STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

December 7, 2021

Eric Breun
Site Acquisition Specialist
Transcend Wireless
10 Industrial Avenue, Suite 3
Mahwah, NJ 07430
ebreun@transcendwireless.com

RE: **EM-T-MOBILE-039-211022** – T-Mobile notice of intent to modify an existing telecommunications facility located at 35 Old Route 44, Eastford, Connecticut.

Dear Mr. Breun:

The Connecticut Siting Council (Council) is in receipt of your correspondence of December 1, 2021 submitted in response to the Council's November 29, 2021 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/FOC/emr

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

December 1, 2021

Members of the Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification - EM-T-Mobile-039-211022 Incomplete Response
35 Old Route 44, Eastford, CT 06242
Latitude: 41.52216
Longitude: -72.0353
T-Mobile Site#: CTHA724A - Sprint Keep Project

Dear Ms. Bachman:

T-Mobile/Sprint currently maintains six (6) antennas at the 165-foot level of the existing 190-foot Guyed Tower at 35 Old Route 44, Eastford, Connecticut. The 190-foot Guyed Tower is owned and operated by Everest Infrastructure. The ground space is owned by Priscilla Armitage. T-Mobile now intends to remove all Sprint equipment including antennas, cables, and ground equipment. T-mobile will be adding six (6) antennas. The new antennas will be installed at the same 165-foot level. The new antennas support 5G services.

Planned Modifications:
Tower:
Remove
(6) Sprint Antennas
(6) Sprint RRHs
All Sprint Cables

Install New:
(3) APXVAALL24 43-U-NA20 Antennas
(3) AIR6449 Antennas
(3) Ericsson Radio 4480 B71+B85
(3) Ericsson 4460 B25+B66
(3) 6/24 Hybrid Cables

Ground:
Install New:

(1) B160
(1) Enclosure 6160
(1) 10’ x 4’ Concrete Pad
(1) 25 KW Diesel Fueled Back-up Generator

To Be Removed:
All Sprint Ground Equipment

The Siting Council approved tower sharing on December 19, 2000 (TS-VER-039-001117). The tower was approved by Eastford in 1998. The proposed modifications do not conflict with the conditions given.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman - Jacqueline Dubois, Elected Official, and Susan Welshman, Land Use Clerk, as well as the tower and property owner.

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 modifications 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 modifications 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 telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,
Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Jacqueline Dubois - as First Selectman of Eastford
Susan Welshman - Land Use Clerk
Everest Infrastructure - Tower Owner
Priscilla Armitage - Land Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
JACQUELINE DUBOIS
16 WESTFORD ROAD
EASTFORD CT 06242

CT 063 0-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9256 9065

BILLING: P/P

Reference #1: CTHA724A

XOL 21.10.03 NV45 43.0A 10/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
PRISCILLA ARMITAGE
35 OLD KIMBALL ROAD
BROOKLYN CT 06234

CT 063 0-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9034 3052

BILLING: P/P

Reference #1: CTHA724A

XOL 21.10.03 NV45 43.0A 10/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
EVEREST INFRASTRUCTURE
SUITE 703
NOVA TOWER 2
2 ALLEGHENY CENTER
ALLEGHENY PA 15212

PA 152 9-42

UPS GROUND

TRACKING #: 1Z V25 742 03 9826 6103

BILLING: P/P

Reference #1: CTHA724A

XOL 21.10.03 NV45 43.0A 10/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
SUSAN WELSHMAN
16 WESTFORD ROAD
EASTFORD CT 06242

CT 063 0-01

UPS GROUND

TRACKING #: 1Z V25 742 03 9605 6094

BILLING: P/P

Reference #1: CTHA724A

XOL 21.10.03 NV45 43.0A 10/2021*

Your shipment
1ZV257420398266103

Estimated delivery
Check back tomorrow for an updated delivery date.

- Label Created
- Shipped
- **On the Way**
- Delivery

Ship To
ALLEGHENY, PA US

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/20/2021
Delivery Time: 3:58 PM
Left At: OFFICE
Signed by: WOLFE

TRANSCEND WIRELESS

Tracking Number:	1ZV257420392569065
Ship To:	JACQUELINE DUBOIS 16 WESTFORD ROAD EASTFORD, CT 06242 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA724A

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/20/2021

Delivery Time: 3:58 PM

Left At: OFFICE

Signed by: WOLFE

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396056094
Ship To:	SUSAN WELSHMAN 16 WESTFORD ROAD EASTFORD, CT 06242 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA724A

Hello, your package has been delivered.

Delivery Date: Wednesday, 10/20/2021

Delivery Time: 4:01 PM

Left At: FRONT DOOR

TRANSCEND WIRELESS

Tracking Number:	1ZV257420390343052
Ship To:	PRISCILLA ARMITAGE 35 OLD KIMBALL ROAD BROOKLYN, CT 06234 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA724A

Parcel Information

Location:	35 OLD ROUTE 44	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00068300	Map Block Lot:	20 26 5	Acres:	52.80
490 Acres:	51.19	Zone:		Volume / Page:	0067/0650
Developers Map / Lot:		Census:	9022		

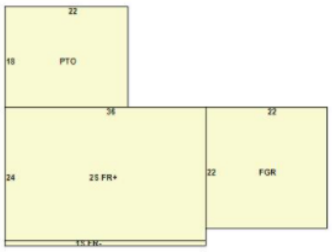
Value Information

	Appraised Value	Assessed Value
Land	302,700	162,400
Buildings	142,300	99,610
Detached Outbuildings	118,700	83,090
Total	563,700	345,100

Owner's Information

Owner's Data
PRISCILLA D ARMITAGE REVOC TRUST EST OF TENIS ELAINE L 35 OLD KIMBALL ROAD BROOKLYN CT 06234

Building 1



Building Use:	Single Family	Style:	Colonial	Living Area:	1,764
Stories:	2.00	Construction:	Wood Frame	Year Built:	1965
Total Rooms:	7	Bedrooms:	3	Full Baths:	1
Half Baths:	1	Fireplaces:	1	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	0	Basement Area:	864
Basement Finished Area:	0	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Vinyl Siding/Brick Veneer	Units:			

Special Features

Fireplace 2 Story	1
Unfinished Basement	864

Attached Components

Type:	Year Built:	Area:
Frame Garage	1965	484
Patio	1965	396

Detached Outbuildings

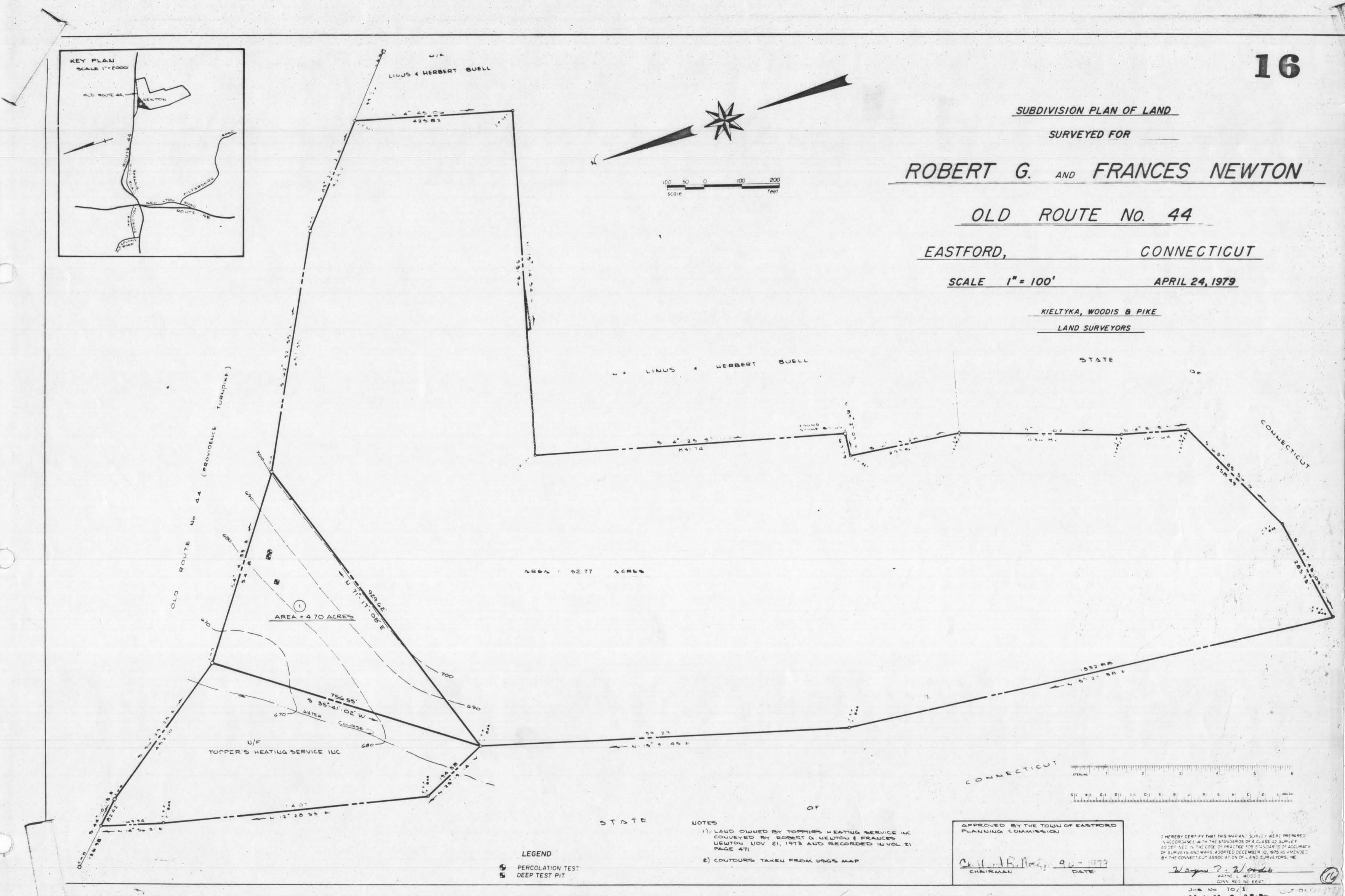
Type:	Year Built:	Length:	Width:	Area:
6 Ft Chain Fence	1998	0.00	0.00	72
Garage w Loft Good	1998	36.00	48.00	925
Frame Shed	1998	8.00	8.00	64
Shed w Loft	2009	12.00	20.00	240
Cell Tower	1998	0.00	0.00	1

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
ARMITAGE RALPH WHITON	0074	0979	10/13/2020		$0
PRISCILLA D ARMITAGE REVOC TRUST EST OF	0067	0650	06/24/2015		$0
ARMITAGE PRISCILLA D	0037	0634	01/22/1997		$180,000
NEWTON ROBERT G+FRANCES	0019	0389	11/27/1970		$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
14-0561	Miscellaneous	06/10/2014	COMM TOWER, REPLC ANTNAS & ADD RADIO EQPMNT
13-0481	Miscellaneous	11/13/2012	ANTENNA, LANDOWNER PRISCILLA ARMITAGE 647-9883
09-0179	Miscellaneous	03/13/2009	POCKET WIRELESS, WIRE CELL TOWER BUILDING NEW GRNDING
08-0158	Miscellaneous	11/24/2008	INSTALL OF ANTENNAS, 647-9883
00-048	Miscellaneous	03/13/2001	TOWER ADDN
00-09	Comm Renovations	09/09/2000	Commercial, CORDLESS DATE TRSFR
98-049	Miscellaneous	05/13/1999	TELE EQ PAD, 201512476
98-84	Miscellaneous	05/28/1998	HORSE BARN, 974-3828
96-71	Miscellaneous	04/06/1998	TOWER, 645-2549


KEY PLAN
SCALE 1" = 2000'
OLD ROUTE 44
NEWTON
ROUTE 44
ROUTE 198
SUBDIVISION PLAN OF LAND
SURVEYED FOR
ROBERT G. AND FRANCES NEWTON
OLD ROUTE No. 44
EASTFORD, CONNECTICUT
SCALE 1" = 100'
APRIL 24, 1979
KIELTYKA, WOODIS & PIKE
LAND SURVEYORS
N/F LINUS & HERBERT BUELL
STATE OF CONNECTICUT
AREA = 52.77 ACRES
AREA = 4.70 ACRES
OLD ROUTE No 44 (PROVIDENCE TURNPIKE)
N/F TOPPER'S HEATING SERVICE INC
WATER COURSE
LEGEND
PERCOLATION TEST
DEEP TEST PIT
NOTES
1) LAND OWNED BY TOPPER'S HEATING SERVICE INC CONVEYED BY ROBERT G. NEWTON & FRANCES NEWTON NOV 21, 1973 AND RECORDED IN VOL. 21 PAGE 471
2) CONTOURS TAKEN FROM USGS MAP
APPROVED BY THE TOWN OF EASTFORD PLANNING COMMISSION
CHAIRMAN
DATE
I HEREBY CERTIFY THAT THIS MAP AND SURVEY WERE PREPARED IN ACCORDANCE WITH THE STANDARDS OF A CLASS A2 SURVEY AS DEFINED IN THE CODE OF PRACTICE FOR STANDARDS OF ACCURACY OF SURVEYS AND MAPS, ADOPTED DECEMBER 10, 1975 AS AMENDED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC.
WAYNE L. WOODIS
CONN. REG. NO. 6647
JOB No 70/1
FB No 28, Pg 28-86

TOWN OF EASTFORD

NO. 98-70

Date 3/8/98

APPLICATION FOR BUILDING PERMIT

Est. Value $ 22,500
Bldg. Permit Fee 161.00
Land Use
TOTAL FEE 161.00

A PERMIT MUST BE OBTAINED AND FEE PAID BEFORE BEGINNING WORK.

SEPARATE PERMITS ARE REQUIRED FOR PLUMBING · HEATING · ELECTRICAL

The undersigned hereby applies for permit to do work according to the following specifications, same to be in all respects in accordance with the laws and building regulations of the State of Connecticut, Basic Building Code, Local regulations and ordinances of the Town of Eastford, Connecticut. A final inspection is required before the building can be occupied or a Certificate of Use or Occupancy is issued.

APPLICATION MUST BE TYPED OR PRINTED

Owner Priscilla Armitage Street 35 Old Rt 44 Phone

Lot No. 5 House No. 35 Road Old Route 44

Owner of land Priscilla Armitage Address 35 Old Rt 44 Phone

Builder Address Phone

Architect Address Phone

Type of ~~building~~ TOWER FRED NUDD Size of ~~building~~ TOWER 180'

Floor area 1st floor N/A 2nd floor N/A Total

Type of heat: Hot Water ☐ Hot Air ☐ Steam ☐ Electric ☐ Wood ☐

Type of work: Original ☐ Alteration ☐ Addition ☐ Repair ☐ Demolish ☐

Approvals: Septic Perc ☐ Wetlands ☐ Driveway ☐ Fire Marshal ☐ Planning ☐

Signature Priscilla Armitage Building Official Alvin H Kilburn

Type		Foundations		Roof Type		Floor Const.				Tiling		Spec.	Size	Span
Single Fam.		Stone		Gable		Wood Joist				Bath Fl. & Wsct.		Joist		
Two Fam.		Concrete 4000 psi		Hip		Concrete				Bath Fl. & Walls		2nd Flr.		
Apt. House		Conc. Blocks		Gambrel						Bath Fl. only		Rafter		
Stores		Piers		Truss		Flooring	1	2	3	Toilet-Rooms		Girder		
Modular		Thickness		Flat		Hardwood				Ceramic		Column		
Office				Roof Pitch		Res. Tile				Other		Sill		
Factory		Construction				Rugs						Post		
Gas Sta.		Frame		Roofing		Plywood				Footing		Plate		
Com. Gar.		Brick		Asph. Sh.						Size		Stud		
Private Gar. Att.		Conc. Blocks		Wood Sh.						Stone				
Base. Gar.		Veneer		Built-up		Interior	1	2	3	Conc.				
Farm Building				Comp. Roll.		Plas.				Drains		Inspection		
		Exterior				Gyp. Bd.				Key-way		Footing		
No. of Rooms		Clpbd. or Wd. Shin.		Cellar		Ins. Bd.				Chimneys		Foundation		
No. of Bathrooms		Plain Bds. or Nov.8-DG		Whole		Wood				Size of Flues		Rough Framing		
Insulation		Vinyl		Part		Layout				Stone		Rough Electrical		
R-30 Ceiling		Alum.		None		Cond.				Brick		Rough Plumbing		
R-19 Walls		Conc. Blocks		Conc. Floor						Block		Heating		
		Br. Com. ☐ Face ☐		Dirt Floor						Factory Built		Insulation		
		Log								Steel		Chimneys		
										Fireplace		Final		

SWIMMING POOL — Above Ground ☐ In Ground ☐ Fence ☐ State Approved ☐

REMARKS:

THIS PERMIT EXPIRES ONE YEAR FROM DATE OF ISSUE

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

December 19, 2000

Sandy M. Carter
Verizon Wireless
20 Alexander Drive
P.O. Box 5029
Wallingford, CT 06492

RE: **TS-VER-039-001117** - Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 35 Old Route 44, Eastford, Connecticut.

Dear Ms. Carter:

At a public meeting held December 14, 2000, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated November 16, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/FOC/laf

c: Honorable Richard L. Woodward, First Selectman, Town of Eastford
Robert J. Francis, Cordless Data Transfer, Inc.
Ronald C. Clark, Nextel Communications
Julie M. Cashin, Esq., Hurwitz & Sagarin, LLC

I:\siting\cm\ver\eastford\dc111400.doc

Sprint Now part of T-Mobile™

SPRINT ID: CT33CX016
SITE ID: CTHA724A
35 OLD ROUTE 44
EASTFORD, CT 06242

T-MOBILE RAN TEMPLATE (PROVIDED BY RFDS)

67E5A998E 6160

T-MOBILE A+L TEMPLATE (PROVIDED BY RFDS)

67E5998E_1xAIR+1OP

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002 **TO:** 35 OLD ROUTE 44, EASTFORD, CT 06242

1. GET ON I-91 S IN WINDSOR FROM DAY HILL RD.	4.30 MI.
2. MERGE ONTO I-91 S.	3.60 MI.
3. TAKE EXIT 35A FOR I-291 TOWARD MANCHESTER.	0.60 MI.
4. CONTINUE ONTO I-291 E.	5.60 MI.
5. USE THE LEFT LANE TO MERGE ONTO I-84 E TOWARD BOSTON.	15.4 MI.
6. TAKE EXIT 69 FOR CT-74 TOWARD U.S. 44/ WILLINGTON/ PUTNAM.	0.30 MI.
7. TURN RIGHT CT-74 E.	7.50 MI.
8. TURN LEFT ONTO US-44 E.	6.30 MI.
9. TURN RIGHT ONTO OLD ROUTE 44. DESTINATION WILL BE ON THE RIGHT.	0.30 MI.

SITE COORDINATES: LATITUDE: 41° 52' 16" N
LONGITUDE: 72° 03' 53" W
GROUND ELEVATION: ±757' AMSL

COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH

VICINITY MAP — NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. REMOVE EXISTING SPRINT EQUIPMENT
2. INSTALL (1) APXVAALL24_43-U-NA20 ANTENNA PER SECTOR. TOTAL (3)
3. INSTALL (1) ERICSSON AIR6449 B41 ANTENNA PER SECTOR TOTAL (3)
4. INSTALL (1) RADIO 4480 B71+B85 PER SECTOR. TOTAL OF (3)
5. INSTALL (1) RADIO 4460 B25+B66 PER SECTOR. TOTAL OF (3)
6. INSTALL 150A BREAKER
7. REMOVE ALL EXISTING HYBRID, INSTALL (3) 6/24 4AWG HYBRIDS
8. INSTALL (1) T-MOBILE POWER ENCLOSURE 6160
9. INSTALL (1) T-MOBILE BATTERY CABINET B160
10. INSTALL (1) PROPOSED 2.0 STD (8' LONG) PIPE MAST PER SECTOR FOR POS.1 ANTENNA. TOTAL OF (3)
11. INSTALL (1) NEW 25 KW DIESEL FUELED BACKUP GENERATOR ON A PROPOSED 10' x 4' CONC. SLAB-ON-GRADE WITHIN THE EXISTING COMPOUND
12. INSTALL (1) 200A AUTOMATIC TRANSFER SWITCH

PROJECT SUMMARY (STRUCTURAL)

FOR REQUIRED STRUCTURAL MODIFICATIONS, SEE SHEET(S) S-1 FOR ADDITIONAL DETAILS. NEW ANTENNA MOUNTS TO BE INSTALLED

PROJECT INFORMATION

SPRINT ID:	CT33CX016
SITE ID:	CTHA724A
SITE ADDRESS:	35 OLD ROUTE 44 EASTFORD, CT 06242
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	KYLE RICHERS TRANSCEND WIRELESS, (908) 447-4716
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
PROJECT COORDINATES:	LATITUDE: 41°-52'-16" N LONGITUDE: 72°-03'-53" W GROUND ELEVATION: 757'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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E-2	TYPICAL ELECTRICAL DETAILS	0
E-3	TYPICAL ELECTRICAL DETAILS	0
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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/04/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS

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T-MOBILE NORTHEAST LLC

SPRINT ID: CT33CX016
SITE ID: CTHA724A
35 OLD ROUTE 44
EASTFORD, CT 06242

DATE: 04/21/21
SCALE: AS NOTED
JOB NO. 21005.20

TITLE SHEET

T-1

Sheet No. 1 of 12

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- ULTIMATE DESIGN SPEED (TOWER STRUCTURE): 127 MPH (Vasd) (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND IT'S COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS, ARE TO BE BROUGHT TO THE ATTENTION OF THE SITE OWNER'S CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
18. CONTRACTOR SHALL COMPLY WITH OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
19. THE COUNTY/CITY/TOWN WILL MAKE PERIODIC FIELD OBSERVATION AND INSPECTIONS TO MONITOR THE INSTALLATION, MATERIALS, WORKMANSHIP AND EQUIPMENT INCORPORATED INTO THE PROJECT TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND APPROVED SHOP DRAWINGS.
20. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS----ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

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JOB NO. 21005.20

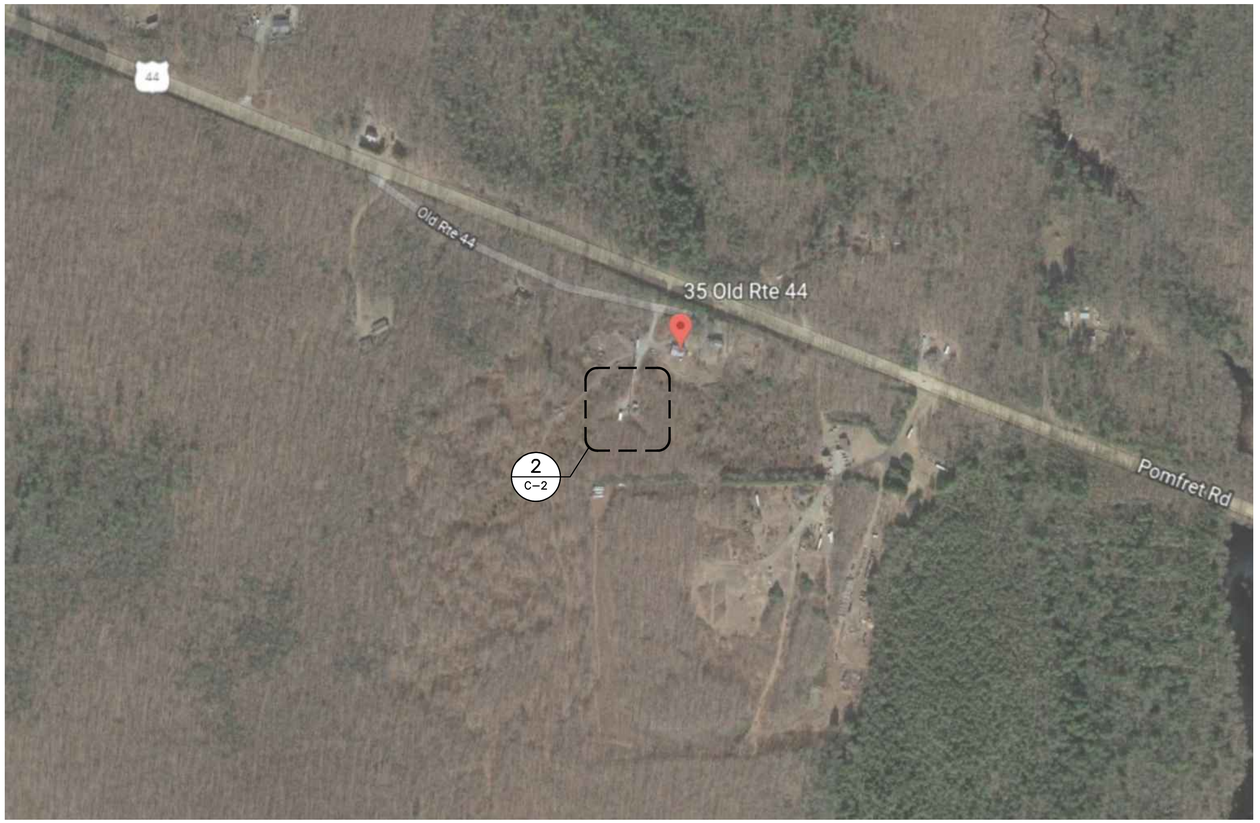
GENERAL NOTES AND SPECIFICATIONS

N-1

NOTE:
ALL COAX LENGTHS TO BE MEASURED
AND VERIFIED IN FIELD BEFORE ORDERING

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) TMA (QTY)	(QTY) PROPOSED COAX
A1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	165'	120°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(1) 6/24 4AWG HYBRID CABLE (220')
A2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	165'	120°			
B1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	165'	270°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(1) 6/24 4AWG HYBRID CABLE (220')
B2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	165'	270°			
C1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	165'	340°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(1) 6/24 4AWG HYBRID CABLE (220')
C2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	165'	340°			



1 / C–1 SITE LOCATION PLAN
SCALE: NOT TO SCALE

TRUE NORTH

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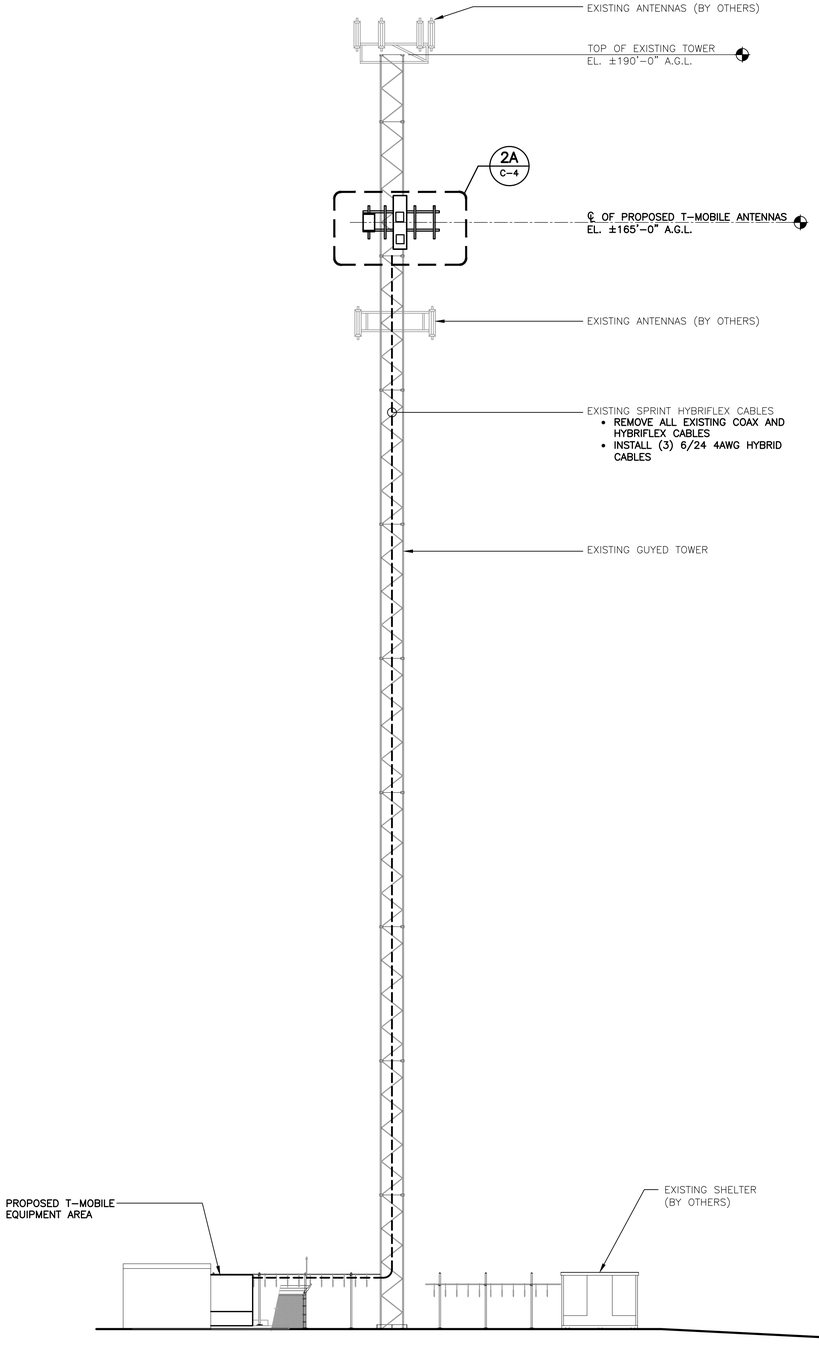
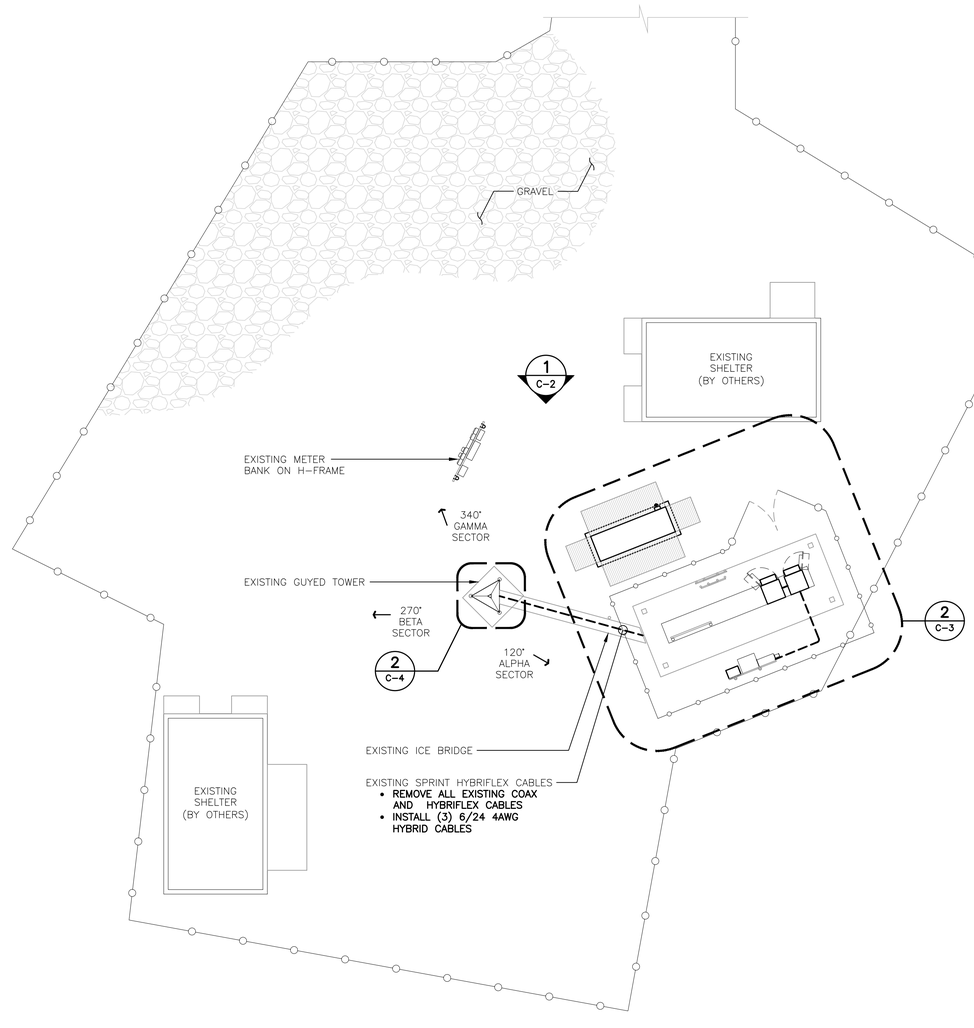
SITE LOCATION PLAN

C-1

Sheet No. 3 of 12



1 C-2 **NORTH TOWER ELEVATION - PROPOSED**
SCALE: 3/32" = 1'



2 C-2 **COMPOUND PLAN - PROPOSED** TRUE NORTH
SCALE: 1/8" = 1'

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY DEFICIENT AND WARRANTING MODIFICATION PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT. FOR REQUIRED STRUCTURAL MODIFICATIONS, SEE SHEET(S) S-1 FOR ADDITIONAL DETAILS.

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21005.20) DATED 08/09/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY TOWER ENGINEERING PROFESSIONALS (PROJECT # 25707.576390) DATED 09/15/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

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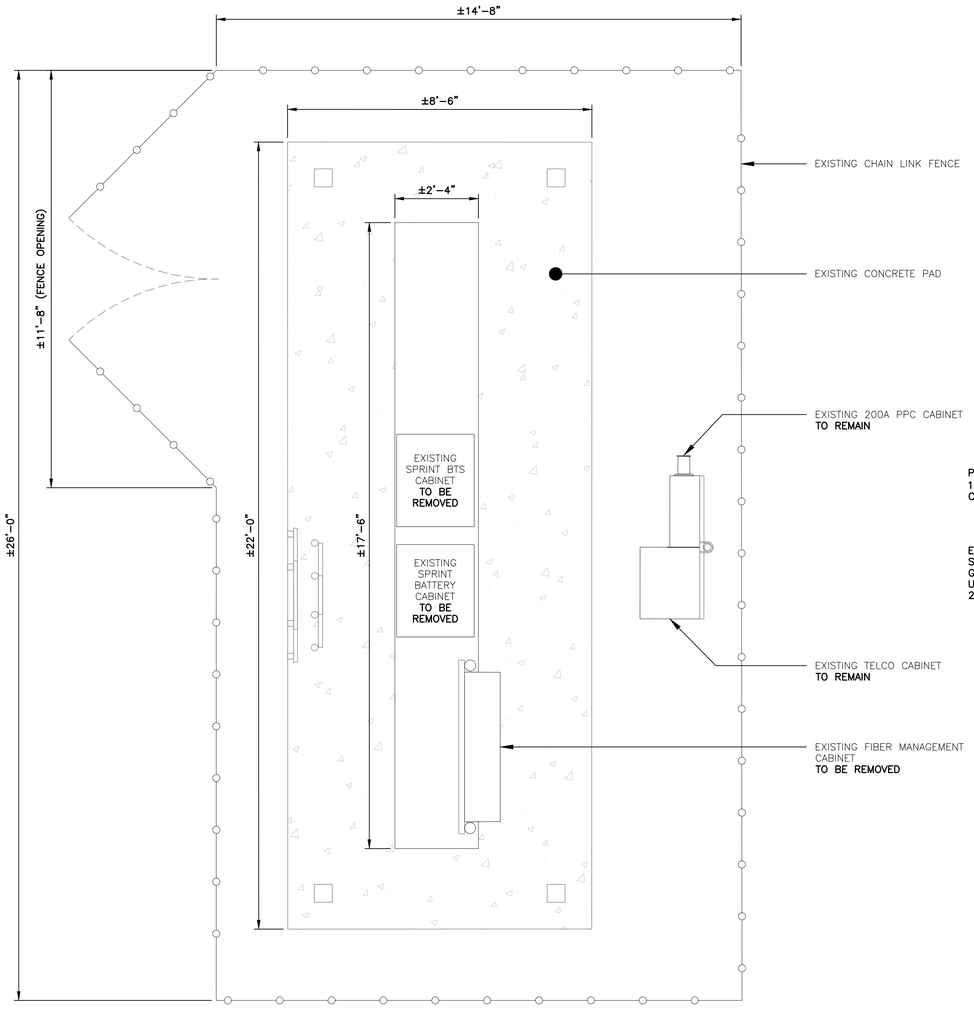
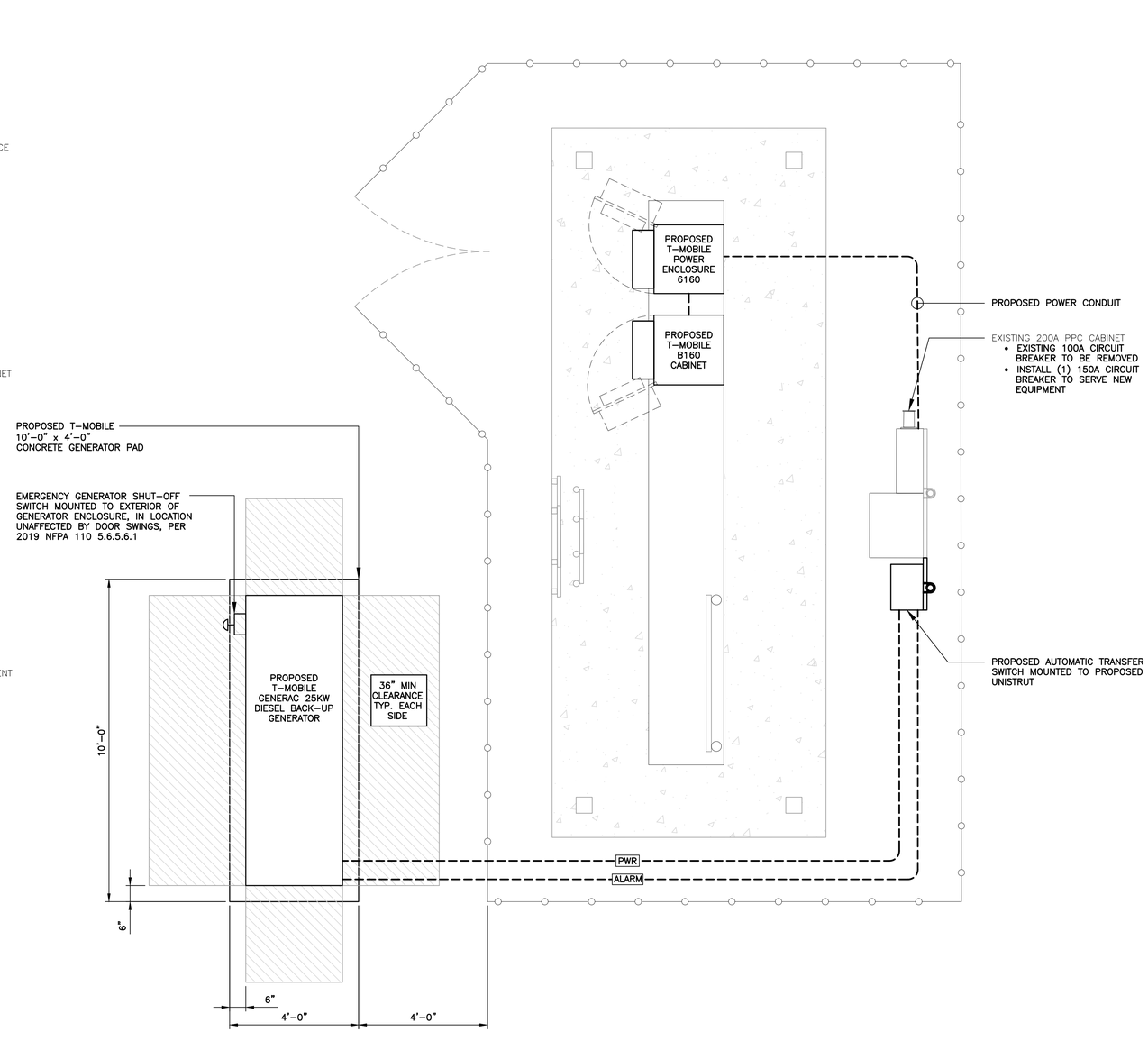
COMPOUND PLAN AND ELEVATION

C-2

Sheet No. 4 of 12





1 C-3 **EXISTING EQUIPMENT PLAN**
SCALE: 1/2" = 1'
TRUE NORTH

2 C-3 **PROPOSED EQUIPMENT PLAN**
SCALE: 1/2" = 1'
TRUE NORTH

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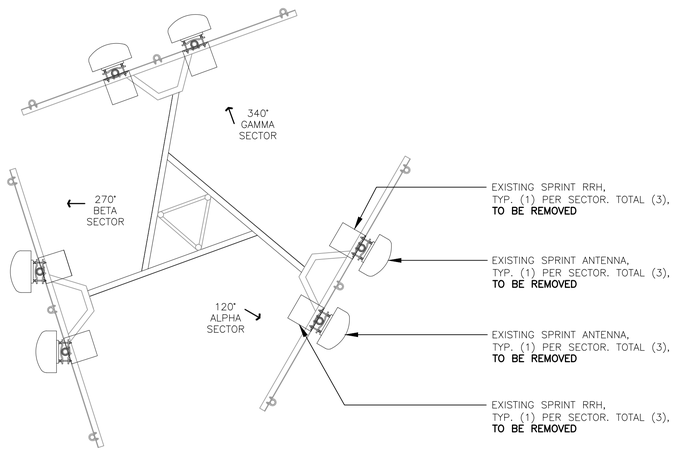
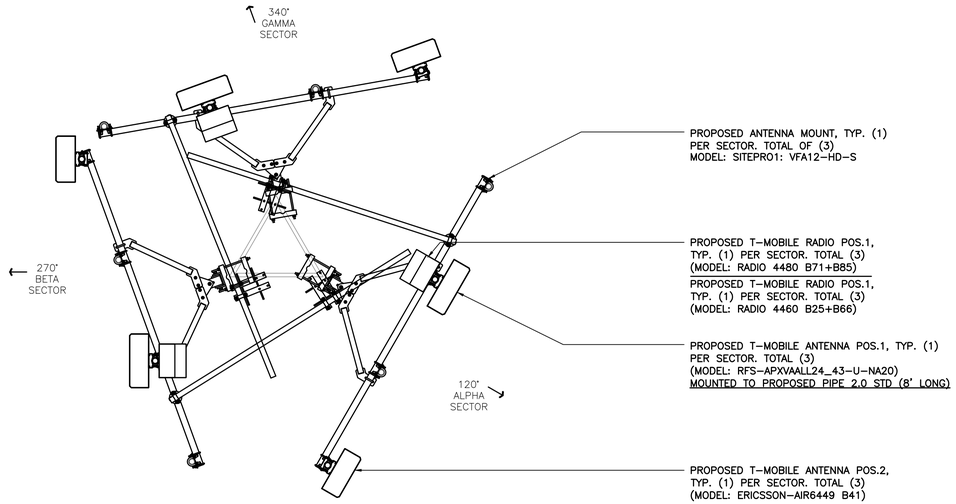
EQUIPMENT PLANS

C-3

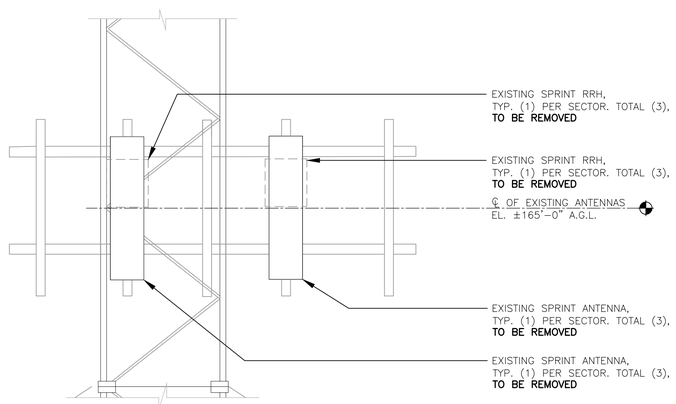
Sheet No. 5 of 12



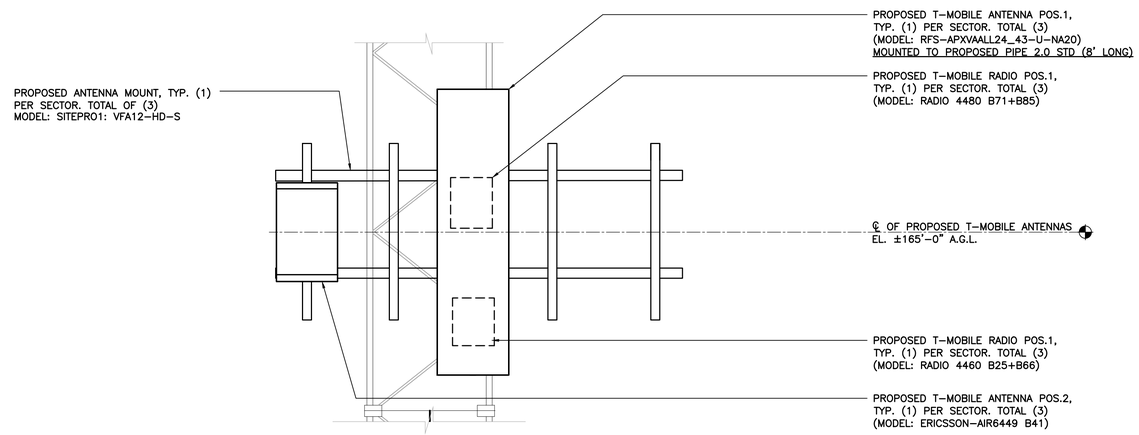
1 / C-4 **ANTENNA PLAN - EXISTING**
SCALE: 1/2" = 1'
TRUE NORTH



2 / C-4 **ANTENNA PLAN - PROPOSED**
SCALE: 1/2" = 1'
TRUE NORTH



1A / C-4 **ANTENNA ELEVATION - EXISTING**
SCALE: 1/2" = 1'



2A / C-4 **ANTENNA ELEVATION - PROPOSED**
SCALE: 1/2" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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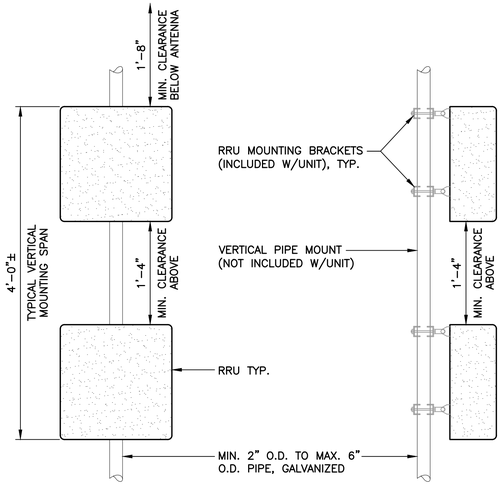
JOB NO.	21005.20

ANTENNA PLANS AND ELEVATIONS

C-4

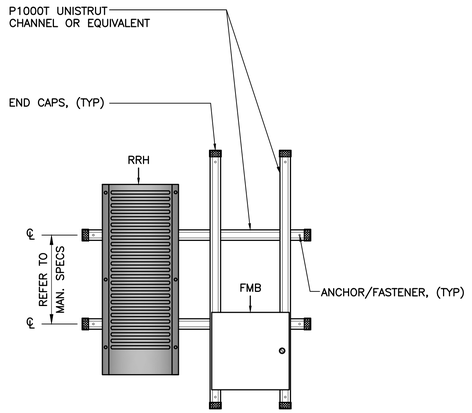
Sheet No. 6 of 12



FRONT ELEVATION SIDE ELEVATION

NOTES: (PIPE MOUNTING)

1. T–MOBILE SHALL SUPPLY RRU, AND RRU POLE–MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE–MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.



FRONT ELEVATION

NOTES: (UNISTRUT MOUNTING)

1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 C–5 TYPICAL RRU MOUNTING DETAIL

SCALE: NOT TO SCALE

SIDE

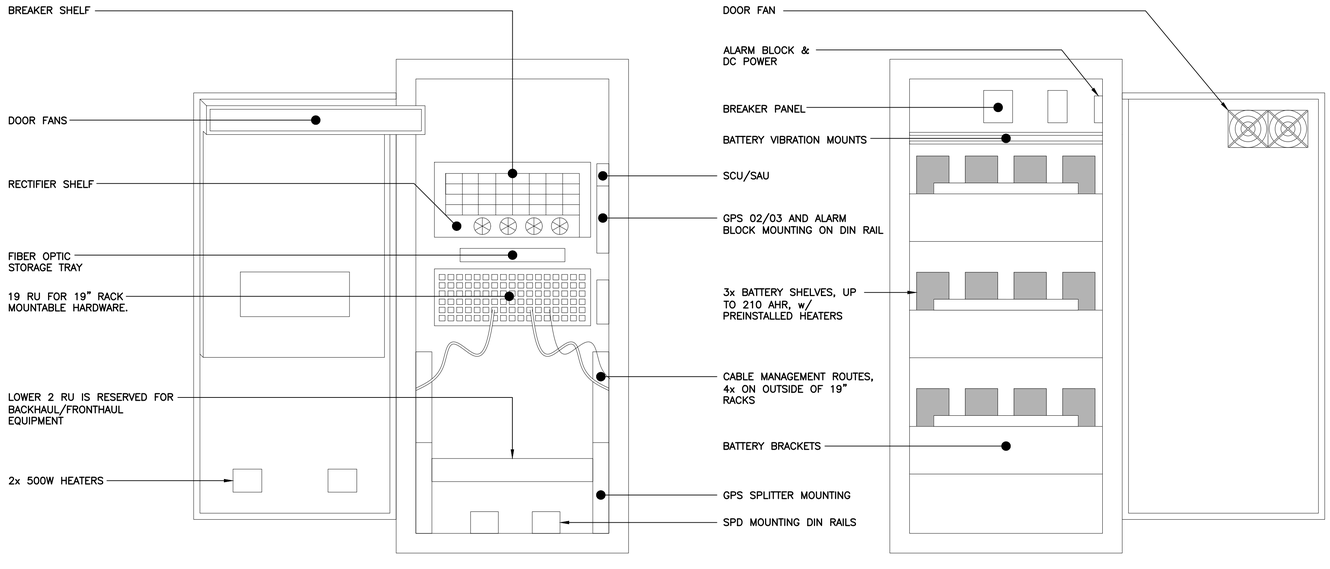
AIR6449 B41

APXVAALL24_43-U-NA20

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6449 B41	33.1"L x 20.6"W x 8.6"D	±104 LBS.
MAKE: RFS MODEL: APXVAALL24_43–U–NA20	95.9"L x 24.0"W x 8.5"D	±150 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T–MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.		

2 C–5 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: ENCLOSURE 6160 CABINET	62.0"H x 26.0"W x 26.0"D	±1200 LBS

3 C–5 ENCLOSURE 6160 CABINET DETAIL

SCALE: NOT TO SCALE

EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: BATTERY B160 CABINET	62.0"H x 26.0"W x 26.0"D	±1883 LBS

4 C–5 BATTERY B160 CABINET DETAIL

SCALE: NOT TO SCALE

RADIO 4460 B25+B66

RADIO 4480 B71+B85

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4480 B71+B85	21.8"L x 15.7"W x 7.5"D	±84 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T–MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.			

5 C–5 PROPOSED RRU DETAIL

SCALE: NOT TO SCALE

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TYPICAL EQUIPMENT DETAILS

C-5

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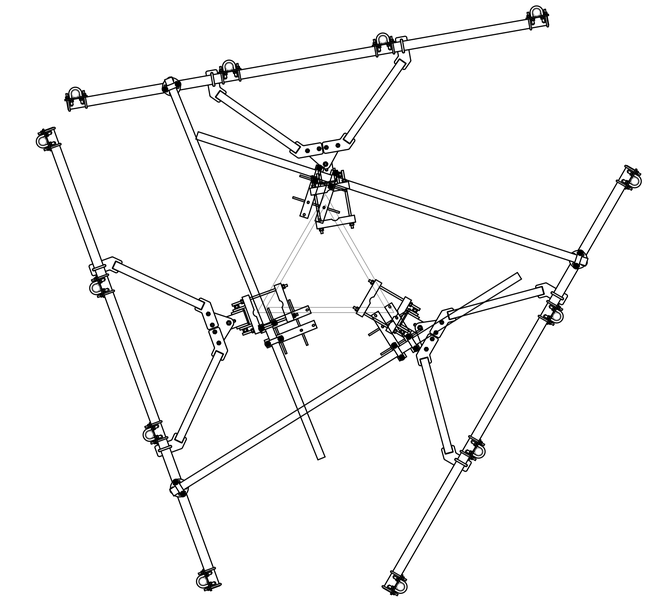

SITEPRO1: VFA12-HD-S

1 / S-1 **TYPICAL ANTENNA MOUNT DETAIL**

SCALE: NOT TO SCALE

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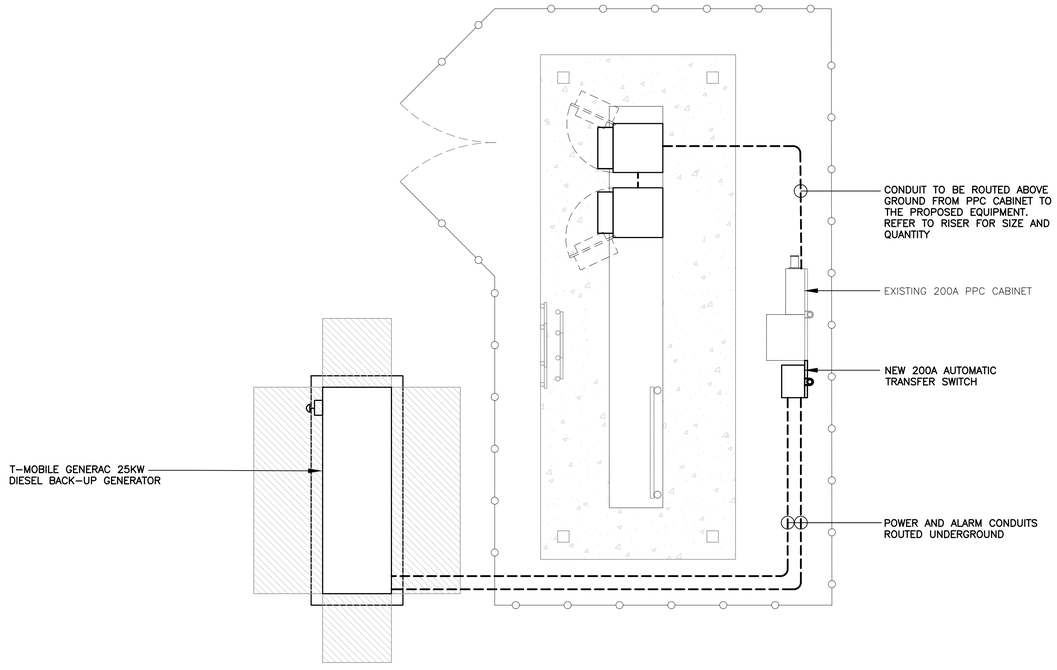
STRUCTURAL DETAILS

S-1



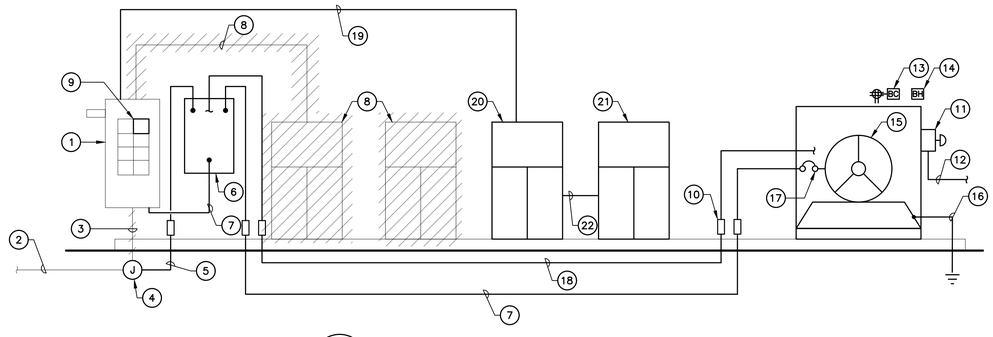
1 / E-1 **ELECTRICAL CONDUIT ROUTING PLAN**
SCALE: 1/4" = 1'

RISER DIAGRAM NOTES

1. EXISTING PPC CABINET TO REMAIN.
2. EXISTING POWER CONDUIT AND CONDUCTORS PREVIOUSLY SERVING EXISTING PANEL.
3. SECTION OF CONDUIT AND CONDUCTORS TO BE REMOVED.
4. JUNCTION BOX SIZED PER NEC.
5. EXTEND EXISTING CONDUITS AND CONDUCTORS TO NEW ATS.
6. NEW 200A, 2 SOURCE AUTOMATIC TRANSFER SWITCH.
7. (3) #3/0 AWG, (1) #6 AWG GROUND, 2-1/2" CONDUIT.
8. EXISTING CABINETS AND ASSOCIATED CONDUITS, CONDUCTORS AND CIRCUIT BREAKERS TO BE REMOVED
9. NEW 150A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT.
10. EXPANSION COUPLING TYPICAL.
11. REMOTE GENERATOR SHUT OFF SWITCH IN BREAK GLASS ENCLOSURE MOUNTED TO EXTERIOR OF GENERATOR ENCLOSURE PER 2019 NFPA 110 5.6.5.6.1.
12. 3/4" CONDUIT AND CONDUCTORS REQUIRED FOR PROPER OPERATION OF EMERGENCY GENERATOR SHUT OFF SWITCH.

RISER DIAGRAM NOTES

13. GENERATOR BATTERY CHARGER AND CONVENIENCE GFCI OUTLET WIRED TO EXISTING PANEL. OUTLET TO BE MOUNTED IN WEATHERPROOF ENCLOSURE.
14. GENERATOR BLOCK HEATER WIRED TO EXISTING PANEL SERVING T-MOBILE EQUIPMENT.
15. EMERGENCY BACK UP GENERATOR.
16. GENERATOR GROUNDING PER NEC AND MANUFACTURER'S REQUIREMENTS. BOND TO EXISTING GROUNDING SYSTEM. (MINIMUM OF (1) #2 AWG GROUND)
17. GENERATOR OUTPUT CIRCUIT BREAKER.
18. 1" CONDUIT FOR GENERATOR CONTROL AND SIGNAL WIRING.
19. (1) 1/0 AWG, (1) #6 AWG GROUND, 1-1/2" CONDUIT.
20. NEW T-MOBILE EQUIPMENT CABINET
21. NEW T-MOBILE BATTERY CABINET
22. DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.



2 / E-1 **ELECTRICAL RISER DIAGRAM**
NOT TO SCALE

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ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING

E-1

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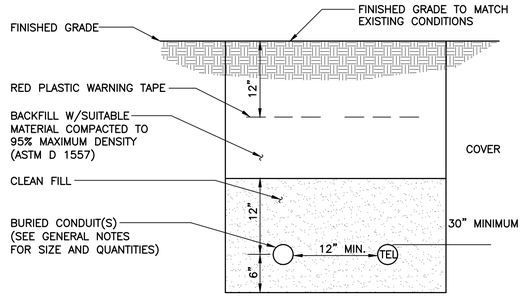
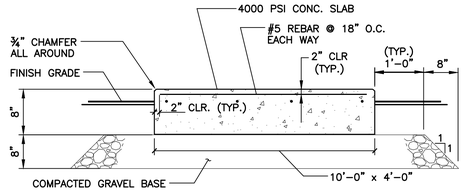


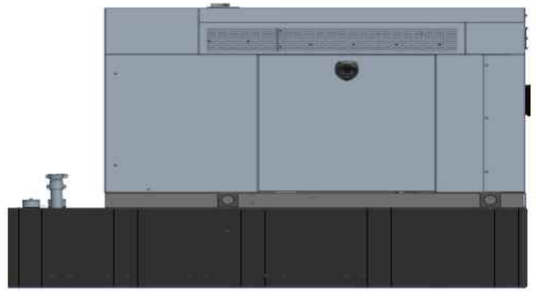
NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

1 / E-2 **TYPICAL ELECTRICAL/TEL TRENCH DETAIL**
SCALE: NOT TO SCALE



2 / E-2 **TYPICAL CONCRETE PAD DETAIL**
SCALE: NOT TO SCALE



BACKUP POWER GENERATOR						
EQUIPMENT	POWER GENERATED	FUEL	MODEL NUMBER	FUEL TANK SIZE (GAL)	DIMENSIONS	WEIGHT
MAKE: GENERAC MODEL: RD025	25 KW, AC	DIESEL	7192-0	229	103.4"L x 35.0"W x 91.7"H	2123 LBS.

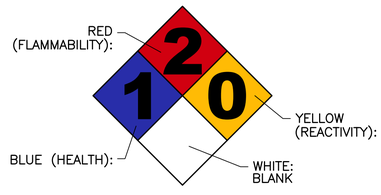
NOTES:

1. FUEL LEVEL/SECONDARY CONTAINMENT SHALL BE ALARMED AND IN COMMUNICATION WITH T-MOBILE'S NOC.
2. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION AND ALL OPTIONAL FEATURES WITH T-MOBILE'S CONSTRUCTION MANAGER PRIOR TO ORDERING.

3 / E-2 **PROPOSED GENERATOR DETAIL**
SCALE: NOT TO SCALE

AUTOMATIC TRANSFER SWITCH					
EQUIPMENT	PHASE	VOLTAGE	ENCLOSURE	AMP	DIMENSIONS
MAKE: GENERAC MODEL: RXSC200A3	1-PHASE	120/240	NEMA-3R	200	17.3"L x 12.5"W

4 / E-2 **AUTOMATIC TRANSFER SWITCH DETAIL**
SCALE: NOT TO SCALE



SIGN NAME:	REGULATORY, NFPA 704 HAZARD ID
DESCRIPTION:	MOUNT ON GENERATOR ACCESS DOOR. CONSULT WITH GENERATOR MANUFACTURER MSDS SHEET FOR BLUE AND RES POSITIONS
NOTES:	1) SIGNS EXPOSED TO WEATHER SHOULD BE CHECKED ANNUALLY FOR READABILITY. 2) SIGNS MUST BE UPDATED IF CHEMICAL STORAGE OR HAZARD INFORMATION FOR THE LOCATION CHANGES. 3) THE GC MUST REVIEW WITH LOCAL JURISDICTION WHEN FILLING FOR PERMITS, AS EACH JURISDICTION MAY HAVE DIFFERENT REQUIREMENTS AND COMPLY WITH POSTING REQUIREMENTS OR DIRECTIVES FROM THE LOCAL JURISDICTION.

5 / E-2 **NFPA 704 DIAMOND SIGNAGE DETAIL**
SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

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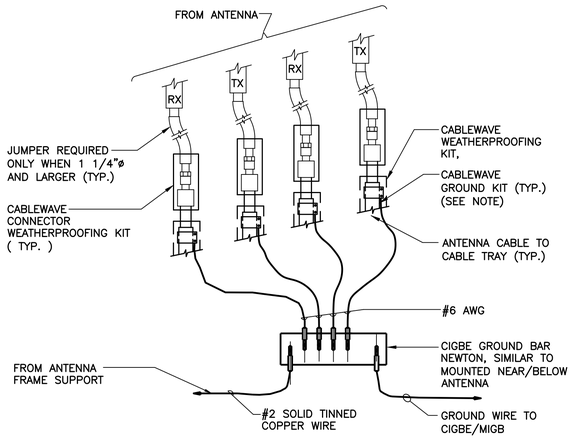
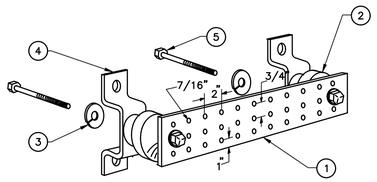


NOTES:

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

1 E-3 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

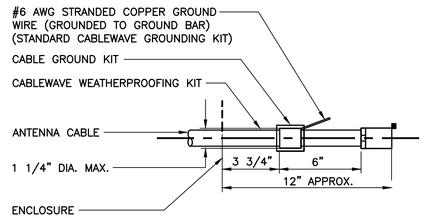


NOTES

1	TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2	INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3	5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4	WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5	5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

2 E-3 GROUND BAR DETAIL

SCALE: NOT TO SCALE

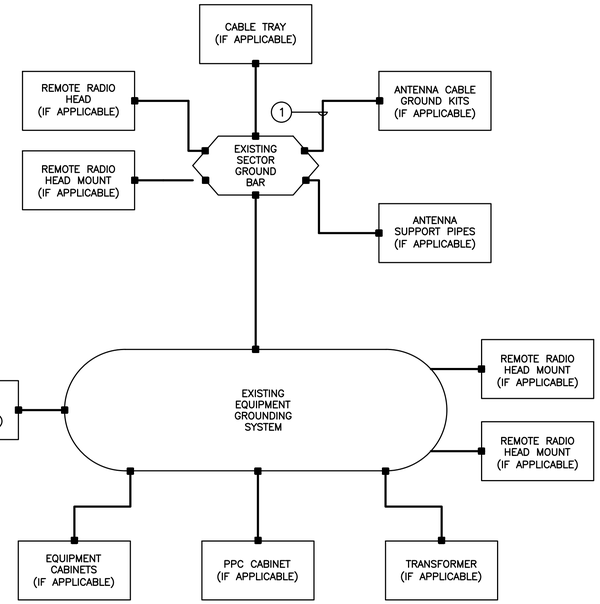


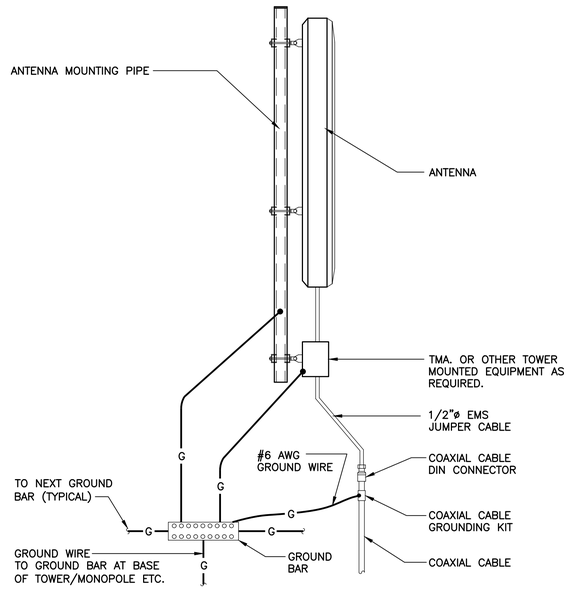
NOTES:

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

3 E-3 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE

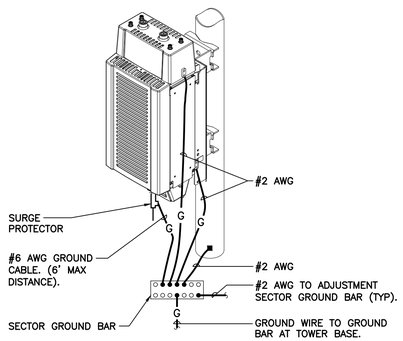




4 E-3 TYPICAL ANTENNA GROUNDING DETAIL

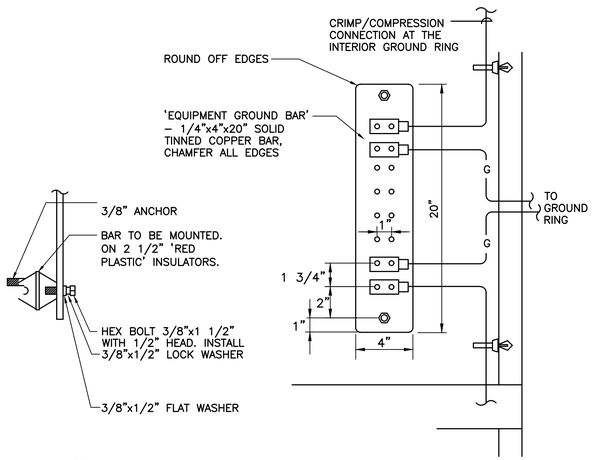
SCALE: NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



5 E-3 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



6 E-3 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

(1) #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
7. COORDINATE ALL ROOF MOUNTED EQUIPMENT WITH OWNER.
8. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
9. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

7 E-3 ELECTRICAL SCHEMATIC DIAGRAM

SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 11 of 12

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR THE SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

F. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

G. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

H. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

I. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

J. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

K. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

L. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

M. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.

2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

N. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUITS

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2][3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH – INTERMATIC #FF15M (INTERIOR LIGHTS)

2. DUPLEX RECEPTACLE – P&S #2095 (GFCI) SPECIFICATION GRADE

3. SINGLE POLE SWITCH – P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE

4. DUPLEX RECEPTACLE – P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES – ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.

2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS

2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).

3. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.

2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE CONNECTED TO THE PANELBOARDS SO THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/04/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS

PROFESSIONAL ENGINEER SEAL

Sprint · T-Mobile · Transcend Wireless

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T-MOBILE NORTHEAST LLC

SPRINT ID: CT33CX016
SITE ID: CTHA724A
35 OLD ROUTE 44
EASTFORD, CT 06242

DATE: 04/21/21
SCALE: AS NOTED
JOB NO. 21005.20

ELECTRICAL SPECIFICATIONS

E-4

Sheet No. 12 of 12

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

T-Mobile Site #: CTHA724A

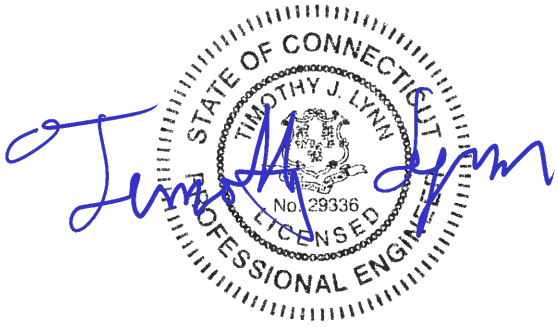
35 Old Route 44
Eastford, CT

Centek Project No. 21005.20

~~Date: May 3, 2021~~

Rev 2: August 9, 2021

Max Stress Ratio = 80.6%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

August 9, 2021

Mr. Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CTHA724A
35 Old Route 44
Eastford, CT 06242

Centek Project No. 21005.20

Dear Mr. Richers,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the **proposed mount, consisting of three (3) V-frame sector mounts (SitePro P/N: VFA12-HD-S)** to support the proposed equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- **T-Mobile:**
  V-Frames: Three (3) Ericsson AIR6449 panel antennas, three (3) RFS APXVAALL24_43-U-NA20 panel antennas, three (3) Ericsson 4480 B71+B85 remote radio heads and three (3) Ericsson 4460 B25+B66 remote radio heads mounted on three (3) V-Frames with a RAD center elevation of 165-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 101 mph for Eastford as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **subject antenna mount has sufficient capacity** to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Fernando J. Palacios
Engineer

Section 2 - Calculations

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Subject: Loads on Equipment

Location: Eastford,CT

Rev. 1: 07/27/2021

Prepared by: F.J.P. Checked by: T.J.L.
Job No. 21005.20

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed $V := 101$ mph (User Input - 2018 CSBC Appendix N)

Basic Wind Speed with Ice $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = $Structure\_Type := Lattice$ (User Input)

Structure Category = $SC := II$ (User Input)

Exposure Category = $Exp := C$ (User Input)

Structure Height = $h := 190$ ft (User Input)

Height to Center of Antennas = $z := 165$ ft (User Input)

Radial Ice Thickness = $t_i := 1.00$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = $Id := 56.00$ pcf (User Input)

Topographic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H = 1.11$ (User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if } Structure\_Type = Pole \\ 0.85 & \text{if } Structure\_Type = Lattice \end{cases} = 0.85$$

(Per Table 2-2 of TIA-222-G)

(Per Table 3-3 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z}{33}\right)^{0.1} = 1.175$$

Velocity Pressure Coefficient Antennas = $t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.349$

$$Kz := 2.01 \cdot \left(\left(\frac{z}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.406$$

Velocity Pressure w/o Ice Antennas = $qz := 0.00256 \cdot K_d \cdot Kz \cdot V^2 \cdot I_{Wind} = 31$ psf

Velocity Pressure with Ice Antennas = $qz_{ice} := 0.00256 \cdot K_d \cdot Kz \cdot V_i^2 \cdot I_{Wind} = 8$ psf

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVAALL24_43-U-NA20		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24.0$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 701$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.7$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 248$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 20$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 216$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 9.2$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 99$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 150$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \cdot 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 2 \cdot 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 601$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 601$	lbs

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR6449 B41		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 33.1$	in	(User Input)
Antenna Width =	$W_{ant} := 20.5$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.3$	in	(User Input)
Antenna Weight =	$WT_{ant} := 103$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 196$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 79$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.6$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 67$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3.4$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 35$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 103$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5632$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 6749$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 219$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 219$	lbs

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Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4480 B71+B85		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRUS} := 21.8$	in	(User Input)
RRUS Width =	$W_{RRUS} := 15.7$	in	(User Input)
RRUS Thickness =	$T_{RRUS} := 7.5$	in	(User Input)
RRUS Weight =	$WT_{RRUS} := 84$	lbs	(User Input)
Number of RRUS's =	$N_{RRUS} := 1$		
RRUS Aspect Ratio =	$Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.4$		
RRUS Force Coefficient =	$Ca_{RRUS} = 1.2$		

Wind Load (without ice)

Surface Area for One RRUS =	$SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.4$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 99$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 47$	lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.8$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 38$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 2.2$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 23$	lbs

Gravity Load (without ice)

Weight of All RRUSs =	$WT_{RRUS} \cdot N_{RRUS} = 84$	lbs

Gravity Loads (ice only)

Volume of Each RRUS =	$V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2567$	cu in
Volume of Ice on Each RRUS =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 4027$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 130$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 130$	lbs

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Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model = Ericsson 4460 B25+B66

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 19.6$ in (User Input)

RRUS Width = $W_{RRUS} := 15.7$ in (User Input)

RRUS Thickness = $T_{RRUS} := 12.1$ in (User Input)

RRUS Weight = $WT_{RRUS} := 109$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.2$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 89$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 68$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.4$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 35$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 2.8$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 29$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 109$ lbs

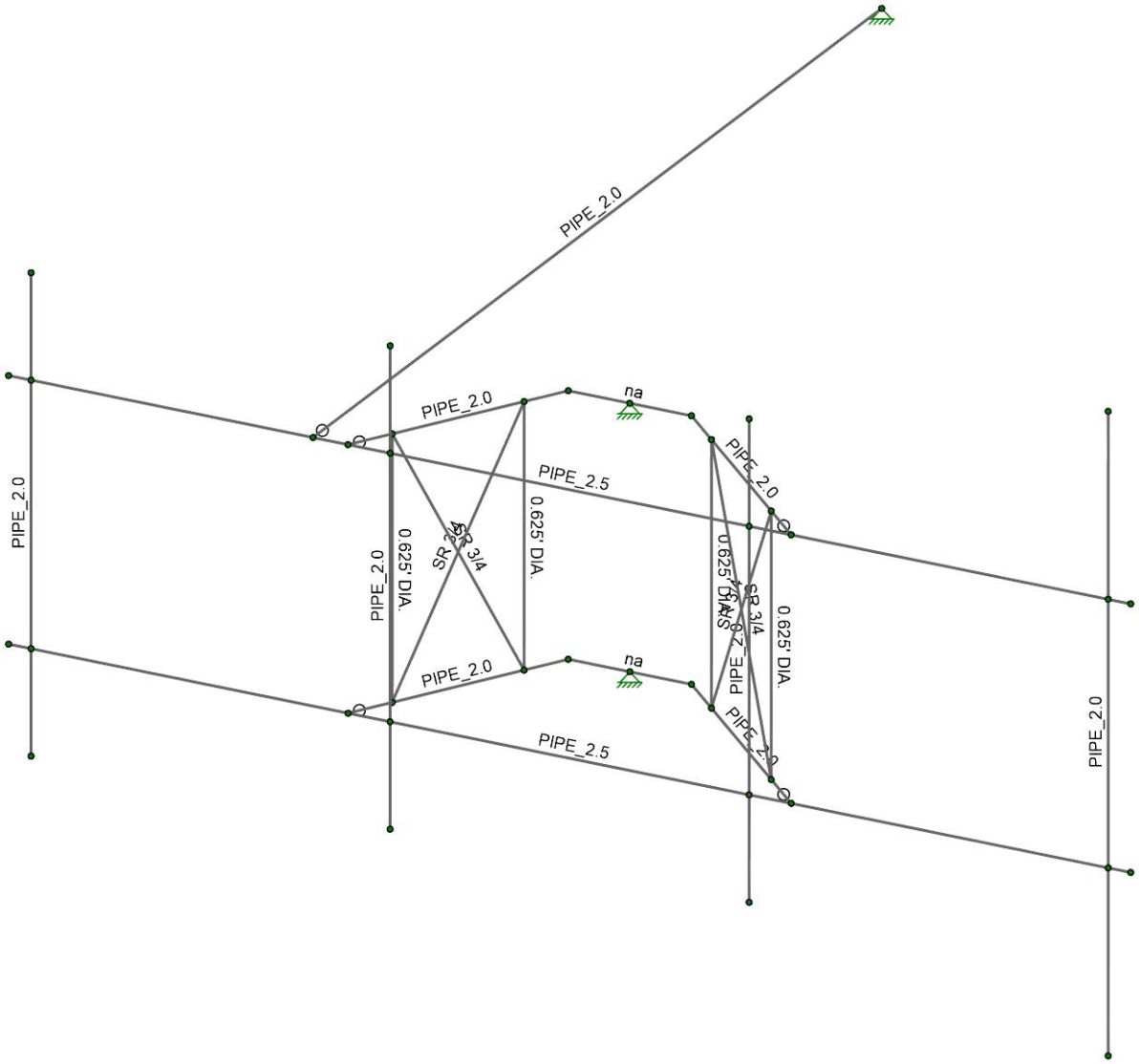
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 3723$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 4603$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 149$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 149$ lbs



Envelope Only Solution

Centek Engineering	CTHA724A - AMA	SK-2
FJP		Jul 28, 2021 at 08:51 AM
21005.20	Member Framing	Mount.R3D

Model Settings

Number of Reported Sections	5
Number of Internal Sections	97
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3

Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Global Plane for z-axis	XZ

Plate Local Axis Orientation	Nodal

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 15th (360-16): LRFD
Cold Formed Steel	AISI S100-10: ASD
Stiffness Adjustment	Yes (Iterative)
Wood	AWC NDS-12: ASD
Temperature	< 100F
Concrete	ACI 318-11
Masonry	ACI 530-11: ASD
Aluminum	AA ADM1-10: ASD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (Iterative)

Analysis Methodology	Exact Integration Method
Parme Beta Factor	0.65
Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	ASCE 7-10

Model Settings (Continued)

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. C…	Density [k…	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	58	1.2
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.2	58	1.1
6	A53 Grad…	29000	11154	0.3	0.65	0.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Antenna…	PIPE_2.0	Column	Pipe	A53 Grad…	Typical	1.02	0.627	0.627	1.25
2	Horizontal…	PIPE_2.5	Beam	Pipe	A53 Grad…	Typical	1.61	1.45	1.45	2.89
3	Outrigger…	PIPE_2.0	Beam	Pipe	A53 Grad…	Typical	1.02	0.627	0.627	1.25
4	Stabilizer…	PIPE_2.0	Beam	Pipe	A53 Grad…	Typical	1.02	0.627	0.627	1.25
5	0.625" Di…	0.625' DIA.	Column	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015
6	0.75"Dia.…	SR 3/4	Column	BAR	A36 Gr.36	Typical	0.442	0.016	0.016	0.031

Hot Rolled Member Properties

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp t…	Lcomp…	L-Torqu…	K y-y	K z-z	Cb	Function
1	M1	Horizon…	12.5	Segment		Lbyy						Lateral
2	M2	Horizon…	12.5	Segment		Lbyy						Lateral
3	M3	Stabiliz…	10.18			Lbyy						Lateral
4	M4	Outrigg…	2.521	Segment	Segment	Lbyy						Lateral
5	M5	Outrigg…	2.521	Segment	Segment	Lbyy						Lateral
6	M6	Outrigg…	2.521	Segment	Segment	Lbyy						Lateral
7	M7	Outrigg…	2.521	Segment	Segment	Lbyy						Lateral
8	M8	0.625"…	3.333									Lateral
9	M9	0.625"…	3.333									Lateral
10	M10	0.75"Di…	3.659	1.83	1.83	Lbyy						Lateral
11	M11	0.625"…	3.333									Lateral
12	M12	0.75"Di…	3.659	1.83	1.83	Lbyy						Lateral
13	M13	0.625"…	3.333									Lateral
14	M14	0.75"Di…	3.659	1.83	1.83	Lbyy						Lateral
15	M15	0.75"Di…	3.659	1.83	1.83	Lbyy						Lateral
16	PS.2	Antenn…	6			Lbyy						Lateral
17	PS.1	Antenn…	8			Lbyy						Lateral
18	M19	Antenn…	6			Lbyy						Lateral
19	M21A	Antenn…	6			Lbyy						Lateral

Primary Member Properties

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S…	Type	Design List	Material	Design Rule
1	M1	N2	N34			Horizontal…	Beam	Pipe	A53 Grad…	Typical
2	M2	N1	N33			Horizontal…	Beam	Pipe	A53 Grad…	Typical
3	M3	N7	N8			Stabilizer…	Beam	Pipe	A53 Grad…	Typical
4	M4	N10	N20			Outrigger…	Beam	Pipe	A53 Grad…	Typical
5	M5	N9	N19			Outrigger…	Beam	Pipe	A53 Grad…	Typical
6	M6	N28	N22			Outrigger…	Beam	Pipe	A53 Grad…	Typical
7	M7	N27	N21			Outrigger…	Beam	Pipe	A53 Grad…	Typical
8	M8	N12	N11			0.625" Di…	Column	BAR	A36 Gr.36	Typical
9	M9	N18	N17			0.625" Di…	Column	BAR	A36 Gr.36	Typical
10	M10	N12	N17			0.75"Dia.…	Column	BAR	A36 Gr.36	Typical
11	M11	N26	N25			0.625" Di…	Column	BAR	A36 Gr.36	Typical
12	M12	N18	N11			0.75"Dia.…	Column	BAR	A36 Gr.36	Typical
13	M13	N24	N23			0.625" Di…	Column	BAR	A36 Gr.36	Typical
14	M14	N26	N23			0.75"Dia.…	Column	BAR	A36 Gr.36	Typical
15	M15	N24	N25			0.75"Dia.…	Column	BAR	A36 Gr.36	Typical
16	PS.2	N5	N6			Antenna…	Column	Pipe	A53 Grad…	Typical
17	PS.1	N37	N38			Antenna…	Column	Pipe	A53 Grad…	Typical

Primary Member Properties (Continued)

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S…	Type	Design List	Material	Design Rule
18	M19	N41A	N42A			Antenna…	Column	Pipe	A53 Grad…	Typical
19	M20	N19	N21			RIGID	None	None	RIGID	Typical
20	M21	N20	N22			RIGID	None	None	RIGID	Typical
21	M21A	N41B	N42B			Antenna…	Column	Pipe	A53 Grad…	Typical

Nodes

	Label	X [ft]	Y [ft]	Z [ft]	Temp [deg F]	Detach From Dia…
1	N1	0	0.	0.		
2	N2	0	3.333334	0.		
3	N3	0.25	0.	0.		
4	N4	0.25	3.333334	0.		
5	N5	0.25	-1.333333	0.		
6	N6	0.25	4.666667	0.		
7	N7	3.390625	3.333334	0.		
8	N8	6.025403	3.333334	-9.833125		
9	N9	3.78125	0.	0.		
10	N10	3.78125	3.333334	0.		
11	N11	4.138628	0.	-0.357378		
12	N12	4.138628	3.333334	-0.357378		
13	N17	5.206335	0.	-1.425085		
14	N18	5.206335	3.333334	-1.425085		
15	N19	5.563713	0.	-1.782463		
16	N20	5.563713	3.333334	-1.782463		
17	N21	6.936287	0.	-1.782463		
18	N22	6.936287	3.333334	-1.782463		
19	N23	7.293665	0.	-1.425085		
20	N24	7.293665	3.333334	-1.425085		
21	N25	8.361372	0.	-0.357378		
22	N26	8.361372	3.333334	-0.357378		
23	N27	8.71875	0.	0.		
24	N28	8.71875	3.333334	0.		
25	N29	12.25	0.	0.		
26	N30	12.25	3.333334	0.		
27	N33	12.5	0.	0.		
28	N34	12.5	3.333334	0.		
29	N35	6.25	3.333334	-1.782463		
30	N36	6.25	0.	-1.782463		
31	N35A	4.25	0.	0.		
32	N36A	4.25	3.333334	0.		
33	N37	12.25	-2.333333	0		
34	N38	12.25	5.666667	0		
35	N39	8.25	0.	0.		
36	N40	8.25	3.333334	0.		
37	N41A	8.25	-1.333333	0.		
38	N42A	8.25	4.666667	0.		
39	N41B	4.25	-1.333333	0.		
40	N42B	4.25	4.666667	0.		

Basic Load Cases

	BLC Desc…	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Me…	Surface(P…
1	Self Weight	None		-1						
2	Equipmen…	None					6			
3	Ice Weight	None					6			
4	Wind w/ I…	None					6	17		
5	Wind X	None					6	17		
6	Wind w/ I…	None					6	16		
7	Wind Z	None					6	16		

Equipment Weight

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in,…
1	PS.1	Y	-0.075	1.083	Active
2	PS.1	Y	-0.075	5.917	Active
3	PS.2	Y	-0.052	3.417	Active
4	PS.2	Y	-0.052	5.333	Active
5	PS.1	Y	-0.084	1	Active
6	PS.1	Y	-0.109	7	Active

Ice Weight

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in,…
1	PS.1	Y	-0.301	1.083	Active
2	PS.1	Y	-0.301	5.917	Active
3	PS.2	Y	-0.11	3.417	Active
4	PS.2	Y	-0.11	5.333	Active
5	PS.1	Y	-0.13	1	Active
6	PS.1	Y	-0.149	7	Active

Wind w/ Ice X

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in,…
1	PS.1	X	0.05	1.083	Active
2	PS.1	X	0.05	5.917	Active
3	PS.2	X	0.018	3.417	Active
4	PS.2	X	0.018	5.333	Active
5	PS.1	X	0.023	1	Active
6	PS.1	X	0.029	7	Active

Wind X

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in,…
1	PS.1	X	0.124	1.083	Active
2	PS.1	X	0.124	5.917	Active
3	PS.2	X	0.04	3.417	Active
4	PS.2	X	0.04	5.333	Active
5	PS.1	X	0.047	1	Active
6	PS.1	X	0.068	7	Active

Wind w/ Ice Z

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in,…
1	PS.1	Z	0.108	1.083	Active
2	PS.1	Z	0.108	5.917	Active
3	PS.2	Z	0.034	3.417	Active
4	PS.2	Z	0.034	5.333	Active
5	PS.1	Z	0.028	1	Active
6	PS.1	Z	0.035	7	Active

Wind Z

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in,…
1	PS.1	Z	0.351	1.083	Active
2	PS.1	Z	0.351	5.917	Active
3	PS.2	Z	0.098	3.417	Active
4	PS.2	Z	0.098	5.333	Active
5	PS.1	Z	0.099	1	Active
6	PS.1	Z	0.089	7	Active

Wind w/ Ice X

	Member Label	Direction	Start Magnitud…	End Magnitude…	Start Location […	End Location [(…	Inactive [(k, k-f…
1	PS.2	X	0.002	0.002	0	%100	Active
2	PS.1	X	0.002	0.002	0	%100	Active
3	M19	X	0.002	0.002	0	%100	Active
4	M3	X	0.002	0.002	0	%100	Active
5	M4	X	0.002	0.002	0	%100	Active
6	M5	X	0.002	0.002	0	%100	Active
7	M8	X	0.002	0.002	0	%100	Active
8	M12	X	0.002	0.002	0	%100	Active
9	M10	X	0.002	0.002	0	%100	Active
10	M9	X	0.002	0.002	0	%100	Active
11	M7	X	0.002	0.002	0	%100	Active
12	M6	X	0.002	0.002	0	%100	Active
13	M13	X	0.002	0.002	0	%100	Active
14	M15	X	0.002	0.002	0	%100	Active
15	M14	X	0.002	0.002	0	%100	Active
16	M11	X	0.002	0.002	0	%100	Active
17	M21A	X	0.002	0.002	0	%100	Active

Wind X

	Member Label	Direction	Start Magnitud…	End Magnitude…	Start Location […	End Location [(…	Inactive [(k, k-f…
1	PS.2	X	0.007	0.007	0	%100	Active
2	PS.1	X	0.007	0.007	0	%100	Active
3	M19	X	0.007	0.007	0	%100	Active
4	M3	X	0.007	0.007	0	%100	Active
5	M4	X	0.007	0.007	0	%100	Active
6	M5	X	0.007	0.007	0	%100	Active
7	M8	X	0.007	0.007	0	%100	Active
8	M12	X	0.007	0.007	0	%100	Active
9	M10	X	0.007	0.007	0	%100	Active
10	M9	X	0.007	0.007	0	%100	Active
11	M7	X	0.007	0.007	0	%100	Active
12	M6	X	0.007	0.007	0	%100	Active
13	M13	X	0.007	0.007	0	%100	Active
14	M15	X	0.007	0.007	0	%100	Active
15	M14	X	0.007	0.007	0	%100	Active
16	M11	X	0.007	0.007	0	%100	Active
17	M21A	X	0.007	0.007	0	%100	Active

Wind w/ Ice Z

	Member Label	Direction	Start Magnitud…	End Magnitude…	Start Location […	End Location [(…	Inactive [(k, k-f…
1	M1	Z	0.002	0.002	0	%100	Active
2	M2	Z	0.002	0.002	0	%100	Active
3	M19	Z	0.002	0.002	0	%100	Active
4	M9	Z	0.002	0.002	0	%100	Active
5	M8	Z	0.002	0.002	0	%100	Active
6	M12	Z	0.002	0.002	0	%100	Active
7	M10	Z	0.002	0.002	0	%100	Active
8	M5	Z	0.002	0.002	0	%100	Active
9	M4	Z	0.002	0.002	0	%100	Active
10	M11	Z	0.002	0.002	0	%100	Active
11	M13	Z	0.002	0.002	0	%100	Active
12	M15	Z	0.002	0.002	0	%100	Active
13	M14	Z	0.002	0.002	0	%100	Active
14	M7	Z	0.002	0.002	0	%100	Active
15	M6	Z	0.002	0.002	0	%100	Active
16	M21A	Z	0.002	0.002	0	%100	Active

Wind Z

	Member Label	Direction	Start Magnitud…	End Magnitude…	Start Location […	End Location [(…	Inactive [(k, k-f…
1	M1	Z	0.007	0.007	0	%100	Active
2	M2	Z	0.007	0.007	0	%100	Active
3	M19	Z	0.006	0.006	0	%100	Active
4	M9	Z	0.006	0.006	0	%100	Active
5	M8	Z	0.006	0.006	0	%100	Active
6	M12	Z	0.006	0.006	0	%100	Active
7	M10	Z	0.006	0.006	0	%100	Active
8	M5	Z	0.006	0.006	0	%100	Active
9	M4	Z	0.006	0.006	0	%100	Active
10	M11	Z	0.006	0.006	0	%100	Active
11	M13	Z	0.006	0.006	0	%100	Active
12	M15	Z	0.006	0.006	0	%100	Active
13	M14	Z	0.006	0.006	0	%100	Active
14	M7	Z	0.006	0.006	0	%100	Active
15	M6	Z	0.006	0.006	0	%100	Active
16	M21A	Z	0.006	0.006	0	%100	Active

Load Combinations

	De…	So…	PD…	SR…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…	BLC	Fa…
1	1.2…	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9…	Yes	Y		1	0.9	2	0.9	5	1.6														
3	1.2…	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2…	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9…	Yes	Y		1	0.9	2	0.9	7	1.6														
6	1.2…	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Node Reactions

	Node…		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N8	max	0.2	1	0.022	4	2.781	4	0	6	0	6	0	6
2		min	-0.748	4	0.016	2	-0.974	1	0	1	0	1	0	1
3	N35	max	0.365	5	1.011	3	0.624	2	0	6	0	6	0	6
4		min	-1.912	3	0.31	5	-4.464	4	0	1	0	1	0	1
5	N36	max	1.701	6	1.009	6	1.056	3	0	6	0	6	0	6
6		min	-0.326	2	0.365	2	-0.957	5	0	1	0	1	0	1
7	Totals:	max	0	6	2.038	6	0	3						
8		min	-1.588	2	0.702	5	-2.522	5						

Node Displacements

	Node…		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rota…	LC	Y Rota…	LC	Z Rota…	LC
1	N1	max	0.046	2	0.109	5	0.087	5	1.076e…	4	1.263e…	5	7.882e…	1
2		min	-0.27	4	-0.026	1	-0.101	3	-1.586…	2	-1.018…	3	-3.093…	5
3	N2	max	0.033	1	0.109	5	0.601	5	1.116e…	4	1.567e…	5	8.033e…	1
4		min	-0.088	5	-0.026	1	-0.019	3	-1.66e…	2	-8.273…	3	-3.137…	5
5	N3	max	0.046	2	0.1	5	0.074	2	1.076e…	4	1.263e…	5	7.881e…	1
6		min	-0.27	4	-0.024	1	-0.1	6	-1.586…	2	-1.018…	3	-3.093…	5
7	N4	max	0.033	1	0.1	5	0.554	5	1.116e…	4	1.567e…	5	8.032e…	1
8		min	-0.088	5	-0.024	1	-0.017	3	-1.66e…	2	-8.273…	3	-3.137…	5
9	N5	max	0.058	2	0.1	5	0.099	2	1.076e…	4	1.263e…	5	8.344e…	1
10		min	-0.319	4	-0.024	1	-0.169	6	-1.586…	2	-1.018…	3	-3.093…	5
11	N6	max	0.035	3	0.1	5	0.736	4	1.15e-02	4	1.567e…	5	6.163e…	1
12		min	-0.037	5	-0.024	1	-0.032	2	-1.66e…	2	-8.273…	3	-3.138…	5
13	N7	max	0.033	1	0.072	6	0.014	1	6.265e…	4	1.516e…	5	6.663e…	1
14		min	-0.088	5	0.011	2	-0.039	5	-7.934…	2	-1.093…	1	-1.254…	5
15	N8	max	0	4	0	2	0	1	2.228e…	4	5.266e…	1	1.219e…	1
16		min	0	1	0	4	0	4	1.028e…	2	-7.744…	5	-2.399…	5
17	N9	max	0.046	2	0.07	6	0.06	2	4.612e…	4	4.216e…	5	3.596e…	1
18		min	-0.27	4	0.014	2	-0.365	4	-5.43e…	2	-1.453…	3	-1.302…	5

Node Displacements (Continued)

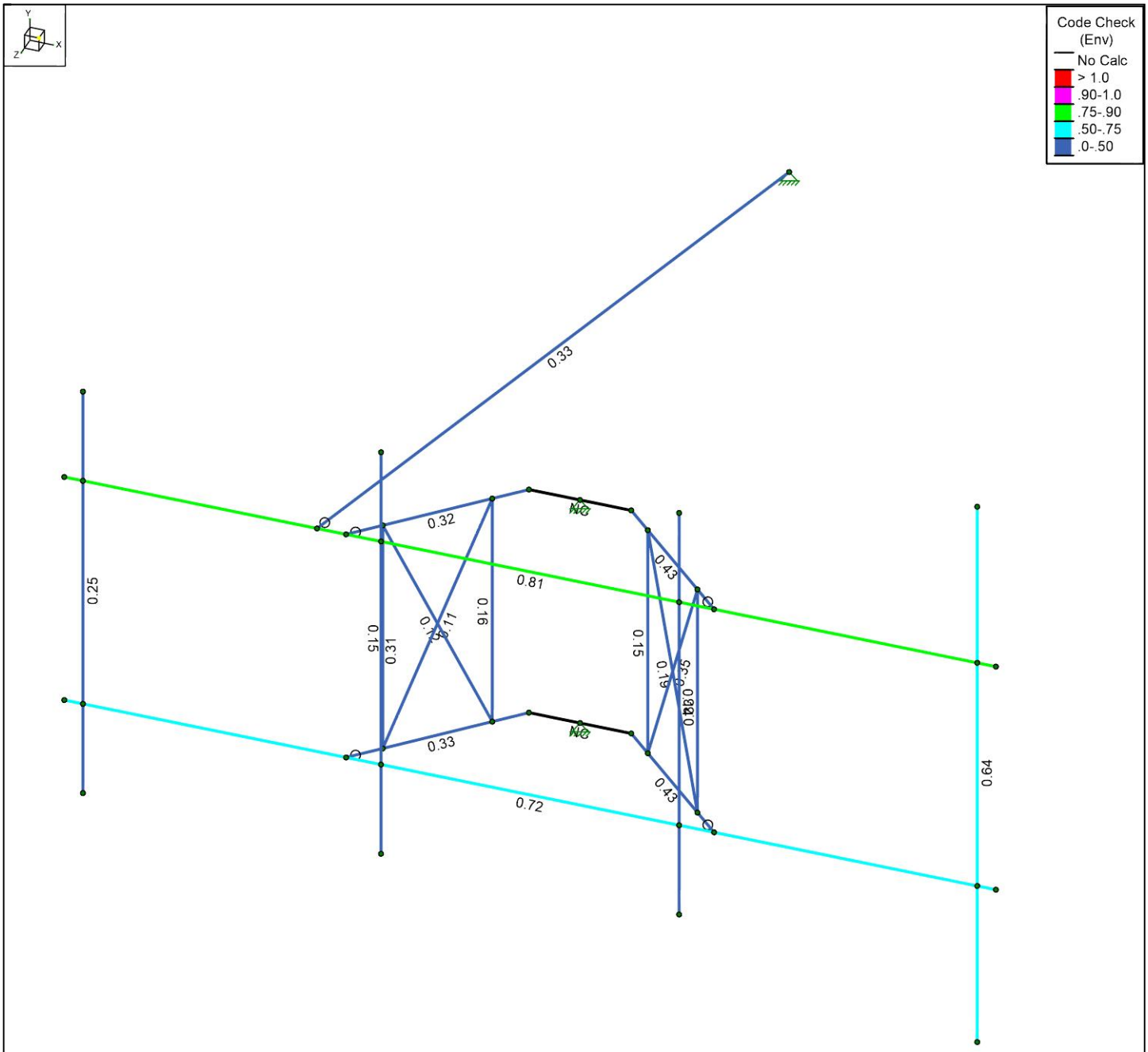
	Node…		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rota…	LC	Y Rota…	LC	Z Rota…	LC
19	N10	max	0.032	1	0.07	6	0.02	1	5.656e…	4	1.392e…	5	3.796e…	1
20		min	-0.087	5	0.013	2	-0.109	5	-6.857…	2	-9.859…	1	-1.217…	5
21	N11	max	0.036	2	0.077	6	0.051	2	4.29e-03	4	2.153e…	2	8.257e…	2
22		min	-0.214	4	0.013	2	-0.309	4	-3.55e…	2	-1.306…	4	-1.632…	4
23	N12	max	0.021	1	0.077	6	0.009	2	4.563e…	4	2.944e…	3	2.979e…	2
24		min	-0.068	5	0.013	2	-0.092	4	-4.896…	2	-4.255…	5	-1.953…	4
25	N17	max	0.009	2	0.075	6	0.024	2	2.07e-03	4	2.061e…	2	-5.253…	2
26		min	-0.051	4	0.006	2	-0.147	4	9.903e…	2	-1.211…	4	-4.766…	6
27	N18	max	-0.001	2	0.075	6	-0.011	2	2.128e…	4	3.184e…	2	-3.878…	2
28		min	-0.016	4	0.006	2	-0.044	4	1.23e-07	2	-3.662…	4	-4.786…	6
29	N19	max	0	2	0.056	6	0.015	1	7.253e…	3	1.872e…	1	-6.234…	2
30		min	0	4	0.005	2	-0.096	5	2.483e…	5	-1.17e…	5	-6.745…	6
31	N20	max	0	1	0.055	6	-0.009	2	7.634e…	6	-1.098…	2	-6.321…	2
32		min	0	5	0.005	2	-0.029	4	3.198e…	2	-3.543…	4	-6.739…	6
33	N21	max	0	5	-0.005	2	0.096	5	7.253e…	3	1.872e…	1	-6.234…	2
34		min	0	3	-0.056	6	-0.015	1	2.483e…	5	-1.17e…	5	-6.745…	6
35	N22	max	0	4	-0.005	2	0.029	4	7.634e…	6	-1.098…	2	-6.321…	2
36		min	0	2	-0.055	6	0.009	2	3.198e…	2	-3.543…	4	-6.739…	6
37	N23	max	0.008	2	-0.009	2	0.148	4	1.348e…	2	2.062e…	2	-7.111…	2
38		min	-0.052	4	-0.083	6	-0.024	2	-1.817…	4	-1.231…	4	-5.451…	6
39	N24	max	-0.001	2	-0.01	2	0.046	4	3.445e…	2	3.733e…	2	-5.259…	2
40		min	-0.016	4	-0.083	6	0.01	2	-1.371…	4	-3.968…	4	-5.362…	6
41	N25	max	0.036	2	-0.019	2	0.313	4	1.625e…	2	2.175e…	2	-1.247…	2
42		min	-0.215	4	-0.094	6	-0.052	2	-5.426…	4	-1.307…	4	-5.429…	6
43	N26	max	0.022	1	-0.019	2	0.102	4	2.906e…	2	2.959e…	3	-6.001…	2
44		min	-0.07	5	-0.094	6	-0.011	2	-3.725…	4	-4.613…	5	-5.097…	6
45	N27	max	0.045	2	-0.026	2	0.369	4	7.436e…	2	2.318e…	2	-1.948…	2
46		min	-0.271	4	-0.106	6	-0.061	2	-7.048…	4	-3.332…	4	-8.256…	6
47	N28	max	0.033	1	-0.023	2	0.122	5	7.805e…	2	1.714e…	2	-1.308…	2
48		min	-0.09	5	-0.106	6	-0.022	1	-2.377…	4	-2.736…	4	-8.291…	6
49	N29	max	0.046	2	-0.117	2	2.296	4	1.06e-03	2	1.998e…	2	-4.12e…	2
50		min	-0.272	4	-0.61	6	-0.15	2	-1.639…	4	-5.111…	4	-9.35e…	6
51	N30	max	0.034	1	-0.117	2	1.875	4	1.082e…	2	1.999e…	2	-2.216…	2
52		min	-0.09	5	-0.61	6	-0.103	2	-4.021…	4	-4.851…	4	-9.377…	6
53	N33	max	0.046	2	-0.117	2	2.449	4	1.06e-03	2	1.998e…	2	-4.125…	2
54		min	-0.272	4	-0.638	6	-0.156	2	-1.639…	4	-5.111…	4	-9.35e…	6
55	N34	max	0.034	1	-0.124	2	2.02	4	1.082e…	2	1.999e…	2	-2.217…	2
56		min	-0.09	5	-0.638	6	-0.109	2	-4.021…	4	-4.851…	4	-9.378…	6
57	N35	max	0	3	0	5	0	4	7.634e…	6	-1.098…	2	-6.321…	2
58		min	0	5	0	3	0	2	3.198e…	2	-3.543…	4	-6.739…	6
59	N36	max	0	2	0	2	0	5	7.253e…	3	1.872e…	1	-6.234…	2
60		min	0	6	0	6	0	3	2.483e…	5	-1.17e…	5	-6.745…	6
61	N35A	max	0.046	2	0.066	3	0.054	2	3.789e…	4	2.064e…	5	1.437e…	2
62		min	-0.27	4	0.013	5	-0.382	4	-4.925…	2	-1.538…	3	-1.485…	4
63	N36A	max	0.033	1	0.066	3	0.024	1	4.991e…	4	1.111e…	5	1.033e…	2
64		min	-0.088	5	0.013	5	-0.18	5	-6.054…	2	-4.964…	1	-1.42e…	4
65	N37	max	0.101	2	-0.117	2	2.887	4	1.058e…	2	1.998e…	2	2.399e…	2
66		min	-0.444	4	-0.611	6	-0.18	2	-2.207…	4	-5.111…	4	-9.271…	6
67	N38	max	0.288	3	-0.117	2	1.799	5	1.085e…	2	1.999e…	2	-3.491…	2
68		min	0.06	5	-0.61	6	-0.073	1	-2.603…	4	-4.851…	4	-9.464…	6
69	N39	max	0.045	2	-0.017	5	0.195	4	6.776e…	2	2.372e…	2	-1.302…	2
70		min	-0.271	4	-0.066	3	-0.048	2	-6.083…	4	-2.845…	4	-5.969…	6
71	N40	max	0.033	1	-0.017	5	-0.01	3	6.967e…	2	1.633e…	2	-8.731…	2
72		min	-0.089	5	-0.066	3	-0.017	4	-2.217…	4	-2.21e…	5	-5.994…	6
73	N41A	max	0.025	2	-0.017	5	0.293	4	6.776e…	2	2.372e…	2	-1.256…	2
74		min	-0.321	4	-0.066	3	-0.058	2	-6.121…	4	-2.845…	4	-5.969…	6
75	N42A	max	0.122	3	-0.017	5	-0.001	2	6.967e…	2	1.633e…	2	-9.194…	2
76		min	-0.046	5	-0.066	3	-0.052	4	-2.179…	4	-2.21e…	5	-5.994…	6

Node Displacements (Continued)

	Node…		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rota…	LC	Y Rota…	LC	Z Rota…	LC
77	N41B	max	0.048	2	0.066	3	0.062	2	3.751e…	4	2.064e…	5	1.9e-04	2
78		min	-0.294	4	0.013	5	-0.443	4	-4.925…	2	-1.538…	3	-1.485…	4
79	N42B	max	0.046	3	0.066	3	0.033	3	5.03e-03	4	1.111e…	5	5.696e…	2
80		min	-0.066	5	0.013	5	-0.102	5	-6.054…	2	-4.964…	1	-1.42e…	4

LRFD

	Member	Shape	Code…	Loc [ft]	LC	Shear…	Loc [ft]	Dir	LC	phi*P…	phi*P…	phi*M…	phi*M…	Cb	Eqn
1	M1	PIPE…	0.806	8.203	4	0.299	3.776		4	14.559	50.715	3.596	3.596	2.405	H1-1b
2	M2	PIPE…	0.722	8.594	4	0.238	8.724		4	14.559	50.715	3.596	3.596	2.354	H1-1b
3	M3	PIPE…	0.329	5.09	4	0.006	10.18		1	9.492	32.13	1.872	1.872	1.136	H1-1a
4	M4	PIPE…	0.323	2.521	3	0.120	2.521		3	32.032	32.13	1.872	1.872	1.724	H1-1b
5	M5	PIPE…	0.331	2.521	6	0.114	2.521		3	32.032	32.13	1.872	1.872	1.749	H1-1b
6	M6	PIPE…	0.429	2.022	6	0.160	0.499		6	32.032	32.13	1.872	1.872	1.325	H1-1b
7	M7	PIPE…	0.425	2.022	6	0.176	0.499		6	32.032	32.13	1.872	1.872	1.329	H1-1b
8	M8	0.625'…	0.148	3.333	5	0.044	3.333		4	1.058	9.94	0.104	0.104	2.261	H1-1b
9	M9	0.625'…	0.157	3.333	5	0.042	3.333		4	1.058	9.94	0.104	0.104	2.27	H1-1b
10	M10	SR 3/4	0.117	3.659	5	0.038	3.659		4	6.954	14.314	0.179	0.179	3.19	H1-1b
11	M11	0.625'…	0.145	0	5	0.043	0		4	1.058	9.94	0.104	0.104	2.156	H1-1b
12	M12	SR 3/4	0.108	0	1	0.044	3.659		4	6.954	14.314	0.179	0.179	2.606	H1-1b
13	M13	0.625'…	0.152	0	1	0.041	0		4	1.058	9.94	0.104	0.104	2.621	H1-1b
14	M14	SR 3/4	0.349	0	6	0.038	0		4	6.954	14.314	0.179	0.179	1.985	H1-1a
15	M15	SR 3/4	0.186	3.659	6	0.037	0		4	6.954	14.314	0.179	0.179	2.289	H1-1b
16	PS.2	PIPE…	0.250	1.375	4	0.084	3.375		4	20.867	32.13	1.872	1.872	1.557	H1-1b
17	PS.1	PIPE…	0.636	5.667	3	0.120	2.333		4	14.916	32.13	1.872	1.872	4.368	H1-1b
18	M19	PIPE…	0.334	1.375	3	0.133	4.625		4	20.867	32.13	1.872	1.872	1.553	H1-1b
19	M21A	PIPE…	0.306	1.375	4	0.197	1.375		4	20.867	32.13	1.872	1.872	1.556	H1-1b



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering	CTHA724A - AMA	SK-1
FJP		Jul 28, 2021 at 08:33 AM
21005.20	Member Unity Check	Mount.R3D

September 15, 2021

Thomas Rigg
Everest Infrastructure Partners
Two Allegheny Center, Nova Tower 2, Suite 703
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Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
Structures@tepgroup.net

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CTHA724A
	Carrier Site Name:	-
Client Designation:	**Site Number:**	702497
	Site Name:	Eastford CDT
Engineering Firm Designation:	**TEP Project Number:**	25707.576390
Site Data:	**35 Old Route 44, Eastford, Windham County, CT 06242** **Latitude *41° 52' 16.70"*, Longitude *-72° 03' 53.60"*** **190± Foot - Guyed Tower**	

Dear Thomas Rigg,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the stress level for the tower and foundation structure, under the following load case, to be:

LC1: Existing + Proposed + Reserved Loading **Sufficient Capacity**
Note: See Table 1 for the existing, proposed, and reserved loading

Structure Capacity	Foundation Capacity
62.6%	61.4%

The analysis has been performed in accordance with the ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas, and Small Wind Turbine Support Structures and the 2018 Connecticut State Building Code.

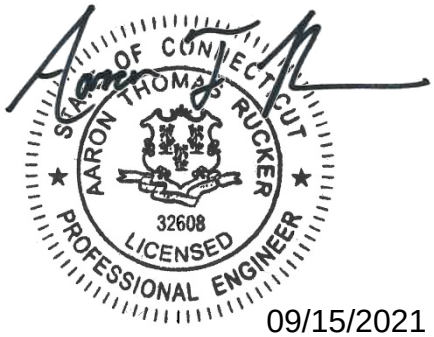
All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Everest.* If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Kedis Wasef / WHW

Respectfully submitted by:

Aaron T. Rucker, P.E.



09/15/2021

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1) INTRODUCTION

The tower is a 190± Foot model G42WPAR Guyed Tower designed by Fred A. Nudd Corporation in March of 1998. Toe tower was originally designed for a basic wind speed of 85 mph with no ice and 63.8 mph with 1/2" radial ice per ANSI/EIA/TIA-222-E. The tower has been modified per reinforcement drawings prepared by Fred A. Nudd Corporation in July of 2000. Modification consists of extending the tower 10-ft. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	ANSI/TIA-222-H
Type of Analysis:	Comprehensive
Risk Category:	II
Wind Speed:	120 mph (Ultimate)
Exposure Category:	B
Topographic Procedure:	Method 1 (Kzt = 1.0)
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic Design Category:	B
Seismic Ss:	0.182
Seismic S1:	0.055
Service Wind Speed:	60 mph

Table 1 - Existing, Proposed, and Reserved Antenna and Cable Information

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
Reserved	***195.2***	***195.7***	***6***	***JMA Wireless MX06FRO660-03***	***(3) Sector Mounts***	***2***	***1 5/8"Ø Hybrid***	***CA Face***	***Verizon***
			3	***Samsung MT6407-77A***					
			3	***Samsung B2/B66A RRH-BR049***					
			3	***Samsung B5/B13 RRH-BR04C***					
			1	***Raycap RVZDC-6627-PF-48***					
Existing	195.2	195.7	3	Commscope LNX-8513DS-A1M		12	1-5/8	CA Face	Verizon
To Be Removed	*195.2*	*195.7*	*6*	*Andrew HBXX-6517DS-A2M*	*(3) Sector Mounts*	*1*	*Hybrid*	*CA Face*	*Verizon*
			3	*Antel BXA-70063-6CF*					
			1	*RFS DB-B1-6-12AB-0Z*					
			3	*Nokia UHBA B13 RRH 4x30*					
			3	*Nokia UHIE B66A RRH 4x45*					
Existing	177.0	-	Empty Sector Mounts			-	-	-	Nextel

Table 1 - Existing, Proposed, and Reserved Antenna and Cable Information - Continued

Existing/ Proposed/ Reserved	Mount Level (ft)	Ant CL (ft)	Qty	Antenna Model	Mount Type	Qty Coax	Coax Size	Coax Location	Owner/ Tenant
Proposed	***165.0***	***165.0***	***3***	***RFS APXVAALL24***	***(3) Sector Mounts***	***3***	***Hybrid***	***AB Face***	***T-Mobile***
			3	***Ericsson AIR6449 B41***					
			3	***Ericsson Radio 4460***					
			3	***Ericsson Radio 4480***					
To Be Removed	*165.0*	*165.0*	*3*	*Commscope DT465B-2XR*	*(3) Sector Mounts*	*4*	*1-1/4"Ø*	*AB Face*	*T-Mobile*
			3	*RFS APXV9ERR19-C-A20*					
			3	*Alcatel Lucent 4x45W 1900*					
			3	*Alcatel Lucent TD-RRH8x20*					
Existing	150.0	151.5	3	KMW EPBQ-654L8H8-L2	(3) Sector Mounts	12 2 1	1-5/8 3/4"Ø 3/8"Ø	AB Face	AT&T
			6	Powerwave RA21.7770.00					
			3	Ericsson RRUS 11 B12					
			6	Powerwave LGP21401					
			3	Powerwave LGP21901					
			3	Kathrein 78210256					
			1	Raycap DC6-48-60-18-8F					

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Source
Tower and Foundation Design	Fred A. Nudd Corporation, dated March 31, 1998 Drawing No.: 98-5874-1	Everest
Tower Extension Design	Fred A. Nudd Corporation, dated July 31, 2000 Drawing No.: 00-5874A-1	Everest
Geotechnical Report	Tower Engineering Professionals, Inc., dated September 22, 2009 TEP No. 090004.14	TEP
Previous Structural Analysis	Fred A. Nudd Corporation, dated February 20, 2018 Project No. 117-23243.5	Everest
Tower Mapping Report	Tower Engineering Professionals, Inc., dated June 22, 2020 TEP No. 25707.416423	TEP
Maintenance and Condition Assessment	Tower Engineering Professionals, Inc., dated June 26, 2020 TEP No. 25707	TEP
Construction Drawings	CENTEK Engineering, dated June 15, 2021 Project No. 21005.20, Rev. B	Everest
Previous Mount Analysis	Maser Consulting Connecticut, dated July 23, 2021 Project No. 21777322A, Rev. 1	Everest
Previous Mount Modification Design	Maser Consulting Connecticut, dated July 23, 2021 Project No. 21777322A	Everest
Construction Drawings	All-Points Technology Corporation, dated July 26, 2021 APT Filing No.: CT141_12380, Rev. 1	Everest
Previous Mount Analysis	CENTEK Engineering, dated August 9, 2021 Project No. 21005.20	Everest
Supplemental Geotechnical Report	Tower Engineering Professionals, Inc.	TEP
Correspondence	Correspondence in reference to the existing, proposed, and reserved loading.	Everest

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Analysis Assumptions

1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
2) The configuration of existing antennas, transmission cables, mounts and other appurtenances are as specified in the tower mapping report by TEP.
3) Unless specified by the client or tower mapping, the location of the existing and proposed coax is assumed by TEP and listed in Table 1.
4) All tower components are in sufficient condition to carry their full design capacity.
5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not analyze antennas supporting mounts as part of this structural analysis report.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 3 - Section Capacity (Summary)[2]

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ϕP_{allow} (lb)	% Capacity	Pass / Fail
T1	190.833 - 180.833	Leg	P2.5x0.203	2	-10803	76921	14.0	Pass
T2	180.833 - 160.833	Leg	P2.5x0.203	35	-29402	76921	38.2	Pass
T3	160.833 - 140.833	Leg	P2.5x0.203	95	-35908	76921	46.7	Pass
T4	140.833 - 120.833	Leg	P2.5x0.203	155	-44360	76921	57.7	Pass
T5	120.833 - 100.833	Leg	P2.5x0.203	215	-48150	76921	62.6	Pass
T6	100.833 - 80.8333	Leg	P2.5x0.203	276	-34125	73258	46.6	Pass
T7	80.8333 - 60.8333	Leg	P2.5x0.203	336	-35467	73258	48.4	Pass
T8	60.8333 - 40.8333	Leg	P2.5x0.203	395	-41522	76921	54.0	Pass
T9	40.8333 - 20.8333	Leg	P2.5x0.203	455	-43414	76921	56.4	Pass
T10	20.8333 - 0.8333	Leg	P2.5x0.203	515	-43392	76830	56.5	Pass
T1	190.833 - 180.833	Diagonal	5/8	28	1557	10437	14.9	Pass
T2	180.833 - 160.833	Diagonal	5/8	46	5445	10437	52.2	Pass
T3	160.833 - 140.833	Diagonal	5/8	133	3506	10437	33.6	Pass
T4	140.833 - 120.833	Diagonal	5/8	166	2676	10437	25.6	Pass
T5	120.833 - 100.833	Diagonal	5/8	252	4031	10437	38.6	Pass
T6	100.833 - 80.8333	Diagonal	5/8	330	2682	10437	25.7	Pass
T7	80.8333 - 60.8333	Diagonal	5/8	345	1302	10437	12.5	Pass
T8	60.8333 - 40.8333	Diagonal	5/8	440	2099	10437	20.1	Pass
T9	40.8333 - 20.8333	Diagonal	5/8	466	1398	10437	13.4	Pass
T10	20.8333 - 0.8333	Diagonal	5/8	535	2475	10437	23.7	Pass
T1	190.833 - 180.833	Horizontal	L1 1/2x1 1/2x3/16	26	-695	9639	7.2	Pass
T2	180.833 - 160.833	Horizontal	L1 1/2x1 1/2x3/16	50	-3502	9639	36.3	Pass
T3	160.833 - 140.833	Horizontal	L1 1/2x1 1/2x3/16	137	-2543	9639	26.4	Pass
T4	140.833 - 120.833	Horizontal	L1 1/2x1 1/2x3/16	170	-1872	9639	19.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ϕP_{allow} (lb)	% Capacity	Pass / Fail
T5	120.833 - 100.833	Horizontal	L1 1/2x1 1/2x3/16	257	-2894	9639	30.0	Pass
T6	100.833 - 80.8333	Horizontal	L1 1/2x1 1/2x3/16	326	-1801	9639	18.7	Pass
T7	80.8333 - 60.8333	Horizontal	L1 1/2x1 1/2x3/16	350	-929	9639	9.6	Pass
T8	60.8333 - 40.8333	Horizontal	L1 1/2x1 1/2x3/16	436	-1452	9639	15.1	Pass
T9	40.8333 - 20.8333	Horizontal	L1 1/2x1 1/2x3/16	470	-912	9639	9.5	Pass
T10	20.8333 - 0.8333	Horizontal	L1 1/2x1 1/2x3/16	539	-1734	9639	18.0	Pass
T2	180.833 - 160.833	Top Girt	L1 1/2x1 1/2x3/16	37	-510	9639	5.3	Pass
T3	160.833 - 140.833	Top Girt	L1 1/2x1 1/2x3/16	99	-2004	9639	20.8	Pass
T4	140.833 - 120.833	Top Girt	L1 1/2x1 1/2x3/16	157	-769	9639	8.0	Pass
T5	120.833 - 100.833	Top Girt	L1 1/2x1 1/2x3/16	219	-925	9639	9.6	Pass
T6	100.833 - 80.8333	Top Girt	L1 1/2x1 1/2x3/16	278	-1014	9639	10.5	Pass
T7	80.8333 - 60.8333	Top Girt	L1 1/2x1 1/2x3/16	338	-615	9180	6.7	Pass
T9	40.8333 - 20.8333	Top Girt	L1 1/2x1 1/2x3/16	457	-752	9639	7.8	Pass
T10	20.8333 - 0.8333	Top Girt	L1 1/2x1 1/2x3/16	517	-752	9639	7.8	Pass
T1	190.833 - 180.833	Bottom Girt	L1 1/2x1 1/2x3/16	9	-270	9639	2.8	Pass
T2	180.833 - 160.833	Bottom Girt	L1 1/2x1 1/2x3/16	42	-2153	9639	22.3	Pass
T3	160.833 - 140.833	Bottom Girt	L1 1/2x1 1/2x3/16	100	-622	9639	6.5	Pass
T4	140.833 - 120.833	Bottom Girt	L1 1/2x1 1/2x3/16	162	-975	9639	10.1	Pass
T5	120.833 - 100.833	Bottom Girt	L1 1/2x1 1/2x3/16	221	-1101	9639	11.4	Pass
T6	100.833 - 80.8333	Bottom Girt	L1 1/2x1 1/2x3/16	281	-591	9180	6.4	Pass
T7	80.8333 - 60.8333	Bottom Girt	L1 1/2x1 1/2x3/16	341	-615	9180	6.7	Pass
T8	60.8333 - 40.8333	Bottom Girt	L1 1/2x1 1/2x3/16	400	-721	9639	7.5	Pass
T9	40.8333 - 20.8333	Bottom Girt	L1 1/2x1 1/2x3/16	460	-752	9639	7.8	Pass
T10	20.8333 - 0.8333	Bottom Girt	L1 1/2x1 1/2x3/16	521	190	17086	1.1	Pass
T1	190.833 - 180.833	Guy A@190.833	9/16	576	10563	22050	47.9	Pass
T3	160.833 - 140.833	Guy A@157.444	5/8	590	10252	26711	38.4	Pass
T5	120.833 - 100.833	Guy A@117.444	9/16	607	6377	22050	28.9	Pass
T8	60.8333 - 40.8333	Guy A@60.75	9/16	615	6225	22050	28.2	Pass
T1	190.833 - 180.833	Guy B@190.833	9/16	575	10936	22050	49.6	Pass
T3	160.833 - 140.833	Guy B@157.444	5/8	584	11023	26711	41.3	Pass
T5	120.833 - 100.833	Guy B@117.444	9/16	602	7207	22050	32.7	Pass
T8	60.8333 - 40.8333	Guy B@60.75	9/16	614	7052	22050	32.0	Pass
T1	190.833 - 180.833	Guy C@190.833	9/16	574	10569	22050	47.9	Pass
T3	160.833 - 140.833	Guy C@157.444	5/8	577	10860	26711	40.7	Pass
T5	120.833 - 100.833	Guy C@117.444	9/16	595	6813	22050	30.9	Pass
T8	60.8333 - 40.8333	Guy C@60.75	9/16	613	6535	22050	29.6	Pass
T1	190.833 - 180.833	Top Guy Pull-Off@190.833	L1 3/4x1 3/4x3/16	6	3776	21130	17.9	Pass
T8	60.8333 - 40.8333	Top Guy Pull-Off@60.75	L1 3/4x1 3/4x3/16	398	1990	21130	9.4	Pass
T3	160.833 - 140.833	Bottom Guy Pull-Off@157.444	L 2 x 2 x 5/16	147	-2719	29713	9.1	Pass
T5	120.833 - 100.833	Bottom Guy Pull-Off@117.444	L 2 x 2 x 5/16	267	-2698	29713	9.1	Pass
T3	160.833 - 140.833	Torque Arm Top@157.444	L3x3x1/4	580	10084	41835	24.1 43.1 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ϕP_{allow} (lb)	% Capacity	Pass / Fail
T5	120.833 - 100.833	Torque Arm Top@117.444	L3x3x1/4	598	5280	41835	12.6 22.6 (b)	Pass
T3	160.833 - 140.833	Torque Arm Bottom@157.444	L3x3x1/4	593	-7387	46203	16.0 17.7 (b)	Pass
T5	120.833 - 100.833	Torque Arm Bottom@117.444	L3x3x1/4	611	-4294	46203	9.3 11.7 (b)	Pass
							Summary	
						Leg (T5)	62.6	Pass
						Diagonal (T2)	52.2	Pass
						Horizontal (T2)	36.3	Pass
						Top Girt (T3)	20.8	Pass
						Bottom Girt (T2)	22.3	Pass
						Guy A (T1)	47.9	Pass
						Guy B (T1)	49.6	Pass
						Guy C (T1)	47.9	Pass
						Top Guy Pull-Off (T1)	17.9	Pass
						Bottom Guy Pull-Off (T3)	9.1	Pass
						Torque Arm Top (T3)	43.1	Pass
						Torque Arm Bottom (T3)	17.7	Pass
						Bolt Checks	43.1	Pass
						RATING =	**62.6**	**Pass**

Table 4 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Base Foundation Soil Interaction	-	24.5	Pass
1,2	Base Foundation Structural	-	36.4	Pass
1,2	Anchor Foundation Uplift	-	33.8	Pass
1,2	Anchor Foundation Lateral	-	61.4	Pass
1,2	Guy Anchor Shaft	-	52.7	Pass

Structure Rating (max from all components)[2] =	**62.6%**

Notes:
1) See additional documentation in “Appendix B - Additional Calculations” for calculations supporting the % capacity listed.
2) Rating per TIA-222-H, Section 15.5

Table 5 - Dish Twist/Sway Results for 60 mph Service Wind Speed

Elevation (ft)	Dish Model	Beam Deflection		
		Deflection (in)	Tilt (deg)	Twist (deg)
-	-	-	-	-

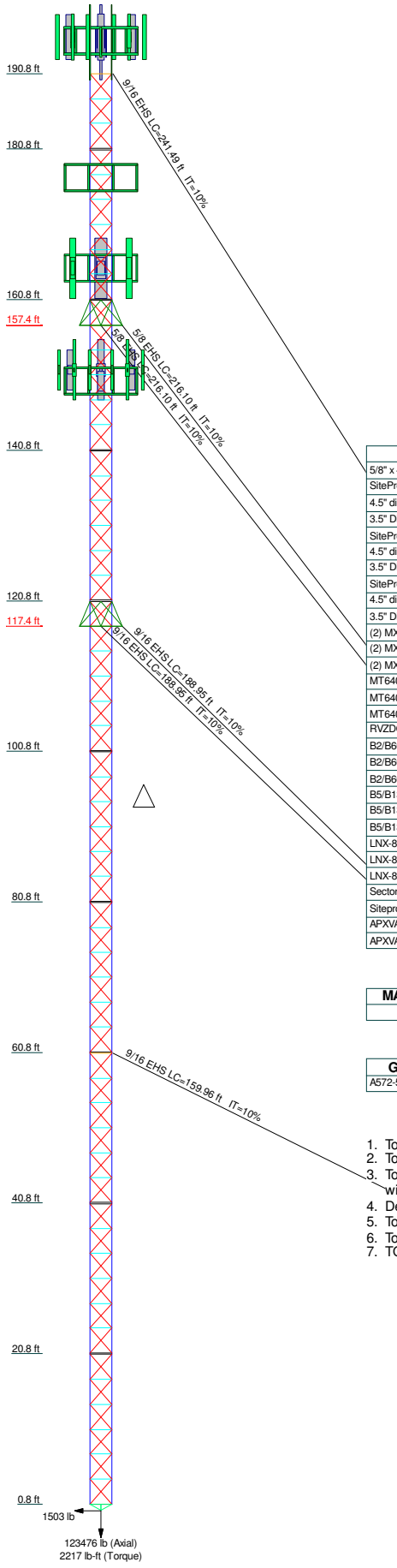
4.1) Recommendations

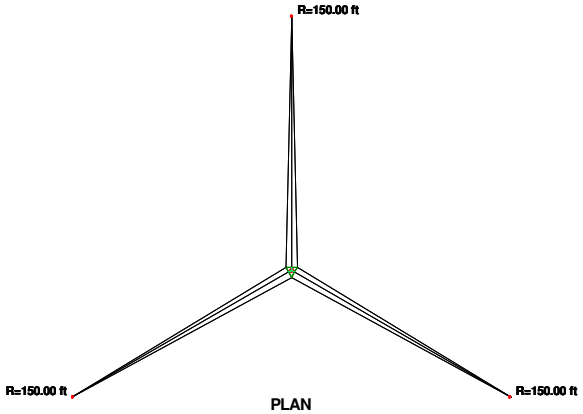
1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNX TOWER OUTPUT

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs					P2.5x0.203					
Leg Grade					A572-55					
Diagonals					SR 5/8					
Diagonal Grade					A36					
Top Girts	L1 1/2x1 1/2x3/16		N.A.		L1 1/2x1 1/2x3/16					N.A.
Bottom Girts					L1 1/2x1 1/2x3/16					
Horizontals					L1 1/2x1 1/2x3/16					
Top Guy Pull-Offs	N.A.		L1 3/4x1 3/4x3/16			N.A.				A
Bot Guy Pull-Offs			N.A.		3.5	L 2 x 2 x 5/16	N.A.	L 2 x 2 x 5/16	N.A.	
Face Width (ft)						51 @ 3.30556				
# Panels @ (ft)	6 @ 3.31944									
Weight (lb)	661.1	660.7	664.1	660.7	660.7	927.4	660.7	927.4	660.7	343.1





PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5/8" x 4' Lightning Rod	190	APXVAALL24_43-U-NA20 w/ mount pipe	165
SitePro 1 VFA12-HD (1)	190	AIR6449 B41 w/ Mount Pipe	165
4.5" dia. x 10'	190	AIR6449 B41 w/ Mount Pipe	165
3.5" Dia. x 4-ft	190	AIR6449 B41 w/ Mount Pipe	165
SitePro 1 VFA12-HD (1)	190	RADIO 4460 B2/B25 B66_TMO	165
4.5" dia. x 10'	190	RADIO 4460 B2/B25 B66_TMO	165
3.5" Dia. x 4-ft	190	RADIO 4460 B2/B25 B66_TMO	165
SitePro 1 VFA12-HD (1)	190	RADIO 4480 B71_TMO	165
4.5" dia. x 10'	190	RADIO 4480 B71_TMO	165
3.5" Dia. x 4-ft	190	RADIO 4480 B71_TMO	165
(2) MX06FRO660-02 w/ Mount Pipe	190	Sector Mount [SM 803-3]	150
(2) MX06FRO660-02 w/ Mount Pipe	190	EPBQ-654L8H8 w/ Mount Pipe	150
(2) MX06FRO660-02 w/ Mount Pipe	190	EPBQ-654L8H8 w/ Mount Pipe	150
MT6407-77A w/ Mount Pipe	190	EPBQ-654L8H8 w/ Mount Pipe	150
MT6407-77A w/ Mount Pipe	190	(2) RA21.7770.00 w/Mount pipe	150
MT6407-77A w/ Mount Pipe	190	(2) RA21.7770.00 w/Mount pipe	150
RVZDC-6627-PF-48	190	(2) RA21.7770.00 w/Mount pipe	150
B2/B66A RRH-BR049	190	RRUS 11	150
B2/B66A RRH-BR049	190	RRUS 11	150
B2/B66A RRH-BR049	190	RRUS 11	150
B5/B13 RRH-BR04C	190	(2) LGP21401	150
B5/B13 RRH-BR04C	190	(2) LGP21401	150
B5/B13 RRH-BR04C	190	(2) LGP21401	150
LNX-8513DS-A1M w/ 8' MP	190	LGP219nn (Diplex)	150
LNX-8513DS-A1M w/ 8' MP	190	LGP219nn (Diplex)	150
LNX-8513DS-A1M w/ 8' MP	190	LGP219nn (Diplex)	150
Sector Mount [SM 803-3]	177	782 10253	150
Sitepro VFA12-HD Sector Mount (3)	165	782 10253	150
APXVAALL24_43-U-NA20 w/ mount pipe	165	782 10253	150
APXVAALL24_43-U-NA20 w/ mount pipe	165	DC6-48-60-18-8F	150

SYMBOL LIST

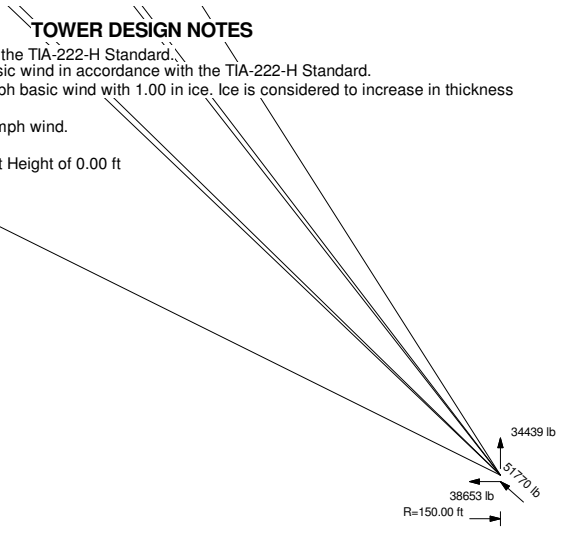
MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-55	55 ksi	70 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 62.6%



ALL REACTIONS ARE FACTORED

Tower Engineering Professionals, Inc.

Tower Engineering Professionals, Inc.
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6151
FAX: (919) 661-6350

Job:	***Eastford CDT (702497)***		
Project:	***TEP No. 25707.576390***		
Client:	Everest Infrastruture Partners	Drawn by: W. Harrison Welch, E.I.	App'd:
Code:	TIA-222-H	Date: 09/10/21	Scale: NTS
Path:			Dwg No. E-1

Tower Input Data

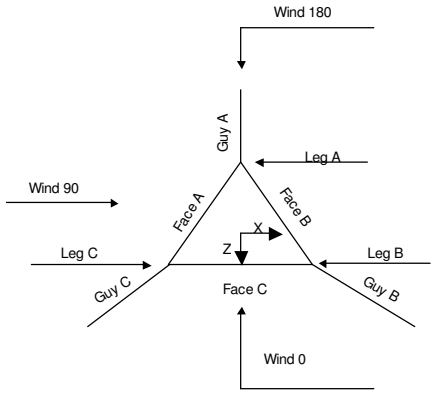
The main tower is a 3x guyed tower with an overall height of 190.83 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.50 ft at the top and 3.50 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 751.87 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
I-Beam base is 0.83 ft above the pivot.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.05.
Safety factor used in guy design is 0.9524.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

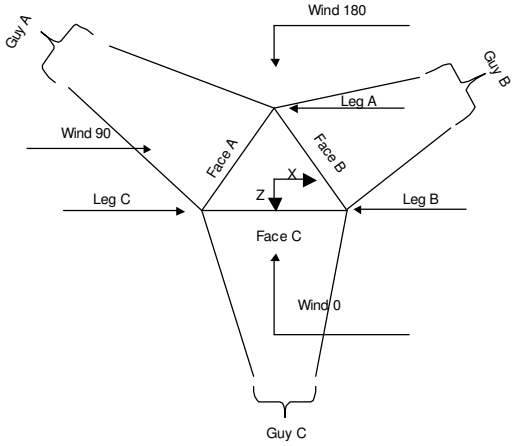
Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	√ Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
√ SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

tnxTower	Job	Page
Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6151 FAX: (919) 661-6350	Eastford CDT (702497)	2 of 31
	Project TEP No. 25707.576390	Date 10:15:37 09/10/21
	Client Everest Infrastruture Partners	Designed by W. Harrison Welch, E.I.



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	190.83-180.83			3.50	1	10.00
T2	180.83-160.83			3.50	1	20.00
T3	160.83-140.83			3.50	1	20.00
T4	140.83-120.83			3.50	1	20.00
T5	120.83-100.83			3.50	1	20.00
T6	100.83-80.83			3.50	1	20.00
T7	80.83-60.83			3.50	1	20.00
T8	60.83-40.83			3.50	1	20.00
T9	40.83-20.83			3.50	1	20.00
T10	20.83-0.83			3.50	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	190.83-180.83	3.31	TX Brace	No	Yes	0.0000	1.0000
T2	180.83-160.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T3	160.83-140.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T4	140.83-120.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T5	120.83-100.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T6	100.83-80.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T7	80.83-60.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T8	60.83-40.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T9	40.83-20.83	3.31	TX Brace	No	Yes	1.0000	1.0000
T10	20.83-0.83	3.32	TX Brace	No	Yes	1.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 190.83-180.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 180.83-160.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 160.83-140.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 140.83-120.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 120.83-100.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 100.83-80.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 80.83-60.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T8 60.83-40.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T9 40.83-20.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 20.83-0.83	Pipe	P2.5x0.203	A572-55 (55 ksi)	Solid Round	5/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 190.83-180.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 180.83-160.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 160.83-140.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T4 140.83-120.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T5 120.83-100.83	Equal Angle	L1 1/2x1 1/2x3/16	A36	Equal Angle	L1 1/2x1 1/2x3/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
			(36 ksi)			(36 ksi)
T6 100.83-80.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T7 80.83-60.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T8 60.83-40.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T9 40.83-20.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T10 20.83-0.83	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 190.83-180.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 180.83-160.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 160.83-140.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T4 140.83-120.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T5 120.83-100.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T6 100.83-80.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T7 80.83-60.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T8 60.83-40.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T9 40.83-20.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T10 20.83-0.83	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 190.83-180.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 180.83-160.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
160.83-140.83			(36 ksi)						
T4 140.83-120.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 120.83-100.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 100.83-80.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 80.83-60.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 60.83-40.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 40.83-20.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 20.83-0.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 190.83-180.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 180.83-160.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.83-140.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.83-120.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.83-100.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.83-80.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.83-60.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	0.5 1	1 1
T8 60.83-40.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	0.5 1	1 1
T9 40.83-20.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 20.83-0.83	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	0.5 1	1 1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
190.83-180.83														
T2	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
180.83-160.83														
T3	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
160.83-140.83														
T4	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
140.83-120.83														
T5	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
120.83-100.83														
T6	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
100.83-80.83														
T7 80.83-60.83	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T8 60.83-40.83	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T9 40.83-20.83	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T10 20.83-0.83	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
190.83-180.83														
T2	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
180.83-160.83														
T3	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
160.83-140.83														
T4	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
140.83-120.83														
T5	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
120.83-100.83														
T6	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.83-80.83														
T7 80.83-60.83	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.83-40.83	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.83-20.83	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.83-0.83	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
190.83-180.83		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T2	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
180.83-160.83		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
160.83-140.83		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
140.83-120.83		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	0
120.83-100.83		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
100.83-80.83		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 80.83-60.83	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8 60.83-40.83	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9 40.83-20.83	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10 20.83-0.83	Flange	0.7500	4	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.0000	0	0.6250	1
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
190.833	EHS	A	9/16	3500	10%	23000	0.671	241.30	150.00	0.000	0.00	100%
		B	9/16	3500	10%	23000	0.671	241.30	150.00	0.000	0.00	100%
		C	9/16	3500	10%	23000	0.671	241.30	150.00	0.000	0.00	100%
157.444	EHS	A	5/8	4240	10%	23000	0.813	215.93	150.00	0.000	0.00	100%
		B	5/8	4240	10%	23000	0.813	215.93	150.00	0.000	0.00	100%
		C	5/8	4240	10%	23000	0.813	215.93	150.00	0.000	0.00	100%
117.444	EHS	A	9/16	3500	10%	23000	0.671	188.81	150.00	0.000	0.00	100%
		B	9/16	3500	10%	23000	0.671	188.81	150.00	0.000	0.00	100%
		C	9/16	3500	10%	23000	0.671	188.81	150.00	0.000	0.00	100%
60.75	EHS	A	9/16	3500	10%	23000	0.671	159.84	150.00	0.000	0.00	100%
		B	9/16	3500	10%	23000	0.671	159.84	150.00	0.000	0.00	100%
		C	9/16	3500	10%	23000	0.671	159.84	150.00	0.000	0.00	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
190.833	Corner						
157.444	Torque Arm	7.00	30.000	Dog Ear	A36 (36 ksi)	Equal Angle	L3x3x1/4
117.444	Torque Arm	7.00	30.000	Dog Ear	A36 (36 ksi)	Equal Angle	L3x3x1/4
60.75	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
190.83	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 3/4x1 3/4x3/16
157.44	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L 2 x 2 x 5/16
117.44	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L 2 x 2 x 5/16
60.75	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 3/4x1 3/4x3/16

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
190.833	162	162	162		5.49 4.0 sec/pulse	5.49 4.0 sec/pulse	5.49 4.0 sec/pulse	
157.444	176	176	176		4.41 3.6 sec/pulse	4.41 3.6 sec/pulse	4.41 3.6 sec/pulse	
117.444	127	127	127		3.38 3.2 sec/pulse	3.38 3.2 sec/pulse	3.38 3.2 sec/pulse	
60.75	107	107	107		2.44 2.7 sec/pulse	2.44 2.7 sec/pulse	2.44 2.7 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
190.833	No	No			1	1	1	1
157.444	No	No	1	1	1	1	1	1
117.444	No	No	1	1	1	1	1	1
60.75	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
190.833	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
157.444	0.7500 A325N	2	0.0000	0.75	0.7500 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
117.444	0.7500 A325N	2	0.0000	0.75	0.7500 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
60.75	0.6250 A325N	0	0.0000	0.75	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
190.833	A	95.42	28	5	0.9452
	B	95.42	28	5	0.9452
	C	95.42	28	5	0.9452
157.444	A	78.72	27	5	0.9272
	B	78.72	27	5	0.9272
	C	78.72	27	5	0.9272
117.444	A	58.72	25	4	0.9004
	B	58.72	25	4	0.9004
	C	58.72	25	4	0.9004
60.75	A	30.37	20	4	0.8430
	B	30.37	20	4	0.8430
	C	30.37	20	4	0.8430

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing Ladder	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.25	1	1	1.5000	1.5000		5.41
Safety Line 3/8 ****	A	No	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.25	1	1	0.3750	0.3750		0.22
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	190.00 - 8.00	0.0000	0.375	12	8	0.5000	1.9800		0.82
6x12 Hybrid ****	A	No	No	Ar (CaAa)	190.00 - 8.00	2.0000	0.3	2	2	0.5000	1.4930		1.87
FDH1204-48S E2-100M (6x24) ****	B	No	No	Ar (CaAa)	165.00 - 8.00	0.0000	-0.25	4	4	0.5000	1.6730		2.22
LDF7-50A (1-5/8 FOAM)	B	No	No	Ar (CaAa)	151.50 - 8.00	0.0000	0.375	12	4	0.5000	1.9800		0.82
FB-L98-002-XXX(3/8)	B	No	No	Ar (CaAa)	151.50 - 8.00	0.0000	0.45	1	1	0.3937	0.3937		0.06
WR-E82G1(3/	B	No	No	Ar (CaAa)	151.50 -	0.2500	0.45	2	1	0.5000	0.8220		0.38

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
4) ****					8.00								

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
****								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	190.83-180.83	A	0.000	0.000	26.236	0.000	176
		B	0.000	0.000	0.000	0.000	0
		C	0.000	0.000	0.000	0.000	0
T2	180.83-160.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	2.788	0.000	37
		C	0.000	0.000	0.000	0.000	0
T3	160.83-140.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	40.902	0.000	291
		C	0.000	0.000	0.000	0.000	0
T4	140.83-120.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	64.979	0.000	391
		C	0.000	0.000	0.000	0.000	0
T5	120.83-100.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	64.979	0.000	391
		C	0.000	0.000	0.000	0.000	0
T6	100.83-80.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	64.979	0.000	391
		C	0.000	0.000	0.000	0.000	0
T7	80.83-60.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	64.979	0.000	391
		C	0.000	0.000	0.000	0.000	0
T8	60.83-40.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	64.979	0.000	391
		C	0.000	0.000	0.000	0.000	0
T9	40.83-20.83	A	0.000	0.000	57.242	0.000	384
		B	0.000	0.000	64.979	0.000	391
		C	0.000	0.000	0.000	0.000	0
T10	20.83-0.83	A	0.000	0.000	38.074	0.000	287
		B	0.000	0.000	41.695	0.000	251
		C	0.000	0.000	0.000	0.000	0

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	190.83-180.83	A	1.010	0.000	0.000	38.486	0.000	526
		B		0.000	0.000	0.000	0.000	0
		C		0.000	0.000	0.000	0.000	0
T2	180.83-160.83	A	1.002	0.000	0.000	83.790	0.000	1142
		B		0.000	0.000	5.645	0.000	79
		C		0.000	0.000	0.000	0.000	0
T3	160.83-140.83	A	0.990	0.000	0.000	83.528	0.000	1134
		B		0.000	0.000	55.492	0.000	808
		C		0.000	0.000	0.000	0.000	0
T4	140.83-120.83	A	0.976	0.000	0.000	83.233	0.000	1125
		B		0.000	0.000	80.067	0.000	1178
		C		0.000	0.000	0.000	0.000	0
T5	120.83-100.83	A	0.959	0.000	0.000	82.894	0.000	1114
		B		0.000	0.000	79.676	0.000	1167
		C		0.000	0.000	0.000	0.000	0
T6	100.83-80.83	A	0.941	0.000	0.000	82.494	0.000	1102
		B		0.000	0.000	79.216	0.000	1154
		C		0.000	0.000	0.000	0.000	0
T7	80.83-60.83	A	0.917	0.000	0.000	82.007	0.000	1087
		B		0.000	0.000	78.654	0.000	1139
		C		0.000	0.000	0.000	0.000	0
T8	60.83-40.83	A	0.888	0.000	0.000	81.375	0.000	1068
		B		0.000	0.000	77.926	0.000	1120
		C		0.000	0.000	0.000	0.000	0
T9	40.83-20.83	A	0.844	0.000	0.000	80.462	0.000	1040
		B		0.000	0.000	76.875	0.000	1092
		C		0.000	0.000	0.000	0.000	0
T10	20.83-0.83	A	0.760	0.000	0.000	54.020	0.000	697
		B		0.000	0.000	48.023	0.000	667
		C		0.000	0.000	0.000	0.000	0

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	190.83-180.83	-2.3916	-9.5592	-2.5539	-6.7382
T2	180.83-160.83	-2.3935	-10.3126	-2.6395	-7.5803
T3	160.83-140.83	1.3229	-8.8012	0.8381	-6.6862
T4	140.83-120.83	3.4010	-7.4172	2.8368	-5.5337
T5	120.83-100.83	3.3846	-7.3932	2.8416	-5.5541
T6	100.83-80.83	3.4010	-7.4172	2.8715	-5.6147
T7	80.83-60.83	3.4010	-7.4172	2.8946	-5.6686
T8	60.83-40.83	3.3928	-7.4052	2.9189	-5.7305
T9	40.83-20.83	3.4010	-7.4172	2.9681	-5.8417
T10	20.83-0.83	2.4517	-6.1729	1.9313	-4.8107

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Climbing Ladder	180.83 - 190.00	0.6000	0.5397
T1	2	Safety Line 3/8	180.83 - 190.00	0.6000	0.5397
T1	4	LDF7-50A (1-5/8 FOAM)	180.83 - 190.00	0.6000	0.5397
T1	5	6x12 Hybrid	180.83 - 190.00	0.6000	0.5397
T2	1	Climbing Ladder	160.83 - 180.83	0.6000	0.5557
T2	2	Safety Line 3/8	160.83 - 180.83	0.6000	0.5557
T2	4	LDF7-50A (1-5/8 FOAM)	160.83 - 180.83	0.6000	0.5557
T2	5	6x12 Hybrid	160.83 - 180.83	0.6000	0.5557
T2	7	FDH1204-48SE2-100M (6x24)	160.83 - 165.00	0.6000	0.5557
T3	1	Climbing Ladder	140.83 - 160.83	0.6000	0.5568
T3	2	Safety Line 3/8	140.83 - 160.83	0.6000	0.5568
T3	4	LDF7-50A (1-5/8 FOAM)	140.83 - 160.83	0.6000	0.5568
T3	5	6x12 Hybrid	140.83 - 160.83	0.6000	0.5568
T3	7	FDH1204-48SE2-100M (6x24)	140.83 - 160.83	0.6000	0.5568
T3	9	LDF7-50A (1-5/8 FOAM)	140.83 - 151.50	0.6000	0.5568
T3	10	FB-L98-002-XXX(3/8)	140.83 - 151.50	0.6000	0.5568
T3	11	WR-E82G1(3/4)	140.83 - 151.50	0.6000	0.5568
T4	1	Climbing Ladder	120.83 - 140.83	0.6000	0.5617
T4	2	Safety Line 3/8	120.83 - 140.83	0.6000	0.5617
T4	4	LDF7-50A (1-5/8 FOAM)	120.83 - 140.83	0.6000	0.5617
T4	5	6x12 Hybrid	120.83 - 140.83	0.6000	0.5617
T4	7	FDH1204-48SE2-100M (6x24)	120.83 - 140.83	0.6000	0.5617
T4	9	LDF7-50A (1-5/8 FOAM)	120.83 - 140.83	0.6000	0.5617
T4	10	FB-L98-002-XXX(3/8)	120.83 - 140.83	0.6000	0.5617
T4	11	WR-E82G1(3/4)	120.83 - 140.83	0.6000	0.5617
T5	1	Climbing Ladder	100.83 - 120.83	0.6000	0.5637
T5	2	Safety Line 3/8	100.83 - 120.83	0.6000	0.5637
T5	4	LDF7-50A (1-5/8 FOAM)	100.83 - 120.83	0.6000	0.5637
T5	5	6x12 Hybrid	100.83 - 120.83	0.6000	0.5637
T5	7	FDH1204-48SE2-100M (6x24)	100.83 - 120.83	0.6000	0.5637
T5	9	LDF7-50A (1-5/8 FOAM)	100.83 - 120.83	0.6000	0.5637
T5	10	FB-L98-002-XXX(3/8)	100.83 - 120.83	0.6000	0.5637
T5	11	WR-E82G1(3/4)	100.83 - 120.83	0.6000	0.5637
T6	1	Climbing Ladder	80.83 - 100.83	0.6000	0.5698
T6	2	Safety Line 3/8	80.83 - 100.83	0.6000	0.5698
T6	4	LDF7-50A (1-5/8 FOAM)	80.83 - 100.83	0.6000	0.5698
T6	5	6x12 Hybrid	80.83 - 100.83	0.6000	0.5698
T6	7	FDH1204-48SE2-100M (6x24)	80.83 - 100.83	0.6000	0.5698
T6	9	LDF7-50A (1-5/8 FOAM)	80.83 - 100.83	0.6000	0.5698
T6	10	FB-L98-002-XXX(3/8)	80.83 - 100.83	0.6000	0.5698
T6	11	WR-E82G1(3/4)	80.83 - 100.83	0.6000	0.5698
T7	1	Climbing Ladder	60.83 - 80.83	0.6000	0.5751
T7	2	Safety Line 3/8	60.83 - 80.83	0.6000	0.5751
T7	4	LDF7-50A (1-5/8 FOAM)	60.83 - 80.83	0.6000	0.5751
T7	5	6x12 Hybrid	60.83 - 80.83	0.6000	0.5751
T7	7	FDH1204-48SE2-100M (6x24)	60.83 - 80.83	0.6000	0.5751
T7	9	LDF7-50A (1-5/8 FOAM)	60.83 - 80.83	0.6000	0.5751
T7	10	FB-L98-002-XXX(3/8)	60.83 - 80.83	0.6000	0.5751
T7	11	WR-E82G1(3/4)	60.83 - 80.83	0.6000	0.5751
T8	1	Climbing Ladder	40.83 - 60.83	0.6000	0.5812
T8	2	Safety Line 3/8	40.83 - 60.83	0.6000	0.5812
T8	4	LDF7-50A (1-5/8 FOAM)	40.83 - 60.83	0.6000	0.5812
T8	5	6x12 Hybrid	40.83 - 60.83	0.6000	0.5812
T8	7	FDH1204-48SE2-100M (6x24)	40.83 - 60.83	0.6000	0.5812
T8	9	LDF7-50A (1-5/8 FOAM)	40.83 - 60.83	0.6000	0.5812
T8	10	FB-L98-002-XXX(3/8)	40.83 - 60.83	0.6000	0.5812
T8	11	WR-E82G1(3/4)	40.83 - 60.83	0.6000	0.5812
T9	1	Climbing Ladder	20.83 - 40.83	0.6000	0.5922
T9	2	Safety Line 3/8	20.83 - 40.83	0.6000	0.5922
T9	4	LDF7-50A (1-5/8 FOAM)	20.83 - 40.83	0.6000	0.5922
T9	5	6x12 Hybrid	20.83 - 40.83	0.6000	0.5922
T9	7	FDH1204-48SE2-100M (6x24)	20.83 - 40.83	0.6000	0.5922
T9	9	LDF7-50A (1-5/8 FOAM)	20.83 - 40.83	0.6000	0.5922
T9	10	FB-L98-002-XXX(3/8)	20.83 - 40.83	0.6000	0.5922
T9	11	WR-E82G1(3/4)	20.83 - 40.83	0.6000	0.5922
T10	1	Climbing Ladder	0.83 - 20.83	0.6000	0.6000
T10	2	Safety Line 3/8	0.83 - 20.83	0.6000	0.6000
T10	4	LDF7-50A (1-5/8 FOAM)	8.00 - 20.83	0.6000	0.6000
T10	5	6x12 Hybrid	8.00 - 20.83	0.6000	0.6000
T10	7	FDH1204-48SE2-100M (6x24)	8.00 - 20.83	0.6000	0.6000
T10	9	LDF7-50A (1-5/8 FOAM)	8.00 - 20.83	0.6000	0.6000
T10	10	FB-L98-002-XXX(3/8)	8.00 - 20.83	0.6000	0.6000
T10	11	WR-E82G1(3/4)	8.00 - 20.83	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
5/8" x 4' Lightning Rod	C	From Leg	0.00		0.000	190.00	No Ice	0.25	0.25	4
			0.00				1/2" Ice	0.66	0.66	7
			2.00				1" Ice	0.97	0.97	12
Verizon										
SitePro 1 VFA12-HD (1)	A	From Leg	1.50		0.000	190.00	No Ice	13.20	9.20	631
			0.00				1/2" Ice	19.50	14.60	946
			5.20				1" Ice	25.80	19.50	1419
4.5" dia. x 10'	A	From Leg	0.00		0.000	190.00	No Ice	3.63	3.63	108
			0.00				1/2" Ice	5.24	5.24	139
			5.00				1" Ice	5.85	5.85	177
3.5" Dia. x 4-ft	A	From Face	0.00		0.000	190.00	No Ice	1.11	1.11	41
			0.00				1/2" Ice	1.36	1.36	51
			5.00				1" Ice	1.62	1.62	65
SitePro 1 VFA12-HD (1)	B	From Leg	1.50		0.000	190.00	No Ice	13.20	9.20	631
			0.00				1/2" Ice	19.50	14.60	946
			5.20				1" Ice	25.80	19.50	1419
4.5" dia. x 10'	B	From Leg	0.00		0.000	190.00	No Ice	3.63	3.63	108
			0.00				1/2" Ice	5.24	5.24	139
			5.00				1" Ice	5.85	5.85	177
3.5" Dia. x 4-ft	B	From Face	0.00		0.000	190.00	No Ice	1.11	1.11	41
			0.00				1/2" Ice	1.36	1.36	51
			5.00				1" Ice	1.62	1.62	65
SitePro 1 VFA12-HD (1)	C	From Leg	1.50		0.000	190.00	No Ice	13.20	9.20	631
			0.00				1/2" Ice	19.50	14.60	946
			5.20				1" Ice	25.80	19.50	1419
4.5" dia. x 10'	C	From Leg	0.00		0.000	190.00	No Ice	3.63	3.63	108
			0.00				1/2" Ice	5.24	5.24	139
			5.00				1" Ice	5.85	5.85	177
3.5" Dia. x 4-ft	C	From Face	0.00		0.000	190.00	No Ice	1.11	1.11	41
			0.00				1/2" Ice	1.36	1.36	51
			5.00				1" Ice	1.62	1.62	65
(2) MX06FRO660-02 w/ Mount Pipe	A	From Leg	3.25		0.000	190.00	No Ice	10.11	8.99	71
			0.00				1/2" Ice	10.68	10.15	159
			5.70				1" Ice	11.22	11.03	254
(2) MX06FRO660-02 w/ Mount Pipe	B	From Leg	3.25		0.000	190.00	No Ice	10.11	8.99	71
			0.00				1/2" Ice	10.68	10.15	159
			5.70				1" Ice	11.22	11.03	254
(2) MX06FRO660-02 w/ Mount Pipe	C	From Leg	3.25		0.000	190.00	No Ice	10.11	8.99	71
			0.00				1/2" Ice	10.68	10.15	159
			5.70				1" Ice	11.22	11.03	254
MT6407-77A w/ Mount Pipe	A	From Leg	3.25		0.000	190.00	No Ice	4.91	2.68	96
			0.00				1/2" Ice	5.26	3.14	136
			5.70				1" Ice	5.61	3.62	180
MT6407-77A w/ Mount Pipe	B	From Leg	3.25		0.000	190.00	No Ice	4.91	2.68	96
			0.00				1/2" Ice	5.26	3.14	136
			5.70				1" Ice	5.61	3.62	180
MT6407-77A w/ Mount Pipe	C	From Leg	3.25		0.000	190.00	No Ice	4.91	2.68	96
			0.00				1/2" Ice	5.26	3.14	136
			5.70				1" Ice	5.61	3.62	180
RVZDC-6627-PF-48	A	From Leg	3.25		0.000	190.00	No Ice	3.79	2.51	32
			0.00				1/2" Ice	4.04	2.73	63
			5.70				1" Ice	4.30	2.95	99
B2/B66A RRH-BR049	A	From Leg	3.25		0.000	190.00	No Ice	1.88	1.25	84
			0.00				1/2" Ice	2.05	1.39	103
			5.70				1" Ice	2.22	1.54	124
B2/B66A RRH-BR049	B	From Leg	3.25		0.000	190.00	No Ice	1.88	1.25	84
			0.00				1/2" Ice	2.05	1.39	103

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			5.70				1" Ice	2.22	1.54	124
B2/B66A RRH-BR049	C	From Leg	3.25		0.000	190.00	No Ice	1.88	1.25	84
			0.00				1/2" Ice	2.05	1.39	103
			5.70				1" Ice	2.22	1.54	124
B5/B13 RRH-BR04C	A	From Leg	3.25		0.000	190.00	No Ice	1.88	1.01	70
			0.00				1/2" Ice	2.05	1.14	87
			5.70				1" Ice	2.22	1.28	106
B5/B13 RRH-BR04C	B	From Leg	3.25		0.000	190.00	No Ice	1.88	1.01	70
			0.00				1/2" Ice	2.05	1.14	87
			5.70				1" Ice	2.22	1.28	106
B5/B13 RRH-BR04C	C	From Leg	3.25		0.000	190.00	No Ice	1.88	1.01	70
			0.00				1/2" Ice	2.05	1.14	87
			5.70				1" Ice	2.22	1.28	106
LNX-8513DS-A1M w/ 8' MP	A	From Leg	3.25		0.000	190.00	No Ice	8.63	7.31	68
			0.00				1/2" Ice	9.30	8.59	140
			5.70				1" Ice	9.93	9.73	220
LNX-8513DS-A1M w/ 8' MP	B	From Leg	3.25		0.000	190.00	No Ice	8.63	7.31	68
			0.00				1/2" Ice	9.30	8.59	140
			5.70				1" Ice	9.93	9.73	220
LNX-8513DS-A1M w/ 8' MP	C	From Leg	3.25		0.000	190.00	No Ice	8.63	7.31	68
			0.00				1/2" Ice	9.30	8.59	140
			5.70				1" Ice	9.93	9.73	220
Abandonded										
Sector Mount [SM 803-3]	C	None			0.000	177.00	No Ice	40.01	40.01	985
							1/2" Ice	50.70	50.70	1694
							1" Ice	61.54	61.54	2578
T-Mobile*										
Sitepro VFA12-HD Sector Mount (3)	A	None			0.000	165.00	No Ice	29.70	20.70	1974
							1/2" Ice	43.88	32.85	2412
							1" Ice	58.05	43.88	3045
APXVAALL24_43-U-NA20 w/ mount pipe	A	From Leg	3.25		0.000	165.00	No Ice	20.24	11.03	169
			0.00				1/2" Ice	20.89	12.46	306
			0.00				1" Ice	21.55	13.56	454
APXVAALL24_43-U-NA20 w/ mount pipe	B	From Leg	3.25		0.000	165.00	No Ice	20.24	11.03	169
			0.00				1/2" Ice	20.89	12.46	306
			0.00				1" Ice	21.55	13.56	454
APXVAALL24_43-U-NA20 w/ mount pipe	C	From Leg	3.25		0.000	165.00	No Ice	20.24	11.03	169
			0.00				1/2" Ice	20.89	12.46	306
			0.00				1" Ice	21.55	13.56	454
AIR6449 B41 w/ Mount Pipe	A	From Leg	3.25		0.000	165.00	No Ice	5.89	3.28	118
			0.00				1/2" Ice	6.26	3.74	167
			0.00				1" Ice	6.63	4.22	221
AIR6449 B41 w/ Mount Pipe	B	From Leg	3.25		0.000	165.00	No Ice	5.89	3.28	118
			0.00				1/2" Ice	6.26	3.74	167
			0.00				1" Ice	6.63	4.22	221
AIR6449 B41 w/ Mount Pipe	C	From Leg	3.25		0.000	165.00	No Ice	5.89	3.28	118
			0.00				1/2" Ice	6.26	3.74	167
			0.00				1" Ice	6.63	4.22	221
RADIO 4460 B2/B25 B66_TMO	A	From Leg	3.25		0.000	165.00	No Ice	2.14	1.69	109
			0.00				1/2" Ice	2.32	1.85	131
			0.00				1" Ice	2.51	2.02	156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	3.25		0.000	165.00	No Ice	2.14	1.69	109
			0.00				1/2" Ice	2.32	1.85	131
			0.00				1" Ice	2.51	2.02	156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	3.25		0.000	165.00	No Ice	2.14	1.69	109
			0.00				1/2" Ice	2.32	1.85	131
			0.00				1" Ice	2.51	2.02	156

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RADIO 4480 B71_TMO	A	From Leg	3.25		0.000	165.00	No Ice	2.85	1.38	93
			0.00				1/2" Ice	3.06	1.54	114
			0.00				1" Ice	3.28	1.71	139
RADIO 4480 B71_TMO	B	From Leg	3.25		0.000	165.00	No Ice	2.85	1.38	93
			0.00				1/2" Ice	3.06	1.54	114
			0.00				1" Ice	3.28	1.71	139
RADIO 4480 B71_TMO	C	From Leg	3.25		0.000	165.00	No Ice	2.85	1.38	93
			0.00				1/2" Ice	3.06	1.54	114
			0.00				1" Ice	3.28	1.71	139
AT&T										
Sector Mount [SM 803-3]	C	None			0.000	150.00	No Ice	40.01	40.01	985
							1/2" Ice	50.70	50.70	1694
							1" Ice	61.54	61.54	2578
EPBQ-654L8H8 w/ Mount Pipe	A	From Leg	3.00		0.000	150.00	No Ice	11.69	11.33	131
			0.00				1/2" Ice	12.41	12.86	228
			1.50				1" Ice	13.14	14.41	334
EPBQ-654L8H8 w/ Mount Pipe	B	From Leg	3.00		0.000	150.00	No Ice	11.69	11.33	131
			0.00				1/2" Ice	12.41	12.86	228
			1.50				1" Ice	13.14	14.41	334
EPBQ-654L8H8 w/ Mount Pipe	C	From Leg	3.00		0.000	150.00	No Ice	11.69	11.33	131
			0.00				1/2" Ice	12.41	12.86	228
			1.50				1" Ice	13.14	14.41	334
(2) RA21.7770.00 w/Mount pipe	A	From Leg	3.00		0.000	150.00	No Ice	6.73	5.23	72
			0.00				1/2" Ice	7.18	5.99	128
			1.50				1" Ice	7.64	6.76	192
(2) RA21.7770.00 w/Mount pipe	B	From Leg	3.00		0.000	150.00	No Ice	6.73	5.23	72
			0.00				1/2" Ice	7.18	5.99	128
			1.50				1" Ice	7.64	6.76	192
(2) RA21.7770.00 w/Mount pipe	C	From Leg	3.00		0.000	150.00	No Ice	6.73	5.23	72
			0.00				1/2" Ice	7.18	5.99	128
			1.50				1" Ice	7.64	6.76	192
RRUS 11	A	From Leg	3.00		0.000	150.00	No Ice	2.79	1.19	51
			0.00				1/2" Ice	3.00	1.34	72
			1.50				1" Ice	3.21	1.50	95
RRUS 11	B	From Leg	3.00		0.000	150.00	No Ice	2.79	1.19	51
			0.00				1/2" Ice	3.00	1.34	72
			1.50				1" Ice	3.21	1.50	95
RRUS 11	C	From Leg	3.00		0.000	150.00	No Ice	2.79	1.19	51
			0.00				1/2" Ice	3.00	1.34	72
			1.50				1" Ice	3.21	1.50	95
(2) LGP21401	A	From Leg	3.00		0.000	150.00	No Ice	1.10	0.35	14
			0.00				1/2" Ice	1.24	0.44	21
			1.50				1" Ice	1.38	0.54	30
(2) LGP21401	B	From Leg	3.00		0.000	150.00	No Ice	1.10	0.35	14
			0.00				1/2" Ice	1.24	0.44	21
			1.50				1" Ice	1.38	0.54	30
(2) LGP21401	C	From Leg	3.00		0.000	150.00	No Ice	1.10	0.35	14
			0.00				1/2" Ice	1.24	0.44	21
			1.50				1" Ice	1.38	0.54	30
LGP219nn (Diplex)	A	From Leg	3.00		0.000	150.00	No Ice	0.23	0.16	6
			0.00				1/2" Ice	0.29	0.21	8
			1.50				1" Ice	0.36	0.28	11
LGP219nn (Diplex)	B	From Leg	3.00		0.000	150.00	No Ice	0.23	0.16	6
			0.00				1/2" Ice	0.29	0.21	8
			1.50				1" Ice	0.36	0.28	11
LGP219nn (Diplex)	C	From Leg	3.00		0.000	150.00	No Ice	0.23	0.16	6
			0.00				1/2" Ice	0.29	0.21	8

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			1.50				1" Ice	0.36	0.28	11
782 10253	A	From Leg	3.00		0.000	150.00	No Ice	0.11	0.06	3
			0.00				1/2" Ice	0.15	0.10	4
			1.50				1" Ice	0.20	0.14	6
782 10253	B	From Leg	3.00		0.000	150.00	No Ice	0.11	0.06	3
			0.00				1/2" Ice	0.15	0.10	4
			1.50				1" Ice	0.20	0.14	6
782 10253	C	From Leg	3.00		0.000	150.00	No Ice	0.11	0.06	3
			0.00				1/2" Ice	0.15	0.10	4
			1.50				1" Ice	0.20	0.14	6
DC6-48-60-18-8F	A	From Leg	0.25		0.000	150.00	No Ice	1.21	1.21	33
			0.00				1/2" Ice	1.89	1.89	55
			0.00				1" Ice	2.11	2.11	80

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy

Comb. No.	Description
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190.833 - 180.833	1.658	37	0.098	0.216
T2	180.833 - 160.833	1.462	37	0.098	0.177
T3	160.833 - 140.833	1.015	37	0.082	0.070
T4	140.833 - 120.833	0.786	37	0.057	0.197
T5	120.833 - 100.833	0.503	37	0.031	0.068
T6	100.833 - 80.8333	0.569	37	0.009	0.273
T7	80.8333 - 60.8333	0.605	30	0.012	0.706
T8	60.8333 - 40.8333	0.430	31	0.013	0.746
T9	40.8333 - 20.8333	0.533	36	0.023	0.847
T10	20.8333 - 0.8333	0.405	36	0.053	0.360

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.83	Guy	37	1.658	0.098	0.216	30013
190.00	5/8" x 4' Lightning Rod	37	1.643	0.098	0.213	30013
177.00	Sector Mount [SM 803-3]	37	1.374	0.096	0.151	30371
165.00	Sitepro VFA12-HD Sector Mount (3)	37	1.093	0.086	0.074	13916
157.44	Guy	37	0.966	0.078	0.083	13295
150.00	Sector Mount [SM 803-3]	37	0.885	0.069	0.143	196299
117.44	Guy	37	0.491	0.027	0.071	8767
60.75	Guy	31	0.430	0.013	0.746	8256

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190.833 - 180.833	10.840	6	0.741	0.734
T2	180.833 - 160.833	9.292	6	0.732	0.659
T3	160.833 - 140.833	6.143	6	0.628	0.390
T4	140.833 - 120.833	3.959	6	0.466	0.584
T5	120.833 - 100.833	2.296	12	0.256	0.339
T6	100.833 - 80.8333	2.158	12	0.070	0.823
T7	80.8333 - 60.8333	2.089	12	0.049	1.451
T8	60.8333 - 40.8333	1.692	12	0.048	1.599
T9	40.8333 - 20.8333	1.716	6	0.086	1.442

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T10	20.8333 - 0.8333	1.188	6	0.192	0.821

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.83	Guy	6	10.840	0.741	0.734	13483
190.00	5/8" x 4' Lightning Rod	6	10.714	0.741	0.730	13483
177.00	Sector Mount [SM 803-3]	6	8.667	0.721	0.602	16395
165.00	Sitepro VFA12-HD Sector Mount (3)	6	6.737	0.657	0.415	3928
157.44	Guy	6	5.711	0.603	0.400	3550
150.00	Sector Mount [SM 803-3]	6	4.884	0.546	0.485	8075
117.44	Guy	12	2.204	0.217	0.368	2498
60.75	Guy	12	1.691	0.048	1.599	5019

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	190.833	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
T2	180.833	Leg	A325N	0.7500	4	2251	30101	0.075	1.05	Bolt Tension
T3	160.833	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
		Torque Arm Top@157.444	A325N	0.7500	2	5042	11147	0.452	1.05	Member Block Shear
		Torque Arm Bottom@157.444	A325N	0.7500	2	3694	19880	0.186	1.05	Bolt Shear
T4	140.833	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
T5	120.833	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
		Torque Arm Top@117.444	A325N	0.7500	2	2640	11147	0.237	1.05	Member Block Shear
		Torque Arm Bottom@117.444	A325N	0.7500	2	1374	11147	0.123	1.05	Member Block Shear
T6	100.833	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
T7	80.8333	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
T8	60.8333	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
T9	40.8333	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension
T10	20.8333	Leg	A325N	0.7500	4	0	30101	0.000	1.05	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T1	190.83 (A) (576)	9/16 EHS	3500	35000	10563	22050	0.952	1.988
	190.83 (B) (575)	9/16 EHS	3500	35000	10936	22050	0.952	1.920
	190.83 (C) (574)	9/16 EHS	3500	35000	10569	22050	0.952	1.987
T3	157.44 (A) (589)	5/8 EHS	4240	42400	10163	26711	0.952	2.503
	157.44 (A) (590)	5/8 EHS	4240	42400	10252	26711	0.952	2.481
	157.44 (B) (583)	5/8 EHS	4240	42400	10339	26711	0.952	2.460
	157.44 (B) (584)	5/8 EHS	4240	42400	11023	26711	0.952	2.308
	157.44 (C) (577)	5/8 EHS	4240	42400	10860	26711	0.952	2.342
	157.44 (C) (578)	5/8 EHS	4240	42400	10052	26711	0.952	2.531
T5	117.44 (A) (607)	9/16 EHS	3500	35000	6377	22050	0.952	3.293
	117.44 (A) (608)	9/16 EHS	3500	35000	6161	22050	0.952	3.409
	117.44 (B) (601)	9/16 EHS	3500	35000	6459	22050	0.952	3.251
	117.44 (B) (602)	9/16 EHS	3500	35000	7207	22050	0.952	2.914
	117.44 (C) (595)	9/16 EHS	3500	35000	6813	22050	0.952	3.083
	117.44 (C) (596)	9/16 EHS	3500	35000	6332	22050	0.952	3.316
T8	60.75 (A) (615)	9/16 EHS	3500	35000	6225	22050	0.952	3.374
	60.75 (B) (614)	9/16 EHS	3500	35000	7052	22050	0.952	2.978
	60.75 (C) (613)	9/16 EHS	3500	35000	6535	22050	0.952	3.214

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	P2.5x0.203	10.00	3.31	41.9 K=1.00	1.7040	-10803	73258	0.147 [1]
T2	180.833 - 160.833	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-29402	73258	0.401 [1]
T3	160.833 - 140.833	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-35908	73258	0.490 [1]
T4	140.833 - 120.833	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-44360	73258	0.606 [1]
T5	120.833 - 100.833	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-48150	73258	0.657 [1]
T6	100.833 - 80.8333	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-34125	73258	0.466* [1]
T7	80.8333 - 60.8333	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-35467	73258	0.484* [1]
T8	60.8333 - 40.8333	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-41522	73258	0.567 [1]
T9	40.8333 - 20.8333	P2.5x0.203	20.00	3.31	41.9 K=1.00	1.7040	-43414	73258	0.593 [1]
T10	20.8333 - 0.8333	P2.5x0.203	20.00	3.32	42.0 K=1.00	1.7040	-43392	73172	0.593 [1]

* DL controls
[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-695	9180	0.076 [1]
T2	180.833 - 160.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-3502	9180	0.381 [1]
T3	160.833 - 140.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-2543	9180	0.277 [1]
T4	140.833 - 120.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-1872	9180	0.204 [1]
T5	120.833 - 100.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-2894	9180	0.315 [1]
T6	100.833 - 80.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-1801	9180	0.196 [1]
T7	80.8333 - 60.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-929	9180	0.101 [1]
T8	60.8333 - 40.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-1452	9180	0.158 [1]
T9	40.8333 - 20.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-912	9180	0.099 [1]
T10	20.8333 - 0.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-1734	9180	0.189 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180.833 - 160.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-510	9180	0.056 [1]
T3	160.833 - 140.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-2004	9180	0.218 [1]
T4	140.833 -	L1 1/2x1 1/2x3/16	3.50	3.26	128.2	0.5273	-769	9180	0.084 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	120.833				K=0.96				
T5	120.833 - 100.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-925	9180	0.101 [1]
T6	100.833 - 80.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-1014	9180	0.110 [1]
T7	80.8333 - 60.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-615	9180	0.067*[1]
T9	40.8333 - 20.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-752	9180	0.082 [1]
T10	20.8333 - 0.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-752	9180	0.082 [1]

* DL controls
[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-270	9180	0.029 [1]
T2	180.833 - 160.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-2153	9180	0.235 [1]
T3	160.833 - 140.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-622	9180	0.068 [1]
T4	140.833 - 120.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-975	9180	0.106 [1]
T5	120.833 - 100.833	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-1101	9180	0.120 [1]
T6	100.833 - 80.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-591	9180	0.064*[1]
T7	80.8333 - 60.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-615	9180	0.067*[1]
T8	60.8333 - 40.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-721	9180	0.079 [1]
T9	40.8333 - 20.8333	L1 1/2x1 1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-752	9180	0.082 [1]

* DL controls
[1] P_u / ϕP_n controls

Bottom Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	160.833 - 140.833	L 2 x 2 x 5/16	3.50	3.26	100.3 K=1.00	1.1500	-2719	28298	0.096 [1]
T5	120.833 - 100.833	L 2 x 2 x 5/16	3.50	3.26	100.3 K=1.00	1.1500	-2698	28298	0.095 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	160.833 - 140.833 (581)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-6988	44003	0.159 [1]
T3	160.833 - 140.833 (582)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-6797	44003	0.154 [1]
T3	160.833 - 140.833 (587)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-7112	44003	0.162 [1]
T3	160.833 - 140.833 (588)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-7105	44003	0.161 [1]
T3	160.833 - 140.833 (593)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-7387	44003	0.168 [1]
T3	160.833 - 140.833 (594)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-7235	44003	0.164 [1]
T5	120.833 - 100.833 (599)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-3713	44003	0.084 [1]
T5	120.833 - 100.833 (600)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-3556	44003	0.081 [1]
T5	120.833 - 100.833 (605)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-3958	44003	0.090 [1]
T5	120.833 - 100.833 (606)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-3974	44003	0.090 [1]
T5	120.833 - 100.833 (611)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-4294	44003	0.098 [1]
T5	120.833 - 100.833 (612)	L3x3x1/4	3.50	3.38	69.3 K=1.00	1.4400	-4203	44003	0.096 [1]

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180.833 - 160.833	P2.5x0.203	20.00	0.08	1.1	1.7040	9005	84351	0.107 [1]
T3	160.833 - 140.833	P2.5x0.203	20.00	0.08	1.1	1.7040	9005	84351	0.107 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	5/8	4.81	4.48	344.4	0.3068	1557	9940	0.157 [1]
T2	180.833 - 160.833	5/8	4.81	4.48	344.4	0.3068	5445	9940	0.548 [1]
T3	160.833 - 140.833	5/8	4.81	4.48	344.4	0.3068	3506	9940	0.353 [1]
T4	140.833 - 120.833	5/8	4.81	4.48	344.4	0.3068	2676	9940	0.269 [1]
T5	120.833 - 100.833	5/8	4.81	4.48	344.4	0.3068	4031	9940	0.405 [1]
T6	100.833 - 80.8333	5/8	4.81	4.48	344.4	0.3068	2682	9940	0.270 [1]
T7	80.8333 - 60.8333	5/8	4.81	4.48	344.4	0.3068	1302	9940	0.131 [1]
T8	60.8333 - 40.8333	5/8	4.81	4.48	344.4	0.3068	2099	9940	0.211 [1]
T9	40.8333 - 20.8333	5/8	4.81	4.48	344.4	0.3068	1398	9940	0.141 [1]
T10	20.8333 - 0.8333	5/8	4.82	4.49	345.1	0.3068	2475	9940	0.249 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	292	17086	0.017 [1]
T2	180.833 - 160.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	510	17086	0.030 [1]
T3	160.833 - 140.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	622	17086	0.036 [1]
T4	140.833 - 120.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	769	17086	0.045 [1]
T5	120.833 - 100.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	834	17086	0.049 [1]
T6	100.833 - 80.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	591	17086	0.035*[1]
T7	80.8333 - 60.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	615	17086	0.036*[1]
T8	60.8333 - 40.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	721	17086	0.042 [1]
T9	40.8333 - 20.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	752	17086	0.044 [1]
T10	20.8333 - 0.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	752	17086	0.044 [1]

* DL controls
[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180.833 - 160.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	510	17086	0.030 [1]
T3	160.833 - 140.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1695	17086	0.099 [1]
T4	140.833 - 120.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	769	17086	0.045 [1]
T5	120.833 - 100.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	834	17086	0.049 [1]
T6	100.833 - 80.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	591	17086	0.035*[1]
T7	80.8333 - 60.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	615	17086	0.036*[1]
T9	40.8333 - 20.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	752	17086	0.044 [1]
T10	20.8333 - 0.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	752	17086	0.044 [1]

* DL controls
[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	187	17086	0.011 [1]
T2	180.833 - 160.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1375	17086	0.080 [1]
T3	160.833 - 140.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	622	17086	0.036 [1]
T4	140.833 - 120.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	769	17086	0.045 [1]
T5	120.833 - 100.833	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	834	17086	0.049 [1]
T6	100.833 - 80.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	591	17086	0.035*[1]
T7	80.8333 - 60.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1097	17086	0.064 [1]
T8	60.8333 - 40.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	721	17086	0.042 [1]
T9	40.8333 - 20.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	752	17086	0.044 [1]
T10	20.8333 - 0.8333	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	190	17086	0.011*[1]

* DL controls
[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190.833 - 180.833	L1 3/4x1 3/4x3/16	3.50	3.26	72.9	0.6211	3776	20123	0.188 [1]
T8	60.8333 - 40.8333	L1 3/4x1 3/4x3/16	3.50	3.26	72.9	0.6211	1990	20123	0.099 [1]

[1] P_u / ϕP_n controls

Bottom Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	160.833 - 140.833	L 2 x 2 x 5/16	3.50	3.26	65.1	1.1500	2262	37260	0.061 [1]
T5	120.833 - 100.833	L 2 x 2 x 5/16	3.50	3.26	65.1	1.1500	1649	37260	0.044 [1]

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	160.833 - 140.833 (579)	L3x3x1/4	4.81	4.65	60.3	0.9159	9121	39843	0.229 [1]
T3	160.833 - 140.833 (580)	L3x3x1/4	4.81	4.65	60.3	0.9159	10084	39843	0.253 [1]
T3	160.833 - 140.833 (585)	L3x3x1/4	4.81	4.65	60.3	0.9159	9187	39843	0.231 [1]
T3	160.833 - 140.833 (586)	L3x3x1/4	4.81	4.65	60.3	0.9159	9007	39843	0.226 [1]
T3	160.833 - 140.833 (591)	L3x3x1/4	4.81	4.65	60.3	0.9159	8826	39843	0.222 [1]
T3	160.833 - 140.833 (592)	L3x3x1/4	4.81	4.65	60.3	0.9159	9622	39843	0.241 [1]
T5	120.833 - 100.833 (597)	L3x3x1/4	4.81	4.65	60.3	0.9159	5195	39843	0.130 [1]
T5	120.833 - 100.833 (598)	L3x3x1/4	4.81	4.65	60.3	0.9159	5280	39843	0.133 [1]
T5	120.833 - 100.833 (603)	L3x3x1/4	4.81	4.65	60.3	0.9159	5108	39843	0.128 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	120.833 - 100.833 (604)	L3x3x1/4	4.81	4.65	60.3	0.9159	5056	39843	0.127 [1]
T5	120.833 - 100.833 (609)	L3x3x1/4	4.81	4.65	60.3	0.9159	5155	39843	0.129 [1]
T5	120.833 - 100.833 (610)	L3x3x1/4	4.81	4.65	60.3	0.9159	5277	39843	0.132 [1]

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T3	160.833 - 140.833 (581)	L3x3x1/4	3.50	3.38	43.8	0.9159	2630	39843	0.066 [1]
T3	160.833 - 140.833 (582)	L3x3x1/4	3.50	3.38	43.8	0.9159	2613	39843	0.066 [1]
T3	160.833 - 140.833 (587)	L3x3x1/4	3.50	3.38	43.8	0.9159	2802	39843	0.070 [1]
T3	160.833 - 140.833 (588)	L3x3x1/4	3.50	3.38	43.8	0.9159	2802	39843	0.070 [1]
T3	160.833 - 140.833 (593)	L3x3x1/4	3.50	3.38	43.8	0.9159	2819	39843	0.071 [1]
T3	160.833 - 140.833 (594)	L3x3x1/4	3.50	3.38	43.8	0.9159	2816	39843	0.071 [1]
T5	120.833 - 100.833 (599)	L3x3x1/4	3.50	3.38	43.8	0.9159	2135	39843	0.054 [1]
T5	120.833 - 100.833 (600)	L3x3x1/4	3.50	3.38	43.8	0.9159	1836	39843	0.046 [1]
T5	120.833 - 100.833 (605)	L3x3x1/4	3.50	3.38	43.8	0.9159	2201	39843	0.055 [1]
T5	120.833 - 100.833 (606)	L3x3x1/4	3.50	3.38	43.8	0.9159	2185	39843	0.055 [1]
T5	120.833 - 100.833 (611)	L3x3x1/4	3.50	3.38	43.8	0.9159	2747	39843	0.069 [1]
T5	120.833 - 100.833 (612)	L3x3x1/4	3.50	3.38	43.8	0.9159	2374	39843	0.060 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	190.833 - 180.833	Leg	P2.5x0.203	2	-10803	76921	14.0	Pass
T2	180.833 - 160.833	Leg	P2.5x0.203	35	-29402	76921	38.2	Pass
T3	160.833 - 140.833	Leg	P2.5x0.203	95	-35908	76921	46.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T4	140.833 - 120.833	Leg	P2.5x0.203	155	-44360	76921	57.7	Pass
T5	120.833 - 100.833	Leg	P2.5x0.203	215	-48150	76921	62.6	Pass
T6	100.833 - 80.8333	Leg	P2.5x0.203	276	-34125	73258	46.6	Pass
T7	80.8333 - 60.8333	Leg	P2.5x0.203	336	-35467	73258	48.4	Pass
T8	60.8333 - 40.8333	Leg	P2.5x0.203	395	-41522	76921	54.0	Pass
T9	40.8333 - 20.8333	Leg	P2.5x0.203	455	-43414	76921	56.4	Pass
T10	20.8333 - 0.8333	Leg	P2.5x0.203	515	-43392	76830	56.5	Pass
T1	190.833 - 180.833	Diagonal	5/8	28	1557	10437	14.9	Pass
T2	180.833 - 160.833	Diagonal	5/8	46	5445	10437	52.2	Pass
T3	160.833 - 140.833	Diagonal	5/8	133	3506	10437	33.6	Pass
T4	140.833 - 120.833	Diagonal	5/8	166	2676	10437	25.6	Pass
T5	120.833 - 100.833	Diagonal	5/8	252	4031	10437	38.6	Pass
T6	100.833 - 80.8333	Diagonal	5/8	330	2682	10437	25.7	Pass
T7	80.8333 - 60.8333	Diagonal	5/8	345	1302	10437	12.5	Pass
T8	60.8333 - 40.8333	Diagonal	5/8	440	2099	10437	20.1	Pass
T9	40.8333 - 20.8333	Diagonal	5/8	466	1398	10437	13.4	Pass
T10	20.8333 - 0.8333	Diagonal	5/8	535	2475	10437	23.7	Pass
T1	190.833 - 180.833	Horizontal	L1 1/2x1 1/2x3/16	26	-695	9639	7.2	Pass
T2	180.833 - 160.833	Horizontal	L1 1/2x1 1/2x3/16	50	-3502	9639	36.3	Pass
T3	160.833 - 140.833	Horizontal	L1 1/2x1 1/2x3/16	137	-2543	9639	26.4	Pass
T4	140.833 - 120.833	Horizontal	L1 1/2x1 1/2x3/16	170	-1872	9639	19.4	Pass
T5	120.833 - 100.833	Horizontal	L1 1/2x1 1/2x3/16	257	-2894	9639	30.0	Pass
T6	100.833 - 80.8333	Horizontal	L1 1/2x1 1/2x3/16	326	-1801	9639	18.7	Pass
T7	80.8333 - 60.8333	Horizontal	L1 1/2x1 1/2x3/16	350	-929	9639	9.6	Pass
T8	60.8333 - 40.8333	Horizontal	L1 1/2x1 1/2x3/16	436	-1452	9639	15.1	Pass
T9	40.8333 - 20.8333	Horizontal	L1 1/2x1 1/2x3/16	470	-912	9639	9.5	Pass
T10	20.8333 - 0.8333	Horizontal	L1 1/2x1 1/2x3/16	539	-1734	9639	18.0	Pass
T2	180.833 - 160.833	Top Girt	L1 1/2x1 1/2x3/16	37	-510	9639	5.3	Pass
T3	160.833 - 140.833	Top Girt	L1 1/2x1 1/2x3/16	99	-2004	9639	20.8	Pass
T4	140.833 - 120.833	Top Girt	L1 1/2x1 1/2x3/16	157	-769	9639	8.0	Pass
T5	120.833 - 100.833	Top Girt	L1 1/2x1 1/2x3/16	219	-925	9639	9.6	Pass
T6	100.833 - 80.8333	Top Girt	L1 1/2x1 1/2x3/16	278	-1014	9639	10.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T7	80.8333 - 60.8333	Top Girt	L1 1/2x1 1/2x3/16	338	-615	9180	6.7	Pass
T9	40.8333 - 20.8333	Top Girt	L1 1/2x1 1/2x3/16	457	-752	9639	7.8	Pass
T10	20.8333 - 0.8333	Top Girt	L1 1/2x1 1/2x3/16	517	-752	9639	7.8	Pass
T1	190.833 - 180.833	Bottom Girt	L1 1/2x1 1/2x3/16	9	-270	9639	2.8	Pass
T2	180.833 - 160.833	Bottom Girt	L1 1/2x1 1/2x3/16	42	-2153	9639	22.3	Pass
T3	160.833 - 140.833	Bottom Girt	L1 1/2x1 1/2x3/16	100	-622	9639	6.5	Pass
T4	140.833 - 120.833	Bottom Girt	L1 1/2x1 1/2x3/16	162	-975	9639	10.1	Pass
T5	120.833 - 100.833	Bottom Girt	L1 1/2x1 1/2x3/16	221	-1101	9639	11.4	Pass
T6	100.833 - 80.8333	Bottom Girt	L1 1/2x1 1/2x3/16	281	-591	9180	6.4	Pass
T7	80.8333 - 60.8333	Bottom Girt	L1 1/2x1 1/2x3/16	341	-615	9180	6.7	Pass
T8	60.8333 - 40.8333	Bottom Girt	L1 1/2x1 1/2x3/16	400	-721	9639	7.5	Pass
T9	40.8333 - 20.8333	Bottom Girt	L1 1/2x1 1/2x3/16	460	-752	9639	7.8	Pass
T10	20.8333 - 0.8333	Bottom Girt	L1 1/2x1 1/2x3/16	521	190	17086	1.1	Pass
T1	190.833 - 180.833	Guy A@190.833	9/16	576	10563	22050	47.9	Pass
T3	160.833 - 140.833	Guy A@157.444	5/8	590	10252	26711	38.4	Pass
T5	120.833 - 100.833	Guy A@117.444	9/16	607	6377	22050	28.9	Pass
T8	60.8333 - 40.8333	Guy A@60.75	9/16	615	6225	22050	28.2	Pass
T1	190.833 - 180.833	Guy B@190.833	9/16	575	10936	22050	49.6	Pass
T3	160.833 - 140.833	Guy B@157.444	5/8	584	11023	26711	41.3	Pass
T5	120.833 - 100.833	Guy B@117.444	9/16	602	7207	22050	32.7	Pass
T8	60.8333 - 40.8333	Guy B@60.75	9/16	614	7052	22050	32.0	Pass
T1	190.833 - 180.833	Guy C@190.833	9/16	574	10569	22050	47.9	Pass
T3	160.833 - 140.833	Guy C@157.444	5/8	577	10860	26711	40.7	Pass
T5	120.833 - 100.833	Guy C@117.444	9/16	595	6813	22050	30.9	Pass
T8	60.8333 - 40.8333	Guy C@60.75	9/16	613	6535	22050	29.6	Pass
T1	190.833 - 180.833	Top Guy Pull-Off@190.833	L1 3/4x1 3/4x3/16	6	3776	21130	17.9	Pass
T8	60.8333 - 40.8333	Top Guy Pull-Off@60.75	L1 3/4x1 3/4x3/16	398	1990	21130	9.4	Pass
T3	160.833 - 140.833	Bottom Guy Pull-Off@157.444	L 2 x 2 x 5/16	147	-2719	29713	9.1	Pass
T5	120.833 - 100.833	Bottom Guy Pull-Off@117.444	L 2 x 2 x 5/16	267	-2698	29713	9.1	Pass
T3	160.833 - 140.833	Torque Arm Top@157.444	L3x3x1/4	580	10084	41835	24.1 43.1 (b)	Pass
T5	120.833 - 100.833	Torque Arm Top@117.444	L3x3x1/4	598	5280	41835	12.6 22.6 (b)	Pass
T3	160.833 -	Torque Arm	L3x3x1/4	593	-7387	46203	16.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T5	140.833 - 120.833 - 100.833	Bottom@157.444 Torque Arm Bottom@117.444	L3x3x1/4	611	-4294	46203	17.7 (b) 9.3 11.7 (b)	Pass
							Summary	
							Leg (T5) 62.6	Pass
							Diagonal (T2) 52.2	Pass
							Horizontal (T2) 36.3	Pass
							Top Girt (T3) 20.8	Pass
							Bottom Girt (T2) 22.3	Pass
							Guy A (T1) 47.9	Pass
							Guy B (T1) 49.6	Pass
							Guy C (T1) 47.9	Pass
							Top Guy Pull-Off (T1) 17.9	Pass
							Bottom Guy Pull-Off (T3) 9.1	Pass
							Torque Arm Top (T3) 43.1	Pass
							Torque Arm Bottom (T3) 17.7	Pass
							Bolt Checks 43.1	Pass
							RATING = 62.6	**Pass**

APPENDIX B

ADDITIONAL CALCULATIONS

Uplift: Path B / R = 150.0 ft:	33.8%	Pass
Shear: Path B / R = 150.0 ft:	61.4%	Pass

Eastford CDT (702497)

TEP #: 25707.576390

Analysis: KFW 9/15/2021

Check: WHW 9/15/2021

Guy Anchor Analysis_v1.5.10

Code Revisions: ANSI/TIA-222-H, ACI 318-14

Number of Soil Borings: 3

	Path A		Path B		Path C		Block Geometry				
Radius (ft)	Uplift (k)	Shear (k)	Uplift (k)	Shear (k)	Uplift (k)	Shear (k)	Length (ft)	Width (ft)	Thickness (ft)	Depth (ft)	Toe (in)
150.0	32.38	36.05	34.44	38.65	32.81	36.67	11.50	5.50	2.00	6.00	

Boring: 1 B-4 **Water Table:** 99.00-ft

Layer	Depth from (ft)	Depth to (ft)	Soil Type	Effective Density, γ (lb/ft³)	Cohesion (psf)	Friction Angle, φ (°)	Ult. Skin Friction (psf)	Friction Factor, μ
1	0.00	3.333	Sand	113.0		31.00		0.00
2	3.33	5.000	Sand	113.0		31.00		0.00
3	5.00	8.000	Sand	113.0		36.00		0.45

Overrides	
Ult. $P_{P,TOP}$ (psf)	Ult. $P_{P,BOT}$ (psf)

Boring: 2 B-2 **Water Table:** 99.00-ft

Layer	Depth from (ft)	Depth to (ft)	Soil Type	Effective Density, γ (lb/ft³)	Cohesion (psf)	Friction Angle, φ (°)	Ult. Skin Friction (psf)	Friction Factor, μ
1	0.000	0.500	Sand	70.0				0.00
2	0.500	3.333	Sand	113.0		33.00		0.00
3	3.333	5.000	Sand	113.0		33.00		0.00
4	5.000	9.500	Sand	113.0		36.00		0.45

Overrides	
Ult. $P_{P,TOP}$ (psf)	Ult. $P_{P,BOT}$ psf)

Boring: 3 B-3 **Water Table:** 99.00-ft

Layer	Depth from (ft)	Depth to (ft)	Soil Type	Effective Density, γ (lb/ft³)	Cohesion (psf)	Friction Angle, φ (°)	Ult. Skin Friction (psf)	Friction Factor, μ
1	0.000	0.500	Sand	70.0				0.00
2	0.500	3.333	Sand	113.0		31.00		0.00
3	3.333	5.000	Sand	113.0		31.00		0.00
4	5.000	8.500	Sand	113.0		35.00		0.45

Overrides	
Ult. $P_{P,TOP}$ (psf)	Ult. $P_{P,BOT}$ (psf)

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Uplift:	31.3%	Pass
Shear:	54.9%	Pass

Eastford CDT (702497)

TEP #: 25707.576390

Analysis: KFW 9/15/2021

Check: WHW 9/15/2021

Guy Anchor Analysis_v1.5.10 - Uplift

Guy Path:	A	**Length:**	11.50 ft	**Block Depth:**	6.00 ft	**Uplift:**	32.38 k
Radius:	150.0-ft	**Width:**	5.50 ft	**Groundwater:**	99.00 ft	**Shear:**	36.05 k
Boring:	1	**Thickness:**	2.00 ft			**Resultant:**	48.46 k
		Toe:	0.00 ft			**Installation Angle:**	41.9°

SOIL WEIGHT

Layer	Layer Thickness (ft)	Block t in Layer (ft)	L_{BOT} (ft)	W_{BOT} (ft)	L_{TOP} (ft)	W_{TOP} (ft)	SF Around Perimeter (k)	Volume of Toe (ft^3)	Volume (ft^3)	$W_{SOIL,ABOVE}$ (k)	$W_{SOIL,SIDES}$ (k)
3	1.000	0.000	11.500	5.500	12.953	6.953	0.000	0.000	76.305	7.147	1.475
2	1.667	0.000	12.953	6.953	14.956	8.956	0.000	0.000	185.604	11.914	9.059
1	3.333	0.000	14.956	8.956	18.962	12.962	0.000	0.000	623.908	23.822	46.680

Layer	Block t in Layer (ft)	Skin Friction (ksf)	SF Sides (k)	SF Front (k)	SF Back (k)
3	2.00	0.00	0.00	0.00	0.00

Cohesive Soil SF

SF: 0.00 k

ϕSF: ~~0.00 k~~

Total Soil Weight

	Above	Sides
W_S:	42.88 k	57.21 k
ϕW_S:	38.60 k	42.91 k

Total Concrete Weight

$V_{\uparrow GW}$: 126.50 ft^3

$V_{\downarrow GW}$: 0.00 ft^3

W_C: 18.98 k

ϕW_C: 17.08 k

Total Skin Friction

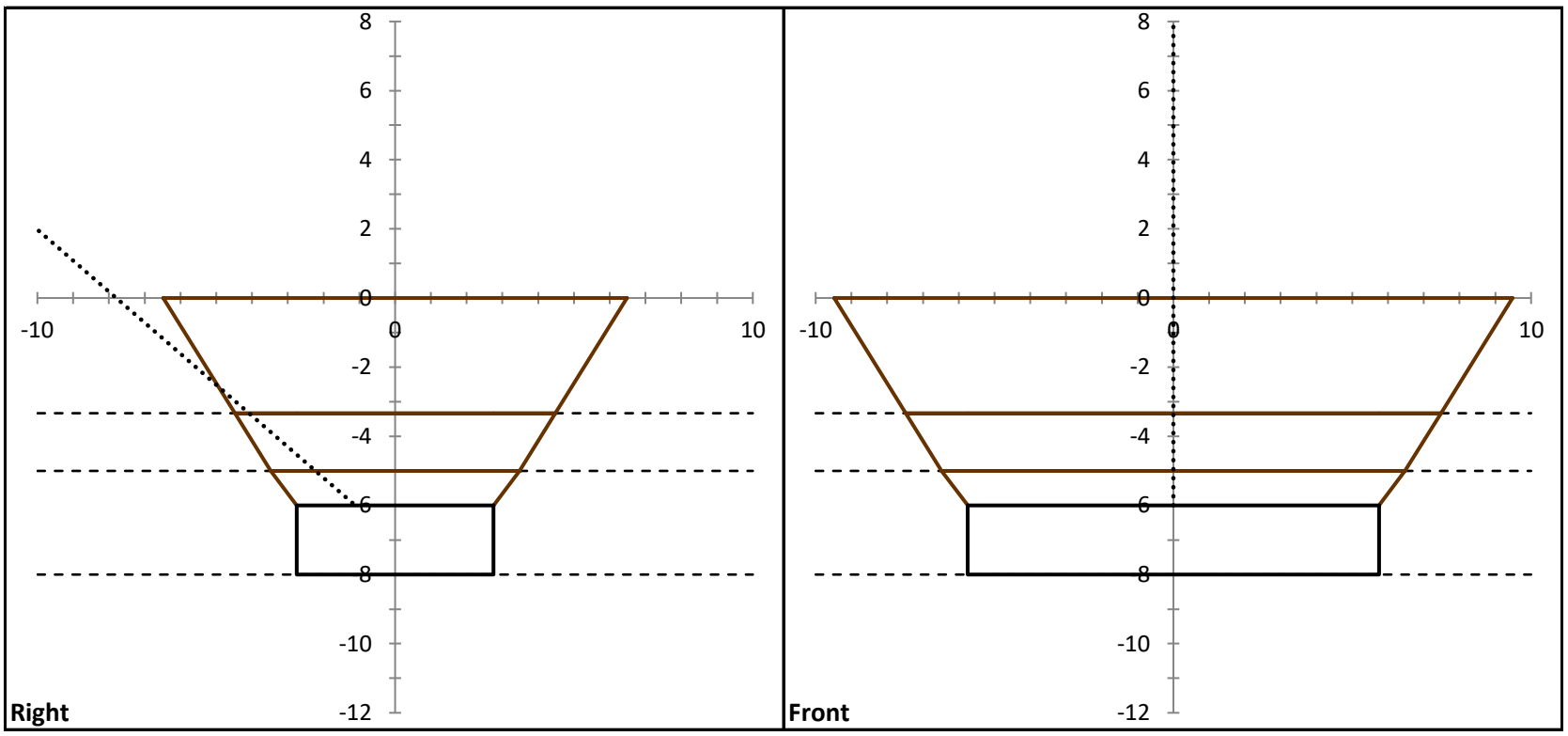
SF: 0.00 k

ϕSF: 0.00 k

Uplift: 32.38 k

U_{ALLOW}: 98.58 k

Capacity: 31.3%



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Eastford CDT (702497)

TEP #: 25707.576390

Analysis: KFW 9/15/2021

Check: WHW 9/15/2021

Guy Anchor Analysis_v1.5.10 - Shear

Guy Path:	A	**Length:**	11.50 ft	**Block Depth:**	6.00 ft	**Uplift:**	32.38 k
Radius:	150.0-ft	**Width:**	5.50 ft	**Groundwater:**	99.00 ft	**Shear:**	36.05 k
Boring:	1	**Thickness:**	2.00 ft			**Resultant:**	48.46 k
						Installation Angle:	41.9°

PASSIVE PRESSURE RESISTANCE

Layer	Depth (ft)	Depth of Block (ft)	$\sigma'_{vo,Top}$ (ksf)	γ_{Layer} (pcf)	$\sigma'_{vo,Bot}$ (ksf)	K_P	$P_{P,Top}$ (ksf)	$P_{P,Bot}$ (ksf)	Resistance (kip)
3	6.00	2.00	0.678	113.00	0.904	3.85	2.612	3.482	70.08

Layer	Block t in Layer (ft)	Skin Friction (ksf)	SF Sides (k)	SF Top (k)	SF Bottom (k)
3	2.00	0.00	0.00	0.00	0.00

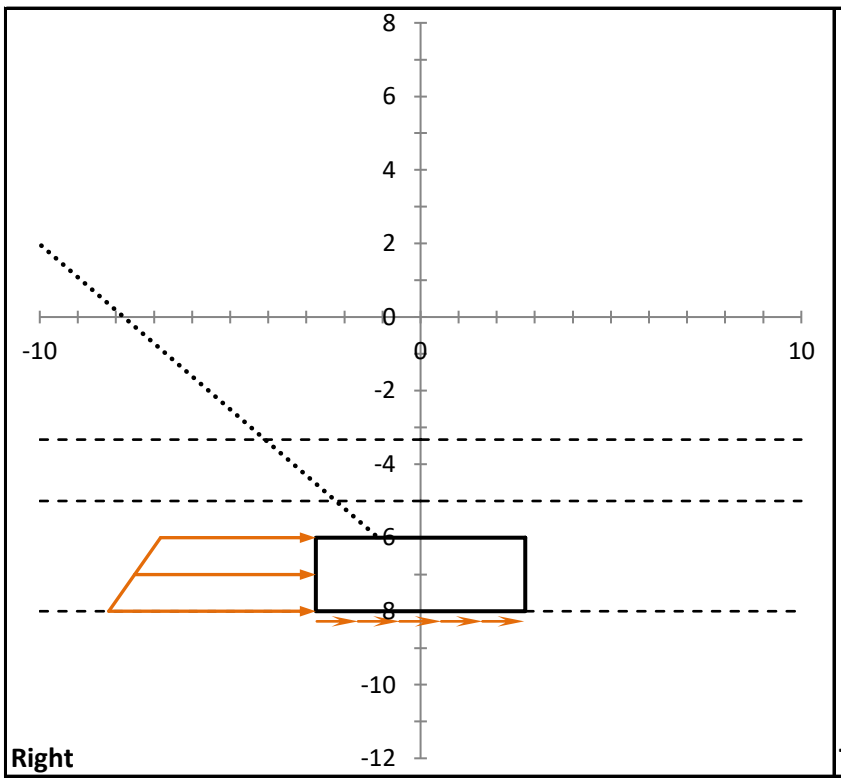
Total Skin Friction

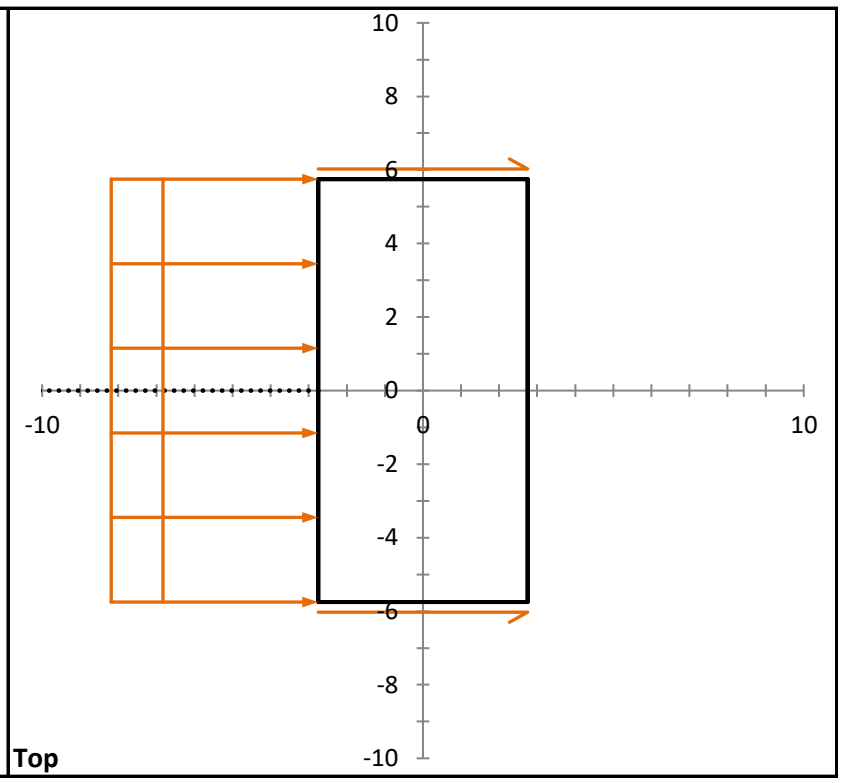
SF:	0.00 k
ϕSF:	0.00 k

Weights

W_S:	42.88 k	57.21 k
W_C:	18.98 k	

Uplift SF:	0.00 k
U_{ALLOW}:	98.58 k
U_{Eff}:	32.38 k
$F_\perp$:	29.48 k
μ:	0.45
Friction:	13.27 k
ϕFriction:	9.95 k
H:	36.1 k
H_{ALLOW}:	62.5 k
Capacity:	54.9%





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Uplift:	33.8%	Pass
Shear:	61.4%	Pass

Eastford CDT (702497)

TEP #: 25707.576390

Analysis: KFW 9/15/2021

Check: WHW 9/15/2021

Guy Anchor Analysis_v1.5.10 - Uplift

Guy Path:	B	**Length:**	11.50 ft	**Block Depth:**	6.00 ft	**Uplift:**	34.44 k
Radius:	150.0-ft	**Width:**	5.50 ft	**Groundwater:**	99.00 ft	**Shear:**	38.65 k
Boring:	2	**Thickness:**	2.00 ft			**Resultant:**	51.77 k
		Toe:	0.00 ft			**Installation Angle:**	41.7°

SOIL WEIGHT

Layer	Layer Thickness (ft)	Block t in Layer (ft)	L_{BOT} (ft)	W_{BOT} (ft)	L_{TOP} (ft)	W_{TOP} (ft)	SF Around Perimeter (k)	Volume of Toe (ft^3)	Volume (ft^3)	$W_{SOIL,ABOVE}$ (k)	$W_{SOIL,SIDES}$ (k)
4	1.000	0.000	11.500	5.500	12.953	6.953	0.000	0.000	76.305	7.147	1.475
3	1.667	0.000	12.953	6.953	15.118	9.118	0.000	0.000	188.665	11.914	9.405
2	2.833	0.000	15.118	9.118	18.798	12.798	0.000	0.000	529.639	20.248	39.601
1	0.500	0.000	18.798	12.798	18.798	12.798	0.000	0.000	120.285	2.214	6.206

Layer	Block t in Layer (ft)	Skin Friction (ksf)	SF Sides (k)	SF Front (k)	SF Back (k)
4	2.00	0.00	0.00	0.00	0.00

Cohesive Soil SF

SF:	0.00 k
ϕSF:	~~0.00 k~~

Total Soil Weight

	Above	Sides
W_S:	41.52 k	56.69 k
ϕW_S:	37.37 k	42.52 k

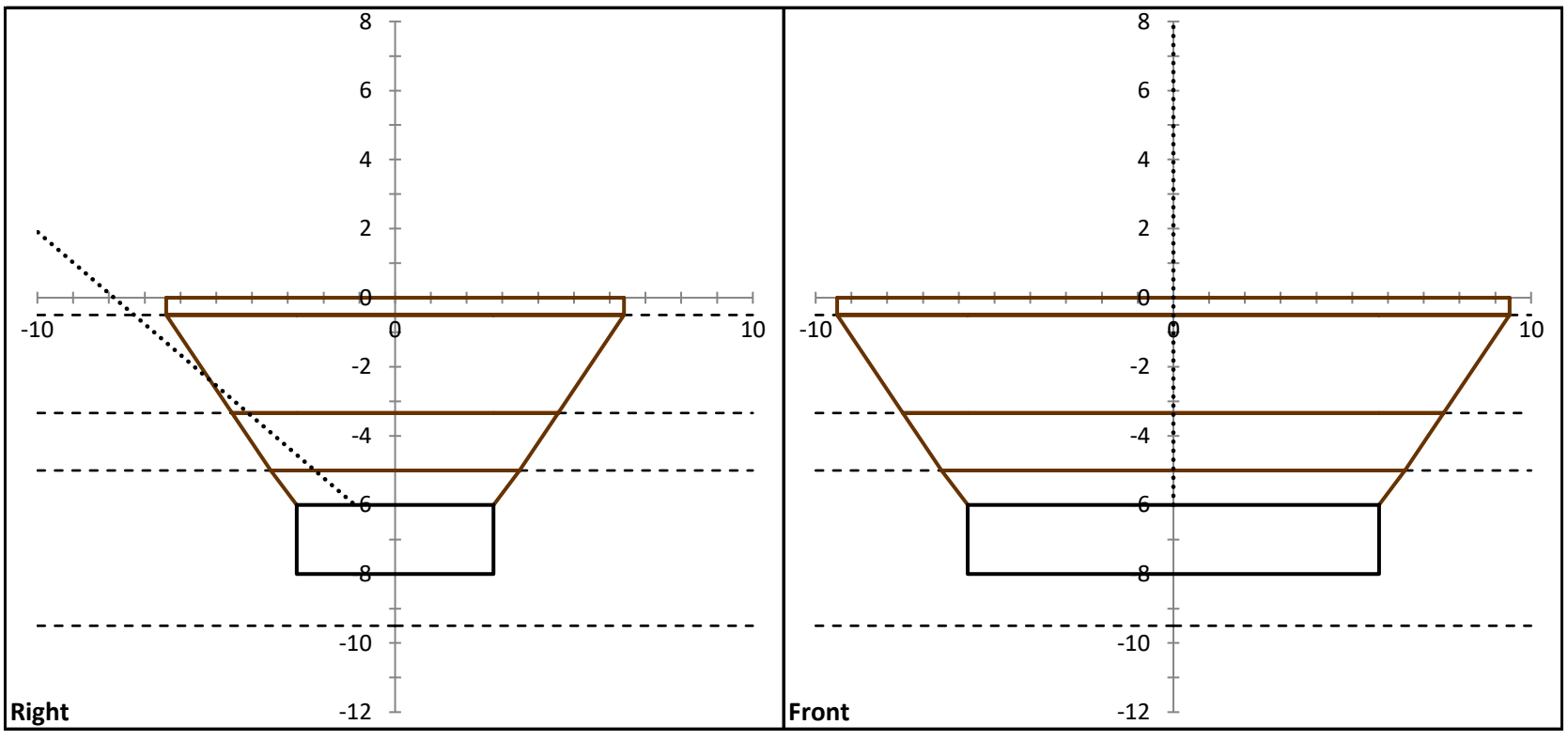
Total Concrete Weight

$V_{\uparrow GW}$:	126.50 ft^3
$V_{\downarrow GW}$:	0.00 ft^3
W_C:	18.98 k
ϕW_C:	17.08 k

Total Skin Friction

SF:	0.00 k
ϕSF:	0.00 k

Uplift:	34.44 k
U_{ALLOW}:	96.96 k
Capacity:	33.8%



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Guy Anchor Analysis_v1.5.10 - Shear

Guy Path:	B	**Length:**	11.50 ft	**Block Depth:**	6.00 ft	**Uplift:**	34.44 k
Radius:	150.0-ft	**Width:**	5.50 ft	**Groundwater:**	99.00 ft	**Shear:**	38.65 k
Boring:	2	**Thickness:**	2.00 ft			**Resultant:**	51.77 k
						Installation Angle:	41.7°

PASSIVE PRESSURE RESISTANCE

Layer	Depth (ft)	Depth of Block (ft)	$\sigma'_{vo,Top}$ (ksf)	γ_{Layer} (pcf)	$\sigma'_{vo,Bot}$ (ksf)	K_P	$P_{P,Top}$ (ksf)	$P_{P,Bot}$ (ksf)	Resistance (kip)
4	6.00	2.00	0.657	113.00	0.883	3.85	2.529	3.399	68.17

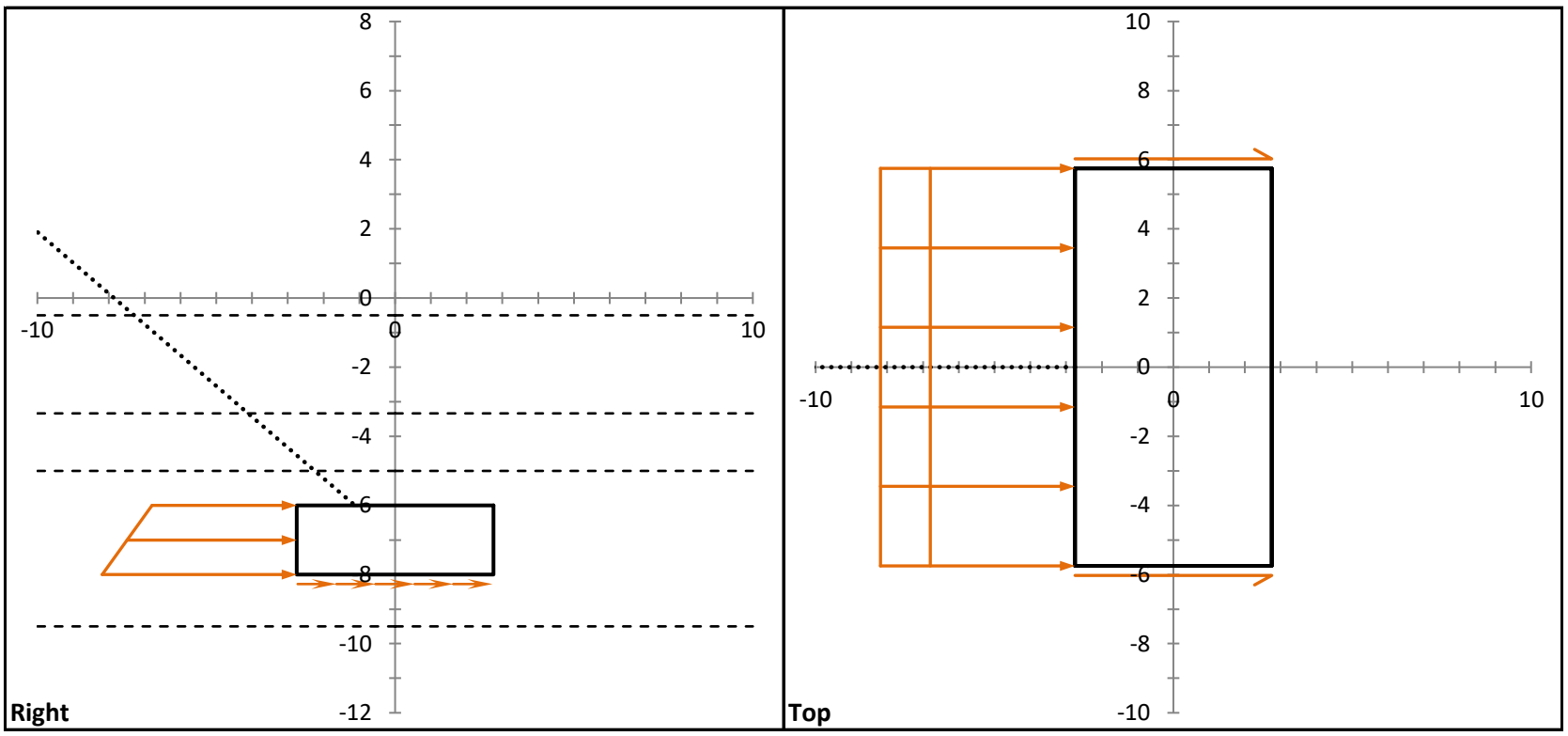
Layer	Block t in Layer (ft)	Skin Friction (ksf)	SF Sides (k)	SF Top (k)	SF Bottom (k)
4	2.00	0.00	0.00	0.00	0.00

Total Skin Friction

SF:	0.00 k
ϕSF:	0.00 k

Weights

W_S:	41.52 k	56.69 k
W_C:	18.98 k	
Uplift SF:	0.00 k	
U_{ALLOW}:	96.96 k	
U_{Eff}:	34.44 k	
$F_\perp$:	26.06 k	
μ:	0.45	
Friction:	11.73 k	
ϕFriction:	8.79 k	
H:	38.7 k	
H_{ALLOW}:	59.9 k	
Capacity:	61.4%	



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Uplift:	33.3%	Pass
Shear:	59.9%	Pass

Eastford CDT (702497)

TEP #: 25707.576390

Analysis: KFW 9/15/2021

Check: WHW 9/15/2021

Guy Anchor Analysis_v1.5.10 - Uplift

Guy Path:	C	**Length:**	11.50 ft	**Block Depth:**	6.00 ft	**Uplift:**	32.81 k
Radius:	150.0-ft	**Width:**	5.50 ft	**Groundwater:**	99.00 ft	**Shear:**	36.67 k
Boring:	3	**Thickness:**	2.00 ft			**Resultant:**	49.21 k
		Toe:	0.00 ft			**Installation Angle:**	41.8°

SOIL WEIGHT

Layer	Layer Thickness (ft)	Block t in Layer (ft)	L_{BOT} (ft)	W_{BOT} (ft)	L_{TOP} (ft)	W_{TOP} (ft)	SF Around Perimeter (k)	Volume of Toe (ft^3)	Volume (ft^3)	$W_{SOIL,ABOVE}$ (k)	$W_{SOIL,SIDES}$ (k)
4	1.000	0.000	11.500	5.500	12.900	6.900	0.000	0.000	75.807	7.147	1.419
3	1.667	0.000	12.900	6.900	14.904	8.904	0.000	0.000	183.685	11.914	8.842
2	2.833	0.000	14.904	8.904	18.308	12.308	0.000	0.000	501.687	20.248	36.443
1	0.500	0.000	18.308	12.308	18.308	12.308	0.000	0.000	112.670	2.214	5.673

Layer	Block t in Layer (ft)	Skin Friction (ksf)	SF Sides (k)	SF Front (k)	SF Back (k)
4	2.00	0.00	0.00	0.00	0.00

Cohesive Soil SF

SF: 0.00 k

ϕSF: ~~0.00 k~~

Total Soil Weight

	Above	Sides
W_S:	41.52 k	52.38 k
ϕW_S:	37.37 k	39.28 k

Total Concrete Weight

$V_{\uparrow GW}$: 126.50 ft^3

$V_{\downarrow GW}$: 0.00 ft^3

W_C: 18.98 k

ϕW_C: 17.08 k

Total Skin Friction

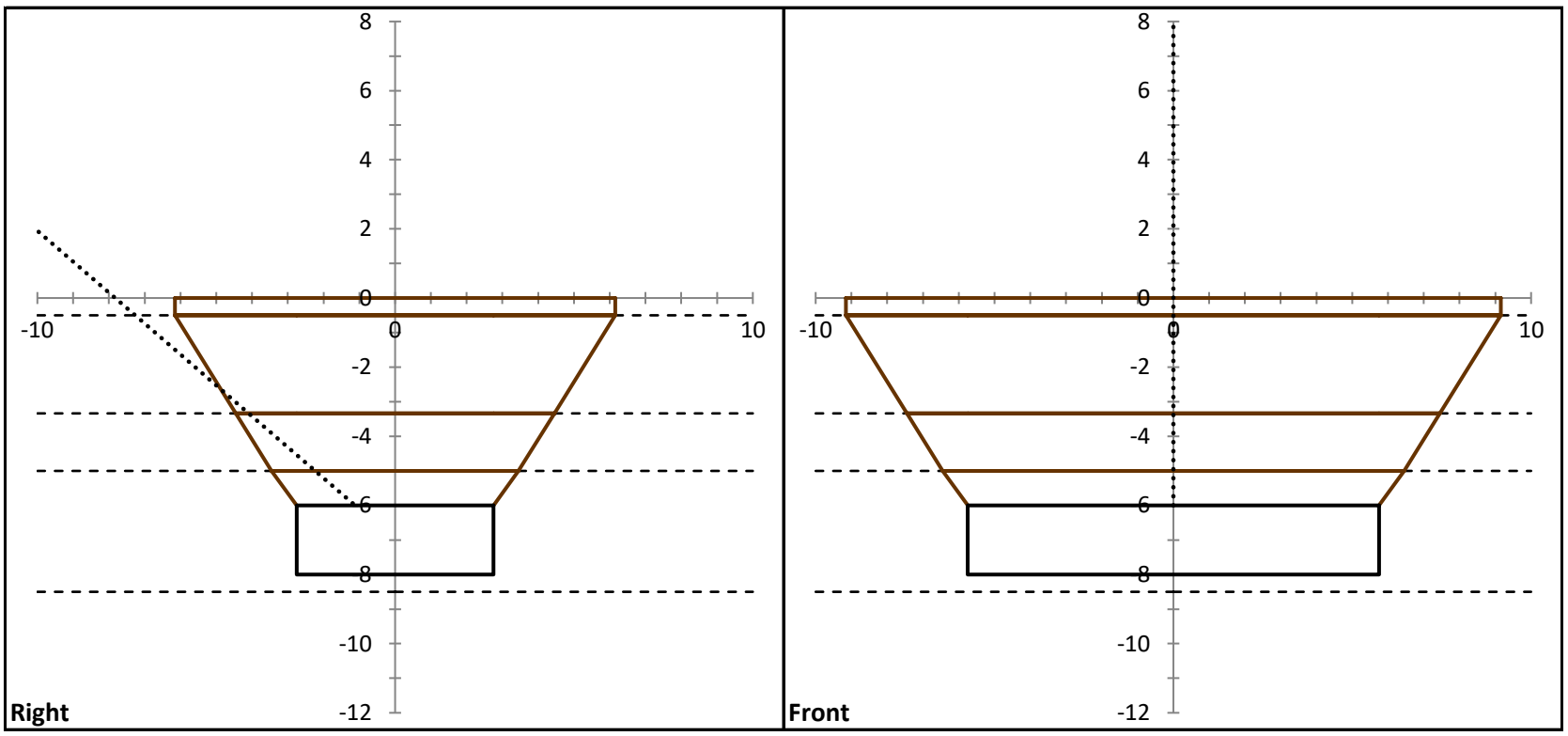
SF: 0.00 k

ϕSF: 0.00 k

Uplift: 32.81 k

U_{ALLOW}: 93.73 k

Capacity: 33.3%



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Eastford CDT (702497)

TEP #: 25707.576390

Analysis: KFW 9/15/2021

Check: WHW 9/15/2021

Guy Anchor Analysis_v1.5.10 - Shear

Guy Path:	C	**Length:**	11.50 ft	**Block Depth:**	6.00 ft	**Uplift:**	32.81 k
Radius:	150.0-ft	**Width:**	5.50 ft	**Groundwater:**	99.00 ft	**Shear:**	36.67 k
Boring:	3	**Thickness:**	2.00 ft			**Resultant:**	49.21 k
						Installation Angle:	41.8°

PASSIVE PRESSURE RESISTANCE

Layer	Depth (ft)	Depth of Block (ft)	$\sigma'_{vo,Top}$ (ksf)	γ_{Layer} (pcf)	$\sigma'_{vo,Bot}$ (ksf)	K_P	$P_{P,Top}$ (ksf)	$P_{P,Bot}$ (ksf)	Resistance (kip)
4	6.00	2.00	0.657	113.00	0.883	3.69	2.423	3.257	65.31

Layer	Block t in Layer (ft)	Skin Friction (ksf)	SF Sides (k)	SF Top (k)	SF Bottom (k)
4	2.00	0.00	0.00	0.00	0.00

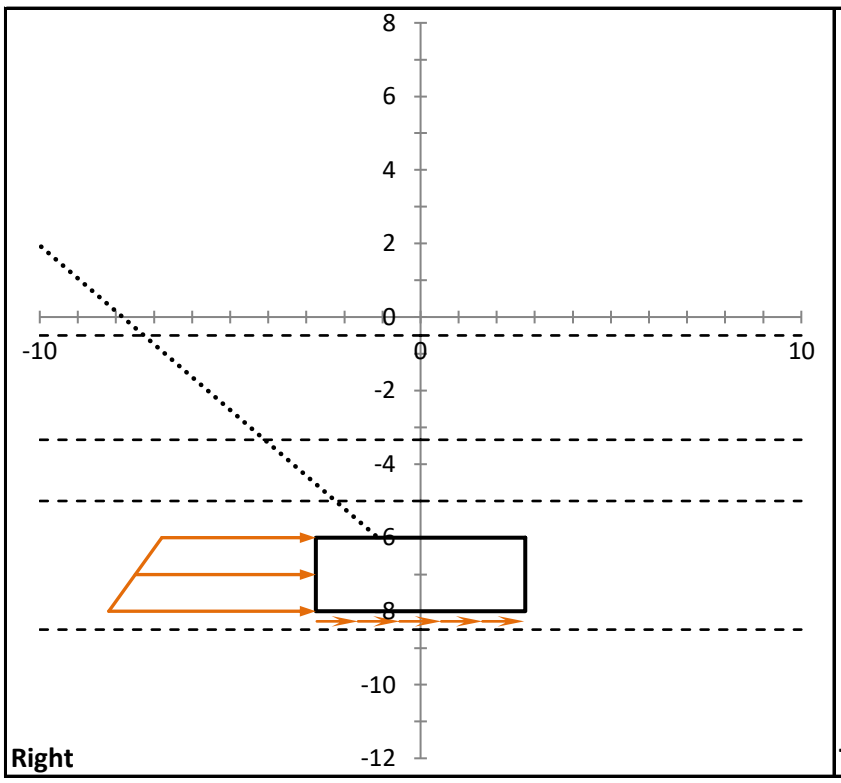
Total Skin Friction

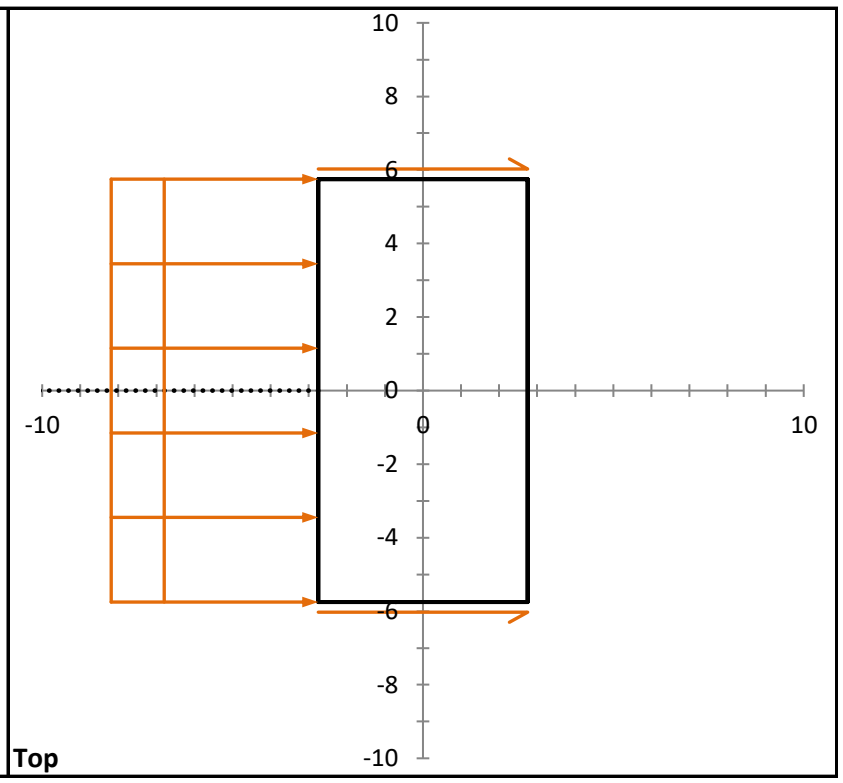
SF:	0.00 k
ϕSF:	0.00 k

Weights

W_S:	41.52 k	52.38 k
W_C:	18.98 k	

Uplift SF:	0.00 k
U_{ALLOW}:	93.73 k
U_{Eff}:	32.81 k
$F_\perp$:	27.69 k
μ:	0.45
Friction:	12.46 k
ϕFriction:	9.35 k
H:	36.7 k
H_{ALLOW}:	58.3 k
Capacity:	59.9%





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Pier and Pad Foundation

Site #:	702497
Site Name:	Eastford CDT
TEP #:	25707.57639

TIA-222 Revision:	H
Tower Type:	Guyed

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	123.476	kips
Base Shear, Vu_comp:	1.503	kips
Moment, M_u:	0	ft-kips
Tower Height, **H**:	190	ft
BP Dist. Above Fdn, bp_{dist}:	0	in
Bolt Circle / Bearing Plate Width, **BC**:	42	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	2	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	5	
Pier Rebar Quantity, **mc**:	8	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	4.5	ft
Pad Width, W_1:	5.5	ft
Pad Thickness, **T**:	1.5	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	5	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	0	
Pad Rebar Size (Bottom dir. 2), Sp_2:	5	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	5	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	113	pcf
Ultimate Gross Bearing, Qult:	32.375	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	38	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.47	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	37.87	1.50	**3.8%**	**Pass**
Bearing Pressure (ksf)	19.43	5.00	**24.5%**	**Pass**
*Overturning (kip*ft)*	255.57	8.27	**3.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	166.11	6.01	**3.4%**	**Pass**
Pier Compression (kip)	1909.44	126.36	**6.3%**	**Pass**
*Pad Flexure (kip*ft)*	96.16	36.70	**36.4%**	**Pass**
Pad Shear - 1-way (kips)	76.25	13.96	**17.4%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.030	**17.6%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	96.16	3.61	**3.6%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**36.4%**
Soil Rating*:	**24.5%**

Anchor Shaft Analysis

Code Revisions: ANSI/TIA-222-H

Number of Anchor Rings: 1

Radius (ft)	Reaction (k)	Shaft Area (in^2)	F_y (ksi)	φTn (k)	Capacity (%)	Pass/Fail
150.0	51.08	2.41	48.00	92.36	52.7%	Pass

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RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA724A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 1 - Site Information

Site ID: CTHA724A
Status: Draft
Version: 1
Project Type: Sprint Retain
Approved: Not Approved
Approved By: Not Approved
Last Modified: 7/9/2021 3:32:53 PM
Last Modified By: Scott.Clemons@T-Mobile.com

Site Name: CTHA724A
Site Class: Guyed Tower
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.87131600
Longitude: -72.06488900
Address: 35 Old Route 44
City, State: Eastford, CT
Region: NORTHEAST

RAN Template: 67E5A998E 6160			AL Template: 67E5998E_1xAIR+1OP	
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

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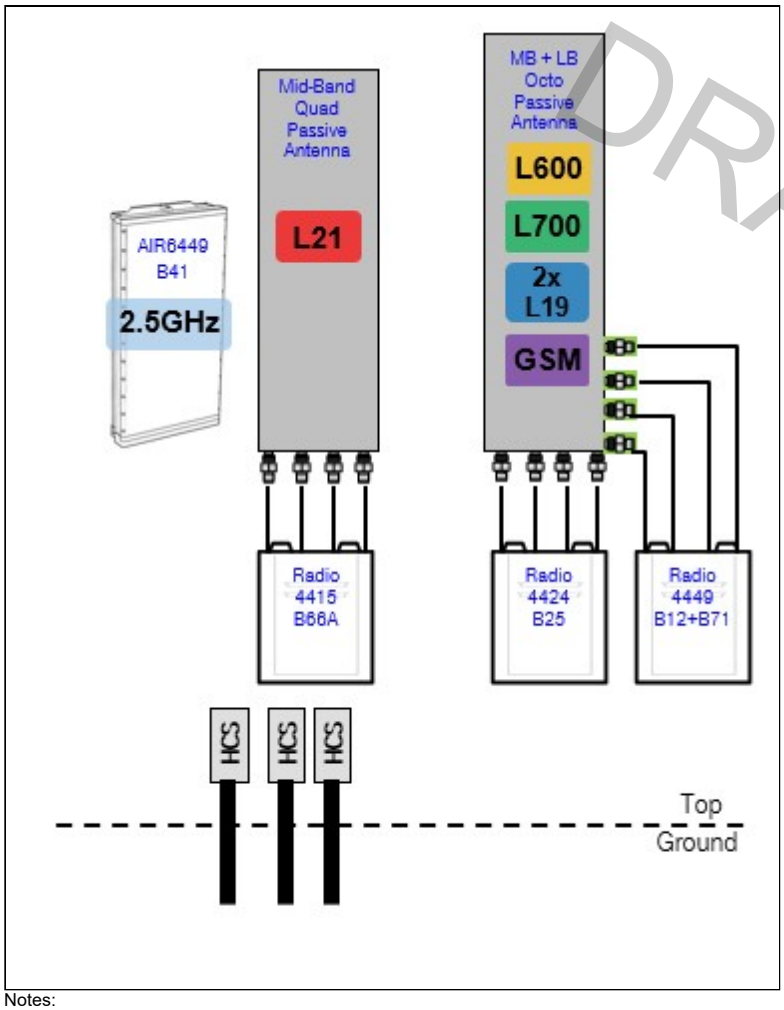
Section 3 - Proposed Template Images

67D5A998C_1xAIR+1xQP+1xOP.jpg



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA724A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 5 - RAN Equipment

Existing RAN Equipment

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Proposed RAN Equipment

Template: 67E5A998E 6160

Enclosure	1	2	3	4
Enclosure Type	Ancillary Equipment (Ericsson)	Enclosure 6160	B160	RBS 6601
Baseband		BB 6648 L2500 N2500; BB 6648 L1900 L2100; BB 6648 L700 L600 N600		DUG20 G1900
Hybrid Cable System	PSU 4813			
Transport System		CSR IXRe V2 (Gen2)		
Functionality Groups	Ericsson Hybrid Trunk 6/24 4AWG *Select Length* **(x 3)**			

RAN Scope of Work:

CT33XC016
Existing & planned azimuth: 120/270//340
Existing 200A service
Add generator.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA724A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 67E5998E_1xAIR+1OP

Sector 1 (Proposed) view from behind						
Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	120				120	
M. Tilt	0				0	
Height	165				165	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900	L2100 L1900 G1900	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA724A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	270				270	
M. Tilt	0				0	
Height	165				165	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900	L2100 L1900 G1900	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA724A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	340				340	
M. Tilt	0				0	
Height	165				165	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900	L2100 L1900 G1900	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2	2	2	2	2	2
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA724A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA724A

35 Old Route 44
Eastford, Connecticut 06242

October 18, 2021

EBI Project Number: 6221006194

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.59%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

October 18, 2021

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

Emissions Analysis for Site: CTHA724A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **35 Old Route 44** in **Eastford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 35 Old Route 44 in Eastford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied

specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 165 feet above ground level (AGL).

15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	**3.36%**	Antenna B1 MPE %:	**3.36%**	Antenna C1 MPE %:	**3.36%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**5.17%**	Antenna B2 MPE %:	**5.17%**	Antenna C2 MPE %:	**5.17%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	8.53%
Verizon	1.35%
AT&T	1.71%
Site Total MPE % :	11.59%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	8.53%
T-Mobile Sector B Total:	8.53%
T-Mobile Sector C Total:	8.53%
Site Total MPE % :	11.59%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	165.0	1.68	600 MHz LTE	400	0.42%
T-Mobile 600 MHz NR	1	1577.94	165.0	2.24	600 MHz NR	400	0.56%
T-Mobile 700 MHz LTE	2	695.22	165.0	1.98	700 MHz LTE	467	0.42%
T-Mobile 1900 MHz GSM	4	1052.26	165.0	5.99	1900 MHz GSM	1000	0.60%
T-Mobile 1900 MHz LTE	2	2104.51	165.0	5.99	1900 MHz LTE	1000	0.60%
T-Mobile 2100 MHz LTE	2	2649.42	165.0	7.54	2100 MHz LTE	1000	0.75%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	165.0	15.71	2500 MHz LTE 1C & 2C Traffic	1000	1.57%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	165.0	1.53	2500 MHz LTE 1C & 2C Broadcast	1000	0.15%
T-Mobile 2500 MHz NR Traffic	1	22089.26	165.0	31.41	2500 MHz NR Traffic	1000	3.14%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	165.0	3.05	2500 MHz NR Broadcast	1000	0.31%
						Total:	**8.53%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	8.53%
Sector B:	8.53%
Sector C:	8.53%
T-Mobile Maximum MPE % (Sector A):	8.53%
Site Total:	11.59%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.59%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.