10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

September 17, 2021

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

RE: Notice of Exempt Modification
497 Old Post Road, Tolland, CT, 06084
Latitude: 41.86073
Longitude: -72.40337
T-Mobile Site#: CTHA813A – Sprint Keep Project
Sprint Site #: CT03XC212

Dear Ms. Bachman:

T-Mobile/Sprint currently maintains six (6) antennas at the 147-foot level of the existing 147-foot guyed tower at 497 Old Post Road in Tolland, CT. The 147-foot guyed tower is owned by Clearview Towers Company II LLC. T-Mobile now intends to remove all existing 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 147-foot level of the tower. The new antennas support 5G services.

Planned Modifications:
Tower:
Remove
(6) Sprint Antennas
(12) Sprint RRHs
(4) Hybrid Cables

Install New:
(3) Ericsson AIR 6449 B41 Antennas
(3) RFS-APXVAALL24 Antennas
(3) Radio 4460 B25 + B65
(3) Radio 4480 B71+B85
(3) 6/24 4AWG Hybrid Cables

Ground:
Install New:
(1) Enclosure 6160 Cabinet
(1) B160 Battery Cabinet

Remove:
All Sprint Ground Equipment

This tower was not originally approved by the Connecticut Siting Council. The original zoning approval from the Town of Tolland was issued in 1999. The original approval is included in this package.

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 Town Manager Michael Rosen, Appointed Official, and David Corcoran, Director of Planning and Development, as well as the Tower Owner and the 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: Michael Rosen - Town Manager
David Corcoran - Director of Planning and Zoning
Clearview Towers Company - Property/Tower Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
MICHAEL ROSEN
21 TOLLAND GREEN
TOLLAND CT 06084

CT 061 9-99

UPS GROUND
TRACKING #: 1Z V25 742 03 9686 5406

BILLING: P/P

Reference #1: CTHA813A

XOL 21.09.06 NV45 37.0A 09/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
DAVID CORCORAN
21 TOLLAND GREEN
TOLLAND CT 06084

CT 061 9-99

UPS GROUND
TRACKING #: 1Z V25 742 03 9107 0390

BILLING: P/P

Reference #1: CTHA813A

XOL 21.09.06 NV45 35.0A 08/2021*


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
CLEARVIEW TOWERS COMPANY
26 YOLANDA DRIVE
EDISON NJ 08817
NJ 089 9-02
UPS GROUND
TRACKING #: 1Z V25 742 03 9605 5399
BILLING: P/P
Reference #1: CTHA813A
XOL 21.09.06 NV45 37.0A 09/2021*
TM

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/15/2021

Delivery Time: 3:59 PM

Left At: RECEIVER

Signed by: DAVID

TRANSCEND WIRELESS

Tracking Number:	1ZV257420391070390
Ship To:	DAVID CORCORAN 21 TOLLAND GREEN TOLLAND, CT 06084 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA813A

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/15/2021

Delivery Time: 4:00 PM

Left At: RECEIVER

Signed by: MICHAEL

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396865406
Ship To:	MICHAEL ROSEN 21 TOLLAND GREEN TOLLAND, CT 06084 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA813A

Hello, your package has been delivered.

Delivery Date: Wednesday, 09/15/2021

Delivery Time: 12:30 PM

Left At: FRONT DOOR

Set Delivery Instructions | Manage Preferences

TRANSCEND WIRELESS

Tracking Number:	1ZV257420396055399
Ship To:	CLEARVIEW TOWERS COMPANY 26 YOLANDA DRIVE EDISON, NJ 08817 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA813A

497 OLD POST ROAD

Sales | Print | Map It

Location	497 OLD POST ROAD	**Mblu**	20/ K/ 30/00 /
Acct#	1186	**Owner**	CLEARVIEW TOWER COMPANY II LLC
Assessment	$437,200	**Appraisal**	$624,600
PID	3167	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$67,200	$557,400	$624,600
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$47,000	$390,200	$437,200

Owner of Record

Owner	CLEARVIEW TOWER COMPANY II LLC	**Sale Price**	$671,000
Co-Owner		**Certificate**	
Address	26 YOLANDA DR EDISON, NJ 08817	**Book & Page**	1480/0256
		Sale Date	05/20/2019
		Instrument	00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CLEARVIEW TOWER COMPANY II LLC	$671,000		1480/0256	00	05/20/2019
OLD POST ROAD HOLDINGS LLC	$825,000		0642/0286	00	12/06/1999

Building Information

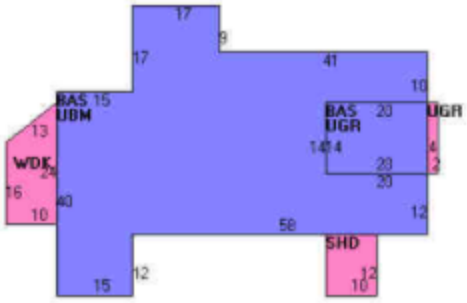
Building 1 : Section 1

Year Built:	1966
Living Area:	2,841
Replacement Cost:	$229,338
Building Percent Good:	25
Replacement Cost Less Depreciation:	$57,300

Building Attributes	
Field	**Description**
Style:	Ranch
Model	Residential
Grade:	Average +20
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Wood on Sheath
Exterior Wall 2	Aluminum Sidng
Roof Structure:	Gable/Hip
Roof Cover	Architect Shin
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Minimum/Plywd
Interior Flr 2	
Heat Fuel	None
Heat Type:	None

Building Photo

Building Layout



AC Type:	Partial
Total Bedrooms:	3 Bedrooms
Total Bthrms:	0
Total Half Baths:	0
Total Xtra Fixtrs:	0
Total Rooms:	7 Rooms
Bath Style:	Modern
Kitchen Style:	Average
Num Kitchens	
Cndtn	
Func Code	
Econ Code	
Num Park	
Fireplaces	
Solar	
Solar Type	
Fndtn Cndtn	
Basement	

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	Main Floor	2,841	2,841
SHD	Shed-Attached	120	0
UBM	Basement	2,561	0
UGR	Garage Under	308	0
WDK	Wood Deck	200	0
		6,030	2,841

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
FPL3	FIREPLACE 2 ST	1.00 UNITS	$1,000	1
A/C	AIR CONDITIONING	198.00 S.F.	$100	1

Land

Land Use

Use Code	200R
Description	Commercial
Zone	RDD
Neighborhood	R35
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.84
Frontage	165
Depth	
Assessed Value	$390,200
Appraised Value	$557,400

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD	SHED	1F	1 Stry Frame	472.00 S.F.	$900	1
SHD	SHED	1BQ	BQ Shed	196.00 S.F.	$2,900	1
FDN	FOUNDATION	G	Garage	1.00 UNITS	$5,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
4000	$67,200	$557,400	$624,600
2020	$67,200	$557,400	$624,600
2019	$67,200	$557,400	$624,600

Assessment			
Valuation Year	Improvements	Land	Total
4000	$47,000	$390,200	$437,200
2020	$47,000	$390,200	$437,200
2019	$47,000	$390,200	$437,200

Property Information

Property ID	20/K/030
Location	497 OLD POST ROAD
Owner	CLEARVIEW TOWER COMPANY II LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Tolland, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 08/03/2020
Data updated 11/19/2018

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

HURWITZ & SAGARIN LLC

July 26, 1999

Roseanne Martino
Sprint Spectrum LP
Crossroads Corporate Center
1 International Boulevard
Suite 800
Mahwah, New Jersey 07495

Re: Site 212; Tolland

Dear Roseanne:

Enclosed please find original zoning approval for the above referenced site. Please note the requirements prior to installation of the PCS. Please let me know if you have any questions or would like me to do anything else on this site.

Very truly yours,

JULIE M. CASHIN
JMC/dsw
Enc.

cc: Rob Cobane
Joe O'Hagan
Jeff York
Steve Kotfila

LAW OFFICES
147 North Broad Street, P.O. Box 112, Milford, Connecticut 06460-0112 Tel. 203-877-8000 • Fax 203-878-9800

TOWN of TOLLAND / 21 tolland green, tolland, connecticut 06084

Ronald E. Blake
Town Planner

CERTIFIED MAIL
Z 336 011 847
July 19, 1999

Julie M. Cashin, Esq.
Hurwitz & Sagarin LLC
147 Broad Srtreet,PO Box 113
Milford, CT 06460-0112

RE: P&Z App. #614 – Sprint PCS, Site Plan approval - 497 Old Post Road, Tolland, CT.

Dear Attorney Cashin:

You are hereby advised that the Planning & Zoning Commission, at a meeting on July 12, 1999 APPROVED the Sprint PCS request as described below:

1. Sprint PCS is permitted to co-locate panel antennas on the existing 150-foot tower and to install equipment cabinets. The height of the panel installation, the design of the antenna arrays and panels, and the size, shape and location of the equipment structures must be as shown on the approved plan entitled in part "...Sprint PCS SITE I.D. #CT03XC212 TOLLAND MESSAGE CENTER...URS Greiner Woodward Clyde...Rocky Hill, Connecticut..." The plans (Drawing numbers T1, S1 & Z1 & 2) are all revised to 7-6-99.
2. The installation may not begin until Zoning and Building Permits have been issued by the Town.
3. Please note that the conditions of approval are subject to an annual review to assure Zoning compliance. I have enclosed as copy of the related Zoning Regulation (§170-93 R).
4. Note also, that upon completion of the Sprint PSC project, an "as-built" plan must be submitted before a Certificate of Compliance (Certificate of Occupancy) will be issued. The as-built must be prepared by a licensed engineer and must demonstrate that the structure has been built and sited in accordance with the APPROVED plan that is on file in the Planning Office. The maximum height of the panel assemblies and supports must be ascertained. No part of the panels or the mounts may exceed 150 feet above grade.
5. A copy of the APPROVED plan, dated and endorsed by the PZC Chairperson, is enclosed for your files.

If you have any questions, please contact me at 871-3601 Monday through Wednesday 9:00am to 4:30pm, Thursday 9:00am to 4:30pm and 5:30pm to 8:30pm and Friday 9:00am to 12:30pm.

Very truly yours,

R. E. Blake

Ronald E. Blake
Town Planner

Enclosures: 2

SUBAPPRV1.DOC 072099/0800 REB

application shall be deemed incomplete until these fees have been submitted.

(3) For the purpose of this section "outside consultant" means a professional who is not an employee of the town. "Outside consultants" shall be, but will not be limited to, engineering, traffic, environmental and planning professionals.

(4) Any portion of the surcharge fee not expended by the town on the project shall be returned to the applicant upon completion of the review, evaluation and processing of the application.

(5) The Commission shall bill the applicant for any costs incurred by the town in excess of the surcharge fee. This bill shall be paid by the applicant before the issuance of a zoning permit for the project.

R. Annual review, inspection and fee. The Commission or its agent will review the approved special permit and site plan and inspect the WTS annually to determine if all conditions of approval are being strictly addressed. If improvements or maintenance is required, the property owner will be directed make the required corrections. To help defray the cost for the review, an annual fee shall be paid to the Town of Tolland, via the Planning Office. The fee shall be paid by the property owner or providers using the equipment. The annual review dates and fee payment requirements will be determined by the Commission based on the approval date.

~~(Cont'd on page 17093)~~

Sprint Now part of T-Mobile™

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

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 CONSTRUCTON, 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 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

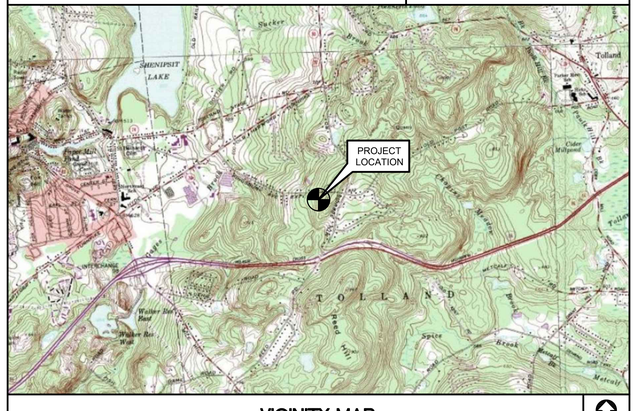
FROM: 35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

TO: 497 OLD POST RD
TOLLAND, CT 06084

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.	8.50 MI.
6.	TAKE EXIT 67 FOR CT-31.	0.30 MI.
7.	TURN RIGHT ONTO CT-31 S.	0.20 MI.
8.	TURN LEFT ONTO LOEHR RD.	1.00 MI.
9.	TURN LEFT ONTO MOUNTAIN SPRING RD/ REED RD.	0.70 MI.
10.	TURN LEFT ONTO OLD POST RD. DESTINATION WILL BE ON THE LEFT.	0.07 MI.

SITE COORDINATES: LATITUDE: 41°-51'-39" N
LONGITUDE: 72°-24'-12.18" W
GROUND ELEVATION: 913'± 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 CIRCUIT 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) 9' ANTENNA MAST PER SECTOR FOR POS.1 ANTENNA. TOTAL OF (3)
11. ALL ANTENNA MOUNTS TO BE REINFORCED WITH HORIZONTAL ANGLES. SEE SHEET S-1 FOR ADDITIONAL DETAILS.

PROJECT SUMMARY (STRUCTURAL)

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

PROJECT INFORMATION

SPRINT ID:	CT03XC212
SITE ID:	CTHA813A
SITE ADDRESS:	497 OLD POST RD TOLLAND, CT 06084
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°-51'-39" N LONGITUDE: 72°-24'-12.18" W GROUND ELEVATION: 913'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RYS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS
1	06/24/21	RYS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT — CARLO F. CENTORE — LICENSED PROFESSIONAL ENGINEER

Sprint Now part of T-Mobile — Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

TITLE SHEET

T-1

Sheet No. 1 of 10

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): 124 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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

Sprint | T-Mobile

Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

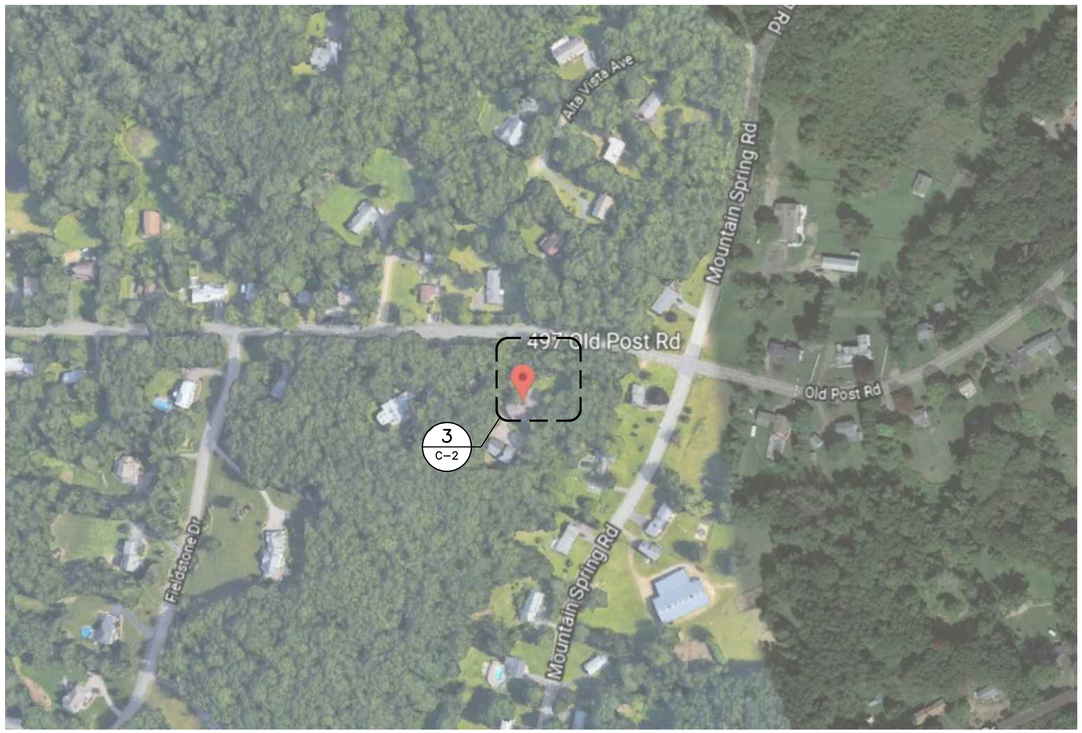
GENERAL NOTES AND SPECIFICATIONS

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 (LENGTH)
A1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	147'	0°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(1) 6/24 4AWG HYBRID CABLE (±180')
A2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	147'	0°			
B1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	147'	120°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(1) 6/24 4AWG HYBRID CABLE (±180')
B2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	147'	120°			
C1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	147'	275°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(1) 6/24 4AWG HYBRID CABLE (±180')
C2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	147'	275°			



1 / C-1 **SITE LOCATION PLAN**
SCALE: NOT TO SCALE

TRUE NORTH

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

Sprint T-Mobile Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

SITE LOCATION PLAN

C-1

Sheet No. 3 of 10

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.

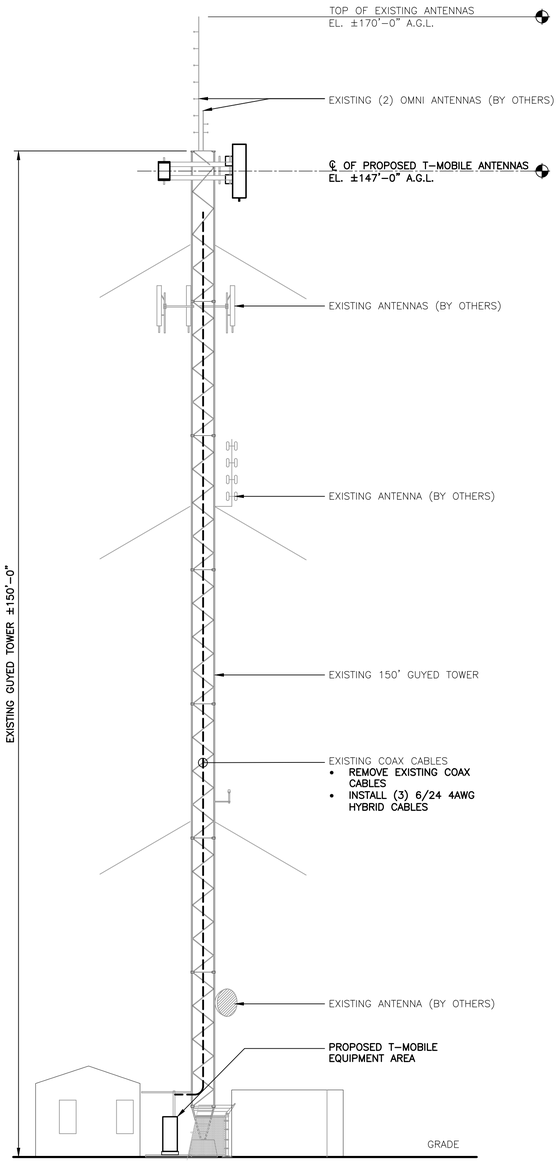
REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21005.21) DATED 08/09/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

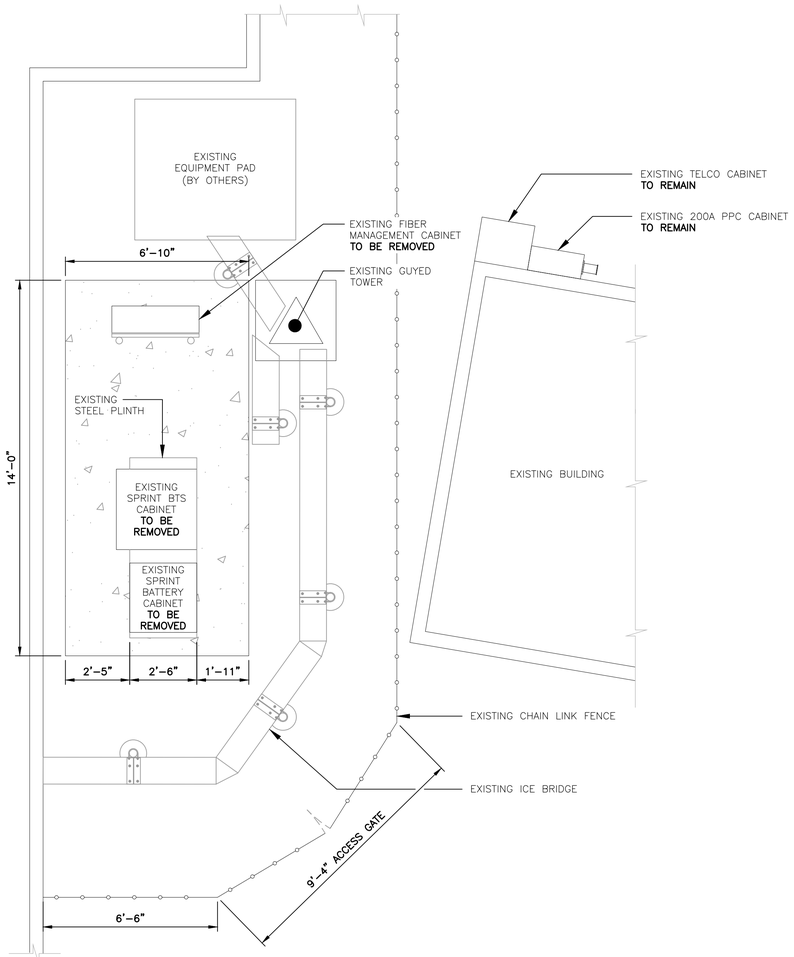
A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21005.21) DATED 08/09/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

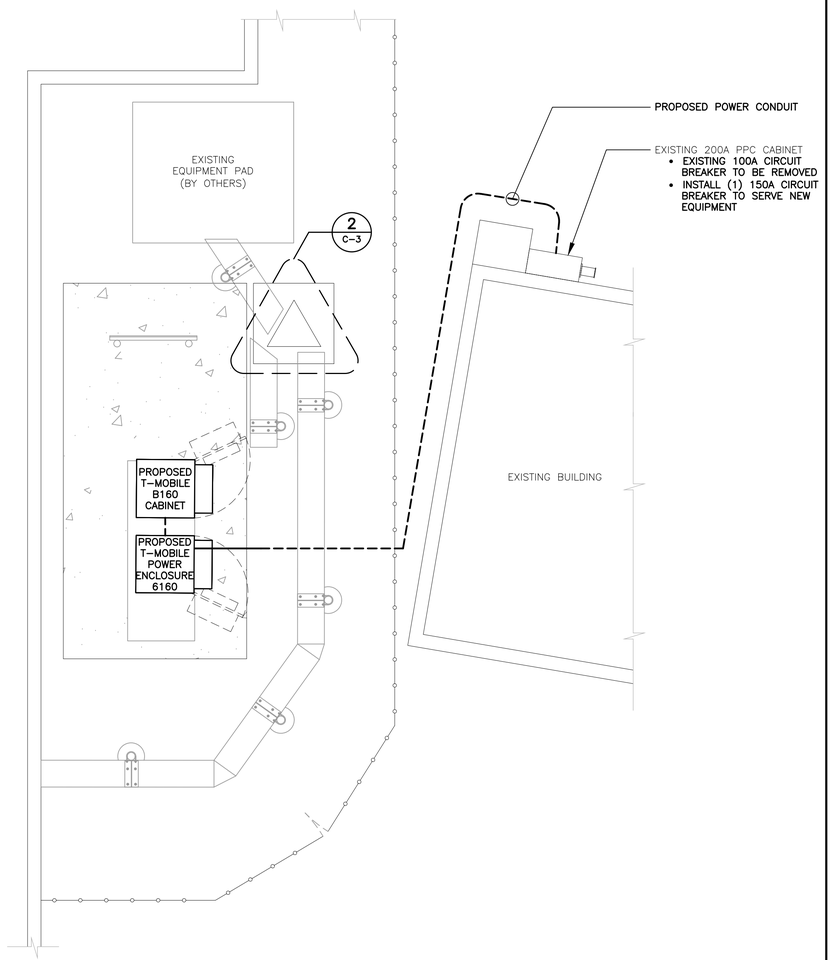
NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.



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



2 / C-2 **EQUIPMENT PLAN - EXISTING** TRUE NORTH
SCALE: 3/8" = 1'



3 / C-2 **EQUIPMENT PLAN - PROPOSED** TRUE NORTH
SCALE: 3/8" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

Sprint T-Mobile Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

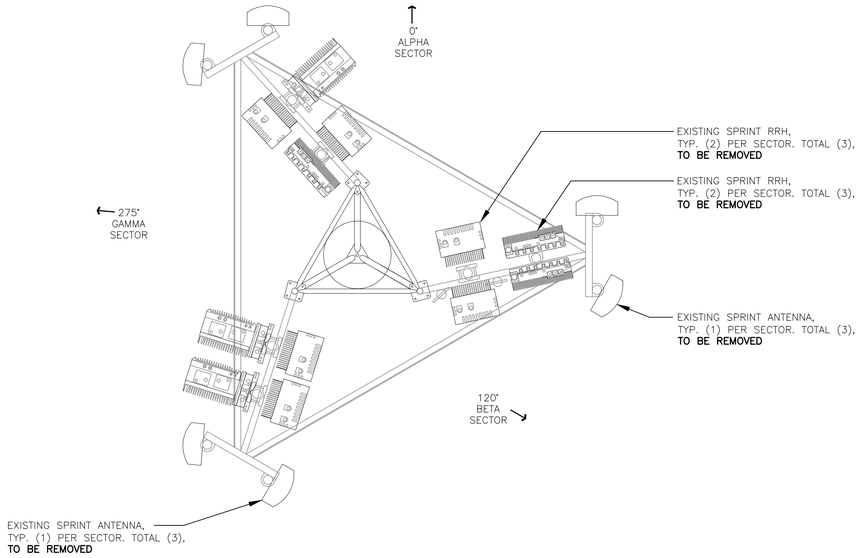
SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

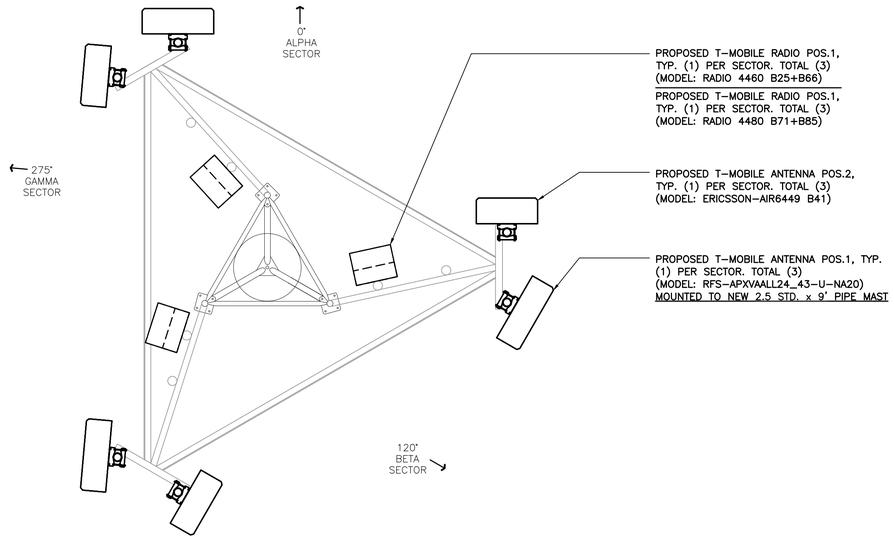
COMPOUND/ EQUIPMENT PLANS, AND ELEVATION

C-2

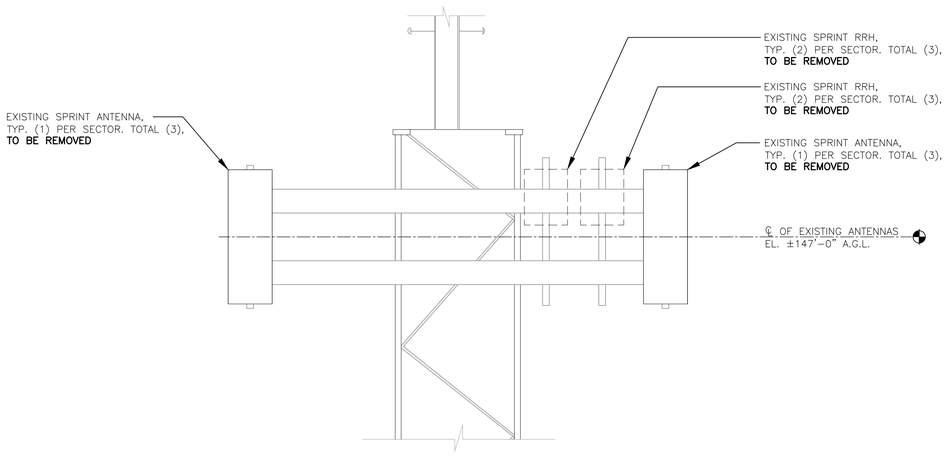
Sheet No. 4 of 10



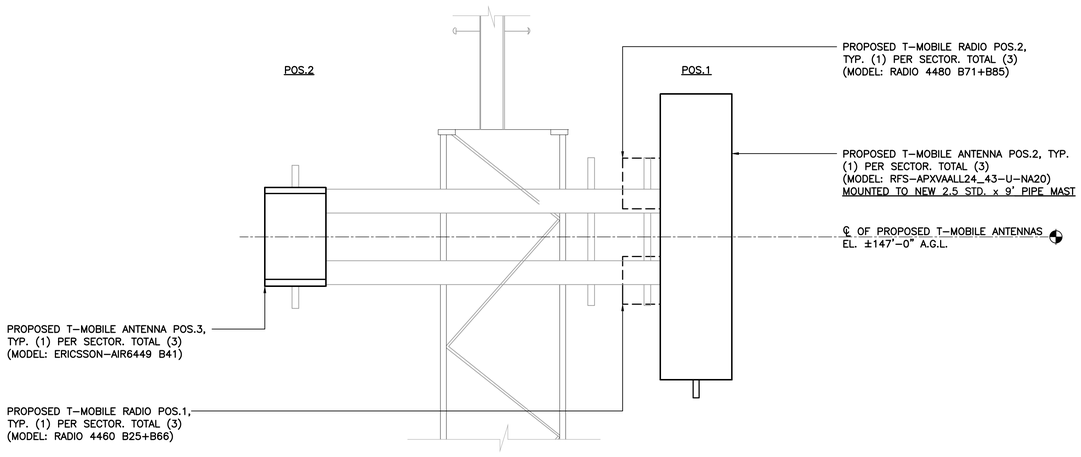
1 C-3 **ANTENNA PLAN - EXISTING**
SCALE: 1/2" = 1'
TRUE NORTH



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



1A C-3 **ANTENNA ELEVATION - EXISTING**
SCALE: 1/2" = 1'



2A C-3 **ANTENNA ELEVATION - PROPOSED**
SCALE: 1/2" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

Sprint T-Mobile Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

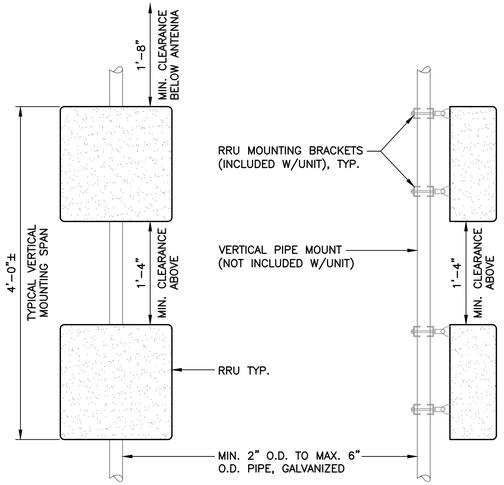
SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

ANTENNA PLANS AND ELEVATIONS

C-3

Sheet No. 5 of 10



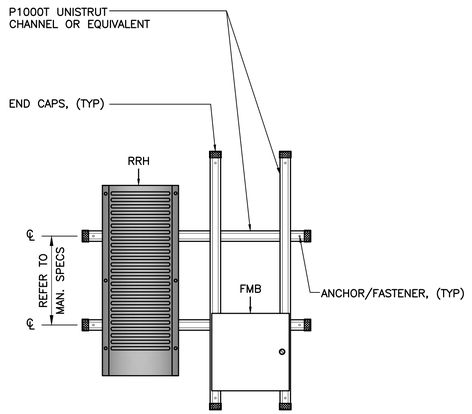
FRONT ELEVATION SIDE ELEVATION

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.

1 C–4 TYPICAL RRU MOUNTING DETAIL

SCALE: NOT TO SCALE



FRONT ELEVATION

NOTES: (UNISTRUT MOUNTING)

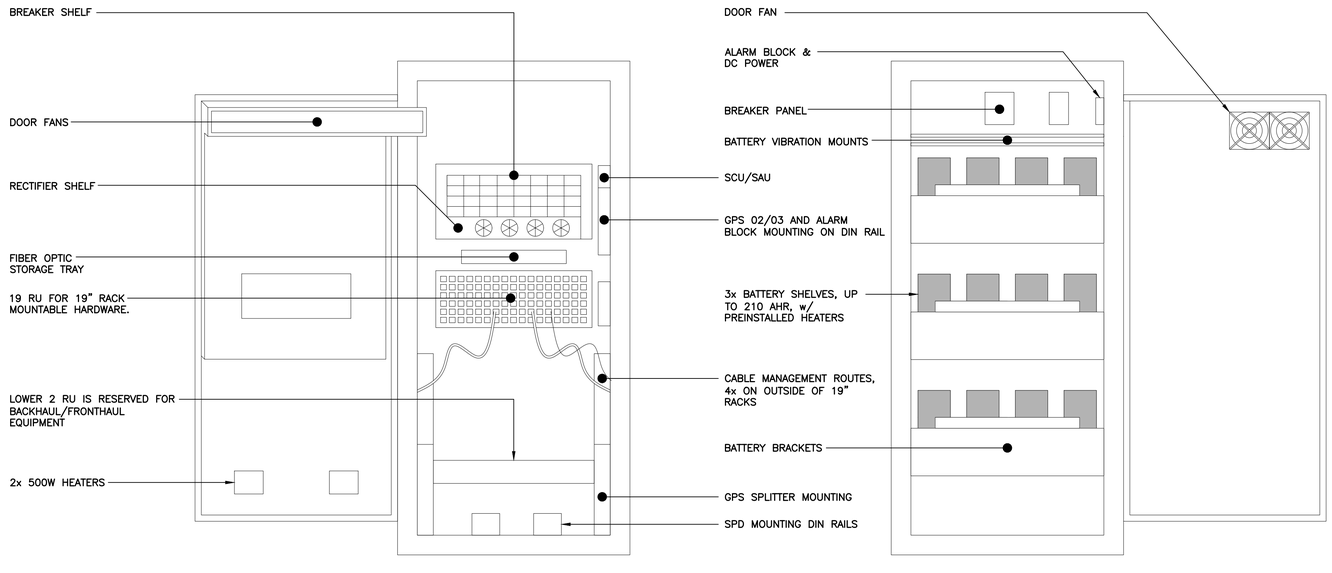
1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

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–4 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–4 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–4 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–4 PROPOSED RRU DETAIL

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

Sprint T-Mobile Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T–MOBILE NORTHEAST LLC

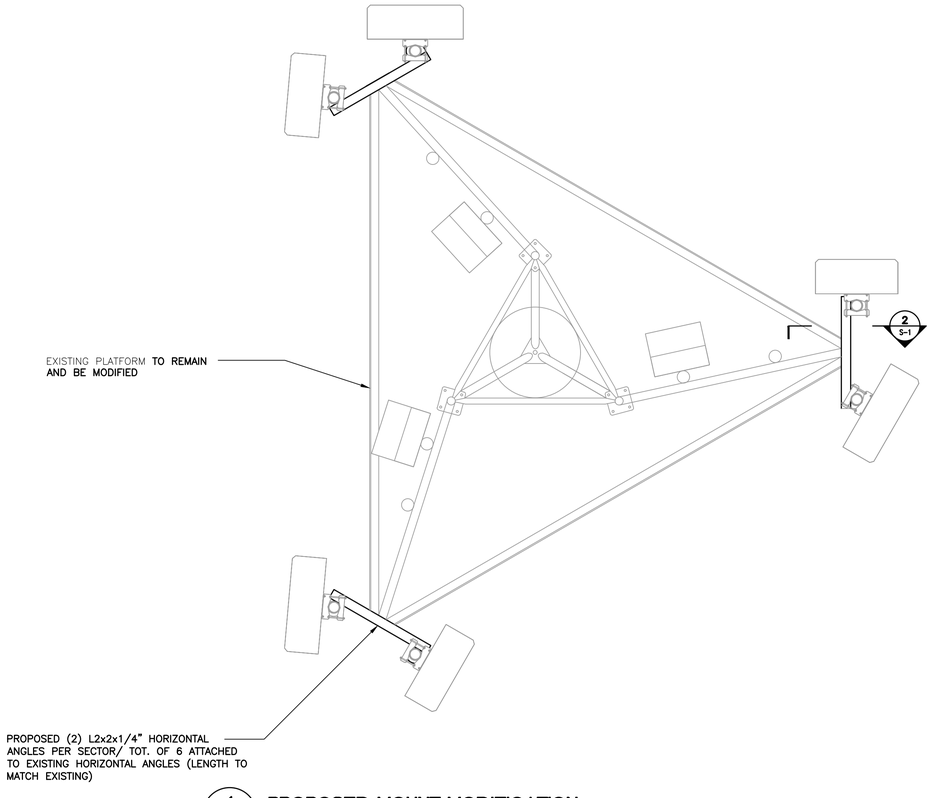
SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

TYPICAL EQUIPMENT DETAILS

C-4

Sheet No. 6 of 10



1 S-1 **PROPOSED MOUNT MODIFICATION**
NOT TO SCALE

2 S-1 **MODIFICATION CONNECTION DETAIL**
NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

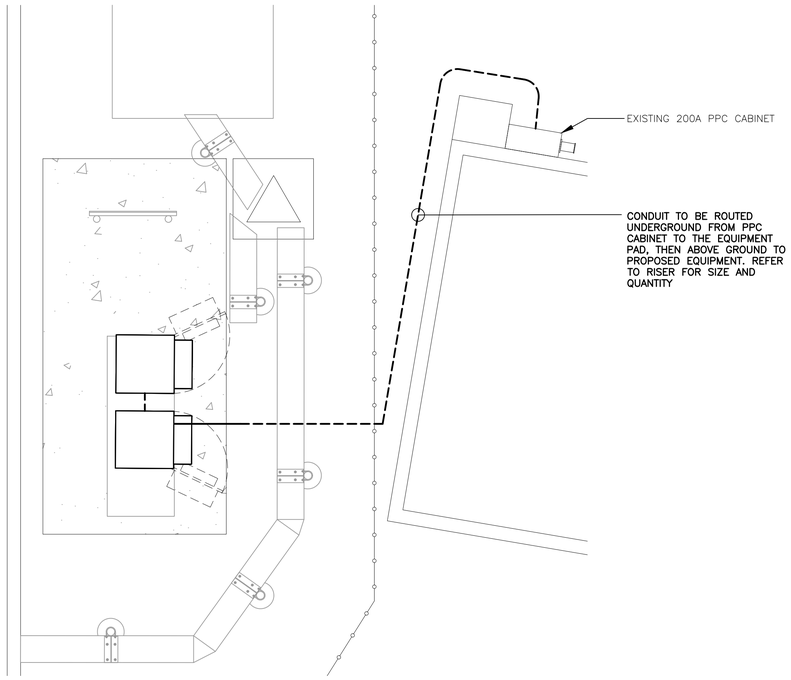
T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

MOUNT MODIFICATION DETAILS

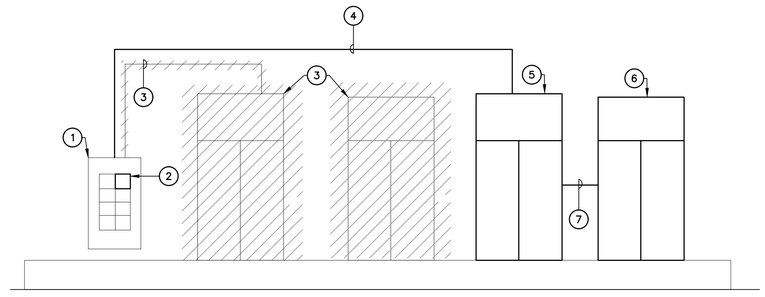
S-1



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

RISER DIAGRAM NOTES

1. EXISTING 200A, PPC CABINET TO REMAIN.
2. NEW 150A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT
3. EXISTING CABINETS AND ASSOCIATED CONDUITS AND CONDUCTORS TO BE REMOVED.
4. (3) 1/0 AWG, (1) #6 AWG GROUND, 2" CONDUIT.
5. NEW T-MOBILE EQUIPMENT CABINET
6. NEW T-MOBILE BATTERY CABINET
7. DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.



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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	07/23/21	RYS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS
1	06/24/21	RYS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

Sprint · T-Mobile · Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

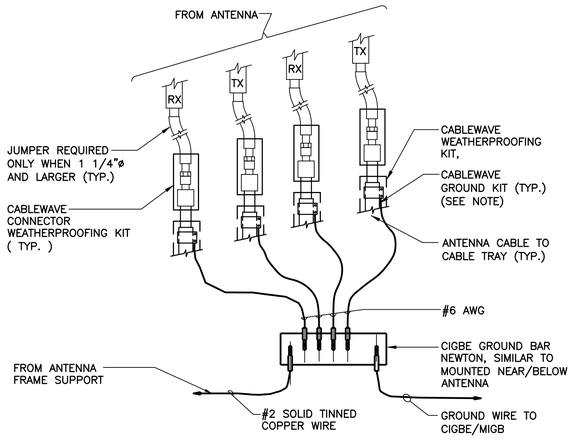
SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING

E-1

Sheet No. 8 of 10

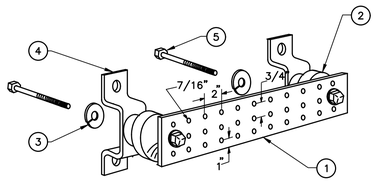


NOTES:

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

1 E-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

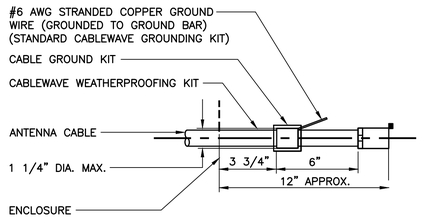


NOTES

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-2 GROUND BAR DETAIL

SCALE: NOT TO SCALE

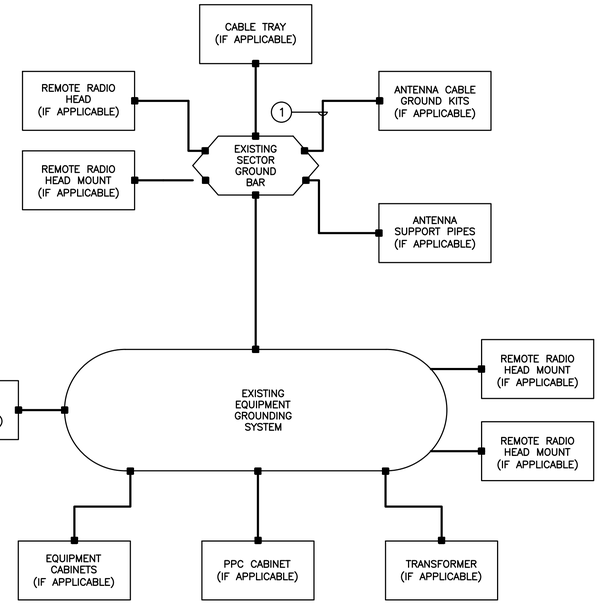


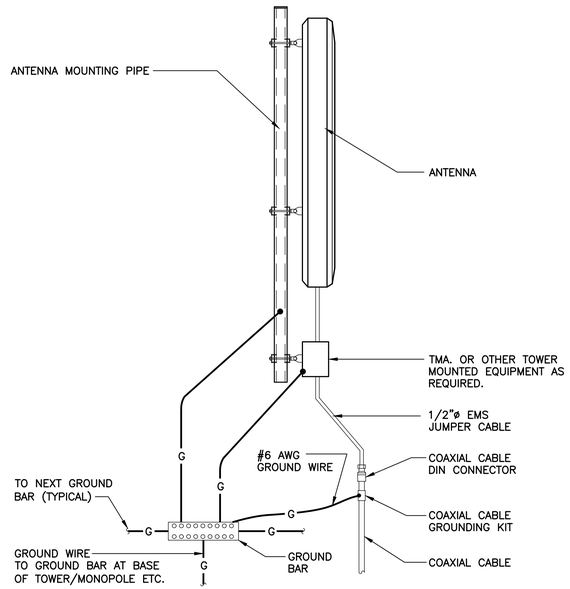
NOTES:

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

3 E-2 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE

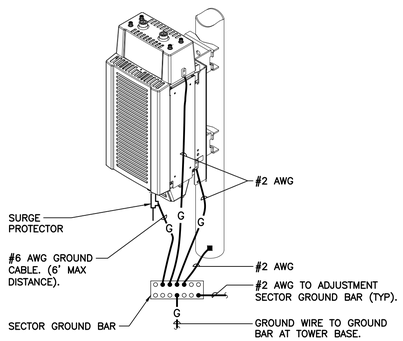




4 E-2 TYPICAL ANTENNA GROUNDING DETAIL

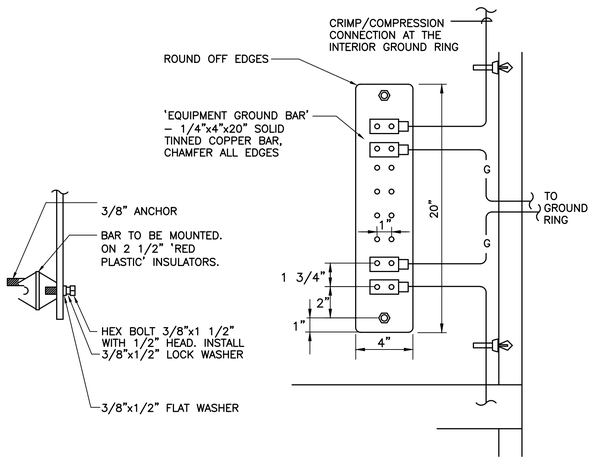
SCALE: NOT TO SCALE

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-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



6 E-2 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-2 ELECTRICAL SCHEMATIC DIAGRAM

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 9 of 10

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	06/03/21	JLW	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
1	06/24/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
2	07/23/21	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS

PROFESSIONAL ENGINEER SEAL

Sprint · T-Mobile · Transcend Wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC212
SITE ID: CTHA813A
497 OLD POST RD
TOLLAND, CT 06084

DATE: 04/22/21
SCALE: AS NOTED
JOB NO. 21005.21

ELECTRICAL SPECIFICATIONS

E-3

Sheet No. 10 of 10

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

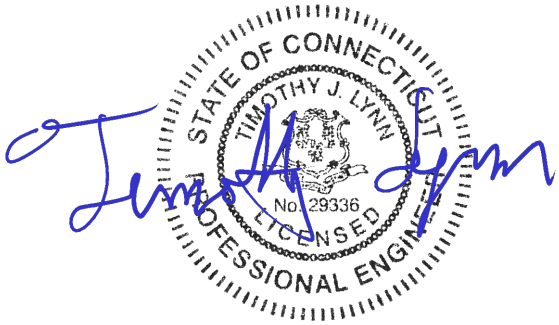
T-Mobile Site #: CTHA813A

497 Old Post Road
Tolland, CT

Centek Project No. 21005.21

~~Date: May 4, 2021~~
Rev 1: August 9, 2021

Max Stress Ratio = 75%



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: CTHA813A
497 Old Post Road
Tolland, CT 06084

Centek Project No. 21005.21

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 existing mount, consisting of three (3) 6-ft side arms and (6) 12.5-ft horizontal pipes 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:**
  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) Frames with a RAD center elevation of 147-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 97 mph for Tolland 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 with the below reinforcements has sufficient capacity** to support the aforementioned antenna configuration.

- **Install L2x2x1/4 horizontals attached to existing L2x2 horizontals (typ. of 6)**

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

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Loads on Equipment

Location: Tolland,CT

Rev. 0: 07/29/2021

Prepared by: F.J.P.. Checked by: T.J.L.
Job No. 21005.21

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

Wind Speeds

Basic Wind Speed	$V := 97$	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 =	$h := 150$	ft	(User Input)
Height to Center of Antennas =	$z := 147$	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 =	$G_H = 1.15$		(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 2-3 of TIA-222-G)

Importance Factors =

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

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

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

$$K_{iz} := \left(\frac{z}{33}\right)^{0.1} = 1.161$$

Velocity Pressure Coefficient Antennas =

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.322$$

$$Kz := 2.01 \cdot \left(\left(\frac{z}{zg}\right)\right)^{\overline{\alpha}} = 1.373$$

Velocity Pressure w/o Ice Antennas = $qz := 0.00256 \cdot K_d \cdot Kz \cdot V^2 \cdot I_{Wind} = 28$ psf

Velocity Pressure with Ice Antennas = $qz_{ice} := 0.00256 \cdot K_d \cdot Kz \cdot V_i^2 \cdot I_{Wind} = 7$ psf

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 =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 654$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.7$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 232$	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 =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 218$	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 =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 100$	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 =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 593$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 593$	lbs

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 = $F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 183$ lbs

Surface Area for One Antenna = $SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$ sf

Total Antenna Wind Force Side = $F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 74$ 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 = $Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 68$ 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 = $V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 6653$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 216$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 216$ lbs

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 = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 92$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 44$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.7$ 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 = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 3967$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 129$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 129$ lbs

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 =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 83$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.6$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 64$	lbs

Wind Load (with ice)

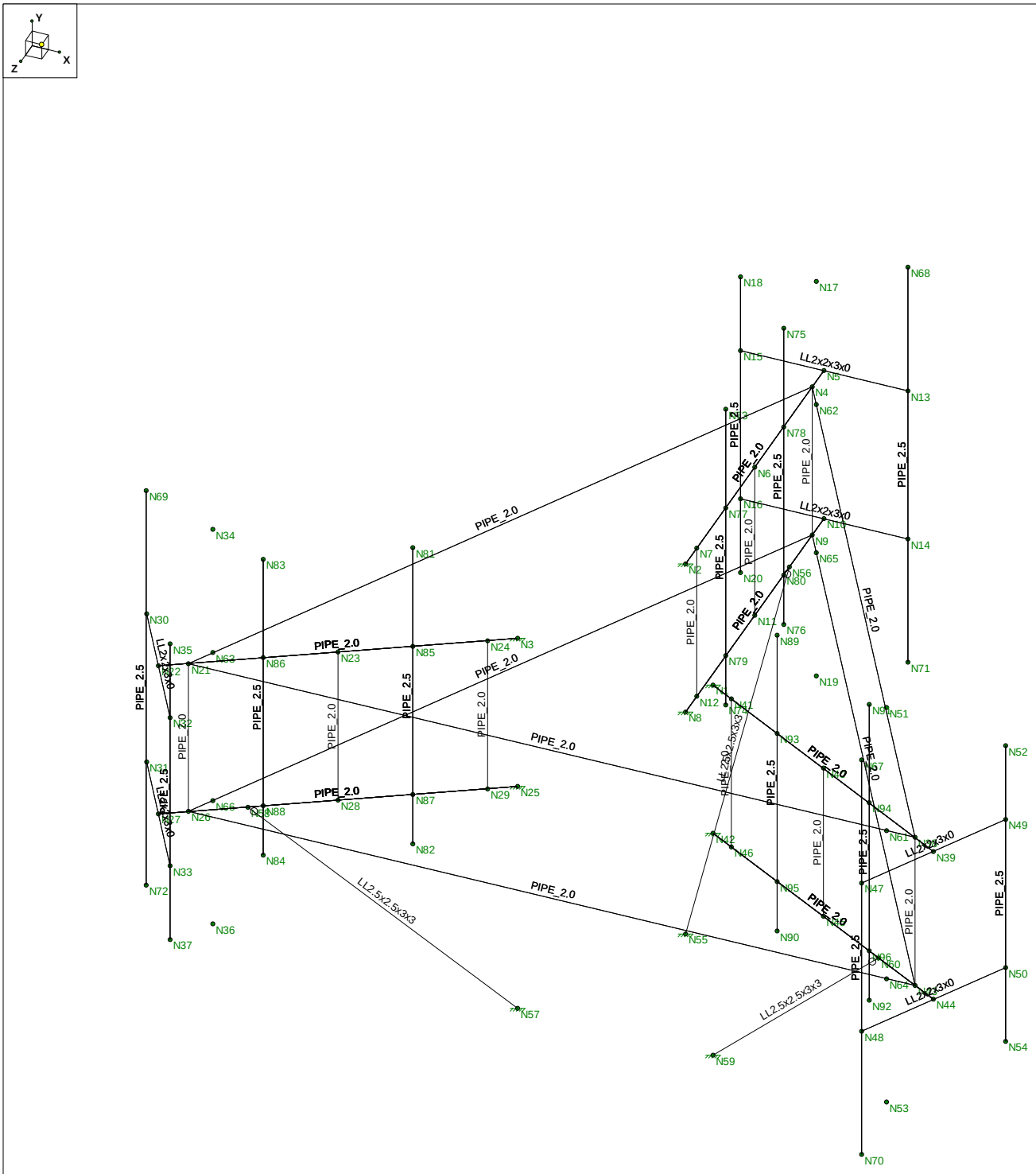
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.4$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 35$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 2.8$	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 =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 4536$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 147$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 147$	lbs



Loads: BLC 1, Self Weight
Envelope Only Solution

Centek		
FJP	CTHA813A - Mount Rev.1	Aug 9, 2021 at 1:01 PM
21005.21	Member Framing	Existing Mount_Rev.1 .r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Antenna Mast	PIPE_2.5	Column	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89
2	Horz	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
3	Arm	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
4	Brace	PIPE_2.0	Column	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
5	Corner	LL2x2x3x0	Beam	Wide Flange	A36 Gr.36	Typical	1.44	.994	.542	.018
6	Kicker	LL2.5x2.5x3x3	VBrace	Wide Flange	A36 Gr.36	Typical	1.8	2.46	1.07	.023

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	PSG.2	Antenna Mast	6									Lateral
2	PSG.1	Antenna Mast	8									Lateral
3	PSB.2	Antenna Mast	6									Lateral
4	PSB.1	Antenna Mast	8									Lateral
5	PSA.2	Antenna Mast	6									Lateral
6	PSA.1	Antenna Mast	8									Lateral
7	M90	Arm	6			Lbyy						Lateral
8	M89	Arm	6			Lbyy						Lateral
9	M88	Brace	3									Lateral
10	M87	Brace	3									Lateral
11	M86	Brace	3									Lateral
12	M85	Corner	3			Lbyy						Lateral
13	M84	Corner	3			Lbyy						Lateral
14	M83	Arm	6			Lbyy						Lateral
15	M82	Arm	6			Lbyy						Lateral
16	M81	Brace	3									Lateral
17	M80	Brace	3									Lateral
18	M79	Brace	3									Lateral
19	M78	Corner	3			Lbyy						Lateral
20	M77	Corner	3			Lbyy						Lateral
21	M76	Arm	6			Lbyy						Lateral
22	M75	Arm	6			Lbyy						Lateral
23	M74	Brace	3									Lateral
24	M73	Brace	3									Lateral
25	M72	Brace	3									Lateral
26	M71	Corner	3			Lbyy						Lateral
27	M70	Corner	3			Lbyy						Lateral
28	M69	Horz	13.026			Lbyy						Lateral
29	M68	Horz	13.026			Lbyy						Lateral
30	M67	Horz	13.026			Lbyy						Lateral
31	M66	Horz	13.026			Lbyy						Lateral
32	M65	Horz	13.026			Lbyy						Lateral
33	M64	Horz	13.025			Lbyy						Lateral
34	M63	Kicker	6.364									Lateral
35	M62	Kicker	6.364									Lateral
36	M61	Kicker	6.364									Lateral
37	M60	Antenna Mast	6									Lateral
38	M59	Antenna Mast	6									Lateral
39	M58	Antenna Mast	6									Lateral
40	M57	Antenna Mast	6									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
41	M56	Antenna Mast	6									Lateral
42	M55	Antenna Mast	6									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	PSG.2	N35	N37			Antenna Mast	Column	Pipe	A53 Grade B	Typical
2	PSG.1	N67	N70			Antenna Mast	Column	Pipe	A53 Grade B	Typical
3	PSB.2	N52	N54			Antenna Mast	Column	Pipe	A53 Grade B	Typical
4	PSB.1	N68	N71			Antenna Mast	Column	Pipe	A53 Grade B	Typical
5	PSA.2	N18	N20			Antenna Mast	Column	Pipe	A53 Grade B	Typical
6	PSA.1	N69	N72			Antenna Mast	Column	Pipe	A53 Grade B	Typical
7	M90	N2	N5			Arm	Beam	Pipe	A53 Grade B	Typical
8	M89	N8	N10			Arm	Beam	Pipe	A53 Grade B	Typical
9	M88	N7	N12			Brace	Column	Pipe	A53 Grade B	Typical
10	M87	N6	N11			Brace	Column	Pipe	A53 Grade B	Typical
11	M86	N4	N9			Brace	Column	Pipe	A53 Grade B	Typical
12	M85	N15	N13		270	Corner	Beam	Wide Flange	A36 Gr.36	Typical
13	M84	N16	N14		270	Corner	Beam	Wide Flange	A36 Gr.36	Typical
14	M83	N3	N22			Arm	Beam	Pipe	A53 Grade B	Typical
15	M82	N25	N27			Arm	Beam	Pipe	A53 Grade B	Typical
16	M81	N24	N29			Brace	Column	Pipe	A53 Grade B	Typical
17	M80	N23	N28			Brace	Column	Pipe	A53 Grade B	Typical
18	M79	N21	N26			Brace	Column	Pipe	A53 Grade B	Typical
19	M78	N32	N30		270	Corner	Beam	Wide Flange	A36 Gr.36	Typical
20	M77	N33	N31		270	Corner	Beam	Wide Flange	A36 Gr.36	Typical
21	M76	N1	N39			Arm	Beam	Pipe	A53 Grade B	Typical
22	M75	N42	N44			Arm	Beam	Pipe	A53 Grade B	Typical
23	M74	N41	N46			Brace	Column	Pipe	A53 Grade B	Typical
24	M73	N40	N45			Brace	Column	Pipe	A53 Grade B	Typical
25	M72	N38	N43			Brace	Column	Pipe	A53 Grade B	Typical
26	M71	N49	N47		270	Corner	Beam	Wide Flange	A36 Gr.36	Typical
27	M70	N50	N48		270	Corner	Beam	Wide Flange	A36 Gr.36	Typical
28	M69	N21	N38			Horz	Beam	Pipe	A53 Grade B	Typical
29	M68	N38	N4			Horz	Beam	Pipe	A53 Grade B	Typical
30	M67	N4	N21			Horz	Beam	Pipe	A53 Grade B	Typical
31	M66	N26	N43			Horz	Beam	Pipe	A53 Grade B	Typical
32	M65	N43	N9			Horz	Beam	Pipe	A53 Grade B	Typical
33	M64	N9	N26			Horz	Beam	Pipe	A53 Grade B	Typical
34	M63	N56	N55			Kicker	VBrace	Wide Flange	A36 Gr.36	Typical
35	M62	N58	N57			Kicker	VBrace	Wide Flange	A36 Gr.36	Typical
36	M61	N60	N59			Kicker	VBrace	Wide Flange	A36 Gr.36	Typical
37	M60	N75	N76			Antenna Mast	Column	Pipe	A53 Grade B	Typical
38	M59	N73	N74			Antenna Mast	Column	Pipe	A53 Grade B	Typical
39	M58	N83	N84			Antenna Mast	Column	Pipe	A53 Grade B	Typical
40	M57	N81	N82			Antenna Mast	Column	Pipe	A53 Grade B	Typical
41	M56	N91	N92			Antenna Mast	Column	Pipe	A53 Grade B	Typical
42	M55	N89	N90			Antenna Mast	Column	Pipe	A53 Grade B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	-18.249643	3	21.010507	0	
2	N2	-19.999642	3	17.97942	0	
3	N3	-21.749641	3	21.010507	0	
4	N4	-19.999642	3	12.47942	0	
5	N5	-19.999642	3	11.97942	0	
6	N6	-19.999642	3	14.97942	0	
7	N7	-19.999642	3	17.47942	0	
8	N8	-19.999642	0	17.97942	0	
9	N9	-19.999642	0	12.47942	0	
10	N10	-19.999642	0	11.97942	0	
11	N11	-19.999642	0	14.97942	0	
12	N12	-19.999642	0	17.47942	0	
13	N13	-18.499642	3	11.97942	0	
14	N14	-18.499642	0	11.97942	0	
15	N15	-21.499642	3	11.97942	0	
16	N16	-21.499642	0	11.97942	0	
17	N17	-19.743075	5.5	12.923809	0	
18	N18	-21.499642	4.5	11.97942	0	
19	N19	-19.743075	-2.5	12.923809	0	
20	N20	-21.499642	-1.5	11.97942	0	
21	N21	-26.512848	3	23.759643	0	
22	N22	-26.945794	3	24.010507	0	
23	N23	-24.347717	3	22.510507	0	
24	N24	-22.182654	3	21.260507	0	
25	N25	-21.749641	0	21.010507	0	
26	N26	-26.512452	0	23.759683	0	
27	N27	-26.945794	0	24.010507	0	
28	N28	-24.347717	0	22.510507	0	
29	N29	-22.182654	0	21.260507	0	
30	N30	-27.695794	3	22.711469	0	
31	N31	-27.695794	0	22.711469	0	
32	N32	-26.195794	3	25.309545	0	
33	N33	-26.195794	0	25.309545	0	
34	N34	-26.25621	5.5	23.316113	0	
35	N35	-26.195794	4.5	25.309545	0	
36	N36	-26.25621	-2.5	23.316113	0	
37	N37	-26.195794	-1.5	25.309545	0	
38	N38	-13.486503	3	23.760507	0	
39	N39	-13.05349	3	24.010507	0	
40	N40	-15.651567	3	22.510507	0	
41	N41	-17.81663	3	21.260507	0	
42	N42	-18.249643	0	21.010507	0	
43	N43	-13.486503	0	23.760507	0	
44	N44	-13.05349	0	24.010507	0	
45	N45	-15.651567	0	22.510507	0	
46	N46	-17.81663	0	21.260507	0	
47	N47	-13.80349	3	25.309545	0	
48	N48	-13.80349	0	25.309545	0	
49	N49	-12.30349	3	22.711469	0	
50	N50	-12.30349	0	22.711469	0	
51	N51	-13.99964	5.5	23.760504	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
52	N52	-12.30349	4.5	22.711469	0	
53	N53	-13.99964	-2.5	23.760504	0	
54	N54	-12.30349	-1.5	22.711469	0	
55	N55	-19.999642	-4.5	17.97942	0	
56	N56	-19.999642	0	13.47942	0	
57	N57	-21.749641	-4.5	21.010507	0	
58	N58	-25.646755	0	23.260507	0	
59	N59	-18.249643	-4.5	21.010507	0	
60	N60	-14.352528	0	23.260507	0	
61	N61	-13.999642	3	23.760507	0	
62	N62	-19.743072	3	12.923811	0	
63	N63	-26.256211	3	23.316116	0	
64	N64	-13.999642	0	23.760507	0	
65	N65	-19.743072	0	12.923811	0	
66	N66	-26.256211	0	23.316116	0	
67	N67	-13.803492	5.5	25.309549	0	
68	N68	-18.499639	5.5	11.979422	0	
69	N69	-27.695795	5.5	22.711472	0	
70	N70	-13.803492	-2.5	25.309549	0	
71	N71	-18.499639	-2.5	11.979422	0	
72	N72	-27.695795	-2.5	22.711472	0	
73	N73	-19.999642	5	16.22942	0	
74	N74	-19.999642	-1	16.22942	0	
75	N75	-19.999642	5	13.72942	0	
76	N76	-19.999642	-1	13.72942	0	
77	N77	-19.999642	3	16.22942	0	
78	N78	-19.999642	3	13.72942	0	
79	N79	-19.999642	0	16.22942	0	
80	N80	-19.999642	0	13.72942	0	
81	N81	-23.265186	5	21.885507	0	
82	N82	-23.265186	-1	21.885507	0	
83	N83	-25.430249	5	23.135507	0	
84	N84	-25.430249	-1	23.135507	0	
85	N85	-23.265186	3	21.885507	0	
86	N86	-25.430249	3	23.135507	0	
87	N87	-23.265186	0	21.885507	0	
88	N88	-25.430249	0	23.135507	0	
89	N89	-16.734098	5	21.885507	0	
90	N90	-16.734098	-1	21.885507	0	
91	N91	-14.569035	5	23.135507	0	
92	N92	-14.569035	-1	23.135507	0	
93	N93	-16.734098	3	21.885507	0	
94	N94	-14.569035	3	23.135507	0	
95	N95	-16.734098	0	21.885507	0	
96	N96	-14.569035	0	23.135507	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
3	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N4						
5	N5						
6	N6						
7	N7						
8	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N9						
10	N10						
11	N11						
12	N12						
13	N13						
14	N14						
15	N15						
16	N16						
17	N17						
18	N18						
19	N19						
20	N20						
21	N21						
22	N22						
23	N23						
24	N24						
25	N25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
26	N26						
27	N27						
28	N28						
29	N29						
30	N30						
31	N31						
32	N32						
33	N33						
34	N34						
35	N35						
36	N36						
37	N37						
38	N38						
39	N39						
40	N40						
41	N41						
42	N42	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
43	N43						
44	N44						
45	N45						
46	N46						
47	N47						
48	N48						
49	N49						
50	N50						
51	N51						
52	N52						
53	N53						
54	N54						

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
55	N55	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
56	N56						
57	N57	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
58	N58						
59	N59	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
60	N60						
61	N73						
62	N74						
63	N75						
64	N76						
65	N81						
66	N82						
67	N83						
68	N84						
69	N89						
70	N90						
71	N91						
72	N92						
73	N88						
74	N96						

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSG.2	Y	-.052	.5
2	PSG.2	Y	-.052	3
3	PSG.1	Y	-.075	.5
4	PSG.1	Y	-.075	7.5
5	PSA.2	Y	-.052	.5
6	PSA.2	Y	-.052	3
7	PSA.1	Y	-.075	.5
8	PSA.1	Y	-.075	7.5
9	PSB.2	Y	-.052	.5
10	PSB.2	Y	-.052	3
11	PSB.1	Y	-.075	.5
12	PSB.1	Y	-.075	7.5
13	M55	Y	-.084	3
14	M56	Y	-.109	3
15	M57	Y	-.084	3
16	M58	Y	-.109	3
17	M59	Y	-.084	3
18	M60	Y	-.109	3

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSG.2	Y	-.108	.5
2	PSG.2	Y	-.108	3
3	PSG.1	Y	-.297	.5
4	PSG.1	Y	-.297	7.5
5	PSA.2	Y	-.108	.5
6	PSA.2	Y	-.108	3

Member Point Loads (BLC 3 : Ice Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
7	PSA.1	Y	-.297	.5
8	PSA.1	Y	-.297	7.5
9	PSB.2	Y	-.108	.5
10	PSB.2	Y	-.108	3
11	PSB.1	Y	-.297	.5
12	PSB.1	Y	-.297	7.5
13	M55	Y	-.129	3
14	M56	Y	-.147	3
15	M57	Y	-.129	3
16	M58	Y	-.147	3
17	M59	Y	-.129	3
18	M60	Y	-.147	3

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSG.2	X	.018	.5
2	PSG.2	X	.018	3
3	PSG.1	X	.05	.5
4	PSG.1	X	.05	7.5
5	PSA.2	X	.034	.5
6	PSA.2	X	.034	3
7	PSA.1	X	.109	.5
8	PSA.1	X	.109	7.5
9	PSB.2	X	.034	.5
10	PSB.2	X	.034	3
11	PSB.1	X	.109	.5
12	PSB.1	X	.109	7.5
13	M55	X	.023	3
14	M56	X	.083	3
15	M57	X	.038	3
16	M58	X	.035	3
17	M59	X	.038	3
18	M60	X	.035	3

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSG.2	X	.037	.5
2	PSG.2	X	.037	3
3	PSG.1	X	.116	.5
4	PSG.1	X	.116	7.5
5	PSA.2	X	.091	.5
6	PSA.2	X	.091	3
7	PSA.1	X	.327	.5
8	PSA.1	X	.327	7.5
9	PSB.2	X	.091	.5
10	PSB.2	X	.091	3
11	PSB.1	X	.327	.5
12	PSB.1	X	.327	7.5
13	M55	X	.044	3
14	M56	X	.064	3
15	M57	X	.092	3

Member Point Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
16	M58	X	.083	3
17	M59	X	.092	3
18	M60	X	.083	3

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSG.2	Z	.034	.5
2	PSG.2	Z	.034	3
3	PSG.1	Z	.109	.5
4	PSG.1	Z	.109	7.5
5	PSA.2	Z	.018	.5
6	PSA.2	Z	.018	3
7	PSA.1	Z	.05	.5
8	PSA.1	Z	.05	7.5
9	PSB.2	Z	.018	.5
10	PSB.2	Z	.018	3
11	PSB.1	Z	.05	.5
12	PSB.1	Z	.05	7.5
13	M55	Z	.038	3
14	M56	Z	.035	3
15	M57	Z	.023	3
16	M58	Z	.029	3
17	M59	Z	.023	3
18	M60	Z	.029	3

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSG.2	Z	.092	.5
2	PSG.2	Z	.092	3
3	PSG.1	Z	.327	.5
4	PSG.1	Z	.327	7.5
5	PSA.2	Z	.037	.5
6	PSA.2	Z	.037	3
7	PSA.1	Z	.116	.5
8	PSA.1	Z	.116	7.5
9	PSB.2	Z	.037	.5
10	PSB.2	Z	.037	3
11	PSB.1	Z	.116	.5
12	PSB.1	Z	.116	7.5
13	M55	Z	.092	3
14	M56	Z	.083	3
15	M57	Z	.044	3
16	M58	Z	.064	3
17	M59	Z	.044	3
18	M60	Z	.064	3

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f..	Start Location[ft,%]	End Location[ft,%]
1	PSG.2	X	.001	.001	0	0

Member Distributed Loads (BLC 4 : Wind w/ Ice X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
2	PSG.1	X	.001	.001	0	0
3	PSB.2	X	.001	.001	0	.5
4	PSB.2	X	.001	.001	3	0
5	PSA.2	X	.001	.001	0	.5
6	PSA.2	X	.001	.001	3	0
7	M90	X	.001	.001	0	0
8	M89	X	.001	.001	0	0
9	M88	X	.001	.001	0	0
10	M87	X	.001	.001	0	0
11	M86	X	.001	.001	0	0
12	M83	X	.001	.001	0	0
13	M82	X	.001	.001	0	0
14	M81	X	.001	.001	0	0
15	M80	X	.001	.001	0	0
16	M79	X	.001	.001	0	0
17	M78	X	.001	.001	0	0
18	M77	X	.001	.001	0	0
19	M76	X	.001	.001	0	0
20	M75	X	.001	.001	0	0
21	M71	X	.001	.001	0	0
22	M70	X	.001	.001	0	0
23	M68	X	.001	.001	0	0
24	M67	X	.001	.001	0	0
25	M65	X	.001	.001	0	0
26	M64	X	.001	.001	0	0
27	M60	X	.001	.001	0	0
28	M59	X	.001	.001	0	0
29	M58	X	.001	.001	0	0
30	M57	X	.001	.001	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	PSG.2	X	.005	.005	0	0
2	PSG.1	X	.005	.005	0	0
3	PSB.2	X	.005	.005	0	.5
4	PSB.2	X	.005	.005	3	0
5	PSA.2	X	.005	.005	0	.5
6	PSA.2	X	.005	.005	3	0
7	M90	X	.005	.005	0	0
8	M89	X	.005	.005	0	0
9	M88	X	.005	.005	0	0
10	M87	X	.005	.005	0	0
11	M86	X	.005	.005	0	0
12	M83	X	.005	.005	0	0
13	M82	X	.005	.005	0	0
14	M81	X	.005	.005	0	0
15	M80	X	.005	.005	0	0
16	M79	X	.005	.005	0	0
17	M78	X	.005	.005	0	0
18	M77	X	.005	.005	0	0
19	M76	X	.005	.005	0	0

Member Distributed Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
20	M75	X	.005	.005	0	0
21	M71	X	.005	.005	0	0
22	M70	X	.005	.005	0	0
23	M68	X	.005	.005	0	0
24	M67	X	.005	.005	0	0
25	M65	X	.005	.005	0	0
26	M64	X	.005	.005	0	0
27	M60	X	.005	.005	0	0
28	M59	X	.005	.005	0	0
29	M58	X	.005	.005	0	0
30	M57	X	.005	.005	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	PSA.2	Z	.001	.001	0	0
2	PSA.1	Z	.001	.001	0	0
3	PSB.2	Z	.001	.001	0	0
4	PSB.1	Z	.001	.001	0	0
5	M55	Z	.001	.001	0	0
6	M56	Z	.001	.001	0	0
7	M57	Z	.001	.001	0	0
8	M58	Z	.001	.001	0	0
9	M64	Z	.001	.001	0	0
10	M65	Z	.001	.001	0	0
11	M66	Z	.001	.001	0	0
12	M67	Z	.001	.001	0	0
13	M68	Z	.001	.001	0	0
14	M69	Z	.001	.001	0	0
15	M70	Z	.001	.001	0	0
16	M71	Z	.001	.001	0	0
17	M72	Z	.001	.001	0	0
18	M73	Z	.001	.001	0	0
19	M74	Z	.001	.001	0	0
20	M75	Z	.001	.001	0	0
21	M76	Z	.001	.001	0	0
22	M77	Z	.001	.001	0	0
23	M78	Z	.001	.001	0	0
24	M79	Z	.001	.001	0	0
25	M80	Z	.001	.001	0	0
26	M81	Z	.001	.001	0	0
27	M82	Z	.001	.001	0	0
28	M83	Z	.001	.001	0	0
29	M84	Z	.001	.001	0	0
30	M85	Z	.001	.001	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	PSA.2	Z	.005	.005	0	0
2	PSA.1	Z	.005	.005	0	0
3	PSB.2	Z	.005	.005	0	0
4	PSB.1	Z	.005	.005	0	0

Member Distributed Loads (BLC 7 : Wind Z) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
5	M55	Z	.005	.005	0	0
6	M56	Z	.005	.005	0	0
7	M57	Z	.005	.005	0	0
8	M58	Z	.005	.005	0	0
9	M64	Z	.005	.005	0	0
10	M65	Z	.005	.005	0	0
11	M66	Z	.005	.005	0	0
12	M67	Z	.005	.005	0	0
13	M68	Z	.005	.005	0	0
14	M69	Z	.005	.005	0	0
15	M70	Z	.005	.005	0	0
16	M71	Z	.005	.005	0	0
17	M72	Z	.005	.005	0	0
18	M73	Z	.005	.005	0	0
19	M74	Z	.005	.005	0	0
20	M75	Z	.005	.005	0	0
21	M76	Z	.005	.005	0	0
22	M77	Z	.005	.005	0	0
23	M78	Z	.005	.005	0	0
24	M79	Z	.005	.005	0	0
25	M80	Z	.005	.005	0	0
26	M81	Z	.005	.005	0	0
27	M82	Z	.005	.005	0	0
28	M83	Z	.005	.005	0	0
29	M84	Z	.005	.005	0	0
30	M85	Z	.005	.005	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Equipment Weight	DL					18			
3	Ice Weight	LL					18			
4	Wind w/ Ice X	WLX					18	30		
5	Wind X	WLX					18	30		
6	Wind w/ Ice Z	WLZ					18	30		
7	Wind Z	WLZ					18	30		

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	BLC	Fact...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D + 1.6W (X-dir...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-dir...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z-dire...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-dire...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	-.324	6	.109	6	-.374	6	-.017	5	.488	4	.043	6
2		min	-1.328	1	.057	2	-.922	1	-.062	3	.192	3	.026	2
3	N2	max	-.037	5	.108	3	.286	3	.066	3	.623	1	.031	6
4		min	-.314	1	.048	5	-1.422	5	.025	5	.161	6	.005	2
5	N3	max	.773	4	.108	6	.801	2	.004	2	.189	1	-.029	2
6		min	-1.447	2	.042	2	-.48	4	-.014	4	.115	5	-.073	6
7	N8	max	.103	6	.109	3	.723	3	.066	3	.466	2	.036	3
8		min	-.156	2	.041	5	-.773	5	.026	5	-.071	6	.006	5
9	N25	max	.756	4	.109	6	.393	2	-.006	3	.109	5	-.024	2
10		min	-.871	2	.044	2	-.502	6	-.026	4	-.081	3	-.072	6
11	N42	max	-.682	5	.112	3	-.361	6	-.026	2	.398	5	.043	3
12		min	-1.145	1	.06	5	-.718	1	-.063	6	-.04	3	.021	5
13	N55	max	.002	6	1.859	6	-.605	2	.034	3	.493	2	.491	2
14		min	-.106	2	.627	2	-1.828	6	.019	5	-.012	6	-.011	6
15	N57	max	-.496	5	1.859	3	.915	3	.331	2	.395	2	-.027	6
16		min	-1.584	3	.627	5	.349	5	-.023	6	-.007	6	-.218	1
17	N59	max	1.579	3	1.852	6	.91	6	-.021	6	.472	2	.028	6
18		min	.551	5	.618	2	.209	2	-.422	1	.004	6	-.213	2
19	Totals:	max	0	6	6.214	6	0	3						
20		min	-5.206	1	2.217	2	-4.467	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
1	N1	max	0	6	0	6	0	6	0	6	0	6	0	6
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	0	6	0	6	0	6	0	6	0	6	0	6
4		min	0	1	0	1	0	1	0	1	0	1	0	1
5	N3	max	0	6	0	6	0	6	0	6	0	6	0	6
6		min	0	1	0	1	0	1	0	1	0	1	0	1
7	N4	max	.412	1	-.009	5	.004	5	1.859e-04	2	-2.118e-03	6	-4.416e-04	5
8		min	.116	6	-.04	3	0	3	-1.975e-03	6	-6.388e-03	1	-3.125e-03	3
9	N5	max	.455	1	-.008	2	.004	5	5.142e-04	2	-2.191e-03	6	-4.953e-04	5
10		min	.129	6	-.055	6	0	3	-2.754e-03	6	-7.241e-03	1	-3.882e-03	3
11	N6	max	.194	1	0	5	.002	5	1.103e-04	4	-2.069e-03	6	-2.959e-04	5
12		min	.049	6	-.004	3	0	3	3.488e-05	2	-7.745e-03	1	-1.62e-03	3
13	N7	max	.009	1	0	5	0	5	-6.616e-05	5	-6.532e-04	6	-2.715e-05	2
14		min	.002	6	0	3	0	3	-1.943e-04	3	-2.696e-03	1	-1.611e-04	6
15	N8	max	0	6	0	6	0	6	0	6	0	6	0	6
16		min	0	1	0	1	0	1	0	1	0	1	0	1
17	N9	max	.362	2	-.008	5	.002	5	-5.11e-04	5	-4.996e-04	3	-4.181e-04	5
18		min	-.003	6	-.04	3	-.001	3	-2.454e-03	3	-5.86e-03	2	-3.266e-03	3
19	N10	max	.4	2	-.012	5	.002	5	-6.958e-04	5	-7.984e-04	3	-4.906e-04	5
20		min	.002	6	-.059	3	-.001	3	-3.27e-03	3	-6.66e-03	2	-4.084e-03	3
21	N11	max	.162	2	0	5	.001	5	4.626e-05	4	5.602e-05	6	-2.941e-04	5
22		min	-.008	6	-.004	3	-.001	3	-1.599e-05	2	-6.8e-03	2	-1.709e-03	3
23	N12	max	.007	2	0	5	0	5	-7.855e-05	5	2.249e-04	6	-3.094e-05	5
24		min	0	6	0	3	0	3	-1.941e-04	3	-2.115e-03	2	-1.852e-04	3
25	N13	max	.455	1	-.024	5	.151	4	2.433e-03	4	-1.719e-03	3	-5.862e-04	5
26		min	.129	6	-.141	3	.035	3	1.855e-04	2	-9.126e-03	4	-4.869e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
27	N14	max	.401	2	-.024	5	.153	5	4.66e-04	3	-1.328e-03	3	9.25e-04	2
28		min	.002	6	-.141	3	.018	3	-2.568e-03	5	-9.219e-03	4	-4.102e-03	6
29	N15	max	.455	1	.009	2	-.031	6	4.953e-04	5	-1.427e-03	6	-3.322e-04	5
30		min	.129	6	-.009	4	-.129	1	-4.554e-04	3	-7.046e-03	1	-3.438e-03	3
31	N16	max	.4	2	.009	2	-.02	6	3.614e-04	5	-1.182e-03	6	-3.813e-04	5
32		min	.002	6	-.009	4	-.122	1	-4.594e-04	3	-6.872e-03	1	-3.6e-03	3
33	N17	max	0	6	0	6	0	6	0	6	0	6	0	6
34		min	0	1	0	1	0	1	0	1	0	1	0	1
35	N18	max	.485	1	.009	2	-.035	6	6.413e-04	5	-1.427e-03	6	-3.322e-04	5
36		min	.188	6	-.009	4	-.132	1	-4.556e-04	3	-7.046e-03	1	-3.514e-03	3
37	N19	max	0	6	0	6	0	6	0	6	0	6	0	6
38		min	0	1	0	1	0	1	0	1	0	1	0	1
39	N20	max	.371	2	.009	2	-.012	3	3.421e-04	5	-1.182e-03	6	-3.813e-04	5
40		min	-.059	6	-.009	4	-.119	2	-4.594e-04	3	-6.872e-03	1	-3.597e-03	3
41	N21	max	-.058	6	-.008	2	-.098	6	-1.088e-04	5	-1.603e-03	6	3.355e-03	3
42		min	-.193	1	-.041	6	-.342	1	-1.738e-03	3	-1.076e-02	1	7.405e-04	5
43	N22	max	-.062	6	-.014	2	-.105	6	-1.468e-06	5	-1.321e-03	6	4.467e-03	3
44		min	-.228	1	-.057	6	-.404	1	-1.996e-03	3	-1.306e-02	1	1.124e-03	5
45	N23	max	-.025	6	0	2	-.043	6	-2.202e-04	5	-2.143e-03	6	7.513e-04	3
46		min	-.057	1	-.004	6	-.103	1	-1.469e-03	3	-6.769e-03	1	1.259e-04	5
47	N24	max	-.001	2	0	2	-.001	5	2.128e-05	4	-6.107e-04	5	2.514e-04	6
48		min	-.001	6	0	6	-.003	1	-5.51e-05	3	-9.656e-04	1	1.014e-04	2
49	N25	max	0	6	0	6	0	6	0	6	0	6	0	6
50		min	0	1	0	1	0	1	0	1	0	1	0	1
51	N26	max	0	6	-.008	2	.004	6	1.359e-06	5	4.417e-05	6	3.522e-03	3
52		min	-.171	2	-.04	6	-.302	2	-1.559e-03	3	-1.057e-02	2	4.014e-04	5
53	N27	max	.001	6	-.008	2	.005	6	-2.976e-05	5	1.084e-04	6	4.466e-03	3
54		min	-.207	2	-.057	6	-.364	2	-1.888e-03	3	-1.323e-02	2	4.287e-04	5
55	N28	max	.003	3	0	2	.006	3	-3.74e-05	5	-4.319e-05	6	7.873e-04	3
56		min	-.046	2	-.004	6	-.082	2	-1.396e-03	3	-5.819e-03	2	2.663e-05	5
57	N29	max	0	3	0	2	0	3	8.42e-05	4	2.542e-04	3	2.424e-04	3
58		min	-.001	5	0	6	-.002	2	-4.069e-05	3	-6.516e-04	2	7.46e-05	2
59	N30	max	.041	2	-.026	5	-.113	6	7.768e-04	5	-4.464e-04	6	1.879e-03	6
60		min	-.083	4	-.139	3	-.558	1	-4.305e-03	3	-1.905e-02	1	-4.949e-03	2
61	N31	max	.063	1	-.026	5	.006	6	7.484e-04	2	-6.239e-05	6	6.339e-03	1
62		min	-.078	5	-.139	3	-.519	2	-4.122e-03	6	-1.91e-02	1	-5.199e-04	5
63	N32	max	-.082	6	.007	2	-.094	6	6.275e-05	5	-1.085e-03	6	2.104e-03	6
64		min	-.419	1	-.015	4	-.294	1	-2.785e-03	3	-1.198e-02	1	2.171e-04	2
65	N33	max	-.003	6	.007	2	.007	6	3.881e-05	5	-5.705e-04	6	2.113e-03	6
66		min	-.405	2	-.015	4	-.249	2	-2.813e-03	3	-1.233e-02	1	2.304e-04	2
67	N34	max	0	6	0	6	0	6	0	6	0	6	0	6
68		min	0	1	0	1	0	1	0	1	0	1	0	1
69	N35	max	-.12	6	.007	2	-.139	6	3.778e-04	5	-1.085e-03	6	2.105e-03	6
70		min	-.422	1	-.015	4	-.316	1	-2.786e-03	3	-1.198e-02	1	7.116e-05	2
71	N36	max	0	6	0	6	0	6	0	6	0	6	0	6
72		min	0	1	0	1	0	1	0	1	0	1	0	1
73	N37	max	.035	6	.007	2	.054	6	3.881e-05	5	-5.705e-04	6	2.113e-03	6
74		min	-.4	2	-.015	4	-.232	2	-2.813e-03	3	-1.233e-02	1	2.496e-04	2
75	N38	max	-.058	6	-.012	5	.342	1	3.762e-03	3	-1.038e-03	5	2.024e-04	5
76		min	-.193	1	-.041	3	.102	6	1.616e-04	5	-5.743e-03	1	-1.722e-04	3
77	N39	max	-.062	6	-.011	5	.37	1	4.842e-03	3	-1.884e-04	5	4.099e-04	5
78		min	-.209	1	-.057	3	.109	6	2.508e-05	5	-5.301e-03	1	-4.79e-04	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
79	N40	max	-.029	3	-.003	5	.147	1	1.389e-03	3	-2.229e-03	6	8.552e-04	3
80		min	-.082	1	-.004	3	.052	6	1.87e-04	5	-7.65e-03	1	1.049e-04	5
81	N41	max	-.001	3	0	5	.006	4	2.438e-04	3	-7.948e-04	3	-6.61e-05	2
82		min	-.003	4	0	3	.002	3	4.802e-05	5	-2.081e-03	4	-1.245e-04	4
83	N42	max	0	6	0	6	0	6	0	6	0	6	0	6
84		min	0	1	0	1	0	1	0	1	0	1	0	1
85	N43	max	.002	6	-.013	2	.302	2	3.955e-03	6	3.202e-04	6	1.192e-04	2
86		min	-.171	2	-.041	6	0	6	1.05e-03	2	-5.062e-03	2	-5.822e-04	4
87	N44	max	.003	6	-.016	2	.326	2	5.048e-03	6	4.022e-04	6	1.18e-04	2
88		min	-.185	2	-.059	6	-.002	6	1.212e-03	2	-4.256e-03	2	-1.058e-03	4
89	N45	max	0	6	-.003	5	.127	2	1.423e-03	6	-1.176e-04	6	8.198e-04	6
90		min	-.071	2	-.005	3	.003	6	4.703e-04	2	-6.802e-03	2	2.428e-04	5
91	N46	max	0	3	0	5	.005	5	2.507e-04	6	8.082e-05	3	-4.056e-05	5
92		min	-.003	5	0	3	0	3	9.301e-05	2	-1.752e-03	5	-9.228e-05	1
93	N47	max	-.067	6	-.031	5	.339	1	4.235e-03	4	3.341e-03	5	2.147e-03	6
94		min	-.262	1	-.141	3	.107	6	1.759e-03	2	-2.448e-03	1	-1.356e-03	5
95	N48	max	.013	6	-.031	5	.302	2	3.238e-03	3	3.448e-03	5	3.142e-03	1
96		min	-.227	2	-.141	3	.003	6	-2.952e-03	5	-2.16e-03	1	2.276e-03	5
97	N49	max	-.045	3	.005	3	.431	1	3.278e-03	3	-6.963e-04	5	1.212e-03	6
98		min	-.107	4	-.011	4	.117	6	4.682e-04	5	-7.102e-03	1	-3.168e-04	2
99	N50	max	.002	3	.005	3	.374	2	3.312e-03	3	-2.293e-04	6	1.302e-03	6
100		min	-.102	5	-.011	4	-.003	6	7.776e-04	5	-6.097e-03	1	-1.093e-04	2
101	N51	max	0	6	0	6	0	6	0	6	0	6	0	6
102		min	0	1	0	1	0	1	0	1	0	1	0	1
103	N52	max	-.064	3	.004	3	.46	1	3.28e-03	3	-6.963e-04	5	1.212e-03	6
104		min	-.106	4	-.011	4	.174	6	6.143e-04	5	-7.102e-03	1	-6.437e-04	2
105	N53	max	0	6	0	6	0	6	0	6	0	6	0	6
106		min	0	1	0	1	0	1	0	1	0	1	0	1
107	N54	max	.025	6	.005	3	.35	2	3.312e-03	3	-2.293e-04	6	1.302e-03	6
108		min	-.104	2	-.011	4	-.061	6	7.583e-04	5	-6.097e-03	1	-9.005e-05	2
109	N55	max	0	6	0	6	0	6	0	6	0	6	0	6
110		min	0	1	0	1	0	1	0	1	0	1	0	1
111	N56	max	.285	2	0	5	.002	5	-1.868e-04	2	-3.019e-04	6	-4.233e-04	5
112		min	-.007	6	-.008	3	-.002	3	-1.3e-03	6	-6.678e-03	2	-2.737e-03	3
113	N57	max	0	6	0	6	0	6	0	6	0	6	0	6
114		min	0	1	0	1	0	1	0	1	0	1	0	1
115	N58	max	0	6	0	2	.004	6	6.639e-05	5	-1.475e-04	6	2.438e-03	3
116		min	-.112	2	-.009	6	-.199	2	-1.598e-03	3	-9.109e-03	2	4.022e-04	5
117	N59	max	0	6	0	6	0	6	0	6	0	6	0	6
118		min	0	1	0	1	0	1	0	1	0	1	0	1
119	N60	max	0	6	-.004	5	.238	2	2.931e-03	6	9.442e-05	6	1.978e-04	6
120		min	-.134	2	-.009	3	.003	6	7.494e-04	5	-6.927e-03	2	3.995e-05	1
121	N61	max	-.058	6	-.014	5	.309	1	3.546e-03	3	-6.317e-04	5	3.211e-04	4
122		min	-.193	1	-.04	6	.094	6	1.509e-04	5	-5.062e-03	1	-1.308e-04	3
123	N62	max	.38	1	-.009	5	.02	4	2.424e-04	2	-2.013e-03	3	-5.202e-04	5
124		min	.105	6	-.04	3	.006	3	-1.819e-03	6	-5.557e-03	1	-2.955e-03	3
125	N63	max	-.049	6	-.009	2	-.093	6	-2.617e-04	5	-1.522e-03	6	3.138e-03	3
126		min	-.137	1	-.039	6	-.31	1	-1.678e-03	3	-1.009e-02	1	6.108e-04	5
127	N64	max	.002	6	-.011	5	.273	2	3.741e-03	6	3.38e-04	6	2.471e-04	2
128		min	-.171	2	-.038	3	.002	6	9.837e-04	2	-4.384e-03	2	-4.46e-04	6
129	N65	max	.333	2	-.007	5	.019	5	-3.695e-04	5	-3.968e-04	3	-4.635e-04	5
130		min	-.005	6	-.038	3	0	3	-2.276e-03	3	-5.241e-03	5	-3.113e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
131	N66	max	0	6	-.009	2	.004	6	-1.42e-04	5	5.446e-05	6	3.312e-03	3
132		min	-.117	2	-.038	6	-.271	2	-1.496e-03	3	-9.847e-03	2	2.981e-04	5
133	N67	max	-.04	5	-.031	5	.454	4	8.719e-03	4	3.341e-03	5	2.153e-03	6
134		min	-.193	1	-.141	3	.229	3	1.76e-03	2	-2.448e-03	1	-2.822e-03	2
135	N68	max	.681	1	-.024	5	.262	4	4.113e-03	4	-1.719e-03	3	-5.866e-04	5
136		min	.255	6	-.142	3	.049	3	1.856e-04	2	-9.126e-03	4	-8.68e-03	1
137	N69	max	.289	2	-.026	5	-.158	5	2.456e-03	5	-4.464e-04	6	1.884e-03	6
138		min	-.111	4	-.14	3	-.651	1	-4.316e-03	3	-1.905e-02	1	-9.432e-03	2
139	N70	max	.099	3	-.031	5	.396	5	3.229e-03	3	3.448e-03	5	4.817e-03	1
140		min	-.099	2	-.141	3	-.084	3	-7.428e-03	5	-2.16e-03	1	2.275e-03	5
141	N71	max	.528	2	-.024	5	.268	5	4.648e-04	3	-1.328e-03	3	5.402e-03	2
142		min	-.121	6	-.142	3	.004	3	-4.244e-03	5	-9.219e-03	4	-4.091e-03	6
143	N72	max	.353	1	-.027	5	.139	6	7.48e-04	2	-6.239e-05	6	1.081e-02	1
144		min	-.093	5	-.14	3	-.541	2	-4.55e-03	6	-1.91e-02	1	-5.196e-04	5
145	N73	max	.09	1	-.002	5	0	5	-5.082e-05	2	-1.437e-03	6	-1.449e-04	5
146		min	.032	5	-.005	3	-.002	3	-7.926e-05	6	-6.48e-03	1	-7.537e-04	6
147	N74	max	.06	2	-.002	5	0	4	1.964e-05	5	1.008e-04	6	-1.444e-04	5
148		min	-.014	6	-.005	3	0	6	-6.467e-05	3	-5.623e-03	2	-8.475e-04	3
149	N75	max	.333	1	0	5	-.003	5	-2.418e-04	5	-2.079e-03	6	-4.278e-04	5
150		min	.141	6	-.008	3	-.02	3	-8.177e-04	3	-7.323e-03	1	-2.483e-03	3
151	N76	max	.249	2	0	5	.003	6	2.833e-05	2	-3.782e-04	6	-4.23e-04	5
152		min	-.037	6	-.007	3	0	2	-3.235e-04	3	-6.81e-03	2	-2.605e-03	3
153	N77	max	.084	1	-.002	5	.001	5	-5.082e-05	2	-1.437e-03	6	-1.449e-04	5
154		min	.02	6	-.005	3	0	3	-7.926e-05	6	-6.48e-03	1	-7.537e-04	6
155	N78	max	.309	1	0	5	.003	5	-2.418e-04	5	-2.079e-03	6	-4.278e-04	5
156		min	.082	6	-.008	3	0	3	-8.177e-04	3	-7.323e-03	1	-2.477e-03	3
157	N79	max	.068	2	-.002	5	0	5	1.964e-05	5	1.008e-04	6	-1.444e-04	5
158		min	-.005	6	-.005	3	0	3	-6.467e-05	3	-5.623e-03	2	-8.482e-04	3
159	N80	max	.265	2	0	5	.002	5	2.833e-05	2	-3.782e-04	6	-4.23e-04	5
160		min	-.008	6	-.007	3	-.002	3	-3.235e-04	3	-6.81e-03	2	-2.605e-03	3
161	N81	max	-.015	5	-.002	2	-.022	5	-5.485e-05	5	-1.491e-03	6	4.628e-04	3
162		min	-.023	1	-.005	6	-.041	1	-6.474e-04	3	-3.709e-03	1	1.051e-04	5
163	N82	max	.007	3	-.002	2	.013	3	6.077e-05	5	5.179e-05	3	4.128e-04	6
164		min	-.013	2	-.005	6	-.023	2	-6.197e-04	3	-3.073e-03	2	3.784e-05	5
165	N83	max	-.081	5	0	2	-.113	6	-2.247e-04	5	-2.012e-03	6	1.956e-03	3
166		min	-.135	1	-.008	6	-.23	1	-1.803e-03	3	-9.289e-03	1	3.565e-04	5
167	N84	max	.019	6	0	2	.027	6	-5.632e-05	5	-2.941e-04	6	1.524e-03	3
168		min	-.094	2	-.007	6	-.167	2	-1.98e-03	3	-8.63e-03	2	1.684e-04	5
169	N85	max	-.01	3	-.002	2	-.017	6	-1.005e-04	5	-1.491e-03	6	4.685e-04	3
170		min	-.018	1	-.005	6	-.033	1	-6.474e-04	3	-3.709e-03	1	1.051e-04	5
171	N86	max	-.042	6	0	2	-.072	6	-2.704e-04	5	-2.012e-03	6	1.961e-03	3
172		min	-.117	1	-.008	6	-.209	1	-1.803e-03	3	-9.289e-03	1	3.565e-04	5
173	N87	max	.002	3	-.002	2	.005	3	6.648e-05	5	5.179e-05	3	4.128e-04	6
174		min	-.013	2	-.005	6	-.025	2	-6.197e-04	3	-3.073e-03	2	3.784e-05	5
175	N88	max	0	6	0	2	.005	6	-5.061e-05	5	-2.941e-04	6	1.523e-03	3
176		min	-.099	2	-.007	6	-.176	2	-1.98e-03	3	-8.63e-03	2	1.684e-04	5
177	N89	max	-.02	3	-.003	5	.065	1	7.057e-04	3	-1.837e-03	3	3.324e-04	3
178		min	-.035	1	-.005	3	.039	3	8.596e-05	5	-5.584e-03	1	-1.005e-05	5
179	N90	max	.005	3	-.003	5	.046	2	7.393e-04	6	-2.889e-04	6	3.406e-04	6
180		min	-.027	2	-.005	3	-.008	3	2.394e-04	2	-4.981e-03	2	3.174e-05	2
181	N91	max	-.057	6	-.005	5	.275	1	2.579e-03	3	-1.778e-03	6	6.186e-04	3
182		min	-.148	1	-.008	3	.14	6	4.125e-04	5	-7.755e-03	1	-1.222e-04	4

Envelope Joint Displacements (Continued)

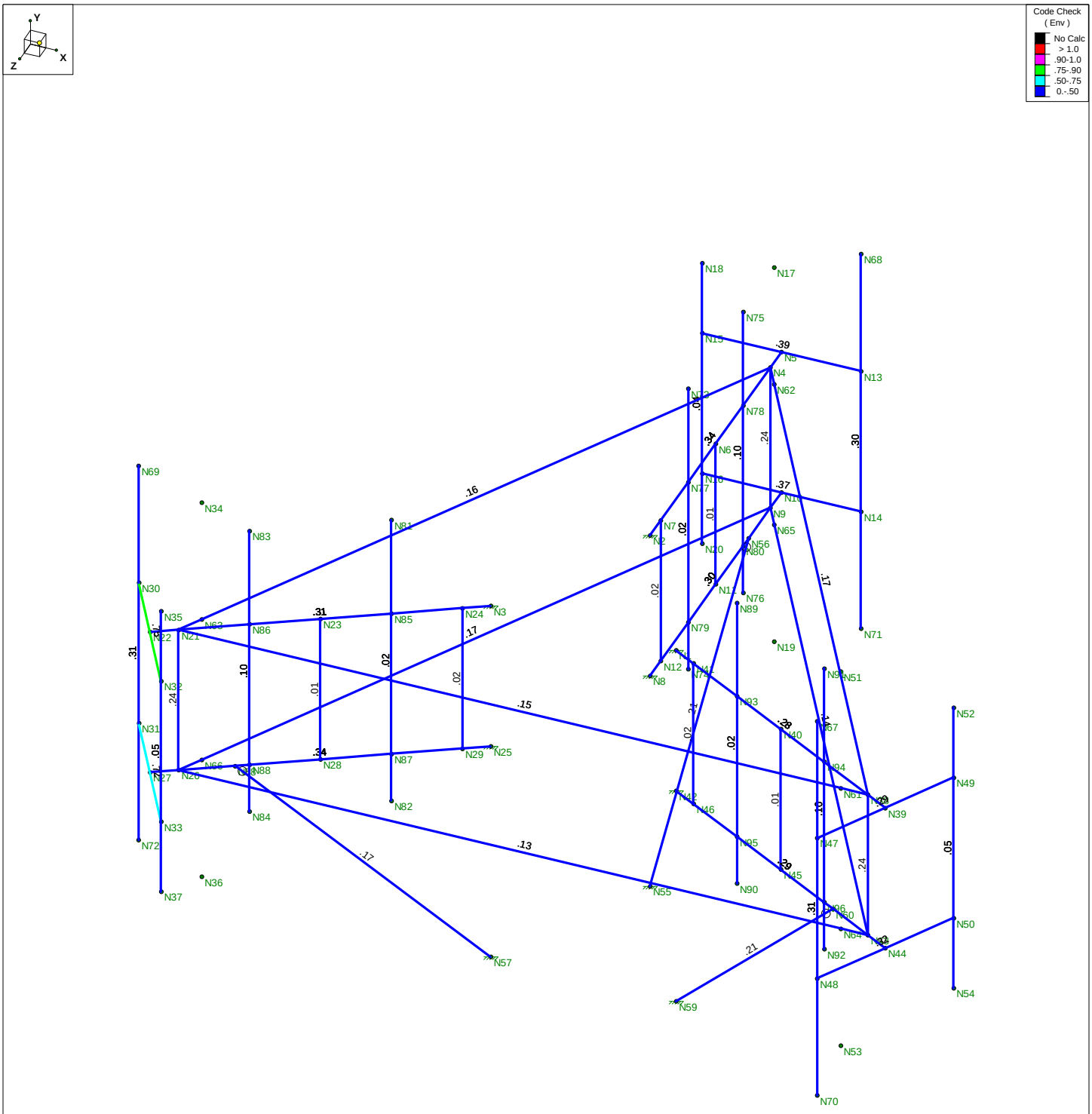
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
183	N92	max	.012	6	-.004	5	.21	2	2.34e-03	6	-9.395e-05	6	9.625e-04	6
184		min	-.12	2	-.007	3	-.025	6	6.247e-04	5	-7.122e-03	2	2.787e-04	2
185	N93	max	-.012	3	-.003	5	.057	1	7.056e-04	3	-1.837e-03	3	3.324e-04	3
186		min	-.032	1	-.005	3	.022	3	4.03e-05	5	-5.584e-03	1	-1.005e-05	5
187	N94	max	-.045	6	-.005	5	.25	1	2.579e-03	3	-1.778e-03	6	6.186e-04	3
188		min	-.141	1	-.008	3	.08	6	3.669e-04	5	-7.755e-03	1	-1.221e-04	4
189	N95	max	.001	3	-.003	5	.049	2	7.4e-04	6	-2.889e-04	6	3.406e-04	6
190		min	-.027	2	-.005	3	0	3	2.394e-04	2	-4.981e-03	2	3.174e-05	2
191	N96	max	0	6	-.004	5	.22	2	2.341e-03	6	-9.395e-05	6	9.625e-04	6
192		min	-.124	2	-.007	3	.003	6	6.305e-04	5	-7.122e-03	2	2.787e-04	2

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

	Member	Shape	Code Check	Lo...	LC	She...	Lo...	Dir	...	phi*...	phi*...	phi*...	phi*...	Cb	Eqn
1	M78	LL2x2x3x0	.753	1.5	1	.067	1.5	y	1	38.921	46.656	2.147	1.017	2.4..	H1-...
2	M77	LL2x2x3x0	.722	1.5	1	.060	1.5	y	2	38.921	46.656	2.147	1.017	2.19	H1-...
3	M85	LL2x2x3x0	.389	1.5	4	.049	1.5	z	6	38.921	46.656	2.147	1.017	1.6..	H1-...
4	M84	LL2x2x3x0	.368	1.5	4	.053	1.5	z	3	38.921	46.656	2.147	1.017	1.7..	H1-...
5	M82	PIPE_2.0	.339	6	1	.149	5.5		6	20.867	32.13	1.872	1.872	2.0..	H1-...
6	M90	PIPE_2.0	.336	0	1	.157	5.5		6	20.867	32.13	1.872	1.872	3.0..	H1-...
7	M70	LL2x2x3x0	.315	3	4	.063	1.5	z	4	38.921	46.656	2.147	1.017	2.6..	H1-...
8	PSG.1	PIPE_2.5	.311	5.5	4	.037	2.5		4	30.038	50.715	3.596	3.596	2.0..	H1-...
9	PSA.1	PIPE_2.5	.310	2.5	1	.036	2.5		2	30.038	50.715	3.596	3.596	1.21	H1-...
10	M83	PIPE_2.0	.305	6	2	.164	5.5		3	20.867	32.13	1.872	1.872	3.2..	H1-...
11	M89	PIPE_2.0	.303	4.5	6	.178	5.5		3	20.867	32.13	1.872	1.872	2.09	H1-...
12	PSB.1	PIPE_2.5	.299	2.5	1	.038	2.5		1	30.038	50.715	3.596	3.596	1.4..	H1-...
13	M75	PIPE_2.0	.293	4.5	6	.176	5.5		3	20.867	32.13	1.872	1.872	2.0..	H1-...
14	M71	LL2x2x3x0	.290	1.5	4	.045	1.5	z	3	38.921	46.656	2.147	1.627	2.5..	H1-...
15	M76	PIPE_2.0	.278	0	4	.161	5.5		3	20.867	32.13	1.872	1.872	2.8..	H1-...
16	M86	PIPE_2.0	.243	3	3	.063	3		3	28.843	32.13	1.872	1.872	2.2	H1-...
17	M72	PIPE_2.0	.242	3	6	.064	0		3	28.843	32.13	1.872	1.872	2.2..	H1-...
18	M79	PIPE_2.0	.241	3	3	.062	0		6	28.843	32.13	1.872	1.872	2.2..	H1-...
19	M63	LL2.5x2.5x3x3	.211	6....	1	.010	0	z	2	34.504	58.32	3.954	1.593	1.6..	H1-...
20	M61	LL2.5x2.5x3x3	.205	6....	1	.011	0	z	2	34.504	58.32	3.954	1.593	1.6..	H1-...
21	M62	LL2.5x2.5x3x3	.174	6....	1	.012	0	z	2	34.504	58.32	3.954	1.593	1.6..	H1-...
22	M68	PIPE_2.0	.173	13...	1	.028	0		3	5.797	32.13	1.872	1.872	2.7..	H1-...
23	M64	PIPE_2.0	.166	0	1	.028	0		3	5.798	32.13	1.872	1.872	2.9..	H1-...
24	M67	PIPE_2.0	.157	0	1	.029	0		3	5.798	32.13	1.872	1.872	2.8..	H1-...
25	M69	PIPE_2.0	.151	0	5	.029	0		3	5.797	32.13	1.872	1.872	2.8..	H1-...
26	M65	PIPE_2.0	.143	13...	2	.029	0		3	5.797	32.13	1.872	1.872	3.1..	H1-...
27	M66	PIPE_2.0	.131	0	1	.028	0		6	5.797	32.13	1.872	1.872	2.8..	H1-...
28	M56	PIPE_2.5	.100	2	3	.057	2		3	37.774	50.715	3.596	3.596	2.5..	H1-...
29	M60	PIPE_2.5	.096	2	3	.053	5		3	37.774	50.715	3.596	3.596	1.69	H1-...
30	M58	PIPE_2.5	.095	2	6	.054	5		3	37.774	50.715	3.596	3.596	2.2..	H1-...
31	PSB.2	PIPE_2.5	.050	1.5	1	.034	1.5		1	37.774	50.715	3.596	3.596	1.8..	H1-...
32	PSG.2	PIPE_2.5	.047	1.5	4	.023	1.5		4	37.774	50.715	3.596	3.596	1.5..	H1-...
33	PSA.2	PIPE_2.5	.043	1.5	1	.015	1.5		5	37.774	50.715	3.596	3.596	1.5..	H1-...
34	M59	PIPE_2.5	.023	3	1	.041	2		3	37.774	50.715	3.596	3.596	1.6..	H1-...
35	M74	PIPE_2.0	.023	0	3	.021	0		6	28.843	32.13	1.872	1.872	2.2..	H1-...
36	M88	PIPE_2.0	.023	3	3	.021	0		3	28.843	32.13	1.872	1.872	2.1..	H1-...
37	M81	PIPE_2.0	.022	0	6	.020	3		3	28.843	32.13	1.872	1.872	2.2..	H1-...

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

	Member	Shape	Code Check	Lo...	LC	She...	Lo...	Dir	...	phi*...	phi*...	phi*...	phi*...	Cb	Eqn
38	M55	PIPE_2.5	.021	3	5	.040	2		6	37.774	50.715	3.596	3.596	2.4..	H1-...
39	M57	PIPE_2.5	.020	3	1	.040	5		3	37.774	50.715	3.596	3.596	1.6..	H1-...
40	M80	PIPE_2.0	.010	0	1	.043	0		3	28.843	32.13	1.872	1.872	2.0..	H1-...
41	M87	PIPE_2.0	.010	1	1	.043	0		3	28.843	32.13	1.872	1.872	1.1..	H1-...
42	M73	PIPE_2.0	.008	1....	4	.042	0		3	28.843	32.13	1.872	1.872	1.6..	H1-...



Member Code Checks Displayed (Enveloped)
Loads: BLC 1, Self Weight
Envelope Only Solution

Centek		
FJP	CTHA813A - Mount Rev.1	Aug 9, 2021 at 1:01 PM
21005.21	Unity Check	Existing Mount_Rev.1 .r3d

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

150-ft Existing Guyed Lattice Tower

Proposed T-Mobile
Antenna Upgrade

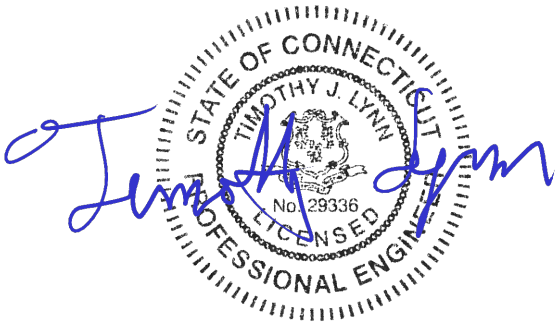
T-Mobile Site Ref: CTHA813A

497 Old Post Road
Tolland, CT

Centek Project No. 21005.21

~~Date: May 4, 2021~~
Rev 1: August 9, 2021

Max Stress Ratio = 82%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by T-Mobile on the existing guyed lattice tower located in Tolland, Connecticut.

The host tower is a 150-ft, three legged, guyed steel lattice tower. The original tower designer and manufacturer are unknown. The tower geometry, structure member sizes and foundation information were obtained from a previous structural analysis report prepared by Centek job no. 21078.01 dated June 18, 2021.

Antenna and appurtenance inventory were obtained from the aforementioned structural analysis report, a previous structural analysis report prepared by Fullerton Engineering dated February 12, 2018 and a RF data sheet.

The tower consists of nine (9) 20-ft long vertical sections constructed of solid round legs. Diagonal and horizontal lateral support bracing consists of solid rounds. The vertical tower sections are connected by sleeve bolts. Diagonal and horizontal bracing connections to the legs consist of fully welded connections. The width of the tower face is 1.5-ft throughout its length with a 5'-3" tapered base.

Antenna and Appurtenance Summary

The proposed loads considered in the analysis consist of the following:

- UNKNOWN (Existing):
  Antennas: One (1) 6-ft omni-directional whip and one (1) 20-ft omni-directional whip antenna leg mounted to the top of the tower.
  Coax Cables: Two (2) 7/8" ∅ coaxial cables running on a face of the tower.
- AT&T (Existing):
  Antennas: Two (2) CCI HPA-65R-BUU-H6 panel antennas, four (4) CCI HPA-65R-BUU-H8 panel antennas, two (2) Commcope SBNH-1D6565C panel antennas, two (2) CCI DTMABP7819VG12A TMAs, three (3) Ericsson RRUS-11 remote radio heads, six (6) Ericsson RRUS-32 remote radio heads, two (2) Ericsson 4478-B14 remote radio heads and two (2) surge arrestors mounted on three (3) 12-ft V-Frames with a RAD center elevation of 126-ft above the existing tower base.
  Coax Cables: Nine (9) 7/8" ∅ coaxial cables, one (1) Fiber trunk and two (2) DC trunks running on a face of the tower.
- UNKNOWN (Existing):
  Antennas: One 8-ft dipole antenna leg mounted to the tower with an elevation of 95-ft AGL.
  Coax Cables: One (1) 7/8" ∅ coaxial cable running on a face of the tower.
- UNKNOWN (Existing):
  Antennas: One (1) GPS antenna leg mounted to the tower with an elevation of 50-ft AGL.
  Coax Cables: One (1) 1/2" ∅ coaxial cable running on a face of the tower.

- Dish (Reserved):
  Antennas: Three (3) JMA MX08FRO665-20 panel antennas, six (6) Fujitsu TA08025-B605 remote radio heads and one (1) Raycap surge arrestor mounted on three (3) SitePro V-frames (p/n VFA10-HD-S) to the tower with a RAD center elevation of ±113-ft above grade level.
  Coax Cables: One (1) hybrid cable running on a face of the existing tower as specified in Section 3 of this report.
- Sprint (Existing to Remove):
  Antenna: Three (3) RFS APXVSPP18 panel antennas, three (3) DT465B-2XR panel antennas, three (3) 1900MHz 4X45W RRHs, six (6) 800MHz 2X50W RRHs and three (3) TD-RRR8x20 RRHs mounted to the tower with a RAD center elevation of ±147-ft above grade level.
  Coax Cable: Four (4) fiber cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- **T-MOBILE (Proposed Final Configuration):**
  Antennas: Three (3) Ericsson AIR6449 panel antennas, three (3) RFS APXVAALL24_43 panel antennas, three (3) Ericsson 4480 remote radio heads and three (3) Ericsson 4460 remote radio heads mounted to the tower with a RAD center elevation of ±147-ft above grade level.
  Coax Cables: Three (3) 6x24 ∅ fiber cable running on a face of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables routed as specified in Section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-G-2005 Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 1.00" radial ice on the tower structure and its components.

Basic Wind Speed:	Tolland; v = 105 mph (Vasd – Risk Cat III)	*[Appendix N of the 2018 CT Building Code]*
Load Cases:	Load Case 1; 105 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2018 CT Building Code]*
	Load Case 2; 40 mph wind speed w/ 1.00" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*

[1] The 2015 International Building Code as amended by the 2018 Connecticut State Building Code (CSBC).

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software tnxTower. Design flexural strength was determined based on section 4.7 and Table 4-8 of the TIA-222-G.

- Calculated stresses **were found to be within allowable limits**.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T4)	80'-0" - 100'-0"	77.2%	**PASS**
Diagonal (T2)	120'-0" - 140'-0"	81.6%	**PASS**
Guy C @ 47-ft radius (T2)	136'-0"	66.8%	**PASS**

Foundation and Anchors

- The foundation was found to be within allowable limits.

Foundation	Design Limit	Original Design Reactions[1]	Modified Original Reactions[2]	Proposed Reactions	Result
Tower Base	Compression	115.3 kips	155.7 kips	133.3 kips	**PASS**
	Shear	2.6 kips	3.5 kips	0.8 kips	**PASS**
Guy Anchor	Uplift	69.6 kips	94.0 kips	52.6 kips	**PASS**
	Shear	36.6 kips	49.4 kips	23.9 kips	**PASS**

Note 1: Original design reactions taken from aforementioned structural report prepared by Raymaker.
Note 2: Original design reactions multiplied by 1.35 for comparison to proposed reactions per section 15.5 of TIA-222-G

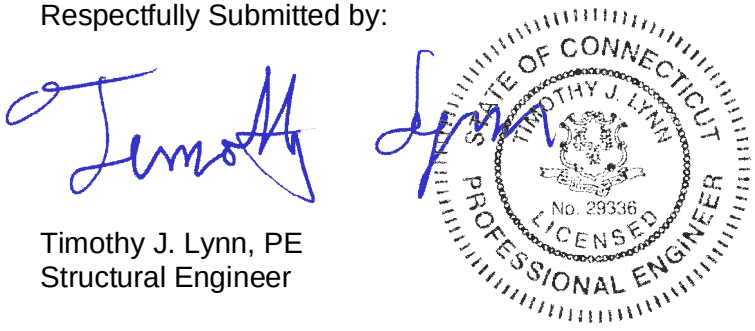
C o n c l u s i o n

This analysis shows that the subject tower **is adequate** to support the proposed antenna configuration with the below recommendations.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

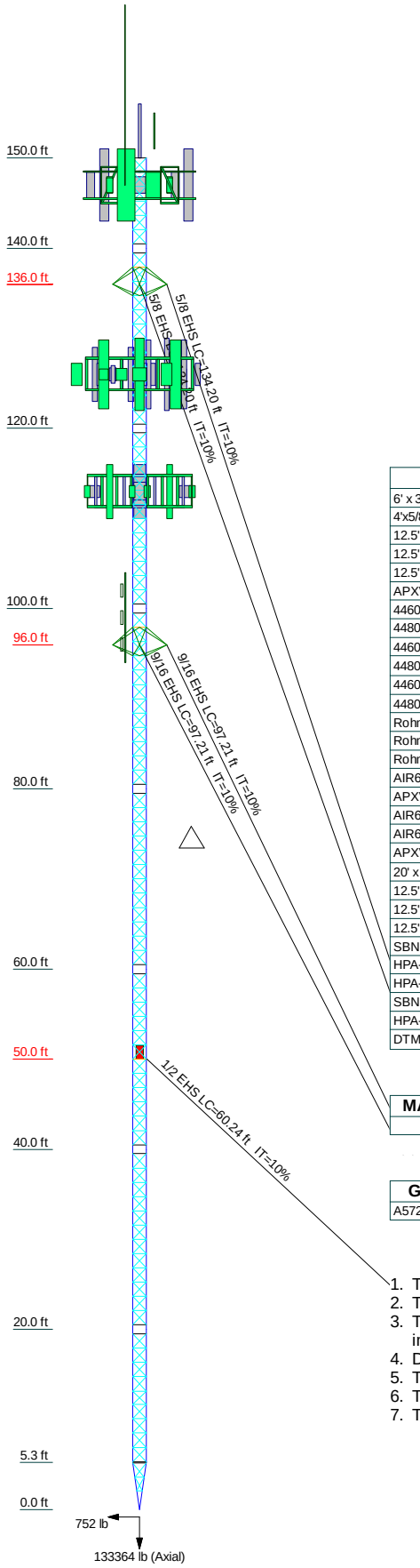
TnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, TnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

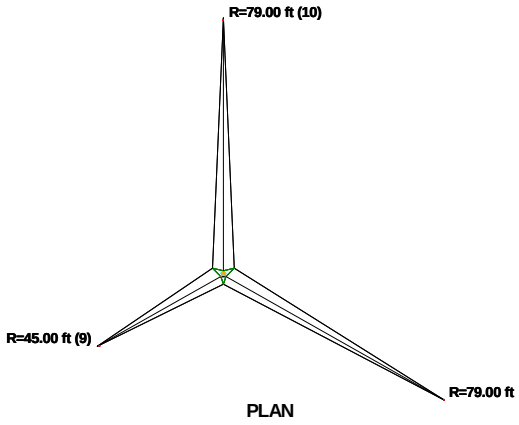
TnxTower Features:

- TnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- TnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs					SR 1 3/4				
Leg Grade					A572-50				
Diagonals					SR 5/8				
Diagonal Grade					A36				
Top Girts					SR 3/4				
Bottom Girts					SR 3/4				N.A.
Horizontals					SR 3/4				
Top Guy Pull-Offs	N.A.	SR 5/8	N.A.	SR 5/8	N.A.	SR 5/8	N.A.	N.A.	
Face Width (ft)	1.5								
# Panels @ (ft)				84 @ 1.58333				9 @ 1.57407	A
Weight (lb)	352.3	940.3	693.4	940.3	693.4	695.8	693.4	516.3	166.2

5693.2





PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
6' x 3" Dia Omni	150	DTMABP7819VG12A TMA (ATI)	126
4'x5/8" Lightning Rod	150	RRUS-11 (ATI)	126
12.5' x 2 Std. Horz. Pipe (T-Mobile)	148.5	RRUS-11 (ATI)	126
12.5' x 2 Std. Horz. Pipe (T-Mobile)	148.5	RRUS-11 (ATI)	126
12.5' x 2 Std. Horz. Pipe (T-Mobile)	148.5	(2) RRUS-32 (ATI)	126
APXVAALL24-43 (T-Mobile)	147	(2) RRUS-32 (ATI)	126
4460 B25+B66 (T-Mobile)	147	(2) RRUS-32 (ATI)	126
4480 B71+B85 (T-Mobile)	147	4478 B14 (ATI)	126
4460 B25+B66 (T-Mobile)	147	4478 B14 (ATI)	126
4480 B71+B85 (T-Mobile)	147	DC6-48-60-18-8F Surge Arrestor (ATI)	126
4460 B25+B66 (T-Mobile)	147	DC6-48-60-18-8F Surge Arrestor (ATI)	126
4480 B71+B85 (T-Mobile)	147	12' V-Frame (ATI)	126
Rohn 6' Side-Arm(1) (T-Mobile)	147	12' V-Frame (ATI)	126
Rohn 6' Side-Arm(1) (T-Mobile)	147	12' V-Frame (ATI)	126
Rohn 6' Side-Arm(1) (T-Mobile)	147	HPA-65R-BUU-H6 (ATI)	126
AIR6449 (T-Mobile)	147	HPA-65R-BUU-H6 (ATI)	126
APXVAALL24-43 (T-Mobile)	147	HPA-65R-BUU-H8 (ATI)	126
AIR6449 (T-Mobile)	147	MX08FRO665-20 (Dish)	113
AIR6449 (T-Mobile)	147	MX08FRO665-20 (Dish)	113
APXVAALL24-43 (T-Mobile)	147	MX08FRO665-20 (Dish)	113
20' x 3" Dia Omni	147	(2) TA08025-B605 (Dish)	113
12.5' x 2 Std. Horz. Pipe (T-Mobile)	145.5	(2) TA08025-B605 (Dish)	113
12.5' x 2 Std. Horz. Pipe (T-Mobile)	145.5	(2) TA08025-B605 (Dish)	113
12.5' x 2 Std. Horz. Pipe (T-Mobile)	145.5	RC2DC-3315-PF-48 (Dish)	113
SBNH-1D6565C (ATI)	126	SitePro VFA10-HD (Dish)	113
HPA-65R-BUU-H8 (ATI)	126	SitePro VFA10-HD (Dish)	113
HPA-65R-BUU-H8 (ATI)	126	SitePro VFA10-HD (Dish)	113
SBNH-1D6565C (ATI)	126	8' dipole antenna	95
HPA-65R-BUU-H8 (ATI)	126	GPS	50
DTMABP7819VG12A TMA (ATI)	126		

SYMBOL LIST

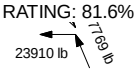
MARK	SIZE	MARK	SIZE
A	3 @ 1.55556		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 40 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 Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 81.6%



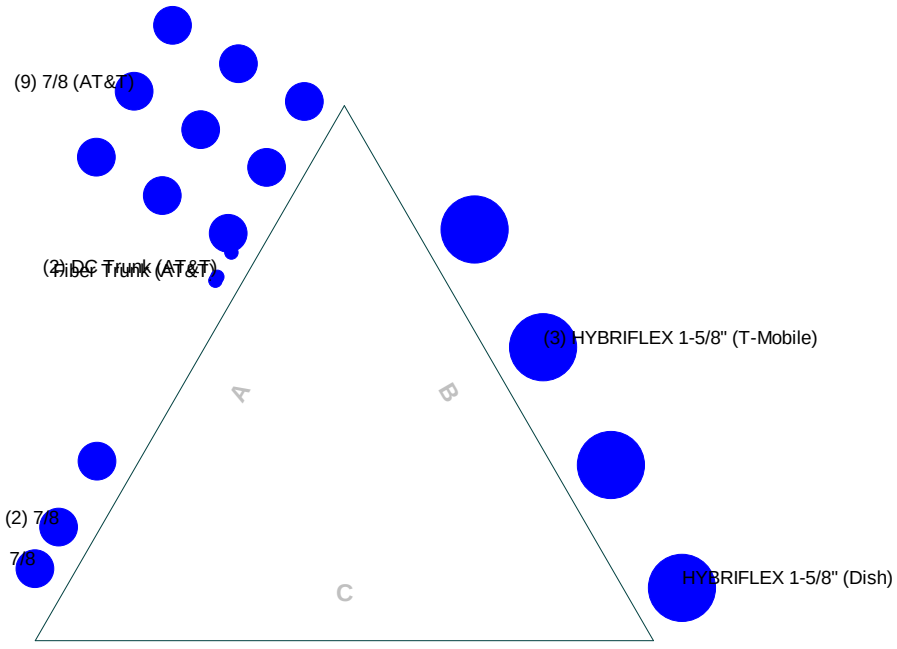
ALL REACTIONS ARE FACTORED

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: 21005.21 - CTHA813A			
Project: 150' Guyed Tower - Tolland, CT			
Client: T-Mobile	Drawn by: TJL	App'd:	
Code: TIA-222-G	Date: 08/09/21	Scale: NTS	
Path:		Dwg No. E-1	

Feed Line Plan

Round Flat App In Face App Out Face

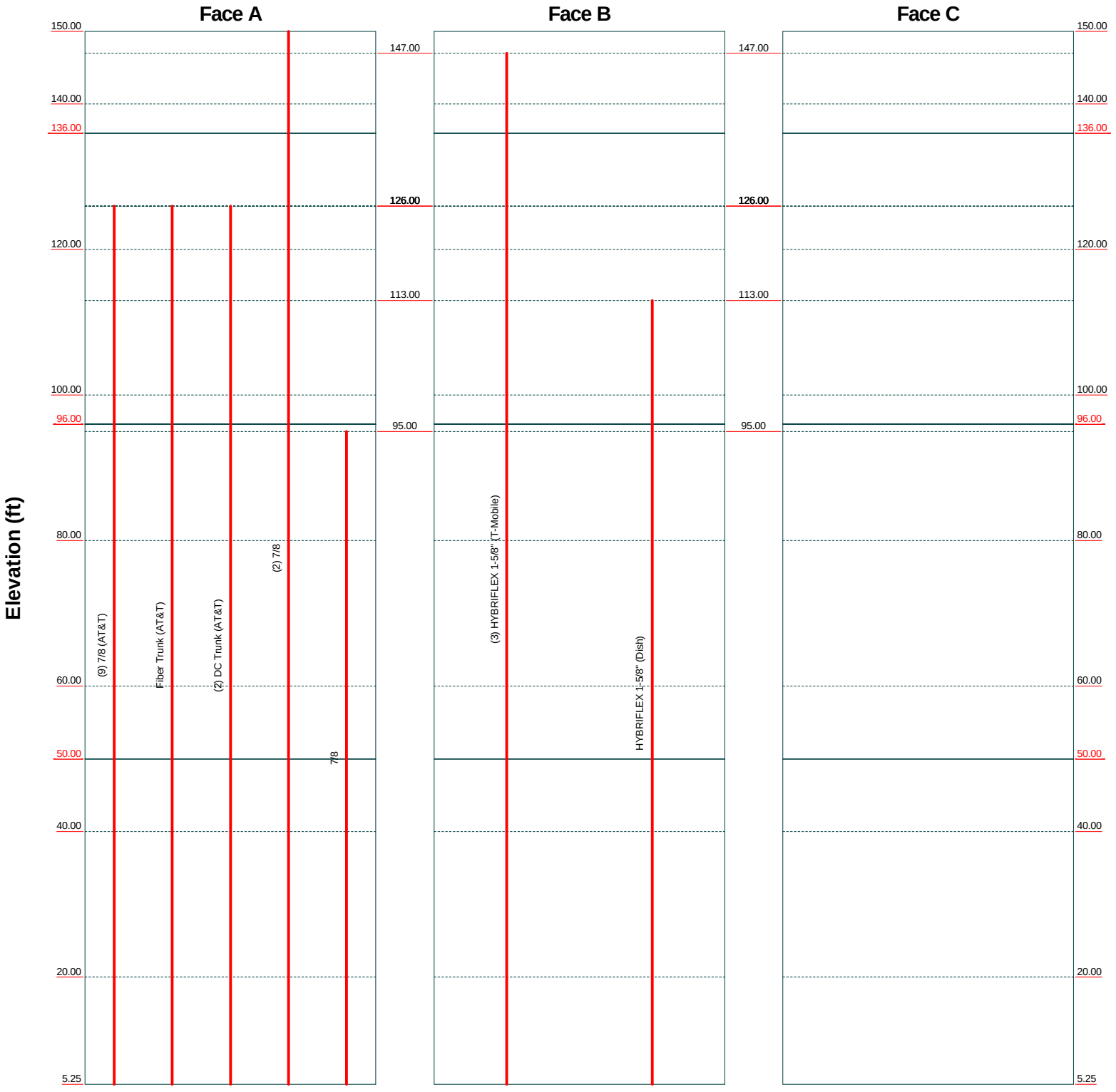


Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job:	***21005.21 - CTHA813A***		
Project:	***150' Guyed Tower - Tolland, CT***		
Client: T-Mobile	Drawn by: TJL	App'd:	
Code: TIA-222-G	Date: 08/09/21	Scale: NTS	
Path:		Dwg No. E-7	

Feed Line Distribution Chart
5'3" - 150'

Round | Flat | App In Face | App Out Face | Truss Leg



Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: **21005.21 - CTHA813A**		
Project: ***150' Guyed Tower - Tolland, CT***		
Client: T-Mobile	Drawn by: TJL	App'd:
Code: TIA-222-G	Date: 08/09/21	Scale: NTS
Path:		Dwg No. E-7

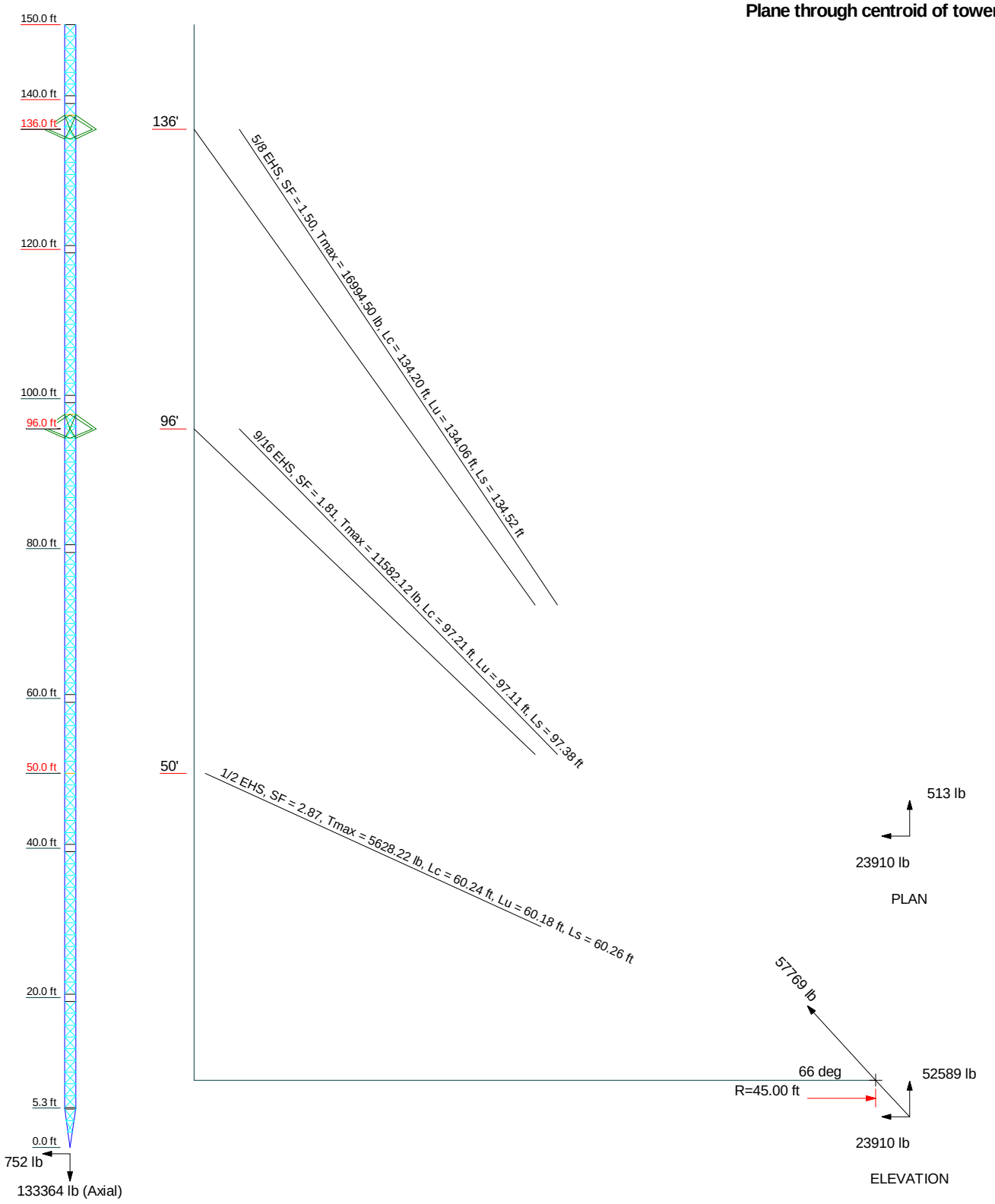
Guy Tensions and Tower Reactions

TIA-222-G - 105 mph/40 mph 1.0000 in Ice Exposure B

Maximum Values

Anchor 'C'@45 ft Azimuth 240 deg Elev 9 ft

Plane through centroid of tower



Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: ***21005.21 - CTHA813A***		
Project: ***150' Guyed Tower - Tolland, CT***		
Client: T-Mobile	Drawn by: TJL	App'd:
Code: TIA-222-G	Date: 08/09/21	Scale: NTS
Path:		Dwg No. E-6

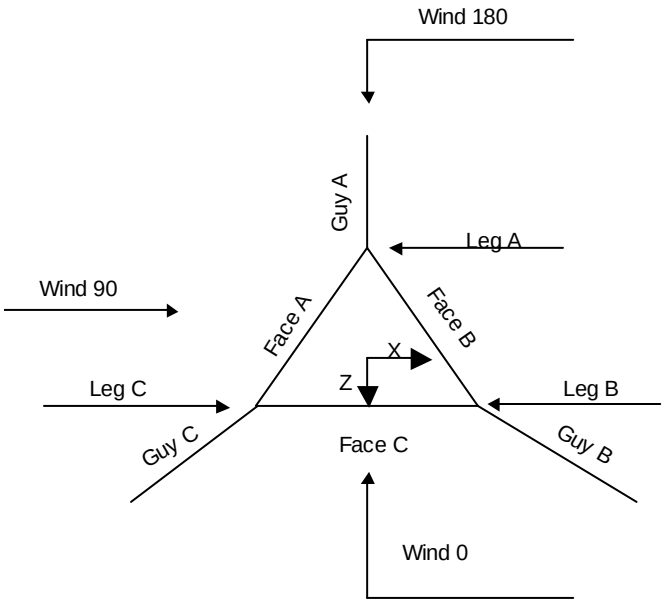
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 150.00 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 1.50 ft at the top and tapered at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

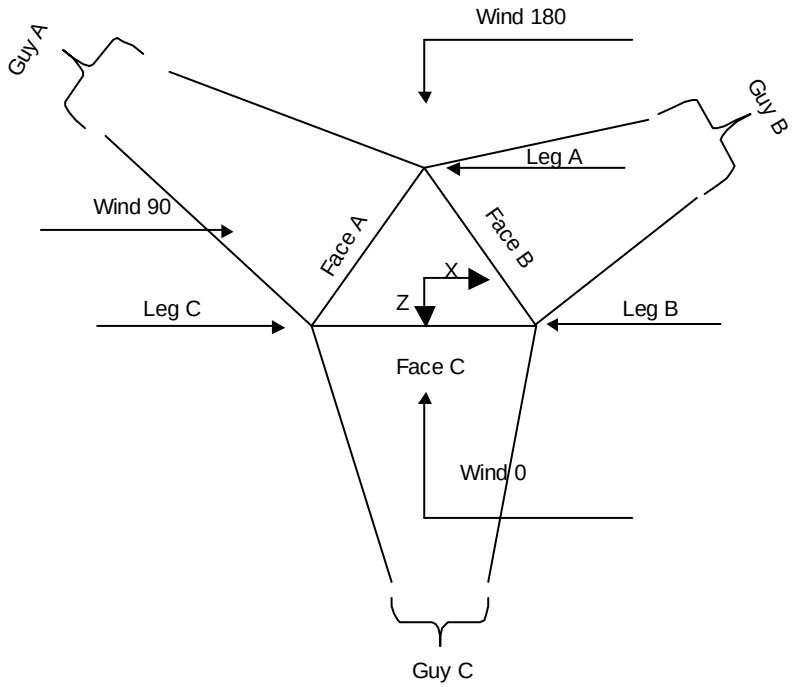
Basic wind speed of 105 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Safety factor used in guy design 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-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G 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



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	150.00-140.00			1.50	1	10.00
T2	140.00-120.00			1.50	1	20.00
T3	120.00-100.00			1.50	1	20.00
T4	100.00-80.00			1.50	1	20.00
T5	80.00-60.00			1.50	1	20.00
T6	60.00-40.00			1.50	1	20.00
T7	40.00-20.00			1.50	1	20.00
T8	20.00-5.25			1.50	1	14.75
T9	5.25-0.00			1.50	1	5.25

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	150.00-140.00	1.58	X Brace	No	Steps	0.0000	6.0000
T2	140.00-120.00	1.58	X Brace	No	Steps	6.0000	6.0000
T3	120.00-100.00	1.58	X Brace	No	Steps	6.0000	6.0000
T4	100.00-80.00	1.58	X Brace	No	Steps	6.0000	6.0000
T5	80.00-60.00	1.58	X Brace	No	Steps	6.0000	6.0000
T6	60.00-40.00	1.58	X Brace	No	Steps	6.0000	6.0000
T7	40.00-20.00	1.58	X Brace	No	Steps	6.0000	6.0000
T8	20.00-5.25	1.57	X Brace	No	Steps	6.0000	1.0000
T9	5.25-0.00	1.56	X Brace	No	Yes	1.0000	6.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 150.00-140.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 140.00-120.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 120.00-100.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 100.00-80.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 80.00-60.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 60.00-40.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 40.00-20.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T8 20.00-5.25	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T9 5.25-0.00	Solid Round	1 3/4	A572-50 (50 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 150.00-140.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 140.00-120.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 120.00-100.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T4 100.00-80.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T5 80.00-60.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T6 60.00-40.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T7 40.00-20.00	Solid Round	3/4	A572-50	Solid Round	3/4	A572-50

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T8 20.00-5.25	Solid Round	3/4	(50 ksi) A572-50 (50 ksi)	Solid Round	3/4	(50 ksi) A572-50 (50 ksi)
T9 5.25-0.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 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 150.00-140.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 140.00-120.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T3 120.00-100.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T4 100.00-80.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T5 80.00-60.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T6 60.00-40.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T7 40.00-20.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T8 20.00-5.25	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T9 5.25-0.00	None	Single Angle		A36 (36 ksi)	Solid Round	3/4	A572-50 (50 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 150.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 40.00-20.00	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
T8 20.00-5.25	0.00	0.0000	(36 ksi) A36	1	1	1	36.0000	36.0000	36.0000
T9 5.25-0.00	0.00	0.0000	(36 ksi) A36	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 150.00-140.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 140.00-120.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 120.00-100.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 100.00-80.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 80.00-60.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 60.00-40.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 40.00-20.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 20.00-5.25	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 5.25-0.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 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 Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 150.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 120.00-100.00	0.0000	1	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 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
T4 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 40.00-20.00	0.0000	1	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 20.00-5.25	0.0000	1	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 5.25-0.00	0.0000	1	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 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 150.00-140.00	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
T2 140.00-120.00	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
T3 120.00-100.00	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
T4 100.00-80.00	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
T5 80.00-60.00	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
T6 60.00-40.00	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
T7 40.00-20.00	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 20.00-5.25	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 5.25-0.00	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 150.00-140.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 140.00-120.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 120.00-100.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 100.00-80.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 80.00-60.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 60.00-40.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 40.00-20.00	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T8 20.00-5.25	Sleeve DS	0.6250 A325N	4	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 5.25-0.00	Sleeve DS	0.6250 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

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 %
136	EHS	A	5/8	4240.00	10%	21000	0.813	147.71	79.00	0.0000	10.00	100%
		B	5/8	4240.00	10%	21000	0.813	156.31	79.00	0.0000	0.00	100%
		C	5/8	4240.00	10%	21000	0.813	134.09	45.00	0.0000	9.00	100%
96	EHS	A	9/16	3500.00	10%	21000	0.671	115.55	79.00	0.0000	10.00	100%
		B	9/16	3500.00	10%	21000	0.671	123.16	79.00	0.0000	0.00	100%
		C	9/16	3500.00	10%	21000	0.671	97.13	45.00	0.0000	9.00	100%
50	EHS	A	1/2	2690.00	10%	21000	0.517	87.70	79.00	0.0000	10.00	100%
		B	1/2	2690.00	10%	21000	0.517	92.68	79.00	0.0000	0.00	100%
		C	1/2	2690.00	10%	21000	0.517	60.19	45.00	0.0000	9.00	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
136	Torque Arm	6.00	20.0000	Wing	A53-B-35 (35 ksi)	Pipe	P2.5x.203
96	Torque Arm	6.00	20.0000	Wing	A53-B-35 (35 ksi)	Pipe	P2.5x.203
50	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
136.00	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Solid Round	5/8
96.00	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Solid Round	5/8
50.00	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Solid Round	5/8

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
136	120.09	127.08	109.01		2.07 2.5 sec/pulse	2.31 2.6 sec/pulse	1.70 2.3 sec/pulse	
96	77.54	82.64	65.17		1.27 1.9 sec/pulse	1.44 2.1 sec/pulse	0.90 1.6 sec/pulse	
50	45.34	47.92	31.12		0.74 1.5 sec/pulse	0.82 1.6 sec/pulse	0.35 1.0 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
136	No	No	1	1	1	1	1	1
96	No	No	1	1	1	1	1	1
50	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
136	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
96	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
50	0.6250 A325N	0	0.0000	0.75	0.0000 A325N	0	0.0000	0.75	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
136	A	73.00	22	3	2.1653
	B	68.00	21	3	2.1500
	C	72.50	22	3	2.1638
96	A	53.00	20	3	2.0970
	B	48.00	19	3	2.0764
	C	52.50	20	3	2.0951
50	A	30.00	17	2	1.9810

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
	B	25.00	17	2	1.9452
	C	29.50	17	2	1.9777

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom lb	F_x lb	F_y lb	F_z lb	M_x kip-ft	M_y kip-ft	M_z kip-ft
136	A	58.4626	4342.35 4240.00	-87.07	3717.36	-2242.68	-6.44	6.88	-11.15
	A	58.4626	4342.35 4240.00	87.07	3717.36	-2242.68	-6.44	-6.88	11.15
	B	60.3785	4350.47 4240.00	1878.22	3797.39	989.29	13.15	6.51	0.00
	B	60.3785	4350.47 4240.00	1795.86	3797.39	1131.94	-6.58	-6.51	-11.39
	C	71.1444	4343.16 4240.00	-1150.24	4115.77	774.86	-7.13	4.32	12.35
	C	71.1444	4343.16 4240.00	-1246.17	4115.77	608.71	14.26	-4.32	0.00
			Sum:	**1277.67**	23261.06	**-980.57**	**0.83**	0.00	**0.96**
96	A	48.0400	3557.66 3500.00	-91.53	2662.82	-2357.52	-4.61	7.23	-7.99
	A	48.0400	3557.66 3500.00	91.53	2662.82	-2357.52	-4.61	-7.23	7.99
	B	51.1492	3564.36 3500.00	1960.30	2792.10	1032.52	9.67	6.79	0.00
	B	51.1492	3564.36 3500.00	1874.34	2792.10	1181.41	-4.84	-6.79	-8.38
	C	63.5025	3558.33 3500.00	-1305.85	3191.01	879.69	-5.53	4.90	9.57
	C	63.5025	3558.33 3500.00	-1414.76	3191.01	691.06	11.05	-4.90	0.00
			Sum:	**1114.02**	17291.86	**-930.37**	**1.14**	0.00	**1.20**
50	A	27.1098	2710.66 2690.00	0.00	1253.18	-2403.59	-1.09	0.00	0.00
	B	32.6163	2715.83 2690.00	1971.58	1480.84	1138.29	0.64	0.00	-1.11
	C	42.8918	2711.18 2690.00	-1713.46	1853.61	989.27	0.80	0.00	1.39
			Sum:	**258.12**	4587.63	**-276.03**	**0.36**	0.00	**0.28**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom lb	F_x lb	F_y lb	F_z lb	M_x kip-ft	M_y kip-ft	M_z kip-ft
136	A	58.4626	7901.46 6870.18	-149.50	6898.16	-3850.46	-11.95	11.81	-20.69

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		lb	lb	lb	kip-ft	kip-ft	kip-ft
	A	58.4626	7901.46 6870.18	149.50	6898.16	-3850.46	-11.95	-11.81	20.69
	B	60.3785	7915.25 6814.68	3211.89	7033.70	1691.76	24.37	11.13	0.00
	B	60.3785	7915.25 6814.68	3071.05	7033.70	1935.70	-12.18	-11.13	-21.10
	C	71.1444	7025.35 5986.84	-1739.52	6704.95	1171.83	-11.61	6.53	20.11
	C	71.1444	7025.35 5986.84	-1884.60	6704.95	920.55	23.23	-6.53	0.00
			Sum:	**2658.81**	41273.62	**-1981.07**	**-0.10**	-0.00	**-0.99**
96	A	48.0400	6594.11 5951.20	-162.40	5095.18	-4182.70	-8.83	12.83	-15.29
	A	48.0400	6594.11 5951.20	162.40	5095.18	-4182.70	-8.83	-12.83	15.29
	B	51.1492	6598.01 5891.81	3458.71	5315.28	1821.76	18.41	11.98	0.00
	B	51.1492	6598.01 5891.81	3307.05	5315.28	2084.45	-9.21	-11.98	-15.95
	C	63.5025	5774.81 5125.30	-2013.40	5239.75	1356.33	-9.08	7.56	15.72
	C	63.5025	5774.81 5125.30	-2181.32	5239.75	1065.49	18.15	-7.56	0.00
			Sum:	**2571.04**	31300.43	**-2037.37**	**0.63**	-0.00	**-0.23**
50	A	27.1098	5170.07 4909.54	0.00	2581.63	-4479.38	-2.24	0.00	0.00
	B	32.6163	5147.59 4831.58	3633.98	2981.59	2098.08	1.29	0.00	-2.24
	C	42.8918	4433.19 4166.81	-2725.90	3121.82	1573.80	1.35	0.00	2.34
			Sum:	**908.09**	8685.05	**-807.50**	**0.41**	0.00	**0.11**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		lb	lb	lb	kip-ft	kip-ft	kip-ft
136	A	58.4626	4342.35 4240.00	-87.07	3717.36	-2242.68	-6.44	6.88	-11.15
	A	58.4626	4342.35 4240.00	87.07	3717.36	-2242.68	-6.44	-6.88	11.15
	B	60.3785	4350.47 4240.00	1878.22	3797.39	989.29	13.15	6.51	0.00
	B	60.3785	4350.47 4240.00	1795.86	3797.39	1131.94	-6.58	-6.51	-11.39
	C	71.1444	4343.16 4240.00	-1150.24	4115.77	774.86	-7.13	4.32	12.35
	C	71.1444	4343.16 4240.00	-1246.17	4115.77	608.71	14.26	-4.32	0.00
			Sum:	**1277.67**	23261.06	**-980.57**	**0.83**	0.00	**0.96**
96	A	48.0400	3557.66 3500.00	-91.53	2662.82	-2357.52	-4.61	7.23	-7.99

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	kip-ft	kip-ft	kip-ft
	A	48.0400	3557.66 3500.00	91.53	2662.82	-2357.52	-4.61	-7.23	7.99
	B	51.1492	3564.36 3500.00	1960.30	2792.10	1032.52	9.67	6.79	0.00
	B	51.1492	3564.36 3500.00	1874.34	2792.10	1181.41	-4.84	-6.79	-8.38
	C	63.5025	3558.33 3500.00	-1305.85	3191.01	879.69	-5.53	4.90	9.57
	C	63.5025	3558.33 3500.00	-1414.76	3191.01	691.06	11.05	-4.90	0.00
			Sum:	**1114.02**	17291.86	**-930.37**	**1.14**	0.00	**1.20**
50	A	27.1098	2710.66 2690.00	0.00	1253.18	-2403.59	-1.09	0.00	0.00
	B	32.6163	2715.83 2690.00	1971.58	1480.84	1138.29	0.64	0.00	-1.11
	C	42.8918	2711.18 2690.00	-1713.46	1853.61	989.27	0.80	0.00	1.39
			Sum:	**258.12**	4587.63	**-276.03**	**0.36**	0.00	**0.28**

Guy-Tensioning Information

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation		H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft		ft	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft
136	A	77.33	126.00	4760	1.84	4586	1.91	4413	1.99	4240	2.07	4068	2.16	3896	2.25	3725	2.35
	B	77.33	136.00	4704	2.09	4549	2.16	4394	2.23	4240	2.31	4086	2.40	3933	2.49	3780	2.59
	C	43.37	127.00	4441	1.63	4374	1.65	4307	1.68	4240	1.70	4173	1.73	4106	1.76	4040	1.79
96	A	77.33	86.00	4201	1.06	3967	1.12	3733	1.19	3500	1.27	3268	1.36	3037	1.46	2808	1.58
	B	77.33	96.00	4117	1.23	3911	1.29	3705	1.36	3500	1.44	3296	1.53	3093	1.63	2890	1.74
	C	43.37	87.00	3815	0.82	3710	0.85	3605	0.87	3500	0.90	3395	0.93	3290	0.95	3185	0.99
50	A	78.13	40.00	3649	0.54	3328	0.60	3008	0.66	2690	0.74	2374	0.83	2062	0.96	1757	1.13
	B	78.13	50.00	3549	0.62	3261	0.68	2975	0.74	2690	0.82	2407	0.92	2127	1.04	1851	1.19
	C	44.13	41.00	3346	0.28	3127	0.30	2908	0.32	2690	0.35	2472	0.38	2255	0.41	2039	0.46

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
HYBRIFLEX 1-5/8" (T-Mobile)	B	No	No	Ar (CaAa)	147.00 - 3.00	0.5000	0	3	3	1.9800	1.9800		1.90
7/8 (AT&T)	A	No	No	Ar (CaAa)	126.00 - 3.00	0.5000	0.35	9	3	1.1100	1.1100		0.54
Fiber Trunk (AT&T)	A	No	No	Ar (CaAa)	126.00 - 3.00	0.5000	0.15	1	1	0.4000	0.4000		1.00
DC Trunk (AT&T)	A	No	No	Ar (CaAa)	126.00 - 3.00	0.5000	0.18	2	2	0.4000	0.4000		0.11
7/8	A	No	No	Ar (CaAa)	150.00 -	0.5000	-0.26	2	2	1.1100	1.1100		0.54

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
					3.00								
7/8	A	No	No	Ar (CaAa)	95.00 - 3.00	0.5000	-0.4	1	1	1.1100	1.1100		0.54
HYBRIFLEX 1-5/8" (Dish)	B	No	No	Ar (CaAa)	113.00 - 3.00	0.5000	0.45	1	1	1.9800	1.9800		1.90

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	150.00-140.00	A	0.000	0.000	2.220	0.000	10.80
		B	0.000	0.000	4.158	0.000	39.90
		C	0.000	0.000	0.000	0.000	0.00
T2	140.00-120.00	A	0.000	0.000	11.154	0.000	58.08
		B	0.000	0.000	11.880	0.000	114.00
		C	0.000	0.000	0.000	0.000	0.00
T3	120.00-100.00	A	0.000	0.000	26.820	0.000	143.20
		B	0.000	0.000	14.454	0.000	138.70
		C	0.000	0.000	0.000	0.000	0.00
T4	100.00-80.00	A	0.000	0.000	28.485	0.000	151.30
		B	0.000	0.000	15.840	0.000	152.00
		C	0.000	0.000	0.000	0.000	0.00
T5	80.00-60.00	A	0.000	0.000	29.040	0.000	154.00
		B	0.000	0.000	15.840	0.000	152.00
		C	0.000	0.000	0.000	0.000	0.00
T6	60.00-40.00	A	0.000	0.000	29.040	0.000	154.00
		B	0.000	0.000	15.840	0.000	152.00
		C	0.000	0.000	0.000	0.000	0.00
T7	40.00-20.00	A	0.000	0.000	29.040	0.000	154.00
		B	0.000	0.000	15.840	0.000	152.00
		C	0.000	0.000	0.000	0.000	0.00
T8	20.00-5.25	A	0.000	0.000	21.417	0.000	113.58
		B	0.000	0.000	11.682	0.000	112.10
		C	0.000	0.000	0.000	0.000	0.00
T9	5.25-0.00	A	0.000	0.000	3.267	0.000	17.32
		B	0.000	0.000	1.782	0.000	17.10
		C	0.000	0.000	0.000	0.000	0.00

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	150.00-140.00	A	2.319	0.000	0.000	12.281	0.000	153.82
		B		0.000	0.000	13.977	0.000	251.09
		C		0.000	0.000	0.000	0.000	0.00
T2	140.00-120.00	A	2.294	0.000	0.000	43.863	0.000	642.57
		B		0.000	0.000	39.767	0.000	710.23
		C		0.000	0.000	0.000	0.000	0.00
T3	120.00-100.00	A	2.256	0.000	0.000	88.352	0.000	1407.58
		B		0.000	0.000	47.955	0.000	875.96
		C		0.000	0.000	0.000	0.000	0.00

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
T4	100.00-80.00	A	2.211	0.000	0.000	95.526	0.000	1519.08
		B		0.000	0.000	52.024	0.000	951.33
		C		0.000	0.000	0.000	0.000	0.00
T5	80.00-60.00	A	2.156	0.000	0.000	96.695	0.000	1521.66
		B		0.000	0.000	51.442	0.000	927.55
		C		0.000	0.000	0.000	0.000	0.00
T6	60.00-40.00	A	2.085	0.000	0.000	94.620	0.000	1464.29
		B		0.000	0.000	50.687	0.000	897.07
		C		0.000	0.000	0.000	0.000	0.00
T7	40.00-20.00	A	1.981	0.000	0.000	91.601	0.000	1383.02
		B		0.000	0.000	49.589	0.000	853.61
		C		0.000	0.000	0.000	0.000	0.00
T8	20.00-5.25	A	1.817	0.000	0.000	64.034	0.000	929.13
		B		0.000	0.000	35.294	0.000	580.41
		C		0.000	0.000	0.000	0.000	0.00
T9	5.25-0.00	A	1.553	0.000	0.000	8.905	0.000	121.00
		B		0.000	0.000	5.072	0.000	77.11
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	150.00-140.00	0.3961	-0.6834	0.0000	0.0000
T2	140.00-120.00	0.1496	-2.1837	0.0000	0.0000
T3	120.00-100.00	-0.5162	-3.7010	0.0000	0.0000
T4	100.00-80.00	-0.5133	-3.3760	0.0000	0.0000
T5	80.00-60.00	-0.5839	-3.3207	0.0000	0.0000
T6	60.00-40.00	-0.5842	-3.3220	0.0000	0.0000
T7	40.00-20.00	-0.5839	-3.3207	-0.0566	-0.1758
T8	20.00-5.25	-0.5826	-3.3131	-0.1049	-0.3417
T9	5.25-0.00	-0.4590	-2.1175	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	HYBRIFLEX 1-5/8"	140.00 - 147.00	0.6000	0.0000
T1	5	7/8	140.00 - 150.00	0.6000	0.0000
T2	1	HYBRIFLEX 1-5/8"	120.00 - 140.00	0.6000	0.0000
T2	2	7/8	120.00 - 126.00	0.6000	0.0000
T2	3	Fiber Trunk	120.00 - 126.00	0.6000	0.0000
T2	4	DC Trunk	120.00 - 126.00	0.6000	0.0000
T2	5	7/8	120.00 -	0.6000	0.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			140.00		
T3	1	HYBRIFLEX 1-5/8"	100.00 - 120.00	0.6000	0.0000
T3	2	7/8	100.00 - 120.00	0.6000	0.0000
T3	3	Fiber Trunk	100.00 - 120.00	0.6000	0.0000
T3	4	DC Trunk	100.00 - 120.00	0.6000	0.0000
T3	5	7/8	100.00 - 120.00	0.6000	0.0000
T3	7	HYBRIFLEX 1-5/8"	100.00 - 113.00	0.6000	0.0000
T4	1	HYBRIFLEX 1-5/8"	80.00 - 100.00	0.6000	0.0000
T4	2	7/8	80.00 - 100.00	0.6000	0.0000
T4	3	Fiber Trunk	80.00 - 100.00	0.6000	0.0000
T4	4	DC Trunk	80.00 - 100.00	0.6000	0.0000
T4	5	7/8	80.00 - 100.00	0.6000	0.0000
T4	6	7/8	80.00 - 95.00	0.6000	0.0000
T4	7	HYBRIFLEX 1-5/8"	80.00 - 100.00	0.6000	0.0000
T5	1	HYBRIFLEX 1-5/8"	60.00 - 80.00	0.6000	0.0000
T5	2	7/8	60.00 - 80.00	0.6000	0.0000
T5	3	Fiber Trunk	60.00 - 80.00	0.6000	0.0000
T5	4	DC Trunk	60.00 - 80.00	0.6000	0.0000
T5	5	7/8	60.00 - 80.00	0.6000	0.0000
T5	6	7/8	60.00 - 80.00	0.6000	0.0000
T5	7	HYBRIFLEX 1-5/8"	60.00 - 80.00	0.6000	0.0000
T6	1	HYBRIFLEX 1-5/8"	40.00 - 60.00	0.6000	0.0000
T6	2	7/8	40.00 - 60.00	0.6000	0.0000
T6	3	Fiber Trunk	40.00 - 60.00	0.6000	0.0000
T6	4	DC Trunk	40.00 - 60.00	0.6000	0.0000
T6	5	7/8	40.00 - 60.00	0.6000	0.0000
T6	6	7/8	40.00 - 60.00	0.6000	0.0000
T6	7	HYBRIFLEX 1-5/8"	40.00 - 60.00	0.6000	0.0000
T7	1	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.0342
T7	2	7/8	20.00 - 40.00	0.6000	0.0342
T7	3	Fiber Trunk	20.00 - 40.00	0.6000	0.0342
T7	4	DC Trunk	20.00 - 40.00	0.6000	0.0342
T7	5	7/8	20.00 - 40.00	0.6000	0.0342
T7	6	7/8	20.00 - 40.00	0.6000	0.0342
T7	7	HYBRIFLEX 1-5/8"	20.00 - 40.00	0.6000	0.0342
T8	1	HYBRIFLEX 1-5/8"	5.25 - 20.00	0.6000	0.0689
T8	2	7/8	5.25 - 20.00	0.6000	0.0689
T8	3	Fiber Trunk	5.25 - 20.00	0.6000	0.0689
T8	4	DC Trunk	5.25 - 20.00	0.6000	0.0689
T8	5	7/8	5.25 - 20.00	0.6000	0.0689
T8	6	7/8	5.25 - 20.00	0.6000	0.0689
T8	7	HYBRIFLEX 1-5/8"	5.25 - 20.00	0.6000	0.0689
T9	1	HYBRIFLEX 1-5/8"	3.00 - 5.25	0.5642	0.0000
T9	2	7/8	3.00 - 5.25	0.5642	0.0000
T9	3	Fiber Trunk	3.00 - 5.25	0.5642	0.0000
T9	4	DC Trunk	3.00 - 5.25	0.5642	0.0000
T9	5	7/8	3.00 - 5.25	0.5642	0.0000
T9	6	7/8	3.00 - 5.25	0.5642	0.0000
T9	7	HYBRIFLEX 1-5/8"	3.00 - 5.25	0.5642	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
AIR6449	A	From Face	5.00	0.0000	147.00	No Ice	5.65	2.42	103.00
(T-Mobile)			-1.50			1/2" Ice	5.96	2.64	141.45
			0.00			1" Ice	6.26	2.87	184.10
APXVAALL24-43	A	From Face	5.00	0.0000	147.00	No Ice	20.24	8.89	153.00
(T-Mobile)			1.50			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
AIR6449	B	From Face	5.00	0.0000	147.00	No Ice	5.65	2.42	103.00
(T-Mobile)			-1.50			1/2" Ice	5.96	2.64	141.45
			0.00			1" Ice	6.26	2.87	184.10
APXVAALL24-43	B	From Face	5.00	0.0000	147.00	No Ice	20.24	8.89	153.00
(T-Mobile)			1.50			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
AIR6449	C	From Face	5.00	0.0000	147.00	No Ice	5.65	2.42	103.00
(T-Mobile)			-1.50			1/2" Ice	5.96	2.64	141.45
			0.00			1" Ice	6.26	2.87	184.10
APXVAALL24-43	C	From Face	5.00	0.0000	147.00	No Ice	20.24	8.89	153.00
(T-Mobile)			1.50			1/2" Ice	20.89	9.49	265.59
			0.00			1" Ice	21.54	10.09	386.72
4460 B25+B66	A	From Leg	3.00	0.0000	147.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4480 B71+B85	A	From Leg	3.00	0.0000	147.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
4460 B25+B66	B	From Leg	3.00	0.0000	147.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4480 B71+B85	B	From Leg	3.00	0.0000	147.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
4460 B25+B66	C	From Leg	3.00	0.0000	147.00	No Ice	2.56	1.98	109.00
(T-Mobile)			0.00			1/2" Ice	2.76	2.16	134.38
			0.00			1" Ice	2.97	2.34	163.03
4480 B71+B85	C	From Leg	3.00	0.0000	147.00	No Ice	2.85	1.38	84.00
(T-Mobile)			0.00			1/2" Ice	3.06	1.54	105.70
			0.00			1" Ice	3.28	1.71	130.51
Rohn 6' Side-Arm(1)	A	From Leg	3.00	0.0000	147.00	No Ice	6.00	6.00	140.00
(T-Mobile)			0.00			1/2" Ice	8.50	8.50	212.00
			0.00			1" Ice	11.00	11.00	284.00
Rohn 6' Side-Arm(1)	B	From Leg	3.00	0.0000	147.00	No Ice	6.00	6.00	140.00
(T-Mobile)			0.00			1/2" Ice	8.50	8.50	212.00
			0.00			1" Ice	11.00	11.00	284.00
Rohn 6' Side-Arm(1)	C	From Leg	3.00	0.0000	147.00	No Ice	6.00	6.00	140.00
(T-Mobile)			0.00			1/2" Ice	8.50	8.50	212.00
			0.00			1" Ice	11.00	11.00	284.00
12.5' x 2 Std. Horz. Pipe	A	From Face	3.00	0.0000	148.50	No Ice	2.97	0.05	45.00
(T-Mobile)			0.00			1/2" Ice	3.82	0.08	73.32
			0.00			1" Ice	4.68	0.11	111.87
12.5' x 2 Std. Horz. Pipe	A	From Face	3.00	0.0000	145.50	No Ice	2.97	0.05	45.00
(T-Mobile)			0.00			1/2" Ice	3.82	0.08	73.32
			0.00			1" Ice	4.68	0.11	111.87
12.5' x 2 Std. Horz. Pipe	B	From Face	3.00	0.0000	148.50	No Ice	2.97	0.05	45.00
(T-Mobile)			0.00			1/2" Ice	3.82	0.08	73.32
			0.00			1" Ice	4.68	0.11	111.87

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
12.5' x 2 Std. Horz. Pipe (T-Mobile)	B	From Face	3.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.97 3.82 4.68	0.05 0.08 0.11	45.00 73.32 111.87
12.5' x 2 Std. Horz. Pipe (T-Mobile)	C	From Face	3.00 0.00 0.00	0.0000	148.50	No Ice 1/2" Ice 1" Ice	2.97 3.82 4.68	0.05 0.08 0.11	45.00 73.32 111.87
12.5' x 2 Std. Horz. Pipe (T-Mobile)	C	From Face	3.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.97 3.82 4.68	0.05 0.08 0.11	45.00 73.32 111.87
HPA-65R-BUU-H6 (AT&T)	A	From Face	3.00 -4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	9.66 10.13 10.61	6.45 6.91 7.38	51.00 113.99 183.38
HPA-65R-BUU-H6 (AT&T)	A	From Face	3.00 4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	9.66 10.13 10.61	6.45 6.91 7.38	51.00 113.99 183.38
HPA-65R-BUU-H8 (AT&T)	B	From Face	3.00 -4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	12.98 13.56 14.15	7.52 8.09 8.67	68.00 141.77 223.17
SBNH-1D6565C (AT&T)	B	From Face	3.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	11.41 12.03 12.65	7.70 8.29 8.89	60.85 126.56 199.94
HPA-65R-BUU-H8 (AT&T)	B	From Face	3.00 4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	12.98 13.56 14.15	7.52 8.09 8.67	68.00 141.77 223.17
HPA-65R-BUU-H8 (AT&T)	C	From Face	3.00 -4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	12.98 13.56 14.15	7.52 8.09 8.67	68.00 141.77 223.17
SBNH-1D6565C (AT&T)	C	From Face	3.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	11.41 12.03 12.65	7.70 8.29 8.89	60.85 126.56 199.94
HPA-65R-BUU-H8 (AT&T)	C	From Face	3.00 4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	12.98 13.56 14.15	7.52 8.09 8.67	68.00 141.77 223.17
DTMABP7819VG12A TMA (AT&T)	B	From Face	3.00 4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.36 1.51 1.66	0.51 0.61 0.72	20.00 29.77 41.67
DTMABP7819VG12A TMA (AT&T)	C	From Face	3.00 4.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.36 1.51 1.66	0.51 0.61 0.72	20.00 29.77 41.67
RRUS-11 (AT&T)	A	From Face	3.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	2.57 2.76 2.97	1.07 1.21 1.36	50.00 69.57 92.08
RRUS-11 (AT&T)	B	From Face	3.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	2.57 2.76 2.97	1.07 1.21 1.36	50.00 69.57 92.08
RRUS-11 (AT&T)	C	From Face	3.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	2.57 2.76 2.97	1.07 1.21 1.36	50.00 69.57 92.08
(2) RRUS-32 (AT&T)	A	From Face	3.00 2.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
(2) RRUS-32 (AT&T)	B	From Face	3.00 2.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
(2) RRUS-32 (AT&T)	C	From Face	3.00 2.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47

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
4478 B14	B	From Face	3.00	0.0000	126.00	No Ice	1.84	1.06	60.00
(AT&T)			2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
4478 B14	C	From Face	3.00	0.0000	126.00	No Ice	1.84	1.06	60.00
(AT&T)			2.00			1/2" Ice	2.01	1.20	75.88
			0.00			1" Ice	2.19	1.34	94.39
DC6-48-60-18-8F Surge	A	From Face	3.00	0.0000	126.00	No Ice	1.91	1.91	20.00
Arrestor			0.00			1/2" Ice	2.10	2.10	39.36
(AT&T)			0.00			1" Ice	2.29	2.29	61.70
DC6-48-60-18-8F Surge	B	From Face	3.00	0.0000	126.00	No Ice	1.91	1.91	20.00
Arrestor			0.00			1/2" Ice	2.10	2.10	39.36
(AT&T)			0.00			1" Ice	2.29	2.29	61.70
12' V-Frame	A	From Face	3.00	0.0000	126.00	No Ice	9.22	12.97	300.00
(AT&T)			0.00			1/2" Ice	9.22	12.97	400.00
			0.00			1" Ice	9.22	12.97	500.00
12' V-Frame	B	From Face	3.00	0.0000	126.00	No Ice	9.22	12.97	300.00
(AT&T)			0.00			1/2" Ice	9.22	12.97	400.00
			0.00			1" Ice	9.22	12.97	500.00
12' V-Frame	C	From Face	3.00	0.0000	126.00	No Ice	9.22	12.97	300.00
(AT&T)			0.00			1/2" Ice	9.22	12.97	400.00
			0.00			1" Ice	9.22	12.97	500.00
6' x 3" Dia Omni	A	From Leg	1.00	0.0000	150.00	No Ice	1.77	1.77	20.00
			0.00			1/2" Ice	2.13	2.13	33.24
			3.00			1" Ice	2.50	2.50	50.59
4'x5/8" Lightning Rod	B	From Leg	1.00	0.0000	150.00	No Ice	0.25	0.25	10.00
			0.00			1/2" Ice	0.66	0.66	12.82
			3.00			1" Ice	0.97	0.97	18.29
20' x 3" Dia Omni	C	From Leg	1.00	0.0000	147.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			10.00			1" Ice	10.08	10.08	149.01
8' dipole antenna	C	From Leg	1.00	0.0000	95.00	No Ice	2.00	2.00	10.00
			0.00			1/2" Ice	3.00	3.00	20.00
			4.00			1" Ice	4.00	4.00	30.00
GPS	A	From Leg	1.00	0.0000	50.00	No Ice	1.00	1.00	10.00
			0.00			1/2" Ice	1.50	1.50	15.00
			0.00			1" Ice	2.00	2.00	20.00
MX08FRO665-20	A	From Leg	3.00	0.0000	113.00	No Ice	9.87	7.34	0.09
(Dish)			0.00			1/2" Ice	10.34	7.78	68.93
			0.00			1" Ice	10.82	8.24	144.27
MX08FRO665-20	B	From Leg	3.00	0.0000	113.00	No Ice	9.87	7.34	0.09
(Dish)			0.00			1/2" Ice	10.34	7.78	68.93
			0.00			1" Ice	10.82	8.24	144.27
MX08FRO665-20	C	From Leg	3.00	0.0000	113.00	No Ice	9.87	7.34	0.09
(Dish)			0.00			1/2" Ice	10.34	7.78	68.93
			0.00			1" Ice	10.82	8.24	144.27
(2) TA08025-B605	A	From Leg	3.00	0.0000	113.00	No Ice	1.98	1.04	0.07
(Dish)			0.00			1/2" Ice	2.15	1.18	16.92
			0.00			1" Ice	2.33	1.32	36.48
(2) TA08025-B605	B	From Leg	3.00	0.0000	113.00	No Ice	1.98	1.04	0.07
(Dish)			0.00			1/2" Ice	2.15	1.18	16.92
			0.00			1" Ice	2.33	1.32	36.48
(2) TA08025-B605	C	From Leg	3.00	0.0000	113.00	No Ice	1.98	1.04	0.07
(Dish)			0.00			1/2" Ice	2.15	1.18	16.92
			0.00			1" Ice	2.33	1.32	36.48
RC2DC-3315-PF-48	A	From Leg	3.00	0.0000	113.00	No Ice	3.01	1.96	25.00
(Dish)			0.00			1/2" Ice	3.23	2.15	51.21
			0.00			1" Ice	3.46	2.35	80.79

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
SitePro VFA10-HD	A	From Leg	3.00	0.0000	113.00	No Ice	17.00	17.00	600.00
(Dish)			0.00			1/2" Ice	21.00	21.00	750.00
			0.00			1" Ice	25.00	25.00	900.00
SitePro VFA10-HD	B	From Leg	3.00	0.0000	113.00	No Ice	17.00	17.00	600.00
(Dish)			0.00			1/2" Ice	21.00	21.00	750.00
			0.00			1" Ice	25.00	25.00	900.00
SitePro VFA10-HD	C	From Leg	3.00	0.0000	113.00	No Ice	17.00	17.00	600.00
(Dish)			0.00			1/2" Ice	21.00	21.00	750.00
			0.00			1" Ice	25.00	25.00	900.00

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % 	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	145.00	1.099	26	16.458	A	0.000	4.317	2.917	67.57	2.220	0.000
150.00-140.00					B	0.000	4.317		67.57	4.158	0.000
					C	0.000	4.740		61.54	0.000	0.000
T2	130.00	1.065	26	32.917	A	0.000	8.534	5.833	68.35	11.154	0.000
140.00-120.00					B	0.000	8.534		68.35	11.880	0.000
					C	0.000	9.381		62.18	0.000	0.000
T3	110.00	1.016	24	32.917	A	0.000	8.464	5.833	68.92	26.820	0.000
120.00-100.00					B	0.000	8.464		68.92	14.454	0.000
					C	0.000	9.395		62.09	0.000	0.000
T4	90.00	0.959	23	32.917	A	0.000	8.534	5.833	68.35	28.485	0.000
100.00-80.00					B	0.000	8.534		68.35	15.840	0.000
					C	0.000	9.381		62.18	0.000	0.000
T5 80.00-60.00	70.00	0.892	21	32.917	A	0.000	8.464	5.833	68.92	29.040	0.000
					B	0.000	8.464		68.92	15.840	0.000
					C	0.000	9.395		62.09	0.000	0.000
T6 60.00-40.00	50.00	0.811	19	32.917	A	0.000	8.534	5.833	68.35	29.040	0.000
					B	0.000	8.534		68.35	15.840	0.000
					C	0.000	9.381		62.18	0.000	0.000
T7 40.00-20.00	30.00	0.701	17	32.917	A	0.000	8.464	5.833	68.92	29.040	0.000
					B	0.000	8.464		68.92	15.840	0.000
					C	0.000	9.395		62.09	0.000	0.000
T8 20.00-5.25	12.63	0.7	17	24.276	A	0.000	6.312	4.302	68.16	21.417	0.000
					B	0.000	6.312		68.16	11.682	0.000
					C	0.000	6.989		61.56	0.000	0.000
T9 5.25-0.00	2.63	0.7	17	4.711	A	0.000	2.053	1.552	75.59	3.267	0.000
					B	0.000	2.053		75.59	1.782	0.000
					C	0.000	2.053		75.59	0.000	0.000

Tower Pressure - With Ice

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	145.00	1.099	4	2.3191	20.323	A	0.000	22.226	10.647	47.90	12.281	0.000
150.00-140.00						B	0.000	22.226		47.90	13.977	0.000
						C	0.000	25.266		42.14	0.000	0.000
T2	130.00	1.065	4	2.2939	40.563	A	0.000	43.447	21.126	48.62	43.863	0.000
140.00-120.00						B	0.000	43.447		48.62	39.767	0.000
						C	0.000	49.470		42.70	0.000	0.000
T3	110.00	1.016	4	2.2559	40.436	A	0.000	42.289	20.873	49.36	88.352	0.000
120.00-100.00						B	0.000	42.289		49.36	47.955	0.000
						C	0.000	48.820		42.75	0.000	0.000
T4 100.00-80.00	90.00	0.959	3	2.2111	40.287	A	0.000	42.186	20.574	48.77	95.526	0.000
						B	0.000	42.186		48.77	52.024	0.000
						C	0.000	48.023		42.84	0.000	0.000
T5 80.00-60.00	70.00	0.892	3	2.1562	40.104	A	0.000	40.794	20.208	49.54	96.695	0.000
						B	0.000	40.794		49.54	51.442	0.000
						C	0.000	47.078		42.92	0.000	0.000
T6 60.00-40.00	50.00	0.811	3	2.0849	39.866	A	0.000	40.265	19.732	49.01	94.620	0.000
						B	0.000	40.265		49.01	50.687	0.000
						C	0.000	45.817		43.07	0.000	0.000
T7 40.00-20.00	30.00	0.701	2	1.9810	39.520	A	0.000	38.167	19.040	49.89	91.601	0.000
						B	0.000	38.167		49.89	49.589	0.000
						C	0.000	44.017		43.26	0.000	0.000
T8 20.00-5.25	12.63	0.7	2	1.8168	28.742	A	0.000	26.763	13.235	49.45	64.034	0.000
						B	0.000	26.763		49.45	35.294	0.000
						C	0.000	30.720		43.08	0.000	0.000
T9 5.25-0.00	2.63	0.7	2	1.5527	6.083	A	0.000	7.159	4.306	60.14	8.905	0.000
						B	0.000	7.159		60.14	5.072	0.000
						C	0.000	7.159		60.14	0.000	0.000

Tower Pressure - Service

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	145.00	1.099	9	16.458	A	0.000	4.317	2.917	67.57	2.220	0.000
150.00-140.00					B	0.000	4.317		67.57	4.158	0.000
					C	0.000	4.740		61.54	0.000	0.000
T2	130.00	1.065	8	32.917	A	0.000	8.534	5.833	68.35	11.154	0.000
140.00-120.00					B	0.000	8.534		68.35	11.880	0.000
					C	0.000	9.381		62.18	0.000	0.000
T3	110.00	1.016	8	32.917	A	0.000	8.464	5.833	68.92	26.820	0.000
120.00-100.00					B	0.000	8.464		68.92	14.454	0.000
					C	0.000	9.395		62.09	0.000	0.000
T4	90.00	0.959	8	32.917	A	0.000	8.534	5.833	68.35	28.485	0.000
100.00-80.00					B	0.000	8.534		68.35	15.840	0.000
					C	0.000	9.381		62.18	0.000	0.000
T5 80.00-60.00	70.00	0.892	7	32.917	A	0.000	8.464	5.833	68.92	29.040	0.000
					B	0.000	8.464		68.92	15.840	0.000
					C	0.000	9.395		62.09	0.000	0.000
T6 60.00-40.00	50.00	0.811	6	32.917	A	0.000	8.534	5.833	68.35	29.040	0.000
					B	0.000	8.534		68.35	15.840	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	9.381		62.18	0.000	0.000
T7 40.00-20.00	30.00	0.701	5	32.917	A	0.000	8.464	5.833	68.92	29.040	0.000
					B	0.000	8.464		68.92	15.840	0.000
					C	0.000	9.395		62.09	0.000	0.000
T8 20.00-5.25	12.63	0.7	5	24.276	A	0.000	6.312	4.302	68.16	21.417	0.000
					B	0.000	6.312		68.16	11.682	0.000
					C	0.000	6.989		61.56	0.000	0.000
T9 5.25-0.00	2.63	0.7	5	4.711	A	0.000	2.053	1.552	75.59	3.267	0.000
					B	0.000	2.053		75.59	1.782	0.000
					C	0.000	2.053		75.59	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	50.70	352.31	A	0.262	2.401	26	1	1	2.539	232.97	23.30	C
150.00-140.00			B	0.262	2.401		1	1	2.539			
			C	0.288	2.328		1	1	2.821			
T2	172.08	695.80	A	0.259	2.41	26	1	1	5.012	583.19	29.16	C
140.00-120.00		TA 244.49	B	0.259	2.41		1	1	5.012			
			C	0.285	2.337		1	1	5.576			
T3	281.90	693.35	A	0.257	2.416	24	1	1	4.966	782.96	39.15	C
120.00-100.00			B	0.257	2.416		1	1	4.966			
			C	0.285	2.336		1	1	5.585			
T4	303.30	695.80	A	0.259	2.41	23	1	1	5.012	774.82	38.74	C
100.00-80.00		TA 244.49	B	0.259	2.41		1	1	5.012			
			C	0.285	2.337		1	1	5.576			
T5	306.00	693.35	A	0.257	2.416	21	1	1	4.966	727.48	36.37	C
80.00-60.00			B	0.257	2.416		1	1	4.966			
			C	0.285	2.336		1	1	5.585			
T6	306.00	695.80	A	0.259	2.41	19	1	1	5.012	660.54	33.03	C
60.00-40.00			B	0.259	2.41		1	1	5.012			
			C	0.285	2.337		1	1	5.576			
T7	306.00	693.35	A	0.257	2.416	17	1	1	4.966	571.07	28.55	C
40.00-20.00			B	0.257	2.416		1	1	4.966			
			C	0.285	2.336		1	1	5.585			
T8 20.00-5.25	225.68	516.32	A	0.26	2.408	17	1	1	3.708	421.76	28.59	C
			B	0.26	2.408		1	1	3.708			
			C	0.288	2.329		1	1	4.160			
T9 5.25-0.00	34.42	168.16	A	0.436	1.997	17	1	1	1.340	78.85	15.02	C
			B	0.436	1.997		1	1	1.340			
			C	0.436	1.997		1	1	1.340			
Sum Weight:	1986.08	5693.21								4833.64		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	50.70	352.31	A	0.262	2.401	26	0.8	1	2.539	232.97	23.30	C
150.00-140.00			B	0.262	2.401		0.8	1	2.539			
			C	0.288	2.328		0.8	1	2.821			
T2	172.08	695.80	A	0.259	2.41	26	0.8	1	5.012	583.19	29.16	C
140.00-120.00		TA 244.49	B	0.259	2.41		0.8	1	5.012			
			C	0.285	2.337		0.8	1	5.576			
T3	281.90	693.35	A	0.257	2.416	24	0.8	1	4.966	782.96	39.15	C
120.00-100.00			B	0.257	2.416		0.8	1	4.966			
			C	0.285	2.336		0.8	1	5.585			
T4	303.30	695.80	A	0.259	2.41	23	0.8	1	5.012	774.82	38.74	C
100.00-80.00		TA 244.49	B	0.259	2.41		0.8	1	5.012			
			C	0.285	2.337		0.8	1	5.576			
T5	306.00	693.35	A	0.257	2.416	21	0.8	1	4.966	727.48	36.37	C
80.00-60.00			B	0.257	2.416		0.8	1	4.966			
			C	0.285	2.336		0.8	1	5.585			
T6	306.00	695.80	A	0.259	2.41	19	0.8	1	5.012	660.54	33.03	C
60.00-40.00			B	0.259	2.41		0.8	1	5.012			
			C	0.285	2.337		0.8	1	5.576			
T7	306.00	693.35	A	0.257	2.416	17	0.8	1	4.966	571.07	28.55	C
40.00-20.00			B	0.257	2.416		0.8	1	4.966			
			C	0.285	2.336		0.8	1	5.585			
T8 20.00-5.25	225.68	516.32	A	0.26	2.408	17	0.8	1	3.708	421.76	28.59	C
			B	0.26	2.408		0.8	1	3.708			
			C	0.288	2.329		0.8	1	4.160			
T9 5.25-0.00	34.42	168.16	A	0.436	1.997	17	0.8	1	1.340	78.85	15.02	C
			B	0.436	1.997		0.8	1	1.340			
			C	0.436	1.997		0.8	1	1.340			
Sum Weight:	1986.08	5693.21								4833.64		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	50.70	352.31	A	0.262	2.401	26	0.85	1	2.539	232.97	23.30	C
150.00-140.00			B	0.262	2.401		0.85	1	2.539			
			C	0.288	2.328		0.85	1	2.821			
T2	172.08	695.80	A	0.259	2.41	26	0.85	1	5.012	583.19	29.16	C
140.00-120.00		TA 244.49	B	0.259	2.41		0.85	1	5.012			
			C	0.285	2.337		0.85	1	5.576			
T3	281.90	693.35	A	0.257	2.416	24	0.85	1	4.966	782.96	39.15	C
120.00-100.00			B	0.257	2.416		0.85	1	4.966			
			C	0.285	2.336		0.85	1	5.585			
T4	303.30	695.80	A	0.259	2.41	23	0.85	1	5.012	774.82	38.74	C
100.00-80.00		TA 244.49	B	0.259	2.41		0.85	1	5.012			
			C	0.285	2.337		0.85	1	5.576			
T5	306.00	693.35	A	0.257	2.416	21	0.85	1	4.966	727.48	36.37	C
80.00-60.00			B	0.257	2.416		0.85	1	4.966			
			C	0.285	2.336		0.85	1	5.585			
T6	306.00	695.80	A	0.259	2.41	19	0.85	1	5.012	660.54	33.03	C
60.00-40.00			B	0.259	2.41		0.85	1	5.012			
			C	0.285	2.337		0.85	1	5.576			
T7	306.00	693.35	A	0.257	2.416	17	0.85	1	4.966	571.07	28.55	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
40.00-20.00			B	0.257	2.416		0.85	1	4.966			
			C	0.285	2.336		0.85	1	5.585			
T8 20.00-5.25	225.68	516.32	A	0.26	2.408	17	0.85	1	3.708	421.76	28.59	C
			B	0.26	2.408		0.85	1	3.708			
			C	0.288	2.329		0.85	1	4.160			
T9 5.25-0.00	34.42	168.16	A	0.436	1.997	17	0.85	1	1.340	78.85	15.02	C
			B	0.436	1.997		0.85	1	1.340			
			C	0.436	1.997		0.85	1	1.340			
Sum Weight:	1986.08	5693.21								4833.64		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	404.91	1496.60	A	1	2.1	4	1	1	22.226	138.80*	13.88	C
150.00-140.00			B	1	2.1		1	1	22.226			
			C	1	2.1		1	1	25.266			
T2	1352.80	2901.91	A	1	2.1	4	1	1	43.447	268.51*	13.43	C
140.00-120.00		TA 855.26	B	1	2.1		1	1	43.447			
			C	1	2.1		1	1	49.470			
T3	2283.54	2813.90	A	1	2.1	4	1	1	42.289	255.20*	12.76	C
120.00-100.00			B	1	2.1		1	1	42.289			
			C	1	2.1		1	1	48.820			
T4	2470.42	2767.33	A	1	2.1	3	1	1	42.186	240.09*	12.00	C
100.00-80.00		TA 823.78	B	1	2.1		1	1	42.186			
			C	1	2.1		1	1	48.023			
T5	2449.22	2656.49	A	1	2.1	3	1	1	40.794	222.44*	11.12	C
80.00-60.00			B	1	2.1		1	1	40.794			
			C	1	2.1		1	1	47.078			
T6	2361.37	2570.14	A	1	2.1	3	1	1	40.265	200.85*	10.04	C
60.00-40.00			B	1	2.1		1	1	40.265			
			C	1	2.1		1	1	45.817			
T7	2236.63	2394.18	A	0.966	2.032	2	1	1	38.167	172.07*	8.60	C
40.00-20.00			B	0.966	2.032		1	1	38.167			
			C	1	2.1		1	1	44.017			
T8 20.00-5.25	1509.53	1622.64	A	0.931	1.972	2	1	1	26.536	125.04*	8.48	C
			B	0.931	1.972		1	1	26.536			
			C	1	2.1		1	1	30.720			
T9 5.25-0.00	198.12	401.95	A	1	2.1	2	1	1	7.159	26.46*	5.04	C
			B	1	2.1		1	1	7.159			
			C	1	2.1		1	1	7.159			
Sum Weight:	15266.52	21304.18			*2.1A_g limit					1649.44		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	404.91	1496.60	A	1	2.1	4	0.8	1	22.226	138.80*	13.88	C
150.00-140.00			B	1	2.1		0.8	1	22.226			
			C	1	2.1		0.8	1	25.266			
T2	1352.80	2901.91	A	1	2.1	4	0.8	1	43.447	268.51*	13.43	C
140.00-120.00		TA 855.26	B	1	2.1		0.8	1	43.447			
			C	1	2.1		0.8	1	49.470			
T3	2283.54	2813.90	A	1	2.1	4	0.8	1	42.289	255.20*	12.76	C
120.00-100.00			B	1	2.1		0.8	1	42.289			
			C	1	2.1		0.8	1	48.820			
T4	2470.42	2767.33	A	1	2.1	3	0.8	1	42.186	240.09*	12.00	C
100.00-80.00		TA 823.78	B	1	2.1		0.8	1	42.186			
			C	1	2.1		0.8	1	48.023			
T5	2449.22	2656.49	A	1	2.1	3	0.8	1	40.794	222.44*	11.12	C
80.00-60.00			B	1	2.1		0.8	1	40.794			
			C	1	2.1		0.8	1	47.078			
T6	2361.37	2570.14	A	1	2.1	3	0.8	1	40.265	200.85*	10.04	C
60.00-40.00			B	1	2.1		0.8	1	40.265			
			C	1	2.1		0.8	1	45.817			
T7	2236.63	2394.18	A	0.966	2.032	2	0.8	1	38.167	172.07*	8.60	C
40.00-20.00			B	0.966	2.032		0.8	1	38.167			
			C	1	2.1		0.8	1	44.017			
T8 20.00-5.25	1509.53	1622.64	A	0.931	1.972	2	0.8	1	26.536	125.04*	8.48	C
			B	0.931	1.972		0.8	1	26.536			
			C	1	2.1		0.8	1	30.720			
T9 5.25-0.00	198.12	401.95	A	1	2.1	2	0.8	1	7.159	26.46*	5.04	C
			B	1	2.1		0.8	1	7.159			
			C	1	2.1		0.8	1	7.159			
Sum Weight:	15266.52	21304.18			*2.1A_g limit					1649.44		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	404.91	1496.60	A	1	2.1	4	0.85	1	22.226	138.80*	13.88	C
150.00-140.00			B	1	2.1		0.85	1	22.226			
			C	1	2.1		0.85	1	25.266			
T2	1352.80	2901.91	A	1	2.1	4	0.85	1	43.447	268.51*	13.43	C
140.00-120.00		TA 855.26	B	1	2.1		0.85	1	43.447			
			C	1	2.1		0.85	1	49.470			
T3	2283.54	2813.90	A	1	2.1	4	0.85	1	42.289	255.20*	12.76	C
120.00-100.00			B	1	2.1		0.85	1	42.289			
			C	1	2.1		0.85	1	48.820			
T4	2470.42	2767.33	A	1	2.1	3	0.85	1	42.186	240.09*	12.00	C
100.00-80.00		TA 823.78	B	1	2.1		0.85	1	42.186			
			C	1	2.1		0.85	1	48.023			
T5	2449.22	2656.49	A	1	2.1	3	0.85	1	40.794	222.44*	11.12	C
80.00-60.00			B	1	2.1		0.85	1	40.794			
			C	1	2.1		0.85	1	47.078			
T6	2361.37	2570.14	A	1	2.1	3	0.85	1	40.265	200.85*	10.04	C
60.00-40.00			B	1	2.1		0.85	1	40.265			
			C	1	2.1		0.85	1	45.817			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T7	2236.63	2394.18	A	0.966	2.032	2	0.85	1	38.167	172.07*	8.60	C
40.00-20.00			B	0.966	2.032		0.85	1	38.167			
			C	1	2.1		0.85	1	44.017			
T8 20.00-5.25	1509.53	1622.64	A	0.931	1.972	2	0.85	1	26.536	125.04*	8.48	C
			B	0.931	1.972		0.85	1	26.536			
			C	1	2.1		0.85	1	30.720			
T9 5.25-0.00	198.12	401.95	A	1	2.1	2	0.85	1	7.159	26.46*	5.04	C
			B	1	2.1		0.85	1	7.159			
			C	1	2.1		0.85	1	7.159			
Sum Weight:	15266.52	21304.18			*2.1A_g limit					1649.44		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	50.70	352.31	A	0.262	2.401	9	1	1	2.539	76.07	7.61	C
150.00-140.00			B	0.262	2.401		1	1	2.539			
			C	0.288	2.328		1	1	2.821			
T2	172.08	695.80	A	0.259	2.41	8	1	1	5.012	190.43	9.52	C
140.00-120.00		TA 244.49	B	0.259	2.41		1	1	5.012			
			C	0.285	2.337		1	1	5.576			
T3	281.90	693.35	A	0.257	2.416	8	1	1	4.966	255.66	12.78	C
120.00-100.00			B	0.257	2.416		1	1	4.966			
			C	0.285	2.336		1	1	5.585			
T4	303.30	695.80	A	0.259	2.41	8	1	1	5.012	253.00	12.65	C
100.00-80.00		TA 244.49	B	0.259	2.41		1	1	5.012			
			C	0.285	2.337		1	1	5.576			
T5	306.00	693.35	A	0.257	2.416	7	1	1	4.966	237.55	11.88	C
80.00-60.00			B	0.257	2.416		1	1	4.966			
			C	0.285	2.336		1	1	5.585			
T6	306.00	695.80	A	0.259	2.41	6	1	1	5.012	215.69	10.78	C
60.00-40.00			B	0.259	2.41		1	1	5.012			
			C	0.285	2.337		1	1	5.576			
T7	306.00	693.35	A	0.257	2.416	5	1	1	4.966	186.47	9.32	C
40.00-20.00			B	0.257	2.416		1	1	4.966			
			C	0.285	2.336		1	1	5.585			
T8 20.00-5.25	225.68	516.32	A	0.26	2.408	5	1	1	3.708	137.72	9.34	C
			B	0.26	2.408		1	1	3.708			
			C	0.288	2.329		1	1	4.160			
T9 5.25-0.00	34.42	168.16	A	0.436	1.997	5	1	1	1.340	25.75	4.90	C
			B	0.436	1.997		1	1	1.340			
			C	0.436	1.997		1	1	1.340			
Sum Weight:	1986.08	5693.21								1578.33		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	50.70	352.31	A	0.262	2.401	9	0.8	1	2.539	76.07	7.61	C
150.00-140.00			B	0.262	2.401		0.8	1	2.539			
			C	0.288	2.328		0.8	1	2.821			
T2	172.08	695.80	A	0.259	2.41	8	0.8	1	5.012	190.43	9.52	C
140.00-120.00		TA 244.49	B	0.259	2.41		0.8	1	5.012			
			C	0.285	2.337		0.8	1	5.576			
T3	281.90	693.35	A	0.257	2.416	8	0.8	1	4.966	255.66	12.78	C
120.00-100.00			B	0.257	2.416		0.8	1	4.966			
			C	0.285	2.336		0.8	1	5.585			
T4	303.30	695.80	A	0.259	2.41	8	0.8	1	5.012	253.00	12.65	C
100.00-80.00		TA 244.49	B	0.259	2.41		0.8	1	5.012			
			C	0.285	2.337		0.8	1	5.576			
T5	306.00	693.35	A	0.257	2.416	7	0.8	1	4.966	237.55	11.88	C
80.00-60.00			B	0.257	2.416		0.8	1	4.966			
			C	0.285	2.336		0.8	1	5.585			
T6	306.00	695.80	A	0.259	2.41	6	0.8	1	5.012	215.69	10.78	C
60.00-40.00			B	0.259	2.41		0.8	1	5.012			
			C	0.285	2.337		0.8	1	5.576			
T7	306.00	693.35	A	0.257	2.416	5	0.8	1	4.966	186.47	9.32	C
40.00-20.00			B	0.257	2.416		0.8	1	4.966			
			C	0.285	2.336		0.8	1	5.585			
T8 20.00-5.25	225.68	516.32	A	0.26	2.408	5	0.8	1	3.708	137.72	9.34	C
			B	0.26	2.408		0.8	1	3.708			
			C	0.288	2.329		0.8	1	4.160			
T9 5.25-0.00	34.42	168.16	A	0.436	1.997	5	0.8	1	1.340	25.75	4.90	C
			B	0.436	1.997		0.8	1	1.340			
			C	0.436	1.997		0.8	1	1.340			
Sum Weight:	1986.08	5693.21								1578.33		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	50.70	352.31	A	0.262	2.401	9	0.85	1	2.539	76.07	7.61	C
150.00-140.00			B	0.262	2.401		0.85	1	2.539			
			C	0.288	2.328		0.85	1	2.821			
T2	172.08	695.80	A	0.259	2.41	8	0.85	1	5.012	190.43	9.52	C
140.00-120.00		TA 244.49	B	0.259	2.41		0.85	1	5.012			
			C	0.285	2.337		0.85	1	5.576			
T3	281.90	693.35	A	0.257	2.416	8	0.85	1	4.966	255.66	12.78	C
120.00-100.00			B	0.257	2.416		0.85	1	4.966			
			C	0.285	2.336		0.85	1	5.585			
T4	303.30	695.80	A	0.259	2.41	8	0.85	1	5.012	253.00	12.65	C
100.00-80.00		TA 244.49	B	0.259	2.41		0.85	1	5.012			
			C	0.285	2.337		0.85	1	5.576			
T5	306.00	693.35	A	0.257	2.416	7	0.85	1	4.966	237.55	11.88	C
80.00-60.00			B	0.257	2.416		0.85	1	4.966			
			C	0.285	2.336		0.85	1	5.585			
T6	306.00	695.80	A	0.259	2.41	6	0.85	1	5.012	215.69	10.78	C
60.00-40.00			B	0.259	2.41		0.85	1	5.012			
			C	0.285	2.337		0.85	1	5.576			
T7	306.00	693.35	A	0.257	2.416	5	0.85	1	4.966	186.47	9.32	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
40.00-20.00			B	0.257	2.416		0.85	1	4.966			
			C	0.285	2.336		0.85	1	5.585			
T8 20.00-5.25	225.68	516.32	A	0.26	2.408	5	0.85	1	3.708	137.72	9.34	C
			B	0.26	2.408		0.85	1	3.708			
			C	0.288	2.329		0.85	1	4.160			
T9 5.25-0.00	34.42	168.16	A	0.436	1.997	5	0.85	1	1.340	25.75	4.90	C
			B	0.436	1.997		0.85	1	1.340			
			C	0.436	1.997		0.85	1	1.340			
Sum Weight:	1986.08	5693.21								1578.33		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Leg Weight	3684.84			
Bracing Weight	2008.37			
Total Member Self-Weight	5693.21			
Guy Weight	1287.44			
Total Weight	15137.12			
Wind 0 deg - No Ice		73.44	-11249.01	0.06
Wind 30 deg - No Ice		5636.94	-9778.65	-0.43
Wind 60 deg - No Ice		9690.03	-5688.10	-0.80
Wind 90 deg - No Ice		11146.68	-73.44	-0.95
Wind 120 deg - No Ice		9502.38	5494.97	-0.85
Wind 150 deg - No Ice		5443.81	9591.00	-0.53
Wind 180 deg - No Ice		-73.44	11117.13	-0.06
Wind 210 deg - No Ice		-5571.00	9664.44	0.43
Wind 240 deg - No Ice		-9575.82	5622.16	0.80
Wind 270 deg - No Ice		-11014.80	73.44	0.95
Wind 300 deg - No Ice		-9502.38	-5494.97	0.85
Wind 330 deg - No Ice		-5443.81	-9591.00	0.53
Member Ice	15610.97			
Guy Ice	12406.87			
Total Weight Ice	72969.52			
Wind 0 deg - Ice		11.04	-3131.00	0.00
Wind 30 deg - Ice		1567.25	-2717.04	0.04
Wind 60 deg - Ice		2703.51	-1575.06	0.07
Wind 90 deg - Ice		3115.38	-11.04	0.08
Wind 120 deg - Ice		2689.24	1554.07	0.07
Wind 150 deg - Ice		1546.26	2702.77	0.04
Wind 180 deg - Ice		-11.04	3127.26	0.00
Wind 210 deg - Ice		-1565.38	2713.81	-0.04
Wind 240 deg - Ice		-2700.28	1573.19	-0.07
Wind 270 deg - Ice		-3111.64	11.04	-0.08
Wind 300 deg - Ice		-2689.24	-1554.07	-0.07
Wind 330 deg - Ice		-1546.26	-2702.77	-0.04
Total Weight	15137.12			
Wind 0 deg - Service		23.98	-3673.15	0.02
Wind 30 deg - Service		1840.63	-3193.03	-0.14
Wind 60 deg - Service		3164.09	-1857.34	-0.26
Wind 90 deg - Service		3639.73	-23.98	-0.31
Wind 120 deg - Service		3102.82	1794.28	-0.28

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Wind 150 deg - Service		1777.57	3131.76	-0.17
Wind 180 deg - Service		-23.98	3630.08	-0.02
Wind 210 deg - Service		-1819.10	3155.74	0.14
Wind 240 deg - Service		-3126.80	1835.81	0.26
Wind 270 deg - Service		-3596.67	23.98	0.31
Wind 300 deg - Service		-3102.82	-1794.28	0.28
Wind 330 deg - Service		-1777.57	-3131.76	0.17

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 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
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	150 - 140	Leg	Max Tension	4	20207.54	0.54	-0.35
			Max. Compression	2	-22281.45	0.00	0.04
			Max. Mx	5	-19430.50	0.65	0.01
			Max. My	2	-22276.12	0.07	-0.65
			Max. Vy	5	1364.18	-0.03	-0.03
			Max. Vx	2	-1387.10	0.00	0.04
		Diagonal	Max Tension	3	2670.54	0.00	0.00
			Max. Compression	3	-2676.96	0.00	0.00
			Max. Mx	23	323.97	-0.00	0.00
			Max. My	12	-1470.27	0.00	-0.00
			Max. Vy	23	5.00	-0.00	0.00
			Max. Vx	12	-0.64	0.00	0.00
		Horizontal	Max Tension	8	462.94	0.00	0.00
			Max. Compression	2	-354.48	0.00	0.00
			Max. Mx	23	12.67	0.00	0.00
			Max. Vy	23	-7.87	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Top Girt	Max Tension	9	43.16	0.00	0.00
			Max. Compression	4	-42.47	0.00	0.00
			Max. Mx	23	-5.44	0.00	0.00
			Max. Vy	23	-7.87	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Bottom Girt	Max Tension	8	1027.06	0.00	0.00
			Max. Compression	2	-1091.83	0.00	0.00
			Max. Mx	23	152.79	0.00	0.00
			Max. Vy	24	-7.87	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T2	140 - 120	Leg	Max Tension	8	23024.57	0.06	-0.73
			Max. Compression	3	-42230.30	-0.08	0.08
			Max. Mx	5	-19440.63	-0.71	-0.07
			Max. My	8	20079.75	0.06	-0.73
			Max. Vy	5	1362.72	-0.71	-0.07
			Max. Vx	2	-1384.43	-0.07	0.73
		Diagonal	Max Tension	3	4767.85	0.00	0.00
			Max. Compression	5	-5636.81	0.00	0.00
			Max. Mx	7	-3028.11	-0.01	0.00
			Max. My	7	-4623.66	-0.00	-0.01
			Max. Vy	7	-7.36	-0.01	0.00
			Max. Vx	7	-5.12	0.00	0.00
		Horizontal	Max Tension	8	2483.22	0.00	0.00
			Max. Compression	2	-4305.31	0.00	0.00
			Max. Mx	24	802.36	0.00	0.00
			Max. My	6	844.97	0.00	-0.00
			Max. Vy	24	-7.75	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00
		Top Girt	Max Tension	10	650.95	0.00	0.00
			Max. Compression	4	-950.67	0.00	0.00
			Max. Mx	23	-165.95	0.00	0.00
			Max. Vy	23	7.75	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	690.79	0.00	0.00
			Max. Compression	5	-46.29	0.00	0.00
			Max. Mx	23	284.72	0.00	0.00
			Max. My	2	196.79	0.00	-0.00
			Max. Vy	23	7.75	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Guy A	Bottom Tension	9	11384.41		
			Top Tension	9	11485.87		
			Top Cable Vert	9	9837.95		
			Top Cable Norm	9	5927.79		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Tan	9	36.21		
			Bot Cable Vert	9	-9625.88		
			Bot Cable Norm	9	6077.70		
			Bot Cable Tan	9	93.86		
		Guy B	Bottom Tension	11	11724.07		
			Top Tension	11	11833.56		
			Top Cable Vert	11	10334.04		
			Top Cable Norm	11	5765.33		
			Top Cable Tan	11	39.79		
			Bot Cable Vert	11	-10113.84		
			Bot Cable Norm	11	5929.15		
			Bot Cable Tan	11	96.84		
		Guy C	Bottom Tension	3	16893.66		
			Top Tension	3	16994.50		
			Top Cable Vert	3	16080.62		
			Top Cable Norm	3	5497.80		
			Top Cable Tan	3	30.85		
			Bot Cable Vert	3	-15911.41		
			Bot Cable Norm	3	5674.13		
			Bot Cable Tan	3	163.50		
		Top Guy Pull-Off	Max Tension	4	7238.83	0.00	0.00
			Max. Compression	10	-4474.27	0.00	0.00
			Max. Mx	16	2390.57	0.00	0.00
			Max. Vy	16	7.07	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Torque Arm Top	Max Tension	2	16456.07	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	6646.40	0.03	0.00
			Max. My	2	6267.62	0.00	0.00
			Max. Vy	18	-33.52	0.00	0.00
			Max. Vx	2	-0.07	0.00	0.00
		Torque Arm Bottom	Max Tension	2	4172.14	0.00	0.00
			Max. Compression	3	-17863.87	0.00	0.00
			Max. Mx	17	-3086.41	0.03	0.00
			Max. My	2	4172.14	0.00	-0.00
			Max. Vy	17	-33.52	0.00	0.00
			Max. Vx	2	0.03	0.00	0.00
T3	120 - 100	Leg	Max Tension	4	19308.36	0.79	-0.49
			Max. Compression	2	-56633.22	-0.00	0.09
			Max. Mx	5	-52297.41	0.93	-0.06
			Max. My	2	-5812.96	0.09	-0.92
			Max. Vy	5	1986.62	-0.06	-0.04
			Max. Vx	2	-1922.53	-0.00	0.09
		Diagonal	Max Tension	3	3404.09	0.00	0.00
			Max. Compression	5	-4481.85	0.00	0.00
			Max. Mx	3	3403.12	-0.00	-0.00
			Max. My	7	-3479.39	0.00	-0.00
			Max. Vy	16	6.67	-0.00	0.00
			Max. Vx	7	-1.06	0.00	-0.00
		Horizontal	Max Tension	2	1691.96	0.00	0.00
			Max. Compression	8	-13.70	0.00	0.00
			Max. Mx	24	1428.66	0.00	0.00
			Max. My	5	1067.80	0.00	-0.00
			Max. Vy	24	-7.57	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	2	1213.22	0.00	0.00
			Max. Compression	4	-392.15	0.00	0.00
			Max. Mx	23	189.36	0.00	0.00
			Max. My	6	441.03	0.00	-0.00
			Max. Vy	23	7.57	0.00	0.00
			Max. Vx	6	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Bottom Girt	Max Tension	3	1709.55	0.00	0.00
			Max. Compression	6	-1290.25	0.00	0.00
			Max. Mx	23	222.85	0.00	0.00
			Max. My	5	643.54	0.00	-0.00
			Max. Vy	23	7.57	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T4	100 - 80	Leg	Max Tension	4	24142.86	-0.86	0.54
			Max. Compression	2	-66555.26	0.00	0.13
			Max. Mx	5	-52306.21	-1.05	-0.02
			Max. My	2	-56641.38	-0.06	1.03
			Max. Vy	5	1970.17	-1.05	-0.02
			Max. Vx	2	-1899.34	-0.06	1.03
		Diagonal	Max Tension	5	2835.85	0.00	0.00
			Max. Compression	3	-4305.06	0.00	0.00
			Max. Mx	6	-2257.04	-0.01	0.00
			Max. My	5	-3693.52	-0.00	0.00
			Max. Vy	21	7.68	-0.00	-0.00
			Max. Vx	5	3.05	0.00	0.00
		Horizontal	Max Tension	8	2994.29	0.00	0.00
			Max. Compression	2	-2713.26	0.00	0.00
			Max. Mx	24	1913.29	0.00	0.00
			Max. My	5	1791.20	0.00	-0.00
			Max. Vy	24	-7.35	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	2	1263.99	0.00	0.00
			Max. Compression	4	-560.97	0.00	0.00
			Max. Mx	23	625.29	0.00	0.00
			Max. My	5	314.18	0.00	-0.00
			Max. Vy	23	7.35	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	1142.13	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	432.32	0.00	0.00
			Max. My	5	868.69	0.00	-0.00
			Max. Vy	18	7.35	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Guy A	Bottom Tension	9	6891.99		
			Top Tension	9	6949.46		
			Top Cable Vert	9	5211.51		
			Top Cable Norm	9	4597.18		
			Top Cable Tan	9	32.52		
			Bot Cable Vert	9	-5073.36		
			Bot Cable Norm	9	4664.60		
			Bot Cable Tan	9	44.33		
		Guy B	Bottom Tension	11	7540.27		
			Top Tension	11	7604.40		
			Top Cable Vert	11	5964.93		
			Top Cable Norm	11	4716.49		
			Top Cable Tan	11	35.27		
			Bot Cable Vert	11	-5818.87		
			Bot Cable Norm	11	4795.24		
			Bot Cable Tan	11	46.57		
		Guy C	Bottom Tension	5	11524.40		
			Top Tension	5	11582.12		
			Top Cable Vert	5	10377.66		
			Top Cable Norm	5	5142.90		
			Top Cable Tan	5	11.45		
			Bot Cable Vert	5	-10267.43		
			Bot Cable Norm	5	5233.31		
			Bot Cable Tan	5	64.59		
		Top Guy Pull-Off	Max Tension	4	7463.72	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	6	-3590.25	0.00	0.00
			Max. Mx	23	1536.03	0.00	0.00
			Max. My	5	2010.33	0.00	-0.00
			Max. Vy	23	6.69	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Torque Arm Top	Max Tension	2	9913.09	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	5950.40	0.03	0.00
			Max. My	5	7302.52	0.00	-0.00
			Max. Vy	18	-32.38	0.00	0.00
			Max. Vx	5	0.09	0.00	0.00
		Torque Arm Bottom	Max Tension	2	3440.24	0.00	0.00
			Max. Compression	3	-11697.46	0.00	0.00
			Max. Mx	17	-2384.64	0.03	0.00
			Max. My	5	1453.23	0.00	0.00
			Max. Vy	17	-32.37	0.00	0.00
			Max. Vx	5	-0.03	0.00	0.00
T5	80 - 60	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-46708.64	0.03	-0.07
			Max. Mx	11	-18108.50	-0.35	0.04
			Max. My	4	-8511.98	-0.01	-0.26
			Max. Vy	11	710.09	0.00	0.03
			Max. Vx	10	-543.48	0.03	-0.05
		Diagonal	Max Tension	4	973.16	0.00	0.00
			Max. Compression	19	-1921.88	0.00	0.00
			Max. Mx	17	-581.53	-0.00	-0.00
			Max. My	5	-1630.70	0.00	0.00
			Max. Vy	17	7.46	-0.00	-0.00
			Max. Vx	5	1.59	0.00	0.00
		Horizontal	Max Tension	19	2410.90	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	24	2317.12	0.00	0.00
			Max. My	5	1782.27	0.00	-0.00
			Max. Vy	24	-7.09	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	21	1189.90	0.00	0.00
			Max. Compression	10	-63.06	0.00	0.00
			Max. Mx	18	393.20	0.00	0.00
			Max. My	5	872.99	0.00	-0.00
			Max. Vy	18	7.09	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Bottom Girt	Max Tension	21	1178.93	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	21	458.06	0.00	0.00
			Max. My	5	860.64	0.00	-0.00
			Max. Vy	21	7.09	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T6	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-43842.16	-0.01	-0.07
			Max. Mx	5	-27308.84	-0.29	0.05
			Max. My	2	-33392.05	-0.02	0.28
			Max. Vy	5	-586.94	-0.29	0.05
			Max. Vx	3	478.64	-0.08	0.20
		Diagonal	Max Tension	10	1023.03	0.00	0.00
			Max. Compression	18	-2128.65	0.00	0.00
			Max. Mx	16	-539.66	-0.01	-0.00
			Max. My	5	-1172.79	0.00	0.00
			Max. Vy	16	7.71	-0.01	-0.00
			Max. Vx	5	1.15	0.00	0.00
		Horizontal	Max Tension	16	2696.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	18	2693.24	0.00	0.00
			Max. My	5	1773.77	0.00	-0.00
			Max. Vy	18	-6.77	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Top Girt	Max Tension	15	1183.74	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	21	396.29	0.00	0.00
			Max. My	5	873.09	0.00	-0.00
			Max. Vy	21	-6.77	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	1377.72	0.00	0.00
			Max. Compression	12	-3.70	0.00	0.00
			Max. Mx	26	494.63	0.00	0.00
			Max. Vy	26	-6.77	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Guy A	Bottom Tension	21	4337.33		
			Top Tension	21	4597.61		
			Top Cable Vert	21	2326.47		
			Top Cable Norm	21	3965.54		
			Top Cable Tan	21	2.15		
			Bot Cable Vert	21	-1739.53		
			Bot Cable Norm	21	3973.22		
			Bot Cable Tan	21	2.15		
		Guy B	Bottom Tension	25	4535.72		
			Top Tension	25	4851.46		
			Top Cable Vert	25	2830.37		
			Top Cable Norm	25	3940.26		
			Top Cable Tan	25	2.61		
			Bot Cable Vert	25	-2223.26		
			Bot Cable Norm	25	3953.46		
			Bot Cable Tan	25	2.61		
		Guy C	Bottom Tension	17	5362.27		
			Top Tension	17	5628.22		
			Top Cable Vert	17	3939.58		
			Top Cable Norm	17	4019.53		
			Top Cable Tan	17	0.85		
			Bot Cable Vert	17	-3529.34		
			Bot Cable Norm	17	4037.04		
			Bot Cable Tan	17	0.85		
		Top Guy Pull-Off	Max Tension	15	3788.98	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	15	2729.29	0.00	0.00
			Max. Vy	15	-6.12	0.00	0.00
			Max. Vx	5	0.00	0.00	0.00
T7	40 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	20	-45988.13	-0.00	-0.11
			Max. Mx	5	-27351.72	0.29	0.05
			Max. My	3	-26081.62	0.08	-0.28
			Max. Vy	5	-582.72	-0.00	0.05
			Max. Vx	3	469.58	0.00	-0.04
		Diagonal	Max Tension	3	800.62	0.00	0.00
			Max. Compression	15	-2171.52	0.00	0.00
			Max. Mx	21	-583.21	-0.01	-0.00
			Max. My	5	-1215.91	0.00	0.00
			Max. Vy	21	7.62	-0.01	-0.00
			Max. Vx	5	1.08	0.00	0.00
		Horizontal	Max Tension	15	2865.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	24	2749.04	0.00	0.00
			Max. Vy	24	-6.31	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max Tension	21	1332.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	26	480.28	0.00	0.00
			Max. Vy	26	-6.31	0.00	0.00
			Max. Vx	10	0.00	0.00	0.00
		Bottom Girt	Max Tension	15	1415.05	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	469.02	0.00	0.00
			Max. Vy	18	-6.31	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T8	20 - 5.25	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	20	-46164.48	-0.00	0.07
			Max. Mx	15	-44911.42	0.26	0.11
			Max. My	20	-44925.85	-0.00	-0.25
			Max. Vy	26	-3376.94	0.26	0.11
			Max. Vx	20	4514.47	-0.00	-0.25
		Diagonal	Max Tension	7	496.12	0.00	0.00
			Max. Compression	15	-2170.66	0.00	0.00
			Max. Mx	20	344.21	-0.00	0.00
			Max. My	5	-554.72	0.00	0.00
			Max. Vy	20	6.80	-0.00	0.00
			Max. Vx	5	0.74	0.00	0.00
		Horizontal	Max Tension	15	2876.67	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	22	2612.43	0.00	0.00
			Max. My	11	1495.94	0.00	-0.00
			Max. Vy	22	5.63	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Top Girt	Max Tension	15	1390.84	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	514.33	0.00	0.00
			Max. Vy	18	5.63	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Bottom Girt	Max Tension	16	3276.46	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2931.07	0.00	0.00
			Max. My	11	1784.46	0.00	-0.00
			Max. Vy	14	5.63	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
T9	5.25 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-45809.26	-0.02	-0.00
			Max. Mx	26	-44946.22	0.28	-0.04
			Max. My	18	-44260.22	0.27	0.04
			Max. Vy	15	3337.06	-0.00	-0.01
			Max. Vx	15	270.80	-0.01	0.01
		Diagonal	Max Tension	1	0.00	0.00	0.00
			Max. Compression	16	-3627.65	0.00	0.00
			Max. Mx	5	-2386.19	0.00	-0.00
			Max. My	18	-2463.21	-0.00	0.00
			Max. Vy	5	4.53	0.00	0.00
			Max. Vx	5	0.73	0.00	0.00
		Horizontal	Max Tension	18	3035.02	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2997.87	0.00	0.00
			Max. Vy	14	3.18	0.00	0.00
			Max. Vx	11	0.00	0.00	0.00
		Top Girt	Max Tension	16	3450.61	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2936.30	0.00	0.00
			Max. My	11	1880.75	0.00	-0.00
			Max. Vy	14	-4.56	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	11	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	16	133364.29	103.87	-24.52
	Max. H_x	11	72838.24	733.07	0.34
	Max. H_z	2	91530.47	68.89	592.75
	Max. M_x	1	0.00	39.31	-14.99
	Max. M_z	1	0.00	39.31	-14.99
	Max. Torsion	1	0.00	39.31	-14.99
	Min. Vert	28	58419.58	-32.83	119.09
	Min. H_x	5	88409.29	-571.05	4.74
	Min. H_z	8	69288.29	39.28	-751.07
	Min. M_x	1	0.00	39.31	-14.99
	Min. M_z	1	0.00	39.31	-14.99
	Min. Torsion	1	0.00	39.31	-14.99
Guy C @ 45 ft Elev 9 ft Azimuth 240 deg	Max. Vert	10	-4260.28	-1640.61	945.69
	Max. H_x	10	-4260.28	-1640.61	945.69
	Max. H_z	3	-52588.70	-20533.46	12254.65
	Min. Vert	3	-52588.70	-20533.46	12254.65
	Min. H_x	5	-52342.48	-20808.89	11651.95
	Min. H_z	10	-4260.28	-1640.61	945.69
Guy B @ 79 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-2025.78	1377.53	797.67
	Max. H_x	11	-32703.45	20846.61	11751.41
	Max. H_z	12	-32488.74	20789.41	12027.45
	Min. Vert	11	-32703.45	20846.61	11751.41
	Min. H_x	6	-2025.78	1377.53	797.67
	Min. H_z	6	-2025.78	1377.53	797.67
Guy A @ 79 ft Elev 10 ft Azimuth 0 deg	Max. Vert	2	-1465.54	-1.90	-1325.09
	Max. H_x	11	-16629.04	532.75	-13400.54
	Max. H_z	2	-1465.54	-1.90	-1325.09
	Min. Vert	8	-30458.67	-15.94	-24739.07
	Min. H_x	5	-15620.13	-578.09	-12746.65
	Min. H_z	8	-30458.67	-15.94	-24739.07

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	58647.59	-39.31	14.99	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	91530.47	-68.89	-592.75	0.00	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No	89863.38	274.86	-502.93	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Ice+1.0 Guy						
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	79452.35	531.43	-329.57	0.00	0.00	0.00
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	88409.29	571.05	-4.74	0.00	0.00	0.00
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	88933.52	475.54	349.37	0.00	0.00	0.00
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	79002.25	275.28	637.16	0.00	0.00	0.00
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	69288.29	-39.28	751.07	0.00	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	72660.08	-378.70	641.73	0.00	0.00	0.00
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	76325.01	-622.45	359.64	0.00	0.00	0.00
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	72838.24	-733.07	-0.34	0.00	0.00	0.00
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	68828.48	-658.51	-350.52	0.00	0.00	0.00
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	80568.82	-407.31	-550.96	0.00	0.00	0.00
1.2 Dead+1.0 Ice+1.0 Temp+Guy	131413.32	-152.13	121.61	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	133018.11	-159.70	10.58	0.00	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	133364.29	-103.87	24.52	0.00	0.00	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	133288.63	-60.52	66.98	0.00	0.00	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	133089.65	-44.97	126.29	0.00	0.00	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	132569.59	-61.93	181.12	0.00	0.00	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	131626.71	-99.37	219.38	0.00	0.00	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	130930.56	-154.64	231.25	0.00	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	130798.58	-212.28	216.31	0.00	0.00	0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	130867.03	-252.65	178.17	0.00	0.00	0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	130937.25	-265.40	123.73	0.00	0.00	0.00
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	131220.50	-249.77	66.14	0.00	0.00	0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	132050.48	-211.88	25.10	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	58434.12	-42.09	-141.81	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	58419.58	32.83	-119.09	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	58484.77	88.96	-60.01	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	58561.73	110.97	19.29	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	58685.80	89.96	95.38	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	58870.84	37.72	150.03	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	59054.83	-35.23	168.83	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Dead+Wind 210 deg - Service+Guy	59157.98	-108.96	146.67	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	59136.73	-163.57	89.58	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	59001.61	-184.60	12.59	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	58787.80	-166.60	-63.96	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	58569.60	-114.34	-119.34	0.00	0.00	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	-0.00	-15136.90	0.00	1.38	15137.05	0.20	0.009%
2	202.01	-17922.40	-20191.17	-201.71	17922.31	20189.68	0.006%
3	10251.77	-17815.88	-17625.63	-10251.51	17815.81	17624.32	0.005%
4	17592.84	-17737.16	-10294.44	-17593.06	17737.15	10293.25	0.004%
5	20190.94	-17801.44	-188.57	-20189.64	17801.36	188.93	0.005%
6	17167.47	-17896.37	9815.59	-17166.11	17896.30	-9815.21	0.005%
7	9775.74	-17892.39	17178.29	-9774.68	17892.35	-17178.01	0.004%
8	-202.01	-17891.28	19980.16	203.34	17891.26	-19980.16	0.005%
9	-10146.27	-17997.79	17442.90	10145.47	17997.75	-17442.51	0.003%
10	-17410.10	-18076.51	10188.94	17409.20	18076.45	-10188.49	0.004%
11	-19979.93	-18012.23	188.57	19978.98	18012.18	-188.08	0.004%
12	-17167.47	-17917.30	-9815.59	17168.08	17917.29	9814.54	0.005%
13	-9775.74	-17921.28	-17178.29	9776.00	17921.22	17177.04	0.005%
14	0.00	-75737.09	0.00	-3.21	75736.59	-0.09	0.004%
15	73.78	-75749.11	-4749.80	-73.71	75749.09	4749.28	0.001%
16	2478.57	-75670.18	-4179.01	-2478.45	75670.16	4178.57	0.001%
17	4248.62	-75611.85	-2456.53	-4248.06	75611.81	2456.01	0.001%
18	4858.76	-75661.03	-63.58	-4858.42	75661.01	63.58	0.000%
19	4141.83	-75732.45	2309.69	-4141.47	75732.44	-2309.60	0.000%
20	2333.87	-75727.95	4055.55	-2333.24	75727.92	-4055.37	0.001%
21	-73.78	-75725.07	4746.07	74.11	75725.05	-4745.93	0.000%
22	-2476.70	-75804.01	4175.78	2477.06	75803.98	-4175.67	0.000%
23	-4245.38	-75862.33	2454.67	4245.43	75862.32	-2454.80	0.000%
24	-4855.02	-75813.15	63.58	4854.99	75813.13	-64.16	0.001%
25	-4141.83	-75741.73	-2309.69	4141.83	75741.71	2309.20	0.001%
26	-2333.87	-75746.24	-4055.55	2333.90	75746.22	4055.18	0.000%
27	41.23	-15140.07	-4120.65	-40.84	15140.08	4120.11	0.004%
28	2092.19	-15118.34	-3597.07	-2091.81	15118.34	3596.82	0.003%
29	3590.37	-15102.27	-2100.91	-3589.82	15102.27	2100.63	0.004%
30	4120.60	-15115.39	-38.48	-4120.17	15115.39	38.31	0.003%
31	3503.56	-15134.76	2003.18	-3502.87	15134.77	-2003.24	0.004%
32	1995.05	-15133.95	3505.77	-1994.50	15133.95	-3505.64	0.004%
33	-41.23	-15133.72	4077.58	41.34	15133.72	-4077.50	0.001%
34	-2070.66	-15155.46	3559.77	2070.65	15155.46	-3559.68	0.001%
35	-3553.08	-15171.53	2079.37	3552.98	15171.52	-2079.32	0.001%
36	-4077.54	-15158.41	38.48	4077.43	15158.41	-38.51	0.001%
37	-3503.56	-15139.03	-2003.18	3503.52	15139.03	2003.07	0.001%
38	-1995.05	-15139.85	-3505.77	1995.15	15139.85	3505.29	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	13	0.00000001	0.00006647
2	Yes	26	0.00007334	0.00006594
3	Yes	26	0.00006361	0.00005822
4	Yes	20	0.00008515	0.00005821
5	Yes	25	0.00006580	0.00006247
6	Yes	25	0.00007185	0.00006492
7	Yes	23	0.00000001	0.00005793
8	Yes	16	0.00000001	0.00007484
9	Yes	18	0.00000001	0.00005699
10	Yes	19	0.00000001	0.00005852
11	Yes	18	0.00000001	0.00006734
12	Yes	17	0.00000001	0.00007120
13	Yes	24	0.00008751	0.00006350
14	Yes	17	0.00000001	0.00004755
15	Yes	18	0.00000001	0.00004258
16	Yes	18	0.00000001	0.00004008
17	Yes	17	0.00000001	0.00006899
18	Yes	18	0.00000001	0.00003760
19	Yes	18	0.00000001	0.00003797
20	Yes	17	0.00000001	0.00006009
21	Yes	17	0.00000001	0.00004852
22	Yes	16	0.00000001	0.00008129
23	Yes	16	0.00000001	0.00007678
24	Yes	16	0.00000001	0.00008207
25	Yes	17	0.00000001	0.00005224
26	Yes	18	0.00000001	0.00003660
27	Yes	11	0.00000001	0.00008989
28	Yes	12	0.00000001	0.00004910
29	Yes	12	0.00000001	0.00005957
30	Yes	12	0.00000001	0.00004988
31	Yes	11	0.00000001	0.00009513
32	Yes	11	0.00000001	0.00009915
33	Yes	12	0.00000001	0.00004564
34	Yes	12	0.00000001	0.00005161
35	Yes	12	0.00000001	0.00005548
36	Yes	12	0.00000001	0.00005331
37	Yes	12	0.00000001	0.00004720
38	Yes	11	0.00000001	0.00009661

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 140	2.631	29	0.0889	0.0138
T2	140 - 120	2.442	29	0.0733	0.0105
T3	120 - 100	2.053	29	0.1523	0.0253
T4	100 - 80	1.266	29	0.1623	0.0299
T5	80 - 60	0.761	29	0.0995	0.0989
T6	60 - 40	0.398	29	0.0699	0.1802
T7	40 - 20	0.218	29	0.0294	0.2349
T8	20 - 5.25	0.149	27	0.0253	0.2660
T9	5.25 - 0	0.049	32	0.0411	0.2744

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	6' x 3" Dia Omni	29	2.631	0.0889	0.0138	20629
148.50	12.5' x 2 Std. Horz. Pipe	29	2.601	0.0849	0.0116	20629
147.00	AIR6449	29	2.571	0.0811	0.0094	20629
145.50	12.5' x 2 Std. Horz. Pipe	29	2.542	0.0778	0.0074	20629
136.00	Guy	29	2.378	0.0809	0.0134	14210
126.00	HPA-65R-BUU-H6	29	2.207	0.1251	0.0214	9646
113.00	MX08FRO665-20	29	1.796	0.1699	0.0242	15394
96.00	Guy	29	1.135	0.1514	0.0392	9541
95.00	8' dipole antenna	29	1.105	0.1482	0.0420	10173
50.00	Guy	29	0.286	0.0450	0.2110	26262

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 140	17.980	3	1.0982	0.0585
T2	140 - 120	15.722	3	1.0209	0.1122
T3	120 - 100	11.507	3	1.1982	0.2004
T4	100 - 80	6.063	3	1.1214	0.2842
T5	80 - 60	2.715	3	0.5587	0.6352
T6	60 - 40	1.112	4	0.2526	1.0327
T7	40 - 20	0.819	12	0.1041	1.3004
T8	20 - 5.25	0.732	12	0.1009	1.4546
T9	5.25 - 0	0.241	12	0.1988	1.4958

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	6' x 3" Dia Omni	3	17.980	1.0982	0.0585	4397
148.50	12.5' x 2 Std. Horz. Pipe	3	17.632	1.0819	0.0630	4397
147.00	AIR6449	3	17.284	1.0663	0.0716	4397
145.50	12.5' x 2 Std. Horz. Pipe	3	16.939	1.0519	0.0803	4397
136.00	Guy	3	14.900	1.0295	0.1350	3938
126.00	HPA-65R-BUU-H6	3	12.884	1.1251	0.1756	2670
113.00	MX08FRO665-20	3	9.615	1.2382	0.2044	4565
96.00	Guy	3	5.178	1.0263	0.3365	1528
95.00	8' dipole antenna	3	4.977	0.9990	0.3515	1583
50.00	Guy	4	0.859	0.1334	1.1831	5659

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	150	Leg	A325N	0.6250	4	5051.89	24850.50	0.203 ✔	1	Bolt DS
T2	140	Leg	A325N	0.6250	4	787.64	24850.50	0.032 ✔	1	Bolt DS
T3	120	Leg	A325N	0.6250	4	4827.09	24850.50	0.194 ✔	1	Bolt DS
T4	100	Leg	A325N	0.6250	4	0.00	24850.50	0.000 ✔	1	Bolt DS
T5	80	Leg	A325N	0.6250	4	0.00	24850.50	0.000 ✔	1	Bolt DS
T6	60	Leg	A325N	0.6250	4	0.00	24850.50	0.000 ✔	1	Bolt DS
T7	40	Leg	A325N	0.6250	4	0.00	24850.50	0.000 ✔	1	Bolt DS
T8	20	Leg	A325N	0.6250	4	0.00	24850.50	0.000 ✔	1	Bolt DS

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.
T2	136.00 (A) (712)	5/8 EHS	4240.00	42399.99	11485.90	25440.00	1.000	2.215 ✔
	136.00 (A) (713)	5/8 EHS	4240.00	42399.99	11104.40	25440.00	1.000	2.291 ✔
	136.00 (B) (706)	5/8 EHS	4240.00	42399.99	11553.90	25440.00	1.000	2.202 ✔
	136.00 (B) (707)	5/8 EHS	4240.00	42399.99	11833.60	25440.00	1.000	2.150 ✔
	136.00 (C) (698)	5/8 EHS	4240.00	42399.99	16843.50	25440.00	1.000	1.510 ✔
	136.00 (C) (699)	5/8 EHS	4240.00	42399.99	16994.50	25440.00	1.000	1.497 ✔
T4	96.00 (A) (732)	9/16 EHS	3500.00	35000.04	6949.46	21000.00	1.000	3.022 ✔
	96.00 (A) (733)	9/16 EHS	3500.00	35000.04	6805.49	21000.00	1.000	3.086 ✔
	96.00 (B) (726)	9/16 EHS	3500.00	35000.04	7251.51	21000.00	1.000	2.896 ✔
	96.00 (B) (727)	9/16 EHS	3500.00	35000.04	7604.40	21000.00	1.000	2.762 ✔
	96.00 (C) (718)	9/16 EHS	3500.00	35000.04	11582.10	21000.00	1.000	1.813 ✔
	96.00 (C) (719)	9/16 EHS	3500.00	35000.04	11392.80	21000.00	1.000	1.843 ✔
T6	50.00 (A) (742)	1/2 EHS	2690.00	26900.04	4597.61	16140.00	1.000	3.511 ✔
	50.00 (B) (741)	1/2 EHS	2690.00	26900.04	4851.46	16140.00	1.000	3.327 ✔
	50.00 (C) (738)	1/2 EHS	2690.00	26900.04	5628.22	16140.00	1.000	2.868 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	1 3/4	10.00	1.58	43.4 K=1.00	2.4053	1.00	-22281.50	94294.90	0.236 [1] ✔
T2	140 - 120	1 3/4	20.00	1.58	43.4 K=1.00	2.4053	0.93	-42230.30	88002.40	0.480 [1] ✔
T3	120 - 100	1 3/4	20.00	1.58	43.4 K=1.00	2.4053	0.95	-56633.20	89712.90	0.631 [1] ✔
T4	100 - 80	1 3/4	20.00	1.58	43.4 K=1.00	2.4053	0.91	-66555.30	86264.00	0.772 [1] ✔
T5	80 - 60	1 3/4	20.00	1.58	43.4 K=1.00	2.4053	0.88	-46708.60	82605.90	0.565 [1] ✔
T6	60 - 40	1 3/4	20.00	1.58	43.4 K=1.00	2.4053	0.69	-43842.20	65452.60	0.670 [1] ✔
T7	40 - 20	1 3/4	20.00	1.58	43.4 K=1.00	2.4053	0.70	-45988.10	65876.10	0.698 [1] ✔
T8	20 - 5.25	1 3/4	14.75	1.57	43.2 K=1.00	2.4053	0.70	-46164.50	65822.10	0.701 [1] ✔
T9	5.25 - 0	1 3/4	5.32	2.08	57.1 K=1.00	2.4053	0.77	-45809.30	65236.50	0.702 [1] ✔

[1] P_u / ϕP_n controls

Diagonal 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	150 - 140	5/8	2.18	0.98	83.2 K=1.10	0.3068	-2676.96	6906.26	0.388 [1] ✔
T2	140 - 120	5/8	2.18	0.98	83.2 K=1.10	0.3068	-5636.81	6906.26	0.816 [1] ✔
T3	120 - 100	5/8	2.18	0.98	83.2 K=1.10	0.3068	-4481.85	6906.26	0.649 [1] ✔
T4	100 - 80	5/8	2.18	0.98	83.2 K=1.10	0.3068	-4305.06	6906.26	0.623 [1] ✔
T5	80 - 60	5/8	2.18	0.98	83.2 K=1.10	0.3068	-1921.88	6906.26	0.278 [1] ✔
T6	60 - 40	5/8	2.18	0.98	83.2 K=1.10	0.3068	-2128.65	6906.26	0.308 [1] ✔
T7	40 - 20	5/8	2.18	0.98	83.2 K=1.10	0.3068	-2171.52	6906.26	0.314 [1] ✔
T8	20 - 5.25	5/8	2.17	0.98	82.9 K=1.10	0.3068	-2170.66	6921.74	0.314 [1] ✔
T9	5.25 - 0	5/8	1.76	0.96	81.4 K=1.10	0.3068	-3627.65	7010.43	0.517 [1] ✔

[1] P_u / ϕP_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	150 - 140	3/4	1.50	1.35	82.3 K=0.95	0.4418	-384.44	12110.70	0.032 [1] ✔
T2	140 - 120	3/4	1.50	1.35	82.3 K=0.95	0.4418	-4305.31	12110.70	0.355 [1] ✔
T3	120 - 100	3/4	1.50	1.35	82.3 K=0.95	0.4418	-953.00	12110.70	0.079 [1] ✔
T4	100 - 80	3/4	1.50	1.35	82.3 K=0.95	0.4418	-2713.26	12110.70	0.224 [1] ✔
T5	80 - 60	3/4	1.50	1.35	82.3 K=0.95	0.4418	-787.39	12110.70	0.065 [1] ✔
T6	60 - 40	3/4	1.50	1.35	82.3 K=0.95	0.4418	-759.37	12110.70	0.063 [1] ✔
T7	40 - 20	3/4	1.50	1.35	82.3 K=0.95	0.4418	-793.56	12110.70	0.066 [1] ✔
T8	20 - 5.25	3/4	1.50	1.35	82.3 K=0.95	0.4418	-793.57	12110.70	0.066 [1] ✔
T9	5.25 - 0	3/4	1.03	0.89	56.7 K=1.00	0.4418	-801.44	15716.10	0.051 [1] ✔

[1] P_u / ϕP_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 $\frac{P_u}{\phi P_n}$
T1	150 - 140	3/4	1.50	1.35	82.3 K=0.95	0.4418	-42.47	12110.70	0.004 [1] ✔
T2	140 - 120	3/4	1.50	1.35	82.3 K=0.95	0.4418	-950.67	12110.70	0.078 [1] ✔
T3	120 - 100	3/4	1.50	1.35	82.3 K=0.95	0.4418	-980.92	12110.70	0.081 [1] ✔
T4	100 - 80	3/4	1.50	1.35	82.3 K=0.95	0.4418	-1152.77	12110.70	0.095 [1] ✔
T5	80 - 60	3/4	1.50	1.35	82.3 K=0.95	0.4418	-809.02	12110.70	0.067 [1] ✔
T6	60 - 40	3/4	1.50	1.35	82.3 K=0.95	0.4418	-759.37	12110.70	0.063 [1] ✔
T7	40 - 20	3/4	1.50	1.35	82.3 K=0.95	0.4418	-796.54	12110.70	0.066 [1] ✔
T8	20 - 5.25	3/4	1.50	1.35	82.3 K=0.95	0.4418	-799.59	12110.70	0.066 [1] ✔
T9	5.25 - 0	3/4	1.48	1.33	81.9 K=0.96	0.4418	-801.44	12179.90	0.066 [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

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	150 - 140	3/4	1.50	1.35	82.3 K=0.95	0.4418	-1091.83	12110.70	0.090 [1] ✔
T2	140 - 120	3/4	1.50	1.35	82.3 K=0.95	0.4418	-731.45	12110.70	0.060 [1] ✔
T3	120 - 100	3/4	1.50	1.35	82.3 K=0.95	0.4418	-1290.25	12110.70	0.107 [1] ✔
T4	100 - 80	3/4	1.50	1.35	82.3 K=0.95	0.4418	-1152.77	12110.70	0.095 [1] ✔
T5	80 - 60	3/4	1.50	1.35	82.3 K=0.95	0.4418	-809.02	12110.70	0.067 [1] ✔
T6	60 - 40	3/4	1.50	1.35	82.3 K=0.95	0.4418	-759.37	12110.70	0.063 [1] ✔
T7	40 - 20	3/4	1.50	1.35	82.3 K=0.95	0.4418	-796.54	12110.70	0.066 [1] ✔
T8	20 - 5.25	3/4	1.50	1.35	82.3 K=0.95	0.4418	-799.59	12110.70	0.066 [1] ✔

[1] P_u / ϕP_n controls

Top 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 $\frac{P_u}{\phi P_n}$
T2	140 - 120	5/8	1.50	1.35	104.0 K=1.00	0.3068	-4474.27	5624.79	0.795 [1] ✔
T4	100 - 80	5/8	1.50	1.35	104.0 K=1.00	0.3068	-3590.25	5624.79	0.638 [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 $\frac{P_u}{\phi P_n}$
T2	140 - 120 (704)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-17863.90	49126.40	0.364 [1] ✔
T2	140 - 120 (705)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-11640.80	49126.40	0.237 [1] ✔
T2	140 - 120 (710)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-11725.90	49126.40	0.239 [1] ✔
T2	140 - 120 (711)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-16404.70	49126.40	0.334 [1] ✔
T2	140 - 120 (716)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-12996.90	49126.40	0.265 [1] ✔
T2	140 - 120 (717)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-11609.50	49126.40	0.236 [1] ✔
T4	100 - 80 (724)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-11697.50	49126.40	0.238 [1] ✔
T4	100 - 80 (725)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-6934.68	49126.40	0.141 [1] ✔
T4	100 - 80 (730)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-6416.40	49126.40	0.131 [1] ✔
T4	100 - 80 (731)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-10090.50	49126.40	0.205 [1] ✔
T4	100 - 80 (736)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-7600.94	49126.40	0.155 [1] ✔
T4	100 - 80 (737)	P2.5x.203	3.36	3.28	41.6 K=1.00	1.7040	-6726.74	49126.40	0.137 [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 $\frac{P_u}{\phi P_n}$
T1	150 - 140	1 3/4	10.00	1.58	43.4	1.2339	20207.50	60150.90	0.336 [1 #] ✔
T2	140 - 120	1 3/4	20.00	1.58	43.4	2.4053	23024.60	108238.00	0.213 [1 #] ✔
T3	120 - 100	1 3/4	20.00	1.58	43.4	1.2339	19308.40	60150.90	0.321 [1 #] ✔
T4	100 - 80	1 3/4	20.00	1.58	43.4	2.4053	24142.90	108238.00	0.223 [1 #] ✔

[1] P_u / ϕP_n controls
[#] Based on net area of leg in section below

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	150 - 140	5/8	2.18	0.98	75.6	0.3068	2670.54	9940.20	0.269 [1] ✔
T2	140 - 120	5/8	2.18	0.98	75.6	0.3068	4767.85	9940.20	0.480 [1] ✔
T3	120 - 100	5/8	2.18	0.98	75.6	0.3068	3404.09	9940.20	0.342 [1] ✔
T4	100 - 80	5/8	2.18	0.98	75.6	0.3068	2835.85	9940.20	0.285 [1] ✔
T5	80 - 60	5/8	2.18	0.98	75.6	0.3068	973.16	9940.20	0.098 [1] ✔
T6	60 - 40	5/8	2.18	0.98	75.6	0.3068	1023.03	9940.20	0.103 [1] ✔
T7	40 - 20	5/8	2.18	0.98	75.6	0.3068	800.62	9940.20	0.081 [1] ✔
T8	20 - 5.25	5/8	2.17	0.98	75.4	0.3068	496.12	9940.20	0.050 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	150 - 140	3/4	1.50	1.35	86.7	0.4418	462.94	19880.40	0.023 [1] ✔
T2	140 - 120	3/4	1.50	1.35	86.7	0.4418	2483.22	19880.40	0.125 [1] ✔
T3	120 - 100	3/4	1.50	1.35	86.7	0.4418	1691.96	19880.40	0.085 [1] ✔
T4	100 - 80	3/4	1.50	1.35	86.7	0.4418	2994.29	19880.40	0.151 [1] ✔
T5	80 - 60	3/4	1.50	1.35	86.7	0.4418	2410.90	19880.40	0.121 [1] ✔
T6	60 - 40	3/4	1.50	1.35	86.7	0.4418	2696.60	19880.40	0.136 [1] ✔
T7	40 - 20	3/4	1.50	1.35	86.7	0.4418	2865.92	19880.40	0.144 [1] ✔
T8	20 - 5.25	3/4	1.50	1.35	86.7	0.4418	2876.67	19880.40	0.145 [1] ✔
T9	5.25 - 0	3/4	1.03	0.89	56.7	0.4418	3035.02	19880.40	0.153 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	150 - 140	3/4	1.50	1.35	86.7	0.4418	43.16	19880.40	0.002 [1] ✔
T2	140 - 120	3/4	1.50	1.35	86.7	0.4418	731.45	19880.40	0.037 [1] ✔
T3	120 - 100	3/4	1.50	1.35	86.7	0.4418	1213.22	19880.40	0.061 [1] ✔
T4	100 - 80	3/4	1.50	1.35	86.7	0.4418	1263.99	19880.40	0.064 [1] ✔
T5	80 - 60	3/4	1.50	1.35	86.7	0.4418	1189.90	19880.40	0.060 [1] ✔
T6	60 - 40	3/4	1.50	1.35	86.7	0.4418	1183.74	19880.40	0.060 [1] ✔
T7	40 - 20	3/4	1.50	1.35	86.7	0.4418	1332.01	19880.40	0.067 [1] ✔
T8	20 - 5.25	3/4	1.50	1.35	86.7	0.4418	1390.84	19880.40	0.070 [1] ✔
T9	5.25 - 0	3/4	1.48	1.33	85.1	0.4418	3450.61	19880.40	0.174 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	150 - 140	3/4	1.50	1.35	86.7	0.4418	1027.06	19880.40	0.052 [1] ✔
T2	140 - 120	3/4	1.50	1.35	86.7	0.4418	731.45	19880.40	0.037 [1] ✔
T3	120 - 100	3/4	1.50	1.35	86.7	0.4418	1709.55	19880.40	0.086 [1] ✔
T4	100 - 80	3/4	1.50	1.35	86.7	0.4418	1152.77	19880.40	0.058 [1] ✔
T5	80 - 60	3/4	1.50	1.35	86.7	0.4418	1178.93	19880.40	0.059 [1] ✔
T6	60 - 40	3/4	1.50	1.35	86.7	0.4418	1377.72	19880.40	0.069 [1] ✔
T7	40 - 20	3/4	1.50	1.35	86.7	0.4418	1415.05	19880.40	0.071 [1] ✔
T8	20 - 5.25	3/4	1.50	1.35	86.7	0.4418	3276.46	19880.40	0.165 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T2	140 - 120	5/8	1.50	1.35	104.0	0.3068	7238.83	9940.20	0.728 [1] ✔
T4	100 - 80	5/8	1.50	1.35	104.0	0.3068	7463.72	9940.20	0.751 [1] ✔
T6	60 - 40	5/8	1.50	1.35	104.0	0.3068	3788.98	9940.20	0.381 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T2	140 - 120 (700)	P2.5x.203	3.66	3.58	45.3	1.7040	16367.90	53677.60	0.305 [1] ✔
T2	140 - 120 (701)	P2.5x.203	3.66	3.58	45.3	1.7040	11298.00	53677.60	0.210 [1] ✔
T2	140 - 120 (708)	P2.5x.203	3.66	3.58	45.3	1.7040	12434.40	53677.60	0.232 [1] ✔
T2	140 - 120 (709)	P2.5x.203	3.66	3.58	45.3	1.7040	16456.10	53677.60	0.307 [1] ✔
T2	140 - 120 (714)	P2.5x.203	3.66	3.58	45.3	1.7040	11671.60	53677.60	0.217 [1] ✔
T2	140 - 120 (715)	P2.5x.203	3.66	3.58	45.3	1.7040	11035.60	53677.60	0.206 [1] ✔
T4	100 - 80 (720)	P2.5x.203	3.66	3.58	45.3	1.7040	9247.75	53677.60	0.172 [1] ✔
T4	100 - 80 (721)	P2.5x.203	3.66	3.58	45.3	1.7040	9228.99	53677.60	0.172 [1] ✔
T4	100 - 80 (728)	P2.5x.203	3.66	3.58	45.3	1.7040	9572.11	53677.60	0.178 [1] ✔
T4	100 - 80 (729)	P2.5x.203	3.66	3.58	45.3	1.7040	9913.09	53677.60	0.185 [1] ✔
T4	100 - 80 (734)	P2.5x.203	3.66	3.58	45.3	1.7040	7206.43	53677.60	0.134 [1] ✔
T4	100 - 80 (735)	P2.5x.203	3.66	3.58	45.3	1.7040	7639.34	53677.60	0.142 [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 $\frac{P_u}{\phi P_n}$
T2	140 - 120 (704)	P2.5x.203	3.36	3.28	41.6	1.7040	2075.63	53677.60	0.039 [1] ✔
T2	140 - 120 (705)	P2.5x.203	3.36	3.28	41.6	1.7040	3094.88	53677.60	0.058 [1] ✔
T2	140 - 120 (710)	P2.5x.203	3.36	3.28	41.6	1.7040	1487.36	53677.60	0.028 [1] ✔
T2	140 - 120 (711)	P2.5x.203	3.36	3.28	41.6	1.7040	1643.33	53677.60	0.031 [1] ✔
T2	140 - 120 (716)	P2.5x.203	3.36	3.28	41.6	1.7040	2792.60	53677.60	0.052 [1] ✔
T2	140 - 120 (717)	P2.5x.203	3.36	3.28	41.6	1.7040	4172.14	53677.60	0.078 [1] ✔
T4	100 - 80 (724)	P2.5x.203	3.36	3.28	41.6	1.7040	2081.39	53677.60	0.039 [1] ✔
T4	100 - 80 (725)	P2.5x.203	3.36	3.28	41.6	1.7040	3331.91	53677.60	0.062 [1] ✔
T4	100 - 80 (730)	P2.5x.203	3.36	3.28	41.6	1.7040	1903.74	53677.60	0.035 [1] ✔
T4	100 - 80 (731)	P2.5x.203	3.36	3.28	41.6	1.7040	1260.48	53677.60	0.023 [1] ✔
T4	100 - 80 (736)	P2.5x.203	3.36	3.28	41.6	1.7040	2676.53	53677.60	0.050 [1] ✔
T4	100 - 80 (737)	P2.5x.203	3.36	3.28	41.6	1.7040	3440.24	53677.60	0.064 [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	150 - 140	Leg	1 3/4	1	20207.50	60150.90	33.6	Pass
T2	140 - 120	Leg	1 3/4	51	-42230.30	88002.40	48.0	Pass
T3	120 - 100	Leg	1 3/4	145	-56633.20	89712.90	63.1	Pass
T4	100 - 80	Leg	1 3/4	237	-66555.30	86264.00	77.2	Pass
T5	80 - 60	Leg	1 3/4	329	-46708.60	82605.90	56.5	Pass
T6	60 - 40	Leg	1 3/4	420	-43842.20	65452.60	67.0	Pass
T7	40 - 20	Leg	1 3/4	513	-45988.10	65876.10	69.8	Pass
T8	20 - 5.25	Leg	1 3/4	605	-46164.50	65822.10	70.1	Pass
T9	5.25 - 0	Leg	1 3/4	676	-45809.30	65236.50	70.2	Pass
T1	150 - 140	Diagonal	5/8	14	-2676.96	6906.26	38.8	Pass
T2	140 - 120	Diagonal	5/8	123	-5636.81	6906.26	81.6	Pass
T3	120 - 100	Diagonal	5/8	153	-4481.85	6906.26	64.9	Pass
T4	100 - 80	Diagonal	5/8	325	-4305.06	6906.26	62.3	Pass
T5	80 - 60	Diagonal	5/8	337	-1921.88	6906.26	27.8	Pass
T6	60 - 40	Diagonal	5/8	428	-2128.65	6906.26	30.8	Pass
T7	40 - 20	Diagonal	5/8	520	-2171.52	6906.26	31.4	Pass
T8	20 - 5.25	Diagonal	5/8	668	-2170.66	6921.74	31.4	Pass
T9	5.25 - 0	Diagonal	5/8	683	-3627.65	7010.43	51.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	150 - 140	Horizontal	3/4	16	-384.44	12110.70	3.2	Pass
T2	140 - 120	Horizontal	3/4	122	-4305.31	12110.70	35.5	Pass
T3	120 - 100	Horizontal	3/4	207	1691.96	19880.40	8.5	Pass
T4	100 - 80	Horizontal	3/4	306	-2713.26	12110.70	22.4	Pass
T5	80 - 60	Horizontal	3/4	342	2410.90	19880.40	12.1	Pass
T6	60 - 40	Horizontal	3/4	434	2696.60	19880.40	13.6	Pass
T7	40 - 20	Horizontal	3/4	526	2865.92	19880.40	14.4	Pass
T8	20 - 5.25	Horizontal	3/4	667	2876.67	19880.40	14.5	Pass
T9	5.25 - 0	Horizontal	3/4	691	3035.02	19880.40	15.3	Pass
T1	150 - 140	Top Girt	3/4	5	-42.47	12110.70	0.4	Pass
T2	140 - 120	Top Girt	3/4	55	-950.67	12110.70	7.8	Pass
T3	120 - 100	Top Girt	3/4	147	-980.92	12110.70	8.1	Pass
T4	100 - 80	Top Girt	3/4	239	-1152.77	12110.70	9.5	Pass
T5	80 - 60	Top Girt	3/4	331	-809.02	12110.70	6.7	Pass
T6	60 - 40	Top Girt	3/4	422	-759.37	12110.70	6.3	Pass
T7	40 - 20	Top Girt	3/4	514	1332.01	19880.40	6.7	Pass
T8	20 - 5.25	Top Girt	3/4	606	1390.84	19880.40	7.0	Pass
T9	5.25 - 0	Top Girt	3/4	677	3450.61	19880.40	17.4	Pass
T1	150 - 140	Bottom Girt	3/4	7	-1091.83	12110.70	9.0	Pass
T2	140 - 120	Bottom Girt	3/4	59	-731.45	12110.70	6.0	Pass
T3	120 - 100	Bottom Girt	3/4	151	-1290.25	12110.70	10.7	Pass
T4	100 - 80	Bottom Girt	3/4	242	-1152.77	12110.70	9.5	Pass
T5	80 - 60	Bottom Girt	3/4	334	-809.02	12110.70	6.7	Pass
T6	60 - 40	Bottom Girt	3/4	425	1377.72	19880.40	6.9	Pass
T7	40 - 20	Bottom Girt	3/4	517	1415.05	19880.40	7.1	Pass
T8	20 - 5.25	Bottom Girt	3/4	609	3276.46	19880.40	16.5	Pass
T2	140 - 120	Guy A@136	5/8	712	11485.90	25440.00	45.1	Pass
T4	100 - 80	Guy A@96	9/16	732	6949.46	21000.00	33.1	Pass
T6	60 - 40	Guy A@50	1/2	742	4597.61	16140.00	28.5	Pass
T2	140 - 120	Guy B@136	5/8	707	11833.60	25440.00	46.5	Pass
T4	100 - 80	Guy B@96	9/16	727	7604.40	21000.00	36.2	Pass
T6	60 - 40	Guy B@50	1/2	741	4851.46	16140.00	30.1	Pass
T2	140 - 120	Guy C@136	5/8	699	16994.50	25440.00	66.8	Pass
T4	100 - 80	Guy C@96	9/16	718	11582.10	21000.00	55.2	Pass
T6	60 - 40	Guy C@50	1/2	738	5628.22	16140.00	34.9	Pass
T2	140 - 120	Top Guy Pull-Off@136	5/8	702	-4474.27	5624.79	79.5	Pass
T4	100 - 80	Top Guy Pull-Off@96	5/8	722	7463.72	9940.20	75.1	Pass
T6	60 - 40	Top Guy Pull-Off@50	5/8	469	3788.98	9940.20	38.1	Pass
T2	140 - 120	Torque Arm Top@136	P2.5x.203	709	16456.10	53677.60	30.7	Pass
T4	100 - 80	Torque Arm Top@96	P2.5x.203	729	9913.09	53677.60	18.5	Pass
T2	140 - 120	Torque Arm Bottom@136	P2.5x.203	704	-17863.90	49126.40	36.4	Pass
T4	100 - 80	Torque Arm Bottom@96	P2.5x.203	724	-11697.50	49126.40	23.8	Pass

Summary		
Leg (T4)	77.2	Pass
Diagonal (T2)	81.6	Pass
Horizontal (T2)	35.5	Pass
Top Girt (T9)	17.4	Pass
Bottom Girt (T8)	16.5	Pass
Guy A (T2)	45.1	Pass
Guy B (T2)	46.5	Pass
Guy C (T2)	66.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Top Guy Pull-Off (T2)	79.5	Pass
						Torque Arm Top (T2)	30.7	Pass
						Torque Arm Bottom (T2)	36.4	Pass
						Bolt Checks	20.3	Pass
						RATING =	**81.6**	**Pass**

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

CTHA813A_Sprint Retain_1_draft

Print Name: Standard (2)
PORs: New Build_Sprint Keep

Section 1 - Site Information

Site ID: CTHA813A
Status: Draft
Version: 1
Project Type: Sprint Retain
Approved: Not Approved
Approved By: Not Approved
Last Modified: 7/9/2021 4:5:29 PM
Last Modified By: Michael.Low1@T-Mobile.com

Site Name: CTHA813A
Site Class: Guyed Tower
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.86070000
Longitude: -72.40341388
Address: 497 Old Post Rd
City, State: Tolland, CT
Region: NORTHEAST

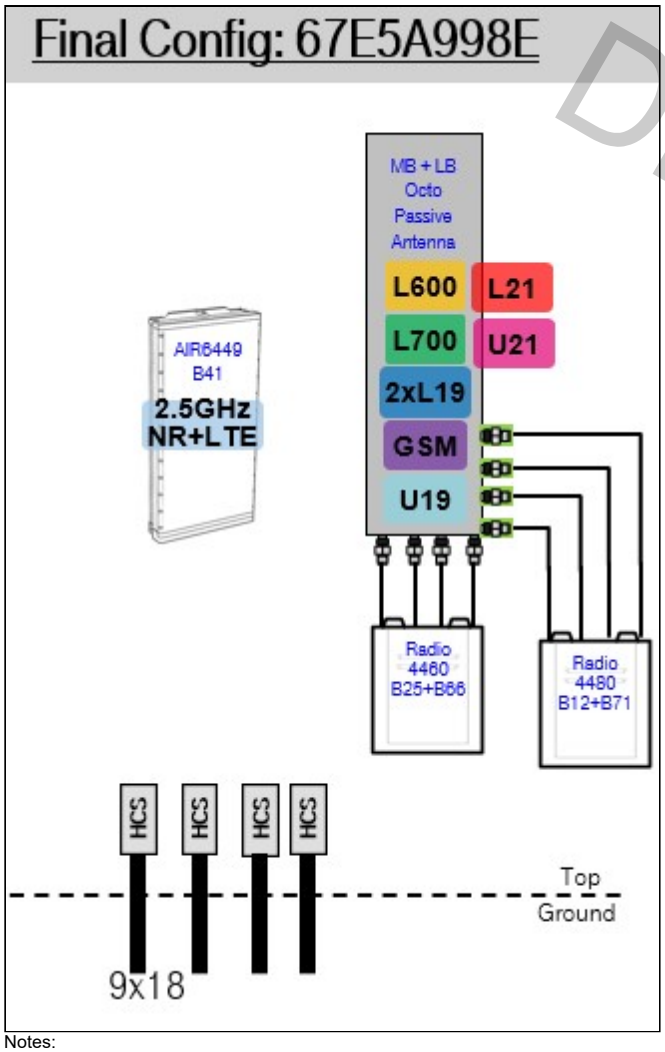
RAN Template: 67E5A998E 6160			**AL Template:** 67E5998E_1xAIR+1OP	
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

----- This section is intentionally blank. -----

Section 3 - Proposed Template Images

67E5A998E.jpg



Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

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

CTHA813A_Sprint Retain_1_draft

Print Name: Standard (2)
PORs: New Build_Sprint Keep

Section 5 - RAN Equipment

Existing RAN Equipment

----- This section is intentionally blank. -----

Proposed RAN Equipment

Template: 67E5A998E 6160

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

RAN Scope of Work:

CT03XC212

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

CTHA813A_Sprint Retain_1_draft

Print Name: Standard (2)
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	0				0	
M. Tilt	0				0	
Height	147				147	
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

CTHA813A_Sprint Retain_1_draft

Print Name: Standard (2)
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	120				120	
M. Tilt	0				0	
Height	147				147	
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

CTHA813A_Sprint Retain_1_draft

Print Name: Standard (2)
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	275				275	
M. Tilt	0				0	
Height	147				147	
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

CTHA813A_Sprint Retain_1_draft

Print Name: Standard (2)
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: CTHA813A

497 Old Post Road
Tolland, Connecticut 06084

September 9, 2021

EBI Project Number: 6221005078

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**22.51%**

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

September 9, 2021

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

Emissions Analysis for Site: CTHA813A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **497 Old Post Road** in **Tolland, 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 497 Old Post Road in Tolland, 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 147 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):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 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 %:	**4.27%**	Antenna B1 MPE %:	**4.27%**	Antenna C1 MPE %:	**4.27%**
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):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 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 %:	**6.57%**	Antenna B2 MPE %:	**6.57%**	Antenna C2 MPE %:	**6.57%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	10.84%
NE Paging	0.6%
Hamden Cmmcns	0.36%
Conn Radio Rocky Hill	0.53%
Airtouch	0.07%
Verizon	4.58%
AT&T	5.53%
Site Total MPE % :	22.51%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.84%
T-Mobile Sector B Total:	10.84%
T-Mobile Sector C Total:	10.84%
Site Total MPE % :	22.51%

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	147.0	2.14	600 MHz LTE	400	0.54%
T-Mobile 600 MHz NR	1	1577.94	147.0	2.85	600 MHz NR	400	0.71%
T-Mobile 700 MHz LTE	2	695.22	147.0	2.51	700 MHz LTE	467	0.54%
T-Mobile 1900 MHz GSM	4	1052.26	147.0	7.61	1900 MHz GSM	1000	0.76%
T-Mobile 1900 MHz LTE	2	2104.51	147.0	7.61	1900 MHz LTE	1000	0.76%
T-Mobile 2100 MHz LTE	2	2649.42	147.0	9.58	2100 MHz LTE	1000	0.96%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	147.0	19.97	2500 MHz LTE 1C & 2C Traffic	1000	2.00%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	147.0	1.94	2500 MHz LTE 1C & 2C Broadcast	1000	0.19%
T-Mobile 2500 MHz NR Traffic	1	22089.26	147.0	39.94	2500 MHz NR Traffic	1000	3.99%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	147.0	3.88	2500 MHz NR Broadcast	1000	0.39%
						Total:	**10.84%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	10.84%
Sector B:	10.84%
Sector C:	10.84%
T-Mobile Maximum MPE % (Sector A):	10.84%
Site Total:	22.51%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.51%** 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.