EXHIBIT 2

FedEx Labels

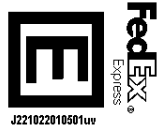
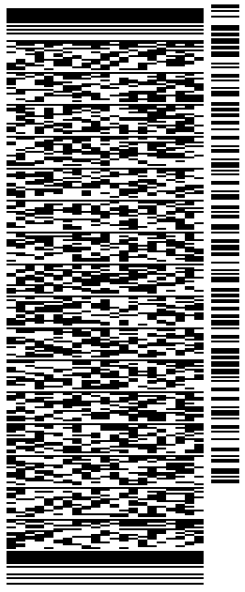
ORIGIN ID:BFBA (508) 614-0389
 RICK WOODS
 SBA COMMUNICATIONS CORPORATION
 134 FLANDERS RD
 SUITE 125
 WESTBOROUGH, MA 01581
 UNITED STATES US

SHIP DATE: 26JAN22
 ACTWGT: 2.00 LB
 CAD: 105843304/NET4460
 BILL SENDER

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

NEW BRITAIN CT 06051

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



TRK# 7758 7804 6650 THU - 27 JAN 10:30A
 0201 PRIORITY OVERNIGHT

EBBDLA 06051
 CT-US BDL

56DJ4/F289/FE4A

After printing this label:

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



TRACK ANOTHER SHIPMENT

775878046650



ADD NICKNAME

ON TIME

Scheduled delivery:
Thursday, 1/27/2022 before 10:30 am



PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council
Ten Franklin Square
NEW BRITAIN, CT US 06051
508-251-0720

MANAGE DELIVERY

Travel History

Shipment Facts

Travel History

TIME ZONE
Local Scan Time



Wednesday, January 26,
2022

4:27 PM

WESTBOROUGH, MA

Picked up
Tendered at FedEx Office

12:57 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775878046650

SERVICE
FedEx Priority Overnight

WEIGHT
2 lbs / 0.91 kgs

TOTAL PIECES
1

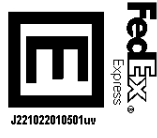
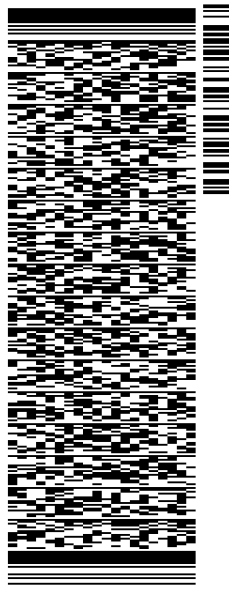
TOTAL SHIPMENT WEIGHT
2 lbs / 0.91 kgs

TERMS
Standard

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

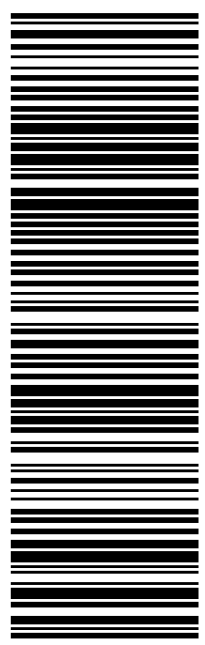
SHIP DATE: 26JAN22
ACTWGT: 1.00 LB
CAD: 105843304/NET4460
BILL SENDER

TO
JOSEPH A. CARFORA
TOWN OF EAST HAVEN
MAYOR
250 MAIN ST
EAST HAVEN CT 06512
(508) 251-0720 X.3807
INV#
PO:
REF: 105692009-6089
DEPT:



J221022010501uv

TRK# 7758 7809 0060
0201
THU - 27 JAN 10:30A
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06512
CT-US BDL

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WESTBOROUGH, MA

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FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Joseph A. Carfora
Town of East Haven
Mayor
250 Main St
EAST HAVEN, CT US 06512
508-251-0720

MANAGE DELIVERY

Travel History

Shipment Facts

Travel History

TIME ZONE
Local Scan Time



Wednesday, January 26,
2022

4:27 PM

WESTBOROUGH, MA

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Tendered at FedEx Office

1:00 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775878090060

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FedEx Priority Overnight

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TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
0.5 lbs / 0.23 kgs

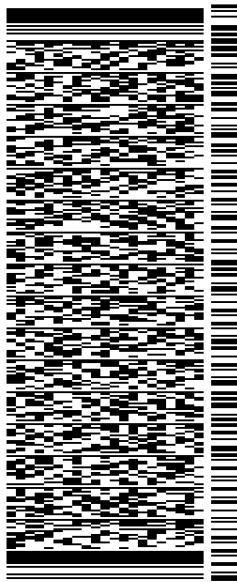
TERMS
Shipper

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

SHIP DATE: 26JAN22
ACTWGT: 1.00 LB
CAD: 105843304/NET4460
BILL SENDER

TO **JOSEPH BUDROW**
TOWN OF EAST HAVEN
ZONING ENFORCEMENT OFFICER
250 MAIN ST
EAST HAVEN CT 06512
(508) 251-0720 X.3807 REF: 105692009-6089
INV: DEPT:
PO:

56D,J4/F289/FE4A

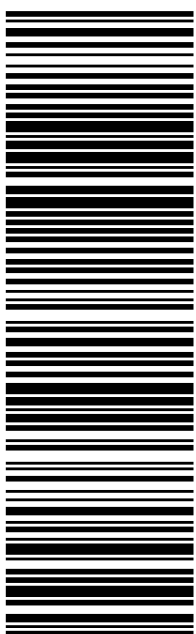


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TRK# 7758 7811 2595
0201
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PRIORITY OVERNIGHT

EB RSPA

06512
CT:US BDL



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[GET STATUS UPDATES](#)

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Joseph Budrow
Town of East Haven
Zoning Enforcement Officer
250 Main St
EAST HAVEN, CT US 06512
508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

Travel History

TIME ZONE
Local Scan Time



Wednesday, January 26,
2022

4:27 PM

WESTBOROUGH, MA

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1:01 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775878112595

SERVICE
FedEx Priority Overnight

WEIGHT
0.5 lbs / 0.23 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
0.5 lbs / 0.23 kgs

TERMS
Standard

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

SHIP DATE: 26JAN22
ACTWGT: 1.00 LB
CAD: 105843304/NET4460
BILL SENDER

TO ATT: GEORGE PERRELLI
PERRELLI ASSOOCIATES, LLC
60 COMMERCE ST

EAST HAVEN CT 06512
(508) 251-0720 X 3807 REF: 105692009-6089
INV# PO: DEPT:

56DJ4/F289/FE4A

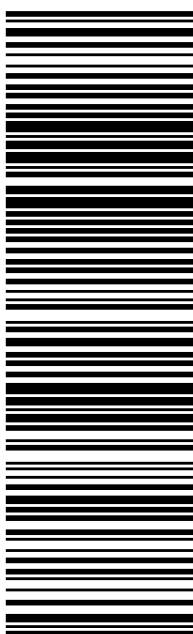


J221022010501uv

TRK# 7758 7814 3105 THU - 27 JAN 10:30A
0201 PRIORITY OVERNIGHT

EB RSPA

06512
CT:US BDL



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TRACK ANOTHER SHIPMENT

775878143105



ADD NICKNAME

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Thursday, 1/27/2022 before 10:30 am



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WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Att: George Perrelli
Perrelli Aossociates, LLC
60 Commerce St
EAST HAVEN, CT US 06512
508-251-0720

MANAGE DELIVERY

Travel History

Shipment Facts

Travel History

TIME ZONE
Local Scan Time



Wednesday, January 26,
2022

4:27 PM

WESTBOROUGH, MA

Picked up
Tendered at FedEx Office

1:02 PM

Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER
775878143105

SERVICE
FedEx Priority Overnight

WEIGHT
0.5 lbs / 0.23 kgs

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
0.5 lbs / 0.23 kgs

TERMS
Shipper

EXHIBIT 3

Property Card



Town of East Haven, CT

Property Listing Report

Map Block Lot

060 0610 002

Building # 1

Unique Identifier

P0294950

Property Information

Property Location	60 COMMERCE ST
Mailing Address	60 COMMERCE ST EAST HAVEN CT 06512
Land Use	Commercial Garage
Zoning Code	LI-2
Neighborhood	IS1

Owner	PERRELLI ASSOCIATES LLC
Co-Owner	
Book / Page	1267/0276
Land Class	Commercial
Census Tract	1801000
Acreage	1.42

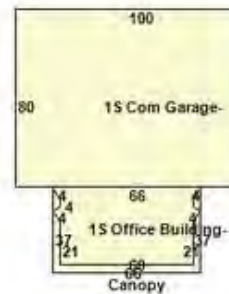
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	568973	398280
Outbuildings	42490	29740
Land	166800	116760
Total	778263	544780

Utility Information

Electric	No
Gas	No
Sewer	Yes
Public Water	Yes
Well	No



Primary Construction Details

Year Built	1989
Building Desc.	Commercial
Building Style	
Stories	1
Exterior Walls	Metal
Exterior Walls 2	Concrete Block
Interior Walls	
Interior Walls 2	
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Oil
Heating Type	FHA
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	10
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Livable Area (ft)	10199
Building Use	Commercial
Building Condition	Average
Frame Type	Average
Building Grade	5
Fireplaces	0
Wood Stoves	0
Attic Access	
Roof Style	
Roof Cover	

Bsmt Area	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Bsmt Access	
Bsmt Gar	0
Bsmt Sump Pump	No



Town of East Haven, CT

Property Listing Report

Map Block Lot

060 0610 002

Building # 1

Unique Identifier

P0294950

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Cell Towers	Cell Tower Flag Pole	1	Average	2011
Poles	Light Poles	5	Average	1989
Shed	Frame Shed	200	Excellent	2010
Shed	Frame Shed	240	Average	2006
Shed	Frame Shed	240	Excellent	2010
Cell Towers	Cell Tower Mounted roof top	1	Average	2011
Paving	Paving	8000	Average	1989

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Canopy	Canopy	375	Good	1989

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
PERRELLI ASSOCIATES LLC	1267_ 276	5/7/2002	0
PERRELLI FRANK P JR & GEORGE K	573_ 288	11/28/1989	0



Town of East Haven, CT

Property Listing Report

Map Block Lot

060 0610 002

Building # 2

Unique Identifier

P0294950



1S Cell Tower- Lat 41-15-064 N Long 72-52-918 W Tower Type: Pole Height: 70 ft Antenna Owner: Tower Co. Personal Property	1S Cell Tower Lat 41-14-59 Long 73-52-58 Tower Type: Mounted Owner: Nextel	1S Cell Tower Lat 41-14-59 Long 72-52-58 Tower Type: Sprint Mast Antenna Owner: Sprint
---	--	--

Primary Construction Details

Year Built	2011
Building Desc.	Cell Site
Building Style	
Stories	0
Exterior Walls	
Exterior Walls 2	
Interior Walls	
Interior Walls 2	
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Livable Area (ft)	1200
Building Use	Commercial
Building Condition	Average
Frame Type	Average
Building Grade	0
Fireplaces	0
Wood Stoves	0
Attic Access	
Roof Style	
Roof Cover	

Bsmt Area	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Bsmt Access	
Bsmt Garage	0
Bsmt Sump Pump	No

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

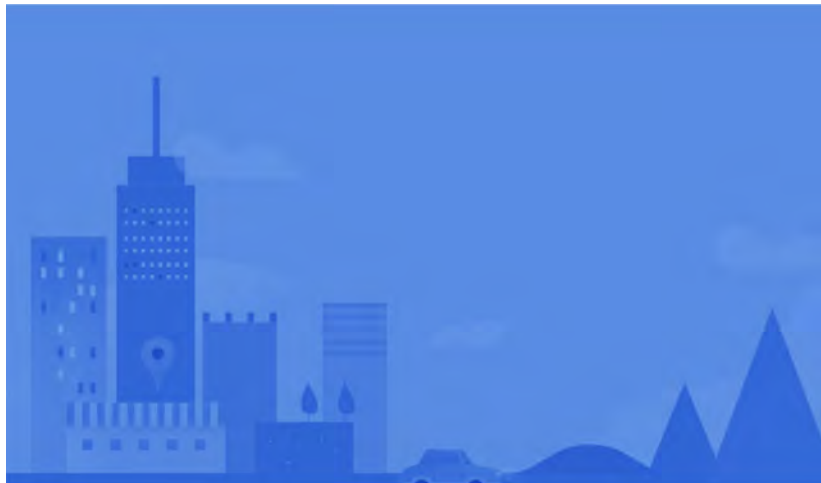
EXHIBIT 4

Property Map

Google Maps 60 Commerce St



Imagery ©2021 New York GIS, Map data ©2021 20 ft



60 Commerce St

Building



Directions



Save



Nearby



Send to your
phone



Share



60 Commerce St, East Haven, CT 06512

EXHIBIT 5

Zoning Docs

EAST HAVEN BUILDING DEPARTMENT

PERMIT No. 60320 **CONSTRUCTION:** Antenna/Equipment Shelter

DATE OF ISSUE February 16, 2010

LOCATION 60 Commerce Street

POST THIS CARD. MUST BE ABLE TO BE SEEN FROM STREET.

Jan A. Bassett
Building Official

PERMIT, Town of East Haven

60320

DEPARTMENT OF BUILDINGS, EAST HAVEN, CONN.

Permission is hereby granted to alter, erect or install Antenna/Equipment Shelter as per application

All provisions of the code must be complied with whether specified or not.

Location 60 Commerce Street Date 2/16/2010

Owner Perelli Associates, LLC/Verizon

Address Same

Contractor Construction Services of Branford

Received the fee of \$ 890.96

Jan A. Bassett
Building Official

This Permit is granted upon the express condition that every person acting under the same shall conform to the representations of the application thereof, to the above provision, and the Ordinances of this Town and Statutes of this State applicable to the subject matter of the same. It may be revoked at any time for a breach of its conditions.

EXHIBIT 6

Construction Drawings

PROJECT INFORMATION

TOWER OWNER: SBA 2012 TC ASSETS, LLC
8501 CONGRESS AVENUE
BOCA RATON, FL 33487
PHONE: 561-226-9523

SBA TOWER ID: CT46147-A

SBA SITE NAME: NEW HAVEN TWEED

T-MOBILE SITE NAME: CTNH723A

T-MOBILE SITE NUMBER: CTNH723A

SBA SITE ADDRESS: 60 COMMERCE ST,
EAST HAVEN, CT 06512

LATITUDE: 41.25123300

LONGITUDE: -72.88205500

TOWER HEIGHT: 70'-0"± AGL

RAD CENTER: 67'-0"± AGL

ZONING JURISDICTION: TOWN OF EAST HAVEN

COUNTY: NEW HAVEN

DESCRIPTION OF WORK:
TELECOMMUNICATIONS FACILITY UPGRADE (SPRINT RETAIN);
MONOPOLE

COMPLIANCE CODES:

1. BUILDING CODE:
IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
2. ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
3. CONCRETE CODE:
AMERICAN CONCRETE INSTITUTE (ACI) 318
4. STEEL CODE:
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC),
14TH EDITION
5. TELECOMMUNICATIONS CODE:
EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL

BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

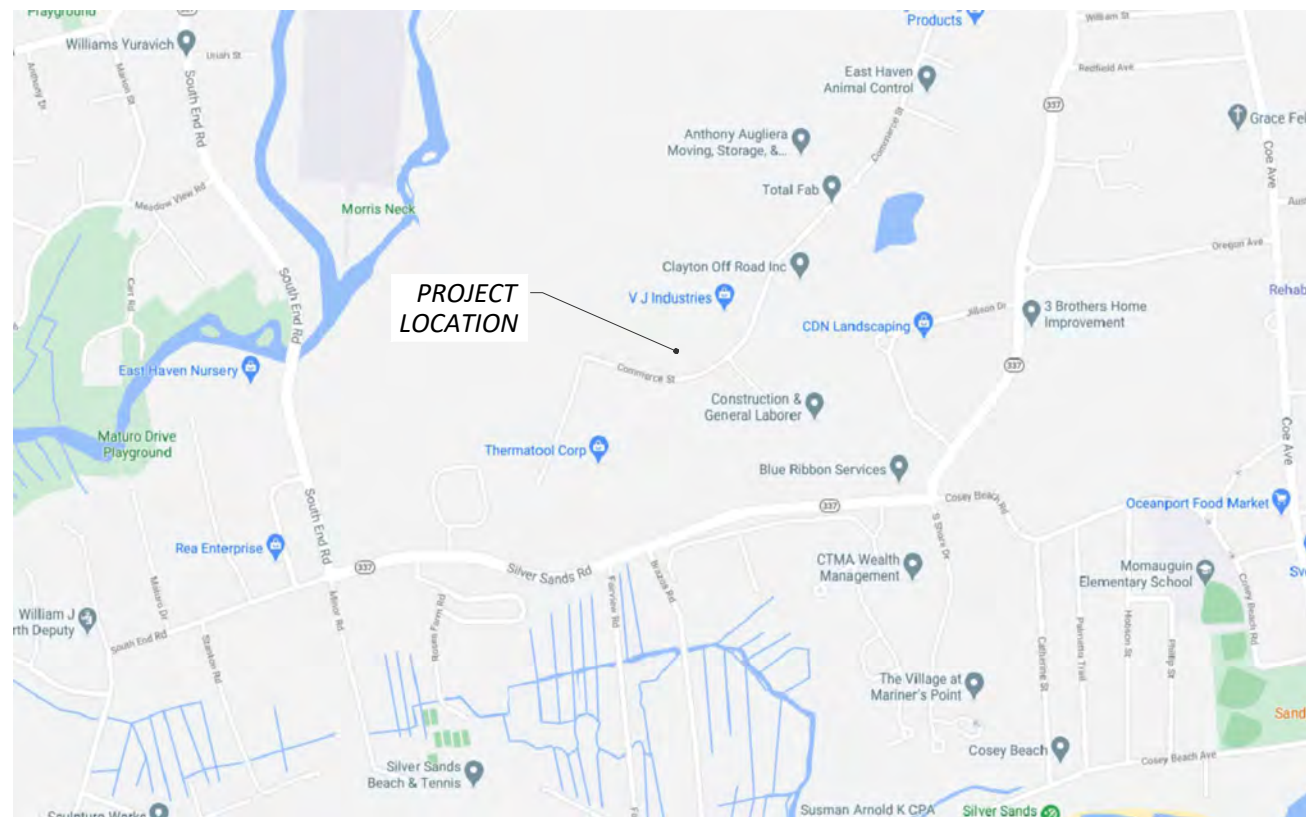
PROJECT DIRECTORY

A&E / PROJECT MANAGER:
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750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE 781.713.4725

APPLICANT:
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PHONE: (508) 286-2700
FAX: (508) 286-2893

SITE NAME: CTNH723A
60 COMMERCE ST,
EAST HAVEN, CT 06512

SITE NUMBER: CTNH723A
SBA SITE #: CT46147-A
PROJECT: SPRINT RETAIN
CONFIGURATION: 67E5A998E 6160



VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

DRAWING INDEX

NO.	DESCRIPTION	REV.	DATE
T-1	TITLE SHEET	3	12/08/21
GN-1	GENERAL NOTES	3	12/08/21
A-1	COMPOUND & EQUIPMENT PLANS	3	12/08/21
A-2	ANTENNA LAYOUT & ELEVATIONS	3	12/08/21
A-3	DETAILS	3	12/08/21
SN-1	STRUCTURAL NOTES	3	12/08/21
RF-1	RF PLUMBING DIAGRAM	3	12/08/21
G-1	GROUNDING DETAILS	3	12/08/21

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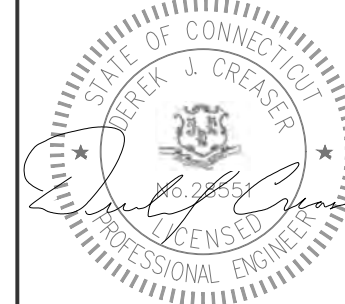
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134 FLANDERS ROAD, SUITE 125
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PHONE: (508) 251-0720



750 W CENTER ST, SUITE 301
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REVISIONS

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2	06/04/21	CONSTRUCTION REVISED
1	04/19/21	ISSUED FOR CONSTRUCTION
0	03/04/21	ISSUED FOR REVIEW
DESIGNED BY:	KT	APPROVED BY:
		DC



DATE: 12/08/21

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SITE NUMBER: CTNH723A

SITE ADDRESS:
60 COMMERCE ST,
EAST HAVEN, CT 06512

PROJECT TYPE:
SPRINT RETAIN

SHEET TITLE:
TITLE SHEET

DRAWING #: T-1 REVISION: 3

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR – CENTERLINE COMMUNICATIONS
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T-MOBILE

2. 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.

3. 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 JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, 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.

10. 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 OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."

17. 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.

18. THE EXISTING CELL SITE IS 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.

19. SINCE THE 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 ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES: SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
LIGHTNING CODE: NFPA 70-2017

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G,
STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

RF NOTES

- ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR
- THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
- RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.
- ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
- RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.
- THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
- DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
- ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.
- 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.
- USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.
- ANTENNAS SHALL BE PAINTED, WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.
- CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE AND SCHEDULING NOTES

- SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.
- TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER T-MOBILE ANTENNA CABLE MARKING STANDARD:
 - TOP OF TOWER END OF MAIN COAX
 - BOTTOM OF TOWER END OF MAIN COAX
 - DIRECTLY BEFORE AND AFTER RF EQUIPMENT
 - END OF JUMPERS AT BTS EQUIPMENT
- ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.
- PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCIEVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

T - Mobile

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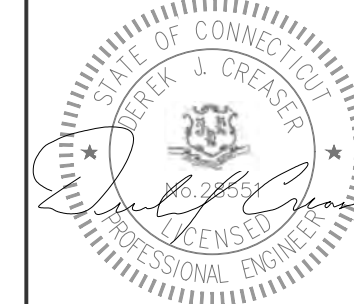
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PHONE: 781.713.4725

REVISIONS

NO.	DATE	DESCRIPTION
3	12/08/21	ISSUED FOR CONSTRUCTION
2	06/04/21	CONSTRUCTION REVISED
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DESIGNED BY:	APPROVED BY:	
KT	DC	

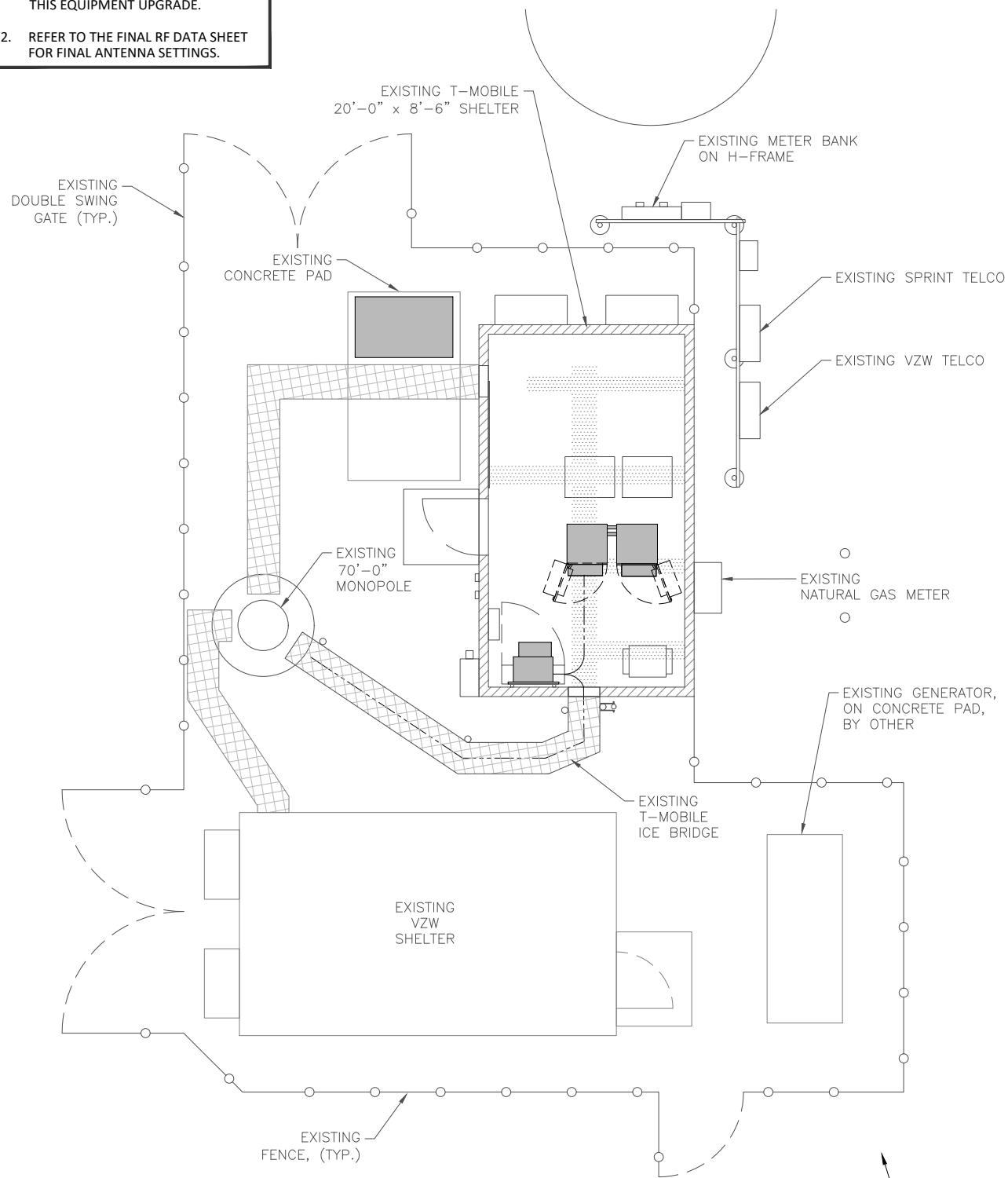


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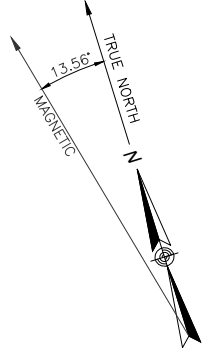
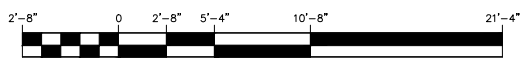
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SITE NAME:	CTNH723A
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SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	GENERAL NOTES
DRAWING #:	GN-1
REVISION:	3

- NOTES:**
1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
 2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

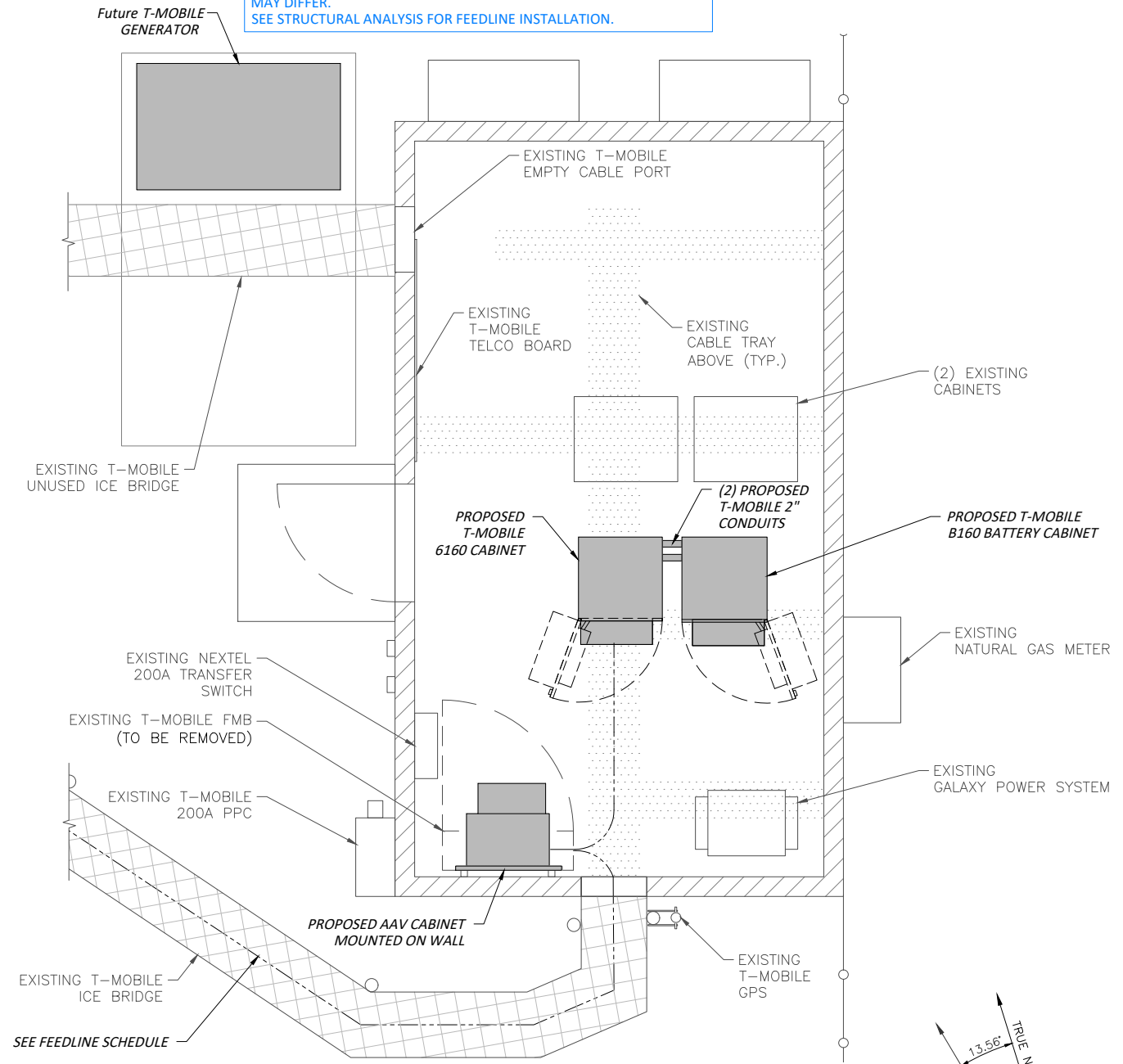


COMPOUND PLAN
 SCALE: 1/4" = 1'-0" (22"X34")
 1/8" = 1'-0" (11"X17")

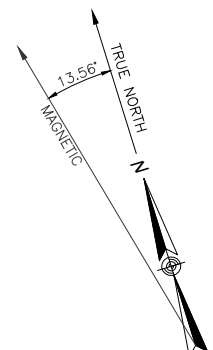
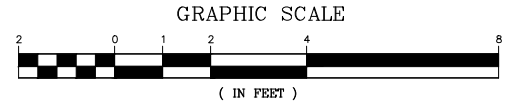


FEEDLINE SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO BE REMOVED: (3) 1-5/8" COAX (1) 1-1/4" FIBER	UP INSIDE MONOPOLE TO RAD
B	PROPOSED: (3) 6x24 HYBRID FIBER	UP INSIDE MONOPOLE TO RAD

NOTE:
 EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON COLLOCATION APPLICATION AND SBA RECORD, NOT FIELD OBSERVATIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.
 SEE STRUCTURAL ANALYSIS FOR FEEDLINE INSTALLATION.



EQUIPMENT PLAN
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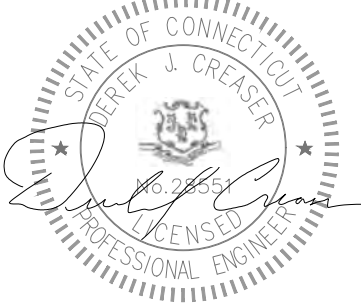


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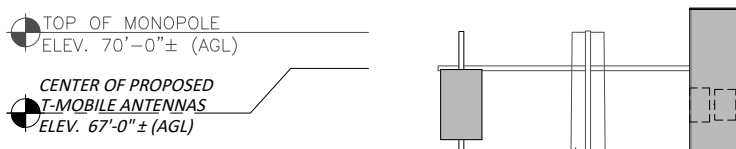
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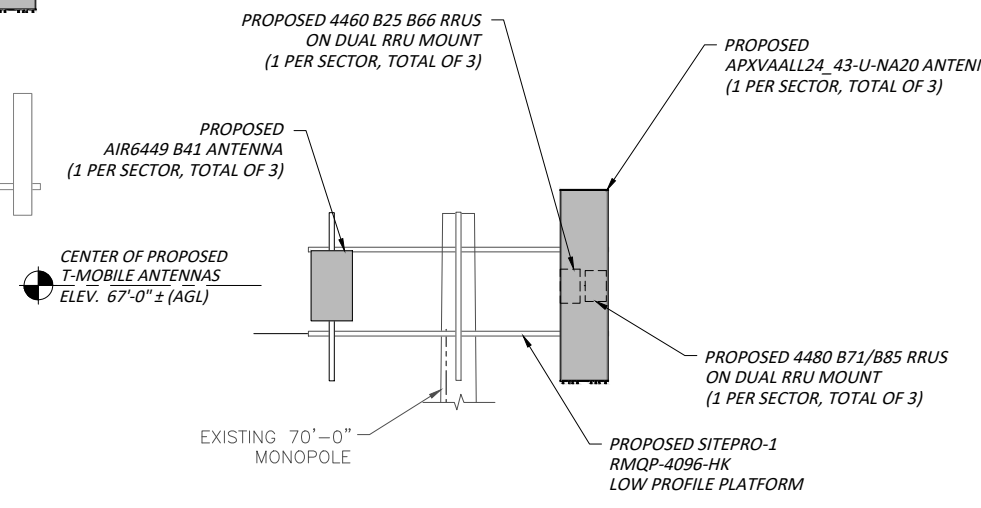
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REVISION:	3

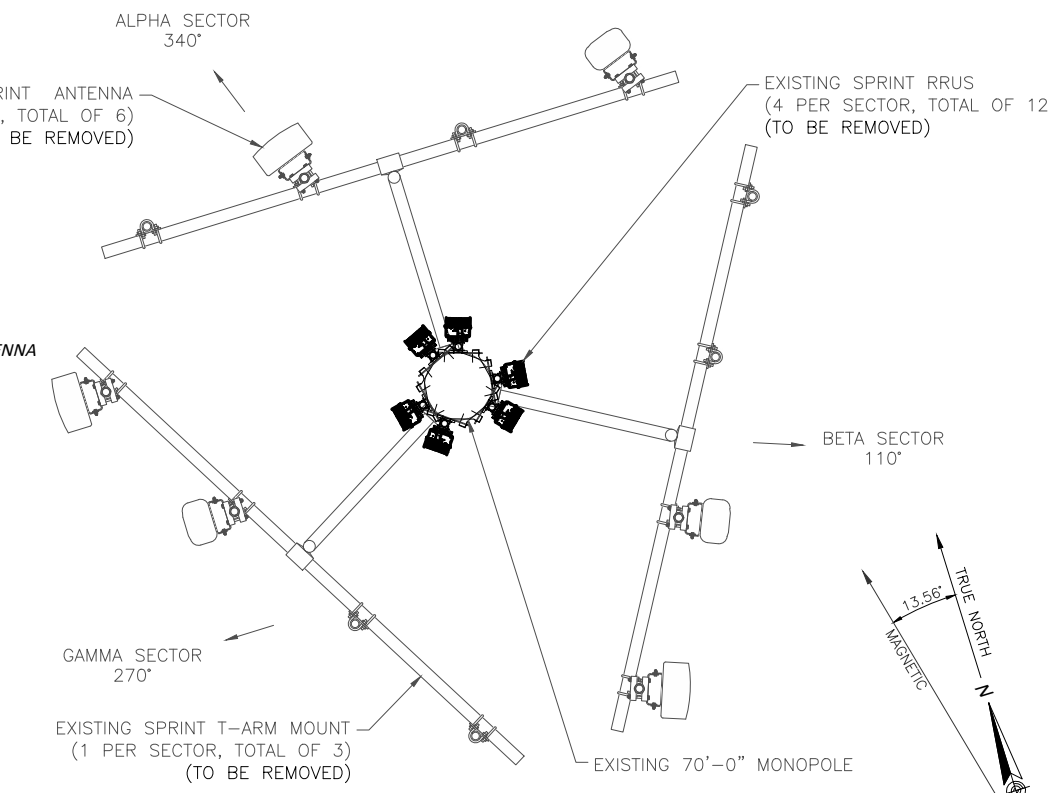


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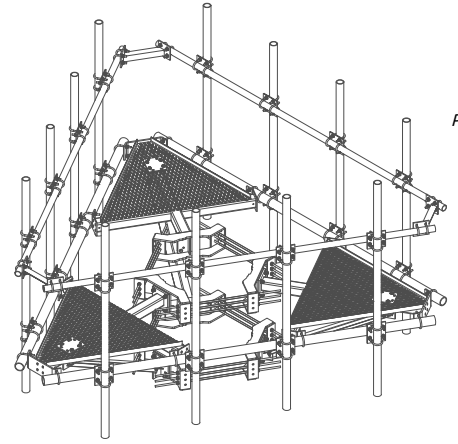


ENLARGED ANTENNA ELEVATION
SCALE: N.T.S

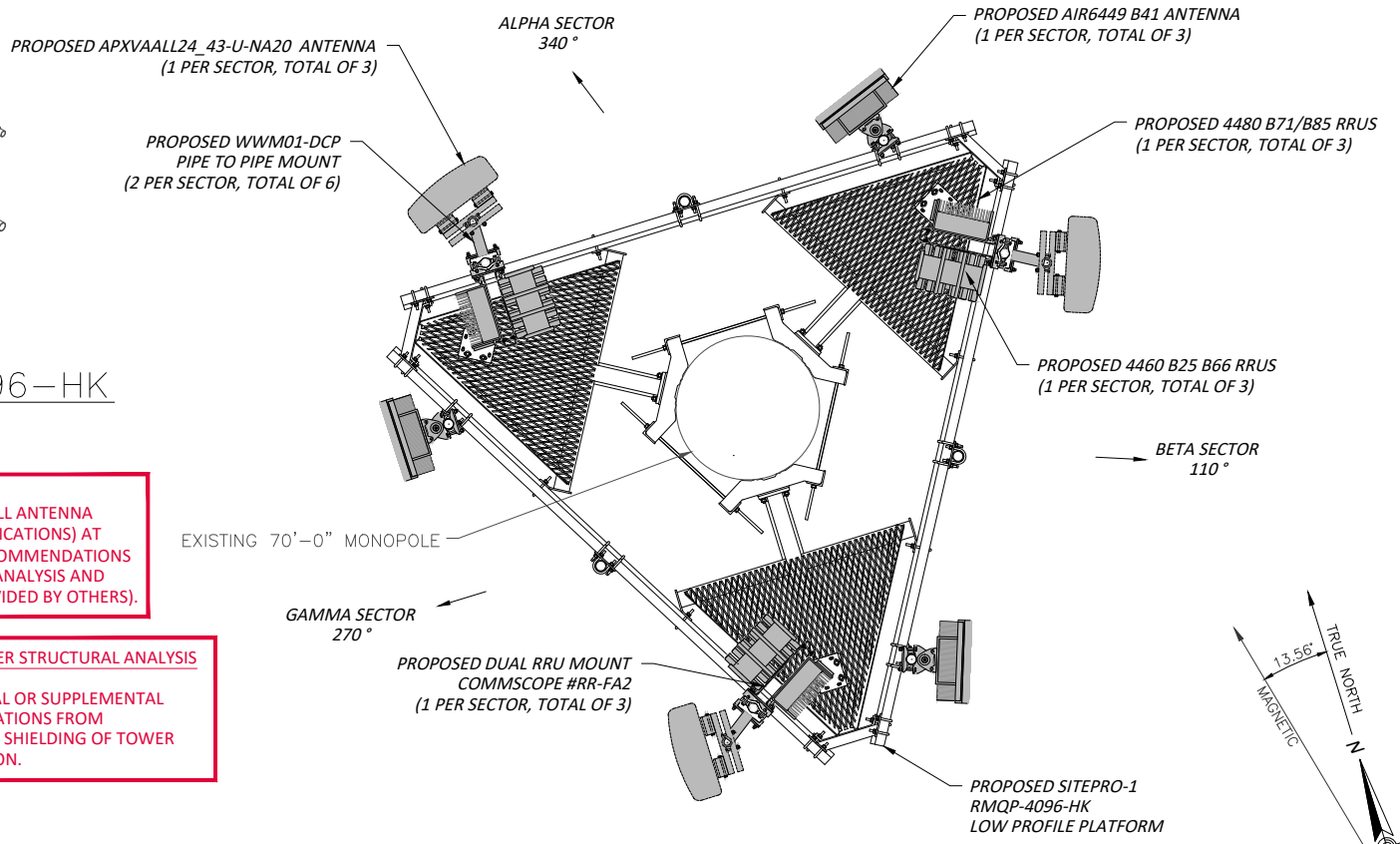


EXISTING ANTENNA CONFIGURATION
SCALE: N.T.S

SEE FEEDLINE SCHEDULE



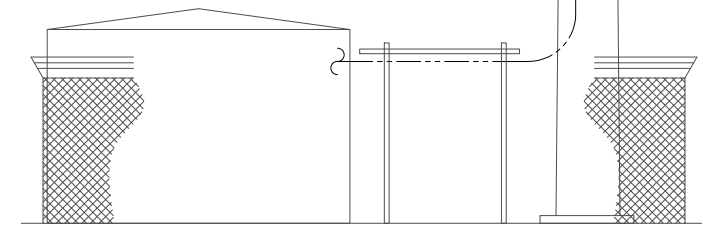
SITEPRO-1 RMQP-4096-HK
SCALE: N.T.S



PROPOSED ANTENNA CONFIGURATION
SCALE: N.T.S

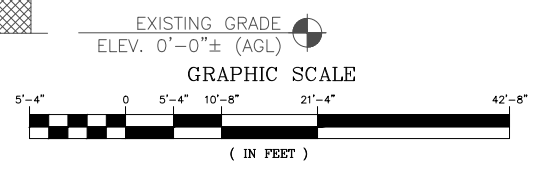
SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED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

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 OR RELOCATION.



TOWER ELEVATION

SCALE: 1/4" = 1'-0" (22"x34")
1/8" = 1'-0" (11"x17")



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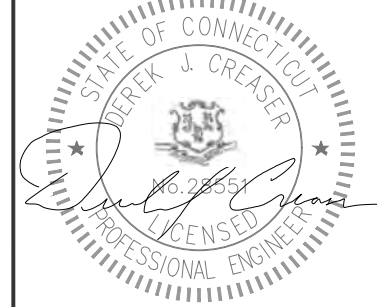


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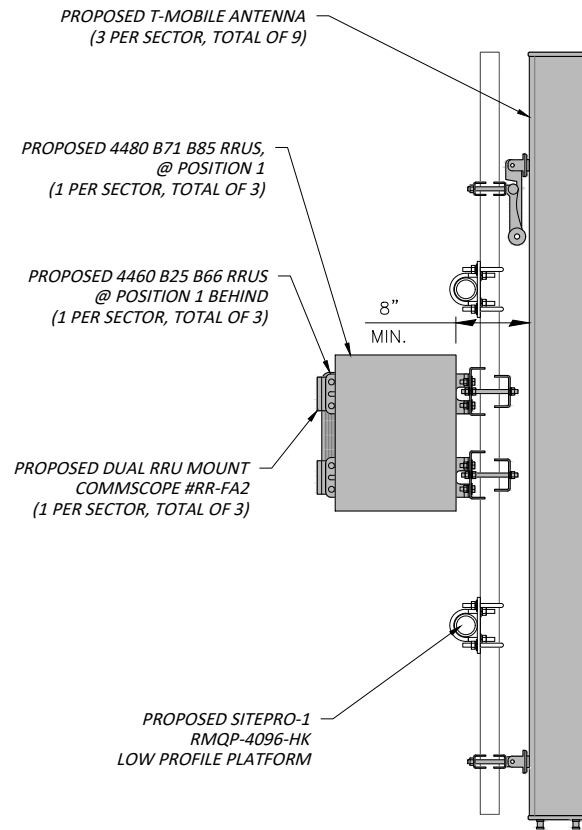
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SITE NAME:	CTNH723A
SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	ANTENNA LAYOUT & ELEVATIONS
DRAWING #:	A-2
REVISION:	3

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER
A1	PROPOSED	L700, L600, N600, L1900, G1900	APXVAALL24_43-U -NA20	95.9x24x8.5	±67'	340°	-	(P) (1) 4480 B71 B85 RRUS (P) (1) 4460 B25 B66 RRUS	19.5x15.1x7.8 15x17x11.9	
A2	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±67'	340°	-	-	-	
B1	PROPOSED	L700, L600, N600, L1900, G1900	APXVAALL24_43-U -NA20	95.9x24x8.5	±67'	110°	-	(P) (1) 4480 B71 B85 RRUS (P) (1) 4460 B25 B66 RRUS	19.5X15.1X7.8 15X17X11.9	
B2	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±67'	110°	-	-	-	
C1	PROPOSED	L700, L600, N600, L1900, G1900	APXVAALL24_43-U -NA20	95.9x24x8.5	±67'	270°	-	(P) (1) 4480 B71 B85 RRUS (P) (1) 4460 B25 B66 RRUS	19.5X15.1X7.8 15X17X11.9	
C2	PROPOSED	L2500, N2500	AIR6449 B41	33.1x20.6x8.6	±67'	270°	-	-	-	



ANTENNA MOUNTING DETAIL
N.T.S.

- NOTES:**
1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
 2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

RRU CHART				
QUANTITY	MODEL	L	W	D
3(P)	4415 B66A	15.0"	13.2"	5.3"
3(P)	4449 B71/B85	15.0"	13.2"	10.4"
3(P)	4424 B25	16.5"	13.5"	9.6"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



RRUS DETAIL
N.T.S.

REFER TO THE FINAL RFDS AND TABLE FOR THE PROPOSED RRUS MODEL, QUANTITY, AND DIMENSIONS

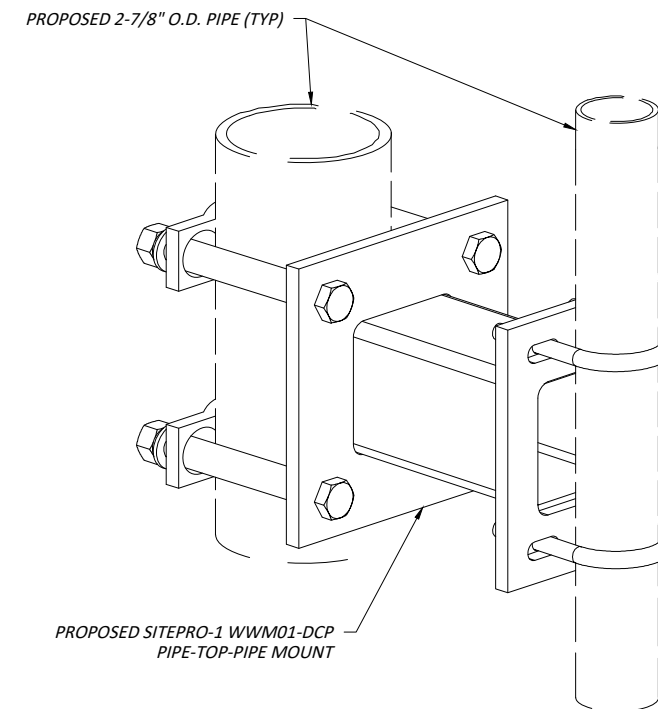


ERICSSON RBS6160 EQUIPMENT CABINET
ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 25.6" X 33.5"
WEIGHT: 188LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R



ERICSSON B160 BATTERY CABINET
ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 26" X 26"
WEIGHT: 188LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

EQUIPMENT CABINET DETAIL
N.T.S.



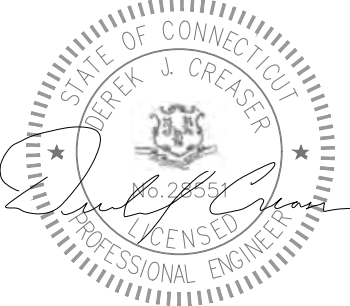
WWM01-DCP PIPE TO PIPE MOUNT DETAIL
N.T.S.

T-Mobile
NORTHEAST LLC
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CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
NO.	DATE	DESCRIPTION
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2	06/04/21	CONSTRUCTION REVISED
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0	03/04/21	ISSUED FOR REVIEW
DESIGNED BY:	APPROVED BY:	
KT	DC	



DATE: 12/08/21

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SITE NAME:	CTNH723A
SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	DETAILS
DRAWING #:	A-3
REVISION:	3

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UNON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS ³
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

T-Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
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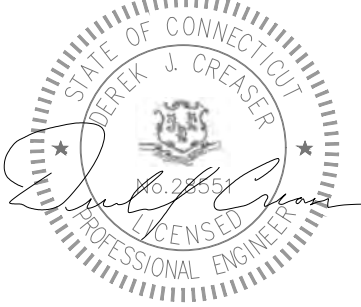


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750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
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DESIGNED BY:		APPROVED BY:
KT		DC



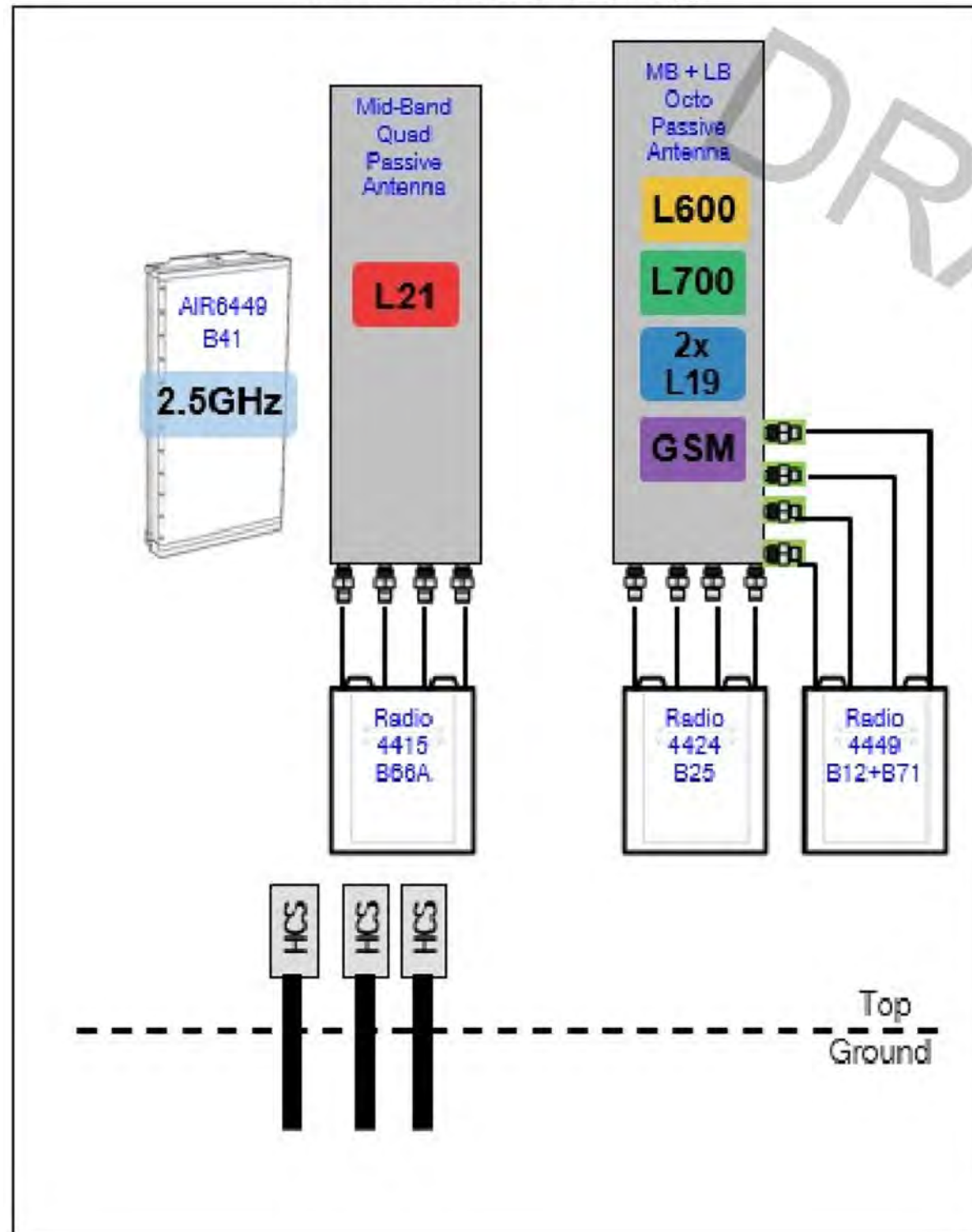
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Blank area for additional notes or signatures.

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SITE NUMBER:	CTNH723A
SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	STRUCTURAL NOTES
DRAWING #:	SN-1
REVISION:	3

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PLUMBING DIAGRAM
N.T.S.

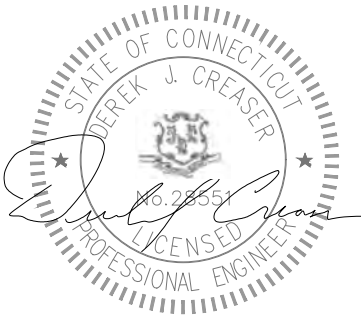
T - Mobile
NORTHEAST LLC
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SBA 
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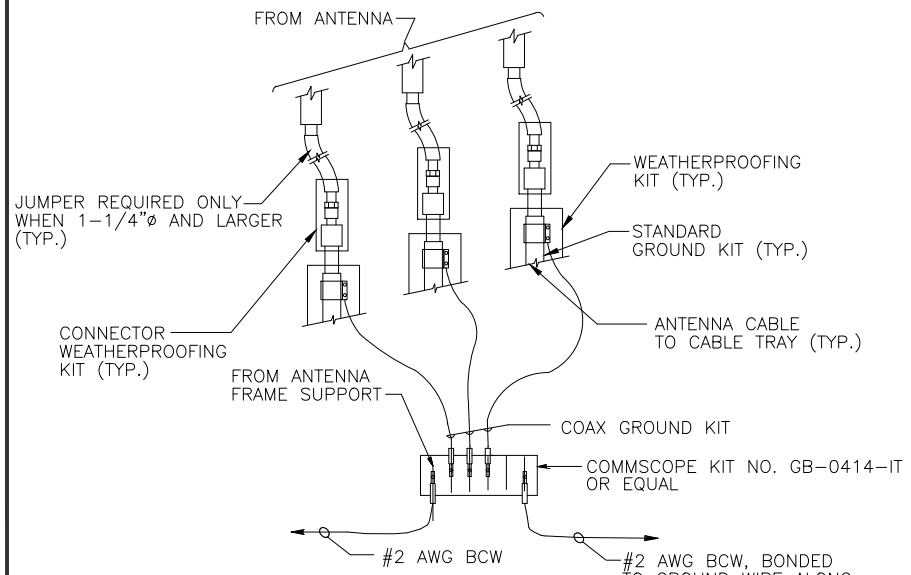
DESIGNED BY: KT APPROVED BY: DC



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PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	RF PLUMBING DIAGRAM
DRAWING #:	RF-1
REVISION:	3



GROUNDING RISER DIAGRAM

N.T.S.

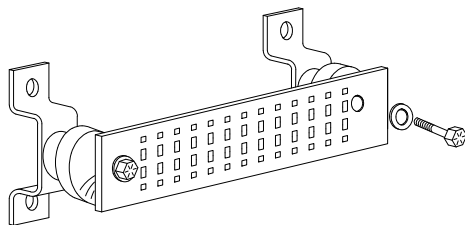
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

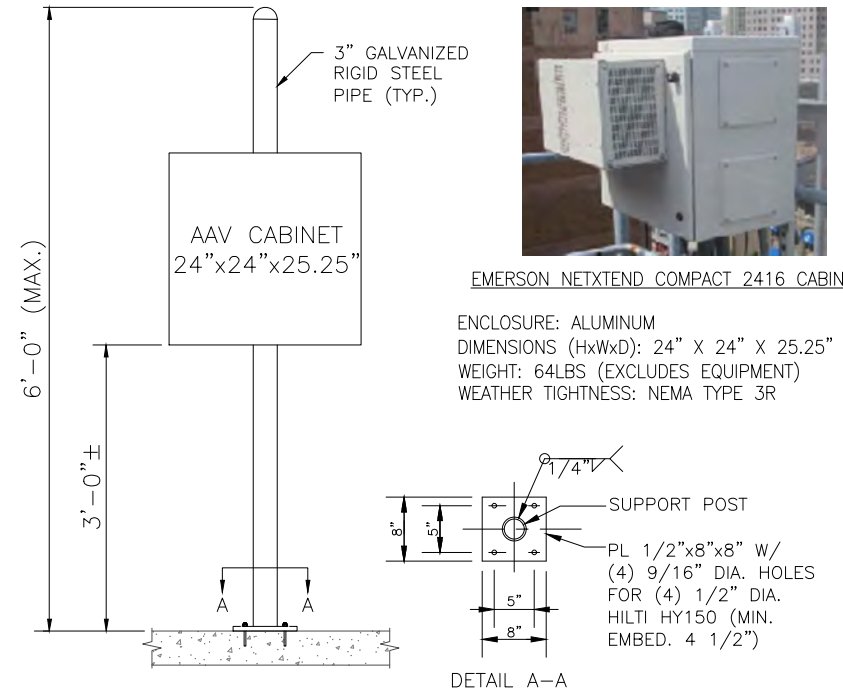
SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



GROUND BAR DETAIL

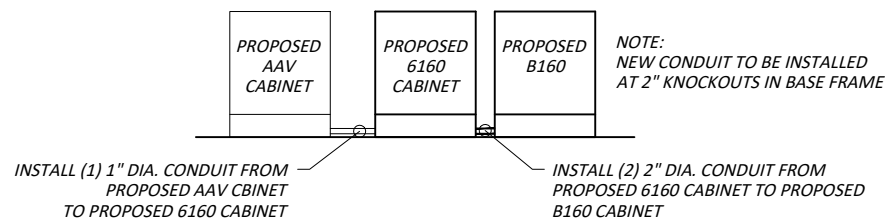
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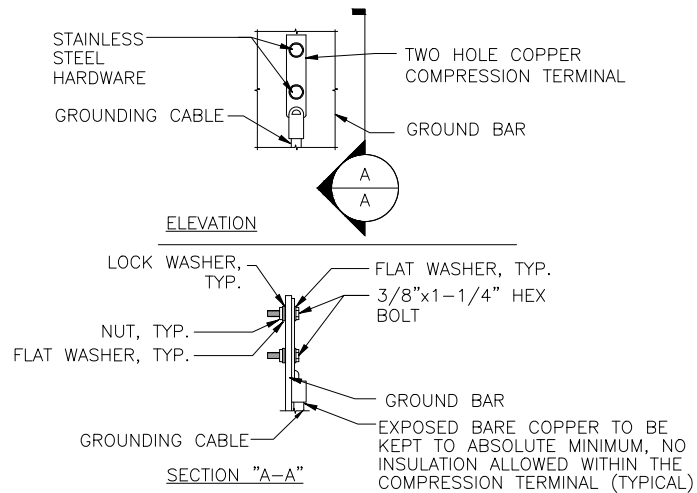
AAV CABINET DETAIL

N.T.S.

NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.



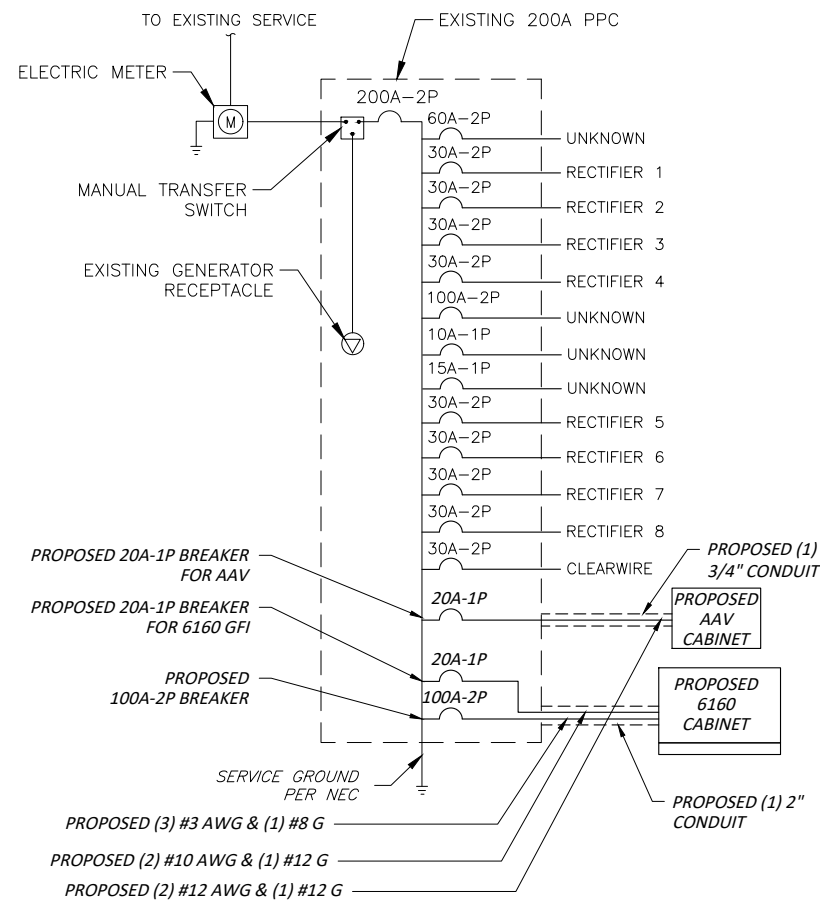
CONDUIT DETAIL



NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

GROUND BAR CONNECTION DETAIL

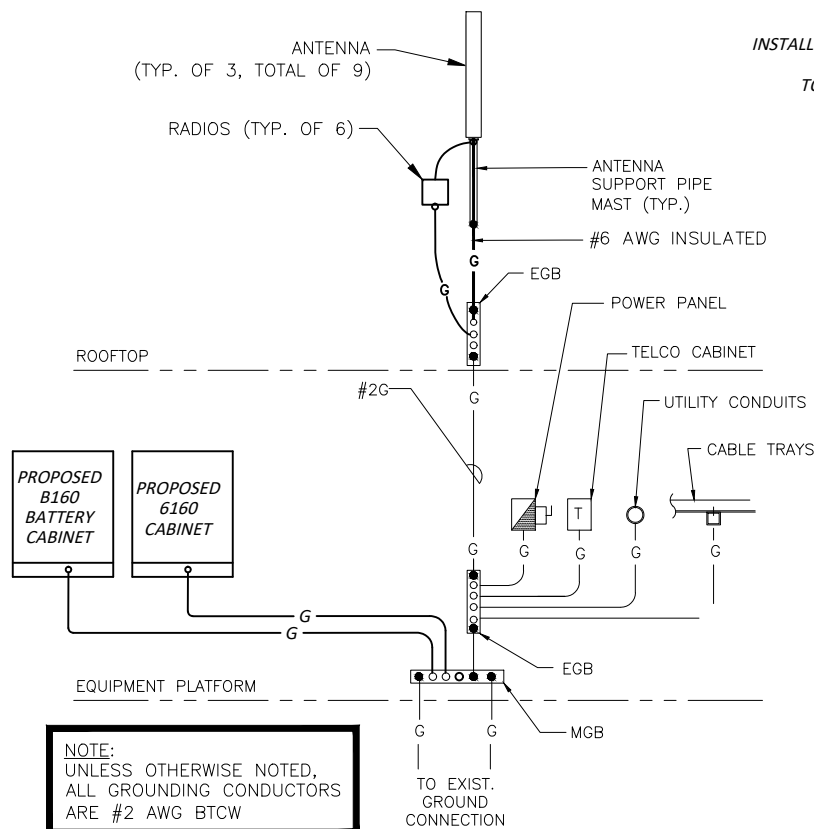
N.T.S.



NOTE:
ALL WORK NEEDS TO BE PERFORMED BY LICENSED ELECTRICIAN ADHERING TO THE NEC AND LOCAL CODE REQUIREMENTS

ONE LINE POWER DIAGRAM

N.T.S.



GROUNDING RISER DIAGRAM

N.T.S.

NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

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NORTHEAST LLC
T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893



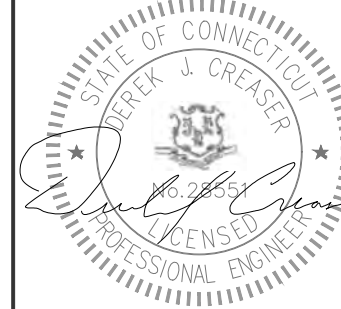
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
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SITE ADDRESS:	60 COMMERCE ST, EAST HAVEN, CT 06512
PROJECT TYPE:	SPRINT RETAIN
SHEET TITLE:	GROUNDING DETAILS
DRAWING #:	G-1
REVISION:	3

EXHIBIT 7

Structural Ananlysis



Tower Engineering Solutions

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

Structural Analysis Report

Existing 70 ft Valmont Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46147-A

Customer Site Name: New Haven Tweed

Carrier Name: T-Mobile Sprint (App#: 181566, V1)

Carrier Site ID / Name: CT70XC121 / Nextel Colo

Site Location: 60 Commerce Street

East Haven, Connecticut

NEW HAVEN County

Latitude: 41.251233

Longitude: -72.882094

Exp. 01/31/2022



12/20/2021

Analysis Result:

Max Structural Usage: 99.9% [Pass]

Max Foundation Usage: 50.0% [Pass]

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

Report Prepared By: Dipika Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 70 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Valmont, Order No. 18927-06, Dated 02/09/06
Foundation Drawing	Valmont, Order No. 18927-06, Dated 02/09/06
Geotechnical Report	JGI Eastern, Inc. (Project No. 05557G) Geotechnical Evaluation dated September 27, 2005
Modification Drawings	N/A
Mount Analysis	TES Project Number: 120428, dated 12/10/2021

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_5 = 0.183$, $S_1 = 0.061$

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	67.0	3	RFS APX16DWV-16DWVS-E-A20 - Panel	Low Profile Platform w/ Handrail SitePro1 RMQP-4096-HK	(3) 1.99" Hybrid - 6x24	T-Mobile Sprint
-		3	RFS APXVAALL24_43-U-NA20 - Panel			
-		3	Ericsson AIR6449 B41 - Panel			
-		4	RFS ACU-A20-N			
-		3	Ericsson 4449 B71 + B85			
-		3	Ericsson 4424 B25			
-		3	Ericsson 4415 B66A			
-		3	ALU 800 MHz Filter			
7	55.0	3	Antel BXA-80063-6BF w/ Mount Pipe - Panel	(3) Modified T-Arm (VZWSMART-PLK7 & SQCX4-K & VZWSMART-MSK2)	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
8		1	RFS DB-T1-6Z-8AB-OZ			
9		6	Commscope JAHH-65B-R3B - Panel			
10		3	Samsung MT6407-77A - Panel			
11		3	Commscope CBC78T-DS-2X/W14F05P50			
12		3	Samsung LTE AWS/PCS RFV01U-D1A			
13		3	Samsung LTE 700/850 MHz RFV01U-D2A			
14		1	RFS DB-B1-6C-12AB-OZ			

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	67.0	3	RFS APX16DWV-16DWVS-E-A20	Low Profile Platform w/ Handrail SitePro1 RMQP-4096-HK	(3) 1.99" Hybrid - 6x24	T-Mobile Sprint
2		3	RFS APXVAALL24_43-U-NA20			
3		3	Ericsson AIR6449 B41			
4		3	Ericsson 4480 B71 + B85			
5		3	Ericsson 4424 B25			
6		3	Ericsson 4460 B25 + B66			

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:	99.9%	51.7%	43.1%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Analysis Reactions	830.8	15.7

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9957 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

Usage Diagram - Max Ratio 99.86% at 0.0ft

Structure: CT46147-A-SBA
Site Name: New Haven Tweed
Height: 70.00 (ft)
Base Elev: 0.000 (ft)

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

12/20/2021

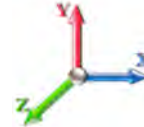


Page: 1

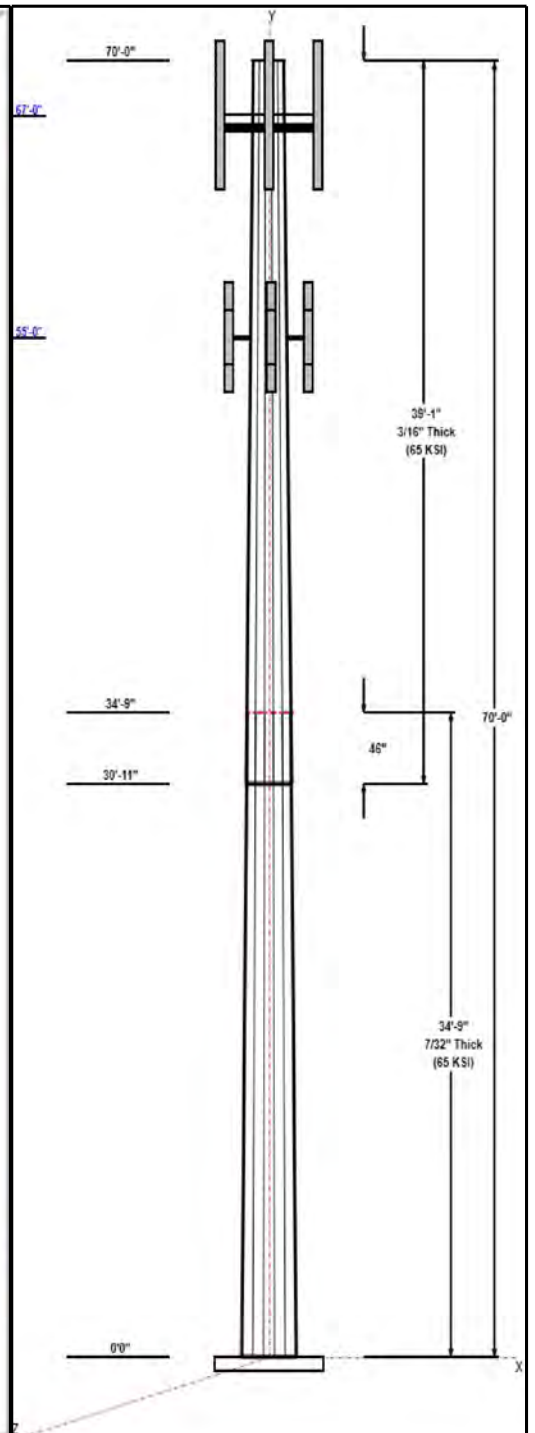
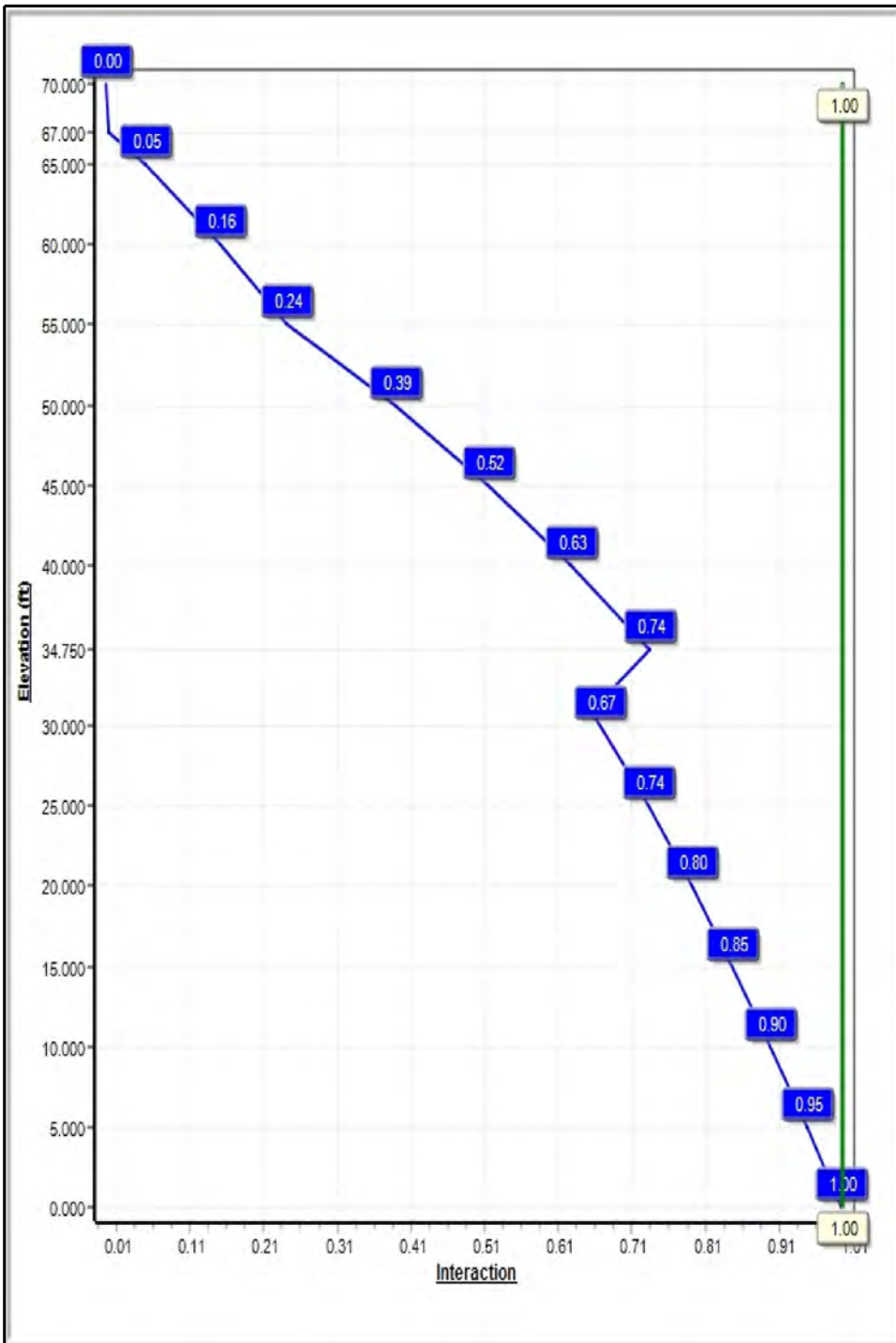
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Iterations: 19

Load Case : 1.2D + 1.6W 97 mph Wind



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Structure: CT46147-A-SBA

Type: Tapered
Site Name: New Haven Tweed
Height: 70.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.22994

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	34.75	24.01	32.00	0.219		0.22994	65
2	39.08	16.28	25.27	0.188	Slip	0.22994	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
67.00	67.00	3	RFS	T-Mobile Sprint
67.00	67.00	3	RFS	T-Mobile Sprint
67.00	67.00	3	Ericsson AIR6449 B41	T-Mobile Sprint
67.00	67.00	1	SitePro1 RMQP-4096-HK	T-Mobile Sprint
67.00	67.00	3	4480 B71 + B85	T-Mobile Sprint
67.00	67.00	3	Ericsson 4424 B25	T-Mobile Sprint
67.00	67.00	3	4460 B25 + B66	T-Mobile Sprint
55.00	55.00	3	Antel BXA-80063-6BF w/	Verizon
55.00	55.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
55.00	55.00	3	T-Arm	Verizon
55.00	55.00	6	Commscope	Verizon
55.00	55.00	3	Samsung MT6407-77A	Verizon
55.00	55.00	3	Commscope	Verizon
55.00	55.00	3	Samsung LTE AWS/PCS	Verizon
55.00	55.00	3	Samsung LTE 700/850	Verizon
55.00	55.00	1	RFS DB-B1-6C-12AB-0Z	Verizon
55.00	55.00	1	MOD	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	70.00	Outside	Step bolts (ladder)	--
0.00	67.00	Inside	1.99" Hybrid - 6x24	T-Mobile Sprint
0.00	55.00	Inside	1 5/8" Coax	Verizon
0.00	55.00	Inside	1 5/8" Hybrid	Verizon

Anchor Bolts

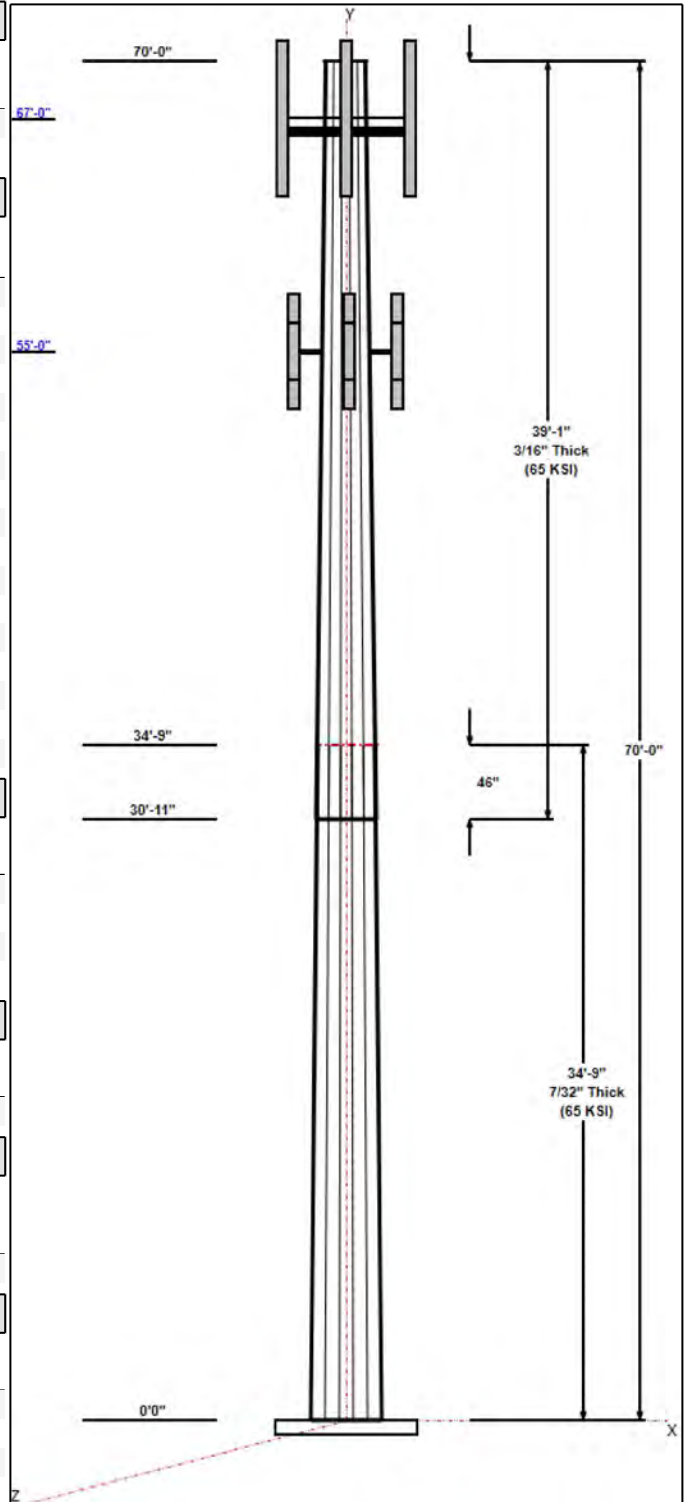
Qty	Specifications	Grade (ksi)	Arrangement
8	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	45.1	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	830.8	15.7	14.5
0.9D + 1.6W 97 mph Wind	823.8	15.7	10.9
1.2D + 1.0Di + 1.0Wi 50 mph Wind	204.1	3.7	25.6
1.2D + 1.0E	62.2	1.0	14.6
0.9D + 1.0E	61.6	1.0	10.9
1.0D + 1.0W 60 mph Wind	197.7	3.7	12.1



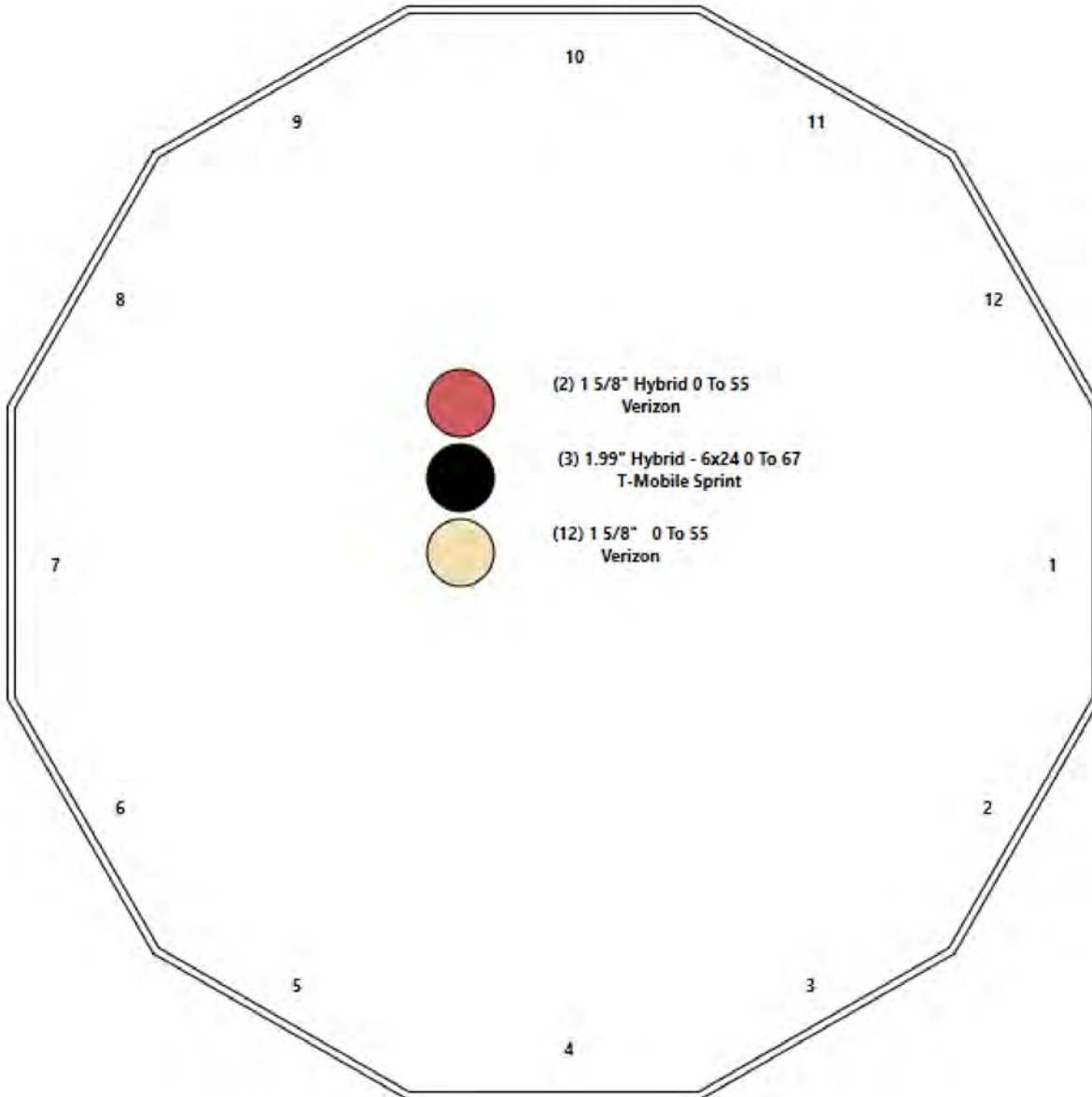
Structure: CT46147-A-SBA - Coax Line Placement

Type: Monopole
Site Name: New Haven Tweed
Height: 70.00 (ft)

12/20/2021



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Shaft Properties

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	34.750	0.2190	65		0.00	2,317
2	12	39.083	0.1880	65	Slip	46.00	1,657
Total Shaft Weight:							3,974

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	32.00	0.00	22.41	2889.27	37.01	146.12	24.01	34.75	16.78	1211.98	27.23	109.6	0.229943
2	25.27	30.92	15.18	1218.78	33.87	134.40	16.28	70.00	9.74	321.98	21.06	86.60	0.229943

Load Summary

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	67.00	RFS APX16DWV-16DWVS-E-A20	3	40.70	6.61	0.62	148.69	8.619	0.62	0.00	0.00
2	67.00	RFS APXVAALL24_43-U-NA20	3	128.00	20.24	0.70	509.78	21.988	0.75	0.00	0.00
3	67.00	Ericsson AIR6449 B41	3	103.00	5.65	0.71	229.50	6.527	0.75	0.00	0.00
4	67.00	SitePro1 RMQP-4096-HK	1	2645.00	51.70	1.00	5200.20	86.994	1.00	0.00	0.00
5	67.00	4480 B71 + B85	3	93.00	2.85	0.50	159.36	3.472	0.50	0.00	0.00
6	67.00	Ericsson 4424 B25	3	88.00	2.05	0.50	166.31	2.595	0.50	0.00	0.00
7	67.00	4460 B25 + B66	3	46.30	1.86	0.50	101.16	2.376	0.50	0.00	0.00
8	55.00	Antel BXA-80063-6BF w/ Mount Pipe	3	19.20	7.26	0.78	169.60	8.369	0.78	0.00	0.00
9	55.00	RFS DB-T1-6Z-8AB-0Z	1	18.90	4.80	1.00	128.42	5.709	1.00	0.00	0.00
10	55.00	T-Arm	3	400.00	10.00	0.75	652.58	17.893	0.75	0.00	0.00
11	55.00	Commscope JAHH-65B-R3B	6	63.30	9.11	0.83	268.34	10.322	0.85	0.00	0.00
12	55.00	Samsung MT6407-77A	3	79.40	4.69	0.70	185.37	5.543	0.72	0.00	0.00
13	55.00	Commscope	3	10.40	0.37	0.50	28.32	0.621	0.60	0.00	0.00
14	55.00	Samsung LTE AWS/PCS	3	84.40	1.87	0.50	152.06	2.384	0.50	0.00	0.00
15	55.00	Samsung LTE 700/850 MHz	3	70.30	1.87	0.50	131.51	2.384	0.50	0.00	0.00
16	55.00	RFS DB-B1-6C-12AB-0Z	1	21.40	4.10	0.50	128.69	4.825	0.50	0.00	0.00
17	55.00	MOD	1	500.00	16.50	1.00	1036.73	31.086	1.00	0.00	0.00
Totals:			46	7,053.20			16,006.78				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	70.00	(1) Step bolts (ladder)	1.00	Outside
0.00	67.00	(3) 1.99" Hybrid - 6x24	0.00	Inside
0.00	55.00	(12) 1 5/8" Coax	0.00	Inside
0.00	55.00	(2) 1 5/8" Hybrid	0.00	Inside

Shaft Section Properties

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.2190	32.000	22.411	2889.3	37.01	146.12	64.4	174.4	0.0
5.00		0.2190	30.850	21.601	2586.9	35.60	140.87	65.9	162.0	374.4
10.00		0.2190	29.701	20.790	2306.4	34.20	135.62	67.4	150.0	360.6
15.00		0.2190	28.551	19.979	2047.0	32.79	130.37	69.0	138.5	346.8
20.00		0.2190	27.401	19.168	1807.7	31.38	125.12	70.5	127.5	333.0
25.00		0.2190	26.251	18.358	1587.9	29.98	119.87	72.0	116.9	319.2
30.00		0.2190	25.102	17.547	1386.7	28.57	114.62	73.6	106.7	305.4
30.92	Bot - Section 2	0.2190	24.891	17.398	1351.7	28.31	113.66	73.8	104.9	54.5
34.75	Top - Section 1	0.1880	24.385	14.648	1094.7	32.61	129.71	0.0	0.0	417.4
35.00		0.1880	24.328	14.613	1087.0	32.53	129.40	69.2	86.3	12.4
40.00		0.1880	23.178	13.917	938.9	30.89	123.29	71.0	78.3	242.7
45.00		0.1880	22.029	13.221	805.0	29.25	117.17	72.8	70.6	230.9
50.00		0.1880	20.879	12.525	684.4	27.61	111.06	74.6	63.3	219.0
55.00		0.1880	19.729	11.829	576.6	25.98	104.94	76.4	56.5	207.2
60.00		0.1880	18.579	11.133	480.7	24.34	98.83	78.2	50.0	195.3
65.00		0.1880	17.430	10.437	396.0	22.70	92.71	80.0	43.9	183.5
67.00		0.1880	16.970	10.159	365.2	22.04	90.27	80.7	41.6	70.1
70.00		0.1880	16.280	9.741	322.0	21.06	86.60	81.7	38.2	101.6
										3974.2

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	246.89	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	238.02	1.000	0.000	5.00	13.556	13.56	464.0	0.0	449.3
10.00		1.00	0.85	19.450	21.40	229.15	1.000	0.000	5.00	13.060	13.06	447.1	0.0	432.7
15.00		1.00	0.85	19.450	21.40	220.28	1.000	0.000	5.00	12.564	12.56	430.1	0.0	416.2
20.00		1.00	0.90	20.638	22.70	217.77	1.000	0.000	5.00	12.068	12.07	438.3	0.0	399.6
25.00		1.00	0.95	21.630	23.79	213.59	1.000	0.000	5.00	11.572	11.57	440.5	0.0	383.1
30.00		1.00	0.98	22.477	24.72	208.19	1.000	0.000	5.00	11.076	11.08	438.2	0.0	366.5
30.92	Bot - Section 2	1.00	0.99	22.619	24.88	207.10	1.000	0.000	0.92	1.977	1.98	78.7	0.0	65.4
34.75	Top - Section 1	1.00	1.01	23.183	25.50	202.24	1.000	0.000	3.83	8.210	8.21	335.0	0.0	500.9
35.00		1.00	1.01	23.218	25.54	205.07	1.000	0.000	0.25	0.525	0.53	21.5	0.0	14.9
40.00		1.00	1.04	23.880	26.27	198.15	1.000	0.000	5.00	10.246	10.25	430.6	0.0	291.3
45.00		1.00	1.07	24.479	26.93	190.67	1.000	0.000	5.00	9.750	9.75	420.1	0.0	277.0
50.00		1.00	1.09	25.029	27.53	182.73	1.000	0.000	5.00	9.254	9.25	407.7	0.0	262.8
55.00	Appurtenance(s)	1.00	1.12	25.536	28.09	174.41	1.000	0.000	5.00	8.758	8.76	393.6	0.0	248.6
60.00		1.00	1.14	26.008	28.61	165.76	1.000	0.000	5.00	8.262	8.26	378.2	0.0	234.4
65.00		1.00	1.16	26.450	29.09	156.82	1.000	0.000	5.00	7.767	7.77	361.5	0.0	220.2
67.00	Appurtenance(s)	1.00	1.16	26.619	29.28	153.17	1.000	0.000	2.00	2.968	2.97	139.0	0.0	84.1
70.00		1.00	1.17	26.866	29.55	147.62	1.000	0.000	3.00	4.303	4.30	203.5	0.0	121.9
Totals:									70.00			5,827.6		4,769.1

Discrete Appurtenance Forces

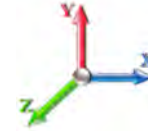
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 19

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	67.00	Ericsson 4424 B25	3	26.619	29.281	0.38	0.75	2.31	316.80	0.000	0.000	108.05	0.00	0.00
2	67.00	4480 B71 + B85	3	26.619	29.281	0.38	0.75	3.21	334.80	0.000	0.000	150.21	0.00	0.00
3	67.00	SitePro1 RMQP-4096-HK	1	26.619	29.281	1.00	1.00	51.70	3174.00	0.000	0.000	2422.13	0.00	0.00
4	67.00	Ericsson AIR6449 B41	3	26.619	29.281	0.53	0.75	9.03	370.80	0.000	0.000	422.86	0.00	0.00
5	67.00	RFS	3	26.619	29.281	0.52	0.75	31.88	460.80	0.000	0.000	1493.47	0.00	0.00
6	67.00	RFS	3	26.619	29.281	0.46	0.75	9.22	146.52	0.000	0.000	432.00	0.00	0.00
7	67.00	4460 B25 + B66	3	26.619	29.281	0.38	0.75	2.09	166.68	0.000	0.000	98.03	0.00	0.00
8	55.00	MOD	1	25.536	28.089	0.75	0.75	12.38	600.00	0.000	0.000	556.17	0.00	0.00
9	55.00	Antel BXA-80063-6BF w/	3	25.536	28.089	0.62	0.80	13.59	69.12	0.000	0.000	610.81	0.00	0.00
10	55.00	RFS DB-B1-6C-12AB-0Z	1	25.536	28.089	0.40	0.80	1.64	25.68	0.000	0.000	73.71	0.00	0.00
11	55.00	Samsung LTE 700/850	3	25.536	28.089	0.40	0.80	2.24	253.08	0.000	0.000	100.85	0.00	0.00
12	55.00	Samsung LTE AWS/PCS	3	25.536	28.089	0.40	0.80	2.24	303.84	0.000	0.000	100.85	0.00	0.00
13	55.00	Commscope	3	25.536	28.089	0.40	0.80	0.44	37.44	0.000	0.000	19.95	0.00	0.00
14	55.00	Samsung MT6407-77A	3	25.536	28.089	0.56	0.80	7.88	285.84	0.000	0.000	354.11	0.00	0.00
15	55.00	Commscope	6	25.536	28.089	0.66	0.80	36.29	455.76	0.000	0.000	1631.17	0.00	0.00
16	55.00	T-Arm	3	25.536	28.089	0.56	0.75	16.88	1440.00	0.000	0.000	758.41	0.00	0.00
17	55.00	RFS DB-T1-6Z-8AB-0Z	1	25.536	28.089	0.80	0.80	3.84	22.68	0.000	0.000	172.58	0.00	0.00
Totals:									8,463.84			9,505.38		

Total Applied Force Summary

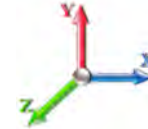
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		481.16	563.41	0.00	0.00
10.00		464.18	546.86	0.00	0.00
15.00		447.21	530.30	0.00	0.00
20.00		456.49	513.75	0.00	0.00
25.00		459.57	497.20	0.00	0.00
30.00		457.93	480.64	0.00	0.00
30.92		82.35	86.32	0.00	0.00
34.75		350.64	588.42	0.00	0.00
35.00		22.49	20.64	0.00	0.00
40.00		451.65	405.37	0.00	0.00
45.00		441.62	391.16	0.00	0.00
50.00		429.68	376.95	0.00	0.00
55.00	(27) attachments	4794.73	3856.18	0.00	0.00
60.00		401.09	260.45	0.00	0.00
65.00		384.82	246.24	0.00	0.00
67.00	(19) attachments	5275.16	5064.92	0.00	0.00
70.00		217.64	125.63	0.00	0.00
Totals:		15,618.42	14,554.45	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

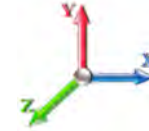
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 19

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	19.450	17.12	6.24
10.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	19.450	17.12	6.24
15.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	19.450	17.12	6.24
20.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	20.638	18.16	6.24
25.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	21.630	19.03	6.24
30.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	22.477	19.78	6.24
30.92	Step bolts (ladder)	Yes	0.92	1.200	1.00	0.08	0.09	0.000	0.000	22.619	3.65	1.14
34.75	Step bolts (ladder)	Yes	3.83	1.200	1.00	0.32	0.38	0.000	0.000	23.183	15.64	4.78
35.00	Step bolts (ladder)	Yes	0.25	1.200	1.00	0.02	0.02	0.000	0.000	23.218	1.02	0.31
40.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	23.880	21.01	6.24
45.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	24.479	21.54	6.24
50.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	25.029	22.03	6.24
55.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	25.536	22.47	6.24
60.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	26.008	22.89	6.24
65.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	26.450	23.28	6.24
67.00	Step bolts (ladder)	Yes	2.00	1.200	1.00	0.17	0.20	0.000	0.000	26.619	9.37	2.50
70.00	Step bolts (ladder)	Yes	3.00	1.200	1.00	0.25	0.30	0.000	0.000	26.866	14.19	3.74
Totals:											285.4	87.4

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

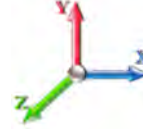


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Load Case: 1.2D + 1.6W 97 mph Wind

Iterations 19

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.50	-15.67	0.00	-830.80	0.00	830.80	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.999
5.00	-13.83	-15.28	0.00	-752.46	0.00	752.46	1280.84	640.42	1620.84	800.47	0.21	-0.390	0.000	0.951
10.00	-13.19	-14.90	0.00	-676.05	0.00	676.05	1261.47	630.74	1535.99	758.57	0.83	-0.783	0.000	0.902
15.00	-12.57	-14.53	0.00	-601.55	0.00	601.55	1239.87	619.93	1450.37	716.28	1.86	-1.177	0.000	0.851
20.00	-11.97	-14.15	0.00	-528.89	0.00	528.89	1216.02	608.01	1364.31	673.78	3.31	-1.569	0.000	0.795
25.00	-11.39	-13.75	0.00	-458.16	0.00	458.16	1189.93	594.97	1278.12	631.22	5.16	-1.958	0.000	0.736
30.00	-10.88	-13.31	0.00	-389.42	0.00	389.42	1161.61	580.80	1192.13	588.75	7.42	-2.337	0.000	0.671
30.92	-10.75	-13.26	0.00	-377.22	0.00	377.22	1156.17	578.09	1176.42	580.99	7.88	-2.409	0.000	0.659
34.75	-10.15	-12.91	0.00	-326.38	0.00	326.38	911.58	455.79	910.70	449.76	9.93	-2.693	0.000	0.738
35.00	-10.08	-12.93	0.00	-323.15	0.00	323.15	910.59	455.30	907.54	448.20	10.07	-2.712	0.000	0.733
40.00	-9.62	-12.51	0.00	-258.53	0.00	258.53	889.61	444.80	844.07	416.85	13.12	-3.093	0.000	0.632
45.00	-9.19	-12.10	0.00	-195.95	0.00	195.95	866.39	433.19	780.59	385.51	16.55	-3.437	0.000	0.520
50.00	-8.79	-11.69	0.00	-135.44	0.00	135.44	840.93	420.46	717.43	354.31	20.31	-3.730	0.000	0.393
55.00	-5.24	-6.66	0.00	-76.99	0.00	76.99	813.23	406.61	654.90	323.43	24.34	-3.951	0.000	0.245
60.00	-5.00	-6.26	0.00	-43.67	0.00	43.67	783.29	391.64	593.32	293.02	28.57	-4.100	0.000	0.156
65.00	-4.78	-5.86	0.00	-12.39	0.00	12.39	751.11	375.55	533.02	263.24	32.91	-4.183	0.000	0.054
67.00	-0.11	-0.23	0.00	-0.68	0.00	0.68	737.61	368.81	509.33	251.54	34.66	-4.192	0.000	0.003
70.00	0.00	-0.22	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	37.29	-4.193	0.000	0.000

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	246.89	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	238.02	1.000	0.000	5.00	13.556	13.56	464.0	0.0	337.0
10.00		1.00	0.85	19.450	21.40	229.15	1.000	0.000	5.00	13.060	13.06	447.1	0.0	324.6
15.00		1.00	0.85	19.450	21.40	220.28	1.000	0.000	5.00	12.564	12.56	430.1	0.0	312.1
20.00		1.00	0.90	20.638	22.70	217.77	1.000	0.000	5.00	12.068	12.07	438.3	0.0	299.7
25.00		1.00	0.95	21.630	23.79	213.59	1.000	0.000	5.00	11.572	11.57	440.5	0.0	287.3
30.00		1.00	0.98	22.477	24.72	208.19	1.000	0.000	5.00	11.076	11.08	438.2	0.0	274.9
30.92	Bot - Section 2	1.00	0.99	22.619	24.88	207.10	1.000	0.000	0.92	1.977	1.98	78.7	0.0	49.1
34.75	Top - Section 1	1.00	1.01	23.183	25.50	202.24	1.000	0.000	3.83	8.210	8.21	335.0	0.0	375.7
35.00		1.00	1.01	23.218	25.54	205.07	1.000	0.000	0.25	0.525	0.53	21.5	0.0	11.2
40.00		1.00	1.04	23.880	26.27	198.15	1.000	0.000	5.00	10.246	10.25	430.6	0.0	218.4
45.00		1.00	1.07	24.479	26.93	190.67	1.000	0.000	5.00	9.750	9.75	420.1	0.0	207.8
50.00		1.00	1.09	25.029	27.53	182.73	1.000	0.000	5.00	9.254	9.25	407.7	0.0	197.1
55.00	Appurtenance(s)	1.00	1.12	25.536	28.09	174.41	1.000	0.000	5.00	8.758	8.76	393.6	0.0	186.5
60.00		1.00	1.14	26.008	28.61	165.76	1.000	0.000	5.00	8.262	8.26	378.2	0.0	175.8
65.00		1.00	1.16	26.450	29.09	156.82	1.000	0.000	5.00	7.767	7.77	361.5	0.0	165.2
67.00	Appurtenance(s)	1.00	1.16	26.619	29.28	153.17	1.000	0.000	2.00	2.968	2.97	139.0	0.0	63.1
70.00		1.00	1.17	26.866	29.55	147.62	1.000	0.000	3.00	4.303	4.30	203.5	0.0	91.4
Totals:									70.00			5,827.6		3,576.8

Discrete Appurtenance Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 19

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	67.00	Ericsson 4424 B25	3	26.619	29.281	0.38	0.75	2.31	237.60	0.000	0.000	108.05	0.00	0.00
2	67.00	4480 B71 + B85	3	26.619	29.281	0.38	0.75	3.21	251.10	0.000	0.000	150.21	0.00	0.00
3	67.00	SitePro1 RMQP-4096-HK	1	26.619	29.281	1.00	1.00	51.70	2380.50	0.000	0.000	2422.13	0.00	0.00
4	67.00	Ericsson AIR6449 B41	3	26.619	29.281	0.53	0.75	9.03	278.10	0.000	0.000	422.86	0.00	0.00
5	67.00	RFS	3	26.619	29.281	0.52	0.75	31.88	345.60	0.000	0.000	1493.47	0.00	0.00
6	67.00	RFS	3	26.619	29.281	0.46	0.75	9.22	109.89	0.000	0.000	432.00	0.00	0.00
7	67.00	4460 B25 + B66	3	26.619	29.281	0.38	0.75	2.09	125.01	0.000	0.000	98.03	0.00	0.00
8	55.00	MOD	1	25.536	28.089	0.75	0.75	12.38	450.00	0.000	0.000	556.17	0.00	0.00
9	55.00	Antel BXA-80063-6BF w/	3	25.536	28.089	0.62	0.80	13.59	51.84	0.000	0.000	610.81	0.00	0.00
10	55.00	RFS DB-B1-6C-12AB-0Z	1	25.536	28.089	0.40	0.80	1.64	19.26	0.000	0.000	73.71	0.00	0.00
11	55.00	Samsung LTE 700/850	3	25.536	28.089	0.40	0.80	2.24	189.81	0.000	0.000	100.85	0.00	0.00
12	55.00	Samsung LTE AWS/PCS	3	25.536	28.089	0.40	0.80	2.24	227.88	0.000	0.000	100.85	0.00	0.00
13	55.00	Commscope	3	25.536	28.089	0.40	0.80	0.44	28.08	0.000	0.000	19.95	0.00	0.00
14	55.00	Samsung MT6407-77A	3	25.536	28.089	0.56	0.80	7.88	214.38	0.000	0.000	354.11	0.00	0.00
15	55.00	Commscope	6	25.536	28.089	0.66	0.80	36.29	341.82	0.000	0.000	1631.17	0.00	0.00
16	55.00	T-Arm	3	25.536	28.089	0.56	0.75	16.88	1080.00	0.000	0.000	758.41	0.00	0.00
17	55.00	RFS DB-T1-6Z-8AB-0Z	1	25.536	28.089	0.80	0.80	3.84	17.01	0.000	0.000	172.58	0.00	0.00
Totals:									6,347.88			9,505.38		

Total Applied Force Summary

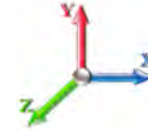
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 14

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		481.16	422.56	0.00	0.00
10.00		464.18	410.14	0.00	0.00
15.00		447.21	397.73	0.00	0.00
20.00		456.49	385.31	0.00	0.00
25.00		459.57	372.90	0.00	0.00
30.00		457.93	360.48	0.00	0.00
30.92		82.35	64.74	0.00	0.00
34.75		350.64	441.31	0.00	0.00
35.00		22.49	15.48	0.00	0.00
40.00		451.65	304.03	0.00	0.00
45.00		441.62	293.37	0.00	0.00
50.00		429.68	282.71	0.00	0.00
55.00	(27) attachments	4794.73	2892.14	0.00	0.00
60.00		401.09	195.34	0.00	0.00
65.00		384.82	184.68	0.00	0.00
67.00	(19) attachments	5275.16	3798.69	0.00	0.00
70.00		217.64	94.23	0.00	0.00
Totals:		15,618.42	10,915.84	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

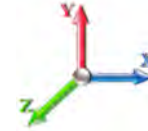
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 19

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	19.450	17.12	4.68
10.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	19.450	17.12	4.68
15.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	19.450	17.12	4.68
20.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	20.638	18.16	4.68
25.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	21.630	19.03	4.68
30.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	22.477	19.78	4.68
30.92	Step bolts (ladder)	Yes	0.92	1.200	1.00	0.08	0.09	0.000	0.000	22.619	3.65	0.86
34.75	Step bolts (ladder)	Yes	3.83	1.200	1.00	0.32	0.38	0.000	0.000	23.183	15.64	3.59
35.00	Step bolts (ladder)	Yes	0.25	1.200	1.00	0.02	0.02	0.000	0.000	23.218	1.02	0.23
40.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	23.880	21.01	4.68
45.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	24.479	21.54	4.68
50.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	25.029	22.03	4.68
55.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	25.536	22.47	4.68
60.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	26.008	22.89	4.68
65.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	26.450	23.28	4.68
67.00	Step bolts (ladder)	Yes	2.00	1.200	1.00	0.17	0.20	0.000	0.000	26.619	9.37	1.87
70.00	Step bolts (ladder)	Yes	3.00	1.200	1.00	0.25	0.30	0.000	0.000	26.866	14.19	2.81
Totals:											285.4	65.5

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

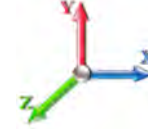


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Load Case: 0.9D + 1.6W 97 mph Wind

Iterations 19

Dead Load Factor 0.90
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-10.86	-15.66	0.00	-823.82	0.00	823.82	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.988
5.00	-10.34	-15.24	0.00	-745.54	0.00	745.54	1280.84	640.42	1620.84	800.47	0.21	-0.386	0.000	0.940
10.00	-9.83	-14.84	0.00	-669.33	0.00	669.33	1261.47	630.74	1535.99	758.57	0.82	-0.775	0.000	0.891
15.00	-9.34	-14.45	0.00	-595.11	0.00	595.11	1239.87	619.93	1450.37	716.28	1.85	-1.165	0.000	0.839
20.00	-8.87	-14.05	0.00	-522.85	0.00	522.85	1216.02	608.01	1364.31	673.78	3.28	-1.554	0.000	0.784
25.00	-8.43	-13.63	0.00	-452.62	0.00	452.62	1189.93	594.97	1278.12	631.22	5.11	-1.938	0.000	0.725
30.00	-8.03	-13.19	0.00	-384.46	0.00	384.46	1161.61	580.80	1192.13	588.75	7.35	-2.312	0.000	0.660
30.92	-7.93	-13.13	0.00	-372.36	0.00	372.36	1156.17	578.09	1176.42	580.99	7.80	-2.384	0.000	0.648
34.75	-7.47	-12.78	0.00	-322.03	0.00	322.03	911.58	455.79	910.70	449.76	9.83	-2.664	0.000	0.725
35.00	-7.41	-12.78	0.00	-318.83	0.00	318.83	910.59	455.30	907.54	448.20	9.97	-2.683	0.000	0.720
40.00	-7.05	-12.36	0.00	-254.91	0.00	254.91	889.61	444.80	844.07	416.85	12.98	-3.058	0.000	0.620
45.00	-6.72	-11.94	0.00	-193.09	0.00	193.09	866.39	433.19	780.59	385.51	16.37	-3.397	0.000	0.509
50.00	-6.41	-11.52	0.00	-133.38	0.00	133.38	840.93	420.46	717.43	354.31	20.09	-3.686	0.000	0.385
55.00	-3.83	-6.56	0.00	-75.76	0.00	75.76	813.23	406.61	654.90	323.43	24.08	-3.903	0.000	0.239
60.00	-3.65	-6.15	0.00	-42.96	0.00	42.96	783.29	391.64	593.32	293.02	28.25	-4.050	0.000	0.152
65.00	-3.49	-5.76	0.00	-12.19	0.00	12.19	751.11	375.55	533.02	263.24	32.54	-4.131	0.000	0.051
67.00	-0.08	-0.22	0.00	-0.67	0.00	0.67	737.61	368.81	509.33	251.54	34.27	-4.140	0.000	0.003
70.00	0.00	-0.22	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	36.87	-4.141	0.000	0.000

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

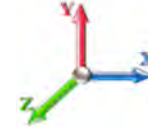


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	14.591	17.51	99.5	258.0	707.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	14.169	17.00	96.7	267.4	700.1
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	13.719	16.46	93.6	268.6	684.8
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	13.257	15.91	96.0	266.2	665.8
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	12.788	15.35	97.0	261.6	644.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	12.314	14.78	97.1	255.6	622.1
30.92	Bot - Section 2	1.00	0.99	6.010	6.61	0.00	1.200	1.490	0.92	2.204	2.65	17.5	46.6	112.0
34.75	Top - Section 1	1.00	1.01	6.160	6.78	0.00	1.200	1.508	3.83	9.174	11.01	74.6	193.6	694.6
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	0.25	0.588	0.71	4.8	12.6	27.5
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	11.521	13.82	96.5	244.4	535.6
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	5.00	11.040	13.25	94.8	235.9	513.0
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	10.557	12.67	92.7	226.9	489.8
55.00	Appurtenance(s)	1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	10.074	12.09	90.2	217.5	466.1
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	9.589	11.51	87.5	207.7	442.1
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	9.104	10.93	84.5	197.5	417.7
67.00	Appurtenance(s)	1.00	1.16	7.073	7.78	0.00	1.200	1.610	2.00	3.504	4.21	32.7	77.3	161.4
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	3.00	5.111	6.13	48.2	112.2	234.1
Totals:									70.00			1,303.7		8,118.6

Discrete Appurtenance Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

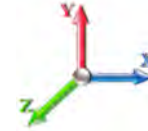


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 18

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	67.00	Ericsson 4424 B25	3	7.073	7.780	0.38	0.75	2.92	551.72	0.000	0.000	22.72	0.00	0.00
2	67.00	4480 B71 + B85	3	7.073	7.780	0.38	0.75	3.91	482.89	0.000	0.000	30.39	0.00	0.00
3	67.00	SitePro1 RMQP-4096-HK	1	7.073	7.780	1.00	1.00	86.99	4974.20	0.000	0.000	676.82	0.00	0.00
4	67.00	Ericsson AIR6449 B41	3	7.073	7.780	0.56	0.75	11.01	655.20	0.000	0.000	85.69	0.00	0.00
5	67.00	RFS	3	7.073	7.780	0.56	0.75	37.10	1606.14	0.000	0.000	288.68	0.00	0.00
6	67.00	RFS	3	7.073	7.780	0.46	0.75	12.02	370.00	0.000	0.000	93.55	0.00	0.00
7	67.00	4460 B25 + B66	3	7.073	7.780	0.38	0.75	2.67	331.27	0.000	0.000	20.80	0.00	0.00
8	55.00	MOD	1	6.785	7.463	0.75	0.75	23.31	986.73	0.000	0.000	174.01	0.00	0.00
9	55.00	Antel BXA-80063-6BF w/	3	6.785	7.463	0.62	0.80	15.67	520.31	0.000	0.000	116.93	0.00	0.00
10	55.00	RFS DB-B1-6C-12AB-0Z	1	6.785	7.463	0.40	0.80	1.93	103.27	0.000	0.000	14.40	0.00	0.00
11	55.00	Samsung LTE 700/850	3	6.785	7.463	0.40	0.80	2.86	436.72	0.000	0.000	21.35	0.00	0.00
12	55.00	Samsung LTE AWS/PCS	3	6.785	7.463	0.40	0.80	2.86	506.81	0.000	0.000	21.35	0.00	0.00
13	55.00	Commscope	3	6.785	7.463	0.48	0.80	0.89	91.19	0.000	0.000	6.67	0.00	0.00
14	55.00	Samsung MT6407-77A	3	6.785	7.463	0.58	0.80	9.58	603.75	0.000	0.000	71.49	0.00	0.00
15	55.00	Commscope	6	6.785	7.463	0.68	0.80	42.11	1685.97	0.000	0.000	314.30	0.00	0.00
16	55.00	T-Arm	3	6.785	7.463	0.56	0.75	30.19	1957.74	0.000	0.000	225.36	0.00	0.00
17	55.00	RFS DB-T1-6Z-8AB-0Z	1	6.785	7.463	0.80	0.80	4.57	105.10	0.000	0.000	34.09	0.00	0.00

Totals: 15,969.02

2,218.59

Total Applied Force Summary

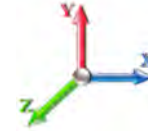
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		109.44	834.05	0.00	0.00
10.00		107.07	828.45	0.00	0.00
15.00		104.31	814.16	0.00	0.00
20.00		107.58	795.97	0.00	0.00
25.00		109.40	775.49	0.00	0.00
30.00		110.12	753.47	0.00	0.00
30.92		19.90	136.13	0.00	0.00
34.75		85.02	795.63	0.00	0.00
35.00		5.47	34.14	0.00	0.00
40.00		110.65	667.91	0.00	0.00
45.00		109.43	645.63	0.00	0.00
50.00		107.77	622.78	0.00	0.00
55.00	(27) attachments	1105.69	7597.04	0.00	0.00
60.00		103.38	487.63	0.00	0.00
65.00		100.73	463.54	0.00	0.00
67.00	(19) attachments	1257.93	9151.24	0.00	0.00
70.00		58.14	249.89	0.00	0.00
	Totals:	3,712.02	25,653.14	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



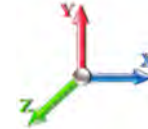
Page: 20

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

Iterations 18

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)
5.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.45	1.74	0.000	0.000	5.168	9.90	18.85
10.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.53	1.83	0.000	0.000	5.168	10.41	20.46
15.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.57	1.89	0.000	0.000	5.168	10.72	21.51
20.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.61	1.93	0.000	0.000	5.483	11.62	22.31
25.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.63	1.96	0.000	0.000	5.747	12.38	22.95
30.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.65	1.99	0.000	0.000	5.972	13.05	23.50
30.92	Step bolts (ladder)	Yes	0.92	1.200	1.00	0.30	0.36	0.000	0.000	6.010	2.41	4.33
34.75	Step bolts (ladder)	Yes	3.83	1.200	1.00	1.28	1.54	0.000	0.000	6.160	10.43	18.37
35.00	Step bolts (ladder)	Yes	0.25	1.200	1.00	0.08	0.10	0.000	0.000	6.169	0.68	1.20
40.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.69	2.03	0.000	0.000	6.345	14.16	24.40
45.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.71	2.05	0.000	0.000	6.504	14.65	24.79
50.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.72	2.06	0.000	0.000	6.650	15.10	25.14
55.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.73	2.08	0.000	0.000	6.785	15.51	25.46
60.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.74	2.09	0.000	0.000	6.910	15.91	25.76
65.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	1.75	2.11	0.000	0.000	7.028	16.27	26.04
67.00	Step bolts (ladder)	Yes	2.00	1.200	1.00	0.70	0.84	0.000	0.000	7.073	6.57	10.46
70.00	Step bolts (ladder)	Yes	3.00	1.200	1.00	1.06	1.27	0.000	0.000	7.138	9.97	15.79
Totals:											189.8	331.3

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

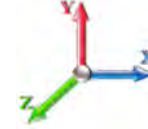


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 18

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	-25.65	-3.73	0.00	-204.10	0.00	204.10	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.262
5.00	-24.81	-3.67	0.00	-185.43	0.00	185.43	1280.84	640.42	1620.84	800.47	0.05	-0.096	0.000	0.251
10.00	-23.98	-3.60	0.00	-167.10	0.00	167.10	1261.47	630.74	1535.99	758.57	0.20	-0.193	0.000	0.239
15.00	-23.16	-3.53	0.00	-149.12	0.00	149.12	1239.87	619.93	1450.37	716.28	0.46	-0.290	0.000	0.227
20.00	-22.35	-3.45	0.00	-131.48	0.00	131.48	1216.02	608.01	1364.31	673.78	0.82	-0.388	0.000	0.214
25.00	-21.57	-3.37	0.00	-114.21	0.00	114.21	1189.93	594.97	1278.12	631.22	1.27	-0.485	0.000	0.199
30.00	-20.82	-3.28	0.00	-97.34	0.00	97.34	1161.61	580.80	1192.13	588.75	1.83	-0.579	0.000	0.183
30.92	-20.68	-3.27	0.00	-94.33	0.00	94.33	1156.17	578.09	1176.42	580.99	1.95	-0.597	0.000	0.180
34.75	-19.88	-3.19	0.00	-81.78	0.00	81.78	911.58	455.79	910.70	449.76	2.46	-0.668	0.000	0.204
35.00	-19.85	-3.20	0.00	-80.99	0.00	80.99	910.59	455.30	907.54	448.20	2.49	-0.673	0.000	0.203
40.00	-19.18	-3.12	0.00	-64.97	0.00	64.97	889.61	444.80	844.07	416.85	3.25	-0.769	0.000	0.177
45.00	-18.53	-3.02	0.00	-49.39	0.00	49.39	866.39	433.19	780.59	385.51	4.10	-0.855	0.000	0.150
50.00	-17.90	-2.93	0.00	-34.27	0.00	34.27	840.93	420.46	717.43	354.31	5.04	-0.929	0.000	0.118
55.00	-10.32	-1.70	0.00	-19.64	0.00	19.64	813.23	406.61	654.90	323.43	6.05	-0.985	0.000	0.073
60.00	-9.84	-1.59	0.00	-11.14	0.00	11.14	783.29	391.64	593.32	293.02	7.10	-1.023	0.000	0.051
65.00	-9.38	-1.49	0.00	-3.16	0.00	3.16	751.11	375.55	533.02	263.24	8.18	-1.044	0.000	0.025
67.00	-0.25	-0.06	0.00	-0.19	0.00	0.19	737.61	368.81	509.33	251.54	8.62	-1.047	0.000	0.001
70.00	0.00	-0.06	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	9.28	-1.047	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

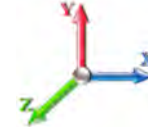


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Load Case: 1.2D + 1.0E

Iterations 17

Gust Response Factor 1.10	Sds 0.20	Ss 0.18
Dead Load Factor 1.20	Seismic Load Factor 1.00	S1 0.06
Wind Load Factor 0.00	Structure Frequency (f1) 0.54	SA 0.05
		Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		374.41	0.01	0.05	0.03	8.35	
10.00		360.61	0.04	0.07	0.04	10.14	
15.00		346.82	0.09	0.07	0.04	10.54	
20.00		333.02	0.15	0.07	0.03	10.71	
25.00		319.23	0.24	0.06	0.02	10.27	
30.00		305.44	0.35	0.03	0.01	8.19	
30.92	Bot - Section 2	54.50	0.37	0.03	0.01	1.36	
34.75	Top - Section 1	417.44	0.47	0.00	0.01	5.75	
35.00		12.45	0.47	-0.01	0.01	0.16	
40.00		242.71	0.62	-0.06	0.02	-1.58	
45.00		230.87	0.78	-0.11	0.05	-4.52	
50.00		219.03	0.96	-0.12	0.11	-3.16	
55.00	Appurtenance(s)	3118.3	1.17	-0.02	0.23	43.80	
60.00		195.34	1.39	0.26	0.42	13.13	
65.00		183.50	1.63	0.87	0.71	26.72	
67.00	Appurtenance(s)	4212.0	1.73	1.25	0.86	776.02	
70.00		101.58	1.89	1.98	1.14	25.40	
Totals:		11,027.4				941.3	Total Wind: 15,618.4

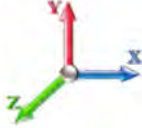
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E									Iterations 17
Gust Response Factor	1.10					Sds	0.20	Ss	0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.10	S1		S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.54	SA	0.05	Seismic Importance Factor			1.00

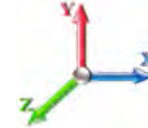
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.55	-0.95	0.00	-62.19	0.00	62.19	1297.97	648.99	1704.60	841.84	0.00	0.00	0.00	0.085
5.00	-13.99	-0.95	0.00	-57.42	0.00	57.42	1280.84	640.42	1620.84	800.47	0.02	-0.03	0.083	
10.00	-13.44	-0.95	0.00	-52.66	0.00	52.66	1261.47	630.74	1535.99	758.57	0.06	-0.06	0.080	
15.00	-12.91	-0.95	0.00	-47.91	0.00	47.91	1239.87	619.93	1450.37	716.28	0.14	-0.09	0.077	
20.00	-12.40	-0.94	0.00	-43.19	0.00	43.19	1216.02	608.01	1364.31	673.78	0.25	-0.12	0.074	
25.00	-11.90	-0.94	0.00	-38.48	0.00	38.48	1189.93	594.97	1278.12	631.22	0.40	-0.15	0.071	
30.00	-11.42	-0.93	0.00	-33.81	0.00	33.81	1161.61	580.80	1192.13	588.75	0.58	-0.19	0.067	
30.92	-11.33	-0.93	0.00	-32.95	0.00	32.95	1156.17	578.09	1176.42	580.99	0.62	-0.19	0.067	
34.75	-10.74	-0.93	0.00	-29.38	0.00	29.38	911.58	455.79	910.70	449.76	0.78	-0.22	0.077	
35.00	-10.72	-0.93	0.00	-29.15	0.00	29.15	910.59	455.30	907.54	448.20	0.79	-0.22	0.077	
40.00	-10.32	-0.93	0.00	-24.51	0.00	24.51	889.61	444.80	844.07	416.85	1.04	-0.26	0.070	
45.00	-9.93	-0.94	0.00	-19.84	0.00	19.84	866.39	433.19	780.59	385.51	1.33	-0.29	0.063	
50.00	-9.55	-0.94	0.00	-15.15	0.00	15.15	840.93	420.46	717.43	354.31	1.65	-0.32	0.054	
55.00	-5.69	-0.88	0.00	-10.45	0.00	10.45	813.23	406.61	654.90	323.43	2.00	-0.35	0.039	
60.00	-5.43	-0.86	0.00	-6.07	0.00	6.07	783.29	391.64	593.32	293.02	2.37	-0.37	0.028	
65.00	-5.19	-0.84	0.00	-1.75	0.00	1.75	751.11	375.55	533.02	263.24	2.76	-0.38	0.014	
67.00	-0.13	-0.03	0.00	-0.08	0.00	0.08	737.61	368.81	509.33	251.54	2.92	-0.38	0.000	
70.00	0.00	-0.03	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	3.16	-0.38	0.000	

Seismic Segment Forces (Factored)

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E						Iterations	17
Gust Response Factor	1.10	Sds	0.20	Ss		Ss	0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.54	SA	0.05	Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		374.41	0.01	0.05	0.03	8.35	
10.00		360.61	0.04	0.07	0.04	10.14	
15.00		346.82	0.09	0.07	0.04	10.54	
20.00		333.02	0.15	0.07	0.03	10.71	
25.00		319.23	0.24	0.06	0.02	10.27	
30.00		305.44	0.35	0.03	0.01	8.19	
30.92	Bot - Section 2	54.50	0.37	0.03	0.01	1.36	
34.75	Top - Section 1	417.44	0.47	0.00	0.01	5.75	
35.00		12.45	0.47	-0.01	0.01	0.16	
40.00		242.71	0.62	-0.06	0.02	-1.58	
45.00		230.87	0.78	-0.11	0.05	-4.52	
50.00		219.03	0.96	-0.12	0.11	-3.16	
55.00	Appurtenance(s)	3118.3	1.17	-0.02	0.23	43.80	
60.00		195.34	1.39	0.26	0.42	13.13	
65.00		183.50	1.63	0.87	0.71	26.72	
67.00	Appurtenance(s)	4212.0	1.73	1.25	0.86	776.02	
70.00		101.58	1.89	1.98	1.14	25.40	
Totals:		11,027.4				941.3	Total Wind: 15,618.4

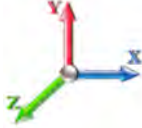
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E									Iterations 17
Gust Response Factor	1.10					Sds	0.20	Ss	0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.10	S1		S1	0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.54	SA	0.05	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	-10.92	-0.95	0.00	-61.61	0.00	61.61	1297.97	648.99	1704.60	841.84	0.00	0.00	0.00	0.082
5.00	-10.49	-0.95	0.00	-56.84	0.00	56.84	1280.84	640.42	1620.84	800.47	0.02	-0.03	0.079	
10.00	-10.08	-0.94	0.00	-52.10	0.00	52.10	1261.47	630.74	1535.99	758.57	0.06	-0.06	0.077	
15.00	-9.68	-0.94	0.00	-47.37	0.00	47.37	1239.87	619.93	1450.37	716.28	0.14	-0.09	0.074	
20.00	-9.30	-0.93	0.00	-42.68	0.00	42.68	1216.02	608.01	1364.31	673.78	0.25	-0.12	0.071	
25.00	-8.92	-0.93	0.00	-38.02	0.00	38.02	1189.93	594.97	1278.12	631.22	0.40	-0.15	0.068	
30.00	-8.56	-0.92	0.00	-33.38	0.00	33.38	1161.61	580.80	1192.13	588.75	0.57	-0.18	0.064	
30.92	-8.50	-0.92	0.00	-32.54	0.00	32.54	1156.17	578.09	1176.42	580.99	0.61	-0.19	0.063	
34.75	-8.06	-0.92	0.00	-29.01	0.00	29.01	911.58	455.79	910.70	449.76	0.77	-0.22	0.073	
35.00	-8.04	-0.92	0.00	-28.78	0.00	28.78	910.59	455.30	907.54	448.20	0.78	-0.22	0.073	
40.00	-7.74	-0.92	0.00	-24.19	0.00	24.19	889.61	444.80	844.07	416.85	1.03	-0.25	0.067	
45.00	-7.44	-0.92	0.00	-19.59	0.00	19.59	866.39	433.19	780.59	385.51	1.31	-0.29	0.059	
50.00	-7.16	-0.93	0.00	-14.97	0.00	14.97	840.93	420.46	717.43	354.31	1.63	-0.32	0.051	
55.00	-4.27	-0.87	0.00	-10.34	0.00	10.34	813.23	406.61	654.90	323.43	1.97	-0.34	0.037	
60.00	-4.07	-0.85	0.00	-6.00	0.00	6.00	783.29	391.64	593.32	293.02	2.34	-0.36	0.026	
65.00	-3.89	-0.83	0.00	-1.73	0.00	1.73	751.11	375.55	533.02	263.24	2.73	-0.37	0.012	
67.00	-0.09	-0.03	0.00	-0.08	0.00	0.08	737.61	368.81	509.33	251.54	2.89	-0.38	0.000	
70.00	0.00	-0.03	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	3.12	-0.38	0.000	

Wind Loading - Shaft

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	152.72	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	147.23	1.000	0.000	5.00	13.556	13.56	111.0	0.0	374.4
10.00		1.00	0.85	7.442	8.19	141.74	1.000	0.000	5.00	13.060	13.06	106.9	0.0	360.6
15.00		1.00	0.85	7.442	8.19	136.26	1.000	0.000	5.00	12.564	12.56	102.8	0.0	346.8
20.00		1.00	0.90	7.896	8.69	134.70	1.000	0.000	5.00	12.068	12.07	104.8	0.0	333.0
25.00		1.00	0.95	8.276	9.10	132.12	1.000	0.000	5.00	11.572	11.57	105.3	0.0	319.2
30.00		1.00	0.98	8.600	9.46	128.78	1.000	0.000	5.00	11.076	11.08	104.8	0.0	305.4
30.92	Bot - Section 2	1.00	0.99	8.654	9.52	128.10	1.000	0.000	0.92	1.977	1.98	18.8	0.0	54.5
34.75	Top - Section 1	1.00	1.01	8.870	9.76	125.10	1.000	0.000	3.83	8.210	8.21	80.1	0.0	417.4
35.00		1.00	1.01	8.883	9.77	126.85	1.000	0.000	0.25	0.525	0.53	5.1	0.0	12.4
40.00		1.00	1.04	9.137	10.05	122.57	1.000	0.000	5.00	10.246	10.25	103.0	0.0	242.7
45.00		1.00	1.07	9.366	10.30	117.94	1.000	0.000	5.00	9.750	9.75	100.5	0.0	230.9
50.00		1.00	1.09	9.576	10.53	113.03	1.000	0.000	5.00	9.254	9.25	97.5	0.0	219.0
55.00	Appurtenance(s)	1.00	1.12	9.770	10.75	107.88	1.000	0.000	5.00	8.758	8.76	94.1	0.0	207.2
60.00		1.00	1.14	9.951	10.95	102.53	1.000	0.000	5.00	8.262	8.26	90.4	0.0	195.3
65.00		1.00	1.16	10.120	11.13	97.00	1.000	0.000	5.00	7.767	7.77	86.5	0.0	183.5
67.00	Appurtenance(s)	1.00	1.16	10.185	11.20	94.74	1.000	0.000	2.00	2.968	2.97	33.2	0.0	70.1
70.00		1.00	1.17	10.279	11.31	91.31	1.000	0.000	3.00	4.303	4.30	48.7	0.0	101.6
Totals:									70.00			1,393.6		3,974.2

Discrete Appurtenance Forces

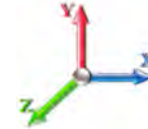
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 18

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	67.00	Ericsson 4424 B25	3	10.185	11.203	0.38	0.75	2.31	264.00	0.000	0.000	25.84	0.00	0.00
2	67.00	4480 B71 + B85	3	10.185	11.203	0.38	0.75	3.21	279.00	0.000	0.000	35.92	0.00	0.00
3	67.00	SitePro1 RMQP-4096-HK	1	10.185	11.203	1.00	1.00	51.70	2645.00	0.000	0.000	579.21	0.00	0.00
4	67.00	Ericsson AIR6449 B41	3	10.185	11.203	0.53	0.75	9.03	309.00	0.000	0.000	101.12	0.00	0.00
5	67.00	RFS	3	10.185	11.203	0.52	0.75	31.88	384.00	0.000	0.000	357.14	0.00	0.00
6	67.00	RFS	3	10.185	11.203	0.46	0.75	9.22	122.10	0.000	0.000	103.31	0.00	0.00
7	67.00	4460 B25 + B66	3	10.185	11.203	0.38	0.75	2.09	138.90	0.000	0.000	23.44	0.00	0.00
8	55.00	MOD	1	9.770	10.747	0.75	0.75	12.38	500.00	0.000	0.000	133.00	0.00	0.00
9	55.00	Antel BXA-80063-6BF w/	3	9.770	10.747	0.62	0.80	13.59	57.60	0.000	0.000	146.06	0.00	0.00
10	55.00	RFS DB-B1-6C-12AB-0Z	1	9.770	10.747	0.40	0.80	1.64	21.40	0.000	0.000	17.63	0.00	0.00
11	55.00	Samsung LTE 700/850	3	9.770	10.747	0.40	0.80	2.24	210.90	0.000	0.000	24.12	0.00	0.00
12	55.00	Samsung LTE AWS/PCS	3	9.770	10.747	0.40	0.80	2.24	253.20	0.000	0.000	24.12	0.00	0.00
13	55.00	Commscope	3	9.770	10.747	0.40	0.80	0.44	31.20	0.000	0.000	4.77	0.00	0.00
14	55.00	Samsung MT6407-77A	3	9.770	10.747	0.56	0.80	7.88	238.20	0.000	0.000	84.68	0.00	0.00
15	55.00	Commscope	6	9.770	10.747	0.66	0.80	36.29	379.80	0.000	0.000	390.07	0.00	0.00
16	55.00	T-Arm	3	9.770	10.747	0.56	0.75	16.88	1200.00	0.000	0.000	181.36	0.00	0.00
17	55.00	RFS DB-T1-6Z-8AB-0Z	1	9.770	10.747	0.80	0.80	3.84	18.90	0.000	0.000	41.27	0.00	0.00

Totals: 7,053.20

2,273.05

Total Applied Force Summary

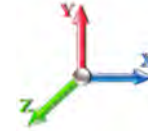
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 18

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		115.06	469.51	0.00	0.00
10.00		111.00	455.71	0.00	0.00
15.00		106.94	441.92	0.00	0.00
20.00		109.16	428.12	0.00	0.00
25.00		109.90	414.33	0.00	0.00
30.00		109.51	400.54	0.00	0.00
30.92		19.69	71.94	0.00	0.00
34.75		83.85	490.35	0.00	0.00
35.00		5.38	17.20	0.00	0.00
40.00		108.00	337.81	0.00	0.00
45.00		105.61	325.97	0.00	0.00
50.00		102.75	314.13	0.00	0.00
55.00	(27) attachments	1146.58	3213.49	0.00	0.00
60.00		95.91	217.04	0.00	0.00
65.00		92.02	205.20	0.00	0.00
67.00	(19) attachments	1261.46	4220.77	0.00	0.00
70.00		52.04	104.70	0.00	0.00
	Totals:	3,734.88	12,128.71	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

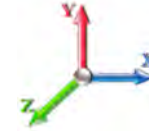
Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 18

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	7.442	4.09	5.20
10.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	7.442	4.09	5.20
15.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	7.442	4.09	5.20
20.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	7.896	4.34	5.20
25.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	8.276	4.55	5.20
30.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	8.600	4.73	5.20
30.92	Step bolts (ladder)	Yes	0.92	1.200	1.00	0.08	0.09	0.000	0.000	8.654	0.87	0.95
34.75	Step bolts (ladder)	Yes	3.83	1.200	1.00	0.32	0.38	0.000	0.000	8.870	3.74	3.99
35.00	Step bolts (ladder)	Yes	0.25	1.200	1.00	0.02	0.02	0.000	0.000	8.883	0.24	0.26
40.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	9.137	5.03	5.20
45.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	9.366	5.15	5.20
50.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	9.576	5.27	5.20
55.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	9.770	5.37	5.20
60.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	9.951	5.47	5.20
65.00	Step bolts (ladder)	Yes	5.00	1.200	1.00	0.42	0.50	0.000	0.000	10.120	5.57	5.20
67.00	Step bolts (ladder)	Yes	2.00	1.200	1.00	0.17	0.20	0.000	0.000	10.185	2.24	2.08
70.00	Step bolts (ladder)	Yes	3.00	1.200	1.00	0.25	0.30	0.000	0.000	10.279	3.39	3.12
Totals:											68.2	72.8

Calculated Forces

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

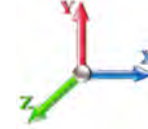


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 18

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	-12.13	-3.74	0.00	-197.72	0.00	197.72	1297.97	648.99	1704.60	841.84	0.00	0.000	0.000	0.244
5.00	-11.65	-3.65	0.00	-179.00	0.00	179.00	1280.84	640.42	1620.84	800.47	0.05	-0.093	0.000	0.233
10.00	-11.19	-3.55	0.00	-160.76	0.00	160.76	1261.47	630.74	1535.99	758.57	0.20	-0.186	0.000	0.221
15.00	-10.74	-3.46	0.00	-142.99	0.00	142.99	1239.87	619.93	1450.37	716.28	0.44	-0.280	0.000	0.208
20.00	-10.31	-3.37	0.00	-125.67	0.00	125.67	1216.02	608.01	1364.31	673.78	0.79	-0.373	0.000	0.195
25.00	-9.89	-3.27	0.00	-108.83	0.00	108.83	1189.93	594.97	1278.12	631.22	1.23	-0.465	0.000	0.181
30.00	-9.49	-3.17	0.00	-92.48	0.00	92.48	1161.61	580.80	1192.13	588.75	1.76	-0.556	0.000	0.165
30.92	-9.41	-3.15	0.00	-89.57	0.00	89.57	1156.17	578.09	1176.42	580.99	1.87	-0.573	0.000	0.162
34.75	-8.92	-3.07	0.00	-77.49	0.00	77.49	911.58	455.79	910.70	449.76	2.36	-0.640	0.000	0.182
35.00	-8.90	-3.07	0.00	-76.72	0.00	76.72	910.59	455.30	907.54	448.20	2.39	-0.645	0.000	0.181
40.00	-8.56	-2.97	0.00	-61.36	0.00	61.36	889.61	444.80	844.07	416.85	3.12	-0.735	0.000	0.157
45.00	-8.23	-2.87	0.00	-46.50	0.00	46.50	866.39	433.19	780.59	385.51	3.93	-0.817	0.000	0.130
50.00	-7.92	-2.77	0.00	-32.13	0.00	32.13	840.93	420.46	717.43	354.31	4.83	-0.886	0.000	0.100
55.00	-4.72	-1.58	0.00	-18.26	0.00	18.26	813.23	406.61	654.90	323.43	5.79	-0.939	0.000	0.062
60.00	-4.51	-1.48	0.00	-10.35	0.00	10.35	783.29	391.64	593.32	293.02	6.79	-0.974	0.000	0.041
65.00	-4.30	-1.39	0.00	-2.94	0.00	2.94	751.11	375.55	533.02	263.24	7.82	-0.993	0.000	0.017
67.00	-0.10	-0.05	0.00	-0.16	0.00	0.16	737.61	368.81	509.33	251.54	8.24	-0.996	0.000	0.001
70.00	0.00	-0.05	0.00	0.00	0.00	0.00	716.69	358.35	474.32	234.25	8.87	-0.996	0.000	0.000

Final Analysis Summary

Structure: CT46147-A-SBA	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	15.7	0.00	14.50	0.00	0.00	830.80
0.9D + 1.6W 97 mph Wind	15.7	0.00	10.86	0.00	0.00	823.82
1.2D + 1.0Di + 1.0Wi 50 mph Wind	3.7	0.00	25.65	0.00	0.00	204.10
1.2D + 1.0E	1.0	0.00	14.55	0.00	0.00	62.19
0.9D + 1.0E	1.0	0.00	10.92	0.00	0.00	61.61
1.0D + 1.0W 60 mph Wind	3.7	0.00	12.13	0.00	0.00	197.72

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-14.50	-15.67	0.00	-830.80	0.00	-830.80	1297.97	648.99	1704.60	841.84	0.00	0.999
0.9D + 1.6W 97 mph Wind	-10.86	-15.66	0.00	-823.82	0.00	-823.82	1297.97	648.99	1704.60	841.84	0.00	0.988
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-25.65	-3.73	0.00	-204.10	0.00	-204.10	1297.97	648.99	1704.60	841.84	0.00	0.262
1.2D + 1.0E	-14.55	-0.95	0.00	-62.19	0.00	-62.19	1297.97	648.99	1704.60	841.84	0.00	0.085
0.9D + 1.0E	-10.92	-0.95	0.00	-61.61	0.00	-61.61	1297.97	648.99	1704.60	841.84	0.00	0.082
1.0D + 1.0W 60 mph Wind	-12.13	-3.74	0.00	-197.72	0.00	-197.72	1297.97	648.99	1704.60	841.84	0.00	0.244

Base Plate Summary

Structure: CT46147-A-SB	Code: EIA/TIA-222-G	12/20/2021
Site Name: New Haven Tweed	Exposure: C	
Height: 70.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 39.13
Moment (kip-ft): 723.00	Width (in): 45.13	Number Bolts: 8.00
Axial (kip): 10.29	Style: Round	Bolt Type: 2.25" 18J
Shear (kip): 12.98	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.6W)	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 830.80	Effective Len (in): 20.00	Ultimate (ksi): 100.00
Axial (kip): 14.50	Moment (kip-in): 465.58	Arrangement: Radial
Shear (kip): 15.67	Allow Stress (ksi): 81.00	Cluster Dist (in): 0.00
	Applied Stress (ksi): 34.83	Start Angle (deg): 0.00
	Stress Ratio: 0.43	Compression
		Force (kip): 130.60
		Allowable (kip): 260.00
		Ratio: 0.52
		Tension
		Force (kip): 124.18
		Allowable (kip): 260.00
		Ratio: 0.49



Pier Foundation Design For Monopole			Date
			12/20/2021
Customer Name:	T-Mobile Sprint	EIA/TIA Standard:	EIA-222-G
Site Name:		Structure Height (Ft.):	70
Site Number:	CT46147-A-SBA	Engineer Name:	J. Chen
Engr. Number:	120761	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	14.5	Shear Force (Kips):	15.7
Uplift Force (Kips):	0.0	Moment (Kips-ft):	830.8

Foundation Geometries:

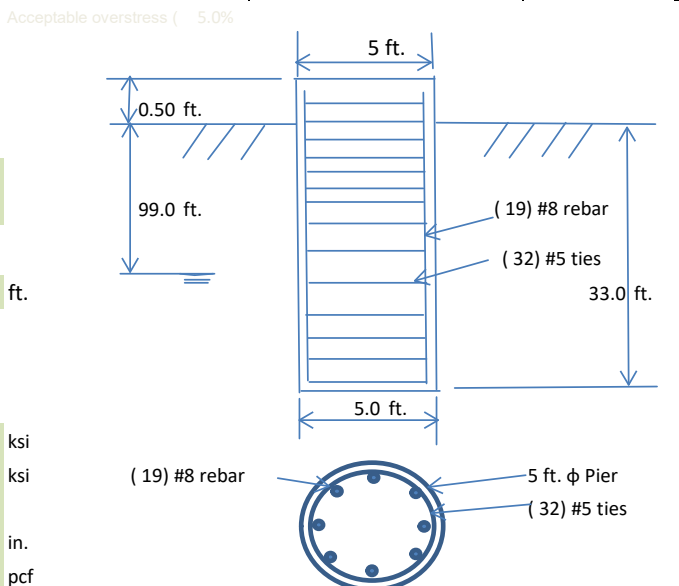
Diameter of Pier (ft.):	5.0	Depth of Base B. G. S. :	33.0 ft.
Pier Height A. G. (ft.):	0.50		

Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000 ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	60 ksi
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5
Qty. of Vertical Rebars:	19	Tie Spacing:	16.0 in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0 pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit weight of water:	62.4 psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30 (°)
Skin Frictions are to be obtained from:	Soil Report		



Monopole Pier Foundation

Clay
5000

Depth of Layers (ft)		γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types					
Top	Bottom											
0.0	3.0	120	28	0	0	0	Sand					
3.0	8.0	120	32	0	0	0	Sand					
8.0	11.0	110	32	0	0	0	Sand					
11.0	14.0	95	32	0	0	0	Sand					
14.0	51.0	115	32	0	0	0	Sand					
51.0	56.0											

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.):	17473	Dry Soil Weight from Conical Failure:	1819 Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	0	Buoyant Soil Weight from Conical Failure (Kips):	0 Kips
Total Dry Concrete Volume (cu. Ft.):	658	Total Dry Concrete Weight:	98.7 Kips
Total Buoyant Concrete Volume (cu. Ft.):	0.0	Total Buoyant Concrete Weight:	0.00 Kips
Total Effective Concrete Weight (Kips):	98.7	Total Effective Soil Weight:	1819.0 Kips
Total Effective Vertical Load on Base (Kips):	45.7		

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	12224.8	>	Design Factored Moment (kips-ft):	1190	Usage	0.10	OK!
Factor of Safety of Passive Soil Resistance against Moment:	10.28						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):	0.79		Tie / Stirrup Area (sq. in./each):	0.31	Usage		
Calculated Moment Capacity (Mn, Kips-Ft):	1730.0	>	Design Factored Moment (Mu, K-Ft):	872.9		0.50	OK!
Calculated Shear Capacity (Kips):	444.6	>	Design Factored Shear (Kips):	77.5		0.17	OK!
Calculated Tension Capacity (Tn, Kips):	810.5	>	Design Factored Tension (Tu Kips):	0.0		0.00	OK!
Calculated Compression Capacity (Pn, Kips):	4972	>	Design Factored Axial Load (Pu Kips):	14.5		0.00	OK!
Moment & Axial Strength Combination:	0.50	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00			in.
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI				

EXHIBIT 8

Mount Analysis



Tower Engineering Solutions

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

Antenna Mount Analysis Report

Existing 70-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT46147-A-SBA / New Haven Tweed

Customer Site Name: New Haven Tweed

Carrier Name: T-Mobile Sprint (App#: 181566-1)

Carrier Site ID / Name: CT70XC121 / Nextel Colo

Site Location: 60 Commerce Street

East Haven, Connecticut

NEW HAVEN County

Latitude: 41.251233

Longitude: -72.882094

Exp. 01/31/2022



Analysis Result:

12/10/2021

Max Structural Usage: 69.6 % [Pass]

Report Prepared By: Sandesh Khawas Bhujel

NOTE: The proposed mount (1) Site Pro 1 RMQP-4096-HK + (6) WWM01-DCP was assumed to be installed properly to the existing tower per the manufacturer's instructions. Tower Engineering Solutions, LLC is not liable for any fit-up issues during installation.

Introduction

The purpose of this report is to summarize the analysis results on the (1) Site Pro 1 RMQP-4096-HK + (6) WWM01-DCP at 67.00' 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 Drawings	Mount info by SBA, Site name: New Haven Tweed, Dated 03/24/2014
Antenna Loading	SBA, Application #: 181566, v1, Dated 12/10/2021

Analysis Criteria

Basic Wind Speed Used in the Analysis: $V_{ULT} = 125$ mph (3-Sec. Gust) / Equivalent to
 $V_{ASD} = 97$ mph (3-Sec. Gust)

Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 0.75" radial ice concurrent

Operational Wind Speed: 60 mph +0" Radial ice

Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC

Exposure Category: C

Structure Class: II

Topographic Category: 1

Crest Height (Ft): 0

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

Mount Information

(1) Site Pro 1 RMQP-4096-HK + (6) WWM01-DCP at 67.00' elevation

Final Antenna Configuration

3 RFS APX16DWV-16DWVS-E-A20
3 RFS APXVAALL24_43-U-NA20
3 Ericsson AIR6449 B41
3 Ericsson 4480 B71 + B85
3 Ericsson 4424 B25
3 Ericsson 4460 B25 + B66

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 proposed mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 69.6%, which occurs in the connection plate. 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.

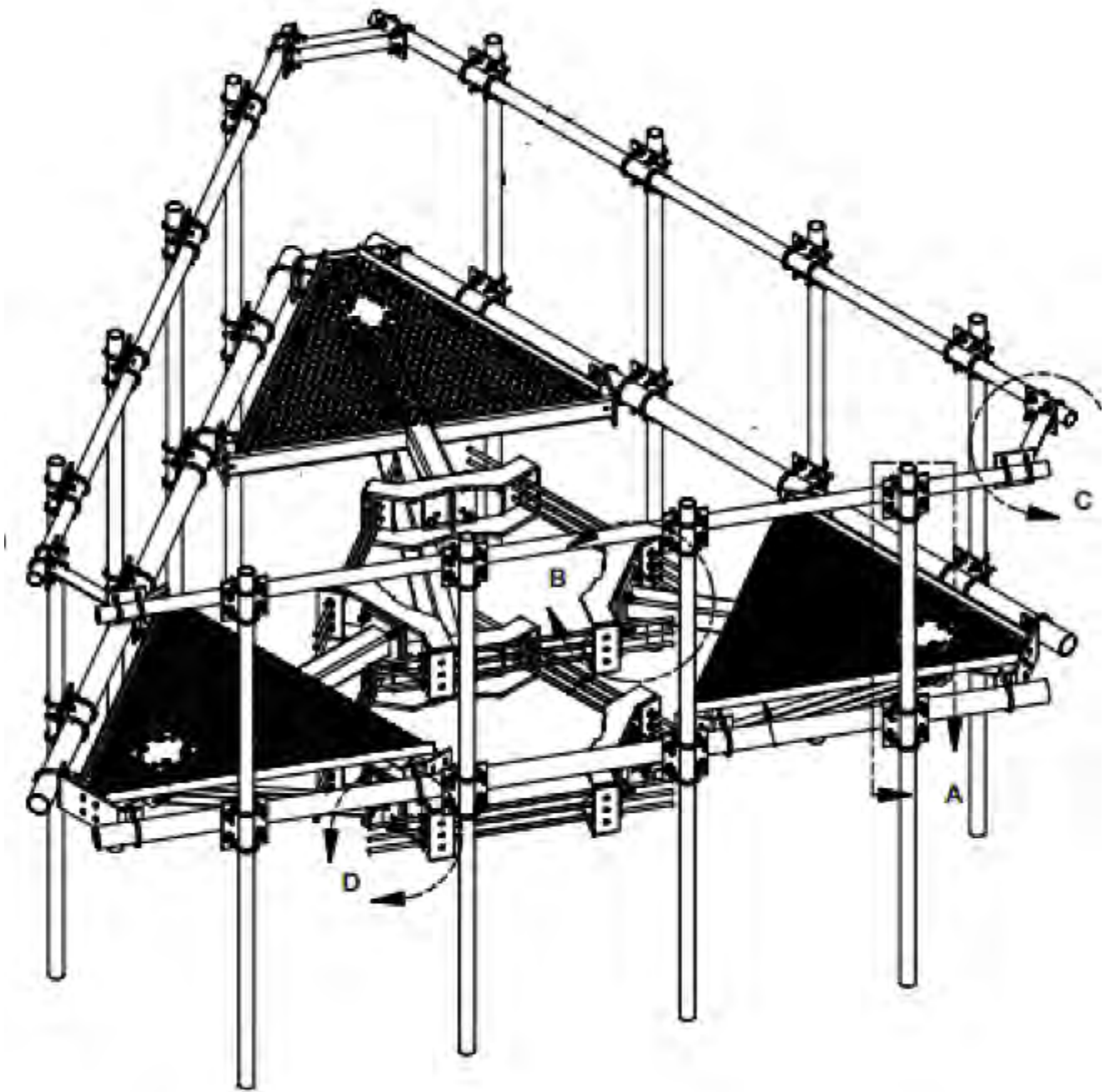
NOTE: The proposed mount (1) Site Pro 1 RMQP-4096-HK + (6) WWM01-DCP was assumed to be installed properly to the existing tower per the manufacturer's instructions. Tower Engineering Solutions, LLC is not liable for any fit-up issues during installation.

Attachments

1. Mount Diagram
2. Antenna Placement Diagram
3. Analysis Calculations

Standard Conditions

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



Structure: CT46147-A-SBA - New Haven Tweed

Sector: **A**

12/10/2021

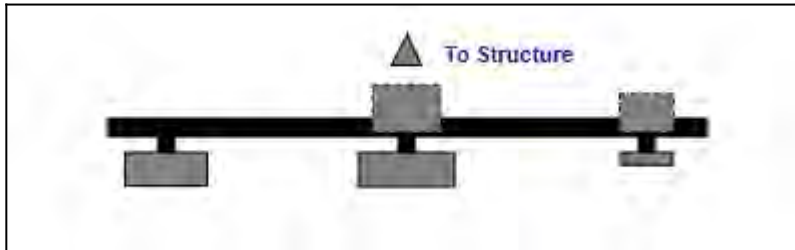


Structure Type: Monopole

Page: 1

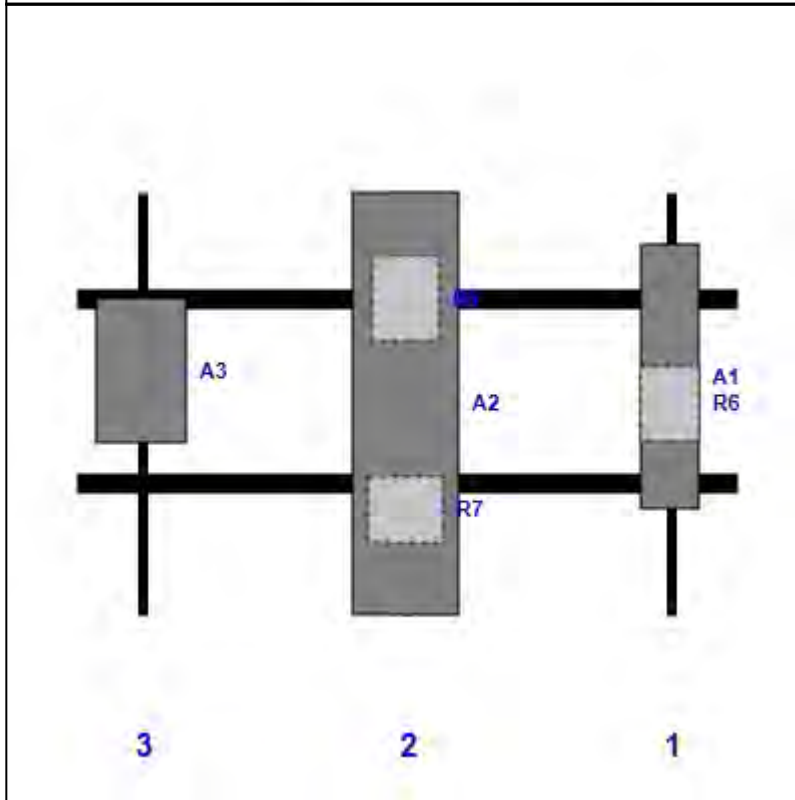
Mount Elev: 67.00

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	APX16DWV-16DWVS-E-A20	59.90	13.00	135.00	1	a	Front	42.00			
R6	4424 B25	16.50	13.50	135.00	1	a	Behind	48.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	75.00	2	a	Front	48.00			
R5	4480 B71 + B85	19.20	15.10	75.00	2	a	Behind	24.00			
R7	4460 B25 + B66	15.10	17.00	75.00	2	a	Behind	72.00			
A3	AIR6449 B41	33.10	20.50	15.00	3	a	Front	40.50			

Structure: CT46147-A-SBA - New Haven Tweed

Sector: **B**

12/10/2021

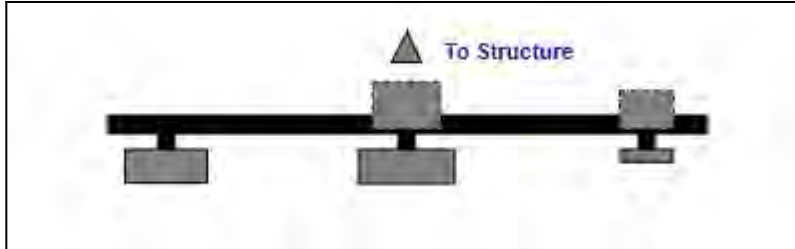
Structure Type: Monopole

Mount Elev: 67.00

Page: 2

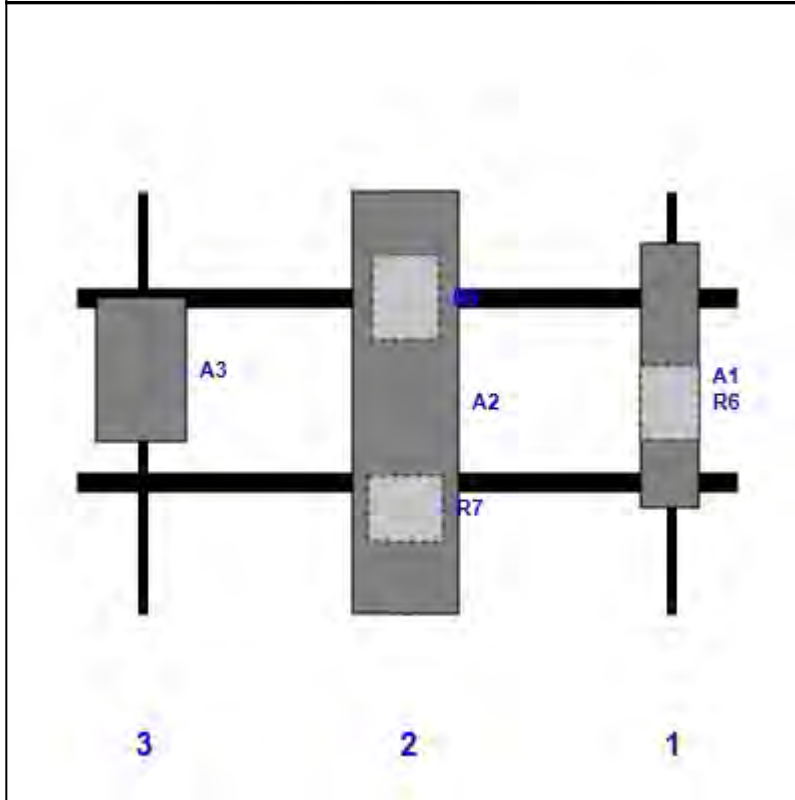


Plan View



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	APX16DWV-16DWVS-E-A20	59.90	13.00	135.00	1	a	Front	42.00			
R6	4424 B25	16.50	13.50	135.00	1	a	Behind	48.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	75.00	2	a	Front	48.00			
R5	4480 B71 + B85	19.20	15.10	75.00	2	a	Behind	24.00			
R7	4460 B25 + B66	15.10	17.00	75.00	2	a	Behind	72.00			
A3	AIR6449 B41	33.10	20.50	15.00	3	a	Front	40.50			

Structure: CT46147-A-SBA - New Haven Tweed

Sector: C

12/10/2021

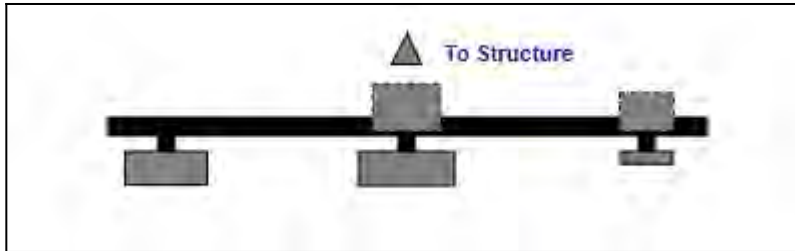
Structure Type: Monopole

Mount Elev: 67.00

Page: 3

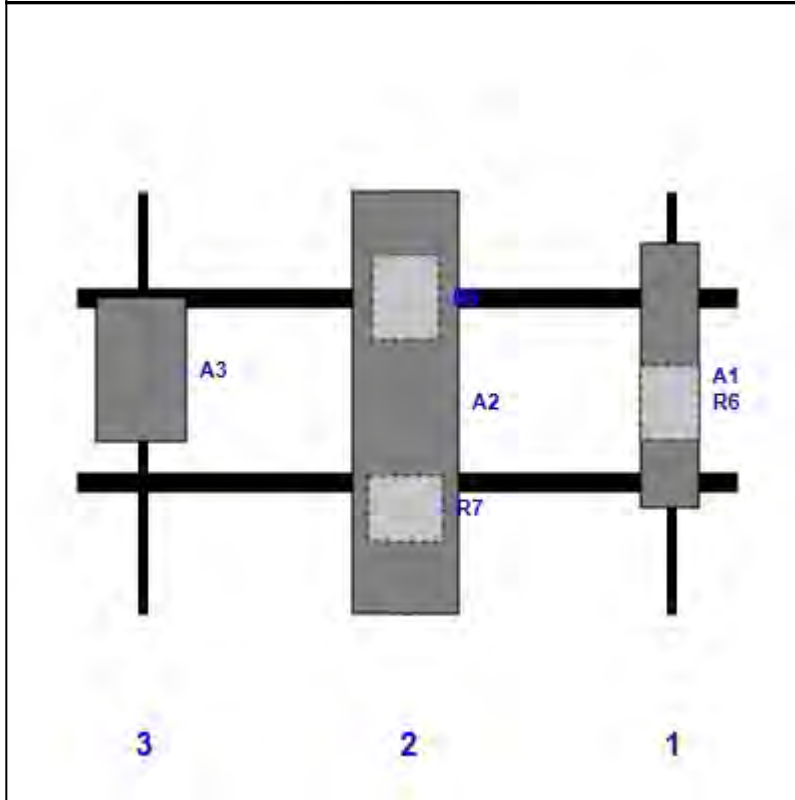


Plan View

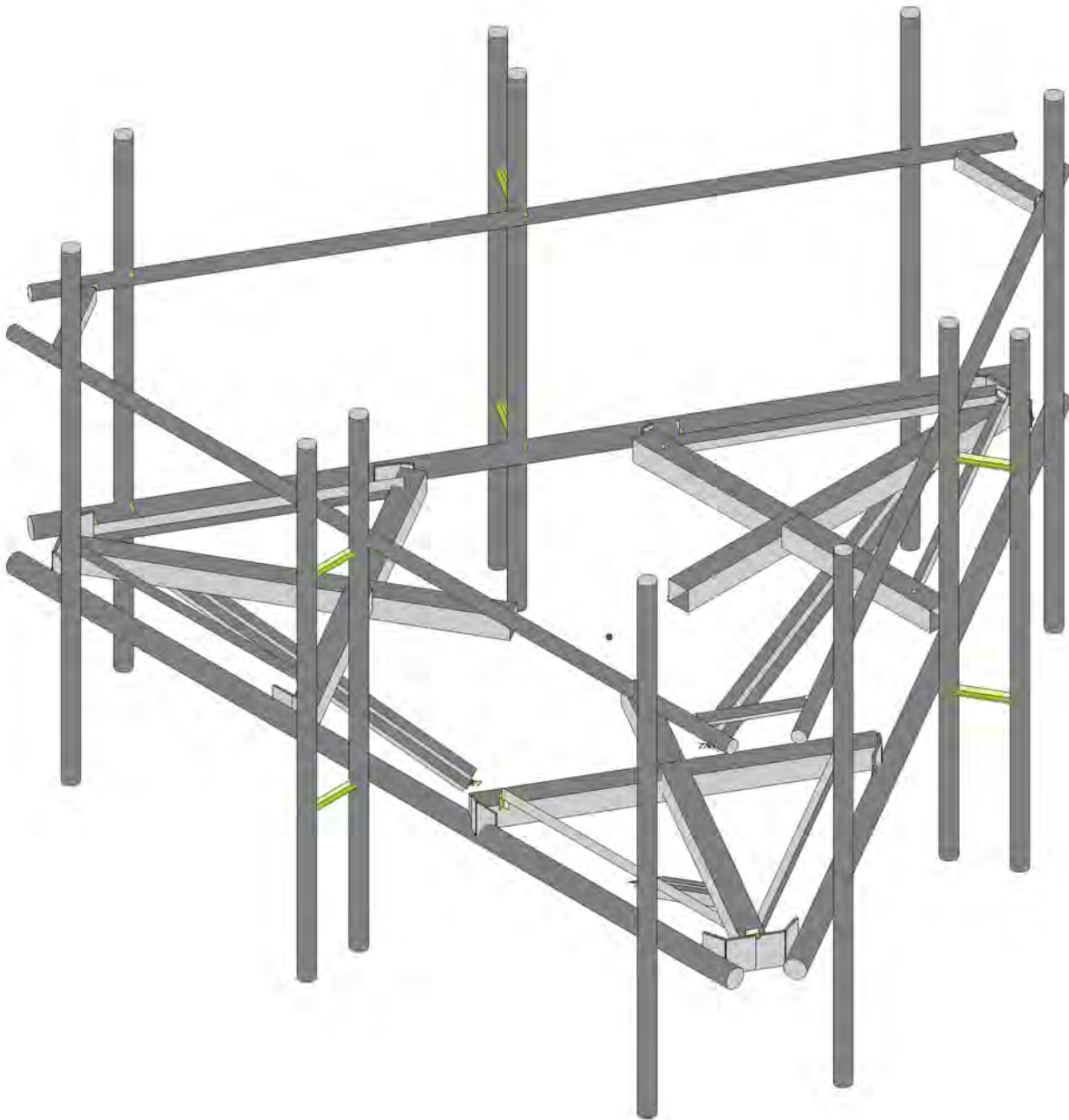
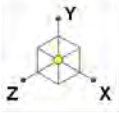


Front View

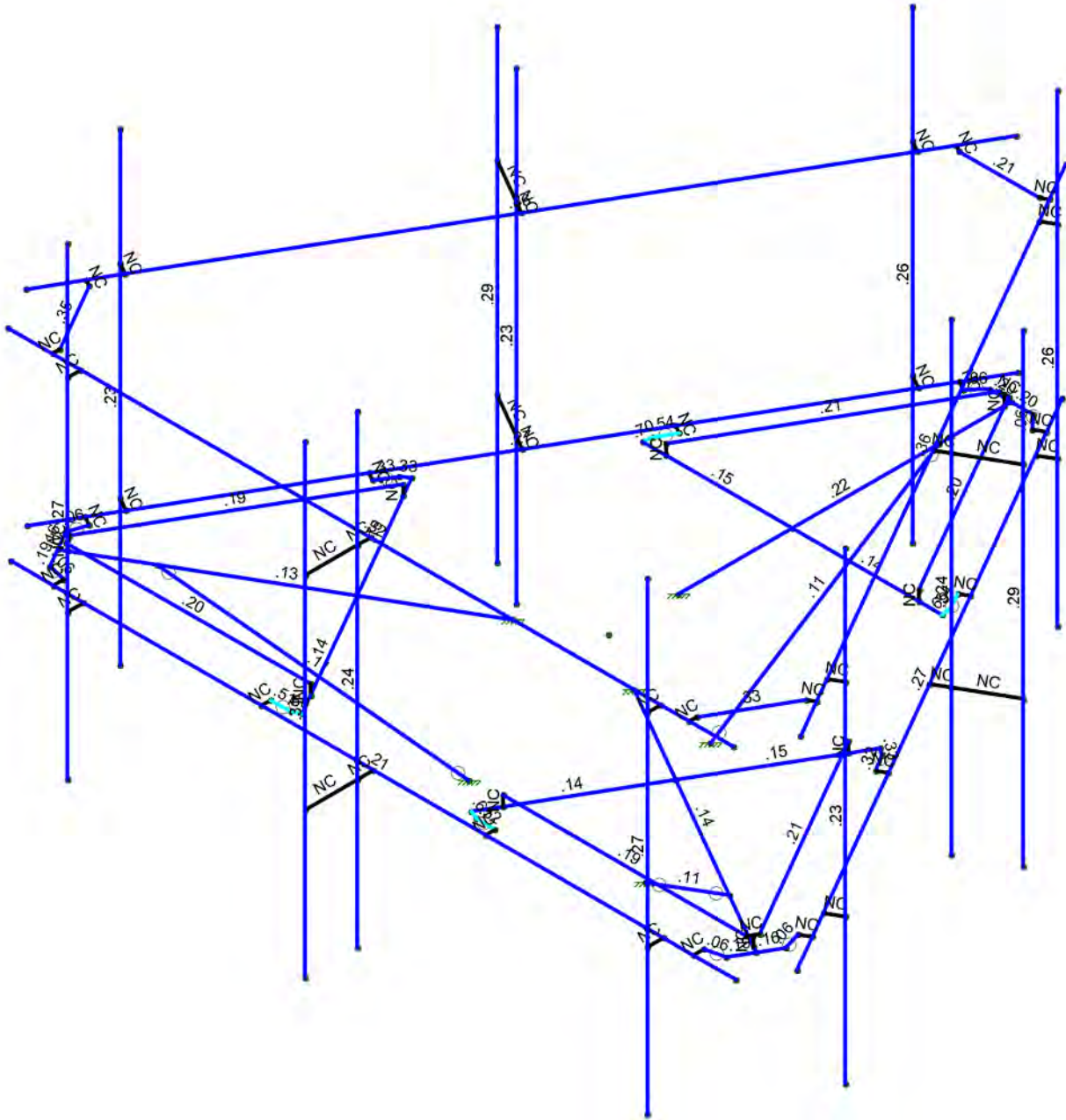
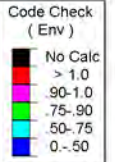
Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	APX16DWV-16DWVS-E-A20	59.90	13.00	135.00	1	a	Front	42.00			
R6	4424 B25	16.50	13.50	135.00	1	a	Behind	48.00			
A2	APXVAALL24_43-U-NA20	95.90	24.00	75.00	2	a	Front	48.00			
R5	4480 B71 + B85	19.20	15.10	75.00	2	a	Behind	24.00			
R7	4460 B25 + B66	15.10	17.00	75.00	2	a	Behind	72.00			
A3	AIR6449 B41	33.10	20.50	15.00	3	a	Front	40.50			



Tower Engineering Solutio...	CT46147-A-SBA_MT_LO_Loads Only_G	SK - 1
TES Project No. 120428		Dec 10, 2021 at 2:14 PM
		CT46147-A-SBA_120428_G_RISA_...



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

Tower Engineering Solutio...

CT46147-A-SBA_MT_LO_Loads Only_G

SK - 2

Dec 10, 2021 at 2:17 PM

TES Project No. 120428

CT46147-A-SBA_120428_G_RISA_...



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

Dec 10, 2021
 2:18 PM
 Checked By: _____

6 UjW@ UX'7 UjYg

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Antenna D	None					27		
2	Antenna Di	None					27		
3	Antenna W Front	None					27		
4	Antenna Wi Front	None					27		
5	Antenna W Side	None					27		
6	Antenna Wi Side	None					27		
7	Service Lm1	None					1		
8	Service Lm2	None					1		
9	Structure D	None		-1					11
10	Structure Di	None						63	6
11	Structure W Front	None						63	
12	Structure Wi Front	None						63	
13	Structure W Side	None						63	
14	Structure Wi Side	None						63	
15	BLC 9 Transient Area..	None							33
16	BLC 10 Transient Are..	None							80

@UX'7ca VjbUjcbg

	Description	Sol.	PD.	SR.	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
1	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6								
2	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6								
3	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6								
4	1.2D+1.6...	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6								
5	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1				
6	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1				
7	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1				
8	1.2D+1.0...	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1				
9	1.2D+1.5L...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16						
10	1.2D+1.5L...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16						
11	1.4D	Yes	Y		1	1.4	9	1.4												

>cjbh7ccfXjbUjYg'UbX'HYa dYfUi fYg

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	-6.248693	0	4.052255	0	
2	N2	6.251307	0	4.052255	0	
3	N3	0	0	0	0	
4	N5	0	0	-1.207083	0	
5	N7	5.518027	0	4.052255	0	
6	N8	1.934693	0	4.052255	0	
7	N9	-1.932785	0	4.052255	0	
8	N10	-5.516118	0	4.052255	0	
9	N11	-6.267414	0	2.750973	0	
10	N12	-4.475747	0	-0.352284	0	
11	N13	-2.542008	0	-3.701619	0	
12	N14	-0.750341	0	-6.804876	0	



Company : Tower Engineering Solutions, LLC
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 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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>c]bh7 ccfx]bUhg'UbX'HYa dYUhi fYg'f7 cb]bi YXL

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
13	N15	0.750819	0	-6.80406	0	
14	N16	2.542485	0	-3.700803	0	
15	N17	4.476224	0	-0.351469	0	
16	N18	6.267891	0	2.75179	0	
17	N19	-3e-14	0	-3.17336	0	
18	N20	2.180513	0	-3.17336	0	
19	N21	-2.178604	0	-3.17336	0	
20	N22	-3e-14	0	-6.948466	0	
21	N23	.375	0	-6.948466	0	
22	N24	-.375	0	-6.948466	0	
23	N25	2.58	0	-3.17336	0	
24	N26	-2.58	0	-3.17336	0	
25	N27	2.748854	0	1.585571	0	
26	N28	6.018192	0	3.473123	0	
27	N29	-2.74678	0	1.585856	0	
28	N30	-6.016118	0	3.473409	0	
29	N31	-1.525645	-2.5	0.880833	0	
30	N32	0.001306	-2.5	-1.760626	0	
31	N33	1.525423	-2.5	0.879222	0	
32	N34	-4.933586	0	2.848409	0	
33	N35	-2e-14	0	-5.698466	0	
34	N36	4.93566	0	2.848123	0	
35	N37	-6.248693	3.5	4.098255	0	
36	N38	6.251307	3.5	4.098255	0	
37	N39	5.491469	3.5	4.098255	0	
38	N40	-5.48956	3.5	4.098255	0	
39	N41	-4.998693	5.5	4.328256	0	
40	N42	-4.998693	-2.5	4.328256	0	
41	N43	5.001307	5.5	4.328256	0	
42	N44	5.001307	-2.5	4.328256	0	
43	N47	0.001306	5.5	4.328256	0	
44	N48	0.001306	-2.5	4.328256	0	
45	N49	6.247726	5.5	2.164868	0	
46	N50	6.247726	-2.5	2.164868	0	
47	N51	1.247726	5.5	-6.495386	0	
48	N52	1.247726	-2.5	-6.495386	0	
49	N57	-1.249032	5.5	-6.493123	0	
50	N58	-1.249032	-2.5	-6.493123	0	
51	N59	-6.249032	5.5	2.167131	0	
52	N60	-6.249032	-2.5	2.167131	0	
53	N65	6.009184	0	2.303696	0	
54	N66	1.009184	0	-6.356558	0	
55	N69	-1.010006	0	-6.355124	0	
56	N70	-6.010006	0	2.30513	0	
57	N73	-4.998693	0	4.052255	0	
58	N74	5.001307	0	4.052255	0	
59	N76	0.001306	0	4.052255	0	
60	N77	6.633707	0	3.385402	0	
61	N78	0.383707	0	-7.439915	0	
62	N79	-0.385005	0	-7.437658	0	
63	N80	-6.635005	0	3.38766	0	
64	N81	6.673544	3.5	3.362403	0	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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>c]bh7ccfX]bUhg'UbX'HYa dYUhi fYg'f7 cb]bi YXL

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
65	N82	0.423544	3.5	-7.462915	0	
66	N83	-0.424841	3.5	-7.460657	0	
67	N84	-6.674841	3.5	3.36466	0	
68	N85	-4.998693	3.5	4.328256	0	
69	N86	-4.998693	0	4.328256	0	
70	N87	5.001307	0	4.328256	0	
71	N89	0.001306	0	4.328256	0	
72	N90	5.001307	3.5	4.328256	0	
73	N92	0.001306	3.5	4.328256	0	
74	N93	6.247726	3.5	2.164868	0	
75	N94	6.247726	0	2.164868	0	
76	N95	1.247726	0	-6.495386	0	
77	N98	1.247726	3.5	-6.495386	0	
78	N101	-1.249032	3.5	-6.493123	0	
79	N102	-1.249032	0	-6.493123	0	
80	N103	-6.249032	0	2.167131	0	
81	N106	-6.249032	3.5	2.167131	0	
82	N109	-4.998693	3.5	4.098255	0	
83	N110	5.001307	3.5	4.098255	0	
84	N112	0.001306	3.5	4.098255	0	
85	N113	6.048542	3.5	2.279867	0	
86	N114	1.048542	3.5	-6.380387	0	
87	N117	-1.049844	3.5	-6.378122	0	
88	N118	-6.049844	3.5	2.282133	0	
89	N121	5.491469	3.5	3.968255	0	
90	N122	-5.48956	3.5	3.968255	0	
91	N123	0.80346	3.5	-6.80488	0	
92	N124	6.293975	3.5	2.70497	0	
93	N125	0.690875	3.5	-6.739879	0	
94	N126	6.181389	3.5	2.769971	0	
95	N127	-6.294925	3.5	2.706626	0	
96	N128	-0.80441	3.5	-6.803225	0	
97	N129	-6.182344	3.5	2.771625	0	
98	N130	-0.691829	3.5	-6.738226	0	
99	N131	5.518027	0	3.872255	0	
100	N132	-5.516118	0	3.872255	0	
101	N133	0.594458	0	-6.714879	0	
102	N134	6.111531	0	2.840971	0	
103	N135	-6.112485	0	2.842624	0	
104	N136	-0.595413	0	-6.713226	0	
105	N137	1.934693	0	3.892255	0	
106	N138	-1.932785	0	3.892255	0	
107	N139	2.403445	0	-3.621621	0	
108	N140	4.337184	0	-0.272287	0	
109	N141	-4.338139	0	-0.270634	0	
110	N142	-2.4044	0	-3.619968	0	
111	N143	2.561452	0	-3.327946	0	
112	N144	-2.561452	0	-3.327946	0	
113	N145	2.180513	0.1745	-3.17336	0	
114	N146	-2.178604	0.1745	-3.17336	0	
115	N147	-3e-14	0	-6.823466	0	
116	N148	-3e-14	0.1745	-6.823466	0	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
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>c]bh7ccfX]bUHyg'UbX'HYa dYUhi fYg'f7 cb]bi YXL

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
117	N149	0.0835	0.1745	-6.823466	0	
118	N150	-0.0835	0.1745	-6.823466	0	
119	N151	-3.838172	0	-0.3017	0	
120	N152	-1.658612	0	3.473406	0	
121	N153	-6.205048	0	3.149473	0	
122	N154	-5.830048	0	3.798993	0	
123	N155	-4.03821	0	-0.647666	0	
124	N156	-1.45821	0	3.821026	0	
125	N157	-4.162812	0	-0.554309	0	
126	N158	-1.60136	0	3.882255	0	
127	N159	-3.838467	0.1745	-0.3017	0	
128	N160	-1.658908	0.1745	3.473406	0	
129	N161	-5.909291	0	3.411733	0	
130	N162	-5.909291	0.1745	3.411733	0	
131	N163	-5.951045	0.1745	3.33942	0	
132	N164	-5.867545	0.1745	3.484046	0	
133	N165	1.657955	0	3.475059	0	
134	N166	3.837513	0	-0.300047	0	
135	N167	5.830048	0	3.798993	0	
136	N168	6.205048	0	3.149473	0	
137	N169	1.45821	0	3.821026	0	
138	N170	4.03821	0	-0.647666	0	
139	N171	1.60136	0	3.882255	0	
140	N172	4.162812	0	-0.554309	0	
141	N173	1.657954	0.1745	3.475059	0	
142	N174	3.837512	0.1745	-0.300047	0	
143	N175	5.91186	0	3.411733	0	
144	N176	5.909295	0.1745	3.411733	0	
145	N177	5.867545	0.1745	3.484046	0	
146	N178	5.951045	0.1745	3.33942	0	
147	N179	-1.045365	0	0.603542	0	
148	N180	1.045365	0	0.603542	0	
149	N161A	3.747726	5.5	-2.165259	0	
150	N162A	3.747726	-2.5	-2.165259	0	
151	N163A	3.508703	0	-2.027259	0	
152	N164A	3.747726	0	-2.165259	0	
153	N165A	3.747726	3.5	-2.165259	0	
154	N166A	3.548539	3.5	-2.050259	0	
155	N167A	-3.749032	5.5	-2.162996	0	
156	N168A	-3.749032	-2.5	-2.162996	0	
157	N169A	-3.510009	0	-2.024996	0	
158	N170A	-3.749032	0	-2.162996	0	
159	N171A	-3.749032	3.5	-2.162996	0	
160	N172A	-3.549846	3.5	-2.047996	0	
161	N161B	0.001306	5.5	5.234506	0	
162	N162B	0.001306	-2.5	5.234506	0	
163	N163B	0.001306	0	5.234506	0	
164	N164B	0.001306	3.5	5.234506	0	
165	N167B	4.532561	5.5	-2.618384	0	
166	N168B	4.532561	-2.5	-2.618384	0	
167	N169B	4.532561	0	-2.618384	0	
168	N170B	4.532561	3.5	-2.618384	0	



>c]bh7 ccfX]bUHyg'UbX'HYa dYfUi fYg'f c]h]bi YXL

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
169	N173A	-4.533868	5.5	-2.616121	0	
170	N174A	-4.533868	-2.5	-2.616121	0	
171	N175A	-4.533868	0	-2.616121	0	
172	N176A	-4.533868	3.5	-2.616121	0	

<chFc`YX'GhYY'GYW]cb'GYIq

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Footrails	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Grating Angles	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Handrails	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Standoff Arm	HSS4X4X4	Beam	SquareTube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
5	Plan Bracing	HSS4X4X4	Beam	SquareTube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
6	Kickers	LL2.5x2.5x...	Beam	Double An...	A36 Gr.36	Typical	1.8	2.46	1.07	.023
7	Mount Pipes	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	Footrail Connection Plates	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
9	Plan Bracing Connection...	PL3/8x6	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
10	Handrail Corner Braces	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026

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	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	58	1.2
3	A992	29000	11154	.3	.65	.49	50	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	58	1.1
6	A53 Gr.B	29000	11154	.3	.65	.49	35	58	1.2
7	Q235	29000	11154	.3	.65	.49	34	58	1.2
8	J429-Gr5	29000	11154	.3	.65	.49	92	120	1.2

A Ya Vyf'Df]a Ufm8 UU

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	MP5A	N30	N179			Standoff Arm	Beam	SquareTube	A500 Gr...	Typical
2	MP5C	N28	N180			Standoff Arm	Beam	SquareTube	A500 Gr...	Typical
3	M3	N22	N24			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
4	M4	N22	N23			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
5	M5	N26	N144			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
6	M6	N144	N142			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
7	M7	N25	N143			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
8	M8	N143	N139			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
9	M9	N149	N145			Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N150	N146		270	Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N24	N136			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
12	M12	N23	N133			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
13	MP5B	N22	N5			Standoff Arm	Beam	SquareTube	A500 Gr...	Typical
14	M14	N26	N19			Plan Bracing	Beam	SquareTube	A500 Gr...	Typical
15	M15	N19	N25			Plan Bracing	Beam	SquareTube	A500 Gr...	Typical
16	M16	N77	N78			Footrails	Beam	Pipe	A53 Gr.B	Typical



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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A Ya Vyf Dfja Ufm8 UUf7 cbHbi YXL

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
17	M17	N79	N80			Footrails	Beam	Pipe	A53 Gr.B	Typical
18	M18	N1	N2			Footrails	Beam	Pipe	A53 Gr.B	Typical
19	M19	N31	N34			Kickers	Beam	Double Angle..	A36 Gr.36	Typical
20	M20	N32	N35			Kickers	Beam	Double Angle..	A36 Gr.36	Typical
21	M21	N33	N36			Kickers	Beam	Double Angle..	A36 Gr.36	Typical
22	MP4A	N37	N38			Handrails	Beam	Pipe	A53 Gr.B	Typical
23	MP4C	N81	N82			Handrails	Beam	Pipe	A53 Gr.B	Typical
24	MP4B	N83	N84			Handrails	Beam	Pipe	A53 Gr.B	Typical
25	M25	N130	N125		180	Handrail Corner Braces	Beam	Single Angle	A36 Gr.36	Typical
26	MP3A	N41	N42			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
27	MP1A	N43	N44			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
28	MP2	N47	N48			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
29	MP3C	N49	N50			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
30	MP1C	N51	N52			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
31	MP3B	N57	N58			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
32	MP1B	N59	N60			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
33	M38	N74	N87			RIGID	None	None	RIGID	Typical
34	M39	N76	N89			RIGID	None	None	RIGID	Typical
35	M41	N73	N86			RIGID	None	None	RIGID	Typical
36	M42	N66	N95			RIGID	None	None	RIGID	Typical
37	M45	N65	N94			RIGID	None	None	RIGID	Typical
38	M46	N70	N103			RIGID	None	None	RIGID	Typical
39	M49	N69	N102			RIGID	None	None	RIGID	Typical
40	M50	N110	N90			RIGID	None	None	RIGID	Typical
41	M51	N112	N92			RIGID	None	None	RIGID	Typical
42	M53	N109	N85			RIGID	None	None	RIGID	Typical
43	M54	N114	N98			RIGID	None	None	RIGID	Typical
44	M57	N113	N93			RIGID	None	None	RIGID	Typical
45	M58	N118	N106			RIGID	None	None	RIGID	Typical
46	M61	N117	N101			RIGID	None	None	RIGID	Typical
47	M62	N39	N121			RIGID	None	None	RIGID	Typical
48	M63	N40	N122			RIGID	None	None	RIGID	Typical
49	M64	N123	N125			RIGID	None	None	RIGID	Typical
50	M65	N124	N126			RIGID	None	None	RIGID	Typical
51	M66	N127	N129			RIGID	None	None	RIGID	Typical
52	M67	N128	N130			RIGID	None	None	RIGID	Typical
53	M68	N122	N129		180	Handrail Corner Braces	Beam	Single Angle	A36 Gr.36	Typical
54	M69	N126	N121		180	Handrail Corner Braces	Beam	Single Angle	A36 Gr.36	Typical
55	M70	N10	N132			RIGID	None	None	RIGID	Typical
56	M71	N7	N131			RIGID	None	None	RIGID	Typical
57	M72	N18	N134			RIGID	None	None	RIGID	Typical
58	M73	N15	N133			RIGID	None	None	RIGID	Typical
59	M74	N14	N136			RIGID	None	None	RIGID	Typical
60	M75	N11	N135			RIGID	None	None	RIGID	Typical
61	M76	N8	N137			RIGID	None	None	RIGID	Typical
62	M77	N9	N138			RIGID	None	None	RIGID	Typical
63	M78	N16	N139			RIGID	None	None	RIGID	Typical
64	M79	N17	N140			RIGID	None	None	RIGID	Typical
65	M80	N12	N141			RIGID	None	None	RIGID	Typical
66	M81	N13	N142			RIGID	None	None	RIGID	Typical
67	M82	N21	N146			RIGID	None	None	RIGID	Typical
68	M83	N20	N145			RIGID	None	None	RIGID	Typical



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	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
69	M84	N147	N148			RIGID	None	None	RIGID	Typical
70	M85	N149	N150			RIGID	None	None	RIGID	Typical
71	M86	N30	N154			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
72	M87	N30	N153			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
73	M88	N156	N158			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
74	M89	N158	N138			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
75	M90	N155	N157			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
76	M91	N157	N141			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
77	M92	N163	N159			Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
78	M93	N164	N160		270	Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
79	M94	N154	N132			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
80	M95	N153	N135			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
81	M96	N156	N29			Plan Bracing	Beam	SquareTube	A500 Gr...	Typical
82	M97	N29	N155			Plan Bracing	Beam	SquareTube	A500 Gr...	Typical
83	M98	N152	N160			RIGID	None	None	RIGID	Typical
84	M99	N151	N159			RIGID	None	None	RIGID	Typical
85	M100	N161	N162			RIGID	None	None	RIGID	Typical
86	M101	N163	N164			RIGID	None	None	RIGID	Typical
87	M102	N28	N168			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
88	M103	N28	N167			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
89	M104	N170	N172			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
90	M105	N172	N140			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
91	M106	N169	N171			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
92	M107	N171	N137			Plan Bracing Connection P...	Beam	RECT	A36 Gr.36	Typical
93	M108	N177	N173			Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
94	M109	N178	N174		270	Grating Angles	Beam	Single Angle	A36 Gr.36	Typical
95	M110	N168	N134			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
96	M111	N167	N131			Footrail Connection Plates	Beam	RECT	A36 Gr.36	Typical
97	M112	N170	N27			Plan Bracing	Beam	SquareTube	A500 Gr...	Typical
98	M113	N27	N169			Plan Bracing	Beam	SquareTube	A500 Gr...	Typical
99	M114	N166	N174			RIGID	None	None	RIGID	Typical
100	M115	N165	N173			RIGID	None	None	RIGID	Typical
101	M116	N175	N176			RIGID	None	None	RIGID	Typical
102	M117	N177	N178			RIGID	None	None	RIGID	Typical
103	MP	N161A	N162A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
104	M110A	N163A	N164A			RIGID	None	None	RIGID	Typical
105	M111A	N166A	N165A			RIGID	None	None	RIGID	Typical
106	MPB	N167A	N168A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
107	M113A	N169A	N170A			RIGID	None	None	RIGID	Typical
108	M114A	N172A	N171A			RIGID	None	None	RIGID	Typical
109	MP2A	N161B	N162B			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
110	M110B	N92	N164B			RIGID	None	None	RIGID	Typical
111	M111B	N89	N163B			RIGID	None	None	RIGID	Typical
112	MP2C	N167B	N168B			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
113	M113B	N165A	N170B			RIGID	None	None	RIGID	Typical
114	M114B	N164A	N169B			RIGID	None	None	RIGID	Typical
115	MP2B	N173A	N174A			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
116	M116A	N171A	N176A			RIGID	None	None	RIGID	Typical
117	M117A	N170A	N175A			RIGID	None	None	RIGID	Typical



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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A Ya Vyf 5 Xj Ub WX 8 UH

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	MP5A						Yes				None
2	MP5C						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6		BenPIN				Yes				None
7	M7						Yes				None
8	M8		BenPIN				Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11		BenPIN				Yes				None
12	M12		BenPIN				Yes				None
13	MP5B						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	M19	BenPIN	BenPIN				Yes				None
20	M20	BenPIN	BenPIN				Yes				None
21	M21	BenPIN	BenPIN				Yes				None
22	MP4A						Yes				None
23	MP4C						Yes				None
24	MP4B						Yes				None
25	M25						Yes				None
26	MP3A						Yes				None
27	MP1A						Yes				None
28	MP2						Yes				None
29	MP3C						Yes				None
30	MP1C						Yes				None
31	MP3B						Yes				None
32	MP1B						Yes				None
33	M38						Yes	** NA **			None
34	M39						Yes	** NA **			None
35	M41						Yes	** NA **			None
36	M42						Yes	** NA **			None
37	M45						Yes	** NA **			None
38	M46						Yes	** NA **			None
39	M49						Yes	** NA **			None
40	M50						Yes	** NA **			None
41	M51						Yes	** NA **			None
42	M53						Yes	** NA **			None
43	M54						Yes	** NA **			None
44	M57						Yes	** NA **			None
45	M58						Yes	** NA **			None
46	M61						Yes	** NA **			None
47	M62						Yes	** NA **			None
48	M63						Yes	** NA **			None
49	M64						Yes	** NA **			None
50	M65						Yes	** NA **			None
51	M66						Yes	** NA **			None



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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A Ya Vyf 5 Xj Ub WX 8 UHf7 cbh7i YXL

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
52	M67						Yes	** NA **			None
53	M68						Yes				None
54	M69						Yes				None
55	M70						Yes	** NA **			None
56	M71						Yes	** NA **			None
57	M72						Yes	** NA **			None
58	M73						Yes	** NA **			None
59	M74						Yes	** NA **			None
60	M75						Yes	** NA **			None
61	M76						Yes	** NA **			None
62	M77						Yes	** NA **			None
63	M78						Yes	** NA **			None
64	M79						Yes	** NA **			None
65	M80						Yes	** NA **			None
66	M81						Yes	** NA **			None
67	M82						Yes	** NA **			None
68	M83						Yes	** NA **			None
69	M84						Yes	** NA **			None
70	M85						Yes	** NA **			None
71	M86						Yes				None
72	M87						Yes				None
73	M88						Yes				None
74	M89		BenPIN				Yes				None
75	M90						Yes				None
76	M91		BenPIN				Yes				None
77	M92						Yes				None
78	M93						Yes				None
79	M94		BenPIN				Yes				None
80	M95		BenPIN				Yes				None
81	M96						Yes				None
82	M97						Yes				None
83	M98						Yes	** NA **			None
84	M99						Yes	** NA **			None
85	M100						Yes	** NA **			None
86	M101						Yes	** NA **			None
87	M102						Yes				None
88	M103						Yes				None
89	M104						Yes				None
90	M105		BenPIN				Yes				None
91	M106						Yes				None
92	M107		BenPIN				Yes				None
93	M108						Yes				None
94	M109						Yes				None
95	M110		BenPIN				Yes				None
96	M111		BenPIN				Yes				None
97	M112						Yes				None
98	M113						Yes				None
99	M114						Yes	** NA **			None
100	M115						Yes	** NA **			None
101	M116						Yes	** NA **			None
102	M117						Yes	** NA **			None
103	MP						Yes				None



A Ya Vyf 5 Xj Ub WX 8 UHfT cbhbi YXL

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
104	M110A						Yes	** NA **			None
105	M111A						Yes	** NA **			None
106	MPB						Yes				None
107	M113A						Yes	** NA **			None
108	M114A						Yes	** NA **			None
109	MP2A						Yes				None
110	M110B						Yes	** NA **			None
111	M111B						Yes	** NA **			None
112	MP2C						Yes				None
113	M113B						Yes	** NA **			None
114	M114B						Yes	** NA **			None
115	MP2B						Yes				None
116	M116A						Yes	** NA **			None
117	M117A						Yes	** NA **			None

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	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	MP5A	Standoff Arm	5.74			Lbyy			2.1	2.1		Lateral
2	MP5C	Standoff Arm	5.741			Lbyy			2.1	2.1		Lateral
3	M3	Footrail Con...	.375			Lbyy			.65	.65		Lateral
4	M4	Footrail Con...	.375			Lbyy			.65	.65		Lateral
5	M5	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
6	M6	Plan Bracin...	.332			Lbyy			.8	.8		Lateral
7	M7	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
8	M8	Plan Bracin...	.333			Lbyy			.8	.8		Lateral
9	M9	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
10	M10	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
11	M11	Footrail Con...	.322			Lbyy			.8	.8		Lateral
12	M12	Footrail Con...	.321			Lbyy			.8	.8		Lateral
13	MP5B	Standoff Arm	5.741			Lbyy			2.1	2.1		Lateral
14	M14	Plan Bracing	2.58			Lbyy			1	1		Lateral
15	M15	Plan Bracing	2.58			Lbyy			1	1		Lateral
16	M16	Footrails	12.5			Lbyy			1	1		Lateral
17	M17	Footrails	12.5			Lbyy			1	1		Lateral
18	M18	Footrails	12.5			Lbyy			1	1		Lateral
19	M19	Kickers	4.662			Lbyy			1	1		Lateral
20	M20	Kickers	4.664			Lbyy			1	1		Lateral
21	M21	Kickers	4.664			Lbyy			1	1		Lateral
22	MP4A	Handrails	12.5			Lbyy			1	1		Lateral
23	MP4C	Handrails	12.5			Lbyy			1	1		Lateral
24	MP4B	Handrails	12.5			Lbyy			1	1		Lateral
25	M25	Handrail Co...	1.383			Lbyy			.65	.65		Lateral
26	MP3A	Mount Pipes	8			Lbyy			1	1		Lateral
27	MP1A	Mount Pipes	8			Lbyy			1	1		Lateral
28	MP2	Mount Pipes	8			Lbyy			1	1		Lateral
29	MP3C	Mount Pipes	8			Lbyy			1	1		Lateral
30	MP1C	Mount Pipes	8			Lbyy			1	1		Lateral
31	MP3B	Mount Pipes	8			Lbyy			1	1		Lateral
32	MP1B	Mount Pipes	8			Lbyy			1	1		Lateral
33	M68	Handrail Co...	1.383			Lbyy			.65	.65		Lateral



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	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
34	M69	Handrail Co...	1.383			Lbyy			.65	.65		Lateral
35	M86	Footrail Con...	.375			Lbyy			.65	.65		Lateral
36	M87	Footrail Con...	.375			Lbyy			.65	.65		Lateral
37	M88	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
38	M89	Plan Bracin...	.332			Lbyy			.8	.8		Lateral
39	M90	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
40	M91	Plan Bracin...	.333			Lbyy			.8	.8		Lateral
41	M92	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
42	M93	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
43	M94	Footrail Con...	.322			Lbyy			.8	.8		Lateral
44	M95	Footrail Con...	.321			Lbyy			.8	.8		Lateral
45	M96	Plan Bracing	2.58			Lbyy			1	1		Lateral
46	M97	Plan Bracing	2.58			Lbyy			1	1		Lateral
47	M102	Footrail Con...	.374			Lbyy			.65	.65		Lateral
48	M103	Footrail Con...	.376			Lbyy			.65	.65		Lateral
49	M104	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
50	M105	Plan Bracin...	.332			Lbyy			.8	.8		Lateral
51	M106	Plan Bracin...	.156			Lbyy			.65	.65		Lateral
52	M107	Plan Bracin...	.333			Lbyy			.8	.8		Lateral
53	M108	Grating Ang...	4.21			Lbyy			.65	.65		Lateral
54	M109	Grating Ang...	4.209			Lbyy			.65	.65		Lateral
55	M110	Footrail Con...	.322			Lbyy			.8	.8		Lateral
56	M111	Footrail Con...	.321			Lbyy			.8	.8		Lateral
57	M112	Plan Bracing	2.579			Lbyy			1	1		Lateral
58	M113	Plan Bracing	2.581			Lbyy			1	1		Lateral
59	MP	Mount Pipes	8			Lbyy			1	1		Lateral
60	MPB	Mount Pipes	8			Lbyy			1	1		Lateral
61	MP2A	Mount Pipes	8			Lbyy			1	1		Lateral
62	MP2C	Mount Pipes	8			Lbyy			1	1		Lateral
63	MP2B	Mount Pipes	8			Lbyy			1	1		Lateral

>c]bh6 ci bXUf mi7 c bX]h]cbg

	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	N3						
2	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N29						
4	N31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N32	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N33	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N179	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N180	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

9bj YcdY>c]bhFYUM]cbg

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N5	max	1963.85	4	910.666	6	5821.682	1	1.269	6	3.018	3	.593	3
2		min	-1964.875	3	302.113	1	-3246.229	2	.415	1	-3.016	4	-.581	4
3	N31	max	-61.731	3	2591.093	8	2002.844	8	0	4	0	3	0	3
4		min	-3457.771	8	39.627	3	17.664	3	0	3	0	4	0	4
5	N32	max	42.91	4	2622.583	5	83.825	2	0	11	0	4	0	3



9bj YcdY>c]bhFYUM]cbgf77 cbl]bi YXL

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
6		min	-42.86	3	-51.579	2	-4049.051	5	0	1	0	3	0	4
7	N33	max	3459.712	7	2590.83	7	2003.974	7	0	3	0	3	0	3
8		min	61.222	4	39.241	4	17.366	4	0	4	0	4	0	4
9	N179	max	4950.015	4	903.089	7	1702.736	1	.121	1	1.402	1	-.168	2
10		min	-2730.231	3	204.341	9	-2986.303	2	-.687	6	-1.404	2	-1.149	5
11	N180	max	2694.104	4	904.591	8	1758.239	1	.125	1	1.532	2	1.138	5
12		min	-4913.957	3	205.136	10	-3043.403	2	-.721	6	-1.527	1	.139	2
13	Totals:	max	7200.306	4	9777.164	5	6971.213	1						
14		min	-7200.4	3	3967.282	2	-6971.248	2						

9bj YcdYA Ya Vyf'GYW]cb': cfWg

Member	Sec		Axial [lb]	LC	y Shear [lb]	LC	z Shear [lb]	LC	Torque [k-...]	LC	y-y Mome...	LC	z-z Mome...	LC	
1	MP5A	1	max	732.265	3	121.644	3	523.979	2	.503	2	.135	2	-.017	2
2			min	-881.596	4	-1186.106	8	-534.215	1	-.535	1	-.141	1	-.162	9
3		2	max	2615.64	3	1089.06	8	80.332	4	.36	2	.108	4	1.271	4
4			min	-5030.087	4	66.131	3	-79.825	3	-.387	1	-.106	3	-.502	3
5		3	max	2635.046	3	1023.453	8	69.128	4	.36	2	.215	4	.209	4
6			min	-5049.494	4	46.385	3	-68.621	3	-.387	1	-.212	3	-.582	3
7		4	max	2876.624	3	-184.164	9	1272.707	2	.441	2	1	4	.067	9
8			min	-5441.653	4	-861.948	7	-1269.909	1	-.459	1	-1.002	3	-.008	8
9		5	max	2896.031	3	-203.91	9	1306.321	2	.441	2	1.404	2	1.259	7
10			min	-5461.06	4	-901.856	7	-1303.522	1	-.459	1	-1.402	1	.345	9
11	MP5C	1	max	768.84	4	121.009	4	581.948	1	.523	1	.141	1	-.02	3
12			min	-918.002	3	-1185.716	7	-565.825	2	-.543	2	-.14	2	-.162	10
13		2	max	2586.043	4	1087.41	7	80.349	4	.37	1	.105	4	1.264	3
14			min	-5000.517	3	65.316	4	-78.679	3	-.391	2	-.105	3	-.497	4
15		3	max	2605.45	4	1024.414	7	69.15	4	.37	1	.212	4	.202	3
16			min	-5019.924	3	45.564	4	-67.48	3	-.391	2	-.21	3	-.576	4
17		4	max	2852.251	4	-184.952	10	1317.693	1	.471	1	.986	4	.067	10
18			min	-5417.403	3	-863.435	8	-1321.379	2	-.478	2	-.987	3	-.01	4
19		5	max	2871.658	4	-204.703	10	1351.325	1	.471	1	1.527	1	1.26	8
20			min	-5436.81	3	-903.354	8	-1355.01	2	-.478	2	-1.532	2	.346	10
21	M3	1	max	615.937	1	573.01	5	447.467	2	.183	3	.159	1	.481	4
22			min	-413.371	2	-99.593	2	-524.709	1	-.146	4	-.161	2	-.17	3
23		2	max	615.937	1	570.593	5	443.074	2	.183	3	.11	1	.444	4
24			min	-413.371	2	-100.741	2	-520.317	1	-.146	4	-.119	2	-.173	3
25		3	max	615.937	1	568.176	5	438.682	2	.183	3	.062	1	.408	4
26			min	-413.371	2	-101.89	2	-515.925	1	-.146	4	-.077	2	-.176	3
27		4	max	615.937	1	565.76	5	434.29	2	.183	3	.014	1	.372	4
28			min	-413.371	2	-103.038	2	-511.533	1	-.146	4	-.037	2	-.179	3
29		5	max	615.937	1	563.343	5	429.898	2	.183	3	.004	2	.336	4
30			min	-413.371	2	-104.186	2	-507.14	1	-.146	4	-.04	5	-.182	3
31	M4	1	max	606.063	1	632.47	5	517.451	1	.134	3	.162	2	.491	3
32			min	-401.182	2	-77.766	2	-444.673	2	-.178	4	-.158	1	-.155	4
33		2	max	606.063	1	630.053	5	513.059	1	.134	3	.12	2	.452	3
34			min	-401.182	2	-78.914	2	-440.28	2	-.178	4	-.11	1	-.159	4
35		3	max	606.063	1	627.636	5	508.667	1	.134	3	.079	2	.413	3
36			min	-401.182	2	-80.062	2	-435.888	2	-.178	4	-.062	1	-.163	4
37		4	max	606.063	1	625.22	5	504.275	1	.134	3	.039	2	.374	3
38			min	-401.182	2	-81.211	2	-431.496	2	-.178	4	-.014	1	-.167	4



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

Dec 10, 2021
 2:18 PM
 Checked By: _____

9bj YcdYA Ya VYf GYVjcb: cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
39		5	max 606.063	1	622.803	5	499.883	1	.134	3	.044	8	.335	3
40			min -401.182	2	-82.359	2	-427.104	2	-.178	4	-.003	3	-.171	4
41	M5	1	max 1005.331	2	791.173	5	616.374	4	.155	4	.385	3	.392	5
42			min -725.012	1	149.906	2	-575.633	3	-.188	3	-.365	4	.048	2
43		2	max 1005.115	2	790.348	5	614.576	4	.155	4	.362	3	.361	5
44			min -724.797	1	149.548	2	-573.835	3	-.188	3	-.341	4	.042	2
45		3	max 1004.899	2	789.522	5	612.779	4	.155	4	.34	3	.33	5
46			min -724.581	1	149.191	2	-572.038	3	-.188	3	-.317	4	.036	2
47		4	max 1004.684	2	788.697	5	610.981	4	.155	4	.318	3	.3	5
48			min -724.365	1	148.833	2	-570.24	3	-.188	3	-.293	4	.03	2
49		5	max 1004.468	2	787.872	5	609.183	4	.155	4	.296	3	.269	5
50			min -724.15	1	148.475	2	-568.442	3	-.188	3	-.269	4	.024	2
51	M6	1	max 982.997	2	787.803	5	817.812	4	.196	4	.296	3	.26	5
52			min -706.075	1	148.838	2	-898.148	3	-.152	3	-.269	4	.049	2
53		2	max 981.377	2	786.045	5	814.8	4	.196	4	.221	3	.195	5
54			min -704.454	1	148.076	2	-895.136	3	-.152	3	-.202	4	.037	2
55		3	max 979.757	2	784.288	5	811.787	4	.196	4	.147	3	.13	5
56			min -702.834	1	147.315	2	-892.124	3	-.152	3	-.134	4	.024	2
57		4	max 978.137	2	782.53	5	808.775	4	.196	4	.074	3	.065	5
58			min -701.214	1	146.553	2	-889.112	3	-.152	3	-.067	4	.012	2
59		5	max 976.517	2	780.772	5	805.763	4	.196	4	0	11	0	11
60			min -699.594	1	145.792	2	-886.099	3	-.152	3	0	1	0	1
61	M7	1	max 1043.53	4	788.73	5	550.946	4	.186	4	.362	3	.392	5
62			min -752.709	1	141.659	2	-594.401	3	-.152	3	-.382	4	.044	2
63		2	max 1043.746	4	787.904	5	549.148	4	.186	4	.339	3	.362	5
64			min -752.493	1	141.302	2	-592.603	3	-.152	3	-.361	4	.038	2
65		3	max 1043.961	4	787.079	5	547.35	4	.186	4	.316	3	.331	5
66			min -752.278	1	140.944	2	-590.805	3	-.152	3	-.34	4	.033	2
67		4	max 1044.177	4	786.254	5	545.553	4	.186	4	.293	3	.3	5
68			min -752.062	1	140.586	2	-589.008	3	-.152	3	-.318	4	.027	2
69		5	max 1044.393	4	785.428	5	543.755	4	.186	4	.27	3	.27	5
70			min -751.846	1	140.229	2	-587.21	3	-.152	3	-.297	4	.022	2
71	M8	1	max 1017.367	2	785.359	5	897.198	4	.148	4	.27	3	.261	5
72			min -737.381	1	140.632	2	-816.247	3	-.192	3	-.297	4	.046	2
73		2	max 1015.737	2	783.591	5	894.169	4	.148	4	.202	3	.195	5
74			min -735.752	1	139.866	2	-813.218	3	-.192	3	-.223	4	.035	2
75		3	max 1014.107	2	781.823	5	891.139	4	.148	4	.135	3	.13	5
76			min -734.122	1	139.1	2	-810.189	3	-.192	3	-.148	4	.023	2
77		4	max 1012.477	2	780.055	5	888.11	4	.148	4	.067	3	.065	5
78			min -732.492	1	138.334	2	-807.16	3	-.192	3	-.074	4	.012	2
79		5	max 1010.848	2	778.288	5	885.081	4	.148	4	0	11	0	11
80			min -730.863	1	137.569	2	-804.131	3	-.192	3	0	1	0	1
81	M9	1	max 763.02	1	81.04	8	24.859	3	0	8	-.008	2	.102	8
82			min -1160.262	2	13.38	3	-35.502	4	0	3	-.051	5	-.015	3
83		2	max 755.922	1	61.779	8	12.503	3	0	8	.006	3	.041	1
84			min -1153.163	2	7.392	3	-23.146	4	0	3	-.012	4	-.017	2
85		3	max 748.823	1	30.765	8	4.967	2	0	8	.019	7	.012	1
86			min -1146.064	2	-2.608	3	-15.638	1	0	3	-.002	4	-.02	2
87		4	max 741.724	1	12.669	4	9.045	2	0	8	.015	6	-.004	3
88			min -1138.965	2	-14.66	3	-19.716	1	0	3	-.003	1	-.032	8
89		5	max 734.625	1	4.515	4	13.924	4	0	8	.02	4	.007	2
90			min -1133.623	4	-39.102	7	-24.567	3	0	3	-.026	3	-.029	1



9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
91	M10	1	max	738.54	1	24.642	4	84.326	7	0	4	-.009	2	.013	4
92			min	-1135.116	2	-35.962	3	14.444	4	0	7	-.054	5	-.109	7
93		2	max	731.446	1	12.283	4	64.949	7	0	4	.006	4	.014	2
94			min	-1128.022	2	-23.603	3	8.425	4	0	7	-.012	3	-.041	1
95		3	max	724.352	1	4.209	2	34.257	7	0	4	.02	8	.02	2
96			min	-1120.928	2	-16.543	5	-.932	4	0	7	-.002	3	-.012	1
97		4	max	717.258	1	8.281	2	12.282	3	0	4	.016	6	.033	7
98			min	-1113.834	2	-19.645	1	-14.435	4	0	7	-.003	1	.005	4
99		5	max	710.164	1	13.475	3	3.075	3	0	4	.018	3	.029	1
100			min	-1106.74	2	-24.795	4	-42.206	8	0	7	-.026	4	-.005	2
101	M11	1	max	790.453	1	563.278	5	124.025	5	.258	3	.004	2	.18	5
102			min	-596.915	2	-104.979	2	-8.814	2	-.345	4	-.04	5	-.034	2
103		2	max	788.569	1	561.31	5	124.413	5	.258	3	.003	2	.135	5
104			min	-595.031	2	-105.966	2	-10.579	2	-.345	4	-.03	5	-.026	2
105		3	max	786.685	1	559.341	5	124.8	5	.258	3	.002	2	.09	5
106			min	-593.147	2	-106.953	2	-12.344	2	-.345	4	-.02	5	-.017	2
107		4	max	784.802	1	556.639	5	125.188	5	.258	3	.001	2	.045	5
108			min	-591.264	2	-107.94	2	-14.109	2	-.345	4	-.01	5	-.009	2
109		5	max	782.918	1	553.493	5	125.575	5	.258	3	0	11	0	11
110			min	-589.38	2	-108.928	2	-15.874	2	-.345	4	0	1	0	1
111	M12	1	max	778.496	1	622.77	5	13.228	3	.336	3	.044	8	.198	5
112			min	-586.576	2	-83.17	2	-136.821	8	-.247	4	-.003	3	-.027	2
113		2	max	776.622	1	620.622	5	11.235	3	.336	3	.033	8	.148	5
114			min	-584.702	2	-84.151	2	-136.383	8	-.247	4	-.002	3	-.021	2
115		3	max	774.749	1	618.475	5	9.241	3	.336	3	.022	8	.099	5
116			min	-582.829	2	-85.133	2	-135.945	8	-.247	4	-.001	3	-.014	2
117		4	max	772.876	1	616.327	5	7.247	3	.336	3	.011	8	.049	5
118			min	-580.956	2	-86.114	2	-135.508	8	-.247	4	0	2	-.007	2
119		5	max	771.003	1	614.18	5	8.155	2	.336	3	0	11	0	11
120			min	-579.082	2	-87.096	2	-135.07	8	-.247	4	0	1	0	1
121	MP5B	1	max	893.746	2	178.618	2	673.581	4	.636	4	.197	4	-.03	1
122			min	-1040.014	1	-1204.924	5	-670.819	3	-.661	3	-.199	3	-.095	7
123		2	max	3020.486	2	1102.543	5	53.837	3	.456	4	.063	3	1.351	1
124			min	-5445.149	1	33.225	2	-52.724	4	-.48	3	-.062	4	-.581	2
125		3	max	3020.486	2	1035.531	5	9.007	3	.456	4	.108	3	.241	1
126			min	-5445.149	1	13.474	2	-7.894	4	-.48	3	-.105	4	-.615	2
127		4	max	3246.229	2	-281.253	1	1917.18	4	.581	4	.232	4	.003	9
128			min	-5821.682	1	-869.569	6	-1918.122	3	-.593	3	-.232	3	-.01	5
129		5	max	3246.229	2	-301.004	1	1962.01	4	.581	4	3.016	4	1.269	6
130			min	-5821.682	1	-909.488	6	-1962.952	3	-.593	3	-3.018	3	.415	1
131	M14	1	max	446.072	3	-149.13	2	1046.35	3	-.039	2	.365	4	.132	4
132			min	-534.491	4	-790.965	5	-765.469	4	-.386	5	-.385	3	-.202	3
133		2	max	992.047	3	-175.814	2	124.891	3	-.111	4	.335	2	.438	5
134			min	-887.38	4	-849.98	5	-198.988	4	-.444	7	-.238	1	-.07	2
135		3	max	992.047	3	-184.69	2	124.891	3	-.111	4	.373	2	.994	5
136			min	-887.38	4	-873.548	5	-198.988	4	-.444	7	-.326	1	.047	2
137		4	max	992.047	3	-193.565	2	124.891	3	-.111	4	.425	2	1.565	5
138			min	-887.38	4	-897.115	5	-198.988	4	-.444	7	-.426	1	.169	2
139		5	max	992.047	3	-202.441	2	124.891	3	-.111	4	.489	2	2.151	5
140			min	-887.38	4	-920.387	5	-198.988	4	-.444	7	-.54	1	.296	2
141	M15	1	max	992.78	4	914.747	5	196.341	3	.446	8	.516	2	2.139	5
142			min	-890.156	3	193.455	2	-124.127	4	.097	3	-.562	1	.271	2



9bj YcdYA Ya VYf GYWjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
143		2	max	992.78	4	891.475	5	196.341	3	.446	8	.447	2	1.556	5
144			min	-890.156	3	184.58	2	-124.127	4	.097	3	-.445	1	.149	2
145		3	max	992.78	4	867.908	5	196.341	3	.446	8	.391	2	.989	5
146			min	-890.156	3	175.704	2	-124.127	4	.097	3	-.342	1	.033	2
147		4	max	992.78	4	844.341	5	196.341	3	.446	8	.349	2	.437	5
148			min	-890.156	3	166.828	2	-124.127	4	.097	3	-.252	1	-.077	2
149		5	max	414.358	4	788.527	5	816.223	3	.386	5	.362	3	.13	3
150			min	-506.639	3	140.869	2	-1100.172	4	.035	2	-.382	4	-.2	4
151	M16	1	max	0	11	.006	1	.008	3	0	11	0	11	0	11
152			min	0	1	0	7	-.003	1	0	1	0	1	0	1
153		2	max	165.539	2	145.838	2	220.845	3	.288	4	.073	2	.355	2
154			min	-94.937	1	-226.016	1	-213.599	4	-.522	3	-.134	1	-.253	1
155		3	max	1165.196	3	664.856	6	633.63	3	.465	4	1.291	4	-.343	10
156			min	-1371.217	4	-644.801	5	-703.118	4	-.647	3	-1.156	3	-1.054	6
157		4	max	209.736	1	182.556	3	186.979	2	.399	1	.076	1	.282	4
158			min	-138.461	2	-95.968	4	-192.647	1	-.169	2	-.135	2	-.188	3
159		5	max	0	11	0	5	.003	3	0	11	0	11	0	11
160			min	0	1	-.005	3	-.001	1	0	1	0	1	0	1
161	M17	1	max	0	11	.005	4	0	1	0	11	0	11	0	11
162			min	0	1	0	5	-.003	4	0	1	0	1	0	1
163		2	max	242.606	1	111.656	3	190.081	1	.147	2	.09	1	.299	3
164			min	-167.919	2	-191.974	4	-182.838	2	-.386	1	-.148	2	-.196	4
165		3	max	1154.678	4	658.727	5	707.454	3	.664	4	1.289	3	-.351	9
166			min	-1366.863	3	-650.254	6	-635.056	4	-.491	3	-1.149	4	-1.042	5
167		4	max	167.678	2	211.859	1	228.455	3	.54	4	.079	2	.329	2
168			min	-101.011	1	-125.385	2	-234.54	4	-.316	3	-.141	1	-.237	1
169		5	max	0	11	0	8	.004	1	0	11	0	11	0	11
170			min	0	1	-.006	1	-.008	4	0	1	0	1	0	1
171	M18	1	max	0	11	0	11	0	11	0	11	0	11	0	11
172			min	0	1	0	1	0	1	0	1	0	1	0	1
173		2	max	303.741	4	135.152	4	214.213	2	.218	1	.183	4	.347	4
174			min	-233.586	3	-214.951	3	-206.082	1	-.448	2	-.244	3	-.244	3
175		3	max	921.234	2	673.294	8	521.466	2	.638	2	1.076	1	-.328	2
176			min	-1134.972	1	-660.23	7	-589.795	1	-.468	1	-.938	2	-1.066	8
177		4	max	273.72	3	211.268	4	216.816	1	.477	2	.176	3	.33	3
178			min	-206.17	4	-125.347	3	-223.99	2	-.256	1	-.238	4	-.237	4
179		5	max	0	11	0	11	0	11	0	11	0	11	0	11
180			min	0	1	0	1	0	1	0	1	0	1	0	1
181	M19	1	max	4762.283	8	45.583	8	35.726	2	0	3	0	11	0	11
182			min	73.828	3	.041	3	-35.726	1	0	4	0	1	0	1
183		2	max	4752.493	8	22.792	8	17.863	2	0	3	.031	2	0	3
184			min	57.886	3	.021	3	-17.863	1	0	4	-.031	1	-.04	8
185		3	max	4742.703	8	0	11	0	11	0	3	.042	2	0	3
186			min	41.943	3	0	1	0	1	0	4	-.042	1	-.053	8
187		4	max	4732.914	8	-.021	3	17.863	1	0	3	.031	2	0	3
188			min	26	3	-22.792	8	-17.863	2	0	4	-.031	1	-.04	8
189		5	max	4723.124	8	-.041	3	35.726	1	0	3	0	11	0	11
190			min	10.057	3	-45.583	8	-35.726	2	0	4	0	1	0	1
191	M20	1	max	4823.985	5	45.216	5	45.526	4	0	4	0	11	0	11
192			min	-98.413	2	1.393	2	-45.526	3	0	3	0	1	0	1
193		2	max	4813.886	5	22.608	5	22.763	4	0	4	.04	4	-.001	2
194			min	-113.307	2	.697	2	-22.763	3	0	3	-.04	3	-.04	5



9bj YcdYA Ya VYf GYVjcb : cfWVg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
195		3	max	4803.787	5	0	11	0	11	0	4	.053	4	-.002	2
196			min	-128.201	2	0	1	0	1	0	3	-.053	3	-.053	5
197		4	max	4793.689	5	-.697	2	22.763	3	0	4	.04	4	-.001	2
198			min	-143.094	2	-22.608	5	-22.763	4	0	3	-.04	3	-.04	5
199		5	max	4783.59	5	-1.393	2	45.526	3	0	4	0	11	0	11
200			min	-157.988	2	-45.216	5	-45.526	4	0	3	0	1	0	1
201	M21	1	max	4764.023	7	45.61	7	35.742	1	0	3	0	11	0	11
202			min	73.124	4	.054	4	-35.742	2	0	4	0	1	0	1
203		2	max	4754.235	7	22.805	7	17.871	1	0	3	.031	1	0	4
204			min	57.176	4	.027	4	-17.871	2	0	4	-.031	2	-.04	7
205		3	max	4744.447	7	0	11	0	11	0	3	.042	1	0	4
206			min	41.228	4	0	1	0	1	0	4	-.042	2	-.053	7
207		4	max	4734.659	7	-.027	4	17.871	2	0	3	.031	1	0	4
208			min	25.28	4	-22.805	7	-17.871	1	0	4	-.031	2	-.04	7
209		5	max	4724.871	7	-.054	4	35.742	2	0	3	0	11	0	11
210			min	9.332	4	-45.61	7	-35.742	1	0	4	0	1	0	1
211	MP4A	1	max	0	11	0	11	0	11	0	11	0	11	0	11
212			min	0	1	0	1	0	1	0	1	0	1	0	1
213		2	max	148.438	3	198.983	4	84.381	1	.104	1	.157	4	.082	4
214			min	-179.862	4	-156.328	3	-159.923	2	-.183	2	-.141	3	-.066	3
215		3	max	110.305	2	185.968	4	113.545	3	.104	7	.326	1	.013	1
216			min	-179.862	4	-189.139	3	-125.152	2	-.183	2	-.543	2	-.524	3
217		4	max	138.111	4	162.907	4	151.625	2	.167	2	.149	3	.088	3
218			min	-162.74	3	-202.155	3	-78.44	1	-.09	1	-.134	4	-.074	4
219		5	max	0	11	0	11	0	11	0	11	0	11	0	11
220			min	0	1	0	1	0	1	0	1	0	1	0	1
221	MP4C	1	max	0	11	.006	4	.016	3	0	11	0	11	0	11
222			min	0	1	0	10	-.014	1	0	1	0	1	0	1
223		2	max	208.51	1	170.896	2	90.34	4	.111	4	.172	2	.086	3
224			min	-239.217	2	-128.609	1	-167.408	3	-.191	3	-.156	1	-.071	4
225		3	max	223.566	1	178.218	2	116.099	1	.126	1	.29	4	.317	4
226			min	-254.273	2	-191.588	1	-141.329	3	-.191	3	-.511	3	-.516	1
227		4	max	174.837	3	165.202	2	124.791	1	.126	1	.172	4	.103	1
228			min	-198.39	4	-204.604	1	-49.074	2	-.047	2	-.157	3	-.09	2
229		5	max	0	11	.001	4	.016	3	0	11	0	11	0	11
230			min	0	1	-.006	2	-.004	1	0	1	0	1	0	1
231	MP4B	1	max	0	11	.006	2	.003	1	0	11	0	11	0	11
232			min	0	1	-.001	3	-.016	4	0	1	0	1	0	1
233		2	max	163.735	4	197.991	1	50.001	2	.055	3	.166	3	.094	1
234			min	-194.087	3	-155.217	2	-128.069	1	-.134	4	-.149	4	-.078	2
235		3	max	221.677	1	184.975	1	132.771	4	.181	4	.286	3	.337	3
236			min	-245.519	2	-161.386	2	-119.376	1	-.129	1	-.5	4	-.505	1
237		4	max	206.621	1	135.531	1	158.849	4	.181	4	.17	2	.097	4
238			min	-230.463	2	-174.402	2	-84.295	3	-.103	3	-.156	1	-.084	3
239		5	max	0	11	0	9	.014	1	0	11	0	11	0	11
240			min	0	1	-.006	3	-.017	4	0	1	0	1	0	1
241	M25	1	max	203.942	2	412.557	3	357.909	4	.012	3	.119	1	.434	3
242			min	-446.758	1	-425.855	4	-360.798	3	-.012	4	-.057	2	-.3	4
243		2	max	203.934	2	414.237	3	357.909	4	.012	3	.113	1	.244	3
244			min	-446.75	1	-424.175	4	-360.798	3	-.012	4	-.054	2	-.108	4
245		3	max	203.926	2	415.916	3	357.909	4	.012	3	.109	1	.236	1
246			min	-446.742	1	-422.496	4	-360.798	3	-.012	4	-.052	2	-.095	2



9bj YcdYA Ya Vyf GYVjcb: cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
247		4	max	203.918	2	417.596	3	357.909	4	.012	3	.106	1	.273	4
248			min	-446.734	1	-420.816	4	-360.798	3	-.012	4	-.052	2	-.135	3
249		5	max	203.91	2	419.276	3	357.909	4	.012	3	.106	1	.463	4
250			min	-446.726	1	-419.136	4	-360.798	3	-.012	4	-.053	2	-.326	3
251	MP3A	1	max	0	11	.019	4	.052	1	0	11	0	11	0	11
252			min	0	1	-.019	3	-.051	2	0	1	0	1	0	1
253		2	max	456.19	2	382.759	4	195.316	4	.432	2	.167	3	.612	4
254			min	-228.064	1	-289.884	3	-66.517	3	-.349	1	-.272	4	-.489	3
255		3	max	469.338	2	409.698	4	195.316	4	.432	2	.27	2	.118	3
256			min	-214.916	1	-316.823	3	-66.517	3	-.349	1	-.122	1	-.18	4
257		4	max	-13.148	10	26.955	3	27.029	2	0	11	.027	1	.027	3
258			min	-30.793	5	-26.95	4	-27.016	1	0	1	-.027	2	-.027	4
259		5	max	0	11	.022	7	.09	2	0	11	0	11	0	11
260			min	0	1	-.011	4	-.077	1	0	1	0	1	0	1
261	MP1A	1	max	0	11	.062	4	.171	1	0	11	0	11	0	11
262			min	0	1	-.06	3	-.17	2	0	1	0	1	0	1
263		2	max	434.155	2	265.381	4	198.756	3	.36	1	.182	1	.443	4
264			min	-296.694	1	-359.007	3	-181.947	2	-.444	2	-.276	3	-.569	3
265		3	max	537.818	2	345.327	4	198.756	3	.36	1	.212	6	.176	3
266			min	-193.032	1	-438.953	3	-64.062	4	-.444	2	-.053	1	-.115	4
267		4	max	-33.212	10	71.177	3	151.029	2	0	11	.028	1	.027	3
268			min	-103.603	5	-71.19	4	-150.994	1	0	1	-.028	2	-.027	4
269		5	max	0	11	.026	3	.289	6	0	11	0	11	0	11
270			min	0	1	-.073	8	-.185	1	0	1	0	1	0	1
271	MP2	1	max	0	11	.031	4	.088	1	0	11	0	11	0	11
272			min	0	1	-.031	3	-.132	6	0	1	0	1	0	1
273		2	max	1674.966	1	298.686	4	248.457	1	.04	4	.316	2	.275	4
274			min	-1225.654	2	-295.381	3	-175.149	2	-.04	3	-.441	1	-.271	3
275		3	max	1688.114	1	325.625	4	275.395	1	.04	4	.083	1	.347	3
276			min	-1212.505	2	-322.32	3	-202.088	2	-.04	3	-.061	2	-.35	4
277		4	max	-13.148	10	26.942	3	27.076	2	0	11	.027	1	.027	3
278			min	-30.793	5	-26.942	4	-27.044	1	0	1	-.027	2	-.027	4
279		5	max	0	11	.004	3	.164	6	0	11	0	11	0	11
280			min	0	1	-.004	4	-.106	1	0	1	0	1	0	1
281	MP3C	1	max	0	11	.042	4	.03	1	0	11	0	11	0	11
282			min	0	1	-.041	3	-.03	2	0	1	0	1	0	1
283		2	max	412.905	3	90.296	5	264.944	1	.361	3	.734	2	.088	4
284			min	-183.446	4	-24.152	2	-408.009	2	-.277	4	-.577	1	-.059	3
285		3	max	426.053	3	90.296	5	291.883	1	.361	3	.188	4	.03	4
286			min	-170.298	4	-24.152	2	-434.948	2	-.277	4	-.316	3	-.137	5
287		4	max	-13.148	10	27.001	3	26.973	2	0	11	.027	1	.027	3
288			min	-30.793	5	-26.992	4	-26.984	1	0	1	-.027	2	-.027	4
289		5	max	0	11	.063	3	.034	2	0	11	0	11	0	11
290			min	0	1	-.054	4	-.054	5	0	1	0	1	0	1
291	MP1C	1	max	0	11	.161	4	.081	1	0	11	0	11	0	11
292			min	0	1	-.161	3	-.082	2	0	1	0	1	0	1
293		2	max	396.473	3	334.296	1	183.196	1	.329	4	.273	3	.461	4
294			min	-255.441	4	-170.044	2	-169.57	2	-.416	3	-.323	4	-.3	3
295		3	max	500.135	3	334.296	1	240.001	1	.329	4	.113	1	.105	2
296			min	-151.778	4	-170.044	2	-226.375	2	-.416	3	-.137	2	-.267	1
297		4	max	-33.212	10	131.111	3	91.114	2	0	11	.027	1	.028	3
298			min	-103.603	5	-131.074	4	-91.121	1	0	1	-.027	2	-.028	4



9bj YcdYA Ya Vyf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
299	5	max	0	11	.29	7	.079	4	0	11	0	11	0	11	
300		min	0	1	-.18	4	-.087	7	0	1	0	1	0	1	
301	MP3B	1	max	0	.051	4	.026	4	0	11	0	11	0	11	
302			min	0	-.052	3	-.026	3	0	1	0	1	0	1	
303		2	max	444.04	4	171.084	2	200.222	1	.413	4	.283	2	.391	4
304			min	-212.567	3	-330.028	1	-184.333	2	-.327	3	-.337	1	-.541	3
305		3	max	457.189	4	171.084	2	227.161	1	.413	4	.09	1	.271	1
306			min	-199.419	3	-330.028	1	-211.272	2	-.327	3	-.112	2	-.109	2
307		4	max	-13.148	10	27.014	3	26.959	2	0	11	.027	1	.027	3
308			min	-30.793	5	-27.027	4	-26.962	1	0	1	-.027	2	-.027	4
309		5	max	0	.075	3	.032	3	0	11	0	11	0	11	
310			min	0	-.089	4	-.034	4	0	1	0	1	0	1	
311	MP1B	1	max	0	.137	4	.095	1	0	11	0	11	0	11	
312			min	0	-.138	3	-.093	2	0	1	0	1	0	1	
313		2	max	389.274	4	17.788	2	244.862	1	.295	3	.676	2	.157	3
314			min	-250.51	3	-96.281	5	-391.474	2	-.379	4	-.511	1	-.157	4
315		3	max	492.937	4	17.788	2	301.668	1	.295	3	.187	3	.136	5
316			min	-146.847	3	-96.281	5	-448.28	2	-.379	4	-.314	4	-.011	2
317		4	max	-33.212	10	131.026	3	91.144	2	0	11	.027	1	.028	3
318			min	-103.603	5	-131.05	4	-91.174	1	0	1	-.027	2	-.028	4
319		5	max	0	.131	3	.079	2	0	11	0	11	0	11	
320			min	0	-.201	8	-.182	5	0	1	0	1	0	1	
321	M38	1	max	270.248	1	655.701	6	555.924	3	.793	3	.342	1	.126	4
322			min	-131.79	2	-128.994	1	-462.995	4	-.591	4	-.452	2	-.347	3
323		2	max	270.248	1	655.701	6	555.924	3	.793	3	.347	1	.111	4
324			min	-131.79	2	-128.994	1	-462.995	4	-.591	4	-.45	2	-.365	3
325		3	max	270.248	1	655.701	6	555.924	3	.793	3	.351	1	.096	4
326			min	-131.79	2	-128.994	1	-462.995	4	-.591	4	-.448	2	-.404	7
327		4	max	270.248	1	655.701	6	555.924	3	.793	3	.356	1	.081	4
328			min	-131.79	2	-128.994	1	-462.995	4	-.591	4	-.446	2	-.443	7
329		5	max	270.248	1	655.701	6	555.924	3	.793	3	.36	1	.069	1
330			min	-131.79	2	-128.994	1	-462.995	4	-.591	4	-.444	2	-.482	7
331	M39	1	max	1178.772	1	1163.323	5	1062.404	3	1.226	3	1.001	4	1.25	2
332			min	-1033.325	2	400.108	2	-1069.2	4	-1.242	4	-.996	3	-.902	1
333		2	max	1178.772	1	1163.323	5	1062.404	3	1.226	3	.927	4	1.222	2
334			min	-1033.325	2	400.108	2	-1069.2	4	-1.242	4	-.922	3	-.937	1
335		3	max	1178.772	1	1163.323	5	1062.404	3	1.226	3	.854	4	1.195	2
336			min	-1033.325	2	400.108	2	-1069.2	4	-1.242	4	-.849	3	-.973	1
337		4	max	1178.772	1	1163.323	5	1062.404	3	1.226	3	.78	4	1.167	2
338			min	-1033.325	2	400.108	2	-1069.2	4	-1.242	4	-.776	3	-1.008	1
339		5	max	1178.772	1	1163.323	5	1062.404	3	1.226	3	.706	4	1.139	2
340			min	-1033.325	2	400.108	2	-1069.2	4	-1.242	4	-.702	3	-1.044	1
341	M41	1	max	210.327	1	582.914	6	426.822	3	.609	3	.442	2	.125	3
342			min	-78.11	2	-128.853	1	-519.108	4	-.81	4	-.333	1	-.35	4
343		2	max	210.327	1	582.914	6	426.822	3	.609	3	.439	2	.11	3
344			min	-78.11	2	-128.853	1	-519.108	4	-.81	4	-.337	1	-.365	8
345		3	max	210.327	1	582.914	6	426.822	3	.609	3	.437	2	.096	3
346			min	-78.11	2	-128.853	1	-519.108	4	-.81	4	-.341	1	-.4	8
347		4	max	210.327	1	582.914	6	426.822	3	.609	3	.435	2	.081	3
348			min	-78.11	2	-128.853	1	-519.108	4	-.81	4	-.345	1	-.434	8
349		5	max	210.327	1	582.914	6	426.822	3	.609	3	.432	2	.066	3
350			min	-78.11	2	-128.853	1	-519.108	4	-.81	4	-.349	1	-.468	8



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
351	M42	1	max	346.085	4	645.731	7	494.563	1	.744	1	.217	4	.117	2
352			min	-208.433	3	-88.589	4	-401.525	2	-.541	2	-.33	3	-.339	1
353		2	max	346.085	4	645.731	7	494.563	1	.744	1	.245	4	.113	2
354			min	-208.433	3	-88.589	4	-401.525	2	-.541	2	-.351	3	-.368	1
355		3	max	346.085	4	645.731	7	494.563	1	.744	1	.273	4	.109	2
356			min	-208.433	3	-88.589	4	-401.525	2	-.541	2	-.373	3	-.407	5
357		4	max	346.085	4	645.731	7	494.563	1	.744	1	.301	4	.105	2
358			min	-208.433	3	-88.589	4	-401.525	2	-.541	2	-.394	3	-.449	5
359		5	max	346.085	4	645.731	7	494.563	1	.744	1	.329	4	.102	2
360			min	-208.433	3	-88.589	4	-401.525	2	-.541	2	-.416	3	-.491	5
361	M45	1	max	263.167	2	569.51	7	407.55	1	.513	1	.455	3	.12	4
362			min	-133.175	1	-82.886	4	-499.668	2	-.712	2	-.346	4	-.344	3
363		2	max	263.167	2	569.51	7	407.55	1	.513	1	.432	3	.126	4
364			min	-133.175	1	-82.886	4	-499.668	2	-.712	2	-.329	4	-.38	3
365		3	max	263.167	2	569.51	7	407.55	1	.513	1	.408	3	.132	4
366			min	-133.175	1	-82.886	4	-499.668	2	-.712	2	-.311	4	-.415	3
367		4	max	263.167	2	569.51	7	407.55	1	.513	1	.385	3	.137	4
368			min	-133.175	1	-82.886	4	-499.668	2	-.712	2	-.294	4	-.451	3
369		5	max	263.167	2	569.51	7	407.55	1	.513	1	.361	3	.143	4
370			min	-133.175	1	-82.886	4	-499.668	2	-.712	2	-.277	4	-.486	3
371	M46	1	max	278.39	2	643.709	8	517.214	2	.665	2	.372	3	.15	3
372			min	-143.299	1	-81.499	3	-424.153	1	-.465	1	-.481	4	-.368	4
373		2	max	278.39	2	643.282	8	517.214	2	.665	2	.353	3	.155	3
374			min	-143.299	1	-81.499	3	-424.153	1	-.465	1	-.456	4	-.407	4
375		3	max	278.39	2	642.856	8	517.214	2	.665	2	.333	3	.161	3
376			min	-143.299	1	-81.499	3	-424.153	1	-.465	1	-.43	4	-.446	4
377		4	max	278.39	2	642.429	8	517.214	2	.665	2	.314	3	.167	3
378			min	-143.299	1	-81.499	3	-424.153	1	-.465	1	-.404	4	-.484	4
379		5	max	278.39	2	642.003	8	517.214	2	.665	2	.295	3	.172	3
380			min	-143.299	1	-81.499	3	-424.153	1	-.465	1	-.379	4	-.523	4
381	M49	1	max	280.268	3	577.829	8	380.637	2	.58	2	.336	4	.098	2
382			min	-148.077	4	-114.109	3	-472.584	1	-.782	1	-.224	3	-.326	5
383		2	max	280.268	3	577.829	8	380.637	2	.58	2	.356	4	.095	2
384			min	-148.077	4	-114.109	3	-472.584	1	-.782	1	-.25	3	-.363	5
385		3	max	280.268	3	577.829	8	380.637	2	.58	2	.375	4	.093	2
386			min	-148.077	4	-114.109	3	-472.584	1	-.782	1	-.276	3	-.401	5
387		4	max	280.268	3	577.829	8	380.637	2	.58	2	.394	4	.09	2
388			min	-148.077	4	-114.109	3	-472.584	1	-.782	1	-.301	3	-.438	5
389		5	max	280.268	3	577.829	8	380.637	2	.58	2	.413	4	.087	2
390			min	-148.077	4	-114.109	3	-472.584	1	-.782	1	-.327	3	-.475	5
391	M50	1	max	193.604	1	333.263	1	182.953	4	.651	3	.451	2	.156	4
392			min	-332.275	2	-398.8	2	-275.69	3	-.525	4	-.345	1	-.289	3
393		2	max	193.604	1	333.263	1	182.953	4	.651	3	.449	2	.157	4
394			min	-332.275	2	-398.8	2	-275.69	3	-.525	4	-.349	1	-.286	3
395		3	max	193.604	1	333.263	1	182.953	4	.651	3	.448	2	.157	4
396			min	-332.275	2	-398.8	2	-275.69	3	-.525	4	-.352	1	-.282	3
397		4	max	193.604	1	333.263	1	182.953	4	.651	3	.446	2	.158	4
398			min	-332.275	2	-398.8	2	-275.69	3	-.525	4	-.356	1	-.279	3
399		5	max	193.604	1	333.263	1	182.953	4	.651	3	.444	2	.159	4
400			min	-332.275	2	-398.8	2	-275.69	3	-.525	4	-.36	1	-.276	3
401	M51	1	max	94.238	1	67.192	2	318.048	4	.966	3	.191	3	.35	2
402			min	-241.211	2	-43.938	1	-311.23	3	-.974	4	-.196	4	-.195	1



9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
403		2	max	94.238	1	67.192	2	318.048	4	.966	3	.173	3	.346	2
404			min	-241.211	2	-43.938	1	-311.23	3	-.974	4	-.178	4	-.192	1
405		3	max	94.238	1	67.192	2	318.048	4	.966	3	.155	3	.342	2
406			min	-241.211	2	-43.938	1	-311.23	3	-.974	4	-.16	4	-.19	1
407		4	max	94.238	1	67.192	2	318.048	4	.966	3	.137	3	.339	2
408			min	-241.211	2	-43.938	1	-311.23	3	-.974	4	-.141	4	-.187	1
409		5	max	94.238	1	67.192	2	318.048	4	.966	3	.119	3	.335	2
410			min	-241.211	2	-43.938	1	-311.23	3	-.974	4	-.123	4	-.185	1
411	M53	1	max	161.377	1	301.735	1	298.151	4	.516	3	.335	1	.158	3
412			min	-293.945	2	-383.537	2	-206.1	3	-.639	4	-.441	2	-.283	4
413		2	max	161.377	1	301.735	1	298.151	4	.516	3	.339	1	.16	3
414			min	-293.945	2	-383.537	2	-206.1	3	-.639	4	-.439	2	-.281	4
415		3	max	161.377	1	301.735	1	298.151	4	.516	3	.342	1	.162	3
416			min	-293.945	2	-383.537	2	-206.1	3	-.639	4	-.437	2	-.278	4
417		4	max	161.377	1	301.735	1	298.151	4	.516	3	.345	1	.165	3
418			min	-293.945	2	-383.537	2	-206.1	3	-.639	4	-.435	2	-.275	4
419		5	max	161.377	1	301.735	1	298.151	4	.516	3	.349	1	.167	3
420			min	-293.945	2	-383.537	2	-206.1	3	-.639	4	-.433	2	-.272	4
421	M54	1	max	115.886	2	293.251	4	139.097	2	.589	4	.397	3	.177	3
422			min	-252.322	1	-359.966	3	-232.529	1	-.465	3	-.288	4	-.306	4
423		2	max	115.886	2	293.251	4	139.097	2	.589	4	.402	3	.198	3
424			min	-252.322	1	-359.966	3	-232.529	1	-.465	3	-.298	4	-.323	4
425		3	max	115.886	2	293.251	4	139.097	2	.589	4	.406	3	.218	3
426			min	-252.322	1	-359.966	3	-232.529	1	-.465	3	-.309	4	-.34	4
427		4	max	115.886	2	293.251	4	139.097	2	.589	4	.411	3	.239	3
428			min	-252.322	1	-359.966	3	-232.529	1	-.465	3	-.319	4	-.357	4
429		5	max	115.886	2	293.251	4	139.097	2	.589	4	.416	3	.26	3
430			min	-252.322	1	-359.966	3	-232.529	1	-.465	3	-.329	4	-.374	4
431	M57	1	max	191.576	4	257.303	4	276.336	2	.552	1	.295	4	.2	1
432			min	-323.318	3	-339.773	3	-183.321	1	-.673	2	-.402	3	-.323	2
433		2	max	191.576	4	257.303	4	276.336	2	.552	1	.291	4	.213	1
434			min	-323.318	3	-339.773	3	-183.321	1	-.673	2	-.391	3	-.331	2
435		3	max	191.576	4	257.303	4	276.336	2	.552	1	.286	4	.226	1
436			min	-323.318	3	-339.773	3	-183.321	1	-.673	2	-.381	3	-.339	2
437		4	max	191.576	4	257.303	4	276.336	2	.552	1	.281	4	.239	1
438			min	-323.318	3	-339.773	3	-183.321	1	-.673	2	-.371	3	-.348	2
439		5	max	191.576	4	257.303	4	276.336	2	.552	1	.277	4	.252	1
440			min	-323.318	3	-339.773	3	-183.321	1	-.673	2	-.361	3	-.356	2
441	M58	1	max	229.631	3	287.317	3	161.552	1	.691	2	.413	4	.211	1
442			min	-367.319	4	-353.323	4	-254.743	2	-.567	1	-.307	3	-.342	2
443		2	max	229.631	3	287.317	3	161.552	1	.691	2	.404	4	.222	1
444			min	-367.319	4	-353.323	4	-254.743	2	-.567	1	-.304	3	-.349	2
445		3	max	229.631	3	287.317	3	161.552	1	.691	2	.396	4	.233	1
446			min	-367.319	4	-353.323	4	-254.743	2	-.567	1	-.301	3	-.356	2
447		4	max	229.631	3	287.317	3	161.552	1	.691	2	.387	4	.245	1
448			min	-367.319	4	-353.323	4	-254.743	2	-.567	1	-.298	3	-.364	2
449		5	max	229.631	3	287.317	3	161.552	1	.691	2	.379	4	.256	1
450			min	-367.319	4	-353.323	4	-254.743	2	-.567	1	-.295	3	-.371	2
451	M61	1	max	107.203	2	287.415	3	249.058	1	.442	4	.28	3	.142	4
452			min	-237.635	1	-370.31	4	-156.329	2	-.564	3	-.388	4	-.265	3
453		2	max	107.203	2	287.415	3	249.058	1	.442	4	.291	3	.164	4
454			min	-237.635	1	-370.31	4	-156.329	2	-.564	3	-.394	4	-.281	3



9bj YcdYA Ya VYf GYVJcb: cfWkg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
455		3	max	107.203	2	287.415	3	249.058	1	.442	4	.303	3	.185	4
456			min	-237.635	1	-370.31	4	-156.329	2	-.564	3	-.401	4	-.298	3
457		4	max	107.203	2	287.415	3	249.058	1	.442	4	.315	3	.206	4
458			min	-237.635	1	-370.31	4	-156.329	2	-.564	3	-.407	4	-.314	3
459		5	max	107.203	2	287.415	3	249.058	1	.442	4	.327	3	.228	4
460			min	-237.635	1	-370.31	4	-156.329	2	-.564	3	-.413	4	-.331	3
461	M62	1	max	307.617	1	337.551	2	321.533	4	.106	1	.485	3	.194	2
462			min	-516.602	2	-335.133	1	-437.817	3	-.075	2	-.337	4	-.248	1
463		2	max	307.617	1	337.551	2	321.533	4	.106	1	.471	3	.183	2
464			min	-516.602	2	-335.133	1	-437.817	3	-.075	2	-.326	4	-.237	1
465		3	max	307.617	1	337.551	2	321.533	4	.106	1	.456	3	.172	2
466			min	-516.602	2	-335.133	1	-437.817	3	-.075	2	-.316	4	-.226	1
467		4	max	307.617	1	337.551	2	321.533	4	.106	1	.442	3	.161	2
468			min	-516.602	2	-335.133	1	-437.817	3	-.075	2	-.305	4	-.215	1
469		5	max	307.617	1	337.551	2	321.533	4	.106	1	.428	3	.15	2
470			min	-516.602	2	-335.133	1	-437.817	3	-.075	2	-.295	4	-.204	1
471	M63	1	max	280.762	1	323.708	2	476.938	4	.072	3	.358	3	.161	3
472			min	-488.281	2	-308.125	1	-354.792	3	-.099	4	-.511	4	-.205	4
473		2	max	280.762	1	323.708	2	476.938	4	.072	3	.346	3	.155	3
474			min	-488.281	2	-308.125	1	-354.792	3	-.099	4	-.495	4	-.199	4
475		3	max	280.762	1	323.708	2	476.938	4	.072	3	.335	3	.15	3
476			min	-488.281	2	-308.125	1	-354.792	3	-.099	4	-.48	4	-.194	4
477		4	max	280.762	1	323.708	2	476.938	4	.072	3	.323	3	.144	3
478			min	-488.281	2	-308.125	1	-354.792	3	-.099	4	-.464	4	-.189	4
479		5	max	280.762	1	323.708	2	476.938	4	.072	3	.312	3	.138	3
480			min	-488.281	2	-308.125	1	-354.792	3	-.099	4	-.449	4	-.183	4
481	M64	1	max	173.78	2	420.824	3	240.267	3	.157	4	.366	4	.299	3
482			min	-385.811	1	-417.944	4	-361.041	4	-.127	3	-.217	3	-.352	4
483		2	max	173.78	2	420.824	3	240.267	3	.157	4	.355	4	.285	3
484			min	-385.811	1	-417.944	4	-361.041	4	-.127	3	-.209	3	-.338	4
485		3	max	173.78	2	420.824	3	240.267	3	.157	4	.343	4	.272	3
486			min	-385.811	1	-417.944	4	-361.041	4	-.127	3	-.201	3	-.325	4
487		4	max	173.78	2	420.824	3	240.267	3	.157	4	.331	4	.258	3
488			min	-385.811	1	-417.944	4	-361.041	4	-.127	3	-.194	3	-.311	4
489		5	max	173.78	2	420.824	3	240.267	3	.157	4	.319	4	.244	3
490			min	-385.811	1	-417.944	4	-361.041	4	-.127	3	-.186	3	-.297	4
491	M65	1	max	308.724	4	344.085	1	500.158	2	.111	1	.367	1	.258	1
492			min	-515.961	3	-327.717	2	-377.309	1	-.137	2	-.518	2	-.3	2
493		2	max	308.724	4	344.085	1	500.158	2	.111	1	.354	1	.247	1
494			min	-515.961	3	-327.717	2	-377.309	1	-.137	2	-.502	2	-.29	2
495		3	max	308.724	4	344.085	1	500.158	2	.111	1	.342	1	.235	1
496			min	-515.961	3	-327.717	2	-377.309	1	-.137	2	-.486	2	-.279	2
497		4	max	308.724	4	344.085	1	500.158	2	.111	1	.33	1	.224	1
498			min	-515.961	3	-327.717	2	-377.309	1	-.137	2	-.47	2	-.268	2
499		5	max	308.724	4	344.085	1	500.158	2	.111	1	.318	1	.213	1
500			min	-515.961	3	-327.717	2	-377.309	1	-.137	2	-.453	2	-.258	2
501	M66	1	max	340.386	3	316.869	1	353.007	1	.148	2	.507	2	.263	1
502			min	-551.875	4	-314.337	2	-469.671	2	-.117	1	-.36	1	-.316	2
503		2	max	340.386	3	316.869	1	353.007	1	.148	2	.491	2	.253	1
504			min	-551.875	4	-314.337	2	-469.671	2	-.117	1	-.349	1	-.305	2
505		3	max	340.386	3	316.869	1	353.007	1	.148	2	.476	2	.243	1
506			min	-551.875	4	-314.337	2	-469.671	2	-.117	1	-.337	1	-.295	2



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

Dec 10, 2021
 2:18 PM
 Checked By: _____

9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
507		4	max	340.386	3	316.869	1	353.007	1	.148	2	.461	2	.232	1
508			min	-551.875	4	-314.337	2	-469.671	2	-.117	1	-.326	1	-.285	2
509		5	max	340.386	3	316.869	1	353.007	1	.148	2	.446	2	.222	1
510			min	-551.875	4	-314.337	2	-469.671	2	-.117	1	-.314	1	-.275	2
511	M67	1	max	165.695	2	427.256	4	384.122	3	.114	4	.209	4	.276	4
512			min	-373.963	1	-411.325	3	-258.614	4	-.14	3	-.363	3	-.32	3
513		2	max	165.695	2	427.256	4	384.122	3	.114	4	.201	4	.263	4
514			min	-373.963	1	-411.325	3	-258.614	4	-.14	3	-.35	3	-.306	3
515		3	max	165.695	2	427.256	4	384.122	3	.114	4	.192	4	.249	4
516			min	-373.963	1	-411.325	3	-258.614	4	-.14	3	-.338	3	-.293	3
517		4	max	165.695	2	427.256	4	384.122	3	.114	4	.184	4	.235	4
518			min	-373.963	1	-411.325	3	-258.614	4	-.14	3	-.326	3	-.279	3
519		5	max	165.695	2	427.256	4	384.122	3	.114	4	.176	4	.221	4
520			min	-373.963	1	-411.325	3	-258.614	4	-.14	3	-.313	3	-.266	3
521	M68	1	max	269.57	3	309.438	1	303.633	2	.009	1	.17	4	.464	4
522			min	-510.381	4	-321.916	2	-310.575	1	-.009	2	-.11	3	-.33	3
523		2	max	266.644	3	311.118	1	305.327	2	.009	1	.15	4	.362	4
524			min	-507.455	4	-320.237	2	-312.269	1	-.009	2	-.092	3	-.225	3
525		3	max	263.718	3	312.797	1	307.021	2	.009	1	.13	4	.261	4
526			min	-504.529	4	-318.557	2	-313.962	1	-.009	2	-.075	3	-.121	3
527		4	max	260.793	3	314.477	1	308.715	2	.009	1	.113	4	.383	2
528			min	-501.603	4	-316.877	2	-315.656	1	-.009	2	-.059	3	-.245	1
529		5	max	257.867	3	316.157	1	310.409	2	.009	1	.097	4	.536	2
530			min	-498.677	4	-315.198	2	-317.35	1	-.009	2	-.045	1	-.4	1
531	M69	1	max	237.199	4	328.724	2	333.731	1	.01	2	.114	2	.527	2
532			min	-477.985	3	-343.249	1	-332.745	2	-.01	1	-.055	1	-.395	1
533		2	max	240.116	4	330.404	2	332.051	1	.01	2	.114	2	.365	2
534			min	-480.903	3	-341.569	1	-331.065	2	-.01	1	-.057	1	-.23	1
535		3	max	243.034	4	332.084	2	330.371	1	.01	2	.124	3	.27	3
536			min	-483.821	3	-339.889	1	-329.385	2	-.01	1	-.068	4	-.13	4
537		4	max	245.952	4	333.763	2	328.691	1	.01	2	.136	3	.362	3
538			min	-486.739	3	-338.21	1	-327.705	2	-.01	1	-.084	4	-.222	4
539		5	max	248.87	4	335.443	2	327.011	1	.01	2	.151	3	.454	3
540			min	-489.657	3	-336.53	1	-326.025	2	-.01	1	-.1	4	-.316	4
541	M70	1	max	330.811	4	100.292	1	660.683	3	.06	1	.148	4	.248	2
542			min	-195.984	3	-856.703	9	-822.645	4	-.079	2	-.119	3	-.237	1
543		2	max	330.811	4	100.292	1	660.683	3	.06	1	.111	4	.271	2
544			min	-195.984	3	-856.703	9	-822.645	4	-.079	2	-.089	3	-.242	1
545		3	max	330.811	4	100.292	1	660.683	3	.06	1	.074	4	.293	2
546			min	-195.984	3	-856.703	9	-822.645	4	-.079	2	-.059	3	-.246	1
547		4	max	330.811	4	100.292	1	660.683	3	.06	1	.037	4	.316	2
548			min	-195.984	3	-856.703	9	-822.645	4	-.079	2	-.03	3	-.251	1
549		5	max	330.811	4	100.292	1	660.683	3	.06	1	0	2	.339	2
550			min	-195.984	3	-856.703	9	-822.645	4	-.079	2	0	3	-.255	1
551	M71	1	max	341.37	3	101.624	1	829.36	3	.077	2	.121	4	.229	2
552			min	-202.698	4	-875.803	10	-669.472	4	-.057	1	-.149	3	-.223	1
553		2	max	341.37	3	101.624	1	829.36	3	.077	2	.09	4	.253	2
554			min	-202.698	4	-875.803	10	-669.472	4	-.057	1	-.112	3	-.228	1
555		3	max	341.37	3	101.624	1	829.36	3	.077	2	.06	4	.278	2
556			min	-202.698	4	-875.803	10	-669.472	4	-.057	1	-.075	3	-.232	1
557		4	max	341.37	3	101.624	1	829.36	3	.077	2	.03	4	.302	2
558			min	-202.698	4	-875.803	10	-669.472	4	-.057	1	-.037	3	-.237	1



9bj YcdYA Ya Vyf GYVjcb: cfWVg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
559		5	max	341.37	3	101.624	1	829.36	3	.077	2	0	2	.327	2
560			min	-202.698	4	-875.803	10	-669.472	4	-.057	1	0	11	-.242	1
561	M72	1	max	273.19	2	170.641	4	525.859	1	.046	4	.124	2	.181	3
562			min	-137.959	1	-577.553	3	-689.773	2	-.065	3	-.095	1	-.17	4
563		2	max	273.19	2	170.641	4	525.859	1	.046	4	.093	2	.207	3
564			min	-137.959	1	-577.553	3	-689.773	2	-.065	3	-.071	1	-.177	4
565		3	max	273.19	2	170.641	4	525.859	1	.046	4	.062	2	.233	3
566			min	-137.959	1	-577.553	3	-689.773	2	-.065	3	-.047	1	-.185	4
567		4	max	273.19	2	170.641	4	525.859	1	.046	4	.031	2	.259	3
568			min	-137.959	1	-577.553	3	-689.773	2	-.065	3	-.024	1	-.193	4
569		5	max	273.19	2	170.641	4	525.859	1	.046	4	0	4	.285	3
570			min	-137.959	1	-577.553	3	-689.773	2	-.065	3	0	3	-.2	4
571	M73	1	max	284.432	1	85.97	2	724.757	1	.078	3	.101	2	.253	3
572			min	-141.558	2	-613.583	5	-561.502	2	-.058	4	-.13	1	-.246	4
573		2	max	284.432	1	85.97	2	724.757	1	.078	3	.076	2	.272	3
574			min	-141.558	2	-613.87	5	-561.502	2	-.058	4	-.098	1	-.245	4
575		3	max	284.432	1	85.97	2	724.757	1	.078	3	.051	2	.29	3
576			min	-141.558	2	-614.158	5	-561.502	2	-.058	4	-.065	1	-.243	4
577		4	max	284.432	1	85.97	2	724.757	1	.078	3	.025	2	.308	3
578			min	-141.558	2	-614.445	5	-561.502	2	-.058	4	-.033	1	-.241	4
579		5	max	284.432	1	85.97	2	724.757	1	.078	3	0	3	.327	3
580			min	-141.558	2	-614.732	5	-561.502	2	-.058	4	0	2	-.24	4
581	M74	1	max	277.704	1	107.839	2	572.249	2	.056	3	.133	1	.269	4
582			min	-141.773	2	-554.116	5	-740.409	1	-.075	4	-.103	2	-.257	3
583		2	max	277.704	1	107.839	2	572.249	2	.056	3	.1	1	.286	4
584			min	-141.773	2	-554.116	5	-740.409	1	-.075	4	-.077	2	-.256	3
585		3	max	277.704	1	107.839	2	572.249	2	.056	3	.067	1	.303	4
586			min	-141.773	2	-554.116	5	-740.409	1	-.075	4	-.052	2	-.254	3
587		4	max	277.704	1	107.839	2	572.249	2	.056	3	.033	1	.32	4
588			min	-141.773	2	-554.116	5	-740.409	1	-.075	4	-.026	2	-.253	3
589		5	max	277.704	1	107.839	2	572.249	2	.056	3	0	3	.337	4
590			min	-141.773	2	-554.116	5	-740.409	1	-.075	4	0	4	-.252	3
591	M75	1	max	306.452	2	162.483	3	703.861	2	.069	4	.098	1	.171	4
592			min	-164.918	1	-630.687	8	-545.67	1	-.048	3	-.127	2	-.165	3
593		2	max	306.452	2	162.483	3	703.861	2	.069	4	.074	1	.198	4
594			min	-164.918	1	-630.975	8	-545.67	1	-.048	3	-.095	2	-.172	3
595		3	max	306.452	2	162.483	3	703.861	2	.069	4	.049	1	.226	4
596			min	-164.918	1	-631.262	8	-545.67	1	-.048	3	-.063	2	-.18	3
597		4	max	306.452	2	162.483	3	703.861	2	.069	4	.025	1	.253	4
598			min	-164.918	1	-631.549	8	-545.67	1	-.048	3	-.032	2	-.187	3
599		5	max	306.452	2	162.483	3	703.861	2	.069	4	0	3	.281	4
600			min	-164.918	1	-631.836	8	-545.67	1	-.048	3	0	4	-.194	3
601	M76	1	max	859.558	1	-112.303	4	915.108	2	.005	1	.196	1	.161	2
602			min	-795.593	2	-780.735	7	-1223.266	1	-.006	2	-.146	2	-.212	1
603		2	max	859.558	1	-112.303	4	915.108	2	.005	1	.147	1	.173	2
604			min	-795.593	2	-780.735	7	-1223.266	1	-.006	2	-.11	2	-.2	1
605		3	max	859.558	1	-112.303	4	915.108	2	.005	1	.098	1	.185	2
606			min	-795.593	2	-780.735	7	-1223.266	1	-.006	2	-.073	2	-.189	1
607		4	max	859.558	1	-112.303	4	915.108	2	.005	1	.049	1	.197	2
608			min	-795.593	2	-780.735	7	-1223.266	1	-.006	2	-.037	2	-.178	1
609		5	max	859.558	1	-112.303	4	915.108	2	.005	1	0	1	.21	2
610			min	-795.593	2	-780.735	7	-1223.266	1	-.006	2	0	2	-.166	1



9bj YcdYA Ya VYf GYWjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
611	M77	1	max	844.666	1	-115.751	3	1162.822	1	.006	2	.138	2	.163	2
612			min	-778.503	2	-785.29	8	-860.069	2	-.005	1	-.186	1	-.215	1
613		2	max	844.666	1	-115.751	3	1162.822	1	.006	2	.103	2	.176	2
614			min	-778.503	2	-785.29	8	-860.069	2	-.005	1	-.14	1	-.204	1
615		3	max	844.666	1	-115.751	3	1162.822	1	.006	2	.069	2	.188	2
616			min	-778.503	2	-785.29	8	-860.069	2	-.005	1	-.093	1	-.192	1
617		4	max	844.666	1	-115.751	3	1162.822	1	.006	2	.034	2	.201	2
618			min	-778.503	2	-785.29	8	-860.069	2	-.005	1	-.046	1	-.181	1
619		5	max	844.666	1	-115.751	3	1162.822	1	.006	2	0	1	.213	2
620			min	-778.503	2	-785.29	8	-860.069	2	-.005	1	0	4	-.17	1
621	M78	1	max	886.418	4	-135.502	2	726.344	1	.004	4	.161	2	.159	3
622			min	-825.567	3	-778.345	5	-1005.027	2	-.005	3	-.116	1	-.209	4
623		2	max	886.418	4	-135.502	2	726.344	1	.004	4	.121	2	.167	3
624			min	-825.567	3	-778.345	5	-1005.027	2	-.005	3	-.087	1	-.194	4
625		3	max	886.418	4	-135.502	2	726.344	1	.004	4	.08	2	.176	3
626			min	-825.567	3	-778.345	5	-1005.027	2	-.005	3	-.058	1	-.178	4
627		4	max	886.418	4	-135.502	2	726.344	1	.004	4	.04	2	.184	3
628			min	-825.567	3	-778.345	5	-1005.027	2	-.005	3	-.029	1	-.163	4
629		5	max	886.418	4	-135.502	2	726.344	1	.004	4	0	2	.192	3
630			min	-825.567	3	-778.345	5	-1005.027	2	-.005	3	0	4	-.148	4
631	M79	1	max	556.375	4	-159.912	1	1332.807	4	.007	3	.167	3	.124	3
632			min	-484.868	3	-772.75	6	-1043.495	3	-.005	4	-.213	4	-.176	4
633		2	max	556.375	4	-159.912	1	1332.807	4	.007	3	.125	3	.14	3
634			min	-484.868	3	-772.75	6	-1043.495	3	-.005	4	-.16	4	-.168	4
635		3	max	556.375	4	-159.912	1	1332.807	4	.007	3	.083	3	.157	3
636			min	-484.868	3	-772.75	6	-1043.495	3	-.005	4	-.107	4	-.16	4
637		4	max	556.375	4	-159.912	1	1332.807	4	.007	3	.042	3	.173	3
638			min	-484.868	3	-772.75	6	-1043.495	3	-.005	4	-.053	4	-.152	4
639		5	max	556.375	4	-159.912	1	1332.807	4	.007	3	0	11	.189	3
640			min	-484.868	3	-772.75	6	-1043.495	3	-.005	4	0	3	-.144	4
641	M80	1	max	545.118	3	-150.167	1	1140.056	4	.003	3	.23	3	.124	4
642			min	-479.931	4	-770.739	6	-1434.403	3	-.003	4	-.182	4	-.175	3
643		2	max	545.118	3	-150.167	1	1140.056	4	.003	3	.172	3	.14	4
644			min	-479.931	4	-770.739	6	-1434.403	3	-.003	4	-.137	4	-.167	3
645		3	max	545.118	3	-150.167	1	1140.056	4	.003	3	.115	3	.156	4
646			min	-479.931	4	-770.739	6	-1434.403	3	-.003	4	-.091	4	-.16	3
647		4	max	545.118	3	-150.167	1	1140.056	4	.003	3	.057	3	.172	4
648			min	-479.931	4	-770.739	6	-1434.403	3	-.003	4	-.046	4	-.152	3
649		5	max	545.118	3	-150.167	1	1140.056	4	.003	3	0	3	.188	4
650			min	-479.931	4	-770.739	6	-1434.403	3	-.003	4	0	8	-.144	3
651	M81	1	max	899.727	3	-143.778	2	965.698	2	.008	4	.111	1	.161	4
652			min	-831.795	4	-780.89	5	-691.345	1	-.006	3	-.155	2	-.212	3
653		2	max	899.727	3	-143.778	2	965.698	2	.008	4	.083	1	.17	4
654			min	-831.795	4	-780.89	5	-691.345	1	-.006	3	-.116	2	-.197	3
655		3	max	899.727	3	-143.778	2	965.698	2	.008	4	.055	1	.179	4
656			min	-831.795	4	-780.89	5	-691.345	1	-.006	3	-.077	2	-.182	3
657		4	max	899.727	3	-143.778	2	965.698	2	.008	4	.028	1	.188	4
658			min	-831.795	4	-780.89	5	-691.345	1	-.006	3	-.039	2	-.167	3
659		5	max	899.727	3	-143.778	2	965.698	2	.008	4	0	3	.196	4
660			min	-831.795	4	-780.89	5	-691.345	1	-.006	3	0	4	-.152	3
661	M82	1	max	42.053	8	561.691	2	953.698	2	.011	2	.112	1	.096	2
662			min	-2.609	3	-374.111	1	-604.101	1	-.033	5	-.163	2	-.069	1



9bj YcdYA Ya VYf GYWjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
663		2	max	42.053	8	561.691	2	953.698	2	.011	2	.086	1	.072	2
664			min	-2.609	3	-374.111	1	-604.101	1	-.033	5	-.122	2	-.053	1
665		3	max	42.053	8	561.691	2	953.698	2	.011	2	.059	1	.047	2
666			min	-2.609	3	-374.111	1	-604.101	1	-.033	5	-.08	2	-.036	1
667		4	max	42.053	8	561.691	2	953.698	2	.011	2	.033	1	.023	2
668			min	-2.609	3	-374.111	1	-604.101	1	-.033	5	-.038	2	-.02	1
669		5	max	42.053	8	561.691	2	953.698	2	.011	2	.023	3	.007	4
670			min	-2.609	3	-374.111	1	-604.101	1	-.033	5	-.013	4	-.013	3
671	M83	1	max	38.971	7	386.692	1	975.073	4	.033	1	.117	1	.072	1
672			min	-4.066	4	-578.378	4	-625.062	1	-.012	2	-.167	2	-.099	2
673		2	max	38.971	7	386.692	1	975.073	4	.033	1	.089	1	.055	1
674			min	-4.066	4	-578.378	4	-625.062	1	-.012	2	-.125	2	-.074	2
675		3	max	38.971	7	386.692	1	975.073	4	.033	1	.062	1	.038	1
676			min	-4.066	4	-578.378	4	-625.062	1	-.012	2	-.082	2	-.049	2
677		4	max	38.971	7	386.692	1	975.073	4	.033	1	.035	1	.021	1
678			min	-4.066	4	-578.378	4	-625.062	1	-.012	2	-.04	2	-.024	2
679		5	max	38.971	7	386.692	1	975.073	4	.033	1	.024	4	.014	4
680			min	-4.066	4	-578.378	4	-625.062	1	-.012	2	-.014	3	-.008	3
681	M84	1	max	163.757	5	817.413	4	1294.79	1	.196	4	.38	6	.18	4
682			min	39.551	2	-815.413	3	-1994.163	2	-.197	3	-.104	1	-.181	3
683		2	max	163.757	5	817.413	4	1294.79	1	.196	4	.325	6	.144	4
684			min	39.551	2	-815.413	3	-1994.163	2	-.197	3	-.048	1	-.146	3
685		3	max	163.757	5	817.413	4	1294.79	1	.196	4	.27	6	.108	4
686			min	39.551	2	-815.413	3	-1994.163	2	-.197	3	.009	1	-.11	3
687		4	max	163.757	5	817.413	4	1294.79	1	.196	4	.215	6	.073	4
688			min	39.551	2	-815.413	3	-1994.163	2	-.197	3	.065	1	-.075	3
689		5	max	163.757	5	817.413	4	1294.79	1	.196	4	.189	5	.037	4
690			min	39.551	2	-815.413	3	-1994.163	2	-.197	3	.008	2	-.039	3
691	M85	1	max	386.688	1	-13.79	3	657.855	1	0	3	.022	3	.053	8
692			min	-575.104	2	-81.423	8	-1007.667	2	-.092	5	-.046	4	0	3
693		2	max	386.688	1	-13.815	3	657.855	1	0	3	.047	3	.056	8
694			min	-575.104	2	-81.499	8	-1007.667	2	-.092	5	-.087	4	0	3
695		3	max	386.688	1	84.985	7	921.352	3	.097	7	.022	1	.063	7
696			min	-575.104	2	-81.575	8	-1007.667	2	-.091	8	-.127	4	.005	2
697		4	max	374.115	1	84.909	7	986.451	2	.097	7	.045	4	.06	7
698			min	-561.691	2	14.81	4	-636.796	1	.003	4	-.086	3	.002	4
699		5	max	374.115	1	84.833	7	986.451	2	.097	7	.021	4	.056	7
700			min	-561.691	2	14.784	4	-636.796	1	.003	4	-.047	3	.001	4
701	M86	1	max	704.801	4	865.378	9	492.118	3	.164	9	.167	4	.557	2
702			min	-507.002	3	-91.503	1	-567.064	4	-.118	2	-.169	3	-.249	1
703		2	max	702.909	4	864.229	9	488.807	3	.164	9	.114	4	.509	2
704			min	-505.11	3	-92.651	1	-563.753	4	-.118	2	-.123	3	-.24	1
705		3	max	701.017	4	863.081	9	485.496	3	.164	9	.061	4	.461	2
706			min	-503.218	3	-93.8	1	-560.442	4	-.118	2	-.077	3	-.232	1
707		4	max	699.125	4	861.932	9	482.185	3	.164	9	.009	4	.413	2
708			min	-501.326	3	-94.948	1	-557.131	4	-.118	2	-.033	7	-.223	1
709		5	max	697.233	4	860.784	9	478.875	3	.164	9	.013	3	.366	2
710			min	-499.433	3	-96.097	1	-553.82	4	-.118	2	-.043	4	-.214	1
711	M87	1	max	621.995	2	649.479	8	473.329	2	.094	1	.14	1	.575	4
712			min	-421.026	1	-153.946	3	-402.078	1	-.138	2	-.135	2	-.24	3
713		2	max	620.084	2	647.062	8	472.214	2	.094	1	.102	1	.517	4
714			min	-419.115	1	-155.094	3	-400.963	1	-.138	2	-.091	2	-.226	3



9bj YcdYA Ya Vyf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
715		3	max	618.172	2	644.645	8	471.099	2	.094	1	.065	1	.46	4
716			min	-417.203	1	-156.242	3	-399.849	1	-.138	2	-.047	2	-.211	3
717		4	max	616.261	2	642.229	8	469.984	2	.094	1	.037	7	.402	4
718			min	-415.292	1	-157.391	3	-398.734	1	-.138	2	-.01	4	-.197	3
719		5	max	614.349	2	639.812	8	468.869	2	.094	1	.045	6	.345	4
720			min	-413.38	1	-158.539	3	-397.619	1	-.138	2	-.01	1	-.182	3
721	M88	1	max	1408.432	1	795.759	8	392.048	2	.159	2	.332	1	.387	8
722			min	-1106.969	2	120.269	3	-347.945	1	-.194	1	-.308	2	.065	3
723		2	max	1407.773	1	794.933	8	390.506	2	.159	2	.318	1	.356	8
724			min	-1106.31	2	119.911	3	-346.403	1	-.194	1	-.293	2	.06	3
725		3	max	1407.113	1	794.108	8	388.965	2	.159	2	.305	1	.325	6
726			min	-1105.651	2	119.553	3	-344.862	1	-.194	1	-.277	2	.052	1
727		4	max	1406.454	1	793.283	8	387.423	2	.159	2	.291	1	.296	6
728			min	-1104.991	2	119.196	3	-343.32	1	-.194	1	-.262	2	.041	1
729		5	max	1405.795	1	792.457	8	385.882	2	.159	2	.278	1	.266	6
730			min	-1104.332	2	118.838	3	-341.778	1	-.194	1	-.247	2	.029	1
731	M89	1	max	1186.436	1	792.331	8	753.217	2	.213	2	.278	1	.262	8
732			min	-885.045	2	118.656	3	-846.354	1	-.17	1	-.247	2	.039	3
733		2	max	1186.319	1	790.573	8	749.337	2	.213	2	.208	1	.196	8
734			min	-884.927	2	117.895	3	-842.474	1	-.17	1	-.185	2	.029	3
735		3	max	1186.202	1	788.816	8	745.457	2	.213	2	.138	1	.13	8
736			min	-884.81	2	117.133	3	-838.594	1	-.17	1	-.123	2	.019	3
737		4	max	1186.085	1	787.058	8	741.577	2	.213	2	.069	1	.065	8
738			min	-884.693	2	116.371	3	-834.714	1	-.17	1	-.061	2	.01	3
739		5	max	1185.968	1	785.3	8	737.697	2	.213	2	0	11	0	11
740			min	-884.576	2	115.61	3	-830.834	1	-.17	1	0	1	0	1
741	M90	1	max	1546.631	3	781.338	6	248.1	2	.159	3	.155	4	.39	8
742			min	-1252.106	4	157.034	1	-290.608	1	-.125	4	-.174	3	.043	3
743		2	max	1545.756	3	780.513	6	246.932	2	.159	3	.154	4	.361	8
744			min	-1251.231	4	156.676	1	-289.44	1	-.125	4	-.175	3	.035	3
745		3	max	1544.881	3	779.687	6	245.765	2	.159	3	.153	4	.331	8
746			min	-1250.355	4	156.318	1	-288.272	1	-.125	4	-.177	3	.027	3
747		4	max	1544.006	3	778.862	6	244.597	2	.159	3	.153	4	.301	8
748			min	-1249.48	4	155.961	1	-287.104	1	-.125	4	-.178	3	.019	3
749		5	max	1543.131	3	778.037	6	243.429	2	.159	3	.152	4	.271	8
750			min	-1248.605	4	155.603	1	-285.936	1	-.125	4	-.179	3	.011	3
751	M91	1	max	1449.566	3	777.874	6	543.221	3	.144	3	.152	4	.258	6
752			min	-1156.644	4	155.682	1	-462.065	4	-.188	4	-.179	3	.051	1
753		2	max	1447.819	3	776.107	6	540.394	3	.144	3	.114	4	.193	6
754			min	-1154.897	4	154.916	1	-459.239	4	-.188	4	-.134	3	.038	1
755		3	max	1446.073	3	774.339	6	537.568	3	.144	3	.076	4	.129	6
756			min	-1153.15	4	154.15	1	-456.413	4	-.188	4	-.089	3	.026	1
757		4	max	1444.326	3	772.571	6	534.742	3	.144	3	.038	4	.064	6
758			min	-1151.403	4	153.384	1	-453.586	4	-.188	4	-.044	3	.013	1
759		5	max	1442.579	3	770.803	6	531.916	3	.144	3	0	11	0	11
760			min	-1149.657	4	152.618	1	-450.76	4	-.188	4	0	1	0	1
761	M92	1	max	1159.303	4	81.11	6	10.134	1	0	7	-.006	1	.102	6
762			min	-1567.867	3	13.112	1	-20.669	2	0	4	-.051	8	-.016	1
763		2	max	1152.169	4	61.849	6	5.995	1	0	7	.008	1	.042	2
764			min	-1560.733	3	7.123	1	-16.53	2	0	4	-.013	2	-.018	1
765		3	max	1145.035	4	30.835	6	4.923	3	0	7	.019	5	.011	9
766			min	-1553.599	3	-2.877	1	-15.696	4	0	4	-.002	2	-.019	3



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
767	4	max	1137.901	4	12.795	2	17.218	3	0	7	.016	7	-.01	1	
768		min	-1546.465	3	-14.929	1	-27.992	4	0	4	-.005	4	-.03	6	
769	5	max	1130.767	4	4.642	2	29.514	3	0	7	.026	3	.012	3	
770		min	-1539.331	3	-39.376	5	-40.288	4	0	4	-.033	4	-.035	4	
771	M93	1	max	1008.736	2	24.045	2	84.124	8	0	9	-.004	3	.011	3
772		min	-1426.337	1	-35.502	1	15.777	3	0	5	-.054	8	-.108	8	
773	2	max	1008.695	2	7.614	2	64.748	8	0	9	.007	3	.019	3	
774		min	-1426.295	1	-19.071	1	9.758	3	0	5	-.014	4	-.046	4	
775	3	max	1008.653	2	2.204	3	34.056	8	0	9	.019	6	.022	3	
776		min	-1426.254	1	-15.968	8	.4	3	0	5	-.002	4	-.014	4	
777	4	max	1008.612	2	13.792	1	10.859	4	0	9	.016	5	.033	5	
778		min	-1426.212	1	-25.248	2	-14.063	7	0	5	-.001	2	.004	9	
779	5	max	1008.57	2	30.223	1	1.652	4	0	9	.028	1	.026	6	
780		min	-1426.171	1	-41.679	2	-42.02	7	0	5	-.035	2	-.006	9	
781	M94	1	max	880.206	4	860.882	9	133.94	4	.262	1	.013	3	.277	9
782		min	-690.891	3	-95.729	1	-40.681	3	-.348	2	-.043	4	-.031	1	
783	2	max	879.371	4	859.894	9	134.135	4	.262	1	.01	3	.208	9	
784		min	-690.055	3	-96.717	1	-40.876	3	-.348	2	-.033	4	-.024	1	
785	3	max	878.535	4	858.907	9	134.33	4	.262	1	.007	3	.138	9	
786		min	-689.219	3	-97.704	1	-41.071	3	-.348	2	-.022	4	-.016	1	
787	4	max	877.699	4	857.92	9	134.525	4	.262	1	.003	3	.069	9	
788		min	-688.384	3	-98.691	1	-41.266	3	-.348	2	-.011	4	-.008	1	
789	5	max	876.864	4	856.933	9	134.72	4	.262	1	0	11	0	11	
790		min	-687.548	3	-99.678	1	-41.461	3	-.348	2	0	1	0	1	
791	M95	1	max	761.213	2	639.687	8	32.333	1	.289	4	.045	6	.204	8
792		min	-573.181	1	-159.118	3	-140.202	6	-.2	3	-.01	1	-.052	3	
793	2	max	760.175	2	637.539	8	32.02	1	.289	4	.034	6	.152	8	
794		min	-572.143	1	-160.1	3	-140.133	6	-.2	3	-.008	1	-.039	3	
795	3	max	759.137	2	635.392	8	31.707	1	.289	4	.022	6	.101	8	
796		min	-571.105	1	-161.081	3	-140.064	6	-.2	3	-.005	1	-.026	3	
797	4	max	758.099	2	633.244	8	31.393	1	.289	4	.011	6	.051	8	
798		min	-570.067	1	-162.063	3	-139.995	6	-.2	3	-.003	1	-.013	3	
799	5	max	757.061	2	631.096	8	31.08	1	.289	4	0	11	0	11	
800		min	-569.029	1	-163.044	3	-139.927	6	-.2	3	0	1	0	1	
801	M96	1	max	171.256	1	-119.926	3	1438.984	1	-.052	1	.308	2	.131	2
802		min	-263.426	2	-795.264	8	-1146.098	2	-.381	6	-.332	1	-.202	1	
803	2	max	915.362	1	-150.835	3	221.823	1	-.103	2	.28	1	.449	6	
804		min	-809.866	2	-850.076	8	-296.767	2	-.446	5	-.183	2	-.126	1	
805	3	max	924.079	1	-159.711	3	226.848	1	-.103	2	.425	1	.978	6	
806		min	-818.583	2	-873.728	8	-301.792	2	-.446	5	-.376	2	.076	1	
807	4	max	932.796	1	-168.586	3	231.874	1	-.103	2	.573	1	1.536	8	
808		min	-827.299	2	-897.379	8	-306.817	2	-.446	5	-.572	2	.244	3	
809	5	max	941.512	1	-177.462	3	236.899	1	-.103	2	.724	1	2.123	8	
810		min	-836.016	2	-921.023	8	-311.842	2	-.446	5	-.772	2	.355	3	
811	M97	1	max	607.83	3	905.804	6	344.966	4	.443	7	.949	3	2.121	8
812		min	-503.468	4	215.245	1	-271.548	3	.105	4	-.993	4	.304	3	
813	2	max	599.101	3	882.533	6	329.868	4	.443	7	.778	3	1.55	8	
814		min	-494.739	4	206.37	1	-256.45	3	.105	4	-.776	4	.144	3	
815	3	max	590.371	3	858.966	6	314.77	4	.443	7	.618	3	.994	8	
816		min	-486.009	4	197.494	1	-241.353	3	.105	4	-.568	4	-.01	3	
817	4	max	581.641	3	835.398	6	299.673	4	.443	7	.467	3	.47	4	
818		min	-477.279	4	188.618	1	-226.255	3	.105	4	-.37	4	-.158	3	



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

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9bj YcdYA Ya Vyf GYWjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
819		5	max	195.821	2	780.656	6	1245.712	4	.387	8	.155	4	.093	4
820			min	-272.886	1	156.668	1	-1531.216	3	.024	3	-.174	3	-.163	3
821	M98	1	max	40.699	7	1426.251	1	39.238	2	.02	1	.005	1	.23	1
822			min	-1.425	4	-1008.656	2	-26.619	1	-.042	2	-.007	2	-.169	2
823		2	max	40.699	7	1426.251	1	39.238	2	.02	1	.004	1	.168	1
824			min	-1.425	4	-1008.656	2	-26.619	1	-.042	2	-.005	2	-.125	2
825		3	max	40.699	7	1426.251	1	39.238	2	.02	1	.003	1	.105	1
826			min	-1.425	4	-1008.656	2	-26.619	1	-.042	2	-.004	2	-.081	2
827		4	max	40.699	7	1426.251	1	39.238	2	.02	1	.002	1	.043	1
828			min	-1.425	4	-1008.656	2	-26.619	1	-.042	2	-.002	2	-.037	2
829		5	max	40.699	7	1426.251	1	39.238	2	.02	1	0	1	.009	9
830			min	-1.425	4	-1008.656	2	-26.619	1	-.042	2	0	2	-.019	1
831	M99	1	max	38.706	5	749.064	3	1345.069	3	.048	4	.176	4	.125	3
832			min	-4.811	2	-530.998	4	-999.242	4	-.027	3	-.226	3	-.094	4
833		2	max	38.706	5	749.064	3	1345.069	3	.048	4	.133	4	.093	3
834			min	-4.811	2	-530.998	4	-999.242	4	-.027	3	-.167	3	-.07	4
835		3	max	38.706	5	749.064	3	1345.069	3	.048	4	.089	4	.06	3
836			min	-4.811	2	-530.998	4	-999.242	4	-.027	3	-.109	3	-.047	4
837		4	max	38.706	5	749.064	3	1345.069	3	.048	4	.045	4	.027	3
838			min	-4.811	2	-530.998	4	-999.242	4	-.027	3	-.05	3	-.024	4
839		5	max	38.706	5	749.064	3	1345.069	3	.048	4	.018	2	.005	1
840			min	-4.811	2	-530.998	4	-999.242	4	-.027	3	-.008	1	-.011	2
841	M100	1	max	162.903	8	1411.89	1	1343.384	3	.149	2	.126	4	.323	5
842			min	41	3	-788.285	2	-986.397	4	-.153	1	-.252	3	-.069	2
843		2	max	162.903	8	1411.89	1	1343.384	3	.149	2	.083	4	.28	5
844			min	41	3	-788.285	2	-986.397	4	-.153	1	-.194	3	-.034	2
845		3	max	162.903	8	1411.89	1	1343.384	3	.149	2	.04	4	.236	5
846			min	41	3	-788.285	2	-986.397	4	-.153	1	-.142	7	0	2
847		4	max	162.903	8	1411.89	1	1343.384	3	.149	2	.006	1	.193	5
848			min	41	3	-788.285	2	-986.397	4	-.153	1	-.113	6	.035	2
849		5	max	162.903	8	1411.89	1	1343.384	3	.149	2	.008	1	.166	8
850			min	41	3	-788.285	2	-986.397	4	-.153	1	-.093	6	.004	3
851	M101	1	max	571.507	4	-13.087	1	1009.525	4	.006	1	.016	1	.054	6
852			min	-761.871	3	-81.29	6	-1369.006	3	-.093	6	-.04	2	-.003	1
853		2	max	571.507	4	-13.113	1	1009.525	4	.006	1	.024	4	.057	6
854			min	-761.871	3	-81.366	6	-1369.006	3	-.093	6	-.064	3	-.003	1
855		3	max	571.507	4	84.488	8	1254.634	1	.099	8	.079	2	.065	8
856			min	-761.871	3	-81.442	6	-1369.006	3	-.093	6	-.136	1	.012	3
857		4	max	481.331	2	84.412	8	1254.634	1	.099	8	.042	2	.061	8
858			min	-679.225	1	15.893	3	-886.877	2	-.004	3	-.084	1	-.002	3
859		5	max	481.331	2	84.336	8	1254.634	1	.099	8	.011	3	.058	8
860			min	-679.225	1	15.868	3	-886.877	2	-.004	3	-.038	5	-.002	3
861	M102	1	max	595.419	2	584.866	7	390.162	1	.138	2	.137	2	.558	3
862			min	-395.719	1	-162.284	4	-465.417	2	-.102	1	-.139	1	-.249	4
863		2	max	593.524	2	583.648	3	389.068	1	.138	2	.093	2	.503	3
864			min	-393.824	1	-163.429	4	-464.322	2	-.102	1	-.102	1	-.234	4
865		3	max	591.628	2	582.504	3	387.973	1	.138	2	.05	2	.449	3
866			min	-391.929	1	-164.573	4	-463.228	2	-.102	1	-.066	1	-.218	4
867		4	max	589.733	2	581.359	3	386.879	1	.138	2	.007	2	.394	3
868			min	-390.033	1	-165.718	4	-462.134	2	-.102	1	-.033	8	-.203	4
869		5	max	587.838	2	580.215	3	385.785	1	.138	2	.006	1	.34	3
870			min	-388.138	1	-166.862	4	-461.04	2	-.102	1	-.042	6	-.187	4



9bj YcdYA Ya VYf GYWjcb: cfWVg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
871	M103	1	max	720.155	3	884.424	10	564.321	3	.102	2	.169	4	.572	2
872			min	-519.31	4	-92.593	1	-494.13	4	-.165	10	-.164	3	-.238	1
873		2	max	718.247	3	883.271	10	561.016	3	.102	2	.123	4	.52	2
874			min	-517.402	4	-93.746	1	-490.825	4	-.165	10	-.111	3	-.229	1
875		3	max	716.338	3	882.119	10	557.711	3	.102	2	.077	4	.468	2
876			min	-515.494	4	-94.898	1	-487.52	4	-.165	10	-.059	3	-.22	1
877		4	max	714.43	3	880.966	10	554.405	3	.102	2	.035	8	.416	2
878			min	-513.585	4	-96.051	1	-484.214	4	-.165	10	-.006	3	-.211	1
879		5	max	712.521	3	879.814	10	551.1	3	.102	2	.046	3	.365	2
880			min	-511.677	4	-97.203	1	-480.909	4	-.165	10	-.014	4	-.202	1
881	M104	1	max	1456.954	4	783.355	6	307.668	1	.126	3	.173	4	.391	7
882			min	-1165.393	3	166.888	1	-266.618	2	-.16	4	-.157	1	.045	4
883		2	max	1456.079	4	782.529	6	306.5	1	.126	3	.173	4	.361	7
884			min	-1164.518	3	166.53	1	-265.45	2	-.16	4	-.152	3	.037	4
885		3	max	1455.204	4	781.704	6	305.332	1	.126	3	.173	4	.331	7
886			min	-1163.643	3	166.172	1	-264.282	2	-.16	4	-.15	3	.028	4
887		4	max	1454.329	4	780.879	6	304.165	1	.126	3	.174	4	.301	7
888			min	-1162.768	3	165.815	1	-263.114	2	-.16	4	-.149	3	.02	4
889		5	max	1453.454	4	780.053	6	302.997	1	.126	3	.174	4	.271	7
890			min	-1161.893	3	165.457	1	-261.946	2	-.16	4	-.148	3	.012	4
891	M105	1	max	1357.525	4	779.9	6	450.503	3	.189	3	.174	4	.257	6
892			min	-1068.377	3	165.534	1	-531.137	4	-.144	4	-.148	3	.054	1
893		2	max	1355.787	4	778.143	6	447.694	3	.189	3	.13	4	.193	6
894			min	-1066.64	3	164.773	1	-528.328	4	-.144	4	-.11	3	.041	1
895		3	max	1354.05	4	776.385	6	444.884	3	.189	3	.087	4	.128	6
896			min	-1064.903	3	164.011	1	-525.518	4	-.144	4	-.073	3	.027	1
897		4	max	1352.313	4	774.627	6	442.075	3	.189	3	.043	4	.064	6
898			min	-1063.166	3	163.25	1	-522.709	4	-.144	4	-.037	3	.014	1
899		5	max	1350.576	4	772.87	6	439.265	3	.189	3	0	11	0	11
900			min	-1061.428	3	162.488	1	-519.899	4	-.144	4	0	1	0	1
901	M106	1	max	1469.94	1	791.257	7	338.492	1	.191	1	.313	2	.386	7
902			min	-1164.263	2	116.83	4	-385.655	2	-.156	2	-.337	1	.062	4
903		2	max	1469.281	1	790.432	7	336.95	1	.191	1	.298	2	.355	7
904			min	-1163.604	2	116.473	4	-384.114	2	-.156	2	-.324	1	.058	4
905		3	max	1468.622	1	789.607	7	335.409	1	.191	1	.283	2	.325	7
906			min	-1162.944	2	116.115	4	-382.572	2	-.156	2	-.311	1	.053	4
907		4	max	1467.962	1	788.781	7	333.867	1	.191	1	.268	2	.295	6
908			min	-1162.285	2	115.757	4	-381.031	2	-.156	2	-.298	1	.043	1
909		5	max	1467.303	1	787.956	7	332.325	1	.191	1	.253	2	.266	6
910			min	-1161.626	2	115.4	4	-379.489	2	-.156	2	-.285	1	.032	1
911	M107	1	max	1247.23	1	787.824	7	861.431	1	.167	1	.253	2	.262	7
912			min	-940.387	2	115.225	4	-767.455	2	-.21	2	-.285	1	.038	4
913		2	max	1247.113	1	786.056	7	857.529	1	.167	1	.19	2	.196	7
914			min	-940.269	2	114.459	4	-763.552	2	-.21	2	-.213	1	.028	4
915		3	max	1246.996	1	784.288	7	853.626	1	.167	1	.126	2	.13	7
916			min	-940.152	2	113.693	4	-759.65	2	-.21	2	-.142	1	.019	4
917		4	max	1246.879	1	782.52	7	849.724	1	.167	1	.063	2	.065	7
918			min	-940.035	2	112.927	4	-755.747	2	-.21	2	-.071	1	.009	4
919		5	max	1246.762	1	780.753	7	845.822	1	.167	1	0	11	0	11
920			min	-939.918	2	112.161	4	-751.845	2	-.21	2	0	1	0	1
921	M108	1	max	1084.857	2	80.622	7	24.629	2	0	5	-.004	4	-.101	7
922			min	-1504.734	1	15.047	4	-35.366	1	0	10	-.051	7	-.013	4



9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
923		2	max	1084.822	2	61.361	7	8.194	2	0	5	.007	4	.044	3
924			min	-1504.699	1	9.059	4	-18.931	1	0	10	-.013	3	-.02	4
925		3	max	1084.787	2	30.347	7	2.594	4	0	5	.019	6	.013	3
926			min	-1504.664	1	-.941	4	-14.888	7	0	10	-.002	3	-.022	4
927		4	max	1084.752	2	10.846	3	13.939	1	0	5	.015	5	-.003	10
928			min	-1504.629	1	-13.244	8	-24.676	2	0	10	-.002	2	-.031	5
929		5	max	1084.717	2	2.692	3	30.373	1	0	5	.029	1	.006	10
930			min	-1504.594	1	-38.964	8	-41.11	2	0	10	-.035	2	-.025	6
931	M109	1	max	1056.698	3	9.99	1	84.497	6	0	3	-.007	1	.015	1
932			min	-1464.479	4	-21.194	2	13.846	1	0	8	-.054	7	-.109	6
933		2	max	1049.563	3	5.846	1	65.121	6	0	3	.007	1	.017	1
934			min	-1457.344	4	-17.059	6	7.827	1	0	8	-.014	2	-.043	2
935		3	max	1042.427	3	4.375	4	34.429	6	0	3	.019	5	.018	4
936			min	-1450.208	4	-16.501	7	-1.531	1	0	8	-.002	2	-.011	10
937		4	max	1035.291	3	16.663	4	12.725	2	0	3	.017	8	.032	6
938			min	-1443.073	4	-28.103	3	-15.033	1	0	8	-.004	3	.011	1
939		5	max	1028.156	3	28.95	4	3.518	2	0	3	.025	4	.035	3
940			min	-1435.937	4	-40.39	3	-42.512	5	0	8	-.032	3	-.012	4
941	M110	1	max	737.714	2	578.919	3	130.104	6	.205	4	.006	1	.186	3
942			min	-547.391	1	-167.657	4	-20.307	1	-.292	3	-.042	6	-.055	4
943		2	max	736.666	2	577.932	3	130.034	6	.205	4	.005	1	.139	3
944			min	-546.342	1	-168.644	4	-19.989	1	-.292	3	-.031	6	-.041	4
945		3	max	735.618	2	576.944	3	129.964	6	.205	4	.003	1	.093	3
946			min	-545.294	1	-169.632	4	-19.671	1	-.292	3	-.021	6	-.028	4
947		4	max	734.57	2	575.957	3	129.895	6	.205	4	.002	1	.046	3
948			min	-544.246	1	-170.619	4	-19.353	1	-.292	3	-.01	6	-.014	4
949		5	max	733.521	2	574.97	3	129.825	6	.205	4	0	11	0	11
950			min	-543.198	1	-171.606	4	-19.036	1	-.292	3	0	1	0	1
951	M111	1	max	889.466	3	879.913	10	44.227	4	.336	2	.046	3	.281	10
952			min	-700.981	4	-96.598	1	-141.942	3	-.248	1	-.014	4	-.032	1
953		2	max	888.63	3	878.931	10	44.423	4	.336	2	.034	3	.211	10
954			min	-700.146	4	-97.58	1	-142.139	3	-.248	1	-.011	4	-.024	1
955		3	max	887.795	3	877.95	10	44.619	4	.336	2	.023	3	.141	10
956			min	-699.311	4	-98.561	1	-142.335	3	-.248	1	-.007	4	-.016	1
957		4	max	886.96	3	876.968	10	44.815	4	.336	2	.011	3	.07	10
958			min	-698.475	4	-99.543	1	-142.531	3	-.248	1	-.004	4	-.008	1
959		5	max	886.124	3	875.987	10	45.012	4	.336	2	0	11	0	11
960			min	-697.64	4	-100.524	1	-142.727	3	-.248	1	0	1	0	1
961	M112	1	max	214.049	2	-166.481	1	1444.956	4	-.025	4	.157	1	.094	3
962			min	-289.662	1	-782.691	6	-1161.942	3	-.387	7	-.173	4	-.164	4
963		2	max	563.384	4	-199.619	1	229.525	4	-.119	3	.438	4	.461	3
964			min	-456.644	3	-840.348	6	-305.135	3	-.441	8	-.341	3	-.147	4
965		3	max	572.103	4	-208.491	1	244.626	4	-.119	3	.591	4	.998	7
966			min	-465.363	3	-864.928	6	-320.237	3	-.441	8	-.542	3	.005	4
967		4	max	580.822	4	-217.362	1	259.728	4	-.119	3	.754	4	1.558	7
968			min	-474.082	3	-889.508	6	-335.338	3	-.441	8	-.754	3	.163	4
969		5	max	589.541	4	-226.233	1	274.829	4	-.119	3	.926	4	2.135	7
970			min	-482.801	3	-912.16	6	-350.44	3	-.441	8	-.975	3	.327	4
971	M113	1	max	963.935	1	907.104	7	302.532	2	.447	5	.725	1	2.105	7
972			min	-860.881	2	172.824	4	-229.77	1	.089	2	-.768	2	.339	4
973		2	max	955.207	1	889.157	7	297.493	2	.447	5	.578	1	1.525	7
974			min	-852.153	2	163.944	4	-224.731	1	.089	2	-.575	2	.23	4



9bj YcdYA Ya VYf GYWjcb: cfWkg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
975		3	max	946.48	1	867.052	7	292.455	2	.447	5	.435	1	.97	6
976			min	-843.425	2	155.064	4	-219.692	1	.089	2	-.384	2	.074	1
977		4	max	937.752	1	841.783	7	287.416	2	.447	5	.295	1	.445	6
978			min	-834.698	2	146.184	4	-214.654	1	.089	2	-.197	2	-.129	1
979		5	max	152.997	1	790.756	7	1202.488	2	.379	6	.313	2	.128	2
980			min	-250.039	2	116.48	4	-1498.934	1	.055	1	-.337	1	-.199	1
981	M114	1	max	42.267	5	698.04	4	910.225	3	.026	4	.211	4	.117	4
982			min	-3.284	2	-479.914	3	-1255.17	4	-.048	3	-.161	3	-.085	3
983		2	max	42.267	5	698.04	4	910.225	3	.026	4	.156	4	.086	4
984			min	-3.284	2	-479.914	3	-1255.17	4	-.048	3	-.121	3	-.064	3
985		3	max	42.267	5	698.04	4	910.225	3	.026	4	.102	4	.056	4
986			min	-3.284	2	-479.914	3	-1255.17	4	-.048	3	-.081	3	-.043	3
987		4	max	42.267	5	698.04	4	910.225	3	.026	4	.047	4	.026	4
988			min	-3.284	2	-479.914	3	-1255.17	4	-.048	3	-.042	3	-.022	3
989		5	max	42.267	5	698.04	4	910.225	3	.026	4	.008	1	.005	1
990			min	-3.284	2	-479.914	3	-1255.17	4	-.048	3	-.018	2	-.011	2
991	M115	1	max	38.635	8	1504.657	1	27.363	1	.041	2	.007	2	.242	1
992			min	-2.8	3	-1084.814	2	-38.753	2	-.02	1	-.005	1	-.181	2
993		2	max	38.635	8	1504.657	1	27.363	1	.041	2	.005	2	.176	1
994			min	-2.8	3	-1084.814	2	-38.753	2	-.02	1	-.004	1	-.133	2
995		3	max	38.635	8	1504.657	1	27.363	1	.041	2	.004	2	.111	1
996			min	-2.8	3	-1084.814	2	-38.753	2	-.02	1	-.003	1	-.086	2
997		4	max	38.635	8	1504.657	1	27.363	1	.041	2	.002	2	.045	1
998			min	-2.8	3	-1084.814	2	-38.753	2	-.02	1	-.002	1	-.039	2
999		5	max	38.635	8	1504.657	1	27.363	1	.041	2	0	10	.009	10
1000			min	-2.8	3	-1084.814	2	-38.753	2	-.02	1	0	1	-.021	1
1001	M116	1	max	156.571	7	1486.345	1	898.072	3	.158	1	.237	4	.323	5
1002			min	20.694	4	-858.825	2	-1253.166	4	-.159	2	-.108	3	-.083	2
1003		2	max	156.571	7	1486.345	1	898.072	3	.158	1	.182	4	.279	5
1004			min	20.694	4	-858.825	2	-1253.166	4	-.159	2	-.069	3	-.045	2
1005		3	max	156.571	7	1486.345	1	898.072	3	.158	1	.146	8	.235	5
1006			min	20.694	4	-858.825	2	-1253.166	4	-.159	2	-.03	3	-.008	2
1007		4	max	156.571	7	1486.345	1	898.072	3	.158	1	.119	6	.19	5
1008			min	20.694	4	-858.825	2	-1253.166	4	-.159	2	-.003	1	.03	2
1009		5	max	156.571	7	1486.345	1	898.072	3	.158	1	.099	6	.162	7
1010			min	20.694	4	-858.825	2	-1253.166	4	-.159	2	-.004	1	.003	4
1011	M117	1	max	518.982	2	-15.062	4	952.959	2	.006	4	.012	4	.054	7
1012			min	-719.063	1	-80.756	7	-1322.264	1	-.093	7	-.036	3	-.003	4
1013		2	max	518.982	2	-15.088	4	952.959	2	.006	4	.046	2	.057	7
1014			min	-719.063	1	-80.832	7	-1322.264	1	-.093	7	-.086	1	-.003	4
1015		3	max	519.934	3	84.952	6	1280.204	4	.099	6	.086	2	.065	6
1016			min	-719.063	1	-80.908	7	-1322.264	1	-.086	5	-.141	1	.013	4
1017		4	max	519.934	3	84.876	6	1280.204	4	.099	6	.02	3	.061	6
1018			min	-709.446	4	13.841	1	-920.749	3	-.005	1	-.061	4	-.002	1
1019		5	max	519.934	3	84.8	6	1280.204	4	.099	6	.015	1	.057	6
1020			min	-709.446	4	13.816	1	-920.749	3	-.005	1	-.041	2	-.003	1
1021	MP	1	max	0	11	.076	4	.065	5	0	11	0	11	0	11
1022			min	0	1	-.114	7	-.04	2	0	1	0	1	0	1
1023		2	max	1365.998	4	269.393	4	242.113	1	.058	3	.289	2	.385	4
1024			min	-916.474	3	-207.021	3	-282.572	2	-.056	4	-.221	1	-.278	3
1025		3	max	1379.146	4	296.331	4	269.051	1	.058	3	.29	1	.163	3
1026			min	-903.325	3	-233.96	3	-309.511	2	-.056	4	-.303	2	-.18	4



9bj YcdYA Ya VYf GYVjcb: cfWVg fT cbhpi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
1027		4	max	-13.148	10	27.046	3	26.959	2	0	11	.027	1	.027	3
1028			min	-30.793	5	-27.018	4	-26.976	1	0	1	-.027	2	-.027	4
1029		5	max	0	11	.135	7	.044	4	0	11	0	11	0	11
1030			min	0	1	-.079	4	-.077	7	0	1	0	1	0	1
1031	M110A	1	max	1000.106	4	1159.987	8	968.959	1	1.043	1	.945	2	1.085	3
1032			min	-852.716	3	415.02	3	-974.815	2	-1.054	2	-.941	1	-.732	4
1033		2	max	1000.106	4	1159.987	8	968.959	1	1.043	1	.878	2	1.057	3
1034			min	-852.716	3	415.02	3	-974.815	2	-1.054	2	-.874	1	-.767	4
1035		3	max	1000.106	4	1159.987	8	968.959	1	1.043	1	.811	2	1.028	3
1036			min	-852.716	3	415.02	3	-974.815	2	-1.054	2	-.807	1	-.802	4
1037		4	max	1000.106	4	1159.987	8	968.959	1	1.043	1	.744	2	.999	3
1038			min	-852.716	3	415.02	3	-974.815	2	-1.054	2	-.74	1	-.837	4
1039		5	max	1000.106	4	1159.987	8	968.959	1	1.043	1	.676	2	.971	3
1040			min	-852.716	3	415.02	3	-974.815	2	-1.054	2	-.673	1	-.872	4
1041	M111A	1	max	60.84	4	57.693	3	251.984	2	.903	1	.16	1	.313	3
1042			min	-209.706	3	-32.6	4	-247.427	1	-.91	2	-.164	2	-.156	4
1043		2	max	60.84	4	57.693	3	251.984	2	.903	1	.146	1	.31	3
1044			min	-209.706	3	-32.6	4	-247.427	1	-.91	2	-.149	2	-.154	4
1045		3	max	60.84	4	57.693	3	251.984	2	.903	1	.132	1	.306	3
1046			min	-209.706	3	-32.6	4	-247.427	1	-.91	2	-.135	2	-.152	4
1047		4	max	60.84	4	57.693	3	251.984	2	.903	1	.118	1	.303	3
1048			min	-209.706	3	-32.6	4	-247.427	1	-.91	2	-.12	2	-.15	4
1049		5	max	60.84	4	57.693	3	251.984	2	.903	1	.103	1	.3	3
1050			min	-209.706	3	-32.6	4	-247.427	1	-.91	2	-.106	2	-.149	4
1051	MPB	1	max	0	11	.114	8	.065	5	0	11	0	11	0	11
1052			min	0	1	-.077	3	-.04	2	0	1	0	1	0	1
1053		2	max	1382.852	3	209.12	4	241.715	1	.05	3	.281	2	.283	4
1054			min	-933.039	4	-274.868	3	-276.513	2	-.051	4	-.219	1	-.395	3
1055		3	max	1396	3	236.059	4	268.654	1	.05	3	.291	1	.182	3
1056			min	-919.891	4	-301.807	3	-303.452	2	-.051	4	-.299	2	-.162	4
1057		4	max	-13.148	10	27.019	3	26.958	2	0	11	.027	1	.027	3
1058			min	-30.793	5	-27.047	4	-26.975	1	0	1	-.027	2	-.027	4
1059		5	max	0	11	.08	3	.045	3	0	11	0	11	0	11
1060			min	0	1	-.136	8	-.077	8	0	1	0	1	0	1
1061	M113A	1	max	1002.71	3	1162.422	7	962.913	2	1.028	2	.943	1	1.092	4
1062			min	-855.373	4	403.858	4	-970.563	1	-1.048	1	-.937	2	-.74	3
1063		2	max	1002.71	3	1162.422	7	962.913	2	1.028	2	.876	1	1.064	4
1064			min	-855.373	4	403.858	4	-970.563	1	-1.048	1	-.87	2	-.776	3
1065		3	max	1002.71	3	1162.422	7	962.913	2	1.028	2	.809	1	1.036	4
1066			min	-855.373	4	403.858	4	-970.563	1	-1.048	1	-.804	2	-.812	3
1067		4	max	1002.71	3	1162.422	7	962.913	2	1.028	2	.742	1	1.008	4
1068			min	-855.373	4	403.858	4	-970.563	1	-1.048	1	-.737	2	-.847	3
1069		5	max	1002.71	3	1162.422	7	962.913	2	1.028	2	.675	1	.981	4
1070			min	-855.373	4	403.858	4	-970.563	1	-1.048	1	-.671	2	-.883	3
1071	M114A	1	max	58.746	3	68.794	4	248.408	1	.894	2	.155	2	.315	4
1072			min	-207.702	8	-43.541	3	-239.794	2	-.904	1	-.163	1	-.158	3
1073		2	max	58.746	3	68.794	4	248.408	1	.894	2	.142	2	.311	4
1074			min	-207.702	8	-43.541	3	-239.794	2	-.904	1	-.149	1	-.156	3
1075		3	max	58.746	3	68.794	4	248.408	1	.894	2	.128	2	.307	4
1076			min	-207.702	8	-43.541	3	-239.794	2	-.904	1	-.134	1	-.153	3
1077		4	max	58.746	3	68.794	4	248.408	1	.894	2	.114	2	.303	4
1078			min	-207.702	8	-43.541	3	-239.794	2	-.904	1	-.12	1	-.151	3



9bj YcdYA Ya VYf GYVjcb: cfWkg f7 cbh7bi YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
1079		5	max	58.746	3	68.794	4	248.408	1	.894	2	.1	2	.299	4
1080			min	-207.702	8	-43.541	3	-239.794	2	-.904	1	-.106	1	-.148	3
1081	MP2A	1	max	0	11	.239	4	.655	1	0	11	0	11	0	11
1082			min	0	1	-.238	3	-1.332	6	0	1	0	1	0	1
1083		2	max	1365.885	2	334.996	4	501.713	1	.04	4	.739	1	.338	4
1084			min	-1420.702	1	-331.464	3	-501.882	2	-.04	3	-.74	2	-.08	7
1085		3	max	1379.033	2	361.934	4	275.395	1	.04	4	.083	1	.356	3
1086			min	-1407.553	1	-358.403	3	-202.088	2	-.04	3	-.061	2	-.359	4
1087		4	max	-186.668	10	287.538	3	542.635	2	0	11	.74	1	.334	3
1088			min	-465.716	5	-287.536	4	-542.213	1	0	1	-.741	2	-.334	4
1089		5	max	0	11	.097	4	2.042	6	0	11	0	11	0	11
1090			min	0	1	-.095	3	-1.052	1	0	1	0	1	0	1
1091	M110B	1	max	291.992	1	1615.261	1	47.285	4	.668	3	.079	3	.378	5
1092			min	-410.4	2	-1174.53	2	-43.719	3	-.673	4	-.083	4	-.009	2
1093		2	max	291.992	1	1615.261	1	47.285	4	.668	3	.07	3	.258	2
1094			min	-410.4	2	-1174.53	2	-43.719	3	-.673	4	-.072	4	-.082	1
1095		3	max	291.992	1	1615.261	1	47.285	4	.668	3	.06	3	.524	2
1096			min	-410.4	2	-1174.53	2	-43.719	3	-.673	4	-.062	4	-.448	1
1097		4	max	291.992	1	1615.261	1	47.285	4	.668	3	.05	3	.79	2
1098			min	-410.4	2	-1174.53	2	-43.719	3	-.673	4	-.051	4	-.814	1
1099		5	max	291.992	1	1615.261	1	47.285	4	.668	3	.04	3	1.056	2
1100			min	-410.4	2	-1174.53	2	-43.719	3	-.673	4	-.04	4	-1.18	1
1101	M111B	1	max	873.734	1	1591.034	2	687.095	3	.423	3	.666	4	.802	2
1102			min	-755.524	2	-1194.099	1	-690.665	4	-.431	4	-.663	3	-.575	1
1103		2	max	873.734	1	1591.034	2	687.095	3	.423	3	.51	4	.442	2
1104			min	-755.524	2	-1194.099	1	-690.665	4	-.431	4	-.507	3	-.305	1
1105		3	max	873.734	1	1591.034	2	687.095	3	.423	3	.353	4	.099	6
1106			min	-755.524	2	-1194.099	1	-690.665	4	-.431	4	-.351	3	-.034	1
1107		4	max	873.734	1	1591.034	2	687.095	3	.423	3	.197	4	.236	1
1108			min	-755.524	2	-1194.099	1	-690.665	4	-.431	4	-.196	3	-.279	2
1109		5	max	873.734	1	1591.034	2	687.095	3	.423	3	.04	4	.507	1
1110			min	-755.524	2	-1194.099	1	-690.665	4	-.431	4	-.04	3	-.64	2
1111	MP2C	1	max	0	11	.564	4	.658	5	0	11	0	11	0	11
1112			min	0	1	-1.152	7	-.311	2	0	1	0	1	0	1
1113		2	max	1067.05	3	434.235	4	278.997	1	.058	3	.436	1	.638	3
1114			min	-1122.52	4	-434.385	3	-318.519	2	-.056	4	-.435	2	-.638	4
1115		3	max	1080.198	3	321.73	4	305.935	1	.058	3	.299	1	.17	3
1116			min	-1109.371	4	-260.401	3	-345.458	2	-.056	4	-.312	2	-.187	4
1117		4	max	-186.668	10	508.978	3	330.048	2	0	11	.436	1	.64	3
1118			min	-465.716	5	-508.606	4	-330.273	1	0	1	-.435	2	-.639	4
1119		5	max	0	11	1.676	7	.581	4	0	11	0	11	0	11
1120			min	0	1	-.749	4	-1.032	7	0	1	0	1	0	1
1121	M113B	1	max	236.264	4	1318.268	4	49.765	4	.666	1	.056	1	.372	8
1122			min	-340.977	3	-873.878	3	-48.821	3	-.668	2	-.06	2	.019	3
1123		2	max	236.264	4	1318.268	4	49.765	4	.666	1	.054	1	.242	7
1124			min	-340.977	3	-873.878	3	-48.821	3	-.668	2	-.056	2	-.04	4
1125		3	max	236.264	4	1318.268	4	49.765	4	.666	1	.052	1	.415	3
1126			min	-340.977	3	-873.878	3	-48.821	3	-.668	2	-.053	2	-.339	4
1127		4	max	236.264	4	1318.268	4	49.765	4	.666	1	.049	1	.613	3
1128			min	-340.977	3	-873.878	3	-48.821	3	-.668	2	-.049	2	-.638	4
1129		5	max	236.264	4	1318.268	4	49.765	4	.666	1	.056	4	.811	3
1130			min	-340.977	3	-873.878	3	-48.821	3	-.668	2	-.058	3	-.936	4



9bj YcdYA Ya VYf GYVJcb: cfWVg fT cbhji YXL

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC	
1131	M114B	1	max	731.589	4	1295.456	3	638.988	1	.315	1	.63	2	.698	3
1132			min	-626.765	3	-892.738	4	-645.066	2	-.319	2	-.626	1	-.467	4
1133		2	max	731.589	4	1295.456	3	638.988	1	.315	1	.484	2	.405	3
1134			min	-626.765	3	-892.738	4	-645.066	2	-.319	2	-.481	1	-.265	4
1135		3	max	731.589	4	1295.456	3	638.988	1	.315	1	.338	2	.111	3
1136			min	-626.765	3	-892.738	4	-645.066	2	-.319	2	-.337	1	-.063	4
1137		4	max	731.589	4	1295.456	3	638.988	1	.315	1	.192	2	.139	4
1138			min	-626.765	3	-892.738	4	-645.066	2	-.319	2	-.192	1	-.182	3
1139		5	max	731.589	4	1295.456	3	638.988	1	.315	1	.058	3	.342	4
1140			min	-626.765	3	-892.738	4	-645.066	2	-.319	2	-.056	4	-.476	3
1141	MP2B	1	max	0	11	1.154	8	.657	5	0	11	0	11	0	11
1142			min	0	1	-.571	3	-.305	2	0	1	0	1	0	1
1143		2	max	1072.667	4	434.39	4	279.09	1	.05	3	.436	1	.638	3
1144			min	-1128.399	3	-434.242	3	-312.509	2	-.051	4	-.435	2	-.638	4
1145		3	max	1085.816	4	259.339	4	306.028	1	.05	3	.3	1	.187	3
1146			min	-1115.251	3	-324.339	3	-339.448	2	-.051	4	-.308	2	-.168	4
1147		4	max	-186.668	10	508.621	3	330.038	2	0	11	.436	1	.639	3
1148			min	-465.716	5	-508.995	4	-330.259	1	0	1	-.435	2	-.64	4
1149		5	max	0	11	.765	3	.589	3	0	11	0	11	0	11
1150			min	0	1	-1.691	8	-1.025	8	0	1	0	1	0	1
1151	M116A	1	max	234.446	3	1324.108	3	53.313	4	.66	2	.054	2	.373	7
1152			min	-339.831	4	-879.52	4	-46.967	3	-.666	1	-.058	1	.016	4
1153		2	max	234.446	3	1324.108	3	53.313	4	.66	2	.052	2	.241	8
1154			min	-339.831	4	-879.52	4	-46.967	3	-.666	1	-.055	1	-.039	3
1155		3	max	234.446	3	1324.108	3	53.313	4	.66	2	.05	2	.415	4
1156			min	-339.831	4	-879.52	4	-46.967	3	-.666	1	-.053	1	-.339	3
1157		4	max	234.446	3	1324.108	3	53.313	4	.66	2	.048	2	.614	4
1158			min	-339.831	4	-879.52	4	-46.967	3	-.666	1	-.05	1	-.639	3
1159		5	max	234.446	3	1324.108	3	53.313	4	.66	2	.051	4	.813	4
1160			min	-339.831	4	-879.52	4	-46.967	3	-.666	1	-.05	3	-.939	3
1161	M117A	1	max	733.346	3	1300.98	4	639.067	2	.307	2	.628	1	.706	4
1162			min	-627.873	4	-898.758	3	-640.112	1	-.318	1	-.625	2	-.475	3
1163		2	max	733.346	3	1300.98	4	639.067	2	.307	2	.483	1	.411	4
1164			min	-627.873	4	-898.758	3	-640.112	1	-.318	1	-.48	2	-.272	3
1165		3	max	733.346	3	1300.98	4	639.067	2	.307	2	.338	1	.116	4
1166			min	-627.873	4	-898.758	3	-640.112	1	-.318	1	-.336	2	-.068	3
1167		4	max	733.346	3	1300.98	4	639.067	2	.307	2	.193	1	.135	3
1168			min	-627.873	4	-898.758	3	-640.112	1	-.318	1	-.191	2	-.178	4
1169		5	max	733.346	3	1300.98	4	639.067	2	.307	2	.05	3	.339	3
1170			min	-627.873	4	-898.758	3	-640.112	1	-.318	1	-.051	4	-.473	4

9bj YcdY5=G7 %J h fl * \$!%L @F: 8 GHY 7cXY7\ YWg

Member	Shape	Code Check	Loc...L...	Shear Check	Loc..... L...	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
1	M5	PL3/8x6	.696	0 3	.444	0 y 3	72411...	72900	.57	9.113 1..H1-1b
2	M7	PL3/8x6	.693	0 4	.438	0 y 4	72411...	72900	.57	9.113 1..H1-1b
3	M106	PL3/8x6	.610	0 1	.448	0 y 1	72411...	72900	.57	9.113 1..H1-1b
4	M88	PL3/8x6	.600	0 1	.454	0 y 1	72411...	72900	.57	9.113 1..H1-1b
5	M8	PL3/8x6	.542	0 4	.447	0 y 3	69574...	72900	.57	9.113 1..H1-1b
6	M6	PL3/8x6	.538	0 3	.457	0 y 4	69611.4	72900	.57	9.113 1..H1-1b
7	M107	PL3/8x6	.520	0 1	.490	0 y 2	69574...	72900	.57	9.113 1..H1-1b



9bj YcdY5=G7 %h fl * \$!% L @ : 8 'GhYY'7cXY7\ YWg'f7 cbh7bi YXL

Member	Shape	Code Check	Loc...L...	Shear Check	Loc.....L...	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn	
8	M89	PL3/8x6	.507	0 1	.499	0 y 2	69611.4	72900	.57	9.113	1...H1-1b
9	MP4C	PIPE_2.0	.360	6.25 3	.255	11....	4 6295.4...	32130	1.872	1.872	1...H1-1b
10	MP4B	PIPE_2.0	.358	6.25 4	.235	.781	3 6295.4...	32130	1.872	1.872	1...H1-1b
11	M68	L2.5x2.5x4	.349	0 4	.072	1.383 z 1	37553...	38556	1.114	2.537	1...H2-1
12	M91	PL3/8x6	.333	0 3	.444	0 y 4	69574...	72900	.57	9.113	1...H1-1b
13	M69	L2.5x2.5x4	.327	1.383 3	.079	0 y 1	37553...	38556	1.114	2.537	1...H2-1
14	M90	PL3/8x6	.327	.156 3	.371	0 y 3	72411...	72900	.57	9.113	1...H1-1b
15	M104	PL3/8x6	.326	0 2	.372	0 y 4	72411...	72900	.57	9.113	1...H1-1b
16	M105	PL3/8x6	.323	0 4	.445	0 y 3	69611.4	72900	.57	9.113	1...H1-1b
17	MP4A	PIPE_2.0	.315	1.302 4	.195	11....	1 6295.4...	32130	1.872	1.872	1...H1-1b
18	MP2A	PIPE_2.5	.307	5.5 2	.038	5.5	2 30038...	50715	3.596	3.596	2...H1-1b
19	MP2C	PIPE_2.5	.291	5.5 3	.054	5.5	3 30038...	50715	3.596	3.596	1...H1-1b
20	MP2B	PIPE_2.5	.290	5.5 4	.051	5.5	4 30038...	50715	3.596	3.596	1...H1-1b
21	MP1A	PIPE_2.5	.271	5.5 3	.153	5.5	2 30038...	50715	3.596	3.596	2...H1-1b
22	M17	PIPE_3.0	.270	6.25 3	.162	6.25	4 28250...	65205	5.749	5.749	1...H1-1b
23	M16	PIPE_3.0	.268	6.25 4	.159	6.25	3 28250...	65205	5.749	5.749	1...H1-1b
24	MP3A	PIPE_2.5	.267	5.5 4	.145	2	2 30038...	50715	3.596	3.596	2...H1-1b
25	MP3B	PIPE_2.5	.261	5.5 1	.150	5.5	4 30038...	50715	3.596	3.596	2...H1-1b
26	MP1C	PIPE_2.5	.261	5.5 1	.147	5.5	3 30038...	50715	3.596	3.596	2...H1-1b
27	MP2	PIPE_2.5	.242	5.5 4	.036	5.5	4 30038...	50715	3.596	3.596	2...H1-1b
28	MP	PIPE_2.5	.236	5.5 2	.039	5.5	4 30038...	50715	3.596	3.596	1...H1-1b
29	MP3C	PIPE_2.5	.232	5.5 2	.136	5.5	3 30038...	50715	3.596	3.596	2...H1-1b
30	MPB	PIPE_2.5	.232	5.5 2	.037	5.5	3 30038...	50715	3.596	3.596	1...H1-1b
31	MP1B	PIPE_2.5	.231	5.5 2	.141	2	4 30038...	50715	3.596	3.596	2...H1-1b
32	MP5B	HSS4X4X4	.223	5.741 4	.095	5.741 z 3	75929...	139518	16.181	16.181	2...H1-1b
33	M25	L2.5x2.5x4	.214	0 1	.095	0 y 4	37553...	38556	1.114	2.537	1...H2-1
34	M18	PIPE_3.0	.209	6.25 1	.155	8.073	2 28250...	65205	5.749	5.749	1...H1-1b
35	M10	L2x2x3	.207	0 7	.016	0 z 7	16079...	23392.8	.558	1.239	2...H2-1
36	M109	L2x2x3	.206	0 6	.016	0 z 6	16079...	23392.8	.558	1.239	2...H2-1
37	M93	L2x2x3	.202	0 5	.016	0 z 5	16079...	23392.8	.558	1.237	2...H2-1
38	M9	L2x2x3	.197	0 8	.015	0 y 8	16076...	23392.8	.558	1.239	2...H2-1
39	M3	PL1/2x6	.196	0 1	.240	0 y 3	95137...	97200	1.012	12.15	1...H1-1b
40	M4	PL1/2x6	.195	0 1	.233	0 y 4	95137...	97200	1.012	12.15	1...H1-1b
41	M92	L2x2x3	.195	0 6	.015	0 y 6	16076...	23392.8	.558	1.239	2...H2-1
42	M108	L2x2x3	.192	0 5	.015	0 y 5	16076...	23392.8	.558	1.236	2...H2-1
43	M86	PL1/2x6	.188	0 4	.236	0 y 9	95137...	97200	1.012	12.15	1...H1-1b
44	M103	PL1/2x6	.188	0 3	.237	0 y 10	95123...	97200	1.012	12.15	1...H1-1b
45	M87	PL1/2x6	.164	0 1	.186	0 y 2	95137...	97200	1.012	12.15	1...H1-1b
46	M102	PL1/2x6	.162	0 1	.186	0 y 2	95151...	97200	1.012	12.15	1...H1-1b
47	M112	HSS4X4X4	.150	2.579 7	.056	2.579 y 6	13568...	139518	16.181	16.181	1...H1-1b
48	M97	HSS4X4X4	.149	0 8	.056	0 y 6	13568...	139518	16.181	16.181	1...H1-1b
49	M14	HSS4X4X4	.145	2.58 5	.056	2.58 y 7	13568...	139518	16.181	16.181	1...H1-1b
50	M15	HSS4X4X4	.144	0 5	.056	0 y 8	13568...	139518	16.181	16.181	1...H1-1b
51	M96	HSS4X4X4	.144	2.58 6	.056	2.58 y 8	13568...	139518	16.181	16.181	1...H1-1b
52	M113	HSS4X4X4	.142	0 6	.055	0 y 5	13568...	139518	16.181	16.181	1...H1-1b
53	MP5C	HSS4X4X4	.137	5.741 1	.070	5.741 z 2	75929...	139518	16.181	16.181	2...H1-1b
54	MP5A	HSS4X4X4	.128	5.74 1	.068	5.74 z 1	75956...	139518	16.181	16.181	2...H1-1b
55	M20	LL2.5x2.5...	.109	0 5	.004	0 z 3	44189...	58320	3.954	2.55	1 H1-1b*
56	M21	LL2.5x2.5...	.108	0 7	.005	4.664 z 2	44189...	58320	3.954	2.55	1...H1-1b*
57	M19	LL2.5x2.5...	.108	0 8	.005	4.662 z 1	44201...	58320	3.954	2.55	1...H1-1b*
58	M111	PL1/2x6	.062	0 7	.452	0 y 2	94920...	97200	1.012	12.15	1...H1-1b
59	M95	PL1/2x6	.061	0 6	.392	0 y 4	94920...	97200	1.012	12.15	1...H1-1b



Company : Tower Engineering Solutions, LLC
 Designer :
 Job Number : TES Project No. 120428
 Model Name : CT46147-A-SBA_MT_LO_Loads Only_G

Dec 10, 2021
 2:18 PM
 Checked By: _____

9bj YcdY5=G7 %h fl * \$!% L @ : 8 GhYY '7 cXY7\ YWg'f7 cbhjbi YXL

Member	Shape	Code Check	Loc...L...	Shear Check	Loc.....	L...phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
60	M12	PL1/2x6	.060	0 5	.449	0 y 3	94920...	97200	1.012 12.15	1...H1-1b
61	M94	PL1/2x6	.059	0 8	.467	0 y 2	94894...	97200	1.012 12.15	1...H1-1b
62	M11	PL1/2x6	.057	0 5	.460	0 y 4	94894...	97200	1.012 12.15	1...H1-1b
63	M110	PL1/2x6	.056	0 6	.395	0 y 3	94894...	97200	1.012 12.15	1...H1-1b

EXHIBIT 9







EME Report

Radio Frequency Emissions Analysis Report

T-Mobile Wireless Monopole Facility

January 25, 2022

Analysis Format: Theoretical Calculations

	Sign Count	
		1
		1
		0
		0
	1	

Statement of Compliance

T-Mobile will be compliant with FCC Regulations once the mitigation measures recommended in this report are implemented.

CTNH723A
 60 Commerce St, East Haven, CT 06512



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Overview

Centerline Communications, LLC (“Centerline”) has been contracted to provide a Radio Frequency (RF) Analysis for the following T-Mobile wireless monopole facility to determine whether the facility is in compliance with federal standards and regulations regarding RF emissions. This analysis includes theoretical emissions calculations for all existing equipment for T-Mobile .

The facility is located on a Monopole in East Haven, Connecticut. Access to the facility is restricted to authorized personnel and facility management.

Analysis Site Data

Site ID:	CTNH723A
Site Name:	CTNH723A
Site Address:	60 Commerce St, East Haven, CT 06512
Site Latitude:	41.251233
Site Longitude:	-72.88206
Facility Type:	Monopole

Compliance Summary

Status:	T-Mobile will be compliant with FCC Regulations Upon Installation of Barriers and Sigange
Site Modeled Composite MPE% (General Public Limit):	9.21 %
T-Mobile Max Modeled MPE% (General Public Limit):	9.21 %
Lock or Control Measures if Present:	Unlocked Gate

In addition to the T-Mobile antennas and radio equipment there are antennas and radio equipment for Verizon which have been included in this analysis as part of the overall site compliance determination.

*To be conservative, all sites are considered uncontrolled for modeling purposes unless confirmed otherwise by a site visit.

FCC Guidelines

All power density values used in this report were 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 public 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 public 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 limit for the 600, 700, and 800 MHz Bands is approximately $400 \mu\text{W}/\text{cm}^2$, $467 \mu\text{W}/\text{cm}^2$, and $567 \mu\text{W}/\text{cm}^2$ respectively, and the general population exposure limit for the 1900 MHz PCS, 2100 MHz AWS, 2500 MHz, 3500 MHz CBRS, 5000 MHz LAA, 28GHz, and 39GHz 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. Reference the Site Antenna Data Table for list of frequencies in operation at this site.

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, have been properly trained in RF safety 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, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

Calculation Methodology & Data

Centerline has performed theoretical calculations on all transmission equipment located on this facility. All calculations have been performed using the RoofMaster® software from Waterford Consultants LLC. This software performs calculations using a cylindrical model for very conservative power density predictions within the near-field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations the power decreases inversely with the square of the distance. This modeling technique is accurate with low antenna centerlines, such as rooftops, where persons can get close to the antennas and pass through fields in close proximity.

The below calculation in Figure 1 shows the theoretical distribution of power over an imaginary cylinder with equal power distribution in all directions.

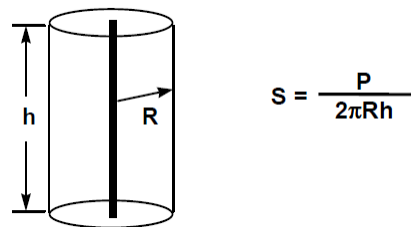


Figure 1: Distribution of power over an imaginary cylinder in all directions

This model can be modified for directional antennas to show directionality of power distribution. This formula will tend to be conservative as it assumes that all power is focused between the 3 dB power roll off points as shown in Figure 2.

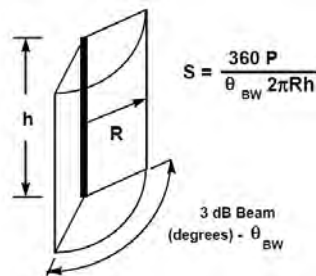


Figure 2: Distribution of power over an imaginary cylinder in all directions inside the half power roll off points (HBW)

The **proposed antenna configuration** for T-Mobile and any other known wireless carriers at this facility are shown below in **Table 1 – Site Antenna Data Table**.

All calculations for this facility were performed assuming that all radios were running at full power and were uncombined in their RF paths with the configuration shown in table 1. FCC OET Bulletin 65 – Edition 97-01 recommends that modeling of this nature should be done as described prior to yield a worst-case scenario. Due to the dynamic nature of many deployed systems the “real world” values will most likely be less than those shown in this report due to worst-case values being shown in all instances.

For all “Other” systems on this facility, exact equipment was used if available. In instances where “Other” system equipment was not available, standard radio configurations for these systems were utilized based upon prior experience with these systems on facilities in this area.

Site Antenna Data Table

Sector	Operator	Frequency Band	TX Power		ERP	Antenna Make	Antenna Model	Gain (dBd)	Az (°)	Antenna Centerline Height (ft)	Z Value (ft)**
			Per Channel	Tx #							
A1	T-Mobile	L700	40	2	1853.92	RFS	APXVAALL24 43-U-NA20	13.65	340	67.0	63.40
A1	T-Mobile	L600	60	4	4733.81	RFS	APXVAALL24 43-U-NA20	12.95	340	67.0	63.40
A1	T-Mobile	N600	40	2	1577.94	RFS	APXVAALL24 43-U-NA20	12.95	340	67.0	63.40
A1	T-Mobile	L2100	140	2	12363.97	RFS	APXVAALL24 43-U-NA20	16.45	340	67.0	63.40
A1	T-Mobile	L1900	140	2	9821.05	RFS	APXVAALL24 43-U-NA20	15.45	340	67.0	63.40
A1	T-Mobile	G1900	15	1	526.13	RFS	APXVAALL24 43-U-NA20	15.45	340	67.0	63.40
A2	T-Mobile	L2500	30	1	959.67	ERICSSON	AIR 6449 LTE BrM	15.05	340	67.0	66.02
A2	T-Mobile	N2500	30	1	937.82	ERICSSON	AIR 6449 NR BrM	14.95	340	67.0	66.02
A2	T-Mobile	L2500	90	1	15461.18	ERICSSON	SON AIR 6449 LTE TB 2500	22.35	340	67.0	66.02
A2	T-Mobile	N2500	90	1	15461.18	ERICSSON	SON AIR 6449 NR TB 2500	22.35	340	67.0	66.02
B3	T-Mobile	L700	40	2	1853.92	RFS	APXVAALL24 43-U-NA20	13.65	110	67.0	63.40
B3	T-Mobile	L600	60	4	4733.81	RFS	APXVAALL24 43-U-NA20	12.95	110	67.0	63.40
B3	T-Mobile	N600	40	2	1577.94	RFS	APXVAALL24 43-U-NA20	12.95	110	67.0	63.40
B3	T-Mobile	L2100	140	2	12363.97	RFS	APXVAALL24 43-U-NA20	16.45	110	67.0	63.40
B3	T-Mobile	L1900	140	2	9821.05	RFS	APXVAALL24 43-U-NA20	15.45	110	67.0	63.40
B3	T-Mobile	G1900	15	1	526.13	RFS	APXVAALL24 43-U-NA20	15.45	110	67.0	63.40
B4	T-Mobile	L2500	30	1	959.67	ERICSSON	AIR 6449 LTE BrM	15.05	110	67.0	66.02
B4	T-Mobile	N2500	30	1	937.82	ERICSSON	AIR 6449 NR BrM	14.95	110	67.0	66.02
B4	T-Mobile	L2500	90	1	15461.18	ERICSSON	SON AIR 6449 LTE TB 2500	22.35	110	67.0	66.02
B4	T-Mobile	N2500	90	1	15461.18	ERICSSON	SON AIR 6449 NR TB 2500	22.35	110	67.0	66.02
C5	T-Mobile	L700	40	2	1853.92	RFS	APXVAALL24 43-U-NA20	13.65	270	67.0	63.40
C5	T-Mobile	L600	60	4	4733.81	RFS	APXVAALL24 43-U-NA20	12.95	270	67.0	63.40
C5	T-Mobile	N600	40	2	1577.94	RFS	APXVAALL24 43-U-NA20	12.95	270	67.0	63.40
C5	T-Mobile	L2100	140	2	12363.97	RFS	APXVAALL24 43-U-NA20	16.45	270	67.0	63.40
C5	T-Mobile	L1900	140	2	9821.05	RFS	APXVAALL24 43-U-NA20	15.45	270	67.0	63.40
C5	T-Mobile	G1900	15	1	526.13	RFS	APXVAALL24 43-U-NA20	15.45	270	67.0	63.40
C6	T-Mobile	L2500	30	1	959.67	ERICSSON	AIR 6449 LTE BrM	15.05	270	67.0	66.02
C6	T-Mobile	N2500	30	1	937.82	ERICSSON	AIR 6449 NR BrM	14.95	270	67.0	66.02
C6	T-Mobile	L2500	90	1	15461.18	ERICSSON	SON AIR 6449 LTE TB 2500	22.35	270	67.0	66.02
C6	T-Mobile	N2500	90	1	15461.18	ERICSSON	SON AIR 6449 NR TB 2500	22.35	270	67.0	66.02
7	Verizon	850	40	4	4509.41	AMPHENOL	BXA-80063-6BF-EDIN-0	14.5	340	55.0	51.94
8	Verizon	2100	40	4	5958.27	COMMSCOPE	JAHH-65B-R3B	15.71	340	55.0	51.80
9	Verizon	2100	40	4	5958.27	COMMSCOPE	JAHH-65B-R3B	15.71	340	55.0	51.80
10	Verizon	3700	50	4	43154.89	SAMSUNG	MT6407	23.34	340	55.0	53.34
11	Verizon	850	40	4	4509.41	AMPHENOL	BXA-80063-6BF-EDIN-0	14.5	110	55.0	51.94
12	Verizon	2100	40	4	5958.27	COMMSCOPE	JAHH-65B-R3B	15.71	110	55.0	51.80
13	Verizon	2100	40	4	5958.27	COMMSCOPE	JAHH-65B-R3B	15.71	110	55.0	51.80
14	Verizon	3700	50	4	43154.89	SAMSUNG	MT6407	23.34	110	55.0	53.34
15	Verizon	850	40	4	4509.41	AMPHENOL	BXA-80063-6BF-EDIN-0	14.5	270	55.0	51.94
16	Verizon	2100	40	4	5958.27	COMMSCOPE	JAHH-65B-R3B	15.71	270	55.0	51.80
17	Verizon	2100	40	4	5958.27	COMMSCOPE	JAHH-65B-R3B	15.71	270	55.0	51.80
18	Verizon	3700	50	4	43154.89	SAMSUNG	MT6407	23.34	270	55.0	53.34

*Table 1: Total Site Antenna data table *(Z Value is distance from bottom of antenna to walking surface)*

Results

All calculations performed based upon the data listed for this facility have produced results that are within allowable limits for General Population for exposure to RF emissions as specified by federal standards.

T-Mobile’s RF Exposure: Responsibilities, Procedures & Guidelines document states that microwave dishes are compliant if they are mounted 20 feet or greater above any accessible walking or working surface.

Maximum Predicted MPE Level on Site:	% of MPE Limit:	Location:
Accessible General Population MPE Limits:	9.21%	Sector A
Accessible Occupational MPE Limits:	1.84%	

Ground Level Assessment:	% of MPE Limit:
Ground Level General Population MPE Limits:	9.21%
Ground Level Occupational MPE Limits:	1.84%

Sector A: Transmitting over Ground	% of MPE Limit:	*Distance from Antenna:
Accessible General Population MPE Limits:	9.21%	N/A
Accessible Occupational MPE Limits:	1.84%	N/A

Sector B: Transmitting over Ground	% of MPE Limit:	*Distance from Antenna:
Accessible General Population MPE Limits:	5.80%	N/A
Accessible Occupational MPE Limits:	1.16%	N/A

Sector C: Transmitting over Ground	% of MPE Limit:	*Distance from Antenna:
Accessible General Population MPE Limits:	6.00%	N/A
Accessible Occupational MPE Limits:	1.20%	N/A

**Distance from Antenna is the distance in feet that the MPE limits are exceeded from the front face of the antenna, outward across an accessible area.*

APPENDIX A: Emissions Thresholds for Walking Surfaces and Signage



Ground (0ft.)

Emissions Thresholds for Walking Surfaces for:

CTNH723A / CTNH723A



Antenna Level (64ft.)

Emissions Thresholds for Walking Surfaces for:
CTNH723A / CTNH723A



EQ1, EQ2 (15ft.)

Emissions Thresholds for Walking Surfaces for:
CTNH723A / CTNH723A



B1L2 (20ft.)

Emissions Thresholds for Walking Surfaces for:
CTNH723A / CTNH723A



B1L1, B2, B3, B5 (25ft.)

Emissions Thresholds for Walking Surfaces for:
CTNH723A / CTNH723A



B4 (30ft.)

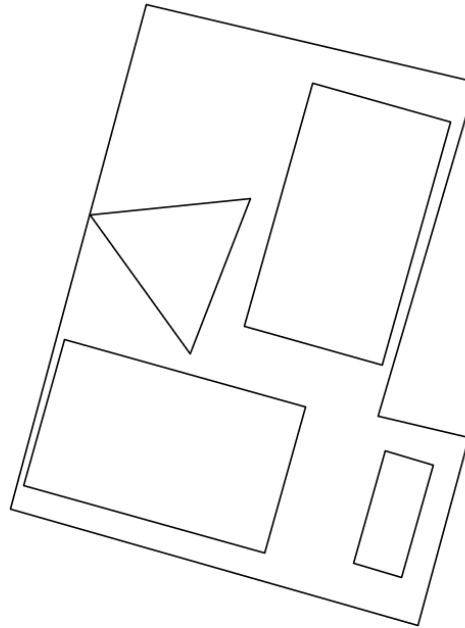
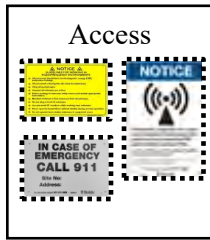
Emissions Thresholds for Walking Surfaces for:
CTNH723A / CTNH723A





B6 (35ft.)






Emissions Thresholds for Walking Surfaces for:

CTNH723A / CTNH723A



 Existing Item






 Proposed Item

Signage Count									Signage Diagram	
	1		1		0		0		1	Signage for: CTNH723A/ CTNH723A

Compliance Actions

Access	<ul style="list-style-type: none"> • Ensure all access points are locked. • Install (1) Guideline sign on the inside of the access point. • Install (1) Notice sign on the inside of the access point. • Install (1) Emergency sign on the inside of the access point.
Alpha Sector	<ul style="list-style-type: none"> • No Action Needed.
Beta Sector	<ul style="list-style-type: none"> • No Action Needed.
Gamma Sector	<ul style="list-style-type: none"> • No Action Needed.
Notes:	<ul style="list-style-type: none"> • If there is a fixed climbing point located on this site, a Guideline and Caution sign should be installed at that location.

APPENDIX B: RF Signage Description Table

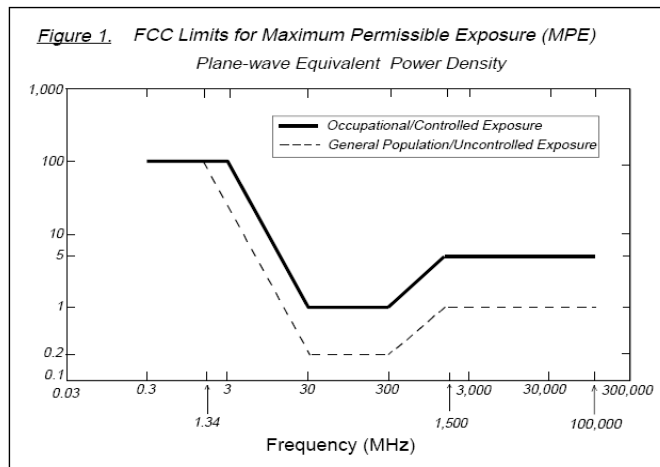
Sign	Description
	<p align="center">RF Guideline Sign</p> <p align="center">Gives guidelines on how to proceed in areas that may exceed either the FCC's General Population or Occupational emissions limits.</p>
	<p align="center">Emergency Sign</p> <p align="center">Used to inform individuals to call 911 in case of emergency.</p>
	<p align="center">Blue Notice Sign</p> <p>Used to inform individuals that they are entering an area that may exceed the FCC's General Population limits. Must be placed anywhere the public can get within 30 feet vertically or horizontally of an antenna.</p>
	<p align="center">Yellow Caution Sign</p> <p>Used to inform individuals that they are entering an area that may exceed the either the FCC's General Population or Occupational Emissions limits. It must be placed so it is visible from all approachable sides. It must also be just outside of the area predicted to exceed the MPE limits so it can be read without standing within the affected area.</p>
	<p align="center">Orange Warning Sign (Previously Red)</p> <p>Used to inform individuals that they are entering an area that may exceed 5x the FCC's Occupational emissions limit. It must be placed so it is visible from all approachable sides. It must also be just outside of the area predicted to exceed the MPE limits so it can be read without standing within the affected area.</p>

APPENDIX C: FCC Emissions Threshold Limits

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E] ² , [H] ² , or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E] ² , [H] ² , or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)

* Plane-wave equivalent power density



APPENDIX D: Certifications

I, Devon Wangeline, preparer of this report certify that I am fully trained and aware of the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in T-Mobile's FCC Regulatory Compliance Manual.

Devon Wangeline

1/25/2022

I, Yasir Alqadhili, reviewer and approver of this report certify that I am fully trained and aware of the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in T-Mobile's FCC Regulatory Compliance Manual.

Yasir Alqadhili

1/25/2022