Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

August 18, 2022

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

RE: **Notice of Exempt Modification for T-Mobile: CT11453C**
Crown Site#876313
1394 Meriden Waterbury Tpk, Southington, CT 06489
Latitude: 41° 33′ 51.39″ / Longitude: -72° 53′ 30.70″

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 127' level of the 160" monopole tower located at 1394 Meriden Waterbury Tpk, Southington, CT. T-Mobile to remove all antenna equipment at the 127' level and remove all (Sprint) antenna equipment at the 148' level of the tower. T-Mobile to install new antenna mount, with nine (9) new replacement antennas and ancillary equipment at a new mount level of 148'. The property is owned by Southington Tower Development LLC and the tower is owned by Crown Castle. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:@148'-0"
- (3) Commscope – W-65B-R1 Antennas
- (3) Ericsson – AIR6419 B41 Antennas
- (3) RFS APXVAALL24_43-U-NA20 Antennas
- (3) Ericsson-Radio 4480_B71+B85 RRH
- (3) Ericsson- 4460 B25+B66 RRH
- (3) Hybrid Cable 6x24
- (1) New Antenna Mount

Remove: @148'-0"
- (3) RFS-APXVSPP18-C-A20 Antenna
- (3) RFS- APXVTM14-C-120 Antennas
- (3) Alcatel Lucent -TD-RRH8x20-25 RRH
- (3) Alcatel Lucent -1900 MHZ RRH
- (3) Alcatel Lucent -800MHZ RRH
- (3) RFS IBC1900BB-1 Diplexers
- (3) RFS IBC1900HG-2A Diplexers
- (1) Antenna Mount w/ Collar

(5) 1-1/4" Coaxial Cables
(6) 1-5/8" Coaxial Cables

Remove all T-Mobile Equipment at the 127'-0" level
(3) Ericsson – AIR21 KRC118023-_B2P_B4A Antennas
(3) Ericsson – AIR21 KRC118023-_1_B2A_B4P Antennas
(3) Andrew LNX-6515OS-A1M Antennas
(3) Ericsson- KRY 112 144/1 TMAs
(3) Ericsson RRUS11 B12 RRUs

Ground:

Install New:
(1) 6160 Cabinet
(1.) B160 Battery Cabinet
(2) RP 6651
(2) PSU 4813 vR2A
(1) CRS IXRc V2
(1.) AAV Cabinet

Remove:

(1) Nortel Cabinet
(1.) DUW30
(6.) RU22 Radios

There are no original zoning documents available.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent Mark Sciota, Town Manager, Town of Southington and Matthew Reimondo, ZEO Town of Southington. Southington Tower Development, property owner and Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification 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 Communication 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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Site Acquisition Specialist
1800 W. Park Drive, STE 250
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments
cc:

Mark Sciota, Town Manager
Town of Southington
75 Main Street
Southington, CT 06489
(860) 276-6200

Matthew Reimondo, ZEO
Town of Southington
196 North Main Street
Southington, CT 06489
(860) 276-6269

Southington Tower Development, Property Owner
754 Peachtree ST, NE, 16th Floor
Atlanta, GA 30308

Crown Castle, Tower Owner

1394 MERIDEN WATERBURY TPKE

Location	1394 MERIDEN WATERBURY TPKE	**Mblu**	032/ / 103/ 0004/
		Acct#	18522
Owner	SOUTHINGTON TOWER DEVELOPMENT LLC	**Assessment**	$207,490
		Appraisal	$296,420
PID	1752	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$0	$296,420	$296,420
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$0	$207,490	$207,490

Owner of Record

Owner	SOUTHINGTON TOWER DEVELOPMENT LLC	**Sale Price**	$90,000
Co-Owner		**Certificate**	
Address	754 PEACHTREE ST, NE 16TH FLOOR ATLANTA, GA 30308	**Book & Page**	0997/1112
		Sale Date	01/18/2005
		Instrument	03

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
SOUTHINGTON TOWER DEVELOPMENT LLC	$90,000		0997/1112	03	01/18/2005

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Building Percent Good:

Building Attributes

Field	Description
Style	Vacant
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Fireplaces	
Whirlpool Tubs	
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Garages	
.	
Bsmt Type	
Attic Type	
Cath Ceiling	
Fndtn Cndtn	
Basement	

Building Photo

(https://images.vgsi.com/photos2/SouthingtonCTPhotos/\0057\IMG_2279_

Building Layout

(ParcelSketch.ashx?pid=1752&bid=1752)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code	391
Description	Vac Com Lnd wAcc
Zone	B
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.83
Depth	

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$0	$296,420	$296,420
2020	$0	$296,420	$296,420
2019	$0	$204,320	$204,320
2018	$0	$204,320	$204,320
2017	$0	$204,320	$204,320

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$0	$207,490	$207,490
2020	$0	$207,490	$207,490
2019	$0	$143,020	$143,020
2018	$0	$143,020	$143,020
2017	$0	$143,020	$143,020

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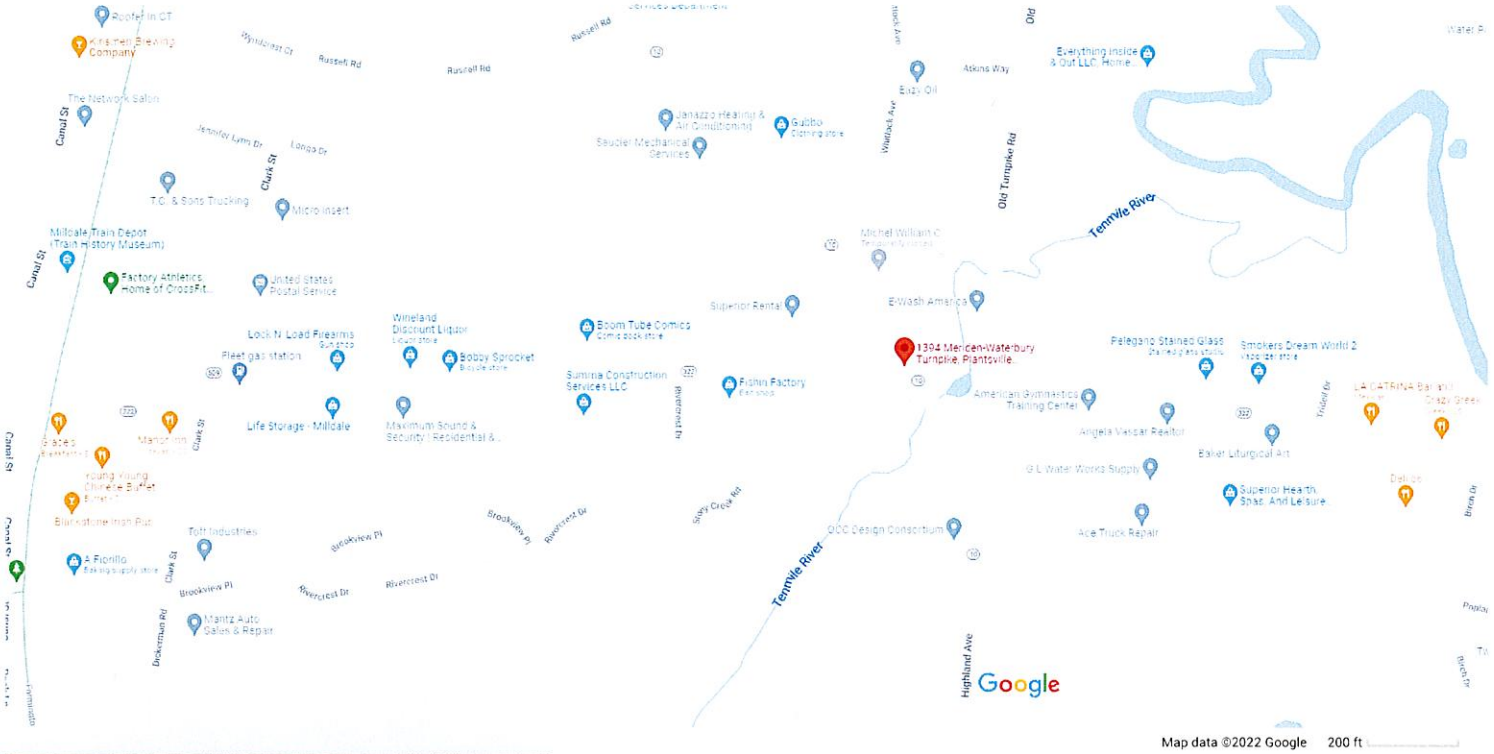
1394 Meriden-Waterbury Turnpike



1394 Meriden-Waterbury Turnpike

Plantsville, CT 06479

Directions Save Nearby Send to phone Share

H475+VH Plantsville, Southington, CT

Photos

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, August 19, 2022 9:45 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777701771100: Your package has been delivered

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi. Your package was delivered Fri, 08/19/2022 at 9:43am.

Delivered to 75 MAIN ST, SOUTHINGTON, CT 06489
Received by M.KIM

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777701771100

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Southington Mark Sciota, Town Manager 75 Main Street SOUTHINGTON, CT, US, 06489
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 8/18/2022 05:43 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOUTHINGTON, CT, US, 06489
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, August 19, 2022 9:31 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777701782120: Your package has been delivered

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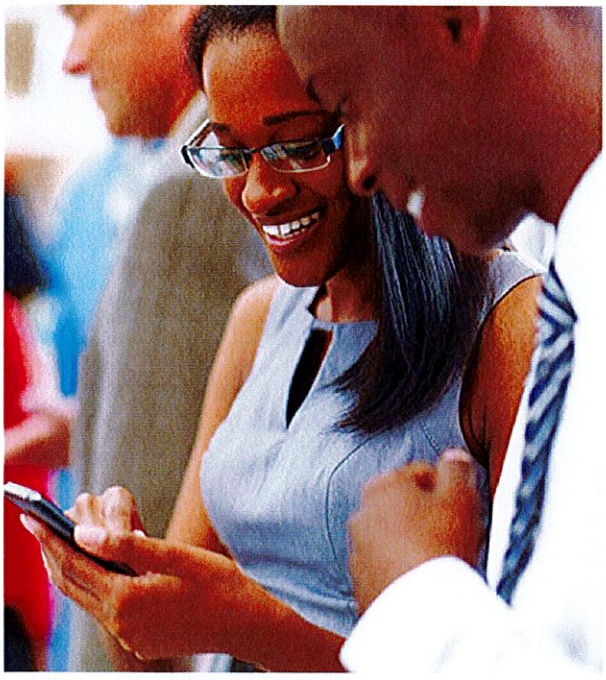
Hi. Your package was delivered Fri, 08/19/2022 at 9:29am.

Delivered to 196 N MAIN ST, SOUTHINGTON, CT 06489

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777701782120

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Southington Matthew Reimondo, ZEO 196 North Main Street SOUTHINGTON, CT, US, 06489
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 8/18/2022 05:43 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	SOUTHINGTON, CT, US, 06489
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight



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Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Friday, August 19, 2022 10:21 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 777701809428: Your package has been delivered

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi. Your package was delivered Fri, 08/19/2022 at 10:19am.

Delivered to 754 PEACHTREE ST NE, ATLANTA, GA 30308
Received by T.MOSLEY

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777701809428

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Southington Tower Development Property Owner 754 Peachtree Street, NE 16th Floor ATLANTA, GA, US, 30308
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Thu 8/18/2022 05:43 PM
DELIVERED TO	Mailroom
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	ATLANTA, GA, US, 30308
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

Date: **June 28, 2022**

MTS Engineering, P.L.L.C.
1717 S, Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject:	**Structural Analysis Report**	
Carrier Designation:	**Site Number:**	CT11453C
	Site Name:	CT03XC015
Crown Castle Designation:	**BU Number:**	876313
	Site Name:	West Johnson Ave. Burnt House
	JDE Job Number:	721247
	Work Order Number:	2129178
	Order Number:	621172 Rev. 0
Engineering Firm Designation:	**Project Number:**	137177.015.01
Site Data:	**1394 Meriden Waterbury Tpk, SOUTHINGTON, Hartford County, CT** **Latitude *41° 33' 51.39"*, Longitude *-72° 53' 30.7"*** **160 Foot - Monopole Tower**	

We are pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

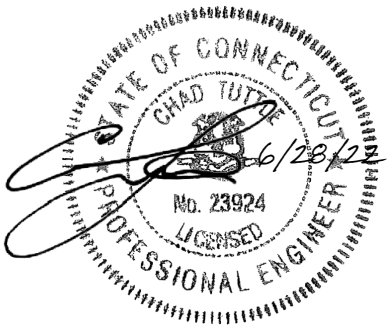
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4.7: Modified Structure w/ Proposed Equipment Configuration **Sufficient Capacity – 95.0%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Massood Sattari

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER 2386985; Expires: 1/31/2023



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft. Monopole tower designed by Summit.
The tower has been modified multiple times to accommodate additional loading.
Modifications designed by MTS Engineering, P.L.L.C., in January of 2022 is considered in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	148.0	3	Commscope	VV-65B-R1_TMO	3	1-5/8
		3	Ericsson	AIR 6419 B41_TMO		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
		3	Rfs Celwave	APXVAALL24_43-U-NA20_TMO		
		1	Site Pro 1	PRK-SFS Reinforcement Kit		
		3	Site Pro 1	SCX1-K Crossover Plates		
		3	--	2STDX12.5' Horizontal Pipe		
		1	--	Platform Mount [LP 1201-1_HR-1]		
48.0	50.0	1	Lucent	KS24019-L112A	1	1/2
	48.0	1	--	Side Arm Mount [SO 701-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
157.0	160.0	3	Ericsson	AIR 6419 B77G_CCIV3	6 8 3	1-5/8 13/16 3/8
	158.0	3	CCI Antennas	TPA65R-BU8DA-K		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Ericsson	RRUS-32 B30		
		3	Kathrein	80010966		
		4	Raycap	DC6-48-60-18-8F		
	157.0	1	--	Sector Mount [SM 503-3]		
		3	Site Pro 1	PM1 Stand Off Mount		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	156.0	3	Ericsson	AIR 6449 B77D_CCVI2		
138.0	142.0	1	Lucent	KS24019-L112A	1 6 1	2-1/4 1-5/8 1/2
	138.0	6	Commscope	NNHH-65B-R4		
		1	Raycap	RVZDC-6627-PF-48		
		3	Samsung Telecom	CBRS		
		3	Samsung Telecom	MT6407-77A		
		3	Samsung Telecom	RFV01U-D1A		
		3	Samsung Telecom	RFV01U-D2A		
		1	--	Platform Mount [LP 303-1_KCKR-HR-1]		
127.0	129.0	3	Commscope	LNX-6515DS-VTM	6 1	1-5/8 1-1/4
		3	Ericsson	ERICSSON AIR 21 B2A B4P		
		3	Ericsson	ERICSSON AIR 21 B4A B2P		
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	RRUS 11 B12		
	127.0	1	--	Platform Mount [LP 1201-1]		
119.0	119.0	3	Fujitsu	TA08025-B604	1	1-1/2
		3	Fujitsu	TA08025-B605		
		3	JMA Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
		1	--	Platform Mount [LP 716-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	2134246	CCI Sites
Tower Modification Drawing	3348783	CCI Sites
Post Modification Inspection	3846956	CCI Sites
Tower Modification Drawing	4077469	CCI Sites
Post Modification Inspection	4077468	CCI Sites
Tower Modification Drawing	4094328	CCI Sites
Post Modification Inspection	4600286	CCI Sites
Tower Modification Drawing	5105790	CCI Sites
Post Modification Inspection	5380973	CCI Sites
Tower Modification Drawing	5266558	CCI Sites
Post Modification Inspection	5617077	CCI Sites
Tower Modification Drawing	10158802	CCI Sites
Foundation Drawing	1633746	CCI Sites
Geotech Report	5939573	CCI Sites
Crown CAD Package	Date: 06/15/2022	CCI Sites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

1) The tower and structures were maintained in accordance with the - TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) This analysis assumes modifications designed by MTS Engineering, P.L.L.C. dated January 21, 2022 will be installed according to the drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	160 - 155	Pole	TP10.75x10.75x0.349	1	-4.605	--	19.2	Pass
L2	155 - 150	Pole	TP10.75x10.75x0.349	2	-5.510	--	54.3	Pass
L3	150 - 148.5	Pole	TP10.75x10.75x0.349	3	-5.789	--	65.4	Pass
L4	148.5 - 148	Pole	TP23x23x0.349	4	-5.911	--	15.3	Pass
L5	148 - 143	Pole	TP23.81x23x0.25	5	-11.873	--	21.8	Pass
L6	143 - 138	Pole	TP24.62x23.81x0.25	6	-12.717	--	30.3	Pass
L7	138 - 133	Pole	TP25.43x24.62x0.25	7	-16.950	--	42.0	Pass
L8	133 - 128	Pole	TP26.24x25.43x0.25	8	-17.576	--	52.1	Pass
L9	128 - 123	Pole	TP27.05x26.24x0.25	9	-21.805	--	63.1	Pass
L10	123 - 118	Pole	TP27.86x27.05x0.25	10	-25.167	--	73.4	Pass
L11	118 - 114.75	Pole	TP28.994x27.86x0.25	11	-25.689	--	80.2	Pass
L12	114.75 - 109.75	Pole	TP28.696x27.887x0.3125	12	-26.879	--	71.8	Pass
L13	109.75 - 105.33	Pole	TP29.412x28.696x0.3125	13	-27.710	--	77.4	Pass
L14	105.33 - 105.08	Pole + Reinf.	TP29.452x29.412x0.4688	14	-27.785	--	73.6	Pass
L15	105.08 - 100.08	Pole + Reinf.	TP30.262x29.452x0.4625	15	-28.930	--	79.8	Pass
L16	100.08 - 95.08	Pole + Reinf.	TP31.072x30.262x0.4625	16	-30.109	--	85.4	Pass
L17	95.08 - 92.5	Pole + Reinf.	TP31.491x31.072x0.4563	17	-30.726	--	88.1	Pass
L18	92.5 - 92.25	Pole + Reinf.	TP31.531x31.491x0.6375	18	-30.816	--	78.2	Pass
L19	92.25 - 87.25	Pole + Reinf.	TP32.341x31.531x0.625	19	-32.288	--	83.0	Pass
L20	87.25 - 82.25	Pole + Reinf.	TP33.151x32.341x0.6125	20	-33.792	--	87.5	Pass
L21	82.25 - 81	Pole + Reinf.	TP34.042x33.151x0.6125	21	-34.170	--	88.6	Pass
L22	81 - 75.75	Pole	TP33.579x32.729x0.375	22	-36.349	--	83.5	Pass
L23	75.75 - 70.75	Pole	TP34.389x33.579x0.375	23	-37.561	--	85.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L24	70.75 - 70.58	Pole	TP34.416x34.389x0.375	24	-37.620	--	86.0	Pass
L25	70.58 - 70.33	Pole + Reinf.	TP34.456x34.416x0.675	25	-37.713	--	75.2	Pass
L26	70.33 - 70	Pole + Reinf.	TP34.51x34.456x0.675	26	-37.835	--	75.4	Pass
L27	70 - 69.75	Pole	TP34.551x34.51x0.375	27	-37.895	--	86.3	Pass
L28	69.75 - 64.75	Pole	TP35.361x34.551x0.375	28	-39.110	--	88.4	Pass
L29	64.75 - 59.75	Pole	TP36.171x35.361x0.375	29	-40.377	--	90.4	Pass
L30	59.75 - 54.75	Pole	TP36.981x36.171x0.375	30	-41.666	--	92.4	Pass
L31	54.75 - 49.75	Pole	TP37.791x36.981x0.375	31	-42.978	--	94.4	Pass
L32	49.75 - 48	Pole	TP38.884x37.791x0.375	32	-43.426	--	95.0	Pass
L33	48 - 42	Pole	TP38.296x37.324x0.4375	33	-46.112	--	85.1	Pass
L34	42 - 37	Pole	TP39.106x38.296x0.4375	34	-47.596	--	86.0	Pass
L35	37 - 32	Pole	TP39.916x39.106x0.4375	35	-49.104	--	86.7	Pass
L36	32 - 27.91	Pole	TP40.578x39.916x0.4375	36	-50.353	--	87.1	Pass
L37	27.91 - 27.66	Pole + Reinf.	TP40.619x40.578x0.675	37	-50.477	--	85.0	Pass
L38	27.66 - 27.25	Pole + Reinf.	TP40.686x40.619x0.675	38	-50.652	--	85.1	Pass
L39	27.25 - 26.98	Pole + Reinf.	TP40.729x40.686x0.675	39	-50.760	--	83.2	Pass
L40	26.98 - 26.83	Pole + Reinf.	TP40.753x40.729x0.6625	40	-50.822	--	83.3	Pass
L41	26.83 - 21.83	Pole + Reinf.	TP41.563x40.753x0.6625	41	-52.816	--	84.3	Pass
L42	21.83 - 16.83	Pole + Reinf.	TP42.373x41.563x0.6625	42	-54.844	--	85.2	Pass
L43	16.83 - 16	Pole + Reinf.	TP42.508x42.373x0.6625	43	-55.187	--	85.3	Pass
L44	16 - 15.75	Pole + Reinf.	TP42.549x42.508x0.8125	44	-55.314	--	76.5	Pass
L45	15.75 - 14.75	Pole + Reinf.	TP42.711x42.549x0.8125	45	-55.787	--	76.6	Pass
L46	14.75 - 14.5	Pole + Reinf.	TP42.752x42.711x0.4875	46	-55.889	--	87.0	Pass
L47	14.5 - 12.08	Pole + Reinf.	TP43.143x42.752x0.4875	47	-56.804	--	87.4	Pass
L48	12.08 - 11.83	Pole + Reinf.	TP43.183x43.143x0.7375	48	-56.933	--	78.2	Pass
L49	11.83 - 10	Pole + Reinf.	TP43.48x43.183x0.7375	49	-57.733	--	78.5	Pass
L50	10 - 9.75	Pole + Reinf.	TP43.521x43.48x0.7375	50	-57.862	--	78.6	Pass
L51	9.75 - 4.75	Pole + Reinf.	TP44.331x43.521x0.725	51	-60.099	--	79.3	Pass
L52	4.75 - 0	Pole + Reinf.	TP45.1x44.331x0.7125	52	-62.253	--	80.0	Pass
							Summary	
						Pole (L32)	95.0	Pass
						Reinforcement	88.6	Pass
						Rating =	95.0	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC4.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	148	27.9	Pass
1,2	Anchor Rods	Base	79.7	Pass
1,2	Base Plate	Base	60.0	Pass
1,2	Base Foundation (Structure)	Base	76.9	Pass
1,2	Base Foundation (Soil Interaction)	Base	72.5	Pass

Structure Rating (max from all components) =	95%

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

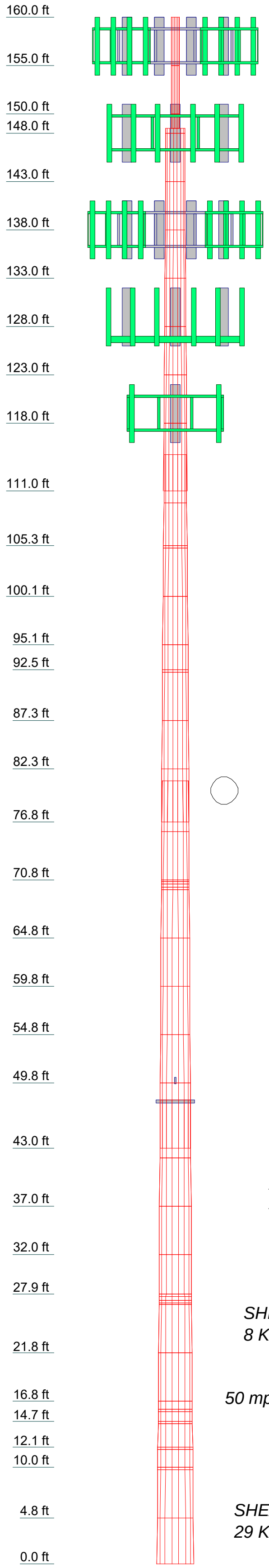
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed equipment’s provided the modification drawing designed by MTS Engineering, P.L.L.C. (Doc. ID # 10158802) are installed.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	0	0.349		10.750	10.750	A53-B-35	0.2
2	5.000	0	0.349		10.750	10.750		0.2
3 / 4	[illegible]	0 0	[illegible]		[illegible]	[illegible]		[illegible]
5	5.000	18	0.250		23.0…	23.8…	A607-60	0.3
6	5.000	18	0.250		23.810	24.620		0.3
7	5.000	18	0.250		24.620	25.430		0.3
8	5.000	18	0.250		25.430	26.240		0.3
9	5.000	18	0.250		26.240	27.050		0.4
10	5.000	18	0.250		27.050	27.860		0.4
11	5.000	18	0.250	3.750	27.860	28.994		0.5
12 / 13 / 14	[illegible]	18	0.313		[illegible]	[illegible]		0.5 / 0.4 / 0.0
15	5.000	18	0.463		29.4…	30.2…		0.7
16	5.000	18	0.463		30.262	31.072		0.7
17 / 18	[illegible]	18 18	[illegible]		[illegible]	[illegible]		0.4 / 0.0
19	5.000	18	0.625		31.531	32.341		1.0
20	5.000	18	0.613		32.341	33.151		1.0
21	5.2…	18	0.613	4.250	33.151	34.042		1.1
22	[illegible]	18	0.375		[illegible]	[illegible]	A607-65	0.7
23	5.000	18	0.375		[illegible]	[illegible]		0.7
24–27	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
28	5.000	18	0.375		34.5…	35.3…		0.7
29	5.000	18	0.375		35.361	36.171		0.7
30	5.000	18	0.375		36.171	36.981		0.7
31	5.000	18	0.375		36.981	37.791		0.7
32	6.…750	18	0.375	5.000	37.791	38.884		1.0
33	[illegible]	18	0.438		[illegible]	[illegible]		1.1
34	5.000	18	0.438		38.29…	39.10…		0.9
35	5.000	18	0.438		39.106	39.916		0.9
36	…087	18	…438		…916	…578		0.8
37–40	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
41	5.000	18	0.66…		40.7…	41.5…		1.4
42	5.000	18	0.662		…563	…373		1.4
43–50	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
51	5.000	18	0.72…		43.52…	44.34…		1.6
52	4.750	18	0.713		44.331	45.100		1.5
								26.5



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A607-65	65 ksi	80 ksi
A607-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. Tower Rating: 95%

ALL REACTIONS ARE FACTORED

AXIAL 90 K
SHEAR 8 K
MOMENT 1051 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 62 K
SHEAR 29 K
MOMENT 3872 kip-ft
TORQUE 1 kip-ft
REACTIONS - 118 mph WIND

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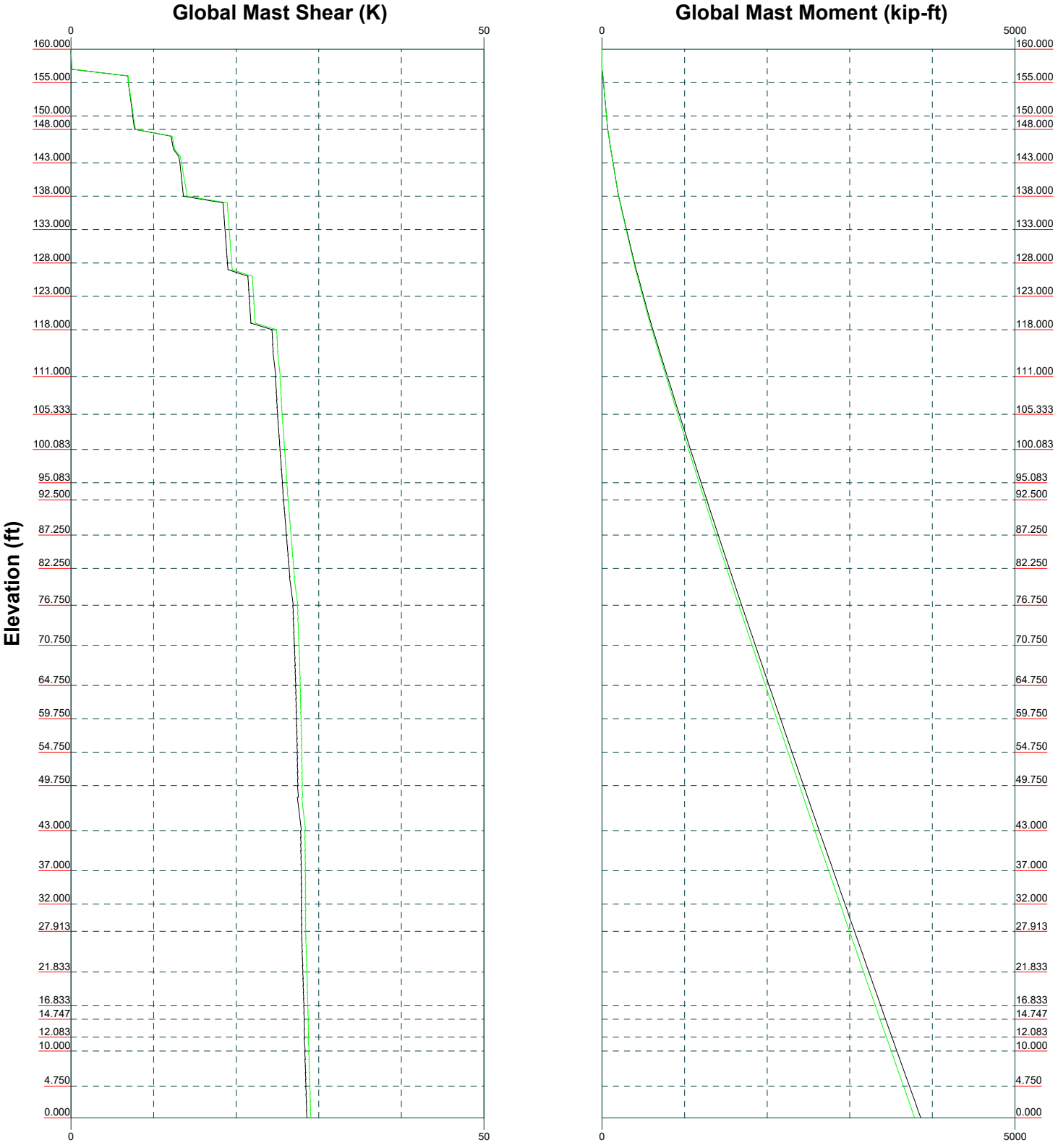
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: **137177.015.01 - WEST JOHNSON AVE. BURNT HOUSE, CT (BU# 87631**		
Project:		
Client: Crown Castle	Drawn by: Suhas Poojary	App'd:
Code: TIA-222-H	Date: 06/23/22	Scale: NTS
Path:		Dwg No. E-1

TIA-222-H - 118 mph/50 mph 1.000 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz



B+T GRP

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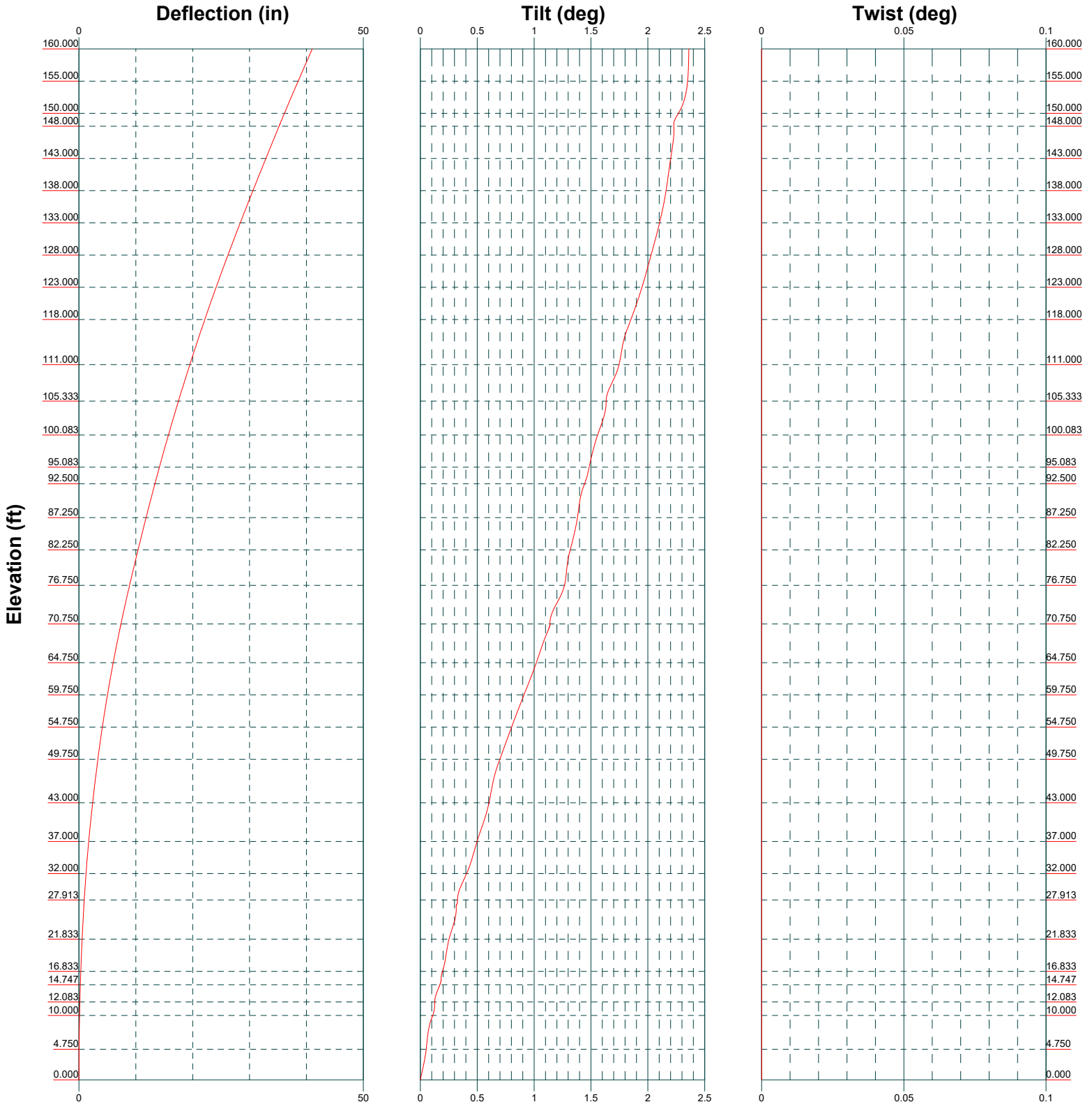
Project:			
Client: Crown Castle	Drawn by: Suhas Poojary	App'd:	
Code: TIA-222-H	Date: 06/23/22	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



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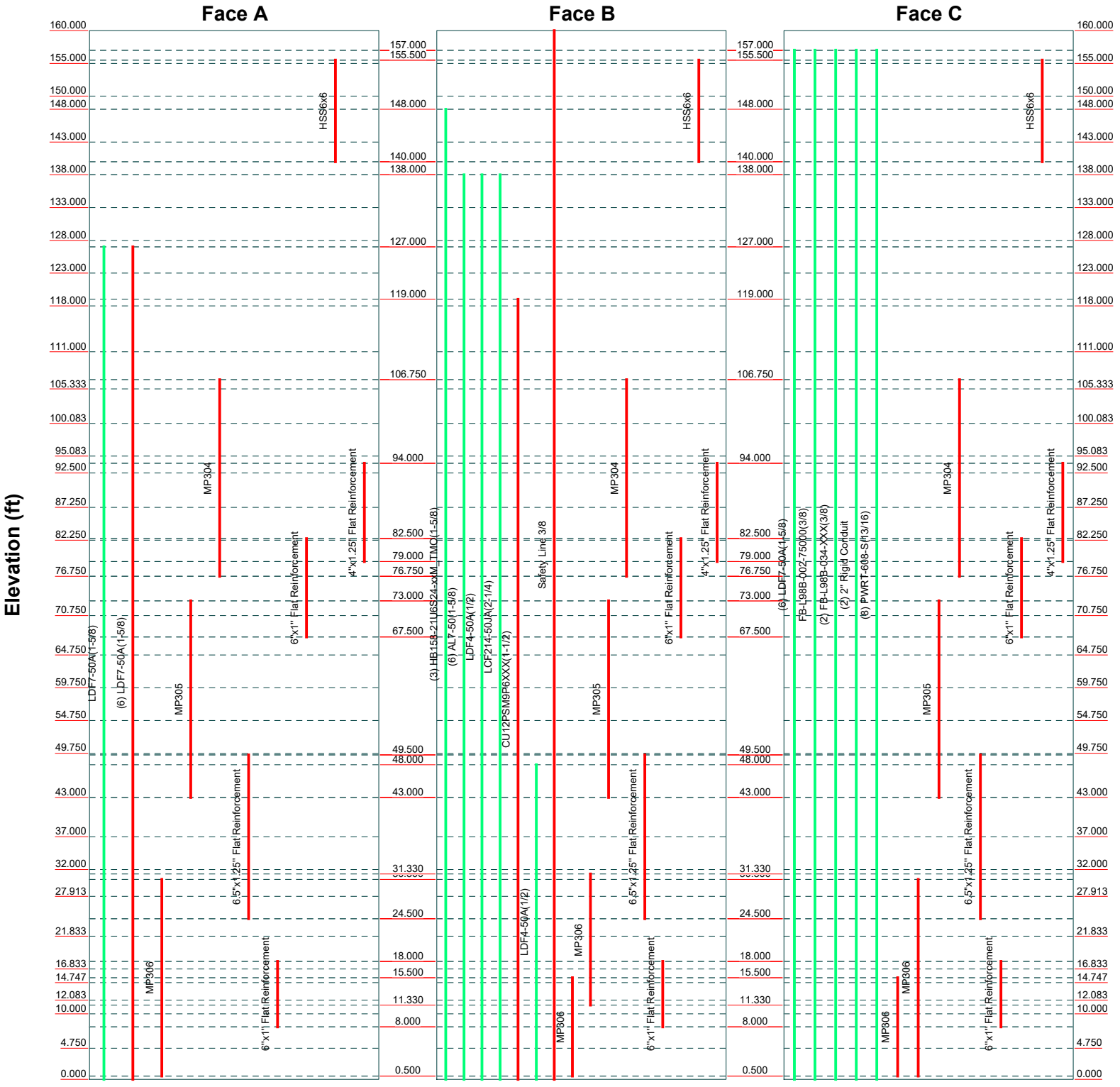
Job:	***137177.015.01 - WEST JOHNSON AVE. BURNT HOUSE, CT (BU# 87631***		
Project:			
Client: Crown Castle		Drawn by: Suhas Poojary	App'd:
Code: TIA-222-H		Date: 06/23/22	Scale: NTS
Path:			Dwg No. E-5

Feed Line Distribution Chart
0' - 160'

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



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Job: 137177.015.01 - WEST JOHNSON AVE. BURNT HOUSE, CT (BU# 87631			
Project:			
Client: Crown Castle	Drawn by: Suhas Poojary	App'd:	
Code: TIA-222-H	Date: 06/23/22	Scale: NTS	
Path:		Dwg No. E-7	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 133.000 ft.
Basic wind speed of 118 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
Tower Rating: 95%.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	160.000-155.000	5.000	0.000	Round	10.750	10.750	0.349		A53-B-35 (35 ksi)
L2	155.000-150.000	5.000	0.000	Round	10.750	10.750	0.349		A53-B-35 (35 ksi)
L3	150.000-148.500	1.500	0.000	Round	10.750	10.750	0.349		A53-B-35 (35 ksi)
L4	148.500-148.000	0.500	0.000	Round	23.000	23.000	0.349		A53-B-35 (35 ksi)
L5	148.000-143.000	5.000	0.000	18	23.000	23.810	0.250	1.000	A607-60 (60 ksi)
L6	143.000-138.000	5.000	0.000	18	23.810	24.620	0.250	1.000	A607-60 (60 ksi)
L7	138.000-133.000	5.000	0.000	18	24.620	25.430	0.250	1.000	A607-60 (60 ksi)
L8	133.000-128.000	5.000	0.000	18	25.430	26.240	0.250	1.000	A607-60 (60 ksi)
L9	128.000-123.000	5.000	0.000	18	26.240	27.050	0.250	1.000	A607-60 (60 ksi)
L10	123.000-118.000	5.000	0.000	18	27.050	27.860	0.250	1.000	A607-60 (60 ksi)
L11	118.000-111.000	7.000	3.750	18	27.860	28.994	0.250	1.000	A607-60 (60 ksi)
L12	111.000-109.750	5.000	0.000	18	27.887	28.696	0.313	1.250	A607-60 (60 ksi)
L13	109.750-105.333	4.417	0.000	18	28.696	29.412	0.313	1.250	A607-60 (60 ksi)
L14	105.333-105.083	0.250	0.000	18	29.412	29.452	0.469	1.875	A607-60 (60 ksi)
L15	105.083-100.083	5.000	0.000	18	29.452	30.262	0.463	1.850	A607-60 (60 ksi)
L16	100.083-95.083	5.000	0.000	18	30.262	31.072	0.463	1.850	A607-60 (60 ksi)
L17	95.083-92.500	2.583	0.000	18	31.072	31.491	0.456	1.825	A607-60 (60 ksi)
L18	92.500-92.250	0.250	0.000	18	31.491	31.531	0.637	2.550	A607-60 (60 ksi)
L19	92.250-87.250	5.000	0.000	18	31.531	32.341	0.625	2.500	A607-60 (60 ksi)
L20	87.250-82.250	5.000	0.000	18	32.341	33.151	0.613	2.450	A607-60 (60 ksi)
L21	82.250-76.750	5.500	4.250	18	33.151	34.042	0.613	2.450	A607-60 (60 ksi)
L22	76.750-75.750	5.250	0.000	18	32.729	33.579	0.375	1.500	A607-65 (65 ksi)
L23	75.750-70.750	5.000	0.000	18	33.579	34.389	0.375	1.500	A607-65 (65 ksi)
L24	70.750-70.583	0.167	0.000	18	34.389	34.416	0.375	1.500	A607-65 (65 ksi)
L25	70.583-70.333	0.250	0.000	18	34.416	34.456	0.675	2.700	A607-65 (65 ksi)
L26	70.333-70.000	0.333	0.000	18	34.456	34.510	0.675	2.700	A607-65 (65 ksi)
L27	70.000-69.750	0.250	0.000	18	34.510	34.551	0.375	1.500	A607-65 (65 ksi)
L28	69.750-64.750	5.000	0.000	18	34.551	35.361	0.375	1.500	A607-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L29	64.750-59.750	5.000	0.000	18	35.361	36.171	0.375	1.500	A607-65 (65 ksi)
L30	59.750-54.750	5.000	0.000	18	36.171	36.981	0.375	1.500	A607-65 (65 ksi)
L31	54.750-49.750	5.000	0.000	18	36.981	37.791	0.375	1.500	A607-65 (65 ksi)
L32	49.750-43.000	6.750	5.000	18	37.791	38.884	0.375	1.500	A607-65 (65 ksi)
L33	43.000-42.000	6.000	0.000	18	37.324	38.296	0.438	1.750	A607-65 (65 ksi)
L34	42.000-37.000	5.000	0.000	18	38.296	39.106	0.438	1.750	A607-65 (65 ksi)
L35	37.000-32.000	5.000	0.000	18	39.106	39.916	0.438	1.750	A607-65 (65 ksi)
L36	32.000-27.913	4.087	0.000	18	39.916	40.578	0.438	1.750	A607-65 (65 ksi)
L37	27.913-27.663	0.250	0.000	18	40.578	40.619	0.675	2.700	A607-65 (65 ksi)
L38	27.663-27.250	0.413	0.000	18	40.619	40.686	0.675	2.700	A607-65 (65 ksi)
L39	27.250-26.983	0.267	0.000	18	40.686	40.729	0.675	2.700	A607-65 (65 ksi)
L40	26.983-26.833	0.150	0.000	18	40.729	40.753	0.662	2.650	A607-65 (65 ksi)
L41	26.833-21.833	5.000	0.000	18	40.753	41.563	0.662	2.650	A607-65 (65 ksi)
L42	21.833-16.833	5.000	0.000	18	41.563	42.373	0.662	2.650	A607-65 (65 ksi)
L43	16.833-16.000	0.833	0.000	18	42.373	42.508	0.662	2.650	A607-65 (65 ksi)
L44	16.000-15.750	0.250	0.000	18	42.508	42.549	0.813	3.250	A607-65 (65 ksi)
L45	15.750-14.747	1.003	0.000	18	42.549	42.711	0.813	3.250	A607-65 (65 ksi)
L46	14.747-14.497	0.250	0.000	18	42.711	42.752	0.487	1.950	A607-65 (65 ksi)
L47	14.497-12.083	2.414	0.000	18	42.752	43.143	0.487	1.950	A607-65 (65 ksi)
L48	12.083-11.833	0.250	0.000	18	43.143	43.183	0.738	2.950	A607-65 (65 ksi)
L49	11.833-10.000	1.833	0.000	18	43.183	43.480	0.738	2.950	A607-65 (65 ksi)
L50	10.000-9.750	0.250	0.000	18	43.480	43.521	0.738	2.950	A607-65 (65 ksi)
L51	9.750-4.750	5.000	0.000	18	43.521	44.331	0.725	2.900	A607-65 (65 ksi)
L52	4.750-0.000	4.750		18	44.331	45.100	0.713	2.850	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.750	11.404	154.383	3.679	5.375	28.722	308.766	5.699	0.000	0
	10.750	11.404	154.383	3.679	5.375	28.722	308.766	5.699	0.000	0
L2	10.750	11.404	154.383	3.679	5.375	28.722	308.766	5.699	0.000	0

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	10.750	11.404	154.383	3.679	5.375	28.722	308.766	5.699	0.000	0
L3	10.750	11.404	154.383	3.679	5.375	28.722	308.766	5.699	0.000	0
	10.750	11.404	154.383	3.679	5.375	28.722	308.766	5.699	0.000	0
L4	23.000	24.835	1593.128	8.009	11.500	138.533	3186.255	12.410	0.000	0
	23.000	24.835	1593.128	8.009	11.500	138.533	3186.255	12.410	0.000	0
L5	23.316	18.052	1180.398	8.076	11.684	101.027	2362.350	9.028	3.608	14.432
	24.139	18.695	1311.023	8.364	12.095	108.389	2623.771	9.349	3.751	15.002
L6	24.139	18.695	1311.023	8.364	12.095	108.389	2623.771	9.349	3.751	15.002
	24.961	19.338	1450.945	8.651	12.507	116.011	2903.799	9.671	3.893	15.572
L7	24.961	19.338	1450.945	8.651	12.507	116.011	2903.799	9.671	3.893	15.572
	25.784	19.980	1600.485	8.939	12.918	123.891	3203.076	9.992	4.036	16.143
L8	25.784	19.980	1600.485	8.939	12.918	123.891	3203.076	9.992	4.036	16.143
	26.606	20.623	1759.962	9.226	13.330	132.031	3522.239	10.313	4.178	16.713
L9	26.606	20.623	1759.962	9.226	13.330	132.031	3522.239	10.313	4.178	16.713
	27.429	21.266	1929.695	9.514	13.741	140.429	3861.930	10.635	4.321	17.283
L10	27.429	21.266	1929.695	9.514	13.741	140.429	3861.930	10.635	4.321	17.283
	28.251	21.909	2110.006	9.802	14.153	149.087	4222.788	10.956	4.463	17.853
L11	28.251	21.909	2110.006	9.802	14.153	149.087	4222.788	10.956	4.463	17.853
	29.403	22.808	2380.817	10.204	14.729	161.642	4764.767	11.406	4.663	18.652
L12	28.885	27.350	2627.203	9.789	14.166	185.454	5257.864	13.678	4.358	13.946
	29.091	28.153	2865.578	10.076	14.578	196.571	5734.926	14.079	4.501	14.402
L13	29.091	28.153	2865.578	10.076	14.578	196.571	5734.926	14.079	4.501	14.402
	29.817	28.863	3087.791	10.330	14.941	206.662	6179.644	14.434	4.626	14.805
L14	29.793	43.062	4557.476	10.275	14.941	305.026	9120.949	21.535	4.351	9.283
	29.834	43.122	4576.633	10.289	14.962	305.887	9159.288	21.565	4.359	9.298
L15	29.835	42.556	4518.533	10.291	14.962	302.004	9043.012	21.282	4.370	9.448
	30.658	43.745	4907.935	10.579	15.373	319.251	9822.328	21.877	4.512	9.756
L16	30.658	43.745	4907.935	10.579	15.373	319.251	9822.328	21.877	4.512	9.756
	31.480	44.934	5319.090	10.866	15.785	336.977	10645.180	22.471	4.655	10.064
L17	31.481	44.336	5250.426	10.869	15.785	332.627	10507.760	22.172	4.666	10.226
	31.906	44.942	5468.645	11.017	15.997	341.848	10944.485	22.475	4.739	10.388
L18	31.878	62.429	7508.021	10.953	15.997	469.331	15025.922	31.221	4.420	6.934
	31.919	62.511	7537.625	10.967	16.018	470.577	15085.167	31.261	4.427	6.945
L19	31.921	61.310	7398.802	10.972	16.018	461.910	14807.339	30.661	4.449	7.119
	32.744	62.917	7995.862	11.259	16.429	486.683	16002.245	31.464	4.592	7.347
L20	32.746	61.683	7845.213	11.264	16.429	477.514	15700.749	30.847	4.614	7.533
	33.568	63.257	8461.472	11.551	16.841	502.441	16934.078	31.635	4.757	7.766
L21	33.568	63.257	8461.472	11.551	16.841	502.441	16934.078	31.635	4.757	7.766
	34.473	64.989	9175.719	11.867	17.293	530.593	18363.512	32.501	4.913	8.022
L22	33.875	38.509	5092.625	11.486	16.626	306.303	10191.951	19.258	5.100	13.601
	34.039	39.521	5504.857	11.787	17.058	322.712	11016.957	19.764	5.250	14
L23	34.039	39.521	5504.857	11.787	17.058	322.712	11016.957	19.764	5.250	14
	34.862	40.485	5917.594	12.075	17.470	338.737	11842.974	20.246	5.392	14.38
L24	34.862	40.485	5917.594	12.075	17.470	338.737	11842.974	20.246	5.392	14.38
	34.889	40.517	5931.724	12.085	17.483	339.279	11871.253	20.262	5.397	14.393
L25	34.843	72.288	10397.294	11.978	17.483	594.698	20808.270	36.151	4.869	7.214
	34.884	72.375	10434.777	11.992	17.504	596.141	20883.284	36.194	4.876	7.224
L26	34.884	72.375	10434.777	11.992	17.504	596.141	20883.284	36.194	4.876	7.224
	34.939	72.491	10484.842	12.012	17.531	598.065	20983.481	36.252	4.886	7.238
L27	34.985	40.630	5981.229	12.118	17.531	341.175	11970.328	20.319	5.414	14.437
	35.026	40.678	6002.542	12.132	17.552	341.989	12012.981	20.343	5.421	14.456
L28	35.026	40.678	6002.542	12.132	17.552	341.989	12012.981	20.343	5.421	14.456
	35.848	41.642	6439.494	12.420	17.963	358.481	12887.461	20.825	5.564	14.836
L29	35.848	41.642	6439.494	12.420	17.963	358.481	12887.461	20.825	5.564	14.836
	36.671	42.606	6897.153	12.707	18.375	375.361	13803.381	21.307	5.706	15.216
L30	36.671	42.606	6897.153	12.707	18.375	375.361	13803.381	21.307	5.706	15.216
	37.493	43.570	7375.998	12.995	18.786	392.629	14761.702	21.789	5.849	15.596
L31	37.493	43.570	7375.998	12.995	18.786	392.629	14761.702	21.789	5.849	15.596
	38.316	44.534	7876.509	13.283	19.198	410.286	15763.381	22.271	5.991	15.976
L32	38.316	44.534	7876.509	13.283	19.198	410.286	15763.381	22.271	5.991	15.976
	39.426	45.835	8587.413	13.671	19.753	434.738	17186.126	22.922	6.184	16.49
L33	38.655	51.222	8804.959	13.095	18.961	464.381	17621.504	25.616	5.799	13.255

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	38.819	52.571	9519.515	13.440	19.454	489.325	19051.557	26.291	5.970	13.646
L34	38.819	52.571	9519.515	13.440	19.454	489.325	19051.557	26.291	5.970	13.646
	39.642	53.696	10143.698	13.727	19.866	510.609	20300.743	26.853	6.113	13.972
L35	39.642	53.696	10143.698	13.727	19.866	510.609	20300.743	26.853	6.113	13.972
	40.464	54.821	10794.586	14.015	20.277	532.347	21603.375	27.416	6.255	14.298
L36	40.464	54.821	10794.586	14.015	20.277	532.347	21603.375	27.416	6.255	14.298
	41.137	55.740	11346.846	14.250	20.614	550.452	22708.623	27.875	6.372	14.564
L37	41.100	85.490	17197.655	14.166	20.614	834.283	34417.939	42.753	5.954	8.82
	41.141	85.577	17250.073	14.180	20.634	835.992	34522.844	42.797	5.961	8.831
L38	41.141	85.577	17250.073	14.180	20.634	835.992	34522.844	42.797	5.961	8.831
	41.209	85.721	17336.899	14.204	20.668	838.818	34696.610	42.868	5.973	8.848
L39	41.209	85.721	17336.899	14.204	20.668	838.818	34696.610	42.868	5.973	8.848
	41.253	85.813	17393.187	14.219	20.690	840.647	34809.260	42.915	5.980	8.86
L40	41.255	84.250	17087.078	14.224	20.690	825.853	34196.640	42.133	6.002	9.06
	41.280	84.302	17118.187	14.232	20.703	826.863	34258.898	42.159	6.007	9.066
L41	41.280	84.302	17118.187	14.232	20.703	826.863	34258.898	42.159	6.007	9.066
	42.102	86.005	18176.861	14.520	21.114	860.889	36377.639	43.011	6.149	9.282
L42	42.102	86.005	18176.861	14.520	21.114	860.889	36377.639	43.011	6.149	9.282
	42.925	87.708	19278.309	14.807	21.526	895.602	38581.985	43.862	6.292	9.497
L43	42.925	87.708	19278.309	14.807	21.526	895.602	38581.985	43.862	6.292	9.497
	43.062	87.992	19466.025	14.855	21.594	901.452	38957.665	44.004	6.315	9.533
L44	43.038	107.528	23617.616	14.802	21.594	1093.708	47266.308	53.774	6.051	7.448
	43.080	107.632	23686.504	14.816	21.615	1095.854	47404.175	53.826	6.059	7.457
L45	43.080	107.632	23686.504	14.816	21.615	1095.854	47404.175	53.826	6.059	7.457
	43.245	108.051	23964.227	14.874	21.697	1104.485	47959.986	54.036	6.087	7.492
L46	43.295	65.333	14715.734	14.989	21.697	678.232	29450.831	32.673	6.659	13.66
	43.336	65.396	14758.120	15.004	21.718	679.541	29535.659	32.704	6.666	13.674
L47	43.336	65.396	14758.120	15.004	21.718	679.541	29535.659	32.704	6.666	13.674
	43.733	66.001	15171.588	15.143	21.916	692.247	30363.138	33.007	6.735	13.816
L48	43.694	99.263	22550.689	15.054	21.916	1028.940	45131.050	49.641	6.295	8.536
	43.735	99.358	22615.363	15.068	21.937	1030.923	45260.484	49.688	6.302	8.545
L49	43.735	99.358	22615.363	15.068	21.937	1030.923	45260.484	49.688	6.302	8.545
	44.037	100.053	23093.333	15.174	22.088	1045.522	46217.053	50.036	6.354	8.616
L50	44.037	100.053	23093.333	15.174	22.088	1045.522	46217.053	50.036	6.354	8.616
	44.078	100.148	23159.040	15.188	22.108	1047.521	46348.554	50.083	6.362	8.626
L51	44.080	98.479	22786.475	15.192	22.108	1030.669	45602.933	49.249	6.384	8.805
	44.903	100.343	24104.959	15.480	22.520	1070.385	48241.636	50.181	6.526	9.002
L52	44.904	98.641	23709.735	15.484	22.520	1052.835	47450.667	49.330	6.548	9.19
	45.686	100.381	24986.838	15.758	22.911	1090.614	50006.554	50.200	6.684	9.38

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
L1 160.000-155.000				1	1	1			
L2 155.000-150.000				1	1	1			
L3 150.000-148.500				1	1	1			
L4 148.500-148.000				1	1	1			
L5 148.000-143.000				1	1	1			
L6				1	1	1			

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
143.000-138.000									
L7				1	1	1			
138.000-133.000									
L8				1	1	1			
133.000-128.000									
L9				1	1	1			
128.000-123.000									
L10				1	1	1			
123.000-118.000									
L11				1	1	1			
118.000-111.000									
L12				1	1	1			
111.000-109.750									
L13				1	1	1			
109.750-105.333									
L14				1	1	0.957593			
105.333-105.083									
L15				1	1	0.962316			
105.083-100.083									
L16				1	1	0.954732			
100.083-95.083									
L17				1	1	0.963802			
95.083-92.500									
L18				1	1	0.933531			
92.500-92.250									
L19				1	1	0.940278			
92.250-87.250									
L20				1	1	0.947916			
87.250-82.250									
L21				1	1	0.945209			
82.250-76.750									
L22				1	1	1			
76.750-75.750									
L23				1	1	1			
75.750-70.750									
L24				1	1	1			
70.750-70.583									
L25				1	1	1.04341			
70.583-70.333									
L26				1	1	1.04263			
70.333-70.000									
L27				1	1	1			
70.000-69.750									
L28				1	1	1			
69.750-64.750									
L29				1	1	1			
64.750-59.750									
L30				1	1	1			

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
59.750-54.750									
L31				1	1	1			
54.750-49.750									
L32				1	1	1			
49.750-43.000									
L33				1	1	1			
43.000-42.000									
L34				1	1	1			
42.000-37.000									
L35				1	1	1			
37.000-32.000									
L36				1	1	1			
32.000-27.913									
L37				1	1	1.03582			
27.913-27.663									
L38				1	1	1.03517			
27.663-27.250									
L39				1	1	0.94811			
27.250-26.983									
L40				1	1	0.965513			
26.983-26.833									
L41				1	1	0.95947			
26.833-21.833									
L42				1	1	0.953662			
21.833-16.833									
L43				1	1	0.952716			
16.833-16.000									
L44				1	1	0.946633			
16.000-15.750									
L45				1	1	0.94505			
15.750-14.747									
L46				1	1	1.15754			
14.747-14.497									
L47				1	1	1.15516			
14.497-12.083									
L48				1	1	0.938416			
12.083-11.833									
L49				1	1	0.936018			
11.833-10.000									
L50				1	1	0.935693			
10.000-9.750									
L51				1	1	0.945082			
9.750-4.750									
L52				1	1	0.955365			
4.750-0.000									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	127.000 - 0.000	6	6	0.000 0.300	1.980		0.001
*										

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	119.000 - 0.000	1	1	-0.230 -0.200	1.600		0.002
*										
Safety Line 3/8	B	No	Surface Ar (CaAa)	160.000 - 0.000	1	1	0.340 0.350	0.375		0.000
*										
MP306	B	No	Surface Af (CaAa)	15.500 - 0.500	1	1	0.000 0.050	6.890	19.000	0.000
MP306	C	No	Surface Af (CaAa)	15.500 - 0.500	1	1	-0.350 -0.300	6.890	19.000	0.000
*										
MP306	A	No	Surface Af (CaAa)	30.500 - 0.500	1	1	0.350 0.400	6.890	19.000	0.000
MP306	C	No	Surface Af (CaAa)	30.500 - 0.500	1	1	0.350 0.400	6.890	19.000	0.000
*										
MP306	B	No	Surface Af (CaAa)	31.330 - 11.330	1	1	0.350 0.400	6.890	19.000	0.000
*										
MP305	A	No	Surface Af (CaAa)	73.000 - 43.000	1	1	0.350 0.400	5.330	14.840	0.000
MP305	B	No	Surface Af (CaAa)	73.000 - 43.000	1	1	0.350 0.400	5.330	14.840	0.000
MP305	C	No	Surface Af (CaAa)	73.000 - 43.000	1	1	0.350 0.400	5.330	14.840	0.000
*										
MP304	A	No	Surface Af (CaAa)	106.750 - 76.750	1	1	0.350 0.400	4.780	12.780	0.000
MP304	B	No	Surface Af (CaAa)	106.750 - 76.750	1	1	0.350 0.400	4.780	12.780	0.000
MP304	C	No	Surface Af (CaAa)	106.750 - 76.750	1	1	0.350 0.400	4.780	12.780	0.000
*										
6.5"x1.25" Flat Reinforcement	A	No	Surface Af (CaAa)	49.500 - 24.500	1	1	-0.200 -0.150	6.500	15.500	0.000
6.5"x1.25" Flat Reinforcement	B	No	Surface Af (CaAa)	49.500 - 24.500	1	1	-0.200 -0.150	6.500	15.500	0.000
6.5"x1.25" Flat Reinforcement	C	No	Surface Af (CaAa)	49.500 - 24.500	1	1	-0.200 -0.150	6.500	15.500	0.000
*										
6"x1" Flat Reinforcement	A	No	Surface Af (CaAa)	18.000 - 8.000	1	1	-0.200 -0.150	6.000	14.000	0.000
6"x1" Flat Reinforcement	B	No	Surface Af (CaAa)	18.000 - 8.000	1	1	-0.200 -0.150	6.000	14.000	0.000
6"x1" Flat Reinforcement	C	No	Surface Af (CaAa)	18.000 - 8.000	1	1	-0.200 -0.150	6.000	14.000	0.000
*										
6"x1" Flat Reinforcement	A	No	Surface Af (CaAa)	82.500 - 67.500	1	1	-0.350 -0.300	6.000	14.000	0.000
6"x1" Flat Reinforcement	B	No	Surface Af (CaAa)	82.500 - 67.500	1	1	0.000 0.050	6.000	14.000	0.000
6"x1" Flat Reinforcement	C	No	Surface Af (CaAa)	82.500 - 67.500	1	1	-0.350 -0.300	6.000	14.000	0.000
*										
HSS6x6	A	No	Surface Af (CaAa)	155.500 - 140.000	1	1	-0.100 0.000	6.000	24.000	0.035
HSS6x6	B	No	Surface Af (CaAa)	155.500 - 140.000	1	1	-0.100 0.000	6.000	24.000	0.035
HSS6x6	C	No	Surface Af (CaAa)	155.500 - 140.000	1	1	-0.100 0.000	6.000	24.000	0.035

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*										
4"x1.25" Flat Reinforcement	A	No	Surface Af (CaAa)	94.000 - 79.000	1	1	-0.200 -0.150	4.000	10.500	0.000
4"x1.25" Flat Reinforcement	B	No	Surface Af (CaAa)	94.000 - 79.000	1	1	-0.200 -0.150	4.000	10.500	0.000
4"x1.25" Flat Reinforcement	C	No	Surface Af (CaAa)	94.000 - 79.000	1	1	-0.200 -0.150	4.000	10.500	0.000
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8)	C	No	No	Inside Pole	157.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-002-75000 (3/8)	C	No	No	Inside Pole	157.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	157.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
2" Rigid Conduit	C	No	No	Inside Pole	157.000 - 0.000	2	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
PWRT-608-S(13/16)	C	No	No	Inside Pole	157.000 - 0.000	8	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
*									
HB158-21U6S24-xx M_TMO(1-5/8)	B	No	No	Inside Pole	148.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
*									
AL7-50(1-5/8)	B	No	No	Inside Pole	138.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
LDF4-50A(1/2)	B	No	No	Inside Pole	138.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
LCF214-50JA(2-1/4)	B	No	No	Inside Pole	138.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
*									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	127.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
*									
LDF4-50A(1/2)	B	No	No	Inside Pole	48.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
*									

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 K
L1	160.000-155.000	A	0.000	0.000	0.474	0.000	0.018
		B	0.000	0.000	0.662	0.000	0.019
		C	0.000	0.000	0.474	0.000	0.049
L2	155.000-150.000	A	0.000	0.000	4.743	0.000	0.176
		B	0.000	0.000	4.931	0.000	0.178
		C	0.000	0.000	4.743	0.000	0.255
L3	150.000-148.500	A	0.000	0.000	1.423	0.000	0.053
		B	0.000	0.000	1.479	0.000	0.053
		C	0.000	0.000	1.423	0.000	0.076
L4	148.500-148.000	A	0.000	0.000	0.474	0.000	0.018
		B	0.000	0.000	0.493	0.000	0.018
		C	0.000	0.000	0.474	0.000	0.025
L5	148.000-143.000	A	0.000	0.000	4.743	0.000	0.176
		B	0.000	0.000	4.931	0.000	0.215
		C	0.000	0.000	4.743	0.000	0.255
L6	143.000-138.000	A	0.000	0.000	2.846	0.000	0.106
		B	0.000	0.000	3.034	0.000	0.144
		C	0.000	0.000	2.846	0.000	0.184
L7	138.000-133.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.188	0.000	0.061
		C	0.000	0.000	0.000	0.000	0.078
L8	133.000-128.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.188	0.000	0.061
		C	0.000	0.000	0.000	0.000	0.078
L9	128.000-123.000	A	0.000	0.000	4.752	0.000	0.023
		B	0.000	0.000	0.188	0.000	0.061
		C	0.000	0.000	0.000	0.000	0.078
L10	123.000-118.000	A	0.000	0.000	5.940	0.000	0.029
		B	0.000	0.000	0.347	0.000	0.063
		C	0.000	0.000	0.000	0.000	0.078
L11	118.000-111.000	A	0.000	0.000	8.316	0.000	0.040
		B	0.000	0.000	1.383	0.000	0.101
		C	0.000	0.000	0.000	0.000	0.110
L12	111.000-109.750	A	0.000	0.000	1.485	0.000	0.007
		B	0.000	0.000	0.247	0.000	0.018
		C	0.000	0.000	0.000	0.000	0.020
L13	109.750-105.333	A	0.000	0.000	6.376	0.000	0.025
		B	0.000	0.000	2.001	0.000	0.064
		C	0.000	0.000	1.129	0.000	0.069
L14	105.333-105.083	A	0.000	0.000	0.496	0.000	0.001
		B	0.000	0.000	0.249	0.000	0.004
		C	0.000	0.000	0.199	0.000	0.004
L15	105.083-100.083	A	0.000	0.000	9.923	0.000	0.029
		B	0.000	0.000	4.971	0.000	0.072
		C	0.000	0.000	3.983	0.000	0.078
L16	100.083-95.083	A	0.000	0.000	9.923	0.000	0.029
		B	0.000	0.000	4.971	0.000	0.072
		C	0.000	0.000	3.983	0.000	0.078
L17	95.083-92.500	A	0.000	0.000	6.126	0.000	0.015
		B	0.000	0.000	3.568	0.000	0.037
		C	0.000	0.000	3.058	0.000	0.040
L18	92.500-92.250	A	0.000	0.000	0.663	0.000	0.001
		B	0.000	0.000	0.415	0.000	0.004
		C	0.000	0.000	0.366	0.000	0.004
L19	92.250-87.250	A	0.000	0.000	13.257	0.000	0.029
		B	0.000	0.000	8.304	0.000	0.072

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 K
		C	0.000	0.000	7.317	0.000	0.078
L20	87.250-82.250	A	0.000	0.000	13.507	0.000	0.029
		B	0.000	0.000	8.554	0.000	0.072
		C	0.000	0.000	7.567	0.000	0.078
L21	82.250-76.750	A	0.000	0.000	18.582	0.000	0.032
		B	0.000	0.000	13.135	0.000	0.080
		C	0.000	0.000	12.048	0.000	0.086
L22	76.750-75.750	A	0.000	0.000	2.188	0.000	0.006
		B	0.000	0.000	1.198	0.000	0.014
		C	0.000	0.000	1.000	0.000	0.016
L23	75.750-70.750	A	0.000	0.000	12.939	0.000	0.029
		B	0.000	0.000	7.986	0.000	0.072
		C	0.000	0.000	6.999	0.000	0.078
L24	70.750-70.583	A	0.000	0.000	0.514	0.000	0.001
		B	0.000	0.000	0.348	0.000	0.002
		C	0.000	0.000	0.315	0.000	0.003
L25	70.583-70.333	A	0.000	0.000	0.769	0.000	0.001
		B	0.000	0.000	0.521	0.000	0.004
		C	0.000	0.000	0.472	0.000	0.004
L26	70.333-70.000	A	0.000	0.000	1.024	0.000	0.002
		B	0.000	0.000	0.695	0.000	0.005
		C	0.000	0.000	0.629	0.000	0.005
L27	70.000-69.750	A	0.000	0.000	0.769	0.000	0.001
		B	0.000	0.000	0.521	0.000	0.004
		C	0.000	0.000	0.472	0.000	0.004
L28	69.750-64.750	A	0.000	0.000	12.632	0.000	0.029
		B	0.000	0.000	7.679	0.000	0.072
		C	0.000	0.000	6.692	0.000	0.078
L29	64.750-59.750	A	0.000	0.000	10.382	0.000	0.029
		B	0.000	0.000	5.429	0.000	0.072
		C	0.000	0.000	4.442	0.000	0.078
L30	59.750-54.750	A	0.000	0.000	10.382	0.000	0.029
		B	0.000	0.000	5.429	0.000	0.072
		C	0.000	0.000	4.442	0.000	0.078
L31	54.750-49.750	A	0.000	0.000	10.382	0.000	0.029
		B	0.000	0.000	5.429	0.000	0.072
		C	0.000	0.000	4.442	0.000	0.078
L32	49.750-43.000	A	0.000	0.000	21.057	0.000	0.039
		B	0.000	0.000	14.371	0.000	0.098
		C	0.000	0.000	13.038	0.000	0.106
L33	43.000-42.000	A	0.000	0.000	2.271	0.000	0.006
		B	0.000	0.000	1.281	0.000	0.015
		C	0.000	0.000	1.083	0.000	0.016
L34	42.000-37.000	A	0.000	0.000	11.357	0.000	0.029
		B	0.000	0.000	6.404	0.000	0.073
		C	0.000	0.000	5.417	0.000	0.078
L35	37.000-32.000	A	0.000	0.000	11.357	0.000	0.029
		B	0.000	0.000	6.404	0.000	0.073
		C	0.000	0.000	5.417	0.000	0.078
L36	32.000-27.913	A	0.000	0.000	12.254	0.000	0.023
		B	0.000	0.000	9.159	0.000	0.060
		C	0.000	0.000	7.398	0.000	0.064
L37	27.913-27.663	A	0.000	0.000	0.855	0.000	0.001
		B	0.000	0.000	0.607	0.000	0.004
		C	0.000	0.000	0.558	0.000	0.004
L38	27.663-27.250	A	0.000	0.000	1.412	0.000	0.002
		B	0.000	0.000	1.003	0.000	0.006
		C	0.000	0.000	0.922	0.000	0.006
L39	27.250-26.983	A	0.000	0.000	0.913	0.000	0.002
		B	0.000	0.000	0.649	0.000	0.004
		C	0.000	0.000	0.596	0.000	0.004

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 K
L40	26.983-26.833	A	0.000	0.000	0.513	0.000	0.001
		B	0.000	0.000	0.364	0.000	0.002
		C	0.000	0.000	0.335	0.000	0.002
L41	26.833-21.833	A	0.000	0.000	14.209	0.000	0.029
		B	0.000	0.000	9.257	0.000	0.073
		C	0.000	0.000	8.269	0.000	0.078
L42	21.833-16.833	A	0.000	0.000	12.746	0.000	0.029
		B	0.000	0.000	7.794	0.000	0.073
		C	0.000	0.000	6.806	0.000	0.078
L43	16.833-16.000	A	0.000	0.000	2.706	0.000	0.005
		B	0.000	0.000	1.881	0.000	0.012
		C	0.000	0.000	1.716	0.000	0.013
L44	16.000-15.750	A	0.000	0.000	0.812	0.000	0.001
		B	0.000	0.000	0.564	0.000	0.004
		C	0.000	0.000	0.515	0.000	0.004
L45	15.750-14.747	A	0.000	0.000	3.258	0.000	0.006
		B	0.000	0.000	3.121	0.000	0.015
		C	0.000	0.000	2.923	0.000	0.016
L46	14.747-14.497	A	0.000	0.000	0.812	0.000	0.001
		B	0.000	0.000	0.849	0.000	0.004
		C	0.000	0.000	0.799	0.000	0.004
L47	14.497-12.083	A	0.000	0.000	7.842	0.000	0.014
		B	0.000	0.000	8.197	0.000	0.035
		C	0.000	0.000	7.720	0.000	0.038
L48	12.083-11.833	A	0.000	0.000	0.812	0.000	0.001
		B	0.000	0.000	0.849	0.000	0.004
		C	0.000	0.000	0.799	0.000	0.004
L49	11.833-10.000	A	0.000	0.000	5.954	0.000	0.011
		B	0.000	0.000	4.696	0.000	0.027
		C	0.000	0.000	5.862	0.000	0.029
L50	10.000-9.750	A	0.000	0.000	0.812	0.000	0.001
		B	0.000	0.000	0.562	0.000	0.004
		C	0.000	0.000	0.799	0.000	0.004
L51	9.750-4.750	A	0.000	0.000	13.278	0.000	0.029
		B	0.000	0.000	8.271	0.000	0.073
		C	0.000	0.000	13.025	0.000	0.078
L52	4.750-0.000	A	0.000	0.000	10.523	0.000	0.027
		B	0.000	0.000	5.772	0.000	0.069
		C	0.000	0.000	9.715	0.000	0.074

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 K
L1	160.000-155.000	A	0.994	0.000	0.000	0.537	0.000	0.023
		B		0.000	0.000	1.718	0.000	0.032
		C		0.000	0.000	0.537	0.000	0.054
L2	155.000-150.000	A	0.991	0.000	0.000	5.370	0.000	0.230
		B		0.000	0.000	6.548	0.000	0.239
		C		0.000	0.000	5.370	0.000	0.308
L3	150.000-148.500	A	0.988	0.000	0.000	1.611	0.000	0.069
		B		0.000	0.000	1.963	0.000	0.072
		C		0.000	0.000	1.611	0.000	0.092
L4	148.500-148.000	A	0.988	0.000	0.000	0.537	0.000	0.023
		B		0.000	0.000	0.654	0.000	0.024
		C		0.000	0.000	0.537	0.000	0.031
L5	148.000-143.000	A	0.986	0.000	0.000	5.367	0.000	0.230

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 K
		B		0.000	0.000	6.541	0.000	0.276
		C		0.000	0.000	5.367	0.000	0.308
L6	143.000-138.000	A	0.982	0.000	0.000	3.219	0.000	0.138
		B		0.000	0.000	4.389	0.000	0.184
		C		0.000	0.000	3.219	0.000	0.216
L7	138.000-133.000	A	0.979	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	1.166	0.000	0.069
		C		0.000	0.000	0.000	0.000	0.078
L8	133.000-128.000	A	0.975	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	1.163	0.000	0.069
		C		0.000	0.000	0.000	0.000	0.078
L9	128.000-123.000	A	0.971	0.000	0.000	6.911	0.000	0.073
		B		0.000	0.000	1.159	0.000	0.069
		C		0.000	0.000	0.000	0.000	0.078
L10	123.000-118.000	A	0.968	0.000	0.000	8.634	0.000	0.092
		B		0.000	0.000	1.509	0.000	0.074
		C		0.000	0.000	0.000	0.000	0.078
L11	118.000-111.000	A	0.963	0.000	0.000	12.080	0.000	0.128
		B		0.000	0.000	4.078	0.000	0.133
		C		0.000	0.000	0.000	0.000	0.110
L12	111.000-109.750	A	0.959	0.000	0.000	2.157	0.000	0.023
		B		0.000	0.000	0.728	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.020
L13	109.750-105.333	A	0.957	0.000	0.000	9.016	0.000	0.089
		B		0.000	0.000	3.962	0.000	0.093
		C		0.000	0.000	1.400	0.000	0.078
L14	105.333-105.083	A	0.954	0.000	0.000	0.678	0.000	0.006
		B		0.000	0.000	0.392	0.000	0.006
		C		0.000	0.000	0.247	0.000	0.005
L15	105.083-100.083	A	0.952	0.000	0.000	13.550	0.000	0.121
		B		0.000	0.000	7.827	0.000	0.125
		C		0.000	0.000	4.935	0.000	0.109
L16	100.083-95.083	A	0.947	0.000	0.000	13.540	0.000	0.120
		B		0.000	0.000	7.813	0.000	0.125
		C		0.000	0.000	4.931	0.000	0.108
L17	95.083-92.500	A	0.944	0.000	0.000	8.273	0.000	0.070
		B		0.000	0.000	5.313	0.000	0.072
		C		0.000	0.000	3.828	0.000	0.064
L18	92.500-92.250	A	0.942	0.000	0.000	0.890	0.000	0.007
		B		0.000	0.000	0.604	0.000	0.008
		C		0.000	0.000	0.460	0.000	0.007
L19	92.250-87.250	A	0.939	0.000	0.000	17.795	0.000	0.145
		B		0.000	0.000	12.062	0.000	0.150
		C		0.000	0.000	9.196	0.000	0.134
L20	87.250-82.250	A	0.934	0.000	0.000	18.071	0.000	0.146
		B		0.000	0.000	12.334	0.000	0.151
		C		0.000	0.000	9.479	0.000	0.135
L21	82.250-76.750	A	0.928	0.000	0.000	24.075	0.000	0.182
		B		0.000	0.000	17.760	0.000	0.187
		C		0.000	0.000	14.632	0.000	0.170
L22	76.750-75.750	A	0.924	0.000	0.000	2.892	0.000	0.024
		B		0.000	0.000	1.743	0.000	0.025
		C		0.000	0.000	1.175	0.000	0.022
L23	75.750-70.750	A	0.921	0.000	0.000	16.857	0.000	0.135
		B		0.000	0.000	11.110	0.000	0.140
		C		0.000	0.000	8.281	0.000	0.124
L24	70.750-70.583	A	0.917	0.000	0.000	0.661	0.000	0.005
		B		0.000	0.000	0.469	0.000	0.005
		C		0.000	0.000	0.375	0.000	0.005
L25	70.583-70.333	A	0.917	0.000	0.000	0.990	0.000	0.008
		B		0.000	0.000	0.702	0.000	0.008

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 K
		C		0.000	0.000	0.561	0.000	0.007
L26	70.333-70.000	A	0.917	0.000	0.000	1.318	0.000	0.010
		B		0.000	0.000	0.935	0.000	0.010
		C		0.000	0.000	0.748	0.000	0.009
L27	70.000-69.750	A	0.916	0.000	0.000	0.990	0.000	0.008
		B		0.000	0.000	0.702	0.000	0.008
		C		0.000	0.000	0.561	0.000	0.007
L28	69.750-64.750	A	0.913	0.000	0.000	16.559	0.000	0.135
		B		0.000	0.000	10.806	0.000	0.140
		C		0.000	0.000	7.993	0.000	0.125
L29	64.750-59.750	A	0.906	0.000	0.000	13.904	0.000	0.120
		B		0.000	0.000	8.146	0.000	0.126
		C		0.000	0.000	5.347	0.000	0.110
L30	59.750-54.750	A	0.898	0.000	0.000	13.887	0.000	0.119
		B		0.000	0.000	8.124	0.000	0.125
		C		0.000	0.000	5.340	0.000	0.110
L31	54.750-49.750	A	0.890	0.000	0.000	13.869	0.000	0.118
		B		0.000	0.000	8.099	0.000	0.124
		C		0.000	0.000	5.332	0.000	0.110
L32	49.750-43.000	A	0.879	0.000	0.000	26.876	0.000	0.200
		B		0.000	0.000	19.076	0.000	0.209
		C		0.000	0.000	15.368	0.000	0.189
L33	43.000-42.000	A	0.872	0.000	0.000	2.964	0.000	0.024
		B		0.000	0.000	1.808	0.000	0.025
		C		0.000	0.000	1.259	0.000	0.022
L34	42.000-37.000	A	0.865	0.000	0.000	14.789	0.000	0.117
		B		0.000	0.000	9.000	0.000	0.124
		C		0.000	0.000	6.282	0.000	0.110
L35	37.000-32.000	A	0.854	0.000	0.000	14.763	0.000	0.116
		B		0.000	0.000	8.965	0.000	0.123
		C		0.000	0.000	6.270	0.000	0.109
L36	32.000-27.913	A	0.842	0.000	0.000	15.451	0.000	0.112
		B		0.000	0.000	11.798	0.000	0.125
		C		0.000	0.000	8.522	0.000	0.108
L37	27.913-27.663	A	0.836	0.000	0.000	1.065	0.000	0.007
		B		0.000	0.000	0.774	0.000	0.008
		C		0.000	0.000	0.641	0.000	0.007
L38	27.663-27.250	A	0.835	0.000	0.000	1.759	0.000	0.012
		B		0.000	0.000	1.279	0.000	0.013
		C		0.000	0.000	1.060	0.000	0.012
L39	27.250-26.983	A	0.833	0.000	0.000	1.137	0.000	0.008
		B		0.000	0.000	0.827	0.000	0.008
		C		0.000	0.000	0.685	0.000	0.008
L40	26.983-26.833	A	0.833	0.000	0.000	0.639	0.000	0.004
		B		0.000	0.000	0.464	0.000	0.005
		C		0.000	0.000	0.385	0.000	0.004
L41	26.833-21.833	A	0.824	0.000	0.000	17.934	0.000	0.132
		B		0.000	0.000	12.115	0.000	0.141
		C		0.000	0.000	9.478	0.000	0.128
L42	21.833-16.833	A	0.806	0.000	0.000	16.145	0.000	0.122
		B		0.000	0.000	10.312	0.000	0.132
		C		0.000	0.000	7.713	0.000	0.119
L43	16.833-16.000	A	0.793	0.000	0.000	3.322	0.000	0.023
		B		0.000	0.000	2.348	0.000	0.025
		C		0.000	0.000	1.920	0.000	0.023
L44	16.000-15.750	A	0.790	0.000	0.000	0.997	0.000	0.007
		B		0.000	0.000	0.704	0.000	0.008
		C		0.000	0.000	0.576	0.000	0.007
L45	15.750-14.747	A	0.787	0.000	0.000	3.996	0.000	0.028
		B		0.000	0.000	3.746	0.000	0.035
		C		0.000	0.000	3.232	0.000	0.033

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 K
L46	14.747-14.497	A	0.784	0.000	0.000	0.996	0.000	0.007
		B		0.000	0.000	1.009	0.000	0.009
		C		0.000	0.000	0.882	0.000	0.009
L47	14.497-12.083	A	0.776	0.000	0.000	9.604	0.000	0.067
		B		0.000	0.000	9.732	0.000	0.088
		C		0.000	0.000	8.506	0.000	0.082
L48	12.083-11.833	A	0.768	0.000	0.000	0.993	0.000	0.007
		B		0.000	0.000	1.006	0.000	0.009
		C		0.000	0.000	0.880	0.000	0.008
L49	11.833-10.000	A	0.761	0.000	0.000	7.277	0.000	0.050
		B		0.000	0.000	5.637	0.000	0.057
		C		0.000	0.000	6.447	0.000	0.062
L50	10.000-9.750	A	0.753	0.000	0.000	0.991	0.000	0.007
		B		0.000	0.000	0.678	0.000	0.007
		C		0.000	0.000	0.879	0.000	0.008
L51	9.750-4.750	A	0.730	0.000	0.000	16.544	0.000	0.116
		B		0.000	0.000	10.278	0.000	0.128
		C		0.000	0.000	14.302	0.000	0.148
L52	4.750-0.000	A	0.653	0.000	0.000	13.265	0.000	0.092
		B		0.000	0.000	7.325	0.000	0.105
		C		0.000	0.000	10.581	0.000	0.121

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.000-155.000	0.238	0.048	0.703	0.142
L2	155.000-150.000	0.050	0.010	0.264	0.053
L3	150.000-148.500	0.050	0.010	0.263	0.053
L4	148.500-148.000	0.082	0.017	0.449	0.090
L5	148.000-143.000	0.083	0.017	0.454	0.092
L6	143.000-138.000	0.108	0.022	0.585	0.118
L7	138.000-133.000	0.295	0.060	0.979	0.197
L8	133.000-128.000	0.295	0.060	0.980	0.198
L9	128.000-123.000	-3.280	-3.814	-2.082	-2.881
L10	123.000-118.000	-3.702	-4.500	-2.415	-3.478
L11	118.000-111.000	-3.251	-4.875	-1.930	-3.955
L12	111.000-109.750	-3.259	-4.886	-1.936	-3.966
L13	109.750-105.333	-2.641	-3.960	-1.683	-3.441
L14	105.333-105.083	-1.886	-2.829	-1.313	-2.684
L15	105.083-100.083	-1.903	-2.853	-1.325	-2.707
L16	100.083-95.083	-1.934	-2.900	-1.348	-2.750
L17	95.083-92.500	-1.626	-2.439	-1.173	-2.391
L18	92.500-92.250	-1.456	-2.185	-1.071	-2.181
L19	92.250-87.250	-1.470	-2.205	-1.081	-2.201
L20	87.250-82.250	-1.344	-2.120	-0.989	-2.142
L21	82.250-76.750	0.783	-0.494	0.693	-0.821
L22	76.750-75.750	1.214	-0.765	1.004	-1.188
L23	75.750-70.750	1.035	-0.651	0.883	-1.044
L24	70.750-70.583	0.878	-0.551	0.771	-0.909
L25	70.583-70.333	0.879	-0.551	0.771	-0.910
L26	70.333-70.000	0.880	-0.552	0.772	-0.911
L27	70.000-69.750	0.881	-0.552	0.773	-0.911
L28	69.750-64.750	-0.422	-1.663	-0.270	-1.850
L29	64.750-59.750	-2.023	-3.037	-1.450	-2.919
L30	59.750-54.750	-2.050	-3.078	-1.473	-2.956

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L31	54.750-49.750	-2.077	-3.118	-1.495	-2.992
L32	49.750-43.000	-1.416	-2.126	-1.115	-2.223
L33	43.000-42.000	-1.927	-2.894	-1.435	-2.861
L34	42.000-37.000	-1.942	-2.916	-1.452	-2.880
L35	37.000-32.000	-1.967	-2.954	-1.475	-2.913
L36	32.000-27.913	-1.076	-1.740	-0.856	-1.939
L37	27.913-27.663	-1.349	-2.026	-1.101	-2.161
L38	27.663-27.250	-1.350	-2.028	-1.102	-2.163
L39	27.250-26.983	-1.351	-2.030	-1.104	-2.165
L40	26.983-26.833	-1.352	-2.031	-1.105	-2.166
L41	26.833-21.833	-1.628	-2.445	-1.291	-2.523
L42	21.833-16.833	-1.829	-2.747	-1.431	-2.778
L43	16.833-16.000	-1.462	-2.196	-1.210	-2.337
L44	16.000-15.750	-1.464	-2.200	-1.213	-2.340
L45	15.750-14.747	2.020	-1.920	1.573	-2.098
L46	14.747-14.497	2.969	-1.846	2.363	-2.031
L47	14.497-12.083	2.980	-1.853	2.370	-2.037
L48	12.083-11.833	2.992	-1.861	2.378	-2.044
L49	11.833-10.000	1.931	-3.545	1.435	-3.488
L50	10.000-9.750	1.491	-4.254	1.049	-4.087
L51	9.750-4.750	1.780	-5.077	1.206	-4.708
L52	4.750-0.000	1.691	-5.702	1.056	-5.113

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	25	Safety Line 3/8	155.00 - 160.00	1.0000	1.0000
L1	55	HSS6x6	155.00 - 155.50	1.0000	1.0000
L1	56	HSS6x6	155.00 - 155.50	1.0000	1.0000
L1	57	HSS6x6	155.00 - 155.50	1.0000	1.0000
L2	25	Safety Line 3/8	150.00 - 155.00	1.0000	1.0000
L2	55	HSS6x6	150.00 - 155.00	1.0000	1.0000
L2	56	HSS6x6	150.00 - 155.00	1.0000	1.0000
L2	57	HSS6x6	150.00 - 155.00	1.0000	1.0000
L3	25	Safety Line 3/8	148.50 - 150.00	1.0000	1.0000
L3	55	HSS6x6	148.50 - 150.00	1.0000	1.0000
L3	56	HSS6x6	148.50 - 150.00	1.0000	1.0000
L3	57	HSS6x6	148.50 - 150.00	1.0000	1.0000
L4	25	Safety Line 3/8	148.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L4	55	HSS6x6	148.50 148.00 - 148.50	1.0000	1.0000
L4	56	HSS6x6	148.00 - 148.50	1.0000	1.0000
L4	57	HSS6x6	148.00 - 148.50	1.0000	1.0000
L5	25	Safety Line 3/8	143.00 - 148.00	1.0000	1.0000
L5	55	HSS6x6	143.00 - 148.00	1.0000	1.0000
L5	56	HSS6x6	143.00 - 148.00	1.0000	1.0000
L5	57	HSS6x6	143.00 - 148.00	1.0000	1.0000
L6	25	Safety Line 3/8	138.00 - 143.00	1.0000	1.0000
L6	55	HSS6x6	140.00 - 143.00	1.0000	1.0000
L6	56	HSS6x6	140.00 - 143.00	1.0000	1.0000
L6	57	HSS6x6	140.00 - 143.00	1.0000	1.0000
L7	25	Safety Line 3/8	133.00 - 138.00	1.0000	1.0000
L8	25	Safety Line 3/8	128.00 - 133.00	1.0000	1.0000
L9	17	LDF7-50A(1-5/8)	123.00 - 127.00	1.0000	1.0000
L9	25	Safety Line 3/8	123.00 - 128.00	1.0000	1.0000
L10	17	LDF7-50A(1-5/8)	118.00 - 123.00	1.0000	1.0000
L10	21	CU12PSM9P6XXX(1-1/2)	118.00 - 119.00	1.0000	1.0000
L10	25	Safety Line 3/8	118.00 - 123.00	1.0000	1.0000
L11	17	LDF7-50A(1-5/8)	111.00 - 118.00	1.0000	1.0000
L11	21	CU12PSM9P6XXX(1-1/2)	111.00 - 118.00	1.0000	1.0000
L11	25	Safety Line 3/8	111.00 - 118.00	1.0000	1.0000
L12	17	LDF7-50A(1-5/8)	109.75 - 111.00	1.0000	1.0000
L12	21	CU12PSM9P6XXX(1-1/2)	109.75 - 111.00	1.0000	1.0000
L12	25	Safety Line 3/8	109.75 - 111.00	1.0000	1.0000
L13	17	LDF7-50A(1-5/8)	105.33 - 109.75	1.0000	1.0000
L13	21	CU12PSM9P6XXX(1-1/2)	105.33 - 109.75	1.0000	1.0000
L13	25	Safety Line 3/8	105.33 - 109.75	1.0000	1.0000
L13	39	MP304	105.33 - 106.75	1.0000	1.0000
L13	40	MP304	105.33 - 106.75	1.0000	1.0000
L13	41	MP304	105.33 - 106.75	1.0000	1.0000
L14	17	LDF7-50A(1-5/8)	105.08 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			105.33		
L14	21	CU12PSM9P6XXX(1-1/2)	105.08 - 105.33	1.0000	1.0000
L14	25	Safety Line 3/8	105.08 - 105.33	1.0000	1.0000
L14	39	MP304	105.08 - 105.33	1.0000	1.0000
L14	40	MP304	105.08 - 105.33	1.0000	1.0000
L14	41	MP304	105.08 - 105.33	1.0000	1.0000
L15	17	LDF7-50A(1-5/8)	100.08 - 105.08	1.0000	1.0000
L15	21	CU12PSM9P6XXX(1-1/2)	100.08 - 105.08	1.0000	1.0000
L15	25	Safety Line 3/8	100.08 - 105.08	1.0000	1.0000
L15	39	MP304	100.08 - 105.08	1.0000	1.0000
L15	40	MP304	100.08 - 105.08	1.0000	1.0000
L15	41	MP304	100.08 - 105.08	1.0000	1.0000
L16	17	LDF7-50A(1-5/8)	95.08 - 100.08	1.0000	1.0000
L16	21	CU12PSM9P6XXX(1-1/2)	95.08 - 100.08	1.0000	1.0000
L16	25	Safety Line 3/8	95.08 - 100.08	1.0000	1.0000
L16	39	MP304	95.08 - 100.08	1.0000	1.0000
L16	40	MP304	95.08 - 100.08	1.0000	1.0000
L16	41	MP304	95.08 - 100.08	1.0000	1.0000
L17	17	LDF7-50A(1-5/8)	92.50 - 95.08	1.0000	1.0000
L17	21	CU12PSM9P6XXX(1-1/2)	92.50 - 95.08	1.0000	1.0000
L17	25	Safety Line 3/8	92.50 - 95.08	1.0000	1.0000
L17	39	MP304	92.50 - 95.08	1.0000	1.0000
L17	40	MP304	92.50 - 95.08	1.0000	1.0000
L17	41	MP304	92.50 - 95.08	1.0000	1.0000
L17	59	4"x1.25" Flat Reinforcement	92.50 - 94.00	1.0000	1.0000
L17	60	4"x1.25" Flat Reinforcement	92.50 - 94.00	1.0000	1.0000
L17	61	4"x1.25" Flat Reinforcement	92.50 - 94.00	1.0000	1.0000
L18	17	LDF7-50A(1-5/8)	92.25 - 92.50	1.0000	1.0000
L18	21	CU12PSM9P6XXX(1-1/2)	92.25 - 92.50	1.0000	1.0000
L18	25	Safety Line 3/8	92.25 - 92.50	1.0000	1.0000
L18	39	MP304	92.25 - 92.50	1.0000	1.0000
L18	40	MP304	92.25 - 92.50	1.0000	1.0000
L18	41	MP304	92.25 - 92.50	1.0000	1.0000
L18	59	4"x1.25" Flat Reinforcement	92.25 - 92.50	1.0000	1.0000
L18	60	4"x1.25" Flat Reinforcement	92.25 - 92.50	1.0000	1.0000
L18	61	4"x1.25" Flat Reinforcement	92.25 - 92.50	1.0000	1.0000
L19	17	LDF7-50A(1-5/8)	87.25 - 92.25	1.0000	1.0000
L19	21	CU12PSM9P6XXX(1-1/2)	87.25 - 92.25	1.0000	1.0000
L19	25	Safety Line 3/8	87.25 - 92.25	1.0000	1.0000
L19	39	MP304	87.25 - 92.25	1.0000	1.0000
L19	40	MP304	87.25 - 92.25	1.0000	1.0000
L19	41	MP304	87.25 - 92.25	1.0000	1.0000
L19	59	4"x1.25" Flat Reinforcement	87.25 - 92.25	1.0000	1.0000
L19	60	4"x1.25" Flat Reinforcement	87.25 - 92.25	1.0000	1.0000
L19	61	4"x1.25" Flat Reinforcement	87.25 - 92.25	1.0000	1.0000
L20	17	LDF7-50A(1-5/8)	82.25 - 87.25	1.0000	1.0000
L20	21	CU12PSM9P6XXX(1-1/2)	82.25 - 87.25	1.0000	1.0000
L20	25	Safety Line 3/8	82.25 - 87.25	1.0000	1.0000
L20	39	MP304	82.25 - 87.25	1.0000	1.0000
L20	40	MP304	82.25 - 87.25	1.0000	1.0000
L20	41	MP304	82.25 - 87.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	51	6"x1" Flat Reinforcement	82.25 - 82.50	1.0000	1.0000
L20	52	6"x1" Flat Reinforcement	82.25 - 82.50	1.0000	1.0000
L20	53	6"x1" Flat Reinforcement	82.25 - 82.50	1.0000	1.0000
L20	59	4"x1.25" Flat Reinforcement	82.25 - 87.25	1.0000	1.0000
L20	60	4"x1.25" Flat Reinforcement	82.25 - 87.25	1.0000	1.0000
L20	61	4"x1.25" Flat Reinforcement	82.25 - 87.25	1.0000	1.0000
L21	17	LDF7-50A(1-5/8)	76.75 - 82.25	1.0000	1.0000
L21	21	CU12PSM9P6XXX(1-1/2)	76.75 - 82.25	1.0000	1.0000
L21	25	Safety Line 3/8	76.75 - 82.25	1.0000	1.0000
L21	39	MP304	76.75 - 82.25	1.0000	1.0000
L21	40	MP304	76.75 - 82.25	1.0000	1.0000
L21	41	MP304	76.75 - 82.25	1.0000	1.0000
L21	51	6"x1" Flat Reinforcement	76.75 - 82.25	1.0000	1.0000
L21	52	6"x1" Flat Reinforcement	76.75 - 82.25	1.0000	1.0000
L21	53	6"x1" Flat Reinforcement	76.75 - 82.25	1.0000	1.0000
L21	59	4"x1.25" Flat Reinforcement	79.00 - 82.25	1.0000	1.0000
L21	60	4"x1.25" Flat Reinforcement	79.00 - 82.25	1.0000	1.0000
L21	61	4"x1.25" Flat Reinforcement	79.00 - 82.25	1.0000	1.0000
L22	17	LDF7-50A(1-5/8)	75.75 - 76.75	1.0000	1.0000
L22	21	CU12PSM9P6XXX(1-1/2)	75.75 - 76.75	1.0000	1.0000
L22	25	Safety Line 3/8	75.75 - 76.75	1.0000	1.0000
L22	51	6"x1" Flat Reinforcement	75.75 - 76.75	1.0000	1.0000
L22	52	6"x1" Flat Reinforcement	75.75 - 76.75	1.0000	1.0000
L22	53	6"x1" Flat Reinforcement	75.75 - 76.75	1.0000	1.0000
L23	17	LDF7-50A(1-5/8)	70.75 - 75.75	1.0000	1.0000
L23	21	CU12PSM9P6XXX(1-1/2)	70.75 - 75.75	1.0000	1.0000
L23	25	Safety Line 3/8	70.75 - 75.75	1.0000	1.0000
L23	35	MP305	70.75 - 73.00	1.0000	1.0000
L23	36	MP305	70.75 - 73.00	1.0000	1.0000
L23	37	MP305	70.75 - 73.00	1.0000	1.0000
L23	51	6"x1" Flat Reinforcement	70.75 - 75.75	1.0000	1.0000
L23	52	6"x1" Flat Reinforcement	70.75 - 75.75	1.0000	1.0000
L23	53	6"x1" Flat Reinforcement	70.75 - 75.75	1.0000	1.0000
L24	17	LDF7-50A(1-5/8)	70.58 - 70.75	1.0000	1.0000
L24	21	CU12PSM9P6XXX(1-1/2)	70.58 - 70.75	1.0000	1.0000
L24	25	Safety Line 3/8	70.58 - 70.75	1.0000	1.0000
L24	35	MP305	70.58 - 70.75	1.0000	1.0000
L24	36	MP305	70.58 - 70.75	1.0000	1.0000
L24	37	MP305	70.58 - 70.75	1.0000	1.0000
L24	51	6"x1" Flat Reinforcement	70.58 - 70.75	1.0000	1.0000
L24	52	6"x1" Flat Reinforcement	70.58 - 70.75	1.0000	1.0000
L24	53	6"x1" Flat Reinforcement	70.58 - 70.75	1.0000	1.0000
L25	17	LDF7-50A(1-5/8)	70.33 - 70.58	1.0000	1.0000
L25	21	CU12PSM9P6XXX(1-1/2)	70.33 - 70.58	1.0000	1.0000
L25	25	Safety Line 3/8	70.33 - 70.58	1.0000	1.0000
L25	35	MP305	70.33 - 70.58	1.0000	1.0000
L25	36	MP305	70.33 - 70.58	1.0000	1.0000
L25	37	MP305	70.33 - 70.58	1.0000	1.0000
L25	51	6"x1" Flat Reinforcement	70.33 - 70.58	1.0000	1.0000
L25	52	6"x1" Flat Reinforcement	70.33 - 70.58	1.0000	1.0000
L25	53	6"x1" Flat Reinforcement	70.33 - 70.58	1.0000	1.0000
L26	17	LDF7-50A(1-5/8)	70.00 - 70.33	1.0000	1.0000
L26	21	CU12PSM9P6XXX(1-1/2)	70.00 - 70.33	1.0000	1.0000
L26	25	Safety Line 3/8	70.00 - 70.33	1.0000	1.0000
L26	35	MP305	70.00 - 70.33	1.0000	1.0000
L26	36	MP305	70.00 - 70.33	1.0000	1.0000
L26	37	MP305	70.00 - 70.33	1.0000	1.0000
L26	51	6"x1" Flat Reinforcement	70.00 - 70.33	1.0000	1.0000
L26	52	6"x1" Flat Reinforcement	70.00 - 70.33	1.0000	1.0000
L26	53	6"x1" Flat Reinforcement	70.00 - 70.33	1.0000	1.0000
L27	17	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L27	21	CU12PSM9P6XXX(1-1/2)	69.75 - 70.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	25	Safety Line 3/8	69.75 - 70.00	1.0000	1.0000
L27	35	MP305	69.75 - 70.00	1.0000	1.0000
L27	36	MP305	69.75 - 70.00	1.0000	1.0000
L27	37	MP305	69.75 - 70.00	1.0000	1.0000
L27	51	6"x1" Flat Reinforcement	69.75 - 70.00	1.0000	1.0000
L27	52	6"x1" Flat Reinforcement	69.75 - 70.00	1.0000	1.0000
L27	53	6"x1" Flat Reinforcement	69.75 - 70.00	1.0000	1.0000
L28	17	LDF7-50A(1-5/8)	64.75 - 69.75	1.0000	1.0000
L28	21	CU12PSM9P6XXX(1-1/2)	64.75 - 69.75	1.0000	1.0000
L28	25	Safety Line 3/8	64.75 - 69.75	1.0000	1.0000
L28	35	MP305	64.75 - 69.75	1.0000	1.0000
L28	36	MP305	64.75 - 69.75	1.0000	1.0000
L28	37	MP305	64.75 - 69.75	1.0000	1.0000
L28	51	6"x1" Flat Reinforcement	67.50 - 69.75	1.0000	1.0000
L28	52	6"x1" Flat Reinforcement	67.50 - 69.75	1.0000	1.0000
L28	53	6"x1" Flat Reinforcement	67.50 - 69.75	1.0000	1.0000
L29	17	LDF7-50A(1-5/8)	59.75 - 64.75	1.0000	1.0000
L29	21	CU12PSM9P6XXX(1-1/2)	59.75 - 64.75	1.0000	1.0000
L29	25	Safety Line 3/8	59.75 - 64.75	1.0000	1.0000
L29	35	MP305	59.75 - 64.75	1.0000	1.0000
L29	36	MP305	59.75 - 64.75	1.0000	1.0000
L29	37	MP305	59.75 - 64.75	1.0000	1.0000
L30	17	LDF7-50A(1-5/8)	54.75 - 59.75	1.0000	1.0000
L30	21	CU12PSM9P6XXX(1-1/2)	54.75 - 59.75	1.0000	1.0000
L30	25	Safety Line 3/8	54.75 - 59.75	1.0000	1.0000
L30	35	MP305	54.75 - 59.75	1.0000	1.0000
L30	36	MP305	54.75 - 59.75	1.0000	1.0000
L30	37	MP305	54.75 - 59.75	1.0000	1.0000
L31	17	LDF7-50A(1-5/8)	49.75 - 54.75	1.0000	1.0000
L31	21	CU12PSM9P6XXX(1-1/2)	49.75 - 54.75	1.0000	1.0000
L31	25	Safety Line 3/8	49.75 - 54.75	1.0000	1.0000
L31	35	MP305	49.75 - 54.75	1.0000	1.0000
L31	36	MP305	49.75 - 54.75	1.0000	1.0000
L31	37	MP305	49.75 - 54.75	1.0000	1.0000
L32	17	LDF7-50A(1-5/8)	43.00 - 49.75	1.0000	1.0000
L32	21	CU12PSM9P6XXX(1-1/2)	43.00 - 49.75	1.0000	1.0000
L32	25	Safety Line 3/8	43.00 - 49.75	1.0000	1.0000
L32	35	MP305	43.00 - 49.75	1.0000	1.0000
L32	36	MP305	43.00 - 49.75	1.0000	1.0000
L32	37	MP305	43.00 - 49.75	1.0000	1.0000
L32	43	6.5"x1.25" Flat Reinforcement	43.00 - 49.50	1.0000	1.0000
L32	44	6.5"x1.25" Flat Reinforcement	43.00 - 49.50	1.0000	1.0000
L32	45	6.5"x1.25" Flat Reinforcement	43.00 - 49.50	1.0000	1.0000
L33	17	LDF7-50A(1-5/8)	42.00 - 43.00	1.0000	1.0000
L33	21	CU12PSM9P6XXX(1-1/2)	42.00 - 43.00	1.0000	1.0000
L33	25	Safety Line 3/8	42.00 - 43.00	1.0000	1.0000
L33	43	6.5"x1.25" Flat Reinforcement	42.00 - 43.00	1.0000	1.0000
L33	44	6.5"x1.25" Flat Reinforcement	42.00 - 43.00	1.0000	1.0000
L33	45	6.5"x1.25" Flat Reinforcement	42.00 - 43.00	1.0000	1.0000
L34	17	LDF7-50A(1-5/8)	37.00 - 42.00	1.0000	1.0000
L34	21	CU12PSM9P6XXX(1-1/2)	37.00 - 42.00	1.0000	1.0000
L34	25	Safety Line 3/8	37.00 - 42.00	1.0000	1.0000
L34	43	6.5"x1.25" Flat Reinforcement	37.00 - 42.00	1.0000	1.0000
L34	44	6.5"x1.25" Flat Reinforcement	37.00 - 42.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L34	45	6.5"x1.25" Flat Reinforcement	37.00 - 42.00	1.0000	1.0000
L35	17	LDF7-50A(1-5/8)	32.00 - 37.00	1.0000	1.0000
L35	21	CU12PSM9P6XXX(1-1/2)	32.00 - 37.00	1.0000	1.0000
L35	25	Safety Line 3/8	32.00 - 37.00	1.0000	1.0000
L35	43	6.5"x1.25" Flat Reinforcement	32.00 - 37.00	1.0000	1.0000
L35	44	6.5"x1.25" Flat Reinforcement	32.00 - 37.00	1.0000	1.0000
L35	45	6.5"x1.25" Flat Reinforcement	32.00 - 37.00	1.0000	1.0000
L36	17	LDF7-50A(1-5/8)	27.91 - 32.00	1.0000	1.0000
L36	21	CU12PSM9P6XXX(1-1/2)	27.91 - 32.00	1.0000	1.0000
L36	25	Safety Line 3/8	27.91 - 32.00	1.0000	1.0000
L36	30	MP306	27.91 - 30.50	1.0000	1.0000
L36	31	MP306	27.91 - 30.50	1.0000	1.0000
L36	33	MP306	27.91 - 31.33	1.0000	1.0000
L36	43	6.5"x1.25" Flat Reinforcement	27.91 - 32.00	1.0000	1.0000
L36	44	6.5"x1.25" Flat Reinforcement	27.91 - 32.00	1.0000	1.0000
L36	45	6.5"x1.25" Flat Reinforcement	27.91 - 32.00	1.0000	1.0000
L37	17	LDF7-50A(1-5/8)	27.66 - 27.91	1.0000	1.0000
L37	21	CU12PSM9P6XXX(1-1/2)	27.66 - 27.91	1.0000	1.0000
L37	25	Safety Line 3/8	27.66 - 27.91	1.0000	1.0000
L37	30	MP306	27.66 - 27.91	1.0000	1.0000
L37	31	MP306	27.66 - 27.91	1.0000	1.0000
L37	33	MP306	27.66 - 27.91	1.0000	1.0000
L37	43	6.5"x1.25" Flat Reinforcement	27.66 - 27.91	1.0000	1.0000
L37	44	6.5"x1.25" Flat Reinforcement	27.66 - 27.91	1.0000	1.0000
L37	45	6.5"x1.25" Flat Reinforcement	27.66 - 27.91	1.0000	1.0000
L38	17	LDF7-50A(1-5/8)	27.25 - 27.66	1.0000	1.0000
L38	21	CU12PSM9P6XXX(1-1/2)	27.25 - 27.66	1.0000	1.0000
L38	25	Safety Line 3/8	27.25 - 27.66	1.0000	1.0000
L38	30	MP306	27.25 - 27.66	1.0000	1.0000
L38	31	MP306	27.25 - 27.66	1.0000	1.0000
L38	33	MP306	27.25 - 27.66	1.0000	1.0000
L38	43	6.5"x1.25" Flat Reinforcement	27.25 - 27.66	1.0000	1.0000
L38	44	6.5"x1.25" Flat Reinforcement	27.25 - 27.66	1.0000	1.0000
L38	45	6.5"x1.25" Flat Reinforcement	27.25 - 27.66	1.0000	1.0000
L39	17	LDF7-50A(1-5/8)	26.98 - 27.25	1.0000	1.0000
L39	21	CU12PSM9P6XXX(1-1/2)	26.98 - 27.25	1.0000	1.0000
L39	25	Safety Line 3/8	26.98 - 27.25	1.0000	1.0000
L39	30	MP306	26.98 - 27.25	1.0000	1.0000
L39	31	MP306	26.98 - 27.25	1.0000	1.0000
L39	33	MP306	26.98 - 27.25	1.0000	1.0000
L39	43	6.5"x1.25" Flat Reinforcement	26.98 - 27.25	1.0000	1.0000
L39	44	6.5"x1.25" Flat Reinforcement	26.98 - 27.25	1.0000	1.0000
L39	45	6.5"x1.25" Flat Reinforcement	26.98 - 27.25	1.0000	1.0000
L40	17	LDF7-50A(1-5/8)	26.83 - 26.98	1.0000	1.0000
L40	21	CU12PSM9P6XXX(1-1/2)	26.83 - 26.98	1.0000	1.0000
L40	25	Safety Line 3/8	26.83 - 26.98	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L40	30	MP306	26.83 - 26.98	1.0000	1.0000
L40	31	MP306	26.83 - 26.98	1.0000	1.0000
L40	33	MP306	26.83 - 26.98	1.0000	1.0000
L40	43	6.5"x1.25" Flat Reinforcement	26.83 - 26.98	1.0000	1.0000
L40	44	6.5"x1.25" Flat Reinforcement	26.83 - 26.98	1.0000	1.0000
L40	45	6.5"x1.25" Flat Reinforcement	26.83 - 26.98	1.0000	1.0000
L41	17	LDF7-50A(1-5/8)	21.83 - 26.83	1.0000	1.0000
L41	21	CU12PSM9P6XXX(1-1/2)	21.83 - 26.83	1.0000	1.0000
L41	25	Safety Line 3/8	21.83 - 26.83	1.0000	1.0000
L41	30	MP306	21.83 - 26.83	1.0000	1.0000
L41	31	MP306	21.83 - 26.83	1.0000	1.0000
L41	33	MP306	21.83 - 26.83	1.0000	1.0000
L41	43	6.5"x1.25" Flat Reinforcement	24.50 - 26.83	1.0000	1.0000
L41	44	6.5"x1.25" Flat Reinforcement	24.50 - 26.83	1.0000	1.0000
L41	45	6.5"x1.25" Flat Reinforcement	24.50 - 26.83	1.0000	1.0000
L42	17	LDF7-50A(1-5/8)	16.83 - 21.83	1.0000	1.0000
L42	21	CU12PSM9P6XXX(1-1/2)	16.83 - 21.83	1.0000	1.0000
L42	25	Safety Line 3/8	16.83 - 21.83	1.0000	1.0000
L42	30	MP306	16.83 - 21.83	1.0000	1.0000
L42	31	MP306	16.83 - 21.83	1.0000	1.0000
L42	33	MP306	16.83 - 21.83	1.0000	1.0000
L42	47	6"x1" Flat Reinforcement	16.83 - 18.00	1.0000	1.0000
L42	48	6"x1" Flat Reinforcement	16.83 - 18.00	1.0000	1.0000
L42	49	6"x1" Flat Reinforcement	16.83 - 18.00	1.0000	1.0000
L43	17	LDF7-50A(1-5/8)	16.00 - 16.83	1.0000	1.0000
L43	21	CU12PSM9P6XXX(1-1/2)	16.00 - 16.83	1.0000	1.0000
L43	25	Safety Line 3/8	16.00 - 16.83	1.0000	1.0000
L43	30	MP306	16.00 - 16.83	1.0000	1.0000
L43	31	MP306	16.00 - 16.83	1.0000	1.0000
L43	33	MP306	16.00 - 16.83	1.0000	1.0000
L43	47	6"x1" Flat Reinforcement	16.00 - 16.83	1.0000	1.0000
L43	48	6"x1" Flat Reinforcement	16.00 - 16.83	1.0000	1.0000
L43	49	6"x1" Flat Reinforcement	16.00 - 16.83	1.0000	1.0000
L44	17	LDF7-50A(1-5/8)	15.75 - 16.00	1.0000	1.0000
L44	21	CU12PSM9P6XXX(1-1/2)	15.75 - 16.00	1.0000	1.0000
L44	25	Safety Line 3/8	15.75 - 16.00	1.0000	1.0000
L44	30	MP306	15.75 - 16.00	1.0000	1.0000
L44	31	MP306	15.75 - 16.00	1.0000	1.0000
L44	33	MP306	15.75 - 16.00	1.0000	1.0000
L44	47	6"x1" Flat Reinforcement	15.75 - 16.00	1.0000	1.0000
L44	48	6"x1" Flat Reinforcement	15.75 - 16.00	1.0000	1.0000
L44	49	6"x1" Flat Reinforcement	15.75 - 16.00	1.0000	1.0000
L45	17	LDF7-50A(1-5/8)	14.75 - 15.75	1.0000	1.0000
L45	21	CU12PSM9P6XXX(1-1/2)	14.75 - 15.75	1.0000	1.0000
L45	25	Safety Line 3/8	14.75 - 15.75	1.0000	1.0000
L45	27	MP306	14.75 - 15.50	1.0000	1.0000
L45	28	MP306	14.75 - 15.50	1.0000	1.0000
L45	30	MP306	14.75 - 15.75	1.0000	1.0000
L45	31	MP306	14.75 - 15.75	1.0000	1.0000
L45	33	MP306	14.75 - 15.75	1.0000	1.0000
L45	47	6"x1" Flat Reinforcement	14.75 - 15.75	1.0000	1.0000
L45	48	6"x1" Flat Reinforcement	14.75 - 15.75	1.0000	1.0000
L45	49	6"x1" Flat Reinforcement	14.75 - 15.75	1.0000	1.0000
L46	17	LDF7-50A(1-5/8)	14.50 - 14.75	1.0000	1.0000
L46	21	CU12PSM9P6XXX(1-1/2)	14.50 - 14.75	1.0000	1.0000
L46	25	Safety Line 3/8	14.50 - 14.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L46	27	MP306	14.50 - 14.75	1.0000	1.0000
L46	28	MP306	14.50 - 14.75	1.0000	1.0000
L46	30	MP306	14.50 - 14.75	1.0000	1.0000
L46	31	MP306	14.50 - 14.75	1.0000	1.0000
L46	33	MP306	14.50 - 14.75	1.0000	1.0000
L46	47	6"x1" Flat Reinforcement	14.50 - 14.75	1.0000	1.0000
L46	48	6"x1" Flat Reinforcement	14.50 - 14.75	1.0000	1.0000
L46	49	6"x1" Flat Reinforcement	14.50 - 14.75	1.0000	1.0000
L47	17	LDF7-50A(1-5/8)	12.08 - 14.50	1.0000	1.0000
L47	21	CU12PSM9P6XXX(1-1/2)	12.08 - 14.50	1.0000	1.0000
L47	25	Safety Line 3/8	12.08 - 14.50	1.0000	1.0000
L47	27	MP306	12.08 - 14.50	1.0000	1.0000
L47	28	MP306	12.08 - 14.50	1.0000	1.0000
L47	30	MP306	12.08 - 14.50	1.0000	1.0000
L47	31	MP306	12.08 - 14.50	1.0000	1.0000
L47	33	MP306	12.08 - 14.50	1.0000	1.0000
L47	47	6"x1" Flat Reinforcement	12.08 - 14.50	1.0000	1.0000
L47	48	6"x1" Flat Reinforcement	12.08 - 14.50	1.0000	1.0000
L47	49	6"x1" Flat Reinforcement	12.08 - 14.50	1.0000	1.0000
L48	17	LDF7-50A(1-5/8)	11.83 - 12.08	1.0000	1.0000
L48	21	CU12PSM9P6XXX(1-1/2)	11.83 - 12.08	1.0000	1.0000
L48	25	Safety Line 3/8	11.83 - 12.08	1.0000	1.0000
L48	27	MP306	11.83 - 12.08	1.0000	1.0000
L48	28	MP306	11.83 - 12.08	1.0000	1.0000
L48	30	MP306	11.83 - 12.08	1.0000	1.0000
L48	31	MP306	11.83 - 12.08	1.0000	1.0000
L48	33	MP306	11.83 - 12.08	1.0000	1.0000
L48	47	6"x1" Flat Reinforcement	11.83 - 12.08	1.0000	1.0000
L48	48	6"x1" Flat Reinforcement	11.83 - 12.08	1.0000	1.0000
L48	49	6"x1" Flat Reinforcement	11.83 - 12.08	1.0000	1.0000
L49	17	LDF7-50A(1-5/8)	10.00 - 11.83	1.0000	1.0000
L49	21	CU12PSM9P6XXX(1-1/2)	10.00 - 11.83	1.0000	1.0000
L49	25	Safety Line 3/8	10.00 - 11.83	1.0000	1.0000
L49	27	MP306	10.00 - 11.83	1.0000	1.0000
L49	28	MP306	10.00 - 11.83	1.0000	1.0000
L49	30	MP306	10.00 - 11.83	1.0000	1.0000
L49	31	MP306	10.00 - 11.83	1.0000	1.0000
L49	33	MP306	11.33 - 11.83	1.0000	1.0000
L49	47	6"x1" Flat Reinforcement	10.00 - 11.83	1.0000	1.0000
L49	48	6"x1" Flat Reinforcement	10.00 - 11.83	1.0000	1.0000
L49	49	6"x1" Flat Reinforcement	10.00 - 11.83	1.0000	1.0000
L50	17	LDF7-50A(1-5/8)	9.75 - 10.00	1.0000	1.0000
L50	21	CU12PSM9P6XXX(1-1/2)	9.75 - 10.00	1.0000	1.0000
L50	25	Safety Line 3/8	9.75 - 10.00	1.0000	1.0000
L50	27	MP306	9.75 - 10.00	1.0000	1.0000
L50	28	MP306	9.75 - 10.00	1.0000	1.0000
L50	30	MP306	9.75 - 10.00	1.0000	1.0000
L50	31	MP306	9.75 - 10.00	1.0000	1.0000
L50	47	6"x1" Flat Reinforcement	9.75 - 10.00	1.0000	1.0000
L50	48	6"x1" Flat Reinforcement	9.75 - 10.00	1.0000	1.0000
L50	49	6"x1" Flat Reinforcement	9.75 - 10.00	1.0000	1.0000
L51	17	LDF7-50A(1-5/8)	4.75 - 9.75	1.0000	1.0000
L51	21	CU12PSM9P6XXX(1-1/2)	4.75 - 9.75	1.0000	1.0000
L51	25	Safety Line 3/8	4.75 - 9.75	1.0000	1.0000
L51	27	MP306	4.75 - 9.75	1.0000	1.0000
L51	28	MP306	4.75 - 9.75	1.0000	1.0000
L51	30	MP306	4.75 - 9.75	1.0000	1.0000
L51	31	MP306	4.75 - 9.75	1.0000	1.0000
L51	47	6"x1" Flat Reinforcement	8.00 - 9.75	1.0000	1.0000
L51	48	6"x1" Flat Reinforcement	8.00 - 9.75	1.0000	1.0000
L51	49	6"x1" Flat Reinforcement	8.00 - 9.75	1.0000	1.0000
L52	17	LDF7-50A(1-5/8)	0.00 - 4.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L52	21	CU12PSM9P6XXX(1-1/2)	0.00 - 4.75	1.0000	1.0000
L52	25	Safety Line 3/8	0.00 - 4.75	1.0000	1.0000
L52	27	MP306	0.50 - 4.75	1.0000	1.0000
L52	28	MP306	0.50 - 4.75	1.0000	1.0000
L52	30	MP306	0.50 - 4.75	1.0000	1.0000
L52	31	MP306	0.50 - 4.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L1	55	HSS6x6	155.00 - 155.50	Auto	1.0000
L1	56	HSS6x6	155.00 - 155.50	Auto	1.0000
L1	57	HSS6x6	155.00 - 155.50	Auto	1.0000
L2	55	HSS6x6	150.00 - 155.00	Auto	1.0000
L2	56	HSS6x6	150.00 - 155.00	Auto	1.0000
L2	57	HSS6x6	150.00 - 155.00	Auto	1.0000
L3	55	HSS6x6	148.50 - 150.00	Auto	1.0000
L3	56	HSS6x6	148.50 - 150.00	Auto	1.0000
L3	57	HSS6x6	148.50 - 150.00	Auto	1.0000
L4	55	HSS6x6	148.00 - 148.50	Auto	1.0000
L4	56	HSS6x6	148.00 - 148.50	Auto	1.0000
L4	57	HSS6x6	148.00 - 148.50	Auto	1.0000
L5	55	HSS6x6	143.00 - 148.00	Auto	0.3868
L5	56	HSS6x6	143.00 - 148.00	Auto	0.3868
L5	57	HSS6x6	143.00 - 148.00	Auto	0.3868
L6	55	HSS6x6	140.00 - 143.00	Auto	0.3678
L6	56	HSS6x6	140.00 - 143.00	Auto	0.3678
L6	57	HSS6x6	140.00 - 143.00	Auto	0.3678
L13	39	MP304	105.33 - 106.75	Auto	0.0363
L13	40	MP304	105.33 - 106.75	Auto	0.0363
L13	41	MP304	105.33 - 106.75	Auto	0.0363

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L14	39	MP304	105.08 - 105.33	Auto	0.0889
L14	40	MP304	105.08 - 105.33	Auto	0.0889
L14	41	MP304	105.08 - 105.33	Auto	0.0889
L15	39	MP304	100.08 - 105.08	Auto	0.0709
L15	40	MP304	100.08 - 105.08	Auto	0.0709
L15	41	MP304	100.08 - 105.08	Auto	0.0709
L16	39	MP304	95.08 - 100.08	Auto	0.0411
L16	40	MP304	95.08 - 100.08	Auto	0.0411
L16	41	MP304	95.08 - 100.08	Auto	0.0411
L17	39	MP304	92.50 - 95.08	Auto	0.0162
L17	40	MP304	92.50 - 95.08	Auto	0.0162
L17	41	MP304	92.50 - 95.08	Auto	0.0162
L17	59	4"x1.25" Flat Reinforcement	92.50 - 94.00	Auto	0.0000
L17	60	4"x1.25" Flat Reinforcement	92.50 - 94.00	Auto	0.0000
L17	61	4"x1.25" Flat Reinforcement	92.50 - 94.00	Auto	0.0000
L18	39	MP304	92.25 - 92.50	Auto	0.0745
L18	40	MP304	92.25 - 92.50	Auto	0.0745
L18	41	MP304	92.25 - 92.50	Auto	0.0745
L18	59	4"x1.25" Flat Reinforcement	92.25 - 92.50	Auto	0.0000
L18	60	4"x1.25" Flat Reinforcement	92.25 - 92.50	Auto	0.0000
L18	61	4"x1.25" Flat Reinforcement	92.25 - 92.50	Auto	0.0000
L19	39	MP304	87.25 - 92.25	Auto	0.0542
L19	40	MP304	87.25 - 92.25	Auto	0.0542
L19	41	MP304	87.25 - 92.25	Auto	0.0542
L19	59	4"x1.25" Flat Reinforcement	87.25 - 92.25	Auto	0.0000
L19	60	4"x1.25" Flat Reinforcement	87.25 - 92.25	Auto	0.0000
L19	61	4"x1.25" Flat Reinforcement	87.25 - 92.25	Auto	0.0000
L20	39	MP304	82.25 - 87.25	Auto	0.0198
L20	40	MP304	82.25 - 87.25	Auto	0.0198
L20	41	MP304	82.25 - 87.25	Auto	0.0198
L20	51	6"x1" Flat Reinforcement	82.25 - 82.50	Auto	0.2078
L20	52	6"x1" Flat Reinforcement	82.25 - 82.50	Auto	0.2078
L20	53	6"x1" Flat Reinforcement	82.25 - 82.50	Auto	0.2078
L20	59	4"x1.25" Flat Reinforcement	82.25 - 87.25	Auto	0.0000
L20	60	4"x1.25" Flat Reinforcement	82.25 - 87.25	Auto	0.0000
L20	61	4"x1.25" Flat Reinforcement	82.25 - 87.25	Auto	0.0000
L21	39	MP304	76.75 - 82.25	Auto	0.0004
L21	40	MP304	76.75 - 82.25	Auto	0.0004
L21	41	MP304	76.75 - 82.25	Auto	0.0004
L21	51	6"x1" Flat Reinforcement	76.75 - 82.25	Auto	0.1942
L21	52	6"x1" Flat Reinforcement	76.75 - 82.25	Auto	0.1942
L21	53	6"x1" Flat Reinforcement	76.75 - 82.25	Auto	0.1942
L21	59	4"x1.25" Flat Reinforcement	79.00 - 82.25	Auto	0.0000
L21	60	4"x1.25" Flat Reinforcement	79.00 - 82.25	Auto	0.0000
L21	61	4"x1.25" Flat Reinforcement	79.00 - 82.25	Auto	0.0000
L22	51	6"x1" Flat Reinforcement	75.75 - 76.75	Auto	0.1274
L22	52	6"x1" Flat Reinforcement	75.75 - 76.75	Auto	0.1274
L22	53	6"x1" Flat Reinforcement	75.75 - 76.75	Auto	0.1274
L23	35	MP305	70.75 - 73.00	Auto	0.0000
L23	36	MP305	70.75 - 73.00	Auto	0.0000
L23	37	MP305	70.75 - 73.00	Auto	0.0000
L23	51	6"x1" Flat Reinforcement	70.75 - 75.75	Auto	0.1131
L23	52	6"x1" Flat Reinforcement	70.75 - 75.75	Auto	0.1131
L23	53	6"x1" Flat Reinforcement	70.75 - 75.75	Auto	0.1131
L24	35	MP305	70.58 - 70.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L24	36	MP305	70.58 - 70.75	Auto	0.0000
L24	37	MP305	70.58 - 70.75	Auto	0.0000
L24	51	6"x1" Flat Reinforcement	70.58 - 70.75	Auto	0.1009
L24	52	6"x1" Flat Reinforcement	70.58 - 70.75	Auto	0.1009
L24	53	6"x1" Flat Reinforcement	70.58 - 70.75	Auto	0.1009
L25	35	MP305	70.33 - 70.58	Auto	0.0858
L25	36	MP305	70.33 - 70.58	Auto	0.0858
L25	37	MP305	70.33 - 70.58	Auto	0.0858
L25	51	6"x1" Flat Reinforcement	70.33 - 70.58	Auto	0.1879
L25	52	6"x1" Flat Reinforcement	70.33 - 70.58	Auto	0.1879
L25	53	6"x1" Flat Reinforcement	70.33 - 70.58	Auto	0.1879
L26	35	MP305	70.00 - 70.33	Auto	0.0842
L26	36	MP305	70.00 - 70.33	Auto	0.0842
L26	37	MP305	70.00 - 70.33	Auto	0.0842
L26	51	6"x1" Flat Reinforcement	70.00 - 70.33	Auto	0.1865
L26	52	6"x1" Flat Reinforcement	70.00 - 70.33	Auto	0.1865
L26	53	6"x1" Flat Reinforcement	70.00 - 70.33	Auto	0.1865
L27	35	MP305	69.75 - 70.00	Auto	0.0000
L27	36	MP305	69.75 - 70.00	Auto	0.0000
L27	37	MP305	69.75 - 70.00	Auto	0.0000
L27	51	6"x1" Flat Reinforcement	69.75 - 70.00	Auto	0.0971
L27	52	6"x1" Flat Reinforcement	69.75 - 70.00	Auto	0.0971
L27	53	6"x1" Flat Reinforcement	69.75 - 70.00	Auto	0.0971
L28	35	MP305	64.75 - 69.75	Auto	0.0000
L28	36	MP305	64.75 - 69.75	Auto	0.0000
L28	37	MP305	64.75 - 69.75	Auto	0.0000
L28	51	6"x1" Flat Reinforcement	67.50 - 69.75	Auto	0.0912
L28	52	6"x1" Flat Reinforcement	67.50 - 69.75	Auto	0.0912
L28	53	6"x1" Flat Reinforcement	67.50 - 69.75	Auto	0.0912
L29	35	MP305	59.75 - 64.75	Auto	0.0000
L29	36	MP305	59.75 - 64.75	Auto	0.0000
L29	37	MP305	59.75 - 64.75	Auto	0.0000
L30	35	MP305	54.75 - 59.75	Auto	0.0000
L30	36	MP305	54.75 - 59.75	Auto	0.0000
L30	37	MP305	54.75 - 59.75	Auto	0.0000
L31	35	MP305	49.75 - 54.75	Auto	0.0000
L31	36	MP305	49.75 - 54.75	Auto	0.0000
L31	37	MP305	49.75 - 54.75	Auto	0.0000
L32	35	MP305	43.00 - 49.75	Auto	0.0000
L32	36	MP305	43.00 - 49.75	Auto	0.0000
L32	37	MP305	43.00 - 49.75	Auto	0.0000
L32	43	6.5"x1.25" Flat Reinforcement	43.00 - 49.50	Auto	0.0629
L32	44	6.5"x1.25" Flat Reinforcement	43.00 - 49.50	Auto	0.0629
L32	45	6.5"x1.25" Flat Reinforcement	43.00 - 49.50	Auto	0.0629
L33	43	6.5"x1.25" Flat Reinforcement	42.00 - 43.00	Auto	0.0837
L33	44	6.5"x1.25" Flat Reinforcement	42.00 - 43.00	Auto	0.0837
L33	45	6.5"x1.25" Flat Reinforcement	42.00 - 43.00	Auto	0.0837
L34	43	6.5"x1.25" Flat Reinforcement	37.00 - 42.00	Auto	0.0706
L34	44	6.5"x1.25" Flat Reinforcement	37.00 - 42.00	Auto	0.0706
L34	45	6.5"x1.25" Flat Reinforcement	37.00 - 42.00	Auto	0.0706
L35	43	6.5"x1.25" Flat Reinforcement	32.00 - 37.00	Auto	0.0486

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L35	44	6.5"x1.25" Flat Reinforcement	32.00 - 37.00	Auto	0.0486
L35	45	6.5"x1.25" Flat Reinforcement	32.00 - 37.00	Auto	0.0486
L36	30	MP306	27.91 - 30.50	Auto	0.0806
L36	31	MP306	27.91 - 30.50	Auto	0.0806
L36	33	MP306	27.91 - 31.33	Auto	0.0823
L36	43	6.5"x1.25" Flat Reinforcement	27.91 - 32.00	Auto	0.0287
L36	44	6.5"x1.25" Flat Reinforcement	27.91 - 32.00	Auto	0.0287
L36	45	6.5"x1.25" Flat Reinforcement	27.91 - 32.00	Auto	0.0287
L37	30	MP306	27.66 - 27.91	Auto	0.1354
L37	31	MP306	27.66 - 27.91	Auto	0.1354
L37	33	MP306	27.66 - 27.91	Auto	0.1354
L37	43	6.5"x1.25" Flat Reinforcement	27.66 - 27.91	Auto	0.0835
L37	44	6.5"x1.25" Flat Reinforcement	27.66 - 27.91	Auto	0.0835
L37	45	6.5"x1.25" Flat Reinforcement	27.66 - 27.91	Auto	0.0835
L38	30	MP306	27.25 - 27.66	Auto	0.1340
L38	31	MP306	27.25 - 27.66	Auto	0.1340
L38	33	MP306	27.25 - 27.66	Auto	0.1340
L38	43	6.5"x1.25" Flat Reinforcement	27.25 - 27.66	Auto	0.0820
L38	44	6.5"x1.25" Flat Reinforcement	27.25 - 27.66	Auto	0.0820
L38	45	6.5"x1.25" Flat Reinforcement	27.25 - 27.66	Auto	0.0820
L39	30	MP306	26.98 - 27.25	Auto	0.1326
L39	31	MP306	26.98 - 27.25	Auto	0.1326
L39	33	MP306	26.98 - 27.25	Auto	0.1326
L39	43	6.5"x1.25" Flat Reinforcement	26.98 - 27.25	Auto	0.0805
L39	44	6.5"x1.25" Flat Reinforcement	26.98 - 27.25	Auto	0.0805
L39	45	6.5"x1.25" Flat Reinforcement	26.98 - 27.25	Auto	0.0805
L40	30	MP306	26.83 - 26.98	Auto	0.1285
L40	31	MP306	26.83 - 26.98	Auto	0.1285
L40	33	MP306	26.83 - 26.98	Auto	0.1285
L40	43	6.5"x1.25" Flat Reinforcement	26.83 - 26.98	Auto	0.0762
L40	44	6.5"x1.25" Flat Reinforcement	26.83 - 26.98	Auto	0.0762
L40	45	6.5"x1.25" Flat Reinforcement	26.83 - 26.98	Auto	0.0762
L41	30	MP306	21.83 - 26.83	Auto	0.1179
L41	31	MP306	21.83 - 26.83	Auto	0.1179
L41	33	MP306	21.83 - 26.83	Auto	0.1179
L41	43	6.5"x1.25" Flat Reinforcement	24.50 - 26.83	Auto	0.0708
L41	44	6.5"x1.25" Flat Reinforcement	24.50 - 26.83	Auto	0.0708
L41	45	6.5"x1.25" Flat Reinforcement	24.50 - 26.83	Auto	0.0708
L42	30	MP306	16.83 - 21.83	Auto	0.0972
L42	31	MP306	16.83 - 21.83	Auto	0.0972
L42	33	MP306	16.83 - 21.83	Auto	0.0972

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L42	47	6"x1" Flat Reinforcement	16.83 - 18.00	Auto	0.0000
L42	48	6"x1" Flat Reinforcement	16.83 - 18.00	Auto	0.0000
L42	49	6"x1" Flat Reinforcement	16.83 - 18.00	Auto	0.0000
L43	30	MP306	16.00 - 16.83	Auto	0.0851
L43	31	MP306	16.00 - 16.83	Auto	0.0851
L43	33	MP306	16.00 - 16.83	Auto	0.0851
L43	47	6"x1" Flat Reinforcement	16.00 - 16.83	Auto	0.0000
L43	48	6"x1" Flat Reinforcement	16.00 - 16.83	Auto	0.0000
L43	49	6"x1" Flat Reinforcement	16.00 - 16.83	Auto	0.0000
L44	30	MP306	15.75 - 16.00	Auto	0.1212
L44	31	MP306	15.75 - 16.00	Auto	0.1212
L44	33	MP306	15.75 - 16.00	Auto	0.1212
L44	47	6"x1" Flat Reinforcement	15.75 - 16.00	Auto	0.0000
L44	48	6"x1" Flat Reinforcement	15.75 - 16.00	Auto	0.0000
L44	49	6"x1" Flat Reinforcement	15.75 - 16.00	Auto	0.0000
L45	27	MP306	14.75 - 15.50	Auto	0.1181
L45	28	MP306	14.75 - 15.50	Auto	0.1181
L45	30	MP306	14.75 - 15.75	Auto	0.1186
L45	31	MP306	14.75 - 15.75	Auto	0.1186
L45	33	MP306	14.75 - 15.75	Auto	0.1186
L45	47	6"x1" Flat Reinforcement	14.75 - 15.75	Auto	0.0000
L45	48	6"x1" Flat Reinforcement	14.75 - 15.75	Auto	0.0000
L45	49	6"x1" Flat Reinforcement	14.75 - 15.75	Auto	0.0000
L46	27	MP306	14.50 - 14.75	Auto	0.0330
L46	28	MP306	14.50 - 14.75	Auto	0.0330
L46	30	MP306	14.50 - 14.75	Auto	0.0330
L46	31	MP306	14.50 - 14.75	Auto	0.0330
L46	33	MP306	14.50 - 14.75	Auto	0.0330
L46	47	6"x1" Flat Reinforcement	14.50 - 14.75	Auto	0.0000
L46	48	6"x1" Flat Reinforcement	14.50 - 14.75	Auto	0.0000
L46	49	6"x1" Flat Reinforcement	14.50 - 14.75	Auto	0.0000
L47	27	MP306	12.08 - 14.50	Auto	0.0275
L47	28	MP306	12.08 - 14.50	Auto	0.0275
L47	30	MP306	12.08 - 14.50	Auto	0.0275
L47	31	MP306	12.08 - 14.50	Auto	0.0275
L47	33	MP306	12.08 - 14.50	Auto	0.0275
L47	47	6"x1" Flat Reinforcement	12.08 - 14.50	Auto	0.0000
L47	48	6"x1" Flat Reinforcement	12.08 - 14.50	Auto	0.0000
L47	49	6"x1" Flat Reinforcement	12.08 - 14.50	Auto	0.0000
L48	27	MP306	11.83 - 12.08	Auto	0.0858
L48	28	MP306	11.83 - 12.08	Auto	0.0858
L48	30	MP306	11.83 - 12.08	Auto	0.0858
L48	31	MP306	11.83 - 12.08	Auto	0.0858
L48	33	MP306	11.83 - 12.08	Auto	0.0858
L48	47	6"x1" Flat Reinforcement	11.83 - 12.08	Auto	0.0000
L48	48	6"x1" Flat Reinforcement	11.83 - 12.08	Auto	0.0000
L48	49	6"x1" Flat Reinforcement	11.83 - 12.08	Auto	0.0000
L49	27	MP306	10.00 - 11.83	Auto	0.0815
L49	28	MP306	10.00 - 11.83	Auto	0.0815
L49	30	MP306	10.00 - 11.83	Auto	0.0815
L49	31	MP306	10.00 - 11.83	Auto	0.0815
L49	33	MP306	11.33 - 11.83	Auto	0.0843
L49	47	6"x1" Flat Reinforcement	10.00 - 11.83	Auto	0.0000
L49	48	6"x1" Flat Reinforcement	10.00 - 11.83	Auto	0.0000
L49	49	6"x1" Flat Reinforcement	10.00 - 11.83	Auto	0.0000
L50	27	MP306	9.75 - 10.00	Auto	0.0772
L50	28	MP306	9.75 - 10.00	Auto	0.0772
L50	30	MP306	9.75 - 10.00	Auto	0.0772
L50	31	MP306	9.75 - 10.00	Auto	0.0772
L50	47	6"x1" Flat Reinforcement	9.75 - 10.00	Auto	0.0000
L50	48	6"x1" Flat Reinforcement	9.75 - 10.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L50	49	6"x1" Flat Reinforcement	9.75 - 10.00	Auto	0.0000
L51	27	MP306	4.75 - 9.75	Auto	0.0632
L51	28	MP306	4.75 - 9.75	Auto	0.0632
L51	30	MP306	4.75 - 9.75	Auto	0.0632
L51	31	MP306	4.75 - 9.75	Auto	0.0632
L51	47	6"x1" Flat Reinforcement	8.00 - 9.75	Auto	0.0000
L51	48	6"x1" Flat Reinforcement	8.00 - 9.75	Auto	0.0000
L51	49	6"x1" Flat Reinforcement	8.00 - 9.75	Auto	0.0000
L52	27	MP306	0.50 - 4.75	Auto	0.0408
L52	28	MP306	0.50 - 4.75	Auto	0.0408
L52	30	MP306	0.50 - 4.75	Auto	0.0408
L52	31	MP306	0.50 - 4.75	Auto	0.0408

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 K
80010966 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	14.610 15.470 16.350	6.840 7.630 8.420	0.159 0.267 0.389
80010966 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	14.610 15.470 16.350	6.840 7.630 8.420	0.159 0.267 0.389
80010966 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	14.610 15.470 16.350	6.840 7.630 8.420	0.159 0.267 0.389
(2) DC6-48-60-18-8F	A	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	0.850 1.356 1.532	0.850 1.356 1.532	0.019 0.036 0.055
DC6-48-60-18-8F	B	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	0.850 1.356 1.532	0.850 1.356 1.532	0.019 0.036 0.055
DC6-48-60-18-8F	C	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	0.850 1.356 1.532	0.850 1.356 1.532	0.019 0.036 0.055
RRUS 8843 B2/B66A	A	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	1.639 1.799 1.966	1.353 1.500 1.655	0.072 0.090 0.110
RRUS 8843 B2/B66A	B	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	1.639 1.799 1.966	1.353 1.500 1.655	0.072 0.090 0.110
RRUS 8843 B2/B66A	C	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	1.639 1.799 1.966	1.353 1.500 1.655	0.072 0.090 0.110
RRUS 4478 B14	A	From Leg	4.000 0.000 1.000	0.000	157.000	No Ice 1/2" Ice 1" Ice	1.843 2.012 2.190	1.059 1.197 1.342	0.060 0.076 0.094
RRUS 4478 B14	B	From Leg	4.000 0.000	0.000	157.000	No Ice 1/2" Ice	1.843 2.012	1.059 1.197	0.060 0.076

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			1" Ice	2.190	1.342	0.094
RRUS 4478 B14	C	From Leg	4.000	0.000	157.000	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			1.000			1" Ice	2.190	1.342	0.094
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	157.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	157.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	157.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			1.000			1" Ice	2.328	1.727	0.111
TPA65R-BU8DA-K w/ Mount Pipe	A	From Leg	4.000	0.000	157.000	No Ice	18.109	10.260	0.120
			0.000			1/2" Ice	18.843	11.781	0.241
			1.000			1" Ice	19.586	13.327	0.373
TPA65R-BU8DA-K w/ Mount Pipe	B	From Leg	4.000	0.000	157.000	No Ice	18.109	10.260	0.120
			0.000			1/2" Ice	18.843	11.781	0.241
			1.000			1" Ice	19.586	13.327	0.373
TPA65R-BU8DA-K w/ Mount Pipe	C	From Leg	4.000	0.000	157.000	No Ice	18.109	10.260	0.120
			0.000			1/2" Ice	18.843	11.781	0.241
			1.000			1" Ice	19.586	13.327	0.373
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	4.000	0.000	157.000	No Ice	3.790	2.150	0.069
			0.000			1/2" Ice	4.140	2.450	0.104
			3.000			1" Ice	4.510	2.760	0.146
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.000	0.000	157.000	No Ice	3.790	2.150	0.069
			0.000			1/2" Ice	4.140	2.450	0.104
			3.000			1" Ice	4.510	2.760	0.146
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.000	0.000	157.000	No Ice	3.790	2.150	0.069
			0.000			1/2" Ice	4.140	2.450	0.104
			3.000			1" Ice	4.510	2.760	0.146
AIR 6449 B77D_CCVI2 w/ Mount Pipe	A	From Leg	4.000	0.000	157.000	No Ice	3.580	2.310	0.095
			0.000			1/2" Ice	3.920	2.600	0.130
			-1.000			1" Ice	4.270	2.910	0.173
AIR 6449 B77D_CCVI2 w/ Mount Pipe	B	From Leg	4.000	0.000	157.000	No Ice	3.580	2.310	0.095
			0.000			1/2" Ice	3.920	2.600	0.130
			-1.000			1" Ice	4.270	2.910	0.173
AIR 6449 B77D_CCVI2 w/ Mount Pipe	C	From Leg	4.000	0.000	157.000	No Ice	3.580	2.310	0.095
			0.000			1/2" Ice	3.920	2.600	0.130
			-1.000			1" Ice	4.270	2.910	0.173
RRUS-32 B30	A	From Leg	4.000	0.000	157.000	No Ice	3.314	2.424	0.077
			0.000			1/2" Ice	3.558	2.638	0.105
			1.000			1" Ice	3.809	2.860	0.136
RRUS-32 B30	B	From Leg	4.000	0.000	157.000	No Ice	3.314	2.424	0.077
			0.000			1/2" Ice	3.558	2.638	0.105
			1.000			1" Ice	3.809	2.860	0.136
RRUS-32 B30	C	From Leg	4.000	0.000	157.000	No Ice	3.314	2.424	0.077
			0.000			1/2" Ice	3.558	2.638	0.105
			1.000			1" Ice	3.809	2.860	0.136
(3) Side Arm Mount [SO 309-3]	C	None		0.000	157.000	No Ice	4.620	4.620	0.120
						1/2" Ice	6.880	6.880	0.184
						1" Ice	9.440	9.440	0.271
Sector Mount [SM 503-3]	C	None		0.000	157.000	No Ice	30.430	30.430	1.690
						1/2" Ice	43.020	43.020	2.296
						1" Ice	55.430	55.430	3.097
Pipe Mount [PM 601-3]	C	None		0.000	157.000	No Ice	3.170	3.170	0.195
						1/2" Ice	3.790	3.790	0.232

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	4.420	4.420	0.279
*									
*									
VV-65B-R1_TMO w/ Mount Pipe	A	From Leg	4.000	0.000	148.000	No Ice	8.154	5.426	0.067
			0.000			1/2" Ice	8.704	6.558	0.127
			0.000			1" Ice	9.219	7.414	0.196
VV-65B-R1_TMO w/ Mount Pipe	B	From Leg	4.000	0.000	148.000	No Ice	8.154	5.426	0.067
			0.000			1/2" Ice	8.704	6.558	0.127
			0.000			1" Ice	9.219	7.414	0.196
VV-65B-R1_TMO w/ Mount Pipe	C	From Leg	4.000	0.000	148.000	No Ice	8.154	5.426	0.067
			0.000			1/2" Ice	8.704	6.558	0.127
			0.000			1" Ice	9.219	7.414	0.196
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.000	0.000	148.000	No Ice	6.580	3.500	0.111
			0.000			1/2" Ice	7.060	3.900	0.162
			0.000			1" Ice	7.570	4.320	0.220
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.000	0.000	148.000	No Ice	6.580	3.500	0.111
			0.000			1/2" Ice	7.060	3.900	0.162
			0.000			1" Ice	7.570	4.320	0.220
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.000	0.000	148.000	No Ice	6.580	3.500	0.111
			0.000			1/2" Ice	7.060	3.900	0.162
			0.000			1" Ice	7.570	4.320	0.220
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000	0.000	148.000	No Ice	14.690	6.870	0.183
			0.000			1/2" Ice	15.460	7.550	0.311
			0.000			1" Ice	16.230	8.250	0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000	0.000	148.000	No Ice	14.690	6.870	0.183
			0.000			1/2" Ice	15.460	7.550	0.311
			0.000			1" Ice	16.230	8.250	0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000	0.000	148.000	No Ice	14.690	6.870	0.183
			0.000			1/2" Ice	15.460	7.550	0.311
			0.000			1" Ice	16.230	8.250	0.453
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000	0.000	148.000	No Ice	2.139	1.686	0.109
			0.000			1/2" Ice	2.321	1.850	0.131
			0.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000	0.000	148.000	No Ice	2.139	1.686	0.109
			0.000			1/2" Ice	2.321	1.850	0.131
			0.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000	0.000	148.000	No Ice	2.139	1.686	0.109
			0.000			1/2" Ice	2.321	1.850	0.131
			0.000			1" Ice	2.511	2.022	0.156
Radio 4480_TMOV2	A	From Leg	4.000	0.000	148.000	No Ice	2.878	1.397	0.081
			0.000			1/2" Ice	3.091	1.558	0.103
			0.000			1" Ice	3.312	1.727	0.128
Radio 4480_TMOV2	B	From Leg	4.000	0.000	148.000	No Ice	2.878	1.397	0.081
			0.000			1/2" Ice	3.091	1.558	0.103
			0.000			1" Ice	3.312	1.727	0.128
Radio 4480_TMOV2	C	From Leg	4.000	0.000	148.000	No Ice	2.878	1.397	0.081
			0.000			1/2" Ice	3.091	1.558	0.103
			0.000			1" Ice	3.312	1.727	0.128
(2) L3x3x1/4x6'	A	From Leg	2.000	0.000	145.000	No Ice	1.800	0.008	0.070
			0.000			1/2" Ice	2.220	0.030	0.080
			0.000			1" Ice	2.648	0.058	0.095
(2) L3x3x1/4x6'	B	From Leg	2.000	0.000	145.000	No Ice	1.800	0.008	0.070
			0.000			1/2" Ice	2.220	0.030	0.080
			0.000			1" Ice	2.648	0.058	0.095
(2) L3x3x1/4x6'	C	From Leg	2.000	0.000	145.000	No Ice	1.800	0.008	0.070
			0.000			1/2" Ice	2.220	0.030	0.080
			0.000			1" Ice	2.648	0.058	0.095

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Miscellaneous [NA 507-1]	C	None			0.000	145.000	No Ice	4.560	4.560	0.245
							1/2" Ice	6.390	6.390	0.311
							1" Ice	8.180	8.180	0.402
Platform Mount [LP 1201-1_HR-1]	C	None			0.000	148.000	No Ice	26.390	26.390	2.356
							1/2" Ice	31.400	31.400	3.061
							1" Ice	36.200	36.200	3.864
*										
(2) NNHH-65B-R4 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	138.000	No Ice	7.550	4.230	0.110
			0.000				1/2" Ice	8.040	4.670	0.197
			0.000				1" Ice	8.530	5.120	0.296
(2) NNHH-65B-R4 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	138.000	No Ice	7.550	4.230	0.110
			0.000				1/2" Ice	8.040	4.670	0.197
			0.000				1" Ice	8.530	5.120	0.296
(2) NNHH-65B-R4 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice	7.550	4.230	0.110
			0.000				1/2" Ice	8.040	4.670	0.197
			0.000				1" Ice	8.530	5.120	0.296
KS24019-L112A w/Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice	1.407	1.566	0.027
			0.000				1/2" Ice	1.909	2.123	0.044
			4.000				1" Ice	2.301	2.556	0.065
RFV01U-D1A	A	From Leg	4.000	0.000	0.000	138.000	No Ice	1.875	1.250	0.084
			0.000				1/2" Ice	2.045	1.393	0.103
			0.000				1" Ice	2.223	1.543	0.124
RFV01U-D1A	B	From Leg	4.000	0.000	0.000	138.000	No Ice	1.875	1.250	0.084
			0.000				1/2" Ice	2.045	1.393	0.103
			0.000				1" Ice	2.223	1.543	0.124
RFV01U-D1A	C	From Leg	4.000	0.000	0.000	138.000	No Ice	1.875	1.250	0.084
			0.000				1/2" Ice	2.045	1.393	0.103
			0.000				1" Ice	2.223	1.543	0.124
RVZDC-6627-PF-48	A	From Leg	4.000	0.000	0.000	138.000	No Ice	3.792	2.514	0.032
			0.000				1/2" Ice	4.044	2.727	0.063
			0.000				1" Ice	4.303	2.947	0.099
RFV01U-D2A	A	From Leg	4.000	0.000	0.000	138.000	No Ice	1.875	1.013	0.070
			0.000				1/2" Ice	2.045	1.145	0.087
			0.000				1" Ice	2.223	1.284	0.106
RFV01U-D2A	B	From Leg	4.000	0.000	0.000	138.000	No Ice	1.875	1.013	0.070
			0.000				1/2" Ice	2.045	1.145	0.087
			0.000				1" Ice	2.223	1.284	0.106
RFV01U-D2A	C	From Leg	4.000	0.000	0.000	138.000	No Ice	1.875	1.013	0.070
			0.000				1/2" Ice	2.045	1.145	0.087
			0.000				1" Ice	2.223	1.284	0.106
CBRS w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	138.000	No Ice	1.450	0.990	0.032
			0.000				1/2" Ice	1.670	1.180	0.048
			0.000				1" Ice	1.900	1.390	0.068
CBRS w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	138.000	No Ice	1.450	0.990	0.032
			0.000				1/2" Ice	1.670	1.180	0.048
			0.000				1" Ice	1.900	1.390	0.068
CBRS w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice	1.450	0.990	0.032
			0.000				1/2" Ice	1.670	1.180	0.048
			0.000				1" Ice	1.900	1.390	0.068
MT6407-77A w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	138.000	No Ice	4.907	2.682	0.096
			0.000				1/2" Ice	5.256	3.145	0.136
			0.000				1" Ice	5.615	3.624	0.180
MT6407-77A w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	138.000	No Ice	4.907	2.682	0.096
			0.000				1/2" Ice	5.256	3.145	0.136
			0.000				1" Ice	5.615	3.624	0.180
MT6407-77A w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	138.000	No Ice	4.907	2.682	0.096
			0.000				1/2" Ice	5.256	3.145	0.136

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 K
			0.000			1" Ice	5.615	3.624	0.180
Platform Mount [LP 303-1_KCKR-HR-1]	C	None		0.000	138.000	No Ice	28.310	28.310	1.770
						1/2" Ice	35.690	35.690	2.297
						1" Ice	43.110	43.110	2.943
Mount Reinforcement Specifications	C	None		0.000	138.000	No Ice	28.630	28.630	0.280
						1/2" Ice	37.310	37.310	0.670
						1" Ice	45.800	45.800	0.940
*									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000	0.000	127.000	No Ice	3.140	2.590	0.112
			0.000			1/2" Ice	3.450	2.880	0.164
			2.000			1" Ice	3.770	3.190	0.225
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.000	0.000	127.000	No Ice	3.140	2.590	0.112
			0.000			1/2" Ice	3.450	2.880	0.164
			2.000			1" Ice	3.770	3.190	0.225
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000	0.000	127.000	No Ice	3.140	2.590	0.112
			0.000			1/2" Ice	3.450	2.880	0.164
			2.000			1" Ice	3.770	3.190	0.225
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.000	0.000	127.000	No Ice	5.310	4.270	0.083
			0.000			1/2" Ice	5.800	4.750	0.165
			2.000			1" Ice	6.300	5.240	0.261
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.000	0.000	127.000	No Ice	5.310	4.270	0.083
			0.000			1/2" Ice	5.800	4.750	0.165
			2.000			1" Ice	6.300	5.240	0.261
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.000	0.000	127.000	No Ice	5.310	4.270	0.083
			0.000			1/2" Ice	5.800	4.750	0.165
			2.000			1" Ice	6.300	5.240	0.261
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.000	0.000	127.000	No Ice	3.140	2.590	0.111
			0.000			1/2" Ice	3.450	2.880	0.163
			2.000			1" Ice	3.770	3.190	0.224
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.000	0.000	127.000	No Ice	3.140	2.590	0.111
			0.000			1/2" Ice	3.450	2.880	0.163
			2.000			1" Ice	3.770	3.190	0.224
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.000	0.000	127.000	No Ice	3.140	2.590	0.111
			0.000			1/2" Ice	3.450	2.880	0.163
			2.000			1" Ice	3.770	3.190	0.224
KRY 112 144/1	A	From Leg	4.000	0.000	127.000	No Ice	0.350	0.175	0.011
			0.000			1/2" Ice	0.426	0.234	0.014
			2.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	B	From Leg	4.000	0.000	127.000	No Ice	0.350	0.175	0.011
			0.000			1/2" Ice	0.426	0.234	0.014
			2.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	C	From Leg	4.000	0.000	127.000	No Ice	0.350	0.175	0.011
			0.000			1/2" Ice	0.426	0.234	0.014
			2.000			1" Ice	0.509	0.301	0.019
RRUS 11 B12	A	From Leg	4.000	0.000	127.000	No Ice	2.833	1.182	0.051
			0.000			1/2" Ice	3.043	1.330	0.072
			2.000			1" Ice	3.259	1.485	0.095
RRUS 11 B12	B	From Leg	4.000	0.000	127.000	No Ice	2.833	1.182	0.051
			0.000			1/2" Ice	3.043	1.330	0.072
			2.000			1" Ice	3.259	1.485	0.095
RRUS 11 B12	C	From Leg	4.000	0.000	127.000	No Ice	2.833	1.182	0.051
			0.000			1/2" Ice	3.043	1.330	0.072
			2.000			1" Ice	3.259	1.485	0.095
Platform Mount [LP 1201-1]	C	None		0.000	127.000	No Ice	18.380	18.380	2.100
						1/2" Ice	22.110	22.110	2.652
						1" Ice	25.870	25.870	3.263
*									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	2.012 2.189 2.373	1.168 1.311 1.461	0.022 0.040 0.060
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	119.000	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
Platform Mount [LP 716-1]	C	None		0.000	119.000	No Ice 1/2" Ice 1" Ice	26.800 32.200 37.600	26.800 32.200 37.600	1.509 1.811 2.113
*									
KS24019-L112A	A	From Leg	3.000 0.000 2.000	0.000	48.000	No Ice 1/2" Ice 1" Ice	0.141 0.198 0.262	0.141 0.198 0.262	0.005 0.007 0.009
2' x 2" Pipe Mount	A	From Leg	3.000 0.000 0.000	0.000	48.000	No Ice 1/2" Ice 1" Ice	0.023 0.049 0.085	0.023 0.049 0.085	0.007 0.008 0.009
Side Arm Mount [SO 701-1]	A	From Leg	1.500 0.000 0.000	0.000	48.000	No Ice 1/2" Ice 1" Ice	0.850 1.140 1.430	1.670 2.340 3.010	0.065 0.079 0.093
*									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	160 - 155	Pole	Max Tension	2	0.000	-0.000	-0.000
			Max. Compression	26	-10.301	-0.002	0.268
			Max. Mx	20	-4.626	18.135	0.084
			Max. My	2	-4.605	0.001	18.265
			Max. Vy	20	-6.943	18.135	0.084
			Max. Vx	14	6.957	0.000	-18.064
			Max. Torque	8			0.135
L2	155 - 150	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-11.505	0.001	0.285
			Max. Mx	20	-5.545	54.204	0.091
			Max. My	2	-5.517	0.003	54.500
			Max. Vy	20	-7.485	54.204	0.091
			Max. Vx	14	7.567	0.002	-54.377
			Max. Torque	8			0.135
L3	150 - 148.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-11.865	0.002	0.290
			Max. Mx	20	-5.827	65.539	0.093
			Max. My	2	-5.797	0.004	65.922
			Max. Vy	20	-7.641	65.539	0.093
			Max. Vx	14	7.743	0.002	-65.850
			Max. Torque	8			0.135
L4	148.5 - 148	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-12.020	0.002	0.293
			Max. Mx	20	-5.951	69.376	0.095
			Max. My	2	-5.920	0.005	69.792
			Max. Vy	20	-7.717	69.376	0.095
			Max. Vx	14	7.827	0.003	-69.741
			Max. Torque	8			0.135
L5	148 - 143	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-22.669	0.005	0.322
			Max. Mx	20	-11.941	131.975	0.105
			Max. My	14	-11.873	0.005	-133.135
			Max. Vy	20	-13.187	131.975	0.105
			Max. Vx	14	13.382	0.005	-133.135
			Max. Torque	8			0.134
L6	143 - 138	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-23.835	0.010	0.354
			Max. Mx	20	-12.827	198.969	0.117
			Max. My	14	-12.717	0.008	-201.771
			Max. Vy	20	-13.619	198.969	0.117
			Max. Vx	14	14.081	0.008	-201.771
			Max. Torque	8			0.134
L7	138 - 133	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.477	0.320	0.743
			Max. Mx	20	-17.073	291.748	0.221
			Max. My	14	-16.943	0.099	-296.887
			Max. Vy	20	-18.653	291.748	0.221
			Max. Vx	14	19.170	0.099	-296.887
			Max. Torque	18			-0.468
L8	133 - 128	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.228	0.329	0.783
			Max. Mx	20	-17.696	385.715	0.246
			Max. My	14	-17.570	0.092	-393.437
			Max. Vy	20	-18.950	385.715	0.246
			Max. Vx	14	19.467	0.092	-393.437
			Max. Torque	18			-0.468
L9	128 - 123	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-40.379	0.415	0.871
			Max. Mx	20	-21.935	492.876	0.286
			Max. My	14	-21.805	0.108	-503.189
			Max. Vy	20	-21.586	492.876	0.286

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	22.114	0.108	-503.189
			Max. Torque	18			-0.468
L10	123 - 118	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.769	0.518	1.301
			Max. Mx	20	-25.301	603.899	0.443
			Max. My	14	-25.167	0.129	-616.696
			Max. Vy	20	-24.353	603.899	0.443
			Max. Vx	14	24.912	0.129	-616.696
			Max. Torque	18			-0.634
L11	118 - 111	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.371	0.570	1.381
			Max. Mx	20	-25.819	683.219	0.478
			Max. My	14	-25.689	0.135	-697.802
			Max. Vy	20	-24.492	683.219	0.478
			Max. Vx	14	25.050	0.135	-697.802
			Max. Torque	18			-0.634
L12	111 - 109.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.890	0.650	1.503
			Max. Mx	20	-27.005	806.511	0.532
			Max. My	14	-26.879	0.144	-823.844
			Max. Vy	20	-24.834	806.511	0.532
			Max. Vx	14	25.393	0.144	-823.844
			Max. Torque	18			-0.633
L13	109.75 - 105.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.852	0.721	1.611
			Max. Mx	20	-27.830	916.534	0.579
			Max. My	14	-27.710	0.152	-936.292
			Max. Vy	20	-25.022	916.534	0.579
			Max. Vx	14	25.580	0.152	-936.292
			Max. Torque	18			-0.632
L14	105.333 - 105.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.923	0.726	1.618
			Max. Mx	20	-27.904	922.787	0.584
			Max. My	14	-27.785	0.153	-942.682
			Max. Vy	20	-25.029	922.787	0.584
			Max. Vx	14	25.586	0.153	-942.682
			Max. Torque	18			-0.632
L15	105.083 - 100.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.342	0.807	1.739
			Max. Mx	20	-29.044	1048.610	0.635
			Max. My	14	-28.930	0.161	-1071.246
			Max. Vy	20	-25.324	1048.610	0.635
			Max. Vx	14	25.881	0.161	-1071.246
			Max. Torque	18			-0.632
L16	100.083 - 95.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.781	0.889	1.862
			Max. Mx	20	-30.219	1175.871	0.689
			Max. My	14	-30.109	0.171	-1201.244
			Max. Vy	20	-25.606	1175.871	0.689
			Max. Vx	14	26.163	0.171	-1201.244
			Max. Torque	18			-0.631
L17	95.083 - 92.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.556	0.932	1.925
			Max. Mx	20	-30.833	1242.156	0.717
			Max. My	14	-30.726	0.176	-1268.942
			Max. Vy	20	-25.751	1242.156	0.717
			Max. Vx	14	26.308	0.176	-1268.942

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	18			-0.630
L18	92.5 - 92.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.648	0.937	1.934
			Max. Mx	20	-30.922	1248.593	0.722
			Max. My	14	-30.816	0.177	-1275.515
			Max. Vy	20	-25.760	1248.593	0.722
			Max. Vx	14	26.317	0.177	-1275.515
			Max. Torque	18			-0.630
L19	92.25 - 87.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.496	1.020	2.056
			Max. Mx	20	-32.391	1378.182	0.774
			Max. My	14	-32.288	0.186	-1407.838
			Max. Vy	20	-26.097	1378.182	0.774
			Max. Vx	14	26.654	0.186	-1407.838
			Max. Torque	18			-0.630
L20	87.25 - 82.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.367	1.104	2.180
			Max. Mx	20	-33.891	1509.426	0.829
			Max. My	14	-33.793	0.197	-1541.816
			Max. Vy	20	-26.423	1509.426	0.829
			Max. Vx	14	26.980	0.197	-1541.816
			Max. Torque	18			-0.630
L21	82.25 - 76.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.854	1.121	2.204
			Max. Mx	20	-34.268	1542.489	0.843
			Max. My	14	-34.170	0.199	-1575.562
			Max. Vy	20	-26.505	1542.489	0.843
			Max. Vx	14	27.062	0.199	-1575.562
			Max. Torque	18			-0.629
L22	76.75 - 75.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.645	1.195	2.309
			Max. Mx	20	-36.443	1682.756	0.901
			Max. My	14	-36.349	0.210	-1718.704
			Max. Vy	20	-26.921	1682.756	0.901
			Max. Vx	14	27.480	0.210	-1718.704
			Max. Torque	18			-0.629
L23	75.75 - 70.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.095	1.265	2.408
			Max. Mx	20	-37.648	1817.586	0.956
			Max. My	14	-37.561	0.221	-1856.263
			Max. Vy	20	-27.060	1817.586	0.956
			Max. Vx	14	27.615	0.221	-1856.263
			Max. Torque	18			-0.628
L24	70.75 - 70.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.145	1.269	2.414
			Max. Mx	20	-37.706	1822.103	0.960
			Max. My	14	-37.620	0.222	-1860.871
			Max. Vy	20	-27.069	1822.103	0.960
			Max. Vx	14	27.624	0.222	-1860.871
			Max. Torque	18			-0.628
L25	70.583 - 70.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.257	1.273	2.419
			Max. Mx	20	-37.799	1828.864	0.963
			Max. My	14	-37.713	0.222	-1867.768
			Max. Vy	20	-27.067	1828.864	0.963
			Max. Vx	14	27.622	0.222	-1867.768
			Max. Torque	18			-0.627
L26	70.333 - 70	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.405	1.277	2.425
			Max. Mx	20	-37.920	1837.876	0.966

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-37.835	0.223	-1876.961
			Max. Vy	20	-27.084	1837.876	0.966
			Max. Vx	14	27.638	0.223	-1876.961
			Max. Torque	18			-0.627
L27	70 - 69.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.481	1.280	2.429
			Max. Mx	20	-37.980	1844.646	0.968
			Max. My	14	-37.895	0.223	-1883.867
			Max. Vy	20	-27.098	1844.646	0.968
			Max. Vx	14	27.652	0.223	-1883.867
			Max. Torque	18			-0.627
L28	69.75 - 64.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-62.958	1.358	2.541
			Max. Mx	20	-39.199	1980.355	1.022
			Max. My	14	-39.121	0.233	-2022.283
			Max. Vy	20	-27.228	1980.355	1.022
			Max. Vx	14	27.779	0.233	-2022.283
			Max. Torque	18			-0.627
L29	64.75 - 59.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.415	1.430	2.639
			Max. Mx	20	-40.456	2116.625	1.077
			Max. My	14	-40.387	0.244	-2161.238
			Max. Vy	20	-27.333	2116.625	1.077
			Max. Vx	14	27.879	0.244	-2161.238
			Max. Torque	18			-0.626
L30	59.75 - 54.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.893	1.503	2.738
			Max. Mx	20	-41.737	2253.376	1.131
			Max. My	14	-41.675	0.255	-2300.651
			Max. Vy	20	-27.422	2253.376	1.131
			Max. Vx	14	27.964	0.255	-2300.651
			Max. Torque	18			-0.626
L31	54.75 - 49.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-67.390	1.578	2.839
			Max. Mx	20	-43.039	2390.528	1.186
			Max. My	14	-42.986	0.266	-2440.439
			Max. Vy	20	-27.495	2390.528	1.186
			Max. Vx	14	28.031	0.266	-2440.439
			Max. Torque	18			-0.625
L32	49.75 - 43	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-67.952	1.604	2.874
			Max. Mx	20	-43.485	2438.611	1.205
			Max. My	14	-43.434	0.270	-2489.437
			Max. Vy	20	-27.539	2438.611	1.205
			Max. Vx	14	28.074	0.270	-2489.437
			Max. Torque	18			-0.624
L33	43 - 42	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.295	1.695	3.404
			Max. Mx	20	-46.165	2604.830	1.569
			Max. My	14	-46.121	0.284	-2658.341
			Max. Vy	20	-27.852	2604.830	1.569
			Max. Vx	14	28.362	0.284	-2658.341
			Max. Torque	18			-0.781
L34	42 - 37	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.978	1.771	3.506
			Max. Mx	20	-47.641	2744.086	1.623
			Max. My	14	-47.604	0.295	-2800.069
			Max. Vy	20	-27.905	2744.086	1.623
			Max. Vx	14	28.409	0.295	-2800.069
			Max. Torque	18			-0.781
L35	37 - 32	Pole	Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-74.683	1.847	3.610
			Max. Mx	20	-49.141	2883.551	1.676
			Max. My	14	-49.110	0.307	-2941.979
			Max. Vy	20	-27.937	2883.551	1.676
			Max. Vx	14	28.436	0.307	-2941.979
			Max. Torque	18			-0.780
L36	32 - 27.913	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.155	1.898	3.694
			Max. Mx	20	-50.383	2997.636	1.720
			Max. My	14	-50.359	0.317	-3058.040
			Max. Vy	20	-27.949	2997.636	1.720
			Max. Vx	14	28.443	0.317	-3058.040
			Max. Torque	18			-0.780
L37	27.913 - 27.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.280	1.902	3.700
			Max. Mx	20	-50.506	3004.617	1.722
			Max. My	14	-50.482	0.317	-3065.141
			Max. Vy	20	-27.933	3004.617	1.722
			Max. Vx	14	28.426	0.317	-3065.141
			Max. Torque	18			-0.780
L38	27.663 - 27.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.488	1.908	3.708
			Max. Mx	20	-50.681	3016.152	1.727
			Max. My	14	-50.657	0.318	-3076.875
			Max. Vy	20	-27.944	3016.152	1.727
			Max. Vx	14	28.437	0.318	-3076.875
			Max. Torque	18			-0.780
L39	27.25 - 26.983	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.614	1.913	3.714
			Max. Mx	20	-50.789	3023.612	1.730
			Max. My	14	-50.765	0.319	-3084.464
			Max. Vy	20	-27.951	3023.612	1.730
			Max. Vx	14	28.443	0.319	-3084.464
			Max. Torque	18			-0.780
L40	26.983 - 26.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.685	1.915	3.718
			Max. Mx	20	-50.850	3027.805	1.731
			Max. My	14	-50.827	0.319	-3088.728
			Max. Vy	20	-27.963	3027.805	1.731
			Max. Vx	14	28.456	0.319	-3088.728
			Max. Torque	18			-0.780
L41	26.833 - 21.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.003	1.993	3.821
			Max. Mx	20	-52.839	3167.858	1.785
			Max. My	14	-52.820	0.331	-3231.173
			Max. Vy	20	-28.091	3167.858	1.785
			Max. Vx	14	28.581	0.331	-3231.173
			Max. Torque	18			-0.780
L42	21.833 - 16.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.316	2.072	3.926
			Max. Mx	20	-54.862	3308.518	1.838
			Max. My	14	-54.848	0.344	-3374.205
			Max. Vy	20	-28.209	3308.518	1.838
			Max. Vx	14	28.695	0.344	-3374.205
			Max. Torque	18			-0.779
L43	16.833 - 16	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.713	2.085	3.944

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-55.204	3332.009	1.847
			Max. My	14	-55.190	0.346	-3398.088
			Max. Vy	20	-28.225	3332.009	1.847
			Max. Vx	14	28.710	0.346	-3398.088
			Max. Torque	18			-0.779
L44	16 - 15.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.851	2.090	3.950
			Max. Mx	20	-55.331	3339.062	1.850
			Max. My	14	-55.318	0.346	-3405.260
			Max. Vy	20	-28.222	3339.062	1.850
			Max. Vx	14	28.706	0.346	-3405.260
			Max. Torque	18			-0.779
L45	15.75 - 14.747	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.414	2.091	3.965
			Max. Mx	20	-55.803	3367.380	1.861
			Max. My	14	-55.790	0.349	-3434.050
			Max. Vy	20	-28.265	3367.380	1.861
			Max. Vx	14	28.748	0.349	-3434.050
			Max. Torque	18			-0.779
L46	14.747 - 14.497	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.528	2.090	3.969
			Max. Mx	20	-55.905	3374.443	1.863
			Max. My	14	-55.893	0.350	-3441.231
			Max. Vy	20	-28.258	3374.443	1.863
			Max. Vx	14	28.741	0.350	-3441.231
			Max. Torque	18			-0.779
L47	14.497 - 12.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.631	2.083	4.003
			Max. Mx	20	-56.818	3442.657	1.889
			Max. My	14	-56.807	0.356	-3510.576
			Max. Vy	20	-28.298	3442.657	1.889
			Max. Vx	14	28.779	0.356	-3510.576
			Max. Torque	18			-0.779
L48	12.083 - 11.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.763	2.082	4.007
			Max. Mx	20	-56.945	3449.724	1.892
			Max. My	14	-56.936	0.356	-3517.760
			Max. Vy	20	-28.274	3449.724	1.892
			Max. Vx	14	28.754	0.356	-3517.760
			Max. Torque	18			-0.779
L49	11.833 - 10	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.719	2.097	4.034
			Max. Mx	20	-57.744	3501.587	1.911
			Max. My	14	-57.735	0.361	-3570.479
			Max. Vy	20	-28.354	3501.587	1.911
			Max. Vx	14	28.833	0.361	-3570.479
			Max. Torque	18			-0.779
L50	10 - 9.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.849	2.100	4.039
			Max. Mx	20	-57.872	3508.668	1.914
			Max. My	14	-57.865	0.362	-3577.676
			Max. Vy	20	-28.328	3508.668	1.914
			Max. Vx	14	28.807	0.362	-3577.676
			Max. Torque	18			-0.779
L51	9.75 - 4.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.397	2.162	4.116
			Max. Mx	20	-60.104	3650.601	1.967
			Max. My	14	-60.100	0.375	-3721.925

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-28.465	3650.601	1.967
			Max. Vx	14	28.940	0.375	-3721.925
			Max. Torque	18			-0.779
L52	4.75 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.767	2.221	4.190
			Max. Mx	20	-62.254	3785.978	2.018
			Max. My	14	-62.253	0.387	-3859.482
			Max. Vy	20	-28.576	3785.978	2.018
			Max. Vx	14	29.047	0.387	-3859.482
			Max. Torque	18			-0.779

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	89.767	0.001	7.587
	Max. H_x	20	62.267	28.548	0.002
	Max. H_z	2	62.267	0.002	28.965
	Max. M_x	2	3853.947	0.002	28.965
	Max. M_z	8	3779.267	-28.516	-0.002
	Max. Torsion	6	0.777	-25.418	14.695
	Min. Vert	11	46.700	-25.109	-14.520
	Min. H_x	8	62.267	-28.516	-0.002
	Min. H_z	14	62.267	-0.002	-29.018
	Min. M_x	14	-3859.482	-0.002	-29.018
	Min. M_z	20	-3785.978	28.548	0.002
	Min. Torsion	18	-0.779	25.371	-14.668

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	51.889	0.000	0.000	-1.280	0.542	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	62.267	-0.002	-28.965	-3853.947	1.053	-0.218
0.9 Dead+1.0 Wind 0 deg - No Ice	46.700	-0.002	-28.965	-3749.810	0.848	-0.213
1.2 Dead+1.0 Wind 30 deg - No Ice	62.267	14.305	-24.816	-3290.853	-1893.882	-0.578
0.9 Dead+1.0 Wind 30 deg - No Ice	46.700	14.305	-24.816	-3201.934	-1843.131	-0.565
1.2 Dead+1.0 Wind 60 deg - No Ice	62.267	25.418	-14.695	-1940.451	-3350.368	-0.777
0.9 Dead+1.0 Wind 60 deg - No Ice	46.700	25.418	-14.695	-1887.913	-3260.555	-0.760
1.2 Dead+1.0 Wind 90 deg - No Ice	62.267	28.516	0.002	-1.353	-3779.267	-0.772
0.9 Dead+1.0 Wind 90 deg - No Ice	46.700	28.516	0.002	-0.906	-3677.785	-0.756
1.2 Dead+1.0 Wind 120 deg - No Ice	62.267	25.109	14.520	1927.141	-3332.486	-0.561

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 120 deg - No Ice	46.700	25.109	14.520	1875.713	-3243.034	-0.549
1.2 Dead+1.0 Wind 150 deg - No Ice	62.267	14.282	24.773	3283.957	-1892.231	-0.196
0.9 Dead+1.0 Wind 150 deg - No Ice	46.700	14.282	24.773	3196.014	-1841.506	-0.193
1.2 Dead+1.0 Wind 180 deg - No Ice	62.267	0.002	29.018	3859.482	0.387	0.216
0.9 Dead+1.0 Wind 180 deg - No Ice	46.700	0.002	29.018	3756.009	0.201	0.211
1.2 Dead+1.0 Wind 210 deg - No Ice	62.267	-14.289	24.789	3282.907	1892.681	0.578
0.9 Dead+1.0 Wind 210 deg - No Ice	46.700	-14.289	24.789	3195.036	1841.616	0.565
1.2 Dead+1.0 Wind 240 deg - No Ice	62.267	-25.371	14.668	1932.613	3344.069	0.779
0.9 Dead+1.0 Wind 240 deg - No Ice	46.700	-25.371	14.668	1881.116	3254.088	0.762
1.2 Dead+1.0 Wind 270 deg - No Ice	62.267	-28.548	-0.002	-2.018	3785.978	0.775
0.9 Dead+1.0 Wind 270 deg - No Ice	46.700	-28.548	-0.002	-1.552	3683.952	0.758
1.2 Dead+1.0 Wind 300 deg - No Ice	62.267	-25.156	-14.546	-1934.983	3341.671	0.561
0.9 Dead+1.0 Wind 300 deg - No Ice	46.700	-25.156	-14.546	-1882.511	3251.602	0.549
1.2 Dead+1.0 Wind 330 deg - No Ice	62.267	-14.266	-24.745	-3282.788	1891.050	0.194
0.9 Dead+1.0 Wind 330 deg - No Ice	46.700	-14.266	-24.745	-3194.056	1840.004	0.191
1.2 Dead+1.0 Ice+1.0 Temp	89.767	-0.000	-0.000	-4.190	2.221	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	89.767	-0.001	-7.587	-1051.302	2.424	-0.065
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	89.767	3.762	-6.521	-902.612	-515.403	-0.170
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	89.767	6.561	-3.791	-527.406	-902.285	-0.222
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	89.767	7.514	0.001	-4.277	-1031.217	-0.218
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	89.767	6.552	3.786	517.811	-900.631	-0.156
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	89.767	3.761	6.518	893.175	-515.132	-0.049
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	89.767	0.001	7.598	1044.571	2.217	0.065
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	89.767	-3.759	6.516	892.822	519.449	0.170
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	89.767	-6.552	3.785	517.631	905.168	0.222
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	89.767	-7.520	-0.001	-4.483	1037.045	0.219
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	89.767	-6.562	-3.792	-527.584	907.028	0.156
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	89.767	-3.757	-6.512	-900.905	519.177	0.049
Dead+Wind 0 deg - Service	51.889	-0.001	-7.067	-928.428	0.677	-0.054
Dead+Wind 30 deg - Service	51.889	3.490	-6.055	-792.856	-455.295	-0.144
Dead+Wind 60 deg - Service	51.889	6.201	-3.585	-467.969	-805.856	-0.195
Dead+Wind 90 deg - Service	51.889	6.958	0.001	-1.321	-908.948	-0.194
Dead+Wind 120 deg - Service	51.889	6.126	3.542	462.760	-801.526	-0.142
Dead+Wind 150 deg - Service	51.889	3.485	6.044	789.206	-454.897	-0.050

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 180 deg - Service	51.889	0.001	7.080	927.786	0.517	0.053
Dead+Wind 210 deg - Service	51.889	-3.486	6.048	788.951	455.852	0.144
Dead+Wind 240 deg - Service	51.889	-6.190	3.579	464.087	805.177	0.195
Dead+Wind 270 deg - Service	51.889	-6.965	-0.001	-1.480	911.415	0.194
Dead+Wind 300 deg - Service	51.889	-6.137	-3.549	-466.642	804.592	0.142
Dead+Wind 330 deg - Service	51.889	-3.481	-6.037	-790.905	455.455	0.050

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-51.889	0.000	0.000	51.889	0.000	0.000%
2	-0.002	-62.267	-28.965	0.002	62.267	28.965	0.000%
3	-0.002	-46.700	-28.965	0.002	46.700	28.965	0.000%
4	14.305	-62.267	-24.816	-14.305	62.267	24.816	0.000%
5	14.305	-46.700	-24.816	-14.305	46.700	24.816	0.000%
6	25.418	-62.267	-14.695	-25.418	62.267	14.695	0.000%
7	25.418	-46.700	-14.695	-25.418	46.700	14.695	0.000%
8	28.516	-62.267	0.002	-28.516	62.267	-0.002	0.000%
9	28.516	-46.700	0.002	-28.516	46.700	-0.002	0.000%
10	25.109	-62.267	14.520	-25.109	62.267	-14.520	0.000%
11	25.109	-46.700	14.520	-25.109	46.700	-14.520	0.000%
12	14.282	-62.267	24.773	-14.282	62.267	-24.773	0.000%
13	14.282	-46.700	24.773	-14.282	46.700	-24.773	0.000%
14	0.002	-62.267	29.018	-0.002	62.267	-29.018	0.000%
15	0.002	-46.700	29.018	-0.002	46.700	-29.018	0.000%
16	-14.289	-62.267	24.789	14.289	62.267	-24.789	0.000%
17	-14.289	-46.700	24.789	14.289	46.700	-24.789	0.000%
18	-25.371	-62.267	14.668	25.371	62.267	-14.668	0.000%
19	-25.371	-46.700	14.668	25.371	46.700	-14.668	0.000%
20	-28.548	-62.267	-0.002	28.548	62.267	0.002	0.000%
21	-28.548	-46.700	-0.002	28.548	46.700	0.002	0.000%
22	-25.156	-62.267	-14.546	25.156	62.267	14.546	0.000%
23	-25.156	-46.700	-14.546	25.156	46.700	14.546	0.000%
24	-14.266	-62.267	-24.745	14.266	62.267	24.745	0.000%
25	-14.266	-46.700	-24.745	14.266	46.700	24.745	0.000%
26	0.000	-89.767	0.000	0.000	89.767	0.000	0.000%
27	-0.001	-89.767	-7.586	0.001	89.767	7.587	0.000%
28	3.762	-89.767	-6.521	-3.762	89.767	6.521	0.000%
29	6.561	-89.767	-3.791	-6.561	89.767	3.791	0.000%
30	7.514	-89.767	0.001	-7.514	89.767	-0.001	0.000%
31	6.552	-89.767	3.786	-6.552	89.767	-3.786	0.000%
32	3.761	-89.767	6.518	-3.761	89.767	-6.518	0.000%
33	0.001	-89.767	7.598	-0.001	89.767	-7.598	0.000%
34	-3.759	-89.767	6.516	3.759	89.767	-6.516	0.000%
35	-6.552	-89.767	3.785	6.552	89.767	-3.785	0.000%
36	-7.520	-89.767	-0.001	7.520	89.767	0.001	0.000%
37	-6.562	-89.767	-3.792	6.562	89.767	3.792	0.000%
38	-3.757	-89.767	-6.512	3.757	89.767	6.512	0.000%
39	-0.001	-51.889	-7.067	0.001	51.889	7.067	0.000%
40	3.490	-51.889	-6.055	-3.490	51.889	6.055	0.000%
41	6.201	-51.889	-3.585	-6.201	51.889	3.585	0.000%
42	6.958	-51.889	0.001	-6.958	51.889	-0.001	0.000%
43	6.126	-51.889	3.542	-6.126	51.889	-3.542	0.000%
44	3.485	-51.889	6.044	-3.485	51.889	-6.044	0.000%
45	0.001	-51.889	7.080	-0.001	51.889	-7.080	0.000%
46	-3.486	-51.889	6.048	3.486	51.889	-6.048	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
47	-6.190	-51.889	3.579	6.190	51.889	-3.579	0.000%
48	-6.965	-51.889	-0.001	6.965	51.889	0.001	0.000%
49	-6.137	-51.889	-3.549	6.137	51.889	3.549	0.000%
50	-3.481	-51.889	-6.037	3.481	51.889	6.037	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00063556
3	Yes	6	0.00000001	0.00018182
4	Yes	8	0.00000001	0.00089715
5	Yes	8	0.00000001	0.00015466
6	Yes	8	0.00000001	0.00093234
7	Yes	8	0.00000001	0.00015937
8	Yes	6	0.00000001	0.00093806
9	Yes	6	0.00000001	0.00030345
10	Yes	8	0.00000001	0.00091606
11	Yes	8	0.00000001	0.00015667
12	Yes	8	0.00000001	0.00090112
13	Yes	8	0.00000001	0.00015565
14	Yes	6	0.00000001	0.00062102
15	Yes	6	0.00000001	0.00017576
16	Yes	8	0.00000001	0.00090416
17	Yes	8	0.00000001	0.00015634
18	Yes	8	0.00000001	0.00091647
19	Yes	8	0.00000001	0.00015653
20	Yes	6	0.00000001	0.00096571
21	Yes	6	0.00000001	0.00031347
22	Yes	8	0.00000001	0.00092899
23	Yes	8	0.00000001	0.00015882
24	Yes	8	0.00000001	0.00089850
25	Yes	8	0.00000001	0.00015514
26	Yes	5	0.00000001	0.00045215
27	Yes	8	0.00000001	0.00057230
28	Yes	8	0.00000001	0.00087259
29	Yes	8	0.00000001	0.00089294
30	Yes	8	0.00000001	0.00056081
31	Yes	8	0.00000001	0.00087313
32	Yes	8	0.00000001	0.00086417
33	Yes	8	0.00000001	0.00056799
34	Yes	8	0.00000001	0.00087128
35	Yes	8	0.00000001	0.00087690
36	Yes	8	0.00000001	0.00056426
37	Yes	8	0.00000001	0.00089746
38	Yes	8	0.00000001	0.00087753
39	Yes	6	0.00000001	0.00010959
40	Yes	6	0.00000001	0.00099389
41	Yes	7	0.00000001	0.00011786
42	Yes	6	0.00000001	0.00011381
43	Yes	7	0.00000001	0.00011244
44	Yes	7	0.00000001	0.00010915
45	Yes	6	0.00000001	0.00010946
46	Yes	7	0.00000001	0.00011031
47	Yes	7	0.00000001	0.00011260

48	Yes	6	0.00000001	0.00011430
49	Yes	7	0.00000001	0.00011710
50	Yes	7	0.00000001	0.00010889

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	41.015	41	2.360	0.002
L2	155 - 150	38.548	41	2.349	0.002
L3	150 - 148.5	36.125	41	2.268	0.002
L4	148.5 - 148	35.419	41	2.228	0.002
L5	148 - 143	35.186	41	2.226	0.002
L6	143 - 138	32.870	41	2.199	0.001
L7	138 - 133	30.590	41	2.157	0.001
L8	133 - 128	28.361	41	2.101	0.001
L9	128 - 123	26.198	41	2.031	0.001
L10	123 - 118	24.116	41	1.948	0.001
L11	118 - 111	22.126	41	1.853	0.001
L12	114.75 - 109.75	20.887	41	1.786	0.001
L13	109.75 - 105.333	19.045	41	1.724	0.001
L14	105.333 - 105.083	17.492	41	1.635	0.001
L15	105.083 - 100.083	17.407	41	1.631	0.001
L16	100.083 - 95.083	15.737	41	1.558	0.001
L17	95.083 - 92.5	14.144	41	1.483	0.001
L18	92.5 - 92.25	13.353	41	1.442	0.001
L19	92.25 - 87.25	13.278	41	1.439	0.001
L20	87.25 - 82.25	11.802	41	1.380	0.001
L21	82.25 - 76.75	10.389	41	1.318	0.001
L22	81 - 75.75	10.046	41	1.303	0.000
L23	75.75 - 70.75	8.638	41	1.248	0.000
L24	70.75 - 70.583	7.387	41	1.142	0.000
L25	70.583 - 70.333	7.347	41	1.138	0.000
L26	70.333 - 70	7.287	41	1.135	0.000
L27	70 - 69.75	7.208	41	1.131	0.000
L28	69.75 - 64.75	7.149	41	1.126	0.000
L29	64.75 - 59.75	6.027	41	1.019	0.000
L30	59.75 - 54.75	5.016	41	0.912	0.000
L31	54.75 - 49.75	4.118	41	0.805	0.000
L32	49.75 - 43	3.330	41	0.699	0.000
L33	48 - 42	3.081	41	0.662	0.000
L34	42 - 37	2.288	41	0.593	0.000
L35	37 - 32	1.717	41	0.498	0.000
L36	32 - 27.913	1.244	41	0.404	0.000
L37	27.913 - 27.663	0.931	41	0.328	0.000
L38	27.663 - 27.25	0.914	41	0.325	0.000
L39	27.25 - 26.983	0.886	41	0.320	0.000
L40	26.983 - 26.833	0.868	41	0.317	0.000
L41	26.833 - 21.833	0.858	41	0.315	0.000
L42	21.833 - 16.833	0.560	41	0.254	0.000
L43	16.833 - 16	0.326	41	0.193	0.000
L44	16 - 15.75	0.293	41	0.184	0.000
L45	15.75 - 14.747	0.284	41	0.181	0.000
L46	14.747 - 14.497	0.247	41	0.171	0.000
L47	14.497 - 12.083	0.238	41	0.167	0.000
L48	12.083 - 11.833	0.163	41	0.129	0.000
L49	11.833 - 10	0.157	41	0.126	0.000
L50	10 - 9.75	0.112	41	0.107	0.000
L51	9.75 - 4.75	0.106	41	0.104	0.000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L52	4.75 - 0	0.025	41	0.051	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
157.000	80010966 w/ Mount Pipe	41	39.532	2.357	0.002	6725
148.000	VV-65B-R1_TMO w/ Mount Pipe	41	35.186	2.226	0.002	4503
145.000	(2) L3x3x1/4x6'	41	33.793	2.214	0.002	8460
138.000	(2) NNHH-65B-R4 w/ Mount Pipe	41	30.590	2.157	0.001	5925
127.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	41	25.775	2.015	0.001	3641
119.000	MX08FRO665-21 w/ Mount Pipe	41	22.515	1.874	0.001	2966
48.000	KS24019-L112A	41	3.081	0.662	0.000	3755

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	170.391	14	9.822	0.008
L2	155 - 150	160.168	14	9.780	0.008
L3	150 - 148.5	150.123	14	9.447	0.006
L4	148.5 - 148	147.195	14	9.281	0.006
L5	148 - 143	146.228	14	9.275	0.006
L6	143 - 138	136.615	14	9.160	0.006
L7	138 - 133	127.151	14	8.988	0.006
L8	133 - 128	117.894	14	8.756	0.005
L9	128 - 123	108.910	14	8.464	0.005
L10	123 - 118	100.255	14	8.119	0.004
L11	118 - 111	91.985	14	7.726	0.004
L12	114.75 - 109.75	86.843	6	7.447	0.003
L13	109.75 - 105.333	79.197	6	7.187	0.003
L14	105.333 - 105.083	72.746	6	6.816	0.003
L15	105.083 - 100.083	72.391	6	6.802	0.003
L16	100.083 - 95.083	65.454	6	6.498	0.003
L17	95.083 - 92.5	58.837	6	6.182	0.002
L18	92.5 - 92.25	55.549	6	6.013	0.002
L19	92.25 - 87.25	55.236	6	6.001	0.002
L20	87.25 - 82.25	49.099	6	5.753	0.002
L21	82.25 - 76.75	43.225	6	5.496	0.002
L22	81 - 75.75	41.799	6	5.432	0.002
L23	75.75 - 70.75	35.941	6	5.203	0.002
L24	70.75 - 70.583	30.736	6	4.758	0.002
L25	70.583 - 70.333	30.571	6	4.743	0.002
L26	70.333 - 70	30.323	6	4.731	0.002
L27	70 - 69.75	29.994	6	4.714	0.002
L28	69.75 - 64.75	29.749	6	4.692	0.002
L29	64.75 - 59.75	25.078	6	4.245	0.001
L30	59.75 - 54.75	20.873	6	3.798	0.001
L31	54.75 - 49.75	17.132	6	3.353	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L32	49.75 - 43	13.855	6	2.911	0.001
L33	48 - 42	12.817	6	2.757	0.001
L34	42 - 37	9.516	6	2.468	0.001
L35	37 - 32	7.140	6	2.072	0.001
L36	32 - 27.913	5.176	6	1.682	0.001
L37	27.913 - 27.663	3.872	6	1.366	0.000
L38	27.663 - 27.25	3.801	6	1.353	0.000
L39	27.25 - 26.983	3.685	6	1.332	0.000
L40	26.983 - 26.833	3.611	6	1.319	0.000
L41	26.833 - 21.833	3.569	6	1.311	0.000
L42	21.833 - 16.833	2.330	6	1.056	0.000
L43	16.833 - 16	1.357	6	0.804	0.000
L44	16 - 15.75	1.220	6	0.763	0.000
L45	15.75 - 14.747	1.180	6	0.753	0.000
L46	14.747 - 14.497	1.026	6	0.712	0.000
L47	14.497 - 12.083	0.990	6	0.695	0.000
L48	12.083 - 11.833	0.678	6	0.535	0.000
L49	11.833 - 10	0.651	6	0.524	0.000
L50	10 - 9.75	0.465	6	0.444	0.000
L51	9.75 - 4.75	0.442	6	0.433	0.000
L52	4.75 - 0	0.105	6	0.211	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
157.000	80010966 w/ Mount Pipe	14	164.249	9.810	0.008	1742
148.000	VV-65B-R1_TMO w/ Mount Pipe	14	146.228	9.275	0.006	1151
145.000	(2) L3x3x1/4x6'	14	140.447	9.224	0.006	2150
138.000	(2) NNHH-65B-R4 w/ Mount Pipe	14	127.151	8.988	0.006	1497
127.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	14	107.151	8.399	0.005	911
119.000	MX08FRO665-21 w/ Mount Pipe	14	93.604	7.813	0.004	737
48.000	KS24019-L112A	6	12.817	2.757	0.001	905

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	160 - 155 (1)	TP10.75x10.75x0.349	5.000	0.000	0.0	11.404	-4.605	359.220	0.013
L2	155 - 150 (2)	TP10.75x10.75x0.349	5.000	0.000	0.0	11.404	-5.510	359.220	0.015
L3	150 - 148.5 (3)	TP10.75x10.75x0.349	1.500	0.000	0.0	11.404	-5.789	359.220	0.016
L4	148.5 - 148 (4)	TP23x23x0.349	0.500	0.000	0.0	24.835	-5.911	782.300	0.008
L5	148 - 143 (5)	TP23.81x23x0.25	5.000	0.000	0.0	18.695	-11.873	1009.520	0.012
L6	143 - 138 (6)	TP24.62x23.81x0.25	5.000	0.000	0.0	19.338	-12.717	1044.230	0.012
L7	138 - 133 (7)	TP25.43x24.62x0.25	5.000	0.000	0.0	19.980	-16.950	1078.940	0.016

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L8	133 - 128 (8)	TP26.24x25.43x0.25	5.000	0.000	0.0	20.623	-17.576	1113.650	0.016
L9	128 - 123 (9)	TP27.05x26.24x0.25	5.000	0.000	0.0	21.266	-21.805	1148.350	0.019
L10	123 - 118 (10)	TP27.86x27.05x0.25	5.000	0.000	0.0	21.909	-25.167	1183.060	0.021
L11	118 - 111 (11)	TP28.994x27.86x0.25	7.000	0.000	0.0	22.326	-25.689	1205.620	0.021
L12	111 - 109.75 (12)	TP28.696x27.887x0.313	5.000	0.000	0.0	28.153	-26.879	1520.280	0.018
L13	109.75 - 105.333 (13)	TP29.412x28.696x0.313	4.417	0.000	0.0	28.863	-27.710	1558.600	0.018
L14	105.333 - 105.083 (14)	TP29.452x29.412x0.469	0.250	0.000	0.0	43.122	-27.785	2328.600	0.012
L15	105.083 - 100.083 (15)	TP30.262x29.452x0.463	5.000	0.000	0.0	43.745	-28.930	2362.250	0.012
L16	100.083 - 95.083 (16)	TP31.072x30.262x0.463	5.000	0.000	0.0	44.934	-30.109	2426.460	0.012
L17	95.083 - 92.5 (17)	TP31.491x31.072x0.456	2.583	0.000	0.0	44.942	-30.726	2426.880	0.013
L18	92.5 - 92.25 (18)	TP31.531x31.491x0.638	0.250	0.000	0.0	62.511	-30.816	3375.600	0.009
L19	92.25 - 87.25 (19)	TP32.341x31.531x0.625	5.000	0.000	0.0	62.917	-32.288	3397.510	0.010
L20	87.25 - 82.25 (20)	TP33.151x32.341x0.613	5.000	0.000	0.0	63.257	-33.792	3415.900	0.010
L21	82.25 - 76.75 (21)	TP34.042x33.151x0.613	5.500	0.000	0.0	63.651	-34.170	3437.160	0.010
L22	76.75 - 75.75 (22)	TP33.579x32.729x0.375	5.250	0.000	0.0	39.521	-36.349	2311.980	0.016
L23	75.75 - 70.75 (23)	TP34.389x33.579x0.375	5.000	0.000	0.0	40.485	-37.561	2368.380	0.016
L24	70.75 - 70.583 (24)	TP34.416x34.389x0.375	0.167	0.000	0.0	40.517	-37.620	2370.260	0.016
L25	70.583 - 70.333 (25)	TP34.456x34.416x0.675	0.250	0.000	0.0	72.375	-37.713	4233.940	0.009
L26	70.333 - 70 (26)	TP34.51x34.456x0.675	0.333	0.000	0.0	72.491	-37.835	4240.700	0.009
L27	70 - 69.75 (27)	TP34.551x34.51x0.375	0.250	0.000	0.0	40.678	-37.895	2379.650	0.016
L28	69.75 - 64.75 (28)	TP35.361x34.551x0.375	5.000	0.000	0.0	41.642	-39.110	2436.050	0.016
L29	64.75 - 59.75 (29)	TP36.171x35.361x0.375	5.000	0.000	0.0	42.606	-40.377	2492.440	0.016
L30	59.75 - 54.75 (30)	TP36.981x36.171x0.375	5.000	0.000	0.0	43.570	-41.666	2548.840	0.016
L31	54.75 - 49.75 (31)	TP37.791x36.981x0.375	5.000	0.000	0.0	44.534	-42.978	2605.230	0.016
L32	49.75 - 43 (32)	TP38.884x37.791x0.375	6.750	0.000	0.0	44.871	-43.426	2624.970	0.017
L33	43 - 42 (33)	TP38.296x37.324x0.438	6.000	0.000	0.0	52.571	-46.112	3075.420	0.015
L34	42 - 37 (34)	TP39.106x38.296x0.438	5.000	0.000	0.0	53.696	-47.596	3141.220	0.015
L35	37 - 32 (35)	TP39.916x39.106x0.438	5.000	0.000	0.0	54.821	-49.104	3207.020	0.015
L36	32 - 27.913 (36)	TP40.578x39.916x0.438	4.087	0.000	0.0	55.740	-50.353	3260.810	0.015
L37	27.913 - 27.663 (37)	TP40.619x40.578x0.675	0.250	0.000	0.0	85.577	-50.477	5006.270	0.010
L38	27.663 - 27.25 (38)	TP40.686x40.619x0.675	0.413	0.000	0.0	85.721	-50.652	5014.650	0.010
L39	27.25 - 26.983 (39)	TP40.729x40.686x0.675	0.267	0.000	0.0	85.813	-50.760	5020.080	0.010
L40	26.983 - 26.833 (40)	TP40.753x40.729x0.663	0.150	0.000	0.0	84.301	-50.822	4931.640	0.010
L41	26.833 - 21.833 (41)	TP41.563x40.753x0.663	5.000	0.000	0.0	86.005	-52.816	5031.280	0.010
L42	21.833 -	TP42.373x41.563x0.663	5.000	0.000	0.0	87.708	-54.844	5130.920	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L43	16.833 (42) 16.833 - 16 (43)	TP42.508x42.373x0.663	0.833	0.000	0.0	87.992	-55.187	5147.520	0.011
L44	16 - 15.75 (44)	TP42.549x42.508x0.813	0.250	0.000	0.0	107.632	-55.314	6296.470	0.009
L45	15.75 - 14.747 (45)	TP42.711x42.549x0.813	1.003	0.000	0.0	108.051	-55.787	6320.980	0.009
L46	14.747 - 14.497 (46)	TP42.752x42.711x0.488	0.250	0.000	0.0	65.396	-55.889	3825.680	0.015
L47	14.497 - 12.083 (47)	TP43.143x42.752x0.488	2.414	0.000	0.0	66.001	-56.804	3861.070	0.015
L48	12.083 - 11.833 (48)	TP43.183x43.143x0.738	0.250	0.000	0.0	99.358	-56.933	5812.420	0.010
L49	11.833 - 10 (49)	TP43.48x43.183x0.738	1.833	0.000	0.0	100.053	-57.733	5853.090	0.010
L50	10 - 9.75 (50)	TP43.521x43.48x0.738	0.250	0.000	0.0	100.148	-57.862	5858.630	0.010
L51	9.75 - 4.75 (51)	TP44.331x43.521x0.725	5.000	0.000	0.0	100.343	-60.099	5870.050	0.010
L52	4.75 - 0 (52)	TP45.1x44.331x0.713	4.750	0.000	0.0	100.381	-62.253	5872.300	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	160 - 155 (1)	TP10.75x10.75x0.349	18.265	99.144	0.184	0.000	99.144	0.000
L2	155 - 150 (2)	TP10.75x10.75x0.349	54.529	99.144	0.550	0.000	99.144	0.000
L3	150 - 148.5 (3)	TP10.75x10.75x0.349	66.001	99.144	0.666	0.000	99.144	0.000
L4	148.5 - 148 (4)	TP23x23x0.349	69.891	458.290	0.153	0.000	458.290	0.000
L5	148 - 143 (5)	TP23.81x23x0.25	133.273	619.446	0.215	0.000	619.446	0.000
L6	143 - 138 (6)	TP24.62x23.81x0.25	201.889	663.003	0.305	0.000	663.003	0.000
L7	138 - 133 (7)	TP25.43x24.62x0.25	297.098	704.731	0.422	0.000	704.731	0.000
L8	133 - 128 (8)	TP26.24x25.43x0.25	393.472	745.141	0.528	0.000	745.141	0.000
L9	128 - 123 (9)	TP27.05x26.24x0.25	503.189	786.274	0.640	0.000	786.274	0.000
L10	123 - 118 (10)	TP27.86x27.05x0.25	616.697	828.096	0.745	0.000	828.096	0.000
L11	118 - 111 (11)	TP28.994x27.86x0.25	697.803	855.633	0.816	0.000	855.633	0.000
L12	111 - 109.75 (12)	TP28.696x27.887x0.313	823.843	1123.408	0.733	0.000	1123.408	0.000
L13	109.75 - 105.333 (13)	TP29.412x28.696x0.313	936.292	1181.075	0.793	0.000	1181.075	0.000
L14	105.333 - 105.083 (14)	TP29.452x29.412x0.469	942.683	1748.142	0.539	0.000	1748.142	0.000
L15	105.083 - 100.083 (15)	TP30.262x29.452x0.463	1071.250	1824.517	0.587	0.000	1824.517	0.000
L16	100.083 - 95.083 (16)	TP31.072x30.262x0.463	1201.242	1925.825	0.624	0.000	1925.825	0.000
L17	95.083 - 92.5 (17)	TP31.491x31.072x0.456	1268.942	1953.667	0.650	0.000	1953.667	0.000
L18	92.5 - 92.25 (18)	TP31.531x31.491x0.638	1275.517	2689.342	0.474	0.000	2689.342	0.000
L19	92.25 - 87.25 (19)	TP32.341x31.531x0.625	1407.842	2781.392	0.506	0.000	2781.392	0.000
L20	87.25 - 82.25 (20)	TP33.151x32.341x0.613	1541.817	2871.450	0.537	0.000	2871.450	0.000
L21	82.25 - 76.75 (21)	TP34.042x33.151x0.613	1575.558	2907.625	0.542	0.000	2907.625	0.000
L22	76.75 - 75.75 (22)	TP33.579x32.729x0.375	1718.700	1997.992	0.860	0.000	1997.992	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L23	75.75 - 70.75 (23)	TP34.389x33.579x0.375	1856.267	2097.208	0.885	0.000	2097.208	0.000
L24	70.75 - 70.583 (24)	TP34.416x34.389x0.375	1860.875	2100.567	0.886	0.000	2100.567	0.000
L25	70.583 - 70.333 (25)	TP34.456x34.416x0.675	1867.767	3690.858	0.506	0.000	3690.858	0.000
L26	70.333 - 70 (26)	TP34.51x34.456x0.675	1876.958	3702.767	0.507	0.000	3702.767	0.000
L27	70 - 69.75 (27)	TP34.551x34.51x0.375	1883.867	2117.342	0.890	0.000	2117.342	0.000
L28	69.75 - 64.75 (28)	TP35.361x34.551x0.375	2022.367	2219.442	0.911	0.000	2219.442	0.000
L29	64.75 - 59.75 (29)	TP36.171x35.361x0.375	2161.892	2321.658	0.931	0.000	2321.658	0.000
L30	59.75 - 54.75 (30)	TP36.981x36.171x0.375	2301.883	2415.300	0.953	0.000	2415.300	0.000
L31	54.75 - 49.75 (31)	TP37.791x36.981x0.375	2442.250	2510.158	0.973	0.000	2510.158	0.000
L32	49.75 - 43 (32)	TP38.884x37.791x0.375	2491.458	2543.642	0.979	0.000	2543.642	0.000
L33	43 - 42 (33)	TP38.296x37.324x0.438	2661.733	3029.533	0.879	0.000	3029.533	0.000
L34	42 - 37 (34)	TP39.106x38.296x0.438	2804.275	3161.308	0.887	0.000	3161.308	0.000
L35	37 - 32 (35)	TP39.916x39.106x0.438	2946.983	3295.892	0.894	0.000	3295.892	0.000
L36	32 - 27.913 (36)	TP40.578x39.916x0.438	3063.717	3407.983	0.899	0.000	3407.983	0.000
L37	27.913 - 27.663 (37)	TP40.619x40.578x0.675	3070.858	5175.833	0.593	0.000	5175.833	0.000
L38	27.663 - 27.25 (38)	TP40.686x40.619x0.675	3082.667	5193.333	0.594	0.000	5193.333	0.000
L39	27.25 - 26.983 (39)	TP40.729x40.686x0.675	3090.300	5204.658	0.594	0.000	5204.658	0.000
L40	26.983 - 26.833 (40)	TP40.753x40.729x0.663	3094.592	5119.317	0.604	0.000	5119.317	0.000
L41	26.833 - 21.833 (41)	TP41.563x40.753x0.663	3237.925	5329.983	0.607	0.000	5329.983	0.000
L42	21.833 - 16.833 (42)	TP42.373x41.563x0.663	3381.867	5544.900	0.610	0.000	5544.900	0.000
L43	16.833 - 16 (43)	TP42.508x42.373x0.663	3405.900	5581.117	0.610	0.000	5581.117	0.000
L44	16 - 15.75 (44)	TP42.549x42.508x0.813	3413.117	6784.708	0.503	0.000	6784.708	0.000
L45	15.75 - 14.747 (45)	TP42.711x42.549x0.813	3442.100	6838.141	0.503	0.000	6838.141	0.000
L46	14.747 - 14.497 (46)	TP42.752x42.711x0.488	3449.333	4207.208	0.820	0.000	4207.208	0.000
L47	14.497 - 12.083 (47)	TP43.143x42.752x0.488	3519.200	4285.875	0.821	0.000	4285.875	0.000
L48	12.083 - 11.833 (48)	TP43.183x43.143x0.738	3526.442	6382.700	0.553	0.000	6382.700	0.000
L49	11.833 - 10 (49)	TP43.48x43.183x0.738	3579.617	6473.091	0.553	0.000	6473.091	0.000
L50	10 - 9.75 (50)	TP43.521x43.48x0.738	3586.883	6485.467	0.553	0.000	6485.467	0.000
L51	9.75 - 4.75 (51)	TP44.331x43.521x0.725	3732.583	6627.017	0.563	0.000	6627.017	0.000
L52	4.75 - 0 (52)	TP45.1x44.331x0.713	3871.733	6752.267	0.573	0.000	6752.267	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	160 - 155 (1)	TP10.75x10.75x0.349	6.956	107.766	0.065	0.000	98.546	0.000
L2	155 - 150 (2)	TP10.75x10.75x0.349	7.566	107.766	0.070	0.116	98.546	0.001
L3	150 - 148.5 (3)	TP10.75x10.75x0.349	7.742	107.766	0.072	0.115	98.546	0.001
L4	148.5 - 148 (4)	TP23x23x0.349	7.830	234.690	0.033	0.115	467.371	0.000
L5	148 - 143 (5)	TP23.81x23x0.25	13.379	302.857	0.044	0.113	624.874	0.000
L6	143 - 138 (6)	TP24.62x23.81x0.25	14.077	313.269	0.045	0.112	668.579	0.000
L7	138 - 133 (7)	TP25.43x24.62x0.25	19.135	323.681	0.059	0.246	713.762	0.000
L8	133 - 128 (8)	TP26.24x25.43x0.25	19.432	334.094	0.058	0.246	760.422	0.000
L9	128 - 123 (9)	TP27.05x26.24x0.25	22.114	342.424	0.065	0.220	808.558	0.000
L10	123 - 118 (10)	TP27.86x27.05x0.25	24.912	352.836	0.071	0.220	858.175	0.000
L11	118 - 111 (11)	TP28.994x27.86x0.25	25.050	359.430	0.070	0.219	891.217	0.000
L12	111 - 109.75 (12)	TP28.696x27.887x0.313	25.393	452.830	0.056	0.219	1133.700	0.000
L13	109.75 - 105.333 (13)	TP29.412x28.696x0.313	25.580	464.706	0.055	0.219	1191.575	0.000
L14	105.333 - 105.083 (14)	TP29.452x29.412x0.469	25.586	698.581	0.037	0.219	1773.167	0.000
L15	105.083 - 100.083 (15)	TP30.262x29.452x0.463	25.881	704.824	0.037	0.219	1849.450	0.000
L16	100.083 - 95.083 (16)	TP31.072x30.262x0.463	26.163	724.085	0.036	0.219	1951.350	0.000
L17	95.083 - 92.5 (17)	TP31.491x31.072x0.456	26.308	723.155	0.036	0.218	1978.758	0.000
L18	92.5 - 92.25 (18)	TP31.531x31.491x0.638	26.317	1012.680	0.026	0.218	2739.817	0.000
L19	92.25 - 87.25 (19)	TP32.341x31.531x0.625	26.654	1014.050	0.026	0.218	2831.017	0.000
L20	87.25 - 82.25 (20)	TP33.151x32.341x0.613	26.980	1019.670	0.026	0.218	2920.150	0.000
L21	82.25 - 76.75 (21)	TP34.042x33.151x0.613	27.062	1024.770	0.026	0.218	2956.608	0.000
L22	76.75 - 75.75 (22)	TP33.579x32.729x0.375	27.480	690.211	0.040	0.218	2016.858	0.000
L23	75.75 - 70.75 (23)	TP34.389x33.579x0.375	27.615	707.129	0.039	0.218	2116.450	0.000
L24	70.75 - 70.583 (24)	TP34.416x34.389x0.375	27.624	711.078	0.039	0.218	2119.817	0.000
L25	70.583 - 70.333 (25)	TP34.456x34.416x0.675	27.622	1270.180	0.022	0.218	3757.717	0.000
L26	70.333 - 70 (26)	TP34.51x34.456x0.675	27.638	1272.210	0.022	0.218	3769.733	0.000
L27	70 - 69.75 (27)	TP34.551x34.51x0.375	27.652	713.896	0.039	0.218	2136.658	0.000
L28	69.75 - 64.75 (28)	TP35.361x34.551x0.375	27.886	730.815	0.038	0.625	2239.133	0.000
L29	64.75 - 59.75 (29)	TP36.171x35.361x0.375	27.987	747.733	0.037	0.624	2344.000	0.000
L30	59.75 - 54.75 (30)	TP36.981x36.171x0.375	28.071	764.652	0.037	0.623	2451.275	0.000
L31	54.75 - 49.75 (31)	TP37.791x36.981x0.375	28.139	781.570	0.036	0.622	2560.950	0.000
L32	49.75 - 43 (32)	TP38.884x37.791x0.375	28.189	787.492	0.036	0.622	2599.900	0.000
L33	43 - 42 (33)	TP38.296x37.324x0.438	28.515	922.627	0.031	0.779	3058.933	0.000
L34	42 - 37 (34)	TP39.106x38.296x0.438	28.562	942.367	0.030	0.778	3191.233	0.000
L35	37 - 32 (35)	TP39.916x39.106x0.438	28.589	962.107	0.030	0.778	3326.325	0.000
L36	32 - 27.913 (36)	TP40.578x39.916x0.438	28.602	978.242	0.029	0.778	3438.833	0.000
L37	27.913 - 27.663 (37)	TP40.619x40.578x0.675	28.581	1501.880	0.019	0.778	5253.675	0.000
L38	27.663 - 27.25 (38)	TP40.686x40.619x0.675	28.598	1504.400	0.019	0.778	5271.283	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L39	27.25 - 26.983 (39)	TP40.729x40.686x0.675	28.603	1506.020	0.019	0.778	5282.692	0.000
L40	26.983 - 26.833 (40)	TP40.753x40.729x0.663	28.606	1479.490	0.019	0.778	5194.392	0.000
L41	26.833 - 21.833 (41)	TP41.563x40.753x0.663	28.754	1509.380	0.019	0.778	5406.408	0.000
L42	21.833 - 16.833 (42)	TP42.373x41.563x0.663	28.869	1539.270	0.019	0.777	5622.667	0.000
L43	16.833 - 16 (43)	TP42.508x42.373x0.663	28.885	1544.250	0.019	0.777	5659.108	0.000
L44	16 - 15.75 (44)	TP42.549x42.508x0.813	28.879	1888.940	0.015	0.777	6904.141	0.000
L45	15.75 - 14.747 (45)	TP42.711x42.549x0.813	28.936	1896.300	0.015	0.777	6958.000	0.000
L46	14.747 - 14.497 (46)	TP42.752x42.711x0.488	28.929	1147.700	0.025	0.777	4247.958	0.000
L47	14.497 - 12.083 (47)	TP43.143x42.752x0.488	29.003	1158.320	0.025	0.777	4326.933	0.000
L48	12.083 - 11.833 (48)	TP43.183x43.143x0.738	28.979	1743.730	0.017	0.777	6481.725	0.000
L49	11.833 - 10 (49)	TP43.48x43.183x0.738	29.086	1755.930	0.017	0.777	6572.733	0.000
L50	10 - 9.75 (50)	TP43.521x43.48x0.738	29.061	1757.590	0.017	0.777	6585.200	0.000
L51	9.75 - 4.75 (51)	TP44.331x43.521x0.725	29.249	1761.020	0.017	0.777	6724.883	0.000
L52	4.75 - 0 (52)	TP45.1x44.331x0.713	29.388	1761.690	0.017	0.777	6848.100	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 155 (1)	0.013	0.184	0.000	0.065	0.000	0.201 ✔	1.050	4.8.2 ✔
L2	155 - 150 (2)	0.015	0.550	0.000	0.070	0.001	0.570 ✔	1.050	4.8.2 ✔
L3	150 - 148.5 (3)	0.016	0.666	0.000	0.072	0.001	0.687 ✔	1.050	4.8.2 ✔
L4	148.5 - 148 (4)	0.008	0.153	0.000	0.033	0.000	0.161 ✔	1.050	4.8.2 ✔
L5	148 - 143 (5)	0.012	0.215	0.000	0.044	0.000	0.229 ✔	1.050	4.8.2 ✔
L6	143 - 138 (6)	0.012	0.305	0.000	0.045	0.000	0.319 ✔	1.050	4.8.2 ✔
L7	138 - 133 (7)	0.016	0.422	0.000	0.059	0.000	0.441 ✔	1.050	4.8.2 ✔
L8	133 - 128 (8)	0.016	0.528	0.000	0.058	0.000	0.547 ✔	1.050	4.8.2 ✔
L9	128 - 123 (9)	0.019	0.640	0.000	0.065	0.000	0.663 ✔	1.050	4.8.2 ✔
L10	123 - 118 (10)	0.021	0.745	0.000	0.071	0.000	0.771 ✔	1.050	4.8.2 ✔
L11	118 - 111 (11)	0.021	0.816	0.000	0.070	0.000	0.842	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L12	111 - 109.75 (12)	0.018	0.733	0.000	0.056	0.000	0.754	1.050	4.8.2
L13	109.75 - 105.333 (13)	0.018	0.793	0.000	0.055	0.000	0.814	1.050	4.8.2
L14	105.333 - 105.083 (14)	0.012	0.539	0.000	0.037	0.000	0.553	1.050	4.8.2
L15	105.083 - 100.083 (15)	0.012	0.587	0.000	0.037	0.000	0.601	1.050	4.8.2
L16	100.083 - 95.083 (16)	0.012	0.624	0.000	0.036	0.000	0.637	1.050	4.8.2
L17	95.083 - 92.5 (17)	0.013	0.650	0.000	0.036	0.000	0.664	1.050	4.8.2
L18	92.5 - 92.25 (18)	0.009	0.474	0.000	0.026	0.000	0.484	1.050	4.8.2
L19	92.25 - 87.25 (19)	0.010	0.506	0.000	0.026	0.000	0.516	1.050	4.8.2
L20	87.25 - 82.25 (20)	0.010	0.537	0.000	0.026	0.000	0.548	1.050	4.8.2
L21	82.25 - 76.75 (21)	0.010	0.542	0.000	0.026	0.000	0.553	1.050	4.8.2
L22	76.75 - 75.75 (22)	0.016	0.860	0.000	0.040	0.000	0.878	1.050	4.8.2
L23	75.75 - 70.75 (23)	0.016	0.885	0.000	0.039	0.000	0.903	1.050	4.8.2
L24	70.75 - 70.583 (24)	0.016	0.886	0.000	0.039	0.000	0.903	1.050	4.8.2
L25	70.583 - 70.333 (25)	0.009	0.506	0.000	0.022	0.000	0.515	1.050	4.8.2
L26	70.333 - 70 (26)	0.009	0.507	0.000	0.022	0.000	0.516	1.050	4.8.2
L27	70 - 69.75 (27)	0.016	0.890	0.000	0.039	0.000	0.907	1.050	4.8.2
L28	69.75 - 64.75 (28)	0.016	0.911	0.000	0.038	0.000	0.929	1.050	4.8.2
L29	64.75 - 59.75 (29)	0.016	0.931	0.000	0.037	0.000	0.949	1.050	4.8.2
L30	59.75 - 54.75 (30)	0.016	0.953	0.000	0.037	0.000	0.971	1.050	4.8.2
L31	54.75 - 49.75 (31)	0.016	0.973	0.000	0.036	0.000	0.991	1.050	4.8.2
L32	49.75 - 43 (32)	0.017	0.979	0.000	0.036	0.000	0.997	1.050	4.8.2
L33	43 - 42 (33)	0.015	0.879	0.000	0.031	0.000	0.895	1.050	4.8.2
L34	42 - 37 (34)	0.015	0.887	0.000	0.030	0.000	0.903	1.050	4.8.2
L35	37 - 32 (35)	0.015	0.894	0.000	0.030	0.000	0.910	1.050	4.8.2
L36	32 - 27.913 (36)	0.015	0.899	0.000	0.029	0.000	0.915	1.050	4.8.2
L37	27.913 -	0.010	0.593	0.000	0.019	0.000	0.604	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	27.663 (37)						✔		
L38	27.663 - 27.25 (38)	0.010	0.594	0.000	0.019	0.000	0.604 ✔	1.050	4.8.2 ✔
L39	27.25 - 26.983 (39)	0.010	0.594	0.000	0.019	0.000	0.604 ✔	1.050	4.8.2 ✔
L40	26.983 - 26.833 (40)	0.010	0.604	0.000	0.019	0.000	0.615 ✔	1.050	4.8.2 ✔
L41	26.833 - 21.833 (41)	0.010	0.607	0.000	0.019	0.000	0.618 ✔	1.050	4.8.2 ✔
L42	21.833 - 16.833 (42)	0.011	0.610	0.000	0.019	0.000	0.621 ✔	1.050	4.8.2 ✔
L43	16.833 - 16 (43)	0.011	0.610	0.000	0.019	0.000	0.621 ✔	1.050	4.8.2 ✔
L44	16 - 15.75 (44)	0.009	0.503	0.000	0.015	0.000	0.512 ✔	1.050	4.8.2 ✔
L45	15.75 - 14.747 (45)	0.009	0.503	0.000	0.015	0.000	0.512 ✔	1.050	4.8.2 ✔
L46	14.747 - 14.497 (46)	0.015	0.820	0.000	0.025	0.000	0.835 ✔	1.050	4.8.2 ✔
L47	14.497 - 12.083 (47)	0.015	0.821	0.000	0.025	0.000	0.836 ✔	1.050	4.8.2 ✔
L48	12.083 - 11.833 (48)	0.010	0.553	0.000	0.017	0.000	0.563 ✔	1.050	4.8.2 ✔
L49	11.833 - 10 (49)	0.010	0.553	0.000	0.017	0.000	0.563 ✔	1.050	4.8.2 ✔
L50	10 - 9.75 (50)	0.010	0.553	0.000	0.017	0.000	0.563 ✔	1.050	4.8.2 ✔
L51	9.75 - 4.75 (51)	0.010	0.563	0.000	0.017	0.000	0.574 ✔	1.050	4.8.2 ✔
L52	4.75 - 0 (52)	0.011	0.573	0.000	0.017	0.000	0.584 ✔	1.050	4.8.2 ✔

Section Capacity Table

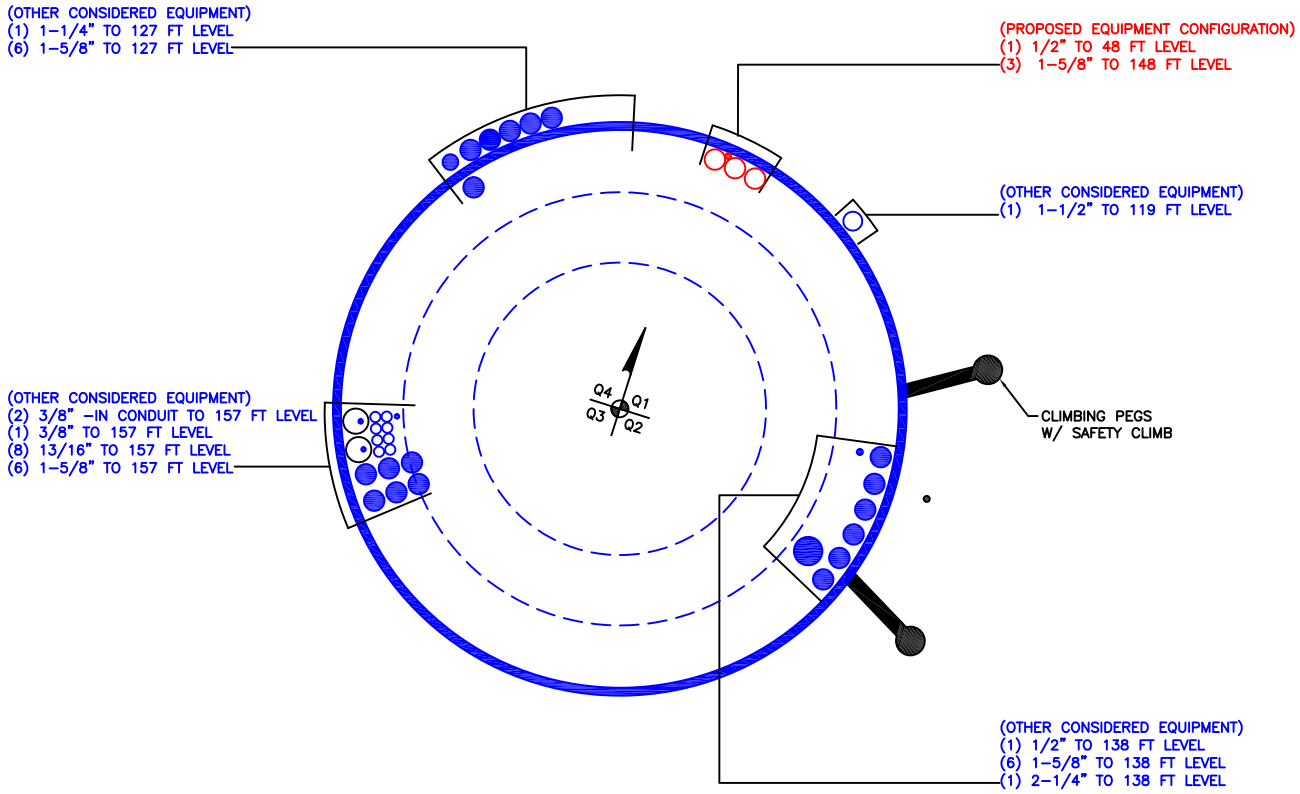
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160 - 155	Pole	TP10.75x10.75x0.349	1	-4.605	377.181	**	**
L2	155 - 150	Pole	TP10.75x10.75x0.349	2	-5.510	377.181	**	**
L3	150 - 148.5	Pole	TP10.75x10.75x0.349	3	-5.789	377.181	**	**
L4	148.5 - 148	Pole	TP23x23x0.349	4	-5.911	821.415	**	**
L5	148 - 143	Pole	TP23.81x23x0.25	5	-11.873	1059.996	**	**
L6	143 - 138	Pole	TP24.62x23.81x0.25	6	-12.717	1096.441	**	**
L7	138 - 133	Pole	TP25.43x24.62x0.25	7	-16.950	1132.887	**	**
L8	133 - 128	Pole	TP26.24x25.43x0.25	8	-17.576	1169.332	**	**
L9	128 - 123	Pole	TP27.05x26.24x0.25	9	-21.805	1205.767	**	**
L10	123 - 118	Pole	TP27.86x27.05x0.25	10	-25.167	1242.213	**	**
L11	118 - 111	Pole	TP28.994x27.86x0.25	11	-25.689	1265.901	**	**
L12	111 - 109.75	Pole	TP28.696x27.887x0.313	12	-26.879	1596.294	**	**

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L13	109.75 - 105.333	Pole	TP29.412x28.696x0.313	13	-27.710	1636.530	**	**
L14	105.333 - 105.083	Pole	TP29.452x29.412x0.469	14	-27.785	2445.030	**	**
L15	105.083 - 100.083	Pole	TP30.262x29.452x0.463	15	-28.930	2480.362	**	**
L16	100.083 - 95.083	Pole	TP31.072x30.262x0.463	16	-30.109	2547.783	**	**
L17	95.083 - 92.5	Pole	TP31.491x31.072x0.456	17	-30.726	2548.224	**	**
L18	92.5 - 92.25	Pole	TP31.531x31.491x0.638	18	-30.816	3544.380	**	**
L19	92.25 - 87.25	Pole	TP32.341x31.531x0.625	19	-32.288	3567.385	**	**
L20	87.25 - 82.25	Pole	TP33.151x32.341x0.613	20	-33.792	3586.695	**	**
L21	82.25 - 76.75	Pole	TP34.042x33.151x0.613	21	-34.170	3609.018	**	**
L22	76.75 - 75.75	Pole	TP33.579x32.729x0.375	22	-36.349	2427.579	**	**
L23	75.75 - 70.75	Pole	TP34.389x33.579x0.375	23	-37.561	2486.799	**	**
L24	70.75 - 70.583	Pole	TP34.416x34.389x0.375	24	-37.620	2488.773	**	**
L25	70.583 - 70.333	Pole	TP34.456x34.416x0.675	25	-37.713	4445.637	**	**
L26	70.333 - 70	Pole	TP34.51x34.456x0.675	26	-37.835	4452.735	**	**
L27	70 - 69.75	Pole	TP34.551x34.51x0.375	27	-37.895	2498.632	**	**
L28	69.75 - 64.75	Pole	TP35.361x34.551x0.375	28	-39.110	2557.852	**	**
L29	64.75 - 59.75	Pole	TP36.171x35.361x0.375	29	-40.377	2617.062	**	**
L30	59.75 - 54.75	Pole	TP36.981x36.171x0.375	30	-41.666	2676.282	**	**
L31	54.75 - 49.75	Pole	TP37.791x36.981x0.375	31	-42.978	2735.491	**	**
L32	49.75 - 43	Pole	TP38.884x37.791x0.375	32	-43.426	2756.218	**	**
L33	43 - 42	Pole	TP38.296x37.324x0.438	33	-46.112	3229.191	**	**
L34	42 - 37	Pole	TP39.106x38.296x0.438	34	-47.596	3298.281	**	**
L35	37 - 32	Pole	TP39.916x39.106x0.438	35	-49.104	3367.371	**	**
L36	32 - 27.913	Pole	TP40.578x39.916x0.438	36	-50.353	3423.850	**	**
L37	27.913 - 27.663	Pole	TP40.619x40.578x0.675	37	-50.477	5256.583	**	**
L38	27.663 - 27.25	Pole	TP40.686x40.619x0.675	38	-50.652	5265.382	**	**
L39	27.25 - 26.983	Pole	TP40.729x40.686x0.675	39	-50.760	5271.084	**	**
L40	26.983 - 26.833	Pole	TP40.753x40.729x0.663	40	-50.822	5178.222	**	**
L41	26.833 - 21.833	Pole	TP41.563x40.753x0.663	41	-52.816	5282.844	**	**
L42	21.833 - 16.833	Pole	TP42.373x41.563x0.663	42	-54.844	5387.466	**	**
L43	16.833 - 16	Pole	TP42.508x42.373x0.663	43	-55.187	5404.896	**	**
L44	16 - 15.75	Pole	TP42.549x42.508x0.813	44	-55.314	6611.293	**	**
L45	15.75 - 14.747	Pole	TP42.711x42.549x0.813	45	-55.787	6637.029	**	**
L46	14.747 - 14.497	Pole	TP42.752x42.711x0.488	46	-55.889	4016.964	**	**
L47	14.497 - 12.083	Pole	TP43.143x42.752x0.488	47	-56.804	4054.123	**	**
L48	12.083 - 11.833	Pole	TP43.183x43.143x0.738	48	-56.933	6103.041	**	**
L49	11.833 - 10	Pole	TP43.48x43.183x0.738	49	-57.733	6145.744	**	**
L50	10 - 9.75	Pole	TP43.521x43.48x0.738	50	-57.862	6151.561	**	**
L51	9.75 - 4.75	Pole	TP44.331x43.521x0.725	51	-60.099	6163.552	**	**
L52	4.75 - 0	Pole	TP45.1x44.331x0.713	52	-62.253	6165.915	**	**
							Summary	
						Pole (L32)	**	**
						RATING =	**	**

**Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876313

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876313

Work Order: 2129178

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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	160	11.5	0	0	10.75	10.75	0.349		A53-B-35
2	148.5	0.5	0	0	23.00	23	0.349		A53-B-35
3	148	37	3.75	18	23.00	28.994	0.25	Auto	A607-60
4	114.75	38	4.25	18	27.89	34.042	0.3125	Auto	A607-60
5	81	38	5	18	32.73	38.884	0.375	Auto	A607-65
6	48	48	0	18	37.32	45.1	0.4375	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	27.083	channel	MP3-06 (1.1875in)	2			E1						E1									
2	0	12.083	channel	MP3-06 (1.1875in)	2													E1				E1	
3	14.747	27.913	channel	MP3-06 (1.1875in)	1															E1			
4	45.417	70.583	channel	MP3-05 (1.1875in)	3			E1						E1						E1			
5	78.167	105.333	channel	MP3-04 (1.1875in)	3			E1						E1						E1			
6	27.25	46.75	plate	CCI-SFP-065125	3						E3						E3						E3
7	10	16	plate	CCI-SFP-060100	3						E4						E4						E4
8	70	80	plate	CCI-AFP-060100	3	E5						E5				E5							
9	80.5	92.5	plate	CCI-SFP-040125	3				P						P						P		
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
2	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
3	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
4	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
5	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
6	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
7	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
8	6	1	6	0.5	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	16.000	4.750	1.1875	A572-65
9	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	160 - 155	5		0	10.750	10.750	0.349	A53-B-35	1.000
2	155 - 150	5		0	10.750	10.750	0.349	A53-B-35	1.000
3	150 - 148.5	1.5	0	0	10.750	10.750	0.349	A53-B-35	1.000
4	148.5 - 148	0.5	0	0	23.000	23.000	0.349	A53-B-35	1.000
5	148 - 143	5		18	23.000	23.810	0.25	A607-60	1.000
6	143 - 138	5		18	23.810	24.620	0.25	A607-60	1.000
7	138 - 133	5		18	24.620	25.430	0.25	A607-60	1.000
8	133 - 128	5		18	25.430	26.240	0.25	A607-60	1.000
9	128 - 123	5		18	26.240	27.050	0.25	A607-60	1.000
10	123 - 118	5		18	27.050	27.860	0.25	A607-60	1.000
11	118 - 114.75	7	3.75	18	27.860	28.994	0.25	A607-60	1.000
12	114.75 - 109.75	5		18	27.887	28.696	0.3125	A607-60	1.000
13	109.75 - 105.333	4.417		18	28.696	29.412	0.3125	A607-60	1.000
14	105.333 - 105.083	0.25		18	29.412	29.452	0.46875	A607-60	0.958
15	105.083 - 100.083	5		18	29.452	30.262	0.4625	A607-60	0.962
16	100.083 - 95.083	5		18	30.262	31.072	0.4625	A607-60	0.955
17	95.083 - 92.5	2.583		18	31.072	31.491	0.45625	A607-60	0.964
18	92.5 - 92.25	0.25		18	31.491	31.531	0.6375	A607-60	0.934
19	92.25 - 87.25	5		18	31.531	32.341	0.625	A607-60	0.940
20	87.25 - 82.25	5		18	32.341	33.151	0.6125	A607-60	0.948
21	82.25 - 81	5.5	4.25	18	33.151	34.042	0.6125	A607-60	0.945
22	81 - 75.75	5.25		18	32.729	33.579	0.375	A607-65	1.000
23	75.75 - 70.75	5		18	33.579	34.389	0.375	A607-65	1.000
24	70.75 - 70.583	0.167		18	34.389	34.416	0.375	A607-65	1.000
25	70.583 - 70.333	0.25		18	34.416	34.456	0.675	A607-65	1.043
26	70.333 - 70	0.333		18	34.456	34.510	0.675	A607-65	1.043
27	70 - 69.75	0.25		18	34.510	34.551	0.375	A607-65	1.000
28	69.75 - 64.75	5		18	34.551	35.361	0.375	A607-65	1.000
29	64.75 - 59.75	5		18	35.361	36.171	0.375	A607-65	1.000
30	59.75 - 54.75	5		18	36.171	36.981	0.375	A607-65	1.000
31	54.75 - 49.75	5		18	36.981	37.791	0.375	A607-65	1.000
32	49.75 - 48	6.75	5	18	37.791	38.884	0.375	A607-65	1.000
33	48 - 42	6		18	37.324	38.296	0.4375	A607-65	1.000
34	42 - 37	5		18	38.296	39.106	0.4375	A607-65	1.000
35	37 - 32	5		18	39.106	39.916	0.4375	A607-65	1.000
36	32 - 27.913	4.087		18	39.916	40.578	0.4375	A607-65	1.000
37	27.913 - 27.663	0.25		18	40.578	40.619	0.675	A607-65	1.036
38	27.663 - 27.25	0.413		18	40.619	40.686	0.675	A607-65	1.035
39	27.25 - 26.983	0.267		18	40.686	40.729	0.675	A607-65	0.948
40	26.983 - 26.833	0.15		18	40.729	40.753	0.6625	A607-65	0.966
41	26.833 - 21.833	5		18	40.753	41.563	0.6625	A607-65	0.959
42	21.833 - 16.833	5		18	41.563	42.373	0.6625	A607-65	0.954
43	16.833 - 16	0.833		18	42.373	42.508	0.6625	A607-65	0.953
44	16 - 15.75	0.25		18	42.508	42.549	0.8125	A607-65	0.947
45	15.75 - 14.747	1.003		18	42.549	42.711	0.8125	A607-65	0.945
46	14.747 - 14.497	0.25		18	42.711	42.752	0.4875	A607-65	1.158
47	14.497 - 12.083	2.414		18	42.752	43.143	0.4875	A607-65	1.155
48	12.083 - 11.833	0.25		18	43.143	43.183	0.7375	A607-65	0.938
49	11.833 - 10	1.833		18	43.183	43.480	0.7375	A607-65	0.936
50	10 - 9.75	0.25		18	43.480	43.521	0.7375	A607-65	0.936
51	9.75 - 4.75	5		18	43.521	44.331	0.725	A607-65	0.945
52	4.75 - 0	4.75		18	44.331	45.100	0.7125	A607-65	0.955

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 155	4.60	18.26	6.96
2	155 - 150	5.51	54.53	7.57
3	150 - 148.5	5.79	66.00	7.74
4	148.5 - 148	5.91	69.89	7.83
5	148 - 143	11.87	133.27	13.38
6	143 - 138	12.72	201.89	14.08
7	138 - 133	16.95	297.10	19.14
8	133 - 128	17.58	393.47	19.43
9	128 - 123	21.81	503.19	22.11
10	123 - 118	25.17	616.70	24.91
11	118 - 114.75	25.69	697.80	25.05
12	114.75 - 109.75	26.88	823.84	25.39
13	109.75 - 105.333	27.71	936.29	25.58
14	105.333 - 105.083	27.79	942.68	25.59
15	105.083 - 100.083	28.93	1071.25	25.88
16	100.083 - 95.083	30.11	1201.24	26.16
17	95.083 - 92.5	30.73	1268.94	26.31
18	92.5 - 92.25	30.82	1275.52	26.32
19	92.25 - 87.25	32.29	1407.84	26.65
20	87.25 - 82.25	33.79	1541.82	26.98
21	82.25 - 81	34.17	1575.56	27.06
22	81 - 75.75	36.35	1718.70	27.48
23	75.75 - 70.75	37.56	1856.26	27.62
24	70.75 - 70.583	37.62	1860.87	27.62
25	70.583 - 70.333	37.71	1867.77	27.62
26	70.333 - 70	37.83	1876.96	27.64
27	70 - 69.75	37.90	1883.87	27.65
28	69.75 - 64.75	39.11	2022.36	27.89
29	64.75 - 59.75	40.38	2161.89	27.99
30	59.75 - 54.75	41.67	2301.88	28.07
31	54.75 - 49.75	42.98	2442.25	28.14
32	49.75 - 48	43.43	2491.46	28.19
33	48 - 42	46.11	2661.74	28.52
34	42 - 37	47.60	2804.27	28.56
35	37 - 32	49.10	2946.99	28.59
36	32 - 27.913	50.35	3063.72	28.60
37	27.913 - 27.663	50.48	3070.86	28.58
38	27.663 - 27.25	50.65	3082.67	28.60
39	27.25 - 26.983	50.76	3090.30	28.60
40	26.983 - 26.833	50.82	3094.59	28.61
41	26.833 - 21.833	52.82	3237.92	28.75
42	21.833 - 16.833	54.84	3381.87	28.87
43	16.833 - 16	55.19	3405.90	28.89
44	16 - 15.75	55.31	3413.12	28.88
45	15.75 - 14.747	55.79	3442.10	28.94
46	14.747 - 14.497	55.89	3449.33	28.93
47	14.497 - 12.083	56.80	3519.20	29.00
48	12.083 - 11.833	56.93	3526.44	28.98
49	11.833 - 10	57.73	3579.62	29.09
50	10 - 9.75	57.86	3586.88	29.06
51	9.75 - 4.75	60.10	3732.59	29.25
52	4.75 - 0	62.25	3871.73	29.39

Analysis Results

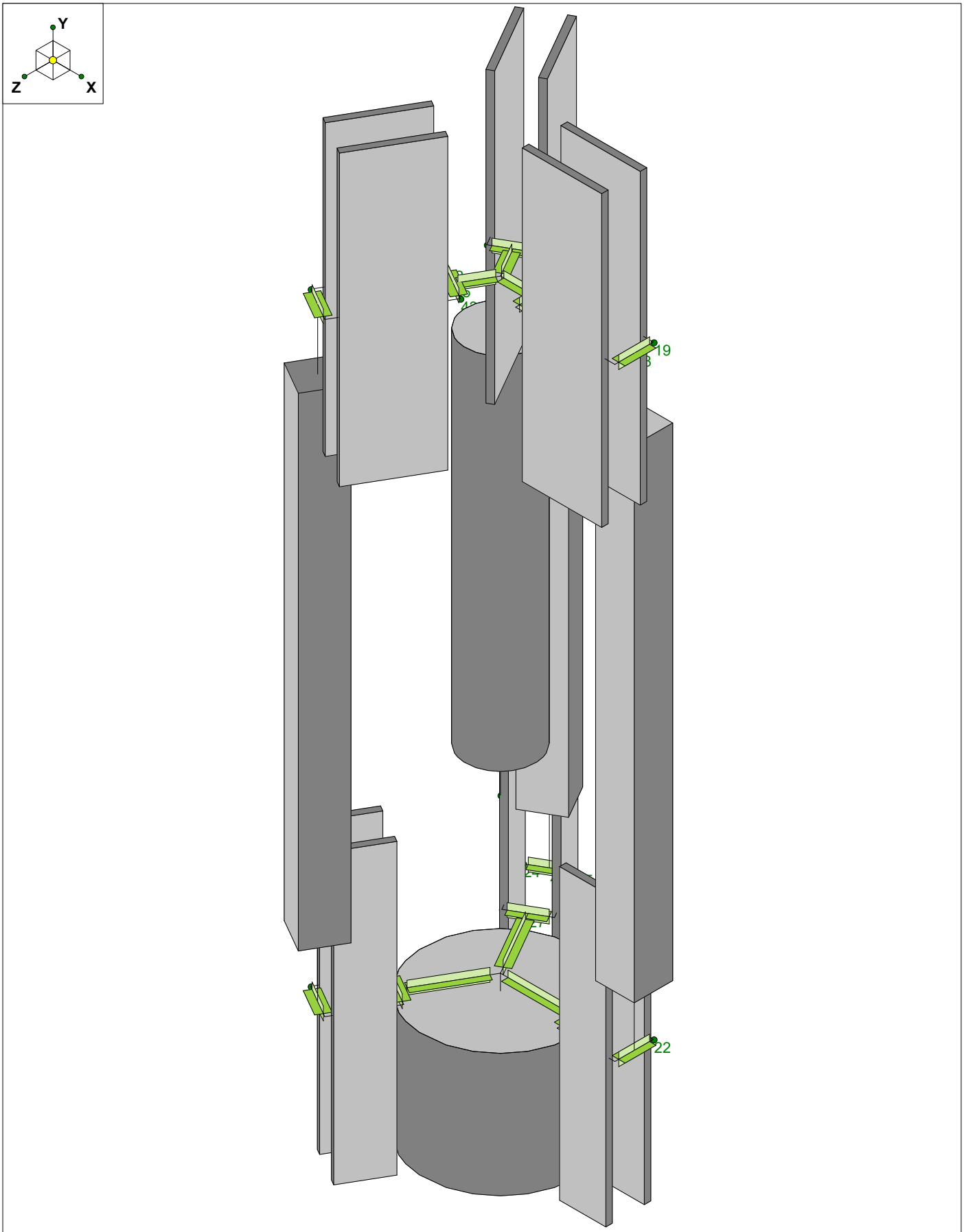
Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP10.75x10.75x0.349	Pole	19.2%	Pass
155 - 150	Pole	TP10.75x10.75x0.349	Pole	54.3%	Pass
150 - 148.5	Pole	TP10.75x10.75x0.349	Pole	65.4%	Pass
148.5 - 148	Pole	TP23x23x0.349	Pole	15.3%	Pass
148 - 143	Pole	TP23.81x23x0.25	Pole	21.8%	Pass
143 - 138	Pole	TP24.62x23.81x0.25	Pole	30.3%	Pass
138 - 133	Pole	TP25.43x24.62x0.25	Pole	42.0%	Pass
133 - 128	Pole	TP26.24x25.43x0.25	Pole	52.1%	Pass
128 - 123	Pole	TP27.05x26.24x0.25	Pole	63.1%	Pass
123 - 118	Pole	TP27.86x27.05x0.25	Pole	73.4%	Pass
118 - 114.75	Pole	TP28.994x27.86x0.25	Pole	80.2%	Pass
114.75 - 109.75	Pole	TP28.696x27.887x0.3125	Pole	71.8%	Pass
109.75 - 105.33	Pole	TP29.412x28.696x0.3125	Pole	77.4%	Pass
105.33 - 105.08	Pole + Reinf.	TP29.452x29.412x0.4688	Reinf. 5 Tension Rupture	73.6%	Pass
105.08 - 100.08	Pole + Reinf.	TP30.262x29.452x0.4625	Reinf. 5 Tension Rupture	79.8%	Pass
100.08 - 95.08	Pole + Reinf.	TP31.072x30.262x0.4625	Reinf. 5 Tension Rupture	85.4%	Pass
95.08 - 92.5	Pole + Reinf.	TP31.491x31.072x0.4563	Reinf. 5 Tension Rupture	88.1%	Pass
92.5 - 92.25	Pole + Reinf.	TP31.531x31.491x0.6375	Reinf. 9 Tension Rupture	78.2%	Pass
92.25 - 87.25	Pole + Reinf.	TP32.341x31.531x0.625	Reinf. 9 Tension Rupture	83.0%	Pass
87.25 - 82.25	Pole + Reinf.	TP33.151x32.341x0.6125	Reinf. 9 Tension Rupture	87.5%	Pass
82.25 - 81	Pole + Reinf.	TP34.042x33.151x0.6125	Reinf. 9 Tension Rupture	88.6%	Pass
81 - 75.75	Pole	TP33.579x32.729x0.375	Pole	83.5%	Pass
75.75 - 70.75	Pole	TP34.389x33.579x0.375	Pole	85.9%	Pass
70.75 - 70.58	Pole	TP34.416x34.389x0.375	Pole	86.0%	Pass
70.58 - 70.33	Pole + Reinf.	TP34.456x34.416x0.675	Reinf. 4 Tension Rupture	75.2%	Pass
70.33 - 70	Pole + Reinf.	TP34.51x34.456x0.675	Reinf. 4 Tension Rupture	75.4%	Pass
70 - 69.75	Pole	TP34.551x34.51x0.375	Pole	86.3%	Pass
69.75 - 64.75	Pole	TP35.361x34.551x0.375	Pole	88.4%	Pass
64.75 - 59.75	Pole	TP36.171x35.361x0.375	Pole	90.4%	Pass
59.75 - 54.75	Pole	TP36.981x36.171x0.375	Pole	92.4%	Pass
54.75 - 49.75	Pole	TP37.791x36.981x0.375	Pole	94.4%	Pass
49.75 - 48	Pole	TP38.884x37.791x0.375	Pole	95.0%	Pass
48 - 42	Pole	TP38.296x37.324x0.4375	Pole	85.1%	Pass
42 - 37	Pole	TP39.106x38.296x0.4375	Pole	86.0%	Pass
37 - 32	Pole	TP39.916x39.106x0.4375	Pole	86.7%	Pass
32 - 27.91	Pole	TP40.578x39.916x0.4375	Pole	87.1%	Pass
27.91 - 27.66	Pole + Reinf.	TP40.619x40.578x0.675	Reinf. 6 Tension Rupture	85.0%	Pass
27.66 - 27.25	Pole + Reinf.	TP40.686x40.619x0.675	Reinf. 6 Tension Rupture	85.1%	Pass
27.25 - 26.98	Pole + Reinf.	TP40.729x40.686x0.675	Reinf. 1 Tension Rupture	83.2%	Pass
26.98 - 26.83	Pole + Reinf.	TP40.753x40.729x0.6625	Reinf. 1 Tension Rupture	83.3%	Pass
26.83 - 21.83	Pole + Reinf.	TP41.563x40.753x0.6625	Reinf. 1 Tension Rupture	84.3%	Pass
21.83 - 16.83	Pole + Reinf.	TP42.373x41.563x0.6625	Reinf. 1 Tension Rupture	85.2%	Pass
16.83 - 16	Pole + Reinf.	TP42.508x42.373x0.6625	Reinf. 1 Tension Rupture	85.3%	Pass
16 - 15.75	Pole + Reinf.	TP42.549x42.508x0.8125	Reinf. 7 Tension Rupture	76.5%	Pass
15.75 - 14.75	Pole + Reinf.	TP42.711x42.549x0.8125	Reinf. 7 Tension Rupture	76.6%	Pass
14.75 - 14.5	Pole + Reinf.	TP42.752x42.711x0.4875	Pole	87.0%	Pass
14.5 - 12.08	Pole + Reinf.	TP43.143x42.752x0.4875	Pole	87.4%	Pass
12.08 - 11.83	Pole + Reinf.	TP43.183x43.143x0.7375	Reinf. 1 Tension Rupture	78.2%	Pass
11.83 - 10	Pole + Reinf.	TP43.48x43.183x0.7375	Reinf. 1 Tension Rupture	78.5%	Pass
10 - 9.75	Pole + Reinf.	TP43.521x43.48x0.7375	Reinf. 1 Tension Rupture	78.6%	Pass
9.75 - 4.75	Pole + Reinf.	TP44.331x43.521x0.725	Reinf. 1 Tension Rupture	79.3%	Pass
4.75 - 0	Pole + Reinf.	TP45.1x44.331x0.7125	Reinf. 1 Tension Rupture	80.0%	Pass
				Summary	
			Pole	95.0%	Pass
			Reinforcement	88.6%	Pass
			Overall	95.0%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity* (100% Max. Allowable)									
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9
160 - 155	154	n/a	154	11.40	n/a	11.40	19.2%									
155 - 150	154	n/a	154	11.40	n/a	11.40	54.3%									
150 - 148.5	154	n/a	154	11.40	n/a	11.40	65.4%									
148.5 - 148	1593	n/a	1593	24.83	n/a	24.83	15.3%									
148 - 143	1311	n/a	1311	18.69	n/a	18.69	21.8%									
143 - 138	1450	n/a	1450	19.34	n/a	19.34	30.3%									
138 - 133	1600	n/a	1600	19.98	n/a	19.98	42.0%									
133 - 128	1759	n/a	1759	20.62	n/a	20.62	52.1%									
128 - 123	1929	n/a	1929	21.27	n/a	21.27	63.1%									
123 - 118	2109	n/a	2109	21.91	n/a	21.91	73.4%									
118 - 114.75	2232	n/a	2232	22.33	n/a	22.33	80.2%									
114.75 - 109.75	2865	n/a	2865	28.15	n/a	28.15	71.8%									
109.75 - 105.33	3087	n/a	3087	28.86	n/a	28.86	77.4%									
105.33 - 105.08	3100	1464	4563	28.90	12.39	41.29	52.0%					73.6%				
105.08 - 100.08	3365	1542	4907	29.71	12.39	42.10	56.4%					79.8%				
100.08 - 95.08	3646	1622	5268	30.51	12.39	42.90	60.4%					85.4%				
95.08 - 92.5	3797	1664	5460	30.92	12.39	43.31	62.5%					88.1%				
92.5 - 92.25	3811	3694	7505	30.96	27.39	58.35	45.8%					64.6%				78.2%
92.25 - 87.25	4116	3878	7994	31.77	27.39	59.16	49.0%					68.5%				83.0%
87.25 - 82.25	4436	4066	8502	32.57	27.39	59.96	52.0%					72.2%				87.5%
82.25 - 81	4519	4114	8633	32.77	27.39	60.16	52.7%					73.1%				88.6%
81 - 75.75	5503	n/a	5503	39.52	n/a	39.52	83.5%									
75.75 - 70.75	5916	n/a	5916	40.48	n/a	40.48	85.9%									
70.75 - 70.58	5930	n/a	5930	40.52	n/a	40.52	86.0%									
70.58 - 70.33	5976	4418	10394	40.56	34.95	75.51	51.2%				75.2%				70.2%	
70.33 - 70	6005	4431	10436	40.63	34.95	75.58	51.4%				75.4%				70.4%	
70 - 69.75	6000	n/a	6000	40.68	n/a	40.68	86.3%									
69.75 - 64.75	6437	n/a	6437	41.64	n/a	41.64	88.4%									
64.75 - 59.75	6895	n/a	6895	42.60	n/a	42.60	90.4%									
59.75 - 54.75	7373	n/a	7373	43.57	n/a	43.57	92.4%									
54.75 - 49.75	7874	n/a	7874	44.53	n/a	44.53	94.4%									
49.75 - 48	8054	n/a	8054	44.87	n/a	44.87	95.0%									
48 - 42	9516	n/a	9516	52.57	n/a	52.57	85.1%									
42 - 37	10140	n/a	10140	53.69	n/a	53.69	86.0%									
37 - 32	10791	n/a	10791	54.82	n/a	54.82	86.7%									
32 - 27.91	11343	n/a	11343	55.74	n/a	55.74	87.1%									
27.91 - 27.66	11404	5776	17180	55.79	32.85	88.64	59.6%			63.9%			85.0%			
27.66 - 27.25	11461	5795	17256	55.89	32.85	88.73	59.7%			63.9%			85.1%			
27.25 - 26.98	11471	5787	17258	55.95	25.41	81.36	57.2%	83.2%		83.2%						
26.98 - 26.83	11492	5793	17285	55.98	25.41	81.39	57.2%	83.3%		83.3%						
26.83 - 21.83	12199	6015	18213	57.11	25.41	82.52	57.9%	84.3%		84.3%						
21.83 - 16.83	12934	6240	19174	58.23	25.41	83.64	58.7%	85.2%		85.2%						
16.83 - 16	13059	6278	19337	58.42	25.41	83.83	58.9%	85.3%		85.3%						
16 - 15.75	13097	10584	23681	58.47	43.41	101.88	48.3%	69.9%		69.9%				76.5%		
15.75 - 14.75	13249	10662	23911	58.70	43.41	102.11	48.4%	70.1%		70.1%				76.6%		
14.75 - 14.5	13650	1331	14981	58.76	16.94	75.70	87.0%	86.8%								
14.5 - 12.08	14026	1359	15386	59.30	16.94	76.24	87.4%	87.2%								
12.08 - 11.83	13727	8795	22521	59.36	33.88	93.24	55.9%	78.2%	76.2%							
11.83 - 10	14014	8911	22925	59.77	33.88	93.65	56.2%	78.5%	76.5%							
10 - 9.75	14054	8927	22981	59.82	33.88	93.70	56.3%	78.6%	76.6%							
9.75 - 4.75	14861	9248	24108	60.95	33.88	94.83	57.1%	79.3%	77.3%							
4.75 - 0	15655	9558	25213	62.02	33.88	95.90	57.9%	80.0%	78.0%							

Note: Section capacity checked using 5 degree increments.

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



Envelope Only Solution

B+T Group	876313 - WEST JOHNSON AVE. BURNT HOUSE	SK - 2
NA		June 23, 2022 at 1:53 PM
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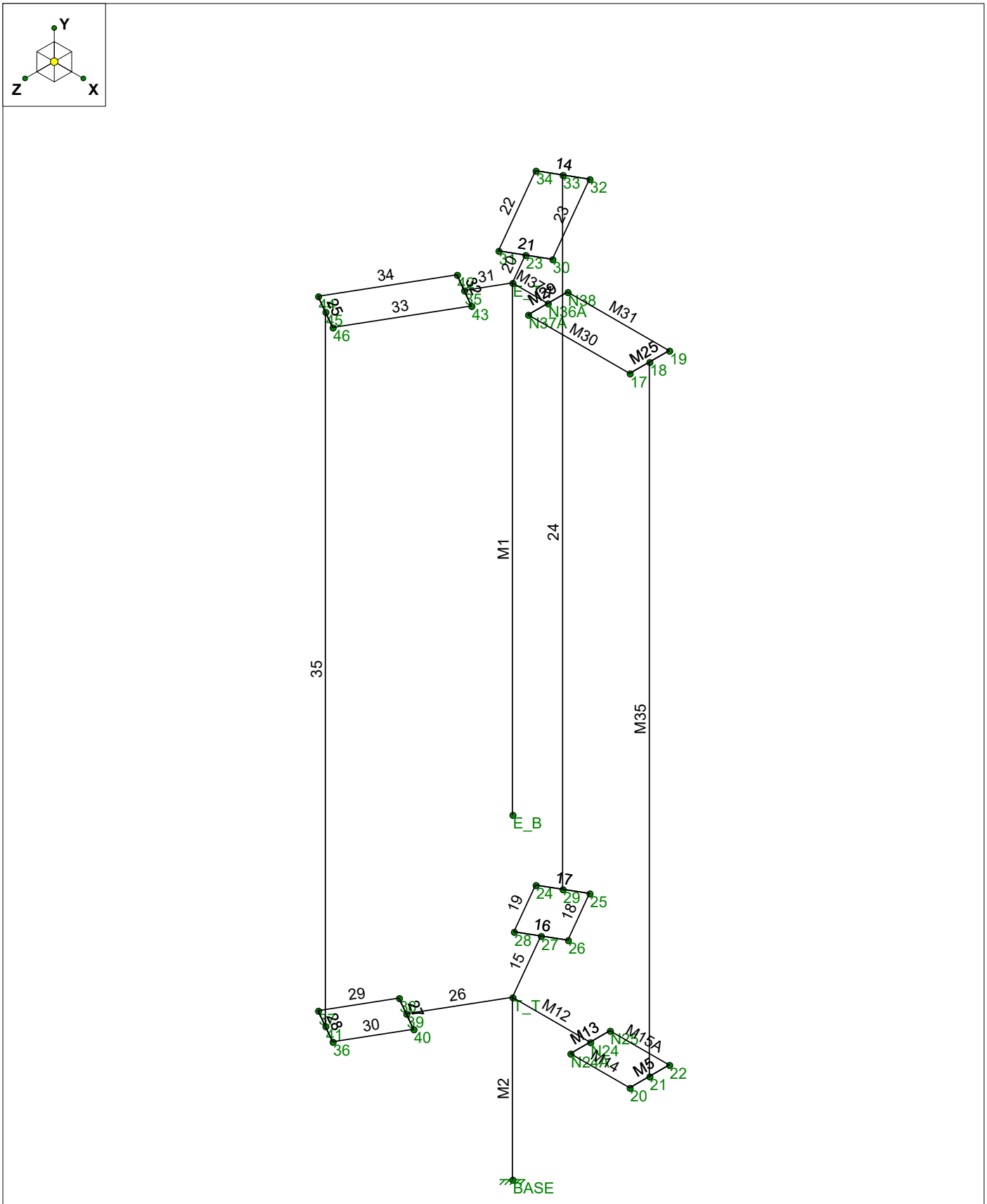

Envelope Only Solution

B+T Group	876313 - WEST JOHNSON AVE. BURNT HOUSE	SK - 3
NA		June 23, 2022 at 1:53 PM
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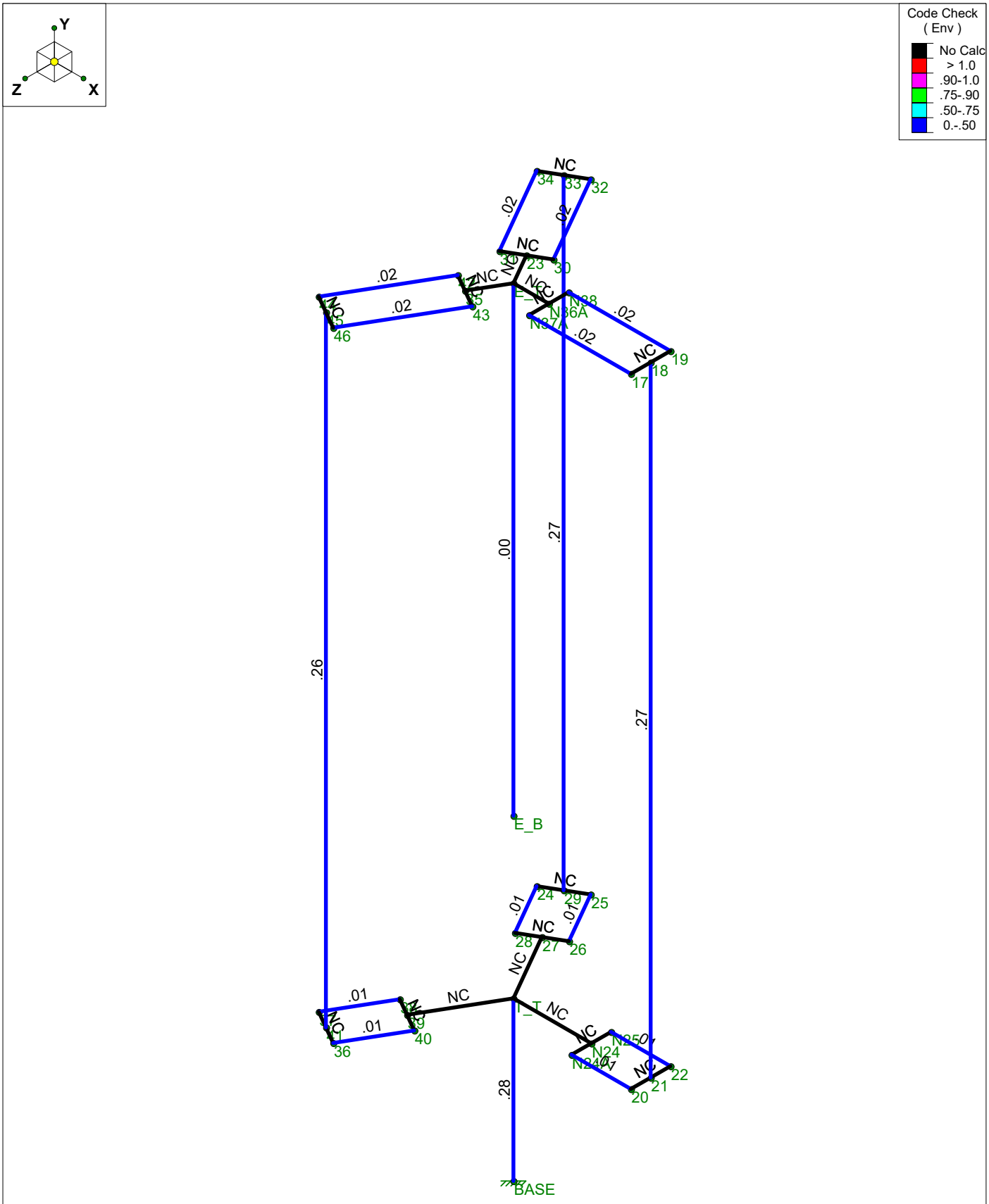

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	876313 - WEST JOHNSON AVE. BURNT HOUSE	SK - 4
NA		June 23, 2022 at 1:53 PM
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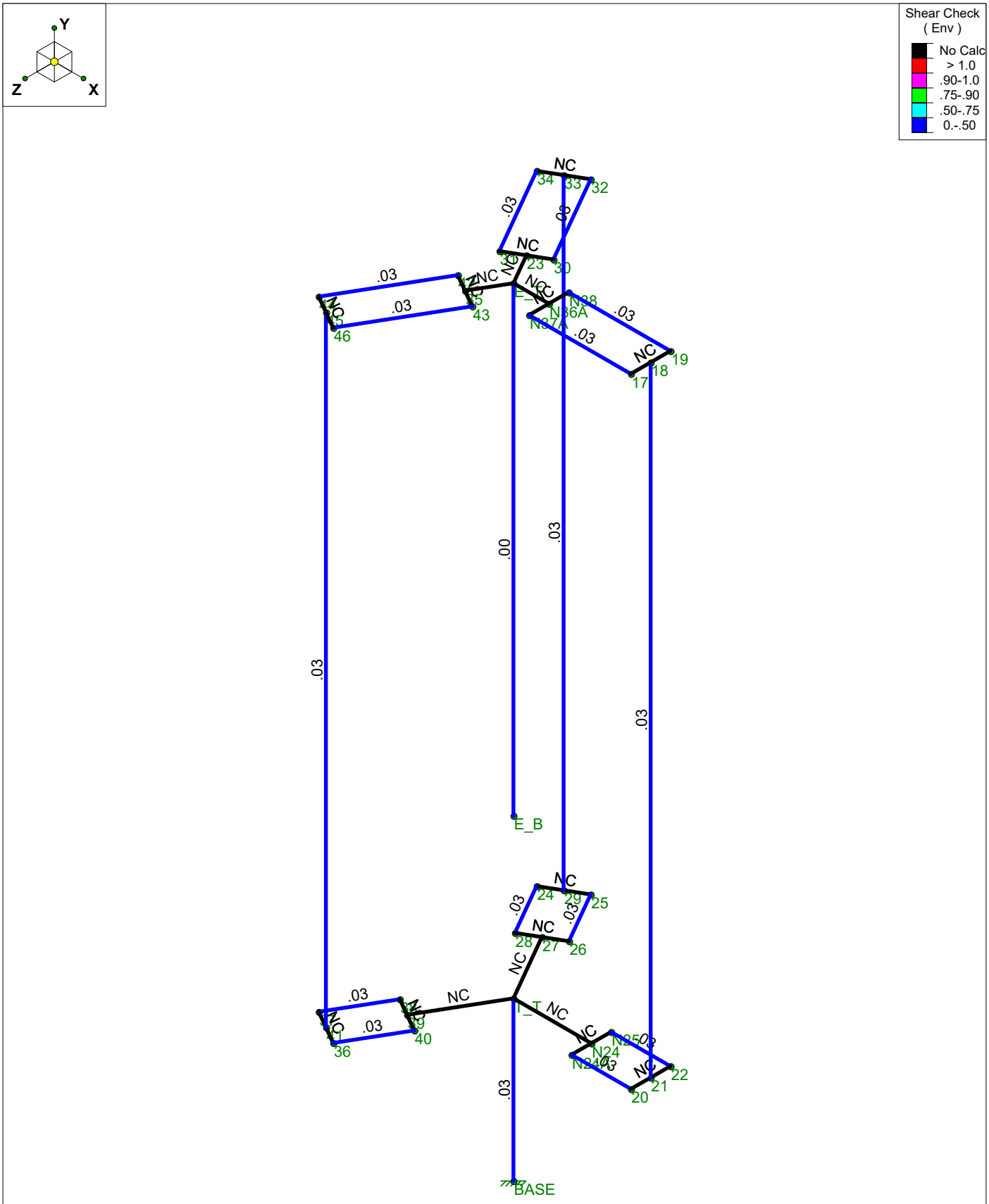


Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	876313 - WEST JOHNSON AVE. BURNT HOUSE	SK - 5
NA		June 23, 2022 at 1:54 PM
137177.015.01		137177_015_01_WEST_JOHNS...

(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)	24
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	AWC NDS-18: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: 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?	No
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	1
Cd X	1
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)	.145
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	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Hot Rolled Steel Properties

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

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
8	A572 Gr. 65	29000	11154	.3	.65	.49	65	1.5	80	1.2
9	A607-60	29000	11154	.3	.65	.49	60	1.5	75	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Existing pole	Pole 23.812...	Column	Pipe	A607-60	Typical	18.506	1284.519	1284.519	2569.038
2	Extension pole	Pipe 10.75x0...	Column	Pipe	A53 Gr.B	Typical	11.404	154.383	154.383	308.766
3	HSS	HSS6X6X8	Column	Tube	A500 Gr.B R...	Typical	9.74	48.3	48.3	81.1
4	Plate Top	BP 1"x45"	Beam	RECT	A572 Gr. 65	Typical	45	3.75	7593.75	14.79
5	Plate Bottom	BP 1"x45"	Beam	RECT	A572 Gr. 65	Typical	45	3.75	7593.75	14.79

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	BASE	0	0	0	0	
2	T_T	0	2	0	0	
3	E_T	0	9.833	0	0	
4	E_B	0	4	0	0	
5	N24	0.984375	2	0	0	
6	N24A	0.984375	2	.25	0	
7	N25	0.984375	2	-.25	0	
8	N36A	0.447917	9.833	0	0	
9	N37A	0.447917	9.833	.25	0	
10	N38	0.447917	9.833	-.25	0	
11	17	1.734375	9.833	.25	0	
12	18	1.734375	9.833	0	0	
13	19	1.734375	9.833	-.25	0	
14	20	1.734375	2	.25	0	
15	21	1.734375	2	0	0	
16	22	1.734375	2	-.25	0	
17	23	-0.223959	9.833	-0.387908	0	
18	24	-1.083694	2	-1.377013	0	
19	25	-0.650681	2	-1.627013	0	
20	26	-0.275681	2	-0.977494	0	
21	27	-0.492188	2	-0.852494	0	
22	28	-0.708694	2	-0.727494	0	
23	29	-0.867188	2	-1.502013	0	
24	30	-0.007452	9.833	-0.512907	0	
25	31	-0.440465	9.833	-0.262908	0	
26	32	-0.650681	9.833	-1.627013	0	
27	33	-0.867188	9.833	-1.502013	0	
28	34	-1.083694	9.833	-1.377013	0	
29	35	-0.223959	9.833	0.387908	0	
30	36	-0.650681	2	1.627013	0	
31	37	-1.083694	2	1.377013	0	
32	38	-0.708694	2	0.727494	0	
33	39	-0.492188	2	0.852494	0	
34	40	-0.275681	2	0.977494	0	
35	41	-0.867188	2	1.502013	0	
36	42	-0.440465	9.833	0.262907	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
37	43	-0.007452	9.833	0.512908	0	
38	44	-1.083694	9.833	1.377013	0	
39	45	-0.867188	9.833	1.502013	0	
40	46	-0.650681	9.833	1.627013	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	BASE	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Extension p...	5.833									Lateral
2	M2	Existing pole	2									Lateral
3	M35	HSS	7.833	4.5	4.5							Lateral
4	M14	Plate Bottom	.75			Lbyy						Lateral
5	M15A	Plate Bottom	.75			Lbyy						Lateral
6	M30	Plate Top	1.286			Lbyy						Lateral
7	M31	Plate Top	1.286			Lbyy						Lateral
8	18	Plate Bottom	.75			Lbyy						Lateral
9	19	Plate Bottom	.75			Lbyy						Lateral
10	22	Plate Top	1.286			Lbyy						Lateral
11	23	Plate Top	1.286			Lbyy						Lateral
12	24	HSS	7.833	4.5	4.5							Lateral
13	29	Plate Bottom	.75			Lbyy						Lateral
14	30	Plate Bottom	.75			Lbyy						Lateral
15	33	Plate Top	1.286			Lbyy						Lateral
16	34	Plate Top	1.286			Lbyy						Lateral
17	35	HSS	7.833	4.5	4.5							Lateral

Joint Loads and Enforced Displacements (BLC 1 : 1)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	-7.83
3	E_T	L	Mz	69.89
4	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 2 : 2)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	-6.781
3	E_T	L	Z	-3.915
4	E_T	L	Mz	60.527
5	E_T	L	Mx	-34.945
6	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 3 : 3)

Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...

Joint Loads and Enforced Displacements (BLC 3 : 3) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	-5.537
3	E_T	L	Z	-5.537
4	E_T	L	Mz	49.42
5	E_T	L	Mx	-49.42
6	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 4 : 4)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	-3.915
3	E_T	L	Z	-6.781
4	E_T	L	Mz	34.945
5	E_T	L	Mx	-60.527
6	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 5 : 5)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	Z	-7.83
3	E_T	L	Mx	-69.89
4	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 6 : 6)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	3.915
3	E_T	L	Z	-6.781
4	E_T	L	Mz	-34.945
5	E_T	L	Mx	-60.527
6	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 7 : 7)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	5.537
3	E_T	L	Z	-5.537
4	E_T	L	Mz	-49.42
5	E_T	L	Mx	-49.42
6	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 8 : 8)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	6.781
3	E_T	L	Z	-3.915
4	E_T	L	Mz	-60.527
5	E_T	L	Mx	-34.945
6	E_T	L	My	-.5

Joint Loads and Enforced Displacements (BLC 9 : 9)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	E_T	L	Y	-5.91
2	E_T	L	X	7.83
3	E_T	L	Mz	-69.89
4	E_T	L	My	-.5

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	1	None		-1		4				
2	2	None		-1		6				
3	3	None		-1		6				
4	4	None		-1		6				
5	5	None		-1		4				
6	6	None		-1		6				
7	7	None		-1		6				
8	8	None		-1		6				
9	9	None		-1		4				

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	BASE	max	7.83	1	8.971	9	7.83	5	147.115	5	.5	5	147.131	9
2		min	-7.83	9	8.971	2	0	1	-.012	9	.5	2	-147.1	1
3	Totals:	max	7.83	1	8.971	9	7.83	5						
4		min	-7.83	9	8.971	2	0	1						

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	-.226	9	0	9	0	9	0	9	.001	5	.001	9
2			min	-.226	1	0	1	0	5	0	1	0	9	-.001	1
3		2	max	-.17	9	0	9	0	9	0	9	.001	5	.001	9
4			min	-.17	1	0	1	0	5	0	1	0	9	-.001	1
5		3	max	-.113	9	0	9	0	9	0	9	0	5	0	9
6			min	-.113	1	0	1	0	5	0	1	0	9	0	1
7		4	max	-.057	9	0	9	0	9	0	9	0	5	0	9
8			min	-.057	1	0	1	0	5	0	1	0	9	0	1
9		5	max	0	9	0	9	0	9	0	9	0	9	0	9
10			min	0	1	0	1	0	5	0	1	0	1	0	1
11	M2	1	max	8.845	9	7.837	1	7.837	5	.5	5	131.441	5	131.457	9
12			min	8.845	2	-7.837	9	0	1	.5	2	-.012	9	-131.426	1
13		2	max	8.876	9	7.837	1	7.837	5	.5	5	135.359	5	135.375	9
14			min	8.876	2	-7.837	9	0	1	.5	2	-.012	9	-135.344	1
15		3	max	8.908	9	7.837	1	7.837	5	.5	5	139.278	5	139.294	9
16			min	8.908	2	-7.837	9	0	1	.5	2	-.012	9	-139.263	1
17		4	max	8.939	9	7.837	1	7.837	5	.5	5	143.196	5	143.212	9
18			min	8.939	2	-7.837	9	0	1	.5	2	-.012	9	-143.181	1
19		5	max	8.971	9	7.837	1	7.837	5	.5	5	147.115	5	147.131	9
20			min	8.971	2	-7.837	9	0	1	.5	2	-.012	9	-147.1	1
21	M5	1	max	.019	1	20.513	9	1.69	1	5.964	1	.447	5	.216	5

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
22			min	-1.2	5	-25.869	3	-1.946	6	-9.356	7	-.006	1	-.003	9
23		2	max	.019	1	20.513	9	1.69	1	5.964	1	.319	3	3.385	3
24			min	-1.2	5	-25.869	3	-1.946	6	-9.356	7	-.143	9	-2.567	9
25		3	max	-.018	9	20.513	9	.555	2	5.974	9	.416	1	6.619	3
26			min	-1.2	5	-28.59	7	-1.549	5	-9.356	7	-.382	9	-7.299	7
27		4	max	1.2	5	17.781	1	1.554	9	5.974	9	.16	1	2.226	1
28			min	-.019	1	-28.59	7	-2.094	3	-9.352	3	-.301	6	-3.725	7
29		5	max	1.2	5	17.781	1	1.554	9	5.974	9	.006	1	.003	9
30			min	-.019	1	-28.59	7	-2.094	3	-9.352	3	-.447	5	-.216	5
31	M35	1	max	40.178	9	2.79	1	2.41	5	.119	5	.145	9	10.134	1
32			min	-35.288	1	-2.794	9	-.038	9	.103	1	-8.565	5	-10.152	9
33		2	max	40.248	9	2.79	1	2.41	5	.119	5	.072	9	4.671	1
34			min	-35.219	1	-2.794	9	-.038	9	.103	1	-3.846	5	-4.681	9
35		3	max	40.318	9	2.79	1	2.41	5	.119	5	.873	5	.791	9
36			min	-35.149	1	-2.794	9	-.038	9	.103	1	-.002	9	-.793	1
37		4	max	40.387	9	2.79	1	2.41	5	.119	5	5.592	5	6.262	9
38			min	-35.079	1	-2.794	9	-.038	9	.103	1	-.075	9	-6.256	1
39		5	max	40.457	9	2.79	1	2.41	5	.119	5	10.31	5	11.734	9
40			min	-35.009	1	-2.794	9	-.038	9	.103	1	-.149	9	-11.72	1
41	M12	1	max	2.918	1	40.683	9	2.401	5	10.31	5	.168	1	82.208	9
42			min	-2.647	9	-34.784	1	-.037	1	-.149	9	-4.045	5	-72.134	1
43		2	max	2.918	1	40.683	9	2.401	5	10.31	5	.158	1	72.196	9
44			min	-2.647	9	-34.784	1	-.037	1	-.149	9	-3.454	5	-63.574	1
45		3	max	2.918	1	40.683	9	2.401	5	10.31	5	.149	1	62.184	9
46			min	-2.647	9	-34.784	1	-.037	1	-.149	9	-2.863	5	-55.014	1
47		4	max	2.918	1	40.683	9	2.401	5	10.31	5	.14	1	52.172	9
48			min	-2.647	9	-34.784	1	-.037	1	-.149	9	-2.272	5	-46.454	1
49		5	max	2.918	1	40.683	9	2.401	5	10.31	5	.131	1	42.16	9
50			min	-2.647	9	-34.784	1	-.037	1	-.149	9	-1.682	5	-37.894	1
51	M13	1	max	1.2	5	25.754	3	1.946	6	21.187	9	.454	5	.003	9
52			min	-.019	1	-20.628	9	-1.69	1	-19.918	2	-.008	1	-.216	5
53		2	max	1.2	5	25.754	3	1.946	6	21.187	9	.647	5	2.582	9
54			min	-.019	1	-20.628	9	-1.69	1	-19.918	2	-.219	1	-3.371	3
55		3	max	1.2	5	28.705	7	1.549	5	21.187	9	.868	6	7.328	7
56			min	.018	9	-20.628	9	-.555	2	-22.05	8	-.919	4	-6.59	3
57		4	max	.019	1	28.705	7	2.094	3	19.051	1	.202	9	3.74	7
58			min	-1.2	5	-17.667	1	-1.554	9	-22.05	8	-.661	4	-2.211	1
59		5	max	.019	1	28.705	7	2.094	3	19.051	1	.008	1	.216	5
60			min	-1.2	5	-17.667	1	-1.554	9	-22.05	8	-.454	5	-.003	9
61	M14	1	max	1.69	1	20.626	9	1.2	5	.216	5	.008	1	21.187	9
62			min	-1.946	6	-25.753	3	-.019	1	-.003	9	-.454	5	-19.918	2
63		2	max	1.69	1	20.598	9	1.2	5	.216	5	.004	1	17.322	9
64			min	-1.946	6	-25.782	3	-.019	1	-.003	9	-.229	5	-15.631	1
65		3	max	1.69	1	20.569	9	1.2	5	.216	5	0	1	13.463	9
66			min	-1.946	6	-25.81	3	-.019	1	-.003	9	-.004	5	-12.414	1
67		4	max	1.69	1	20.54	9	1.2	5	.216	5	.221	5	10.228	8
68			min	-1.946	6	-25.839	3	-.019	1	-.003	9	-.003	1	-9.192	1
69		5	max	1.69	1	20.512	9	1.2	5	.216	5	.447	5	9.356	7
70			min	-1.946	6	-25.868	3	-.019	1	-.003	9	-.006	1	-5.964	1
71	M15A	1	max	2.094	3	28.706	7	1.2	5	.216	5	.008	1	22.05	8
72			min	-1.554	9	-17.668	1	-.019	1	-.003	9	-.454	5	-19.051	1
73		2	max	2.094	3	28.677	7	1.2	5	.216	5	.004	1	17.215	9

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
74			min	-1.554	9	-17.697	1	-.019	1	-.003	9	-.229	5	-15.735	1
75		3	max	2.094	3	28.648	7	1.2	5	.216	5	0	1	13.463	9
76			min	-1.554	9	-17.726	1	-.019	1	-.003	9	-.004	5	-12.414	1
77		4	max	2.094	3	28.62	7	1.2	5	.216	5	.221	5	9.715	9
78			min	-1.554	9	-17.754	1	-.019	1	-.003	9	-.003	1	-9.707	2
79		5	max	2.094	3	28.591	7	1.2	5	.216	5	.447	5	5.974	9
80			min	-1.554	9	-17.783	1	-.019	1	-.003	9	-.006	1	-9.352	3
81	M25	1	max	1.199	5	17.915	1	3.019	6	5.242	1	.012	1	.185	5
82			min	-.019	1	-26.072	7	-1.71	1	-11.643	6	-.766	5	-.003	9
83		2	max	1.199	5	17.915	1	3.019	6	5.242	1	.145	9	3.389	7
84			min	-.019	1	-26.072	7	-1.71	1	-11.643	6	-.458	4	-2.242	1
85		3	max	.019	1	20.367	9	3.197	4	5.255	9	.382	9	6.648	7
86			min	-1.201	5	-26.072	7	-1.71	1	-11.643	6	-.416	1	-6.037	3
87		4	max	.019	1	20.367	9	3.197	4	5.255	9	.436	6	2.549	9
88			min	-1.201	5	-23.63	3	-1.573	9	-11.642	4	-.163	1	-3.083	3
89		5	max	.019	1	20.367	9	3.197	4	5.255	9	.766	5	.003	9
90			min	-1.201	5	-23.63	3	-1.573	9	-11.642	4	-.012	1	-.185	5
91	M29	1	max	.019	1	25.875	7	1.71	1	17.937	1	.013	1	.003	9
92			min	-1.199	5	-18.112	1	-3.019	6	-23.249	8	-.779	5	-.185	5
93		2	max	.019	1	25.875	7	1.71	1	17.937	1	.227	1	2.267	1
94			min	-1.199	5	-18.112	1	-3.019	6	-23.249	8	-1.132	5	-3.364	7
95		3	max	1.201	5	25.875	7	1.71	1	20.816	9	1.49	4	6.086	3
96			min	-.019	1	-20.17	9	-3.197	4	-23.249	8	-1.409	6	-6.598	7
97		4	max	1.201	5	23.826	3	1.573	9	20.816	9	1.132	5	3.108	3
98			min	-.019	1	-20.17	9	-3.197	4	-20.373	2	-.209	9	-2.524	9
99		5	max	1.201	5	23.826	3	1.573	9	20.816	9	.779	5	.185	5
100			min	-.019	1	-20.17	9	-3.197	4	-20.373	2	-.013	1	-.003	9
101	M30	1	max	3.019	6	18.116	1	.019	1	.185	5	.779	5	17.937	1
102			min	-1.71	1	-25.872	7	-1.2	5	-.003	9	-.013	1	-23.249	8
103		2	max	3.019	6	18.067	1	.019	1	.185	5	.393	5	12.118	1
104			min	-1.71	1	-25.921	7	-1.2	5	-.003	9	-.007	1	-15.066	8
105		3	max	3.019	6	18.017	1	.019	1	.185	5	.007	5	6.316	1
106			min	-1.71	1	-25.971	7	-1.2	5	-.003	9	0	1	-7.812	9
107		4	max	3.019	6	17.968	1	.019	1	.185	5	.006	1	4.887	5
108			min	-1.71	1	-26.02	7	-1.2	5	-.003	9	-.379	5	-1.466	9
109		5	max	3.019	6	17.919	1	.019	1	.185	5	.012	1	11.643	6
110			min	-1.71	1	-26.069	7	-1.2	5	-.003	9	-.766	5	-5.242	1
111	M31	1	max	1.573	9	23.829	3	.019	1	.185	5	.779	5	20.373	2
112			min	-3.197	4	-20.167	9	-1.2	5	-.003	9	-.013	1	-20.816	9
113		2	max	1.573	9	23.78	3	.019	1	.185	5	.393	5	12.863	2
114			min	-3.197	4	-20.216	9	-1.2	5	-.003	9	-.007	1	-14.322	9
115		3	max	1.573	9	23.731	3	.019	1	.185	5	.007	5	6.316	1
116			min	-3.197	4	-20.266	9	-1.2	5	-.003	9	0	1	-7.812	9
117		4	max	1.573	9	23.682	3	.019	1	.185	5	.006	1	.704	1
118			min	-3.197	4	-20.315	9	-1.2	5	-.003	9	-.379	5	-5.657	5
119		5	max	1.573	9	23.632	3	.019	1	.185	5	.012	1	5.255	9
120			min	-3.197	4	-20.364	9	-1.2	5	-.003	9	-.766	5	-11.642	4
121	M37A	1	max	2.647	9	35.689	1	.038	1	8.565	5	4.045	5	51.51	1
122			min	-2.918	1	-39.778	9	-2.401	5	-.145	9	-.168	1	-59.092	9
123		2	max	2.647	9	35.689	1	.038	1	8.565	5	3.776	5	47.514	1
124			min	-2.918	1	-39.778	9	-2.401	5	-.145	9	-.164	1	-54.638	9
125		3	max	2.647	9	35.689	1	.038	1	8.565	5	3.507	5	43.517	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
126			min	-2.918	1	-39.778	9	-2.401	5	-.145	9	-.16	1	-50.183	9
127		4	max	2.647	9	35.689	1	.038	1	8.565	5	3.238	5	39.521	1
128			min	-2.918	1	-39.778	9	-2.401	5	-.145	9	-.156	1	-45.729	9
129		5	max	2.647	9	35.689	1	.038	1	8.565	5	2.969	5	35.524	1
130			min	-2.918	1	-39.778	9	-2.401	5	-.145	9	-.151	1	-41.275	9
131	14	1	max	1.007	1	22.92	9	3.019	1	11.996	9	.788	8	.159	1
132			min	-1.238	8	-25.619	2	-3.7	9	-11.644	1	-.643	1	-.191	8
133		2	max	1.007	1	22.92	9	3.019	1	11.996	9	.398	7	3.293	2
134			min	-1.238	8	-25.619	2	-3.7	9	-11.644	1	-.266	1	-3.031	9
135		3	max	.018	4	26.174	5	3.019	1	11.997	6	.382	4	6.641	5
136			min	-1.238	8	-25.619	2	-3.7	9	-11.644	1	-.222	9	-5.896	9
137		4	max	1.237	8	26.174	5	1.662	1	11.997	6	.435	1	3.369	5
138			min	-1.009	1	-3.511	1	-3.533	7	-6.571	1	-.418	9	-.598	1
139		5	max	1.237	8	26.174	5	1.662	1	11.997	6	.643	1	.191	8
140			min	-1.009	1	-3.511	1	-3.533	7	-6.571	1	-.788	8	-.159	1
141	15	1	max	1.427	9	40.683	4	2.016	1	8.91	1	4.378	8	82.207	4
142			min	-2.648	4	-15.924	9	-2.474	8	-10.603	8	-3.381	1	-33.572	9
143		2	max	1.427	9	40.683	4	2.016	1	8.91	1	3.769	8	72.195	4
144			min	-2.648	4	-15.924	9	-2.474	8	-10.603	8	-2.884	1	-29.654	9
145		3	max	1.427	9	40.683	4	2.016	1	8.91	1	3.16	8	62.183	4
146			min	-2.648	4	-15.924	9	-2.474	8	-10.603	8	-2.388	1	-25.735	9
147		4	max	1.427	9	40.683	4	2.016	1	8.91	1	2.551	8	52.171	4
148			min	-2.648	4	-15.924	9	-2.474	8	-10.603	8	-1.892	1	-21.816	9
149		5	max	1.427	9	40.683	4	2.016	1	8.91	1	1.942	8	42.16	4
150			min	-2.648	4	-15.924	9	-2.474	8	-10.603	8	-1.396	1	-17.897	9
151	16	1	max	1.008	1	6.169	1	1.946	1	22.261	5	.381	1	.222	8
152			min	-1.237	8	-28.544	6	-2.527	9	-2.338	9	-.469	8	-.186	1
153		2	max	1.008	1	6.169	1	1.946	1	22.261	5	.624	1	3.761	6
154			min	-1.237	8	-28.544	6	-2.527	9	-2.338	9	-.734	9	-.958	1
155		3	max	1.237	8	27.981	1	1.094	4	22.261	5	1.016	7	7.329	6
156			min	.018	4	-28.544	6	-2.011	8	-22.237	3	-1.05	9	-6.59	9
157		4	max	1.237	8	27.981	1	.589	1	15.559	9	.731	7	3.684	1
158			min	-1.008	1	-25.592	9	-2.407	6	-22.237	3	-.455	1	-3.391	9
159		5	max	1.237	8	27.981	1	.589	1	15.559	9	.469	8	.186	1
160			min	-1.008	1	-25.592	9	-2.407	6	-22.237	3	-.381	1	-.222	8
161	17	1	max	1.237	8	28.429	6	2.527	9	9.545	9	.375	1	.186	1
162			min	-1.008	1	-6.284	1	-1.946	1	-9.335	1	-.459	8	-.222	8
163		2	max	1.237	8	28.429	6	2.527	9	9.545	9	.132	1	.972	1
164			min	-1.008	1	-6.284	1	-1.946	1	-9.335	1	-.256	6	-3.746	6
165		3	max	-.018	4	28.429	6	2.011	8	9.545	6	.222	9	6.619	9
166			min	-1.237	8	-27.866	1	-1.094	4	-9.335	1	-.382	4	-7.3	6
167		4	max	1.008	1	25.707	9	2.407	6	9.545	6	.272	9	3.406	9
168			min	-1.237	8	-27.866	1	-.589	1	-3.472	1	-.301	1	-3.67	1
169		5	max	1.008	1	25.707	9	2.407	6	9.545	6	.459	8	.222	8
170			min	-1.237	8	-27.866	1	-.589	1	-3.472	1	-.375	1	-.186	1
171	18	1	max	2.528	9	28.546	6	1.008	1	.186	1	.469	8	22.261	5
172			min	-1.946	1	-6.169	1	-1.237	8	-.222	8	-.381	1	-2.338	9
173		2	max	2.528	9	28.517	6	1.008	1	.186	1	.237	8	17.322	4
174			min	-1.946	1	-6.198	1	-1.237	8	-.222	8	-.192	1	-4.148	9
175		3	max	2.528	9	28.488	6	1.008	1	.186	1	.005	8	13.462	4
176			min	-1.946	1	-6.227	1	-1.237	8	-.222	8	-.003	1	-5.952	9
177		4	max	2.528	9	28.46	6	1.008	1	.186	1	.186	1	10.261	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
178			min	-1.946	1	-6.255	1	-1.237	8	-.222	8	-.227	8	-7.751	9
179		5	max	2.528	9	28.431	6	1.008	1	.186	1	.375	1	9.335	1
180			min	-1.946	1	-6.284	1	-1.237	8	-.222	8	-.459	8	-9.545	9
181	19	1	max	.589	1	27.983	1	1.008	1	.186	1	.469	8	22.237	3
182			min	-2.407	6	-25.59	9	-1.237	8	-.222	8	-.381	1	-15.559	9
183		2	max	.589	1	27.954	1	1.008	1	.186	1	.237	8	17.627	3
184			min	-2.407	6	-25.618	9	-1.237	8	-.222	8	-.192	1	-10.758	9
185		3	max	.589	1	27.925	1	1.008	1	.186	1	.005	8	13.462	4
186			min	-2.407	6	-25.647	9	-1.237	8	-.222	8	-.003	1	-5.952	9
187		4	max	.589	1	27.896	1	1.008	1	.186	1	.186	1	10.333	5
188			min	-2.407	6	-25.676	9	-1.237	8	-.222	8	-.227	8	-1.141	9
189		5	max	.589	1	27.868	1	1.008	1	.186	1	.375	1	9.545	6
190			min	-2.407	6	-25.704	9	-1.237	8	-.222	8	-.459	8	-3.472	1
191	20	1	max	2.648	4	16.827	9	2.474	8	7.399	1	3.381	1	23.857	9
192			min	-1.427	9	-39.778	4	-2.016	1	-8.852	8	-4.378	8	-59.092	4
193		2	max	2.648	4	16.827	9	2.474	8	7.399	1	3.156	1	21.973	9
194			min	-1.427	9	-39.778	4	-2.016	1	-8.852	8	-4.101	8	-54.638	4
195		3	max	2.648	4	16.827	9	2.474	8	7.399	1	2.93	1	20.089	9
196			min	-1.427	9	-39.778	4	-2.016	1	-8.852	8	-3.824	8	-50.183	4
197		4	max	2.648	4	16.827	9	2.474	8	7.399	1	2.704	1	18.204	9
198			min	-1.427	9	-39.778	4	-2.016	1	-8.852	8	-3.547	8	-45.729	4
199		5	max	2.648	4	16.827	9	2.474	8	7.399	1	2.478	1	16.32	9
200			min	-1.427	9	-39.778	4	-2.016	1	-8.852	8	-3.27	8	-41.275	4
201	21	1	max	1.238	8	25.423	2	3.7	9	17.619	9	.804	8	.191	8
202			min	-1.007	1	-23.117	9	-3.019	1	-23.249	2	-.654	1	-.159	1
203		2	max	1.238	8	25.423	2	3.7	9	17.619	9	1.219	8	3.055	9
204			min	-1.007	1	-23.117	9	-3.019	1	-23.249	2	-1.031	1	-3.269	2
205		3	max	1.238	8	25.423	2	3.7	9	23.605	5	1.641	9	5.945	9
206			min	-.018	4	-25.977	5	-3.019	1	-23.249	2	-1.649	7	-6.591	5
207		4	max	1.009	1	3.707	1	3.533	7	23.605	5	.862	1	.623	1
208			min	-1.237	8	-25.977	5	-1.662	1	1.299	9	-1.219	8	-3.344	5
209		5	max	1.009	1	3.707	1	3.533	7	23.605	5	.654	1	.159	1
210			min	-1.237	8	-25.977	5	-1.662	1	1.299	9	-.804	8	-.191	8
211	22	1	max	3.533	7	3.704	1	1.237	8	.159	1	.654	1	-1.299	9
212			min	-1.662	1	-25.973	5	-1.008	1	-.191	8	-.804	8	-23.605	5
213		2	max	3.533	7	3.654	1	1.237	8	.159	1	.33	1	.733	9
214			min	-1.662	1	-26.022	5	-1.008	1	-.191	8	-.406	8	-15.244	5
215		3	max	3.533	7	3.605	1	1.237	8	.159	1	.005	1	2.78	9
216			min	-1.662	1	-26.071	5	-1.008	1	-.191	8	-.008	8	-7.812	4
217		4	max	3.533	7	3.556	1	1.237	8	.159	1	.39	8	5.062	8
218			min	-1.662	1	-26.12	5	-1.008	1	-.191	8	-.319	1	-5.435	1
219		5	max	3.533	7	3.507	1	1.237	8	.159	1	.788	8	11.997	6
220			min	-1.662	1	-26.17	5	-1.008	1	-.191	8	-.643	1	-6.571	1
221	23	1	max	3.019	1	23.119	9	1.237	8	.159	1	.654	1	17.619	9
222			min	-3.7	9	-25.419	2	-1.008	1	-.191	8	-.804	8	-23.249	2
223		2	max	3.019	1	23.07	9	1.237	8	.159	1	.33	1	10.191	9
224			min	-3.7	9	-25.468	2	-1.008	1	-.191	8	-.406	8	-15.084	3
225		3	max	3.019	1	23.02	9	1.237	8	.159	1	.005	1	2.78	9
226			min	-3.7	9	-25.517	2	-1.008	1	-.191	8	-.008	8	-7.812	4
227		4	max	3.019	1	22.971	9	1.237	8	.159	1	.39	8	3.672	1
228			min	-3.7	9	-25.567	2	-1.008	1	-.191	8	-.319	1	-5.91	7
229		5	max	3.019	1	22.922	9	1.237	8	.159	1	.788	8	11.644	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
230			min	-3.7	9	-25.616	2	-1.008	1	-.191	8	-.643	1	-11.996	9
231	24	1	max	40.178	4	2.082	1	2.794	4	.116	1	5.074	9	7.399	1
232			min	-16.432	9	-2.484	8	-1.397	9	.086	8	-10.152	4	-8.852	8
233		2	max	40.248	4	2.082	1	2.794	4	.116	1	2.338	9	3.322	1
234			min	-16.362	9	-2.484	8	-1.397	9	.086	8	-4.68	4	-3.988	8
235		3	max	40.318	4	2.082	1	2.794	4	.116	1	.791	4	.876	8
236			min	-16.292	9	-2.484	8	-1.397	9	.086	8	-.397	9	-.755	1
237		4	max	40.387	4	2.082	1	2.794	4	.116	1	6.262	4	5.74	8
238			min	-16.222	9	-2.484	8	-1.397	9	.086	8	-3.133	9	-4.833	1
239		5	max	40.457	4	2.082	1	2.794	4	.116	1	11.733	4	10.603	8
240			min	-16.153	9	-2.484	8	-1.397	9	.086	8	-5.868	9	-8.91	1
241	25	1	max	1.065	9	23.72	5	1.772	9	11.996	4	.788	2	.159	9
242			min	-1.238	2	-5.94	9	-3.699	4	-6.572	9	-.68	9	-.191	2
243		2	max	1.065	9	23.72	5	1.772	9	11.996	4	.395	1	.902	9
244			min	-1.238	2	-5.94	9	-3.699	4	-6.572	9	-.458	9	-3.062	5
245		3	max	.019	6	25.363	1	3.198	9	11.997	1	.214	1	6.506	1
246			min	-1.238	2	-23.176	8	-3.699	4	-11.643	9	-.416	6	-6.027	5
247		4	max	1.237	2	25.363	1	3.198	9	11.997	1	.28	9	3.336	1
248			min	-1.067	9	-23.176	8	-3.518	1	-11.643	9	-.418	4	-2.988	8
249		5	max	1.237	2	25.363	1	3.198	9	11.997	1	.68	9	.191	2
250			min	-1.067	9	-23.176	8	-3.518	1	-11.643	9	-.788	2	-.159	9
251	26	1	max	2.917	6	21.809	1	2.132	9	8.909	9	4.378	2	43.598	1
252			min	-1.356	1	-34.783	6	-2.474	2	-10.603	2	-3.58	9	-72.133	6
253		2	max	2.917	6	21.809	1	2.132	9	8.909	9	3.769	2	38.231	1
254			min	-1.356	1	-34.783	6	-2.474	2	-10.603	2	-3.056	9	-63.573	6
255		3	max	2.917	6	21.809	1	2.132	9	8.909	9	3.16	2	32.864	1
256			min	-1.356	1	-34.783	6	-2.474	2	-10.603	2	-2.531	9	-55.013	6
257		4	max	2.917	6	21.809	1	2.132	9	8.909	9	2.551	2	27.497	1
258			min	-1.356	1	-34.783	6	-2.474	2	-10.603	2	-2.006	9	-46.453	6
259		5	max	2.917	6	21.809	1	2.132	9	8.909	9	1.942	2	22.129	1
260			min	-1.356	1	-34.783	6	-2.474	2	-10.603	2	-1.482	9	-37.893	6
261	27	1	max	1.066	9	25.032	9	.639	9	17.68	1	.403	9	.222	2
262			min	-1.237	2	-28.544	1	-2.527	4	-20.105	7	-.469	2	-.186	9
263		2	max	1.066	9	25.032	9	.639	9	17.68	1	.483	9	3.761	1
264			min	-1.237	2	-28.544	1	-2.527	4	-20.105	7	-.752	3	-3.315	9
265		3	max	1.237	2	25.032	9	1.228	6	20.128	5	.998	1	7.329	1
266			min	.019	6	-28.544	1	-2.011	2	-20.105	7	-1.05	4	-6.59	4
267		4	max	1.237	2	9.111	9	2.065	9	20.128	5	.72	2	1.325	9
268			min	-1.066	9	-25.591	4	-2.407	1	-4.449	1	-.661	9	-3.391	4
269		5	max	1.237	2	9.111	9	2.065	9	20.128	5	.469	2	.186	9
270			min	-1.066	9	-25.591	4	-2.407	1	-4.449	1	-.403	9	-.222	2
271	28	1	max	1.237	2	28.429	1	2.527	4	9.544	4	.397	9	.186	9
272			min	-1.066	9	-25.147	9	-.639	9	-3.469	9	-.459	2	-.222	2
273		2	max	1.237	2	28.429	1	2.527	4	9.544	4	.317	9	3.33	9
274			min	-1.066	9	-25.147	9	-.639	9	-3.469	9	-.256	1	-3.746	1
275		3	max	-.019	6	28.429	1	2.011	2	9.545	1	.416	6	6.619	4
276			min	-1.237	2	-25.147	9	-1.228	6	-9.334	9	-.214	1	-7.3	1
277		4	max	1.066	9	25.706	4	2.407	1	9.545	1	.272	4	3.406	4
278			min	-1.237	2	-8.996	9	-2.065	9	-9.334	9	-.138	9	-1.311	9
279		5	max	1.066	9	25.706	4	2.407	1	9.545	1	.459	2	.222	2
280			min	-1.237	2	-8.996	9	-2.065	9	-9.334	9	-.397	9	-.186	9
281	29	1	max	2.527	4	28.546	1	1.066	9	.186	9	.469	2	17.68	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
282			min	-.639	9	-25.031	9	-1.237	2	-.222	2	-.403	9	-20.105	7
283		2	max	2.527	4	28.517	1	1.066	9	.186	9	.237	2	12.331	1
284			min	-.639	9	-25.059	9	-1.237	2	-.222	2	-.203	9	-16.042	7
285		3	max	2.527	4	28.489	1	1.066	9	.186	9	.005	2	6.986	1
286			min	-.639	9	-25.088	9	-1.237	2	-.222	2	-.003	9	-12.414	6
287		4	max	2.527	4	28.46	1	1.066	9	.186	9	.197	9	1.647	1
288			min	-.639	9	-25.117	9	-1.237	2	-.222	2	-.227	2	-9.812	5
289		5	max	2.527	4	28.431	1	1.066	9	.186	9	.397	9	3.469	9
290			min	-.639	9	-25.145	9	-1.237	2	-.222	2	-.459	2	-9.544	4
291	30	1	max	2.065	9	9.111	9	1.066	9	.186	9	.469	2	4.449	1
292			min	-2.407	1	-25.589	4	-1.237	2	-.222	2	-.403	9	-20.128	5
293		2	max	2.065	9	9.082	9	1.066	9	.186	9	.237	2	5.715	1
294			min	-2.407	1	-25.618	4	-1.237	2	-.222	2	-.203	9	-15.735	6
295		3	max	2.065	9	9.053	9	1.066	9	.186	9	.005	2	6.986	1
296			min	-2.407	1	-25.647	4	-1.237	2	-.222	2	-.003	9	-12.414	6
297		4	max	2.065	9	9.025	9	1.066	9	.186	9	.197	9	8.263	1
298			min	-2.407	1	-25.675	4	-1.237	2	-.222	2	-.227	2	-9.74	7
299		5	max	2.065	9	8.996	9	1.066	9	.186	9	.397	9	9.545	1
300			min	-2.407	1	-25.704	4	-1.237	2	-.222	2	-.459	2	-9.334	9
301	31	1	max	1.356	1	35.688	6	2.474	2	7.397	9	3.579	9	51.51	6
302			min	-2.917	6	-20.906	1	-2.131	9	-8.852	2	-4.378	2	-31.443	1
303		2	max	1.356	1	35.688	6	2.474	2	7.397	9	3.341	9	47.513	6
304			min	-2.917	6	-20.906	1	-2.131	9	-8.852	2	-4.101	2	-29.102	1
305		3	max	1.356	1	35.688	6	2.474	2	7.397	9	3.102	9	43.517	6
306			min	-2.917	6	-20.906	1	-2.131	9	-8.852	2	-3.824	2	-26.761	1
307		4	max	1.356	1	35.688	6	2.474	2	7.397	9	2.863	9	39.521	6
308			min	-2.917	6	-20.906	1	-2.131	9	-8.852	2	-3.547	2	-24.42	1
309		5	max	1.356	1	35.688	6	2.474	2	7.397	9	2.625	9	35.524	6
310			min	-2.917	6	-20.906	1	-2.131	9	-8.852	2	-3.27	2	-22.079	1
311	32	1	max	1.238	2	5.743	9	3.699	4	20.723	5	.804	2	.191	2
312			min	-1.065	9	-23.917	5	-1.772	9	-1.577	1	-.691	9	-.159	9
313		2	max	1.238	2	5.743	9	3.699	4	20.723	5	1.241	3	3.086	5
314			min	-1.065	9	-23.917	5	-1.772	9	-1.577	1	-.913	9	-.877	9
315		3	max	1.238	2	23.373	8	3.699	4	20.723	5	1.694	3	6.076	5
316			min	-.019	6	-25.166	1	-3.198	9	-20.373	8	-1.558	1	-6.457	1
317		4	max	1.067	9	23.373	8	3.518	1	20.502	1	1.091	9	3.012	8
318			min	-1.237	2	-25.166	1	-3.198	9	-20.373	8	-1.219	2	-3.311	1
319		5	max	1.067	9	23.373	8	3.518	1	20.502	1	.691	9	.159	9
320			min	-1.237	2	-25.166	1	-3.198	9	-20.373	8	-.804	2	-.191	2
321	33	1	max	3.518	1	23.377	8	1.237	2	.159	9	.691	9	20.373	8
322			min	-3.197	9	-25.164	1	-1.066	9	-.191	2	-.804	2	-20.502	1
323		2	max	3.518	1	23.327	8	1.237	2	.159	9	.348	9	12.883	7
324			min	-3.197	9	-25.214	1	-1.066	9	-.191	2	-.406	2	-12.401	1
325		3	max	3.518	1	23.278	8	1.237	2	.159	9	.006	9	6.316	6
326			min	-3.197	9	-25.263	1	-1.066	9	-.191	2	-.008	2	-4.284	1
327		4	max	3.518	1	23.229	8	1.237	2	.159	9	.39	2	5.137	3
328			min	-3.197	9	-25.312	1	-1.066	9	-.191	2	-.337	9	-4.439	9
329		5	max	3.518	1	23.18	8	1.237	2	.159	9	.788	2	11.997	1
330			min	-3.197	9	-25.361	1	-1.066	9	-.191	2	-.68	9	-11.643	9
331	34	1	max	1.772	9	23.921	5	1.237	2	.159	9	.691	9	20.723	5
332			min	-3.699	4	-5.747	9	-1.066	9	-.191	2	-.804	2	-1.577	1
333		2	max	1.772	9	23.872	5	1.237	2	.159	9	.348	9	13.038	5

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
334			min	-3.699	4	-5.797	9	-1.066	9	-.191	2	-.406	2	-2.939	1
335		3	max	1.772	9	23.823	5	1.237	2	.159	9	.006	9	6.316	6
336			min	-3.699	4	-5.846	9	-1.066	9	-.191	2	-.008	2	-4.284	1
337		4	max	1.772	9	23.774	5	1.237	2	.159	9	.39	2	4.668	9
338			min	-3.699	4	-5.895	9	-1.066	9	-.191	2	-.337	9	-5.835	2
339		5	max	1.772	9	23.724	5	1.237	2	.159	9	.788	2	6.572	9
340			min	-3.699	4	-5.944	9	-1.066	9	-.191	2	-.68	9	-11.996	4
341	35	1	max	21.301	1	2.484	2	2.79	6	.117	9	5.069	1	8.852	2
342			min	-35.288	6	-2.082	9	-1.395	1	.086	2	-10.134	6	-7.397	9
343		2	max	21.371	1	2.484	2	2.79	6	.117	9	2.337	1	3.988	2
344			min	-35.219	6	-2.082	9	-1.395	1	.086	2	-4.671	6	-3.321	9
345		3	max	21.441	1	2.484	2	2.79	6	.117	9	.793	6	.756	9
346			min	-35.149	6	-2.082	9	-1.395	1	.086	2	-.395	1	-.876	2
347		4	max	21.511	1	2.484	2	2.79	6	.117	9	6.256	6	4.832	9
348			min	-35.079	6	-2.082	9	-1.395	1	.086	2	-3.127	1	-5.739	2
349		5	max	21.581	1	2.484	2	2.79	6	.117	9	11.72	6	8.909	9
350			min	-35.009	6	-2.082	9	-1.395	1	.086	2	-5.859	1	-10.603	2

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

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M1	Pipe 10.75x0...	.000	0	9	.000	0		9	352.628	359.22	99.144	99.144	1....	H1-1b
2	M2	Pole 23.8128...	.279	2	9	.027	0		7	858.298	999.342	537.209	537.209	1....	H1-1b
3	M35	HSS6X6X8	.269	7.833	8	.028	0	y	9	387.597	403.236	68.31	68.31	2....	H1-1b
4	M14	BP 1"x45"	.014	0	4	.028	.75	y	4	2400.178	2632.5	54.844	2467.969	1....	H1-1b
5	M15A	BP 1"x45"	.014	0	6	.031	0	y	6	2400.178	2632.5	54.844	2467.969	1....	H1-1b
6	M30	BP 1"x45"	.021	0	6	.028	1.286	y	7	2005.921	2632.5	54.844	2467.969	2....	H1-1b
7	M31	BP 1"x45"	.020	0	4	.026	0	y	3	2005.921	2632.5	54.844	2467.969	2....	H1-1b
8	18	BP 1"x45"	.015	0	6	.032	0	y	6	2400.178	2632.5	54.844	2467.969	1....	H1-1b
9	19	BP 1"x45"	.014	0	1	.031	0	y	1	2400.178	2632.5	54.844	2467.969	1....	H1-1b
10	22	BP 1"x45"	.022	0	7	.028	1.286	y	6	2005.921	2632.5	54.844	2467.969	2....	H1-1b
11	23	BP 1"x45"	.021	0	9	.027	1.286	y	1	2005.921	2632.5	54.844	2467.969	2....	H1-1b
12	24	HSS6X6X8	.273	7.833	5	.028	0	z	4	387.597	403.236	68.31	68.31	2....	H1-1b
13	29	BP 1"x45"	.015	0	1	.032	0	y	1	2400.178	2632.5	54.844	2467.969	1....	H1-1b
14	30	BP 1"x45"	.014	0	4	.029	.75	y	4	2400.178	2632.5	54.844	2467.969	1....	H1-1b
15	33	BP 1"x45"	.022	0	1	.028	1.286	y	1	2005.921	2632.5	54.844	2467.969	2....	H1-1b
16	34	BP 1"x45"	.021	0	4	.026	0	y	4	2005.921	2632.5	54.844	2467.969	2....	H1-1b
17	35	HSS6X6X8	.264	7.833	5	.028	0	z	6	387.597	403.236	68.31	68.31	2....	H1-1b

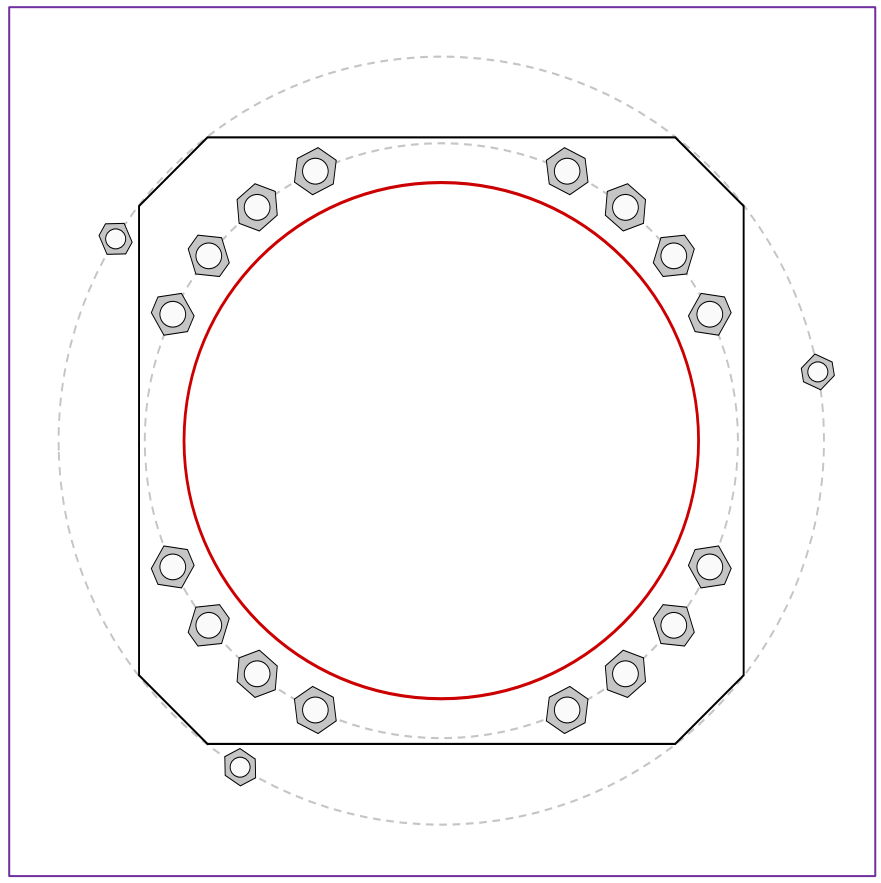
Monopole Base Plate Connection

Site Info	
BU #	876313
Site Name	HNSON AVE. BURNT H
Order #	621172 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3871.73
Axial Force (kips)	62.25
Shear Force (kips)	29.39

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 52" BC

Anchor Spacing: 6 in

GROUP 2: (3) 1-3/4" ø bolts (Williams R71 N N; Fy=120 ksi, Fu=125 ksi) on 67.1" BC

pos. (deg): 10.3, 148.3, 238.3

Base Plate Data

53" W x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

45.1" x 0.4375" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_t = 186.06	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.84	ϕVn = 149.1	**72.7%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 184.91	ϕPn_c = 221.02	**Stress Rating**
Vu = 0	ϕVn = 126.36	**79.7%**
Mu = 0	ϕMn = 108.42	**Pass**

Base Plate Summary

Max Stress (ksi):	28.34	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**60.0%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

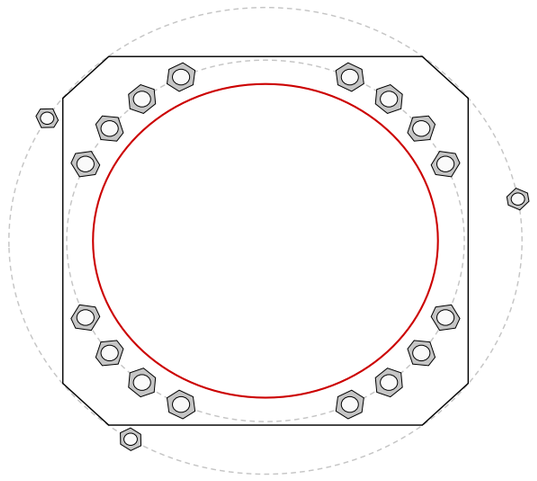
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	25.122571	2.25	A615-75	52	0.5	2.25	N-Included		No
2	1	38.37419	2.25	A615-75	52	0.5	2.25	N-Included		No
3	1	51.62581	2.25	A615-75	52	0.5	2.25	N-Included		No
4	1	64.877429	2.25	A615-75	52	0.5	2.25	N-Included		No
5	1	115.12257	2.25	A615-75	52	0.5	2.25	N-Included		No
6	1	128.37419	2.25	A615-75	52	0.5	2.25	N-Included		No
7	1	141.62581	2.25	A615-75	52	0.5	2.25	N-Included		No
8	1	154.87743	2.25	A615-75	52	0.5	2.25	N-Included		No
9	1	205.12257	2.25	A615-75	52	0.5	2.25	N-Included		No
10	1	218.37419	2.25	A615-75	52	0.5	2.25	N-Included		No
11	1	231.62581	2.25	A615-75	52	0.5	2.25	N-Included		No
12	1	244.87743	2.25	A615-75	52	0.5	2.25	N-Included		No
13	1	295.12257	2.25	A615-75	52	0.5	2.25	N-Included		No
14	1	308.37419	2.25	A615-75	52	0.5	2.25	N-Included		No
15	1	321.62581	2.25	A615-75	52	0.5	2.25	N-Included		No
16	1	334.87743	2.25	A615-75	52	0.5	2.25	N-Included		No
17	2	10.3	1.75	Williams R71 N	67.1	0.5	14	N-Included	2.6	No
18	2	148.3	1.75	Williams R71 N	67.1	0.5	14	N-Included	2.6	No
19	2	238.3	1.75	Williams R71 N	67.1	0.5	14	N-Included	2.6	No

Plot Graphic



PROJECT	**137177.015.01 - WEST JOHNSON AVE. BURNT HOUSE, CT**
SUBJECT	**Anchor Rod Bracket Analysis**
DATE	**06/23/22**
v4.6.1	

TIA-222 Rev.	H
Apply TIA-222-H Section 15.5?	Yes

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Analysis Criteria		
Design/Analysis	Analysis	
Load Type	Current Load	
Current load	184.91	kips
AR Capacity	259.8	kips

Tower Type	Monopole

Manufacturers Tower Prop.		
Pole Thickness	0.4375	in
Pole Grade	Custom	
Fy	65	ksi
Fu	80	ksi
Base Plate Gr.	A572-50	
Fy	50	ksi
Fu	65	ksi

Post-Installed Adhesive AR Mod.			
ARB Type	Welded		
Size	1.75		in
Grade	Custom		
Fy	120	120	ksi
Fu	125	125	ksi

Anchor Rod Bracket Analysis Checks		
Tube Bearing	36.0%	-
Tube Compression	54.0%	-
Gusset Shear	16.3%	-
Gusset Flexure	N/A	-
Welds: Gusset to Tower and BP	28.4%	-
Welds: Gusset to Tube	33.0%	-
Welds: Geometry	N/A	
Tower Punching	17.0%	-
Tube Punching	17.6%	-
Utilization	**54.0%**	

Bracket Properties

Gusset		
Thickness	1.25	in
Width at Tube	7.75	in
Height at Pole	45	in
Height at Tube	24	in
Grade	A572-65	
Fy	65	ksi
Fu	80	ksi

Pipe/Tube		
Size	HSS5x5x1/2	
Total Length	24	in
Length above Gusset	0	in
Length below Gusset	9	in
Grade	A500 Grade B (Square)	
Fy	46	ksi
Fu	58	ksi

Weld - Gusset to Pipe/Tube		
FEXX	70	ksi
Weld Type	Double Fillet	
Fillet Size	1/2	in

Weld - Gusset to Tower		
FEXX	80	ksi
Weld Type	Double Fillet	
Fillet Size	3/8	in

Weld - Gusset to Base Plate		
FEXX	80	ksi
Weld Type	CJP - Double Bevel	
Fillet Size	5/8	in
Bevel Depth	5/8	in
Gap	0	in
Notch (horiz)	0.75	in
Notch (vert)	0.75	in
Pipe/Tube Welded to Base/Footpad?	No	

Drilled Pier Foundation

BU # :	876313
Site Name:	WEST JOHNSON AVE. BU
Order Number:	621172, Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	3871.73	
Axial Force (kips)	62.25	
Shear Force (kips)	29.39	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	25.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 6.5' below grade		
Pier Diameter	11	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	28	in
Tie Size	5	
Tie Spacing	18	in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Pier Section 2		
From 6.5' below grade to 25.5' below grade		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	6.10	-
Soil Safety Factor	1.75	-
Max Moment (kip-ft)	4042.57	-
Rating*	*72.5%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	236.44	-
End Bearing (kips)	123.82	-
Weight of Concrete (kips)	206.61	-
Total Capacity (kips)	360.27	-
Axial (kips)	268.86	-
Rating*	*71.1%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.01	-
Critical Moment (kip-ft)	4021.65	-
Critical Moment Capacity	5123.75	-
Rating*	*74.8%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	13.21	-
Critical Shear (kip)	406.12	-
Critical Shear Capacity	502.82	-
Rating*	*76.9%*	-

Structural Foundation Rating*	**76.9%**
Soil Interaction Rating*	**72.5%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	10	# of Layers	10

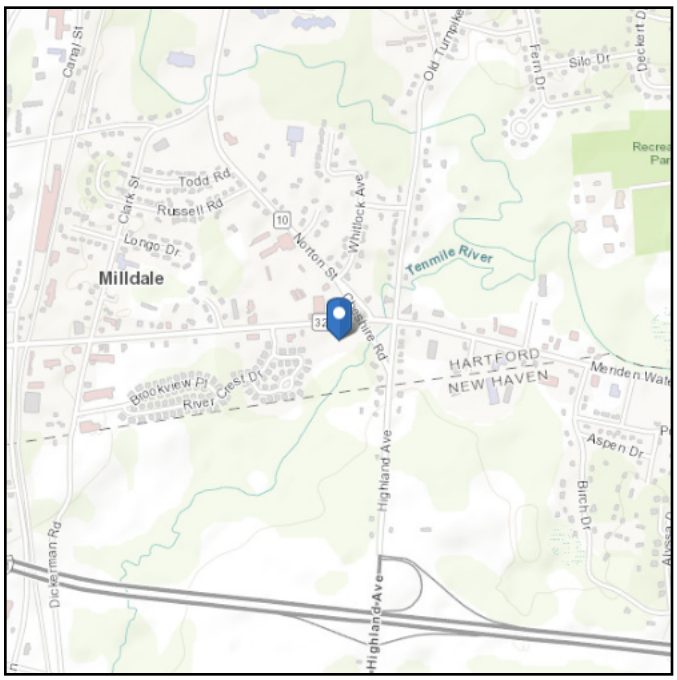
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	105	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.5	1.5	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.5	4	0.5	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
4	4	4.7	0.7	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
5	4.7	6	1.3	110	150	0	31	0.000	0.000	0.10	0.08			Cohesionless
6	6	8	2	120	150	2.5	0	1.375	1.375	1.48	1.48			Cohesive
7	8	10	2	115	150	2.25	0	1.24	1.24	1.23	1.23			Cohesive
8	10	15	5	48	87.6	1	0	0.55	0.55	0.55	0.55			Cohesive
9	15	20	5	48	87.6	1.25	0	0.69	0.69	0.66	0.66			Cohesive
10	20	25.5	5.5	43	87.6	0.75	0	0.41	0.41	0.41	0.41	4.29		Cohesive

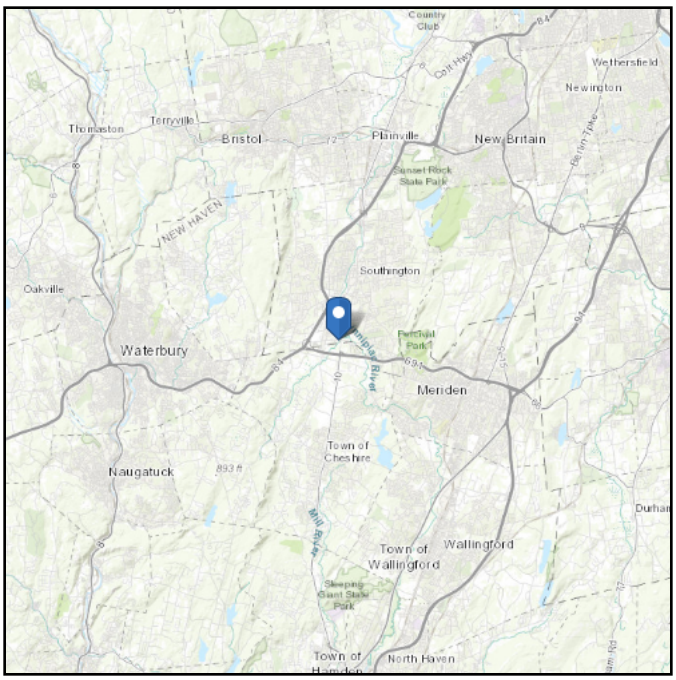
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 133.13 ft (NAVD 88)
Latitude: 41.564275
Longitude: -72.891861





Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Sat Jan 08 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

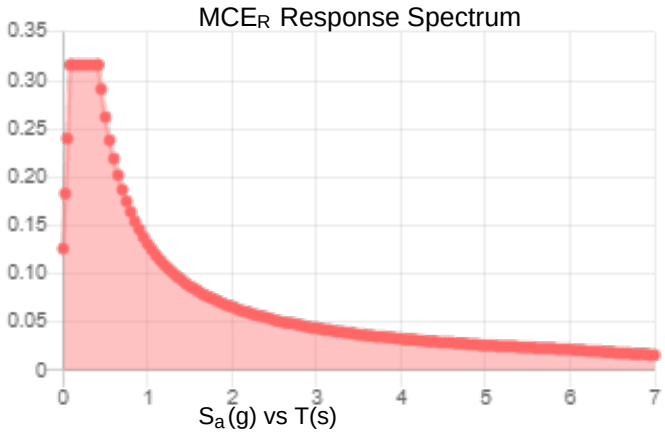
Seismic

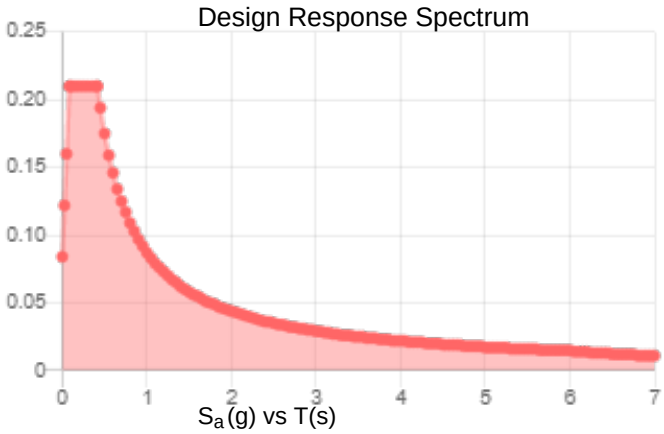
Site Soil Class: D - Stiff Soil

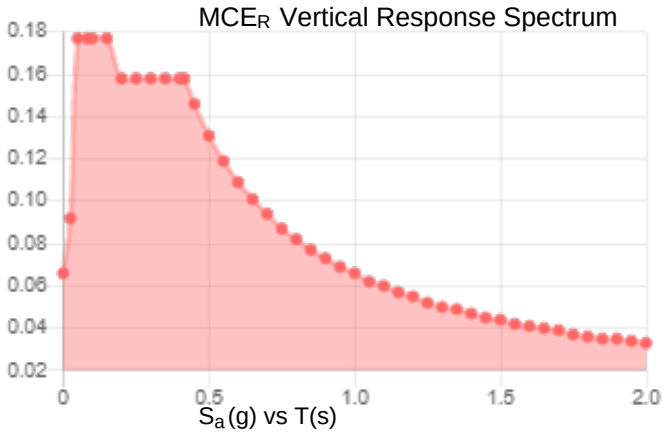
Results:

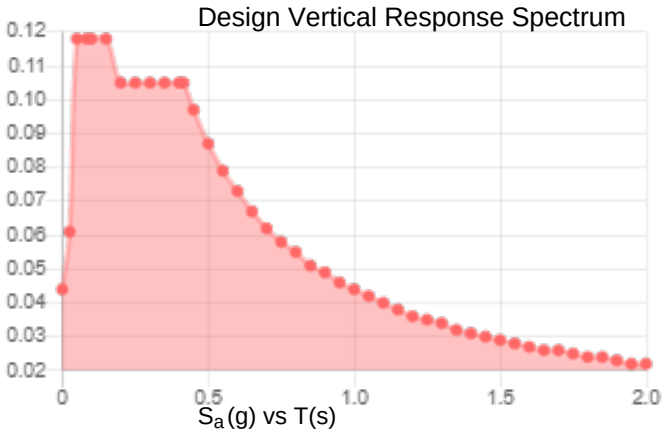
S_S :	0.197	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.109
F_v :	2.4	PGA_M :	0.172
S_{MS} :	0.316	F_{PGA} :	1.583
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.21	C_v :	0.7

Seismic Design Category B









Data Accessed: **Sat Jan 08 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat Jan 08 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Date: **June 17, 2022**

Infinigy
500 West Office Center Drive, Suite 150
Fort Washington, PA 19034
(518) 690-0790
structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CTC11453C
	Carrier Site Name:	Southington - Sprint
Crown Castle Designation:	**Crown Castle BU Number:**	876313
	Crown Castle Site Name:	WEST JOHNSON AVE. BURNT HOUSE
	Crown Castle JDE Job Number:	721247
	Crown Castle Order Number:	621172 Rev.0
Engineering Firm Designation:	**Infinigy Report Designation:**	1039-Z0001-B
Site Data:	**1394 Meriden Waterbury Tpk, Southington, Hartford County, CT, 06489** **Latitude 41°33'51.39" Longitude -72°53'30.70"**	
Structure Information:	**Tower Height & Type:**	**160.0 ft Monopole**
	Mount Elevation:	**148.0 ft**
	Mount Type:	**14.0 ft Platform**

Infinigy is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient**

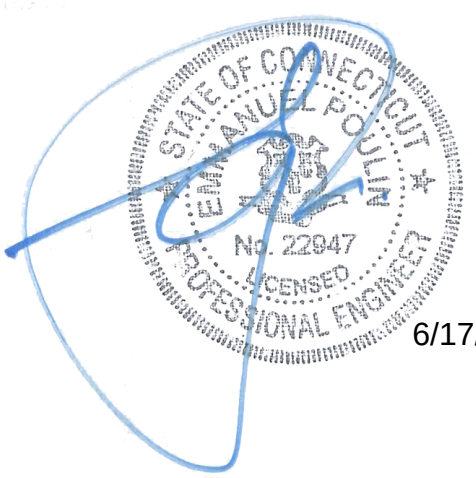
***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Alex Mercado, E.I.T.

Respectfully Submitted by: Emmanuel Poulin, P.E.

structural@infinigy.com



6/17/22

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 sector 14.0 ft Platform, designed by Summit Manufacturing.

There are proposed modifications considered for this analysis.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	40 mph
Seismic S_s:	0.185
Seismic S_1:	0.064
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
148.0	148.0	3	COMMSCOPE	VV-65B-R1_TMO	14.0 ft Platform
		3	ERICSSON	AIR 6419 B41_TMO	
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20_TMO	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	
		3	ERICSSON	RADIO 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	621172 Rev.0	CCI Sites
Previous Mount Modification Report	Infinigy	9961269	CCI Sites
Loading Documents	T-Mobile	RFDS Version 5	TSA

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.3.1, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *Mount Analysis* (Revision E).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2,3	Mount Pipe(s)	MP4	148.0	49.6	Pass
	Horizontal(s)	MH1		67.6	Pass
	Standoff(s)	MS2		52.1	Pass
	Handrail(s)	HR3		31.7	Pass
	Kicker(s)	K1		10.8	Pass
	Reinforcement Horizontal(s)	RH3		45.3	Pass
	Mount Connection(s)	--		53.6	Pass

Structure Rating (max from all components) =	67.6%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D – Additional Calculations” for detailed mount connection calculations.
3) All sectors are typical

4.1) Recommendations

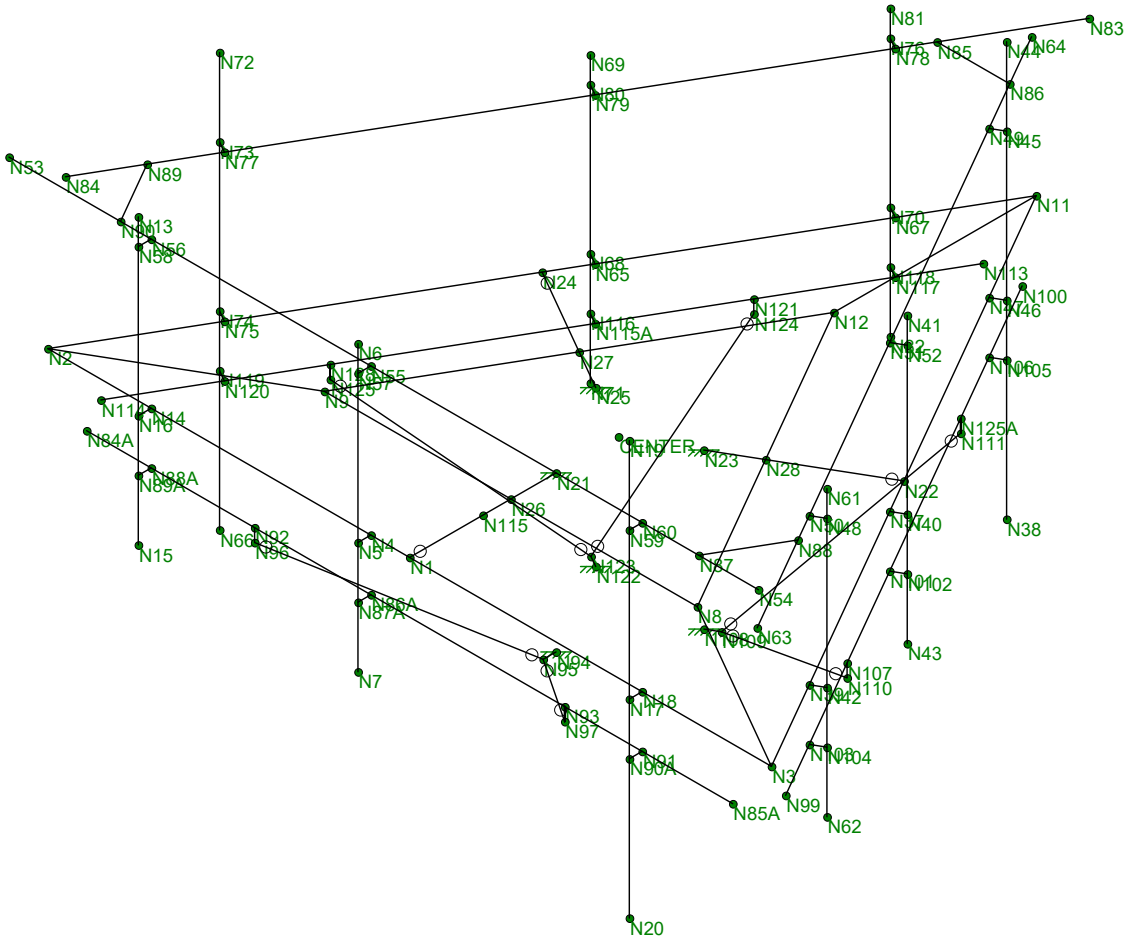
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Installation of (1) Site Pro 1 PRK-SFS Reinforcement Kit.
2. Installation of (1) 2.0 STD 12.5’ long horizontal pipe (3) Site Pro 1 SCX1-K Crossover Plates per sector.
3. Installation of proposed modifications per Document ID 9961259 performed by Infinigy Engineering referenced on Table 2 of this report.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



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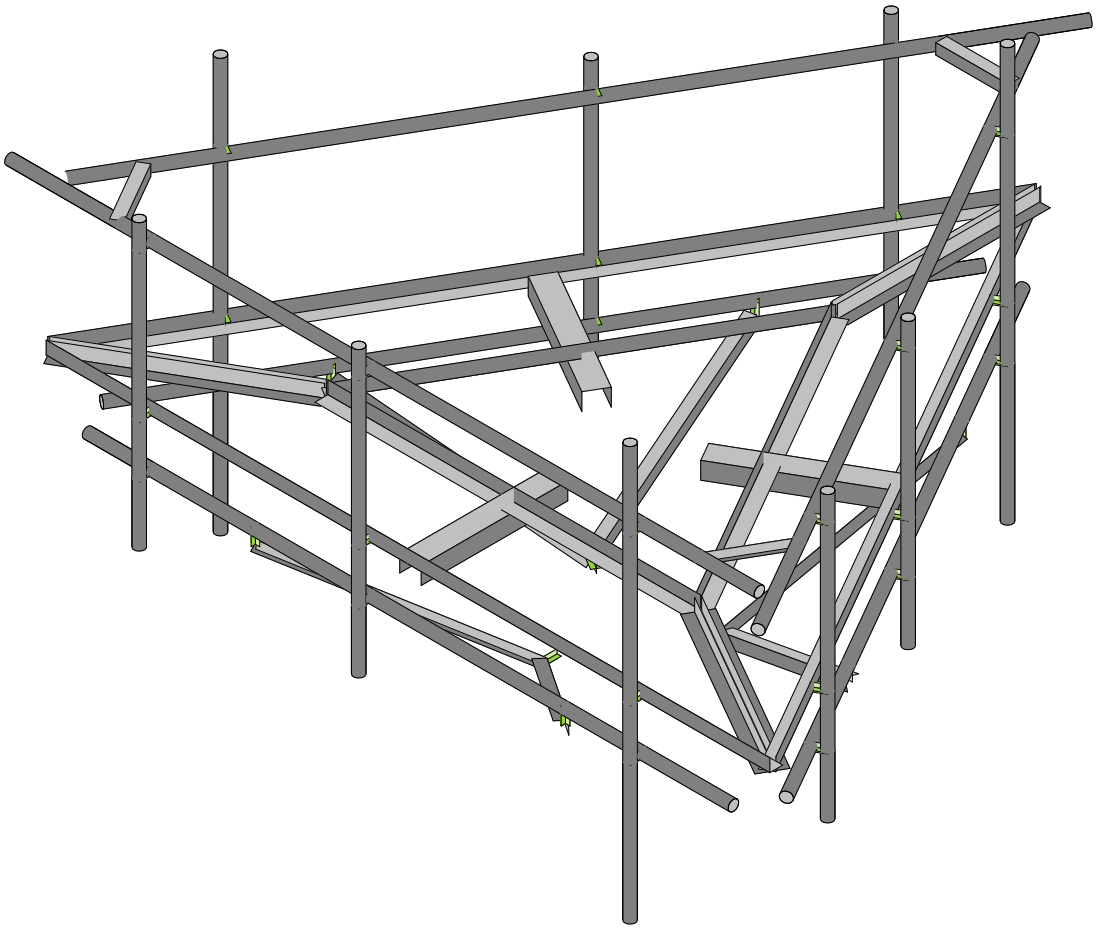

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AM		June 17, 2022 at 10:59 AM
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APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

INFINIGY

Infinigy Load Calculator V2.3.1

PROJECT INFORMATION		
Site Name:	T JOHNOSN AVE BURNT H(	
Carrier:	T-Mobile	
Engineer:	Alex Mercado	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	133.13	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	148.00	ft
Tower Height AGL:	160.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.995	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Height Esc. Fact. (K_{iz}):	1.162	
Gust Effect Factor (G_h):	1.000	
Shielding Factor (K_a):	0.900	
Velocity Pressure Co.(K_z):	1.105	(Mount Elev)

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	118	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Radial Ice Thickness (t_{iz}):	1.743	in
Flat Pressure:	74.502	psf
Round Pressure:	44.701	psf
Ice Wind Pressure:	8.026	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.185	g
1-Second Accel. (S_1):	0.064	g
Short-Period Design (S_{DS}):	0.197	
1-Second Design (S_{D1}):	0.102	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	
Seismic Importance (I_e):	1.000	
Seismic Response Co. (C_s):	0.099	
Total App. Weight:	478.070	lb
Total Shear Force (V_s):	47.170	lb
Hor. Seismic Load (E_h):	47.170	lb
Vert. Seismic Load (E_v):	18.868	lb *

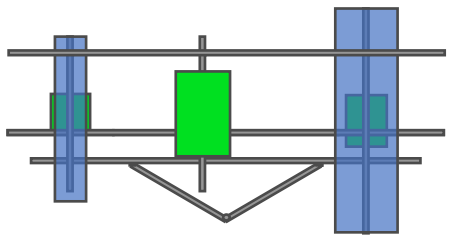
*For reference only. Per TIA rev H section 16.7, Ev is not applicable to mounts

Program Inputs

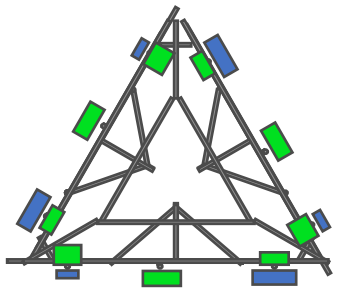
INFINIGY

Infinigy Load Calculator V2.3.1

ELEVATION VIEW



PLAN VIEW



APPURTENANCE INFORMATION

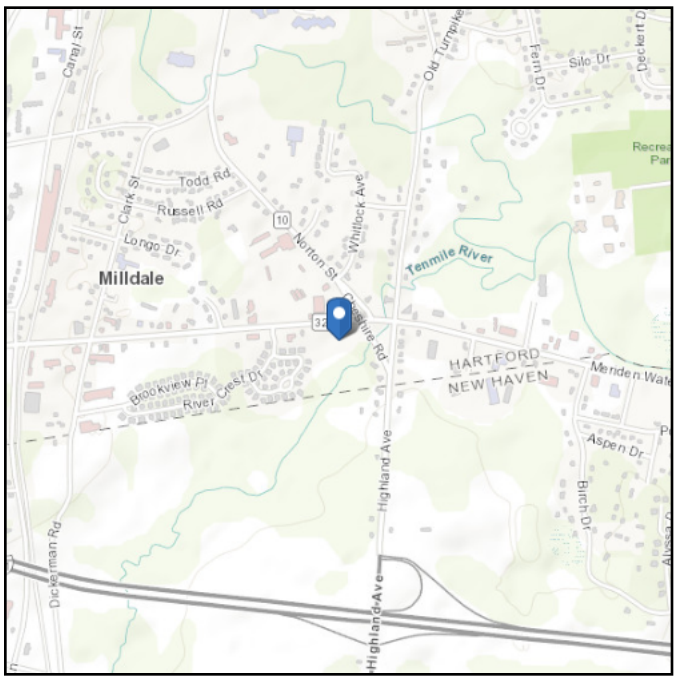
Appurtenance Name	Elevation	Qty.	Height (in)	Width (in)	Depth (in)	Weight (lbs)	EPA_N (ft^2)	EPA_T (ft^2)	Member (α sector)
COMMSCOPE VV-65B-R1_TMO	148.0	3	70.35	12.01	4.65	41.67	5.90	2.28	MP3
/CELWAVE APXVAALL24_43-U-NA20_TI	148.0	3	95.60	24.00	8.50	149.90	14.67	5.32	MP1
ERICSSON AIR 6419 B41_TMO	148.0	3	36.25	20.91	9.02	96.50	7.00	2.83	MP2
RICSSON RADIO 4460 B2/B25 B66_TMC	148.0	3	17.00	15.10	11.90	109.00	2.14	1.69	MP3
ERICSSON RADIO 4480_TMOV2	148.0	3	22.00	15.70	7.50	81.00	2.88	1.40	MP1

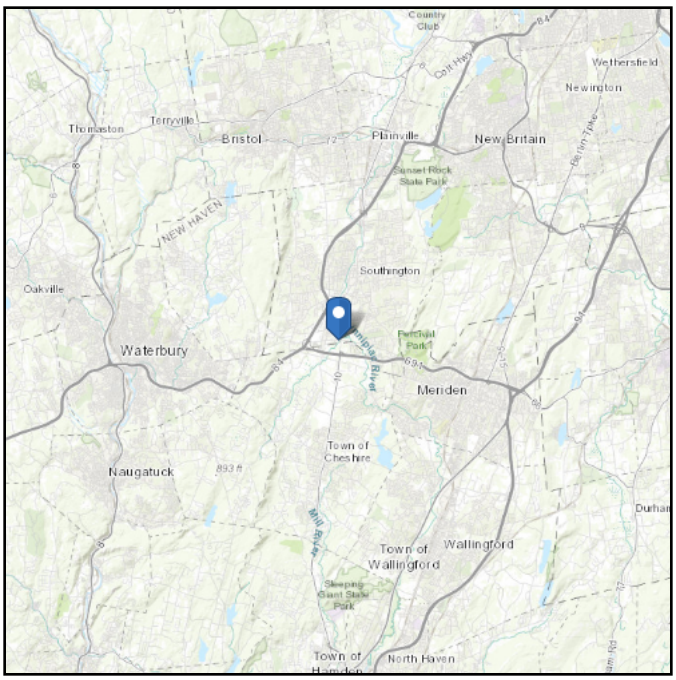
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 133.13 ft (NAVD 88)
Latitude: 41.564275
Longitude: -72.891861





Wind

Results:

Wind Speed	118 Vmph per the State of Connecticut allowing ASCE 7-16 wind speeds
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Fri Jun 17 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

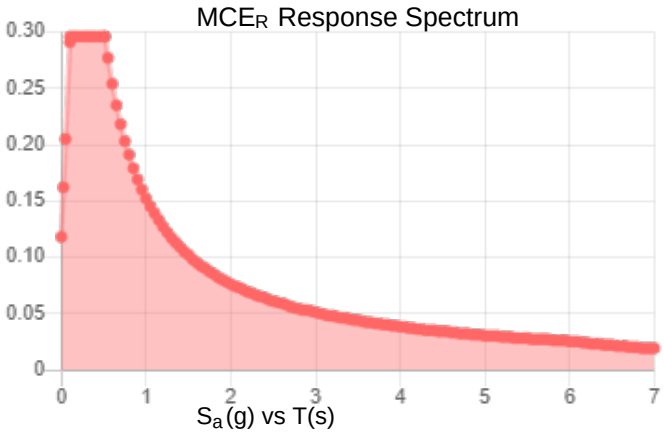
Seismic

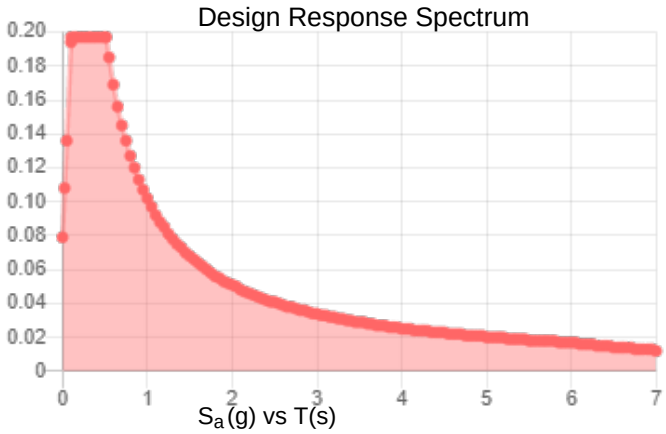
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.185	S_{DS} :	0.197
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.095
S_{MS} :	0.296	PGA_M :	0.152
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: **Fri Jun 17 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Jun 17 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	MH1	N2	N3		270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N4	N5			RIGID	None	None	RIGID	Typical
3	MP2	N6	N7			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
4	M4	N8	N3		180	Corner Horizontals	Beam	Double Angl...	A36 Gr.36	Typical
5	M5	N9	N2		180	Corner Horizontals	Beam	Double Angl...	A36 Gr.36	Typical
6	MH2	N8	N9		270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
7	MH4	N3	N11		270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
8	MH3	N11	N2		270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
9	MH5	N9	N12		270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
10	MH6	N12	N8		270	Horizontals	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N12	N11		180	Corner Horizontals	Beam	Double Angl...	A36 Gr.36	Typical
12	M12	N14	N16			RIGID	None	None	RIGID	Typical
13	MP3	N13	N15			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
14	MS3	N21	N1		90	Standoff 1	Beam	Channel	A36 Gr.36	Typical
15	M15	N18	N17			RIGID	None	None	RIGID	Typical
16	MP1	N19	N20			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
17	MS1	N23	N22		90	Standoff 1	Beam	Channel	A36 Gr.36	Typical
18	MS2	N25	N24		90	Standoff 1	Beam	Channel	A36 Gr.36	Typical
19	HR1	N53	N54		270	Handrail	Beam	Pipe	A53 Gr.B	Typical
20	M32	N55	N57			RIGID	None	None	RIGID	Typical
21	M33	N60	N59			RIGID	None	None	RIGID	Typical
22	M34	N56	N58			RIGID	None	None	RIGID	Typical
23	MP8	N41	N43			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
24	M24	N49	N45			RIGID	None	None	RIGID	Typical
25	M25	N47	N46			RIGID	None	None	RIGID	Typical
26	M26	N50	N48			RIGID	None	None	RIGID	Typical
27	HR3	N63	N64		270	Handrail	Beam	Pipe	A53 Gr.B	Typical
28	M28	N39	N42			RIGID	None	None	RIGID	Typical
29	M29	N37	N40			RIGID	None	None	RIGID	Typical
30	M30	N51	N52			RIGID	None	None	RIGID	Typical
31	MP7	N44	N38			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
32	MP9	N61	N62			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
33	MP5	N69	N71			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
34	M38	N77	N73			RIGID	None	None	RIGID	Typical
35	M39	N75	N74			RIGID	None	None	RIGID	Typical
36	M40	N78	N76			RIGID	None	None	RIGID	Typical
37	HR2	N83	N84		270	Handrail	Beam	Pipe	A53 Gr.B	Typical
38	M42	N67	N70			RIGID	None	None	RIGID	Typical
39	M43	N65	N68			RIGID	None	None	RIGID	Typical
40	M44	N79	N80			RIGID	None	None	RIGID	Typical
41	MP4	N72	N66			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
42	MP6	N81	N82			Mount Pipe 2.0	Column	Pipe	A53 Gr.B	Typical
43	M47	N86	N85		90	Handrail Angle	Beam	Single Angle	A36 Gr.36	Typical
44	M48	N87	N88		90	Handrail Angle	Beam	Single Angle	A36 Gr.36	Typical
45	M49	N89	N90		90	Handrail Angle	Beam	Single Angle	A36 Gr.36	Typical
46	RH1	N84A	N85A			Proposed Horizontal	Beam	Pipe	A53 Gr.B	Typical
47	M47A	N86A	N87A			RIGID	None	None	RIGID	Typical
48	M48A	N88A	N89A			RIGID	None	None	RIGID	Typical
49	M49A	N91	N90A			RIGID	None	None	RIGID	Typical
50	M50	N94	N95			RIGID	None	None	RIGID	Typical
51	M51	N92	N96			RIGID	None	None	RIGID	Typical
52	M52	N93	N97			RIGID	None	None	RIGID	Typical
53	K2	N96	N95		90	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
54	K1	N97	N95		180	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
55	RH3	N99	N100			Proposed Horizontal	Beam	Pipe	A53 Gr.B	Typical
56	M56	N101	N102			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
57	M57	N103	N104			RIGID	None	None	RIGID	Typical
58	M58	N106	N105			RIGID	None	None	RIGID	Typical
59	M59	N108	N109			RIGID	None	None	RIGID	Typical
60	M60	N107	N110			RIGID	None	None	RIGID	Typical
61	K6	N110	N109		90	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
62	K5	N111	N109		180	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
63	RH2	N113	N114			Proposed Horizontal	Beam	Pipe	A53 Gr.B	Typical
64	M64	N115A	N116			RIGID	None	None	RIGID	Typical
65	M65	N117	N118			RIGID	None	None	RIGID	Typical
66	M66	N120	N119			RIGID	None	None	RIGID	Typical
67	M67	N122	N123			RIGID	None	None	RIGID	Typical
68	M68	N121	N124			RIGID	None	None	RIGID	Typical
69	K4	N124	N123		90	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
70	K3	N125	N123		180	Angle Kickers	VBrace	Single Angle	A36 Gr.36	Typical
71	M71	N125A	N111			RIGID	None	None	RIGID	Typical
72	M72	N128	N125			RIGID	None	None	RIGID	Typical
73	M73	N125A	N111			RIGID	None	None	RIGID	Typical
74	M74	N128	N125			RIGID	None	None	RIGID	Typical
75	M75	N93	N97			RIGID	None	None	RIGID	Typical
76	M76	N128	N125			RIGID	None	None	RIGID	Typical
77	M77	N93	N97			RIGID	None	None	RIGID	Typical
78	M78	N125A	N111			RIGID	None	None	RIGID	Typical
79	M79	N125A	N111			RIGID	None	None	RIGID	Typical
80	M80	N128	N125			RIGID	None	None	RIGID	Typical
81	M81	N93	N97			RIGID	None	None	RIGID	Typical
82	M82	N128	N125			RIGID	None	None	RIGID	Typical
83	M83	N93	N97			RIGID	None	None	RIGID	Typical
84	M84	N125A	N111			RIGID	None	None	RIGID	Typical
85	M85	N93	N97			RIGID	None	None	RIGID	Typical
86	M86	N125A	N111			RIGID	None	None	RIGID	Typical
87	M87	N128	N125			RIGID	None	None	RIGID	Typical
88	M88	N128	N125			RIGID	None	None	RIGID	Typical
89	M89	N93	N97			RIGID	None	None	RIGID	Typical
90	M90	N125A	N111			RIGID	None	None	RIGID	Typical
91	M91	N93	N97			RIGID	None	None	RIGID	Typical
92	M92	N125A	N111			RIGID	None	None	RIGID	Typical
93	M93	N128	N125			RIGID	None	None	RIGID	Typical
94	M94	N125A	N111			RIGID	None	None	RIGID	Typical
95	M95	N128	N125			RIGID	None	None	RIGID	Typical
96	M96	N93	N97			RIGID	None	None	RIGID	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		60	180	0
3	Total General		60	180	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C4x5x4x0.375	3	102	132.867
7	A36 Gr.36	L2.5x2.5x3	9	362.2	92.545
8	A36 Gr.36	L3X3X4	6	763.8	311.877
9	A36 Gr.36	LL3x3x4x0	3	141	115.15
10	A53 Gr.B	PIPE_2.0	15	1656	478.975
11	Total HR Steel		36	3025	1131.415

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(M...	Surface(Plate/Wall)
1	Self Weight	DL		-1			21		3	
2	Wind Load AZI 0	WLZ					42			
3	Wind Load AZI 30	None					42			
4	Wind Load AZI 60	None					42			
5	Wind Load AZI 90	WLX					42			
6	Wind Load AZI 120	None					42			
7	Wind Load AZI 150	None					42			
8	Wind Load AZI 180	None					42			
9	Wind Load AZI 210	None					42			
10	Wind Load AZI 240	None					42			
11	Wind Load AZI 270	None					42			
12	Wind Load AZI 300	None					42			
13	Wind Load AZI 330	None					42			
14	Distr. Wind Load Z	WLZ						96		
15	Distr. Wind Load X	WLX						96		
16	Ice Weight	OL1					21	96	3	
17	Ice Wind Load AZI 0	OL2					42			
18	Ice Wind Load AZI ...	None					42			
19	Ice Wind Load AZI ...	None					42			
20	Ice Wind Load AZI ...	OL3					42			
21	Ice Wind Load AZI ...	None					42			
22	Ice Wind Load AZI ...	None					42			
23	Ice Wind Load AZI ...	None					42			
24	Ice Wind Load AZI ...	None					42			
25	Ice Wind Load AZI ...	None					42			
26	Ice Wind Load AZI ...	None					42			
27	Ice Wind Load AZI ...	None					42			
28	Ice Wind Load AZI ...	None					42			
29	Distr. Ice Wind Loa...	OL2						96		
30	Distr. Ice Wind Loa...	OL3						96		
31	Seismic Load Z	ELZ			-.296		21			
32	Seismic Load X	ELX	-.296				21			
33	Service Live Loads	LL				1				
34	Maintenance Load ...	LL				1				
35	Maintenance Load ...	LL				1				
36	Maintenance Load ...	LL				1				
37	Maintenance Load ...	LL				1				
38	Maintenance Load ...	LL				1				
39	Maintenance Load ...	LL				1				
40	Maintenance Load ...	LL				1				
41	Maintenance Load ...	LL				1				
42	Maintenance Load ...	LL				1				
43	BLC 1 Transient Ar...	None						30		
44	BLC 16 Transient ...	None						30		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		1	1.4																				
2	1.2DL + 1WL AZI 0	Yes	Y		1	1.2	2	1	14	1	15															
3	1.2DL + 1WL AZI 30	Yes	Y		1	1.2	3	1	14	.866	15	.5														
4	1.2DL + 1WL AZI 60	Yes	Y		1	1.2	4	1	14	.5	15	.866														
5	1.2DL + 1WL AZI 90	Yes	Y		1	1.2	5	1	14		15	1														
6	1.2DL + 1WL AZI 120	Yes	Y		1	1.2	6	1	14	-.5	15	.866														
7	1.2DL + 1WL AZI 150	Yes	Y		1	1.2	7	1	14	-.8...	15	.5														

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
8	1.2DL + 1WL AZI 180	Yes	Y		1	1.2	8	1	14	-1	15															
9	1.2DL + 1WL AZI 210	Yes	Y		1	1.2	9	1	14	-.8...	15	-.5														
10	1.2DL + 1WL AZI 240	Yes	Y		1	1.2	10	1	14	-.5	15	-.8...														
11	1.2DL + 1WL AZI 270	Yes	Y		1	1.2	11	1	14		15	-1														
12	1.2DL + 1WL AZI 300	Yes	Y		1	1.2	12	1	14	.5	15	-.8...														
13	1.2DL + 1WL AZI 330	Yes	Y		1	1.2	13	1	14	.866	15	-.5														
14	0.9DL + 1WL AZI 0	Yes	Y		1	.9	2	1	14	1	15															
15	0.9DL + 1WL AZI 30	Yes	Y		1	.9	3	1	14	.866	15	.5														
16	0.9DL + 1WL AZI 60	Yes	Y		1	.9	4	1	14	.5	15	.866														
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	5	1	14		15	1														
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	6	1	14	-.5	15	.866														
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	7	1	14	-.8...	15	.5														
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	8	1	14	-1	15															
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	9	1	14	-.8...	15	-.5														
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	10	1	14	-.5	15	-.8...														
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	11	1	14		15	-1														
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	12	1	14	.5	15	-.8...														
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	13	1	14	.866	15	-.5														
26	1.2D + 1.0Di	Yes	Y		1	1.2	16	1																		
27	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	17	1	29	1	30													
28	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5												
29	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866												
30	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	20	1	29		30	1												
31	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866												
32	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	22	1	29	-.8...	30	.5												
33	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	23	1	29	-1	30													
34	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5												
35	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...												
36	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	26	1	29		30	-1												
37	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.8...												
38	1.2D + 1.0Di +1.0Wi A...	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5												
39	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	1	32																	
40	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.866	32	.5																
41	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.5	32	.866																
42	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31		32	1																
43	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.5	32	.866																
44	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.8...	32	.5																
45	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-1	32																	
46	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.8...	32	-.5																
47	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	-.5	32	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31		32	-1																
49	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.5	32	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0...	Yes	Y		1	1.239	31	.866	32	-.5																
51	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	1	32																	
52	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.866	32	.5																
53	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.5	32	.866																
54	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31		32	1																
55	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.5	32	.866																
56	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.8...	32	.5																
57	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-1	32																	
58	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.8...	32	-.5																
59	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	-.5	32	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31		32	-1																
61	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.5	32	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0...	Yes	Y		1	.861	31	.866	32	-.5																
63	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	2	.259	14	.259	15		33	1.5												
64	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	3	.259	14	.224	15	.129	33	1.5												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
65	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	4	.259	14	.129	15	.224	33	1.5										
66	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	5	.259	14		15	.259	33	1.5										
67	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	6	.259	14	-.1...	15	.224	33	1.5										
68	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	7	.259	14	-.2...	15	.129	33	1.5										
69	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	8	.259	14	-.2...	15		33	1.5										
70	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	9	.259	14	-.2...	15	-.1...	33	1.5										
71	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	10	.259	14	-.1...	15	-.2...	33	1.5										
72	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	11	.259	14		15	-.2...	33	1.5										
73	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	12	.259	14	.129	15	-.2...	33	1.5										
74	1.0DL + 1.5LL + 1.0SW...	Yes	Y		1	1	13	.259	14	.224	15	-.1...	33	1.5										
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																
76	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	2	.065	14	.065	15											
77	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	3	.065	14	.056	15	.032										
78	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	4	.065	14	.032	15	.056										
79	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	5	.065	14		15	.065										
80	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	6	.065	14	-.0...	15	.056										
81	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	7	.065	14	-.0...	15	.032										
82	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	8	.065	14	-.0...	15											
83	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	9	.065	14	-.0...	15	-.0...										
84	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	10	.065	14	-.0...	15	-.0...										
85	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	11	.065	14		15	-.0...										
86	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	12	.065	14	.032	15	-.0...										
87	1.2DL + 1.5LM-MP1 + ...	Yes	Y		1	1.2	34	1.5	13	.065	14	.056	15	-.0...										
88	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	2	.065	14	.065	15											
89	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	3	.065	14	.056	15	.032										
90	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	4	.065	14	.032	15	.056										
91	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	5	.065	14		15	.065										
92	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	6	.065	14	-.0...	15	.056										
93	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	7	.065	14	-.0...	15	.032										
94	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	8	.065	14	-.0...	15											
95	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	9	.065	14	-.0...	15	-.0...										
96	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	10	.065	14	-.0...	15	-.0...										
97	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	11	.065	14		15	-.0...										
98	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	12	.065	14	.032	15	-.0...										
99	1.2DL + 1.5LM-MP2 + ...	Yes	Y		1	1.2	35	1.5	13	.065	14	.056	15	-.0...										
100	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	2	.065	14	.065	15											
101	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	3	.065	14	.056	15	.032										
102	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	4	.065	14	.032	15	.056										
103	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	5	.065	14		15	.065										
104	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	6	.065	14	-.0...	15	.056										
105	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	7	.065	14	-.0...	15	.032										
106	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	8	.065	14	-.0...	15											
107	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	9	.065	14	-.0...	15	-.0...										
108	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	10	.065	14	-.0...	15	-.0...										
109	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	11	.065	14		15	-.0...										
110	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	12	.065	14	.032	15	-.0...										
111	1.2DL + 1.5LM-MP3 + ...	Yes	Y		1	1.2	36	1.5	13	.065	14	.056	15	-.0...										
112	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	2	.065	14	.065	15											
113	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	3	.065	14	.056	15	.032										
114	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	4	.065	14	.032	15	.056										
115	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	5	.065	14		15	.065										
116	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	6	.065	14	-.0...	15	.056										
117	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	7	.065	14	-.0...	15	.032										
118	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	8	.065	14	-.0...	15											
119	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	9	.065	14	-.0...	15	-.0...										
120	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	10	.065	14	-.0...	15	-.0...										
121	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	11	.065	14		15	-.0...										

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
122	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	12	.065	14	.032	15	-.0...										
123	1.2DL + 1.5LM-MP4 + ...	Yes	Y		1	1.2	37	1.5	13	.065	14	.056	15	-.0...										
124	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	2	.065	14	.065	15											
125	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	3	.065	14	.056	15	.032										
126	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	4	.065	14	.032	15	.056										
127	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	5	.065	14		15	.065										
128	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	6	.065	14	-.0...	15	.056										
129	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	7	.065	14	-.0...	15	.032										
130	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	8	.065	14	-.0...	15											
131	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	9	.065	14	-.0...	15	-.0...										
132	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	10	.065	14	-.0...	15	-.0...										
133	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	11	.065	14		15	-.0...										
134	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	12	.065	14	.032	15	-.0...										
135	1.2DL + 1.5LM-MP5 + ...	Yes	Y		1	1.2	38	1.5	13	.065	14	.056	15	-.0...										
136	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	2	.065	14	.065	15											
137	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	3	.065	14	.056	15	.032										
138	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	4	.065	14	.032	15	.056										
139	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	5	.065	14		15	.065										
140	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	6	.065	14	-.0...	15	.056										
141	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	7	.065	14	-.0...	15	.032										
142	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	8	.065	14	-.0...	15											
143	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	9	.065	14	-.0...	15	-.0...										
144	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	10	.065	14	-.0...	15	-.0...										
145	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	11	.065	14		15	-.0...										
146	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	12	.065	14	.032	15	-.0...										
147	1.2DL + 1.5LM-MP6 + ...	Yes	Y		1	1.2	39	1.5	13	.065	14	.056	15	-.0...										
148	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	2	.065	14	.065	15											
149	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	3	.065	14	.056	15	.032										
150	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	4	.065	14	.032	15	.056										
151	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	5	.065	14		15	.065										
152	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	6	.065	14	-.0...	15	.056										
153	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	7	.065	14	-.0...	15	.032										
154	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	8	.065	14	-.0...	15											
155	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	9	.065	14	-.0...	15	-.0...										
156	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	10	.065	14	-.0...	15	-.0...										
157	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	11	.065	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	12	.065	14	.032	15	-.0...										
159	1.2DL + 1.5LM-MP7 + ...	Yes	Y		1	1.2	40	1.5	13	.065	14	.056	15	-.0...										
160	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	2	.065	14	.065	15											
161	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	3	.065	14	.056	15	.032										
162	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	4	.065	14	.032	15	.056										
163	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	5	.065	14		15	.065										
164	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	6	.065	14	-.0...	15	.056										
165	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	7	.065	14	-.0...	15	.032										
166	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	8	.065	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	9	.065	14	-.0...	15	-.0...										
168	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	10	.065	14	-.0...	15	-.0...										
169	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	11	.065	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	12	.065	14	.032	15	-.0...										
171	1.2DL + 1.5LM-MP8 + ...	Yes	Y		1	1.2	41	1.5	13	.065	14	.056	15	-.0...										
172	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	2	.065	14	.065	15											
173	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	3	.065	14	.056	15	.032										
174	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	4	.065	14	.032	15	.056										
175	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	5	.065	14		15	.065										
176	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	6	.065	14	-.0...	15	.056										
177	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	7	.065	14	-.0...	15	.032										
178	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	8	.065	14	-.0...	15											

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
179	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	9	.065	14	-.0...	15	-.0...												
180	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	10	.065	14	-.0...	15	-.0...												
181	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	11	.065	14		15	-.0...												
182	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	12	.065	14	.032	15	-.0...												
183	1.2DL + 1.5LM-MP9 + ...	Yes	Y		1	1.2	42	1.5	13	.065	14	.056	15	-.0...												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N21	max	1813.953	5	2507.202	33	692.449	14	-735.593	14	1395.062	16	175.758	5
2		min	-1810.353	23	294.291	14	-1197.7...	8	-5997.32	33	-1447.7...	10	-175.524	23
3	N23	max	1287.412	17	2502.379	37	2099.893	2	3018.581	36	1942.862	22	5178.739	37
4		min	-1727.468	11	309.682	18	-1852.3...	20	286.603	17	-1997.5...	4	696.382	18
5	N25	max	1694.584	6	2501.964	29	2083.754	2	3003.102	30	2138.201	24	-670.284	22
6		min	-1259.841	24	310.958	22	-1827.6...	20	389.712	23	-2190.9...	6	-5185.6...	28
7	N94	max	460.327	85	836.299	31	1161.692	27	-33.194	20	115.472	85	.716	20
8		min	-458.235	103	139.64	20	121.541	20	-205.919	31	-114.989	103	-.728	2
9	N108	max	982.147	35	835.005	35	54.446	182	102.809	38	115.522	149	178.068	35
10		min	145.153	15	147.386	24	-747.945	152	18.213	24	-115.033	179	30.078	24
11	N122	max	-49.452	16	839.313	27	54.784	117	103.37	27	115.601	120	-31.001	16
12		min	-1047.651	35	148.344	16	-744.414	147	17.091	16	-115.078	138	-178.97	27
13	Totals:	max	4611.781	5	9840.599	33	4742.969	14						
14		min	-4611.753	23	2301.759	51	-4742.9...	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
1	MH1	L3X3X4	.676	84	32	.098	84	z	31	4607...	46656	1688...	3755...		H2-1
2	MH3	L3X3X4	.674	84	28	.097	84	z	27	2979...	46656	1688...	3755...		H2-1
3	MH4	L3X3X4	.672	84	36	.097	84	z	34	2979...	46656	1688...	3755...		H2-1
4	MS2	C4x5x4x0...	.521	0	31	.100	0	y	13	1324...	1488...	1222...	2330...		H1-...
5	MS1	C4x5x4x0...	.517	0	27	.100	0	y	9	1324...	1488...	1222...	2330...		H1-...
6	MS3	C4x5x4x0...	.513	0	34	.086	0	y	5	1324...	1488...	1222...	2330...		H1-...
7	MP4	PIPE_2.0	.496	52	4	.243	52		36	1491...	32130	1871...	1871...		H1-...
8	MP7	PIPE_2.0	.486	52	37	.241	52		31	1491...	32130	1871...	1871...		H1-...
9	RH3	PIPE_2.0	.453	128.125	27	.173	112.5		6	6295...	32130	1871...	1871...		H1-...
10	RH1	PIPE_2.0	.453	128.125	35	.174	112.5		2	6295...	32130	1871...	1871...		H1-...
11	MP1	PIPE_2.0	.452	52	8	.242	52		27	1491...	32130	1871...	1871...		H1-...
12	RH2	PIPE_2.0	.452	128.125	31	.174	112.5		10	6295...	32130	1871...	1871...		H1-...
13	MP2	PIPE_2.0	.433	40.563	33	.127	40.563		83	2235...	32130	1871...	1871...		H1-...
14	MP8	PIPE_2.0	.431	40.563	36	.126	40.563		159	2235...	32130	1871...	1871...		H1-...
15	MP5	PIPE_2.0	.429	40.563	29	.126	40.563		115	2235...	32130	1871...	1871...		H1-...
16	MH6	L3X3X4	.384	43.297	35	.017	43.297	z	37	1484...	46656	1688...	3157...		H2-1
17	MH5	L3X3X4	.384	43.297	27	.017	43.297	z	27	1484...	46656	1688...	3158...		H2-1
18	MH2	L3X3X4	.381	43.297	31	.017	43.297	z	33	1484...	46656	1688...	3158...		H2-1
19	HR3	PIPE_2.0	.317	85.187	35	.103	159.5		5	1785...	32130	1871...	1871...		H1-...
20	HR2	PIPE_2.0	.317	85.188	27	.102	159.5		9	1785...	32130	1871...	1871...		H1-...
21	HR1	PIPE_2.0	.315	85.188	31	.102	159.5		2	1785...	32130	1871...	1871...		H1-...
22	MP6	PIPE_2.0	.290	51.563	28	.144	40.563		28	2235...	32130	1871...	1871...		H1-...
23	MP3	PIPE_2.0	.289	51.563	32	.145	40.563		32	2235...	32130	1871...	1871...		H1-...
24	MP9	PIPE_2.0	.289	51.563	36	.146	40.563		36	2235...	32130	1871...	1871...		H1-...
25	M49	L2.5x2.5x3	.205	16.856	109	.058	16.856	y	10	2719...	2919...	872....	1971...		H2-1
26	M47	L2.5x2.5x3	.204	16.856	144	.056	16.856	y	6	2719...	2919...	872....	1971...		H2-1
27	M48	L2.5x2.5x3	.204	16.856	173	.057	16.856	y	2	2719...	2919...	872....	1971...		H2-1
28	M11	LL3x3x4x0	.137	47	11	.017	0	z	11	7637...	93312	6480	4360...		H1-...
29	M5	LL3x3x4x0	.132	47	3	.017	0	z	3	7637...	93312	6480	4360...		H1-...

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
30	M4	LL3x3x4x0	.132	47	7	.017	0	z	7	7637..	93312	6480	4360..	...	H1-..
31	K1	L2.5x2.5x3	.108	25.971	34	.023	51.942	y	33	1584..	2919..	872....	1680..	...	H2-1
32	K5	L2.5x2.5x3	.108	25.971	37	.023	51.942	y	37	1584..	2919..	872....	1680..	...	H2-1
33	K3	L2.5x2.5x3	.106	25.971	30	.023	51.942	y	29	1584..	2919..	872....	1680..	...	H2-1
34	K2	L2.5x2.5x3	.104	25.971	32	.022	0	z	31	1584..	2919..	872....	1680..	...	H2-1
35	K4	L2.5x2.5x3	.104	25.971	29	.022	51.942	z	38	1584..	2919..	872....	1680..	...	H2-1
36	K6	L2.5x2.5x3	.101	25.971	36	.022	0	z	34	1584..	2919..	872....	1680..	...	H2-1

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

Bolt Calculation Tool, V1.6.2

PROJECT DATA	
Site Name:	EST JOHNSON AVE BUNRT HOU
Site Number:	8761313
Connection Description:	Platformt To Tower

ENVELOPE BOLT LOADS		
(LC6 MS2) Bolt Tension:	7774.72	lbs
(LC33 MS3) Bolt Shear:	18953.86	lbs

MAX BOLT USAGE LOADS[1]		
Bolt Tension:	216.48	lbs
Bolt Shear:	18953.86	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	1	in
Bolt Grade:	A325	-
# of Bolts:	2	-
Threads Excluded?	No	-

[1] *Max bolt usage loads correspond to Load combination #33 on member MS3 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of MS3, MS1, MS2,

BOLT CHECK		
Tensile Strength	54516.96	
Shear Strength	35342.92	
Max Tensile Usage	14.3%	
Max Shear Usage	53.6%	
Interaction Check (Max Usage)	0.29	***≤1.05***
Result	Pass	

INFINIGY

Bolt Calculation Tool, V1.6.2

PROJECT DATA	
Site Name:	EST JOHNSON AVE BUNRT HOU
Site Number:	8761313
Connection Description:	Kicker To Tower

ENVELOPE BOLT LOADS		
(LC27 M67) Bolt Tension:	416.54	lbs
(LC27 M50) Bolt Shear:	303.16	lbs

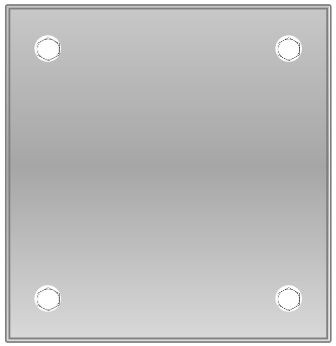
MAX BOLT USAGE LOADS[1]		
Bolt Tension:	409.66	lbs
Bolt Shear:	303.16	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Max bolt usage loads correspond to Load combination #27 on member M50 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of M50, M59, M67,

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	2.0%	
Max Shear Usage	2.2%	
Interaction Check (Max Usage)	0.00	***≤1.05***
Result	Pass	



Fox Hill Telecom

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CT11453C

Southington - Sprint
1394 Rt. 322 / Meriden Waterbury Tpk
Southington, CT 06489

August 11, 2022

Fox Hill Telecom Project Number: 221563

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**19.18 %**

Fox Hill Telecom

August 11, 2022

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CT11453C – Southington - Sprint**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **1394 Rt. 322 / Meriden Waterbury Tpk, Southington, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). 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.

General population 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 & 700 MHz 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 2500 MHz (BRS) 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 performed for the proposed upgrades to the T-MOBILE antenna facility located at **1394 Rt. 322 / Meriden Waterbury Tpk, Southington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	40
GSM	1900 MHz (PCS)	1	15
LTE	2100 MHz (AWS)	4	40
LTE / 5G NR	2500 MHz (BRS)	8	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	148
A	2	Commscope VV-65B-R1	148
A	3	Ericsson AIR6419 B41	148
B	1	RFS APXVAALL24_43-U-NA20	148
B	2	Commscope VV-65B-R1	148
B	3	Ericsson AIR6419 B41	148
C	1	RFS APXVAALL24_43-U-NA20	148
C	2	Commscope VV-65B-R1	148
C	3	Ericsson AIR6419 B41	148

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	4	120	2,824.56	1.20
Antenna A2	Commscope VV-65B-R1	1900 MHz (PCS) / 2100 MHz (AWS)	16.55 / 16.85	9	335	15,654.24	2.79
Antenna A3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	4.03
						Sector A Composite MPE%	**8.02**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	4	120	2,824.56	1.20
Antenna B2	Commscope VV-65B-R1	1900 MHz (PCS) / 2100 MHz (AWS)	16.55 / 16.85	9	335	15,654.24	2.79
Antenna B3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	4.03
						Sector B Composite MPE%	**8.02**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	4	120	2,824.56	1.20
Antenna C2	Commscope VV-65B-R1	1900 MHz (PCS) / 2100 MHz (AWS)	16.55 / 16.85	9	335	15,654.24	2.79
Antenna C3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	160	22,600.60	4.03
						Sector C Composite MPE%	**8.02**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**8.02 %**
DISH	1.80 %
AT&T	6.56 %
Tran 1480	0.10 %
ASPA 680	0.15 %
Celwave	0.29 %
Hygain	0.29 %
Cellwave	0.32 %
Cellwave	0.21 %
Hygain	1.44 %
Site Total MPE %:	**19.18 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	8.02 %
T-MOBILE Sector B Total:	8.02 %
T-MOBILE Sector C Total:	8.02 %
Site Total:	19.18 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	926.96	148	3.31	600 MHz	400	0.83%
T-Mobile 700 MHz LTE	2	485.32	148	1.73	700 MHz	467	0.37%
T-Mobile 1900 MHz (PCS) LTE	4	1,807.42	148	12.89	1900 MHz (PCS)	1000	1.29%
T-Mobile 1900 MHz (PCS) GSM	1	677.78	148	1.21	1900 MHz (PCS)	1000	0.12%
T-Mobile 2100 MHz (AWS) LTE	4	1,936.69	148	13.81	2100 MHz (AWS)	1000	1.38%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	2,825.08	148	40.29	2500 MHz (BRS)	1000	4.03%
						Total:	**8.02%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

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

T-MOBILE Sector	Power Density Value (%)
Sector A:	8.02 %
Sector B:	8.02 %
Sector C:	8.02 %
T-MOBILE Maximum Total (per sector):	8.02 %
Site Total:	19.18 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **19.18 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

T-MOBILE SITE NUMBER: CT11453C
T-MOBILE SITE NAME: SOUTHINGTON - SPRINT
SITE TYPE: MONOPOLE
TOWER HEIGHT: 160'-0"

BUSINESS UNIT #: 876313
SITE ADDRESS: 1394 MERIDEN WATERBURY TPK SOUTHINGTON, CT 06489
COUNTY: HARTFORD
JURISDICTION: CONNECTICUT SITING COUNCIL

T-MOBILE ANCHOR SITE CONFIGURATION: 67E5D998E OUTDOOR

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WEST JOHNSON AVE. BURNT HOUSE
SITE ADDRESS:	1394 MERIDEN WATERBURY TPK SOUTHINGTON, CT 06489
COUNTY:	HARTFORD
MAP/PARCEL #:	0321030004
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.564275°
LONGITUDE:	-72.891861°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	135 FT.
CURRENT ZONING:	B - BUSINESS
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	SOUTHINGTON TOWER DEVELOPMENT LLC 754 PEACHTREE ST, NE ATLANTA, GA 30308
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
ELECTRIC PROVIDER:	NORTHEAST UTILITIES 800.286.2000
TELCO PROVIDER:	LIGHTTOWER 855.91.FIBER

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS MARVIN.PHILLIPS@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277 WILLIAM GATES - PROJECT MANAGER WILLIAM.GATES@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	SPECIFICATIONS PER MOUNT ANALYSIS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

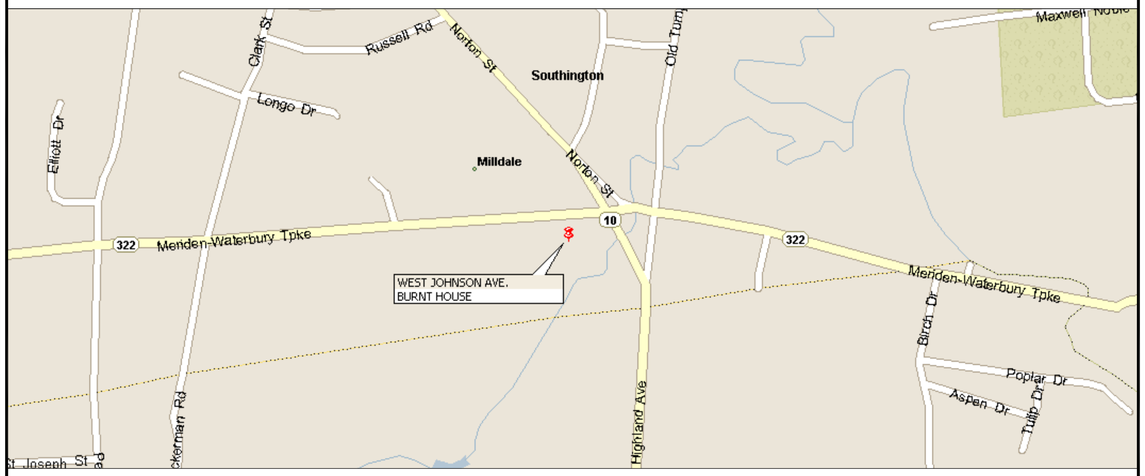
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE MOUNT @ 150'-0" MCL
- REMOVE MOUNT AND EQUIPMENT @ 127'-0" MCL
- REMOVE (6) ANTENNAS
- REMOVE (9) RRHs
- REMOVE (6) DIPLEXERS
- REMOVE (6) 1-5/8" COAX CABLES
- REMOVE (5) 1-1/4" HYBRID CABLES
- INSTALL MOUNT MODIFICATION AS PER MOUNT ANALYSIS REPORT BY INFINIGY, DATE 6/17/22
- INSTALL (9) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (3) HYBRID TRUNK (6/24 4AWG)

GROUND SCOPE OF WORK:
- SPRINT EQUIPMENT TO BE REMOVED AT A FUTURE DATE BY OTHERS
- REMOVE (1) NORTEL CABINET
- REMOVE (1) DUW30 AND (6) RU22 RADIOS
- INSTALL (1) H-FRAME
- INSTALL (1) ENCLOSURE 6160 AC V1 CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (2) RP 6651, (2) PSU 4813 vR4A (Kit) AND (1) CSR IXRe V2 (Gen2)
- INSTALL (1) AAV CABINET

NOTE:
THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT SBC/2015 IBC
MECHANICAL	2018 CONNECTICUT SBC/2015 IMC
ELECTRICAL	2018 CONNECTICUT SBC/2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	6/28/22
MOUNT ANALYSIS:	INFINIGY
DATED:	6/17/22
AC ELECTRICAL POWER DESIGN:	BY OTHERS
DATED:	
RFDS REVISION:	5
DATED:	4/26/22
ORDER ID:	621172
REVISION:	0

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APPROVALS

APPROVAL	SIGNATURE	DATE
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LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
MTS ENGINEERING, P.L.L.C.
1717 S. BOULDER,
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
btwo@btgrp.com

T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

STATE OF CONNECTICUT
GRAND SEAL OF THE STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1

REVISION: 0

13717.016.01_WEST JOHNSON AVE.BURNT HOUSE.dwg – Sheet:T-1 – User: lisa.rider – Aug 11, 2022 – 1:53pm

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T-MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER........40 ksi
   #5 BARS AND LARGER........60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH........3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER........2"
      #5 BARS AND SMALLER........1-1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      SLAB AND WALLS........3/4"
      BEAMS AND COLUMNS........1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

LOOK UP!

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CROWN CASTLE
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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
btwo@btgrp.com

T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

No. 23924
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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SHEET NUMBER: T-2
REVISION: 0

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

1 OVERALL SITE PLAN

SCALE: 30' 15' 0 30' 1"=30'-0" (FULL SIZE) 1"=60'-0" (11x17)

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STATE OF CONNECTICUT PROFESSIONAL ENGINEER No. 23924 LICENSED

8/11/22

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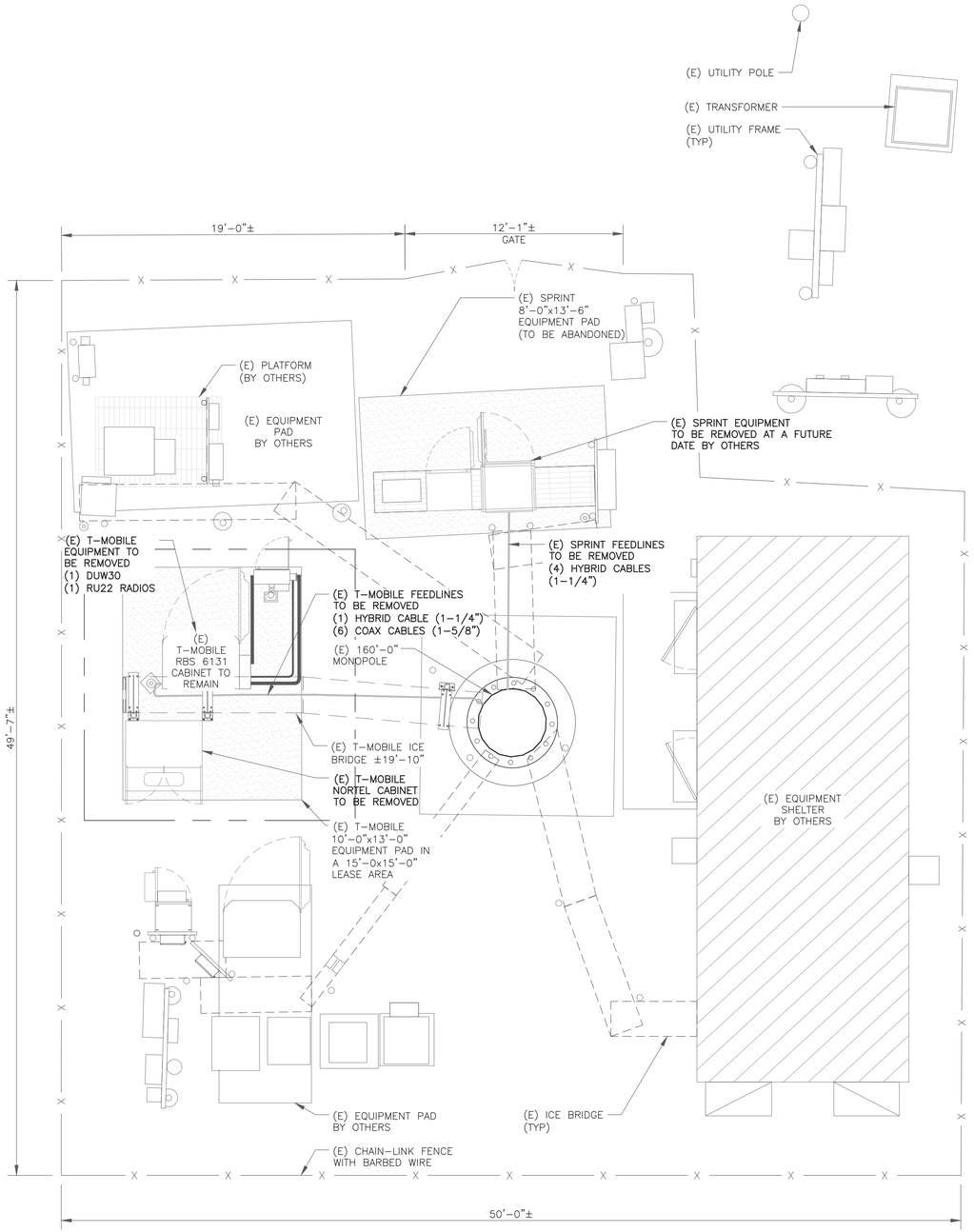
SHEET NUMBER: C-1.1

REVISION: 0

137177.016.01_WEST JOHNSON AVE.BURNT HOUSE.dwg – Sheet:C-1.1 – User: lisa.rider – Aug 11, 2022 – 1:51pm

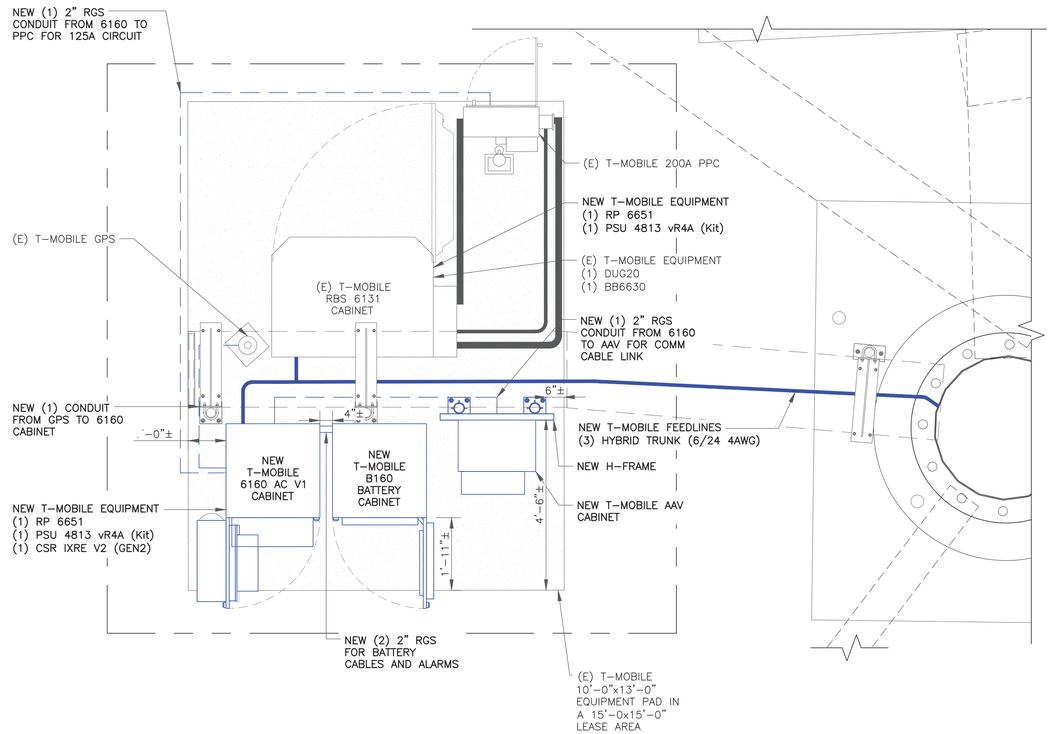


1 SITE PLAN
SCALE: 4' 3' 2' 1' 0 4' 1/4"=1'-0" (FULL SIZE) 1/8"=1'-0" (11x17)

N

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T-MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

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T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
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STATE OF CONNECTICUT
No. 23924
LICENSED PROFESSIONAL ENGINEER
8/11/22

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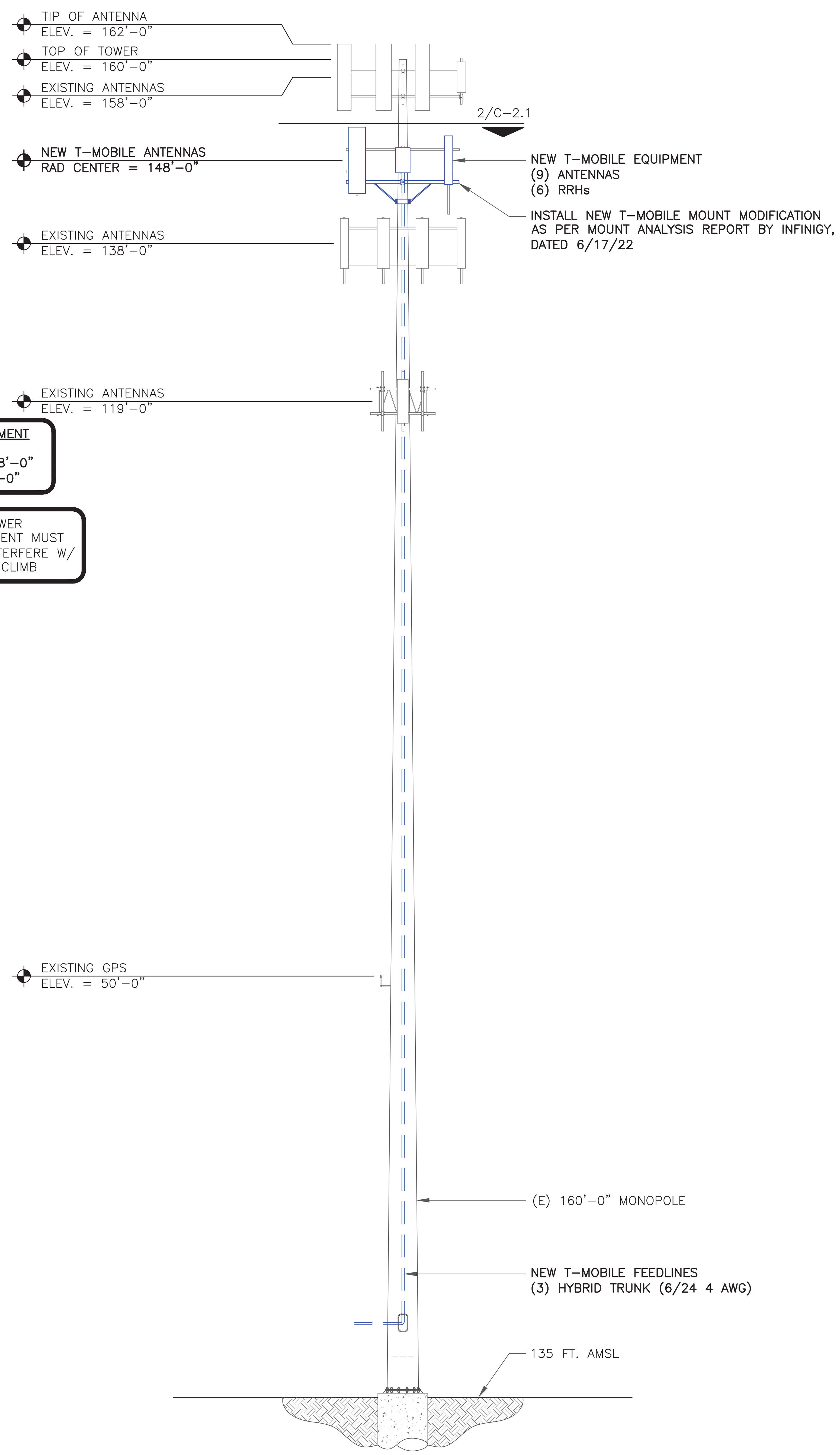
SHEET NUMBER: C-1.2

REVISION: 0

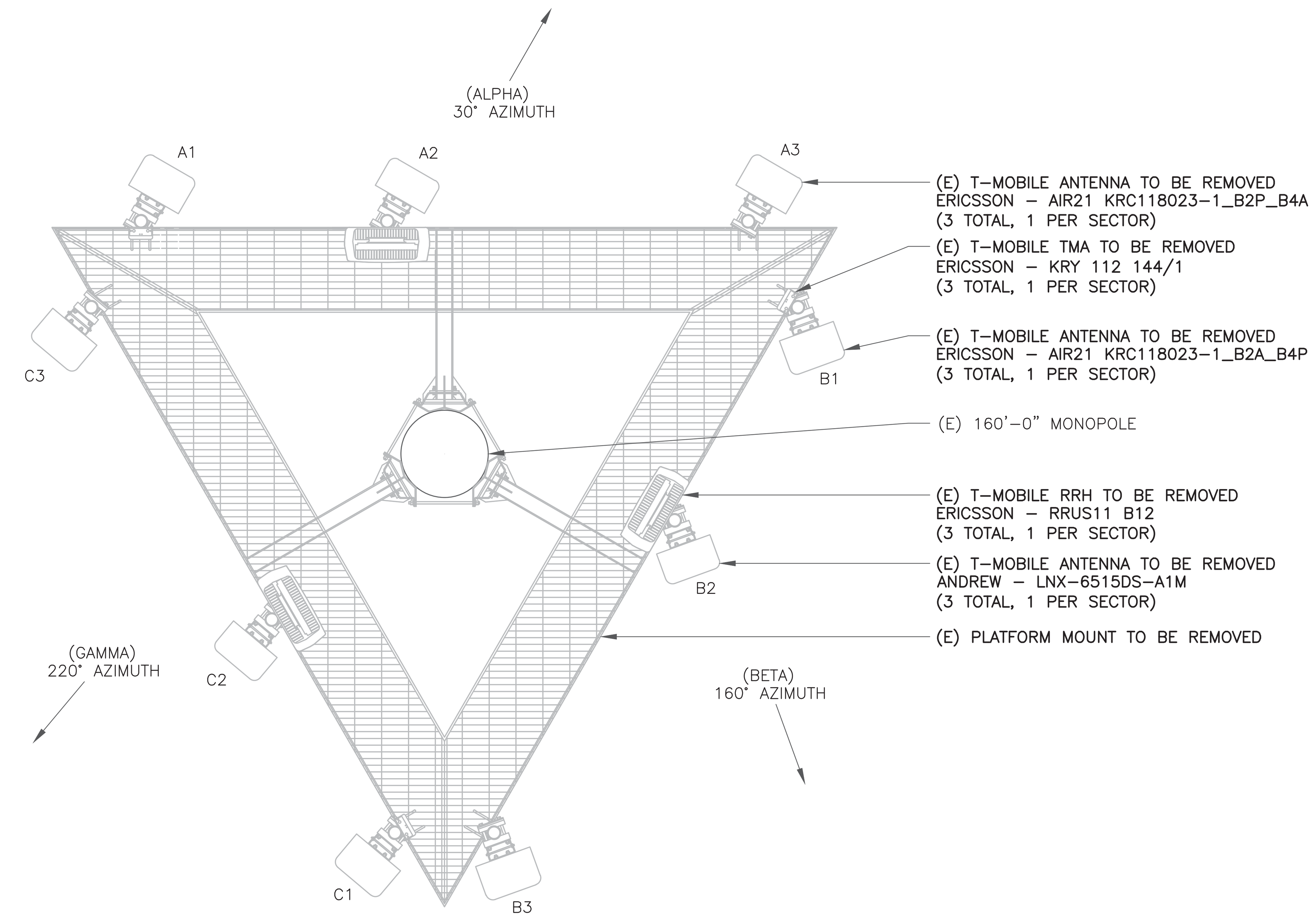


T-MOBILE EQUIPMENT

ANTENNA CL: 148'-0"
MOUNT CL: 148'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

1 FINAL ELEVATION
SCALE: 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)



2 EXISTING ANTENNA LAYOUT AT 127'-0" MCL
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

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T-MOBILE
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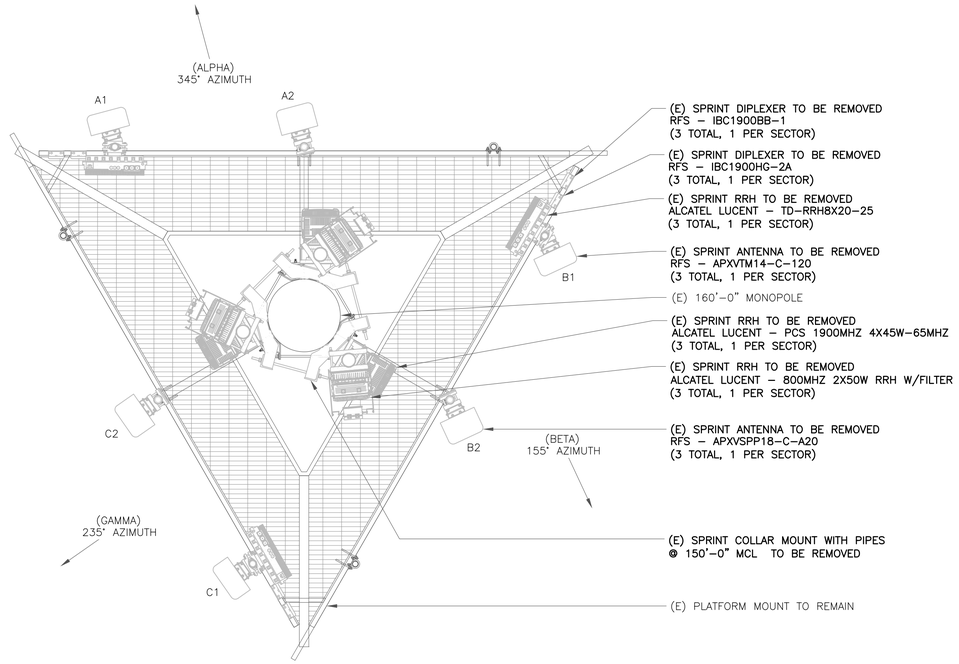
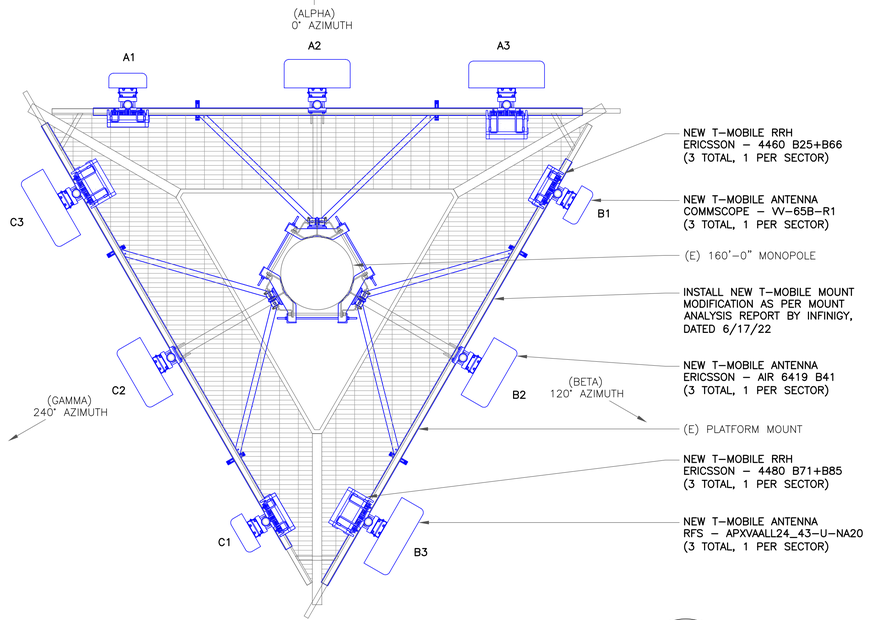
SHEET NUMBER: C-2
REVISION: 0



1 EXISTING ANTENNA LAYOUT AT 148'–0" MCL

SCALE: 2' 1' 0 2' 1/2"=1'–0" (FULL SIZE) 1/4"=1'–0" (11x17)



2 FINAL ANTENNA LAYOUT AT 148'–0" MCL

SCALE: 2' 1' 0 2' 1/2"=1'–0" (FULL SIZE) 1/4"=1'–0" (11x17)

INSTALLER NOTE:

NO PROPOSED LOADING TO BE ADDED UNTIL MOUNT MODIFICATIONS ARE INSTALLED PER MOUNT MODIFICATION DESIGN BY INFINIGY DATED JUNE 17, 2022.

INSTALLER NOTES:

CONTRACTOR SHALL RE–ORIENT ANTENNA MOUNT(s) AS NECESSARY TO ACHIEVE PROPOSED ANTENNA AZIMUTHS

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T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

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0	8/11/22	DAS	CONSTRUCTION	LR

MTS ENGINEERING P.L.L.C.
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Expires 3/31/23

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SHEET NUMBER: C-2.1

REVISION: 0

137177.016.01_WEST JOHNSON AVE.BURNT HOUSE.dwg – Sheet:C-2.1 – User: lisa.rider – Aug 11, 2022 – 1:52pm

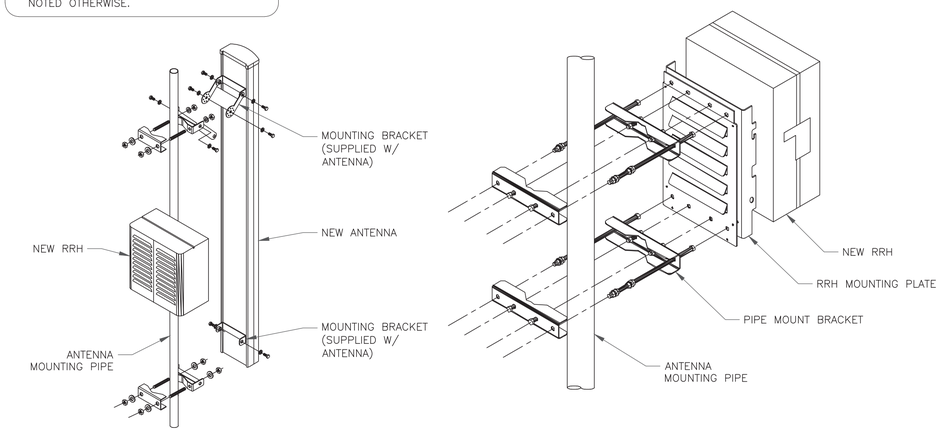
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L2100/L1900/ G1900	COMMSCOPE	VV-65B-R1	0°	0°	6°/6°	148'-0"	(1) ERICSSON – 4460 B25+B66	(1) 6/24 4AWG HYBRID
	A2	N2500/L2500	ERICSSON	AIR 6419 B41	0°	0°	2°/2°	148'-0"	–	
	A3	L700/L600/N600	RFS	APXVAALL24_43-U-NA20	0°	0°	2°/2°	148'-0"	(1) ERICSSON – 4480 B71+B85	
BETA	B1	L2100/L1900/ G1900	COMMSCOPE	VV-65B-R1	120°	0°	4°/4°	148'-0"	(1) ERICSSON – RADIO 4460 B25+B66	(1) 6/24 4AWG HYBRID
	B2	N2500/L2500	ERICSSON	AIR 6419 B41	120°	0°	2°/2°	148'-0"	–	
	B3	L700/L600/N600	RFS	APXVAALL24_43-U-NA20	120°	0°	2°/2°	148'-0"	(1) ERICSSON – 4480 B71+B85	
GAMMA	C1	L2100/L1900/ G1900	COMMSCOPE	VV-65B-R1	240°	0°	4°/4°	148'-0"	(1) ERICSSON – RADIO 4460 B25+B66	(1) 6/24 4AWG HYBRID
	C2	N2500/L2500	ERICSSON	AIR 6419 B41	240°	0°	2°/2°	148'-0"	–	
	C3	L700/L600/N600	RFS	APXVAALL24_43-U-NA20	240°	0°	2°/2°	148'-0"	(1) ERICSSON – 4480 B71+B85	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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SHEET NUMBER: C-3
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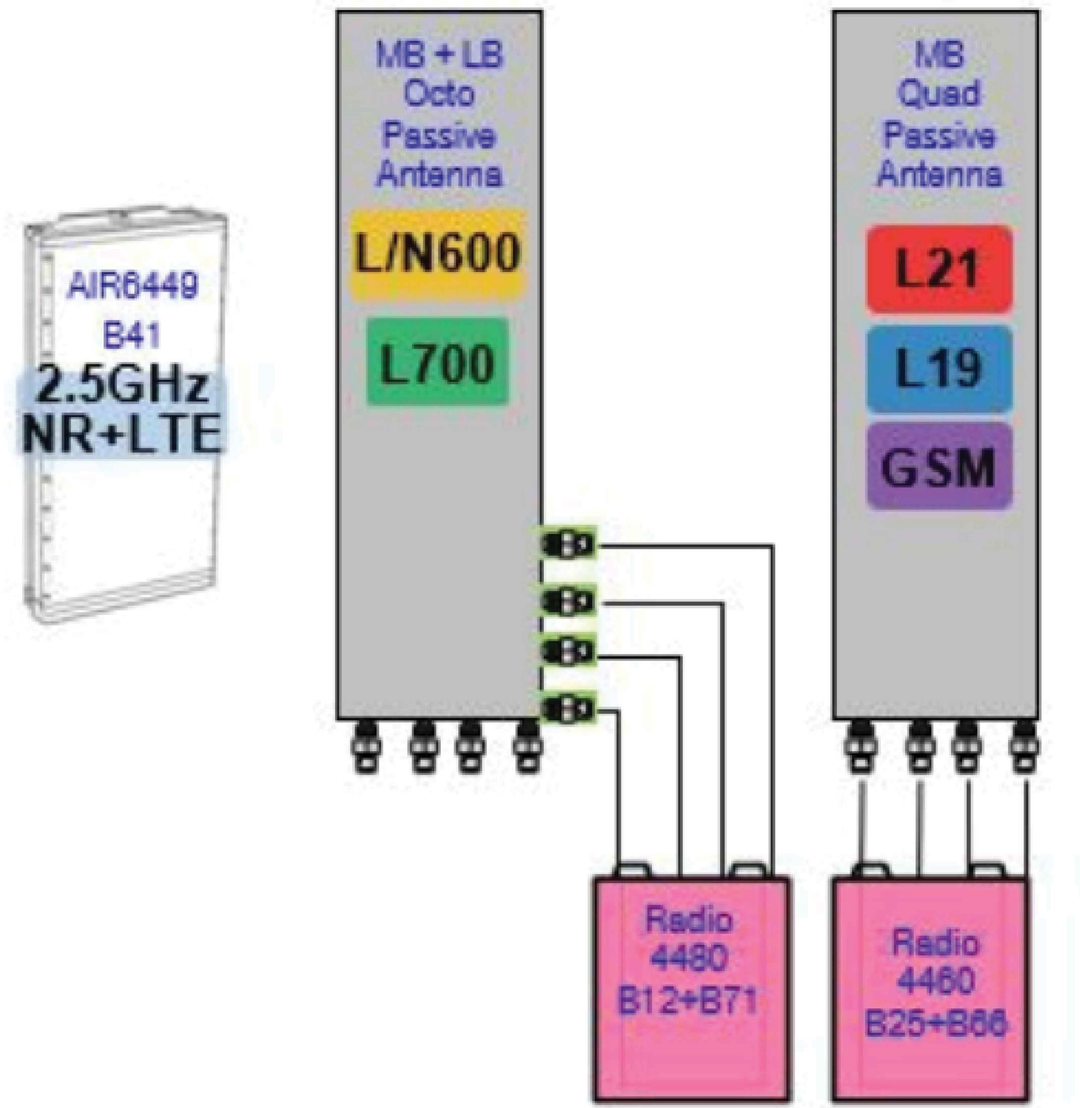

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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T-MOBILE
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STATE OF CONNECTICUT
No. 23024
LICENSED
PROFESSIONAL ENGINEER
8/11/22

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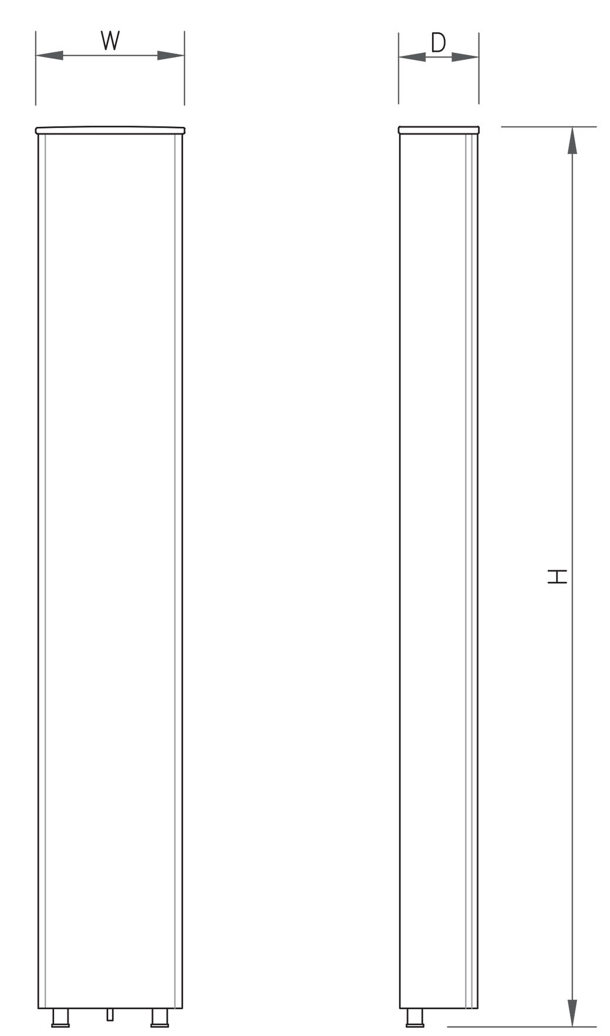
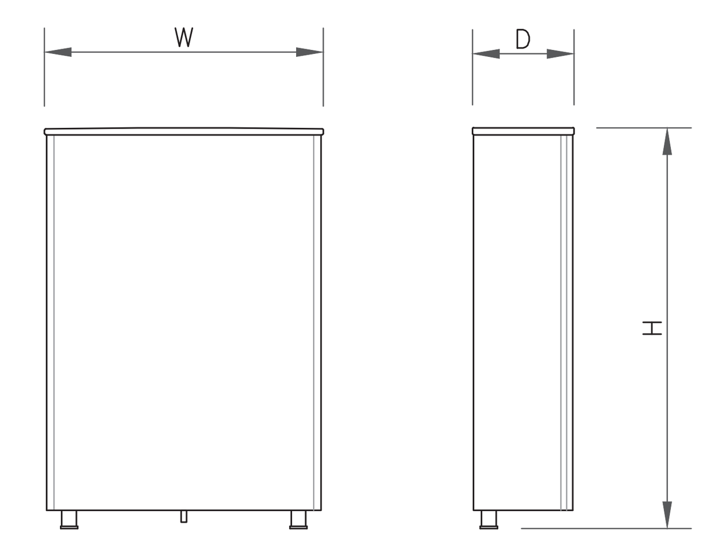
SHEET NUMBER: C-4
REVISION: 0



ANTENNA SPECS

MANUFACTURER	COMMSCOPE
MODEL #	VV-65B-R1
WIDTH	12.01"
DEPTH	4.65"
HEIGHT	70.35"
WEIGHT	41.67 LBS

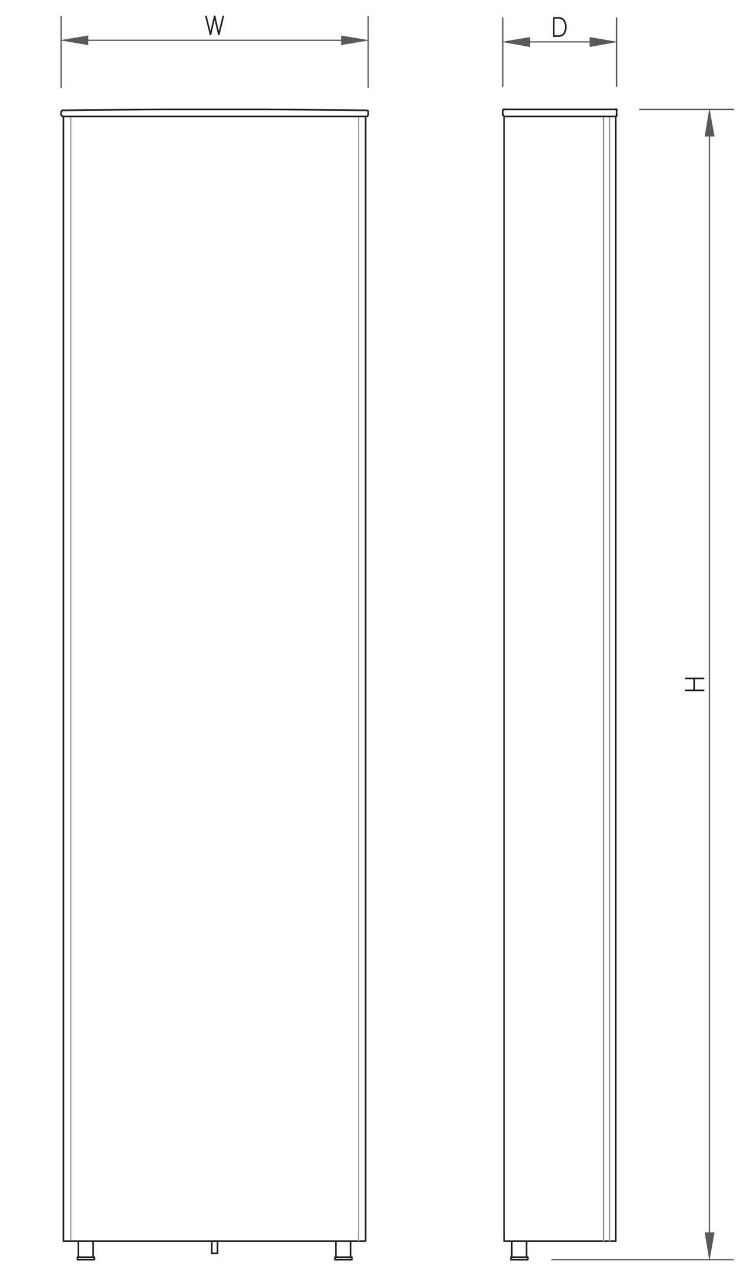
1 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS

MANUFACTURER	ERICSSON
MODEL #	AIR 6419 B41
WIDTH	20.91"
DEPTH	9.02"
HEIGHT	36.25"
WEIGHT	96.50 LBS

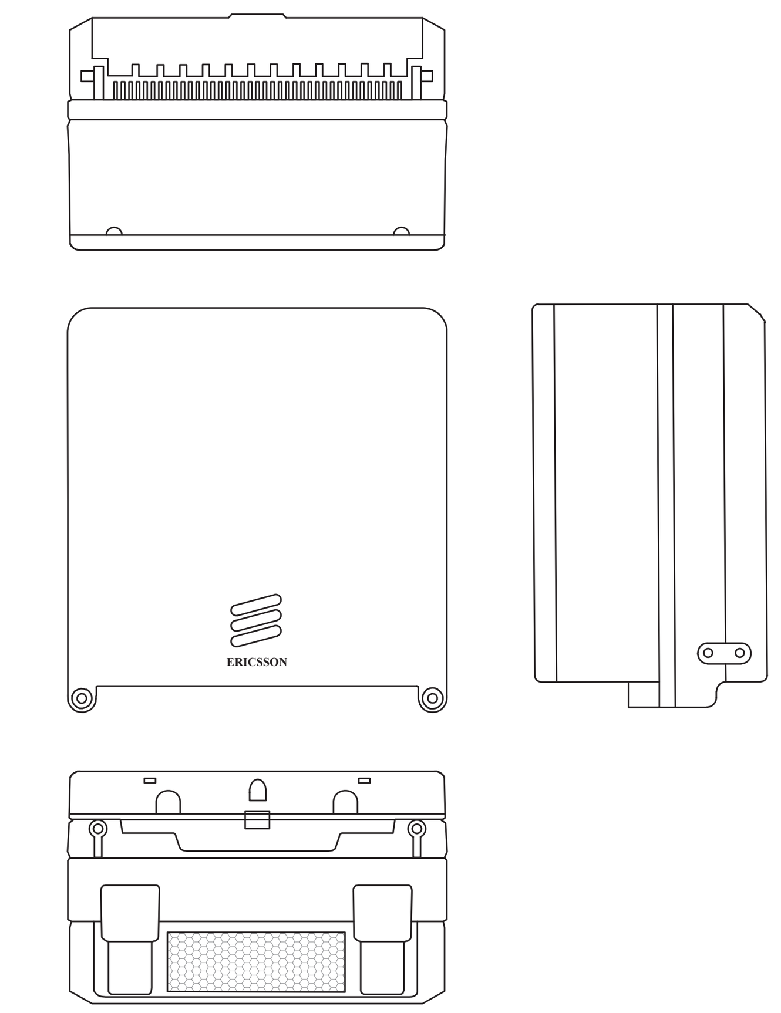
2 ANTENNA SPECS
SCALE: NOT TO SCALE



ANTENNA SPECS

MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24"
DEPTH	8.5"
HEIGHT	95.9"
WEIGHT	149.9 LBS

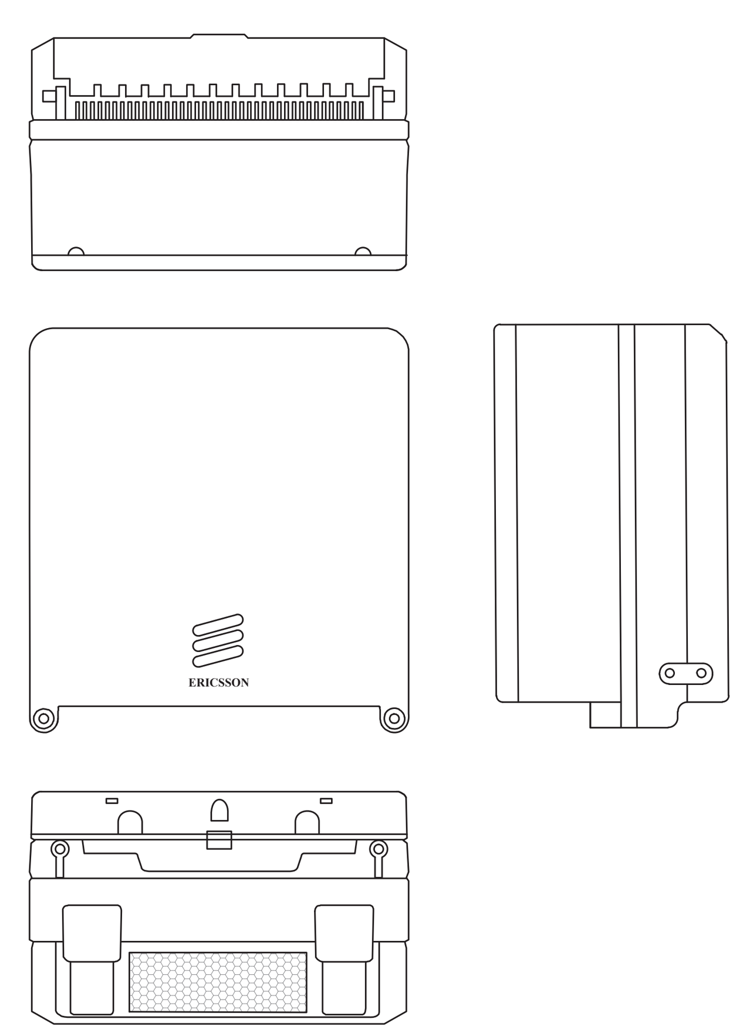
3 ANTENNA SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS

MANUFACTURER	ERICSSON
MODEL #	4460 B25+B66
WIDTH	15.10"
DEPTH	11.9"
HEIGHT	17.0"
WEIGHT	109.0 LBS

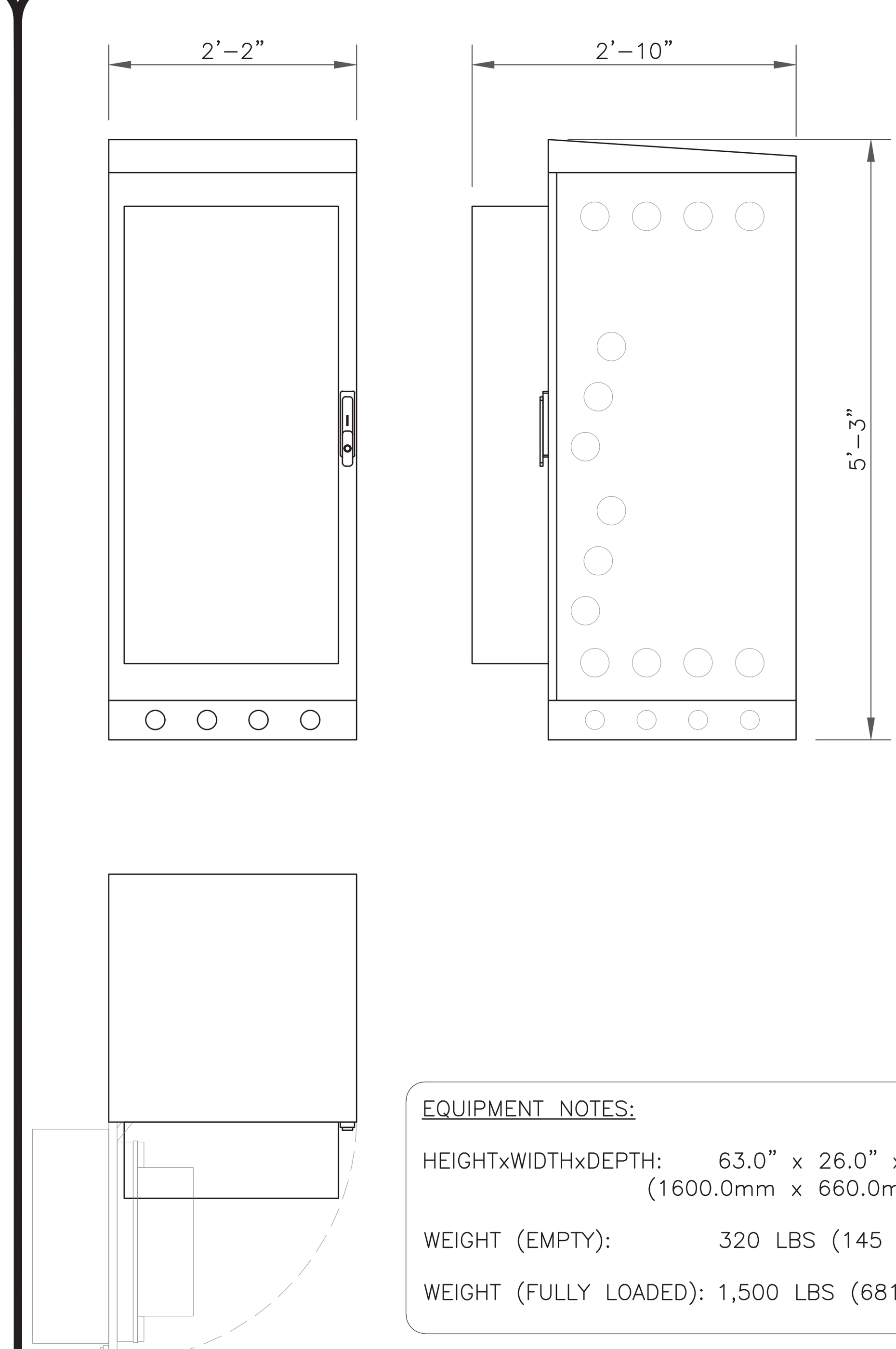
4 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS

MANUFACTURER	ERICSSON
MODEL #	4480 B71+B85
WIDTH	15.7"
DEPTH	7.5"
HEIGHT	22"
WEIGHT	81.0 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



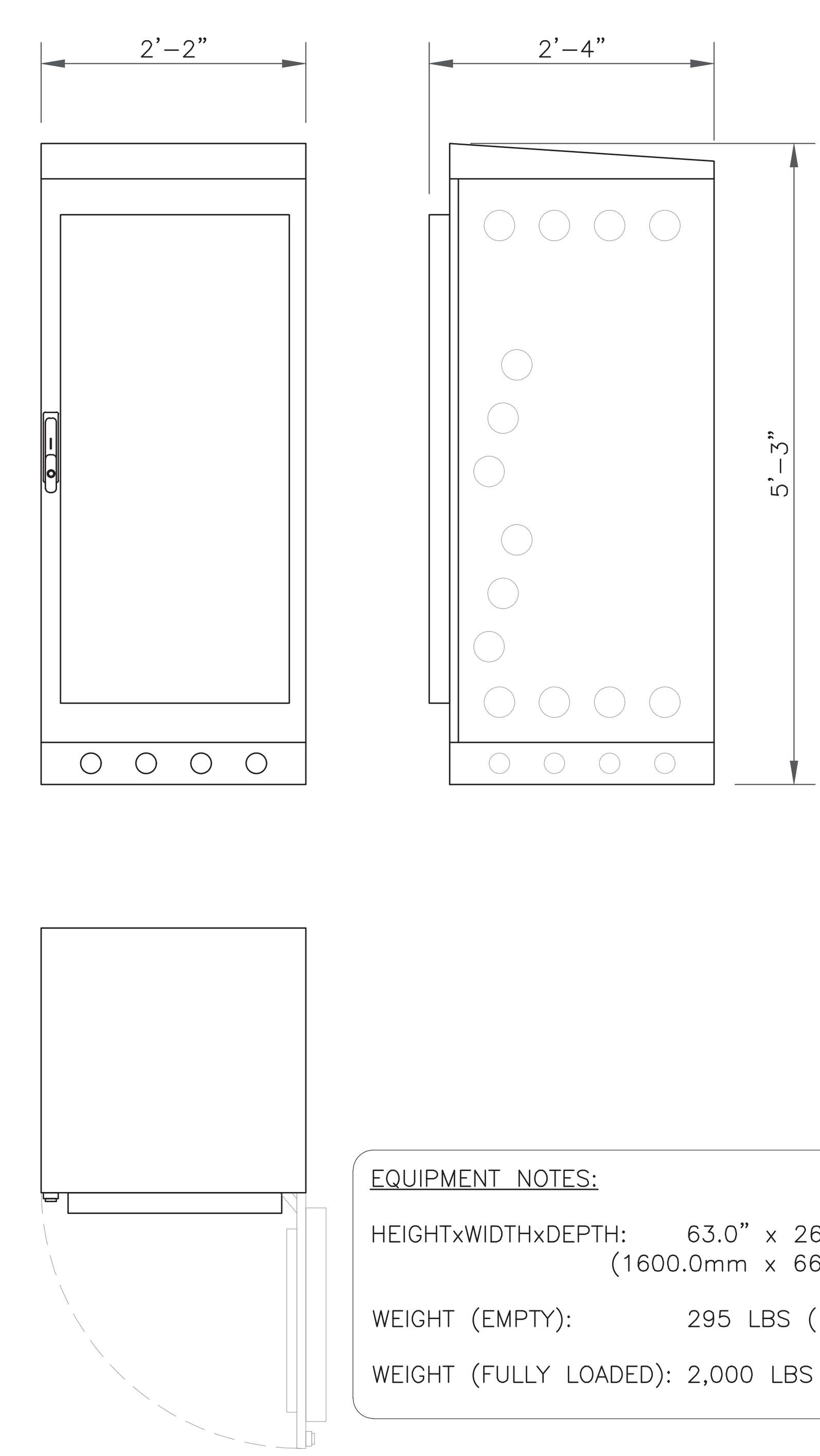
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 34.0" (1600.0mm x 660.0mm x 864.0mm)

WEIGHT (EMPTY): 320 LBS (145 kg)

WEIGHT (FULLY LOADED): 1,500 LBS (681 kg)

6 ERICSSON – 6160
SCALE: NOT TO SCALE



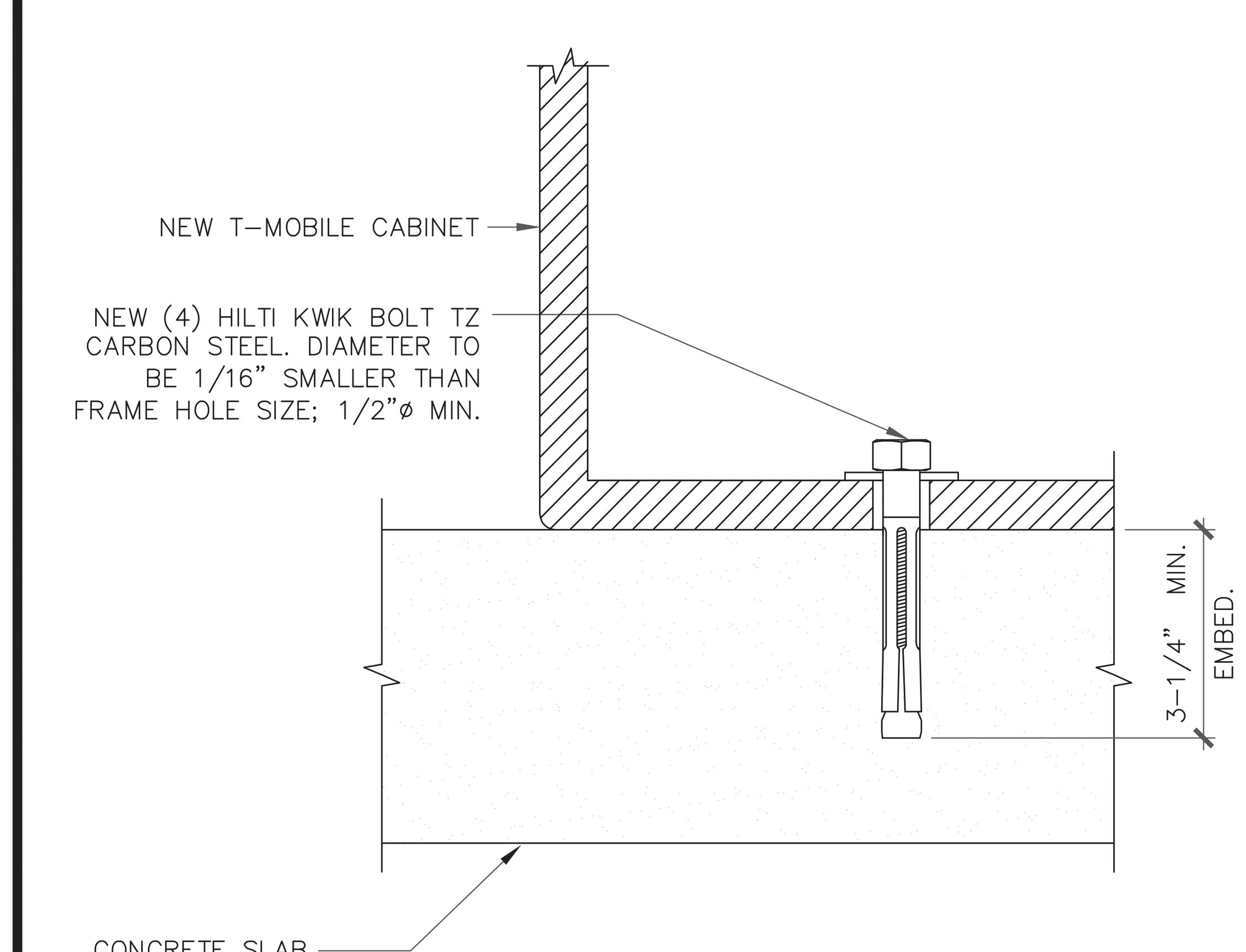
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 28.0" (1600.0mm x 660.0mm x 711.0mm)

WEIGHT (EMPTY): 295 LBS (134 kg)

WEIGHT (FULLY LOADED): 2,000 LBS (908 kg)

7 ERICSSON – B160
SCALE: NOT TO SCALE



8 CABINET ANCHOR DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
MTS ENGINEERING, P.L.L.C.
1717 S. BOULDER,
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
btwo@btgrp.com

T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-5
REVISION: 0

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
			1	2	30A	2	SURGE
			3	4			
			5	6			
			7	8			
			9	10	125A	2	6160
GFCI	1	20A	11	12			
			13	14			
			15	16			
			17	18			
			19	20	100A	2	6131
LIGHT + GFI	1	20A	21	22			
			23	24			

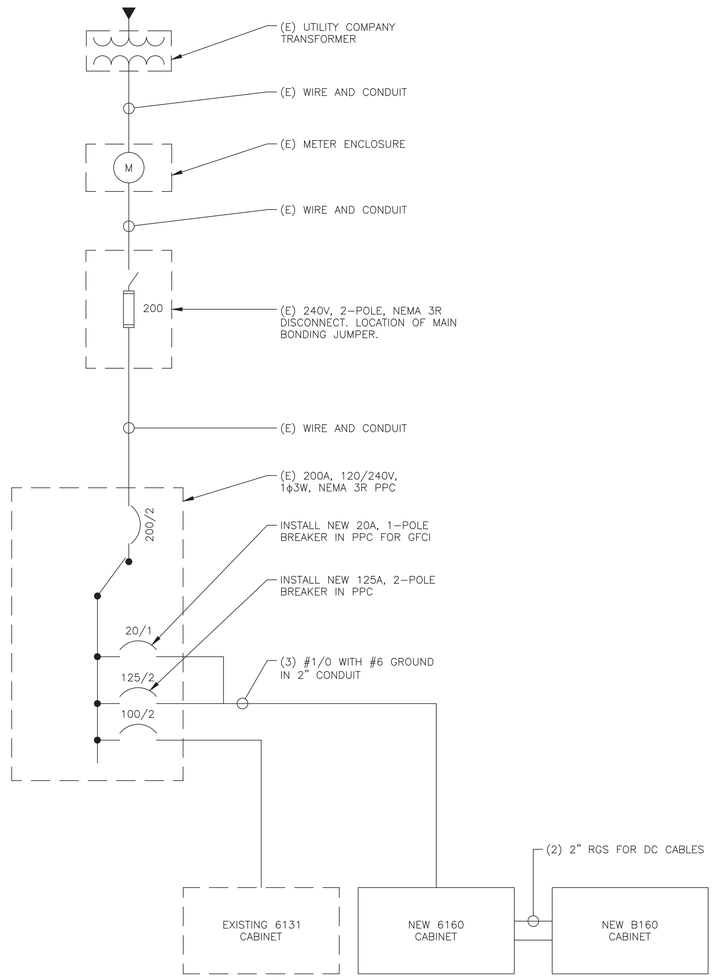
RATED VOLTAGE: ■120/240 □_____. 1 PHASE, 3 WIRE		BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_____.		CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
□MAIN LUGS ONLY	MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
□FUSED ■CIRCUIT BREAKER	BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS / GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL			

REPLACE EXISTING BREAKERS IN POSITIONS 10 AND 12 WITH A NEW 2P 125A BREAKER
INSTALL NEW 1P 20A BREAKER IN POSITION 11
INSTALL NEW WIRING FOR NEW 6160 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
MTS ENGINEERING, P.L.L.C.
1717 S. BOULDER,
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
btwc@btgrp.com

T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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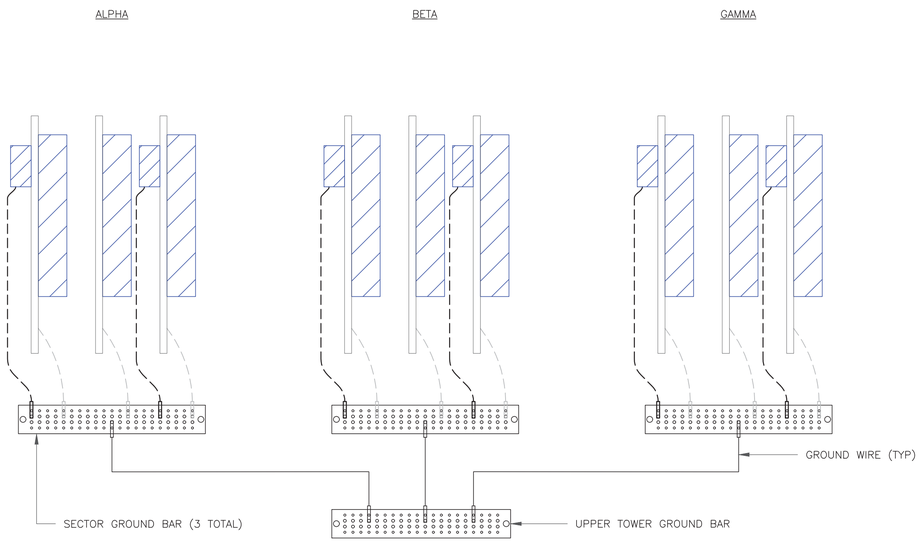
SHEET NUMBER: E-1

REVISION: 0



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile

4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP

MTS ENGINEERING, P.L.L.C.
1717 S. BOULDER,
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
btwc@btgrp.com

T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

STATE OF CONNECTICUT
CHRISTOPHER
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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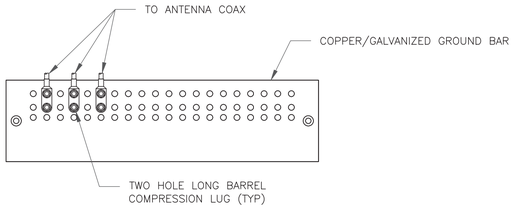
SHEET NUMBER: G-1

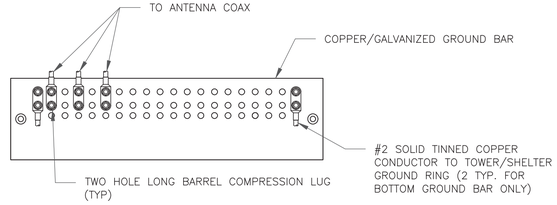
REVISION: 0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

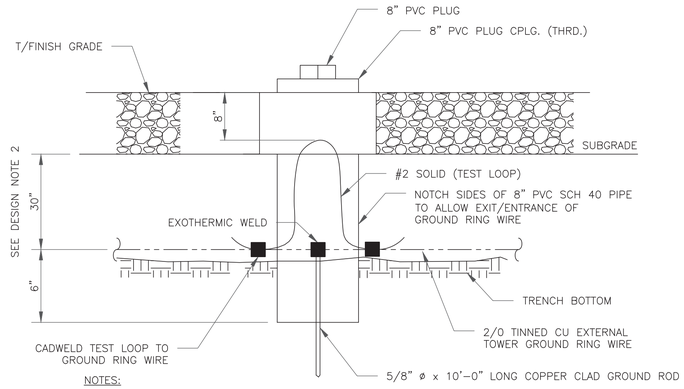
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

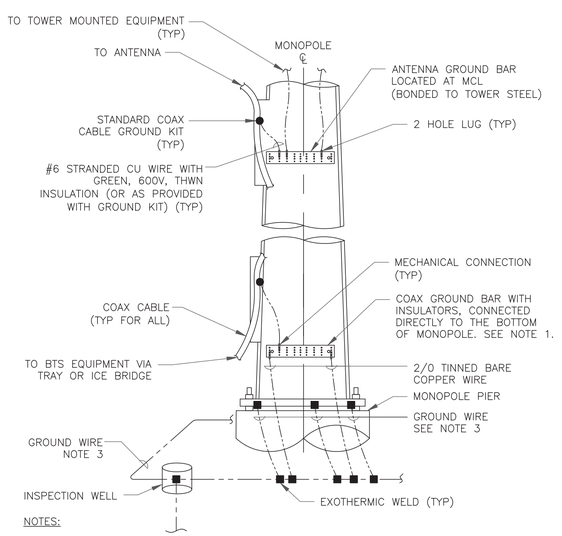
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

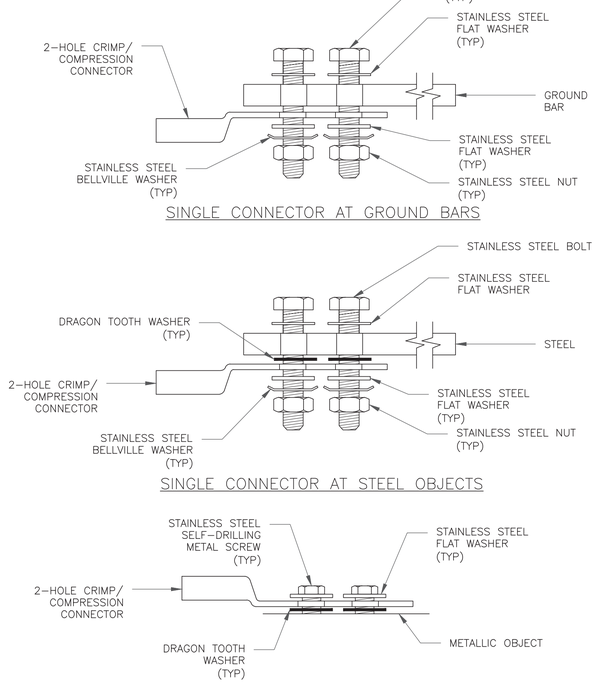
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



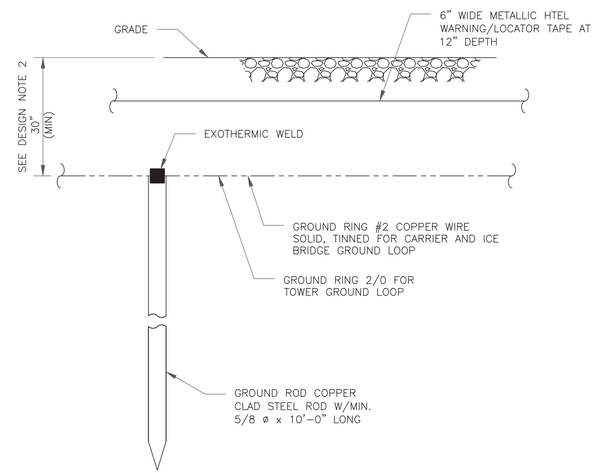
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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1717 S. BOULDER,
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TULSA, OK 74119
PH: (918) 587-4630
btwc@btgrp.com

T-MOBILE
SITE NUMBER: **CT11453C**

BU #: **876313**
WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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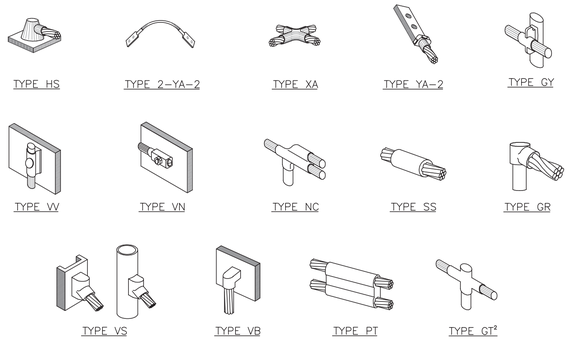
SHEET NUMBER: G-2
REVISION: 0

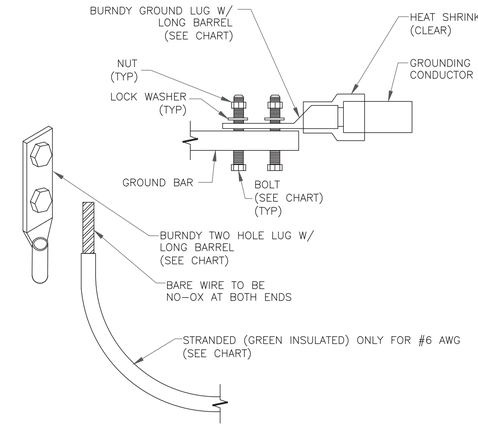


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

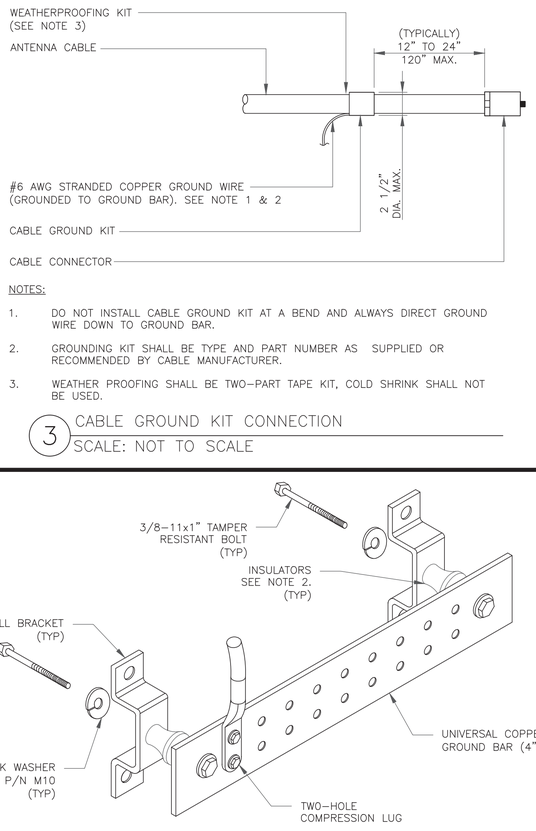
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

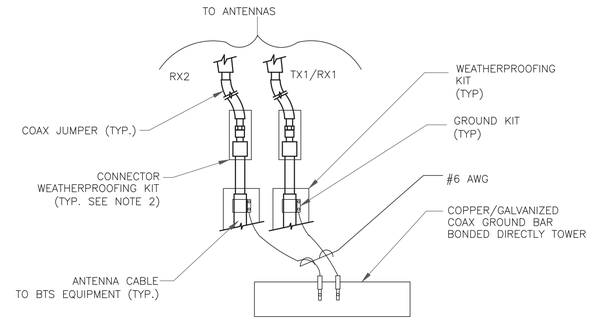
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

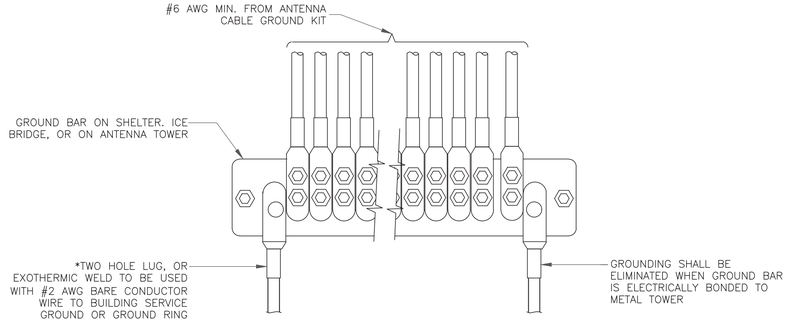
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



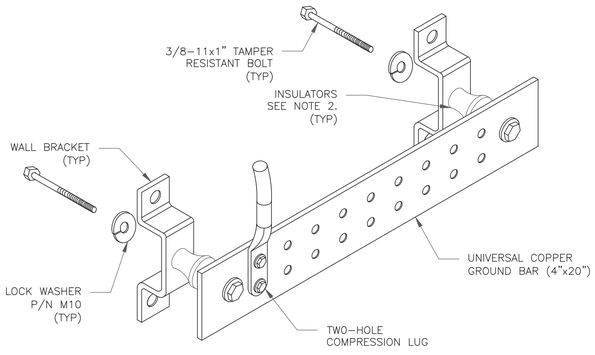
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



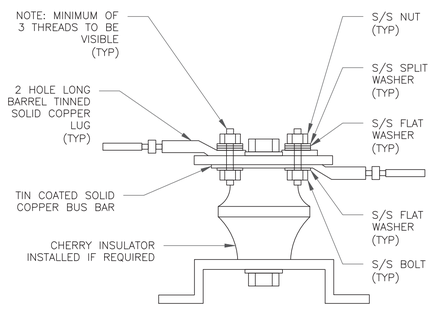
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



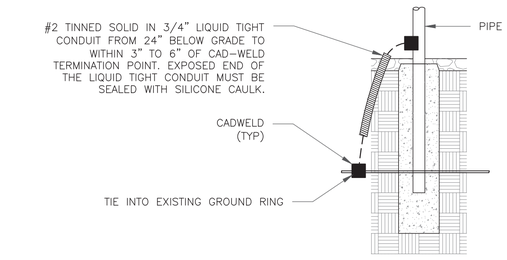
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
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T-MOBILE
SITE NUMBER: **CT11453C**

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WEST JOHNSON AVE. BURNT HOUSE

1394 MERIDEN WATERBURY TPK
SOUTHINGTON, CT 06489

EXISTING
160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/18/22	YX	PRELIMINARY REVIEW	LR
0	8/11/22	DAS	CONSTRUCTION	LR

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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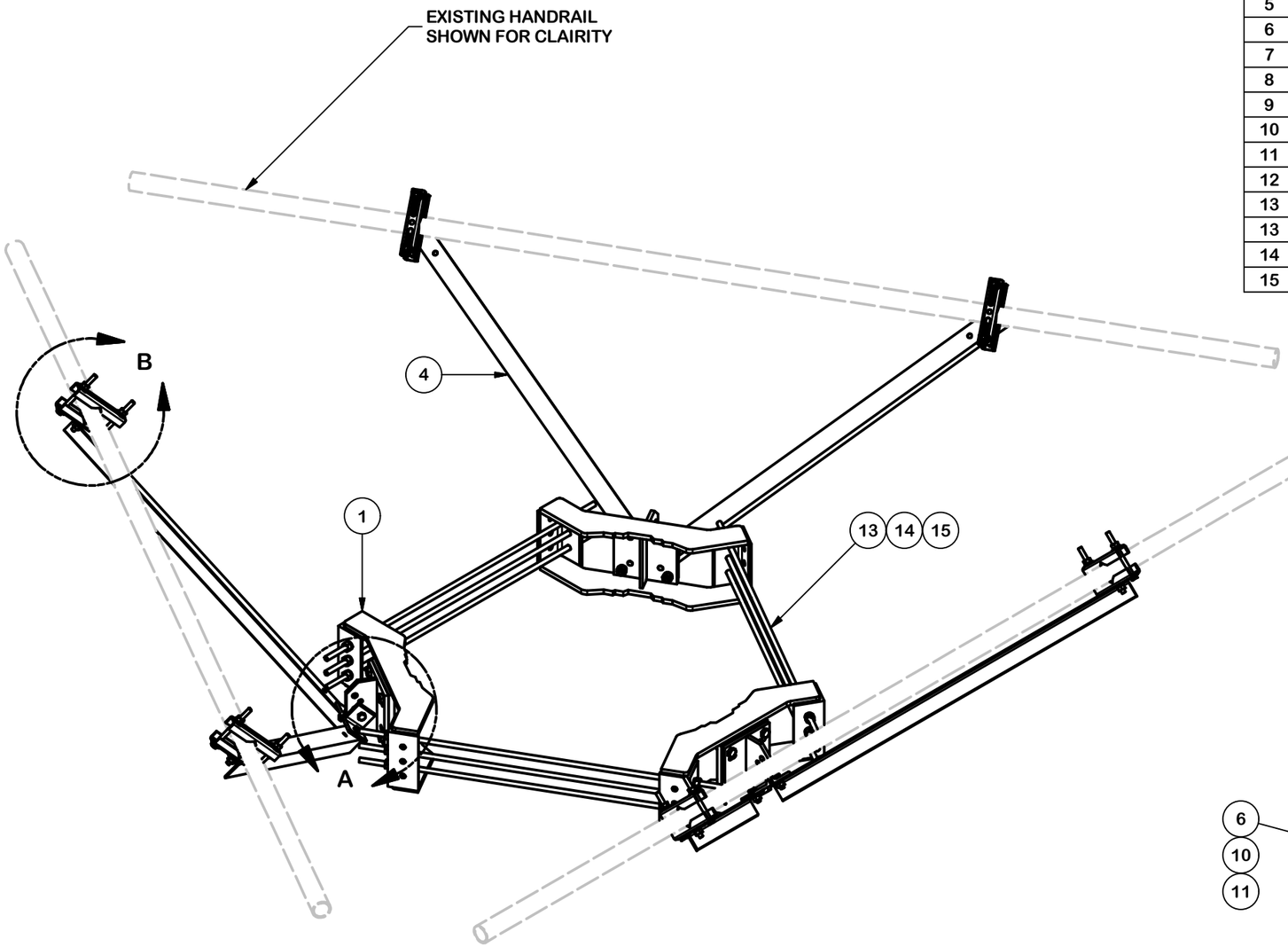
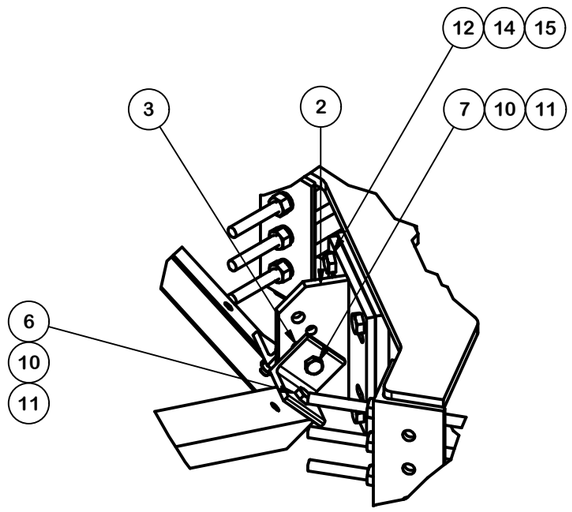
SHEET NUMBER: G-3

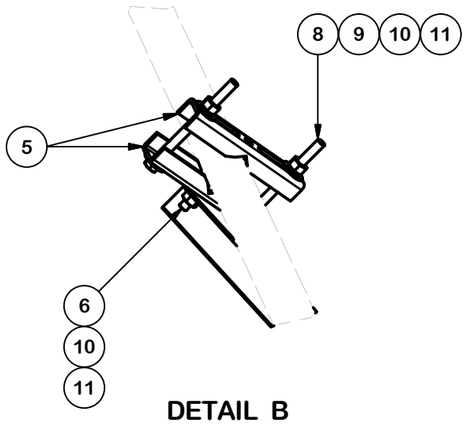
REVISION: 0

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
4	6	X-232697	TRPD-HD DIAGONAL ANGLE - SITE PRO 1	52 1/2 in	14.35	86.08
5	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	587.71





DETAIL A



DETAIL B

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/23/2017

REVISION HISTORY

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION: HANDRAIL REINFORCEMENT KIT

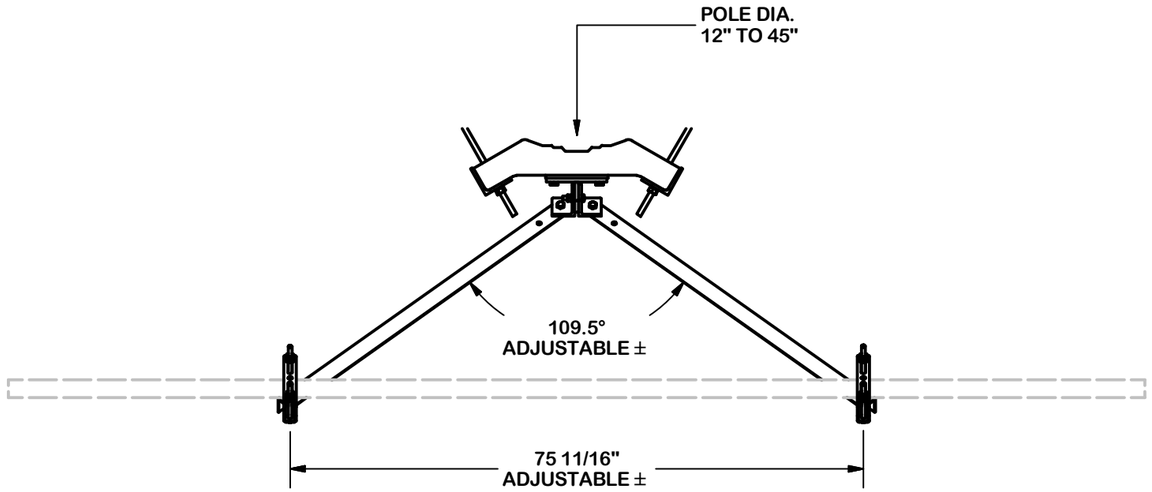
SITE PRO 1 — A valmont COMPANY

Engineering Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

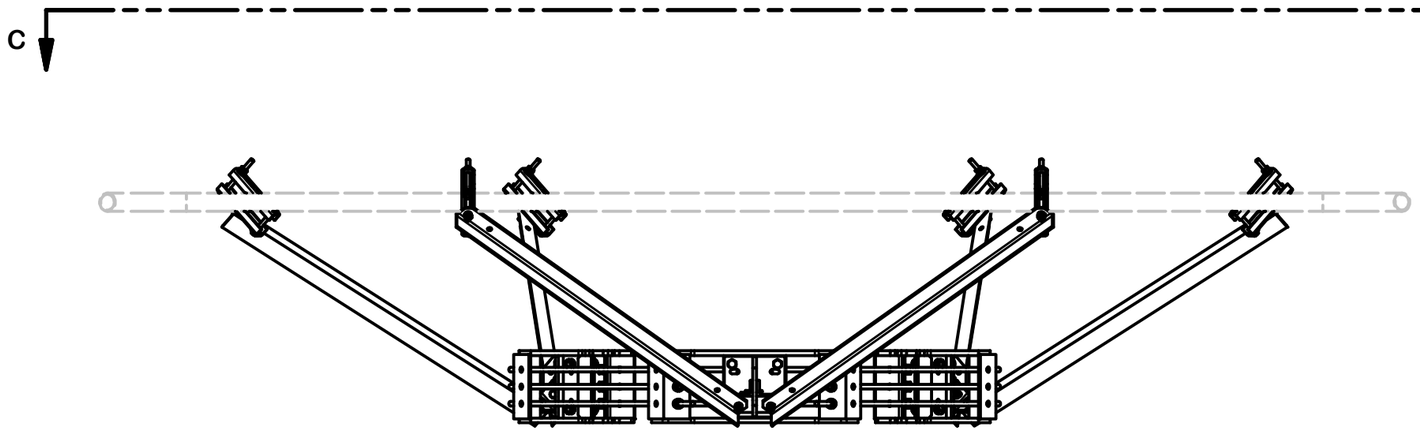
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS	1 OF 3

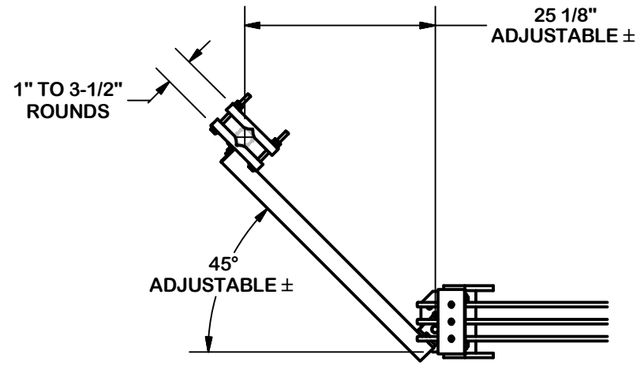
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 3/16/2017	PRK-SFS



PARTIAL VIEW C-C

VERTICAL POSITION





PARTIAL VIEW D-D

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

PROPRIETARY NOTE:
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REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/23/2017

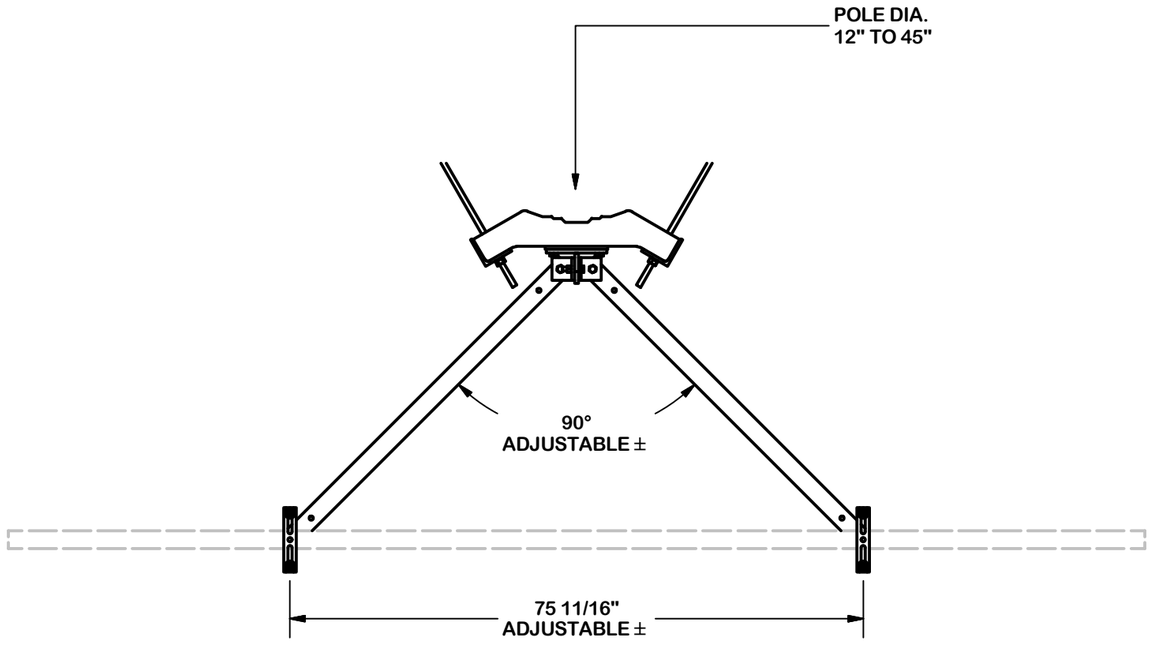
REVISION HISTORY

DESCRIPTION
HANDRAIL REINFORCEMENT KIT

SITE PRO 1
A valmont COMPANY
Engineering Support Team:
1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

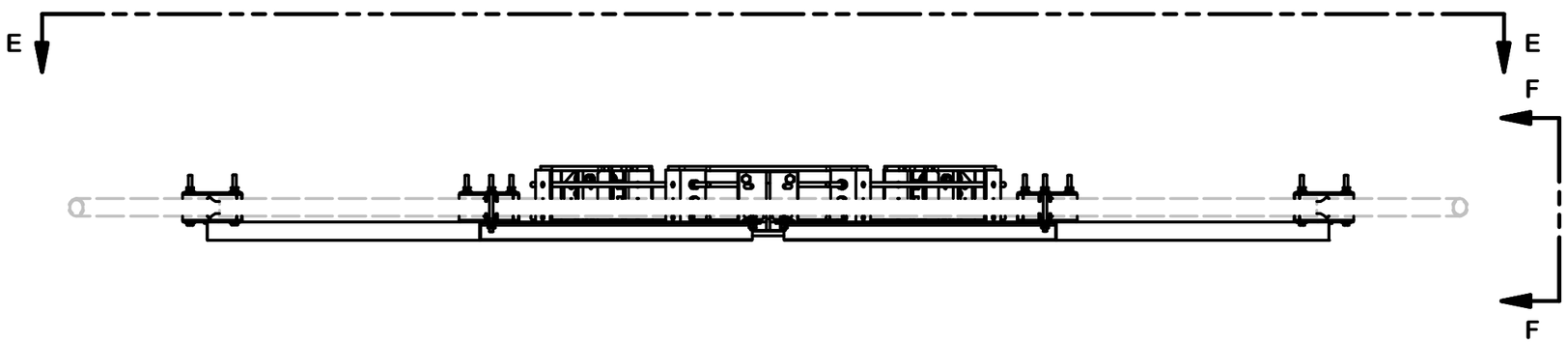
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS

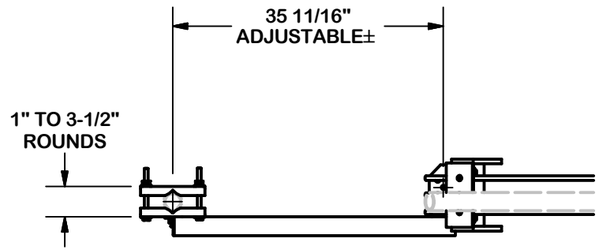
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 3/16/2017	PRK-SFS



PARTIAL VIEW E-E

HORIZONTAL POSITION





PARTIAL VIEW F-F

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/23/2017

REVISION HISTORY

PROPRIETARY NOTE:
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DESCRIPTION: HANDRAIL REINFORCEMENT KIT

SITE PRO 1 — A valmont COMPANY

Engineering Support Team:
1-888-753-7446

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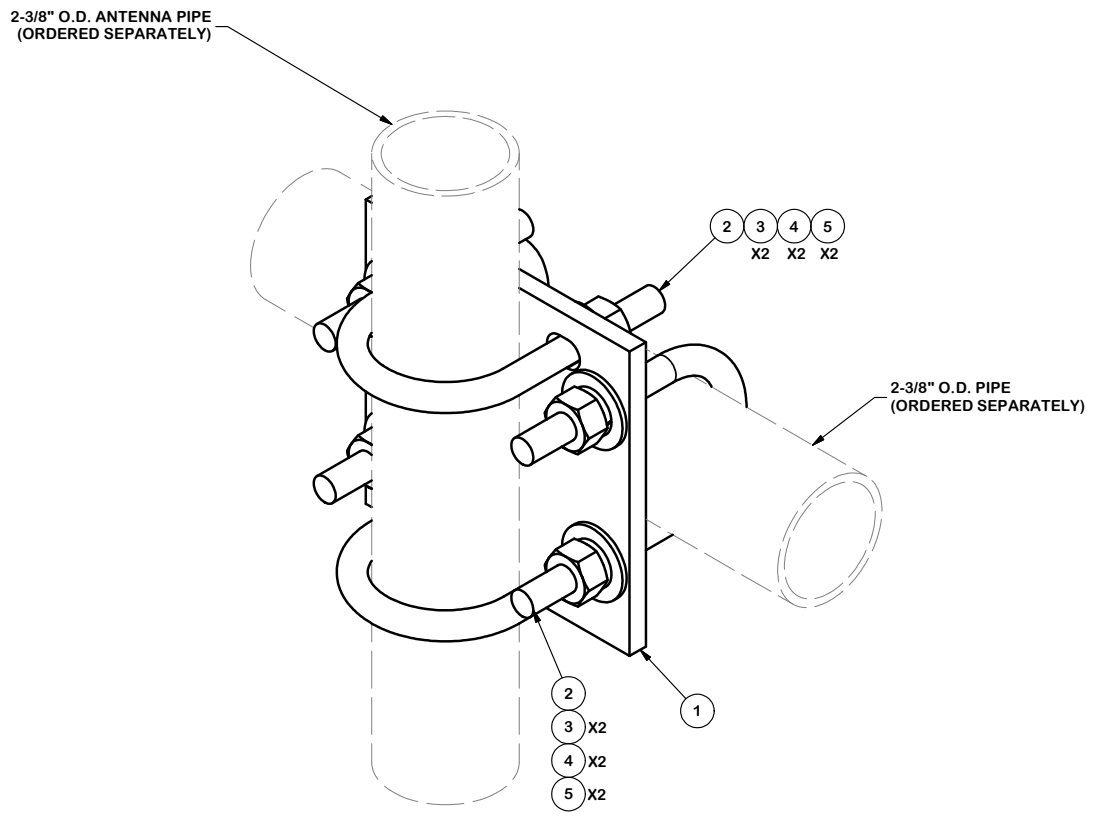
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 3/16/2017	PRK-SFS

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"		3.71	3.71
2	4	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	2.50
3	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
4	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
5	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
					TOTAL WT. #	7.16



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	ADDED MISSING U-BOLT AND HRDWE		KC8	7/5/2012

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

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DESCRIPTION: CROSSOVER PLATE

CPD NO.:

DRAWN BY: CEK 6/30/2011

ENG. APPROVAL:

PART NO.: SCX1-K

CLASS: 81 SUB: 01

DRAWING USAGE: CUSTOMER

CHECKED BY: CEK 8/23/2012

DWG. NO.: SCX1-K

PAGE 1 OF 1

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