



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

September 13, 2021

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

RE: **Notice of Exempt Modification for T-Mobile:**
807132-T-Mobile Site ID: CT11091A
1081 North Street, Greenwich, CT 06831
Latitude: 41° 8' 21.50" / Longitude: -73° 38' 30.54"

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 145-foot mount on the existing 175-foot monopole tower located at 1081 North Street, Greenwich, CT. The property and cell tower are owned by Crown Castle. T-Mobile now intends to add three (3) new antennas and ancillary equipment at the 145ft level. 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:

- (3) Ericsson – AIR6449 B41 Antennas
- (3) Ericsson Radio 4460 B25 + B66 Remote Radios
- (2) Ericsson Hybrid Cables 6X24
- (1) Site Pro Platform Mount

Remove:

- (3) Ericsson – RRUS11 B4
- (3) Ericsson – RRUS01 B2
- (1) Hybrid Cable (9x18)
- (1) Ring Mount

Ground:

Install New:

- (1) Concrete Pad extension (1'-6" x 8'-0")
- (1) 6160 SSC Cabinet
- (1) B160 Battery Cabinet
- (1) CSR IXRE V2 Router
- (1) PSU4813 Voltage Booster
- (1) BB6648 IN 6160 SSC Cabinet

The Foundation for a Wireless World.

CrownCastle.com

Remove:

(1) DUW30

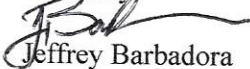
The facility was approved by the Connecticut Siting Council on February 17, 1988. The approval was given with conditions which this exempt modification comply with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The First Selectman, Mr. Fred Camillo, for the Town of Greenwich and The Director of Planning & Zoning, Ms. Katie DeLuca. Crown Castle is the property and 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

Westborough, MA 01581

(781) 970-0053

Jeff.Barbadora@crowncastle.com

Melanie A. Bachman

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Attachments

cc:

Fred Camillo, First Selectman
Town of Greenwich, Selectman's Office
101 Field Point Road
Greenwich, CT 06830
203.622.7710

Katie DeLuca, AICP, Director of Planning
Town of Greenwich, Planning & Zoning
101 Field Point Road
Greenwich, CT 06830
203.622.7894

Crown Castle, Tower and Property Owner

DOCKET NO. 86 - An application of Metro : Connecticut
Mobile CTS of Fairfield County, Inc.,
for a Certificate of Environmental Siting
Compatibility and Public Need for Council
cellular telephone antennas and
associated equipment in the Towns of
Greenwich, and Fairfield, Connecticut. February 17, 1988

DECISION AND ORDER

Pursuant to the forgoing opinion, the Connecticut Siting Council hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS) be issued to Metro Mobile CTS of Fairfield County, Inc. (Metro Mobile) for the construction, operation, and maintenance of cellular telephone tower sites and associated equipment at the "Greenwich AC/A" site off of North Street in Greenwich, and "Fairfield DE/A" site off of Wood House Road in Fairfield.

The proposed "Greenwich A" Riversville site, "Greenwich AC" Rockwood Lake site, and "Fairfield DE" sites are hereby denied.

The facilities shall be constructed, operated, and maintained as specified in the Council's record in this matter, and subject to the following conditions:

1. The monopole tower at the "Greenwich AC/A" Banksville site shall be no taller than necessary to provide the proposed service, and in no event shall exceed a total height of 213 feet, including antennas and associated equipment.
2. The monopole tower at the "Fairfield DE/A" site shall be no taller than necessary to provide the proposed service, and in no event shall exceed a total height of 173 feet, including antennas.

3. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
4. Unless necessary to comply with condition number 3, above, no lights shall be installed on these towers.
5. The Certificate Holder shall prepare development and management (D&M) plans for the Greenwich and Fairfield sites in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plans shall provide for evergreen screening around the outside perimeters of the eight-foot chain link fences which will surround the sites.
6. The Certificate Holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application are added to these facilities.
7. The Certificate Holder or its successor shall permit public or private entities to share space on the Greenwich and Fairfield towers for due consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
8. If these facilities do not provide, or permanently cease to provide, cellular service following completion of construction, this Decision and Order

shall be void, and the towers and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

9. The Certificate Holder shall comply with any future radio frequency (RF) standards promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF Standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.
10. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision and Order.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of this Decision and Order be served on each person listed below. A notice of issuance shall be published in the Greenwich Time, the Advocate, the Norwalk Hour, and Bridgeport Post.

By this Decision and Order the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties or intervenors to this proceeding are:

Metro Mobile CTS of Fairfield County, Inc. (Applicant)
50 Rockland Street
South Norwalk, CT 06854

ATTN: Peter Kelley, Vice President
Michael Riley, General Manager

Howard L. Slater, Esq. (Its Attorneys)
Jennifer Young Gaudet, Esq.
Byrne, Slater, Sandler,
Schulman & Rouse, P.C.
330 Main Street - PO Box 3216
Hartford, CT 06103

Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, D.C. 20036

ATTN: Richard Rubin, Esq.

SNET Cellular, Inc.

Intervenor

Peter J. Tyrrell, Esq. (Its Attorney)
Senior Attorney
SNET Cellular, Inc.
227 Church Street
New Haven, CT 06506

Joan Koloski (Intervenor)
11 Turner Lane
Wilton, CT 06897

Town of Wilton Party

Louis H. Reens (Its Representative)
Second Selectman
Town of Wilton
Town Hall
238 Danbury Road
Wilton, CT 06897

Joseph C. Lee, Esq.
Alice A. Bruno, Esq.
Tyler Cooper & Alcorn
205 Church Street
PO Box 1936
New Haven, CT 06509

(Its Attorneys)

David A. Schorsch

Party

Holly K. Dustin, Esq.
Albert, Pastore & Ward, P.C.
Attorneys At Law
125 Mason Street
PO Box 16668
Greenwich, CT 06636

(Its Attorney)

Ms. Rita Shannon

Party

Stephen J. Adams, Esq.
Attorney At Law
23 Ash Street
Fairfield, CT 06430

(Its Attorney)

Robert E. Sheriden, Jr.
Irene T. Sheriden
49 Quail Ridge Road
Wilton, CT 06897

Parties

John C. Parker
Attorney At Law
16 Cricket Lane
PO Box 548
Wilton, CT 06897

(Its Attorney)

Margaret A. Doheny
Joseph A. Charles

Parties

Robert P. Scholl
Attorney At Law
31 Imperial Avenue
Westport, CT 06880

(Its Attorney)

Robert E. Tomasson
355 Riversville Road
Greenwich, CT 06831

Party

The Hon. Fred H. Lovegrove, Jr.
State Senator
431 Catamount Road
Fairfield, CT 06430
(Service Waived)

Party

Ogden Bigelow
25 Hidden Lake Road
Wilton, CT 06897

Party

William F. Brennan
41 Hunting Ridge Lane
Wilton, CT 06897
(Service Waived)

Intervenor

John Cole
79 Warncke Road
Wilton, CT 06897
(Service Waived)

Intervenor

Ms. Kyle Cahill
140 Catalpa Road
Wilton, CT 06897
(Service Waived)

Intervenor

John B. Rust
2674 Congress Street
Fairfield, CT 06430
(Service Waived)

Intervenor

Patrick Byrne
2525 Hillside Road
Fairfield, CT 06430
(Service Waived)

Party

Town of Fairfield

Party

Paul Martin Tymniak
Attorney At Law
1512 Post Road
PO Box 1051
Fairfield, CT 06430

(Its Attorney)

PEACE, Inc.

Party

Ann M. Caggiano
President
PEACE, Inc.
33 Honey Hill Trail
Wilton, CT 06897

(Its Representative)

Dr. Saud M.A. Shawwaf

Party

Charles K. Campbell, Jr.
Linda Chiswick, Esq.
Cummings and Lockwood
Attorneys At Law
Ten Stamford Forum
PO Box 120
Stamford, CT 06904

(Its Attorneys)

Easton Construction Company, Inc.

Party

William J. Fitzpatrick, III
Fitzpatrick & Fray
Attorneys At Law
1238 Post Road
PO Box 278
Fairfield, CT 06430

(Its Attorneys)

Town of Greenwich

Party

John Margenot
First Selectman
Town of Greenwich
Town Hall
101 Field Point Road
PO Box 1249
Greenwich, CT 06830

(Its Representative)

John Gerli
44 South Stanwich Road
Greenwich, CT 06830
(Service Waived)

Party

Michael L. Tarnapol
Lynn Tarnapol

(Parties)

Alan R. Spirer
Spirer, Nasser & Marcus
253 Post Road West
PO Box 5201
Westport, CT 06881

(Its Attorney)

Iona Drescher
65 Audubon Lane
Fairfield, CT 06430
(Service Waived)

Intervenor

Robert N. Ettlinger
Rosemarie K. Ettlinger

Parties

Thomas F. Hartch
Hartch and Calhoun
Attorneys At Law
193 Field Point Road
Greenwich, CT 06830

(Its Attorney)

The Estate of Mathilde B. Vasileff

Party

Thor L. Crone
Avery & Crone
Attorneys and Counsellors At Law
25 Third Street
Stamford, CT 06905

(Its Attorney)

Joan Caldwell
Robert Tommasson

Parties

Robert Davidson
Davidson, Driscoll and Naylor
Attorneys At Law
544 Riverside Avenue
Box 191
Westport, CT 06881

(Its Attorney)

Rockwood Neighbors Association

Party

Stephan T. Vehslage
President
Rockwood Neighbors Association
40 South Stanwich Road
Greenwich, CT 06830

Daniel Karrell
2 Skyridge Road
Greenwich, CT 06830
(Service Waived)

0994E

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 86 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 17th day of February, 1988.

<u>Council Members</u>	<u>Vote Cast</u>
<u>Gloria Dibble Pond</u> Gloria Dibble Pond Chairperson	Yes
<u>Roland A. Miller</u> Commissioner Peter Boucher Designee: Roland Miller	Yes
<u>Commissioner Leslie Carothers</u> Designee: Brian Emerick	Absent
<u>Owen L. Clark</u>	Yes
<u>Fred J. Doocy</u>	Yes
<u>Mortimer A. Gelston</u>	Yes
<u>James G. Horsfall</u>	Yes
<u>William H. Smith</u>	Absent
<u>Colin C. Tait</u>	Absent

ADMINISTRATIVE INFORMATION

PARCEL NUMBER
11-1794

Parent Parcel Number

Property Address
NORTH STREET 1081
Neighborhood
2900 BANKSVILLE

Property Class
270 Telecommunications

TAXING DISTRICT INFORMATION

Jurisdiction 57 Greenwich, CT

Area 001

Corporation 057

District 11

Section & Plat 399

Routing Number 5830W0113

Site Description

Topography:

Public Utilities:
Electric

Street or Road:

Neighborhood:

Zoning:
RA-4 Single Family 4

Legal Acres:
5.6600

OWNERSHIP

CROWN ATLANTIC COMPANY LLC
PMB 353
4017 WASHINGTON ROAD
MCMURRAY, PA 15317

LOT NO 52B & 52C NORTH ST W 113

Tax ID 1877017

Printed 01/12/2021 Card No. 1 of 1

TRANSFER OF OWNERSHIP

Date		
04/19/1999	CELICO PARTNERSHIP	\$875000
03/30/1998	Bk/Pg: 3256, 203 METRO MOBILE CTS OF FFLD	\$816885
09/14/1990	Bk/Pg: 3053, 308 PENCHO GOSPODINOFF	\$875000
10/14/1987	Bk/Pg: 2068, 233 GOSPODINOFF NEDA, FENCHO & KALINKA G	\$0
04/21/1983	Bk/Pg: 1767, 253 GOSPODINOFF NEDA	\$0
	Bk/Pg: 1306, 65&67	

COMMERCIAL

VALUATION RECORD

Assessment Year	10/01/2015	10/01/2015	10/01/2015	10/01/2016	10/01/2017	10/01/2018	10/01/2019	10/01/2020
Reason for Change	2015 Prelim	2015 Final	2016 List	2017 List	2018 List	2019 List	2020 List	
VALUATION	L 2071800	2071800	2071800	2071800	2071800	2071800	2071800	
Market	B 610500	610500	556300	556300	556300	556300	556300	
	T 2682300	2682300	2628100	2628100	2628100	2628100	2628100	
VALUATION	L 1450260	1450260	1450260	1450260	1450260	1450260	1450260	
70% Assessed	B 427350	427350	389410	389410	389410	389410	389410	
	T 1877610	1877610	1839670	1839670	1839670	1839670	1839670	

LAND DATA AND CALCULATIONS

Rating	Measured	Table	Prod. Factor	Base	Adjusted	Extended	Influence	Value
Soil ID	Acreage	Effective	Depth Factor	Rate	Rate	Value	Factor	
-or- Actual Frontage	-or- Effective Depth	-or- Square Feet	-or- Depth Factor					
246549.60				14.01	14.01	3453000 B	-40%	2071800

BP14: 14-1010: \$29,000 demo house 2016 GL
BF18: 18-1439: Add 6 Antennas \$26,000
GEN: Boarded up dwlg depr @ 95% and telecommunications tower w/
ancillary improvements. Real estate owner owns tower.
LAND: V2068 P233 9/14/90 30k+- sf sold to 11-1240 reducing acreage
to 5.66+-acres.

Supplemental Cards

TRUE TAX VALUE

2071800

FilingDate Est. Cost Field Visit
Est. Sqft

Supplemental Cards

TOTAL LAND VALUE

2071800

IMPROVEMENT DATA

PHYSICAL CHARACTERISTICS

ROOFING

Built-up

WALLS

B 1 2 U
Yes

Frame

Brick

Metal

Guard

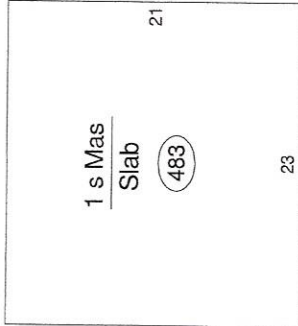
FRAMING

B 1 2 U
0 483 0 0

F Prf

HEATING AND AIR CONDITIONING

B 1 2 U



01 02 03 04

Item Description Units Cost Total Pct

M & S Cost Database Date: 01/2015

Base Cost 483 204.17 98614
Exterior Walls 483 46.14 22286
Heating & Cooling 483 18.89 9124
Basic Structure Cost 483 269.20 130024
Physical 0 0.00 7801
Depreciated Cost 483 253.05 122223
Rounded Total 0 0.00 122200

Total Exterior Features Value
Depreciated Ext Features
Total Before Adjustments
Neighborhood Adjustment
TOTAL VALUE

122200
61100 50.00
183300

(LCM: 150.00)

SUMMARY OF IMPROVEMENTS

SPECIAL FEATURES

Description		Value	ID	Use	Stry Hgt	Const Type	Grade	Year Eff	Const Year	Cond	Base Rate	Feat- ures	Adj Rate	Size or Area	Computed Value	Phys Obsol	Market Depr	Adj Comp	Value
C	UTLSTOR	0.00	0.00	1	S2	Avg	1990	2005	VG	0.00	N	0.00	483	0	0	0	150	100	183300
01	COMCNFYA	0.00	0.00	1	Avg	Avg	1990	2000	GD	27.60	N	41.40	96	3970	0	0	100	100	4000
02	PAVING	0.00	0.00	6	Avg	Avg	1990	2000	GD	6.30	N	9.45	96	910	0	0	100	100	900
03	FENCECL	10.00	10.00	51E	Avg	Avg	1990	2000	GD	25.75	N	38.63	186	7180	0	0	100	100	7200
04	TOWERMON	0.00	0.00	5Pr	Good	Good	2001	2001	GD	916.50	N	2062	175	360870	0	0	100	100	360900

Data Collector/Date

JLT 06/14/2000

Appraiser/Date

TOG 10/01/2015

Neighborhood

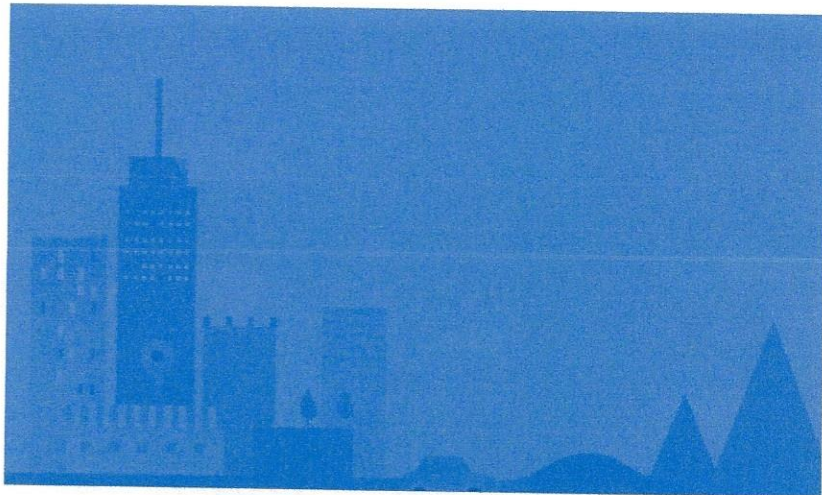
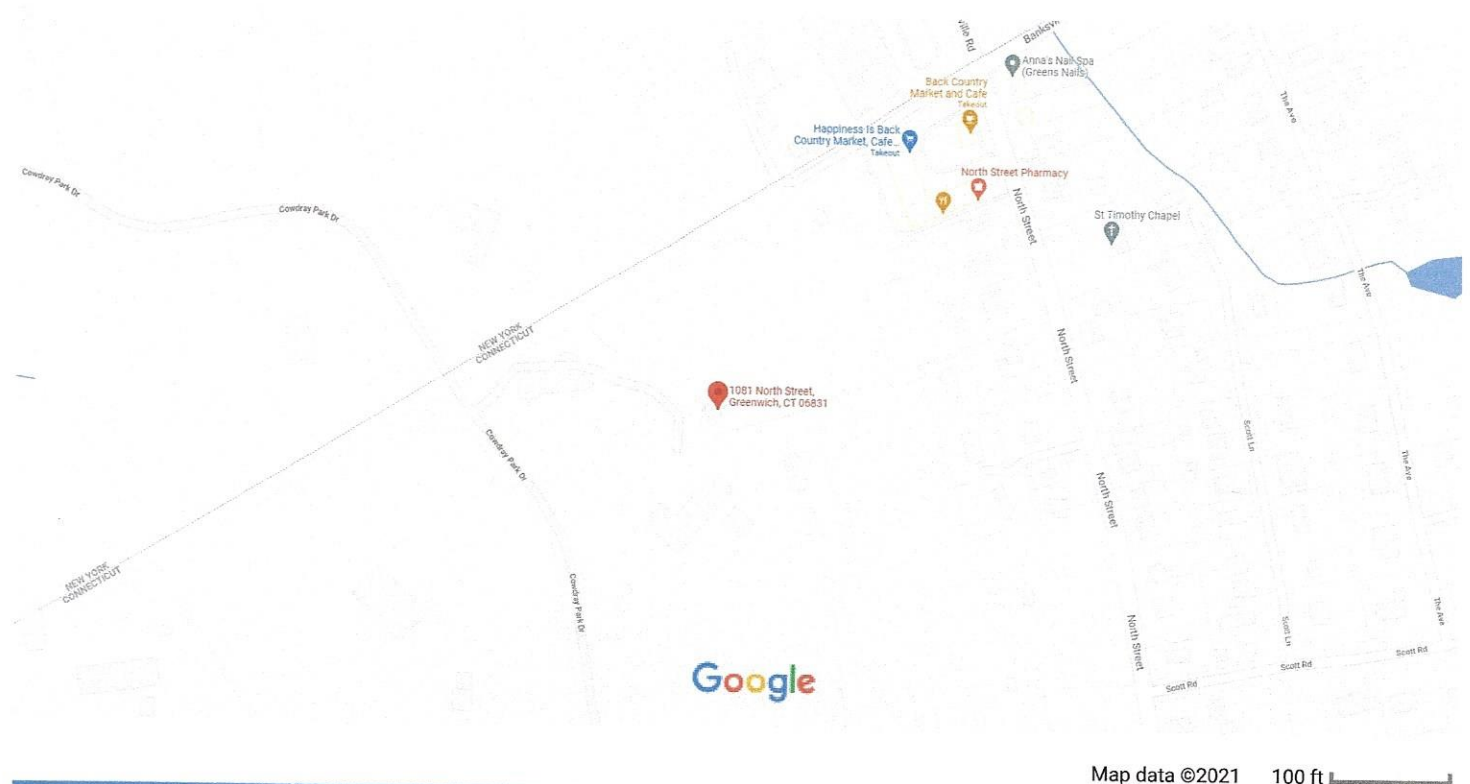
Neigh 2900 AV

Supplemental Cards

TOTAL IMPROVEMENT VALUE

556300

Google Maps 1081 North Street



1081 North Street

Building



Directions



Save



Nearby

Send to your
phone

Share



1081 North Street, Greenwich, CT 06831

Barbadora, Jeff

From: TrackingUpdates@fedex.com
Sent: Tuesday, September 14, 2021 11:54 AM
To: Barbadora, Jeff
Subject: FedEx Shipment 774783593019: 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 Tue, 09/14/2021 at
11:44am.

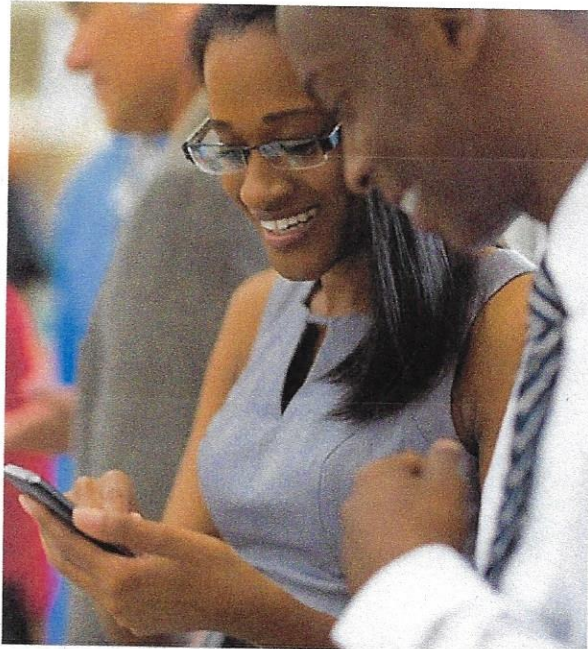


Delivered to 101 FIELD POINT RD, GREENWICH, CT 06830
Received by T.CLECK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [774783593019](#)

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Greenwich Katie DeLuca, Director of Planning 101 Field Point Road GREENWICH, CT, US, 06830
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 9/13/2021 06:22 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	GREENWICH, CT, US, 06830
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight



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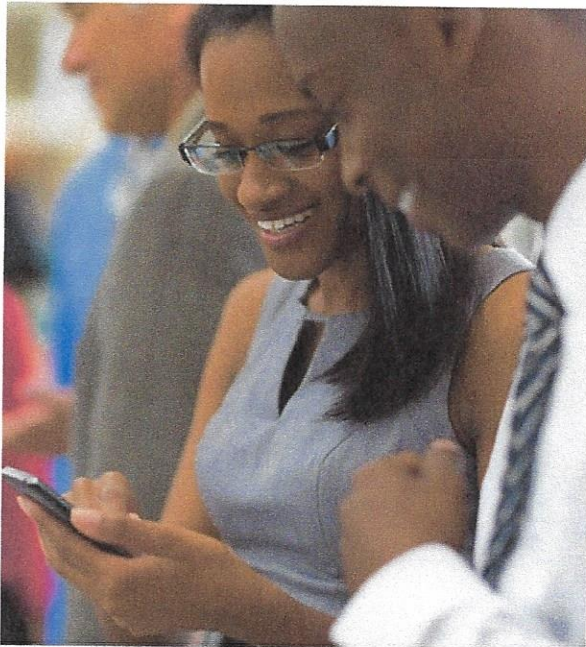


Delivered to 101 FIELD POINT RD, GREENWICH, CT 06830
Received by T.CLECK

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER [774783563818](#)

FROM	Jeff Barbadora 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Greenwich Fred Camillo, First Selectman 101 Field Point Road GREENWICH, CT, US, 06830
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 9/13/2021 06:22 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	GREENWICH, CT, US, 06830
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight



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Date: **August 11, 2021**



Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-9650

Subject: **Structural Analysis Report**

Carrier Designation: **T-Mobile Co-Locate**
Site Number: CT11091A

Crown Castle Designation: **BU Number:** 807132
Site Name: BRG 133 943050
JDE Job Number: 673842
Work Order Number: 2000574
Order Number: 575116 Rev. 0

Engineering Firm Designation: **Black & Veatch Corp. Project Number:** 406642

Site Data: **1081 North Street, Greenwich, Fairfield County, CT**
Latitude 41° 8' 21.5", Longitude -73° 38' 30.54"
175 Foot - Monopole Tower

Black & Veatch Corp. is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration

Sufficient Capacity - 97.2%

This analysis utilizes an ultimate 3-second gust wind speed of 120 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: Panumart Booncharoensombut / Thana Wonghemrut

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

Digitally signed by
Jiang, Ping
DN: CN="Jiang,
Ping", O=Black
Veatch, C=US
Date: 2021.08.17
10:28:27-05'00'



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tnxTower Output

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1) INTRODUCTION

This tower is a 175 ft Monopole tower designed by Valmont.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by B&T Engineering, Inc., in June of 2012. Reinforcement consists of additional of reinforcement plates at elevation 0.5' to 20.5', 15.5' to 45.5' and 40.5' to 65.5', addition of anchor rods with brackets and transition stiffeners at elevation 0'. Refer to Modification Inspection Report by B&T Engineering, Inc. in July of 2012. This modification has been considered effective in this analysis.

The tower was later modified per reinforcement drawings prepared by Paul J. Ford and Company, in May of 2014. Reinforcement consisted of additional of reinforcement plates at elevation 0.5' to 85.5' and addition of transition stiffeners at elevation 0'. Refer to Modification Inspection Report by Sinnott Gering and Schmitt Towers, Inc. in November of 2014. This modification has been considered effective in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 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)
144.0	144.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3	1-5/8
		3	ericsson	RADIO 4449 B71/B85A		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		1	site pro 1	RMQP-496 + HRK12 12.5' Platform with Handrails		
		3	rfs celwave	APXVAALL24_43-U-NA20 w/ Mount Pipe		

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)
173.0	175.0	3	alcatel lucent	B66A RRH4X45	6 1	1-1/4 1-5/8
		3	alcatel lucent	RRH2X60-700		
		2	antel	ADA-85408580CF w/ Mount Pipe		
		2	antel	BXA-80080/4CF w/ Mount Pipe		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	173.0	1	rfs celwave	DB-C1-12C-24AB-0Z		
		1	cci tower mounts (v2.1)	Platform Mount [LP 715-1]		
162.0	162.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	4 4 2 1 1	1-5/8 1-1/4 5/8 3/8 Conduit
		1	cci tower mounts (v2.1)	Platform Mount [LP 303-1]		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS-32 B30		
		2	kaelus	DBC0061F1V51-2		
		1	kathrein	800 10121 w/ Mount Pipe		
		1	powerwave technologies	7770.00 w/ Mount Pipe		
		4	powerwave technologies	LGP2140X		
		3	quintel technology	QS66512-2 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8C		
		1	raycap	DC6-48-60-18-8F		
154.0	154.0	3	fujitsu	TA08025-B604	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4837566	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1057735	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1057736	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3279725	CCISITES
4-POST-MODIFICATION INSPECTION	3279736	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4856181	CCISITES
4-POST-MODIFICATION INSPECTION	5456964	CCISITES

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) 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.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
175 - 170	Pole	TP23.025x22.125x0.2188	Pole	4.4%	Pass
170 - 165	Pole	TP23.925x23.025x0.2188	Pole	9.1%	Pass
165 - 160	Pole	TP24.825x23.925x0.2188	Pole	15.2%	Pass
160 - 155	Pole	TP25.725x24.825x0.2188	Pole	22.2%	Pass
155 - 150	Pole	TP27.435x25.725x0.2188	Pole	31.1%	Pass
150 - 145	Pole	TP27.087x26.188x0.3125	Pole	24.9%	Pass
145 - 140	Pole	TP27.987x27.087x0.3125	Pole	31.1%	Pass
140 - 135	Pole	TP28.887x27.987x0.3125	Pole	36.9%	Pass
135 - 130	Pole	TP29.787x28.887x0.3125	Pole	42.2%	Pass
130 - 125	Pole	TP30.687x29.787x0.3125	Pole	47.2%	Pass
125 - 120	Pole	TP31.587x30.687x0.3125	Pole	52.0%	Pass
120 - 115	Pole	TP32.487x31.587x0.3125	Pole	56.4%	Pass
115 - 110	Pole	TP33.387x32.487x0.3125	Pole	60.7%	Pass
110 - 105	Pole	TP34.287x33.387x0.3125	Pole	64.7%	Pass
105 - 101	Pole	TP35.997x34.287x0.3125	Pole	67.7%	Pass
101 - 94.5	Pole	TP35.552x34.382x0.375	Pole	58.1%	Pass
94.5 - 89.5	Pole	TP36.452x35.552x0.375	Pole	60.7%	Pass
89.5 - 84.5	Pole	TP37.352x36.452x0.375	Pole	63.2%	Pass
84.5 - 83.17	Pole	TP37.591x37.352x0.375	Pole	63.8%	Pass
83.17 - 82.92	Pole	TP37.636x37.591x0.375	Pole	63.9%	Pass
82.92 - 77.92	Pole	TP38.536x37.636x0.375	Pole	66.3%	Pass
77.92 - 72.92	Pole	TP39.436x38.536x0.375	Pole	68.6%	Pass
72.92 - 67.92	Pole	TP40.336x39.436x0.375	Pole	70.7%	Pass
67.92 - 63.08	Pole	TP41.207x40.336x0.375	Pole	72.8%	Pass
63.08 - 62.83	Pole + Reinf.	TP41.252x41.207x0.625	Reinf. 8 Tension Rupture	61.1%	Pass
62.83 - 57.83	Pole + Reinf.	TP42.152x41.252x0.625	Reinf. 8 Tension Rupture	62.8%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
57.83 - 53	Pole + Reinf.	TP44.177x42.152x0.6125	Reinf. 8 Tension Rupture	64.3%	Pass
53 - 45.58	Pole + Reinf.	TP43.607x42.271x0.6438	Reinf. 8 Tension Rupture	65.3%	Pass
45.58 - 42.92	Pole + Reinf.	TP44.086x43.607x0.6438	Reinf. 8 Tension Rupture	66.0%	Pass
42.92 - 42.57	Pole + Reinf.	TP44.149x44.086x0.5063	Reinf. 2 Tension Rupture	73.4%	Pass
42.57 - 42.33	Pole + Reinf.	TP44.192x44.149x0.5063	Reinf. 2 Tension Rupture	73.4%	Pass
42.33 - 41.92	Pole + Reinf.	TP44.266x44.192x0.5063	Reinf. 2 Tension Rupture	73.6%	Pass
41.92 - 41.67	Pole + Reinf.	TP44.311x44.266x0.6813	Reinf. 8 Tension Rupture	62.9%	Pass
41.67 - 36.67	Pole + Reinf.	TP45.211x44.311x0.6813	Reinf. 8 Tension Rupture	64.3%	Pass
36.67 - 32	Pole + Reinf.	TP46.052x45.211x0.6688	Reinf. 8 Tension Rupture	65.5%	Pass
32 - 31.75	Pole + Reinf.	TP46.097x46.052x0.7188	Reinf. 7 Tension Rupture	60.2%	Pass
31.75 - 26.75	Pole + Reinf.	TP46.997x46.097x0.7063	Reinf. 7 Tension Rupture	61.4%	Pass
26.75 - 21.75	Pole + Reinf.	TP47.897x46.997x0.7063	Reinf. 7 Tension Rupture	62.5%	Pass
21.75 - 18.42	Pole + Reinf.	TP48.497x47.897x0.7063	Reinf. 7 Tension Rupture	63.3%	Pass
18.42 - 18.17	Pole + Reinf.	TP48.542x48.497x0.5813	Reinf. 7 Tension Rupture	76.0%	Pass
18.17 - 17.58	Pole + Reinf.	TP48.648x48.542x0.5813	Reinf. 7 Tension Rupture	76.1%	Pass
17.58 - 17.33	Pole + Reinf.	TP48.693x48.648x0.7063	Reinf. 7 Tension Rupture	63.5%	Pass
17.33 - 17	Pole + Reinf.	TP50.027x48.693x0.7063	Reinf. 7 Tension Rupture	63.6%	Pass
17 - 8.92	Pole + Reinf.	TP49.394x47.94x0.6625	Reinf. 1 Tension Rupture	67.2%	Pass
8.92 - 4	Pole + Reinf.	TP50.28x49.394x0.6625	Reinf. 1 Tension Rupture	68.0%	Pass
4 - 3.75	Pole + Reinf.	TP50.325x50.28x0.55	Reinf. 1 Tension Rupture	79.3%	Pass
3.75 - 3.42	Pole + Reinf.	TP50.384x50.325x0.6875	Reinf. 1 Tension Rupture	66.5%	Pass
3.42 - 3.17	Pole + Reinf.	TP50.429x50.384x0.5875	Reinf. 9 Tension Yield	69.1%	Pass
3.17 - 0	Pole + Reinf.	TP51x50.429x0.575	Reinf. 9 Tension Yield	69.6%	Pass
				Summary	
			Pole	72.8%	Pass
			Reinforcement	79.3%	Pass
			Overall	79.3%	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower)

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods (Original)	0	65.2	Pass
	Anchor Rods (Existing Modification)		54.5	Pass
	Anchor Rod Brackets		75.6	Pass
	Base Plate		32.2	Pass
1	Base Foundation (Structure)	0	50.3	Pass
	Base Foundation (Soil)		97.2	Pass

Structure Rating (max from all components) =	97.2%
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity. Rating per TIA-222-H Section 15.5.

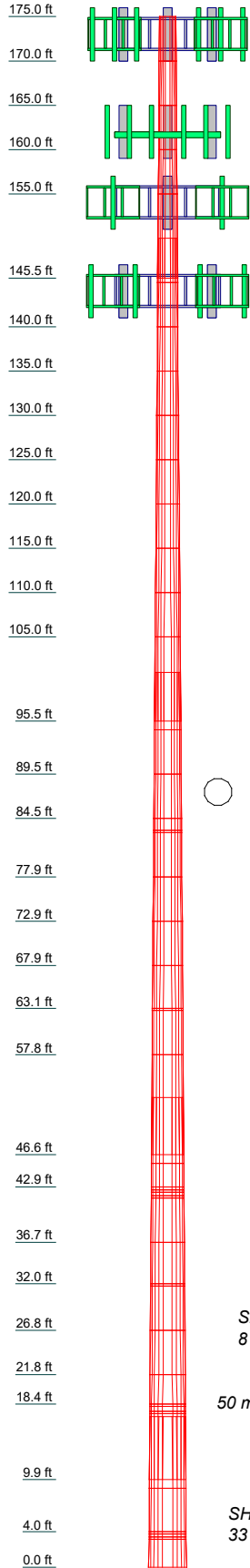
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	49	45	44	43	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Length (ft)	3.10	2.54	92	80.41	0.12	33	5.00	5.00	2.54	67	5.00	0.00	0.00	0.00	0.00	0.00	0.00	7.42	1.25	5.00	2.54	84	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Number of Sides	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Thickness (in)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125	0.6125																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Socket Length (ft)	7.08	6.42																		5.50																		4.50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Top Dia (in)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Bot Dia (in)	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00	51.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Grade	A572-65																														A572-65																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Weight (K)	38.1	38.1	19	3.0	2.7	0.02	1.2	1.7	1.7	0.1	1.5	1.6	0.00	0.22	3.1	1.4	0.1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.00	0.2	0.8	0.7	0.0	1.1	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0



ALL REACTIONS
ARE FACTORED

AXIAL
104 K

SHEAR
8 K

MOMENT
1050 kip-ft

TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL
66 K

SHEAR
33 K

MOMENT
3937 kip-ft

TORQUE 1 kip-ft
REACTIONS - 120 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 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 0.00 ft
8. TOWER RATING: 79.3%

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 Fairfield County, Connecticut.
- Tower base elevation above sea level: 503.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- 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	Retention 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.
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Use TIA-222-H Tension Splice
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Exemption
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	

Poles

- ✓ Include Shear-Torsion Interaction
- Always Use Sub-Critical Flow
- Use Top Mounted Sockets
- 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	175.00-170.00	5.00	0.00	12	22.1250	23.0250	0.2188	0.8750	A572-65 (65 ksi)
L2	170.00-165.00	5.00	0.00	12	23.0250	23.9250	0.2188	0.8750	A572-65 (65 ksi)
L3	165.00-160.00	5.00	0.00	12	23.9250	24.8250	0.2188	0.8750	A572-65 (65 ksi)
L4	160.00-155.00	5.00	0.00	12	24.8250	25.7250	0.2188	0.8750	A572-65 (65 ksi)
L5	155.00-145.50	9.50	4.50	12	25.7250	27.4350	0.2188	0.8750	A572-65 (65 ksi)
L6	145.50-145.00	5.00	0.00	12	26.1875	27.0875	0.3125	1.2500	A572-65 (65 ksi)
L7	145.00-140.00	5.00	0.00	12	27.0875	27.9874	0.3125	1.2500	A572-65 (65 ksi)
L8	140.00-135.00	5.00	0.00	12	27.9874	28.8874	0.3125	1.2500	A572-65 (65 ksi)
L9	135.00-130.00	5.00	0.00	12	28.8874	29.7873	0.3125	1.2500	A572-65 (65 ksi)
L10	130.00-125.00	5.00	0.00	12	29.7873	30.6873	0.3125	1.2500	A572-65 (65 ksi)
L11	125.00-120.00	5.00	0.00	12	30.6873	31.5872	0.3125	1.2500	A572-65 (65 ksi)
L12	120.00-115.00	5.00	0.00	12	31.5872	32.4872	0.3125	1.2500	A572-65 (65 ksi)
L13	115.00-110.00	5.00	0.00	12	32.4872	33.3871	0.3125	1.2500	A572-65 (65 ksi)
L14	110.00-105.00	5.00	0.00	12	33.3871	34.2871	0.3125	1.2500	A572-65 (65 ksi)
L15	105.00-95.50	9.50	5.50	12	34.2871	35.9970	0.3125	1.2500	A572-65 (65 ksi)
L16	95.50-94.50	6.50	0.00	12	34.3821	35.5520	0.3750	1.5000	A572-65 (65 ksi)
L17	94.50-89.50	5.00	0.00	12	35.5520	36.4519	0.3750	1.5000	A572-65 (65 ksi)
L18	89.50-84.50	5.00	0.00	12	36.4519	37.3519	0.3750	1.5000	A572-65 (65 ksi)
L19	84.50-83.17	1.33	0.00	12	37.3519	37.5912	0.3750	1.5000	A572-65 (65 ksi)
L20	83.17-82.92	0.25	0.00	12	37.5912	37.6362	0.3750	1.5000	A572-65 (65 ksi)
L21	82.92-77.92	5.00	0.00	12	37.6362	38.5362	0.3750	1.5000	A572-65 (65 ksi)
L22	77.92-72.92	5.00	0.00	12	38.5362	39.4361	0.3750	1.5000	A572-65 (65 ksi)
L23	72.92-67.92	5.00	0.00	12	39.4361	40.3361	0.3750	1.5000	A572-65 (65 ksi)
L24	67.92-63.08	4.84	0.00	12	40.3361	41.2072	0.3750	1.5000	A572-65 (65 ksi)
L25	63.08-62.83	0.25	0.00	12	41.2072	41.2522	0.6250	2.5000	A572-65 (65 ksi)
L26	62.83-57.83	5.00	0.00	12	41.2522	42.1521	0.6250	2.5000	A572-65 (65 ksi)
L27	57.83-46.58	11.25	6.42	12	42.1521	44.1770	0.6125	2.4500	A572-65 (65 ksi)
L28	46.58-45.58	7.42	0.00	12	42.2715	43.6073	0.6438	2.5750	A572-65 (65 ksi)
L29	45.58-42.92	2.66	0.00	12	43.6073	44.0861	0.6438	2.5750	A572-65 (65 ksi)
L30	42.92-42.57	0.35	0.00	12	44.0861	44.1491	0.5062	2.0250	A572-65 (65 ksi)
L31	42.57-42.33	0.24	0.00	12	44.1491	44.1924	0.5062	2.0250	A572-65 (65 ksi)
L32	42.33-41.92	0.41	0.00	12	44.1924	44.2662	0.5062	2.0250	A572-65 (65 ksi)
L33	41.92-41.67	0.25	0.00	12	44.2662	44.3112	0.6813	2.7250	A572-65 (65 ksi)
L34	41.67-36.67	5.00	0.00	12	44.3112	45.2113	0.6813	2.7250	A572-65 (65 ksi)
L35	36.67-32.00	4.67	0.00	12	45.2113	46.0520	0.6687	2.6750	A572-65

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
L36	32.00-31.75	0.25	0.00	12	46.0520	46.0970	0.7188	2.8750	(65 ksi) A572-65
L37	31.75-26.75	5.00	0.00	12	46.0970	46.9972	0.7063	2.8250	(65 ksi) A572-65
L38	26.75-21.75	5.00	0.00	12	46.9972	47.8973	0.7063	2.8250	(65 ksi) A572-65
L39	21.75-18.42	3.33	0.00	12	47.8973	48.4968	0.7063	2.8250	(65 ksi) A572-65
L40	18.42-18.17	0.25	0.00	12	48.4968	48.5418	0.5813	2.3250	(65 ksi) A572-65
L41	18.17-17.58	0.59	0.00	12	48.5418	48.6480	0.5813	2.3250	(65 ksi) A572-65
L42	17.58-17.33	0.25	0.00	12	48.6480	48.6930	0.7063	2.8250	(65 ksi) A572-65
L43	17.33-9.92	7.41	7.08	12	48.6930	50.0270	0.7063	2.8250	(65 ksi) A572-65
L44	9.92-8.92	8.08	0.00	12	47.9399	49.3944	0.6625	2.6500	(65 ksi) A572-65
L45	8.92-4.00	4.92	0.00	12	49.3944	50.2800	0.6625	2.6500	(65 ksi) A572-65
L46	4.00-3.75	0.25	0.00	12	50.2800	50.3250	0.5500	2.2000	(65 ksi) A572-65
L47	3.75-3.42	0.33	0.00	12	50.3250	50.3844	0.6875	2.7500	(65 ksi) A572-65
L48	3.42-3.17	0.25	0.00	12	50.3844	50.4294	0.5875	2.3500	(65 ksi) A572-65
L49	3.17-0.00	3.17		12	50.4294	51.0000	0.5750	2.3000	(65 ksi) A572-65

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	22.8283	15.4302	945.1353	7.8424	11.4608	82.4671	1915.1004	7.5943	5.3433	24.426
	23.7601	16.0642	1066.4771	8.1646	11.9270	89.4174	2160.9717	7.9063	5.5845	25.529
L2	23.7601	16.0642	1066.4771	8.1646	11.9270	89.4174	2160.9717	7.9063	5.5845	25.529
	24.6918	16.6981	1197.7839	8.4868	12.3932	96.6489	2427.0349	8.2183	5.8257	26.632
L3	24.6918	16.6981	1197.7839	8.4868	12.3932	96.6489	2427.0349	8.2183	5.8257	26.632
	25.6236	17.3320	1339.4490	8.8090	12.8594	104.1615	2714.0868	8.5303	6.0669	27.734
L4	25.6236	17.3320	1339.4490	8.8090	12.8594	104.1615	2714.0868	8.5303	6.0669	27.734
	26.5553	17.9660	1491.8657	9.1312	13.3256	111.9553	3022.9243	8.8423	6.3080	28.837
L5	26.5553	17.9660	1491.8657	9.1312	13.3256	111.9553	3022.9243	8.8423	6.3080	28.837
	28.3256	19.1704	1812.4863	9.7434	14.2113	127.5381	3672.5887	9.4351	6.7663	30.932
L6	27.8396	26.0367	2225.0149	9.2632	13.5651	164.0246	4508.4834	12.8145	6.1807	19.778
	27.9328	26.9423	2465.3470	9.5854	14.0313	175.7034	4995.4613	13.2602	6.4219	20.55
L7	27.9328	26.9423	2465.3470	9.5854	14.0313	175.7034	4995.4613	13.2602	6.4219	20.55
	28.8645	27.8479	2722.3905	9.9076	14.4975	187.7837	5516.3011	13.7059	6.6631	21.322
L8	28.8645	27.8479	2722.3905	9.9076	14.4975	187.7837	5516.3011	13.7059	6.6631	21.322
	29.7962	28.7535	2996.7070	10.2298	14.9637	200.2657	6072.1409	14.1516	6.9043	22.094
L9	29.7962	28.7535	2996.7070	10.2298	14.9637	200.2657	6072.1409	14.1516	6.9043	22.094
	30.7279	29.6590	3288.8584	10.5520	15.4298	213.1494	6664.1188	14.5973	7.1455	22.866
L10	30.7279	29.6590	3288.8584	10.5520	15.4298	213.1494	6664.1188	14.5973	7.1455	22.866
	31.6596	30.5646	3599.4062	10.8742	15.8960	226.4346	7293.3729	15.0430	7.3867	23.637
L11	31.6596	30.5646	3599.4062	10.8742	15.8960	226.4346	7293.3729	15.0430	7.3867	23.637
	32.5913	31.4702	3928.9123	11.1964	16.3622	240.1215	7961.0415	15.4887	7.6279	24.409
L12	32.5913	31.4702	3928.9123	11.1964	16.3622	240.1215	7961.0415	15.4887	7.6279	24.409
	33.5230	32.3758	4277.9382	11.5185	16.8284	254.2101	8668.2626	15.9344	7.8691	25.181
L13	33.5230	32.3758	4277.9382	11.5185	16.8284	254.2101	8668.2626	15.9344	7.8691	25.181
	34.4547	33.2813	4647.0457	11.8407	17.2945	268.7002	9416.1745	16.3801	8.1103	25.953
L14	34.4547	33.2813	4647.0457	11.8407	17.2945	268.7002	9416.1745	16.3801	8.1103	25.953
	35.3864	34.1869	5036.7965	12.1629	17.7607	283.5921	10205.915	16.8258	8.3514	26.725
L15	35.3864	34.1869	5036.7965	12.1629	17.7607	283.5921	10205.915	16.8258	8.3514	26.725

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
	37.1566	35.9075	5836.2071	12.7751	18.6464	312.9930	11825.7378	17.6726	8.8097	28.191
L16	36.4875	41.0635	6061.4983	12.1745	17.8099	340.3443	12282.2389	20.2102	8.2094	21.892
	36.6738	42.4762	6708.8561	12.5934	18.4159	364.2965	13593.9613	20.9055	8.5229	22.728
L17	36.6738	42.4762	6708.8561	12.5934	18.4159	364.2965	13593.9613	20.9055	8.5229	22.728
	37.6055	43.5629	7237.0437	12.9155	18.8821	383.2755	14664.2127	21.4403	8.7641	23.371
L18	37.6055	43.5629	7237.0437	12.9155	18.8821	383.2755	14664.2127	21.4403	8.7641	23.371
	38.5372	44.6496	7792.2511	13.2377	19.3483	402.7365	15789.2133	21.9752	9.0053	24.014
L19	38.5372	44.6496	7792.2511	13.2377	19.3483	402.7365	15789.2133	21.9752	9.0053	24.014
	38.7850	44.9386	7944.5715	13.3234	19.4723	407.9943	16097.8557	22.1174	9.0695	24.185
L20	38.7850	44.9386	7944.5715	13.3234	19.4723	407.9943	16097.8557	22.1174	9.0695	24.185
	38.8316	44.9929	7973.4230	13.3395	19.4956	408.9864	16156.3166	22.1442	9.0815	24.217
L21	38.8316	44.9929	7973.4230	13.3395	19.4956	408.9864	16156.3166	22.1442	9.0815	24.217
	39.7633	46.0796	8565.2154	13.6617	19.9617	429.0816	17355.4486	22.6790	9.3227	24.861
L22	39.7633	46.0796	8565.2154	13.6617	19.9617	429.0816	17355.4486	22.6790	9.3227	24.861
	40.6950	47.1663	9185.5886	13.9839	20.4279	449.6588	18612.4929	23.2138	9.5639	25.504
L23	40.6950	47.1663	9185.5886	13.9839	20.4279	449.6588	18612.4929	23.2138	9.5639	25.504
	41.6267	48.2530	9835.2166	14.3061	20.8941	470.7179	19928.8153	23.7486	9.8051	26.147
L24	41.6267	48.2530	9835.2166	14.3061	20.8941	470.7179	19928.8153	23.7486	9.8051	26.147
	42.5285	49.3049	10492.5571	14.6179	21.3453	491.5622	21260.7653	24.2664	10.0385	26.769
L25	42.4404	81.6717	17168.3481	14.5284	21.3453	804.3141	34787.7278	40.1963	9.3685	14.99
	42.4869	81.7622	17225.5196	14.5445	21.3686	806.1122	34903.5727	40.2409	9.3806	15.009
L26	42.4869	81.7622	17225.5196	14.5445	21.3686	806.1122	34903.5727	40.2409	9.3806	15.009
	43.4186	83.5734	18395.7599	14.8667	21.8348	842.4971	37274.7968	41.1323	9.6218	15.395
L27	43.4230	81.9265	18044.1291	14.8712	21.8348	826.3929	36562.2976	40.3218	9.6553	15.764
	45.5193	85.9201	20813.5479	15.5961	22.8837	909.5365	42173.8909	42.2873	10.1979	16.65
L28	44.7321	86.2891	19085.6585	14.9027	21.8966	871.6256	38672.7185	42.4689	9.6035	14.918
	44.9185	89.0580	20982.5679	15.3809	22.5886	928.9022	42516.3713	43.8316	9.9615	15.474
L29	44.9185	89.0580	20982.5679	15.3809	22.5886	928.9022	42516.3713	43.8316	9.9615	15.474
	45.4142	90.0506	21692.0292	15.5524	22.8366	949.8791	43953.9322	44.3202	10.0898	15.674
L30	45.4627	71.0407	17221.2723	15.6016	22.8366	754.1077	34894.9666	34.9641	10.4583	20.658
	45.5280	71.1434	17296.0775	15.6242	22.8693	756.3025	35046.5422	35.0146	10.4752	20.692
L31	45.5280	71.1434	17296.0775	15.6242	22.8693	756.3025	35046.5422	35.0146	10.4752	20.692
	45.5727	71.2138	17347.4974	15.6396	22.8916	757.8093	35150.7330	35.0493	10.4868	20.715
L32	45.5727	71.2138	17347.4974	15.6396	22.8916	757.8093	35150.7330	35.0493	10.4868	20.715
	45.6491	71.3341	17435.5755	15.6660	22.9299	760.3869	35329.2029	35.1085	10.5066	20.754

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
L33	45.5874	95.6090	23182.323 7	15.6034	22.9299	1011.0097	46973.672 9	47.0558	10.0376	14.734
	45.6340	95.7077	23254.213 3	15.6195	22.9532	1013.1148	47119.340 6	47.1044	10.0496	14.752
L34	45.6340	95.7077	23254.213 3	15.6195	22.9532	1013.1148	47119.340 6	47.1044	10.0496	14.752
	46.5659	97.6822	24723.386 6	15.9418	23.4195	1055.6773	50096.284 0	48.0762	10.2909	15.106
L35	46.5703	95.9168	24290.190 4	15.9462	23.4195	1037.1800	49218.511 2	47.2073	10.3244	15.438
	47.4407	97.7272	25691.714 9	16.2472	23.8549	1076.9973	52058.379 8	48.0984	10.5497	15.775
L36	47.4230	104.9182	27521.426 7	16.2293	23.8549	1153.6988	55765.871 9	51.6375	10.4157	14.491
	47.4696	105.0224	27603.477 3	16.2454	23.8783	1156.0086	55932.128 6	51.6888	10.4278	14.508
L37	47.4740	103.2243	27145.837 4	16.2499	23.8783	1136.8431	55004.826 1	50.8039	10.4613	14.812
	48.4059	105.2713	28793.036 7	16.5721	24.3445	1182.7313	58342.498 5	51.8113	10.7025	15.154
L38	48.4059	105.2713	28793.036 7	16.5721	24.3445	1182.7313	58342.498 5	51.8113	10.7025	15.154
	49.3378	107.3183	30505.557 8	16.8944	24.8108	1229.5275	61812.530 6	52.8188	10.9437	15.496
L39	49.3378	107.3183	30505.557 8	16.8944	24.8108	1229.5275	61812.530 6	52.8188	10.9437	15.496
	49.9584	108.6816	31682.962 2	17.1090	25.1213	1261.1976	64198.271 1	53.4898	11.1044	15.723
L40	50.0025	89.6799	26280.500 5	17.1538	25.1213	1046.1428	53251.419 1	44.1377	11.4394	19.681
	50.0491	89.7641	26354.625 0	17.1699	25.1446	1048.1208	53401.615 4	44.1792	11.4514	19.701
L41	50.0491	89.7641	26354.625 0	17.1699	25.1446	1048.1208	53401.615 4	44.1792	11.4514	19.701
	50.1591	89.9629	26530.111 2	17.2079	25.1997	1052.7962	53757.198 0	44.2770	11.4799	19.75
L42	50.1150	109.0255	31984.674 8	17.1631	25.1997	1269.2500	64809.622 5	53.6591	11.1449	15.78
	50.1616	109.1279	32074.838 6	17.1793	25.2230	1271.6516	64992.318 9	53.7094	11.1570	15.797
L43	50.1616	109.1279	32074.838 6	17.1793	25.2230	1271.6516	64992.318 9	53.7094	11.1570	15.797
	51.5426	112.1616	34824.853 6	17.6568	25.9140	1343.8633	70564.594 8	55.2025	11.5145	16.304
L44	50.7167	100.8545	28773.247 6	16.9253	24.8329	1158.6756	58302.400 4	49.6375	11.0724	16.713
	50.9031	103.9572	31511.316 7	17.4460	25.5863	1231.5710	63850.470 8	51.1646	11.4622	17.301
L45	50.9031	103.9572	31511.316 7	17.4460	25.5863	1231.5710	63850.470 8	51.1646	11.4622	17.301
	51.8200	105.8465	33260.733 1	17.7631	26.0450	1277.0472	67395.262 6	52.0944	11.6995	17.66
L46	51.8596	88.0718	27800.932 8	17.8033	26.0450	1067.4180	56332.227 0	43.3463	12.0010	21.82
	51.9062	88.1515	27876.473 3	17.8194	26.0683	1069.3613	56485.292 5	43.3855	12.0131	21.842
L47	51.8577	109.8850	34557.612 8	17.7702	26.0683	1325.6545	70023.092 6	54.0820	11.6446	16.938
	51.9192	110.0165	34681.827 6	17.7915	26.0991	1328.8510	70274.785 5	54.1468	11.6605	16.961
L48	51.9545	94.2033	29816.466 2	17.8273	26.0991	1142.4323	60416.244 1	46.3640	11.9285	20.304
	52.0011	94.2884	29897.374 3	17.8434	26.1224	1144.5101	60580.186 0	46.4059	11.9406	20.324
L49	52.0055	92.3054	29283.281 1	17.8479	26.1224	1121.0018	59335.866 5	45.4299	11.9741	20.824
	52.5962	93.3619	30300.332 0	18.0522	26.4180	1146.9578	61396.687 5	45.9499	12.1270	21.09

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
L1 175.00-170.00				1	1	1			
L2 170.00-165.00				1	1	1			
L3 165.00-160.00				1	1	1			
L4 160.00-155.00				1	1	1			
L5 155.00-145.50				1	1	1			
L6 145.50-145.00				1	1	1			
L7 145.00-140.00				1	1	1			
L8 140.00-135.00				1	1	1			
L9 135.00-130.00				1	1	1			
L10 130.00-125.00				1	1	1			
L11 125.00-120.00				1	1	1			
L12 120.00-115.00				1	1	1			
L13 115.00-110.00				1	1	1			
L14 110.00-105.00				1	1	1			
L15 105.00-95.50				1	1	1			
L16 95.50-94.50				1	1	1			
L17 94.50-89.50				1	1	1			
L18 89.50-84.50				1	1	1			
L19 84.50-83.17				1	1	1			
L20 83.17-82.92				1	1	1			
L21 82.92-77.92				1	1	1			
L22 77.92-72.92				1	1	1			
L23 72.92-67.92				1	1	1			
L24 67.92-63.08				1	1	1			
L25 63.08-62.83				1	1	0.975912			
L26 62.83-57.83				1	1	0.967766			
L27 57.83-46.58				1	1	0.979533			
L28 46.58-45.58				1	1	0.976284			
L29 45.58-42.92				1	1	0.972479			
L30 42.92-42.57				1	1	0.96337			
L31 42.57-42.33				1	1	0.963211			
L32 42.33-41.92				1	1	0.962939			
L33 41.92-41.67				1	1	0.965787			
L34 41.67-				1	1	0.958319			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
36.67									
L35 36.67-32.00				1	1	0.969131			
L36 32.00-31.75				1	1	0.963162			
L37 31.75-26.75				1	1	0.972069			
L38 26.75-21.75				1	1	0.964499			
L39 21.75-18.42				1	1	0.959616			
L40 18.42-18.17				1	1	0.973409			
L41 18.17-17.58				1	1	0.972803			
L42 17.58-17.33				1	1	0.958044			
L43 17.33-9.92				1	1	0.957571			
L44 9.92-8.92				1	1	1.06152			
L45 8.92-4.00				1	1	1.05436			
L46 4.00-3.75				1	1	0.989811			
L47 3.75-3.42				1	1	1.01573			
L48 3.42-3.17				1	1	1.00581			
L49 3.17-0.00				1	1	1.0244			

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 plf
Safety Line 3/8	C	No	Surface Ar (CaAa)	175.00 - 0.00	1	1	-0.150 -0.140	0.3750		0.22
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	162.00 - 0.00	4	3	-0.200 -0.050	1.9800		0.82

CU12PSM6P4XXX(1-3/4)	A	No	Surface Ar (CaAa)	154.00 - 0.00	1	1	0.150 0.190	1.7500		2.72

MP3-05	A	No	Surface Af (CaAa)	20.50 - 0.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	20.50 - 0.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	B	No	Surface Af (CaAa)	20.50 - 0.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	A	No	Surface Af (CaAa)	45.50 - 15.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	B	No	Surface Af (CaAa)	45.50 - 15.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	44.83 - 15.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-04	A	No	Surface Af (CaAa)	65.50 - 40.50	1	1	0.000 0.000	4.7800	12.7800	0.00
MP3-04	B	No	Surface Af (CaAa)	65.50 - 40.50	1	1	0.000 0.000	4.7800	12.7800	0.00
MP3-04	C	No	Surface Af (CaAa)	65.50 - 40.50	1	1	0.000 0.000	4.7800	12.7800	0.00

CCI-AFP-065125	A	No	Surface Af (CaAa)	35.50 - 10.50	1	1	0.000 0.000	6.5000	15.5000	0.00
CCI-AFP-065125	A	No	Surface Af (CaAa)	15.50 - 0.50	1	1	0.000 0.000	6.5000	15.5000	0.00

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 plf
CCI-AFP-065125	A	No	Surface Af (CaAa)	35.50 - 0.50	1	1	0.000	6.5000	15.5000	0.00
CCI-AFP-065125	B	No	Surface Af (CaAa)	35.50 - 0.50	1	1	0.000	6.5000	15.5000	0.00
CCI-AFP-060100	A	No	Surface Af (CaAa)	41.92 - 35.50	1	1	0.000	6.0000	14.0000	0.00
CCI-AFP-060100	B	No	Surface Af (CaAa)	41.92 - 35.50	1	1	0.000	6.0000	14.0000	0.00
CCI-AFP-060100	C	No	Surface Af (CaAa)	41.92 - 35.50	1	1	0.000	6.0000	14.0000	0.00
PL1.25x6 Reinforcement - Wind Area/Weight	A	No	Surface Af (CaAa)	42.92 - 41.92	1	1	0.000	6.0000	14.5000	25.50
PL1.25x6 Reinforcement - Wind Area/Weight	B	No	Surface Af (CaAa)	42.92 - 41.92	1	1	0.000	6.0000	14.5000	25.50
PL1.25x6 Reinforcement - Wind Area/Weight	C	No	Surface Af (CaAa)	42.92 - 41.92	1	1	0.000	6.0000	14.5000	25.50
CCI-AFP-060100	A	No	Surface Af (CaAa)	63.08 - 42.92	1	1	0.000	6.0000	14.0000	0.00
CCI-AFP-060100	B	No	Surface Af (CaAa)	63.08 - 42.92	1	1	0.000	6.0000	14.0000	0.00
CCI-AFP-060100	C	No	Surface Af (CaAa)	63.08 - 42.92	1	1	0.000	6.0000	14.0000	0.00
PL1.25x6 Reinforcement - Wind Area/Weight	A	No	Surface Af (CaAa)	85.67 - 63.08	1	1	0.000	6.0000	14.5000	25.50
PL1.25x6 Reinforcement - Wind Area/Weight	B	No	Surface Af (CaAa)	85.67 - 63.08	1	1	0.000	6.0000	14.5000	25.50
PL1.25x6 Reinforcement - Wind Area/Weight	C	No	Surface Af (CaAa)	85.67 - 63.08	1	1	0.000	6.0000	14.5000	25.50

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf

LDF6-50A(1-1/4)	C	No	No	Inside Pole	173.00 - 0.00	6	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
LDF7-50A(1-5/8)	C	No	No	Inside Pole	173.00 - 0.00	1	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82

2" innerduct conduit	C	No	No	Inside Pole	162.00 - 0.00	1	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
LDF6-50A(1-1/4)	C	No	No	Inside Pole	162.00 - 0.00	4	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
WR-VG82ST-BRDA(5/8)	C	No	No	Inside Pole	162.00 - 0.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
FB-L98B-034-	C	No	No	Inside Pole	162.00 - 0.00	1	No Ice	0.00	0.06

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		$C_A A_A$ ft ² /ft	Weight plf
XXX(3/8)							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06

HCS 6X12	C	No	No	Inside Pole	144.00 - 0.00	1	No Ice	0.00	2.40
4AWG(1-5/8)							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
HB158-21U6S24- xxM_TMO(1-5/8)	C	No	No	Inside Pole	144.00 - 0.00	2	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	175.00-170.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.01
L2	170.00-165.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.02
L3	165.00-160.00	A	0.000	0.000	1.188	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.03
L4	160.00-155.00	A	0.000	0.000	2.970	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.04
L5	155.00-145.50	A	0.000	0.000	7.130	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.356	0.000	0.08
L6	145.50-145.00	A	0.000	0.000	0.385	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.019	0.000	0.00
L7	145.00-140.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.07
L8	140.00-135.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L9	135.00-130.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L10	130.00-125.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L11	125.00-120.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L12	120.00-115.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L13	115.00-110.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L14	110.00-105.00	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L15	105.00-95.50	A	0.000	0.000	7.305	0.000	0.06

Tower Sectio n	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.356	0.000	0.15
L16	95.50-94.50	A	0.000	0.000	0.769	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.037	0.000	0.02
L17	94.50-89.50	A	0.000	0.000	3.845	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.08
L18	89.50-84.50	A	0.000	0.000	5.015	0.000	0.06
		B	0.000	0.000	1.170	0.000	0.03
		C	0.000	0.000	1.357	0.000	0.11
L19	84.50-83.17	A	0.000	0.000	2.353	0.000	0.04
		B	0.000	0.000	1.330	0.000	0.03
		C	0.000	0.000	1.380	0.000	0.05
L20	83.17-82.92	A	0.000	0.000	0.442	0.000	0.01
		B	0.000	0.000	0.250	0.000	0.01
		C	0.000	0.000	0.259	0.000	0.01
L21	82.92-77.92	A	0.000	0.000	8.845	0.000	0.16
		B	0.000	0.000	5.000	0.000	0.13
		C	0.000	0.000	5.188	0.000	0.20
L22	77.92-72.92	A	0.000	0.000	8.845	0.000	0.16
		B	0.000	0.000	5.000	0.000	0.13
		C	0.000	0.000	5.188	0.000	0.20
L23	72.92-67.92	A	0.000	0.000	8.845	0.000	0.16
		B	0.000	0.000	5.000	0.000	0.13
		C	0.000	0.000	5.188	0.000	0.20
L24	67.92-63.08	A	0.000	0.000	10.490	0.000	0.15
		B	0.000	0.000	6.768	0.000	0.12
		C	0.000	0.000	6.949	0.000	0.20
L25	63.08-62.83	A	0.000	0.000	0.641	0.000	0.00
		B	0.000	0.000	0.449	0.000	0.00
		C	0.000	0.000	0.459	0.000	0.00
L26	62.83-57.83	A	0.000	0.000	12.828	0.000	0.03
		B	0.000	0.000	8.983	0.000	0.00
		C	0.000	0.000	9.171	0.000	0.08
L27	57.83-46.58	A	0.000	0.000	28.864	0.000	0.07
		B	0.000	0.000	20.212	0.000	0.00
		C	0.000	0.000	20.634	0.000	0.17
L28	46.58-45.58	A	0.000	0.000	2.566	0.000	0.01
		B	0.000	0.000	1.797	0.000	0.00
		C	0.000	0.000	1.834	0.000	0.02
L29	45.58-42.92	A	0.000	0.000	9.117	0.000	0.02
		B	0.000	0.000	7.071	0.000	0.00
		C	0.000	0.000	6.576	0.000	0.04
L30	42.92-42.57	A	0.000	0.000	1.069	0.000	0.01
		B	0.000	0.000	0.800	0.000	0.01
		C	0.000	0.000	0.813	0.000	0.01
L31	42.57-42.33	A	0.000	0.000	0.733	0.000	0.01
		B	0.000	0.000	0.548	0.000	0.01
		C	0.000	0.000	0.557	0.000	0.01
L32	42.33-41.92	A	0.000	0.000	1.252	0.000	0.01
		B	0.000	0.000	0.937	0.000	0.01
		C	0.000	0.000	0.952	0.000	0.02
L33	41.92-41.67	A	0.000	0.000	0.812	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.629	0.000	0.00
L34	41.67-36.67	A	0.000	0.000	13.191	0.000	0.03
		B	0.000	0.000	9.346	0.000	0.00
		C	0.000	0.000	9.533	0.000	0.08
L35	36.67-32.00	A	0.000	0.000	16.253	0.000	0.03
		B	0.000	0.000	8.870	0.000	0.00
		C	0.000	0.000	5.253	0.000	0.07
L36	32.00-31.75	A	0.000	0.000	0.956	0.000	0.00
		B	0.000	0.000	0.493	0.000	0.00
		C	0.000	0.000	0.231	0.000	0.00
L37	31.75-26.75	A	0.000	0.000	19.120	0.000	0.03
		B	0.000	0.000	9.858	0.000	0.00
		C	0.000	0.000	4.629	0.000	0.08
L38	26.75-21.75	A	0.000	0.000	19.120	0.000	0.03

Tower Sectio n	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L39	21.75-18.42	B	0.000	0.000	9.858	0.000	0.00
		C	0.000	0.000	4.629	0.000	0.08
		A	0.000	0.000	14.582	0.000	0.02
L40	18.42-18.17	B	0.000	0.000	8.413	0.000	0.00
		C	0.000	0.000	4.931	0.000	0.05
		A	0.000	0.000	1.178	0.000	0.00
L41	18.17-17.58	B	0.000	0.000	0.715	0.000	0.00
		C	0.000	0.000	0.454	0.000	0.00
		A	0.000	0.000	2.780	0.000	0.00
L42	17.58-17.33	B	0.000	0.000	1.687	0.000	0.00
		C	0.000	0.000	1.070	0.000	0.01
		A	0.000	0.000	1.178	0.000	0.00
L43	17.33-9.92	B	0.000	0.000	0.715	0.000	0.00
		C	0.000	0.000	0.454	0.000	0.00
		A	0.000	0.000	35.378	0.000	0.04
L44	9.92-8.92	B	0.000	0.000	16.236	0.000	0.00
		C	0.000	0.000	8.486	0.000	0.11
		A	0.000	0.000	3.824	0.000	0.01
L45	8.92-4.00	B	0.000	0.000	1.972	0.000	0.00
		C	0.000	0.000	0.926	0.000	0.02
		A	0.000	0.000	18.814	0.000	0.03
L46	4.00-3.75	B	0.000	0.000	9.701	0.000	0.00
		C	0.000	0.000	4.555	0.000	0.08
		A	0.000	0.000	0.956	0.000	0.00
L47	3.75-3.42	B	0.000	0.000	0.493	0.000	0.00
		C	0.000	0.000	0.231	0.000	0.00
		A	0.000	0.000	1.262	0.000	0.00
L48	3.42-3.17	B	0.000	0.000	0.651	0.000	0.00
		C	0.000	0.000	0.306	0.000	0.01
		A	0.000	0.000	0.956	0.000	0.00
L49	3.17-0.00	B	0.000	0.000	0.493	0.000	0.00
		C	0.000	0.000	0.231	0.000	0.00
		A	0.000	0.000	10.595	0.000	0.02
		B	0.000	0.000	5.264	0.000	0.00
		C	0.000	0.000	2.491	0.000	0.05

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	175.00-170.00	A	1.504	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.692	0.000	0.03
L2	170.00-165.00	A	1.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.687	0.000	0.04
L3	165.00-160.00	A	1.495	0.000	0.000	2.233	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.683	0.000	0.05
L4	160.00-155.00	A	1.491	0.000	0.000	5.576	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.678	0.000	0.06
L5	155.00-145.50	A	1.484	0.000	0.000	14.587	0.000	0.23
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	3.175	0.000	0.11
L6	145.50-145.00	A	1.479	0.000	0.000	0.793	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.167	0.000	0.01
L7	145.00-140.00	A	1.476	0.000	0.000	7.908	0.000	0.13
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.663	0.000	0.09
L8	140.00-135.00	A	1.471	0.000	0.000	7.896	0.000	0.13
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.658	0.000	0.09
L9	135.00-130.00	A	1.465	0.000	0.000	7.884	0.000	0.13

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.653	0.000	0.09
L10	130.00-125.00	A	1.460	0.000	0.000	7.871	0.000	0.13
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.647	0.000	0.09
L11	125.00-120.00	A	1.454	0.000	0.000	7.858	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.641	0.000	0.09
L12	120.00-115.00	A	1.448	0.000	0.000	7.845	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.635	0.000	0.09
L13	115.00-110.00	A	1.441	0.000	0.000	7.831	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.629	0.000	0.09
L14	110.00-105.00	A	1.435	0.000	0.000	7.816	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.622	0.000	0.09
L15	105.00-95.50	A	1.425	0.000	0.000	14.807	0.000	0.23
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	3.063	0.000	0.18
L16	95.50-94.50	A	1.417	0.000	0.000	1.559	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.322	0.000	0.02
L17	94.50-89.50	A	1.413	0.000	0.000	7.766	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.600	0.000	0.09
L18	89.50-84.50	A	1.405	0.000	0.000	9.247	0.000	0.16
		B		0.000	0.000	1.499	0.000	0.04
		C		0.000	0.000	3.091	0.000	0.13
L19	84.50-83.17	A	1.400	0.000	0.000	3.760	0.000	0.08
		B		0.000	0.000	1.702	0.000	0.05
		C		0.000	0.000	2.124	0.000	0.07
L20	83.17-82.92	A	1.398	0.000	0.000	0.707	0.000	0.02
		B		0.000	0.000	0.320	0.000	0.01
		C		0.000	0.000	0.399	0.000	0.01
L21	82.92-77.92	A	1.394	0.000	0.000	14.117	0.000	0.30
		B		0.000	0.000	6.394	0.000	0.18
		C		0.000	0.000	7.975	0.000	0.27
L22	77.92-72.92	A	1.385	0.000	0.000	14.088	0.000	0.30
		B		0.000	0.000	6.385	0.000	0.18
		C		0.000	0.000	7.957	0.000	0.27
L23	72.92-67.92	A	1.375	0.000	0.000	14.057	0.000	0.30
		B		0.000	0.000	6.375	0.000	0.18
		C		0.000	0.000	7.938	0.000	0.27
L24	67.92-63.08	A	1.365	0.000	0.000	16.165	0.000	0.31
		B		0.000	0.000	8.751	0.000	0.20
		C		0.000	0.000	10.254	0.000	0.29
L25	63.08-62.83	A	1.360	0.000	0.000	0.968	0.000	0.01
		B		0.000	0.000	0.585	0.000	0.00
		C		0.000	0.000	0.663	0.000	0.01
L26	62.83-57.83	A	1.354	0.000	0.000	19.326	0.000	0.21
		B		0.000	0.000	11.692	0.000	0.10
		C		0.000	0.000	13.234	0.000	0.19
L27	57.83-46.58	A	1.335	0.000	0.000	43.298	0.000	0.48
		B		0.000	0.000	26.219	0.000	0.22
		C		0.000	0.000	29.644	0.000	0.42
L28	46.58-45.58	A	1.318	0.000	0.000	3.849	0.000	0.04
		B		0.000	0.000	2.331	0.000	0.02
		C		0.000	0.000	2.635	0.000	0.04
L29	45.58-42.92	A	1.313	0.000	0.000	13.158	0.000	0.14
		B		0.000	0.000	9.145	0.000	0.08
		C		0.000	0.000	9.173	0.000	0.12
L30	42.92-42.57	A	1.308	0.000	0.000	1.564	0.000	0.03
		B		0.000	0.000	1.036	0.000	0.02
		C		0.000	0.000	1.141	0.000	0.03
L31	42.57-42.33	A	1.308	0.000	0.000	1.072	0.000	0.02
		B		0.000	0.000	0.711	0.000	0.01
		C		0.000	0.000	0.782	0.000	0.02
L32	42.33-41.92	A	1.307	0.000	0.000	1.831	0.000	0.03

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L33	41.92-41.67	B	1.305	0.000	0.000	1.214	0.000	0.02
		C		0.000	0.000	1.336	0.000	0.03
		A		0.000	0.000	1.162	0.000	0.01
L34	41.67-36.67	B	1.297	0.000	0.000	0.786	0.000	0.01
		C		0.000	0.000	0.860	0.000	0.01
		A		0.000	0.000	19.154	0.000	0.22
L35	36.67-32.00	B	1.280	0.000	0.000	11.648	0.000	0.11
		C		0.000	0.000	13.133	0.000	0.20
		A		0.000	0.000	22.786	0.000	0.23
L36	32.00-31.75	B	1.271	0.000	0.000	11.123	0.000	0.09
		C		0.000	0.000	7.806	0.000	0.14
		A		0.000	0.000	1.327	0.000	0.01
L37	31.75-26.75	B	1.260	0.000	0.000	0.620	0.000	0.00
		C		0.000	0.000	0.359	0.000	0.01
		A		0.000	0.000	26.476	0.000	0.26
L38	26.75-21.75	B	1.236	0.000	0.000	12.378	0.000	0.10
		C		0.000	0.000	7.149	0.000	0.14
		A		0.000	0.000	26.353	0.000	0.25
L39	21.75-18.42	B	1.213	0.000	0.000	12.331	0.000	0.10
		C		0.000	0.000	7.102	0.000	0.14
		A		0.000	0.000	19.823	0.000	0.18
L40	18.42-18.17	B	1.202	0.000	0.000	10.534	0.000	0.08
		C		0.000	0.000	7.051	0.000	0.11
		A		0.000	0.000	1.591	0.000	0.01
L41	18.17-17.58	B	1.199	0.000	0.000	0.895	0.000	0.01
		C		0.000	0.000	0.634	0.000	0.01
		A		0.000	0.000	3.752	0.000	0.03
L42	17.58-17.33	B	1.196	0.000	0.000	2.112	0.000	0.02
		C		0.000	0.000	1.495	0.000	0.02
		A		0.000	0.000	1.589	0.000	0.01
L43	17.33-9.92	B	1.167	0.000	0.000	0.894	0.000	0.01
		C		0.000	0.000	0.633	0.000	0.01
		A		0.000	0.000	46.759	0.000	0.41
L44	9.92-8.92	B	1.125	0.000	0.000	20.122	0.000	0.15
		C		0.000	0.000	12.372	0.000	0.21
		A		0.000	0.000	5.131	0.000	0.05
L45	8.92-4.00	B	1.083	0.000	0.000	2.438	0.000	0.02
		C		0.000	0.000	1.393	0.000	0.03
		A		0.000	0.000	24.834	0.000	0.22
L46	4.00-3.75	B	1.029	0.000	0.000	11.832	0.000	0.08
		C		0.000	0.000	6.686	0.000	0.12
		A		0.000	0.000	1.249	0.000	0.01
L47	3.75-3.42	B	1.021	0.000	0.000	0.596	0.000	0.00
		C		0.000	0.000	0.334	0.000	0.01
		A		0.000	0.000	1.646	0.000	0.01
L48	3.42-3.17	B	1.013	0.000	0.000	0.785	0.000	0.00
		C		0.000	0.000	0.440	0.000	0.01
		A		0.000	0.000	1.245	0.000	0.01
L49	3.17-0.00	B	0.941	0.000	0.000	0.594	0.000	0.00
		C		0.000	0.000	0.333	0.000	0.01
		A		0.000	0.000	13.786	0.000	0.11
		B		0.000	0.000	6.269	0.000	0.04
		C		0.000	0.000	3.590	0.000	0.07

Feed Line Center of Pressure

Section	Elevation	CP_x	CP_z	CP_x	CP_z
	ft	in	in	Ice in	Ice in
L1	175.00-170.00	0.0684	0.2182	0.3911	1.2480
L2	170.00-165.00	0.0684	0.2182	0.3933	1.2550
L3	165.00-160.00	-1.3869	-0.1927	-1.2800	0.6035
L4	160.00-155.00	-2.7588	-0.5985	-2.9044	-0.0224
L5	155.00-145.50	-3.1150	-1.1119	-3.4181	-0.8543
L6	145.50-145.00	-3.1712	-1.1751	-3.4915	-0.9476

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L7	145.00-140.00	-3.1946	-1.1840	-3.5137	-0.9540
L8	140.00-135.00	-3.2360	-1.1997	-3.5554	-0.9649
L9	135.00-130.00	-3.2761	-1.2150	-3.5956	-0.9755
L10	130.00-125.00	-3.3150	-1.2298	-3.6343	-0.9858
L11	125.00-120.00	-3.3528	-1.2442	-3.6716	-0.9958
L12	120.00-115.00	-3.3895	-1.2581	-3.7075	-1.0055
L13	115.00-110.00	-3.4252	-1.2717	-3.7420	-1.0149
L14	110.00-105.00	-3.4598	-1.2848	-3.7753	-1.0240
L15	105.00-95.50	-3.5083	-1.3033	-3.8213	-1.0368
L16	95.50-94.50	-3.5210	-1.3081	-3.8351	-1.0403
L17	94.50-89.50	-3.5404	-1.3155	-3.8500	-1.0457
L18	89.50-84.50	-3.0182	-1.1217	-3.4110	-0.9269
L19	84.50-83.17	-2.0185	-0.7502	-2.4645	-0.6699
L20	83.17-82.92	-2.0220	-0.7516	-2.4693	-0.6713
L21	82.92-77.92	-2.0337	-0.7560	-2.4849	-0.6757
L22	77.92-72.92	-2.0557	-0.7643	-2.5141	-0.6842
L23	72.92-67.92	-2.0771	-0.7724	-2.5426	-0.6924
L24	67.92-63.08	-1.7970	-0.6683	-2.2355	-0.6094
L25	63.08-62.83	-1.5827	-0.5887	-1.9921	-0.5433
L26	62.83-57.83	-1.5929	-0.5926	-2.0050	-0.5471
L27	57.83-46.58	-1.6239	-0.6042	-2.0439	-0.5589
L28	46.58-45.58	-1.6315	-0.6071	-2.0545	-0.5617
L29	45.58-42.92	-1.3195	-0.9131	-1.6929	-0.8503
L30	42.92-42.57	-1.4295	-0.5320	-1.8184	-0.4989
L31	42.57-42.33	-1.4306	-0.5324	-1.8196	-0.4993
L32	42.33-41.92	-1.4317	-0.5328	-1.8210	-0.4998
L33	41.92-41.67	-1.3630	-0.5072	-1.7628	-0.4839
L34	41.67-36.67	-1.6215	-0.6035	-2.0760	-0.5704
L35	36.67-32.00	-3.2400	-3.4028	-3.4836	-3.0171
L36	32.00-31.75	-3.7184	-4.2653	-3.8920	-3.7728
L37	31.75-26.75	-3.7409	-4.2917	-3.9146	-3.7979
L38	26.75-21.75	-3.7833	-4.3416	-3.9568	-3.8455
L39	21.75-18.42	-3.3022	-3.7903	-3.4927	-3.4003
L40	18.42-18.17	-3.0667	-3.5204	-3.2613	-3.1775
L41	18.17-17.58	-3.0699	-3.5241	-3.2643	-3.1811
L42	17.58-17.33	-3.0738	-3.5287	-3.2680	-3.1854
L43	17.33-9.92	-4.7513	-4.7003	-4.7408	-4.1879
L44	9.92-8.92	-3.8686	-4.4418	-3.9573	-3.9048
L45	8.92-4.00	-3.8928	-4.4702	-3.9665	-3.9341
L46	4.00-3.75	-3.9126	-4.4935	-3.9808	-3.9604
L47	3.75-3.42	-3.9163	-4.4979	-3.9835	-3.9650
L48	3.42-3.17	-3.9176	-4.4995	-3.9839	-3.9673
L49	3.17-0.00	-3.9116	-4.2660	-3.9917	-3.7375

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	1	Safety Line 3/8	170.00 - 175.00	1.0000	1.0000
L2	1	Safety Line 3/8	165.00 - 170.00	1.0000	1.0000
L3	1	Safety Line 3/8	160.00 - 165.00	1.0000	1.0000
L3	9	LDF7-50A(1-5/8)	160.00 - 162.00	1.0000	1.0000
L4	1	Safety Line 3/8	155.00 - 160.00	1.0000	1.0000
L4	9	LDF7-50A(1-5/8)	155.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L5	1	Safety Line 3/8	160.00 145.50 - 155.00	1.0000	1.0000
L5	9	LDF7-50A(1-5/8)	145.50 - 155.00	1.0000	1.0000
L5	14	CU12PSM6P4XXX(1-3/4)	145.50 - 154.00	1.0000	1.0000
L6	1	Safety Line 3/8	145.00 - 145.50	1.0000	1.0000
L6	9	LDF7-50A(1-5/8)	145.00 - 145.50	1.0000	1.0000
L6	14	CU12PSM6P4XXX(1-3/4)	145.00 - 145.50	1.0000	1.0000
L7	1	Safety Line 3/8	140.00 - 145.00	1.0000	1.0000
L7	9	LDF7-50A(1-5/8)	140.00 - 145.00	1.0000	1.0000
L7	14	CU12PSM6P4XXX(1-3/4)	140.00 - 145.00	1.0000	1.0000
L8	1	Safety Line 3/8	135.00 - 140.00	1.0000	1.0000
L8	9	LDF7-50A(1-5/8)	135.00 - 140.00	1.0000	1.0000
L8	14	CU12PSM6P4XXX(1-3/4)	135.00 - 140.00	1.0000	1.0000
L9	1	Safety Line 3/8	130.00 - 135.00	1.0000	1.0000
L9	9	LDF7-50A(1-5/8)	130.00 - 135.00	1.0000	1.0000
L9	14	CU12PSM6P4XXX(1-3/4)	130.00 - 135.00	1.0000	1.0000
L10	1	Safety Line 3/8	125.00 - 130.00	1.0000	1.0000
L10	9	LDF7-50A(1-5/8)	125.00 - 130.00	1.0000	1.0000
L10	14	CU12PSM6P4XXX(1-3/4)	125.00 - 130.00	1.0000	1.0000
L11	1	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L11	9	LDF7-50A(1-5/8)	120.00 - 125.00	1.0000	1.0000
L11	14	CU12PSM6P4XXX(1-3/4)	120.00 - 125.00	1.0000	1.0000
L12	1	Safety Line 3/8	115.00 - 120.00	1.0000	1.0000
L12	9	LDF7-50A(1-5/8)	115.00 - 120.00	1.0000	1.0000
L12	14	CU12PSM6P4XXX(1-3/4)	115.00 - 120.00	1.0000	1.0000
L13	1	Safety Line 3/8	110.00 - 115.00	1.0000	1.0000
L13	9	LDF7-50A(1-5/8)	110.00 - 115.00	1.0000	1.0000
L13	14	CU12PSM6P4XXX(1-3/4)	110.00 - 115.00	1.0000	1.0000
L14	1	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L14	9	LDF7-50A(1-5/8)	105.00 - 110.00	1.0000	1.0000
L14	14	CU12PSM6P4XXX(1-3/4)	105.00 - 110.00	1.0000	1.0000
L15	1	Safety Line 3/8	95.50 - 105.00	1.0000	1.0000
L15	9	LDF7-50A(1-5/8)	95.50 - 105.00	1.0000	1.0000
L15	14	CU12PSM6P4XXX(1-3/4)	95.50 - 105.00	1.0000	1.0000
L16	1	Safety Line 3/8	94.50 - 95.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L16	9	LDF7-50A(1-5/8)	94.50 - 95.50	1.0000	1.0000
L16	14	CU12PSM6P4XXX(1-3/4)	94.50 - 95.50	1.0000	1.0000
L17	1	Safety Line 3/8	89.50 - 94.50	1.0000	1.0000
L17	9	LDF7-50A(1-5/8)	89.50 - 94.50	1.0000	1.0000
L17	14	CU12PSM6P4XXX(1-3/4)	89.50 - 94.50	1.0000	1.0000
L18	1	Safety Line 3/8	84.50 - 89.50	1.0000	1.0000
L18	9	LDF7-50A(1-5/8)	84.50 - 89.50	1.0000	1.0000
L18	14	CU12PSM6P4XXX(1-3/4)	84.50 - 89.50	1.0000	1.0000
L18	43	PL1.25x6 Reinforcement - Wind Area/Weight	84.50 - 85.67	1.0000	1.0000
L18	44	PL1.25x6 Reinforcement - Wind Area/Weight	84.50 - 85.67	1.0000	1.0000
L18	45	PL1.25x6 Reinforcement - Wind Area/Weight	84.50 - 85.67	1.0000	1.0000
L19	1	Safety Line 3/8	83.17 - 84.50	1.0000	1.0000
L19	9	LDF7-50A(1-5/8)	83.17 - 84.50	1.0000	1.0000
L19	14	CU12PSM6P4XXX(1-3/4)	83.17 - 84.50	1.0000	1.0000
L19	43	PL1.25x6 Reinforcement - Wind Area/Weight	83.17 - 84.50	1.0000	1.0000
L19	44	PL1.25x6 Reinforcement - Wind Area/Weight	83.17 - 84.50	1.0000	1.0000
L19	45	PL1.25x6 Reinforcement - Wind Area/Weight	83.17 - 84.50	1.0000	1.0000
L20	1	Safety Line 3/8	82.92 - 83.17	1.0000	1.0000
L20	9	LDF7-50A(1-5/8)	82.92 - 83.17	1.0000	1.0000
L20	14	CU12PSM6P4XXX(1-3/4)	82.92 - 83.17	1.0000	1.0000
L20	43	PL1.25x6 Reinforcement - Wind Area/Weight	82.92 - 83.17	1.0000	1.0000
L20	44	PL1.25x6 Reinforcement - Wind Area/Weight	82.92 - 83.17	1.0000	1.0000
L20	45	PL1.25x6 Reinforcement - Wind Area/Weight	82.92 - 83.17	1.0000	1.0000
L21	1	Safety Line 3/8	77.92 - 82.92	1.0000	1.0000
L21	9	LDF7-50A(1-5/8)	77.92 - 82.92	1.0000	1.0000
L21	14	CU12PSM6P4XXX(1-3/4)	77.92 - 82.92	1.0000	1.0000
L21	43	PL1.25x6 Reinforcement - Wind Area/Weight	77.92 - 82.92	1.0000	1.0000
L21	44	PL1.25x6 Reinforcement - Wind Area/Weight	77.92 - 82.92	1.0000	1.0000
L21	45	PL1.25x6 Reinforcement - Wind Area/Weight	77.92 - 82.92	1.0000	1.0000
L22	1	Safety Line 3/8	72.92 - 77.92	1.0000	1.0000
L22	9	LDF7-50A(1-5/8)	72.92 - 77.92	1.0000	1.0000
L22	14	CU12PSM6P4XXX(1-3/4)	72.92 - 77.92	1.0000	1.0000
L22	43	PL1.25x6 Reinforcement - Wind Area/Weight	72.92 - 77.92	1.0000	1.0000
L22	44	PL1.25x6 Reinforcement - Wind Area/Weight	72.92 - 77.92	1.0000	1.0000
L22	45	PL1.25x6 Reinforcement - Wind Area/Weight	72.92 - 77.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L23	1	Wind Area/Weight Safety Line 3/8	77.92 67.92 - 72.92	1.0000	1.0000
L23	9	LDF7-50A(1-5/8)	67.92 - 72.92	1.0000	1.0000
L23	14	CU12PSM6P4XXX(1-3/4)	67.92 - 72.92	1.0000	1.0000
L23	43	PL1.25x6 Reinforcement - Wind Area/Weight	67.92 - 72.92	1.0000	1.0000
L23	44	PL1.25x6 Reinforcement - Wind Area/Weight	67.92 - 72.92	1.0000	1.0000
L23	45	PL1.25x6 Reinforcement - Wind Area/Weight	67.92 - 72.92	1.0000	1.0000
L24	1	Safety Line 3/8	63.08 - 67.92	1.0000	1.0000
L24	9	LDF7-50A(1-5/8)	63.08 - 67.92	1.0000	1.0000
L24	14	CU12PSM6P4XXX(1-3/4)	63.08 - 67.92	1.0000	1.0000
L24	26	MP3-04	63.08 - 65.50	1.0000	1.0000
L24	27	MP3-04	63.08 - 65.50	1.0000	1.0000
L24	28	MP3-04	63.08 - 65.50	1.0000	1.0000
L24	43	PL1.25x6 Reinforcement - Wind Area/Weight	63.08 - 67.92	1.0000	1.0000
L24	44	PL1.25x6 Reinforcement - Wind Area/Weight	63.08 - 67.92	1.0000	1.0000
L24	45	PL1.25x6 Reinforcement - Wind Area/Weight	63.08 - 67.92	1.0000	1.0000
L25	1	Safety Line 3/8	62.83 - 63.08	1.0000	1.0000
L25	9	LDF7-50A(1-5/8)	62.83 - 63.08	1.0000	1.0000
L25	14	CU12PSM6P4XXX(1-3/4)	62.83 - 63.08	1.0000	1.0000
L25	26	MP3-04	62.83 - 63.08	1.0000	1.0000
L25	27	MP3-04	62.83 - 63.08	1.0000	1.0000
L25	28	MP3-04	62.83 - 63.08	1.0000	1.0000
L25	40	CCI-AFP-060100	62.83 - 63.08	1.0000	1.0000
L25	41	CCI-AFP-060100	62.83 - 63.08	1.0000	1.0000
L25	42	CCI-AFP-060100	62.83 - 63.08	1.0000	1.0000
L26	1	Safety Line 3/8	57.83 - 62.83	1.0000	1.0000
L26	9	LDF7-50A(1-5/8)	57.83 - 62.83	1.0000	1.0000
L26	14	CU12PSM6P4XXX(1-3/4)	57.83 - 62.83	1.0000	1.0000
L26	26	MP3-04	57.83 - 62.83	1.0000	1.0000
L26	27	MP3-04	57.83 - 62.83	1.0000	1.0000
L26	28	MP3-04	57.83 - 62.83	1.0000	1.0000
L26	40	CCI-AFP-060100	57.83 - 62.83	1.0000	1.0000
L26	41	CCI-AFP-060100	57.83 - 62.83	1.0000	1.0000
L26	42	CCI-AFP-060100	57.83 - 62.83	1.0000	1.0000
L27	1	Safety Line 3/8	46.58 - 57.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L27	9	LDF7-50A(1-5/8)	46.58 - 57.83	1.0000	1.0000
L27	14	CU12PSM6P4XXX(1-3/4)	46.58 - 57.83	1.0000	1.0000
L27	26	MP3-04	46.58 - 57.83	1.0000	1.0000
L27	27	MP3-04	46.58 - 57.83	1.0000	1.0000
L27	28	MP3-04	46.58 - 57.83	1.0000	1.0000
L27	40	CCI-AFP-060100	46.58 - 57.83	1.0000	1.0000
L27	41	CCI-AFP-060100	46.58 - 57.83	1.0000	1.0000
L27	42	CCI-AFP-060100	46.58 - 57.83	1.0000	1.0000
L28	1	Safety Line 3/8	45.58 - 46.58	1.0000	1.0000
L28	9	LDF7-50A(1-5/8)	45.58 - 46.58	1.0000	1.0000
L28	14	CU12PSM6P4XXX(1-3/4)	45.58 - 46.58	1.0000	1.0000
L28	26	MP3-04	45.58 - 46.58	1.0000	1.0000
L28	27	MP3-04	45.58 - 46.58	1.0000	1.0000
L28	28	MP3-04	45.58 - 46.58	1.0000	1.0000
L28	40	CCI-AFP-060100	45.58 - 46.58	1.0000	1.0000
L28	41	CCI-AFP-060100	45.58 - 46.58	1.0000	1.0000
L28	42	CCI-AFP-060100	45.58 - 46.58	1.0000	1.0000
L29	1	Safety Line 3/8	42.92 - 45.58	1.0000	1.0000
L29	9	LDF7-50A(1-5/8)	42.92 - 45.58	1.0000	1.0000
L29	14	CU12PSM6P4XXX(1-3/4)	42.92 - 45.58	1.0000	1.0000
L29	23	MP3-05	42.92 - 45.50	1.0000	1.0000
L29	24	MP3-05	42.92 - 45.50	1.0000	1.0000
L29	25	MP3-05	42.92 - 44.83	1.0000	1.0000
L29	26	MP3-04	42.92 - 45.58	1.0000	1.0000
L29	27	MP3-04	42.92 - 45.58	1.0000	1.0000
L29	28	MP3-04	42.92 - 45.58	1.0000	1.0000
L29	40	CCI-AFP-060100	42.92 - 45.58	1.0000	1.0000
L29	41	CCI-AFP-060100	42.92 - 45.58	1.0000	1.0000
L29	42	CCI-AFP-060100	42.92 - 45.58	1.0000	1.0000
L30	1	Safety Line 3/8	42.57 - 42.92	1.0000	1.0000
L30	9	LDF7-50A(1-5/8)	42.57 - 42.92	1.0000	1.0000
L30	14	CU12PSM6P4XXX(1-3/4)	42.57 - 42.92	1.0000	1.0000
L30	23	MP3-05	42.57 - 42.92	1.0000	1.0000
L30	24	MP3-05	42.57 - 42.92	1.0000	1.0000
L30	25	MP3-05	42.57 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L30	26	MP3-04	42.92 42.57 -	1.0000	1.0000
L30	27	MP3-04	42.92 42.57 -	1.0000	1.0000
L30	28	MP3-04	42.92 42.57 -	1.0000	1.0000
L30	37	PL1.25x6 Reinforcement - Wind Area/Weight	42.92 42.57 -	1.0000	1.0000
L30	38	PL1.25x6 Reinforcement - Wind Area/Weight	42.92 42.57 -	1.0000	1.0000
L30	39	PL1.25x6 Reinforcement - Wind Area/Weight	42.92 42.57 -	1.0000	1.0000
L31	1	Safety Line 3/8	42.33 - 42.57	1.0000	1.0000
L31	9	LDF7-50A(1-5/8)	42.33 - 42.57	1.0000	1.0000
L31	14	CU12PSM6P4XXX(1-3/4)	42.33 - 42.57	1.0000	1.0000
L31	23	MP3-05	42.33 - 42.57	1.0000	1.0000
L31	24	MP3-05	42.33 - 42.57	1.0000	1.0000
L31	25	MP3-05	42.33 - 42.57	1.0000	1.0000
L31	26	MP3-04	42.33 - 42.57	1.0000	1.0000
L31	27	MP3-04	42.33 - 42.57	1.0000	1.0000
L31	28	MP3-04	42.33 - 42.57	1.0000	1.0000
L31	37	PL1.25x6 Reinforcement - Wind Area/Weight	42.33 - 42.57	1.0000	1.0000
L31	38	PL1.25x6 Reinforcement - Wind Area/Weight	42.33 - 42.57	1.0000	1.0000
L31	39	PL1.25x6 Reinforcement - Wind Area/Weight	42.33 - 42.57	1.0000	1.0000
L32	1	Safety Line 3/8	41.92 - 42.33	1.0000	1.0000
L32	9	LDF7-50A(1-5/8)	41.92 - 42.33	1.0000	1.0000
L32	14	CU12PSM6P4XXX(1-3/4)	41.92 - 42.33	1.0000	1.0000
L32	23	MP3-05	41.92 - 42.33	1.0000	1.0000
L32	24	MP3-05	41.92 - 42.33	1.0000	1.0000
L32	25	MP3-05	41.92 - 42.33	1.0000	1.0000
L32	26	MP3-04	41.92 - 42.33	1.0000	1.0000
L32	27	MP3-04	41.92 - 42.33	1.0000	1.0000
L32	28	MP3-04	41.92 - 42.33	1.0000	1.0000
L32	37	PL1.25x6 Reinforcement - Wind Area/Weight	41.92 - 42.33	1.0000	1.0000
L32	38	PL1.25x6 Reinforcement - Wind Area/Weight	41.92 - 42.33	1.0000	1.0000
L32	39	PL1.25x6 Reinforcement - Wind Area/Weight	41.92 - 42.33	1.0000	1.0000
L33	1	Safety Line 3/8	41.67 - 41.92	1.0000	1.0000
L33	9	LDF7-50A(1-5/8)	41.67 - 41.92	1.0000	1.0000
L33	14	CU12PSM6P4XXX(1-3/4)	41.67 - 41.92	1.0000	1.0000
L33	23	MP3-05	41.67 - 41.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L33	24	MP3-05	41.67 - 41.92	1.0000	1.0000
L33	25	MP3-05	41.67 - 41.92	1.0000	1.0000
L33	26	MP3-04	41.67 - 41.92	1.0000	1.0000
L33	27	MP3-04	41.67 - 41.92	1.0000	1.0000
L33	28	MP3-04	41.67 - 41.92	1.0000	1.0000
L33	34	CCI-AFP-060100	41.67 - 41.92	1.0000	1.0000
L33	35	CCI-AFP-060100	41.67 - 41.92	1.0000	1.0000
L33	36	CCI-AFP-060100	41.67 - 41.92	1.0000	1.0000
L34	1	Safety Line 3/8	36.67 - 41.67	1.0000	1.0000
L34	9	LDF7-50A(1-5/8)	36.67 - 41.67	1.0000	1.0000
L34	14	CU12PSM6P4XXX(1-3/4)	36.67 - 41.67	1.0000	1.0000
L34	23	MP3-05	36.67 - 41.67	1.0000	1.0000
L34	24	MP3-05	36.67 - 41.67	1.0000	1.0000
L34	25	MP3-05	36.67 - 41.67	1.0000	1.0000
L34	26	MP3-04	40.50 - 41.67	1.0000	1.0000
L34	27	MP3-04	40.50 - 41.67	1.0000	1.0000
L34	28	MP3-04	40.50 - 41.67	1.0000	1.0000
L34	34	CCI-AFP-060100	36.67 - 41.67	1.0000	1.0000
L34	35	CCI-AFP-060100	36.67 - 41.67	1.0000	1.0000
L34	36	CCI-AFP-060100	36.67 - 41.67	1.0000	1.0000
L35	1	Safety Line 3/8	32.00 - 36.67	1.0000	1.0000
L35	9	LDF7-50A(1-5/8)	32.00 - 36.67	1.0000	1.0000
L35	14	CU12PSM6P4XXX(1-3/4)	32.00 - 36.67	1.0000	1.0000
L35	23	MP3-05	32.00 - 36.67	1.0000	1.0000
L35	24	MP3-05	32.00 - 36.67	1.0000	1.0000
L35	25	MP3-05	32.00 - 36.67	1.0000	1.0000
L35	30	CCI-AFP-065125	32.00 - 35.50	1.0000	1.0000
L35	32	CCI-AFP-065125	32.00 - 35.50	1.0000	1.0000
L35	33	CCI-AFP-065125	32.00 - 35.50	1.0000	1.0000
L35	34	CCI-AFP-060100	35.50 - 36.67	1.0000	1.0000
L35	35	CCI-AFP-060100	35.50 - 36.67	1.0000	1.0000
L35	36	CCI-AFP-060100	35.50 - 36.67	1.0000	1.0000
L36	1	Safety Line 3/8	31.75 - 32.00	1.0000	1.0000
L36	9	LDF7-50A(1-5/8)	31.75 - 32.00	1.0000	1.0000
L36	14	CU12PSM6P4XXX(1-3/4)	31.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L36	23	MP3-05	32.00 31.75 - 32.00	1.0000	1.0000
L36	24	MP3-05	31.75 - 32.00	1.0000	1.0000
L36	25	MP3-05	31.75 - 32.00	1.0000	1.0000
L36	30	CCI-AFP-065125	31.75 - 32.00	1.0000	1.0000
L36	32	CCI-AFP-065125	31.75 - 32.00	1.0000	1.0000
L36	33	CCI-AFP-065125	31.75 - 32.00	1.0000	1.0000
L37	1	Safety Line 3/8	26.75 - 31.75	1.0000	1.0000
L37	9	LDF7-50A(1-5/8)	26.75 - 31.75	1.0000	1.0000
L37	14	CU12PSM6P4XXX(1-3/4)	26.75 - 31.75	1.0000	1.0000
L37	23	MP3-05	26.75 - 31.75	1.0000	1.0000
L37	24	MP3-05	26.75 - 31.75	1.0000	1.0000
L37	25	MP3-05	26.75 - 31.75	1.0000	1.0000
L37	30	CCI-AFP-065125	26.75 - 31.75	1.0000	1.0000
L37	32	CCI-AFP-065125	26.75 - 31.75	1.0000	1.0000
L37	33	CCI-AFP-065125	26.75 - 31.75	1.0000	1.0000
L38	1	Safety Line 3/8	21.75 - 26.75	1.0000	1.0000
L38	9	LDF7-50A(1-5/8)	21.75 - 26.75	1.0000	1.0000
L38	14	CU12PSM6P4XXX(1-3/4)	21.75 - 26.75	1.0000	1.0000
L38	23	MP3-05	21.75 - 26.75	1.0000	1.0000
L38	24	MP3-05	21.75 - 26.75	1.0000	1.0000
L38	25	MP3-05	21.75 - 26.75	1.0000	1.0000
L38	30	CCI-AFP-065125	21.75 - 26.75	1.0000	1.0000
L38	32	CCI-AFP-065125	21.75 - 26.75	1.0000	1.0000
L38	33	CCI-AFP-065125	21.75 - 26.75	1.0000	1.0000
L39	1	Safety Line 3/8	18.42 - 21.75	1.0000	1.0000
L39	9	LDF7-50A(1-5/8)	18.42 - 21.75	1.0000	1.0000
L39	14	CU12PSM6P4XXX(1-3/4)	18.42 - 21.75	1.0000	1.0000
L39	20	MP3-05	18.42 - 20.50	1.0000	1.0000
L39	21	MP3-05	18.42 - 20.50	1.0000	1.0000
L39	22	MP3-05	18.42 - 20.50	1.0000	1.0000
L39	23	MP3-05	18.42 - 21.75	1.0000	1.0000
L39	24	MP3-05	18.42 - 21.75	1.0000	1.0000
L39	25	MP3-05	18.42 - 21.75	1.0000	1.0000
L39	30	CCI-AFP-065125	18.42 - 21.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L39	32	CCI-AFP-065125	18.42 - 21.75	1.0000	1.0000
L39	33	CCI-AFP-065125	18.42 - 21.75	1.0000	1.0000
L40	1	Safety Line 3/8	18.17 - 18.42	1.0000	1.0000
L40	9	LDF7-50A(1-5/8)	18.17 - 18.42	1.0000	1.0000
L40	14	CU12PSM6P4XXX(1-3/4)	18.17 - 18.42	1.0000	1.0000
L40	20	MP3-05	18.17 - 18.42	1.0000	1.0000
L40	21	MP3-05	18.17 - 18.42	1.0000	1.0000
L40	22	MP3-05	18.17 - 18.42	1.0000	1.0000
L40	23	MP3-05	18.17 - 18.42	1.0000	1.0000
L40	24	MP3-05	18.17 - 18.42	1.0000	1.0000
L40	25	MP3-05	18.17 - 18.42	1.0000	1.0000
L40	30	CCI-AFP-065125	18.17 - 18.42	1.0000	1.0000
L40	32	CCI-AFP-065125	18.17 - 18.42	1.0000	1.0000
L40	33	CCI-AFP-065125	18.17 - 18.42	1.0000	1.0000
L41	1	Safety Line 3/8	17.58 - 18.17	1.0000	1.0000
L41	9	LDF7-50A(1-5/8)	17.58 - 18.17	1.0000	1.0000
L41	14	CU12PSM6P4XXX(1-3/4)	17.58 - 18.17	1.0000	1.0000
L41	20	MP3-05	17.58 - 18.17	1.0000	1.0000
L41	21	MP3-05	17.58 - 18.17	1.0000	1.0000
L41	22	MP3-05	17.58 - 18.17	1.0000	1.0000
L41	23	MP3-05	17.58 - 18.17	1.0000	1.0000
L41	24	MP3-05	17.58 - 18.17	1.0000	1.0000
L41	25	MP3-05	17.58 - 18.17	1.0000	1.0000
L41	30	CCI-AFP-065125	17.58 - 18.17	1.0000	1.0000
L41	32	CCI-AFP-065125	17.58 - 18.17	1.0000	1.0000
L41	33	CCI-AFP-065125	17.58 - 18.17	1.0000	1.0000
L42	1	Safety Line 3/8	17.33 - 17.58	1.0000	1.0000
L42	9	LDF7-50A(1-5/8)	17.33 - 17.58	1.0000	1.0000
L42	14	CU12PSM6P4XXX(1-3/4)	17.33 - 17.58	1.0000	1.0000
L42	20	MP3-05	17.33 - 17.58	1.0000	1.0000
L42	21	MP3-05	17.33 - 17.58	1.0000	1.0000
L42	22	MP3-05	17.33 - 17.58	1.0000	1.0000
L42	23	MP3-05	17.33 - 17.58	1.0000	1.0000
L42	24	MP3-05	17.33 - 17.58	1.0000	1.0000
L42	25	MP3-05	17.33 - 17.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L42	30	CCI-AFP-065125	17.58 17.33 - 17.58	1.0000	1.0000
L42	32	CCI-AFP-065125	17.33 - 17.58	1.0000	1.0000
L42	33	CCI-AFP-065125	17.33 - 17.58	1.0000	1.0000
L43	1	Safety Line 3/8	9.92 - 17.33	1.0000	1.0000
L43	9	LDF7-50A(1-5/8)	9.92 - 17.33	1.0000	1.0000
L43	14	CU12PSM6P4XXX(1-3/4)	9.92 - 17.33	1.0000	1.0000
L43	20	MP3-05	9.92 - 17.33	1.0000	1.0000
L43	21	MP3-05	9.92 - 17.33	1.0000	1.0000
L43	22	MP3-05	9.92 - 17.33	1.0000	1.0000
L43	23	MP3-05	15.50 - 17.33	1.0000	1.0000
L43	24	MP3-05	15.50 - 17.33	1.0000	1.0000
L43	25	MP3-05	15.50 - 17.33	1.0000	1.0000
L43	30	CCI-AFP-065125	10.50 - 17.33	1.0000	1.0000
L43	31	CCI-AFP-065125	9.92 - 15.50	1.0000	1.0000
L43	32	CCI-AFP-065125	9.92 - 17.33	1.0000	1.0000
L43	33	CCI-AFP-065125	9.92 - 17.33	1.0000	1.0000
L44	1	Safety Line 3/8	8.92 - 9.92	1.0000	1.0000
L44	9	LDF7-50A(1-5/8)	8.92 - 9.92	1.0000	1.0000
L44	14	CU12PSM6P4XXX(1-3/4)	8.92 - 9.92	1.0000	1.0000
L44	20	MP3-05	8.92 - 9.92	1.0000	1.0000
L44	21	MP3-05	8.92 - 9.92	1.0000	1.0000
L44	22	MP3-05	8.92 - 9.92	1.0000	1.0000
L44	31	CCI-AFP-065125	8.92 - 9.92	1.0000	1.0000
L44	32	CCI-AFP-065125	8.92 - 9.92	1.0000	1.0000
L44	33	CCI-AFP-065125	8.92 - 9.92	1.0000	1.0000
L45	1	Safety Line 3/8	4.00 - 8.92	1.0000	1.0000
L45	9	LDF7-50A(1-5/8)	4.00 - 8.92	1.0000	1.0000
L45	14	CU12PSM6P4XXX(1-3/4)	4.00 - 8.92	1.0000	1.0000
L45	20	MP3-05	4.00 - 8.92	1.0000	1.0000
L45	21	MP3-05	4.00 - 8.92	1.0000	1.0000
L45	22	MP3-05	4.00 - 8.92	1.0000	1.0000
L45	31	CCI-AFP-065125	4.00 - 8.92	1.0000	1.0000
L45	32	CCI-AFP-065125	4.00 - 8.92	1.0000	1.0000
L45	33	CCI-AFP-065125	4.00 - 8.92	1.0000	1.0000
L46	1	Safety Line 3/8	3.75 - 4.00	1.0000	1.0000
L46	9	LDF7-50A(1-5/8)	3.75 - 4.00	1.0000	1.0000
L46	14	CU12PSM6P4XXX(1-3/4)	3.75 - 4.00	1.0000	1.0000
L46	20	MP3-05	3.75 - 4.00	1.0000	1.0000
L46	21	MP3-05	3.75 - 4.00	1.0000	1.0000
L46	22	MP3-05	3.75 - 4.00	1.0000	1.0000
L46	31	CCI-AFP-065125	3.75 - 4.00	1.0000	1.0000
L46	32	CCI-AFP-065125	3.75 - 4.00	1.0000	1.0000
L46	33	CCI-AFP-065125	3.75 - 4.00	1.0000	1.0000
L47	1	Safety Line 3/8	3.42 - 3.75	1.0000	1.0000
L47	9	LDF7-50A(1-5/8)	3.42 - 3.75	1.0000	1.0000
L47	14	CU12PSM6P4XXX(1-3/4)	3.42 - 3.75	1.0000	1.0000
L47	20	MP3-05	3.42 - 3.75	1.0000	1.0000
L47	21	MP3-05	3.42 - 3.75	1.0000	1.0000
L47	22	MP3-05	3.42 - 3.75	1.0000	1.0000
L47	31	CCI-AFP-065125	3.42 - 3.75	1.0000	1.0000
L47	32	CCI-AFP-065125	3.42 - 3.75	1.0000	1.0000
L47	33	CCI-AFP-065125	3.42 - 3.75	1.0000	1.0000
L48	1	Safety Line 3/8	3.17 - 3.42	1.0000	1.0000
L48	9	LDF7-50A(1-5/8)	3.17 - 3.42	1.0000	1.0000
L48	14	CU12PSM6P4XXX(1-3/4)	3.17 - 3.42	1.0000	1.0000
L48	20	MP3-05	3.17 - 3.42	1.0000	1.0000
L48	21	MP3-05	3.17 - 3.42	1.0000	1.0000
L48	22	MP3-05	3.17 - 3.42	1.0000	1.0000
L48	31	CCI-AFP-065125	3.17 - 3.42	1.0000	1.0000
L48	32	CCI-AFP-065125	3.17 - 3.42	1.0000	1.0000
L48	33	CCI-AFP-065125	3.17 - 3.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L49	1	Safety Line 3/8	0.00 - 3.17	1.0000	1.0000
L49	9	LDF7-50A(1-5/8)	0.00 - 3.17	1.0000	1.0000
L49	14	CU12PSM6P4XXX(1-3/4)	0.00 - 3.17	1.0000	1.0000
L49	20	MP3-05	0.50 - 3.17	1.0000	1.0000
L49	21	MP3-05	0.50 - 3.17	1.0000	1.0000
L49	22	MP3-05	0.50 - 3.17	1.0000	1.0000
L49	31	CCI-AFP-065125	0.50 - 3.17	1.0000	1.0000
L49	32	CCI-AFP-065125	0.50 - 3.17	1.0000	1.0000
L49	33	CCI-AFP-065125	0.50 - 3.17	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
L18	43	PL1.25x6 Reinforcement - Wind Area/Weight	84.50 - 85.67	Auto	0.0000
L18	44	PL1.25x6 Reinforcement - Wind Area/Weight	84.50 - 85.67	Auto	0.0000
L18	45	PL1.25x6 Reinforcement - Wind Area/Weight	84.50 - 85.67	Auto	0.0000
L19	43	PL1.25x6 Reinforcement - Wind Area/Weight	83.17 - 84.50	Auto	0.0000
L19	44	PL1.25x6 Reinforcement - Wind Area/Weight	83.17 - 84.50	Auto	0.0000
L19	45	PL1.25x6 Reinforcement - Wind Area/Weight	83.17 - 84.50	Auto	0.0000
L20	43	PL1.25x6 Reinforcement - Wind Area/Weight	82.92 - 83.17	Auto	0.0000
L20	44	PL1.25x6 Reinforcement - Wind Area/Weight	82.92 - 83.17	Auto	0.0000
L20	45	PL1.25x6 Reinforcement - Wind Area/Weight	82.92 - 83.17	Auto	0.0000
L21	43	PL1.25x6 Reinforcement - Wind Area/Weight	77.92 - 82.92	Auto	0.0000
L21	44	PL1.25x6 Reinforcement - Wind Area/Weight	77.92 - 82.92	Auto	0.0000
L21	45	PL1.25x6 Reinforcement - Wind Area/Weight	77.92 - 82.92	Auto	0.0000
L22	43	PL1.25x6 Reinforcement - Wind Area/Weight	72.92 - 77.92	Auto	0.0000
L22	44	PL1.25x6 Reinforcement - Wind Area/Weight	72.92 - 77.92	Auto	0.0000
L22	45	PL1.25x6 Reinforcement - Wind Area/Weight	72.92 - 77.92	Auto	0.0000
L23	43	PL1.25x6 Reinforcement - Wind Area/Weight	67.92 - 72.92	Auto	0.0000
L23	44	PL1.25x6 Reinforcement - Wind Area/Weight	67.92 - 72.92	Auto	0.0000
L23	45	PL1.25x6 Reinforcement - Wind Area/Weight	67.92 - 72.92	Auto	0.0000
L24	26	MP3-04	63.08 - 65.50	Auto	0.0000
L24	27	MP3-04	63.08 - 65.50	Auto	0.0000
L24	28	MP3-04	63.08 - 65.50	Auto	0.0000
L24	43	PL1.25x6 Reinforcement - Wind Area/Weight	63.08 - 67.92	Auto	0.0000
L24	44	PL1.25x6 Reinforcement -	63.08 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L24	45	Wind Area/Weight PL1.25x6 Reinforcement -	67.92 63.08 -	Auto	0.0000
L25	26	Wind Area/Weight MP3-04	67.92 62.83 -	Auto	0.0000
L25	27	MP3-04	63.08 62.83 -	Auto	0.0000
L25	28	MP3-04	63.08 62.83 -	Auto	0.0000
L25	40	CCI-AFP-060100	63.08 62.83 -	Auto	0.0000
L25	41	CCI-AFP-060100	63.08 62.83 -	Auto	0.0000
L25	42	CCI-AFP-060100	63.08 62.83 -	Auto	0.0000
L26	26	MP3-04	63.08 57.83 -	Auto	0.0000
L26	27	MP3-04	62.83 57.83 -	Auto	0.0000
L26	28	MP3-04	62.83 57.83 -	Auto	0.0000
L26	40	CCI-AFP-060100	62.83 57.83 -	Auto	0.0000
L26	41	CCI-AFP-060100	62.83 57.83 -	Auto	0.0000
L26	42	CCI-AFP-060100	62.83 57.83 -	Auto	0.0000
L27	26	MP3-04	62.83 46.58 -	Auto	0.0000
L27	27	MP3-04	57.83 46.58 -	Auto	0.0000
L27	28	MP3-04	57.83 46.58 -	Auto	0.0000
L27	40	CCI-AFP-060100	57.83 46.58 -	Auto	0.0000
L27	41	CCI-AFP-060100	57.83 46.58 -	Auto	0.0000
L27	42	CCI-AFP-060100	57.83 46.58 -	Auto	0.0000
L28	26	MP3-04	57.83 45.58 -	Auto	0.0000
L28	27	MP3-04	46.58 45.58 -	Auto	0.0000
L28	28	MP3-04	46.58 45.58 -	Auto	0.0000
L28	40	CCI-AFP-060100	46.58 45.58 -	Auto	0.0000
L28	41	CCI-AFP-060100	46.58 45.58 -	Auto	0.0000
L28	42	CCI-AFP-060100	46.58 45.58 -	Auto	0.0000
L29	23	MP3-05	46.58 42.92 -	Auto	0.0000
L29	24	MP3-05	45.50 42.92 -	Auto	0.0000
L29	25	MP3-05	45.50 42.92 -	Auto	0.0000
L29	26	MP3-04	44.83 42.92 -	Auto	0.0000
L29	27	MP3-04	45.58 42.92 -	Auto	0.0000
L29	28	MP3-04	45.58 42.92 -	Auto	0.0000
L29	40	CCI-AFP-060100	45.58 42.92 -	Auto	0.0000
L29	41	CCI-AFP-060100	45.58 42.92 -	Auto	0.0000
L29	42	CCI-AFP-060100	45.58 42.92 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L30	23	MP3-05	45.58 42.57 - 42.92	Auto	0.0000
L30	24	MP3-05	42.57 - 42.92	Auto	0.0000
L30	25	MP3-05	42.57 - 42.92	Auto	0.0000
L30	26	MP3-04	42.57 - 42.92	Auto	0.0000
L30	27	MP3-04	42.57 - 42.92	Auto	0.0000
L30	28	MP3-04	42.57 - 42.92	Auto	0.0000
L30	37	PL1.25x6 Reinforcement - Wind Area/Weight	42.57 - 42.92	Auto	0.0000
L30	38	PL1.25x6 Reinforcement - Wind Area/Weight	42.57 - 42.92	Auto	0.0000
L30	39	PL1.25x6 Reinforcement - Wind Area/Weight	42.57 - 42.92	Auto	0.0000
L31	23	MP3-05	42.33 - 42.57	Auto	0.0000
L31	24	MP3-05	42.33 - 42.57	Auto	0.0000
L31	25	MP3-05	42.33 - 42.57	Auto	0.0000
L31	26	MP3-04	42.33 - 42.57	Auto	0.0000
L31	27	MP3-04	42.33 - 42.57	Auto	0.0000
L31	28	MP3-04	42.33 - 42.57	Auto	0.0000
L31	37	PL1.25x6 Reinforcement - Wind Area/Weight	42.33 - 42.57	Auto	0.0000
L31	38	PL1.25x6 Reinforcement - Wind Area/Weight	42.33 - 42.57	Auto	0.0000
L31	39	PL1.25x6 Reinforcement - Wind Area/Weight	42.33 - 42.57	Auto	0.0000
L32	23	MP3-05	41.92 - 42.33	Auto	0.0000
L32	24	MP3-05	41.92 - 42.33	Auto	0.0000
L32	25	MP3-05	41.92 - 42.33	Auto	0.0000
L32	26	MP3-04	41.92 - 42.33	Auto	0.0000
L32	27	MP3-04	41.92 - 42.33	Auto	0.0000
L32	28	MP3-04	41.92 - 42.33	Auto	0.0000
L32	37	PL1.25x6 Reinforcement - Wind Area/Weight	41.92 - 42.33	Auto	0.0000
L32	38	PL1.25x6 Reinforcement - Wind Area/Weight	41.92 - 42.33	Auto	0.0000
L32	39	PL1.25x6 Reinforcement - Wind Area/Weight	41.92 - 42.33	Auto	0.0000
L33	23	MP3-05	41.67 - 41.92	Auto	0.0000
L33	24	MP3-05	41.67 - 41.92	Auto	0.0000
L33	25	MP3-05	41.67 - 41.92	Auto	0.0000
L33	26	MP3-04	41.67 - 41.92	Auto	0.0000
L33	27	MP3-04	41.67 - 41.92	Auto	0.0000
L33	28	MP3-04	41.67 - 41.92	Auto	0.0000
L33	34	CCI-AFP-060100	41.67 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	35	CCI-AFP-060100	41.92 41.67 - 41.92	Auto	0.0000
L33	36	CCI-AFP-060100	41.67 - 41.92	Auto	0.0000
L34	23	MP3-05	36.67 - 41.67	Auto	0.0000
L34	24	MP3-05	36.67 - 41.67	Auto	0.0000
L34	25	MP3-05	36.67 - 41.67	Auto	0.0000
L34	26	MP3-04	40.50 - 41.67	Auto	0.0000
L34	27	MP3-04	40.50 - 41.67	Auto	0.0000
L34	28	MP3-04	40.50 - 41.67	Auto	0.0000
L34	34	CCI-AFP-060100	36.67 - 41.67	Auto	0.0000
L34	35	CCI-AFP-060100	36.67 - 41.67	Auto	0.0000
L34	36	CCI-AFP-060100	36.67 - 41.67	Auto	0.0000
L35	23	MP3-05	32.00 - 36.67	Auto	0.0000
L35	24	MP3-05	32.00 - 36.67	Auto	0.0000
L35	25	MP3-05	32.00 - 36.67	Auto	0.0000
L35	30	CCI-AFP-065125	32.00 - 35.50	Auto	0.0000
L35	32	CCI-AFP-065125	32.00 - 35.50	Auto	0.0000
L35	33	CCI-AFP-065125	32.00 - 35.50	Auto	0.0000
L35	34	CCI-AFP-060100	35.50 - 36.67	Auto	0.0000
L35	35	CCI-AFP-060100	35.50 - 36.67	Auto	0.0000
L35	36	CCI-AFP-060100	35.50 - 36.67	Auto	0.0000
L36	23	MP3-05	31.75 - 32.00	Auto	0.0000
L36	24	MP3-05	31.75 - 32.00	Auto	0.0000
L36	25	MP3-05	31.75 - 32.00	Auto	0.0000
L36	30	CCI-AFP-065125	31.75 - 32.00	Auto	0.0000
L36	32	CCI-AFP-065125	31.75 - 32.00	Auto	0.0000
L36	33	CCI-AFP-065125	31.75 - 32.00	Auto	0.0000
L37	23	MP3-05	26.75 - 31.75	Auto	0.0000
L37	24	MP3-05	26.75 - 31.75	Auto	0.0000
L37	25	MP3-05	26.75 - 31.75	Auto	0.0000
L37	30	CCI-AFP-065125	26.75 - 31.75	Auto	0.0000
L37	32	CCI-AFP-065125	26.75 - 31.75	Auto	0.0000
L37	33	CCI-AFP-065125	26.75 - 31.75	Auto	0.0000
L38	23	MP3-05	21.75 - 26.75	Auto	0.0000
L38	24	MP3-05	21.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L38	25	MP3-05	26.75 21.75 - 26.75	Auto	0.0000
L38	30	CCI-AFP-065125	21.75 - 26.75	Auto	0.0000
L38	32	CCI-AFP-065125	21.75 - 26.75	Auto	0.0000
L38	33	CCI-AFP-065125	21.75 - 26.75	Auto	0.0000
L39	20	MP3-05	18.42 - 20.50	Auto	0.0000
L39	21	MP3-05	18.42 - 20.50	Auto	0.0000
L39	22	MP3-05	18.42 - 20.50	Auto	0.0000
L39	23	MP3-05	18.42 - 21.75	Auto	0.0000
L39	24	MP3-05	18.42 - 21.75	Auto	0.0000
L39	25	MP3-05	18.42 - 21.75	Auto	0.0000
L39	30	CCI-AFP-065125	18.42 - 21.75	Auto	0.0000
L39	32	CCI-AFP-065125	18.42 - 21.75	Auto	0.0000
L39	33	CCI-AFP-065125	18.42 - 21.75	Auto	0.0000
L40	20	MP3-05	18.17 - 18.42	Auto	0.0000
L40	21	MP3-05	18.17 - 18.42	Auto	0.0000
L40	22	MP3-05	18.17 - 18.42	Auto	0.0000
L40	23	MP3-05	18.17 - 18.42	Auto	0.0000
L40	24	MP3-05	18.17 - 18.42	Auto	0.0000
L40	25	MP3-05	18.17 - 18.42	Auto	0.0000
L40	30	CCI-AFP-065125	18.17 - 18.42	Auto	0.0000
L40	32	CCI-AFP-065125	18.17 - 18.42	Auto	0.0000
L40	33	CCI-AFP-065125	18.17 - 18.42	Auto	0.0000
L41	20	MP3-05	17.58 - 18.17	Auto	0.0000
L41	21	MP3-05	17.58 - 18.17	Auto	0.0000
L41	22	MP3-05	17.58 - 18.17	Auto	0.0000
L41	23	MP3-05	17.58 - 18.17	Auto	0.0000
L41	24	MP3-05	17.58 - 18.17	Auto	0.0000
L41	25	MP3-05	17.58 - 18.17	Auto	0.0000
L41	30	CCI-AFP-065125	17.58 - 18.17	Auto	0.0000
L41	32	CCI-AFP-065125	17.58 - 18.17	Auto	0.0000
L41	33	CCI-AFP-065125	17.58 - 18.17	Auto	0.0000
L42	20	MP3-05	17.33 - 17.58	Auto	0.0000
L42	21	MP3-05	17.33 - 17.58	Auto	0.0000
L42	22	MP3-05	17.33 - 17.58	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L42	23	MP3-05	17.58 17.33 - 17.58	Auto	0.0000
L42	24	MP3-05	17.33 - 17.58	Auto	0.0000
L42	25	MP3-05	17.33 - 17.58	Auto	0.0000
L42	30	CCI-AFP-065125	17.33 - 17.58	Auto	0.0000
L42	32	CCI-AFP-065125	17.33 - 17.58	Auto	0.0000
L42	33	CCI-AFP-065125	17.33 - 17.58	Auto	0.0000
L43	20	MP3-05	9.92 - 17.33	Auto	0.0000
L43	21	MP3-05	9.92 - 17.33	Auto	0.0000
L43	22	MP3-05	9.92 - 17.33	Auto	0.0000
L43	23	MP3-05	15.50 - 17.33	Auto	0.0000
L43	24	MP3-05	15.50 - 17.33	Auto	0.0000
L43	25	MP3-05	15.50 - 17.33	Auto	0.0000
L43	30	CCI-AFP-065125	10.50 - 17.33	Auto	0.0000
L43	31	CCI-AFP-065125	9.92 - 15.50	Auto	0.0000
L43	32	CCI-AFP-065125	9.92 - 17.33	Auto	0.0000
L43	33	CCI-AFP-065125	9.92 - 17.33	Auto	0.0000
L44	20	MP3-05	8.92 - 9.92	Auto	0.0000
L44	21	MP3-05	8.92 - 9.92	Auto	0.0000
L44	22	MP3-05	8.92 - 9.92	Auto	0.0000
L44	31	CCI-AFP-065125	8.92 - 9.92	Auto	0.0000
L44	32	CCI-AFP-065125	8.92 - 9.92	Auto	0.0000
L44	33	CCI-AFP-065125	8.92 - 9.92	Auto	0.0000
L45	20	MP3-05	4.00 - 8.92	Auto	0.0000
L45	21	MP3-05	4.00 - 8.92	Auto	0.0000
L45	22	MP3-05	4.00 - 8.92	Auto	0.0000
L45	31	CCI-AFP-065125	4.00 - 8.92	Auto	0.0000
L45	32	CCI-AFP-065125	4.00 - 8.92	Auto	0.0000
L45	33	CCI-AFP-065125	4.00 - 8.92	Auto	0.0000
L46	20	MP3-05	3.75 - 4.00	Auto	0.0000
L46	21	MP3-05	3.75 - 4.00	Auto	0.0000
L46	22	MP3-05	3.75 - 4.00	Auto	0.0000
L46	31	CCI-AFP-065125	3.75 - 4.00	Auto	0.0000
L46	32	CCI-AFP-065125	3.75 - 4.00	Auto	0.0000
L46	33	CCI-AFP-065125	3.75 - 4.00	Auto	0.0000
L47	20	MP3-05	3.42 - 3.75	Auto	0.0000
L47	21	MP3-05	3.42 - 3.75	Auto	0.0000
L47	22	MP3-05	3.42 - 3.75	Auto	0.0000
L47	31	CCI-AFP-065125	3.42 - 3.75	Auto	0.0000
L47	32	CCI-AFP-065125	3.42 - 3.75	Auto	0.0000
L47	33	CCI-AFP-065125	3.42 - 3.75	Auto	0.0000
L48	20	MP3-05	3.17 - 3.42	Auto	0.0000
L48	21	MP3-05	3.17 - 3.42	Auto	0.0000
L48	22	MP3-05	3.17 - 3.42	Auto	0.0000
L48	31	CCI-AFP-065125	3.17 - 3.42	Auto	0.0000
L48	32	CCI-AFP-065125	3.17 - 3.42	Auto	0.0000
L48	33	CCI-AFP-065125	3.17 - 3.42	Auto	0.0000
L49	20	MP3-05	0.50 - 3.17	Auto	0.0000
L49	21	MP3-05	0.50 - 3.17	Auto	0.0000
L49	22	MP3-05	0.50 - 3.17	Auto	0.0000
L49	31	CCI-AFP-065125	0.50 - 3.17	Auto	0.0000
L49	32	CCI-AFP-065125	0.50 - 3.17	Auto	0.0000
L49	33	CCI-AFP-065125	0.50 - 3.17	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Platform Mount [LP 715-1]	C	None		0.00	173.00	No Ice	46.77	46.77	1.77
						1/2"	50.25	50.25	2.88
						Ice	53.97	53.97	4.09
						1" Ice	62.22	62.22	6.81
						2" Ice			
6'x2" Mount Pipe	A	From Leg	4.00	0.00	173.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	B	From Leg	4.00	0.00	173.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	C	From Leg	4.00	0.00	173.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.00	173.00	No Ice	5.50	4.38	0.10
			0.00			1/2"	5.97	4.84	0.17
			2.00			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.00	173.00	No Ice	5.50	4.38	0.10
			0.00			1/2"	5.97	4.84	0.17
			2.00			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.00	173.00	No Ice	5.50	4.38	0.10
			0.00			1/2"	5.97	4.84	0.17
			2.00			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
(2) ADA-85408580CF w/ Mount Pipe	A	From Leg	4.00	0.00	173.00	No Ice	4.95	3.42	0.03
			0.00			1/2"	5.32	4.02	0.07
			2.00			Ice	5.71	4.64	0.12
						1" Ice	6.51	5.92	0.23
						2" Ice			
BXA-80080/4CF w/ Mount Pipe	B	From Leg	4.00	0.00	173.00	No Ice	5.04	4.03	0.03
			0.00			1/2"	5.42	4.65	0.08
			2.00			Ice	5.81	5.28	0.13
						1" Ice	6.62	6.56	0.25
						2" Ice			
BXA-80080/4CF w/ Mount Pipe	C	From Leg	4.00	0.00	173.00	No Ice	5.04	4.03	0.03
			0.00			1/2"	5.42	4.65	0.08
			2.00			Ice	5.81	5.28	0.13
						1" Ice	6.62	6.56	0.25
						2" Ice			
RRH2X60-700	A	From Leg	4.00	0.00	173.00	No Ice	3.50	1.82	0.06
			0.00			1/2"	3.76	2.05	0.08
			2.00			Ice	4.03	2.29	0.11
						1" Ice	4.58	2.79	0.17
						2" Ice			
RRH2X60-700	B	From Leg	4.00	0.00	173.00	No Ice	3.50	1.82	0.06
			0.00			1/2"	3.76	2.05	0.08
			2.00			Ice	4.03	2.29	0.11
						1" Ice	4.58	2.79	0.17
						2" Ice			
RRH2X60-700	C	From Leg	4.00	0.00	173.00	No Ice	3.50	1.82	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
DB-C1-12C-24AB-0Z	A	From Leg	0.00	0.00	173.00	1/2"	3.76	2.05	0.08
			2.00			Ice	4.03	2.29	0.11
						1" Ice	4.58	2.79	0.17
						2" Ice			
			4.00			No Ice	4.06	3.10	0.03
			0.00			1/2"	4.32	3.34	0.07
			2.00			Ice	4.58	3.58	0.11
						1" Ice	5.14	4.09	0.20
						2" Ice			
						No Ice	2.58	1.63	0.06
B66A RRH4X45	A	From Leg	4.00	0.00	173.00	1/2"	2.79	1.81	0.08
			0.00			Ice	3.01	2.00	0.10
			2.00			1" Ice	3.48	2.40	0.16
						2" Ice			
						No Ice	2.58	1.63	0.06
B66A RRH4X45	B	From Leg	4.00	0.00	173.00	1/2"	2.79	1.81	0.08
			0.00			Ice	3.01	2.00	0.10
			2.00			1" Ice	3.48	2.40	0.16
						2" Ice			
						No Ice	2.58	1.63	0.06
B66A RRH4X45	C	From Leg	4.00	0.00	173.00	1/2"	2.79	1.81	0.08
			0.00			Ice	3.01	2.00	0.10
			2.00			1" Ice	3.48	2.40	0.16
						2" Ice			
						No Ice	2.58	1.63	0.06

Platform Mount [LP 303-1]	C	None		0.00	162.00	No Ice	14.69	14.69	1.25
						1/2"	18.01	18.01	1.57
						Ice	21.34	21.34	1.94
						1" Ice	28.08	28.08	2.85
						2" Ice			
6'x2" Mount Pipe	A	From Leg	4.00	0.00	162.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6'x2" Mount Pipe	B	From Leg	4.00	0.00	162.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(2) 6'x2" Mount Pipe	C	From Leg	4.00	0.00	162.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
800 10121 w/ Mount Pipe	A	From Leg	4.00	0.00	162.00	No Ice	3.60	2.95	0.07
			0.00			1/2"	4.00	3.34	0.11
			0.00			Ice	4.42	3.74	0.17
						1" Ice	5.29	4.59	0.30
						2" Ice			
QS66512-2 w/ Mount Pipe	A	From Leg	4.00	0.00	162.00	No Ice	4.04	4.18	0.14
			0.00			1/2"	4.42	4.57	0.21
			0.00			Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.00	162.00	No Ice	4.04	4.18	0.14
			0.00			1/2"	4.42	4.57	0.21
			0.00			Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			
QS66512-2 w/ Mount Pipe	C	From Leg	4.00	0.00	162.00	No Ice	4.04	4.18	0.14
			0.00			1/2"	4.42	4.57	0.21
			0.00			Ice	4.82	4.97	0.29
						1" Ice	5.63	5.79	0.48
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 9.98 10.76 12.36	6.25 6.96 7.70 9.22	0.07 0.14 0.22 0.42
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 9.98 10.76 12.36	6.25 6.96 7.70 9.22	0.07 0.14 0.22 0.42
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.22 9.98 10.76 12.36	6.25 6.96 7.70 9.22	0.07 0.14 0.22 0.42
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
(2) LGP2140X	A	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.08 1.21 1.35 1.66	0.36 0.45 0.56 0.78	0.01 0.02 0.03 0.05
(2) LGP2140X	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.08 1.21 1.35 1.66	0.36 0.45 0.56 0.78	0.01 0.02 0.03 0.05
RRUS-32 B30	A	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.31 3.56 3.81 4.33	2.42 2.64 2.86 3.32	0.08 0.10 0.14 0.21
RRUS-32 B30	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.31 3.56 3.81 4.33	2.42 2.64 2.86 3.32	0.08 0.10 0.14 0.21
RRUS-32 B30	C	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.31 3.56 3.81 4.33	2.42 2.64 2.86 3.32	0.08 0.10 0.14 0.21
DBC0061F1V51-2	A	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.43 0.51 0.61 0.81	0.41 0.50 0.59 0.79	0.03 0.03 0.04 0.06
DBC0061F1V51-2	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.43 0.51 0.61 0.81	0.41 0.50 0.59 0.79	0.03 0.03 0.04 0.06
RRUS 32 B2	A	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B2	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
RRUS 32 B2	C	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 11	A	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.10 0.15
RRUS 11	B	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.10 0.15
RRUS 11	C	From Leg	4.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.10 0.15
DC6-48-60-18-8C	C	From Leg	1.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.14 1.79 2.00 2.45	1.14 1.79 2.00 2.45	0.03 0.05 0.07 0.13
DC6-48-60-18-8F	C	From Leg	1.00 0.00 0.00	0.00	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.92 1.46 1.64 2.04	0.92 1.46 1.64 2.04	0.02 0.04 0.06 0.11

Commscope MC-PK8-DSH	A	None		0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	34.24 62.95 91.66 149.08	34.24 62.95 91.66 149.08	1.75 2.10 2.45 3.15
(2) 8'x2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8'x2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8'x2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	154.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.00	154.00	2" Ice No Ice 1/2" Ice 1" Ice	2.01 2.19 2.37 2.76	1.17 1.31 1.46 1.78	0.02 0.04 0.06 0.11
***						2" Ice			
Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails	C	None		0.00	144.00	No Ice 1/2" Ice 1" Ice	21.17 25.84 30.51 39.85	19.65 24.18 28.79 37.77	1.49 1.83 2.29 2.85
(2) 8'x2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	144.00	2" Ice No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8'x2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	144.00	2" Ice No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8'x2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	144.00	2" Ice No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	144.00	2" Ice No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	144.00	2" Ice No Ice 1/2" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	6.90	4.12	0.35
						2" Ice			
						No Ice	5.19	2.71	0.13
						1/2"	5.59	3.04	0.17
						Ice	6.02	3.38	0.23
APXVAALL24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	6.90	4.12	0.35
						2" Ice			
						No Ice	14.69	6.87	0.18
						1/2"	15.46	7.55	0.31
						Ice	16.23	8.25	0.45
APXVAALL24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	17.82	9.67	0.78
						2" Ice			
						No Ice	14.69	6.87	0.18
						1/2"	15.46	7.55	0.31
						Ice	16.23	8.25	0.45
APXVAALL24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	17.82	9.67	0.78
						2" Ice			
						No Ice	14.69	6.87	0.18
						1/2"	15.46	7.55	0.31
						Ice	16.23	8.25	0.45
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	17.82	9.67	0.78
						2" Ice			
						No Ice	2.14	1.69	0.11
						1/2"	2.32	1.85	0.13
						Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	2.91	2.39	0.22
						2" Ice			
						No Ice	2.14	1.69	0.11
						1/2"	2.32	1.85	0.13
						Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	2.91	2.39	0.22
						2" Ice			
						No Ice	2.14	1.69	0.11
						1/2"	2.32	1.85	0.13
						Ice	2.51	2.02	0.16
RADIO 4449 B71/B85A	A	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	2.91	2.39	0.22
						2" Ice			
						No Ice	1.64	1.31	0.07
						1/2"	1.80	1.46	0.09
						Ice	1.97	1.61	0.11
RADIO 4449 B71/B85A	B	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	2.33	1.94	0.16
						2" Ice			
						No Ice	1.64	1.31	0.07
						1/2"	1.80	1.46	0.09
						Ice	1.97	1.61	0.11
RADIO 4449 B71/B85A	C	From Leg	4.00 0.00 0.00	0.00	144.00	1" Ice	2.33	1.94	0.16
						2" Ice			
						No Ice	1.64	1.31	0.07
						1/2"	1.80	1.46	0.09
						Ice	1.97	1.61	0.11
***						1" Ice	2.33	1.94	0.16
						2" Ice			

Load Combinations

Comb. No.	Description
1	Dead Only

Comb. No.	Description
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	175 - 170	Pole	Max Tension	2	0.00	0.00	-0.00
			Max. Compression	26	-10.68	0.00	1.64
			Max. Mx	20	-3.29	20.31	0.24
			Max. My	2	-3.26	0.00	21.25
			Max. Vy	8	5.25	-20.31	0.24
			Max. Vx	2	-5.38	0.00	21.25
			Max. Torque	8			1.13
L2	170 - 165	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.29	0.00	1.65
			Max. Mx	20	-3.61	47.65	0.26
			Max. My	2	-3.58	0.00	49.20
			Max. Vy	8	5.68	-47.65	0.24

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	165 - 160	Pole	Max. Vx	2	-5.81	0.00	49.20
			Max. Torque	8			1.13
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.47	-0.94	2.32
			Max. Mx	8	-6.95	-84.37	0.44
			Max. My	2	-6.91	-0.21	86.51
			Max. Vy	8	9.55	-84.37	0.44
			Max. Vx	2	-9.70	-0.21	86.51
L4	160 - 155	Pole	Max. Torque	22			-1.29
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.24	-0.84	2.40
			Max. Mx	8	-7.35	-133.19	0.25
			Max. My	2	-7.30	0.02	136.27
			Max. Vy	20	-10.00	132.52	0.88
			Max. Vx	2	-10.21	0.02	136.27
			Max. Torque	22			-1.29
L5	155 - 145.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.02	-0.69	2.96
			Max. Mx	8	-10.73	-196.18	0.16
			Max. My	2	-10.66	0.28	200.76
			Max. Vy	20	-13.43	195.58	1.23
			Max. Vx	2	-13.72	0.28	200.76
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
L6	145.5 - 145	Pole	Max. Compression	26	-28.60	-0.54	3.07
			Max. Mx	8	-11.67	-264.57	-0.03
			Max. My	2	-11.60	0.53	270.83
			Max. Vy	20	-13.95	264.05	1.49
			Max. Vx	2	-14.30	0.53	270.83
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.03	-0.37	3.20
L7	145 - 140	Pole	Max. Mx	8	-15.80	-348.50	-0.21
			Max. My	2	-15.72	0.80	356.73
			Max. Vy	20	-17.69	348.06	1.76
			Max. Vx	2	-18.09	0.80	356.73
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.12	-0.21	3.33
			Max. Mx	8	-16.52	-438.01	-0.40
L8	140 - 135	Pole	Max. My	2	-16.43	1.06	448.44
			Max. Vy	20	-18.15	437.65	2.03
			Max. Vx	2	-18.60	1.06	448.44
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.24	-0.03	3.46
			Max. Mx	8	-17.27	-529.83	-0.59
			Max. My	2	-17.18	1.33	542.67
L9	135 - 130	Pole	Max. Vy	20	-18.61	529.56	2.29
			Max. Vx	2	-19.10	1.33	542.67
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.39	0.15	3.58
			Max. Mx	8	-18.04	-623.96	-0.78
			Max. My	2	-17.95	1.60	639.37
			Max. Vy	20	-19.07	623.78	2.56
L10	130 - 125	Pole	Max. Vx	2	-19.59	1.60	639.37
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.55	0.33	3.70
			Max. Mx	8	-18.84	-720.39	-0.97
			Max. My	2	-18.76	1.87	738.53
			Max. Vy	20	-19.53	720.29	2.82
			Max. Vx	2	-20.08	1.87	738.53
L11	125 - 120	Pole	Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.75	0.51	3.83
			Max. Mx	20	-19.67	819.11	3.09
			Max. My	2	-19.59	2.14	840.11
			Max. Vy	2			
			Max. Vx	2			
			Max. Torque	22			-1.46
L12	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.75	0.51	3.83
			Max. Mx	20	-19.67	819.11	3.09
			Max. My	2	-19.59	2.14	840.11
			Max. Vy	2			
			Max. Vx	2			
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L13	115 - 110	Pole	Max. Vy	20	-19.99	819.11	3.09
			Max. Vx	2	-20.56	2.14	840.11
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.97	0.70	3.94
			Max. Mx	20	-20.53	920.20	3.35
			Max. My	2	-20.45	2.42	944.07
			Max. Vy	20	-20.45	920.20	3.35
L14	110 - 105	Pole	Max. Vx	2	-21.04	2.42	944.07
			Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.21	0.90	4.06
			Max. Mx	20	-21.41	1023.57	3.61
			Max. My	2	-21.33	2.69	1050.39
			Max. Vy	20	-20.90	1023.57	3.61
			Max. Vx	2	-21.50	2.69	1050.39
L15	105 - 95.5	Pole	Max. Torque	22			-1.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.22	1.05	4.16
			Max. Mx	20	-22.13	1107.89	3.82
			Max. My	2	-22.06	2.91	1137.11
			Max. Vy	20	-21.26	1107.89	3.82
			Max. Vx	2	-21.87	2.91	1137.11
			Max. Torque	22			-1.45
L16	95.5 - 94.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.22	1.31	4.31
			Max. Mx	20	-24.24	1248.45	4.16
			Max. My	2	-24.17	3.27	1281.62
			Max. Vy	20	-21.97	1248.45	4.16
			Max. Vx	2	-22.59	3.27	1281.62
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
L17	94.5 - 89.5	Pole	Max. Compression	26	-50.66	1.51	4.42
			Max. Mx	20	-25.32	1359.43	4.42
			Max. My	2	-25.25	3.54	1395.69
			Max. Vy	20	-22.43	1359.43	4.42
			Max. Vx	2	-23.05	3.54	1395.69
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.28	1.71	4.53
L18	89.5 - 84.5	Pole	Max. Mx	20	-26.53	1472.68	4.68
			Max. My	2	-26.47	3.82	1512.02
			Max. Vy	20	-22.88	1472.68	4.68
			Max. Vx	2	-23.50	3.82	1512.02
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.84	1.77	4.56
			Max. Mx	20	-26.94	1503.19	4.74
L19	84.5 - 83.17	Pole	Max. My	2	-26.88	3.90	1543.35
			Max. Vy	20	-23.01	1503.19	4.74
			Max. Vx	2	-23.63	3.90	1543.35
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.95	1.78	4.57
			Max. Mx	20	-27.03	1508.94	4.76
			Max. My	2	-26.98	3.91	1549.26
L20	83.17 - 82.92	Pole	Max. Vy	20	-23.02	1508.94	4.76
			Max. Vx	2	-23.65	3.91	1549.26
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.07	1.98	4.68
			Max. Mx	20	-28.63	1625.21	5.02
			Max. My	2	-28.57	4.19	1668.62
			Max. Vy	20	-23.49	1625.21	5.02
L21	82.92 - 77.92	Pole	Max. Vx	2	-24.11	4.19	1668.62
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.07	1.98	4.68
			Max. Mx	20	-28.63	1625.21	5.02
			Max. My	2	-28.57	4.19	1668.62
			Max. Vy	20	-23.49	1625.21	5.02
			Max. Vx	2	-24.11	4.19	1668.62
L22	77.92 -	Pole	Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L23	72.92 - 67.92	Pole	Max. Compression	26	-57.23	2.19	4.79
			Max. Mx	20	-30.25	1743.75	5.27
			Max. My	2	-30.20	4.46	1790.23
			Max. Vy	20	-23.94	1743.75	5.27
			Max. Vx	2	-24.55	4.46	1790.23
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.40	2.39	4.89
			Max. Mx	20	-31.91	1864.50	5.53
			Max. My	2	-31.86	4.74	1914.04
L24	67.92 - 63.08	Pole	Max. Vy	20	-24.37	1864.50	5.53
			Max. Vx	2	-24.99	4.74	1914.04
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.61	2.58	4.97
			Max. Mx	20	-33.53	1983.43	5.77
			Max. My	2	-33.49	5.01	2035.93
			Max. Vy	20	-24.78	1983.43	5.77
			Max. Vx	2	-25.40	5.01	2035.93
			Max. Torque	22			-1.45
L25	63.08 - 62.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.73	2.59	4.98
			Max. Mx	20	-33.63	1989.63	5.79
			Max. My	2	-33.59	5.03	2042.28
			Max. Vy	20	-24.80	1989.63	5.79
			Max. Vx	2	-25.41	5.03	2042.28
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.25	2.79	5.06
			Max. Mx	20	-35.44	2114.82	6.04
L26	62.83 - 57.83	Pole	Max. My	2	-35.41	5.30	2170.52
			Max. Vy	20	-25.28	2114.82	6.04
			Max. Vx	2	-25.89	5.30	2170.52
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.71	2.99	5.15
			Max. Mx	20	-37.22	2237.97	6.29
			Max. My	2	-37.19	5.57	2296.59
			Max. Vy	20	-25.72	2237.97	6.29
			Max. Vx	2	-26.33	5.57	2296.59
L27	57.83 - 46.58	Pole	Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.27	3.29	5.28
			Max. Mx	20	-42.23	2431.82	6.66
			Max. My	2	-42.20	5.99	2494.95
			Max. Vy	20	-26.51	2431.82	6.66
			Max. Vx	2	-27.12	5.99	2494.95
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.75	3.40	5.34
L28	46.58 - 45.58	Pole	Max. Mx	20	-43.27	2502.64	6.80
			Max. My	2	-43.25	6.14	2567.38
			Max. Vy	20	-26.74	2502.64	6.80
			Max. Vx	2	-27.35	6.14	2567.38
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.96	3.41	5.35
			Max. Mx	20	-43.43	2512.00	6.82
			Max. My	2	-43.40	6.16	2576.95
			Max. Vy	20	-26.76	2512.00	6.82
L29	45.58 - 42.92	Pole	Max. Compression	26	-74.96	3.41	5.35
			Max. Mx	20	-43.43	2512.00	6.82
			Max. My	2	-43.40	6.16	2576.95
			Max. Vy	20	-26.76	2512.00	6.82
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.96	3.41	5.35
			Max. Mx	20	-43.43	2512.00	6.82
			Max. My	2	-43.40	6.16	2576.95
			Max. Vy	20	-26.76	2512.00	6.82
L30	42.92 - 42.57	Pole	Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.96	3.41	5.35
			Max. Mx	20	-43.43	2512.00	6.82
			Max. My	2	-43.40	6.16	2576.95
			Max. Vy	20	-26.76	2512.00	6.82
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.96	3.41	5.35
			Max. Mx	20	-43.43	2512.00	6.82

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L31	42.57 - 42.33	Pole	Max. Vx	2	-27.37	6.16	2576.95
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.09	3.42	5.36
			Max. Mx	20	-43.53	2518.43	6.83
			Max. My	2	-43.50	6.17	2583.52
			Max. Vy	20	-26.78	2518.43	6.83
			Max. Vx	2	-27.39	6.17	2583.52
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
L32	42.33 - 41.92	Pole	Max. Compression	26	-75.33	3.44	5.36
			Max. Mx	20	-43.69	2529.41	6.85
			Max. My	2	-43.67	6.19	2594.76
			Max. Vy	20	-26.81	2529.41	6.85
			Max. Vx	2	-27.42	6.19	2594.76
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.48	3.45	5.37
			Max. Mx	20	-43.80	2536.12	6.86
			Max. My	2	-43.77	6.21	2601.62
L33	41.92 - 41.67	Pole	Max. Vy	20	-26.83	2536.12	6.86
			Max. Vx	2	-27.44	6.21	2601.62
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.29	3.66	5.46
			Max. Mx	20	-45.88	2671.34	7.12
			Max. My	2	-45.85	6.49	2739.84
			Max. Vy	20	-27.25	2671.34	7.12
			Max. Vx	2	-27.86	6.49	2739.84
			Max. Torque	22			-1.45
L34	41.67 - 36.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.92	3.91	5.65
			Max. Mx	20	-47.85	2799.46	7.35
			Max. My	2	-47.83	6.75	2870.76
			Max. Vy	20	-27.62	2799.46	7.35
			Max. Vx	2	-28.22	6.75	2870.76
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.06	3.93	5.66
			Max. Mx	20	-47.97	2806.37	7.36
L35	36.67 - 32	Pole	Max. My	2	-47.95	6.77	2877.82
			Max. Vy	20	-27.63	2806.37	7.36
			Max. Vx	2	-28.24	6.77	2877.82
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-84.02	4.22	5.90
			Max. Mx	20	-50.22	2945.52	7.61
			Max. My	2	-50.21	7.05	3019.94
			Max. Vy	20	-28.02	2945.52	7.61
			Max. Vx	2	-28.62	7.05	3019.94
L36	32 - 31.75	Pole	Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-87.00	4.51	6.14
			Max. Mx	20	-52.51	3086.57	7.87
			Max. My	2	-52.50	7.33	3163.97
			Max. Vy	20	-28.40	3086.57	7.87
			Max. Vx	2	-29.00	7.33	3163.97
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.04	4.71	6.30
L37	31.75 - 26.75	Pole	Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
L38	26.75 - 21.75	Pole	Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
L39	21.75 - 18.42	Pole	Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94
			Max. Compression	26	-89.04	4.71	6.30
			Max. Mx	20	-54.05	3181.58	8.03
			Max. My	2	-54.04	7.51	3260.94

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L40	18.42 - 18.17	Pole	Max. Vy	20	-28.66	3181.58	8.03
			Max. Vx	2	-29.26	7.51	3260.94
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.18	4.72	6.32
L41	18.17 - 17.58	Pole	Max. Mx	20	-54.15	3188.74	8.04
			Max. My	2	-54.14	7.53	3268.26
			Max. Vy	20	-28.67	3188.74	8.04
			Max. Vx	2	-29.26	7.53	3268.26
			Max. Torque	22			-1.45
L42	17.58 - 17.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.51	4.76	6.34
			Max. Mx	20	-54.39	3205.67	8.07
			Max. My	2	-54.37	7.56	3285.53
			Max. Vy	20	-28.71	3205.67	8.07
L43	17.33 - 9.92	Pole	Max. Vx	2	-29.31	7.56	3285.53
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.67	4.77	6.36
			Max. Mx	20	-54.50	3212.85	8.09
L44	9.92 - 8.92	Pole	Max. My	2	-54.49	7.57	3292.86
			Max. Vy	20	-28.73	3212.85	8.09
			Max. Vx	2	-29.32	7.57	3292.86
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
L45	8.92 - 4	Pole	Max. Compression	26	-89.87	4.79	6.37
			Max. Mx	20	-54.66	3222.34	8.10
			Max. My	2	-54.65	7.59	3302.54
			Max. Vy	20	-28.75	3222.34	8.10
			Max. Vx	2	-29.35	7.59	3302.54
L46	4 - 3.75	Pole	Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.48	5.34	6.80
			Max. Mx	20	-61.57	3457.73	8.51
			Max. My	2	-61.57	8.05	3542.69
L47	3.75 - 3.42	Pole	Max. Vy	20	-29.49	3457.73	8.51
			Max. Vx	2	-30.08	8.05	3542.69
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.48	5.61	7.02
L48	3.42 - 3.17	Pole	Max. Mx	20	-64.00	3603.64	8.75
			Max. My	2	-63.99	8.32	3691.47
			Max. Vy	20	-29.84	3603.64	8.75
			Max. Vx	2	-30.43	8.32	3691.47
			Max. Torque	22			-1.45
L49		Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.61	5.62	7.03
			Max. Mx	20	-64.11	3611.10	8.76
			Max. My	2	-64.10	8.34	3699.08
			Max. Vy	20	-29.84	3611.10	8.76
L50		Pole	Max. Vx	2	-30.43	8.34	3699.08
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.81	5.64	7.04
			Max. Mx	20	-64.27	3620.95	8.78
L51		Pole	Max. My	2	-64.27	8.36	3709.12
			Max. Vy	20	-29.86	3620.95	8.78
			Max. Vx	2	-30.45	8.36	3709.12
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
L52		Pole	Max. Compression	26	-101.94	5.65	7.06
			Max. Mx	20	-64.38	3628.42	8.79
			Max. My	2	-64.37	8.37	3716.74
			Max. Vy	20	-29.88	3628.42	8.79
			Max. Vx	2	-30.46	8.37	3716.74
L53		Pole	Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.94	5.65	7.06
			Max. Mx	20	-64.38	3628.42	8.79
			Max. My	2	-64.37	8.37	3716.74
L54		Pole	Max. Vy	20	-29.88	3628.42	8.79
			Max. Vx	2	-30.46	8.37	3716.74
			Max. Torque	22			-1.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.94	5.65	7.06
L55		Pole	Max. Mx	20	-64.38	3628.42	8.79
			Max. My	2	-64.37	8.37	3716.74
			Max. Vy	20	-29.88	3628.42	8.79
			Max. Vx	2	-30.46	8.37	3716.74
			Max. Torque	22			-1.45

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L49	3.17 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-103.60	5.80	7.17
			Max. M _x	20	-65.74	3723.48	8.95
			Max. M _y	2	-65.74	8.55	3813.64
			Max. V _y	20	-30.10	3723.48	8.95
			Max. V _x	2	-30.68	8.55	3813.64
			Max. Torque	22			-1.45

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	103.60	0.00	0.00
	Max. H _x	20	65.75	30.07	0.04
	Max. H _z	2	65.75	0.04	30.66
	Max. M _x	2	3813.64	0.04	30.66
	Max. M _z	8	3720.72	-30.07	-0.04
	Max. Torsion	10	1.43	-26.06	-15.15
	Min. Vert	7	49.31	-26.02	15.08
	Min. H _x	8	65.75	-30.07	-0.04
	Min. H _z	14	65.75	-0.04	-30.66
	Min. M _x	14	-3810.04	-0.04	-30.66
	Min. M _z	20	-3723.48	30.07	0.04
	Min. Torsion	22	-1.45	26.06	15.15

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
Dead Only	54.79	0.00	0.00	-1.40	1.11	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	65.75	-0.04	-30.66	-3813.64	8.55	0.48
0.9 Dead+1.0 Wind 0 deg - No Ice	49.31	-0.04	-30.66	-3762.01	8.08	0.47
1.2 Dead+1.0 Wind 30 deg - No Ice	65.75	16.59	-28.92	-3418.34	-1952.57	-0.59
0.9 Dead+1.0 Wind 30 deg - No Ice	49.31	16.59	-28.92	-3372.76	-1927.19	-0.59
1.2 Dead+1.0 Wind 60 deg - No Ice	65.75	26.02	-15.08	-1871.04	-3218.37	-0.97
0.9 Dead+1.0 Wind 60 deg - No Ice	49.31	26.02	-15.08	-1845.47	-3175.56	-0.96
1.2 Dead+1.0 Wind 90 deg - No Ice	65.75	30.07	0.04	5.38	-3720.72	-1.39
0.9 Dead+1.0 Wind 90 deg - No Ice	49.31	30.07	0.04	5.74	-3671.17	-1.37
1.2 Dead+1.0 Wind 120 deg - No Ice	65.75	26.06	15.15	1879.84	-3225.48	-1.43
0.9 Dead+1.0 Wind 120 deg - No Ice	49.31	26.06	15.15	1855.03	-3182.56	-1.41
1.2 Dead+1.0 Wind 150 deg - No Ice	65.75	15.08	26.21	3250.30	-1865.88	-1.10
0.9 Dead+1.0 Wind 150 deg - No Ice	49.31	15.08	26.21	3207.10	-1841.19	-1.08
1.2 Dead+1.0 Wind 180 deg - No Ice	65.75	0.04	30.66	3810.04	-5.77	-0.48
0.9 Dead+1.0 Wind 180 deg - No Ice	49.31	0.04	30.66	3759.37	-6.02	-0.47
1.2 Dead+1.0 Wind 210 deg	65.75	-16.59	28.92	3414.74	1955.33	0.58

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
- No Ice						
0.9 Dead+1.0 Wind 210 deg	49.31	-16.59	28.92	3370.12	1929.23	0.58
- No Ice						
1.2 Dead+1.0 Wind 240 deg	65.75	-26.02	15.08	1867.45	3221.12	0.96
- No Ice						
0.9 Dead+1.0 Wind 240 deg	49.31	-26.02	15.08	1842.84	3177.60	0.94
- No Ice						
1.2 Dead+1.0 Wind 270 deg	65.75	-30.07	-0.04	-8.95	3723.48	1.39
- No Ice						
0.9 Dead+1.0 Wind 270 deg	49.31	-30.07	-0.04	-8.36	3673.22	1.37
- No Ice						
1.2 Dead+1.0 Wind 300 deg	65.75	-26.06	-15.15	-1883.41	3228.25	1.45
- No Ice						
0.9 Dead+1.0 Wind 300 deg	49.31	-26.06	-15.15	-1857.65	3184.62	1.43
- No Ice						
1.2 Dead+1.0 Wind 330 deg	65.75	-15.08	-26.21	-3253.88	1868.66	1.12
- No Ice						
0.9 Dead+1.0 Wind 330 deg	49.31	-15.08	-26.21	-3209.73	1843.26	1.10
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	103.60	-0.00	-0.00	-7.17	5.80	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	103.60	-0.01	-7.70	-1048.24	6.98	0.13
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	103.60	3.91	-6.80	-911.28	-512.67	-0.17
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	103.60	6.65	-3.85	-526.90	-890.36	-0.28
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	103.60	7.68	0.01	-6.32	-1029.62	-0.40
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	103.60	6.65	3.86	513.99	-891.40	-0.41
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	103.60	3.84	6.67	894.59	-512.74	-0.31
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	103.60	0.01	7.70	1033.52	4.90	-0.13
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	103.60	-3.91	6.80	896.56	524.55	0.17
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	103.60	-6.65	3.85	512.18	902.24	0.28
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	103.60	-7.68	-0.01	-8.40	1041.50	0.40
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	103.60	-6.65	-3.86	-528.70	903.28	0.41
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	103.60	-3.84	-6.67	-909.31	524.62	0.32
Dead+Wind 0 deg - Service	54.79	-0.01	-7.22	-892.77	2.82	0.11
Dead+Wind 30 deg - Service	54.79	3.91	-6.81	-800.44	-455.79	-0.14
Dead+Wind 60 deg - Service	54.79	6.13	-3.55	-438.52	-751.65	-0.23
Dead+Wind 90 deg - Service	54.79	7.08	0.01	0.19	-869.11	-0.33
Dead+Wind 120 deg - Service	54.79	6.14	3.57	438.45	-753.33	-0.33
Dead+Wind 150 deg - Service	54.79	3.55	6.17	758.88	-435.44	-0.26
Dead+Wind 180 deg - Service	54.79	0.01	7.22	889.80	-0.53	-0.11
Dead+Wind 210 deg - Service	54.79	-3.91	6.81	797.47	458.08	0.14
Dead+Wind 240 deg - Service	54.79	-6.13	3.55	435.55	753.94	0.23
Dead+Wind 270 deg - Service	54.79	-7.08	-0.01	-3.16	871.40	0.33
Dead+Wind 300 deg - Service	54.79	-6.14	-3.57	-441.42	755.61	0.34
Dead+Wind 330 deg - Service	54.79	-3.55	-6.17	-761.85	437.73	0.26

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-54.79	0.00	0.00	54.79	0.00	0.000%
2	-0.04	-65.75	-30.66	0.04	65.75	30.66	0.000%
3	-0.04	-49.31	-30.66	0.04	49.31	30.66	0.000%
4	16.59	-65.75	-28.92	-16.59	65.75	28.92	0.000%
5	16.59	-49.31	-28.92	-16.59	49.31	28.92	0.000%
6	26.02	-65.75	-15.08	-26.02	65.75	15.08	0.000%
7	26.02	-49.31	-15.08	-26.02	49.31	15.08	0.000%
8	30.07	-65.75	0.04	-30.07	65.75	-0.04	0.000%
9	30.07	-49.31	0.04	-30.07	49.31	-0.04	0.000%
10	26.06	-65.75	15.15	-26.06	65.75	-15.15	0.000%
11	26.06	-49.31	15.15	-26.06	49.31	-15.15	0.000%
12	15.08	-65.75	26.21	-15.08	65.75	-26.21	0.000%
13	15.08	-49.31	26.21	-15.08	49.31	-26.21	0.000%
14	0.04	-65.75	30.66	-0.04	65.75	-30.66	0.000%
15	0.04	-49.31	30.66	-0.04	49.31	-30.66	0.000%
16	-16.59	-65.75	28.92	16.59	65.75	-28.92	0.000%
17	-16.59	-49.31	28.92	16.59	49.31	-28.92	0.000%
18	-26.02	-65.75	15.08	26.02	65.75	-15.08	0.000%
19	-26.02	-49.31	15.08	26.02	49.31	-15.08	0.000%
20	-30.07	-65.75	-0.04	30.07	65.75	0.04	0.000%
21	-30.07	-49.31	-0.04	30.07	49.31	0.04	0.000%
22	-26.06	-65.75	-15.15	26.06	65.75	15.15	0.000%
23	-26.06	-49.31	-15.15	26.06	49.31	15.15	0.000%
24	-15.08	-65.75	-26.21	15.08	65.75	26.21	0.000%
25	-15.08	-49.31	-26.21	15.08	49.31	26.21	0.000%
26	0.00	-103.60	0.00	0.00	103.60	0.00	0.000%
27	-0.01	-103.60	-7.70	0.01	103.60	7.70	0.000%
28	3.91	-103.60	-6.80	-3.91	103.60	6.80	0.000%
29	6.65	-103.60	-3.85	-6.65	103.60	3.85	0.000%
30	7.68	-103.60	0.01	-7.68	103.60	-0.01	0.000%
31	6.65	-103.60	3.86	-6.65	103.60	-3.86	0.000%
32	3.84	-103.60	6.67	-3.84	103.60	-6.67	0.000%
33	0.01	-103.60	7.70	-0.01	103.60	-7.70	0.000%
34	-3.91	-103.60	6.80	3.91	103.60	-6.80	0.000%
35	-6.65	-103.60	3.85	6.65	103.60	-3.85	0.000%
36	-7.68	-103.60	-0.01	7.68	103.60	0.01	0.000%
37	-6.65	-103.60	-3.86	6.65	103.60	3.86	0.000%
38	-3.84	-103.60	-6.67	3.84	103.60	6.67	0.000%
39	-0.01	-54.79	-7.22	0.01	54.79	7.22	0.000%
40	3.91	-54.79	-6.81	-3.91	54.79	6.81	0.000%
41	6.13	-54.79	-3.55	-6.13	54.79	3.55	0.000%
42	7.08	-54.79	0.01	-7.08	54.79	-0.01	0.000%
43	6.14	-54.79	3.57	-6.14	54.79	-3.57	0.000%
44	3.55	-54.79	6.17	-3.55	54.79	-6.17	0.000%
45	0.01	-54.79	7.22	-0.01	54.79	-7.22	0.000%
46	-3.91	-54.79	6.81	3.91	54.79	-6.81	0.000%
47	-6.13	-54.79	3.55	6.13	54.79	-3.55	0.000%
48	-7.08	-54.79	-0.01	7.08	54.79	0.01	0.000%
49	-6.14	-54.79	-3.57	6.14	54.79	3.57	0.000%
50	-3.55	-54.79	-6.17	3.55	54.79	6.17	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	5	0.00000001	0.00038141
3	Yes	5	0.00000001	0.00014633
4	Yes	7	0.00000001	0.00007244
5	Yes	6	0.00000001	0.00036134
6	Yes	7	0.00000001	0.00007015
7	Yes	6	0.00000001	0.00035294
8	Yes	5	0.00000001	0.00068611
9	Yes	5	0.00000001	0.00031194

10	Yes	7	0.00000001	0.00006765
11	Yes	6	0.00000001	0.00033992
12	Yes	7	0.00000001	0.00007089
13	Yes	6	0.00000001	0.00035662
14	Yes	5	0.00000001	0.00046312
15	Yes	5	0.00000001	0.00019311
16	Yes	7	0.00000001	0.00007310
17	Yes	6	0.00000001	0.00036497
18	Yes	7	0.00000001	0.00006763
19	Yes	6	0.00000001	0.00034003
20	Yes	5	0.00000001	0.00082777
21	Yes	5	0.00000001	0.00038226
22	Yes	7	0.00000001	0.00007135
23	Yes	6	0.00000001	0.00035887
24	Yes	7	0.00000001	0.00006836
25	Yes	6	0.00000001	0.00034315
26	Yes	4	0.00000001	0.00086411
27	Yes	7	0.00000001	0.00029627
28	Yes	7	0.00000001	0.00032763
29	Yes	7	0.00000001	0.00032659
30	Yes	7	0.00000001	0.00029037
31	Yes	7	0.00000001	0.00032081
32	Yes	7	0.00000001	0.00032234
33	Yes	7	0.00000001	0.00028978
34	Yes	7	0.00000001	0.00032321
35	Yes	7	0.00000001	0.00032235
36	Yes	7	0.00000001	0.00029246
37	Yes	7	0.00000001	0.00033001
38	Yes	7	0.00000001	0.00032998
39	Yes	5	0.00000001	0.00006945
40	Yes	5	0.00000001	0.00026308
41	Yes	5	0.00000001	0.00025506
42	Yes	5	0.00000001	0.00007495
43	Yes	5	0.00000001	0.00023284
44	Yes	5	0.00000001	0.00025780
45	Yes	5	0.00000001	0.00006936
46	Yes	5	0.00000001	0.00026826
47	Yes	5	0.00000001	0.00023364
48	Yes	5	0.00000001	0.00007597
49	Yes	5	0.00000001	0.00026410
50	Yes	5	0.00000001	0.00023925

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 170	28.2881	40	1.52	0.00
L2	170 - 165	26.7008	40	1.51	0.00
L3	165 - 160	25.1205	40	1.50	0.00
L4	160 - 155	23.5546	40	1.49	0.00
L5	155 - 145.5	22.0115	40	1.46	0.00
L6	150 - 145	20.5006	40	1.42	0.00
L7	145 - 140	19.0188	40	1.40	0.00
L8	140 - 135	17.5694	40	1.36	0.00
L9	135 - 130	16.1656	40	1.32	0.00
L10	130 - 125	14.8137	40	1.26	0.00
L11	125 - 120	13.5191	40	1.21	0.00
L12	120 - 115	12.2863	40	1.15	0.00
L13	115 - 110	11.1190	40	1.08	0.00
L14	110 - 105	10.0200	40	1.02	0.00
L15	105 - 95.5	8.9918	40	0.95	0.00
L16	101 - 94.5	8.2215	40	0.89	0.00
L17	94.5 - 89.5	7.0380	40	0.84	0.00
L18	89.5 - 84.5	6.1900	40	0.78	0.00
L19	84.5 - 83.17	5.4094	40	0.71	0.00
L20	83.17 - 82.92	5.2132	40	0.70	0.00
L21	82.92 - 77.92	5.1768	40	0.69	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L22	77.92 - 72.92	4.4855	40	0.63	0.00
L23	72.92 - 67.92	3.8624	40	0.56	0.00
L24	67.92 - 63.08	3.3077	40	0.50	0.00
L25	63.08 - 62.83	2.8358	40	0.43	0.00
L26	62.83 - 57.83	2.8131	40	0.43	0.00
L27	57.83 - 46.58	2.3815	40	0.39	0.00
L28	53 - 45.58	2.0044	40	0.35	0.00
L29	45.58 - 42.92	1.4787	40	0.32	0.00
L30	42.92 - 42.57	1.3066	40	0.30	0.00
L31	42.57 - 42.33	1.2849	40	0.29	0.00
L32	42.33 - 41.92	1.2702	40	0.29	0.00
L33	41.92 - 41.67	1.2452	40	0.29	0.00
L34	41.67 - 36.67	1.2302	40	0.29	0.00
L35	36.67 - 32	0.9501	40	0.25	0.00
L36	32 - 31.75	0.7243	40	0.21	0.00
L37	31.75 - 26.75	0.7132	40	0.21	0.00
L38	26.75 - 21.75	0.5106	40	0.18	0.00
L39	21.75 - 18.42	0.3453	40	0.14	0.00
L40	18.42 - 18.17	0.2557	40	0.12	0.00
L41	18.17 - 17.58	0.2497	40	0.11	0.00
L42	17.58 - 17.33	0.2358	40	0.11	0.00
L43	17.33 - 9.92	0.2301	40	0.11	0.00
L44	17 - 8.92	0.2227	40	0.11	0.00
L45	8.92 - 4	0.0692	40	0.07	0.00
L46	4 - 3.75	0.0145	40	0.03	0.00
L47	3.75 - 3.42	0.0128	40	0.03	0.00
L48	3.42 - 3.17	0.0106	40	0.03	0.00
L49	3.17 - 0	0.0091	40	0.03	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
173.00	Platform Mount [LP 715-1]	40	27.6528	1.52	0.00	42565
162.00	Platform Mount [LP 303-1]	40	24.1788	1.49	0.00	15730
154.00	Commscope MC-PK8-DSH	40	21.7067	1.45	0.00	9239
144.00	Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails	40	18.7260	1.40	0.00	8620

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 170	120.8326	4	6.49	0.02
L2	170 - 165	114.0687	4	6.47	0.02
L3	165 - 160	107.3332	4	6.43	0.01
L4	160 - 155	100.6578	4	6.36	0.01
L5	155 - 145.5	94.0772	4	6.25	0.01
L6	150 - 145	87.6313	4	6.10	0.01
L7	145 - 140	81.3078	4	6.01	0.01
L8	140 - 135	75.1207	4	5.84	0.01
L9	135 - 130	69.1260	4	5.64	0.01
L10	130 - 125	63.3516	4	5.42	0.01
L11	125 - 120	57.8206	4	5.17	0.01
L12	120 - 115	52.5521	4	4.91	0.01
L13	115 - 110	47.5619	4	4.64	0.00
L14	110 - 105	42.8630	4	4.35	0.00
L15	105 - 95.5	38.4660	4	4.06	0.00
L16	101 - 94.5	35.1714	4	3.82	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L17	94.5 - 89.5	30.1089	4	3.61	0.00
L18	89.5 - 84.5	26.4811	4	3.33	0.00
L19	84.5 - 83.17	23.1415	4	3.05	0.00
L20	83.17 - 82.92	22.3019	4	2.98	0.00
L21	82.92 - 77.92	22.1464	4	2.97	0.00
L22	77.92 - 72.92	19.1883	4	2.69	0.00
L23	72.92 - 67.92	16.5223	4	2.41	0.00
L24	67.92 - 63.08	14.1486	4	2.13	0.00
L25	63.08 - 62.83	12.1294	4	1.86	0.00
L26	62.83 - 57.83	12.0324	4	1.85	0.00
L27	57.83 - 46.58	10.1859	4	1.68	0.00
L28	53 - 45.58	8.5725	4	1.51	0.00
L29	45.58 - 42.92	6.3237	4	1.37	0.00
L30	42.92 - 42.57	5.5877	4	1.28	0.00
L31	42.57 - 42.33	5.4948	4	1.26	0.00
L32	42.33 - 41.92	5.4317	4	1.25	0.00
L33	41.92 - 41.67	5.3251	4	1.23	0.00
L34	41.67 - 36.67	5.2607	4	1.22	0.00
L35	36.67 - 32	4.0629	4	1.06	0.00
L36	32 - 31.75	3.0971	4	0.91	0.00
L37	31.75 - 26.75	3.0495	4	0.90	0.00
L38	26.75 - 21.75	2.1831	4	0.75	0.00
L39	21.75 - 18.42	1.4762	4	0.60	0.00
L40	18.42 - 18.17	1.0931	4	0.50	0.00
L41	18.17 - 17.58	1.0672	4	0.49	0.00
L42	17.58 - 17.33	1.0080	4	0.47	0.00
L43	17.33 - 9.92	0.9836	4	0.46	0.00
L44	17 - 8.92	0.9521	4	0.45	0.00
L45	8.92 - 4	0.2960	4	0.31	0.00
L46	4 - 3.75	0.0619	4	0.15	0.00
L47	3.75 - 3.42	0.0545	4	0.14	0.00
L48	3.42 - 3.17	0.0454	4	0.13	0.00
L49	3.17 - 0	0.0390	4	0.12	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
173.00	Platform Mount [LP 715-1]	4	118.1255	6.48	0.02	10603
162.00	Platform Mount [LP 303-1]	4	103.3188	6.39	0.01	3828
154.00	Commscope MC-PK8-DSH	4	92.7771	6.22	0.01	2232
144.00	Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails	4	80.0579	5.98	0.01	2065

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	175 - 170 (1)	TP23.025x22.125x0.2188	5.00	0.00	0.0	16.064 2	-3.26	939.75	0.003
L2	170 - 165 (2)	TP23.925x23.025x0.2188	5.00	0.00	0.0	16.698 1	-3.58	976.84	0.004
L3	165 - 160 (3)	TP24.825x23.925x0.2188	5.00	0.00	0.0	17.332 0	-6.91	1013.92	0.007

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L4	160 - 155 (4)	TP25.725x24.825x0.2188	5.00	0.00	0.0	17.9660	-7.30	1051.01	0.007
L5	155 - 145.5 (5)	TP27.435x25.725x0.2188	9.50	0.00	0.0	18.5999	-10.66	1088.09	0.010
L6	145.5 - 145 (6)	TP27.0875x26.1875x0.3125	5.00	0.00	0.0	26.9423	-11.60	1576.12	0.007
L7	145 - 140 (7)	TP27.9874x27.0875x0.3125	5.00	0.00	0.0	27.8479	-15.72	1629.10	0.010
L8	140 - 135 (8)	TP28.8874x27.9874x0.3125	5.00	0.00	0.0	28.7535	-16.43	1682.08	0.010
L9	135 - 130 (9)	TP29.7873x28.8874x0.3125	5.00	0.00	0.0	29.6590	-17.18	1735.05	0.010
L10	130 - 125 (10)	TP30.6873x29.7873x0.3125	5.00	0.00	0.0	30.5646	-17.92	1788.03	0.010
L11	125 - 120 (11)	TP31.5872x30.6873x0.3125	5.00	0.00	0.0	31.4702	-18.73	1841.01	0.010
L12	120 - 115 (12)	TP32.4872x31.5872x0.3125	5.00	0.00	0.0	32.3758	-19.56	1893.98	0.010
L13	115 - 110 (13)	TP33.3871x32.4872x0.3125	5.00	0.00	0.0	33.2813	-20.41	1946.96	0.010
L14	110 - 105 (14)	TP34.2871x33.3871x0.3125	5.00	0.00	0.0	34.1869	-21.30	1999.94	0.011
L15	105 - 95.5 (15)	TP35.997x34.2871x0.3125	9.50	0.00	0.0	34.9114	-22.02	2042.32	0.011
L16	95.5 - 94.5 (16)	TP35.552x34.3821x0.375	6.50	0.00	0.0	42.4762	-24.13	2484.86	0.010
L17	94.5 - 89.5 (17)	TP36.4519x35.552x0.375	5.00	0.00	0.0	43.5629	-25.21	2548.43	0.010
L18	89.5 - 84.5 (18)	TP37.3519x36.4519x0.375	5.00	0.00	0.0	44.6496	-26.43	2612.00	0.010
L19	84.5 - 83.17 (19)	TP37.5912x37.3519x0.375	1.33	0.00	0.0	44.9386	-26.84	2628.91	0.010
L20	83.17 - 82.92 (20)	TP37.6362x37.5912x0.375	0.25	0.00	0.0	44.9929	-26.94	2632.09	0.010
L21	82.92 - 77.92 (21)	TP38.5362x37.6362x0.375	5.00	0.00	0.0	46.0796	-28.53	2695.66	0.011
L22	77.92 - 72.92 (22)	TP39.4361x38.5362x0.375	5.00	0.00	0.0	47.1663	-30.16	2759.23	0.011
L23	72.92 - 67.92 (23)	TP40.3361x39.4361x0.375	5.00	0.00	0.0	48.2530	-31.82	2822.80	0.011
L24	67.92 - 63.08 (24)	TP41.2072x40.3361x0.375	4.84	0.00	0.0	49.3049	-33.45	2884.34	0.012
L25	63.08 - 62.83 (25)	TP41.2522x41.2072x0.625	0.25	0.00	0.0	81.7622	-33.56	4783.09	0.007
L26	62.83 - 57.83 (26)	TP42.1521x41.2522x0.625	5.00	0.00	0.0	83.5734	-35.37	4889.04	0.007
L27	57.83 - 46.58 (27)	TP44.177x42.1521x0.6125	11.25	0.00	0.0	83.6411	-37.15	4893.00	0.008
L28	46.58 - 45.58 (28)	TP43.6073x42.2715x0.6438	7.42	0.00	0.0	89.0580	-42.16	5209.89	0.008
L29	45.58 - 42.92 (29)	TP44.0861x43.6073x0.6438	2.66	0.00	0.0	90.0506	-43.21	5267.96	0.008
L30	42.92 - 42.57 (30)	TP44.1491x44.0861x0.5063	0.35	0.00	0.0	71.1434	-43.36	4161.89	0.010
L31	42.57 - 42.33 (31)	TP44.1924x44.1491x0.5063	0.24	0.00	0.0	71.2138	-43.46	4166.01	0.010
L32	42.33 - 41.92 (32)	TP44.2662x44.1924x0.5063	0.41	0.00	0.0	71.3341	-43.63	4173.05	0.010
L33	41.92 - 41.67 (33)	TP44.3112x44.2662x0.6813	0.25	0.00	0.0	95.7077	-43.73	5598.90	0.008
L34	41.67 - 36.67 (34)	TP45.2113x44.3112x0.6813	5.00	0.00	0.0	97.6822	-45.82	5714.41	0.008
L35	36.67 - 32 (35)	TP46.052x45.2113x0.6688	4.67	0.00	0.0	97.7272	-47.79	5717.04	0.008
L36	32 - 31.75 (36)	TP46.097x46.052x0.7188	0.25	0.00	0.0	105.0220	-47.91	6143.81	0.008
L37	31.75 - 26.75 (37)	TP46.9972x46.097x0.7063	5.00	0.00	0.0	105.2710	-50.17	6158.37	0.008
L38	26.75 - 21.75	TP47.8973x46.9972x0.70	5.00	0.00	0.0	107.31	-52.47	6278.12	0.008

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L39	(38) 21.75 - 18.42	63 TP48.4968x47.8973x0.70	3.33	0.00	0.0	80 108.68	-54.01	6357.88	0.008
L40	(39) 18.42 - 18.17	63 TP48.5418x48.4968x0.58	0.25	0.00	0.0	20 89.764	-54.12	5251.20	0.010
L41	(40) 18.17 - 17.58	13 TP48.648x48.5418x0.581	0.59	0.00	0.0	1 89.962	-54.35	5262.83	0.010
L42	(41) 17.58 - 17.33	3 TP48.693x48.648x0.7063	0.25	0.00	0.0	9 109.12	-54.47	6383.98	0.009
L43	(42) 17.33 - 9.92	80 TP50.027x48.693x0.7063	7.41	0.00	0.0	80 109.26	-54.63	6391.88	0.009
L44	(43) 9.92 - 8.92	30 TP49.3944x47.9399x0.66	8.08	0.00	0.0	30 103.95	-61.55	6081.50	0.010
L45	(44) 8.92 - 4 (45)	25 TP50.28x49.3944x0.6625	4.92	0.00	0.0	70 105.84	-63.98	6192.02	0.010
L46	4 - 3.75 (46)	60 TP50.325x50.28x0.55	0.25	0.00	0.0	60 88.151	-64.09	5156.86	0.012
L47	3.75 - 3.42	5 TP50.3844x50.325x0.687	0.33	0.00	0.0	5 110.01	-64.26	6435.96	0.010
L48	(47) 3.42 - 3.17	60 TP50.4294x50.3844x0.58	0.25	0.00	0.0	60 94.288	-64.37	5515.87	0.012
L49	(48) 3.17 - 0 (49)	75 TP51x50.4294x0.575	3.17	0.00	0.0	4 93.361	-65.74	5461.67	0.012
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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	175 - 170 (1)	TP23.025x22.125x0.2188	21.25	505.72	0.042	0.00	505.72	0.000
L2	170 - 165 (2)	TP23.925x23.025x0.2188	49.20	537.91	0.091	0.00	537.91	0.000
L3	165 - 160 (3)	TP24.825x23.925x0.2188	86.51	570.32	0.152	0.00	570.32	0.000
L4	160 - 155 (4)	TP25.725x24.825x0.2188	136.27	602.90	0.226	0.00	602.90	0.000
L5	155 - 145.5 (5)	TP27.435x25.725x0.2188	200.76	635.56	0.316	0.00	635.56	0.000
L6	145.5 - 145 (6)	TP27.0875x26.1875x0.3125	270.83	1065.29	0.254	0.00	1065.29	0.000
L7	145 - 140 (7)	TP27.9874x27.0875x0.3125	356.73	1126.68	0.317	0.00	1126.68	0.000
L8	140 - 135 (8)	TP28.8874x27.9874x0.3125	448.44	1188.93	0.377	0.00	1188.93	0.000
L9	135 - 130 (9)	TP29.7873x28.8874x0.3125	542.67	1251.96	0.433	0.00	1251.96	0.000
L10	130 - 125 (10)	TP30.6873x29.7873x0.3125	639.53	1315.69	0.486	0.00	1315.69	0.000
L11	125 - 120 (11)	TP31.5872x30.6873x0.3125	739.41	1380.07	0.536	0.00	1380.07	0.000
L12	120 - 115 (12)	TP32.4872x31.5872x0.3125	841.88	1444.98	0.583	0.00	1444.98	0.000
L13	115 - 110 (13)	TP33.3871x32.4872x0.3125	946.88	1510.39	0.627	0.00	1510.39	0.000
L14	110 - 105 (14)	TP34.2871x33.3871x0.3125	1054.41	1576.19	0.669	0.00	1576.19	0.000
L15	105 - 95.5 (15)	TP35.997x34.2871x0.3125	1142.19	1629.08	0.701	0.00	1629.08	0.000
L16	95.5 - 94.5 (16)	TP35.552x34.3821x0.375	1288.67	2143.84	0.601	0.00	2143.84	0.000
L17	94.5 - 89.5 (17)	TP36.4519x35.552x0.375	1404.41	2235.37	0.628	0.00	2235.37	0.000
L18	89.5 - 84.5 (18)	TP37.3519x36.4519x0.375	1522.61	2327.68	0.654	0.00	2327.68	0.000
L19	84.5 - 83.17 (19)	TP37.5912x37.3519x0.375	1554.47	2352.37	0.661	0.00	2352.37	0.000
L20	83.17 - 82.92 (20)	TP37.6362x37.5912x0.375	1560.48	2357.01	0.662	0.00	2357.01	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 $\frac{M_{uy}}{\phi M_{ny}}$
L21	82.92 - 77.92 (21)	TP38.5362x37.6362x0.375	1682.10	2450.24	0.687	0.00	2450.24	0.000
L22	77.92 - 72.92 (22)	TP39.4361x38.5362x0.375	1806.34	2544.09	0.710	0.00	2544.09	0.000
L23	72.92 - 67.92 (23)	TP40.3361x39.4361x0.375	1933.12	2638.47	0.733	0.00	2638.47	0.000
L24	67.92 - 63.08 (24)	TP41.2072x40.3361x0.375	2058.23	2730.28	0.754	0.00	2730.28	0.000
L25	63.08 - 62.83 (25)	TP41.2522x41.2072x0.625	2064.76	4951.54	0.417	0.00	4951.54	0.000
L26	62.83 - 57.83 (26)	TP42.1521x41.2522x0.625	2196.83	5175.04	0.425	0.00	5175.04	0.000
L27	57.83 - 46.58 (27)	TP44.177x42.1521x0.6125	2327.09	5292.38	0.440	0.00	5292.38	0.000
L28	46.58 - 45.58 (28)	TP43.6073x42.2715x0.6438	2532.72	5705.78	0.444	0.00	5705.78	0.000
L29	45.58 - 42.92 (29)	TP44.0861x43.6073x0.6438	2608.17	5834.63	0.447	0.00	5834.63	0.000
L30	42.92 - 42.57 (30)	TP44.1491x44.0861x0.5063	2618.17	4576.72	0.572	0.00	4576.72	0.000
L31	42.57 - 42.33 (31)	TP44.1924x44.1491x0.5063	2625.03	4584.42	0.573	0.00	4584.42	0.000
L32	42.33 - 41.92 (32)	TP44.2662x44.1924x0.5063	2636.78	4597.58	0.574	0.00	4597.58	0.000
L33	41.92 - 41.67 (33)	TP44.3112x44.2662x0.6813	2643.97	6223.06	0.425	0.00	6223.06	0.000
L34	41.67 - 36.67 (34)	TP45.2113x44.3112x0.6813	2788.88	6484.50	0.430	0.00	6484.50	0.000
L35	36.67 - 32 (35)	TP46.052x45.2113x0.6688	2926.56	6615.46	0.442	0.00	6615.46	0.000
L36	32 - 31.75 (36)	TP46.097x46.052x0.7188	2933.99	7100.78	0.413	0.00	7100.78	0.000
L37	31.75 - 26.75 (37)	TP46.9972x46.097x0.7063	3083.99	7264.92	0.425	0.00	7264.92	0.000
L38	26.75 - 21.75 (38)	TP47.8973x46.9972x0.7063	3236.52	7552.37	0.429	0.00	7552.37	0.000
L39	21.75 - 18.42 (39)	TP48.4968x47.8973x0.7063	3339.68	7746.91	0.431	0.00	7746.91	0.000
L40	18.42 - 18.17 (40)	TP48.5418x48.4968x0.5813	3347.48	6427.55	0.521	0.00	6427.55	0.000
L41	18.17 - 17.58 (41)	TP48.648x48.5418x0.5813	3365.93	6452.00	0.522	0.00	6452.00	0.000
L42	17.58 - 17.33 (42)	TP48.693x48.648x0.7063	3373.77	7811.12	0.432	0.00	7811.12	0.000
L43	17.33 - 9.92 (43)	TP50.027x48.693x0.7063	3384.13	7830.62	0.432	0.00	7830.62	0.000
L44	9.92 - 8.92 (44)	TP49.3944x47.9399x0.6625	3642.68	7564.92	0.482	0.00	7564.92	0.000
L45	8.92 - 4 (45)	TP50.28x49.3944x0.6625	3803.97	7844.27	0.485	0.00	7844.27	0.000
L46	4 - 3.75 (46)	TP50.325x50.28x0.55	3812.23	6370.56	0.598	0.00	6370.56	0.000
L47	3.75 - 3.42 (47)	TP50.3844x50.325x0.6875	3823.14	8162.47	0.468	0.00	8162.47	0.000
L48	3.42 - 3.17 (48)	TP50.4294x50.3844x0.5875	3831.41	6960.32	0.550	0.00	6960.32	0.000
L49	3.17 - 0 (49)	TP51x50.4294x0.575	3936.69	6903.34	0.570	0.00	6903.34	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	175 - 170 (1)	TP23.025x22.125x0.2188	5.38	281.93	0.019	0.00	565.57	0.000
L2	170 - 165 (2)	TP23.925x23.025x0.2188	5.81	293.05	0.020	0.00	611.09	0.000
L3	165 - 160 (3)	TP24.825x23.925x0.2188	9.70	304.18	0.032	0.48	658.37	0.001
L4	160 - 155 (4)	TP25.725x24.825x0.2188	10.21	315.30	0.032	0.48	707.41	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio V_u ϕV_n	Actual T_u kip-ft	ϕT_n kip-ft	Ratio T_u ϕT_n
L5	155 - 145.5 (5)	TP27.435x25.725x0.2188	13.72	326.43	0.042	0.48	758.22	0.001
L6	145.5 - 145 (6)	TP27.0875x26.1875x0.3125	14.30	472.84	0.030	0.48	1113.63	0.000
L7	145 - 140 (7)	TP27.9874x27.0875x0.3125	18.09	488.73	0.037	0.48	1189.75	0.000
L8	140 - 135 (8)	TP28.8874x27.9874x0.3125	18.60	504.62	0.037	0.48	1268.38	0.000
L9	135 - 130 (9)	TP29.7873x28.8874x0.3125	19.10	520.52	0.037	0.48	1349.54	0.000
L10	130 - 125 (10)	TP30.6873x29.7873x0.3125	19.73	536.41	0.037	0.29	1433.21	0.000
L11	125 - 120 (11)	TP31.5872x30.6873x0.3125	20.25	552.30	0.037	0.29	1519.39	0.000
L12	120 - 115 (12)	TP32.4872x31.5872x0.3125	20.76	568.20	0.037	0.29	1608.09	0.000
L13	115 - 110 (13)	TP33.3871x32.4872x0.3125	21.27	584.09	0.036	0.29	1699.31	0.000
L14	110 - 105 (14)	TP34.2871x33.3871x0.3125	21.77	599.98	0.036	0.29	1793.04	0.000
L15	105 - 95.5 (15)	TP35.997x34.2871x0.3125	22.15	612.70	0.036	0.29	1869.84	0.000
L16	95.5 - 94.5 (16)	TP35.552x34.3821x0.375	22.92	745.46	0.031	0.29	2306.65	0.000
L17	94.5 - 89.5 (17)	TP36.4519x35.552x0.375	23.41	764.53	0.031	0.29	2426.18	0.000
L18	89.5 - 84.5 (18)	TP37.3519x36.4519x0.375	23.90	783.60	0.030	0.29	2548.73	0.000
L19	84.5 - 83.17 (19)	TP37.5912x37.3519x0.375	24.05	788.67	0.030	0.29	2581.84	0.000
L20	83.17 - 82.92 (20)	TP37.6362x37.5912x0.375	24.06	789.63	0.030	0.29	2588.08	0.000
L21	82.92 - 77.92 (21)	TP38.5362x37.6362x0.375	24.60	808.70	0.030	0.29	2714.61	0.000
L22	77.92 - 72.92 (22)	TP39.4361x38.5362x0.375	25.12	827.77	0.030	0.29	2844.16	0.000
L23	72.92 - 67.92 (23)	TP40.3361x39.4361x0.375	25.62	846.84	0.030	0.29	2976.72	0.000
L24	67.92 - 63.08 (24)	TP41.2072x40.3361x0.375	26.12	865.30	0.030	0.29	3107.92	0.000
L25	63.08 - 62.83 (25)	TP41.2522x41.2072x0.625	26.13	1434.93	0.018	0.29	5127.98	0.000
L26	62.83 - 57.83 (26)	TP42.1521x41.2522x0.625	26.72	1466.71	0.018	0.29	5357.68	0.000
L27	57.83 - 46.58 (27)	TP44.177x42.1521x0.6125	27.25	1467.90	0.019	0.29	5475.89	0.000
L28	46.58 - 45.58 (28)	TP43.6073x42.2715x0.6438	28.18	1562.97	0.018	0.29	5906.77	0.000
L29	45.58 - 42.92 (29)	TP44.0861x43.6073x0.6438	28.57	1580.39	0.018	0.31	6039.17	0.000
L30	42.92 - 42.57 (30)	TP44.1491x44.0861x0.5063	28.60	1248.57	0.023	0.31	4793.19	0.000
L31	42.57 - 42.33 (31)	TP44.1924x44.1491x0.5063	28.64	1249.80	0.023	0.31	4802.69	0.000
L32	42.33 - 41.92 (32)	TP44.2662x44.1924x0.5063	28.69	1251.91	0.023	0.31	4818.93	0.000
L33	41.92 - 41.67 (33)	TP44.3112x44.2662x0.6813	28.73	1679.67	0.017	0.31	6446.27	0.000
L34	41.67 - 36.67 (34)	TP45.2113x44.3112x0.6813	29.26	1714.32	0.017	0.31	6715.00	0.000
L35	36.67 - 32 (35)	TP46.052x45.2113x0.6688	29.74	1715.11	0.017	0.31	6846.81	0.000
L36	32 - 31.75 (36)	TP46.097x46.052x0.7188	29.75	1843.14	0.016	0.31	7357.10	0.000
L37	31.75 - 26.75 (37)	TP46.9972x46.097x0.7063	30.27	1847.51	0.016	0.31	7522.86	0.000
L38	26.75 - 21.75 (38)	TP47.8973x46.9972x0.7063	30.77	1883.44	0.016	0.31	7818.27	0.000
L39	21.75 - 18.42	TP48.4968x47.8973x0.70	31.22	1907.36	0.016	0.38	8018.17	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 $\frac{T_u}{\phi T_n}$
L40	(39) 18.42 - 18.17	63 TP48.5418x48.4968x0.58	31.24	1575.36	0.020	0.38	6646.05	0.000
L41	(40) 18.17 - 17.58	13 TP48.648x48.5418x0.581	31.32	1578.85	0.020	0.39	6675.52	0.000
L42	(41) 17.58 - 17.33	3 TP48.693x48.648x0.7063	31.35	1915.19	0.016	0.40	8084.14	0.000
L43	(42) 17.33 - 9.92	TP50.027x48.693x0.7063	31.40	1917.57	0.016	0.41	8104.17	0.000
L44	(43) 9.92 - 8.92	TP49.3944x47.9399x0.66	32.57	1824.45	0.018	0.59	7820.68	0.000
L45	(44) 8.92 - 4 (45)	25 TP50.28x49.3944x0.6625	33.03	1857.61	0.018	0.59	8107.52	0.000
L46	4 - 3.75 (46)	TP50.325x50.28x0.55	33.04	1547.06	0.021	0.59	6773.57	0.000
L47	3.75 - 3.42 (47)	TP50.3844x50.325x0.687	33.07	1930.79	0.017	0.59	8440.42	0.000
L48	3.42 - 3.17 (48)	5 TP50.4294x50.3844x0.58	33.09	1654.76	0.020	0.59	7254.87	0.000
L49	3.17 - 0 (49)	75 TP51x50.4294x0.575	33.37	1638.50	0.020	0.59	7267.62	0.000

Pole Interaction Design Data

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
L1	175 - 170 (1)	0.003	0.042	0.000	0.019	0.000	0.046	1.050	4.8.2
L2	170 - 165 (2)	0.004	0.091	0.000	0.020	0.000	0.096	1.050	4.8.2
L3	165 - 160 (3)	0.007	0.152	0.000	0.032	0.001	0.160	1.050	4.8.2
L4	160 - 155 (4)	0.007	0.226	0.000	0.032	0.001	0.234	1.050	4.8.2
L5	155 - 145.5 (5)	0.010	0.316	0.000	0.042	0.001	0.327	1.050	4.8.2
L6	145.5 - 145 (6)	0.007	0.254	0.000	0.030	0.000	0.263	1.050	4.8.2
L7	145 - 140 (7)	0.010	0.317	0.000	0.037	0.000	0.328	1.050	4.8.2
L8	140 - 135 (8)	0.010	0.377	0.000	0.037	0.000	0.388	1.050	4.8.2
L9	135 - 130 (9)	0.010	0.433	0.000	0.037	0.000	0.445	1.050	4.8.2
L10	130 - 125 (10)	0.010	0.486	0.000	0.037	0.000	0.497	1.050	4.8.2
L11	125 - 120 (11)	0.010	0.536	0.000	0.037	0.000	0.547	1.050	4.8.2
L12	120 - 115 (12)	0.010	0.583	0.000	0.037	0.000	0.594	1.050	4.8.2
L13	115 - 110 (13)	0.010	0.627	0.000	0.036	0.000	0.639	1.050	4.8.2
L14	110 - 105 (14)	0.011	0.669	0.000	0.036	0.000	0.681	1.050	4.8.2
L15	105 - 95.5 (15)	0.011	0.701	0.000	0.036	0.000	0.713	1.050	4.8.2
L16	95.5 - 94.5 (16)	0.010	0.601	0.000	0.031	0.000	0.612	1.050	4.8.2
L17	94.5 - 89.5 (17)	0.010	0.628	0.000	0.031	0.000	0.639	1.050	4.8.2
L18	89.5 - 84.5 (18)	0.010	0.654	0.000	0.030	0.000	0.665	1.050	4.8.2
L19	84.5 - 83.17 (19)	0.010	0.661	0.000	0.030	0.000	0.672	1.050	4.8.2
L20	83.17 - 82.92 (20)	0.010	0.662	0.000	0.030	0.000	0.673	1.050	4.8.2
L21	82.92 - 77.92 (21)	0.011	0.687	0.000	0.030	0.000	0.698	1.050	4.8.2
L22	77.92 - 72.92 (22)	0.011	0.710	0.000	0.030	0.000	0.722	1.050	4.8.2
L23	72.92 - 67.92 (23)	0.011	0.733	0.000	0.030	0.000	0.745	1.050	4.8.2
L24	67.92 - 63.08 (24)	0.012	0.754	0.000	0.030	0.000	0.766	1.050	4.8.2
L25	63.08 - 62.83 (25)	0.007	0.417	0.000	0.018	0.000	0.424	1.050	4.8.2
L26	62.83 - 57.83	0.007	0.425	0.000	0.018	0.000	0.432	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
	(26)								
L27	57.83 - 46.58	0.008	0.440	0.000	0.019	0.000	0.448	1.050	4.8.2
	(27)								
L28	46.58 - 45.58	0.008	0.444	0.000	0.018	0.000	0.452	1.050	4.8.2
	(28)								
L29	45.58 - 42.92	0.008	0.447	0.000	0.018	0.000	0.456	1.050	4.8.2
	(29)								
L30	42.92 - 42.57	0.010	0.572	0.000	0.023	0.000	0.583	1.050	4.8.2
	(30)								
L31	42.57 - 42.33	0.010	0.573	0.000	0.023	0.000	0.584	1.050	4.8.2
	(31)								
L32	42.33 - 41.92	0.010	0.574	0.000	0.023	0.000	0.584	1.050	4.8.2
	(32)								
L33	41.92 - 41.67	0.008	0.425	0.000	0.017	0.000	0.433	1.050	4.8.2
	(33)								
L34	41.67 - 36.67	0.008	0.430	0.000	0.017	0.000	0.438	1.050	4.8.2
	(34)								
L35	36.67 - 32	0.008	0.442	0.000	0.017	0.000	0.451	1.050	4.8.2
	(35)								
L36	32 - 31.75	0.008	0.413	0.000	0.016	0.000	0.421	1.050	4.8.2
	(36)								
L37	31.75 - 26.75	0.008	0.425	0.000	0.016	0.000	0.433	1.050	4.8.2
	(37)								
L38	26.75 - 21.75	0.008	0.429	0.000	0.016	0.000	0.437	1.050	4.8.2
	(38)								
L39	21.75 - 18.42	0.008	0.431	0.000	0.016	0.000	0.440	1.050	4.8.2
	(39)								
L40	18.42 - 18.17	0.010	0.521	0.000	0.020	0.000	0.532	1.050	4.8.2
	(40)								
L41	18.17 - 17.58	0.010	0.522	0.000	0.020	0.000	0.532	1.050	4.8.2
	(41)								
L42	17.58 - 17.33	0.009	0.432	0.000	0.016	0.000	0.441	1.050	4.8.2
	(42)								
L43	17.33 - 9.92	0.009	0.432	0.000	0.016	0.000	0.441	1.050	4.8.2
	(43)								
L44	9.92 - 8.92	0.010	0.482	0.000	0.018	0.000	0.492	1.050	4.8.2
	(44)								
L45	8.92 - 4 (45)	0.010	0.485	0.000	0.018	0.000	0.496	1.050	4.8.2
L46	4 - 3.75 (46)	0.012	0.598	0.000	0.021	0.000	0.611	1.050	4.8.2
L47	3.75 - 3.42	0.010	0.468	0.000	0.017	0.000	0.479	1.050	4.8.2
	(47)								
L48	3.42 - 3.17	0.012	0.550	0.000	0.020	0.000	0.563	1.050	4.8.2
	(48)								
L49	3.17 - 0 (49)	0.012	0.570	0.000	0.020	0.000	0.583	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	175 - 170	Pole	TP23.025x22.125x0.2188	1	-3.26	986.74	4.4	Pass
L2	170 - 165	Pole	TP23.925x23.025x0.2188	2	-3.58	1025.68	9.1	Pass
L3	165 - 160	Pole	TP24.825x23.925x0.2188	3	-6.91	1064.62	15.2	Pass
L4	160 - 155	Pole	TP25.725x24.825x0.2188	4	-7.30	1103.56	22.3	Pass
L5	155 - 145.5	Pole	TP27.435x25.725x0.2188	5	-10.66	1142.49	31.2	Pass
L6	145.5 - 145	Pole	TP27.0875x26.1875x0.3125	6	-11.60	1654.93	25.0	Pass
L7	145 - 140	Pole	TP27.9874x27.0875x0.3125	7	-15.72	1710.55	31.2	Pass
L8	140 - 135	Pole	TP28.8874x27.9874x0.3125	8	-16.43	1766.18	37.0	Pass
L9	135 - 130	Pole	TP29.7873x28.8874x0.3125	9	-17.18	1821.80	42.4	Pass
L10	130 - 125	Pole	TP30.6873x29.7873x0.3125	10	-17.92	1877.43	47.4	Pass
L11	125 - 120	Pole	TP31.5872x30.6873x0.3125	11	-18.73	1933.06	52.1	Pass
L12	120 - 115	Pole	TP32.4872x31.5872x0.3125	12	-19.56	1988.68	56.6	Pass
L13	115 - 110	Pole	TP33.3871x32.4872x0.3125	13	-20.41	2044.31	60.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L14	110 - 105	Pole	TP34.2871x33.3871x0.3125	14	-21.30	2099.94	64.9	Pass
L15	105 - 95.5	Pole	TP35.997x34.2871x0.3125	15	-22.02	2144.44	67.9	Pass
L16	95.5 - 94.5	Pole	TP35.552x34.3821x0.375	16	-24.13	2609.10	58.3	Pass
L17	94.5 - 89.5	Pole	TP36.4519x35.552x0.375	17	-25.21	2675.85	60.9	Pass
L18	89.5 - 84.5	Pole	TP37.3519x36.4519x0.375	18	-26.43	2742.60	63.4	Pass
L19	84.5 - 83.17	Pole	TP37.5912x37.3519x0.375	19	-26.84	2760.36	64.0	Pass
L20	83.17 - 82.92	Pole	TP37.6362x37.5912x0.375	20	-26.94	2763.69	64.1	Pass
L21	82.92 - 77.92	Pole	TP38.5362x37.6362x0.375	21	-28.53	2830.44	66.5	Pass
L22	77.92 - 72.92	Pole	TP39.4361x38.5362x0.375	22	-30.16	2897.19	68.7	Pass
L23	72.92 - 67.92	Pole	TP40.3361x39.4361x0.375	23	-31.82	2963.94	70.9	Pass
L24	67.92 - 63.08	Pole	TP41.2072x40.3361x0.375	24	-33.45	3028.56	73.0	Pass
L25	63.08 - 62.83	Pole	TP41.2522x41.2072x0.625	25	-33.56	5022.24	40.4	Pass
L26	62.83 - 57.83	Pole	TP42.1521x41.2522x0.625	26	-35.37	5133.49	41.1	Pass
L27	57.83 - 46.58	Pole	TP44.177x42.1521x0.6125	27	-37.15	5137.65	42.6	Pass
L28	46.58 - 45.58	Pole	TP43.6073x42.2715x0.6438	28	-42.16	5470.38	43.1	Pass
L29	45.58 - 42.92	Pole	TP44.0861x43.6073x0.6438	29	-43.21	5531.36	43.4	Pass
L30	42.92 - 42.57	Pole	TP44.1491x44.0861x0.5063	30	-43.36	4369.98	55.5	Pass
L31	42.57 - 42.33	Pole	TP44.1924x44.1491x0.5063	31	-43.46	4374.31	55.6	Pass
L32	42.33 - 41.92	Pole	TP44.2662x44.1924x0.5063	32	-43.63	4381.70	55.7	Pass
L33	41.92 - 41.67	Pole	TP44.3112x44.2662x0.6813	33	-43.73	5878.84	41.2	Pass
L34	41.67 - 36.67	Pole	TP45.2113x44.3112x0.6813	34	-45.82	6000.13	41.8	Pass
L35	36.67 - 32	Pole	TP46.052x45.2113x0.6688	35	-47.79	6002.89	43.0	Pass
L36	32 - 31.75	Pole	TP46.097x46.052x0.7188	36	-47.91	6451.00	40.1	Pass
L37	31.75 - 26.75	Pole	TP46.9972x46.097x0.7063	37	-50.17	6466.29	41.2	Pass
L38	26.75 - 21.75	Pole	TP47.8973x46.9972x0.7063	38	-52.47	6592.03	41.6	Pass
L39	21.75 - 18.42	Pole	TP48.4968x47.8973x0.7063	39	-54.01	6675.77	41.9	Pass
L40	18.42 - 18.17	Pole	TP48.5418x48.4968x0.5813	40	-54.12	5513.76	50.6	Pass
L41	18.17 - 17.58	Pole	TP48.648x48.5418x0.5813	41	-54.35	5525.97	50.7	Pass
L42	17.58 - 17.33	Pole	TP48.693x48.648x0.7063	42	-54.47	6703.18	42.0	Pass
L43	17.33 - 9.92	Pole	TP50.027x48.693x0.7063	43	-54.63	6711.47	42.0	Pass
L44	9.92 - 8.92	Pole	TP49.3944x47.9399x0.6625	44	-61.55	6385.57	46.9	Pass
L45	8.92 - 4	Pole	TP50.28x49.3944x0.6625	45	-63.98	6501.62	47.2	Pass
L46	4 - 3.75	Pole	TP50.325x50.28x0.55	46	-64.09	5414.70	58.2	Pass
L47	3.75 - 3.42	Pole	TP50.3844x50.325x0.6875	47	-64.26	6757.76	45.6	Pass
L48	3.42 - 3.17	Pole	TP50.4294x50.3844x0.5875	48	-64.37	5791.66	53.6	Pass
L49	3.17 - 0	Pole	TP51x50.4294x0.575	49	-65.74	5734.75	55.5	Pass
							Summary	
							Pole (L24)	Pass
							RATING =	Pass

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

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/4" TO 154 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(4) 1-5/8" TO 162 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(3) 1-5/8" TO 144 FT LEVEL

CLIMBING PEGS
W/ SAFETY CLIMB

(OTHER CONSIDERED EQUIPMENT)
(6) 1-1/4" TO 173 FT LEVEL
(1) 1-5/8" TO 173 FT LEVEL
(OTHER CONSIDERED EQUIPMENT - IN 2" CONDUIT)
(1) 3/8" TO 162 FT LEVEL
(2) 5/8" TO 162 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1-1/4" TO 162 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Site BU: 807132
Work Order: 2000574



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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	175	29.5	4.5	12	22.125	27.435	0.21875	Auto	A572-65
2	150	54.5	5.5	12	26.19	35.997	0.3125	Auto	A572-65
3	101	54.42	6.42	12	34.38	44.177	0.375	Auto	A572-65
4	53	43.08	7.08	12	42.27	50.027	0.40625	Auto	A572-65
5	17	17	0	12	47.94	51	0.4375	Auto	A572-65

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
1	3.42	17.58	channel	MP3-05 (Welded)	3			E				E				E	
2	18.42	42.58	channel	MP3-05 (Welded)	2					E				E			
3	18.42	41.92	channel	MP3-05 (Welded)	1	E											
4	42.92	63.08	channel	MP3-04	3			E				E				E	
5	4	32	plate	CCI-AFP-065125	2								E				E
6	4	12	plate	CCI-AFP-065125	1					E							
7	14	32	plate	CCI-AFP-065125	1				E								
8	32	83.17	plate	CCI-AFP-060100	3				E				E				E
9	0	4	plate	TS 1.25" x 6.5"	3	E					E				E		
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 (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	5.33	2.09	5.65	0.79	Welded	n/a	PC 8.8 - M20 (100)	35.000	18.000	5.025	1.1875	A572-65
2	5.33	2.09	5.65	0.79	Welded	n/a	PC 8.8 - M20 (100)	35.000	18.000	5.025	1.1875	A572-65
3	5.33	2.09	5.65	0.79	Welded	n/a	PC 8.8 - M20 (100)	35.000	18.000	5.025	1.1875	A572-65
4	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	3.593	1.1875	A572-65
5	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
6	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
7	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	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	1.25	6.5	8.125	3.25	Welded	n/a	Welded	n/a	0.000	8.125	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
TS 1.25" x 6.5"	Top	-	-	-	-	80	None	-	-	-	-	18	0.375	-
	Bottom	-	-	-	-	80	CJP Groove	11.5	0.625	45	0.625	-	-	-
MP3-05 (Welded)	Top	12	N	3	2	0	0	-	-	-	-	0	0.000	-
	Bottom	-	-	-	-	70	None	0	0	0	0	24	0.375	-
MP3-04	Top	10	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	10	N	3	2	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): [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	175 - 170	5		12	22.125	23.025	0.21875	A572-65	1.000
2	170 - 165	5		12	23.025	23.925	0.21875	A572-65	1.000
3	165 - 160	5		12	23.925	24.825	0.21875	A572-65	1.000
4	160 - 155	5		12	24.825	25.725	0.21875	A572-65	1.000
5	155 - 150	9.5	4.5	12	25.725	27.435	0.21875	A572-65	1.000
6	150 - 145	5		12	26.188	27.087	0.3125	A572-65	1.000
7	145 - 140	5		12	27.087	27.987	0.3125	A572-65	1.000
8	140 - 135	5		12	27.987	28.887	0.3125	A572-65	1.000
9	135 - 130	5		12	28.887	29.787	0.3125	A572-65	1.000
10	130 - 125	5		12	29.787	30.687	0.3125	A572-65	1.000
11	125 - 120	5		12	30.687	31.587	0.3125	A572-65	1.000
12	120 - 115	5		12	31.587	32.487	0.3125	A572-65	1.000
13	115 - 110	5		12	32.487	33.387	0.3125	A572-65	1.000
14	110 - 105	5		12	33.387	34.287	0.3125	A572-65	1.000
15	105 - 101	9.5	5.5	12	34.287	35.997	0.3125	A572-65	1.000
16	101 - 94.5	6.5		12	34.382	35.552	0.375	A572-65	1.000
17	94.5 - 89.5	5		12	35.552	36.452	0.375	A572-65	1.000
18	89.5 - 84.5	5		12	36.452	37.352	0.375	A572-65	1.000
19	84.5 - 83.17	1.33		12	37.352	37.591	0.375	A572-65	1.000
20	83.17 - 82.92	0.25		12	37.591	37.636	0.375	A572-65	1.000
21	82.92 - 77.92	5		12	37.636	38.536	0.375	A572-65	1.000
22	77.92 - 72.92	5		12	38.536	39.436	0.375	A572-65	1.000
23	72.92 - 67.92	5		12	39.436	40.336	0.375	A572-65	1.000
24	67.92 - 63.08	4.84		12	40.336	41.207	0.375	A572-65	1.000
25	63.08 - 62.83	0.25		12	41.207	41.252	0.625	A572-65	0.976
26	62.83 - 57.83	5		12	41.252	42.152	0.625	A572-65	0.968
27	57.83 - 53	11.25	6.42	12	42.152	44.177	0.6125	A572-65	0.980
28	53 - 45.58	7.42		12	42.271	43.607	0.64375	A572-65	0.976
29	45.58 - 42.92	2.66		12	43.607	44.086	0.64375	A572-65	0.972
30	42.92 - 42.57	0.35		12	44.086	44.149	0.50625	A572-65	0.963
31	42.57 - 42.33	0.24		12	44.149	44.192	0.50625	A572-65	0.963
32	42.33 - 41.92	0.41		12	44.192	44.266	0.50625	A572-65	0.963
33	41.92 - 41.67	0.25		12	44.266	44.311	0.68125	A572-65	0.966
34	41.67 - 36.67	5		12	44.311	45.211	0.68125	A572-65	0.958
35	36.67 - 32	4.67		12	45.211	46.052	0.66875	A572-65	0.969
36	32 - 31.75	0.25		12	46.052	46.097	0.71875	A572-65	0.963
37	31.75 - 26.75	5		12	46.097	46.997	0.70625	A572-65	0.972
38	26.75 - 21.75	5		12	46.997	47.897	0.70625	A572-65	0.964
39	21.75 - 18.42	3.33		12	47.897	48.497	0.70625	A572-65	0.960
40	18.42 - 18.17	0.25		12	48.497	48.542	0.58125	A572-65	0.973
41	18.17 - 17.58	0.59		12	48.542	48.648	0.58125	A572-65	0.973
42	17.58 - 17.33	0.25		12	48.648	48.693	0.70625	A572-65	0.958
43	17.33 - 17	7.41	7.08	12	48.693	50.027	0.70625	A572-65	0.958
44	17 - 8.92	8.08		12	47.940	49.394	0.6625	A572-65	1.062
45	8.92 - 4	4.92		12	49.394	50.280	0.6625	A572-65	1.054
46	4 - 3.75	0.25		12	50.280	50.325	0.55	A572-65	0.990
47	3.75 - 3.42	0.33		12	50.325	50.384	0.6875	A572-65	1.016
48	3.42 - 3.17	0.25		12	50.384	50.429	0.5875	A572-65	1.006
49	3.17 - 0	3.17		12	50.429	51.000	0.575	A572-65	1.024

TNX Section Forces

Increment (ft):		TNX Output		
		5		
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	175 - 170	3.26	21.25	5.38
2	170 - 165	3.58	49.20	5.81
3	165 - 160	6.91	86.51	9.70
4	160 - 155	7.30	136.27	10.21
5	155 - 150	10.66	200.76	13.72
6	150 - 145	11.60	270.83	14.30
7	145 - 140	15.72	356.73	18.09
8	140 - 135	16.43	448.44	18.60
9	135 - 130	17.18	542.67	19.10
10	130 - 125	17.92	639.53	19.73
11	125 - 120	18.73	739.41	20.25
12	120 - 115	19.56	841.87	20.76
13	115 - 110	20.41	946.89	21.27
14	110 - 105	21.30	1054.41	21.77
15	105 - 101	22.02	1142.19	22.15
16	101 - 94.5	24.13	1288.66	22.92
17	94.5 - 89.5	25.21	1404.41	23.41
18	89.5 - 84.5	26.43	1522.61	23.90
19	84.5 - 83.17	26.84	1554.47	24.05
20	83.17 - 82.92	26.94	1560.48	24.06
21	82.92 - 77.92	28.53	1682.10	24.60
22	77.92 - 72.92	30.16	1806.34	25.12
23	72.92 - 67.92	31.82	1933.12	25.62
24	67.92 - 63.08	33.45	2058.23	26.12
25	63.08 - 62.83	33.56	2064.76	26.13
26	62.83 - 57.83	35.37	2196.84	26.72
27	57.83 - 53	37.15	2327.09	27.25
28	53 - 45.58	42.16	2532.73	28.18
29	45.58 - 42.92	43.21	2608.17	28.57
30	42.92 - 42.57	43.36	2618.17	28.60
31	42.57 - 42.33	43.46	2625.04	28.64
32	42.33 - 41.92	43.63	2636.79	28.69
33	41.92 - 41.67	43.73	2643.96	28.73
34	41.67 - 36.67	45.82	2788.87	29.26
35	36.67 - 32	47.79	2926.56	29.74
36	32 - 31.75	47.91	2933.99	29.75
37	31.75 - 26.75	50.17	3083.99	30.27
38	26.75 - 21.75	52.47	3236.52	30.77
39	21.75 - 18.42	54.01	3339.68	31.22
40	18.42 - 18.17	54.12	3347.48	31.24
41	18.17 - 17.58	54.35	3365.94	31.32
42	17.58 - 17.33	54.47	3373.77	31.35
43	17.33 - 17	54.63	3384.12	31.40
44	17 - 8.92	61.55	3642.68	32.57
45	8.92 - 4	63.98	3803.98	33.03
46	4 - 3.75	64.09	3812.23	33.04
47	3.75 - 3.42	64.26	3823.14	33.07
48	3.42 - 3.17	64.37	3831.41	33.09
49	3.17 - 0	65.74	3936.69	33.37

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
175 - 170	Pole	TP23.025x22.125x0.2188	Pole	4.4%	Pass
170 - 165	Pole	TP23.925x23.025x0.2188	Pole	9.1%	Pass
165 - 160	Pole	TP24.825x23.925x0.2188	Pole	15.2%	Pass
160 - 155	Pole	TP25.725x24.825x0.2188	Pole	22.2%	Pass
155 - 150	Pole	TP27.435x25.725x0.2188	Pole	31.1%	Pass
150 - 145	Pole	TP27.087x26.188x0.3125	Pole	24.9%	Pass
145 - 140	Pole	TP27.987x27.087x0.3125	Pole	31.1%	Pass
140 - 135	Pole	TP28.887x27.987x0.3125	Pole	36.9%	Pass
135 - 130	Pole	TP29.787x28.887x0.3125	Pole	42.2%	Pass
130 - 125	Pole	TP30.687x29.787x0.3125	Pole	47.2%	Pass
125 - 120	Pole	TP31.587x30.687x0.3125	Pole	52.0%	Pass
120 - 115	Pole	TP32.487x31.587x0.3125	Pole	56.4%	Pass
115 - 110	Pole	TP33.387x32.487x0.3125	Pole	60.7%	Pass
110 - 105	Pole	TP34.287x33.387x0.3125	Pole	64.7%	Pass
105 - 101	Pole	TP35.997x34.287x0.3125	Pole	67.7%	Pass
101 - 94.5	Pole	TP35.552x34.382x0.375	Pole	58.1%	Pass
94.5 - 89.5	Pole	TP36.452x35.552x0.375	Pole	60.7%	Pass
89.5 - 84.5	Pole	TP37.352x36.452x0.375	Pole	63.2%	Pass
84.5 - 83.17	Pole	TP37.591x37.352x0.375	Pole	63.8%	Pass
83.17 - 82.92	Pole	TP37.636x37.591x0.375	Pole	63.9%	Pass
82.92 - 77.92	Pole	TP38.536x37.636x0.375	Pole	66.3%	Pass
77.92 - 72.92	Pole	TP39.436x38.536x0.375	Pole	68.6%	Pass
72.92 - 67.92	Pole	TP40.336x39.436x0.375	Pole	70.7%	Pass
67.92 - 63.08	Pole	TP41.207x40.336x0.375	Pole	72.8%	Pass
63.08 - 62.83	Pole + Reinf.	TP41.252x41.207x0.625	Reinf. 8 Tension Rupture	61.1%	Pass
62.83 - 57.83	Pole + Reinf.	TP42.152x41.252x0.625	Reinf. 8 Tension Rupture	62.8%	Pass
57.83 - 53	Pole + Reinf.	TP44.177x42.152x0.6125	Reinf. 8 Tension Rupture	64.3%	Pass
53 - 45.58	Pole + Reinf.	TP43.607x42.271x0.6438	Reinf. 8 Tension Rupture	65.3%	Pass
45.58 - 42.92	Pole + Reinf.	TP44.086x43.607x0.6438	Reinf. 8 Tension Rupture	66.0%	Pass
42.92 - 42.57	Pole + Reinf.	TP44.149x44.086x0.5063	Reinf. 2 Tension Rupture	73.4%	Pass
42.57 - 42.33	Pole + Reinf.	TP44.192x44.149x0.5063	Reinf. 2 Tension Rupture	73.4%	Pass
42.33 - 41.92	Pole + Reinf.	TP44.266x44.192x0.5063	Reinf. 2 Tension Rupture	73.6%	Pass
41.92 - 41.67	Pole + Reinf.	TP44.311x44.266x0.6813	Reinf. 8 Tension Rupture	62.9%	Pass
41.67 - 36.67	Pole + Reinf.	TP45.211x44.311x0.6813	Reinf. 8 Tension Rupture	64.3%	Pass
36.67 - 32	Pole + Reinf.	TP46.052x45.211x0.6688	Reinf. 8 Tension Rupture	65.5%	Pass
32 - 31.75	Pole + Reinf.	TP46.097x46.052x0.7188	Reinf. 7 Tension Rupture	60.2%	Pass
31.75 - 26.75	Pole + Reinf.	TP46.997x46.097x0.7063	Reinf. 7 Tension Rupture	61.4%	Pass
26.75 - 21.75	Pole + Reinf.	TP47.897x46.997x0.7063	Reinf. 7 Tension Rupture	62.5%	Pass
21.75 - 18.42	Pole + Reinf.	TP48.497x47.897x0.7063	Reinf. 7 Tension Rupture	63.3%	Pass
18.42 - 18.17	Pole + Reinf.	TP48.542x48.497x0.5813	Reinf. 7 Tension Rupture	76.0%	Pass
18.17 - 17.58	Pole + Reinf.	TP48.648x48.542x0.5813	Reinf. 7 Tension Rupture	76.1%	Pass
17.58 - 17.33	Pole + Reinf.	TP48.693x48.648x0.7063	Reinf. 7 Tension Rupture	63.5%	Pass
17.33 - 17	Pole + Reinf.	TP50.027x48.693x0.7063	Reinf. 7 Tension Rupture	63.6%	Pass
17 - 8.92	Pole + Reinf.	TP49.394x47.94x0.6625	Reinf. 1 Tension Rupture	67.2%	Pass
8.92 - 4	Pole + Reinf.	TP50.28x49.394x0.6625	Reinf. 1 Tension Rupture	68.0%	Pass
4 - 3.75	Pole + Reinf.	TP50.325x50.28x0.55	Reinf. 1 Tension Rupture	79.3%	Pass
3.75 - 3.42	Pole + Reinf.	TP50.384x50.325x0.6875	Reinf. 1 Tension Rupture	66.5%	Pass
3.42 - 3.17	Pole + Reinf.	TP50.429x50.384x0.5875	Reinf. 9 Tension Yield	69.1%	Pass
3.17 - 0	Pole + Reinf.	TP51x50.429x0.575	Reinf. 9 Tension Yield	69.6%	Pass
				Summary	
			Pole	72.8%	Pass
			Reinforcement	79.3%	Pass
			Overall	79.3%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*									
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9
175 - 170	1068	n/a	1068	16.04	n/a	16.04	4.4%									
170 - 165	1199	n/a	1199	16.67	n/a	16.67	9.1%									
165 - 160	1341	n/a	1341	17.31	n/a	17.31	15.2%									
160 - 155	1494	n/a	1494	17.94	n/a	17.94	22.2%									
155 - 150	1658	n/a	1658	18.57	n/a	18.57	31.1%									
150 - 145	2469	n/a	2469	26.90	n/a	26.90	24.9%									
145 - 140	2726	n/a	2726	27.81	n/a	27.81	31.1%									
140 - 135	3001	n/a	3001	28.71	n/a	28.71	36.9%									
135 - 130	3293	n/a	3293	29.62	n/a	29.62	42.2%									
130 - 125	3604	n/a	3604	30.52	n/a	30.52	47.2%									
125 - 120	3934	n/a	3934	31.43	n/a	31.43	52.0%									
120 - 115	4284	n/a	4284	32.33	n/a	32.33	56.4%									
115 - 110	4653	n/a	4653	33.23	n/a	33.23	60.7%									
110 - 105	5044	n/a	5044	34.14	n/a	34.14	64.7%									
105 - 101	5371	n/a	5371	34.86	n/a	34.86	67.7%									
101 - 94.5	6718	n/a	6718	42.42	n/a	42.42	58.1%									
94.5 - 89.5	7247	n/a	7247	43.50	n/a	43.50	60.7%									
89.5 - 84.5	7803	n/a	7803	44.59	n/a	44.59	63.2%									
84.5 - 83.17	7955	n/a	7955	44.87	n/a	44.87	63.8%									
83.17 - 82.92	7984	n/a	7984	44.93	n/a	44.93	63.9%									
82.92 - 77.92	8577	n/a	8577	46.01	n/a	46.01	66.3%									
77.92 - 72.92	9198	n/a	9198	47.10	n/a	47.10	68.6%									
72.92 - 67.92	9848	n/a	9848	48.18	n/a	48.18	70.7%									
67.92 - 63.08	10507	n/a	10507	49.23	n/a	49.23	72.8%									
63.08 - 62.83	10541	6845	17386	49.29	30.39	79.68	42.8%				58.3%				61.1%	
62.83 - 57.83	11253	7138	18391	50.37	30.39	80.76	44.4%				59.9%				62.8%	
57.83 - 53	11970	7426	19396	51.42	30.39	81.81	45.9%				61.4%				64.3%	
53 - 45.58	13480	7624	21104	56.43	30.39	86.82	45.3%				62.3%				65.3%	
45.58 - 42.92	13934	7787	21721	57.06	30.39	87.45	46.0%				63.0%				66.0%	
42.92 - 42.57	14061	3318	17379	57.14	11.30	68.44	61.9%		73.4%							
42.57 - 42.33	14103	3324	17427	57.20	11.30	68.50	62.0%		73.4%							
42.33 - 41.92	14174	3335	17509	57.29	11.30	68.59	62.1%		73.6%							
41.92 - 41.67	14150	9120	23270	57.35	34.95	92.30	44.0%		58.5%	58.5%					62.9%	
41.67 - 36.67	15038	9482	24521	58.53	34.95	93.48	45.4%		59.7%	59.7%					64.3%	
36.67 - 32	15901	9827	25728	59.62	34.95	94.57	46.6%		60.8%	60.8%					65.5%	
32 - 31.75	15948	11702	27650	59.68	41.33	101.01	43.5%		56.8%	56.8%		60.2%		60.2%		
31.75 - 26.75	16909	12147	29057	60.86	41.33	102.18	44.8%		57.9%	57.9%		61.4%		61.4%		
26.75 - 21.75	17908	12602	30510	62.04	41.33	103.36	46.0%		58.9%	58.9%		62.5%		62.5%		
21.75 - 18.42	18595	12909	31504	62.82	41.33	104.14	46.9%		59.6%	59.6%		63.3%		63.3%		
18.42 - 18.17	18647	7598	26246	62.88	24.38	87.25	56.2%					76.0%		76.0%		
18.17 - 17.58	18771	7631	26402	63.02	24.38	87.39	56.4%					76.1%		76.1%		
17.58 - 17.33	18824	13010	31834	63.07	41.33	104.40	47.1%	59.9%				63.5%		63.5%		
17.33 - 17	18893	13041	31934	63.15	41.33	104.48	47.2%	59.9%				63.6%		63.6%		
17 - 8.92	21160	10701	31860	68.87	41.33	110.19	51.5%	67.2%				64.9%	62.2%			
8.92 - 4	22328	11075	33403	70.12	41.33	111.44	52.6%	68.0%				65.9%	63.1%			
4 - 3.75	22355	5719	28074	70.18	16.95	87.13	61.3%	79.3%								
3.75 - 3.42	22476	12231	34707	70.26	41.33	111.59	51.6%	66.5%								58.5%
3.42 - 3.17	22588	7171	29759	70.33	24.38	94.70	62.7%									69.1%
3.17 - 0	23369	7316	30685	71.13	24.38	95.50	63.5%									69.6%

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Base Plate Connection

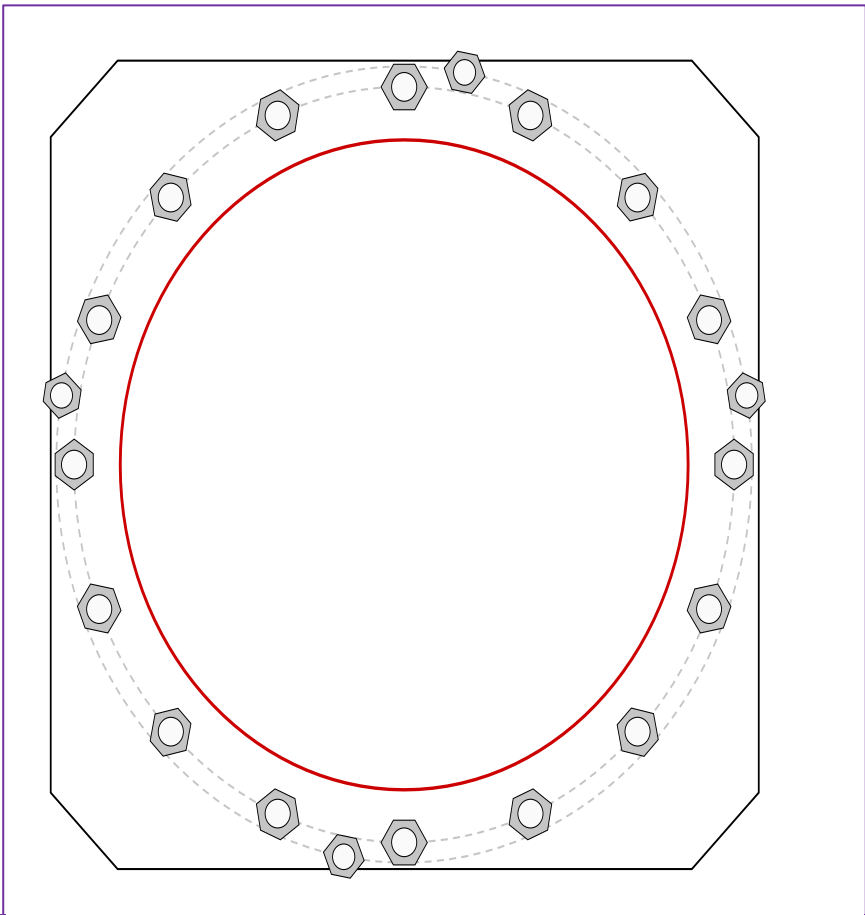


Site Info	
BU #	807132
Site Name	BRG 133 943050
Order #	575116 Rev. 0

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

Applied Loads	
Moment (kip-ft)	3936.69
Axial Force (kips)	65.74
Shear Force (kips)	33.37

*TIA-222-H Section 15.5 Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
GROUP 1: (16) 2-1/4" ϕ bolts (A615-75 N; F_y =75 ksi, F_u =100 ksi) on 59.3" BC <i>Anchor Spacing: 11.569 in</i>		GROUP 1:	
GROUP 2: (4) 2" ϕ bolts (A193 Gr. B7 N; F_y =105 ksi, F_u =125 ksi) on 62.5" BC <i>pos. (deg): 10, 80, 170, 260</i>		P_{u_t} = 166.79	ϕP_{n_t} = 243.75 Stress Rating
		V_u = 2.09	ϕV_n = 149.1 65.2%
		M_u = n/a	ϕM_n = n/a Pass
Base Plate Data		GROUP 2:	
63.5" W x 2.75" Plate (A633 Gr. E; F_y =60 ksi, F_u =80 ksi); Clip: 6 in		P_{u_t} = 134.03	ϕP_{n_t} = 234.38 Stress Rating
		V_u = 0	ϕV_n = 147.26 54.5%
		M_u = n/a	ϕM_n = n/a Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	18.27 (Flexural)
Pole Data		Allowable Stress (ksi):	54
51" x 0.4375" 12-sided pole (A572-65; F_y =65 ksi, F_u =80 ksi)		Stress Rating:	32.2% Pass

Elevation (ft)	0
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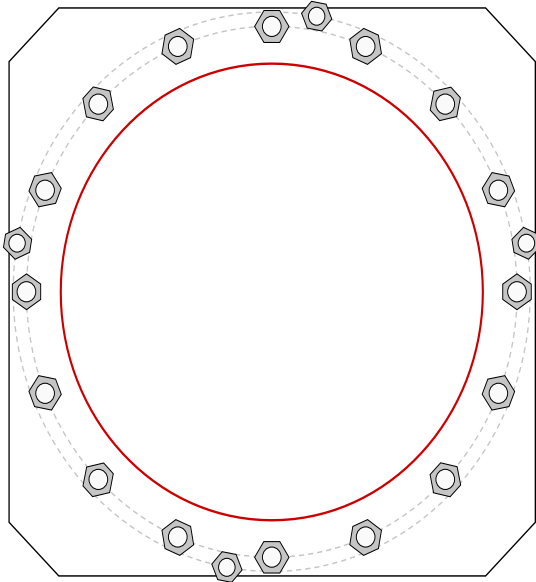
(Base)

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	Yes	No	
2	No	No	No	Yes	No	

Custom Bolt Connection										
Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	I _{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	22.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
2	1	45	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
3	1	67.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
4	1	90	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
5	1	112.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
6	1	135	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
7	1	157.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
8	1	180	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
9	1	202.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
10	1	225	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
11	1	247.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
12	1	270	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
13	1	292.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
14	1	315	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
15	1	337.5	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
16	1	360	2.25	A615-75	59.3	0.5	1.5625	N-Included		No
17	2	10	2	A193 Gr. B7	62.5	0.5	1.75	N-Included		No
18	2	80	2	A193 Gr. B7	62.5	0.5	1.75	N-Included		No
19	2	170	2	A193 Gr. B7	62.5	0.5	1.75	N-Included		No
20	2	260	2	A193 Gr. B7	62.5	0.5	1.75	N-Included		No

Plot Graphic



Anchor Rod Bracket Calculations:

Additional Anchor Rod Group:

$$N_{\text{new}} := 4$$

$$D_{\text{new}} := 2 \cdot \text{in}$$

$$F_{u_{\text{rod}}} := 125 \text{ ksi}$$

$$BC_{\text{new}} := 62.5 \cdot \text{in}$$

$$A_{\text{net_new}} := 2.5 \cdot \text{in}^2$$

$$F_{y_{\text{rod}}} := 105 \text{ ksi}$$

$$A_{n_{\text{new}}} := N_{\text{new}} \cdot A_{\text{net_new}} = 10 \cdot \text{in}^2$$



Anchor Rod Bracket Calculations

Analysis
Design

Comment = "Analyze the anchor rod brackets to resist the controlling anchor rod demand force"

Anchor Rod Demand Force:

$$P_{u_{\text{max}}} := 134.03 \cdot \text{kip}$$

Bracket Loading:

$$P_u := \begin{cases} \phi P_n & \text{if AorD} = \text{"Design"} \\ P_{u_{\text{max}}} & \text{if AorD} = \text{"Analysis"} \end{cases} = 134.03 \cdot \text{kip}$$

Tube Design (Pipe)

Member Size:

Pipe 4 XXS

Apply TIA-222-H Section 15.5?

No
Yes

Member Properties

(AISC 15th Ed., Table 1-12):

Outside Diameter: $OD_{\text{HSS}} := 4.5 \cdot \text{in}$

Area: $A_{\text{HSS}} := 7.66 \cdot \text{in}^2$

$$A_{e_{\text{HSS}}} := 0.75 \cdot A_{\text{HSS}} = 5.75 \cdot \text{in}^2$$

Thickness: $t_{\text{HSS}} := 0.628 \cdot \text{in}$

Yield Strength: $F_{y_{\text{HSS}}} := 35 \cdot \text{ksi}$

$$F_{u_{\text{HSS}}} := 60 \cdot \text{ksi}$$

Length: $L_{\text{HSS}} := 10.5 \cdot \text{in}$

Moment of Inertia: $I_{\text{HSS}} := 14.7 \cdot \text{in}^4$

Radius of Gyration: $r_{\text{HSS}} := 1.39 \cdot \text{in}$

Inside Dimension: $ID_{\text{HSS}} := OD_{\text{HSS}} - 2 \cdot t_{\text{HSS}} = 3.24 \cdot \text{in}$

Bearing Check
(AISC 15th Ed., Equation J7-1):

$$\phi_b := 0.75$$

$$P_{u_c} = \phi_b \cdot R_n = \phi_b \cdot 1.8 \cdot F_{y_HSS} \cdot A_{pb}$$

$$A_{pb} := \frac{P_u}{\phi_b \cdot 1.8 \cdot F_{y_HSS}} = 2.84 \cdot \text{in}^2$$

$$\text{Check}_{\text{bear}} := \begin{cases} \text{"OK"} & \text{if } A_{HSS} \geq A_{pb} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{bear}} = \text{"OK"}$$

Compression Check
(AISC 15th Ed., Eqs. E3-1 to E3-4):

$$\phi_c := 0.9$$

$$K := 1$$

$$\phi P_{u_comp} = \phi_c \cdot F_{cr} \cdot A_g$$

$$L_c := K \cdot L_{HSS} = 10.5 \cdot \text{in}$$

$$F_e := \frac{\pi^2 \cdot 29000 \text{ ksi}}{\left(\frac{L_c}{r_{HSS}} \right)^2} = 5015.9 \cdot \text{ksi}$$

$$\frac{L_c}{r_{HSS}} = 7.55 < 4.71 \cdot \sqrt{\frac{29000 \cdot \text{ksi}}{F_{y_HSS}}} = 135.58$$

$$\therefore F_{cr} := 0.658 \cdot \frac{F_{y_HSS}}{F_e} \cdot F_{y_HSS} = 34.9 \cdot \text{ksi}$$

(AISC 15th Ed., Equation J4-6):

$$\phi P_{u_comp} := \begin{cases} \phi_c \cdot F_{y_HSS} \cdot A_{HSS} & \text{if } \frac{L_c}{r_{HSS}} \leq 25 \\ \phi_c \cdot F_{cr} \cdot A_{HSS} & \text{otherwise} \end{cases}$$

$$\phi P_{u_comp} = 241.29 \cdot \text{kip}$$

$$\text{Check}_{comp} := \begin{cases} \text{"OK"} & \text{if } \text{Rating}_{comp} < 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{comp} = \text{"OK"}$$

Gusset Plate Design

Gusset Plate width:

$$w_{plate} := 3.5 \cdot \text{in}$$

Gusset Plate thickness:

$$t_{plate} := 1.25 \cdot \text{in}$$

$$L_{plate1} := 42 \cdot \text{in}$$

$$L_{plate2} := 10.5 \cdot \text{in}$$

Gusset Plate Strength:

$$F_{yplate} := 65 \cdot \text{ksi}$$

$$F_{uplate} := 80 \cdot \text{ksi}$$

Pole thickness:

$$t_{pole} := 0.4375 \cdot \text{in}$$

Shear Check

(AISC 15th Ed., Eqs. J4-3 and J4-4):

$$A_g := t_{\text{plate}} \cdot L_{\text{plate2}} = 13.13 \cdot \text{in}^2$$

$$A_{nv} := A_g = 13.13 \cdot \text{in}^2$$

Shear Yielding

$$\phi_v := 1$$

$$\phi V_{\text{plate}} := \phi_v \cdot 0.6 \cdot A_g \cdot F_{y\text{plate}} = 511.88 \cdot \text{kip}$$

$$\text{Check}_{\text{shear}} := \begin{cases} \text{"OK"} & \text{if Rating}_{\text{sheary}} < 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{shear}} = \text{"OK"}$$

Shear Rupture

$$\phi_v := 0.75$$

$$\phi V_{\text{plate}} := \phi_v \cdot 0.6 \cdot A_{nv} \cdot F_{u\text{plate}} = 472.5 \cdot \text{kip}$$

$$\text{Check}_{\text{shear}} := \begin{cases} \text{"OK"} & \text{if Rating}_{\text{shearr}} < 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{\text{shear}} = \text{"OK"}$$

**Gusset Plate to Tower and Base
Plate Weld Design (Horizontal and**

Vertical Weld):
(AISC 15th Ed., Part 8)

Gusset plate thickness:

$$t_{\text{plate}} = 1.25 \cdot \text{in}$$

Tower Grade:

$$F_{y\text{pole}} := 65 \text{ksi}$$

$$F_{u\text{pole}} := 80 \text{ksi}$$

Base Plate Grade:

$$F_{y\text{base}} := 60 \text{ksi}$$

$$F_{u\text{base}} := 80 \text{ksi}$$

Gusset Plate Grade:

$$F_{y\text{plate}} = 65 \cdot \text{ksi}$$

$$F_{u\text{plate}} = 80 \cdot \text{ksi}$$

Height of vertical weld from base plate:

$$H_w := L_{\text{plate1}} = 42 \cdot \text{in}$$

$$\text{Notch}_{\text{horiz}} := 0.75 \cdot \text{in}$$

$$\text{Notch}_{\text{vert}} := 0.75 \cdot \text{in}$$

Gap between Base Plate and HSS:

$$\text{Gap} := 0 \text{in}$$

Vertical fillet weld size to pole:
 (in sixteenths of an inch)

$$D_{\text{vpole}} := 6$$

$$\text{weldsize}_{\text{pole}} := \frac{D_{\text{vpole}}}{16} = \frac{3}{8}$$

Electrode Strength:

$$\begin{matrix} 70 \text{ksi} \\ 80 \text{ksi} \end{matrix}$$

Check := "OK" if $\text{Rating}_{\text{weld2}} < 100\%$
 "INSUFFICIENT" otherwise

Check = "OK"

Gusset Plate to HSS Weld Design
(AISC 15th Ed., Table 8-4)

Interpolation per AISC SCM Table 8-4:

Electrode Strength:

70ksi
80ksi

13th Edition
14th Edition
15th Edition

Fillet Weld Size (in sixteenths of an inch):

D := 6

Groove Weld:

None
45 PJP
60 PJP
CJP

Groove Depth (inches):

GD := 0.625in

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$ecc_2 := OD_{HSS} - t_{HSS} - \frac{D_{new}}{2} = 2.87 \cdot \text{in}$$

Load not in plane with
weld group:

$$k := 0$$

$$a := \frac{ecc_2}{L_{plate2}} = 0.27$$

$$C_1 = 1.03$$

$$Coeff_1 = 3.21$$

$$\phi_w := 0.75$$

$$D_{min1} := \text{ceil} \left(\frac{P_u \cdot \text{in}}{\phi_w \cdot Coeff_1 \cdot C_1 \cdot L_{plate2} \cdot \text{kip}} \right) = 6$$

$$\text{minweldsize} := \frac{D_{min1}}{16} = \frac{3}{8}$$

$$\text{Check}_{weld} := \begin{cases} \text{"OK"} & \text{if } D_1 \geq D_{min1} \wedge D_1 \geq \text{Min}_{weldsize} \wedge D_1 \leq \text{Max}_{weldsize} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{weld} = \text{"OK"}$$

$$\phi R_{nweld1} := \phi_w \cdot Coeff_1 \cdot \text{ksi} \cdot \text{in} \cdot C_1 \cdot D_1 \cdot L_{plate2} = 523.87 \cdot \text{kip}$$

$$\text{Check}_{weld1} := \begin{cases} \text{"OK"} & \text{if } \text{Rating}_{weld1} < 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{weld1} = \text{"OK"}$$

**Gusset Plate to Pole Punching
 Shear Check**
 (max per unit length):
 (AISC 15th Ed., Section J4.2)

What is the bracket welded to?

Tower Only
 Tower & Reinforcement
 Reinforcement Only

Reinforcement Thickness:

$$t_{ref} := 0 \text{ in}$$

Reinforcement Grade:

$$F_{y_ref} := 0 \text{ ksi}$$

$$F_{u_ref} := 0 \text{ ksi}$$

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$\phi_{sy} := 1.0$$

$$\phi_{sr} := 0.75$$

$$ecc_1 := w_{plate} + OD_{HSS} - t_{HSS} - \frac{D_{new}}{2} = 6.37 \cdot \text{in}$$

$$M_1 := P_u \cdot ecc_1 = 854.04 \cdot \text{kip} \cdot \text{in}$$

$$S_1 := \frac{t_{plate} \cdot L_{plate1}^2}{6} = 367.5 \cdot \text{in}^3$$

$$f_v := \frac{M_1}{S_1} \cdot t_{plate} \cdot 1 \text{ in} = 2.9 \cdot \text{kip}$$

AISC 15th Ed., Equation J4-3:

$$\phi F_{sy} := \phi_{sy} \cdot 0.6 \cdot F_{y_pole} \cdot 2 \cdot t_{pole} \cdot 1 \text{ in}$$

$$\phi F_{sy_ref} := \phi_{sy} \cdot 0.6 \cdot F_{y_ref} \cdot 2 \cdot t_{ref} \cdot 1 \text{ in}$$

AISC 15th Ed., Equation J4-4:

$$\phi F_{sr} := \phi_{sr} \cdot 0.6 \cdot F_{u_pole} \cdot 2 \cdot t_{pole} \cdot 1 \text{ in}$$

$$\phi F_{sr_ref} := \phi_{sr} \cdot 0.6 \cdot F_{u_ref} \cdot 2 \cdot t_{ref} \cdot 1 \text{ in}$$

$$\phi F_v = 31.5 \cdot \text{kip}$$

$$\text{Check}_{PS1} := \begin{cases} \text{"OK"} & \text{if Rating}_{PS1} < 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{PS1} = \text{"OK"}$$

**Gusset Plate to HSS Punching
Shear Check
(max per unit length):
(AISC 15th Ed., Section J4.2)**

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$ecc_2 := OD_{HSS} - t_{HSS} - \frac{D_{new}}{2} = 2.87 \cdot \text{in}$$

$$M_2 := P_u \cdot ecc_2 = 384.93 \cdot \text{kip} \cdot \text{in}$$

$$S_2 := \frac{t_{plate} \cdot L_{plate}^2}{6} = 22.97 \cdot \text{in}^3$$

$$f_v := \frac{M_2}{S_2} \cdot t_{plate} \cdot 1 \text{ in} = 20.95 \cdot \text{kip}$$

AISC 15th Ed., Equation J4-3:

$$\phi F_{sy} := \phi_{sy} \cdot 0.6 \cdot F_{y_HSS} \cdot 2 \cdot t_{HSS} \cdot 1 \text{ in} = 26.38 \cdot \text{kip}$$

AISC 15th Ed., Equation J4-4:

$$\phi F_{sr} := \phi_{sr} \cdot 0.6 \cdot F_{u_HSS} \cdot 2 \cdot t_{HSS} \cdot 1 \text{ in} = 33.91 \cdot \text{kip}$$

$$\phi F_v := \min(\phi F_{sy}, \phi F_{sr}) = 26.38 \cdot \text{kip}$$

$$\text{Check}_{PS2} := \begin{cases} \text{"OK"} & \text{if Rating}_{PS2} < 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{PS2} = \text{"OK"}$$

Embedment Depth Calculations

Projected Embedment Depth:

$$L_{em} := 6.5 \cdot \text{ft}$$

Concrete Strength:

$$f_c := 4000 \text{ psi}$$

Are anchor rods
installed in piers?:

Yes
No



Yield Strength of Rebar:

$$f_y := 60 \text{ ksi}$$

Transverse Reinforcement Index:

$$k_{tr} := 0$$

Can be taken as 0 for design per ACI 318-14

Epoxy Factor: $\psi_e := 1$

Rebar Size Factor: $\psi_s := 1$

Casting Position Factor: $\psi_t := 1$

Concrete Weight Factor: $\lambda := 1 \cdot \sqrt{p_s}$

Pier Diameter: $D_{\text{pier}} := 7 \text{ ft}$

Cover: $c_c := 3 \text{ in}$

Rebar Size: $d_s := 14$

$d_b := \text{vlookup}(d_s, d_{\text{btable}}, 2) \cdot \text{in} = 1.69 \cdot \text{in}$

Tie Size: $\text{Tie} := 6$

Number of Vertical Rebar: $n := 24$

The embedment depth shall be analyzed based on the design tension capacity of the anchor rods.

Design Load:

$$\phi P_{n, \text{new}} := 0.75 \cdot F_{u, \text{rod}} \cdot A_{\text{net_new}} = 234.38 \cdot \text{kip}$$

**Development Length
(ACI 318-14 Chapter 25):**

$$BC_{\text{rebar}} := D_{\text{pier}} - 2 \cdot c_c - \frac{\text{Tie} \cdot \text{in}}{4} - d_b = 74.81 \cdot \text{in}$$

$$S_{\text{rebar}} := \frac{\pi \cdot BC_{\text{rebar}}}{n} = 9.792 \cdot \text{in}$$

$$c_b := \min \left(c_c + \frac{\text{Tie}}{8} \cdot \text{in} + \frac{d_b}{2}, S_{\text{rebar}} \cdot 0.5 \right) = 4.6 \cdot \text{in}$$

ACI 318-14, Equation 25.4.2.3a:

$$l_d := \left[\frac{3}{40} \cdot \frac{f_y}{\lambda \cdot \sqrt{f'_c}} \cdot \frac{\psi_t \cdot \psi_e \cdot \psi_s}{\min \left(\left(\frac{c_b + k_{tr}}{d_b} \right), 2.5 \right)} \right] \cdot d_b = 48.18 \cdot \text{in}$$

Calculate Max Distance Between Rebar and New Anchor Rods:

$$A := \frac{1}{2} \cdot S_{\text{rebar}} = 4.896 \cdot \text{in}$$

$$B := \frac{BC_{\text{rebar}}}{2} - \frac{BC_{\text{new}}}{2} = 6.153 \cdot \text{in}$$

$$G := \sqrt{A^2 + B^2} = 7.864 \cdot \text{in}$$

$$l'_d := l_d + \frac{G}{1.5} + 3 \text{ in} = 4.7 \text{ ft}$$



Epoxy Development Length:

Bond Strength:

Epoxy :=

Hilti Hit Re 500 

$$S_b := \begin{cases} S_{bh} & \text{if Epoxy} = 0 \\ S_{bA} & \text{if Epoxy} = 1 \wedge (f'_c = 4000\text{psi} \vee f'_c > 4000\text{psi}) \\ 0.94S_{bA} & \text{if Epoxy} = 1 \wedge (f'_c = 3000\text{psi} \vee f'_c < 3000\text{psi}) \\ E_{bond} & \text{if Epoxy} = 1 \wedge f'_c > 3000\text{psi} \wedge f'_c < 4000\text{psi} \end{cases} = 7.59 \times 10^6$$

$$\phi_{bond} := 0.65$$

$$L_{be} := \frac{\phi P_{nt}}{\pi \cdot D_{new} \cdot S_b \cdot \phi_{bond}} = 52.1 \cdot \text{in}$$

Required Embedment Length:

Length of Breaker Tape: $L_{BT} := 0 \cdot \text{in}$

$$L_{min} := \begin{cases} \max(L_{be} + L_{BT}, l'_d + 0.25 \cdot L_{be}) & \text{if Piers} = \text{"Yes"} \\ (L_{be} + L_{BT}) & \text{if Piers} = \text{"No"} \end{cases} = 1.76$$

$$\text{Check} := \begin{cases} \text{"OK"} & \text{if } L_{min} \leq L_{em} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

Check = "OK"

Anchor Rod Bracket Summary

Bracket HSS Compression: $\text{Rating}_{\text{comp}} = 52.9\%$

Bracket Plate Shear Yielding: $\text{Rating}_{\text{sheary}} = 24.94\%$

Bracket Plate Shear Rupture: $\text{Rating}_{\text{shearr}} = 27.02\%$

Bracket Plate to Pole Weld: $\text{Rating}_{\text{weld2}} = 17.35\%$

Bracket Plate to HSS Weld: $\text{Rating}_{\text{weld1}} = 24.37\%$

Bracket Plate to Pole Punching Shear: $\text{Rating}_{\text{PS1}} = 8.78\%$

Bracket Plate to HSS Punching Shear: $\text{Rating}_{\text{PS2}} = 75.64\%$

Pile Foundation

Checks the capacity of pile foundation configurations for monopoles or self-support towers with individual foundations in Rev. F, G, and H.



BU #:	807132
Site Name:	BRG 133 943050
Order:	575116 Rev 0

Tower Type:	Monopole
TIA Revision:	H

Top & Bot. Pad Rein. Different?:	☐
----------------------------------	--------------------------

Factored Design Reactions At Base		
Moment, M:	3936.69	ft-kips
Axial, Pu:	65.74	kips
Shear, Sc:	33.74	kips
Load Eccentricity, Ecc:	0	in
Bolt Circle / Bearing Plate Width, BC:	59.3	in

Pile Properties		
Pile Shape:	Round	
Pile Material:	Concrete	
Length of Pile, Lpile:	20	ft
Pile Diameter:	3.5	in
Pile (Soil) Capacity Given?	No	
Steel Grade, Fy:	60	ksi
Pile Rebar Size, Psize:	14	
Rebar Quantity, Pquan:	1	

Pile Group		
Group Configuration:	Circular	
Number of Piles, N:	24	
Group Diameter, GD:	74.807	in
Group Efficiency Given in Geotech?	No	

Program Calculated Group Efficiency, Eg: 0.88

Design Checks				
	Capacity	Demand	Rating*	Check
PILE CHECKS				
Soil Compression (kips per pile):	346.36	118.64	32.6%	Pass
Soil Uplift (kips per pile):	346.36	110.21	30.3%	Pass
Pile Tensile Strength (kips):	108.00	110.21	97.2%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating:	97.2%
Soil Rating:	32.6%

Soil Properties		
Groundwater Depth, GW:	N/A	ft
Soil Unit Weight:	110	pcf
Cohesion, Co:	0	ksf
Friction Angle, ϕ :	30	deg
Neglected Depth, ND:	3.5	ft
Negative Friction Force (per pile), Sw:		kips
SPT Blow Count, N_{blows} :	12	

Ultimate Pile Capacities Based on Soil Properties							
Skin Friction Given?						Yes	
Depth (ft)		Cohesion	Friction Angle	Soil Weight	Blows per Foot (N)	Ult. Comp.	Ult. Uplift
Top	Bottom	(ksf)	(deg)	(pcf)		(ksf)	(ksf)
0	20	0	0	0	0	28.80	28.80
20	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
0	0	0	0	0	0	0.00	0.00
Ultimate End Bearing (ksf):						0.00	-
Total Capacities (kips):						527.79	527.79

Pier and Pad Foundation



BU # : 807132
 Site Name: BRG 133 943050
 App. Number: 575116 Rev 0

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	65.74	kips
Base Shear, V_{u_comp} :	33.74	kips
Moment, M_u :	3936.69	ft-kips
Tower Height, H :	175	ft
BP Dist. Above Fdn, bp_{dist} :	6.5	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, $dpier$:	7	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	14	
Pier Rebar Quantity, mc :	24	
Pier Tie/Spiral Size, St :	5	
Pier Tie/Spiral Quantity, mt :	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Pier Flexure (Comp.) (kip*ft)	8131.04	4290.96	50.3%	Pass
Pier Compression (kip)	9185.48	138.48	1.4%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating*:	50.3%

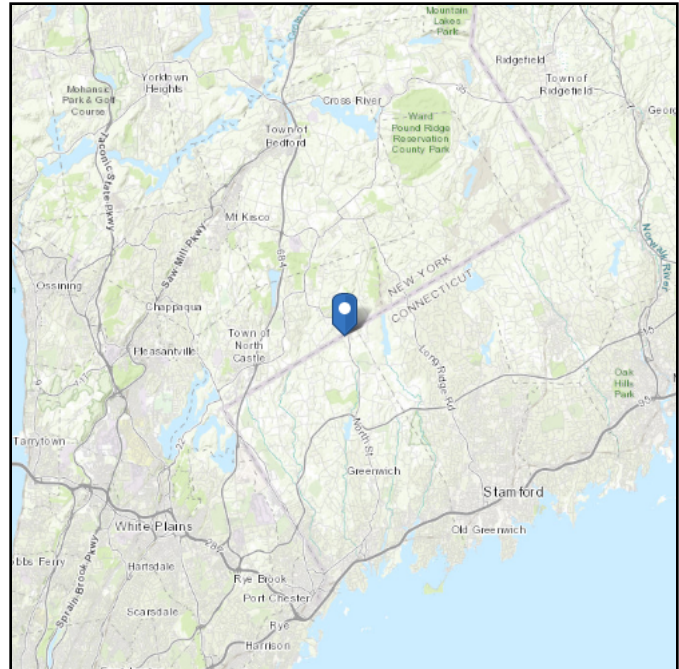
Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δc :	150	pcf

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 502.51 ft (NAVD 88)
Latitude: 41.139306
Longitude: -73.641817



Wind

Results:

Wind Speed:	116 Vmph 120 Vmph per Appendix N - 2018 Connecticut State Building Code
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph
Special	Special Wind Region -- Mountainous terrain, gorges, and special wind regions shown in Fig. 26.5-1 shall be examined for unusual wind conditions. The Authority Having Jurisdiction shall, if necessary, adjust the values given in Fig. 26.5-1 to account for higher local wind speeds. Such adjustment shall be based on meteorological information and an estimate of the basic wind speed obtained in accordance with the provisions in Section 26.5.3.

Data Sources: 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

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).

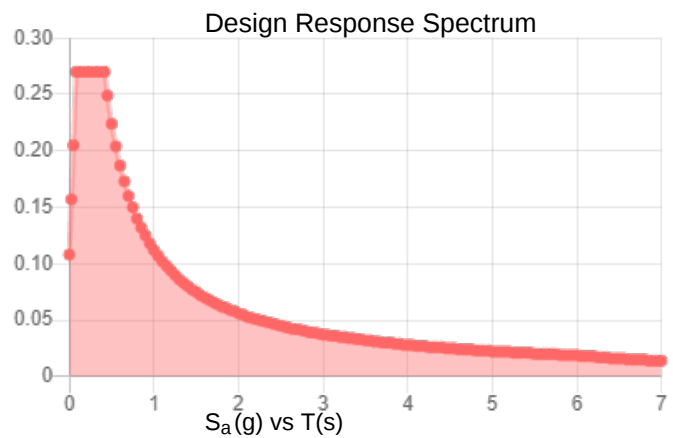
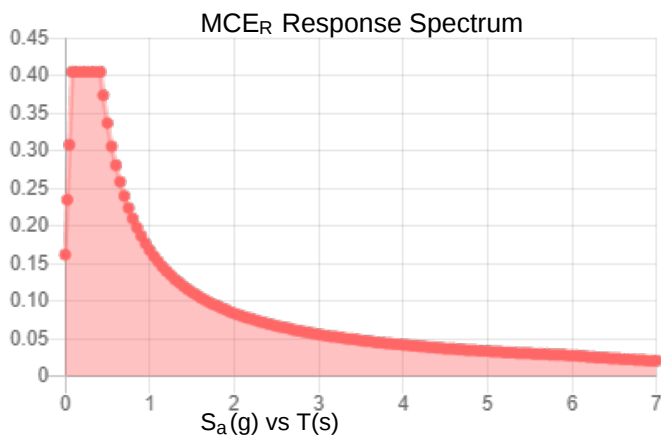
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.253	S_{DS} :	0.27
S_1 :	0.07	S_{D1} :	0.112
F_a :	1.597	T_L :	6
F_v :	2.4	PGA :	0.148
S_{MS} :	0.405	PGA_M :	0.223
S_{M1} :	0.168	F_{PGA} :	1.504
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Jul 30 2021

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 Jul 30 2021

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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Date: **July 21, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589



Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **T-Mobile Anchor**
Carrier Site Number: CT11091A
Carrier Site Name: Greenwich - North_2

Crown Castle Designation: **Crown Castle BU Number:** 807132
Crown Castle Site Name: BRG 133 943050
Crown Castle JDE Job Number: 673842
Crown Castle Order Number: 575116 Rev. 0

Engineering Firm Designation: **Trylon Report Designation:** 188054

Site Data: **1081 North Street, Greenwich, Fairfield County, CT, 06831**
Latitude 41°8'21.50" Longitude -73°38'30.54"

Structure Information: **Tower Height & Type:** **175.0 ft Monopole**
Mount Elevation: **144.0 ft**
Mount Type: **12.5 ft Platform**

Dear Darcy Tarr,

Trylon is pleased to submit this “**Mount Replacement 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*

***Sufficient upon completion of the changes listed in the ‘Recommendations’ section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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: Andrei Florea

Respectfully Submitted by:
Jinshan Wang, P.E

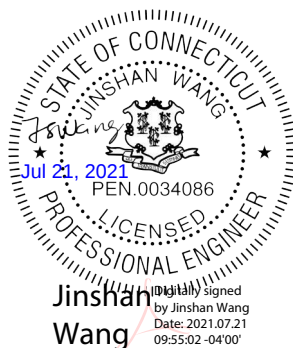


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Supplemental Drawings

1) INTRODUCTION

This is a proposed 3 sector 12.5 ft Platform, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor at Base:	1.000
Topographic Factor at Mount:	1.000
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.259
Seismic S_1:	0.07
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
144.0	144.0	3	ERICSSON	AIR6449 B41_T-MOBILE	12.5 ft Platform [Site Pro 1, RMQP-496 with HRK12 handrail]
		3	RFS/CELWAVE	APXVAALL24_43-U-NA20	
		3	ERICSSON	RADIO 4449 B71/B85A	
		3	ERICSSON	RADIO 4460 B2/B25 B66_TMO	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	575116 Rev.0	CCI Sites
Mount Manufacturer Drawings	Site Pro 1	RMQP-496	Trylon

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.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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

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. Tylon 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)	MP3	144.0	37.8	Pass
	Horizontal(s)	H1		15.1	Pass
	Standoff(s)	M33		32.9	Pass
	Bracing(s)	M3		18.9	Pass
	Handrail(s)	M89		35.1	Pass
	Plate(s)	M44A		42.5	Pass
	Mount Connection(s)	-		26.6	Pass

Structure Rating (max from all components) =	42.5%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) All sectors are typical
- 3) Rating per TIA-222-H, Section 15.5

4.1) Recommendations

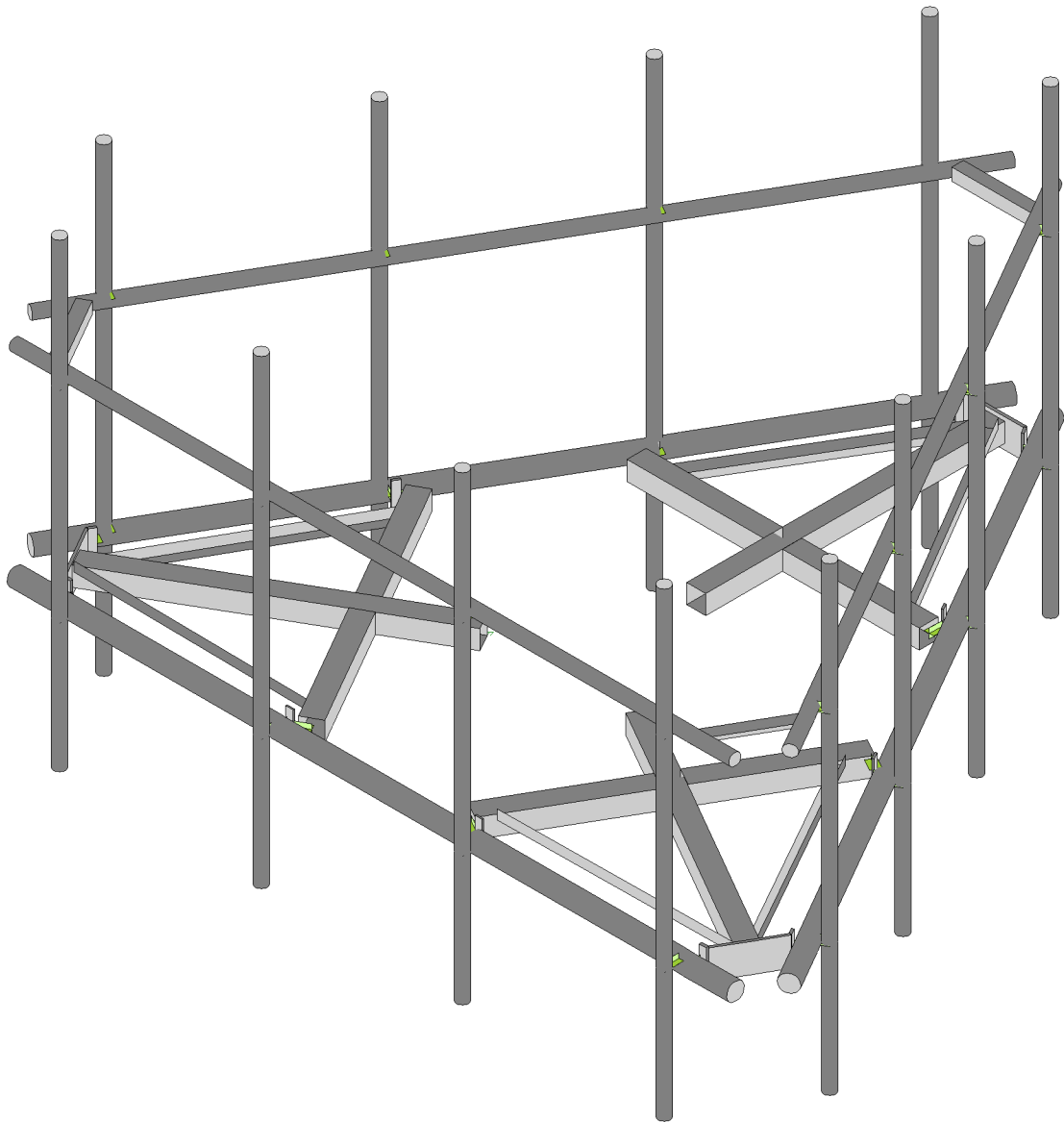
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Site Pro 1, RMQP-496.
2. Site Pro 1, HRK12 handrail installed at 42" above bottom face horizontal.

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

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon

AF

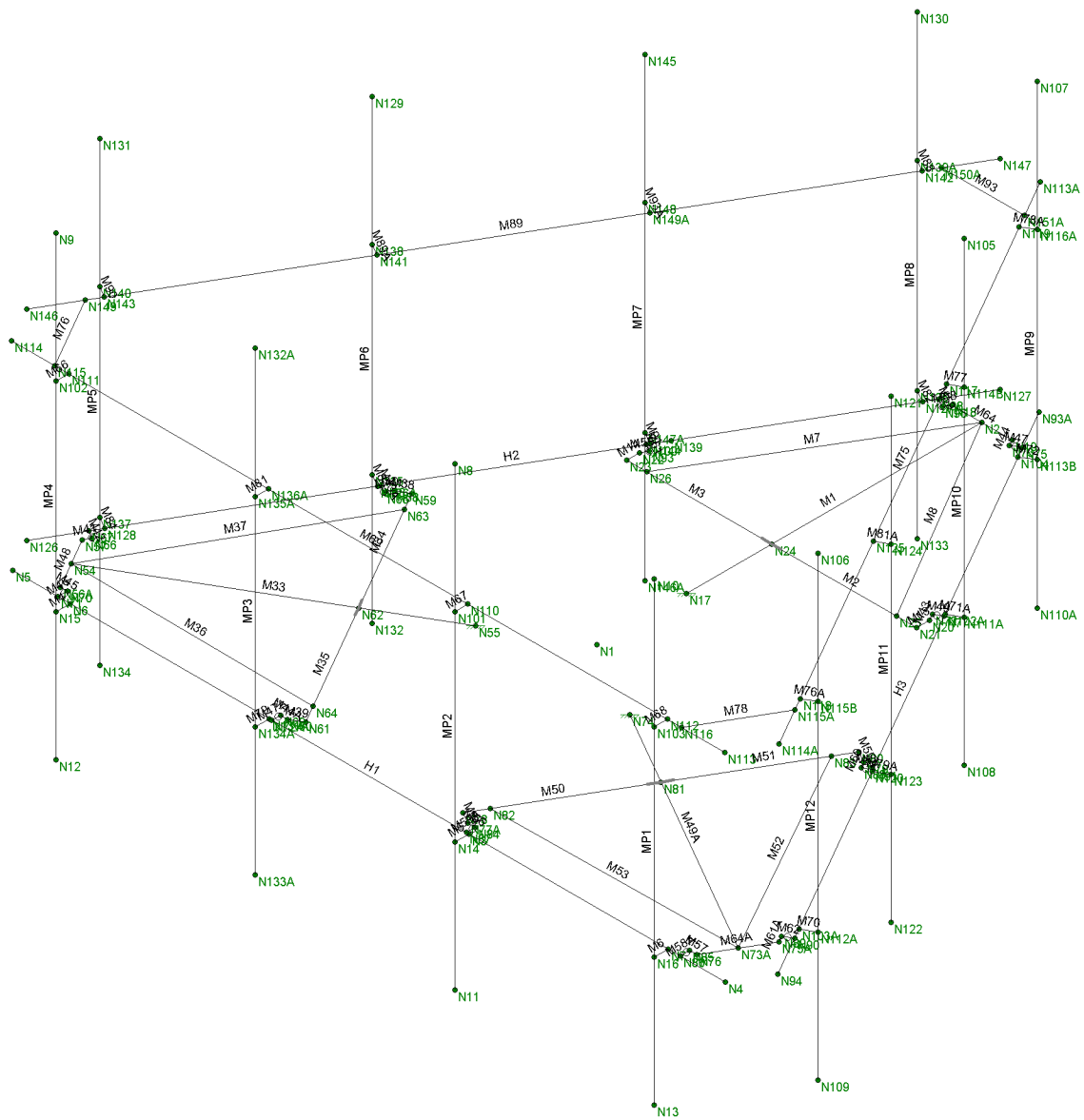
188054

807132

SK - 1

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Envelope Only Solution

Trylon

AF

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807132

SK - 2

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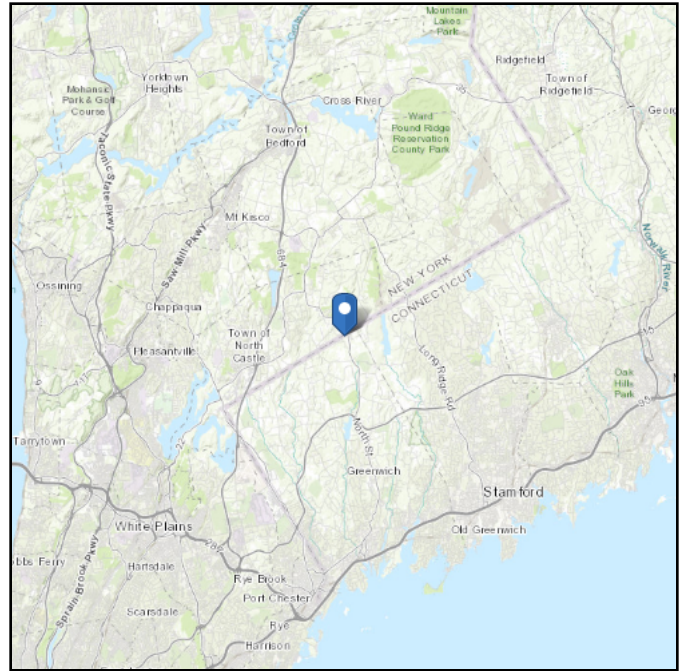
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 502.51 ft (NAVD 88)
Latitude: 41.139306
Longitude: -73.641817



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: Wed Jul 21 2021

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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TIA LOAD CALCULATOR 2.0

PROJECT DATA		
Job Code:	188054	
Carrier Site ID:	CT11091A	
Carrier Site Name:	Greenwich - North_2	

CODES AND STANDARDS		
Building Code:	2015 IBC	
Local Building Code:	2018 CSBC	
Design Standard:	TIA-222-H	

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	144.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	175.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	502.51	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.10	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G_h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	37.72	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	37.72	psf
Mount Ice Thickness (t_{iz}):	1.74	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	67.89	psf
Round Member Pressure:	40.73	psf
Ice Wind Pressure:	7.47	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.26	g
1 Second Accel. (S_1):	0.07	g
Short Period Des. (S_{DS}):	0.28	g
1 Second Des. (S_{D1}):	0.11	g
Short Period Coeff. (F_a):	1.59	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.14	--
Amplification Factor (A_s):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

[illegible]

EQUIPMENT WIND CALCULATIONS

[illegible]

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

[illegible]

EQUIPMENT SEISMIC FORCE CALCULATIONS

[illegible]

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

(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 (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XY
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame 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 7-16
Seismic Base Elevation (in)	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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/f...	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
8	Q235-GB	29000	11154	.3	.65	.49	35	1.5	58	1.2
9	Q345	29000	11154	.3	.65	.49	36	1.1	58	1.1

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Tube 4"x4"x0.25"	HSS4X4X4	Beam	Tube	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
2	Pipe 3.5" O.D S...	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	L2"x2"x0.188"	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
4	Pipe 2.375" O.D...	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	Plate 6"x0.5"	6"x1/2" Plate	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design R...	A [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
6	L2.5"x2.5"x0.25"	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
7	Plate 6"x0.375"	PL6x.375	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
1	CF1A	8CU1.25X057	Beam	None	A653 SS Gr33	Typical	.581	.057	4.41	.00063

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	N17	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N55	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N74	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(...
1	Self Weight	DL			-1		18	3	
2	Structure Wind X	WLX						93	
3	Structure Wind Y	WLY						93	
4	Wind Load 0 AZI	WLX					36		
5	Wind Load 30 AZI	None					36		
6	Wind Load 45 AZI	None					36		
7	Wind Load 60 AZI	None					36		
8	Wind Load 90 AZI	WLY					36		
9	Wind Load 120 AZI	None					36		
10	Wind Load 135 AZI	None					36		
11	Wind Load 150 AZI	None					36		
12	Ice Weight	OL1					18	93	3
13	Ice Structure Wind X	OL2						93	
14	Ice Structure Wind Y	OL3						93	
15	Ice Wind Load 0 AZI	OL2					36		
16	Ice Wind Load 30 AZI	None					36		
17	Ice Wind Load 45 AZI	None					36		
18	Ice Wind Load 60 AZI	None					36		
19	Ice Wind Load 90 AZI	OL3					36		
20	Ice Wind Load 120 AZI	None					36		
21	Ice Wind Load 135 AZI	None					36		
22	Ice Wind Load 150 AZI	None					36		
23	Seismic Load X	ELX	-.165				18		
24	Seismic Load Y	ELY		-.165			18		
25	Live Load 1 (Lv)	None					1		
26	Live Load 2 (Lv)	None					1		
27	Live Load 3 (Lv)	None					1		
28	Live Load 4 (Lv)	None					1		
29	Live Load 5 (Lv)	None					1		
30	Live Load 6 (Lv)	None					1		
31	Live Load 7 (Lv)	None					1		
32	Live Load 8 (Lv)	None					1		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(...
33	Live Load 9 (Lv)	None					1		
34	Maintenance Load 1 (Lm)	None					1		
35	Maintenance Load 2 (Lm)	None					1		
36	Maintenance Load 3 (Lm)	None					1		
37	Maintenance Load 4 (Lm)	None					1		
38	Maintenance Load 5 (Lm)	None					1		
39	Maintenance Load 6 (Lm)	None					1		
40	Maintenance Load 7 (Lm)	None					1		
41	Maintenance Load 8 (Lm)	None					1		
42	Maintenance Load 9 (Lm)	None					1		
43	Maintenance Load 10 (L...	None					1		
44	Maintenance Load 11 (L...	None					1		
45	Maintenance Load 12 (L...	None					1		
46	BLC 1 Transient Area Lo...	None						21	
47	BLC 12 Transient Area L...	None						21	

Load Combinations

	Description	So...P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact...
1	1.4DL	Yes	Y	DL	1.4							
2	1.2DL + 1W...	Yes	Y	DL	1.2	2	1	3		4	1	
3	1.2DL + 1W...	Yes	Y	DL	1.2	2	.866	3	.5	5	1	
4	1.2DL + 1W...	Yes	Y	DL	1.2	2	.707	3	.707	6	1	
5	1.2DL + 1W...	Yes	Y	DL	1.2	2	.5	3	.866	7	1	
6	1.2DL + 1W...	Yes	Y	DL	1.2	2		3	1	8	1	
7	1.2DL + 1W...	Yes	Y	DL	1.2	2	-.5	3	.866	9	1	
8	1.2DL + 1W...	Yes	Y	DL	1.2	2	-.707	3	.707	10	1	
9	1.2DL + 1W...	Yes	Y	DL	1.2	2	-.866	3	.5	11	1	
10	1.2DL + 1W...	Yes	Y	DL	1.2	2	-1	3		4	-1	
11	1.2DL + 1W...	Yes	Y	DL	1.2	2	-.866	3	-.5	5	-1	
12	1.2DL + 1W...	Yes	Y	DL	1.2	2	-.707	3	-.707	6	-1	
13	1.2DL + 1W...	Yes	Y	DL	1.2	2	-.5	3	-.866	7	-1	
14	1.2DL + 1W...	Yes	Y	DL	1.2	2		3	-1	8	-1	
15	1.2DL + 1W...	Yes	Y	DL	1.2	2	.5	3	-.866	9	-1	
16	1.2DL + 1W...	Yes	Y	DL	1.2	2	.707	3	-.707	10	-1	
17	1.2DL + 1W...	Yes	Y	DL	1.2	2	.866	3	-.5	11	-1	
18	0.9DL + 1W...	Yes	Y	DL	.9	2	1	3		4	1	
19	0.9DL + 1W...	Yes	Y	DL	.9	2	.866	3	.5	5	1	
20	0.9DL + 1W...	Yes	Y	DL	.9	2	.707	3	.707	6	1	
21	0.9DL + 1W...	Yes	Y	DL	.9	2	.5	3	.866	7	1	
22	0.9DL + 1W...	Yes	Y	DL	.9	2		3	1	8	1	
23	0.9DL + 1W...	Yes	Y	DL	.9	2	-.5	3	.866	9	1	
24	0.9DL + 1W...	Yes	Y	DL	.9	2	-.707	3	.707	10	1	
25	0.9DL + 1W...	Yes	Y	DL	.9	2	-.866	3	.5	11	1	
26	0.9DL + 1W...	Yes	Y	DL	.9	2	-1	3		4	-1	
27	0.9DL + 1W...	Yes	Y	DL	.9	2	-.866	3	-.5	5	-1	
28	0.9DL + 1W...	Yes	Y	DL	.9	2	-.707	3	-.707	6	-1	
29	0.9DL + 1W...	Yes	Y	DL	.9	2	-.5	3	-.866	7	-1	
30	0.9DL + 1W...	Yes	Y	DL	.9	2		3	-1	8	-1	
31	0.9DL + 1W...	Yes	Y	DL	.9	2	.5	3	-.866	9	-1	
32	0.9DL + 1W...	Yes	Y	DL	.9	2	.707	3	-.707	10	-1	

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
33	0.9DL + 1W...	Yes	Y		DL	.9	2	.866	3	-.5	11	-1								
34	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	1	14	15	1							
35	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1						
36	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1						
37	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1						
38	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1						
39	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1						
40	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1						
41	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1						
42	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1						
43	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1						
44	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1						
45	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1						
46	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1						
47	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1						
48	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1						
49	1.2DL + 1DL...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1						
50	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	1	24											
51	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	.866	24	.5										
52	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	.707	24	.707										
53	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	.5	24	.866										
54	(1.2+0.2Sds...	Yes	Y		DL	1.255	23		24	1										
55	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-.5	24	.866										
56	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-.707	24	.707										
57	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-.866	24	.5										
58	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-1	24											
59	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-.866	24	-.5										
60	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-.707	24	-.707										
61	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	-.5	24	-.866										
62	(1.2+0.2Sds...	Yes	Y		DL	1.255	23		24	-1										
63	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	.5	24	-.866										
64	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	.707	24	-.707										
65	(1.2+0.2Sds...	Yes	Y		DL	1.255	23	.866	24	-.5										
66	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	1	24											
67	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	.866	24	.5										
68	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	.707	24	.707										
69	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	.5	24	.866										
70	(0.9-0.2Sds)...	Yes	Y		DL	.845	23		24	1										
71	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-.5	24	.866										
72	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-.707	24	.707										
73	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-.866	24	.5										
74	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-1	24											
75	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-.866	24	-.5										
76	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-.707	24	-.707										
77	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	-.5	24	-.866										
78	(0.9-0.2Sds)...	Yes	Y		DL	.845	23		24	-1										
79	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	.5	24	-.866										
80	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	.707	24	-.707										
81	(0.9-0.2Sds)...	Yes	Y		DL	.845	23	.866	24	-.5										
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5												
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5												
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5												

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
85	1.2DL + 1Lv4	Yes	Y		DL	1.2	28	1.5												
86	1.2DL + 1Lv5	Yes	Y		DL	1.2	29	1.5												
87	1.2DL + 1Lv6	Yes	Y		DL	1.2	30	1.5												
88	1.2DL + 1Lv7	Yes	Y		DL	1.2	31	1.5												
89	1.2DL + 1Lv8	Yes	Y		DL	1.2	32	1.5												
90	1.2DL + 1Lv9	Yes	Y		DL	1.2	33	1.5												
91	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.063	3		4	.063						
92	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.054	3	.031	5	.063						
93	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.044	3	.044	6	.063						
94	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.031	3	.054	7	.063						
95	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2		3	.063	8	.063						
96	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.031	3	.054	9	.063						
97	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.044	3	.044	10	.063						
98	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.054	3	.031	11	.063						
99	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.063	3		4	-.063						
100	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.054	3	-.031	5	-.063						
101	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.044	3	-.044	6	-.063						
102	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	-.031	3	-.054	7	-.063						
103	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2		3	-.063	8	-.063						
104	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.031	3	-.054	9	-.063						
105	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.044	3	-.044	10	-.063						
106	1.2DL + 1.5...	Yes	Y		DL	1.2	34	1.5	2	.054	3	-.031	11	-.063						
107	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.063	3		4	.063						
108	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.054	3	.031	5	.063						
109	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.044	3	.044	6	.063						
110	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.031	3	.054	7	.063						
111	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2		3	.063	8	.063						
112	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.031	3	.054	9	.063						
113	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.044	3	.044	10	.063						
114	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.054	3	.031	11	.063						
115	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.063	3		4	-.063						
116	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.054	3	-.031	5	-.063						
117	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.044	3	-.044	6	-.063						
118	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	-.031	3	-.054	7	-.063						
119	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2		3	-.063	8	-.063						
120	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.031	3	-.054	9	-.063						
121	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.044	3	-.044	10	-.063						
122	1.2DL + 1.5...	Yes	Y		DL	1.2	35	1.5	2	.054	3	-.031	11	-.063						
123	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.063	3		4	.063						
124	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.054	3	.031	5	.063						
125	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.044	3	.044	6	.063						
126	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.031	3	.054	7	.063						
127	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2		3	.063	8	.063						
128	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.031	3	.054	9	.063						
129	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.044	3	.044	10	.063						
130	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.054	3	.031	11	.063						
131	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.063	3		4	-.063						
132	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.054	3	-.031	5	-.063						
133	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.044	3	-.044	6	-.063						
134	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	-.031	3	-.054	7	-.063						
135	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2		3	-.063	8	-.063						
136	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.031	3	-.054	9	-.063						

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
137	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.044	3	-.044	10	-.063						
138	1.2DL + 1.5...	Yes	Y		DL	1.2	36	1.5	2	.054	3	-.031	11	-.063						
139	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.063	3		4	.063						
140	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.054	3	.031	5	.063						
141	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.044	3	.044	6	.063						
142	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.031	3	.054	7	.063						
143	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2		3	.063	8	.063						
144	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.031	3	.054	9	.063						
145	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.044	3	.044	10	.063						
146	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.054	3	.031	11	.063						
147	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.063	3		4	-.063						
148	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.054	3	-.031	5	-.063						
149	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.044	3	-.044	6	-.063						
150	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	-.031	3	-.054	7	-.063						
151	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2		3	-.063	8	-.063						
152	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.031	3	-.054	9	-.063						
153	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.044	3	-.044	10	-.063						
154	1.2DL + 1.5...	Yes	Y		DL	1.2	37	1.5	2	.054	3	-.031	11	-.063						
155	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.063	3		4	.063						
156	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.054	3	.031	5	.063						
157	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.044	3	.044	6	.063						
158	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.031	3	.054	7	.063						
159	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2		3	.063	8	.063						
160	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.031	3	.054	9	.063						
161	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.044	3	.044	10	.063						
162	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.054	3	.031	11	.063						
163	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.063	3		4	-.063						
164	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.054	3	-.031	5	-.063						
165	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.044	3	-.044	6	-.063						
166	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	-.031	3	-.054	7	-.063						
167	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2		3	-.063	8	-.063						
168	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.031	3	-.054	9	-.063						
169	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.044	3	-.044	10	-.063						
170	1.2DL + 1.5...	Yes	Y		DL	1.2	38	1.5	2	.054	3	-.031	11	-.063						
171	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.063	3		4	.063						
172	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.054	3	.031	5	.063						
173	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.044	3	.044	6	.063						
174	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.031	3	.054	7	.063						
175	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2		3	.063	8	.063						
176	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.031	3	.054	9	.063						
177	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.044	3	.044	10	.063						
178	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.054	3	.031	11	.063						
179	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.063	3		4	-.063						
180	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.054	3	-.031	5	-.063						
181	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.044	3	-.044	6	-.063						
182	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	-.031	3	-.054	7	-.063						
183	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2		3	-.063	8	-.063						
184	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.031	3	-.054	9	-.063						
185	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.044	3	-.044	10	-.063						
186	1.2DL + 1.5...	Yes	Y		DL	1.2	39	1.5	2	.054	3	-.031	11	-.063						
187	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.063	3		4	.063						
188	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.054	3	.031	5	.063						

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
189	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.044	3	.044	6	.063						
190	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.031	3	.054	7	.063						
191	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2		3	.063	8	.063						
192	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.031	3	.054	9	.063						
193	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.044	3	.044	10	.063						
194	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.054	3	.031	11	.063						
195	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.063	3		4	-.063						
196	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.054	3	-.031	5	-.063						
197	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.044	3	-.044	6	-.063						
198	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	-.031	3	-.054	7	-.063						
199	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2		3	-.063	8	-.063						
200	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.031	3	-.054	9	-.063						
201	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.044	3	-.044	10	-.063						
202	1.2DL + 1.5...	Yes	Y		DL	1.2	40	1.5	2	.054	3	-.031	11	-.063						
203	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.063	3		4	.063						
204	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.054	3	.031	5	.063						
205	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.044	3	.044	6	.063						
206	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.031	3	.054	7	.063						
207	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2		3	.063	8	.063						
208	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.031	3	.054	9	.063						
209	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.044	3	.044	10	.063						
210	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.054	3	.031	11	.063						
211	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.063	3		4	-.063						
212	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.054	3	-.031	5	-.063						
213	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.044	3	-.044	6	-.063						
214	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	-.031	3	-.054	7	-.063						
215	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2		3	-.063	8	-.063						
216	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.031	3	-.054	9	-.063						
217	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.044	3	-.044	10	-.063						
218	1.2DL + 1.5...	Yes	Y		DL	1.2	41	1.5	2	.054	3	-.031	11	-.063						
219	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.063	3		4	.063						
220	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.054	3	.031	5	.063						
221	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.044	3	.044	6	.063						
222	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.031	3	.054	7	.063						
223	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2		3	.063	8	.063						
224	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.031	3	.054	9	.063						
225	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.044	3	.044	10	.063						
226	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.054	3	.031	11	.063						
227	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.063	3		4	-.063						
228	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.054	3	-.031	5	-.063						
229	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.044	3	-.044	6	-.063						
230	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	-.031	3	-.054	7	-.063						
231	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2		3	-.063	8	-.063						
232	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.031	3	-.054	9	-.063						
233	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.044	3	-.044	10	-.063						
234	1.2DL + 1.5...	Yes	Y		DL	1.2	42	1.5	2	.054	3	-.031	11	-.063						
235	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.063	3		4	.063						
236	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.054	3	.031	5	.063						
237	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.044	3	.044	6	.063						
238	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.031	3	.054	7	.063						
239	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2		3	.063	8	.063						
240	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.031	3	.054	9	.063						

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
241	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.044	3	.044	10	.063						
242	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.054	3	.031	11	.063						
243	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.063	3		4	-.063						
244	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.054	3	-.031	5	-.063						
245	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.044	3	-.044	6	-.063						
246	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	-.031	3	-.054	7	-.063						
247	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2		3	-.063	8	-.063						
248	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.031	3	-.054	9	-.063						
249	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.044	3	-.044	10	-.063						
250	1.2DL + 1.5...	Yes	Y		DL	1.2	43	1.5	2	.054	3	-.031	11	-.063						
251	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.063	3		4	.063						
252	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.054	3	.031	5	.063						
253	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.044	3	.044	6	.063						
254	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.031	3	.054	7	.063						
255	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2		3	.063	8	.063						
256	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.031	3	.054	9	.063						
257	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.044	3	.044	10	.063						
258	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.054	3	.031	11	.063						
259	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.063	3		4	-.063						
260	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.054	3	-.031	5	-.063						
261	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.044	3	-.044	6	-.063						
262	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	-.031	3	-.054	7	-.063						
263	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2		3	-.063	8	-.063						
264	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.031	3	-.054	9	-.063						
265	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.044	3	-.044	10	-.063						
266	1.2DL + 1.5...	Yes	Y		DL	1.2	44	1.5	2	.054	3	-.031	11	-.063						
267	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.063	3		4	.063						
268	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.054	3	.031	5	.063						
269	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.044	3	.044	6	.063						
270	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.031	3	.054	7	.063						
271	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2		3	.063	8	.063						
272	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.031	3	.054	9	.063						
273	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.044	3	.044	10	.063						
274	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.054	3	.031	11	.063						
275	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.063	3		4	-.063						
276	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.054	3	-.031	5	-.063						
277	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.044	3	-.044	6	-.063						
278	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	-.031	3	-.054	7	-.063						
279	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2		3	-.063	8	-.063						
280	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.031	3	-.054	9	-.063						
281	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.044	3	-.044	10	-.063						
282	1.2DL + 1.5...	Yes	Y		DL	1.2	45	1.5	2	.054	3	-.031	11	-.063						

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	N17	max	1537.083	18	1042.671	22	2927.118	34	555.894	183	5520.376	34	1200.34	30
2		min	-1569.644	10	-1043.991	30	-23.675	26	-687.288	271	-1132.602	26	-1204.168	22
3	N55	max	1206.116	2	1284.784	23	2922.722	39	948.369	31	629.145	32	967.759	19
4		min	-1189.595	26	-1312.849	15	-13.171	31	-4666.936	39	-2951.117	40	-971.484	27
5	N74	max	1026.417	2	1387.946	6	2922.728	45	4867.872	45	627.643	20	967.675	25

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6		min	-1011.93	26	-1359.568	30	-13.186	21	-949.153	21	-2602.731	44	-971.544	33
7	Totals:	max	3766.225	18	3657.467	22	8079.556	46						
8		min	-3766.227	26	-3657.468	30	2136.406	70						

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

Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	MP3	PIPE 2.0	.397	27	.116	27		9	14916.096	32130	1871.625	1871.625	1	H1-1b
2	MP7	PIPE 2.0	.393	27	.116	27		4	14916.096	32130	1871.625	1871.625	1	H1-1b
3	MP11	PIPE 2.0	.393	27	.116	27		14	14916.096	32130	1871.625	1871.625	1...	H1-1b
4	M69	PIPE 2.0	.375	53.125	.270	9.375		3	6295.422	32130	1871.625	1871.625	2...	H3-6
5	M75	PIPE 2.0	.372	53.125	.271	9.375		9	6295.422	32130	1871.625	1871.625	2...	H3-6
6	M89	PIPE 2.0	.369	53.125	.271	9.375		14	6295.422	32130	1871.625	1871.625	2...	H3-6
7	MP10	PIPE 2.0	.356	69	.127	69		16	14916.096	32130	1871.625	1871.625	4...	H1-1b
8	MP6	PIPE 2.0	.350	69	.128	69		5	14916.096	32130	1871.625	1871.625	4...	H1-1b
9	M33	HSS4X4X4	.346	0	.098	0	y	42	84904.937	139518	16180.5	16180.5	3...	H1-1b
10	M49A	HSS4X4X4	.345	0	.097	0	y	47	84904.937	139518	16180.5	16180.5	3...	H1-1b
11	M1	HSS4X4X4	.343	0	.097	0	y	37	84904.937	139518	16180.5	16180.5	3...	H1-1b
12	MP2	PIPE 2.0	.342	69	.129	69		10	14916.096	32130	1871.625	1871.625	1	H1-1b
13	M78	L2.5x2.5x4	.323	0	.102	17.444	y	9	35987.05	38556	1113.554	2537.388	2...	H2-1
14	M93	L2.5x2.5x4	.318	0	.103	17.444	y	14	35987.05	38556	1113.554	2537.388	2...	H2-1
15	M76	L2.5x2.5x4	.318	0	.102	17.444	y	3	35987.05	38556	1113.554	2537.388	2...	H2-1
16	MP5	PIPE 2.0	.294	27	.169	27		4	14916.096	32130	1871.625	1871.625	1	H1-1b
17	MP9	PIPE 2.0	.292	27	.167	69		14	14916.096	32130	1871.625	1871.625	1	H1-1b
18	MP1	PIPE 2.0	.287	27	.168	69		9	14916.096	32130	1871.625	1871.625	4...	H1-1b
19	MP12	PIPE 2.0	.286	27	.195	27		16	14916.096	32130	1871.625	1871.625	3...	H1-1b
20	MP8	PIPE 2.0	.284	27	.193	27		5	14916.096	32130	1871.625	1871.625	3...	H1-1b
21	MP4	PIPE 2.0	.283	27	.195	27		10	14916.096	32130	1871.625	1871.625	1	H1-1b
22	M40	PL6x.375	.203	1.5	.406	0	y	39	72166.853	72900	569.533	9112.5	1	H1-1b
23	M43	PL6x.375	.203	1.5	.407	0	y	34	72166.853	72900	569.533	9112.5	1	H1-1b
24	M51	HSS4X4X4	.200	0	.056	0	y	45	135796.5...	139518	16180.5	16180.5	1...	H1-1b
25	M3	HSS4X4X4	.199	0	.056	0	y	35	135796.5...	139518	16180.5	16180.5	1...	H1-1b
26	M35	HSS4X4X4	.199	0	.056	0	y	40	135796.5...	139518	16180.5	16180.5	1...	H1-1b
27	M56	PL6x.375	.194	1.5	.406	0	y	44	72166.853	72900	569.533	9112.5	1	H1-1b
28	M34	HSS4X4X4	.192	28.5	.042	28.5	y	240	135796.5...	139518	16180.5	16180.5	1...	H1-1b
29	M2	HSS4X4X4	.192	28.5	.042	28.5	y	171	135796.5...	139518	16180.5	16180.5	1...	H1-1b
30	M50	HSS4X4X4	.192	28.5	.042	28.5	y	118	135796.5...	139518	16180.5	16180.5	1...	H1-1b
31	M60	PL6x.375	.176	0	.446	1.5	y	45	72166.853	72900	569.533	9112.5	1	H1-1b
32	M55	PL6x.375	.176	0	.447	1.5	y	34	72166.853	72900	569.533	9112.5	1	H1-1b
33	M44A	PL6x.375	.170	0	.447	1.5	y	40	72166.853	72900	569.533	9112.5	1	H1-1b
34	H3	PIPE 3.0	.159	95.312	.064	96.875		16	28250.554	65205	5748.75	5748.75	2...	H1-1b
35	H2	PIPE 3.0	.159	95.312	.065	96.875		6	28250.554	65205	5748.75	5748.75	2...	H1-1b
36	H1	PIPE 3.0	.159	95.312	.065	96.875		11	28250.554	65205	5748.75	5748.75	2...	H1-1b
37	M37	L2x2x3	.146	0	.012	51.455	y	45	9312.195	23392.8	557.717	1116.673	1...	H2-1
38	M8	L2x2x3	.142	0	.012	51.455	y	40	9312.195	23392.8	557.717	1117.72	1.4	H2-1
39	M36	L2x2x3	.140	51.454	.011	51.454	z	34	9312.528	23392.8	557.717	1031.804	1	H2-1
40	M53	L2x2x3	.140	0	.012	51.455	y	34	9312.195	23392.8	557.717	1074.263	1...	H2-1
41	M7	L2x2x3	.135	51.454	.011	51.454	z	45	9312.528	23392.8	557.717	1031.804	1	H2-1
42	M52	L2x2x3	.134	51.454	.011	51.454	z	39	9312.528	23392.8	557.717	1031.804	1	H2-1
43	M64	6"x1/2" Plate	.076	6.338	.107	6.338	y	253	64763.403	97200	1012.5	12150	1...	H1-1b
44	M48	6"x1/2" Plate	.075	6.338	.107	6.338	y	131	64763.403	97200	1012.5	12150	1...	H1-1b

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

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn
45	M64A	6"x1/2" Plate	.070	6.338	13	.107	6.338	y	200	64763.403	97200	1012.5	12150	1...	H1-1b
46	M44	6"x1/2" Plate	.033	0	2	.099	1.5	y	168	96648.928	97200	1012.5	12150	1...	H1-1b
47	M58	6"x1/2" Plate	.033	1.5	2	.106	0	y	253	96648.928	97200	1012.5	12150	1.4	H1-1b
48	M57	6"x1/2" Plate	.033	0	13	.099	1.5	y	99	96648.928	97200	1012.5	12150	1...	H1-1b
49	M45	6"x1/2" Plate	.033	1.5	7	.106	0	y	131	96648.928	97200	1012.5	12150	1...	H1-1b
50	M41	6"x1/2" Plate	.032	0	7	.099	1.5	y	221	96648.928	97200	1012.5	12150	1...	H1-1b
51	M61A	6"x1/2" Plate	.032	1.5	13	.106	0	y	200	96648.928	97200	1012.5	12150	1...	H1-1b

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn
No Data to Print ...																

APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	188054
Carrier Site ID:	CT11091A
Carrier Site Name:	Greenwich - North_2

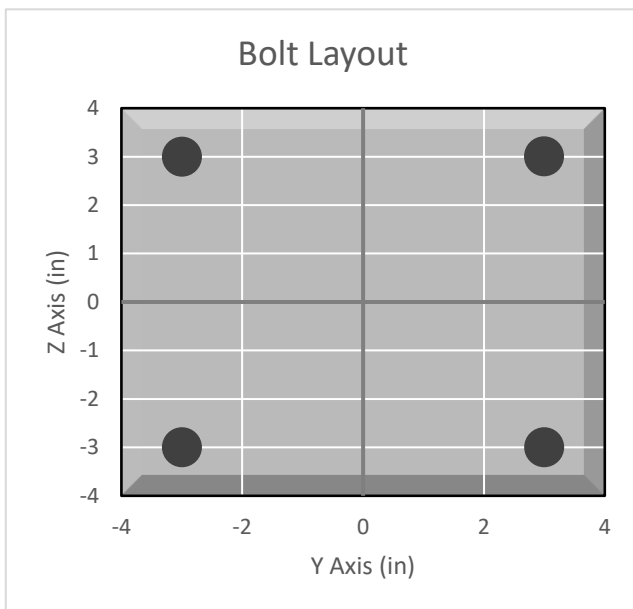
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in

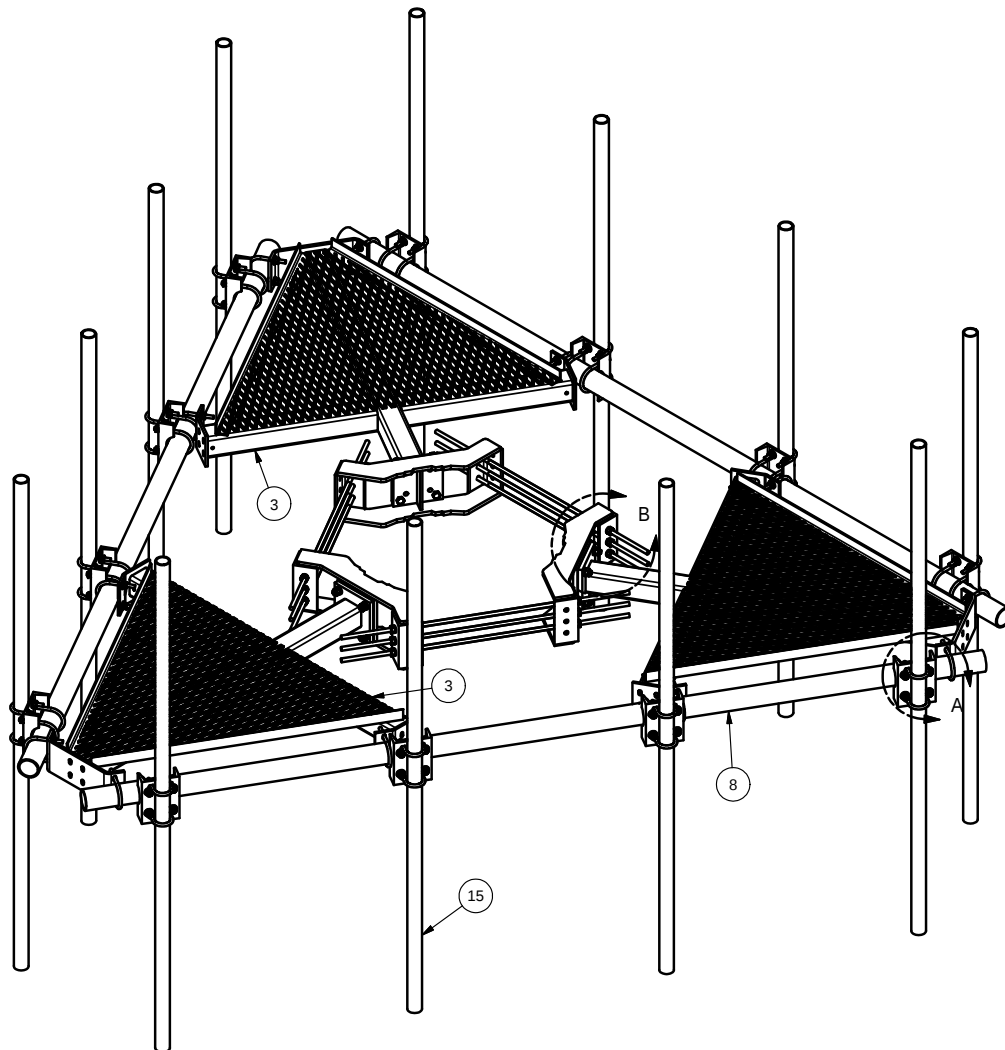
Connection Description
Standoff to Monopole Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	5681.2	lbs
Shear Force (V_u):	635.9	lbs
Tension Usage:	26.6%	--
Shear Usage:	4.4%	--
Interaction:	26.6%	Pass
Controlling Member:	M33	--
Controlling LC:	39	--

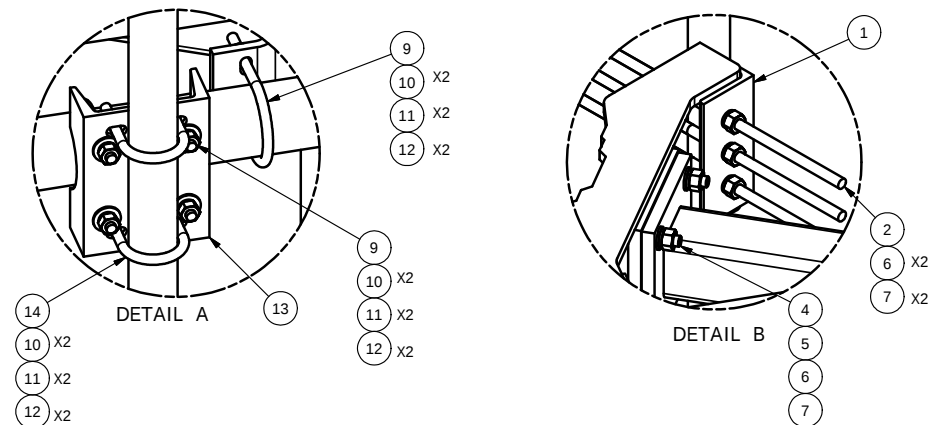
*Rating per TIA-222-H Section 15.5



APPENDIX E
SUPPLEMENTAL DRAWINGS



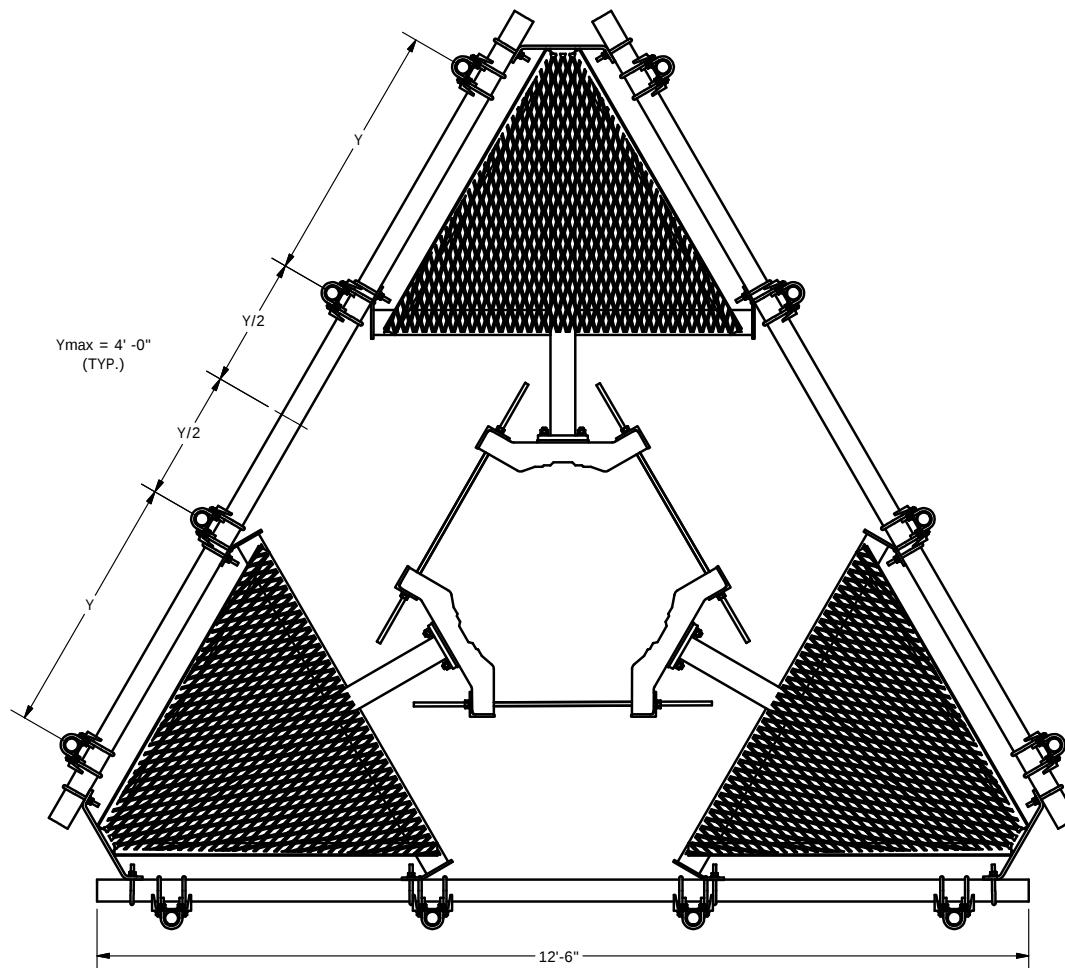
PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.40	3.59
2	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.40	3.59
3	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
4	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
5	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
6	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
7	30	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.90
8	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150.000 in	94.80	284.40
9	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	9.25
10	120	G12FW	1/2" HDG USS FLATWASHER		0.03	4.09
11	120	G12LW	1/2" HDG LOCKWASHER		0.01	1.67
12	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
13	12	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	103.33
14	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	6.17
15	12	B	ANTENNA MOUNTING PIPE	C	D	E



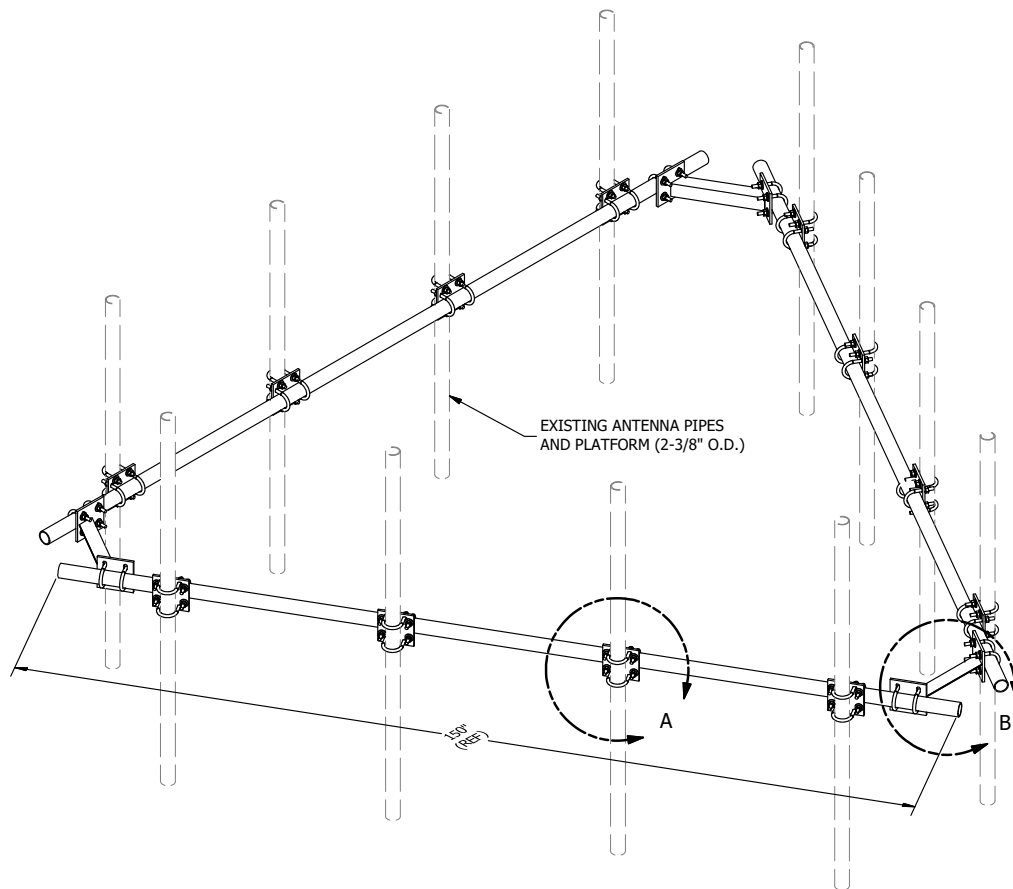
2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO. "A"	PART NO. "B"	LENGTH, "C"	UNIT WEIGHT, "D"	NET WEIGHT, "E"	TOTAL WEIGHT
RMQP-463	P263	63"	20.18	242.16	1591.11
RMQP-472	P272	72"	23.07	276.84	1625.79
RMQP-484	P284	84"	26.91	322.92	1671.87
RMQP-496	P296	96"	30.76	369.12	1718.07
RMQP-4126	P2126	126"	40.75	489.00	1837.95

				TOLERANCE NOTE		DESCRIPTION		SITE PRO 1		Locations:	
				TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$) DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES BENDS ARE $\pm 1/2$ DEGREE - ALL OTHER MACHINING ($\pm 0.030"$) ALL OTHER ASSEMBLY ($\pm 0.060"$)		LOW PROFILE CO-LOCATION PLATFORM FOR 12 ANTENNAS WITH 12' 6" FACE WIDTH FOR 12" - 38" DIAMETER POLES		Engineering Support Team: 1-888-753-7446		New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	
				PROPRIETARY NOTE		DRAWN BY		DRAWING USAGE		PART NO.	
				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.		CEK 1/20/2012		CUSTOMER		SEE ASSEMBLY NO. "A"	
						ENG. APPROVAL		CHECKED BY		DWG. NO.	
						BMC		7/9/2015		RMQP-4XX	

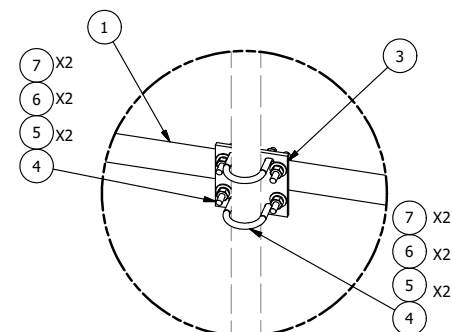
REV	DESCRIPTION OF REVISIONS	CDP	BY	DATE
A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015
REVISION HISTORY				



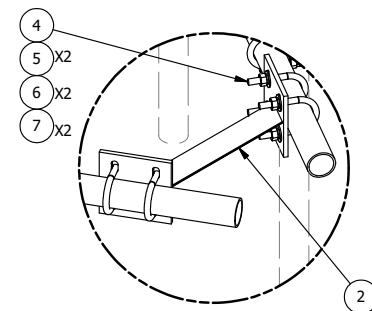
					TOLERANCE NOTE TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE - ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060")		DESCRIPTION LOW PROFILE CO-LOCATION PLATFORM FOR 12 ANTENNAS WITH 12' 6" FACE WIDTH FOR 12" - 38" DIAMETER POLES		SITE PRO 1 A valmont COMPANY Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX Engineering Support Team: 1-888-753-7446		PART NO. SEE ASSEMBLY NO. "A"		PAGE 2 OF 2									
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.					DRAWN BY CEK 1/20/2012		CPD NO. semb	DRAWING USAGE CUSTOMER		CHECKED BY BMC 7/9/2015		DWG. NO. RMQP-4XX										
A	ADDED 10' 6" ANTENNA MOUNTING PIPES			CEK	7/9/2015	REVISION HISTORY <table><thead><tr><th>REV</th><th>DESCRIPTION OF REVISIONS</th><th>CPD</th><th>BY</th><th>DATE</th></tr></thead><tbody><tr><td>A</td><td>ADDED 10' 6" ANTENNA MOUNTING PIPES</td><td></td><td>CEK</td><td>7/9/2015</td></tr></tbody></table>		REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE		A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE																		
A	ADDED 10' 6" ANTENNA MOUNTING PIPES		CEK	7/9/2015																		



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
TOTAL WT. #						272.43



DETAIL A



DETAIL B

TOLERANCE NOTES

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

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 KIT
 FOR 12'-6" FACE**

CPD NO.	DRAWN BY	ENG. APPROVAL
81	KC8 5/30/2012	BMC 7/13/2014
CLASS	SUB	DRAWING USAGE
81	01	CUSTOMER



Engineering
 Support Team:
 1-888-753-7446

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

PART NO.	HRK12	PAGE
DWG. NO.	HRK12	1 OF 1

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP	CEK	7/10/2014	
REVISION HISTORY				

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

T-Mobile Existing Facility

Site ID: CT11091A

**Greenwich - North_2
1081 North Street
Greenwich, Connecticut 06831**

September 1, 2021

EBI Project Number: 6221004839

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	17.32%



September 1, 2021

T-Mobile

Attn: Jason Overbey, RF Manager

35 Griffin Road South

Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11091A - Greenwich - North_2

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1081 North Street in Greenwich, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 1081 North Street in Greenwich, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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



- 6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 8) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 9) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 12) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 13) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 14) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated



antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 15) The antenna mounting height centerline of the proposed antennas is 144 feet above ground level (AGL).
- 16) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 17) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20	Make / Model:	RFS APXVAALL24_43- U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd / 16.45 dBd
Height (AGL):	144 feet	Height (AGL):	144 feet	Height (AGL):	144 feet
Channel Count:	15	Channel Count:	15	Channel Count:	15
Total TX Power (W):	620 Watts	Total TX Power (W):	620 Watts	Total TX Power (W):	620 Watts
ERP (W):	20,518.14	ERP (W):	20,518.14	ERP (W):	20,518.14
Antenna A1 MPE %:	4.95%	Antenna B1 MPE %:	4.95%	Antenna C1 MPE %:	4.95%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	144 feet	Height (AGL):	144 feet	Height (AGL):	144 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	6.86%	Antenna B2 MPE %:	6.86%	Antenna C2 MPE %:	6.86%



Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	11.82%
RAM Mobile	0.27%
Verizon	1.68%
Sprint	1.12%
AT&T	2.43%
Site Total MPE % :	17.32%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	11.82%
T-Mobile Sector B Total:	11.82%
T-Mobile Sector C Total:	11.82%
Site Total MPE % :	17.32%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	144.0	2.23	600 MHz LTE	400	0.56%
T-Mobile 600 MHz NR	1	1577.94	144.0	2.98	600 MHz NR	400	0.74%
T-Mobile 700 MHz LTE	2	695.22	144.0	2.62	700 MHz LTE	467	0.56%
T-Mobile 1900 MHz GSM	4	1052.26	144.0	7.95	1900 MHz GSM	1000	0.79%
T-Mobile 1900 MHz LTE	2	2104.51	144.0	7.95	1900 MHz LTE	1000	0.79%
T-Mobile 2100 MHz UMTS	2	1324.71	144.0	5.00	2100 MHz UMTS	1000	0.50%
T-Mobile 2100 MHz LTE	2	2649.42	144.0	10.00	2100 MHz LTE	1000	1.00%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	11044.63	144.0	20.85	2500 MHz LTE IC & 2C Traffic	1000	2.09%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	1074.06	144.0	2.03	2500 MHz LTE IC & 2C Broadcast	1000	0.20%
T-Mobile 2500 MHz NR Traffic	1	22089.26	144.0	41.70	2500 MHz NR Traffic	1000	4.17%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	144.0	4.06	2500 MHz NR Broadcast	1000	0.41%
						Total:	11.82%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	11.82%
Sector B:	11.82%
Sector C:	11.82%
T-Mobile Maximum MPE % (Sector A):	11.82%
Site Total:	17.32%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **17.32%** 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.