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

October 3, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #825983; ATT Site ID CTL01044
90 Industrial Park Road, Middletown, CT 06457
Latitude: 41° 35′ 8.30″ / Longitude: -72° 42′ 50.49″

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 174-foot level of the existing 185-foot monopole tower at 90 Industrial Park Road, Middletown, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by Airline Avenue Realty LLC. AT&T now intends to replace nine (9) antennas, install nine (9) new antennas and ancillary equipment at the 174-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR 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) QUINTEL-QD6616-7 Antennas
(6) Ericsson-AIR6449 B77D + AIR6419 B77G Stacked Antennas
(3) Ericsson-4415 B25 Radios
(3) Dual Radio Mounts
(3) Y CABLES
(3) 2-1/2" SCH 40x6'-0" long mount pipes w/crossover hardware
(1) New Sabre-C10899050 pipe mount assembly
(3) New Valmont-VFA14-WLL-30120 Sector Mounts
(6) 2-1/2" SCH 40x9'-0" long mount pipes w/crossover hardware

Remove:

(3) POWERWAVE-7770 Antennas
(3) QUINTEL-QS66512-2 Antennas
(3) CCI-OPA65R-BU6DA-K Antennas
(6) POWERWAVE-LGP21401TMAs
(6) ERICSSON-RRUS-32 B2 Radios
(6) KATHREIN-782-10250 Diplexers
(6) KAELUS-DBC0061F1V51-2 Diplexers

Ground:

Install New:

(4) GE Rectifiers in existing power plant
(2) Battery Strings
New -48V Battery Rack next to power plant & additional (8) 170AH batteries in Battery Rack
(1) 6648 w/XCEDE

Remove:

Replace existing batteries with (12) 170AH Batteries

The facility was approved by the City of Middletown Planning & Zoning Commission on January 28, 1998.

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 Mayor Ben Florsheim and Marek Kozikowski, Director of Land Use for the City of Middletown, Airline Avenue Realty LLC as the property owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, ATT 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: Domenica Tatasciore.

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Attachments
cc:

Mayor Ben Florsheim
Middletown City Hall
245 deKoven Drive
Middletown, CT 06457
860-638-4801

Marek Kozikowski, Director of Land Use
Middletown City Hall
245 deKoven Drive
Middletown, CT 06457
860-638-4590

Airline Avenue Realty LLC – Property Owner
15 Mullen Road
Enfield, CT 06082
860-749-3801

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770056289204: Your package has been delivered
Date: Tuesday, October 4, 2022 9:48:19 AM

FedEx

Hi. Your package was delivered Tue, 10/04/2022 at 9:34am.

Delivered to 245 DEKOVEN DR, MIDDLETOWN, CT 06457
Received by F.FLYNN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 770056289204

FROM Domenica Tatasciore
1800 West Park Drive

Suite 200
WESTBOROUGH, MA, US, 01581

TO	Middletown City Hall Mayor Ben Florsheim 245 deKoven Drive MIDDLETOWN, CT, US, 06457
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 10/03/2022 05:29 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	MIDDLETOWN, CT, US, 06457
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770056309596: Your package has been delivered
Date: Tuesday, October 4, 2022 9:47:19 AM

FedEx

Hi. Your package was delivered Tue, 10/04/2022 at 9:34am.

Delivered to 245 DEKOVEN DR, MIDDLETOWN, CT 06457
Received by F.FLYNN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 770056309596

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Middletown City Hall Marek Kozikowski, Land Use Director 245 deKoven Drive MIDDLETOWN, CT, US, 06457
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 10/03/2022 05:29 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	MIDDLETOWN, CT, US, 06457
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 770056337450: Your package has been delivered
Date: Tuesday, October 4, 2022 9:29:16 AM

Hi. Your package was delivered Tue, 10/04/2022 at 9:21am.

Delivered to 15 MULLEN RD, ENFIELD, CT 06082
Received by D.FRIEDMAN

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER	770056337450
FROM	Domenica Tatasciore
	1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Airline Avenue Realty LLC 15 Mullen Road ENFIELD, CT, US, 06082
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 10/03/2022 05:29 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	ENFIELD, CT, US, 06082
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

LEGAL NOTICE

NOTICE OF DECISION BY THE MIDDLETOWN PLANNING AND ZONING COMMISSION at its meeting of January 28, 1998

1. Denied without prejudice a request for release of the cash bond for Wesleyan Hills PRD, Red Area Section III. Applicant/agent Larsen, St. John & Johnson, P.C./Atty. Frank St. John PRD

2. Denied without prejudice a request for release of the cash bond for Longhill Meadows Subdivision located off South Main Street. Applicant/agent Krasow, Garlick & Hadley, LLC/Atty. Herbert A. Krasow S87-32

3. Denied without prejudice a request for release of the cash bond for Richards Brook Subdivision, Lots #2 and #3, located on Kenneth Dooley Drive. Applicant/agent Tyler Cooper & Alcorn, LLP/Atty. Barry M. Winnick S89-6

4. Granted Final Approval of a portion of Pond Place in Section 3 of The Meadows at Riverbend Subdivision located off East Street with the condition that all departmental comments be addressed and that a cash bond in the amount of $45,000 be posted. Applicant/agent Tuttle Road Associates/Robert C. Fusari, President S93-3

5. Granted a one (1) year extension of the Special Exception approval for the Connecticut Beverage Mart Plaza located at 955 Washington Street. Applicant/agent 3127 Berlin Turnpike Associates/Brigham S. Metcalfe SE95-6

6. Denied without prejudice a proposed Zoning Code text amendment to modify Section 42 Protection of Water Sources. Applicant/agent City of Middletown Water and Sewer Department/Guy P. Russo, Director Z97-7

7. Granted a Special Exception for construction of a 185 foot monopole and installation of associated antennae and equipment for up to three (3) wireless communication providers at the Dainty Rubbish facility at 90 Industrial Park Road with the condition that all staff comments and conditions be addressed and adhered to. Applicant/agent Omnipoint Communications, Inc./Thomas M. Gilligan SE97-18

8. Granted a Special Exception to convert a former insurance business to a new use as a home for the aged and a rest home at 26 Silver Street with the following conditions: 1) there be no nurse on the premises; 2) no residents are to be older than fifty-five (55) years of age; 3) all residents are to administer their own medication; and 4) any modification to the structure are to be approved by the Design Preservation Board. Applicant/agent Deonarine and Neeta Dhanraj/Atty. Owen P. Eagan SE97-19

9. Adopted a Zoning Map amendment to rezone a portion of a piece of property located behind Middlesex Schools Federal Credit Union on South Main Street from RPZ Residential Pre Zoning to the B-2 General Business Zone with an effective date of February 15, 1998. A copy of the adopted map change is on file in the Office of the Town Clerk. Applicant/agent Middlesex Schools Federal Credit Union/Attorney Philip F. Karpel Z97-12

W. Lee Osborne, Chairman
Planning and Zoning Commission

P. O. No. 061920, Account No. 067419

The above legal notice to appear in the Hartford Courant ONCE

Thursday, February 5, 1998

THE MUNICIPAL BUILDING IS WHEELCHAIR ACCESSIBLE

P 348 778 241

US Postal Service

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
OmniPoint Communications, Inc.
25 Van Zant St.
4th floor
Norwalk, CT 06855

4a. Article Number
P348 778 241

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
2-5-98

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

Thank you for using Return Receipt Service.

PS Form 3811, December 1994 102595-97-B-0179 Domestic Return Receipt

SE 97-18

INITIAL APPLICATION FOR LAND-USE IN MIDDLETOWN, CT

Please fill out this application so we will know who you are, what you are applying to do, and how to contact you. With this basic information we will evaluate your project as it relates to City regulations as quickly as possible. Thank you for your cooperation.

GENERAL INFORMATION ABOUT THE PEOPLE INVOLVED Date 11-6-97

Applicant: OMNIPOINT COMMUNICATIONS, INC. Phone#(203) 359-1280

Address: 1515 SUMMER ST. City STAMFORD State CT Zip 06905

Agent: THOMAS M. GILLIGAN Phone#(203) 359-1280

Address: 1515 SUMMER ST. City STAMFORD State CT Zip 06905

WHAT ARE YOU APPLYING TO DO? (CHECK ONE OR MORE)

( ) Add an addition to a single/two family dwelling to be used for _____

( ) Construct a single family dwelling (A-2 survey required)

( ) Add an addition to a multi-family or non-residential building to be used for (A-2 survey required) _____

( ) Convert an existing building from present use as _____ to a new use as _____

( ) Construct one or more new buildings to be used for (A-2 survey required) _____

( ) Subdivide land into building lots (A-2 survey required)

( ) Change the text of the Zoning Code or amend the Zoning Map

( ) Install a sign

( ) Start a Residential Unit Business Pursuit

( ) Application for Zoning Board of Appeals

( ) Extract Natural Resources like sand or gravel or fill an area

(✓) Other WIRELESS COMMUNICATIONS MONOPOLE, ASSOCIATED ANTENNAE ADD E.QUIPMENT DESIGNED FOR UP TO THREE CARRIERS

97 NOV -6 PM 4:28 DEPT. PLANNING & ZONING

FACTS ABOUT LAND PROPOSED FOR USE

Landowner: PHILIP ARMETTA Location: 90 INDUSTRIAL PARK ROAD

Zone IT Lot Area 2.54A. Tax Assessor's Map 6 Block 22 Lot 6B1

Is this project within 500' of a Municipal Boundary? Yes _____ No ✓

Is this project located in a FEMA 100 or 500 year flood plain? Yes _____ No ✓

Utilities Available: City Water (✓); Private Well ( ); City Sewer (✓); Private Septic ( )

SIGNATURE OF I.W.A. STAFF

DATE APPLIED _____

( ) PERMIT REQUIRED

(✓) PERMIT NOT REQUIRED

( ) IWA REVIEW REQUIRED

SIGNATURE OF APPLICANT/AGENT**

Philip C. Armetta

SIGNATURE OF OWNER**

**Both signatures required. I certify that the above information and plans submitted are true and correct, and that, if required, an application for an Inland/Wetlands permit has been filed before or on the same day as the filing of this application with the P&Z Commission.

[X] Meets Zoning Requirements

Wayne J. Bell

ZONING ENFORCEMENT OFFICER

MARCH 6, 1998

DATE

9/17/97

DATE OF APPROVED PLANS

Pd. $110.00
CK # 1846
11/7/97

ALL DOCUMENTS WHICH MAKE UP THE RECORD OF THIS APPLICATION MUST BE LISTED BELOW. THIS INCLUDES ALL MAPS AND TEXT MATERIAL.

PROJECT: CONSTRUCTION OF A 185' MONOPOLE AND INSTALLATION OF ASSOCIATED ANTENNAE AND EQUIPMENT DESIGNED FOR UP TO 3 CARRIERS

1.) COVER LETTER 2.) SPECIAL EXCEPTION FORM 3) LIST OF ABUTTING OWNERS 4.) DEED 5.) EXECUTED LEASE SIGNATURE PAGE 6.) GENERAL INFORMATION 7.) 8.5 x 11 ARCHITECTURAL PLANS 8.) SITE PLAN 9.) ARCHITECTURAL PLANS

IN THE EVENT A PUBLIC HEARING IS REQUIRED FOR THIS APPLICATION, ALL PERSONS MAKING VERBAL PRESENTATIONS AT THE PUBLIC HEARING FOR THIS PROJECT AND THE APPROXIMATE TIME EACH WILL REQUIRE MUST BE LISTED BELOW.

ELENI SOTIRIOU, DIR. OF ZONING & LEASE MNGMNT. - 10-15 MINUTES
JONATHON LINDENTHALER, PROJECT COORDINATOR - 10-15 MINUTES
THOMAS GILLIGAN, ZONING SPECIALIST/PLANNER 10-15 MINUTES
MOHAN KUPPASWAMY, RF ENGINEER - 10-15 MINUTES
LOU CORNACCHIA, RF HEALTH PROFESSIONAL - 10-15 MINUTES

SPECIAL EXCEPTION FORM

PLANNING & ZONING COMMISSION
MIDDLETOWN, CONNECTICUT

A. GENERAL INFORMATION ABOUT APPLICANT (Please type or print clearly)
Name OMNIPOINT COMMUNICATIONS, INC Date 11-6-97
Address 1515 SUMMER STREET Phone 203-359-1280
Agent THOMAS M. GILLIGAN Phone 203-359-1280

B. DESCRIPTION OF PREMISES
Owner of Record PHILIP ARMETTA
Location 90 INDUSTRIAL PARK ROAD
Deed Filed in Town Clerk's Office on
Map File# Vol. & Page# 505 ; 134
Zone IT Current Use OFFICE & BULKY WASTE TRANSFER STA.
Relevant Zoning Code Provision SECTION 61
NOTE: A legal description of the premises to be affected by the Special Exception must be attached to this form.

C. NATURE OF SPECIAL EXCEPTION
CONSTRUCTION OF A 185 FOOT MONOPOLE AND INSTALLATION OF ASSOCIATED ANTENNAE AND EQUIPMENT FOR UP TO 3 WIRELESS COMMUNICATIONS PROVIDERS

Signature of Applicant or Agent

Philip E Armetta
Signature of Owner
*Both Signatures Required

NOTE: An approved Special Exception will not be effective until a copy of this certification is recorded in the Middletown Town Clerk's Office.

The owner, applicant and\or other authorized agent hereby grant the Middletown Planning and Zoning Commission and\or its agents permission to enter upon the property for which the Special Exception application has been filed for the purpose of inspection and enforcement of the Regulations of the City of Middletown.

Staff Comments

D. CERTIFICATION OF COMMISSION RESPONSE
Dates Legal Notices Published 1/16/98 ; 1/23/98
Date of Public Hearing 1/28/98
Final Action: Disapproved Approved X
Zoning Regulation to which Special Exception is granted Sec. 61
Date Notice of Decision Published 2/5/98
Effective Date upon filing this form

E. MATERIAL FILED IN TOWN CLERK'S OFFICE

☒ This Form ☐ Site Plan
Other legal description ;Date

Filed 2:45 P.M. 2/6/98

F. This is to certify that a Special Exception, as depicted on this form, was granted by the Middletown Planning and Zoning Commission.

Chairman

1\95

90 INDUSTRIAL PARK RD

Location	90 INDUSTRIAL PARK RD	**Map-Lot**	06/ / 0018/ /
Acct#	R00347	**Owner**	AIRLINE AVENUE REALTY LLC
Municipality		**Assessment**	$1,324,110
Appraisal	$1,891,590	**PID**	396
Building Count	1	**Assessing District**	

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$1,255,960	$635,630	$1,891,590
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$879,170	$444,940	$1,324,110

Parcel Addreses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner	AIRLINE AVENUE REALTY LLC	**Sale Price**	$1,000,000
Co-Owner		**Certificate**	
Address	15 MULLEN RD	**Book & Page**	1956/943
	ENFIELD, CT 06082	**Sale Date**	11/15/2019
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
AIRLINE AVENUE REALTY LLC	$1,000,000		1956/943	25	11/15/2019
90 INDUSTRIAL PARK ROAD LLC	$0		1843/0205	29	06/11/2015
ARMETTA PHILIP C	$0		0505/0134	29	02/22/1978

Building Information

Building 1 : Section 1

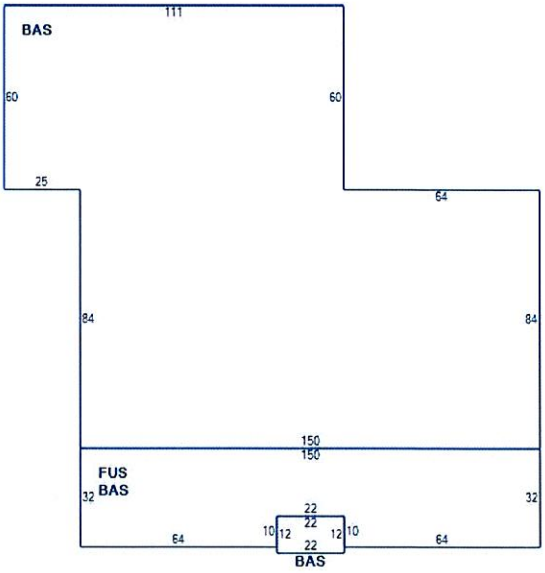
Year Built: 1986
Living Area: 28,684
Replacement Cost: $1,523,694
Building Percent Good: 77
Replacement Cost Less Depreciation: $1,173,240

Building Attributes	
Field	**Description**
Style	Office/Warehs
Model	Industrial
Grade	C
Stories	1
Occupancy	2.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	Concrete
Roof Structure	Flat
Roof Cover	Tar and Gravel
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Air
AC Type	Partial
Struct Class	
Bldg Use	Industrial
Cov Parking	0
Uncov Parking	0
Percent Fin	100
1st Floor Use	
Heat/AC	Heat/AC Pkg
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Walls	Typical
Rooms/Prtns	Average
Wall Height	25.00

Building Photo

(https://images.vgsi.com/photos/MiddletownCTPhotos/\00\02\11\86.jpg)

Building Layout



(ParcelSketch.ashx?pid=396&bid=396)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	24,104	24,104
FUS	Finished Upper Story	4,580	4,580
		28,684	28,684

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
A/C	Air Condition	8896.00 UNITS	$23,290	1

Land

Land Use

Use Code	301
Description	Industrial
Zone	IT
Neighborhood	3100
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.61
Assessed Value	$444,940
Appraised Value	$635,630

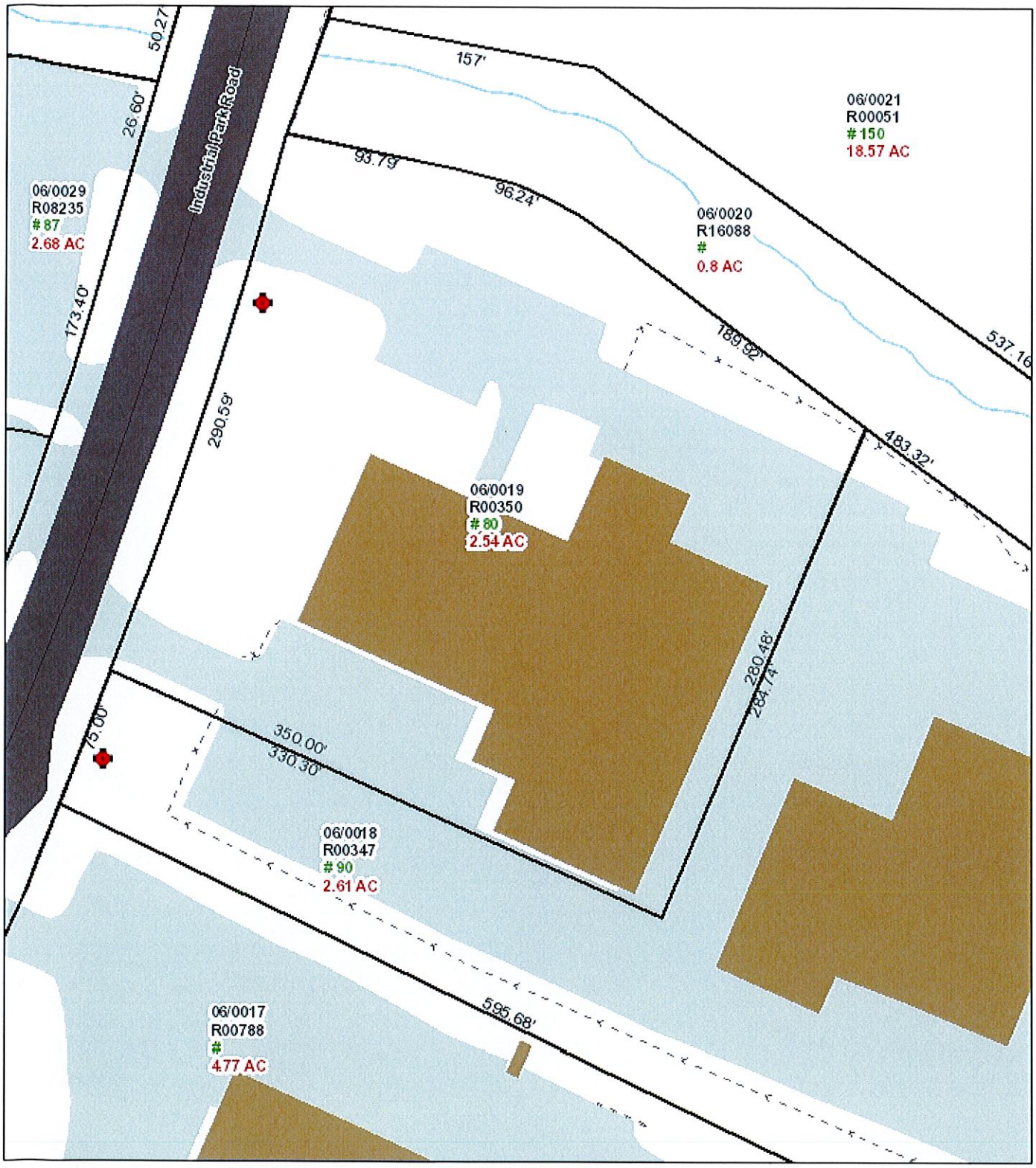
Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
LT1	Lights-In W/PI			4.00 UNITS	$210	1
PAV1	Paving	AS	Asphalt	51134.00 UNITS	$57,530	1
PAV2	Paving	CN	Concrete LD	2100.00 UNITS	$3,830	1
CSHD	Cell Shed			288.00 UNITS	$34,200	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2020	$1,255,960	$635,630	$1,891,590
2019	$1,255,960	$635,630	$1,891,590
2018	$1,255,960	$635,630	$1,891,590

Assessment			
Valuation Year	Improvements	Land	Total
2020	$879,170	$444,940	$1,324,110
2019	$879,170	$444,940	$1,324,110
2018	$879,170	$444,940	$1,324,110



90 Industrial Park Road

Map generated 9/20/2022

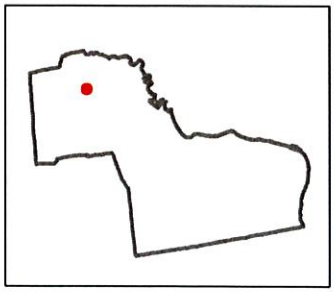
Map Legend: http://gis.cityofmiddletown.com/middletownct/legend.pdf

<vision link>

N

0 0.005 0.01 0.02 0.03 0.04 mi

1 in = 100 ft



MAP FOR REFERENCE ONLY - NOT A LEGAL DOCUMENT

Because of different update schedules, current property assessments may not reflect recent changes to property boundaries. Check with the Board of Assessors to confirm boundaries uses at the time of assessment.

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

Site Name:	CROMWELL EAST
Crown Castle Site#	825983
Site ID:	CTL01044
Project Name:	5G NR 1SR C-BAND
Address:	90 INDUSTRIAL PARK ROAD, MIDDLETOWN, CT 06457
County:	MIDDLESEX
Latitude:	41.5856311
Longitude:	-72.7139711
Structure Type:	MONOPOLE
Property Owner:	AIRLINE AVENUE REALTY LLC
Property Contact:	PAUL PEDICONE

AT&T Existing Facility

Report Information

Report Writer: Sushil Dogra **Report Generated Date:** 09-19-2022

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	25.62%

September 19, 2022

Emissions Analysis for Site: **CTL01044– CROMWELL EAST**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **90 INDUSTRIAL PARK ROAD, MIDDLETOWN, CT 06457**, for the purpose of determining whether the emissions from the Proposed AT&T 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 milliwatts per square centimeter (mW/cm^2). The number of mW/cm^2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately 0.467 mW/cm^2 and 0.567 mW/cm^2 respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3450 MHz (DoD Band) and 3840 MHz (C Band) bands is 1 mW/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.

1. Theoretical Calculations

Calculations were done for the proposed AT&T Wireless antenna facility located at **90 INDUSTRIAL PARK ROAD, MIDDLETOWN, CT 06457** using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T 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 all calculations, all equipment was calculated using the following assumptions:

1) 4 LTE channels (700 MHz Band 14) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
2) 2 LTE channels (700 MHz Band 29) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
3) 4 LTE/5G channels (1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
4) 4 LTE/5G channels (2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
5) 1 NR channel (DoD Band - 3450 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 108.44 Watts per Channel.
6) 1 NR channel (C Band - 3840 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 108.44 Watts per Channel.
7) 4 LTE channels (700 MHz Band 12) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
8) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
9) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.

10) 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.
11) 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.
12) The antennas used in this modeling are the Quintel QD6616-7 for the 700 MHz(Band 14) / 700 MHz(Band 29) / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR6419 for the DoD Band (3450 MHz) channel(s), the Ericsson AIR6449 for the C Band (3840 MHz) channel(s), the CCI DMP65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector A, Quintel QD6616-7 for the 700 MHz(Band 14) / 700 MHz(Band 29) / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR6419 for the DoD Band (3450 MHz) channel(s), the Ericsson AIR6449 for the C Band (3840 MHz) channel(s), the CCI DMP65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector B, Quintel QD6616-7 for the 700 MHz(Band 14) / 700 MHz(Band 29) / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR6419 for the DoD Band (3450 MHz) channel(s), the Ericsson AIR6449 for the C Band (3840 MHz) channel(s), the CCI DMP65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 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.
13) The antenna mounting height centerline of the proposed antennas is 174 feet above ground level (AGL).
14) 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.
15) All calculations were done with respect to uncontrolled / general population threshold limits.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	H B W (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Total Ant Transmitter Power (Watts)	Total Ant ERP(Watts)	Ant MPE%
A	1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	40	71	12.05	6	4	160.00	2566.12	4208.43	560	14714.06	2.27%
A	1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	40	71	12.05	6	2	80.00	1283.06	2104.21			
A	1	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	40	67	15.05	6	4	160.00	5120.07	8396.92			
A	1	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	40	62	15.55	6	4	160.00	5744.82	9421.50			
A	2-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	40	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	2.83%
A	2-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	40	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	2.94%
A	3	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	40	74	11.85	6	4	160.00	2450.62	4019.02	420	9482.79	1.72%
A	3	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	40	63	12.45	6	4	160.00	2813.69	4614.45			
A	3	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	40	54	16.25	6	4	100.00	4218.48	6918.31			
B	4	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	150	71	12.05	6	4	160.00	2566.12	4208.43	560	14714.06	2.27%
B	4	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	150	71	12.05	6	2	80.00	1283.06	2104.21			
B	4	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	150	67	15.05	6	4	160.00	5120.07	8396.92			
B	4	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	150	62	15.55	6	4	160.00	5744.82	9421.50			
B	5-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	150	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	2.83%
B	5-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	150	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	2.94%
B	6	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	150	74	11.85	6	4	160.00	2450.62	4019.02	420	9482.79	1.72%
B	6	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	150	63	12.45	6	4	160.00	2813.69	4614.45			
B	6	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	150	54	16.25	6	4	100.00	4218.48	6918.31			
C	7	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	270	71	12.05	6	4	160.00	2566.12	4208.43	560	14714.06	2.27%
C	7	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	270	71	12.05	6	2	80.00	1283.06	2104.21			
C	7	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	270	67	15.05	6	4	160.00	5120.07	8396.92			
C	7	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	270	62	15.55	6	4	160.00	5744.82	9421.50			
C	8-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	270	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	2.83%
C	8-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	270	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	2.94%
C	9	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	270	74	11.85	6	4	160.00	2450.62	4019.02	420	9482.79	1.72%
C	9	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	270	63	12.45	6	4	160.00	2813.69	4614.45			
C	9	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	270	54	16.25	6	4	100.00	4218.48	6918.31			

Table 2.1: Antenna Inventory & Power Data

**NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6419 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.*

Cumulative Site MPE%	
Carrier	**MPE%**
AT&T (Max MPE% at Sector A)	9.76%
T-Mobile	7.19%
Verizon	8.19%
MetroPCS	0.48%
Site Total MPE%	**25.62%**

Table 2.2: Cumulative Site MPE%

AT&T Max MPE% Per Sector	
AT&T Sector A Total	9.76%
AT&T Sector B Total	9.76%
AT&T Sector C Total	9.76%
Site Total MPE%	**25.62%**

Table 2.3: AT&T MPE% Per Sector

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	FREQ. (MHz)	TECH.	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Total Power Density (mW/cm^2)	Allowable MPE (mW/cm^2)	Calculated MPE%
A	1	AT&T	Quintel	QD6616-7	700	LTE(B14)	4	160.00	2566.12	4208.43	174.00	0.003049	0.467	0.65%
A	1	AT&T	Quintel	QD6616-7	700	LTE(B29)	2	80.00	1283.06	2104.21	174.00	0.001525	0.467	0.33%
A	1	AT&T	Quintel	QD6616-7	1900	LTE/5G	4	160.00	5120.07	8396.92	174.00	0.006084	1.000	0.61%
A	1	AT&T	Quintel	QD6616-7	2100	LTE/5G	4	160.00	5744.82	9421.50	174.00	0.006826	1.000	0.68%
A	2-1	AT&T	Ericsson	AIR 6419 B77G	3450	5G	1	108.44	24277.05	39828.68	175.75	0.028286	1.000	2.83%
A	2-2	AT&T	Ericsson	AIR 6449 B77D	3840	5G	1	108.44	24277.05	39828.68	172.25	0.029447	1.000	2.94%
A	3	AT&T	CCI	DMP65R-BU6D	700	LTE(B12)	4	160.00	2450.62	4019.02	174.00	0.002912	0.467	0.62%
A	3	AT&T	CCI	DMP65R-BU6D	850	5G	4	160.00	2813.69	4614.45	174.00	0.003343	0.567	0.59%
A	3	AT&T	CCI	DMP65R-BU6D	2300	LTE	4	100.00	4218.48	6918.31	174.00	0.005013	1.000	0.50%
													Total	**9.76%**

Table 2.4: Detailed MPE% at AT&T Sector A

3. Compliance Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A	9.76%
Sector B	9.76%
Sector C	9.76%
AT&T Maximum Total (per sector)	9.76%
Site Total MPE%	**25.62%**
Site Compliance Status	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is 25.62% of the allowable FCC established general public 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 within the allowable 100% threshold standard per the federal government.

Date: May 24, 2022

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CTL01044
	Carrier Site Name:	Cromwell East
	Carrier FA Number:	10035130
Crown Castle Designation:	**BU Number:**	825983
	Site Name:	Middletown_1
	JDE Job Number:	716731
	Order Number:	616581, Rev.0
Engineering Firm Designation:	**Report Designation:**	136918.010.01
Site Data:	**90 Industrial Park Road, Middletown, CT, Middlesex County, 06457** **Latitude 41° 35' 8.30" Longitude -72° 42' 50.49"**	
Structure Information:	**Tower Height & Type:**	**185 ft. Monopole**
	Mount Elevation:	**174 ft.**
	Mount Type:	**14.5 ft. Sector Mount**

We are pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of AT&T Mobility'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.

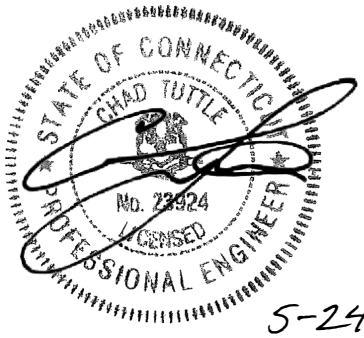
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Sector Mount **Sufficient**
***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 119 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Erika Ruiz

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER: 2386985 Expires: 02/01/2023



5-24-22

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 - Sector 14.5' Sector Mount, designed by SitePro1 (Part #VFA14-WLL-30120 w/ Sabre Part # C10-899-050).

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	119 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.205
Seismic S_1:	0.055
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	Manufacturer	Model / Type	Mount / Modification Details
174	176	3	Ericsson	AIR 6419 B77G	14.5' Sector Mount
	174	3	CCI Antennas	DMP65R-BU6D	
		3	Quintel	QD6616-7	
		3	Ericsson	RRUS 32 B66A	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		3	Ericsson	RRUS-32 B30	
		2	Raycap	DC6-48-60-18-8F	
		1	Raycap	DC9-48-60-24-8C-EV	
		3	Ericsson	RRUS 4415 B25_CCIV2	
		3	Ericsson	RRUS E2 B29	
	172	3	Ericsson	AIR 6449 B77D	

Table 2 – Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 05/04/2022	Crown Castle
RFDS		Date: 03/15/2022	
CD's		Date: 04/12/2022	
Previous MA	MTS Engineering, P.L.L.C.	Date: 12/24/2021	On File
Mount Manufacturer Drawing	SitePro1 (Part #VFA14-WLL-30120)	Date: 09/21/2020	SitePro1

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.1), 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 by MTS Engineering, P.L.L.C., was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E). In addition, this analysis is in accordance with *AT&T's Mount Technical Directive – R21.0*

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. 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.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C. 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 (Sector Mount)

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Face Horizontals	174	1	37.6	Pass
	Support Arms		21	28.4	Pass
	Connection Plates		6	40.6	Pass
	Verticals		31	60.0	Pass
	Diagonals		35	19.5	Pass
	Mount Pipes		39	57.0	Pass
	Tiebacks		181	13.2	Pass
	Connection Pipes		146	43.2	Pass
2	Mount to Tower Connection		-	45.6	Pass

Structure Rating with Recommendations (max from all components) =	60.0%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

4.1) Recommendations

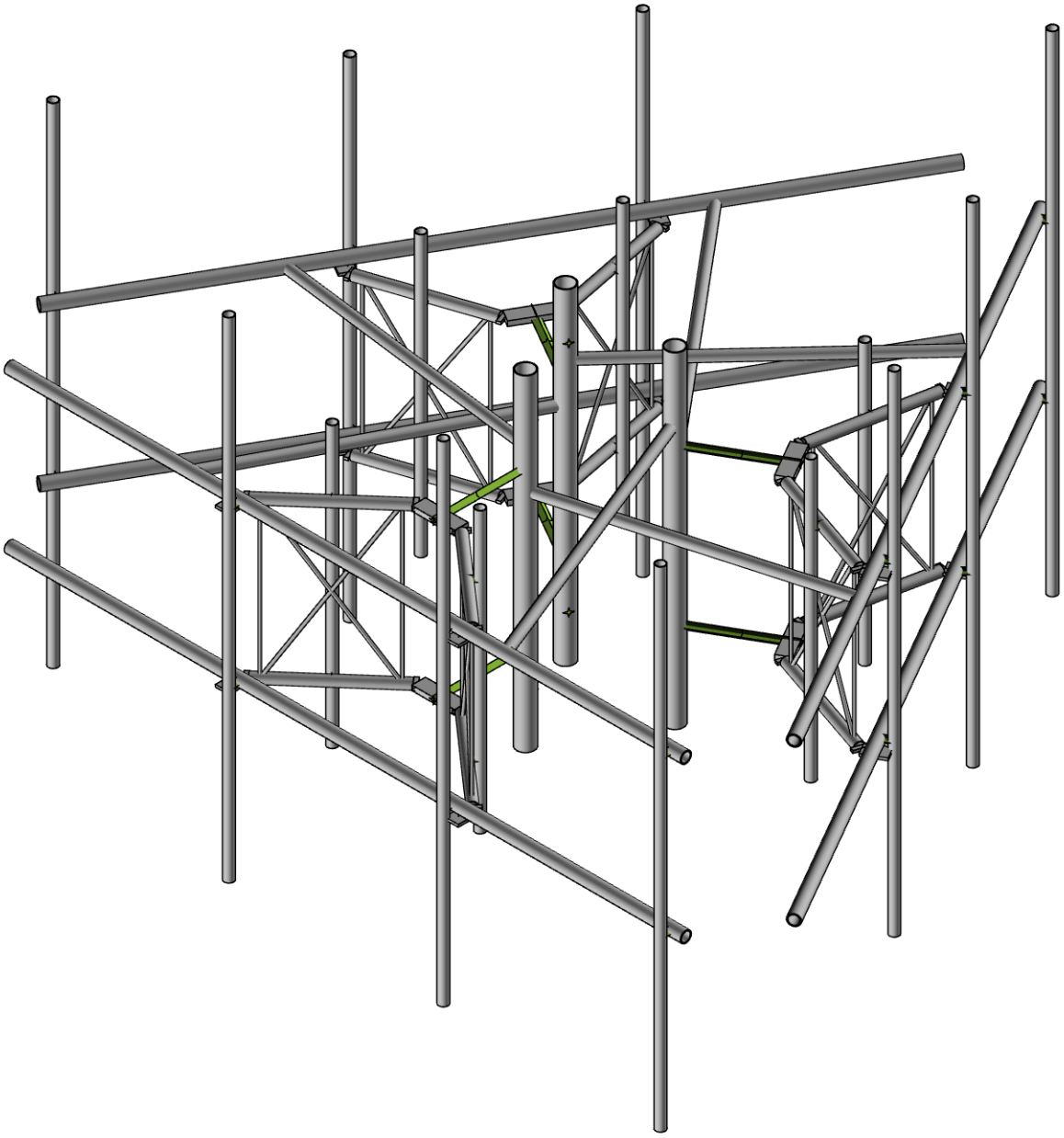
The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

1. Mount replacement, SitePro1 Part #VFA14-WLL-30120 (P/N: CEQ.53332) w/ Sabre Part # C10-899-050 (P/N: ANT.46131).
2. Install (2) 2” Std. x 6’-0’’ long pipes “or equivalent approved Conmat item” on V-Booms per sector to install RRUS on all sectors.

Beyond the mount replacement, 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

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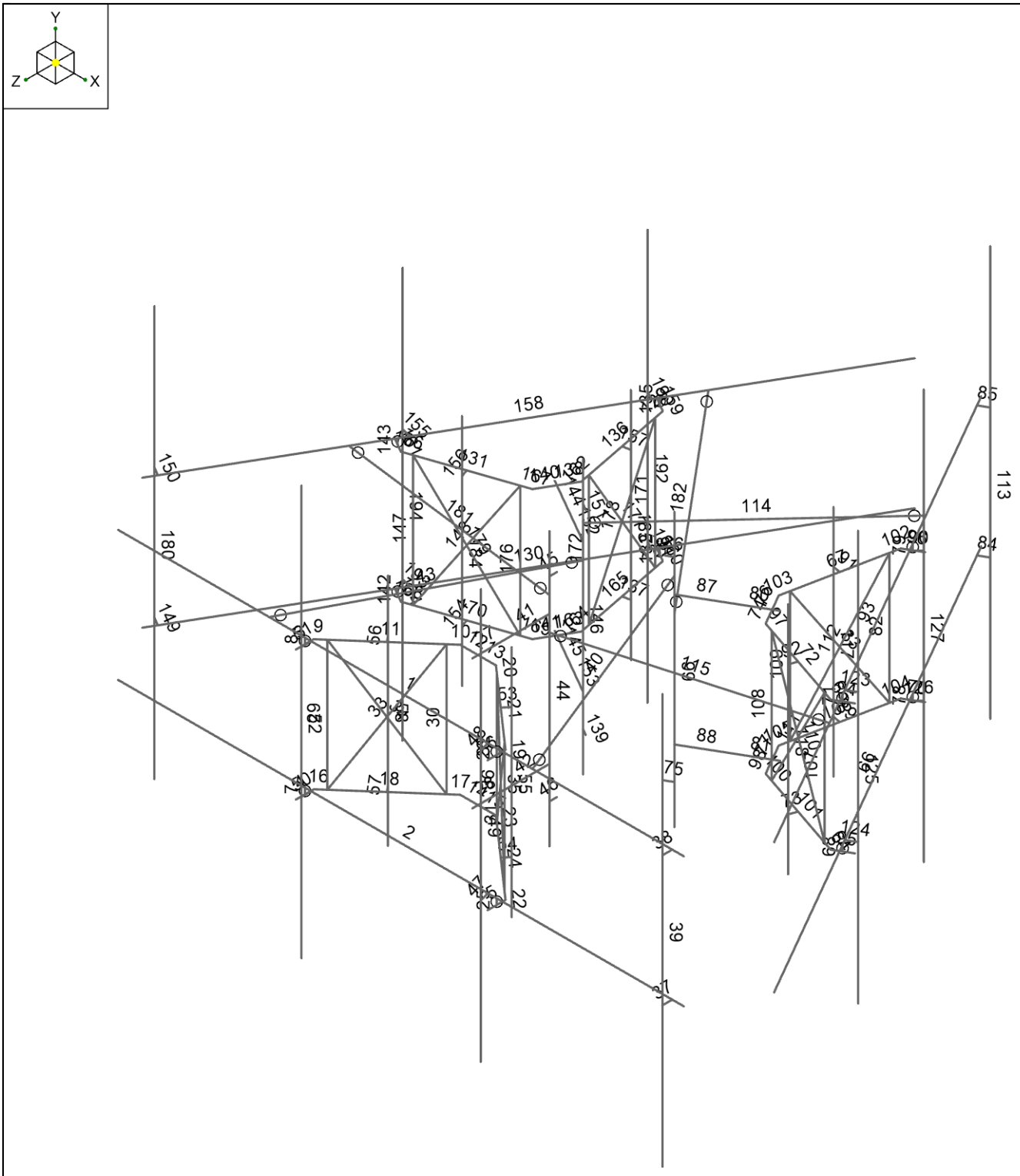

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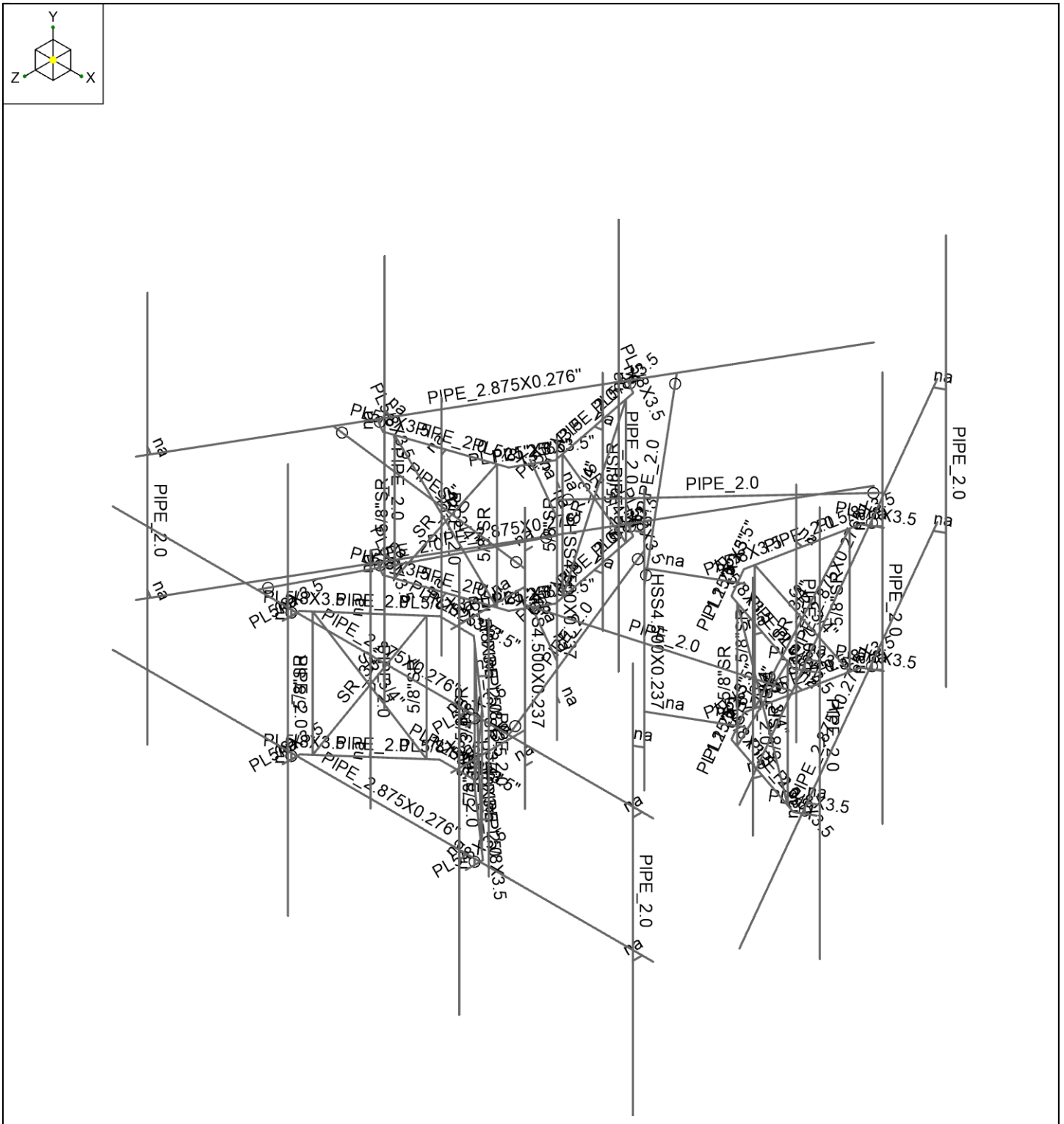

Envelope Only Solution

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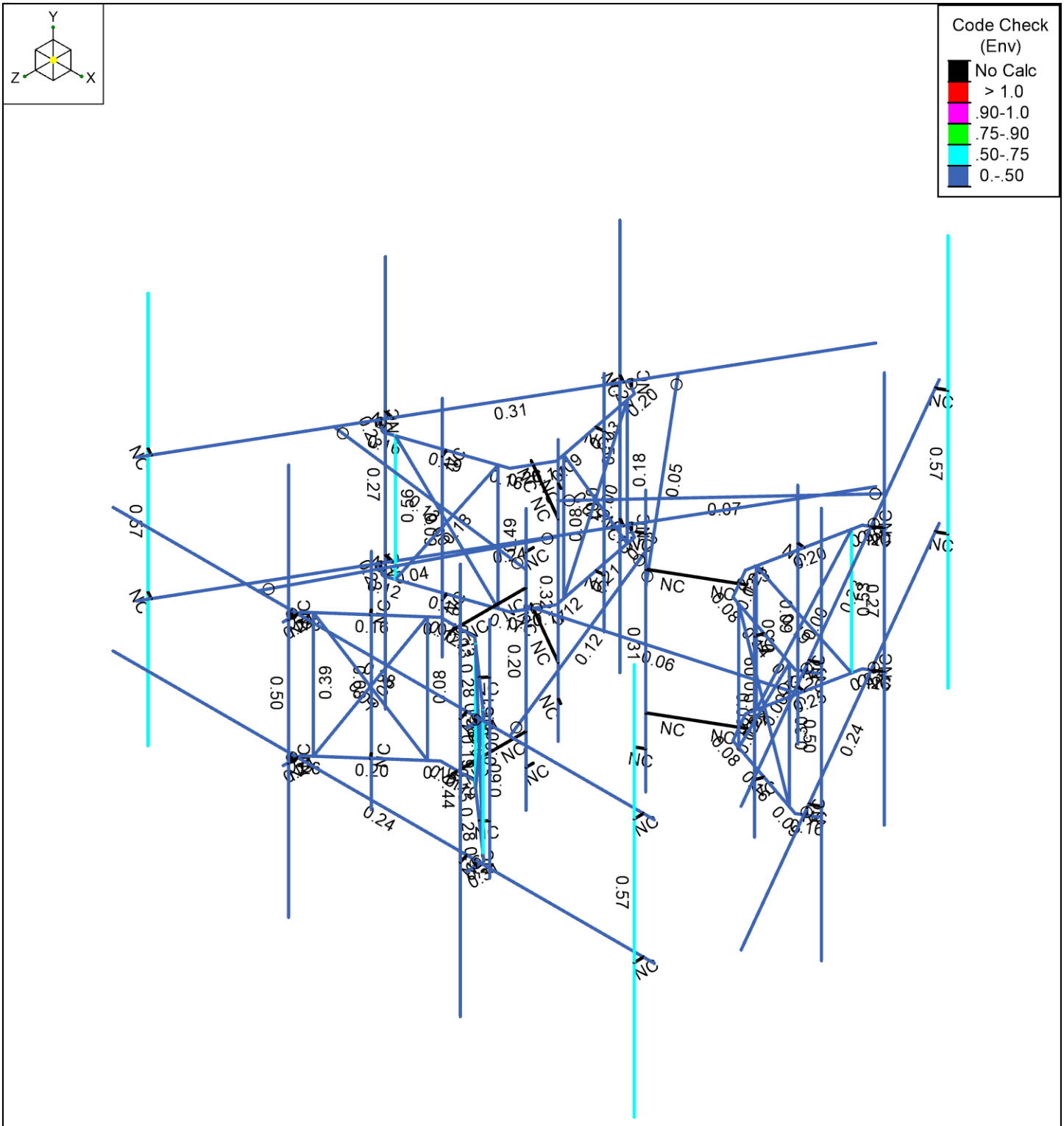

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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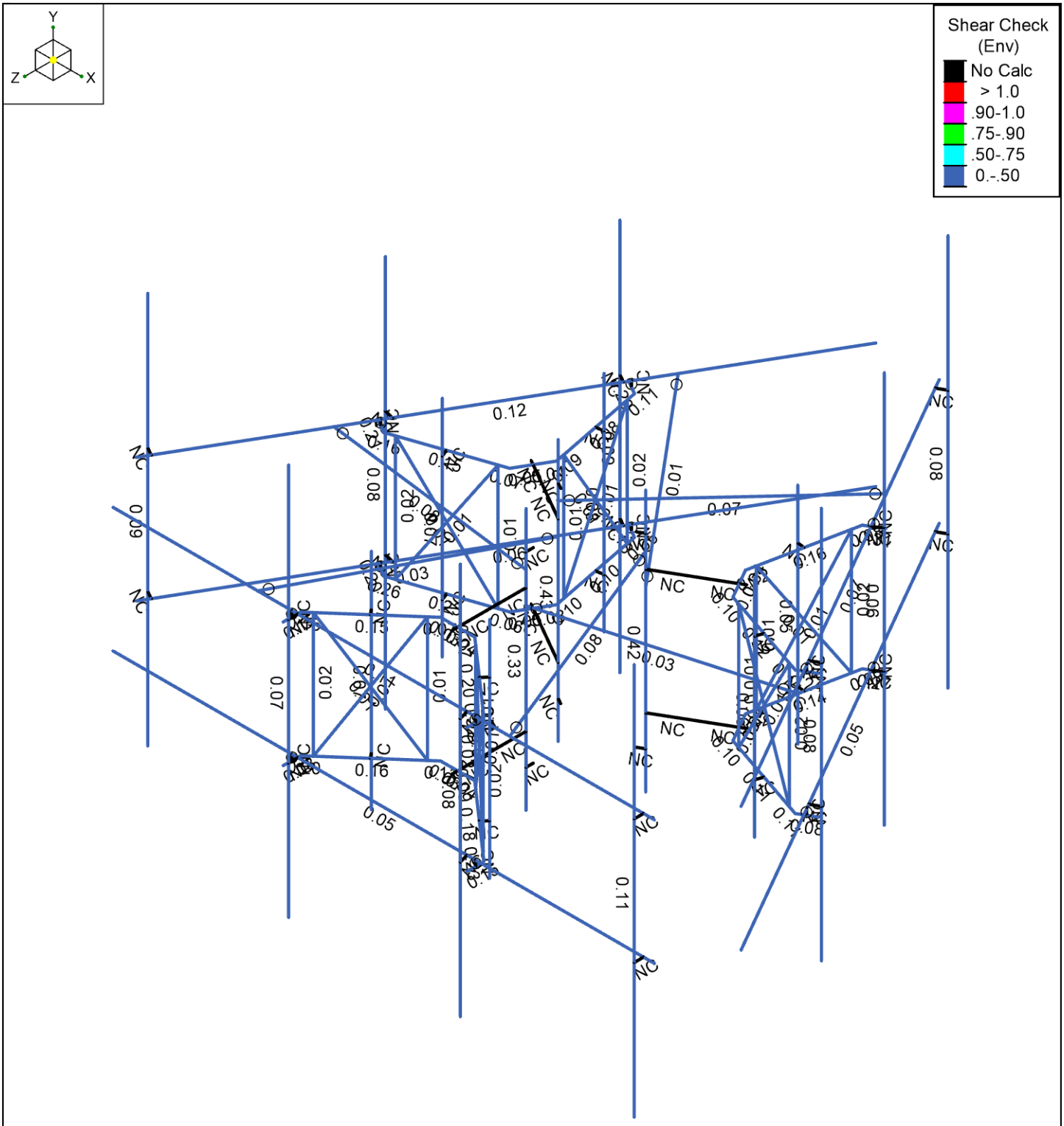

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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APPENDIX B

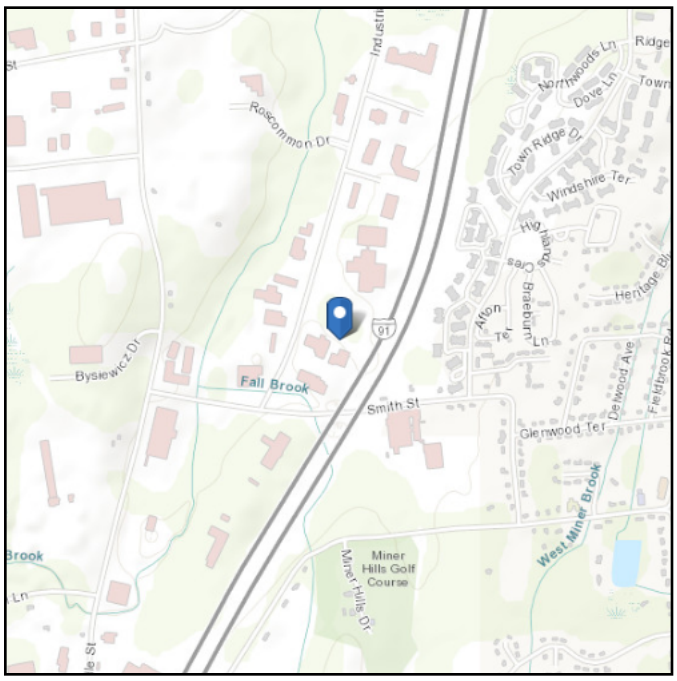
SOFTWARE INPUT CALCULATIONS

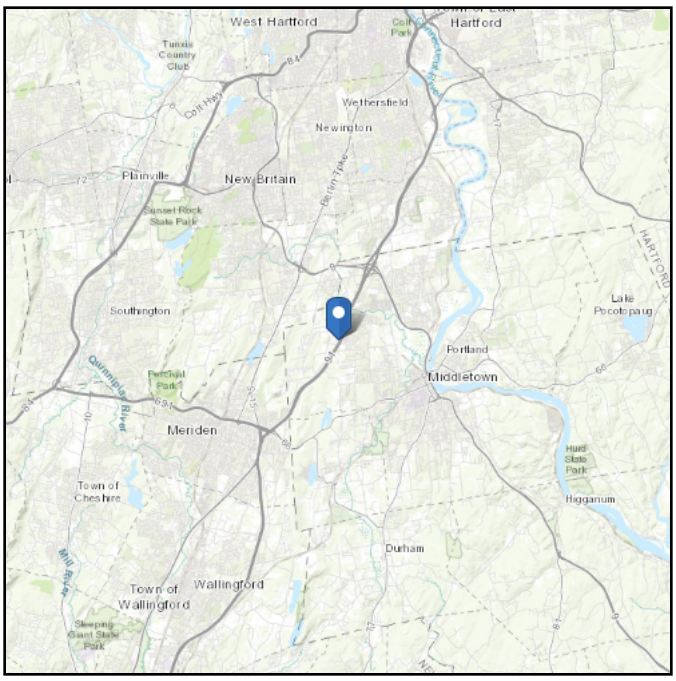
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 89.45 ft (NAVD 88)
Latitude: 41.585639
Longitude: -72.714025





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri May 06 2022

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

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

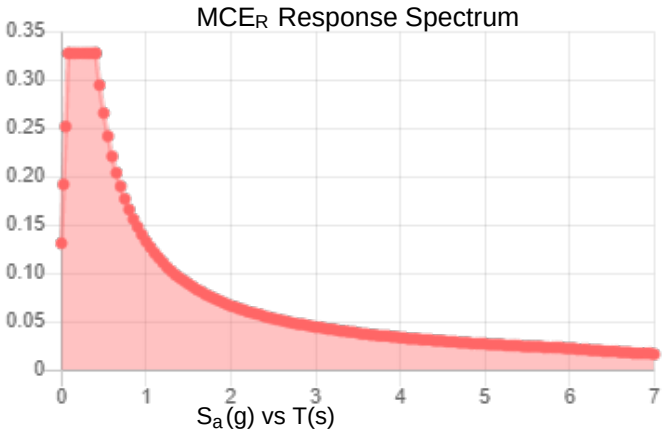
Seismic

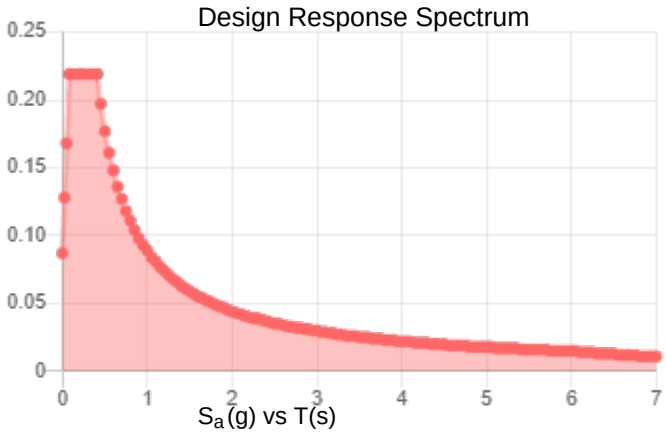
Site Soil Class: D - Default (see Section 11.4.3)

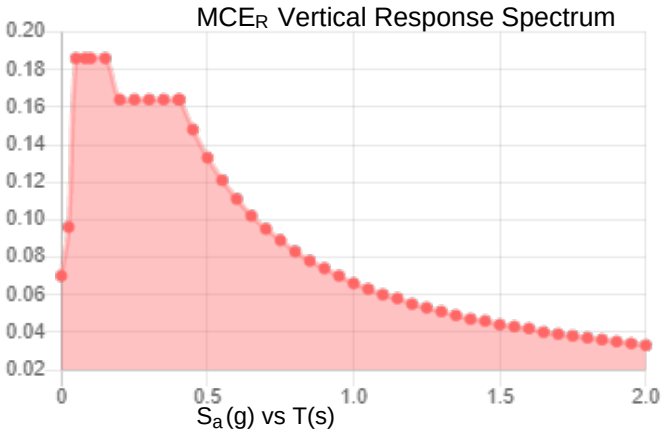
Results:

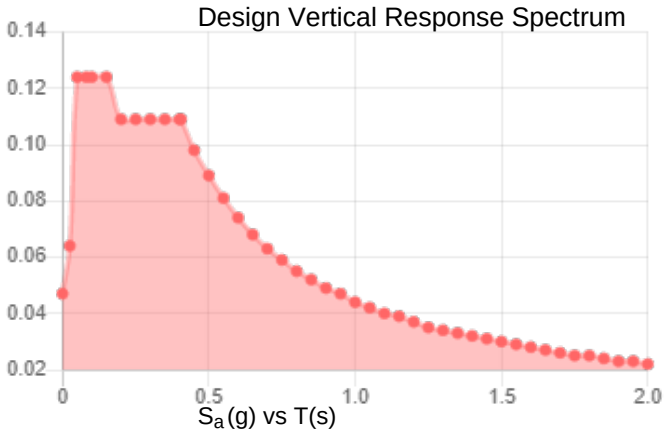
S_S :	0.205	S_{D1} :	0.089
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.328	F_{PGA} :	1.573
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.219	C_v :	0.71

Seismic Design Category B









Data Accessed: **Fri May 06 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri May 06 2022

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

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

PROJECT	**136918.010.01 - Middletown_1, CT**	**KSC**
SUBJECT	**Sector Mount Analysis**	
DATE	**05/24/22**	

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	89	ft	[ASCE7 Hazard Tool]
Tower Height		:	185.00	ft	
Mount Elevation		:	174.00	ft	
Antenna Elevation		:	176.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	119	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.21		
	S_1	:	0.06		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.43		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	1.00		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.18	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.110		[Sec. 2.7.7.1]
Amplification	A_s	:	2.762162		[Sec. 16.7]

	q_z	:	48.82	psf

PROJECT	**136918.010.01 - Middletown_1, CT**	**KSC**
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1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
INTEL TECHNOLC	QD6616-7	0.5	72.0	22.0	9.6	130.0	6.80	2.96	7.62	3.68	0.33	0.14	0.07	0.03
INTEL TECHNOLC	QD6616-7	0.5					6.80	2.96	7.62	3.68	0.33	0.14	0.07	0.03
ERICSSON	AIR 6419 B77G	0.5	28.0	15.8	6.7	66.2	2.32	0.94	2.80	1.31	0.11	0.05	0.02	0.01
ERICSSON	AIR 6419 B77G	0.5					2.32	0.94	2.80	1.31	0.11	0.05	0.02	0.01
ERICSSON	AIR 6449 B77D	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.09	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.09	0.04	0.02	0.01
CCI ANTENNAS	DMP65R-BU6D	0.5	71.2	20.7	7.7	89.3	5.97	2.24	6.73	2.89	0.29	0.11	0.06	0.02
CCI ANTENNAS	DMP65R-BU6D	0.5					5.97	2.24	6.73	2.89	0.29	0.11	0.06	0.02
INTEL TECHNOLC	QD6616-7	0.5	72.0	22.0	9.6	130.0	6.80	2.96	7.62	3.68	0.33	0.14	0.07	0.03
INTEL TECHNOLC	QD6616-7	0.5					6.80	2.96	7.62	3.68	0.33	0.14	0.07	0.03
ERICSSON	AIR 6419 B77G	0.5	28.0	15.8	6.7	66.2	2.32	0.94	2.80	1.31	0.11	0.05	0.02	0.01
ERICSSON	AIR 6419 B77G	0.5					2.32	0.94	2.80	1.31	0.11	0.05	0.02	0.01
ERICSSON	AIR 6449 B77D	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.09	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.09	0.04	0.02	0.01
CCI ANTENNAS	DMP65R-BU6D	0.5	71.2	20.7	7.7	89.3	5.97	2.24	6.73	2.89	0.29	0.11	0.06	0.02
CCI ANTENNAS	DMP65R-BU6D	0.5					5.97	2.24	6.73	2.89	0.29	0.11	0.06	0.02
INTEL TECHNOLC	QD6616-7	0.5	72.0	22.0	9.6	130.0	6.80	2.96	7.62	3.68	0.33	0.14	0.07	0.03
INTEL TECHNOLC	QD6616-7	0.5					6.80	2.96	7.62	3.68	0.33	0.14	0.07	0.03
ERICSSON	AIR 6419 B77G	0.5	28.0	15.8	6.7	66.2	2.32	0.94	2.80	1.31	0.11	0.05	0.02	0.01
ERICSSON	AIR 6419 B77G	0.5					2.32	0.94	2.80	1.31	0.11	0.05	0.02	0.01
ERICSSON	AIR 6449 B77D	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.09	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.19	1.17	0.09	0.04	0.02	0.01

PROJECT	**136918.010.01 - Middletown_1, CT**	**KSC**
SUBJECT	**Sector Mount Analysis**	
DATE	**05/24/22**	

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

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
CCI ANTENNAS	DMP65R-BU6D	0.5	71.2	20.7	7.7	89.3	5.97	2.24	6.73	2.89	0.29	0.11	0.06	0.02
CCI ANTENNAS	DMP65R-BU6D	0.5					5.97	2.24	6.73	2.89	0.29	0.11	0.06	0.02
ERICSSON	TME-RRUS 32 B66A	1	27.6	7.4	12.5	55.1	1.78	2.86	2.55	3.70	0.08	0.13	0.01	0.02
ERICSSON	ME-RRUS 4478 B14_CCIV	1	18.1	8.3	13.4	59.4	1.25	2.02	1.81	2.69	0.05	0.09	0.01	0.02
ERICSSON	ME- RRUS 4415 B25_CCIV	1	16.5	5.9	13.4	46.0	0.82	1.84	1.31	2.48	0.04	0.08	0.01	0.01
ERICSSON	TME-RRUS-32 B30	1	29.9	9.5	13.3	77.0	2.42	3.31	3.27	4.21	0.11	0.15	0.02	0.03
ERICSSON	TME-RRUS 4449 B5/B12	1	17.9	9.4	13.2	71.0	1.41	1.97	1.99	2.63	0.06	0.09	0.01	0.02
RAYCAP	TME-DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.14	1.14	0.04	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B66A	1	27.6	7.4	12.5	55.1	1.78	2.86	2.55	3.70	0.08	0.13	0.01	0.02
ERICSSON	ME-RRUS 4478 B14_CCIV	1	18.1	8.3	13.4	59.4	1.25	2.02	1.81	2.69	0.05	0.09	0.01	0.02
ERICSSON	ME- RRUS 4415 B25_CCIV	1	16.5	5.9	13.4	46.0	0.82	1.84	1.31	2.48	0.04	0.08	0.01	0.01
ERICSSON	TME-RRUS-32 B30	1	29.9	9.5	13.3	77.0	2.42	3.31	3.27	4.21	0.11	0.15	0.02	0.03
ERICSSON	TME-RRUS 4449 B5/B12	1	17.9	9.4	13.2	71.0	1.41	1.97	1.99	2.63	0.06	0.09	0.01	0.02
RAYCAP	TME-DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.14	1.14	0.04	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B66A	1	27.6	7.4	12.5	55.1	1.78	2.86	2.55	3.70	0.08	0.13	0.01	0.02
ERICSSON	ME-RRUS 4478 B14_CCIV	1	18.1	8.3	13.4	59.4	1.25	2.02	1.81	2.69	0.05	0.09	0.01	0.02
ERICSSON	ME- RRUS 4415 B25_CCIV	1		5.9	13.4	46.0	0.82	1.84	1.31	2.48	0.04	0.08	0.01	0.01
ERICSSON	TME-RRUS-32 B30	1	29.9	9.5	13.3	77.0	2.42	3.31	3.27	4.21	0.11	0.15	0.02	0.03
ERICSSON	TME-RRUS 4449 B5/B12	1	17.9	9.4	13.2	71.0	1.41	1.97	1.99	2.63	0.06	0.09	0.01	0.02
RAYCAP	TME-DC9-48-60-24-8C-EV	1	31.4	10.2	18.3	26.2	2.74	4.78	3.62	5.81	0.12	0.22	0.02	0.04

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	7.25	-0.739585	5.166666	
2	2	-7.25	-0.739585	5.166666	
3	3	7.25	-4.072918	5.166666	
4	4	-7.25	-4.072918	5.166666	
5	5	-2.458333	-0.739585	5.166666	
6	6	-2.458333	-4.072918	5.166666	
7	7	2.458333	-4.072918	5.166666	
8	8	2.458333	-0.739585	5.166666	
9	9	0	-0.885418	2.416666	
10	10	-2.458333	-0.885418	5.166666	
11	11	-2.458333	-4.218752	5.166666	
12	12	2.458333	-4.218752	5.166666	
13	13	2.458333	-0.885418	5.166666	
14	14	-2.458333	-0.885418	5.401041	
15	15	-2.458333	-4.218752	5.401041	
16	16	2.458333	-4.218752	5.401041	
17	17	2.458333	-0.885418	5.401041	
18	18	-2.458333	-0.885418	4.942708	
19	19	-2.458333	-4.218752	4.942708	
20	20	2.458333	-4.218752	4.942708	
21	21	2.458333	-0.885418	4.942708	
22	22	0	-4.218752	2.416666	
23	23	0	-0.885418	3.333333	
24	24	0	-4.218752	3.333333	
25	25	0	-0.885418	3.187499	
26	26	0	-4.218752	3.187499	
27	27	0.458333	-0.885418	3.187499	
28	28	0.458333	-4.218752	3.187499	
29	29	-0.458333	-0.885418	3.187499	
30	30	-0.458333	-4.218752	3.187499	
31	31	-0.518814	-0.885418	3.240578	
32	32	-2.397829	-0.885418	4.889609	
33	33	-0.518814	-4.218752	3.240578	
34	34	-2.397829	-4.218752	4.889609	
35	35	0.518814	-0.885418	3.240578	
36	36	2.397829	-0.885418	4.889609	
37	37	0.518814	-4.218752	3.240578	
38	38	2.397829	-4.218752	4.889609	
39	39	-2.272561	-0.885418	4.779673	
40	40	-2.272561	-4.218752	4.779673	
41	41	-0.644082	-0.885418	3.350513	
42	42	-0.644082	-4.218752	3.350513	
43	43	2.272561	-0.885418	4.779673	
44	44	2.272561	-4.218752	4.779673	
45	45	0.644082	-0.885418	3.350513	
46	46	0.644082	-4.218752	3.350513	
47	47	6.95833	-0.739585	5.166666	
48	48	6.95833	-4.072918	5.166666	
49	49	6.95833	-0.739585	5.416666	
50	50	6.95833	-4.072918	5.416666	
51	51	6.95833	-7.656252	5.416666	
52	52	6.95833	2.843748	5.416666	
53	53	3.375	-0.739585	5.166666	
54	54	0	-0.885418	1.354166	
55	55	0	-4.218752	1.354166	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.375	-0.739585	5.166666	
57	57	0	0.947917	1.354166	
58	58	0	-6.052087	1.354166	
59	59	0	-5.052085	1.354166	
60	60	0	-0.052085	1.354166	
61	61	0	-5.052085	1.166666	
62	62	0	-0.052085	1.166666	
63	63	0	-0.468418	1.354166	
64	64	0	-1.302418	1.354166	
65	65	2.23	-0.739585	5.166666	
66	66	2.23	-4.072918	5.166666	
67	67	2.3	-0.739585	5.416666	
68	68	2.3	-4.072918	5.416666	
69	69	2.3	-7.656252	5.416666	
70	70	2.3	2.843748	5.416666	
71	71	0	0	0	
72	72	-2.3	-0.739585	5.166666	
73	73	-2.3	-4.072918	5.166666	
74	74	-2.3	-0.739585	5.416666	
75	75	-2.3	-4.072918	5.416666	
76	76	-2.3	-7.656252	5.416666	
77	77	-2.3	2.843748	5.416666	
78	78	1.458322	-0.885418	4.065093	
79	79	1.585594	-0.885418	3.913416	
80	80	1.458322	-4.218752	4.065093	
81	81	1.585594	-4.218418	3.913416	
82	82	1.585594	0.448082	3.913416	
83	83	1.585594	-5.551918	3.913416	
84	84	-1.458322	-0.885418	4.065093	
85	85	-1.585594	-0.885418	3.913416	
86	86	-1.458322	-4.218752	4.065093	
87	87	-1.585594	-4.218418	3.913416	
88	88	-1.585594	0.448082	3.913416	
89	89	-1.585594	-5.551918	3.913416	
90	137	1.172742	-0.885418	-0.677083	
91	138	1.172742	-4.218752	-0.677083	
92	140	1.172742	0.947917	-0.677083	
93	141	1.172742	-6.052087	-0.677083	
94	142	1.172742	-5.052085	-0.677083	
95	143	1.172742	-0.052085	-0.677083	
96	146	1.172742	-0.468418	-0.677083	
97	147	1.172742	-1.302418	-0.677083	
98	205	-1.172742	-0.885418	-0.677083	
99	206	-1.172742	-4.218752	-0.677083	
100	208	-1.172742	0.947917	-0.677083	
101	209	-1.172742	-6.052087	-0.677083	
102	210	-1.172742	-5.052085	-0.677083	
103	211	-1.172742	-0.052085	-0.677083	
104	214	-1.172742	-0.468418	-0.677083	
105	215	-1.172742	-1.302418	-0.677083	
106	114	0.849464	-0.739585	-8.862017	
107	115	5.275599	-0.885418	-0.421741	
108	116	2.547015	-4.218752	-2.069595	
109	117	5.703631	-4.072918	-0.454354	
110	118	8.099464	-0.739585	3.695351	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	119	0.849464	-4.072918	-8.862017	
112	120	3.245297	-4.072918	-4.712312	
113	121	8.099464	-4.072918	3.695351	
114	122	2.989622	-4.218752	-1.196821	
115	123	2.886751	-4.218752	-1.666666	
116	124	5.703631	-0.885418	-0.454354	
117	125	3.245297	-0.739585	-4.712312	
118	126	5.703631	-0.739585	-0.454354	
119	127	3.06583	-0.885418	-1.170982	
120	128	2.092894	-0.885418	-1.208333	
121	129	5.703631	-4.218752	-0.454354	
122	130	1.010362	-5.052085	-0.583333	
123	131	5.509677	-4.218752	-0.342375	
124	132	3.245297	-0.885418	-4.712312	
125	133	3.245297	-4.218752	-4.712312	
126	134	5.906605	-0.885418	-0.571541	
127	135	5.906605	-4.218752	-0.571541	
128	136	3.448272	-4.218752	-4.8295	
129	139	2.579588	-4.218752	-2.233048	
130	144	3.448272	-0.885418	-4.8295	
131	145	1.211805	2.843748	-8.734424	
132	148	5.509677	-0.885418	-0.342375	
133	149	0.995299	-4.072918	-8.609424	
134	150	3.051344	-4.218752	-4.600333	
135	151	3.003038	-0.885418	-4.357933	
136	152	3.051344	-0.885418	-4.600333	
137	153	2.092894	-4.218752	-1.208333	
138	154	1.010362	-0.052085	-0.583333	
139	155	2.547015	-0.885418	-2.069595	
140	156	2.531289	-4.218752	-1.990678	
141	158	2.886751	-0.885418	-1.666666	
142	159	5.43344	-4.218752	-0.368224	
143	160	2.760455	-0.885418	-1.59375	
144	161	3.035611	-0.885418	-4.521385	
145	162	2.760455	-4.218752	-1.59375	
146	163	3.22367	-0.885418	-1.117465	
147	164	2.531289	-0.885418	-1.990678	
148	165	2.989622	-0.885418	-1.196821	
149	166	5.43344	-0.885418	-0.368224	
150	167	3.06583	-4.218752	-1.170982	
151	168	3.035611	-4.218752	-4.521385	
152	169	4.181915	-4.218418	-0.583544	
153	170	5.275599	-4.218752	-0.421741	
154	171	6.161964	-0.739585	0.339503	
155	172	3.22367	-4.218752	-1.117465	
156	173	3.003038	-4.218752	-4.357933	
157	174	2.579588	-0.885418	-2.233048	
158	175	0.995299	-0.739585	-8.609424	
159	176	1.211805	-0.739585	-8.734424	
160	177	1.211805	-4.072918	-8.734424	
161	178	1.211805	-7.656252	-8.734424	
162	179	2.791313	-0.885418	-3.29549	
163	180	2.786964	-0.739585	-5.506169	
164	181	3.54097	-0.739585	-4.700191	
165	182	3.54097	2.843748	-4.700191	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	183	5.624464	-4.072918	-0.591475	
167	185	5.84097	2.843748	-0.716475	
168	186	2.596321	-0.885418	-3.329873	
169	187	2.791313	-4.218752	-3.29549	
170	188	2.596321	-4.218418	-3.329873	
171	189	2.596321	0.448082	-3.329873	
172	190	2.596321	-5.551918	-3.329873	
173	191	4.249635	-0.885418	-0.769603	
174	192	4.181915	-0.885418	-0.583544	
175	193	4.249635	-4.218752	-0.769603	
176	194	4.181915	0.448082	-0.583544	
177	195	4.181915	-5.551918	-0.583544	
178	199	7.953629	-4.072918	3.442758	
179	200	7.953629	-0.739585	3.442758	
180	202	3.359464	-0.739585	-4.51457	
181	203	3.359464	-4.072918	-4.51457	
182	204	5.624464	-0.739585	-0.591475	
183	207	5.84097	-0.739585	-0.716475	
184	212	5.84097	-4.072918	-0.716475	
185	213	5.84097	-7.656252	-0.716475	
186	216	3.54097	-4.072918	-4.700191	
187	217	3.54097	-7.656252	-4.700191	
188	218	-8.099464	-0.739585	3.695351	
189	219	-3.003038	-0.885418	-4.357933	
190	220	-3.06583	-4.218752	-1.170982	
191	221	-3.245297	-4.072918	-4.712312	
192	222	-0.849464	-0.739585	-8.862017	
193	223	-8.099464	-4.072918	3.695351	
194	224	-5.703631	-4.072918	-0.454354	
195	225	-0.849464	-4.072918	-8.862017	
196	226	-2.531289	-4.218752	-1.990678	
197	227	-2.886751	-4.218752	-1.666666	
198	228	-3.245297	-0.885418	-4.712312	
199	229	-5.703631	-0.739585	-0.454354	
200	230	-3.245297	-0.739585	-4.712312	
201	231	-2.547015	-0.885418	-2.069595	
202	232	-2.092894	-0.885418	-1.208333	
203	233	-3.245297	-4.218752	-4.712312	
204	234	-1.010362	-5.052085	-0.583333	
205	235	-3.051344	-4.218752	-4.600333	
206	236	-5.703631	-0.885418	-0.454354	
207	237	-5.703631	-4.218752	-0.454354	
208	238	-3.448272	-0.885418	-4.8295	
209	239	-3.448272	-4.218752	-4.8295	
210	240	-5.906605	-4.218752	-0.571541	
211	241	-3.22367	-4.218752	-1.117465	
212	242	-5.906605	-0.885418	-0.571541	
213	243	-8.170135	2.843748	3.317758	
214	244	-3.051344	-0.885418	-4.600333	
215	245	-7.953629	-4.072918	3.442758	
216	246	-5.509677	-4.218752	-0.342375	
217	247	-5.275599	-0.885418	-0.421741	
218	248	-5.509677	-0.885418	-0.342375	
219	249	-2.092894	-4.218752	-1.208333	
220	250	-1.010362	-0.052085	-0.583333	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
221	251	-3.06583	-0.885418	-1.170982	
222	252	-2.989622	-4.218752	-1.196821	
223	254	-2.886751	-0.885418	-1.666666	
224	255	-3.035611	-4.218752	-4.521385	
225	256	-2.760455	-0.885418	-1.59375	
226	257	-5.43344	-0.885418	-0.368224	
227	258	-2.760455	-4.218752	-1.59375	
228	259	-2.579588	-0.885418	-2.233048	
229	260	-2.989622	-0.885418	-1.196821	
230	261	-2.531289	-0.885418	-1.990678	
231	262	-3.035611	-0.885418	-4.521385	
232	263	-2.547015	-4.218752	-2.069595	
233	264	-5.43344	-4.218752	-0.368224	
234	265	-2.596321	-4.218418	-3.329873	
235	266	-3.003038	-4.218752	-4.357933	
236	267	-2.786964	-0.739585	-5.506169	
237	268	-2.579588	-4.218752	-2.233048	
238	269	-5.275599	-4.218752	-0.421741	
239	272	-3.22367	-0.885418	-1.117465	
240	273	-7.953629	-0.739585	3.442758	
241	274	-8.170135	-0.739585	3.317758	
242	275	-8.170135	-4.072918	3.317758	
243	282	-8.170135	-7.656252	3.317758	
244	283	-4.249635	-0.885418	-0.769603	
245	284	-6.161964	-0.739585	0.339503	
246	285	-5.84097	-0.739585	-0.716475	
247	286	-5.84097	2.843748	-0.716475	
248	287	-3.324464	-4.072918	-4.575191	
249	289	-3.54097	2.843748	-4.700191	
250	290	-4.181915	-0.885418	-0.583544	
251	291	-4.249635	-4.218752	-0.769603	
252	292	-4.181915	-4.218418	-0.583544	
253	293	-4.181915	0.448082	-0.583544	
254	294	-4.181915	-5.551918	-0.583544	
255	295	-2.791313	-0.885418	-3.29549	
256	296	-2.596321	-0.885418	-3.329873	
257	297	-2.791313	-4.218752	-3.29549	
258	298	-2.596321	0.448082	-3.329873	
259	299	-2.596321	-5.551918	-3.329873	
260	303	-0.995299	-4.072918	-8.609424	
261	306	-5.589464	-0.739585	-0.652096	
262	307	-5.589464	-4.072918	-0.652096	
263	308	-3.324464	-0.739585	-4.575191	
264	309	-3.54097	-0.739585	-4.700191	
265	310	-3.54097	-4.072918	-4.700191	
266	311	-3.54097	-7.656252	-4.700191	
267	312	-5.84097	-4.072918	-0.716475	
268	313	-5.84097	-7.656252	-0.716475	

Node Boundary Conditions

	Node 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	22						
2	9						
3	54						
4	55						

Node Boundary Conditions (Continued)

	Node 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]
5	57						
6	58						
7	59						
8	60						
9	61	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	62	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	63						
12	64						
13	71						
14	137						
15	138						
16	140						
17	141						
18	142						
19	143						
20	146						
21	147						
22	205						
23	206						
24	208						
25	209						
26	210						
27	211						
28	214						
29	215						
30	128						
31	130	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
32	153						
33	154	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
34	232						
35	234	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
36	249						
37	250	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A53 Gr.B 50	29000	11154	0.3	0.65	0.49	50	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE_2.875X0.276"	Beam	Pipe	A500 Gr.B RND	Typical	2.254	1.924	1.924	3.848
2	SF-H1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	MF-CP1	PL5/8X3.5	Beam	RECT	A36 Gr.36	Typical	2.188	0.071	2.233	0.253
4	MF-CP2	PL1.25"X3.5"	Beam	RECT	A36 Gr.36	Typical	4.375	0.57	4.466	1.767
5	SF-V1	5/8"SR	Column	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015
6	SF-D1	SR_3/4"	VBrace	BAR	A36 Gr.36	Typical	0.442	0.016	0.016	0.031

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
7	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	Tieback	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
9	C-P1	HSS4.500X0.237	Column	Pipe	A53 Gr.B 50	Typical	2.96	6.79	6.79	13.6

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
2	2	3	4		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
3	3	14	18	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
4	4	15	19	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	16	20	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	17	21	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
7	7	11	6		RIGID	None	None	RIGID	Typical
8	8	10	5		RIGID	None	None	RIGID	Typical
9	9	18	32	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
10	10	31	29	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
11	11	32	31		SF-H1	Beam	Pipe	A53 Gr.B	Typical
12	12	29	25	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
13	13	25	27	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
14	14	30	26	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
15	15	26	28	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
16	16	19	34	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
17	17	33	30	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
18	18	34	33		SF-H1	Beam	Pipe	A53 Gr.B	Typical
19	19	21	36	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
20	20	35	27	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
21	21	36	35		SF-H1	Beam	Pipe	A53 Gr.B	Typical
22	22	20	38	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
23	23	37	28	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
24	24	38	37		SF-H1	Beam	Pipe	A53 Gr.B	Typical
25	25	12	7		RIGID	None	None	RIGID	Typical
26	26	13	8		RIGID	None	None	RIGID	Typical
27	27	23	9		RIGID	None	None	RIGID	Typical
28	28	24	22		RIGID	None	None	RIGID	Typical
29	29	40	39		SF-V1	Column	BAR	A36 Gr.36	Typical
30	30	42	41		SF-V1	Column	BAR	A36 Gr.36	Typical
31	31	44	43		SF-V1	Column	BAR	A36 Gr.36	Typical
32	32	46	45		SF-V1	Column	BAR	A36 Gr.36	Typical
33	33	40	41		SF-D1	VBrace	BAR	A36 Gr.36	Typical
34	34	39	42		SF-D1	VBrace	BAR	A36 Gr.36	Typical
35	35	45	44		SF-D1	VBrace	BAR	A36 Gr.36	Typical
36	36	46	43		SF-D1	VBrace	BAR	A36 Gr.36	Typical
37	37	50	48		RIGID	None	None	RIGID	Typical
38	38	49	47		RIGID	None	None	RIGID	Typical
39	39	52	51		MF-P1	Column	Pipe	A53 Gr.B	Typical
40	40	53	146		Tieback	Beam	Pipe	A53 Gr.B	Typical
41	41	9	54		RIGID	None	None	RIGID	Typical
42	42	22	55		RIGID	None	None	RIGID	Typical
43	43	56	215		Tieback	Beam	Pipe	A53 Gr.B	Typical
44	44	57	58		C-P1	Column	Pipe	A53 Gr.B 50	Typical
45	45	60	62		RIGID	None	None	RIGID	Typical
46	46	59	61		RIGID	None	None	RIGID	Typical
47	47	68	66		RIGID	None	None	RIGID	Typical
48	48	67	65		RIGID	None	None	RIGID	Typical
49	49	70	69		MF-P1	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
50	50	75	73		RIGID	None	None	RIGID	Typical
51	51	74	72		RIGID	None	None	RIGID	Typical
52	52	77	76		MF-P1	Column	Pipe	A53 Gr.B	Typical
53	53	78	79		RIGID	None	None	RIGID	Typical
54	54	80	81		RIGID	None	None	RIGID	Typical
55	55	82	83		MF-P1	Column	Pipe	A53 Gr.B	Typical
56	56	84	85		RIGID	None	None	RIGID	Typical
57	57	86	87		RIGID	None	None	RIGID	Typical
58	58	88	89		MF-P1	Column	Pipe	A53 Gr.B	Typical
59	99	140	141		C-P1	Column	Pipe	A53 Gr.B 50	Typical
60	146	208	209		C-P1	Column	Pipe	A53 Gr.B 50	Typical
61	64	131	159	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
62	65	148	166	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
63	66	119	121		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
64	67	161	155		SF-H1	Beam	Pipe	A53 Gr.B	Typical
65	68	129	117		RIGID	None	None	RIGID	Typical
66	70	136	150	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
67	71	124	126		RIGID	None	None	RIGID	Typical
68	72	166	127		SF-H1	Beam	Pipe	A53 Gr.B	Typical
69	73	193	169		RIGID	None	None	RIGID	Typical
70	74	165	160	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
71	75	142	130		RIGID	None	None	RIGID	Typical
72	76	160	164	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
73	77	162	156	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
74	78	133	120		RIGID	None	None	RIGID	Typical
75	79	132	125		RIGID	None	None	RIGID	Typical
76	80	158	128		RIGID	None	None	RIGID	Typical
77	81	123	153		RIGID	None	None	RIGID	Typical
78	82	173	151		SF-V1	Column	BAR	A36 Gr.36	Typical
79	83	174	173		SF-D1	VBrace	BAR	A36 Gr.36	Typical
80	84	177	149		RIGID	None	None	RIGID	Typical
81	85	176	175		RIGID	None	None	RIGID	Typical
82	86	143	154		RIGID	None	None	RIGID	Typical
83	87	128	137		RIGID	None	None	RIGID	Typical
84	88	153	138		RIGID	None	None	RIGID	Typical
85	89	187	188		RIGID	None	None	RIGID	Typical
86	90	181	202		RIGID	None	None	RIGID	Typical
87	91	179	186		RIGID	None	None	RIGID	Typical
88	92	191	192		RIGID	None	None	RIGID	Typical
89	93	114	118		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
90	94	134	148	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
91	95	135	131	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
92	96	144	152	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
93	97	127	165	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
94	98	122	162	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
95	100	167	122	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
96	101	159	167		SF-H1	Beam	Pipe	A53 Gr.B	Typical
97	102	152	161	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
98	103	155	164	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
99	104	150	168	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
100	105	116	156	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
101	106	168	116		SF-H1	Beam	Pipe	A53 Gr.B	Typical
102	107	170	115		SF-V1	Column	BAR	A36 Gr.36	Typical
103	108	172	163		SF-V1	Column	BAR	A36 Gr.36	Typical
104	109	139	174		SF-V1	Column	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
105	110	170	163		SF-D1	VBrace	BAR	A36 Gr.36	Typical
106	111	115	172		SF-D1	VBrace	BAR	A36 Gr.36	Typical
107	112	139	151		SF-D1	VBrace	BAR	A36 Gr.36	Typical
108	113	145	178		MF-P1	Column	Pipe	A53 Gr.B	Typical
109	114	180	214		Tieback	Beam	Pipe	A53 Gr.B	Typical
110	115	171	64		Tieback	Beam	Pipe	A53 Gr.B	Typical
111	117	189	190		MF-P1	Column	Pipe	A53 Gr.B	Typical
112	118	194	195		MF-P1	Column	Pipe	A53 Gr.B	Typical
113	123	207	204		RIGID	None	None	RIGID	Typical
114	124	212	183		RIGID	None	None	RIGID	Typical
115	125	185	213		MF-P1	Column	Pipe	A53 Gr.B	Typical
116	126	216	203		RIGID	None	None	RIGID	Typical
117	127	182	217		MF-P1	Column	Pipe	A53 Gr.B	Typical
118	128	235	255	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
119	129	244	262	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
120	130	223	225		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
121	131	257	251		SF-H1	Beam	Pipe	A53 Gr.B	Typical
122	132	233	221		RIGID	None	None	RIGID	Typical
123	134	240	246	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
124	135	228	230		RIGID	None	None	RIGID	Typical
125	136	262	231		SF-H1	Beam	Pipe	A53 Gr.B	Typical
126	137	297	265		RIGID	None	None	RIGID	Typical
127	138	261	256	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
128	139	210	234		RIGID	None	None	RIGID	Typical
129	140	256	260	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
130	141	258	252	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
131	142	237	224		RIGID	None	None	RIGID	Typical
132	143	236	229		RIGID	None	None	RIGID	Typical
133	144	254	232		RIGID	None	None	RIGID	Typical
134	145	227	249		RIGID	None	None	RIGID	Typical
135	147	269	247		SF-V1	Column	BAR	A36 Gr.36	Typical
136	148	272	269		SF-D1	VBrace	BAR	A36 Gr.36	Typical
137	149	275	245		RIGID	None	None	RIGID	Typical
138	150	274	273		RIGID	None	None	RIGID	Typical
139	151	211	250		RIGID	None	None	RIGID	Typical
140	152	232	205		RIGID	None	None	RIGID	Typical
141	153	249	206		RIGID	None	None	RIGID	Typical
142	154	291	292		RIGID	None	None	RIGID	Typical
143	155	285	306		RIGID	None	None	RIGID	Typical
144	156	283	290		RIGID	None	None	RIGID	Typical
145	157	295	296		RIGID	None	None	RIGID	Typical
146	158	218	222		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
147	159	238	244	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
148	160	239	235	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
149	161	242	248	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
150	162	231	261	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
151	163	226	258	90	MF-CP2	Beam	RECT	A36 Gr.36	Typical
152	164	263	226	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
153	165	255	263		SF-H1	Beam	Pipe	A53 Gr.B	Typical
154	166	248	257	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
155	167	251	260	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
156	168	246	264	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
157	169	220	252	90	MF-CP1	Beam	RECT	A36 Gr.36	Typical
158	170	264	220		SF-H1	Beam	Pipe	A53 Gr.B	Typical
159	171	266	219		SF-V1	Column	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
160	172	268	259		SF-V1	Column	BAR	A36 Gr.36	Typical
161	176	241	272		SF-V1	Column	BAR	A36 Gr.36	Typical
162	177	266	259		SF-D1	VBrace	BAR	A36 Gr.36	Typical
163	178	219	268		SF-D1	VBrace	BAR	A36 Gr.36	Typical
164	179	241	247		SF-D1	VBrace	BAR	A36 Gr.36	Typical
165	180	243	282		MF-P1	Column	Pipe	A53 Gr.B	Typical
166	181	284	63		Tieback	Beam	Pipe	A53 Gr.B	Typical
167	182	267	147		Tieback	Beam	Pipe	A53 Gr.B	Typical
168	184	293	294		MF-P1	Column	Pipe	A53 Gr.B	Typical
169	185	298	299		MF-P1	Column	Pipe	A53 Gr.B	Typical
170	190	309	308		RIGID	None	None	RIGID	Typical
171	191	310	287		RIGID	None	None	RIGID	Typical
172	192	289	311		MF-P1	Column	Pipe	A53 Gr.B	Typical
173	193	312	307		RIGID	None	None	RIGID	Typical
174	194	286	313		MF-P1	Column	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2				Yes	N/A	None
3	3				Yes	N/A	None
4	4				Yes	N/A	None
5	5				Yes	N/A	None
6	6				Yes	N/A	None
7	7		OOOOXO		Yes	** NA **	None
8	8		OOOOXO		Yes	** NA **	None
9	9				Yes	N/A	None
10	10				Yes	N/A	None
11	11				Yes	N/A	None
12	12				Yes	N/A	None
13	13				Yes	N/A	None
14	14				Yes	N/A	None
15	15				Yes	N/A	None
16	16				Yes	N/A	None
17	17				Yes	N/A	None
18	18				Yes	Default	None
19	19				Yes	N/A	None
20	20				Yes	N/A	None
21	21				Yes	N/A	None
22	22				Yes	N/A	None
23	23				Yes	N/A	None
24	24				Yes	N/A	None
25	25		OOOOXO		Yes	** NA **	None
26	26		OOOOXO		Yes	** NA **	None
27	27				Yes	** NA **	None
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes	** NA **	None
31	31				Yes	** NA **	None
32	32				Yes	** NA **	None
33	33				Yes	** NA **	None
34	34			Euler Buckling	Yes	** NA **	None
35	35				Yes	** NA **	None
36	36			Euler Buckling	Yes	** NA **	None
37	37				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
38	38				Yes	** NA **	None
39	39				Yes	** NA **	None
40	40	BenPIN	BenPIN		Yes	Default	None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43	BenPIN	BenPIN		Yes	Default	None
44	44				Yes	** NA **	None
45	45				Yes	** NA **	None
46	46				Yes	** NA **	None
47	47				Yes	** NA **	None
48	48				Yes	** NA **	None
49	49				Yes	** NA **	None
50	50				Yes	** NA **	None
51	51				Yes	** NA **	None
52	52				Yes	** NA **	None
53	53				Yes	** NA **	None
54	54				Yes	** NA **	None
55	55				Yes	** NA **	None
56	56				Yes	** NA **	None
57	57				Yes	** NA **	None
58	58				Yes	** NA **	None
59	99				Yes	** NA **	None
60	146				Yes	** NA **	None
61	64				Yes	N/A	None
62	65				Yes	N/A	None
63	66				Yes	N/A	None
64	67				Yes	N/A	None
65	68		OOOOXO		Yes	** NA **	None
66	70				Yes	N/A	None
67	71		OOOOXO		Yes	** NA **	None
68	72				Yes	N/A	None
69	73				Yes	** NA **	None
70	74				Yes	N/A	None
71	75				Yes	** NA **	None
72	76				Yes	N/A	None
73	77				Yes	N/A	None
74	78		OOOOXO		Yes	** NA **	None
75	79		OOOOXO		Yes	** NA **	None
76	80				Yes	** NA **	None
77	81				Yes	** NA **	None
78	82				Yes	** NA **	None
79	83				Yes	** NA **	None
80	84				Yes	** NA **	None
81	85				Yes	** NA **	None
82	86				Yes	** NA **	None
83	87				Yes	** NA **	None
84	88				Yes	** NA **	None
85	89				Yes	** NA **	None
86	90				Yes	** NA **	None
87	91				Yes	** NA **	None
88	92				Yes	** NA **	None
89	93				Yes	N/A	None
90	94				Yes	N/A	None
91	95				Yes	N/A	None
92	96				Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
93	97				Yes	N/A	None
94	98				Yes	N/A	None
95	100				Yes	N/A	None
96	101				Yes	Default	None
97	102				Yes	N/A	None
98	103				Yes	N/A	None
99	104				Yes	N/A	None
100	105				Yes	N/A	None
101	106				Yes	N/A	None
102	107				Yes	** NA **	None
103	108				Yes	** NA **	None
104	109				Yes	** NA **	None
105	110				Yes	** NA **	None
106	111			Euler Buckling	Yes	** NA **	None
107	112			Euler Buckling	Yes	** NA **	None
108	113				Yes	** NA **	None
109	114	BenPIN	BenPIN		Yes	Default	None
110	115	BenPIN	BenPIN		Yes	Default	None
111	117				Yes	** NA **	None
112	118				Yes	** NA **	None
113	123				Yes	** NA **	None
114	124				Yes	** NA **	None
115	125				Yes	** NA **	None
116	126				Yes	** NA **	None
117	127				Yes	** NA **	None
118	128				Yes	N/A	None
119	129				Yes	N/A	None
120	130				Yes	N/A	None
121	131				Yes	N/A	None
122	132		OOOOXO		Yes	** NA **	None
123	134				Yes	N/A	None
124	135		OOOOXO		Yes	** NA **	None
125	136				Yes	N/A	None
126	137				Yes	** NA **	None
127	138				Yes	N/A	None
128	139				Yes	** NA **	None
129	140				Yes	N/A	None
130	141				Yes	N/A	None
131	142		OOOOXO		Yes	** NA **	None
132	143		OOOOXO		Yes	** NA **	None
133	144				Yes	** NA **	None
134	145				Yes	** NA **	None
135	147				Yes	** NA **	None
136	148				Yes	** NA **	None
137	149				Yes	** NA **	None
138	150				Yes	** NA **	None
139	151				Yes	** NA **	None
140	152				Yes	** NA **	None
141	153				Yes	** NA **	None
142	154				Yes	** NA **	None
143	155				Yes	** NA **	None
144	156				Yes	** NA **	None
145	157				Yes	** NA **	None
146	158				Yes	N/A	None
147	159				Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
148	160				Yes	N/A	None
149	161				Yes	N/A	None
150	162				Yes	N/A	None
151	163				Yes	N/A	None
152	164				Yes	N/A	None
153	165				Yes	Default	None
154	166				Yes	N/A	None
155	167				Yes	N/A	None
156	168				Yes	N/A	None
157	169				Yes	N/A	None
158	170				Yes	N/A	None
159	171				Yes	** NA **	None
160	172				Yes	** NA **	None
161	176				Yes	** NA **	None
162	177				Yes	** NA **	None
163	178			Euler Buckling	Yes	** NA **	None
164	179			Euler Buckling	Yes	** NA **	None
165	180				Yes	** NA **	None
166	181	BenPIN	BenPIN		Yes	Default	None
167	182	BenPIN	BenPIN		Yes	Default	None
168	184				Yes	** NA **	None
169	185				Yes	** NA **	None
170	190				Yes	** NA **	None
171	191				Yes	** NA **	None
172	192				Yes	** NA **	None
173	193				Yes	** NA **	None
174	194				Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
2	2	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
3	3	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
4	4	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
5	5	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
6	6	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
7	9	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
8	10	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
9	11	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
10	12	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
11	13	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
12	14	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
13	15	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
14	16	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
15	17	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
16	18	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
17	19	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
18	20	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
19	21	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
20	22	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
21	23	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
22	24	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
23	29	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
24	30	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
25	31	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
26	32	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
27	33	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
28	34	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
29	35	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
30	36	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
31	39	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
32	40	Tieback	6.251			Lbyy	N/A	N/A	Lateral
33	43	Tieback	6.27			Lbyy	N/A	N/A	Lateral
34	44	C-P1	7			Lbyy	N/A	N/A	Lateral
35	49	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
36	52	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
37	55	MF-P1	6			Lbyy	N/A	N/A	Lateral
38	58	MF-P1	6			Lbyy	N/A	N/A	Lateral
39	99	C-P1	7			Lbyy	N/A	N/A	Lateral
40	146	C-P1	7			Lbyy	N/A	N/A	Lateral
41	64	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
42	65	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
43	66	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
44	67	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
45	70	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
46	72	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
47	74	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
48	76	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
49	77	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
50	82	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
51	83	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
52	93	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
53	94	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
54	95	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
55	96	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
56	97	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
57	98	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
58	100	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
59	101	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
60	102	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
61	103	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
62	104	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
63	105	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
64	106	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
65	107	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
66	108	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
67	109	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
68	110	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
69	111	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
70	112	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
71	113	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
72	114	Tieback	6.251			Lbyy	N/A	N/A	Lateral
73	115	Tieback	6.27			Lbyy	N/A	N/A	Lateral
74	117	MF-P1	6			Lbyy	N/A	N/A	Lateral
75	118	MF-P1	6			Lbyy	N/A	N/A	Lateral
76	125	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
77	127	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
78	128	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
79	129	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
80	130	MF-H1	14.5			Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
81	131	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
82	134	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
83	136	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
84	138	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
85	140	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
86	141	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
87	147	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
88	148	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
89	158	MF-H1	14.5			Lbyy	N/A	N/A	Lateral
90	159	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
91	160	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
92	161	MF-CP1	0.458			Lbyy	N/A	N/A	Lateral
93	162	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
94	163	MF-CP2	0.458			Lbyy	N/A	N/A	Lateral
95	164	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
96	165	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
97	166	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
98	167	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
99	168	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
100	169	MF-CP1	0.08			Lbyy	N/A	N/A	Lateral
101	170	SF-H1	2.5			Lbyy	N/A	N/A	Lateral
102	171	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
103	172	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
104	176	SF-V1	3.333	2.5	2.5	Lbyy	N/A	N/A	Lateral
105	177	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
106	178	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
107	179	SF-D1	3.976			Lbyy	N/A	N/A	Lateral
108	180	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
109	181	Tieback	6.251			Lbyy	N/A	N/A	Lateral
110	182	Tieback	6.27			Lbyy	N/A	N/A	Lateral
111	184	MF-P1	6			Lbyy	N/A	N/A	Lateral
112	185	MF-P1	6			Lbyy	N/A	N/A	Lateral
113	192	MF-P1	10.5			Lbyy	N/A	N/A	Lateral
114	194	MF-P1	10.5			Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Y	-0.065	%5
2	39	Y	-0.065	%65
3	39	Y	0	0
4	39	Y	0	0
5	39	Y	0	0
6	49	Y	-0.033	%5
7	49	Y	-0.033	%25
8	49	Y	-0.041	%75
9	49	Y	-0.041	%95
10	49	Y	0	0
11	52	Y	-0.045	%5
12	52	Y	-0.045	%65
13	52	Y	0	0
14	52	Y	0	0
15	52	Y	0	0
16	180	Y	-0.065	%5
17	180	Y	-0.065	%65
18	180	Y	0	0

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
19	180	Y	0	0
20	180	Y	0	0
21	194	Y	-0.033	%5
22	194	Y	-0.033	%25
23	194	Y	-0.041	%75
24	194	Y	-0.041	%95
25	194	Y	0	0
26	192	Y	-0.045	%5
27	192	Y	-0.045	%65
28	192	Y	0	0
29	192	Y	0	0
30	192	Y	0	0
31	113	Y	-0.065	%5
32	113	Y	-0.065	%65
33	113	Y	0	0
34	113	Y	0	0
35	113	Y	0	0
36	127	Y	-0.033	%5
37	127	Y	-0.033	%25
38	127	Y	-0.041	%75
39	127	Y	-0.041	%95
40	127	Y	0	0
41	125	Y	-0.045	%5
42	125	Y	-0.045	%65
43	125	Y	0	0
44	125	Y	0	0
45	125	Y	0	0
46	55	Y	-0.055	%10
47	55	Y	-0.059	%10
48	55	Y	-0.046	%75
49	55	Y	0	0
50	55	Y	0	0
51	58	Y	-0.077	%55
52	58	Y	-0.071	%55
53	58	Y	-0.019	%10
54	58	Y	0	0
55	58	Y	0	0
56	184	Y	-0.055	%10
57	184	Y	-0.059	%10
58	184	Y	-0.046	%75
59	184	Y	0	0
60	184	Y	0	0
61	185	Y	-0.077	%55
62	185	Y	-0.071	%55
63	185	Y	-0.019	%10
64	185	Y	0	0
65	185	Y	0	0
66	117	Y	-0.055	%10
67	117	Y	-0.059	%10
68	117	Y	-0.046	%75
69	117	Y	0	0
70	117	Y	0	0
71	118	Y	-0.077	%55
72	118	Y	-0.071	%55
73	118	Y	-0.026	%10

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
74	118	Y	0	0
75	118	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Z	-0.333	%5
2	39	Z	-0.333	%65
3	39	Z	0	0
4	39	Z	0	0
5	39	Z	0	0
6	49	Z	-0.114	%5
7	49	Z	-0.114	%25
8	49	Z	-0.089	%75
9	49	Z	-0.089	%95
10	49	Z	0	0
11	52	Z	-0.292	%5
12	52	Z	-0.292	%65
13	52	Z	0	0
14	52	Z	0	0
15	52	Z	0	0
16	180	Z	-0.333	%5
17	180	Z	-0.333	%65
18	180	Z	0	0
19	180	Z	0	0
20	180	Z	0	0
21	194	Z	-0.114	%5
22	194	Z	-0.114	%25
23	194	Z	-0.089	%75
24	194	Z	-0.089	%95
25	194	Z	0	0
26	192	Z	-0.292	%5
27	192	Z	-0.292	%65
28	192	Z	0	0
29	192	Z	0	0
30	192	Z	0	0
31	113	Z	-0.333	%5
32	113	Z	-0.333	%65
33	113	Z	0	0
34	113	Z	0	0
35	113	Z	0	0
36	127	Z	-0.114	%5
37	127	Z	-0.114	%25
38	127	Z	-0.089	%75
39	127	Z	-0.089	%95
40	127	Z	0	0
41	125	Z	-0.292	%5
42	125	Z	-0.292	%65
43	125	Z	0	0
44	125	Z	0	0
45	125	Z	0	0
46	55	Z	-0.079	%10
47	55	Z	-0.055	%10
48	55	Z	-0.036	%75
49	55	Z	0	0
50	55	Z	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
51	58	Z	-0.107	%55
52	58	Z	-0.062	%55
53	58	Z	-0.037	%10
54	58	Z	0	0
55	58	Z	0	0
56	184	Z	-0.079	%10
57	184	Z	-0.055	%10
58	184	Z	-0.036	%75
59	184	Z	0	0
60	184	Z	0	0
61	185	Z	-0.107	%55
62	185	Z	-0.062	%55
63	185	Z	-0.037	%10
64	185	Z	0	0
65	185	Z	0	0
66	117	Z	-0.079	%10
67	117	Z	-0.055	%10
68	117	Z	-0.036	%75
69	117	Z	0	0
70	117	Z	0	0
71	118	Z	-0.107	%55
72	118	Z	-0.062	%55
73	118	Z	-0.121	%10
74	118	Z	0	0
75	118	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	X	-0.145	%5
2	39	X	-0.145	%65
3	39	X	0	0
4	39	X	0	0
5	39	X	0	0
6	49	X	-0.046	%5
7	49	X	-0.046	%25
8	49	X	-0.042	%75
9	49	X	-0.042	%95
10	49	X	0	0
11	52	X	-0.11	%5
12	52	X	-0.11	%65
13	52	X	0	0
14	52	X	0	0
15	52	X	0	0
16	180	X	-0.145	%5
17	180	X	-0.145	%65
18	180	X	0	0
19	180	X	0	0
20	180	X	0	0
21	194	X	-0.046	%5
22	194	X	-0.046	%25
23	194	X	-0.042	%75
24	194	X	-0.042	%95
25	194	X	0	0
26	192	X	-0.11	%5
27	192	X	-0.11	%65

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
28	192	X	0	0
29	192	X	0	0
30	192	X	0	0
31	113	X	-0.145	%5
32	113	X	-0.145	%65
33	113	X	0	0
34	113	X	0	0
35	113	X	0	0
36	127	X	-0.046	%5
37	127	X	-0.046	%25
38	127	X	-0.042	%75
39	127	X	-0.042	%95
40	127	X	0	0
41	125	X	-0.11	%5
42	125	X	-0.11	%65
43	125	X	0	0
44	125	X	0	0
45	125	X	0	0
46	55	X	-0.132	%10
47	55	X	-0.089	%10
48	55	X	-0.082	%75
49	55	X	0	0
50	55	X	0	0
51	58	X	-0.15	%55
52	58	X	-0.087	%55
53	58	X	-0.037	%10
54	58	X	0	0
55	58	X	0	0
56	184	X	-0.132	%10
57	184	X	-0.089	%10
58	184	X	-0.082	%75
59	184	X	0	0
60	184	X	0	0
61	185	X	-0.15	%55
62	185	X	-0.087	%55
63	185	X	-0.037	%10
64	185	X	0	0
65	185	X	0	0
66	117	X	-0.132	%10
67	117	X	-0.089	%10
68	117	X	-0.082	%75
69	117	X	0	0
70	117	X	0	0
71	118	X	-0.15	%55
72	118	X	-0.087	%55
73	118	X	-0.215	%10
74	118	X	0	0
75	118	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Z	-0.066	%5
2	39	Z	-0.066	%65
3	39	Z	0	0
4	39	Z	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
5	39	Z	0	0
6	49	Z	-0.024	%5
7	49	Z	-0.024	%25
8	49	Z	-0.019	%75
9	49	Z	-0.019	%95
10	49	Z	0	0
11	52	Z	-0.058	%5
12	52	Z	-0.058	%65
13	52	Z	0	0
14	52	Z	0	0
15	52	Z	0	0
16	180	Z	-0.066	%5
17	180	Z	-0.066	%65
18	180	Z	0	0
19	180	Z	0	0
20	180	Z	0	0
21	194	Z	-0.024	%5
22	194	Z	-0.024	%25
23	194	Z	-0.019	%75
24	194	Z	-0.019	%95
25	194	Z	0	0
26	192	Z	-0.058	%5
27	192	Z	-0.058	%65
28	192	Z	0	0
29	192	Z	0	0
30	192	Z	0	0
31	113	Z	-0.066	%5
32	113	Z	-0.066	%65
33	113	Z	0	0
34	113	Z	0	0
35	113	Z	0	0
36	127	Z	-0.024	%5
37	127	Z	-0.024	%25
38	127	Z	-0.019	%75
39	127	Z	-0.019	%95
40	127	Z	0	0
41	125	Z	-0.058	%5
42	125	Z	-0.058	%65
43	125	Z	0	0
44	125	Z	0	0
45	125	Z	0	0
46	55	Z	-0.014	%10
47	55	Z	-0.01	%10
48	55	Z	-0.006	%75
49	55	Z	0	0
50	55	Z	0	0
51	58	Z	-0.019	%55
52	58	Z	-0.011	%55
53	58	Z	-0.007	%10
54	58	Z	0	0
55	58	Z	0	0
56	184	Z	-0.014	%10
57	184	Z	-0.01	%10
58	184	Z	-0.006	%75
59	184	Z	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
60	184	Z	0	0
61	185	Z	-0.019	%55
62	185	Z	-0.011	%55
63	185	Z	-0.007	%10
64	185	Z	0	0
65	185	Z	0	0
66	117	Z	-0.014	%10
67	117	Z	-0.01	%10
68	117	Z	-0.006	%75
69	117	Z	0	0
70	117	Z	0	0
71	118	Z	-0.019	%55
72	118	Z	-0.011	%55
73	118	Z	-0.021	%10
74	118	Z	0	0
75	118	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	X	-0.032	%5
2	39	X	-0.032	%65
3	39	X	0	0
4	39	X	0	0
5	39	X	0	0
6	49	X	-0.011	%5
7	49	X	-0.011	%25
8	49	X	-0.01	%75
9	49	X	-0.01	%95
10	49	X	0	0
11	52	X	-0.025	%5
12	52	X	-0.025	%65
13	52	X	0	0
14	52	X	0	0
15	52	X	0	0
16	180	X	-0.032	%5
17	180	X	-0.032	%65
18	180	X	0	0
19	180	X	0	0
20	180	X	0	0
21	194	X	-0.011	%5
22	194	X	-0.011	%25
23	194	X	-0.01	%75
24	194	X	-0.01	%95
25	194	X	0	0
26	192	X	-0.025	%5
27	192	X	-0.025	%65
28	192	X	0	0
29	192	X	0	0
30	192	X	0	0
31	113	X	-0.032	%5
32	113	X	-0.032	%65
33	113	X	0	0
34	113	X	0	0
35	113	X	0	0
36	127	X	-0.011	%5

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
37	127	X	-0.011	%25
38	127	X	-0.01	%75
39	127	X	-0.01	%95
40	127	X	0	0
41	125	X	-0.025	%5
42	125	X	-0.025	%65
43	125	X	0	0
44	125	X	0	0
45	125	X	0	0
46	55	X	-0.023	%10
47	55	X	-0.016	%10
48	55	X	-0.015	%75
49	55	X	0	0
50	55	X	0	0
51	58	X	-0.026	%55
52	58	X	-0.015	%55
53	58	X	-0.007	%10
54	58	X	0	0
55	58	X	0	0
56	184	X	-0.023	%10
57	184	X	-0.016	%10
58	184	X	-0.015	%75
59	184	X	0	0
60	184	X	0	0
61	185	X	-0.026	%55
62	185	X	-0.015	%55
63	185	X	-0.007	%10
64	185	X	0	0
65	185	X	0	0
66	117	X	-0.023	%10
67	117	X	-0.016	%10
68	117	X	-0.015	%75
69	117	X	0	0
70	117	X	0	0
71	118	X	-0.026	%55
72	118	X	-0.015	%55
73	118	X	-0.038	%10
74	118	X	0	0
75	118	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Z	-0.021	%5
2	39	Z	-0.021	%65
3	39	Z	0	0
4	39	Z	0	0
5	39	Z	0	0
6	49	Z	-0.007	%5
7	49	Z	-0.007	%25
8	49	Z	-0.006	%75
9	49	Z	-0.006	%95
10	49	Z	0	0
11	52	Z	-0.019	%5
12	52	Z	-0.019	%65
13	52	Z	0	0

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
14	52	Z	0	0
15	52	Z	0	0
16	180	Z	-0.021	%5
17	180	Z	-0.021	%65
18	180	Z	0	0
19	180	Z	0	0
20	180	Z	0	0
21	194	Z	-0.007	%5
22	194	Z	-0.007	%25
23	194	Z	-0.006	%75
24	194	Z	-0.006	%95
25	194	Z	0	0
26	192	Z	-0.019	%5
27	192	Z	-0.019	%65
28	192	Z	0	0
29	192	Z	0	0
30	192	Z	0	0
31	113	Z	-0.021	%5
32	113	Z	-0.021	%65
33	113	Z	0	0
34	113	Z	0	0
35	113	Z	0	0
36	127	Z	-0.007	%5
37	127	Z	-0.007	%25
38	127	Z	-0.006	%75
39	127	Z	-0.006	%95
40	127	Z	0	0
41	125	Z	-0.019	%5
42	125	Z	-0.019	%65
43	125	Z	0	0
44	125	Z	0	0
45	125	Z	0	0
46	55	Z	-0.005	%10
47	55	Z	-0.004	%10
48	55	Z	-0.002	%75
49	55	Z	0	0
50	55	Z	0	0
51	58	Z	-0.007	%55
52	58	Z	-0.004	%55
53	58	Z	-0.002	%10
54	58	Z	0	0
55	58	Z	0	0
56	184	Z	-0.005	%10
57	184	Z	-0.004	%10
58	184	Z	-0.002	%75
59	184	Z	0	0
60	184	Z	0	0
61	185	Z	-0.007	%55
62	185	Z	-0.004	%55
63	185	Z	-0.002	%10
64	185	Z	0	0
65	185	Z	0	0
66	117	Z	-0.005	%10
67	117	Z	-0.004	%10
68	117	Z	-0.002	%75

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
69	117	Z	0	0
70	117	Z	0	0
71	118	Z	-0.007	%55
72	118	Z	-0.004	%55
73	118	Z	-0.008	%10
74	118	Z	0	0
75	118	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	X	-0.009	%5
2	39	X	-0.009	%65
3	39	X	0	0
4	39	X	0	0
5	39	X	0	0
6	49	X	-0.003	%5
7	49	X	-0.003	%25
8	49	X	-0.003	%75
9	49	X	-0.003	%95
10	49	X	0	0
11	52	X	-0.007	%5
12	52	X	-0.007	%65
13	52	X	0	0
14	52	X	0	0
15	52	X	0	0
16	180	X	-0.009	%5
17	180	X	-0.009	%65
18	180	X	0	0
19	180	X	0	0
20	180	X	0	0
21	194	X	-0.003	%5
22	194	X	-0.003	%25
23	194	X	-0.003	%75
24	194	X	-0.003	%95
25	194	X	0	0
26	192	X	-0.007	%5
27	192	X	-0.007	%65
28	192	X	0	0
29	192	X	0	0
30	192	X	0	0
31	113	X	-0.009	%5
32	113	X	-0.009	%65
33	113	X	0	0
34	113	X	0	0
35	113	X	0	0
36	127	X	-0.003	%5
37	127	X	-0.003	%25
38	127	X	-0.003	%75
39	127	X	-0.003	%95
40	127	X	0	0
41	125	X	-0.007	%5
42	125	X	-0.007	%65
43	125	X	0	0
44	125	X	0	0
45	125	X	0	0

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
46	55	X	-0.008	%10
47	55	X	-0.006	%10
48	55	X	-0.005	%75
49	55	X	0	0
50	55	X	0	0
51	58	X	-0.01	%55
52	58	X	-0.006	%55
53	58	X	-0.002	%10
54	58	X	0	0
55	58	X	0	0
56	184	X	-0.008	%10
57	184	X	-0.006	%10
58	184	X	-0.005	%75
59	184	X	0	0
60	184	X	0	0
61	185	X	-0.01	%55
62	185	X	-0.006	%55
63	185	X	-0.002	%10
64	185	X	0	0
65	185	X	0	0
66	117	X	-0.008	%10
67	117	X	-0.006	%10
68	117	X	-0.005	%75
69	117	X	0	0
70	117	X	0	0
71	118	X	-0.01	%55
72	118	X	-0.006	%55
73	118	X	-0.014	%10
74	118	X	0	0
75	118	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Y	-0.152	%5
2	39	Y	-0.152	%65
3	39	Y	0	0
4	39	Y	0	0
5	39	Y	0	0
6	49	Y	-0.06	%5
7	49	Y	-0.06	%25
8	49	Y	-0.072	%75
9	49	Y	-0.072	%95
10	49	Y	0	0
11	52	Y	-0.122	%5
12	52	Y	-0.122	%65
13	52	Y	0	0
14	52	Y	0	0
15	52	Y	0	0
16	180	Y	-0.152	%5
17	180	Y	-0.152	%65
18	180	Y	0	0
19	180	Y	0	0
20	180	Y	0	0
21	194	Y	-0.06	%5
22	194	Y	-0.06	%25

Member Point Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
23	194	Y	-0.072	%75
24	194	Y	-0.072	%95
25	194	Y	0	0
26	192	Y	-0.122	%5
27	192	Y	-0.122	%65
28	192	Y	0	0
29	192	Y	0	0
30	192	Y	0	0
31	113	Y	-0.152	%5
32	113	Y	-0.152	%65
33	113	Y	0	0
34	113	Y	0	0
35	113	Y	0	0
36	127	Y	-0.06	%5
37	127	Y	-0.06	%25
38	127	Y	-0.072	%75
39	127	Y	-0.072	%95
40	127	Y	0	0
41	125	Y	-0.122	%5
42	125	Y	-0.122	%65
43	125	Y	0	0
44	125	Y	0	0
45	125	Y	0	0
46	55	Y	-0.052	%10
47	55	Y	-0.037	%10
48	55	Y	-0.031	%75
49	55	Y	0	0
50	55	Y	0	0
51	58	Y	-0.063	%55
52	58	Y	-0.038	%55
53	58	Y	-0.033	%10
54	58	Y	0	0
55	58	Y	0	0
56	184	Y	-0.052	%10
57	184	Y	-0.037	%10
58	184	Y	-0.031	%75
59	184	Y	0	0
60	184	Y	0	0
61	185	Y	-0.063	%55
62	185	Y	-0.038	%55
63	185	Y	-0.033	%10
64	185	Y	0	0
65	185	Y	0	0
66	117	Y	-0.052	%10
67	117	Y	-0.037	%10
68	117	Y	-0.031	%75
69	117	Y	0	0
70	117	Y	0	0
71	118	Y	-0.063	%55
72	118	Y	-0.038	%55
73	118	Y	-0.084	%10
74	118	Y	0	0
75	118	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	Z	-0.039	%5
2	39	Z	-0.039	%65
3	39	Z	0	0
4	39	Z	0	0
5	39	Z	0	0
6	49	Z	-0.02	%5
7	49	Z	-0.02	%25
8	49	Z	-0.025	%75
9	49	Z	-0.025	%95
10	49	Z	0	0
11	52	Z	-0.027	%5
12	52	Z	-0.027	%65
13	52	Z	0	0
14	52	Z	0	0
15	52	Z	0	0
16	180	Z	-0.039	%5
17	180	Z	-0.039	%65
18	180	Z	0	0
19	180	Z	0	0
20	180	Z	0	0
21	194	Z	-0.02	%5
22	194	Z	-0.02	%25
23	194	Z	-0.025	%75
24	194	Z	-0.025	%95
25	194	Z	0	0
26	192	Z	-0.027	%5
27	192	Z	-0.027	%65
28	192	Z	0	0
29	192	Z	0	0
30	192	Z	0	0
31	113	Z	-0.039	%5
32	113	Z	-0.039	%65
33	113	Z	0	0
34	113	Z	0	0
35	113	Z	0	0
36	127	Z	-0.02	%5
37	127	Z	-0.02	%25
38	127	Z	-0.025	%75
39	127	Z	-0.025	%95
40	127	Z	0	0
41	125	Z	-0.027	%5
42	125	Z	-0.027	%65
43	125	Z	0	0
44	125	Z	0	0
45	125	Z	0	0
46	55	Z	-0.017	%10
47	55	Z	-0.018	%10
48	55	Z	-0.014	%75
49	55	Z	0	0
50	55	Z	0	0
51	58	Z	-0.023	%55
52	58	Z	-0.022	%55
53	58	Z	-0.006	%10
54	58	Z	0	0
55	58	Z	0	0

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
56	184	Z	-0.017	%10
57	184	Z	-0.018	%10
58	184	Z	-0.014	%75
59	184	Z	0	0
60	184	Z	0	0
61	185	Z	-0.023	%55
62	185	Z	-0.022	%55
63	185	Z	-0.006	%10
64	185	Z	0	0
65	185	Z	0	0
66	117	Z	-0.017	%10
67	117	Z	-0.018	%10
68	117	Z	-0.014	%75
69	117	Z	0	0
70	117	Z	0	0
71	118	Z	-0.023	%55
72	118	Z	-0.022	%55
73	118	Z	-0.008	%10
74	118	Z	0	0
75	118	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	39	X	-0.039	%5
2	39	X	-0.039	%65
3	39	X	0	0
4	39	X	0	0
5	39	X	0	0
6	49	X	-0.02	%5
7	49	X	-0.02	%25
8	49	X	-0.025	%75
9	49	X	-0.025	%95
10	49	X	0	0
11	52	X	-0.027	%5
12	52	X	-0.027	%65
13	52	X	0	0
14	52	X	0	0
15	52	X	0	0
16	180	X	-0.039	%5
17	180	X	-0.039	%65
18	180	X	0	0
19	180	X	0	0
20	180	X	0	0
21	194	X	-0.02	%5
22	194	X	-0.02	%25
23	194	X	-0.025	%75
24	194	X	-0.025	%95
25	194	X	0	0
26	192	X	-0.027	%5
27	192	X	-0.027	%65
28	192	X	0	0
29	192	X	0	0
30	192	X	0	0
31	113	X	-0.039	%5
32	113	X	-0.039	%65

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
33	113	X	0	0
34	113	X	0	0
35	113	X	0	0
36	127	X	-0.02	%5
37	127	X	-0.02	%25
38	127	X	-0.025	%75
39	127	X	-0.025	%95
40	127	X	0	0
41	125	X	-0.027	%5
42	125	X	-0.027	%65
43	125	X	0	0
44	125	X	0	0
45	125	X	0	0
46	55	X	-0.017	%10
47	55	X	-0.018	%10
48	55	X	-0.014	%75
49	55	X	0	0
50	55	X	0	0
51	58	X	-0.023	%55
52	58	X	-0.022	%55
53	58	X	-0.006	%10
54	58	X	0	0
55	58	X	0	0
56	184	X	-0.017	%10
57	184	X	-0.018	%10
58	184	X	-0.014	%75
59	184	X	0	0
60	184	X	0	0
61	185	X	-0.023	%55
62	185	X	-0.022	%55
63	185	X	-0.006	%10
64	185	X	0	0
65	185	X	0	0
66	117	X	-0.017	%10
67	117	X	-0.018	%10
68	117	X	-0.014	%75
69	117	X	0	0
70	117	X	0	0
71	118	X	-0.023	%55
72	118	X	-0.022	%55
73	118	X	-0.008	%10
74	118	X	0	0
75	118	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	11	Y	-0.25	%50

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.25	%50

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	21	Y	-0.25	%50

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	24	Y	-0.25	%50

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	136	Y	-0.25	%50

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	165	Y	-0.25	%50

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	131	Y	-0.25	%50

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	170	Y	-0.25	%50

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	72	Y	-0.25	%50

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	101	Y	-0.25	%50

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	67	Y	-0.25	%50

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	106	Y	-0.25	%50

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.013	-0.013	0	%100
2	2	Z	-0.013	-0.013	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.003	-0.003	0	%100
5	5	Z	-0.003	-0.003	0	%100
6	6	Z	-0.003	-0.003	0	%100
7	9	Z	-0.003	-0.003	0	%100
8	10	Z	-0.003	-0.003	0	%100
9	11	Z	-0.008	-0.008	0	%100
10	12	Z	-0.006	-0.006	0	%100
11	13	Z	-0.006	-0.006	0	%100
12	14	Z	-0.006	-0.006	0	%100
13	15	Z	-0.006	-0.006	0	%100
14	16	Z	-0.003	-0.003	0	%100
15	17	Z	-0.003	-0.003	0	%100
16	18	Z	-0.008	-0.008	0	%100
17	19	Z	-0.003	-0.003	0	%100
18	20	Z	-0.003	-0.003	0	%100
19	21	Z	-0.008	-0.008	0	%100
20	22	Z	-0.003	-0.003	0	%100
21	23	Z	-0.003	-0.003	0	%100
22	24	Z	-0.008	-0.008	0	%100
23	29	Z	-0.003	-0.003	0	%100
24	30	Z	-0.003	-0.003	0	%100
25	31	Z	-0.003	-0.003	0	%100
26	32	Z	-0.003	-0.003	0	%100
27	33	Z	-0.003	-0.003	0	%100
28	34	Z	-0.003	-0.003	0	%100
29	35	Z	-0.003	-0.003	0	%100
30	36	Z	-0.003	-0.003	0	%100
31	39	Z	-0.011	-0.011	0	%100
32	40	Z	-0.011	-0.011	0	%100
33	43	Z	-0.011	-0.011	0	%100
34	44	Z	-0.009	-0.009	0	%100
35	49	Z	-0.011	-0.011	0	%100
36	52	Z	-0.011	-0.011	0	%100
37	55	Z	-0.011	-0.011	0	%100
38	58	Z	-0.011	-0.011	0	%100
39	99	Z	-0.009	-0.009	0	%100
40	146	Z	-0.009	-0.009	0	%100
41	64	Z	-0.003	-0.003	0	%100
42	65	Z	-0.003	-0.003	0	%100
43	66	Z	-0.013	-0.013	0	%100
44	67	Z	-0.008	-0.008	0	%100
45	70	Z	-0.003	-0.003	0	%100
46	72	Z	-0.008	-0.008	0	%100
47	74	Z	-0.006	-0.006	0	%100
48	76	Z	-0.006	-0.006	0	%100
49	77	Z	-0.006	-0.006	0	%100
50	82	Z	-0.003	-0.003	0	%100
51	83	Z	-0.003	-0.003	0	%100
52	93	Z	-0.013	-0.013	0	%100
53	94	Z	-0.003	-0.003	0	%100
54	95	Z	-0.003	-0.003	0	%100
55	96	Z	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	97	Z	-0.003	-0.003	0	%100
57	98	Z	-0.006	-0.006	0	%100
58	100	Z	-0.003	-0.003	0	%100
59	101	Z	-0.008	-0.008	0	%100
60	102	Z	-0.003	-0.003	0	%100
61	103	Z	-0.003	-0.003	0	%100
62	104	Z	-0.003	-0.003	0	%100
63	105	Z	-0.003	-0.003	0	%100
64	106	Z	-0.008	-0.008	0	%100
65	107	Z	-0.003	-0.003	0	%100
66	108	Z	-0.003	-0.003	0	%100
67	109	Z	-0.003	-0.003	0	%100
68	110	Z	-0.003	-0.003	0	%100
69	111	Z	-0.003	-0.003	0	%100
70	112	Z	-0.003	-0.003	0	%100
71	113	Z	-0.011	-0.011	0	%100
72	114	Z	-0.011	-0.011	0	%100
73	115	Z	-0.011	-0.011	0	%100
74	117	Z	-0.011	-0.011	0	%100
75	118	Z	-0.011	-0.011	0	%100
76	125	Z	-0.011	-0.011	0	%100
77	127	Z	-0.011	-0.011	0	%100
78	128	Z	-0.003	-0.003	0	%100
79	129	Z	-0.003	-0.003	0	%100
80	130	Z	-0.013	-0.013	0	%100
81	131	Z	-0.008	-0.008	0	%100
82	134	Z	-0.003	-0.003	0	%100
83	136	Z	-0.008	-0.008	0	%100
84	138	Z	-0.006	-0.006	0	%100
85	140	Z	-0.006	-0.006	0	%100
86	141	Z	-0.006	-0.006	0	%100
87	147	Z	-0.003	-0.003	0	%100
88	148	Z	-0.003	-0.003	0	%100
89	158	Z	-0.013	-0.013	0	%100
90	159	Z	-0.003	-0.003	0	%100
91	160	Z	-0.003	-0.003	0	%100
92	161	Z	-0.003	-0.003	0	%100
93	162	Z	-0.003	-0.003	0	%100
94	163	Z	-0.006	-0.006	0	%100
95	164	Z	-0.003	-0.003	0	%100
96	165	Z	-0.008	-0.008	0	%100
97	166	Z	-0.003	-0.003	0	%100
98	167	Z	-0.003	-0.003	0	%100
99	168	Z	-0.003	-0.003	0	%100
100	169	Z	-0.003	-0.003	0	%100
101	170	Z	-0.008	-0.008	0	%100
102	171	Z	-0.003	-0.003	0	%100
103	172	Z	-0.003	-0.003	0	%100
104	176	Z	-0.003	-0.003	0	%100
105	177	Z	-0.003	-0.003	0	%100
106	178	Z	-0.003	-0.003	0	%100
107	179	Z	-0.003	-0.003	0	%100
108	180	Z	-0.011	-0.011	0	%100
109	181	Z	-0.011	-0.011	0	%100
110	182	Z	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
111	184	Z	-0.011	-0.011	0	%100
112	185	Z	-0.011	-0.011	0	%100
113	192	Z	-0.011	-0.011	0	%100
114	194	Z	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.013	-0.013	0	%100
2	2	X	-0.013	-0.013	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.003	-0.003	0	%100
6	6	X	-0.003	-0.003	0	%100
7	9	X	-0.003	-0.003	0	%100
8	10	X	-0.003	-0.003	0	%100
9	11	X	-0.008	-0.008	0	%100
10	12	X	-0.006	-0.006	0	%100
11	13	X	-0.006	-0.006	0	%100
12	14	X	-0.006	-0.006	0	%100
13	15	X	-0.006	-0.006	0	%100
14	16	X	-0.003	-0.003	0	%100
15	17	X	-0.003	-0.003	0	%100
16	18	X	-0.008	-0.008	0	%100
17	19	X	-0.003	-0.003	0	%100
18	20	X	-0.003	-0.003	0	%100
19	21	X	-0.008	-0.008	0	%100
20	22	X	-0.003	-0.003	0	%100
21	23	X	-0.003	-0.003	0	%100
22	24	X	-0.008	-0.008	0	%100
23	29	X	-0.003	-0.003	0	%100
24	30	X	-0.003	-0.003	0	%100
25	31	X	-0.003	-0.003	0	%100
26	32	X	-0.003	-0.003	0	%100
27	33	X	-0.003	-0.003	0	%100
28	34	X	-0.003	-0.003	0	%100
29	35	X	-0.003	-0.003	0	%100
30	36	X	-0.003	-0.003	0	%100
31	39	X	-0.011	-0.011	0	%100
32	40	X	-0.011	-0.011	0	%100
33	43	X	-0.011	-0.011	0	%100
34	44	X	-0.009	-0.009	0	%100
35	49	X	-0.011	-0.011	0	%100
36	52	X	-0.011	-0.011	0	%100
37	55	X	-0.011	-0.011	0	%100
38	58	X	-0.011	-0.011	0	%100
39	99	X	-0.009	-0.009	0	%100
40	146	X	-0.009	-0.009	0	%100
41	64	X	-0.003	-0.003	0	%100
42	65	X	-0.003	-0.003	0	%100
43	66	X	-0.013	-0.013	0	%100
44	67	X	-0.008	-0.008	0	%100
45	70	X	-0.003	-0.003	0	%100
46	72	X	-0.008	-0.008	0	%100
47	74	X	-0.006	-0.006	0	%100
48	76	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
49	77	X	-0.006	-0.006	0	%100
50	82	X	-0.003	-0.003	0	%100
51	83	X	-0.003	-0.003	0	%100
52	93	X	-0.013	-0.013	0	%100
53	94	X	-0.003	-0.003	0	%100
54	95	X	-0.003	-0.003	0	%100
55	96	X	-0.003	-0.003	0	%100
56	97	X	-0.003	-0.003	0	%100
57	98	X	-0.006	-0.006	0	%100
58	100	X	-0.003	-0.003	0	%100
59	101	X	-0.008	-0.008	0	%100
60	102	X	-0.003	-0.003	0	%100
61	103	X	-0.003	-0.003	0	%100
62	104	X	-0.003	-0.003	0	%100
63	105	X	-0.003	-0.003	0	%100
64	106	X	-0.008	-0.008	0	%100
65	107	X	-0.003	-0.003	0	%100
66	108	X	-0.003	-0.003	0	%100
67	109	X	-0.003	-0.003	0	%100
68	110	X	-0.003	-0.003	0	%100
69	111	X	-0.003	-0.003	0	%100
70	112	X	-0.003	-0.003	0	%100
71	113	X	-0.011	-0.011	0	%100
72	114	X	-0.011	-0.011	0	%100
73	115	X	-0.011	-0.011	0	%100
74	117	X	-0.011	-0.011	0	%100
75	118	X	-0.011	-0.011	0	%100
76	125	X	-0.011	-0.011	0	%100
77	127	X	-0.011	-0.011	0	%100
78	128	X	-0.003	-0.003	0	%100
79	129	X	-0.003	-0.003	0	%100
80	130	X	-0.013	-0.013	0	%100
81	131	X	-0.008	-0.008	0	%100
82	134	X	-0.003	-0.003	0	%100
83	136	X	-0.008	-0.008	0	%100
84	138	X	-0.006	-0.006	0	%100
85	140	X	-0.006	-0.006	0	%100
86	141	X	-0.006	-0.006	0	%100
87	147	X	-0.003	-0.003	0	%100
88	148	X	-0.003	-0.003	0	%100
89	158	X	-0.013	-0.013	0	%100
90	159	X	-0.003	-0.003	0	%100
91	160	X	-0.003	-0.003	0	%100
92	161	X	-0.003	-0.003	0	%100
93	162	X	-0.003	-0.003	0	%100
94	163	X	-0.006	-0.006	0	%100
95	164	X	-0.003	-0.003	0	%100
96	165	X	-0.008	-0.008	0	%100
97	166	X	-0.003	-0.003	0	%100
98	167	X	-0.003	-0.003	0	%100
99	168	X	-0.003	-0.003	0	%100
100	169	X	-0.003	-0.003	0	%100
101	170	X	-0.008	-0.008	0	%100
102	171	X	-0.003	-0.003	0	%100
103	172	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
104	176	X	-0.003	-0.003	0	%100
105	177	X	-0.003	-0.003	0	%100
106	178	X	-0.003	-0.003	0	%100
107	179	X	-0.003	-0.003	0	%100
108	180	X	-0.011	-0.011	0	%100
109	181	X	-0.011	-0.011	0	%100
110	182	X	-0.011	-0.011	0	%100
111	184	X	-0.011	-0.011	0	%100
112	185	X	-0.011	-0.011	0	%100
113	192	X	-0.011	-0.011	0	%100
114	194	X	-0.011	-0.011	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.004	-0.004	0	%100
4	4	Z	-0.004	-0.004	0	%100
5	5	Z	-0.004	-0.004	0	%100
6	6	Z	-0.004	-0.004	0	%100
7	9	Z	-0.008	-0.008	0	%100
8	10	Z	-0.008	-0.008	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.004	-0.004	0	%100
12	14	Z	-0.004	-0.004	0	%100
13	15	Z	-0.004	-0.004	0	%100
14	16	Z	-0.008	-0.008	0	%100
15	17	Z	-0.008	-0.008	0	%100
16	18	Z	-0.002	-0.002	0	%100
17	19	Z	-0.008	-0.008	0	%100
18	20	Z	-0.008	-0.008	0	%100
19	21	Z	-0.002	-0.002	0	%100
20	22	Z	-0.008	-0.008	0	%100
21	23	Z	-0.008	-0.008	0	%100
22	24	Z	-0.002	-0.002	0	%100
23	29	Z	-0.002	-0.002	0	%100
24	30	Z	-0.002	-0.002	0	%100
25	31	Z	-0.002	-0.002	0	%100
26	32	Z	-0.002	-0.002	0	%100
27	33	Z	-0.002	-0.002	0	%100
28	34	Z	-0.002	-0.002	0	%100
29	35	Z	-0.002	-0.002	0	%100
30	36	Z	-0.002	-0.002	0	%100
31	39	Z	-0.002	-0.002	0	%100
32	40	Z	-0.002	-0.002	0	%100
33	43	Z	-0.002	-0.002	0	%100
34	44	Z	-0.003	-0.003	0	%100
35	49	Z	-0.002	-0.002	0	%100
36	52	Z	-0.002	-0.002	0	%100
37	55	Z	-0.002	-0.002	0	%100
38	58	Z	-0.002	-0.002	0	%100
39	99	Z	-0.003	-0.003	0	%100
40	146	Z	-0.003	-0.003	0	%100
41	64	Z	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
42	65	Z	-0.008	-0.008	0	%100
43	66	Z	-0.002	-0.002	0	%100
44	67	Z	-0.002	-0.002	0	%100
45	70	Z	-0.004	-0.004	0	%100
46	72	Z	-0.002	-0.002	0	%100
47	74	Z	-0.004	-0.004	0	%100
48	76	Z	-0.004	-0.004	0	%100
49	77	Z	-0.004	-0.004	0	%100
50	82	Z	-0.002	-0.002	0	%100
51	83	Z	-0.002	-0.002	0	%100
52	93	Z	-0.002	-0.002	0	%100
53	94	Z	-0.004	-0.004	0	%100
54	95	Z	-0.004	-0.004	0	%100
55	96	Z	-0.004	-0.004	0	%100
56	97	Z	-0.008	-0.008	0	%100
57	98	Z	-0.004	-0.004	0	%100
58	100	Z	-0.008	-0.008	0	%100
59	101	Z	-0.002	-0.002	0	%100
60	102	Z	-0.008	-0.008	0	%100
61	103	Z	-0.008	-0.008	0	%100
62	104	Z	-0.008	-0.008	0	%100
63	105	Z	-0.008	-0.008	0	%100
64	106	Z	-0.002	-0.002	0	%100
65	107	Z	-0.002	-0.002	0	%100
66	108	Z	-0.002	-0.002	0	%100
67	109	Z	-0.002	-0.002	0	%100
68	110	Z	-0.002	-0.002	0	%100
69	111	Z	-0.002	-0.002	0	%100
70	112	Z	-0.002	-0.002	0	%100
71	113	Z	-0.002	-0.002	0	%100
72	114	Z	-0.002	-0.002	0	%100
73	115	Z	-0.002	-0.002	0	%100
74	117	Z	-0.002	-0.002	0	%100
75	118	Z	-0.002	-0.002	0	%100
76	125	Z	-0.002	-0.002	0	%100
77	127	Z	-0.002	-0.002	0	%100
78	128	Z	-0.008	-0.008	0	%100
79	129	Z	-0.008	-0.008	0	%100
80	130	Z	-0.002	-0.002	0	%100
81	131	Z	-0.002	-0.002	0	%100
82	134	Z	-0.004	-0.004	0	%100
83	136	Z	-0.002	-0.002	0	%100
84	138	Z	-0.004	-0.004	0	%100
85	140	Z	-0.004	-0.004	0	%100
86	141	Z	-0.004	-0.004	0	%100
87	147	Z	-0.002	-0.002	0	%100
88	148	Z	-0.002	-0.002	0	%100
89	158	Z	-0.002	-0.002	0	%100
90	159	Z	-0.004	-0.004	0	%100
91	160	Z	-0.004	-0.004	0	%100
92	161	Z	-0.004	-0.004	0	%100
93	162	Z	-0.008	-0.008	0	%100
94	163	Z	-0.004	-0.004	0	%100
95	164	Z	-0.008	-0.008	0	%100
96	165	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
97	166	Z	-0.008	-0.008	0	%100
98	167	Z	-0.008	-0.008	0	%100
99	168	Z	-0.008	-0.008	0	%100
100	169	Z	-0.008	-0.008	0	%100
101	170	Z	-0.002	-0.002	0	%100
102	171	Z	-0.002	-0.002	0	%100
103	172	Z	-0.002	-0.002	0	%100
104	176	Z	-0.002	-0.002	0	%100
105	177	Z	-0.002	-0.002	0	%100
106	178	Z	-0.002	-0.002	0	%100
107	179	Z	-0.002	-0.002	0	%100
108	180	Z	-0.002	-0.002	0	%100
109	181	Z	-0.002	-0.002	0	%100
110	182	Z	-0.002	-0.002	0	%100
111	184	Z	-0.002	-0.002	0	%100
112	185	Z	-0.002	-0.002	0	%100
113	192	Z	-0.002	-0.002	0	%100
114	194	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.004	-0.004	0	%100
4	4	X	-0.004	-0.004	0	%100
5	5	X	-0.004	-0.004	0	%100
6	6	X	-0.004	-0.004	0	%100
7	9	X	-0.008	-0.008	0	%100
8	10	X	-0.008	-0.008	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.004	-0.004	0	%100
12	14	X	-0.004	-0.004	0	%100
13	15	X	-0.004	-0.004	0	%100
14	16	X	-0.008	-0.008	0	%100
15	17	X	-0.008	-0.008	0	%100
16	18	X	-0.002	-0.002	0	%100
17	19	X	-0.008	-0.008	0	%100
18	20	X	-0.008	-0.008	0	%100
19	21	X	-0.002	-0.002	0	%100
20	22	X	-0.008	-0.008	0	%100
21	23	X	-0.008	-0.008	0	%100
22	24	X	-0.002	-0.002	0	%100
23	29	X	-0.002	-0.002	0	%100
24	30	X	-0.002	-0.002	0	%100
25	31	X	-0.002	-0.002	0	%100
26	32	X	-0.002	-0.002	0	%100
27	33	X	-0.002	-0.002	0	%100
28	34	X	-0.002	-0.002	0	%100
29	35	X	-0.002	-0.002	0	%100
30	36	X	-0.002	-0.002	0	%100
31	39	X	-0.002	-0.002	0	%100
32	40	X	-0.002	-0.002	0	%100
33	43	X	-0.002	-0.002	0	%100
34	44	X	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
35	49	X	-0.002	-0.002	0	%100
36	52	X	-0.002	-0.002	0	%100
37	55	X	-0.002	-0.002	0	%100
38	58	X	-0.002	-0.002	0	%100
39	99	X	-0.003	-0.003	0	%100
40	146	X	-0.003	-0.003	0	%100
41	64	X	-0.008	-0.008	0	%100
42	65	X	-0.008	-0.008	0	%100
43	66	X	-0.002	-0.002	0	%100
44	67	X	-0.002	-0.002	0	%100
45	70	X	-0.004	-0.004	0	%100
46	72	X	-0.002	-0.002	0	%100
47	74	X	-0.004	-0.004	0	%100
48	76	X	-0.004	-0.004	0	%100
49	77	X	-0.004	-0.004	0	%100
50	82	X	-0.002	-0.002	0	%100
51	83	X	-0.002	-0.002	0	%100
52	93	X	-0.002	-0.002	0	%100
53	94	X	-0.004	-0.004	0	%100
54	95	X	-0.004	-0.004	0	%100
55	96	X	-0.004	-0.004	0	%100
56	97	X	-0.008	-0.008	0	%100
57	98	X	-0.004	-0.004	0	%100
58	100	X	-0.008	-0.008	0	%100
59	101	X	-0.002	-0.002	0	%100
60	102	X	-0.008	-0.008	0	%100
61	103	X	-0.008	-0.008	0	%100
62	104	X	-0.008	-0.008	0	%100
63	105	X	-0.008	-0.008	0	%100
64	106	X	-0.002	-0.002	0	%100
65	107	X	-0.002	-0.002	0	%100
66	108	X	-0.002	-0.002	0	%100
67	109	X	-0.002	-0.002	0	%100
68	110	X	-0.002	-0.002	0	%100
69	111	X	-0.002	-0.002	0	%100
70	112	X	-0.002	-0.002	0	%100
71	113	X	-0.002	-0.002	0	%100
72	114	X	-0.002	-0.002	0	%100
73	115	X	-0.002	-0.002	0	%100
74	117	X	-0.002	-0.002	0	%100
75	118	X	-0.002	-0.002	0	%100
76	125	X	-0.002	-0.002	0	%100
77	127	X	-0.002	-0.002	0	%100
78	128	X	-0.008	-0.008	0	%100
79	129	X	-0.008	-0.008	0	%100
80	130	X	-0.002	-0.002	0	%100
81	131	X	-0.002	-0.002	0	%100
82	134	X	-0.004	-0.004	0	%100
83	136	X	-0.002	-0.002	0	%100
84	138	X	-0.004	-0.004	0	%100
85	140	X	-0.004	-0.004	0	%100
86	141	X	-0.004	-0.004	0	%100
87	147	X	-0.002	-0.002	0	%100
88	148	X	-0.002	-0.002	0	%100
89	158	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
90	159	X	-0.004	-0.004	0	%100
91	160	X	-0.004	-0.004	0	%100
92	161	X	-0.004	-0.004	0	%100
93	162	X	-0.008	-0.008	0	%100
94	163	X	-0.004	-0.004	0	%100
95	164	X	-0.008	-0.008	0	%100
96	165	X	-0.002	-0.002	0	%100
97	166	X	-0.008	-0.008	0	%100
98	167	X	-0.008	-0.008	0	%100
99	168	X	-0.008	-0.008	0	%100
100	169	X	-0.008	-0.008	0	%100
101	170	X	-0.002	-0.002	0	%100
102	171	X	-0.002	-0.002	0	%100
103	172	X	-0.002	-0.002	0	%100
104	176	X	-0.002	-0.002	0	%100
105	177	X	-0.002	-0.002	0	%100
106	178	X	-0.002	-0.002	0	%100
107	179	X	-0.002	-0.002	0	%100
108	180	X	-0.002	-0.002	0	%100
109	181	X	-0.002	-0.002	0	%100
110	182	X	-0.002	-0.002	0	%100
111	184	X	-0.002	-0.002	0	%100
112	185	X	-0.002	-0.002	0	%100
113	192	X	-0.002	-0.002	0	%100
114	194	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0004	-0.0004	0	%100
2	2	Z	-0.0004	-0.0004	0	%100
3	3	Z	-0.0002	-0.0002	0	%100
4	4	Z	-0.0002	-0.0002	0	%100
5	5	Z	-0.0002	-0.0002	0	%100
6	6	Z	-0.0002	-0.0002	0	%100
7	9	Z	-0.0002	-0.0002	0	%100
8	10	Z	-0.0002	-0.0002	0	%100
9	11	Z	-0.0003	-0.0003	0	%100
10	12	Z	-0.0004	-0.0004	0	%100
11	13	Z	-0.0004	-0.0004	0	%100
12	14	Z	-0.0004	-0.0004	0	%100
13	15	Z	-0.0004	-0.0004	0	%100
14	16	Z	-0.0002	-0.0002	0	%100
15	17	Z	-0.0002	-0.0002	0	%100
16	18	Z	-0.0003	-0.0003	0	%100
17	19	Z	-0.0002	-0.0002	0	%100
18	20	Z	-0.0002	-0.0002	0	%100
19	21	Z	-0.0003	-0.0003	0	%100
20	22	Z	-0.0002	-0.0002	0	%100
21	23	Z	-0.0002	-0.0002	0	%100
22	24	Z	-0.0003	-0.0003	0	%100
23	29	Z	-0.0002	-0.0002	0	%100
24	30	Z	-0.0002	-0.0002	0	%100
25	31	Z	-0.0002	-0.0002	0	%100
26	32	Z	-0.0002	-0.0002	0	%100
27	33	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
28	34	Z	-0.0002	-0.0002	0	%100
29	35	Z	-0.0002	-0.0002	0	%100
30	36	Z	-0.0002	-0.0002	0	%100
31	39	Z	-0.0003	-0.0003	0	%100
32	40	Z	-0.0003	-0.0003	0	%100
33	43	Z	-0.0003	-0.0003	0	%100
34	44	Z	-0.0006	-0.0006	0	%100
35	49	Z	-0.0003	-0.0003	0	%100
36	52	Z	-0.0003	-0.0003	0	%100
37	55	Z	-0.0003	-0.0003	0	%100
38	58	Z	-0.0003	-0.0003	0	%100
39	99	Z	-0.0006	-0.0006	0	%100
40	146	Z	-0.0006	-0.0006	0	%100
41	64	Z	-0.0002	-0.0002	0	%100
42	65	Z	-0.0002	-0.0002	0	%100
43	66	Z	-0.0004	-0.0004	0	%100
44	67	Z	-0.0003	-0.0003	0	%100
45	70	Z	-0.0002	-0.0002	0	%100
46	72	Z	-0.0003	-0.0003	0	%100
47	74	Z	-0.0004	-0.0004	0	%100
48	76	Z	-0.0004	-0.0004	0	%100
49	77	Z	-0.0004	-0.0004	0	%100
50	82	Z	-0.0002	-0.0002	0	%100
51	83	Z	-0.0002	-0.0002	0	%100
52	93	Z	-0.0004	-0.0004	0	%100
53	94	Z	-0.0002	-0.0002	0	%100
54	95	Z	-0.0002	-0.0002	0	%100
55	96	Z	-0.0002	-0.0002	0	%100
56	97	Z	-0.0002	-0.0002	0	%100
57	98	Z	-0.0004	-0.0004	0	%100
58	100	Z	-0.0002	-0.0002	0	%100
59	101	Z	-0.0003	-0.0003	0	%100
60	102	Z	-0.0002	-0.0002	0	%100
61	103	Z	-0.0002	-0.0002	0	%100
62	104	Z	-0.0002	-0.0002	0	%100
63	105	Z	-0.0002	-0.0002	0	%100
64	106	Z	-0.0003	-0.0003	0	%100
65	107	Z	-0.0002	-0.0002	0	%100
66	108	Z	-0.0002	-0.0002	0	%100
67	109	Z	-0.0002	-0.0002	0	%100
68	110	Z	-0.0002	-0.0002	0	%100
69	111	Z	-0.0002	-0.0002	0	%100
70	112	Z	-0.0002	-0.0002	0	%100
71	113	Z	-0.0003	-0.0003	0	%100
72	114	Z	-0.0003	-0.0003	0	%100
73	115	Z	-0.0003	-0.0003	0	%100
74	117	Z	-0.0003	-0.0003	0	%100
75	118	Z	-0.0003	-0.0003	0	%100
76	125	Z	-0.0003	-0.0003	0	%100
77	127	Z	-0.0003	-0.0003	0	%100
78	128	Z	-0.0002	-0.0002	0	%100
79	129	Z	-0.0002	-0.0002	0	%100
80	130	Z	-0.0004	-0.0004	0	%100
81	131	Z	-0.0003	-0.0003	0	%100
82	134	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
83	136	Z	-0.0003	-0.0003	0	%100
84	138	Z	-0.0004	-0.0004	0	%100
85	140	Z	-0.0004	-0.0004	0	%100
86	141	Z	-0.0004	-0.0004	0	%100
87	147	Z	-0.0002	-0.0002	0	%100
88	148	Z	-0.0002	-0.0002	0	%100
89	158	Z	-0.0004	-0.0004	0	%100
90	159	Z	-0.0002	-0.0002	0	%100
91	160	Z	-0.0002	-0.0002	0	%100
92	161	Z	-0.0002	-0.0002	0	%100
93	162	Z	-0.0002	-0.0002	0	%100
94	163	Z	-0.0004	-0.0004	0	%100
95	164	Z	-0.0002	-0.0002	0	%100
96	165	Z	-0.0003	-0.0003	0	%100
97	166	Z	-0.0002	-0.0002	0	%100
98	167	Z	-0.0002	-0.0002	0	%100
99	168	Z	-0.0002	-0.0002	0	%100
100	169	Z	-0.0002	-0.0002	0	%100
101	170	Z	-0.0003	-0.0003	0	%100
102	171	Z	-0.0002	-0.0002	0	%100
103	172	Z	-0.0002	-0.0002	0	%100
104	176	Z	-0.0002	-0.0002	0	%100
105	177	Z	-0.0002	-0.0002	0	%100
106	178	Z	-0.0002	-0.0002	0	%100
107	179	Z	-0.0002	-0.0002	0	%100
108	180	Z	-0.0003	-0.0003	0	%100
109	181	Z	-0.0003	-0.0003	0	%100
110	182	Z	-0.0003	-0.0003	0	%100
111	184	Z	-0.0003	-0.0003	0	%100
112	185	Z	-0.0003	-0.0003	0	%100
113	192	Z	-0.0003	-0.0003	0	%100
114	194	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0004	-0.0004	0	%100
2	2	X	-0.0004	-0.0004	0	%100
3	3	X	-0.0002	-0.0002	0	%100
4	4	X	-0.0002	-0.0002	0	%100
5	5	X	-0.0002	-0.0002	0	%100
6	6	X	-0.0002	-0.0002	0	%100
7	9	X	-0.0002	-0.0002	0	%100
8	10	X	-0.0002	-0.0002	0	%100
9	11	X	-0.0003	-0.0003	0	%100
10	12	X	-0.0004	-0.0004	0	%100
11	13	X	-0.0004	-0.0004	0	%100
12	14	X	-0.0004	-0.0004	0	%100
13	15	X	-0.0004	-0.0004	0	%100
14	16	X	-0.0002	-0.0002	0	%100
15	17	X	-0.0002	-0.0002	0	%100
16	18	X	-0.0003	-0.0003	0	%100
17	19	X	-0.0002	-0.0002	0	%100
18	20	X	-0.0002	-0.0002	0	%100
19	21	X	-0.0003	-0.0003	0	%100
20	22	X	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	23	X	-0.0002	-0.0002	0	%100
22	24	X	-0.0003	-0.0003	0	%100
23	29	X	-0.0002	-0.0002	0	%100
24	30	X	-0.0002	-0.0002	0	%100
25	31	X	-0.0002	-0.0002	0	%100
26	32	X	-0.0002	-0.0002	0	%100
27	33	X	-0.0002	-0.0002	0	%100
28	34	X	-0.0002	-0.0002	0	%100
29	35	X	-0.0002	-0.0002	0	%100
30	36	X	-0.0002	-0.0002	0	%100
31	39	X	-0.0003	-0.0003	0	%100
32	40	X	-0.0003	-0.0003	0	%100
33	43	X	-0.0003	-0.0003	0	%100
34	44	X	-0.0006	-0.0006	0	%100
35	49	X	-0.0003	-0.0003	0	%100
36	52	X	-0.0003	-0.0003	0	%100
37	55	X	-0.0003	-0.0003	0	%100
38	58	X	-0.0003	-0.0003	0	%100
39	99	X	-0.0006	-0.0006	0	%100
40	146	X	-0.0006	-0.0006	0	%100
41	64	X	-0.0002	-0.0002	0	%100
42	65	X	-0.0002	-0.0002	0	%100
43	66	X	-0.0004	-0.0004	0	%100
44	67	X	-0.0003	-0.0003	0	%100
45	70	X	-0.0002	-0.0002	0	%100
46	72	X	-0.0003	-0.0003	0	%100
47	74	X	-0.0004	-0.0004	0	%100
48	76	X	-0.0004	-0.0004	0	%100
49	77	X	-0.0004	-0.0004	0	%100
50	82	X	-0.0002	-0.0002	0	%100
51	83	X	-0.0002	-0.0002	0	%100
52	93	X	-0.0004	-0.0004	0	%100
53	94	X	-0.0002	-0.0002	0	%100
54	95	X	-0.0002	-0.0002	0	%100
55	96	X	-0.0002	-0.0002	0	%100
56	97	X	-0.0002	-0.0002	0	%100
57	98	X	-0.0004	-0.0004	0	%100
58	100	X	-0.0002	-0.0002	0	%100
59	101	X	-0.0003	-0.0003	0	%100
60	102	X	-0.0002	-0.0002	0	%100
61	103	X	-0.0002	-0.0002	0	%100
62	104	X	-0.0002	-0.0002	0	%100
63	105	X	-0.0002	-0.0002	0	%100
64	106	X	-0.0003	-0.0003	0	%100
65	107	X	-0.0002	-0.0002	0	%100
66	108	X	-0.0002	-0.0002	0	%100
67	109	X	-0.0002	-0.0002	0	%100
68	110	X	-0.0002	-0.0002	0	%100
69	111	X	-0.0002	-0.0002	0	%100
70	112	X	-0.0002	-0.0002	0	%100
71	113	X	-0.0003	-0.0003	0	%100
72	114	X	-0.0003	-0.0003	0	%100
73	115	X	-0.0003	-0.0003	0	%100
74	117	X	-0.0003	-0.0003	0	%100
75	118	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
76	125	X	-0.0003	-0.0003	0	%100
77	127	X	-0.0003	-0.0003	0	%100
78	128	X	-0.0002	-0.0002	0	%100
79	129	X	-0.0002	-0.0002	0	%100
80	130	X	-0.0004	-0.0004	0	%100
81	131	X	-0.0003	-0.0003	0	%100
82	134	X	-0.0002	-0.0002	0	%100
83	136	X	-0.0003	-0.0003	0	%100
84	138	X	-0.0004	-0.0004	0	%100
85	140	X	-0.0004	-0.0004	0	%100
86	141	X	-0.0004	-0.0004	0	%100
87	147	X	-0.0002	-0.0002	0	%100
88	148	X	-0.0002	-0.0002	0	%100
89	158	X	-0.0004	-0.0004	0	%100
90	159	X	-0.0002	-0.0002	0	%100
91	160	X	-0.0002	-0.0002	0	%100
92	161	X	-0.0002	-0.0002	0	%100
93	162	X	-0.0002	-0.0002	0	%100
94	163	X	-0.0004	-0.0004	0	%100
95	164	X	-0.0002	-0.0002	0	%100
96	165	X	-0.0003	-0.0003	0	%100
97	166	X	-0.0002	-0.0002	0	%100
98	167	X	-0.0002	-0.0002	0	%100
99	168	X	-0.0002	-0.0002	0	%100
100	169	X	-0.0002	-0.0002	0	%100
101	170	X	-0.0003	-0.0003	0	%100
102	171	X	-0.0002	-0.0002	0	%100
103	172	X	-0.0002	-0.0002	0	%100
104	176	X	-0.0002	-0.0002	0	%100
105	177	X	-0.0002	-0.0002	0	%100
106	178	X	-0.0002	-0.0002	0	%100
107	179	X	-0.0002	-0.0002	0	%100
108	180	X	-0.0003	-0.0003	0	%100
109	181	X	-0.0003	-0.0003	0	%100
110	182	X	-0.0003	-0.0003	0	%100
111	184	X	-0.0003	-0.0003	0	%100
112	185	X	-0.0003	-0.0003	0	%100
113	192	X	-0.0003	-0.0003	0	%100
114	194	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.006	-0.006	0	%100
2	2	Y	-0.006	-0.006	0	%100
3	3	Y	-0.012	-0.012	0	%100
4	4	Y	-0.012	-0.012	0	%100
5	5	Y	-0.012	-0.012	0	%100
6	6	Y	-0.012	-0.012	0	%100
7	9	Y	-0.012	-0.012	0	%100
8	10	Y	-0.012	-0.012	0	%100
9	11	Y	-0.005	-0.005	0	%100
10	12	Y	-0.007	-0.007	0	%100
11	13	Y	-0.007	-0.007	0	%100
12	14	Y	-0.007	-0.007	0	%100
13	15	Y	-0.007	-0.007	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
14	16	Y	-0.012	-0.012	0	%100
15	17	Y	-0.012	-0.012	0	%100
16	18	Y	-0.005	-0.005	0	%100
17	19	Y	-0.012	-0.012	0	%100
18	20	Y	-0.012	-0.012	0	%100
19	21	Y	-0.005	-0.005	0	%100
20	22	Y	-0.012	-0.012	0	%100
21	23	Y	-0.012	-0.012	0	%100
22	24	Y	-0.005	-0.005	0	%100
23	29	Y	-0.003	-0.003	0	%100
24	30	Y	-0.003	-0.003	0	%100
25	31	Y	-0.003	-0.003	0	%100
26	32	Y	-0.003	-0.003	0	%100
27	33	Y	-0.003	-0.003	0	%100
28	34	Y	-0.003	-0.003	0	%100
29	35	Y	-0.003	-0.003	0	%100
30	36	Y	-0.003	-0.003	0	%100
31	39	Y	-0.005	-0.005	0	%100
32	40	Y	-0.005	-0.005	0	%100
33	43	Y	-0.005	-0.005	0	%100
34	44	Y	-0.008	-0.008	0	%100
35	49	Y	-0.005	-0.005	0	%100
36	52	Y	-0.005	-0.005	0	%100
37	55	Y	-0.005	-0.005	0	%100
38	58	Y	-0.005	-0.005	0	%100
39	99	Y	-0.008	-0.008	0	%100
40	146	Y	-0.008	-0.008	0	%100
41	64	Y	-0.012	-0.012	0	%100
42	65	Y	-0.012	-0.012	0	%100
43	66	Y	-0.006	-0.006	0	%100
44	67	Y	-0.005	-0.005	0	%100
45	70	Y	-0.012	-0.012	0	%100
46	72	Y	-0.005	-0.005	0	%100
47	74	Y	-0.007	-0.007	0	%100
48	76	Y	-0.007	-0.007	0	%100
49	77	Y	-0.007	-0.007	0	%100
50	82	Y	-0.003	-0.003	0	%100
51	83	Y	-0.003	-0.003	0	%100
52	93	Y	-0.006	-0.006	0	%100
53	94	Y	-0.012	-0.012	0	%100
54	95	Y	-0.012	-0.012	0	%100
55	96	Y	-0.012	-0.012	0	%100
56	97	Y	-0.012	-0.012	0	%100
57	98	Y	-0.007	-0.007	0	%100
58	100	Y	-0.012	-0.012	0	%100
59	101	Y	-0.005	-0.005	0	%100
60	102	Y	-0.012	-0.012	0	%100
61	103	Y	-0.012	-0.012	0	%100
62	104	Y	-0.012	-0.012	0	%100
63	105	Y	-0.012	-0.012	0	%100
64	106	Y	-0.005	-0.005	0	%100
65	107	Y	-0.003	-0.003	0	%100
66	108	Y	-0.003	-0.003	0	%100
67	109	Y	-0.003	-0.003	0	%100
68	110	Y	-0.003	-0.003	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
69	111	Y	-0.003	-0.003	0	%100
70	112	Y	-0.003	-0.003	0	%100
71	113	Y	-0.005	-0.005	0	%100
72	114	Y	-0.005	-0.005	0	%100
73	115	Y	-0.005	-0.005	0	%100
74	117	Y	-0.005	-0.005	0	%100
75	118	Y	-0.005	-0.005	0	%100
76	125	Y	-0.005	-0.005	0	%100
77	127	Y	-0.005	-0.005	0	%100
78	128	Y	-0.012	-0.012	0	%100
79	129	Y	-0.012	-0.012	0	%100
80	130	Y	-0.006	-0.006	0	%100
81	131	Y	-0.005	-0.005	0	%100
82	134	Y	-0.012	-0.012	0	%100
83	136	Y	-0.005	-0.005	0	%100
84	138	Y	-0.007	-0.007	0	%100
85	140	Y	-0.007	-0.007	0	%100
86	141	Y	-0.007	-0.007	0	%100
87	147	Y	-0.003	-0.003	0	%100
88	148	Y	-0.003	-0.003	0	%100
89	158	Y	-0.006	-0.006	0	%100
90	159	Y	-0.012	-0.012	0	%100
91	160	Y	-0.012	-0.012	0	%100
92	161	Y	-0.012	-0.012	0	%100
93	162	Y	-0.012	-0.012	0	%100
94	163	Y	-0.007	-0.007	0	%100
95	164	Y	-0.012	-0.012	0	%100
96	165	Y	-0.005	-0.005	0	%100
97	166	Y	-0.012	-0.012	0	%100
98	167	Y	-0.012	-0.012	0	%100
99	168	Y	-0.012	-0.012	0	%100
100	169	Y	-0.012	-0.012	0	%100
101	170	Y	-0.005	-0.005	0	%100
102	171	Y	-0.003	-0.003	0	%100
103	172	Y	-0.003	-0.003	0	%100
104	176	Y	-0.003	-0.003	0	%100
105	177	Y	-0.003	-0.003	0	%100
106	178	Y	-0.003	-0.003	0	%100
107	179	Y	-0.003	-0.003	0	%100
108	180	Y	-0.005	-0.005	0	%100
109	181	Y	-0.005	-0.005	0	%100
110	182	Y	-0.005	-0.005	0	%100
111	184	Y	-0.005	-0.005	0	%100
112	185	Y	-0.005	-0.005	0	%100
113	192	Y	-0.005	-0.005	0	%100
114	194	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
7	9	Z	-0.002	-0.002	0	%100
8	10	Z	-0.002	-0.002	0	%100
9	11	Z	-0.001	-0.001	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.004	-0.004	0	%100
12	14	Z	-0.004	-0.004	0	%100
13	15	Z	-0.004	-0.004	0	%100
14	16	Z	-0.002	-0.002	0	%100
15	17	Z	-0.002	-0.002	0	%100
16	18	Z	-0.001	-0.001	0	%100
17	19	Z	-0.002	-0.002	0	%100
18	20	Z	-0.002	-0.002	0	%100
19	21	Z	-0.001	-0.001	0	%100
20	22	Z	-0.002	-0.002	0	%100
21	23	Z	-0.002	-0.002	0	%100
22	24	Z	-0.001	-0.001	0	%100
23	29	Z	-0.0006	-0.0006	0	%100
24	30	Z	-0.0006	-0.0006	0	%100
25	31	Z	-0.0006	-0.0006	0	%100
26	32	Z	-0.0006	-0.0006	0	%100
27	33	Z	-0.0007	-0.0007	0	%100
28	34	Z	-0.0007	-0.0007	0	%100
29	35	Z	-0.0007	-0.0007	0	%100
30	36	Z	-0.0007	-0.0007	0	%100
31	39	Z	-0.001	-0.001	0	%100
32	40	Z	-0.001	-0.001	0	%100
33	43	Z	-0.001	-0.001	0	%100
34	44	Z	-0.003	-0.003	0	%100
35	49	Z	-0.001	-0.001	0	%100
36	52	Z	-0.001	-0.001	0	%100
37	55	Z	-0.001	-0.001	0	%100
38	58	Z	-0.001	-0.001	0	%100
39	99	Z	-0.003	-0.003	0	%100
40	146	Z	-0.003	-0.003	0	%100
41	64	Z	-0.002	-0.002	0	%100
42	65	Z	-0.002	-0.002	0	%100
43	66	Z	-0.002	-0.002	0	%100
44	67	Z	-0.001	-0.001	0	%100
45	70	Z	-0.002	-0.002	0	%100
46	72	Z	-0.001	-0.001	0	%100
47	74	Z	-0.004	-0.004	0	%100
48	76	Z	-0.004	-0.004	0	%100
49	77	Z	-0.004	-0.004	0	%100
50	82	Z	-0.0006	-0.0006	0	%100
51	83	Z	-0.0007	-0.0007	0	%100
52	93	Z	-0.002	-0.002	0	%100
53	94	Z	-0.002	-0.002	0	%100
54	95	Z	-0.002	-0.002	0	%100
55	96	Z	-0.002	-0.002	0	%100
56	97	Z	-0.002	-0.002	0	%100
57	98	Z	-0.004	-0.004	0	%100
58	100	Z	-0.002	-0.002	0	%100
59	101	Z	-0.001	-0.001	0	%100
60	102	Z	-0.002	-0.002	0	%100
61	103	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
62	104	Z	-0.002	-0.002	0	%100
63	105	Z	-0.002	-0.002	0	%100
64	106	Z	-0.001	-0.001	0	%100
65	107	Z	-0.0006	-0.0006	0	%100
66	108	Z	-0.0006	-0.0006	0	%100
67	109	Z	-0.0006	-0.0006	0	%100
68	110	Z	-0.0007	-0.0007	0	%100
69	111	Z	-0.0007	-0.0007	0	%100
70	112	Z	-0.0007	-0.0007	0	%100
71	113	Z	-0.001	-0.001	0	%100
72	114	Z	-0.001	-0.001	0	%100
73	115	Z	-0.001	-0.001	0	%100
74	117	Z	-0.001	-0.001	0	%100
75	118	Z	-0.001	-0.001	0	%100
76	125	Z	-0.001	-0.001	0	%100
77	127	Z	-0.001	-0.001	0	%100
78	128	Z	-0.002	-0.002	0	%100
79	129	Z	-0.002	-0.002	0	%100
80	130	Z	-0.002	-0.002	0	%100
81	131	Z	-0.001	-0.001	0	%100
82	134	Z	-0.002	-0.002	0	%100
83	136	Z	-0.001	-0.001	0	%100
84	138	Z	-0.004	-0.004	0	%100
85	140	Z	-0.004	-0.004	0	%100
86	141	Z	-0.004	-0.004	0	%100
87	147	Z	-0.0006	-0.0006	0	%100
88	148	Z	-0.0007	-0.0007	0	%100
89	158	Z	-0.002	-0.002	0	%100
90	159	Z	-0.002	-0.002	0	%100
91	160	Z	-0.002	-0.002	0	%100
92	161	Z	-0.002	-0.002	0	%100
93	162	Z	-0.002	-0.002	0	%100
94	163	Z	-0.004	-0.004	0	%100
95	164	Z	-0.002	-0.002	0	%100
96	165	Z	-0.001	-0.001	0	%100
97	166	Z	-0.002	-0.002	0	%100
98	167	Z	-0.002	-0.002	0	%100
99	168	Z	-0.002	-0.002	0	%100
100	169	Z	-0.002	-0.002	0	%100
101	170	Z	-0.001	-0.001	0	%100
102	171	Z	-0.0006	-0.0006	0	%100
103	172	Z	-0.0006	-0.0006	0	%100
104	176	Z	-0.0006	-0.0006	0	%100
105	177	Z	-0.0007	-0.0007	0	%100
106	178	Z	-0.0007	-0.0007	0	%100
107	179	Z	-0.0007	-0.0007	0	%100
108	180	Z	-0.001	-0.001	0	%100
109	181	Z	-0.001	-0.001	0	%100
110	182	Z	-0.001	-0.001	0	%100
111	184	Z	-0.001	-0.001	0	%100
112	185	Z	-0.001	-0.001	0	%100
113	192	Z	-0.001	-0.001	0	%100
114	194	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.002	-0.002	0	%100
7	9	X	-0.002	-0.002	0	%100
8	10	X	-0.002	-0.002	0	%100
9	11	X	-0.001	-0.001	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.004	-0.004	0	%100
12	14	X	-0.004	-0.004	0	%100
13	15	X	-0.004	-0.004	0	%100
14	16	X	-0.002	-0.002	0	%100
15	17	X	-0.002	-0.002	0	%100
16	18	X	-0.001	-0.001	0	%100
17	19	X	-0.002	-0.002	0	%100
18	20	X	-0.002	-0.002	0	%100
19	21	X	-0.001	-0.001	0	%100
20	22	X	-0.002	-0.002	0	%100
21	23	X	-0.002	-0.002	0	%100
22	24	X	-0.001	-0.001	0	%100
23	29	X	-0.0006	-0.0006	0	%100
24	30	X	-0.0006	-0.0006	0	%100
25	31	X	-0.0006	-0.0006	0	%100
26	32	X	-0.0006	-0.0006	0	%100
27	33	X	-0.0007	-0.0007	0	%100
28	34	X	-0.0007	-0.0007	0	%100
29	35	X	-0.0007	-0.0007	0	%100
30	36	X	-0.0007	-0.0007	0	%100
31	39	X	-0.001	-0.001	0	%100
32	40	X	-0.001	-0.001	0	%100
33	43	X	-0.001	-0.001	0	%100
34	44	X	-0.003	-0.003	0	%100
35	49	X	-0.001	-0.001	0	%100
36	52	X	-0.001	-0.001	0	%100
37	55	X	-0.001	-0.001	0	%100
38	58	X	-0.001	-0.001	0	%100
39	99	X	-0.003	-0.003	0	%100
40	146	X	-0.003	-0.003	0	%100
41	64	X	-0.002	-0.002	0	%100
42	65	X	-0.002	-0.002	0	%100
43	66	X	-0.002	-0.002	0	%100
44	67	X	-0.001	-0.001	0	%100
45	70	X	-0.002	-0.002	0	%100
46	72	X	-0.001	-0.001	0	%100
47	74	X	-0.004	-0.004	0	%100
48	76	X	-0.004	-0.004	0	%100
49	77	X	-0.004	-0.004	0	%100
50	82	X	-0.0006	-0.0006	0	%100
51	83	X	-0.0007	-0.0007	0	%100
52	93	X	-0.002	-0.002	0	%100
53	94	X	-0.002	-0.002	0	%100
54	95	X	-0.002	-0.002	0	%100
55	96	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	97	X	-0.002	-0.002	0	%100
57	98	X	-0.004	-0.004	0	%100
58	100	X	-0.002	-0.002	0	%100
59	101	X	-0.001	-0.001	0	%100
60	102	X	-0.002	-0.002	0	%100
61	103	X	-0.002	-0.002	0	%100
62	104	X	-0.002	-0.002	0	%100
63	105	X	-0.002	-0.002	0	%100
64	106	X	-0.001	-0.001	0	%100
65	107	X	-0.0006	-0.0006	0	%100
66	108	X	-0.0006	-0.0006	0	%100
67	109	X	-0.0006	-0.0006	0	%100
68	110	X	-0.0007	-0.0007	0	%100
69	111	X	-0.0007	-0.0007	0	%100
70	112	X	-0.0007	-0.0007	0	%100
71	113	X	-0.001	-0.001	0	%100
72	114	X	-0.001	-0.001	0	%100
73	115	X	-0.001	-0.001	0	%100
74	117	X	-0.001	-0.001	0	%100
75	118	X	-0.001	-0.001	0	%100
76	125	X	-0.001	-0.001	0	%100
77	127	X	-0.001	-0.001	0	%100
78	128	X	-0.002	-0.002	0	%100
79	129	X	-0.002	-0.002	0	%100
80	130	X	-0.002	-0.002	0	%100
81	131	X	-0.001	-0.001	0	%100
82	134	X	-0.002	-0.002	0	%100
83	136	X	-0.001	-0.001	0	%100
84	138	X	-0.004	-0.004	0	%100
85	140	X	-0.004	-0.004	0	%100
86	141	X	-0.004	-0.004	0	%100
87	147	X	-0.0006	-0.0006	0	%100
88	148	X	-0.0007	-0.0007	0	%100
89	158	X	-0.002	-0.002	0	%100
90	159	X	-0.002	-0.002	0	%100
91	160	X	-0.002	-0.002	0	%100
92	161	X	-0.002	-0.002	0	%100
93	162	X	-0.002	-0.002	0	%100
94	163	X	-0.004	-0.004	0	%100
95	164	X	-0.002	-0.002	0	%100
96	165	X	-0.001	-0.001	0	%100
97	166	X	-0.002	-0.002	0	%100
98	167	X	-0.002	-0.002	0	%100
99	168	X	-0.002	-0.002	0	%100
100	169	X	-0.002	-0.002	0	%100
101	170	X	-0.001	-0.001	0	%100
102	171	X	-0.0006	-0.0006	0	%100
103	172	X	-0.0006	-0.0006	0	%100
104	176	X	-0.0006	-0.0006	0	%100
105	177	X	-0.0007	-0.0007	0	%100
106	178	X	-0.0007	-0.0007	0	%100
107	179	X	-0.0007	-0.0007	0	%100
108	180	X	-0.001	-0.001	0	%100
109	181	X	-0.001	-0.001	0	%100
110	182	X	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
111	184	X	-0.001	-0.001	0	%100
112	185	X	-0.001	-0.001	0	%100
113	192	X	-0.001	-0.001	0	%100
114	194	X	-0.001	-0.001	0	%100

Member Area Loads

No Data to Print...

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	48	L	Y	-0.5
2	149	L	Y	-0.5
3	245	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	66	L	Y	-0.5
2	203	L	Y	-0.5
3	307	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	73	L	Y	-0.5
2	183	L	Y	-0.5
3	287	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		75	
2	0 Wind - No Ice	WLZ			75	114
3	90 Wind - No Ice	WLX			75	114
4	0 Wind - Ice	WLZ			75	114
5	90 Wind - Ice	WLX			75	114
6	0 Wind - Service	WLZ			75	114
7	90 Wind - Service	WLX			75	114
8	Ice	OL1			75	114
9	0 Seismic	ELZ			75	114
10	90 Seismic	ELX			75	114
11	Live Load a	LL		3		
12	Live Load b	LL		3		
13	Live Load c	LL		3		
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL			1	
22	Maint LL 8	LL			1	

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
23	Maint LL 9	LL			1	
24	Maint LL 10	LL			1	
25	Maint LL 11	LL			1	
26	Maint LL 12	LL			1	
27	Maint LL 13	LL				
28	Maint LL 14	LL				
29	Maint LL 15	LL				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Load Combinations (Continued)

Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	61	max	1.51	41	1.686	14	2.52	14	0.226	2	2.565	5	0.438	12
2		min	-0.499	11	0.655	8	0.165	8	-0.442	8	-1.773	11	-0.687	6
3	62	max	2.309	5	1.705	22	0.1	3	0.056	9	3.074	5	1.217	6
4		min	-3.041	11	0.69	4	-1.829	21	-0.711	15	-3.901	11	-1.567	12
5	130	max	1.777	17	1.699	17	0.025	2	0.516	3	2.942	9	0.584	10
6		min	-0.125	11	0.687	11	-2.187	44	-0.635	9	-2.123	3	-0.263	4
7	154	max	1.278	3	1.755	25	4.407	2	1.661	9	4.302	9	1.256	3
8		min	-2.513	9	0.727	7	-3.089	8	-1.678	3	-5.069	3	-0.776	9
9	234	max	-0.297	5	1.651	21	0.694	2	0.778	2	2.927	13	0.353	12
10		min	-2.601	23	0.687	3	-1.152	8	-0.466	8	-2.124	7	-0.423	6
11	250	max	3.648	7	1.723	18	2.893	13	1.836	8	4.286	13	1.221	7
12		min	-1.689	13	0.662	13	-2.672	7	-1.306	2	-5.108	7	-1.339	13
13	Totals:	max	7.596	5	10.073	25	9.807	2						
14		min	-7.596	11	4.75	7	-9.807	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	31	5/8"SR	0.6	0	14	0.017	3.333		7	1.88	9.94	0.104	0.104	1	H1-1a
2	39	PIPE_2.0	0.57	3.5	2	0.107	3.609		8	8.922	32.13	1.872	1.872	1	H1-1b
3	113	PIPE_2.0	0.57	3.5	2	0.076	3.609		13	8.922	32.13	1.872	1.872	1	H1-1b
4	180	PIPE_2.0	0.57	3.5	8	0.086	3.609		9	8.922	32.13	1.872	1.872	1	H1-1b
5	147	5/8"SR	0.557	0	21	0.022	3.333		2	1.88	9.94	0.104	0.104	1	H1-1a
6	82	5/8"SR	0.528	0	19	0.017	3.333		10	1.88	9.94	0.104	0.104	1	H1-1a
7	32	5/8"SR	0.515	0	16	0.01	3.333		45	1.88	9.94	0.104	0.104	1	H1-1a
8	52	PIPE_2.0	0.503	3.5	8	0.072	3.609		6	8.922	32.13	1.872	1.872	1	H1-1b
9	192	PIPE_2.0	0.503	3.5	2	0.088	3.609		2	8.922	32.13	1.872	1.872	1	H1-1b
10	125	PIPE_2.0	0.503	3.5	2	0.084	3.609		9	8.922	32.13	1.872	1.872	1	H1-1b
11	109	5/8"SR	0.5	0	21	0.01	3.333		38	1.88	9.94	0.104	0.104	1	H1-1a
12	176	5/8"SR	0.49	0	25	0.01	3.333		41	1.88	9.94	0.104	0.104	1	H1-1a
13	49	PIPE_2.0	0.444	3.609	8	0.077	3.609		7	8.922	32.13	1.872	1.872	1	H1-1b
14	6	PL5/8X3.5	0.406	0.458	13	0.142	0.458	y	44	67.491	70.875	0.923	5.168	2.599	H1-1b
15	29	5/8"SR	0.389	1.667	2	0.016	3.333		6	1.88	9.94	0.104	0.104	1	H1-1a
16	19	PL5/8X3.5	0.377	0.08	13	0.322	0	y	13	70.768	70.875	0.923	5.168	1.033	H1-1b
17	1	PIPE_2.875X0.276"	0.376	3.927	8	0.109	3.927		8	14.358	85.184	5.895	5.895	1	H1-1b
18	22	PL5/8X3.5	0.348	0.08	44	0.23	0	y	9	70.768	70.875	0.923	5.168	1.048	H1-1b
19	104	PL5/8X3.5	0.329	0.08	13	0.088	0	y	6	70.768	70.875	0.923	5.168	1.022	H1-1b
20	146	HSS4.500X0.237	0.318	1.021	7	0.432	1.021		7	106.372	133.2	15.113	15.113	1	H3-6
21	158	PIPE_2.875X0.276"	0.311	3.927	3	0.121	3.927		3	14.358	85.184	5.895	5.895	1	H1-1b
22	99	HSS4.500X0.237	0.306	1.021	3	0.424	1.021		3	106.372	133.2	15.113	15.113	1	H3-6
23	5	PL5/8X3.5	0.306	0.458	9	0.151	0.458	y	41	67.491	70.875	0.923	5.168	2.482	H1-1b
24	102	PL5/8X3.5	0.299	0.08	4	0.076	0	y	11	70.768	70.875	0.923	5.168	1.058	H1-1b
25	107	5/8"SR	0.298	3.333	7	0.017	3.333		9	1.88	9.94	0.104	0.104	1	H1-1a
26	96	PL5/8X3.5	0.294	0.239	8	0.308	0.458	y	4	67.491	70.875	0.923	5.168	2.661	H1-1b
27	21	PIPE_2.0	0.284	0.182	2	0.204	0.156		2	29.81	32.13	1.872	1.872	1	H1-1b
28	24	PIPE_2.0	0.282	0.182	45	0.185	0.156		21	29.81	32.13	1.872	1.872	1	H1-1b
29	127	PIPE_2.0	0.274	3.5	2	0.059	3.609		47	8.922	32.13	1.872	1.872	1	H1-1b
30	194	PIPE_2.0	0.274	3.5	8	0.079	3.609		2	8.922	32.13	1.872	1.872	1	H1-1b
31	159	PL5/8X3.5	0.269	0.239	8	0.292	0.458	y	7	67.491	70.875	0.923	5.168	3	H1-1b
32	140	PL1.25"X3.5"	0.261	0	20	0.054	0.458	y	8	140.027	141.75	3.691	10.336	1.58	H1-1b
33	16	PL5/8X3.5	0.258	0.08	8	0.202	0	y	7	70.768	70.875	0.923	5.168	1.038	H1-1b
34	70	PL5/8X3.5	0.257	0.239	44	0.265	0.458	y	13	67.491	70.875	0.923	5.168	2.577	H1-1b
35	106	PIPE_2.0	0.247	0.156	13	0.136	2.5		48	29.81	32.13	1.872	1.872	1	H1-1b
36	4	PL5/8X3.5	0.244	0.458	8	0.083	0.239	y	46	67.491	70.875	0.923	5.168	2.484	H1-1b
37	76	PL1.25"X3.5"	0.243	0	15	0.038	0	y	14	140.027	141.75	3.691	10.336	1.57	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
38	3	PL5/8X3.5	0.24	0.239	12	0.149	0.458	y	6	67.491	70.875	0.923	5.168	2.803	H1-1b
39	66	PIPE_2.875X0.276"	0.238	4.682	39	0.055	4.833		2	14.358	85.184	5.895	5.895	1	H1-1b
40	2	PIPE_2.875X0.276"	0.236	4.682	49	0.053	5.135		7	14.358	85.184	5.895	5.895	1	H1-1b
41	130	PIPE_2.875X0.276"	0.236	4.833	43	0.059	4.833		4	14.358	85.184	5.895	5.895	1	H1-1b
42	93	PIPE_2.875X0.276"	0.235	3.927	12	0.075	9.667		7	14.358	85.184	5.895	5.895	1	H1-1b
43	13	PL1.25"X3.5"	0.233	0	24	0.044	0.458	y	13	140.027	141.75	3.691	10.336	1.53	H1-1b
44	128	PL5/8X3.5	0.23	0.08	3	0.055	0	y	11	70.768	70.875	0.923	5.168	1.043	H1-1b
45	161	PL5/8X3.5	0.229	0.239	9	0.209	0.458	y	12	67.491	70.875	0.923	5.168	3	H1-1b
46	134	PL5/8X3.5	0.221	0.239	4	0.2	0.458	y	38	67.491	70.875	0.923	5.168	2.56	H1-1b
47	165	PIPE_2.0	0.207	2.5	8	0.101	2.5		19	29.81	32.13	1.872	1.872	1	H1-1b
48	129	PL5/8X3.5	0.205	0	13	0.108	0	y	6	70.768	70.875	0.923	5.168	1.173	H1-1b
49	44	HSS4.500X0.237	0.204	1.021	11	0.326	1.021		11	106.372	133.2	15.113	15.113	1	H3-6
50	67	PIPE_2.0	0.203	0.182	5	0.158	2.5		40	29.81	32.13	1.872	1.872	1	H1-1b
51	141	PL1.25"X3.5"	0.203	0	21	0.053	0	y	22	140.027	141.75	3.691	10.336	1.599	H1-1b
52	94	PL5/8X3.5	0.202	0.239	13	0.241	0.458	y	4	67.491	70.875	0.923	5.168	2.759	H1-1b
53	18	PIPE_2.0	0.199	0.156	8	0.156	0.156		8	29.81	32.13	1.872	1.872	1	H1-1b
54	77	PL1.25"X3.5"	0.199	0	17	0.044	0	y	19	140.027	141.75	3.691	10.336	1.675	H1-1b
55	35	SR_3/4"	0.195	0	47	0.019	0		8	1.542	14.314	0.179	0.179	1	H1-1b*
56	15	PL1.25"X3.5"	0.194	0	14	0.041	0.458	y	17	140.027	141.75	3.691	10.336	1.754	H1-1b
57	83	SR_3/4"	0.188	0	38	0.007	3.976		47	1.542	14.314	0.179	0.179	1	H1-1b*
58	131	PIPE_2.0	0.187	0.182	9	0.153	2.5		44	29.81	32.13	1.872	1.872	1	H1-1b
59	148	SR_3/4"	0.185	0	43	0.014	3.976		38	1.542	14.314	0.179	0.179	1	H1-1b*
60	170	PIPE_2.0	0.182	2.5	8	0.227	0.156		39	29.81	32.13	1.872	1.872	1	H1-1b
61	9	PL5/8X3.5	0.18	0.08	3	0.148	0	y	2	70.768	70.875	0.923	5.168	1.064	H1-1b
62	171	5/8"SR	0.179	0	9	0.02	3.333		2	1.88	9.94	0.104	0.104	1	H1-1b*
63	169	PL5/8X3.5	0.166	0.08	49	0.057	0.08	z	43	70.768	70.875	0.923	5.168	1.024	H1-1b
64	105	PL5/8X3.5	0.166	0.08	44	0.12	0.08	y	49	70.768	70.875	0.923	5.168	1.031	H1-1b
65	166	PL5/8X3.5	0.164	0.08	8	0.157	0	y	12	70.768	70.875	0.923	5.168	1.053	H1-1b
66	95	PL5/8X3.5	0.164	0.239	6	0.08	0.458	y	44	67.491	70.875	0.923	5.168	2.521	H1-1b
67	11	PIPE_2.0	0.164	0.156	2	0.149	0.156		2	29.81	32.13	1.872	1.872	1	H1-1b
68	167	PL5/8X3.5	0.155	0.08	8	0.071	0.08	z	44	70.768	70.875	0.923	5.168	1.01	H1-1b
69	101	PIPE_2.0	0.155	2.5	4	0.11	0.156		73	29.81	32.13	1.872	1.872	1	H1-1b
70	23	PL5/8X3.5	0.147	0.08	17	0.094	0.002	y	38	70.768	70.875	0.923	5.168	1.029	H1-1b
71	72	PIPE_2.0	0.139	1.25	3	0.12	0.156		5	29.81	32.13	1.872	1.872	1	H1-1b
72	138	PL1.25"X3.5"	0.137	0.458	2	0.037	0.458	y	2	140.027	141.75	3.691	10.336	1.442	H1-1b
73	74	PL1.25"X3.5"	0.135	0.458	10	0.036	0.458	y	9	140.027	141.75	3.691	10.336	1.566	H1-1b
74	65	PL5/8X3.5	0.134	0	10	0.154	0.08	y	4	70.768	70.875	0.923	5.168	1.017	H1-1b
75	136	PIPE_2.0	0.133	1.25	7	0.077	0.156		8	29.81	32.13	1.872	1.872	1	H1-1b
76	181	PIPE_2.0	0.132	6.251	9	0.079	6.251		45	20.112	32.13	1.872	1.872	1	H1-1b*
77	103	PL5/8X3.5	0.131	0.08	39	0.124	0.08	y	5	70.768	70.875	0.923	5.168	1.014	H1-1b
78	160	PL5/8X3.5	0.131	0.458	3	0.185	0.458	y	3	67.491	70.875	0.923	5.168	2.503	H1-1b
79	20	PL5/8X3.5	0.129	0.08	13	0.074	0.08	z	46	70.768	70.875	0.923	5.168	1.019	H1-1b
80	12	PL1.25"X3.5"	0.12	0.458	7	0.034	0.458	y	6	140.027	141.75	3.691	10.336	1.436	H1-1b
81	168	PL5/8X3.5	0.117	0.08	6	0.265	0.08	y	38	70.768	70.875	0.923	5.168	1.031	H1-1b
82	98	PL1.25"X3.5"	0.117	0.458	66	0.031	0	y	14	140.027	141.75	3.691	10.336	1.572	H1-1b
83	40	PIPE_2.0	0.116	6.251	13	0.078	6.251		38	20.112	32.13	1.872	1.872	1	H1-1b*
84	164	PL5/8X3.5	0.116	0.08	8	0.1	0.001	y	42	70.768	70.875	0.923	5.168	1.024	H1-1b
85	163	PL1.25"X3.5"	0.114	0.458	71	0.03	0.458	y	19	140.027	141.75	3.691	10.336	1.596	H1-1b
86	14	PL1.25"X3.5"	0.114	0.458	62	0.031	0	y	22	140.027	141.75	3.691	10.336	1.632	H1-1b
87	17	PL5/8X3.5	0.102	0	13	0.107	0.08	y	45	70.768	70.875	0.923	5.168	1.024	H1-1b
88	64	PL5/8X3.5	0.094	0.08	12	0.111	0.001	y	62	70.768	70.875	0.923	5.168	1.041	H1-1b
89	162	PL5/8X3.5	0.093	0.08	2	0.095	0.08	y	45	70.768	70.875	0.923	5.168	1.016	H1-1b
90	117	PIPE_2.0	0.092	1.312	5	0.054	4.625		10	20.867	32.13	1.872	1.872	1	H1-1b
91	55	PIPE_2.0	0.092	1.312	11	0.055	4.625		6	20.867	32.13	1.872	1.872	1	H1-1b
92	184	PIPE_2.0	0.092	1.312	5	0.068	1.375		2	20.867	32.13	1.872	1.872	1	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
93	118	PIPE_2.0	0.088	1.312	5	0.058	4.625		10	20.867	32.13	1.872	1.872	1	H1-1b
94	108	5/8"SR	0.086	0	15	0.011	0		38	1.88	9.94	0.104	0.104	1	H1-1b
95	172	5/8"SR	0.084	0	20	0.011	0		43	1.88	9.94	0.104	0.104	1	H1-1b
96	100	PL5/8X3.5	0.082	0	4	0.1	0.08	y	2	70.768	70.875	0.923	5.168	1.023	H1-1b
97	30	5/8"SR	0.081	0	24	0.011	0		45	1.88	9.94	0.104	0.104	1	H1-1b
98	97	PL5/8X3.5	0.079	0.08	8	0.103	0.08	y	38	70.768	70.875	0.923	5.168	1.086	H1-1b
99	58	PIPE_2.0	0.075	3.312	9	0.067	4.625		7	20.867	32.13	1.872	1.872	1	H1-1b
100	114	PIPE_2.0	0.075	6.251	5	0.074	6.251		42	20.112	32.13	1.872	1.872	1	H1-1b*
101	185	PIPE_2.0	0.073	4.625	3	0.076	4.625		2	20.867	32.13	1.872	1.872	1	H1-1b
102	10	PL5/8X3.5	0.072	0.08	6	0.069	0.001	y	39	70.768	70.875	0.923	5.168	1.011	H1-1b
103	177	SR_3/4"	0.067	0	45	0.01	3.976		38	1.542	14.314	0.179	0.179	1	H1-1b*
104	115	PIPE_2.0	0.063	6.27	8	0.026	6.27		8	20.053	32.13	1.872	1.872	1	H1-1b*
105	33	SR_3/4"	0.061	3.976	68	0.011	3.976		39	1.542	14.314	0.179	0.179	1	H1-1b*
106	110	SR_3/4"	0.06	3.976	71	0.009	0		45	1.542	14.314	0.179	0.179	1	H1-1b*
107	182	PIPE_2.0	0.05	3.135	13	0.014	6.27		12	20.053	32.13	1.872	1.872	1	H1-1b
108	43	PIPE_2.0	0.045	3.135	5	0.026	6.27		9	20.053	32.13	1.872	1.872	1	H1-1b
109	34	SR_3/4"	0.008	3.976	7	0.012	3.976		7	1.542	14.314	0.179	0.179	1	H1-1b*
110	179	SR_3/4"	0	3.976	100	0.013	3.976		13	1.542	14.314	0.179	0.179	1	H1-1a
111	112	SR_3/4"	0	3.976	100	0.012	3.976		10	1.542	14.314	0.179	0.179	1	H1-1a
112	36	SR_3/4"	0	3.976	100	0.012	0		3	1.542	14.314	0.179	0.179	1	H1-1a
113	178	SR_3/4"	0	3.976	100	0.011	0		13	1.542	14.314	0.179	0.179	1	H1-1a
114	111	SR_3/4"	0	3.976	100	0.01	0		9	1.542	14.314	0.179	0.179	1	H1-1a

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**136918.010.01 - Middletown_1, CT**				**KSC**
SUBJECT	**Sector Mount Analysis**				
DATE	**05/24/22**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	4.41	k
Vertical Shear	:	1.755	k
Horizontal Shear	:	2.51	k
Torsion	:	1.253	k.ft
Moment from Horizontal Forces	:	5.068	k.ft
Moment from Vertical Forces	:	1.679	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

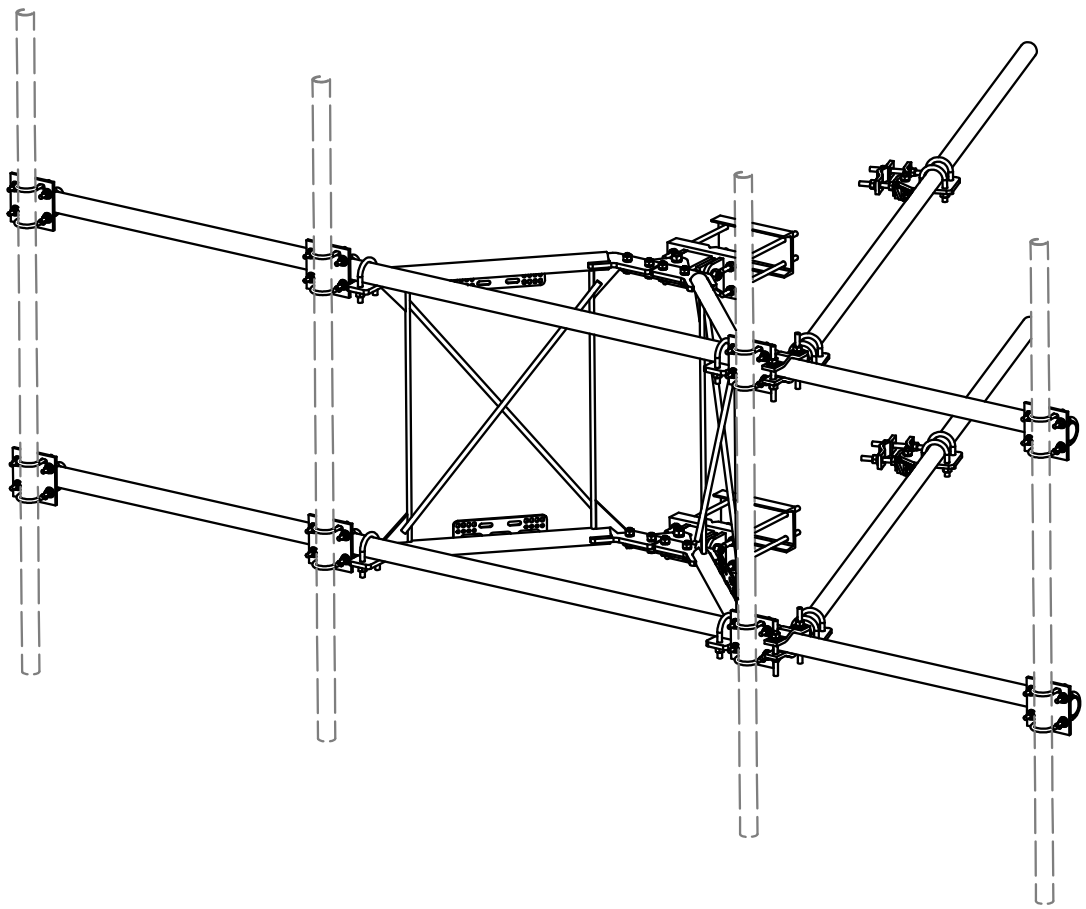
Shear Resultant Force	:	3.06	k
Force from Horz. Moment	:	9.18	k
Force from Vert. Moment	:	3.04	k
Shear Load / Bolt	:	0.77	k
Tension Load / Bolt	:	1.10	k
Resultant from Moments / Bolt	:	4.84	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**28.65%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**16.90%**		**OKAY**
Unity Check, Combined	:	**45.56%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**2.21%**		**OKAY**

APPENDIX E

SUPPLEMENTAL DRAWINGS



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	2	X-HDPMW	HEAVY DUTY PIPE MOUNT WELDMENT		18.61	37.21
3	2	X-HDPMBP	HEAVY DUTY PIPE MOUNT BACKING PLATE	12 in	13.44	26.89
4	2	X-VFAPL3	VFA-HD PIVOT PLATE	24 in	9.69	19.38
5	1	X-LPB	LOWER PIVOT BRACKET		8.84	8.84
6	1	X-UPB	UPPER PIVOT BRACKET		8.84	8.84
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
9	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
10	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
11	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.42	19.36
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
12	2	P30174	2-7/8" O.D. x 174" SCH. 40 PIPE	174 in	84.20	168.39
14	6	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	2.87
15	6	G34LW	3/4" HDG LOCKWASHER		0.04	0.26
16	6	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	1.27
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	8	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	5.58
17	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
18	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
23	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
22	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
24	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
25	20	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.41
26	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
27	70	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.09
28	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
29	16	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	10.00
30	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
31	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
32	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	700.78

REVISION HISTORY				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
14' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1
A valmont COMPANY

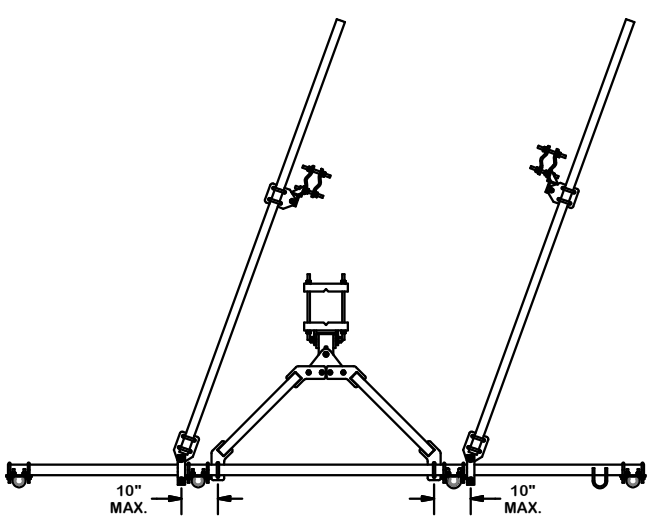
Engineering Support Team:
1-888-753-7446

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

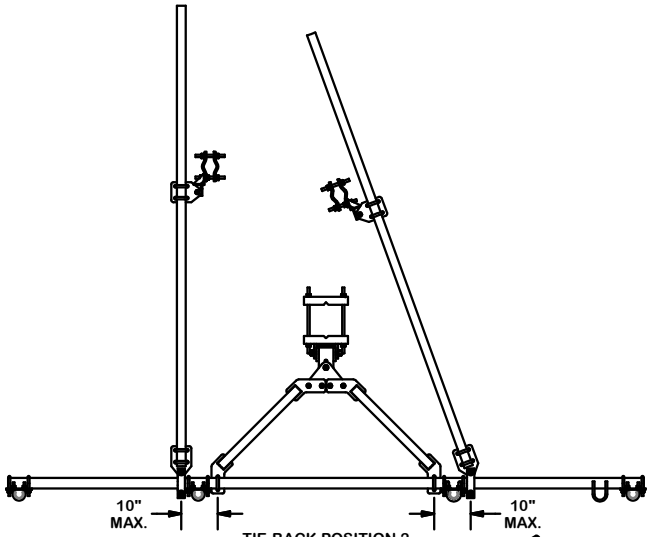
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA14-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/4/2017	VFA14-HD

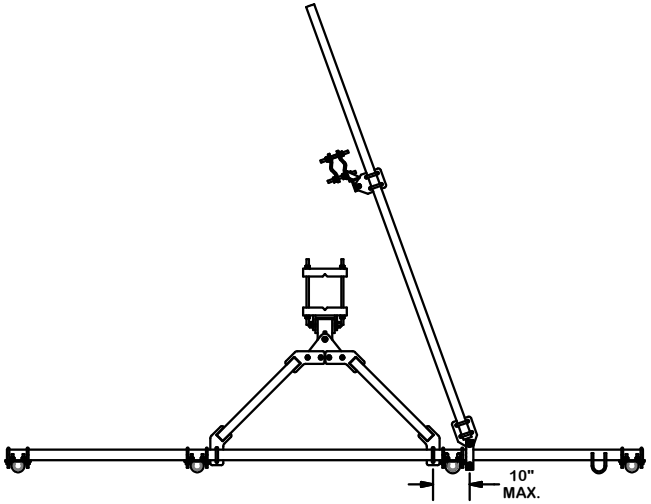
TIE-BACK POSITIONS



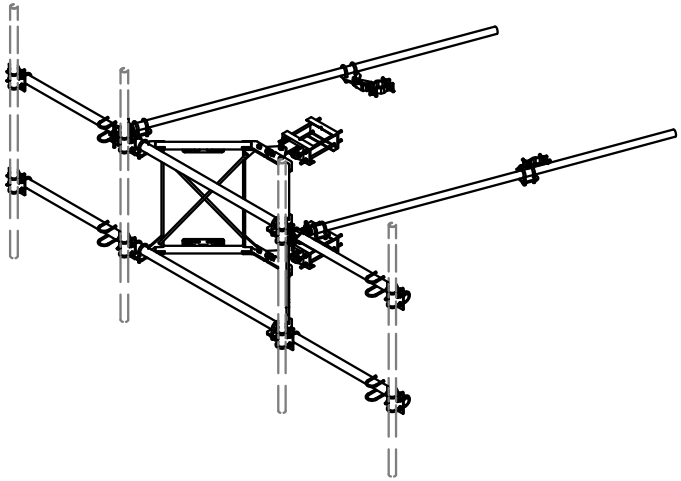
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

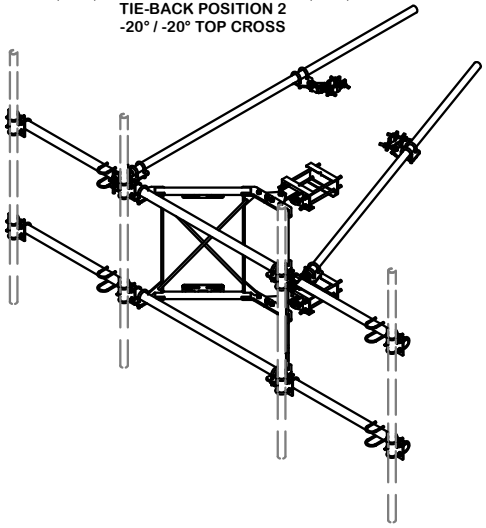


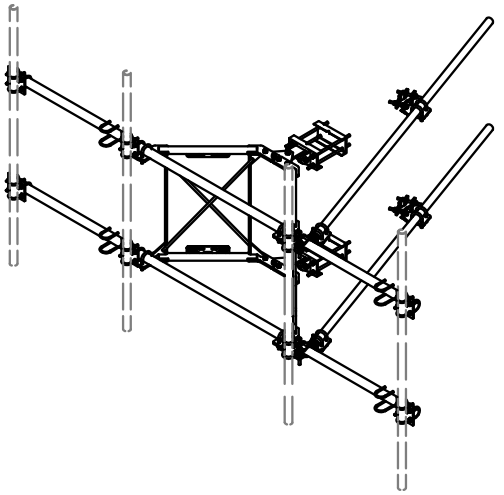
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

REVISION HISTORY

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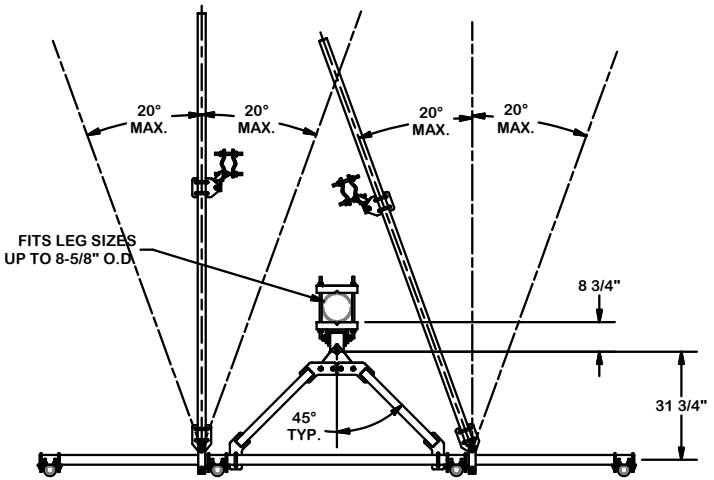
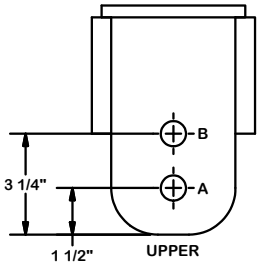
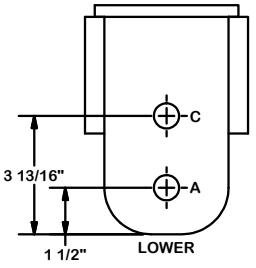
81	02	CUSTOMER	BMC 8/4/2017	VFA14-HD

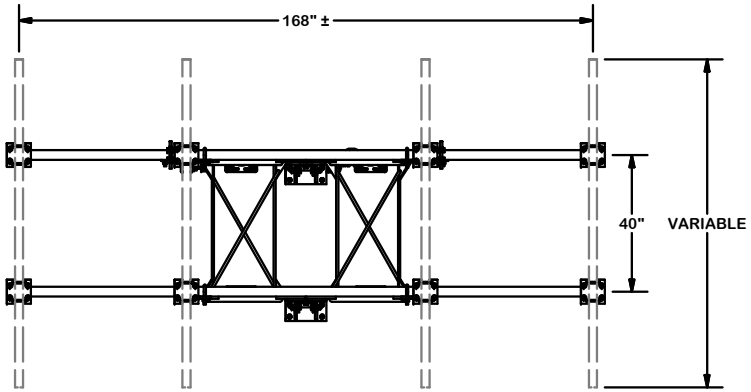


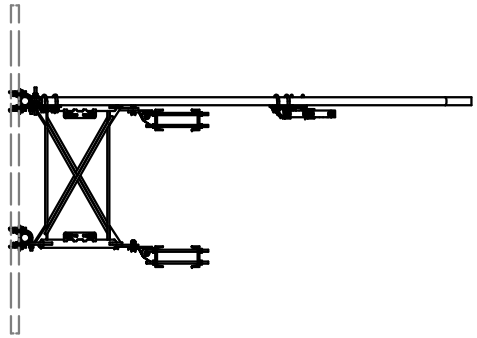




NOTES:

1. USE HOLE "A' IN UPPER AND LOWER BRACKETS FOR STRAIGHT LEGS.
2. USE HOLE "A" IN UPPER BRACKET AND HOLE "C" IN LOWER BRACKET FOR 2" IN 20' TAPER LEGS (3.309°)
3. USE HOLE "B" IN UPPER BRACKET AND HOLE "C" IN LOWER BRACKET FOR 6" IN 20' TAPER LEGS. (0.827°)





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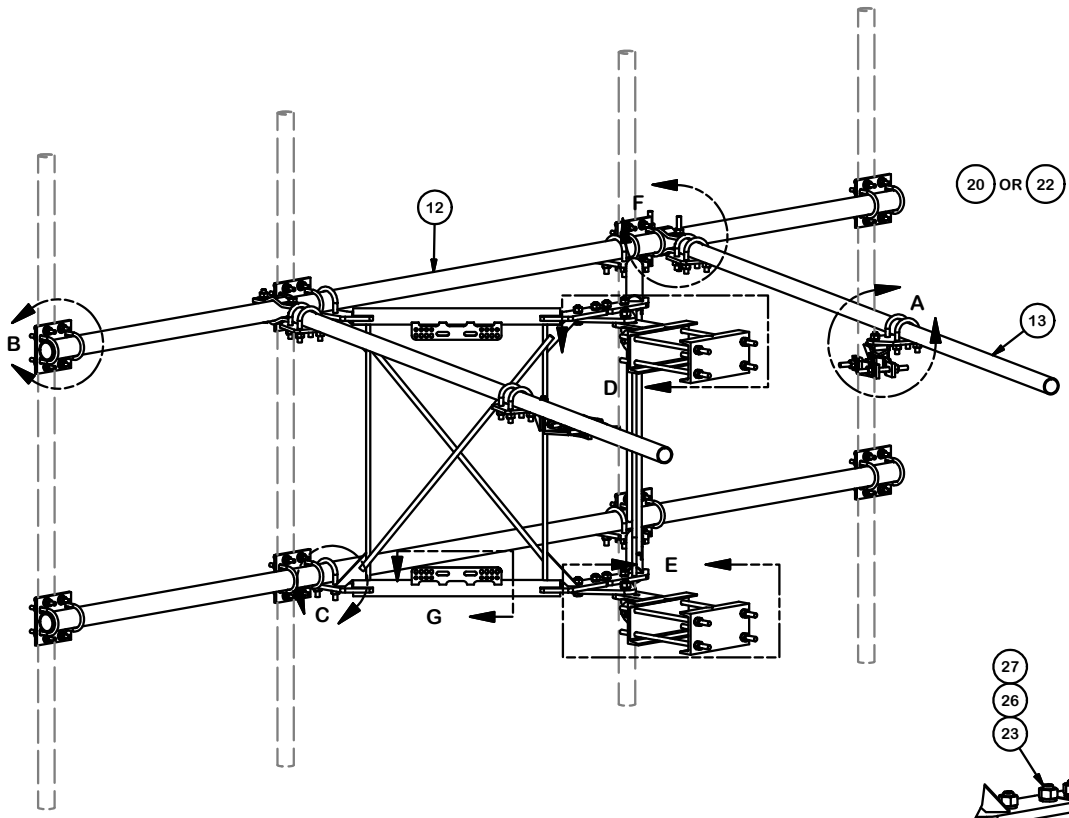
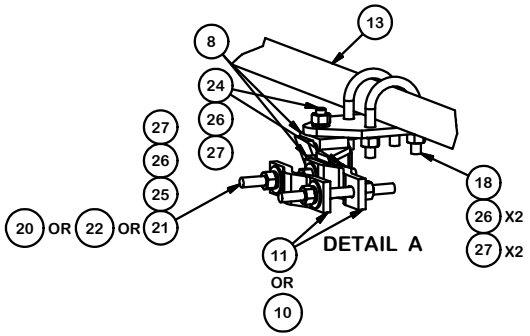
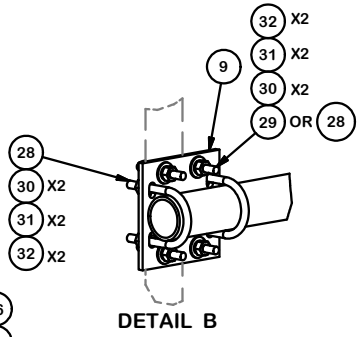
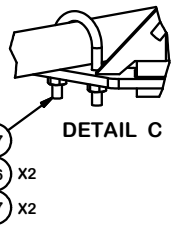




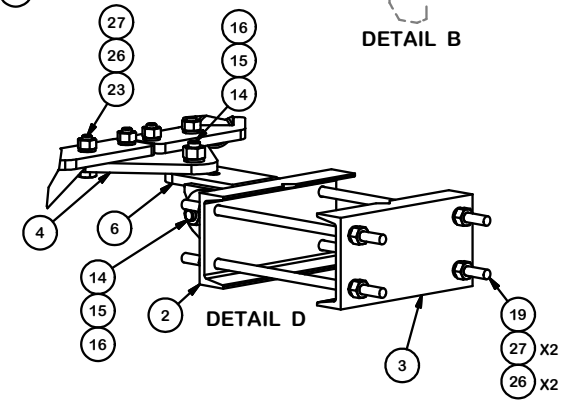
DETAIL A



DETAIL B



DETAIL C



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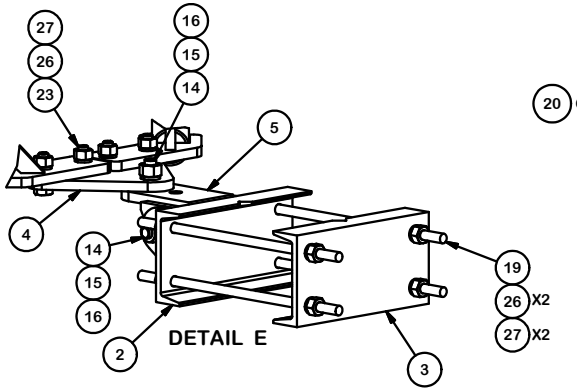
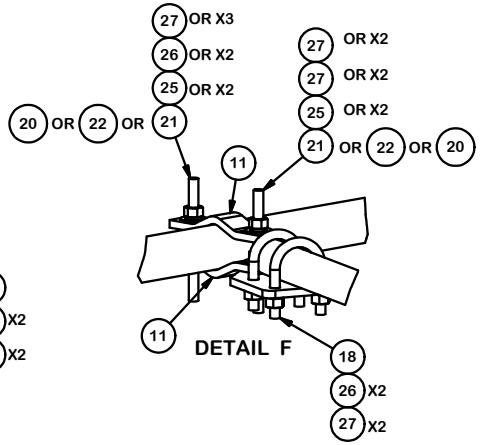
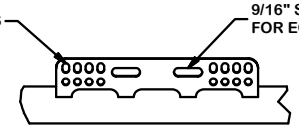


DETAIL E



DETAIL F



DETAIL G

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REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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REVISION HISTORY

DESCRIPTION
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V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

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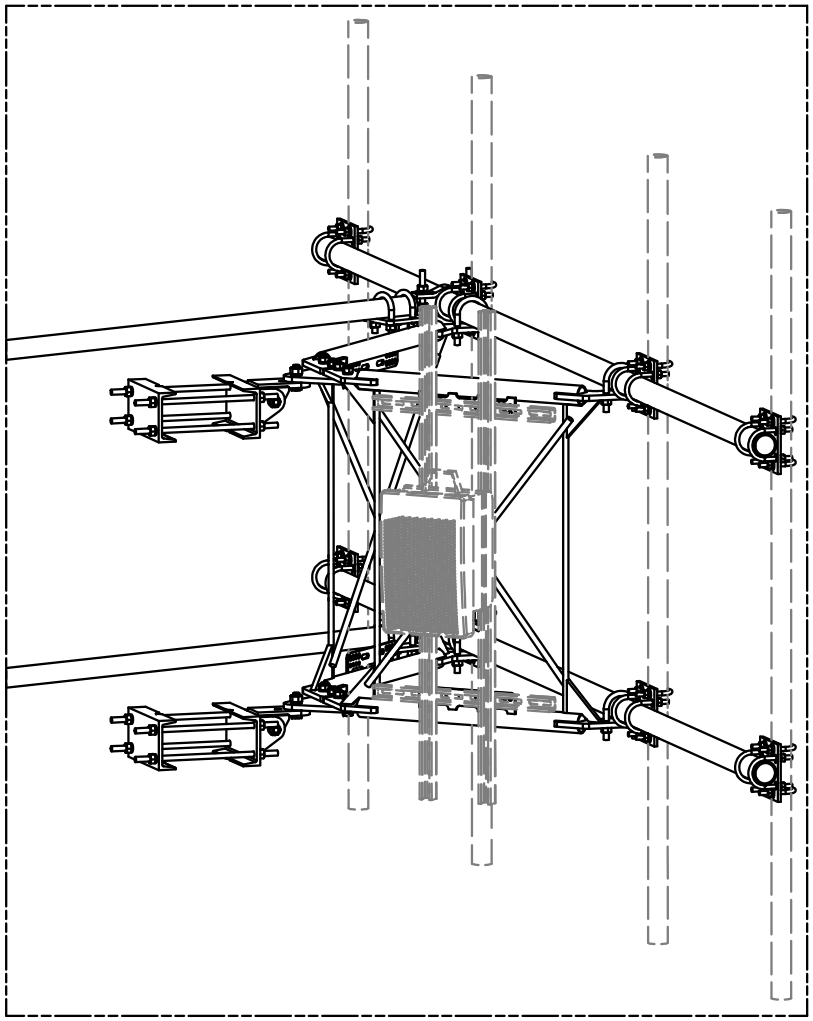
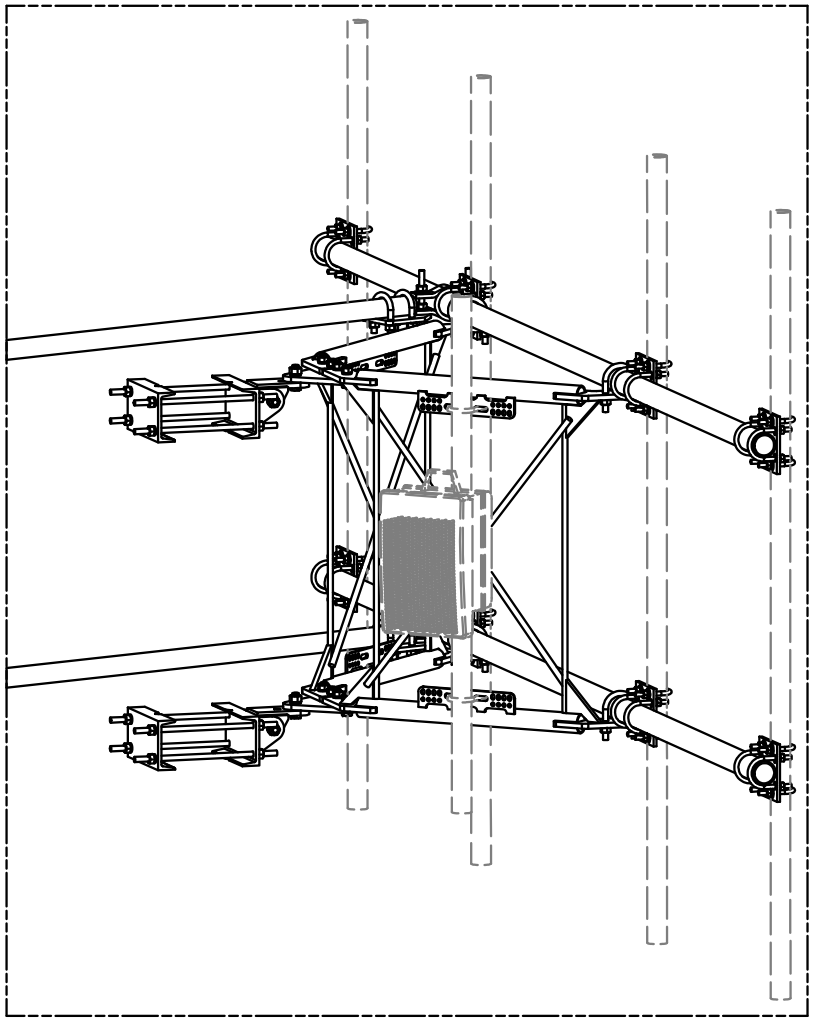
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/4/2017	VFA14-HD



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
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REVISION HISTORY

TOLERANCE NOTES

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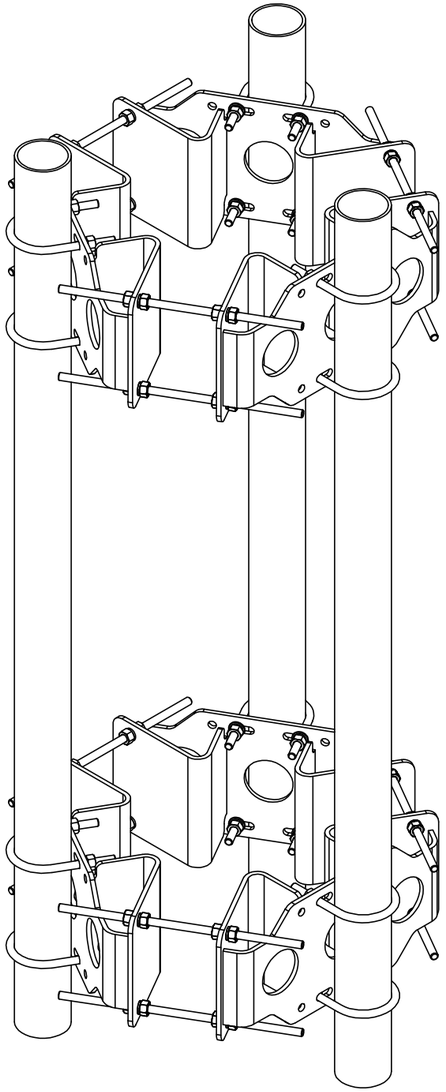
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 8/4/2017	VFA14-HD

NOTE:

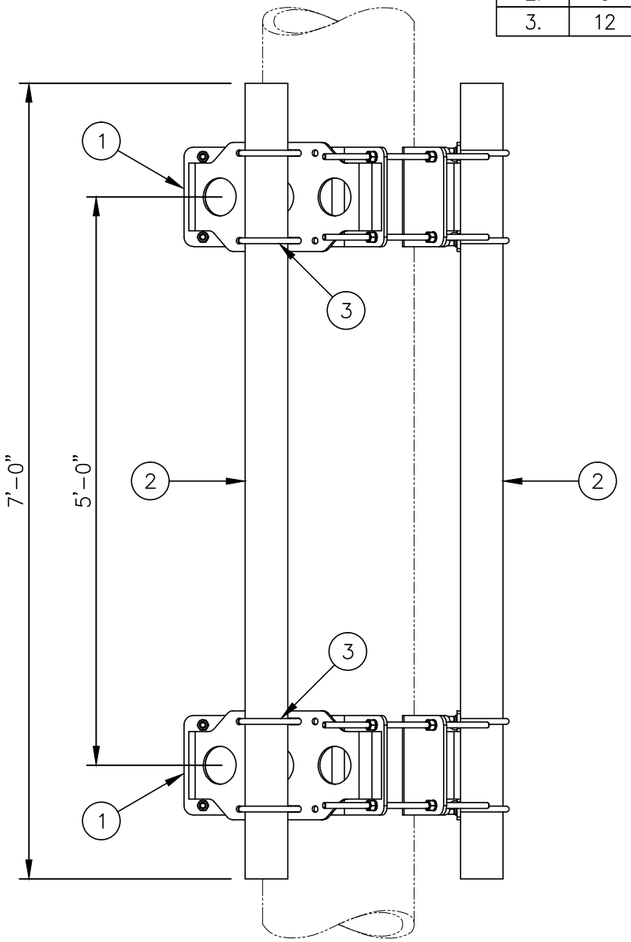
SEE DRAWING C10112377 FOR INSTALLATION OF TRI-COLLAR BRACKET ASSEMBLY

C10899050 4 1/2" O.D. PIPE MOUNT ASSEMBLY

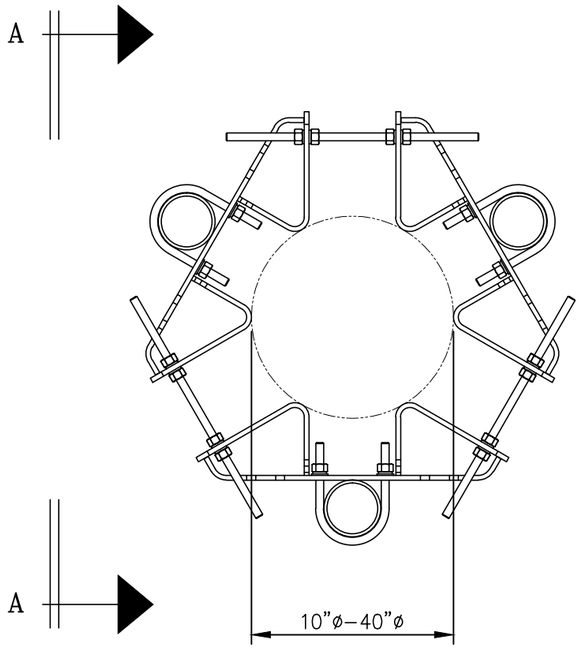
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	C10112377	TRI-COLLAR BRACKET ASSEMBLY	416
2.	3	C10901407	PIPE, 4 1/2 O.D. X .237 X 7'-0	236
3.	12	C40034032	U-BOLT ASSEMBLY, 5/8 ø X 5 3/16 C-C	26
			TOTAL WEIGHT	678



ISOMETRIC VIEW



VIEW A-A



PLAN VIEW

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	02/03/17	WRF	KLE	COLLAR WAS C10112300

Sabre Industries™ Towers and Poles

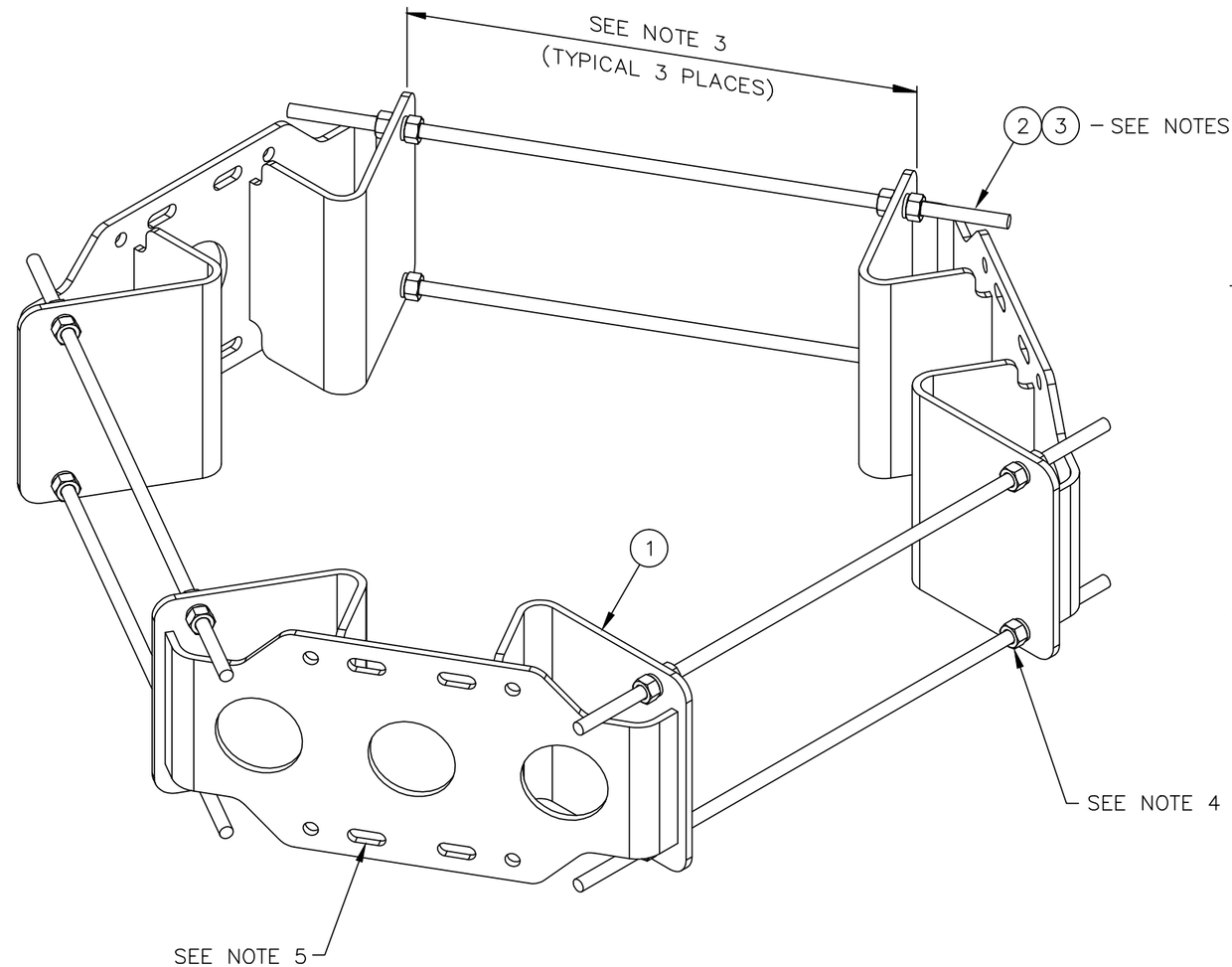
4 1/2" O.D. PIPE MOUNT ASSEMBLY FOR MONOPOLES (FITS 10" TO 40" DIAMETER)

DATE	01/26/16
DRAWN BY	WRF
CHECKED BY	DLW

SIZE	DRAWING NO.	REV
B	C10899050	1

SCALE	PAGE
None	1 OF 1

C10112377 TRI-COLLAR ASSEMBLY (10"-40" MONOPOLE)				
ITEM	QTY.	PART. NO.	DESCRIPTION	WEIGHT
1.	3	CW01324	WELDMENT, TRI-COLLAR (10"-40" MONOPOLE)	166
2.	6	C40094012	THREADED ROD ASSEMBLY 5/8 X 2'-9"	25
3.	6	C40094002	THREADED ROD ASSEMBLY 5/8 X 1'-6"	17
			TOTAL WEIGHT	208



ISOMETRIC VIEW

NOTES:

1. THERE ARE (2) LENGTHS OF THREADED ROD SUPPLIED TO ACCOMMODATE DIAMETERS LISTED BELOW
   USE 5/8 X 1'-6" THREADED ROD ASSEMBLY FOR 10"-24" MONOPOLE DIAMETERS
   USE 5/8 X 2'-9" THREADED ROD ASSEMBLY FOR 24"-40" MONOPOLE DIAMETERS (SEE NOTE 2)
2. THREADED ROD MAY BE SHORTENED IF REQUIRED, FIELD CUT AND COLD GALV SPRAY TO SUIT.
3. THIS DISTANCE MUST BE EQUAL IN ALL (3) THREE LOCATIONS TO ENSURE THE STRUCTURAL INTEGRITY OF THE THREADED RODS AS WELL AS 120° SEPARATION.
4. FOR MONOPOLES 13" DIA. OR SMALLER, ONLY (1) ONE NUT AND (1) ONE LOCKWASHER ARE REQUIRED BETWEEN THE TRI-COLLAR BRACKETS.
   FOR MONOPOLES LARGER THAN 13" DIA., (2) TWO NUTS AND (2) TWO LOCKWASHERS ARE REQUIRED BETWEEN THE TRI-COLLAR BRACKETS.
5. THE MOUNTING SLOTS NOTED WILL ACCOMMODATE 2 3/8"-4 1/2" O.D. MOUNTING PIPES.

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™
Towers and Poles

TRI-COLLAR BRACKET ASSEMBLY FOR MONOPOLES (10"-40" DIA.) (CIRCUMFERENCE 31.4" TO 125.7")

		SIZE	DRAWING NO.	REV
DATE	04/15/16	B	C10112377	0
DRAWN BY	WRF			
CHECKED BY	KLE		SCALE None	PAGE 1 OF 1

QC CHECK

PREWELD _____

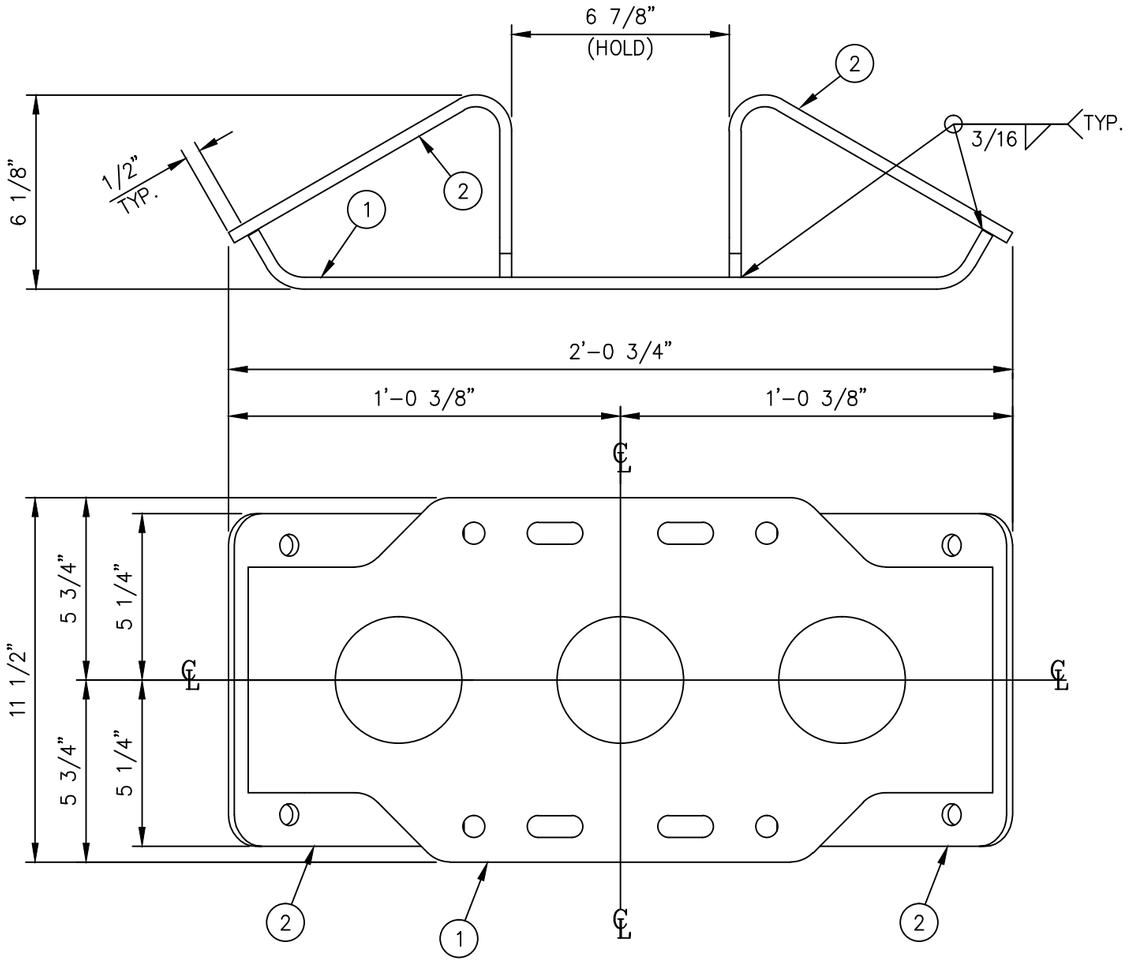
WELD _____

MAG _____

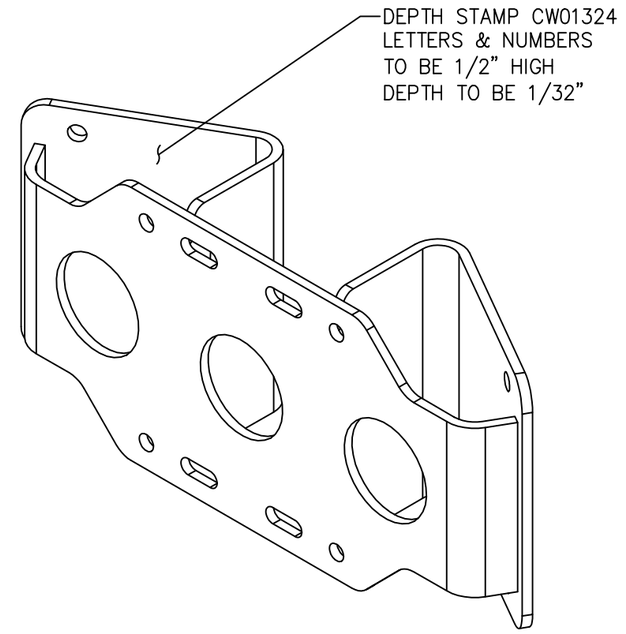
SWO NO. _____

PROJECT _____

QUANTITY _____



ASSEMBLY VIEW



ISO VIEW

FINISH: HOT DIP GALV. PER ASTM A123 OR EQUAL.

LIST OF MATERIAL

ITEM	QTY.	PART. NO.	DESCRIPTION	WEIGHT
1.	1	CWS01831	PLATE, COLLAR MOUNTING	20.5#
2.	2	CWS01832	PLATE, COLLAR BEARING	32.6#
			TOTAL WEIGHT BLACK	53.1#
			TOTAL WEIGHT GALV.	55.2#

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY
TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™
Towers and Poles

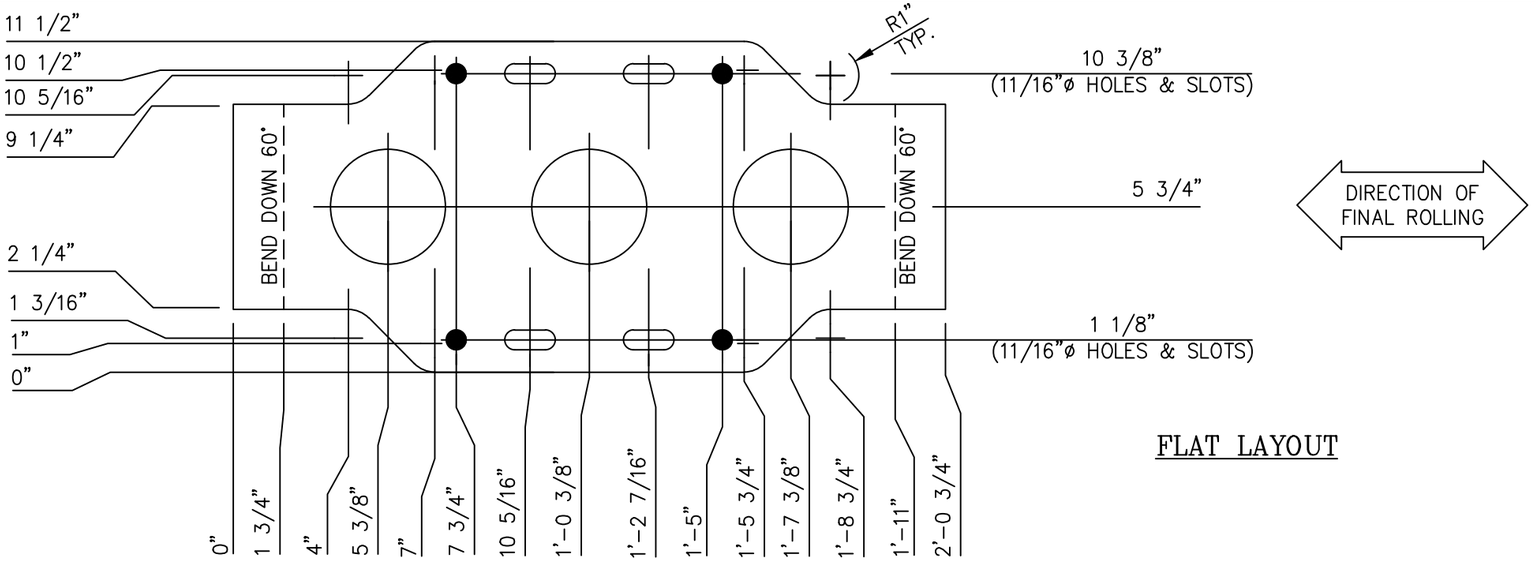
WELDMENT, TRI-COLLAR (10"-40" MONOPOLE)

		SIZE	DRAWING NO.	REV
DATE	04/15/16	B	CW01324	0
DRAWN BY	WRF			
CHECKED BY	KLE	SCALE None		PAGE 1 OF 1

SWO NO. _____

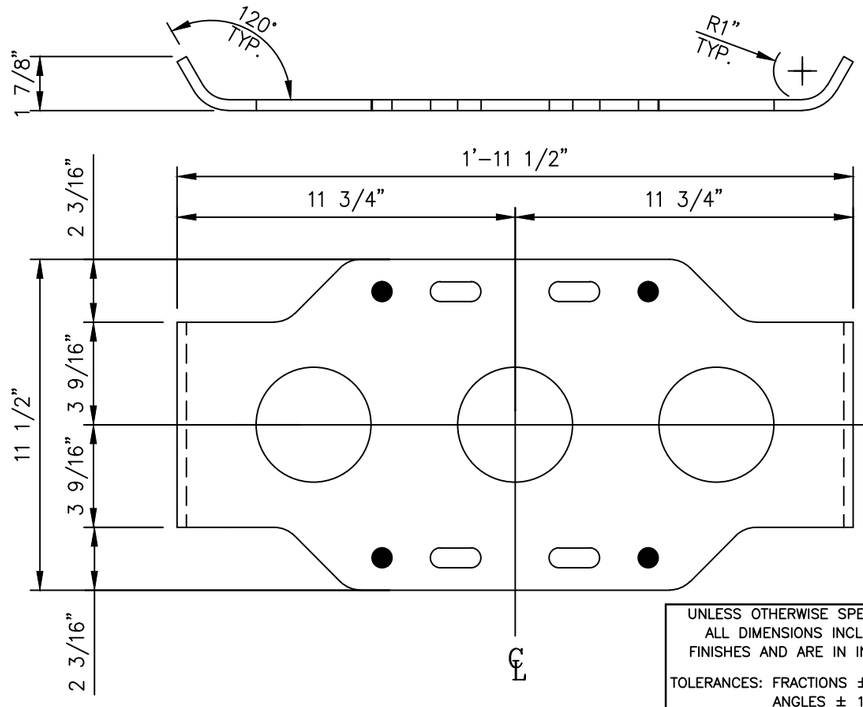
PROJECT _____

QUANTITY _____



DIRECTION OF FINAL ROLLING

FLAT LAYOUT



FORMED VIEW

NOTES:

1. ALL SHADED HOLES ARE 11/16"ø (4 REQ'D)
2. ALL SLOTTED HOLES ARE 11/16" X 1 3/4" SLOTS (4 REQ'D)
3. ALL UNSHADED HOLES ARE 4"ø (3 REQ'D)
4. MATERIAL CUT LENGTH MAY VARY DUE TO SHOP PROCEDURES
5. BLACK STEEL WEIGHT = 20.5#

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL: PLATE, 3/8 X 11 1/2 X 2'-0 3/4 ASTM A572 GR 65 OR EQUAL

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™ Towers and Poles

PLATE, COLLAR MOUNTING

DATE	04/15/16
DRAWN BY	WRF
CHECKED BY	KLE

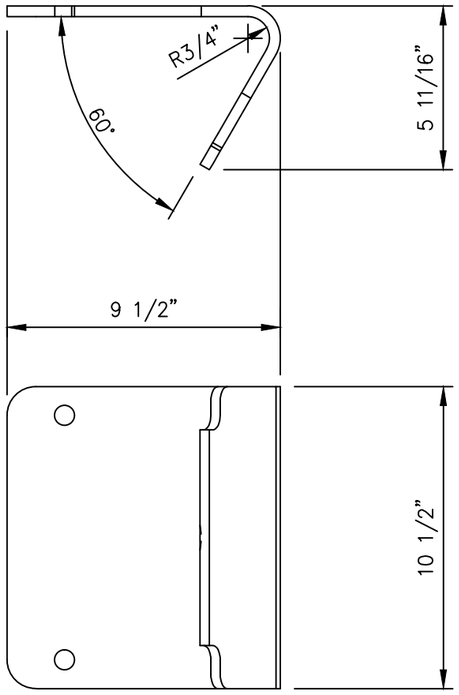
SIZE	DRAWING NO.	REV
B	CWS01831	0

SCALE	PAGE
None	1 OF 1

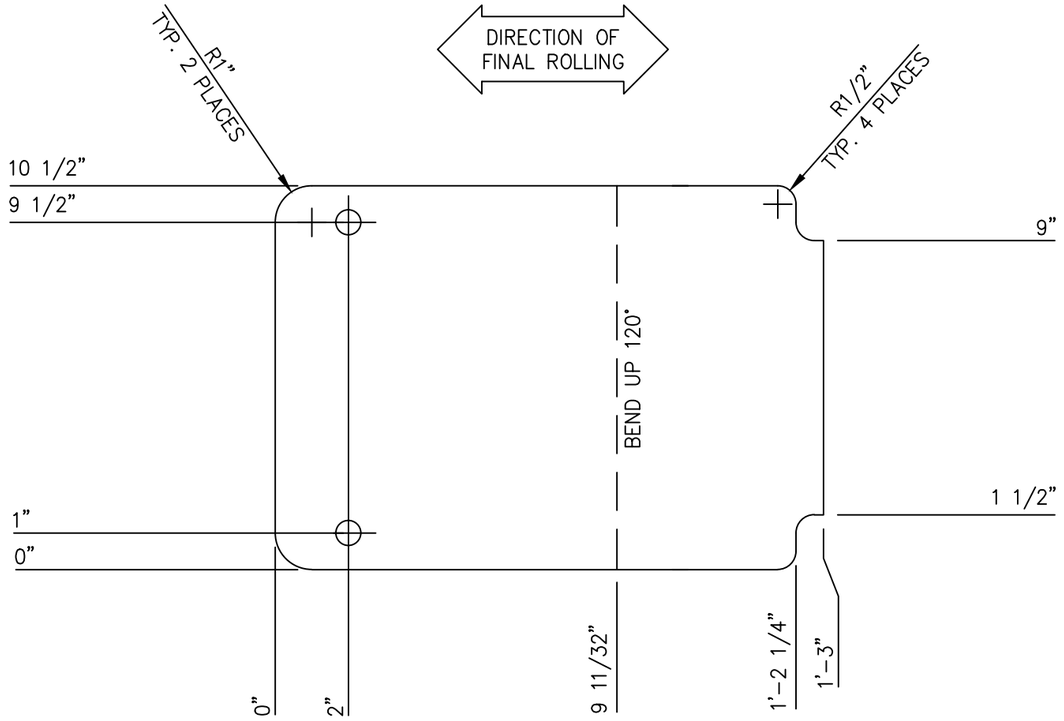
SWO NO. _____

PROJECT _____

QUANTITY _____



FORMED VIEW



FLAT LAYOUT

NOTES:

1. ALL HOLES ARE 11/16"ø (2 REQ'D)
2. MATERIAL CUT LENGTH MAY VARY DUE TO SHOP PROCEDURES
3. BLACK STEEL WEIGHT = 16.3#

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"	MATERIAL: PLATE, 3/8 X 10 1/2 X 1'-3 ASTM A572 GR 65 OR EQUAL TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™ Towers and Poles

PLATE, COLLAR BEARING

		SIZE	DRAWING NO.	REV
DATE	04/15/16	B	CWS01832	0
DRAWN BY	WRF			
CHECKED BY	KLE	SCALE None	PAGE 1 OF 1	

ITEM #	DESCRIPTION	BLACK WEIGHT	APPROX GALV WT
C10901401	4 1/2" O.D. X .237 X 1'-0	10.8#	11.2#
C10901402	4 1/2" O.D. X .237 X 2'-0	21.6#	22.4#
C10901403	4 1/2" O.D. X .237 X 3'-0	32.4#	33.7#
C10901404	4 1/2" O.D. X .237 X 4'-0	43.2#	44.9#
C10901405	4 1/2" O.D. X .237 X 5'-3	56.6#	58.9#
C10901406	4 1/2" O.D. X .237 X 6'-0	64.8#	67.3#
C10901407	4 1/2" O.D. X .237 X 7'-0	75.5#	78.6#
C10901408	4 1/2" O.D. X .237 X 8'-6	91.7#	95.4#
C10901409	4 1/2" O.D. X .237 X 9'-0	97.1#	101.0#
C10901410	4 1/2" O.D. X .237 X 10'-6	113.3#	117.8#
C10901411	4 1/2" O.D. X .237 X 11'-0	118.7#	123.4#
C10901412	4 1/2" O.D. X .237 X 12'-0	129.5#	134.7#
C10901413	4 1/2" O.D. X .237 X 13'-0	140.3#	145.9#
C10901414	4 1/2" O.D. X .237 X 14'-0	151.1#	157.1#
C10901415	4 1/2" O.D. X .237 X 15'-0	161.9#	168.3#
C10901416	4 1/2" O.D. X .237 X 16'-0	172.6#	179.5#
C10901417	4 1/2" O.D. X .237 X 17'-0	183.4#	190.8#
C10901418	4 1/2" O.D. X .237 X 18'-0	194.2#	202.0#
C10901419	4 1/2" O.D. X .237 X 19'-0	205.0#	213.2#
C10901420	4 1/2" O.D. X .237 X 20'-0	215.8#	224.4#
C10901421	4 1/2" O.D. X .237 X 21'-0	226.6#	235.7#
C10901422	4 1/2" O.D. X .237 X 5'-0	54.0#	56.1#
C10901423	4 1/2" O.D. X .237 X 12'-6	134.9#	140.3#
C10901424	4 1/2" O.D. X .237 X 28'-0	302.1#	314.2#
C10901425	4 1/2" O.D. X .237 X 10'-0	107.9#	112.2#
C10901426	4 1/2" O.D. X .237 X 8'-0	86.3#	89.8#
C10901427	4 1/2" O.D. X .237 X 26'-0	280.5#	291.7#
C10901428			
C10901429			
C10901430			

ITEM #	DESCRIPTION	BLACK WEIGHT	APPROX GALV WT
C10901457	4 1/2" O.D. X .337 X 7'-0	104.9#	109.1#
C10901458	4 1/2" O.D. X .337 X 21'-0	314.6#	327.2#

FINISH: HOT DIP GALV. PER ASTM A123

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL: PIPE
4 1/2 O.D. X SEE CHARTS ABOVE
ASTM A53 GRADE B OR EQUAL

TOLERANCES DO NOT APPLY
TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
10	12/16/14	KLE	EK	ADDED C10901427
9	6/10/13	KLE	EK	ADDED C109011458
8	6/14/07	KLE	EK	ADDED C109011425 & C10901426
7	2/15/06	MLC	MC	REVISED TO "B" SIZE & ADDED .218 WALL PIPE
6	7/28/05	KLE	DLW	REVISED MATERIAL DESCRIPTION (WAS Fy = 50 ksi)
5	5/17/04	KLE	DLW	ADDED MATERIAL GRADE NOTE
4	4/29/03	CHH	ZAK	ADDED C109011424
3	4/3/02	KLE	DLW	ADDED C109011423
2	3/26/02	KLE	DLW	ADDED C10901422
1	10/2/00	KLE	BCT	ADDED WALL THICKNESS

Sabre Communications Corporation ™

CONFIDENTIAL

4 1/2" O.D. PLAIN PIPE CUT LIST .237" & .337" WALL

DATE	5/9/00
DRAWN BY	KLE
CHECKED BY	BCT

SIZE	DRAWING NO.	REV
B	C109014	10

SCALE	PAGE
None	1 OF 1

Date: **July 20, 2022**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL01044
	Site Name:	Cromwell East
	Site FA Number:	10035130
Crown Castle Designation:	**BU Number:**	825983
	Site Name:	Middletown_1
	JDE Job Number:	716731
	Work Order Number:	2112605
	Order Number:	616581 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN9-327R4 / 2200039	
Site Data:	**90 Industrial Park Road, Middletown, Middlesex County, CT 06457**	
	Latitude *41° 35' 8.3"*, Longitude *-72° 42' 50.49"*	
	185 Foot – Fred A. Nudd Monopole Tower	

Morrison Hershfield 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 – 88.5%**

This analysis has been performed in accordance with the 2022 Connecticut State Building Code and the 2021 International Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. 28133)
Senior Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 185 ft Monopole tower designed by Fred A. Nudd Corporation.

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

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
174.0	176.0	3	ericsson	AIR 6419 B77G	12 1 2 2	1-1/4 7/8 13/16 3/8
	174.0	3	cci antennas	DMP65R-BU6D		
		3	quintel technology	QD6616-7		
		3	ericsson	RRUS 32 B66A		
		3	ericsson	RRUS 4415 B25_CCIV2		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS E2 B29		
		3	ericsson	RRUS-32 B30		
		2	raycap	DC6-48-60-18-8F		
		1	raycap	DC9-48-60-24-8C-EV		
		3	-	Site Pro 1 VFA14-WLL-30120		
		1	-	Sabre C10899050		
	172.0	3	ericsson	AIR 6449 B77D		

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)
183.0	183.0	3	ericsson	AIR6449 B41_T-MOBILE	4	1-5/8
		3	rfs celwave	APXVAARR24_43-U-NA20		
		3	ericsson	RADIO 4449 B12/B71		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		1	-	Site Pro 1 RMQP-496-HK		
165.0	165.0	3	jma wireless	MX08FRO665-20 w/ Mount Pipe	1	1-3/4
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	-	Commscope MC-PK8-DSH		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
155.0	155.0	6	andrew	SBNHH-1D65B	2	1-5/8
		3	andrew	SBNHH-1D65B w/ Mount Pipe		
		3	samsung telecommunications	MT6407-77A		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	-	Commscope BSAMNT-SBS-1-2		
		1	-	Platform Mount [LP 403-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3473514	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3880469	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3473517	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3879955	CCISITES
4-POST-MODIFICATION INSPECTION	3945944	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3990532	CCISITES
4-POST-MODIFICATION INSPECTION	5512978	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3954032	CCISITES
4-POST-MODIFICATION INSPECTION	5650784	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. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	185 - 180	Pole	TP18x18x0.1875	Pole	9.5%	Pass
L2	180 - 175	Pole	TP19.631x18x0.25	Pole	15.1%	Pass
L3	175 - 170	Pole	TP21.263x19.631x0.25	Pole	32.2%	Pass
L4	170 - 165	Pole	TP22.894x21.263x0.25	Pole	45.8%	Pass
L5	165 - 160	Pole	TP24.525x22.894x0.25	Pole	61.1%	Pass
L6	160 - 155	Pole	TP26.156x24.525x0.25	Pole	73.4%	Pass
L7	155 - 154	Pole	TP26.483x26.156x0.25	Pole	76.2%	Pass
L8	154 - 153.75	Pole + Reinf.	TP26.564x26.483x0.3688	Reinf. 8 Tension Rupture	59.3%	Pass
L9	153.75 - 152.5	Pole + Reinf.	TP26.972x26.564x0.3625	Reinf. 8 Tension Rupture	61.9%	Pass
L10	152.5 - 152.25	Pole + Reinf.	TP27.053x26.972x0.55	Reinf. 8 Tension Rupture	42.4%	Pass
L11	152.25 - 151.5	Pole + Reinf.	TP27.298x27.053x0.55	Reinf. 8 Tension Rupture	43.5%	Pass
L12	151.5 - 151.25	Pole + Reinf.	TP27.38x27.298x0.425	Reinf. 3 Tension Rupture	53.3%	Pass
L13	151.25 - 146.25	Pole + Reinf.	TP29.011x27.38x0.4125	Reinf. 3 Tension Rupture	61.1%	Pass
L14	146.25 - 141.25	Pole + Reinf.	TP30.642x29.011x0.4	Reinf. 3 Tension Rupture	67.6%	Pass
L15	141.25 - 136.25	Pole + Reinf.	TP32.273x30.642x0.3938	Reinf. 3 Tension Rupture	73.2%	Pass
L16	136.25 - 135	Pole + Reinf.	TP34.313x32.273x0.3938	Reinf. 3 Tension Rupture	74.4%	Pass
L17	135 - 129	Pole + Reinf.	TP34.133x32.181x0.475	Reinf. 7 Tension Rupture	69.5%	Pass
L18	129 - 124	Pole + Reinf.	TP35.76x34.133x0.4625	Reinf. 7 Tension Rupture	73.2%	Pass
L19	124 - 121.42	Pole + Reinf.	TP36.599x35.76x0.4625	Pole	75.4%	Pass
L20	121.42 - 121.17	Pole + Reinf.	TP36.68x36.599x0.5	Pole	69.3%	Pass
L21	121.17 - 116.17	Pole + Reinf.	TP38.307x36.68x0.4875	Pole	73.9%	Pass
L22	116.17 - 115	Pole + Reinf.	TP38.688x38.307x0.4875	Pole	75.0%	Pass
L23	115 - 113.75	Pole + Reinf.	TP39.094x38.688x0.55	Reinf. 7 Tension Rupture	64.8%	Pass
L24	113.75 - 113.5	Pole + Reinf.	TP39.175x39.094x0.4688	Pole	71.1%	Pass
L25	113.5 - 108.5	Pole + Reinf.	TP40.8x39.175x0.4625	Pole	74.3%	Pass
L26	108.5 - 103.5	Pole + Reinf.	TP42.425x40.8x0.4563	Pole	77.3%	Pass
L27	103.5 - 101	Pole + Reinf.	TP45.188x42.425x0.45	Pole	78.7%	Pass
L28	101 - 94	Pole + Reinf.	TP44.853x42.613x0.5875	Pole	65.0%	Pass
L29	94 - 91.4	Pole + Reinf.	TP45.685x44.853x0.575	Pole	66.4%	Pass
L30	91.4 - 91.15	Pole + Reinf.	TP45.765x45.685x0.4438	Pole	85.9%	Pass
L31	91.15 - 91	Pole + Reinf.	TP45.813x45.765x0.4438	Pole	86.0%	Pass
L32	91 - 86	Pole + Reinf.	TP47.445x45.813x0.5	Pole	71.8%	Pass
L33	86 - 81	Pole + Reinf.	TP49.078x47.445x0.5	Pole	73.6%	Pass
L34	81 - 76	Pole + Reinf.	TP50.711x49.078x0.4938	Pole	75.3%	Pass
L35	76 - 71	Pole + Reinf.	TP52.344x50.711x0.4875	Pole	77.0%	Pass
L36	71 - 66	Pole + Reinf.	TP53.977x52.344x0.4875	Pole	78.6%	Pass
L37	66 - 63.75	Pole + Reinf.	TP54.711x53.977x0.4875	Pole	79.3%	Pass
L38	63.75 - 63.5	Pole + Reinf.	TP54.793x54.711x0.4875	Pole	79.4%	Pass
L39	63.5 - 58.5	Pole + Reinf.	TP56.426x54.793x0.4813	Pole	81.0%	Pass
L40	58.5 - 58	Pole + Reinf.	TP58.875x56.426x0.4813	Pole	81.2%	Pass
L41	58 - 50	Pole + Reinf.	TP58.438x55.839x0.55	Pole	73.7%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L42	50 - 45	Pole + Reinf.	TP60.063x58.438x0.55	Pole	75.3%	Pass
L43	45 - 40.42	Pole + Reinf.	TP61.551x60.063x0.5438	Pole	76.8%	Pass
L44	40.42 - 40.17	Pole + Reinf.	TP61.632x61.551x0.475	Pole	88.5%	Pass
L45	40.17 - 40	Pole + Reinf.	TP61.688x61.632x0.475	Pole	88.5%	Pass
L46	40 - 35	Pole + Reinf.	TP63.31x61.688x0.5313	Pole	73.5%	Pass
L47	35 - 33	Pole + Reinf.	TP63.958x63.31x0.525	Pole	74.0%	Pass
L48	33 - 32.75	Pole + Reinf.	TP64.039x63.958x0.6	Pole	66.7%	Pass
L49	32.75 - 28	Pole + Reinf.	TP68.5x64.039x0.6	Pole	67.8%	Pass
L50	28 - 18	Pole + Reinf.	TP67.958x64.705x0.6	Pole	71.2%	Pass
L51	18 - 13	Pole + Reinf.	TP69.584x67.958x0.5875	Pole	72.3%	Pass
L52	13 - 8	Pole + Reinf.	TP71.21x69.584x0.5875	Pole	73.4%	Pass
L53	8 - 6.42	Pole + Reinf.	TP71.724x71.21x0.5875	Pole	73.8%	Pass
L54	6.42 - 6.17	Pole + Reinf.	TP71.806x71.724x0.9375	Reinf. 9 Tension Rupture	79.4%	Pass
L55	6.17 - 1.17	Pole + Reinf.	TP73.432x71.806x0.9125	Reinf. 9 Tension Rupture	80.1%	Pass
L56	1.17 - 0	Pole + Reinf.	TP73.813x73.432x0.9	Reinf. 9 Tension Rupture	80.2%	Pass
					Summary	
				Pole	88.5%	Pass
				Reinforcement	80.2%	Pass
				Overall	88.5%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	67.9	Pass
1	Base Plate		37.4	Pass
1	Base Foundation (Structure)	0	72.3	Pass
1	Base Foundation (Soil Interaction)		80.1	Pass

Structure Rating (max from all components) =	88.5%*

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

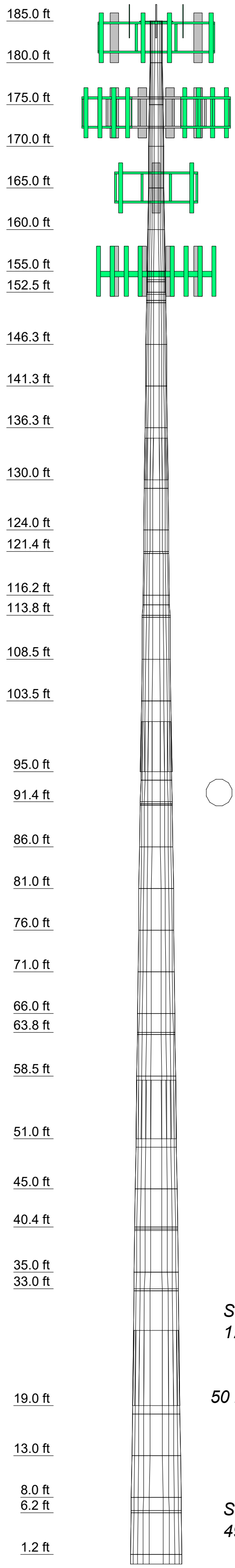
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.1875		18.0000	18.0000	A36M-42	0.2
2	5.00	12	0.2500		18.0000	19.6313		0.3
3	5.00	12	0.2500		19.6313	21.2625		0.3
4	5.00	12	0.2500		21.2625	22.8938		0.3
5	5.00	12	0.2500		22.8938	24.5250		0.3
6	5.00	12	[illegible]		[illegible]	[illegible]		0.3
7–12	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
13	5.00	12	[illegible]		[illegible]	[illegible]		0.6
14	5.00	12	0.4000		29.0109	30.6422		0.6
15	5.00	12	0.3937		30.6422	32.2734		0.7
16	[illegible]	12	0.3937	5.00	32.2734	[illegible]		0.9
17	[illegible]	12	[illegible]		[illegible]	[illegible]		1.0
18	5.00	12	[illegible]		[illegible]	[illegible]		0.8
19–25	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
26	5.00	12	0.4562		40.8000	42.4250		1.0
27	[illegible]	12	[illegible]	6.00	[illegible]	45.1875		1.8
28–32	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
33	5.00	12	0.5000		47.4453	49.0781		1.3
34	5.00	12	0.4938		49.0781	50.7109		1.3
35	5.00	12	0.4875		50.7109	52.3438		1.4
36	5.00	12	[illegible]		52.3438	[illegible]		1.4
37–39	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
40	[illegible]	12	0.4813	7.00	[illegible]	58.8750		2.2
41–48	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
49	[illegible]	12	0.6000	9.00	64.0394	68.5000		6.4
50–56	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
								54.0



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-42	42 ksi	60 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure C 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 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 88.5%

ALL REACTIONS ARE FACTORED

AXIAL 119 K
SHEAR 12 K
MOMENT 1491 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 90 K
SHEAR 49 K
MOMENT 5961 kip-ft
TORQUE 0 kip-ft
REACTIONS - 120 mph WIND

Morrison Hershfield	Job: CN9-327R4 / 2200039		
1455 Lincoln Parkway, Suite 500, Atlanta, GA 30346	Project: 825983 / Middletown_1		
Consulting Engineers	Client: Crown Castle USA	Drawn by: CKK	App'd:
Phone: (770) 379-8500	Code: TIA-222-H	Date: 07/20/22	Scale: NTS
FAX: (770) 379-8501	Path:		Dwg No. E-1

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 Middlesex County, Connecticut.
- Tower base elevation above sea level: 90.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	185.00-180.00	5.00	0.00	12	18.0000	18.0000	0.1875	0.7500	A36M-42 (42 ksi)
L2	180.00-175.00	5.00	0.00	12	18.0000	19.6313	0.2500	1.0000	A36M-42 (42 ksi)
L3	175.00-170.00	5.00	0.00	12	19.6313	21.2625	0.2500	1.0000	A36M-42 (42 ksi)
L4	170.00-165.00	5.00	0.00	12	21.2625	22.8938	0.2500	1.0000	A36M-42 (42 ksi)
L5	165.00-160.00	5.00	0.00	12	22.8938	24.5250	0.2500	1.0000	A36M-42 (42 ksi)
L6	160.00-155.00	5.00	0.00	12	24.5250	26.1563	0.2500	1.0000	A36M-42 (42 ksi)
L7	155.00-154.00	1.00	0.00	12	26.1563	26.4825	0.2500	1.0000	A36M-42 (42 ksi)
L8	154.00-153.75	0.25	0.00	12	26.4825	26.5641	0.3688	1.4750	A36M-42 (42 ksi)
L9	153.75-152.50	1.25	0.00	12	26.5641	26.9719	0.3625	1.4500	A36M-42 (42 ksi)
L10	152.50-152.25	0.25	0.00	12	26.9719	27.0534	0.5500	2.2000	A36M-42 (42 ksi)
L11	152.25-151.50	0.75	0.00	12	27.0534	27.2981	0.5500	2.2000	A36M-42 (42 ksi)
L12	151.50-151.25	0.25	0.00	12	27.2981	27.3797	0.4250	1.7000	A36M-42 (42 ksi)
L13	151.25-146.25	5.00	0.00	12	27.3797	29.0109	0.4125	1.6500	A36M-42 (42 ksi)
L14	146.25-141.25	5.00	0.00	12	29.0109	30.6422	0.4000	1.6000	A36M-42 (42 ksi)
L15	141.25-136.25	5.00	0.00	12	30.6422	32.2734	0.3937	1.5750	A36M-42 (42 ksi)
L16	136.25-130.00	6.25	5.00	12	32.2734	34.3125	0.3937	1.5750	A36M-42 (42 ksi)
L17	130.00-129.00	6.00	0.00	12	32.1812	34.1331	0.4750	1.9000	A36M-42 (42 ksi)
L18	129.00-124.00	5.00	0.00	12	34.1331	35.7597	0.4625	1.8500	A36M-42 (42 ksi)
L19	124.00-121.42	2.58	0.00	12	35.7597	36.5990	0.4625	1.8500	A36M-42 (42 ksi)
L20	121.42-121.17	0.25	0.00	12	36.5990	36.6803	0.5000	2.0000	A36M-42 (42 ksi)
L21	121.17-116.17	5.00	0.00	12	36.6803	38.3069	0.4875	1.9500	A36M-42 (42 ksi)
L22	116.17-115.00	1.17	0.00	12	38.3069	38.6875	0.4875	1.9500	A36M-42 (42 ksi)
L23	115.00-113.75	1.25	0.00	12	38.6875	39.0938	0.5500	2.2000	A36M-42 (42 ksi)
L24	113.75-113.50	0.25	0.00	12	39.0938	39.1750	0.4688	1.8750	A36M-42 (42 ksi)
L25	113.50-108.50	5.00	0.00	12	39.1750	40.8000	0.4625	1.8500	A36M-42 (42 ksi)
L26	108.50-103.50	5.00	0.00	12	40.8000	42.4250	0.4562	1.8250	A36M-42 (42 ksi)
L27	103.50-95.00	8.50	6.00	12	42.4250	45.1875	0.4500	1.8000	A36M-42 (42 ksi)
L28	95.00-94.00	7.00	0.00	12	42.6125	44.8525	0.5875	2.3500	A36M-42 (42 ksi)
L29	94.00-91.40	2.60	0.00	12	44.8525	45.6845	0.5750	2.3000	A36M-42 (42 ksi)
L30	91.40-91.15	0.25	0.00	12	45.6845	45.7645	0.4437	1.7750	A36M-42 (42 ksi)
L31	91.15-91.00	0.15	0.00	12	45.7645	45.8125	0.4437	1.7750	A36M-42 (42 ksi)
L32	91.00-86.00	5.00	0.00	12	45.8125	47.4453	0.5000	2.0000	A36M-42 (42 ksi)
L33	86.00-81.00	5.00	0.00	12	47.4453	49.0781	0.5000	2.0000	A36M-42 (42 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L34	81.00-76.00	5.00	0.00	12	49.0781	50.7109	0.4938	1.9750	A36M-42 (42 ksi)
L35	76.00-71.00	5.00	0.00	12	50.7109	52.3438	0.4875	1.9500	A36M-42 (42 ksi)
L36	71.00-66.00	5.00	0.00	12	52.3438	53.9766	0.4875	1.9500	A36M-42 (42 ksi)
L37	66.00-63.75	2.25	0.00	12	53.9766	54.7113	0.4875	1.9500	A36M-42 (42 ksi)
L38	63.75-63.50	0.25	0.00	12	54.7113	54.7930	0.4875	1.9500	A36M-42 (42 ksi)
L39	63.50-58.50	5.00	0.00	12	54.7930	56.4258	0.4813	1.9250	A36M-42 (42 ksi)
L40	58.50-51.00	7.50	7.00	12	56.4258	58.8750	0.4813	1.9250	A36M-42 (42 ksi)
L41	51.00-50.00	8.00	0.00	12	55.8391	58.4384	0.5500	2.2000	A36M-42 (42 ksi)
L42	50.00-45.00	5.00	0.00	12	58.4384	60.0629	0.5500	2.2000	A36M-42 (42 ksi)
L43	45.00-40.42	4.58	0.00	12	60.0629	61.5510	0.5437	2.1750	A36M-42 (42 ksi)
L44	40.42-40.17	0.25	0.00	12	61.5510	61.6323	0.4750	1.9000	A36M-42 (42 ksi)
L45	40.17-40.00	0.17	0.00	12	61.6323	61.6875	0.4750	1.9000	A36M-42 (42 ksi)
L46	40.00-35.00	5.00	0.00	12	61.6875	63.3095	0.5313	2.1250	A36M-42 (42 ksi)
L47	35.00-33.00	2.00	0.00	12	63.3095	63.9583	0.5250	2.1000	A36M-42 (42 ksi)
L48	33.00-32.75	0.25	0.00	12	63.9583	64.0394	0.6000	2.4000	A36M-42 (42 ksi)
L49	32.75-19.00	13.75	9.00	12	64.0394	68.5000	0.6000	2.4000	A36M-42 (42 ksi)
L50	19.00-18.00	10.00	0.00	12	64.7054	67.9579	0.6000	2.4000	A36M-42 (42 ksi)
L51	18.00-13.00	5.00	0.00	12	67.9579	69.5842	0.5875	2.3500	A36M-42 (42 ksi)
L52	13.00-8.00	5.00	0.00	12	69.5842	71.2105	0.5875	2.3500	A36M-42 (42 ksi)
L53	8.00-6.42	1.58	0.00	12	71.2105	71.7244	0.5875	2.3500	A36M-42 (42 ksi)
L54	6.42-6.17	0.25	0.00	12	71.7244	71.8057	0.9375	3.7500	A36M-42 (42 ksi)
L55	6.17-1.17	5.00	0.00	12	71.8057	73.4320	0.9125	3.6500	A36M-42 (42 ksi)
L56	1.17-0.00	1.17		12	73.4320	73.8125	0.9000	3.6000	A36M-42 (42 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.5688	10.7543	435.5296	6.3769	9.3240	46.7106	882.5011	5.2929	4.3215	23.048
	18.5688	10.7543	435.5296	6.3769	9.3240	46.7106	882.5011	5.2929	4.3215	23.048
L2	18.5468	14.2888	574.6149	6.3545	9.3240	61.6275	1164.3256	7.0325	4.1540	16.616
	20.2356	15.6019	748.0441	6.9385	10.1690	73.5613	1515.7401	7.6788	4.5912	18.365
L3	20.2356	15.6019	748.0441	6.9385	10.1690	73.5613	1515.7401	7.6788	4.5912	18.365
	21.9244	16.9151	953.2680	7.5225	11.0140	86.5508	1931.5794	8.3251	5.0283	20.113
L4	21.9244	16.9151	953.2680	7.5225	11.0140	86.5508	1931.5794	8.3251	5.0283	20.113
	23.6132	18.2282	1192.9628	8.1065	11.8590	100.5959	2417.2660	8.9714	5.4655	21.862
L5	23.6132	18.2282	1192.9628	8.1065	11.8590	100.5959	2417.2660	8.9714	5.4655	21.862
	25.3020	19.5414	1469.8044	8.6905	12.7039	115.6966	2978.2222	9.6177	5.9027	23.611
L6	25.3020	19.5414	1469.8044	8.6905	12.7039	115.6966	2978.2222	9.6177	5.9027	23.611
	26.9908	20.8545	1786.4690	9.2744	13.5489	131.8531	3619.8706	10.2640	6.3399	25.36
L7	26.9908	20.8545	1786.4690	9.2744	13.5489	131.8531	3619.8706	10.2640	6.3399	25.36
	27.3285	21.1172	1854.8162	9.3912	13.7179	135.2110	3758.3604	10.3932	6.4273	25.709
L8	27.2866	31.0068	2698.8676	9.3487	13.7179	196.7401	5468.6374	15.2606	6.1091	16.567

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
	27.3711	31.1037	2724.2352	9.3779	13.7602	197.9796	5520.0391	15.3083	6.1309	16.626
L9	27.3733	30.5838	2679.9791	9.3802	13.7602	194.7633	5430.3642	15.0524	6.1477	16.959
	27.7955	31.0598	2807.0740	9.5262	13.9714	200.9153	5687.8929	15.2867	6.2570	17.261
L10	27.7293	46.7931	4169.6098	9.4590	13.9714	298.4383	8448.7598	23.0302	5.7545	10.463
	27.8138	46.9376	4208.3430	9.4882	14.0137	300.3025	8527.2438	23.1013	5.7763	10.502
L11	27.8138	46.9376	4208.3430	9.4882	14.0137	300.3025	8527.2438	23.1013	5.7763	10.502
	28.0671	47.3709	4325.9804	9.5758	14.1404	305.9299	8765.6090	23.3145	5.8419	10.622
L12	28.1112	36.7759	3389.8874	9.6206	14.1404	239.7302	6868.8309	18.1000	6.1769	14.534
	28.1956	36.8875	3420.8470	9.6498	14.1827	241.1989	6931.5635	18.1549	6.1988	14.585
L13	28.2000	35.8192	3324.8552	9.6543	14.1827	234.4307	6737.0581	17.6291	6.2323	15.109
	29.8888	37.9859	3965.4520	10.2382	15.0277	263.8768	8035.0807	18.6955	6.6694	16.168
L14	29.8932	36.8509	3850.3311	10.2427	15.0277	256.2162	7801.8147	18.1369	6.7029	16.757
	31.5820	38.9519	4547.1724	10.8267	15.8727	286.4784	9213.8040	19.1710	7.1401	17.85
L15	31.5842	38.3512	4478.8986	10.8289	15.8727	282.1771	9075.4628	18.8753	7.1569	18.176
	33.2730	40.4195	5243.2982	11.4129	16.7176	313.6386	10624.3436	19.8932	7.5940	19.286
L16	33.2730	40.4195	5243.2982	11.4129	16.7176	313.6386	10624.3436	19.8932	7.5940	19.286
	35.3840	43.0047	6315.1243	12.1429	17.7739	355.3037	12796.1540	21.1656	8.1405	20.674
L17	34.8329	48.4947	6222.5740	11.3508	16.6699	373.2823	12608.6220	23.8676	7.3516	15.477
	35.1696	51.4801	7443.9798	12.0496	17.6810	421.0168	15083.5213	25.3369	7.8747	16.578
L18	35.1741	50.1440	7256.1640	12.0541	17.6810	410.3943	14702.9556	24.6793	7.9082	17.099
	36.8580	52.5663	8359.3761	12.6364	18.5235	451.2845	16938.3623	25.8716	8.3441	18.041
L19	36.8580	52.5663	8359.3761	12.6364	18.5235	451.2845	16938.3623	25.8716	8.3441	18.041
	37.7269	53.8163	8969.9825	12.9369	18.9583	473.1433	18175.6163	26.4867	8.5690	18.528
L20	37.7137	58.1194	9667.1201	12.9234	18.9583	509.9155	19588.2062	28.6046	8.4685	16.937
	37.7979	58.2503	9732.6052	12.9526	19.0004	512.2314	19720.8967	28.6690	8.4903	16.981
L21	37.8023	56.8137	9499.1288	12.9570	19.0004	499.9434	19247.8104	27.9620	8.5238	17.485
	39.4862	59.3670	10838.2660	13.5393	19.8430	546.2019	21961.2654	29.2186	8.9597	18.379
L22	39.4862	59.3670	10838.2660	13.5393	19.8430	546.2019	21961.2654	29.2186	8.9597	18.379
	39.8803	59.9644	11168.8004	13.6756	20.0401	557.3219	22631.0177	29.5127	9.0618	18.588
L23	39.8582	67.5415	12538.9501	13.6532	20.0401	625.6922	25407.3123	33.2419	8.8942	16.171
	40.2788	68.2610	12943.9375	13.7987	20.2506	639.1890	26227.9267	33.5960	9.0031	16.369
L24	40.3075	58.2996	11101.6768	13.8278	20.2506	548.2157	22495.0070	28.6933	9.2209	19.671
	40.3916	58.4222	11171.8834	13.8568	20.2926	550.5384	22637.2646	28.7537	9.2426	19.718
L25	40.3938	57.6526	11028.2655	13.8591	20.2926	543.4611	22346.2559	28.3749	9.2594	20.02
	42.0761	60.0726	12476.1473	14.4408	21.1344	590.3242	25280.0569	29.5659	9.6949	20.962
L26	42.0783	59.2700	12313.2725	14.4431	21.1344	582.6176	24950.0284	29.1709	9.7117	21.286
	43.7606	61.6573	13861.9013	15.0248	21.9762	630.7702	28087.9702	30.3459	10.1472	22.24
L27	43.7628	60.8218	13678.1213	15.0270	21.9762	622.4075	27715.5820	29.9346	10.1639	22.586
	46.6228	64.8246	16560.3484	16.0160	23.4071	707.4918	33555.7556	31.9047	10.9042	24.232
L28	45.8962	79.5008	17921.4382	15.0450	22.0733	811.9066	36313.6926	39.1279	9.8456	16.759
	46.2275	83.7383	20942.6241	15.8469	23.2336	901.3940	42435.4343	41.2135	10.4460	17.78
L29	46.2319	81.9798	20514.4058	15.8513	23.2336	882.9630	41567.7478	40.3480	10.4795	18.225
	47.0932	83.5202	21692.7048	16.1492	23.6646	916.6743	43955.3011	41.1061	10.7024	18.613
L30	47.1395	64.6434	16887.6639	16.1962	23.6646	713.6265	34218.9855	31.8155	11.0542	24.911
	47.2224	64.7577	16977.4106	16.2248	23.7060	716.1648	34400.8367	31.8718	11.0756	24.959
L31	47.2224	64.7577	16977.4106	16.2248	23.7060	716.1648	34400.8367	31.8718	11.0756	24.959
	47.2721	64.8263	17031.4110	16.2420	23.7309	717.6900	34510.2561	31.9055	11.0885	24.988
L32	47.2522	72.9531	19119.0319	16.2219	23.7309	805.6606	38740.3421	35.9053	10.9377	21.876
	48.9426	75.5820	21261.2370	16.8064	24.5767	865.0983	43081.0304	37.1991	11.3753	22.751
L33	48.9426	75.5820	21261.2370	16.8064	24.5767	865.0983	43081.0304	37.1991	11.3753	22.751
	50.6330	78.2108	23557.7642	17.3910	25.4225	926.6513	47734.4171	38.4930	11.8129	23.626
L34	50.6352	77.2431	23272.2724	17.3932	25.4225	915.4214	47155.9333	38.0167	11.8297	23.959
	52.3256	79.8391	25698.4002	17.9778	26.2683	978.3059	52071.9259	39.2944	12.2673	24.845
L35	52.3279	78.8382	25382.5789	17.9800	26.2683	966.2830	51431.9864	38.8018	12.2840	25.198
	54.0183	81.4013	27939.5730	18.5645	27.1141	1030.4458	56613.1497	40.0633	12.7216	26.096
L36	54.0183	81.4013	27939.5730	18.5645	27.1141	1030.4458	56613.1497	40.0633	12.7216	26.096
	55.7087	83.9645	30662.7710	19.1491	27.9599	1096.6711	62131.0872	41.3248	13.1592	26.993
L37	55.7087	83.9645	30662.7710	19.1491	27.9599	1096.6711	62131.0872	41.3248	13.1592	26.993
	56.4694	85.1179	31943.8286	19.4121	28.3405	1127.1454	64726.8571	41.8924	13.3561	27.397
L38	56.4694	85.1179	31943.8286	19.4121	28.3405	1127.1454	64726.8571	41.8924	13.3561	27.397
	56.5539	85.2460	32088.3320	19.4414	28.3828	1130.5572	65019.6602	41.9555	13.3780	27.442
L39	56.5561	84.1628	31687.8814	19.4436	28.3828	1116.4483	64208.2388	41.4224	13.3948	27.833
	58.2465	86.6930	34632.6307	20.0281	29.2286	1184.8903	70175.0992	42.6677	13.8324	28.743
L40	58.2465	86.6930	34632.6307	20.0281	29.2286	1184.8903	70175.0992	42.6677	13.8324	28.743
	60.7821	90.4884	39383.2600	20.9050	30.4973	1291.3709	79801.1622	44.5356	14.4888	30.106
L41	59.9695	97.9169	38205.1746	19.7935	28.9246	1320.8525	77414.0418	48.1917	13.4909	24.529
	60.3058	102.5203	43850.8919	20.7240	30.2711	1448.6070	88853.7955	50.4574	14.1875	25.795
L42	60.3058	102.5203	43850.8919	20.7240	30.2711	1448.6070	88853.7955	50.4574	14.1875	25.795
	61.9877	105.3974	47647.3330	21.3056	31.1126	1531.4481	96546.4145	51.8734	14.6229	26.587
L43	61.9899	104.2107	47120.7287	21.3079	31.1126	1514.5224	95479.3714	51.2893	14.6396	26.923

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
	63.5305	106.8161	50744.1775	21.8406	31.8834	1591.5529	102821.4610	52.5717	15.0384	27.657
L44	63.5548	93.4158	44478.2784	21.8652	31.8834	1395.0277	90125.0506	45.9764	15.2227	32.048
	63.6389	93.5400	44655.9766	21.8943	31.9255	1398.7552	90485.1155	46.0376	15.2444	32.094
L45	63.6389	93.5400	44655.9766	21.8943	31.9255	1398.7552	90485.1155	46.0376	15.2444	32.094
	63.6960	93.6245	44777.0814	21.9141	31.9541	1401.2927	90730.5066	46.0791	15.2593	32.125
L46	63.6762	104.6154	49941.6983	21.8939	31.9541	1562.9187	101195.4207	51.4885	15.1085	28.44
	65.3554	107.3901	54021.7781	22.4746	32.7943	1647.2900	109462.7685	52.8541	15.5432	29.258
L47	65.3576	106.1372	53402.1742	22.4769	32.7943	1628.3964	108207.2830	52.2375	15.5600	29.638
	66.0293	107.2341	55074.9011	22.7091	33.1304	1662.3667	111596.6812	52.7773	15.7338	29.969
L48	66.0029	122.4083	62719.7481	22.6823	33.1304	1893.1168	127087.2139	60.2456	15.5328	25.888
	66.0868	122.5650	62960.9079	22.7113	33.1724	1897.9892	127575.8689	60.3228	15.5546	25.924
L49	66.0868	122.5650	62960.9079	22.7113	33.1724	1897.9892	127575.8689	60.3228	15.5546	25.924
	70.7048	131.1828	77197.3505	24.3082	35.4830	2175.6151	156422.7614	64.5642	16.7500	27.917
L50	69.8068	123.8516	64964.4917	22.9497	33.5174	1938.2333	131635.6728	60.9560	15.7330	26.222
	70.1435	130.1355	75363.1160	24.1141	35.2022	2140.8640	152706.1049	64.0487	16.6047	27.675
L51	70.1480	127.4480	73834.1413	24.1186	35.2022	2097.4300	149607.9877	62.7260	16.6382	28.32
	71.8316	130.5245	79311.1676	24.7008	36.0446	2200.3615	160705.9279	64.2402	17.0741	29.062
L52	71.8316	130.5245	79311.1676	24.7008	36.0446	2200.3615	160705.9279	64.2402	17.0741	29.062
	73.5152	133.6010	85052.5670	25.2830	36.8870	2305.7588	172339.5597	65.7543	17.5099	29.804
L53	73.5152	133.6010	85052.5670	25.2830	36.8870	2305.7588	172339.5597	65.7543	17.5099	29.804
	74.0473	134.5732	86922.8201	25.4670	37.1532	2339.5771	176129.1995	66.2328	17.6476	30.039
L54	73.9238	213.6878	136669.3358	25.3417	37.1532	3678.5328	276929.1273	105.1707	16.7096	17.824
	74.0080	213.9333	137140.8585	25.3708	37.1953	3687.0441	277884.5601	105.2915	16.7314	17.847
L55	74.0168	208.3019	133625.0851	25.3798	37.1953	3592.5222	270760.6499	102.5198	16.7984	18.409
	75.7005	213.0803	143033.6520	25.9620	38.0378	3760.3078	289824.9574	104.8716	17.2343	18.887
L56	75.7049	210.1976	141147.2494	25.9664	38.0378	3710.7149	286002.5942	103.4529	17.2678	19.186
	76.0988	211.3004	143380.5690	26.1027	38.2349	3749.9944	290527.9053	103.9956	17.3698	19.3

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 185.00-180.00				1	1	1			
L2 180.00-175.00				1	1	1			
L3 175.00-170.00				1	1	1			
L4 170.00-165.00				1	1	1			
L5 165.00-160.00				1	1	1			
L6 160.00-155.00				1	1	1			
L7 155.00-154.00				1	1	1			
L8 154.00-153.75				1	1	0.970809			
L9 153.75-152.50				1	1	0.98275			
L10 152.50-152.25				1	1	0.939738			
L11 152.25-151.50				1	1	0.935299			
L12 151.50-151.25				1	1	0.958557			
L13 151.25-146.25				1	1	0.965409			
L14 146.25-141.25				1	1	0.975178			
L15 141.25-136.25				1	1	0.97226			
L16 136.25-130.00				1	1	0.967999			
L17 130.00-129.00				1	1	0.967523			
L18 129.00-124.00				1	1	0.972439			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
L19 124.00-121.42				1	1	0.962408			
L20 121.42-121.17				1	1	0.967636			
L21 121.17-116.17				1	1	0.971491			
L22 116.17-115.00				1	1	0.966921			
L23 115.00-113.75				1	1	0.967791			
L24 113.75-113.50				1	1	0.977901			
L25 113.50-108.50				1	1	0.978255			
L26 108.50-103.50				1	1	0.979632			
L27 103.50-95.00				1	1	0.987419			
L28 95.00-94.00				1	1	0.965747			
L29 94.00-91.40				1	1	0.978292			
L30 91.40-91.15				1	1	0.984623			
L31 91.15-91.00				1	1	0.984326			
L32 91.00-86.00				1	1	0.990491			
L33 86.00-81.00				1	1	0.982407			
L34 81.00-76.00				1	1	0.987066			
L35 76.00-71.00				1	1	0.992343			
L36 71.00-66.00				1	1	0.985532			
L37 66.00-63.75				1	1	0.982601			
L38 63.75-63.50				1	1	0.982281			
L39 63.50-58.50				1	1	0.988627			
L40 58.50-51.00				1	1	0.988018			
L41 51.00-50.00				1	1	0.991576			
L42 50.00-45.00				1	1	0.98312			
L43 45.00-40.42				1	1	0.986885			
L44 40.42-40.17				1	1	0.983471			
L45 40.17-40.00				1	1	0.983296			
L46 40.00-35.00				1	1	0.992613			
L47 35.00-33.00				1	1	1.00258			
L48 33.00-32.75				1	1	1.07829			
L49 32.75-19.00				1	1	1.07001			
L50 19.00-18.00				1	1	1.05798			
L51 18.00-13.00				1	1	1.07238			
L52 13.00-				1	1	1.06483			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
8.00									
L53 8.00-6.42				1	1	1.06252			
L54 6.42-6.17				1	1	0.582868			
L55 6.17-1.17				1	1	0.595953			
L56 1.17-0.00				1	1	0.60351			

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)	185.00 - 0.00	1	1	-0.300 -0.300	0.3750		0.22
Step Pegs	C	No	Surface Ar (CaAa)	185.00 - 0.00	1	1	-0.350 -0.250	0.3500		0.45
HCS 6X12 4AWG(1-5/8)	C	No	Surface Ar (CaAa)	183.00 - 0.00	3	3	-0.470 -0.370	1.6600		2.40
*										
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	Surface Ar (CaAa)	183.00 - 0.00	1	1	-0.500 -0.470	1.9960		2.50
*										
CU12PSM6P4XXX(1-3/4)	B	No	Surface Ar (CaAa)	165.00 - 0.00	1	1	-0.450 -0.450	1.7500		2.72
***										
CCI-045100 (L)	C	No	Surface Af (CaAa)	53.92 - 38.92	1	1	-0.318 -0.318	4.5000	11.0000	0.00
CCI-045100 (L)	B	No	Surface Af (CaAa)	53.92 - 38.92	1	1	-0.318 -0.318	4.5000	11.0000	0.00
CCI-045100 (L)	A	No	Surface Af (CaAa)	53.92 - 38.92	1	1	-0.318 -0.318	4.5000	11.0000	0.00
*										
CCI-060100 (L)	C	No	Surface Af (CaAa)	123.92 - 88.89	1	1	-0.318 -0.318	6.0000	14.0000	0.00
CCI-060100 (L)	B	No	Surface Af (CaAa)	123.92 - 88.89	1	1	-0.318 -0.318	6.0000	14.0000	0.00
CCI-060100 (L)	A	No	Surface Af (CaAa)	123.92 - 88.89	1	1	-0.318 -0.318	6.0000	14.0000	0.00
*										
CCI-045100 (L)	B	No	Surface Af (CaAa)	154.50 - 119.50	1	1	0.432 0.432	4.5000	11.0000	0.00
CCI-045100 (L)	A	No	Surface Af (CaAa)	154.50 - 119.50	1	1	0.432 0.432	4.5000	11.0000	0.00
CCI-045100 (L)	C	No	Surface Af (CaAa)	154.50 - 119.50	1	1	0.432 0.432	4.5000	11.0000	0.00
***										
CCI-085125 (L)	B	No	Surface Af (CaAa)	37.42 - 0.00	1	1	0.182 0.182	8.5000	19.5000	0.00
CCI-085125 (L)	A	No	Surface Af (CaAa)	37.42 - 0.00	1	1	0.432 0.432	8.5000	19.5000	0.00
CCI-085125 (L)	A	No	Surface Af (CaAa)	37.42 - 0.00	1	1	-0.318 -0.318	8.5000	19.5000	0.00
CCI-085125 (L)	C	No	Surface Af (CaAa)	37.42 - 0.00	1	1	0.182 0.182	8.5000	19.5000	0.00
*										
CCI-060100 (L)	B	No	Surface Af (CaAa)	65.50 - 30.50	1	1	-0.068 -0.068	6.0000	14.0000	0.00
CCI-060100 (L)	A	No	Surface Af (CaAa)	65.50 - 30.50	1	1	-0.068 -0.068	6.0000	14.0000	0.00
CCI-060100 (L)	C	No	Surface Af (CaAa)	65.50 - 30.50	1	1	-0.068 -0.068	6.0000	14.0000	0.00
*										
CCI-060100 (L)	B	No	Surface Af	101.67 -	1	1	0.182	6.0000	14.0000	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
			(CaAa)	61.67			0.182			
CCI-060100 (L)	A	No	Surface Af (CaAa)	101.67 - 61.67	1	1	0.182 0.182	6.0000	14.0000	0.00
CCI-060100 (L)	C	No	Surface Af (CaAa)	101.67 - 61.67	1	1	0.182 0.182	6.0000	14.0000	0.00
***										
CCI-040075 (W)	B	No	Surface Af (CaAa)	132.50 - 112.50	1	1	0.182 0.182	4.0000	9.5000	0.00
CCI-040075 (W)	A	No	Surface Af (CaAa)	132.50 - 112.50	1	1	0.182 0.182	4.0000	9.5000	0.00
CCI-040075 (W)	C	No	Surface Af (CaAa)	132.50 - 112.50	1	1	0.182 0.182	4.0000	9.5000	0.00
*										
CCI-040075 (W)	B	No	Surface Af (CaAa)	155.25 - 150.25	1	1	0.182 0.182	4.0000	9.5000	0.00
CCI-040075 (W)	A	No	Surface Af (CaAa)	155.25 - 150.25	1	1	0.182 0.182	4.0000	9.5000	0.00
CCI-040075 (W)	C	No	Surface Af (CaAa)	155.25 - 150.25	1	1	0.182 0.182	4.0000	9.5000	0.00
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***									
***									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	174.00 - 0.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
FB-L98B-034-XXXXXX(3/8)	A	No	No	Inside Pole	174.00 - 0.00	1	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
*									
PWRT-606-S(7/8)	A	No	No	Inside Pole	174.00 - 0.00	1	No Ice	0.00	0.89
							1/2" Ice	0.00	0.89
							1" Ice	0.00	0.89
PWRT-608-S(13/16)	A	No	No	Inside Pole	174.00 - 0.00	2	No Ice	0.00	0.62
							1/2" Ice	0.00	0.62
							1" Ice	0.00	0.62
FB-L98B-235-XXX(3/8)	A	No	No	Inside Pole	174.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
***									
***									
HB158-1-08U8-S8J18(1-5/8)	B	No	No	Inside Pole	155.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	185.00-180.00	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	2.455	0.000	0.03
L2	180.00-175.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	3.850	0.000	0.05
L3	175.00-170.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.850	0.000	0.05
L4	170.00-165.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.850	0.000	0.05
L5	165.00-160.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.875	0.000	0.01
		C	0.000	0.000	3.850	0.000	0.05
L6	160.00-155.00	A	0.000	0.000	0.138	0.000	0.05
		B	0.000	0.000	1.013	0.000	0.01
		C	0.000	0.000	3.989	0.000	0.05
L7	155.00-154.00	A	0.000	0.000	0.928	0.000	0.01
		B	0.000	0.000	1.103	0.000	0.01
		C	0.000	0.000	1.698	0.000	0.01
L8	154.00-153.75	A	0.000	0.000	0.326	0.000	0.00
		B	0.000	0.000	0.369	0.000	0.00
		C	0.000	0.000	0.518	0.000	0.00
L9	153.75-152.50	A	0.000	0.000	1.628	0.000	0.01
		B	0.000	0.000	1.847	0.000	0.01
		C	0.000	0.000	2.591	0.000	0.01
L10	152.50-152.25	A	0.000	0.000	0.326	0.000	0.00
		B	0.000	0.000	0.369	0.000	0.00
		C	0.000	0.000	0.518	0.000	0.00
L11	152.25-151.50	A	0.000	0.000	0.977	0.000	0.01
		B	0.000	0.000	1.108	0.000	0.00
		C	0.000	0.000	1.555	0.000	0.01
L12	151.50-151.25	A	0.000	0.000	0.326	0.000	0.00
		B	0.000	0.000	0.369	0.000	0.00
		C	0.000	0.000	0.518	0.000	0.00
L13	151.25-146.25	A	0.000	0.000	4.303	0.000	0.05
		B	0.000	0.000	5.178	0.000	0.03
		C	0.000	0.000	8.153	0.000	0.05
L14	146.25-141.25	A	0.000	0.000	3.750	0.000	0.05
		B	0.000	0.000	4.625	0.000	0.03
		C	0.000	0.000	7.601	0.000	0.05
L15	141.25-136.25	A	0.000	0.000	3.750	0.000	0.05
		B	0.000	0.000	4.625	0.000	0.03
		C	0.000	0.000	7.601	0.000	0.05
L16	136.25-130.00	A	0.000	0.000	6.354	0.000	0.06
		B	0.000	0.000	7.448	0.000	0.03
		C	0.000	0.000	11.167	0.000	0.06
L17	130.00-129.00	A	0.000	0.000	1.417	0.000	0.01
		B	0.000	0.000	1.592	0.000	0.01
		C	0.000	0.000	2.187	0.000	0.01
L18	129.00-124.00	A	0.000	0.000	7.083	0.000	0.05
		B	0.000	0.000	7.958	0.000	0.03
		C	0.000	0.000	10.934	0.000	0.05
L19	124.00-121.42	A	0.000	0.000	6.155	0.000	0.02
		B	0.000	0.000	6.606	0.000	0.01
		C	0.000	0.000	8.142	0.000	0.03
L20	121.42-121.17	A	0.000	0.000	0.604	0.000	0.00
		B	0.000	0.000	0.648	0.000	0.00
		C	0.000	0.000	0.797	0.000	0.00
L21	121.17-116.17	A	0.000	0.000	9.586	0.000	0.05
		B	0.000	0.000	10.461	0.000	0.03
		C	0.000	0.000	13.436	0.000	0.05
L22	116.17-115.00	A	0.000	0.000	1.950	0.000	0.01
		B	0.000	0.000	2.155	0.000	0.01
		C	0.000	0.000	2.851	0.000	0.01
L23	115.00-113.75	A	0.000	0.000	2.083	0.000	0.01
		B	0.000	0.000	2.302	0.000	0.01
		C	0.000	0.000	3.046	0.000	0.01
L24	113.75-113.50	A	0.000	0.000	0.417	0.000	0.00
		B	0.000	0.000	0.460	0.000	0.00
		C	0.000	0.000	0.609	0.000	0.00
L25	113.50-108.50	A	0.000	0.000	5.667	0.000	0.05
		B	0.000	0.000	6.542	0.000	0.03

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	9.517	0.000	0.05
L26	108.50-103.50	A	0.000	0.000	5.000	0.000	0.05
		B	0.000	0.000	5.875	0.000	0.03
		C	0.000	0.000	8.851	0.000	0.05
L27	103.50-95.00	A	0.000	0.000	15.170	0.000	0.08
		B	0.000	0.000	16.657	0.000	0.05
		C	0.000	0.000	21.716	0.000	0.09
L28	95.00-94.00	A	0.000	0.000	2.000	0.000	0.01
		B	0.000	0.000	2.175	0.000	0.01
		C	0.000	0.000	2.770	0.000	0.01
L29	94.00-91.40	A	0.000	0.000	5.200	0.000	0.02
		B	0.000	0.000	5.655	0.000	0.01
		C	0.000	0.000	7.202	0.000	0.03
L30	91.40-91.15	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.544	0.000	0.00
		C	0.000	0.000	0.693	0.000	0.00
L31	91.15-91.00	A	0.000	0.000	0.300	0.000	0.00
		B	0.000	0.000	0.326	0.000	0.00
		C	0.000	0.000	0.416	0.000	0.00
L32	91.00-86.00	A	0.000	0.000	7.110	0.000	0.05
		B	0.000	0.000	7.985	0.000	0.03
		C	0.000	0.000	10.961	0.000	0.05
L33	86.00-81.00	A	0.000	0.000	5.000	0.000	0.05
		B	0.000	0.000	5.875	0.000	0.03
		C	0.000	0.000	8.851	0.000	0.05
L34	81.00-76.00	A	0.000	0.000	5.000	0.000	0.05
		B	0.000	0.000	5.875	0.000	0.03
		C	0.000	0.000	8.851	0.000	0.05
L35	76.00-71.00	A	0.000	0.000	5.000	0.000	0.05
		B	0.000	0.000	5.875	0.000	0.03
		C	0.000	0.000	8.851	0.000	0.05
L36	71.00-66.00	A	0.000	0.000	5.000	0.000	0.05
		B	0.000	0.000	5.875	0.000	0.03
		C	0.000	0.000	8.851	0.000	0.05
L37	66.00-63.75	A	0.000	0.000	4.000	0.000	0.02
		B	0.000	0.000	4.394	0.000	0.01
		C	0.000	0.000	5.733	0.000	0.02
L38	63.75-63.50	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.544	0.000	0.00
		C	0.000	0.000	0.693	0.000	0.00
L39	63.50-58.50	A	0.000	0.000	6.830	0.000	0.05
		B	0.000	0.000	7.705	0.000	0.03
		C	0.000	0.000	10.681	0.000	0.05
L40	58.50-51.00	A	0.000	0.000	9.690	0.000	0.07
		B	0.000	0.000	11.003	0.000	0.04
		C	0.000	0.000	15.466	0.000	0.08
L41	51.00-50.00	A	0.000	0.000	1.750	0.000	0.01
		B	0.000	0.000	1.925	0.000	0.01
		C	0.000	0.000	2.520	0.000	0.01
L42	50.00-45.00	A	0.000	0.000	8.750	0.000	0.05
		B	0.000	0.000	9.625	0.000	0.03
		C	0.000	0.000	12.601	0.000	0.05
L43	45.00-40.42	A	0.000	0.000	8.015	0.000	0.04
		B	0.000	0.000	8.816	0.000	0.02
		C	0.000	0.000	11.542	0.000	0.05
L44	40.42-40.17	A	0.000	0.000	0.438	0.000	0.00
		B	0.000	0.000	0.481	0.000	0.00
		C	0.000	0.000	0.630	0.000	0.00
L45	40.17-40.00	A	0.000	0.000	0.297	0.000	0.00
		B	0.000	0.000	0.327	0.000	0.00
		C	0.000	0.000	0.428	0.000	0.00
L46	40.00-35.00	A	0.000	0.000	12.667	0.000	0.05
		B	0.000	0.000	10.113	0.000	0.03
		C	0.000	0.000	13.089	0.000	0.05
L47	35.00-33.00	A	0.000	0.000	7.667	0.000	0.02
		B	0.000	0.000	5.183	0.000	0.01
		C	0.000	0.000	6.374	0.000	0.02
L48	33.00-32.75	A	0.000	0.000	0.958	0.000	0.00
		B	0.000	0.000	0.648	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.797	0.000	0.00
L49	32.75-19.00	A	0.000	0.000	41.208	0.000	0.13
		B	0.000	0.000	24.135	0.000	0.07
		C	0.000	0.000	32.318	0.000	0.14
L50	19.00-18.00	A	0.000	0.000	2.833	0.000	0.01
		B	0.000	0.000	1.592	0.000	0.01
		C	0.000	0.000	2.187	0.000	0.01
L51	18.00-13.00	A	0.000	0.000	14.167	0.000	0.05
		B	0.000	0.000	7.958	0.000	0.03
		C	0.000	0.000	10.934	0.000	0.05
L52	13.00-8.00	A	0.000	0.000	14.167	0.000	0.05
		B	0.000	0.000	7.958	0.000	0.03
		C	0.000	0.000	10.934	0.000	0.05
L53	8.00-6.42	A	0.000	0.000	4.477	0.000	0.01
		B	0.000	0.000	2.515	0.000	0.01
		C	0.000	0.000	3.455	0.000	0.02
L54	6.42-6.17	A	0.000	0.000	0.708	0.000	0.00
		B	0.000	0.000	0.398	0.000	0.00
		C	0.000	0.000	0.547	0.000	0.00
L55	6.17-1.17	A	0.000	0.000	14.167	0.000	0.05
		B	0.000	0.000	7.958	0.000	0.03
		C	0.000	0.000	10.934	0.000	0.05
L56	1.17-0.00	A	0.000	0.000	3.315	0.000	0.01
		B	0.000	0.000	1.862	0.000	0.01
		C	0.000	0.000	2.559	0.000	0.01

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	185.00-180.00	A	1.009	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	6.207	0.000	0.08
L2	180.00-175.00	A	1.006	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	8.747	0.000	0.12
L3	175.00-170.00	A	1.003	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	8.735	0.000	0.12
L4	170.00-165.00	A	1.000	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	8.723	0.000	0.12
L5	165.00-160.00	A	0.997	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	1.872	0.000	0.03
		C		0.000	0.000	8.710	0.000	0.12
L6	160.00-155.00	A	0.994	0.000	0.000	0.165	0.000	0.05
		B		0.000	0.000	2.034	0.000	0.03
		C		0.000	0.000	8.861	0.000	0.12
L7	155.00-154.00	A	0.992	0.000	0.000	1.134	0.000	0.02
		B		0.000	0.000	1.507	0.000	0.02
		C		0.000	0.000	2.871	0.000	0.03
L8	154.00-153.75	A	0.991	0.000	0.000	0.402	0.000	0.01
		B		0.000	0.000	0.495	0.000	0.00
		C		0.000	0.000	0.836	0.000	0.01
L9	153.75-152.50	A	0.991	0.000	0.000	2.009	0.000	0.03
		B		0.000	0.000	2.476	0.000	0.02
		C		0.000	0.000	4.181	0.000	0.04
L10	152.50-152.25	A	0.991	0.000	0.000	0.402	0.000	0.01
		B		0.000	0.000	0.495	0.000	0.00
		C		0.000	0.000	0.836	0.000	0.01
L11	152.25-151.50	A	0.990	0.000	0.000	1.205	0.000	0.02
		B		0.000	0.000	1.485	0.000	0.01
		C		0.000	0.000	2.508	0.000	0.03
L12	151.50-151.25	A	0.990	0.000	0.000	0.402	0.000	0.01
		B		0.000	0.000	0.495	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.836	0.000	0.01
L13	151.25-146.25	A	0.988	0.000	0.000	5.397	0.000	0.08
		B		0.000	0.000	7.260	0.000	0.08
		C		0.000	0.000	14.070	0.000	0.15
L14	146.25-141.25	A	0.985	0.000	0.000	4.735	0.000	0.08
		B		0.000	0.000	6.594	0.000	0.07
		C		0.000	0.000	13.393	0.000	0.15
L15	141.25-136.25	A	0.981	0.000	0.000	4.731	0.000	0.08
		B		0.000	0.000	6.588	0.000	0.07
		C		0.000	0.000	13.375	0.000	0.14
L16	136.25-130.00	A	0.977	0.000	0.000	8.064	0.000	0.11
		B		0.000	0.000	10.380	0.000	0.10
		C		0.000	0.000	18.847	0.000	0.19
L17	130.00-129.00	A	0.975	0.000	0.000	1.808	0.000	0.02
		B		0.000	0.000	2.178	0.000	0.02
		C		0.000	0.000	3.533	0.000	0.03
L18	129.00-124.00	A	0.972	0.000	0.000	9.028	0.000	0.10
		B		0.000	0.000	10.875	0.000	0.10
		C		0.000	0.000	17.633	0.000	0.17
L19	124.00-121.42	A	0.969	0.000	0.000	7.640	0.000	0.07
		B		0.000	0.000	8.592	0.000	0.07
		C		0.000	0.000	12.074	0.000	0.10
L20	121.42-121.17	A	0.968	0.000	0.000	0.749	0.000	0.01
		B		0.000	0.000	0.842	0.000	0.01
		C		0.000	0.000	1.179	0.000	0.01
L21	121.17-116.17	A	0.966	0.000	0.000	11.841	0.000	0.11
		B		0.000	0.000	13.682	0.000	0.11
		C		0.000	0.000	20.419	0.000	0.18
L22	116.17-115.00	A	0.964	0.000	0.000	2.401	0.000	0.02
		B		0.000	0.000	2.831	0.000	0.02
		C		0.000	0.000	4.406	0.000	0.04
L23	115.00-113.75	A	0.962	0.000	0.000	2.565	0.000	0.03
		B		0.000	0.000	3.024	0.000	0.03
		C		0.000	0.000	4.705	0.000	0.04
L24	113.75-113.50	A	0.962	0.000	0.000	0.513	0.000	0.01
		B		0.000	0.000	0.605	0.000	0.01
		C		0.000	0.000	0.941	0.000	0.01
L25	113.50-108.50	A	0.960	0.000	0.000	6.818	0.000	0.09
		B		0.000	0.000	8.653	0.000	0.08
		C		0.000	0.000	15.370	0.000	0.15
L26	108.50-103.50	A	0.955	0.000	0.000	5.955	0.000	0.08
		B		0.000	0.000	7.785	0.000	0.08
		C		0.000	0.000	14.488	0.000	0.15
L27	103.50-95.00	A	0.949	0.000	0.000	18.049	0.000	0.18
		B		0.000	0.000	21.150	0.000	0.17
		C		0.000	0.000	32.509	0.000	0.29
L28	95.00-94.00	A	0.944	0.000	0.000	2.380	0.000	0.02
		B		0.000	0.000	2.744	0.000	0.02
		C		0.000	0.000	4.081	0.000	0.04
L29	94.00-91.40	A	0.942	0.000	0.000	6.180	0.000	0.06
		B		0.000	0.000	7.125	0.000	0.06
		C		0.000	0.000	10.589	0.000	0.09
L30	91.40-91.15	A	0.941	0.000	0.000	0.594	0.000	0.01
		B		0.000	0.000	0.685	0.000	0.01
		C		0.000	0.000	1.018	0.000	0.01
L31	91.15-91.00	A	0.941	0.000	0.000	0.356	0.000	0.00
		B		0.000	0.000	0.411	0.000	0.00
		C		0.000	0.000	0.611	0.000	0.01
L32	91.00-86.00	A	0.938	0.000	0.000	8.444	0.000	0.09
		B		0.000	0.000	10.257	0.000	0.09
		C		0.000	0.000	16.904	0.000	0.16
L33	86.00-81.00	A	0.933	0.000	0.000	5.933	0.000	0.08
		B		0.000	0.000	7.740	0.000	0.07
		C		0.000	0.000	14.370	0.000	0.14
L34	81.00-76.00	A	0.927	0.000	0.000	5.927	0.000	0.08
		B		0.000	0.000	7.729	0.000	0.07
		C		0.000	0.000	14.339	0.000	0.14
L35	76.00-71.00	A	0.921	0.000	0.000	5.921	0.000	0.08
		B		0.000	0.000	7.717	0.000	0.07

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	14.307	0.000	0.14
L36	71.00-66.00	A	0.914	0.000	0.000	5.914	0.000	0.08
		B		0.000	0.000	7.704	0.000	0.07
		C		0.000	0.000	14.274	0.000	0.14
L37	66.00-63.75	A	0.909	0.000	0.000	4.728	0.000	0.05
		B		0.000	0.000	5.531	0.000	0.04
		C		0.000	0.000	8.480	0.000	0.07
L38	63.75-63.50	A	0.908	0.000	0.000	0.591	0.000	0.01
		B		0.000	0.000	0.680	0.000	0.01
		C		0.000	0.000	1.007	0.000	0.01
L39	63.50-58.50	A	0.904	0.000	0.000	8.065	0.000	0.09
		B		0.000	0.000	9.843	0.000	0.08
		C		0.000	0.000	16.379	0.000	0.15
L40	58.50-51.00	A	0.894	0.000	0.000	11.553	0.000	0.13
		B		0.000	0.000	14.207	0.000	0.12
		C		0.000	0.000	23.963	0.000	0.22
L41	51.00-50.00	A	0.887	0.000	0.000	2.108	0.000	0.02
		B		0.000	0.000	2.461	0.000	0.02
		C		0.000	0.000	3.762	0.000	0.03
L42	50.00-45.00	A	0.882	0.000	0.000	10.513	0.000	0.10
		B		0.000	0.000	12.270	0.000	0.10
		C		0.000	0.000	18.732	0.000	0.16
L43	45.00-40.42	A	0.872	0.000	0.000	9.613	0.000	0.09
		B		0.000	0.000	11.213	0.000	0.09
		C		0.000	0.000	17.106	0.000	0.15
L44	40.42-40.17	A	0.867	0.000	0.000	0.524	0.000	0.01
		B		0.000	0.000	0.611	0.000	0.00
		C		0.000	0.000	0.932	0.000	0.01
L45	40.17-40.00	A	0.867	0.000	0.000	0.356	0.000	0.00
		B		0.000	0.000	0.416	0.000	0.00
		C		0.000	0.000	0.634	0.000	0.01
L46	40.00-35.00	A	0.861	0.000	0.000	14.547	0.000	0.12
		B		0.000	0.000	12.438	0.000	0.09
		C		0.000	0.000	18.834	0.000	0.16
L47	35.00-33.00	A	0.853	0.000	0.000	8.690	0.000	0.06
		B		0.000	0.000	6.206	0.000	0.04
		C		0.000	0.000	8.754	0.000	0.07
L48	33.00-32.75	A	0.850	0.000	0.000	1.086	0.000	0.01
		B		0.000	0.000	0.775	0.000	0.01
		C		0.000	0.000	1.093	0.000	0.01
L49	32.75-19.00	A	0.829	0.000	0.000	46.143	0.000	0.34
		B		0.000	0.000	29.070	0.000	0.22
		C		0.000	0.000	46.377	0.000	0.40
L50	19.00-18.00	A	0.802	0.000	0.000	3.165	0.000	0.02
		B		0.000	0.000	1.923	0.000	0.02
		C		0.000	0.000	3.182	0.000	0.03
L51	18.00-13.00	A	0.788	0.000	0.000	15.743	0.000	0.12
		B		0.000	0.000	9.535	0.000	0.07
		C		0.000	0.000	15.694	0.000	0.14
L52	13.00-8.00	A	0.758	0.000	0.000	15.683	0.000	0.11
		B		0.000	0.000	9.474	0.000	0.07
		C		0.000	0.000	15.536	0.000	0.13
L53	8.00-6.42	A	0.730	0.000	0.000	4.938	0.000	0.03
		B		0.000	0.000	2.976	0.000	0.02
		C		0.000	0.000	4.863	0.000	0.04
L54	6.42-6.17	A	0.720	0.000	0.000	0.780	0.000	0.01
		B		0.000	0.000	0.470	0.000	0.00
		C		0.000	0.000	0.767	0.000	0.01
L55	6.17-1.17	A	0.682	0.000	0.000	15.531	0.000	0.11
		B		0.000	0.000	9.323	0.000	0.07
		C		0.000	0.000	15.138	0.000	0.12
L56	1.17-0.00	A	0.568	0.000	0.000	3.581	0.000	0.02
		B		0.000	0.000	2.128	0.000	0.01
		C		0.000	0.000	3.402	0.000	0.03

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	185.00-180.00	1.8724	1.5510	2.4020	2.2629
L2	180.00-175.00	2.6471	2.1285	3.0157	2.6638
L3	175.00-170.00	2.7013	2.1728	3.1349	2.7705
L4	170.00-165.00	2.7499	2.2125	3.2450	2.8691
L5	165.00-160.00	2.7048	1.3428	3.2023	1.8397
L6	160.00-155.00	2.6774	1.3298	3.2413	1.8638
L7	155.00-154.00	1.4621	0.7264	2.0716	1.1917
L8	154.00-153.75	1.2339	0.6130	1.7956	1.0330
L9	153.75-152.50	1.2410	0.6166	1.8066	1.0395
L10	152.50-152.25	1.2490	0.6206	1.8187	1.0466
L11	152.25-151.50	1.2538	0.6230	1.8260	1.0509
L12	151.50-151.25	1.2579	0.6250	1.8325	1.0547
L13	151.25-146.25	1.5742	0.7823	2.2025	1.2681
L14	146.25-141.25	1.7184	0.8543	2.3823	1.3725
L15	141.25-136.25	1.7655	0.8780	2.4565	1.4160
L16	136.25-130.00	1.5995	0.7957	2.2752	1.3121
L17	130.00-129.00	1.3739	0.6835	1.9977	1.1524
L18	129.00-124.00	1.3975	0.6954	2.0325	1.1726
L19	124.00-121.42	1.0515	0.5233	1.6074	0.9276
L20	121.42-121.17	1.0519	0.5235	1.6101	0.9292
L21	121.17-116.17	1.2328	0.6136	1.8609	1.0742
L22	116.17-115.00	1.3575	0.6758	2.0324	1.1734
L23	115.00-113.75	1.3662	0.6801	2.0458	1.1812
L24	113.75-113.50	1.3711	0.6826	2.0533	1.1856
L25	113.50-108.50	1.6812	0.8370	2.4732	1.4282
L26	108.50-103.50	1.8102	0.9014	2.6511	1.5312
L27	103.50-95.00	1.4140	0.7043	2.1615	1.2487
L28	95.00-94.00	1.3443	0.6696	2.0734	1.1981
L29	94.00-91.40	1.3549	0.6749	2.0866	1.2055
L30	91.40-91.15	1.3628	0.6789	2.0985	1.2125
L31	91.15-91.00	1.3640	0.6795	2.1003	1.2135
L32	91.00-86.00	1.6446	0.8194	2.4717	1.4282
L33	86.00-81.00	1.9443	0.9688	2.8548	1.6497
L34	81.00-76.00	1.9744	0.9839	2.8998	1.6757
L35	76.00-71.00	2.0034	0.9985	2.9427	1.7006
L36	71.00-66.00	2.0316	1.0126	2.9837	1.7242
L37	66.00-63.75	1.6049	0.8000	2.4414	1.4108
L38	63.75-63.50	1.5174	0.7564	2.3252	1.3437
L39	63.50-58.50	1.8348	0.9147	2.7428	1.5849
L40	58.50-51.00	1.9111	0.9528	2.8319	1.6361
L41	51.00-50.00	1.6803	0.8378	2.5245	1.4587
L42	50.00-45.00	1.6953	0.8453	2.5383	1.4661
L43	45.00-40.42	1.7187	0.8570	2.5682	1.4830
L44	40.42-40.17	1.7301	0.8627	2.5821	1.4909
L45	40.17-40.00	1.7311	0.8632	2.5833	1.4916
L46	40.00-35.00	1.8424	1.9754	2.6550	2.4147
L47	35.00-33.00	1.7663	2.7113	2.4832	3.0050
L48	33.00-32.75	1.7731	2.7217	2.4906	3.0153
L49	32.75-19.00	2.1766	3.3408	2.9868	3.6275
L50	19.00-18.00	2.2937	3.5203	3.1359	3.8088
L51	18.00-13.00	2.3113	3.5473	3.1195	3.8133
L52	13.00-8.00	2.3404	3.5917	3.1291	3.8438
L53	8.00-6.42	2.3591	3.6204	3.1262	3.8577
L54	6.42-6.17	2.3662	3.6312	3.1254	3.8631
L55	6.17-1.17	2.3808	3.6535	3.1053	3.8629
L56	1.17-0.00	2.3978	3.6796	3.0049	3.8153

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	2	Safety Line 3/8"	180.00 - 185.00	1.0000	1.0000
L1	3	Step Pegs	180.00 - 185.00	1.0000	1.0000
L1	6	HCS 6X12 4AWG(1-5/8)	180.00 - 183.00	1.0000	1.0000
L1	8	HB158-21U6S24-xxM_TMO(1-5/8)	180.00 - 183.00	1.0000	1.0000
L2	2	Safety Line 3/8"	175.00 - 180.00	1.0000	1.0000
L2	3	Step Pegs	175.00 - 180.00	1.0000	1.0000
L2	6	HCS 6X12 4AWG(1-5/8)	175.00 - 180.00	1.0000	1.0000
L2	8	HB158-21U6S24-xxM_TMO(1-5/8)	175.00 - 180.00	1.0000	1.0000
L3	2	Safety Line 3/8"	170.00 - 175.00	1.0000	1.0000
L3	3	Step Pegs	170.00 - 175.00	1.0000	1.0000
L3	6	HCS 6X12 4AWG(1-5/8)	170.00 - 175.00	1.0000	1.0000
L3	8	HB158-21U6S24-xxM_TMO(1-5/8)	170.00 - 175.00	1.0000	1.0000
L4	2	Safety Line 3/8"	165.00 - 170.00	1.0000	1.0000
L4	3	Step Pegs	165.00 - 170.00	1.0000	1.0000
L4	6	HCS 6X12 4AWG(1-5/8)	165.00 - 170.00	1.0000	1.0000
L4	8	HB158-21U6S24-xxM_TMO(1-5/8)	165.00 - 170.00	1.0000	1.0000
L5	2	Safety Line 3/8"	160.00 - 165.00	1.0000	1.0000
L5	3	Step Pegs	160.00 - 165.00	1.0000	1.0000
L5	6	HCS 6X12 4AWG(1-5/8)	160.00 - 165.00	1.0000	1.0000
L5	8	HB158-21U6S24-xxM_TMO(1-5/8)	160.00 - 165.00	1.0000	1.0000
L5	23	CU12PSM6P4XXX(1-3/4)	160.00 - 165.00	1.0000	1.0000
L6	2	Safety Line 3/8"	155.00 - 160.00	1.0000	1.0000
L6	3	Step Pegs	155.00 - 160.00	1.0000	1.0000
L6	6	HCS 6X12 4AWG(1-5/8)	155.00 - 160.00	1.0000	1.0000
L6	8	HB158-21U6S24-xxM_TMO(1-5/8)	155.00 - 160.00	1.0000	1.0000
L6	23	CU12PSM6P4XXX(1-3/4)	155.00 - 160.00	1.0000	1.0000
L6	56	CCI-040075 (W)	155.00 - 155.25	1.0000	1.0000
L6	57	CCI-040075 (W)	155.00 - 155.25	1.0000	1.0000
L6	58	CCI-040075 (W)	155.00 - 155.25	1.0000	1.0000
L7	2	Safety Line 3/8"	154.00 - 155.00	1.0000	1.0000
L7	3	Step Pegs	154.00 - 155.00	1.0000	1.0000
L7	6	HCS 6X12 4AWG(1-5/8)	154.00 - 155.00	1.0000	1.0000
L7	8	HB158-21U6S24-xxM_TMO(1-5/8)	154.00 - 155.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L7	23	CU12PSM6P4XXX(1-3/4)	154.00 - 155.00	1.0000	1.0000
L7	35	CCI-045100 (L)	154.00 - 154.50	1.0000	1.0000
L7	36	CCI-045100 (L)	154.00 - 154.50	1.0000	1.0000
L7	37	CCI-045100 (L)	154.00 - 154.50	1.0000	1.0000
L7	56	CCI-040075 (W)	154.00 - 155.00	1.0000	1.0000
L7	57	CCI-040075 (W)	154.00 - 155.00	1.0000	1.0000
L7	58	CCI-040075 (W)	154.00 - 155.00	1.0000	1.0000
L8	2	Safety Line 3/8"	153.75 - 154.00	1.0000	1.0000
L8	3	Step Pegs	153.75 - 154.00	1.0000	1.0000
L8	6	HCS 6X12 4AWG(1-5/8)	153.75 - 154.00	1.0000	1.0000
L8	8	HB158-21U6S24-xxM_TMO(1-5/8)	153.75 - 154.00	1.0000	1.0000
L8	23	CU12PSM6P4XXX(1-3/4)	153.75 - 154.00	1.0000	1.0000
L8	35	CCI-045100 (L)	153.75 - 154.00	1.0000	1.0000
L8	36	CCI-045100 (L)	153.75 - 154.00	1.0000	1.0000
L8	37	CCI-045100 (L)	153.75 - 154.00	1.0000	1.0000
L8	56	CCI-040075 (W)	153.75 - 154.00	1.0000	1.0000
L8	57	CCI-040075 (W)	153.75 - 154.00	1.0000	1.0000
L8	58	CCI-040075 (W)	153.75 - 154.00	1.0000	1.0000
L9	2	Safety Line 3/8"	152.50 - 153.75	1.0000	1.0000
L9	3	Step Pegs	152.50 - 153.75	1.0000	1.0000
L9	6	HCS 6X12 4AWG(1-5/8)	152.50 - 153.75	1.0000	1.0000
L9	8	HB158-21U6S24-xxM_TMO(1-5/8)	152.50 - 153.75	1.0000	1.0000
L9	23	CU12PSM6P4XXX(1-3/4)	152.50 - 153.75	1.0000	1.0000
L9	35	CCI-045100 (L)	152.50 - 153.75	1.0000	1.0000
L9	36	CCI-045100 (L)	152.50 - 153.75	1.0000	1.0000
L9	37	CCI-045100 (L)	152.50 - 153.75	1.0000	1.0000
L9	56	CCI-040075 (W)	152.50 - 153.75	1.0000	1.0000
L9	57	CCI-040075 (W)	152.50 - 153.75	1.0000	1.0000
L9	58	CCI-040075 (W)	152.50 - 153.75	1.0000	1.0000
L10	2	Safety Line 3/8"	152.25 - 152.50	1.0000	1.0000
L10	3	Step Pegs	152.25 - 152.50	1.0000	1.0000
L10	6	HCS 6X12 4AWG(1-5/8)	152.25 - 152.50	1.0000	1.0000
L10	8	HB158-21U6S24-xxM_TMO(1-5/8)	152.25 - 152.50	1.0000	1.0000
L10	23	CU12PSM6P4XXX(1-3/4)	152.25 - 152.50	1.0000	1.0000
L10	35	CCI-045100 (L)	152.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	36	CCI-045100 (L)	152.50 152.25 - 152.50	1.0000	1.0000
L10	37	CCI-045100 (L)	152.25 - 152.50	1.0000	1.0000
L10	56	CCI-040075 (W)	152.25 - 152.50	1.0000	1.0000
L10	57	CCI-040075 (W)	152.25 - 152.50	1.0000	1.0000
L10	58	CCI-040075 (W)	152.25 - 152.50	1.0000	1.0000
L11	2	Safety Line 3/8"	151.50 - 152.25	1.0000	1.0000
L11	3	Step Pegs	151.50 - 152.25	1.0000	1.0000
L11	6	HCS 6X12 4AWG(1-5/8)	151.50 - 152.25	1.0000	1.0000
L11	8	HB158-21U6S24-xxM_TMO(1-5/8)	151.50 - 152.25	1.0000	1.0000
L11	23	CU12PSM6P4XXX(1-3/4)	151.50 - 152.25	1.0000	1.0000
L11	35	CCI-045100 (L)	151.50 - 152.25	1.0000	1.0000
L11	36	CCI-045100 (L)	151.50 - 152.25	1.0000	1.0000
L11	37	CCI-045100 (L)	151.50 - 152.25	1.0000	1.0000
L11	56	CCI-040075 (W)	151.50 - 152.25	1.0000	1.0000
L11	57	CCI-040075 (W)	151.50 - 152.25	1.0000	1.0000
L11	58	CCI-040075 (W)	151.50 - 152.25	1.0000	1.0000
L12	2	Safety Line 3/8"	151.25 - 151.50	1.0000	1.0000
L12	3	Step Pegs	151.25 - 151.50	1.0000	1.0000
L12	6	HCS 6X12 4AWG(1-5/8)	151.25 - 151.50	1.0000	1.0000
L12	8	HB158-21U6S24-xxM_TMO(1-5/8)	151.25 - 151.50	1.0000	1.0000
L12	23	CU12PSM6P4XXX(1-3/4)	151.25 - 151.50	1.0000	1.0000
L12	35	CCI-045100 (L)	151.25 - 151.50	1.0000	1.0000
L12	36	CCI-045100 (L)	151.25 - 151.50	1.0000	1.0000
L12	37	CCI-045100 (L)	151.25 - 151.50	1.0000	1.0000
L12	56	CCI-040075 (W)	151.25 - 151.50	1.0000	1.0000
L12	57	CCI-040075 (W)	151.25 - 151.50	1.0000	1.0000
L12	58	CCI-040075 (W)	151.25 - 151.50	1.0000	1.0000
L13	2	Safety Line 3/8"	146.25 - 151.25	1.0000	1.0000
L13	3	Step Pegs	146.25 - 151.25	1.0000	1.0000
L13	6	HCS 6X12 4AWG(1-5/8)	146.25 - 151.25	1.0000	1.0000
L13	8	HB158-21U6S24-xxM_TMO(1-5/8)	146.25 - 151.25	1.0000	1.0000
L13	23	CU12PSM6P4XXX(1-3/4)	146.25 - 151.25	1.0000	1.0000
L13	35	CCI-045100 (L)	146.25 - 151.25	1.0000	1.0000
L13	36	CCI-045100 (L)	146.25 - 151.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L13	37	CCI-045100 (L)	146.25 - 151.25	1.0000	1.0000
L13	56	CCI-040075 (W)	150.25 - 151.25	1.0000	1.0000
L13	57	CCI-040075 (W)	150.25 - 151.25	1.0000	1.0000
L13	58	CCI-040075 (W)	150.25 - 151.25	1.0000	1.0000
L14	2	Safety Line 3/8"	141.25 - 146.25	1.0000	1.0000
L14	3	Step Pegs	141.25 - 146.25	1.0000	1.0000
L14	6	HCS 6X12 4AWG(1-5/8)	141.25 - 146.25	1.0000	1.0000
L14	8	HB158-21U6S24-xxM_TMO(1-5/8)	141.25 - 146.25	1.0000	1.0000
L14	23	CU12PSM6P4XXX(1-3/4)	141.25 - 146.25	1.0000	1.0000
L14	35	CCI-045100 (L)	141.25 - 146.25	1.0000	1.0000
L14	36	CCI-045100 (L)	141.25 - 146.25	1.0000	1.0000
L14	37	CCI-045100 (L)	141.25 - 146.25	1.0000	1.0000
L15	2	Safety Line 3/8"	136.25 - 141.25	1.0000	1.0000
L15	3	Step Pegs	136.25 - 141.25	1.0000	1.0000
L15	6	HCS 6X12 4AWG(1-5/8)	136.25 - 141.25	1.0000	1.0000
L15	8	HB158-21U6S24-xxM_TMO(1-5/8)	136.25 - 141.25	1.0000	1.0000
L15	23	CU12PSM6P4XXX(1-3/4)	136.25 - 141.25	1.0000	1.0000
L15	35	CCI-045100 (L)	136.25 - 141.25	1.0000	1.0000
L15	36	CCI-045100 (L)	136.25 - 141.25	1.0000	1.0000
L15	37	CCI-045100 (L)	136.25 - 141.25	1.0000	1.0000
L16	2	Safety Line 3/8"	130.00 - 136.25	1.0000	1.0000
L16	3	Step Pegs	130.00 - 136.25	1.0000	1.0000
L16	6	HCS 6X12 4AWG(1-5/8)	130.00 - 136.25	1.0000	1.0000
L16	8	HB158-21U6S24-xxM_TMO(1-5/8)	130.00 - 136.25	1.0000	1.0000
L16	23	CU12PSM6P4XXX(1-3/4)	130.00 - 136.25	1.0000	1.0000
L16	35	CCI-045100 (L)	130.00 - 136.25	1.0000	1.0000
L16	36	CCI-045100 (L)	130.00 - 136.25	1.0000	1.0000
L16	37	CCI-045100 (L)	130.00 - 136.25	1.0000	1.0000
L16	52	CCI-040075 (W)	130.00 - 132.50	1.0000	1.0000
L16	53	CCI-040075 (W)	130.00 - 132.50	1.0000	1.0000
L16	54	CCI-040075 (W)	130.00 - 132.50	1.0000	1.0000
L17	2	Safety Line 3/8"	129.00 - 130.00	1.0000	1.0000
L17	3	Step Pegs	129.00 - 130.00	1.0000	1.0000
L17	6	HCS 6X12 4AWG(1-5/8)	129.00 - 130.00	1.0000	1.0000
L17	8	HB158-21U6S24-	129.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		xxM_TMO(1-5/8)	130.00		
L17	23	CU12PSM6P4XXX(1-3/4)	129.00 - 130.00	1.0000	1.0000
L17	35	CCI-045100 (L)	129.00 - 130.00	1.0000	1.0000
L17	36	CCI-045100 (L)	129.00 - 130.00	1.0000	1.0000
L17	37	CCI-045100 (L)	129.00 - 130.00	1.0000	1.0000
L17	52	CCI-040075 (W)	129.00 - 130.00	1.0000	1.0000
L17	53	CCI-040075 (W)	129.00 - 130.00	1.0000	1.0000
L17	54	CCI-040075 (W)	129.00 - 130.00	1.0000	1.0000
L18	2	Safety Line 3/8"	124.00 - 129.00	1.0000	1.0000
L18	3	Step Pegs	124.00 - 129.00	1.0000	1.0000
L18	6	HCS 6X12 4AWG(1-5/8)	124.00 - 129.00	1.0000	1.0000
L18	8	HB158-21U6S24-xxM_TMO(1-5/8)	124.00 - 129.00	1.0000	1.0000
L18	23	CU12PSM6P4XXX(1-3/4)	124.00 - 129.00	1.0000	1.0000
L18	35	CCI-045100 (L)	124.00 - 129.00	1.0000	1.0000
L18	36	CCI-045100 (L)	124.00 - 129.00	1.0000	1.0000
L18	37	CCI-045100 (L)	124.00 - 129.00	1.0000	1.0000
L18	52	CCI-040075 (W)	124.00 - 129.00	1.0000	1.0000
L18	53	CCI-040075 (W)	124.00 - 129.00	1.0000	1.0000
L18	54	CCI-040075 (W)	124.00 - 129.00	1.0000	1.0000
L19	2	Safety Line 3/8"	121.42 - 124.00	1.0000	1.0000
L19	3	Step Pegs	121.42 - 124.00	1.0000	1.0000
L19	6	HCS 6X12 4AWG(1-5/8)	121.42 - 124.00	1.0000	1.0000
L19	8	HB158-21U6S24-xxM_TMO(1-5/8)	121.42 - 124.00	1.0000	1.0000
L19	23	CU12PSM6P4XXX(1-3/4)	121.42 - 124.00	1.0000	1.0000
L19	31	CCI-060100 (L)	121.42 - 123.92	1.0000	1.0000
L19	32	CCI-060100 (L)	121.42 - 123.92	1.0000	1.0000
L19	33	CCI-060100 (L)	121.42 - 123.92	1.0000	1.0000
L19	35	CCI-045100 (L)	121.42 - 124.00	1.0000	1.0000
L19	36	CCI-045100 (L)	121.42 - 124.00	1.0000	1.0000
L19	37	CCI-045100 (L)	121.42 - 124.00	1.0000	1.0000
L19	52	CCI-040075 (W)	121.42 - 124.00	1.0000	1.0000
L19	53	CCI-040075 (W)	121.42 - 124.00	1.0000	1.0000
L19	54	CCI-040075 (W)	121.42 - 124.00	1.0000	1.0000
L20	2	Safety Line 3/8"	121.17 - 121.42	1.0000	1.0000
L20	3	Step Pegs	121.17 - 121.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	6	HCS 6X12 4AWG(1-5/8)	121.17 - 121.42	1.0000	1.0000
L20	8	HB158-21U6S24-xxM_TMO(1-5/8)	121.17 - 121.42	1.0000	1.0000
L20	23	CU12PSM6P4XXX(1-3/4)	121.17 - 121.42	1.0000	1.0000
L20	31	CCI-060100 (L)	121.17 - 121.42	1.0000	1.0000
L20	32	CCI-060100 (L)	121.17 - 121.42	1.0000	1.0000
L20	33	CCI-060100 (L)	121.17 - 121.42	1.0000	1.0000
L20	35	CCI-045100 (L)	121.17 - 121.42	1.0000	1.0000
L20	36	CCI-045100 (L)	121.17 - 121.42	1.0000	1.0000
L20	37	CCI-045100 (L)	121.17 - 121.42	1.0000	1.0000
L20	52	CCI-040075 (W)	121.17 - 121.42	1.0000	1.0000
L20	53	CCI-040075 (W)	121.17 - 121.42	1.0000	1.0000
L20	54	CCI-040075 (W)	121.17 - 121.42	1.0000	1.0000
L21	2	Safety Line 3/8"	116.17 - 121.17	1.0000	1.0000
L21	3	Step Pegs	116.17 - 121.17	1.0000	1.0000
L21	6	HCS 6X12 4AWG(1-5/8)	116.17 - 121.17	1.0000	1.0000
L21	8	HB158-21U6S24-xxM_TMO(1-5/8)	116.17 - 121.17	1.0000	1.0000
L21	23	CU12PSM6P4XXX(1-3/4)	116.17 - 121.17	1.0000	1.0000
L21	31	CCI-060100 (L)	116.17 - 121.17	1.0000	1.0000
L21	32	CCI-060100 (L)	116.17 - 121.17	1.0000	1.0000
L21	33	CCI-060100 (L)	116.17 - 121.17	1.0000	1.0000
L21	35	CCI-045100 (L)	119.50 - 121.17	1.0000	1.0000
L21	36	CCI-045100 (L)	119.50 - 121.17	1.0000	1.0000
L21	37	CCI-045100 (L)	119.50 - 121.17	1.0000	1.0000
L21	52	CCI-040075 (W)	116.17 - 121.17	1.0000	1.0000
L21	53	CCI-040075 (W)	116.17 - 121.17	1.0000	1.0000
L21	54	CCI-040075 (W)	116.17 - 121.17	1.0000	1.0000
L22	2	Safety Line 3/8"	115.00 - 116.17	1.0000	1.0000
L22	3	Step Pegs	115.00 - 116.17	1.0000	1.0000
L22	6	HCS 6X12 4AWG(1-5/8)	115.00 - 116.17	1.0000	1.0000
L22	8	HB158-21U6S24-xxM_TMO(1-5/8)	115.00 - 116.17	1.0000	1.0000
L22	23	CU12PSM6P4XXX(1-3/4)	115.00 - 116.17	1.0000	1.0000
L22	31	CCI-060100 (L)	115.00 - 116.17	1.0000	1.0000
L22	32	CCI-060100 (L)	115.00 - 116.17	1.0000	1.0000
L22	33	CCI-060100 (L)	115.00 - 116.17	1.0000	1.0000
L22	52	CCI-040075 (W)	115.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	53	CCI-040075 (W)	116.17 115.00 -	1.0000	1.0000
L22	54	CCI-040075 (W)	116.17 115.00 -	1.0000	1.0000
L23	2	Safety Line 3/8"	116.17 113.75 -	1.0000	1.0000
L23	3	Step Pegs	115.00 113.75 -	1.0000	1.0000
L23	6	HCS 6X12 4AWG(1-5/8)	115.00 113.75 -	1.0000	1.0000
L23	8	HB158-21U6S24-xxM_TMO(1-5/8)	115.00 113.75 -	1.0000	1.0000
L23	23	CU12PSM6P4XXX(1-3/4)	115.00 113.75 -	1.0000	1.0000
L23	31	CCI-060100 (L)	115.00 113.75 -	1.0000	1.0000
L23	32	CCI-060100 (L)	115.00 113.75 -	1.0000	1.0000
L23	33	CCI-060100 (L)	115.00 113.75 -	1.0000	1.0000
L23	52	CCI-040075 (W)	115.00 113.75 -	1.0000	1.0000
L23	53	CCI-040075 (W)	115.00 113.75 -	1.0000	1.0000
L23	54	CCI-040075 (W)	115.00 113.75 -	1.0000	1.0000
L24	2	Safety Line 3/8"	115.00 113.50 -	1.0000	1.0000
L24	3	Step Pegs	113.75 113.50 -	1.0000	1.0000
L24	6	HCS 6X12 4AWG(1-5/8)	113.75 113.50 -	1.0000	1.0000
L24	8	HB158-21U6S24-xxM_TMO(1-5/8)	113.75 113.50 -	1.0000	1.0000
L24	23	CU12PSM6P4XXX(1-3/4)	113.75 113.50 -	1.0000	1.0000
L24	31	CCI-060100 (L)	113.75 113.50 -	1.0000	1.0000
L24	32	CCI-060100 (L)	113.75 113.50 -	1.0000	1.0000
L24	33	CCI-060100 (L)	113.75 113.50 -	1.0000	1.0000
L24	52	CCI-040075 (W)	113.75 113.50 -	1.0000	1.0000
L24	53	CCI-040075 (W)	113.75 113.50 -	1.0000	1.0000
L24	54	CCI-040075 (W)	113.75 113.50 -	1.0000	1.0000
L25	2	Safety Line 3/8"	113.75 108.50 -	1.0000	1.0000
L25	3	Step Pegs	113.50 108.50 -	1.0000	1.0000
L25	6	HCS 6X12 4AWG(1-5/8)	113.50 108.50 -	1.0000	1.0000
L25	8	HB158-21U6S24-xxM_TMO(1-5/8)	113.50 108.50 -	1.0000	1.0000
L25	23	CU12PSM6P4XXX(1-3/4)	113.50 108.50 -	1.0000	1.0000
L25	31	CCI-060100 (L)	113.50 108.50 -	1.0000	1.0000
L25	32	CCI-060100 (L)	113.50 108.50 -	1.0000	1.0000
L25	33	CCI-060100 (L)	113.50 108.50 -	1.0000	1.0000
L25	52	CCI-040075 (W)	113.50 112.50 -	1.0000	1.0000
L25	53	CCI-040075 (W)	113.50 112.50 -	1.0000	1.0000
			113.50		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	54	CCI-040075 (W)	112.50 - 113.50	1.0000	1.0000
L26	2	Safety Line 3/8"	103.50 - 108.50	1.0000	1.0000
L26	3	Step Pegs	103.50 - 108.50	1.0000	1.0000
L26	6	HCS 6X12 4AWG(1-5/8)	103.50 - 108.50	1.0000	1.0000
L26	8	HB158-21U6S24-xxM_TMO(1-5/8)	103.50 - 108.50	1.0000	1.0000
L26	23	CU12PSM6P4XXX(1-3/4)	103.50 - 108.50	1.0000	1.0000
L26	31	CCI-060100 (L)	103.50 - 108.50	1.0000	1.0000
L26	32	CCI-060100 (L)	103.50 - 108.50	1.0000	1.0000
L26	33	CCI-060100 (L)	103.50 - 108.50	1.0000	1.0000
L27	2	Safety Line 3/8"	95.00 - 103.50	1.0000	1.0000
L27	3	Step Pegs	95.00 - 103.50	1.0000	1.0000
L27	6	HCS 6X12 4AWG(1-5/8)	95.00 - 103.50	1.0000	1.0000
L27	8	HB158-21U6S24-xxM_TMO(1-5/8)	95.00 - 103.50	1.0000	1.0000
L27	23	CU12PSM6P4XXX(1-3/4)	95.00 - 103.50	1.0000	1.0000
L27	31	CCI-060100 (L)	95.00 - 103.50	1.0000	1.0000
L27	32	CCI-060100 (L)	95.00 - 103.50	1.0000	1.0000
L27	33	CCI-060100 (L)	95.00 - 103.50	1.0000	1.0000
L27	48	CCI-060100 (L)	95.00 - 101.67	1.0000	1.0000
L27	49	CCI-060100 (L)	95.00 - 101.67	1.0000	1.0000
L27	50	CCI-060100 (L)	95.00 - 101.67	1.0000	1.0000
L28	2	Safety Line 3/8"	94.00 - 95.00	1.0000	1.0000
L28	3	Step Pegs	94.00 - 95.00	1.0000	1.0000
L28	6	HCS 6X12 4AWG(1-5/8)	94.00 - 95.00	1.0000	1.0000
L28	8	HB158-21U6S24-xxM_TMO(1-5/8)	94.00 - 95.00	1.0000	1.0000
L28	23	CU12PSM6P4XXX(1-3/4)	94.00 - 95.00	1.0000	1.0000
L28	31	CCI-060100 (L)	94.00 - 95.00	1.0000	1.0000
L28	32	CCI-060100 (L)	94.00 - 95.00	1.0000	1.0000
L28	33	CCI-060100 (L)	94.00 - 95.00	1.0000	1.0000
L28	48	CCI-060100 (L)	94.00 - 95.00	1.0000	1.0000
L28	49	CCI-060100 (L)	94.00 - 95.00	1.0000	1.0000
L28	50	CCI-060100 (L)	94.00 - 95.00	1.0000	1.0000
L29	2	Safety Line 3/8"	91.40 - 94.00	1.0000	1.0000
L29	3	Step Pegs	91.40 - 94.00	1.0000	1.0000
L29	6	HCS 6X12 4AWG(1-5/8)	91.40 - 94.00	1.0000	1.0000
L29	8	HB158-21U6S24-	91.40 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		xxM_TMO(1-5/8)	94.00		
L29	23	CU12PSM6P4XXX(1-3/4)	91.40 - 94.00	1.0000	1.0000
L29	31	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L29	32	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L29	33	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L29	48	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L29	49	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L29	50	CCI-060100 (L)	91.40 - 94.00	1.0000	1.0000
L30	2	Safety Line 3/8"	91.15 - 91.40	1.0000	1.0000
L30	3	Step Pegs	91.15 - 91.40	1.0000	1.0000
L30	6	HCS 6X12 4AWG(1-5/8)	91.15 - 91.40	1.0000	1.0000
L30	8	HB158-21U6S24-xxM_TMO(1-5/8)	91.15 - 91.40	1.0000	1.0000
L30	23	CU12PSM6P4XXX(1-3/4)	91.15 - 91.40	1.0000	1.0000
L30	31	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L30	32	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L30	33	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L30	48	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L30	49	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L30	50	CCI-060100 (L)	91.15 - 91.40	1.0000	1.0000
L31	2	Safety Line 3/8"	91.00 - 91.15	1.0000	1.0000
L31	3	Step Pegs	91.00 - 91.15	1.0000	1.0000
L31	6	HCS 6X12 4AWG(1-5/8)	91.00 - 91.15	1.0000	1.0000
L31	8	HB158-21U6S24-xxM_TMO(1-5/8)	91.00 - 91.15	1.0000	1.0000
L31	23	CU12PSM6P4XXX(1-3/4)	91.00 - 91.15	1.0000	1.0000
L31	31	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L31	32	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L31	33	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L31	48	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L31	49	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L31	50	CCI-060100 (L)	91.00 - 91.15	1.0000	1.0000
L32	2	Safety Line 3/8"	86.00 - 91.00	1.0000	1.0000
L32	3	Step Pegs	86.00 - 91.00	1.0000	1.0000
L32	6	HCS 6X12 4AWG(1-5/8)	86.00 - 91.00	1.0000	1.0000
L32	8	HB158-21U6S24-xxM_TMO(1-5/8)	86.00 - 91.00	1.0000	1.0000
L32	23	CU12PSM6P4XXX(1-3/4)	86.00 - 91.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	31	CCI-060100 (L)	88.89 - 91.00	1.0000	1.0000
L32	32	CCI-060100 (L)	88.89 - 91.00	1.0000	1.0000
L32	33	CCI-060100 (L)	88.89 - 91.00	1.0000	1.0000
L32	48	CCI-060100 (L)	86.00 - 91.00	1.0000	1.0000
L32	49	CCI-060100 (L)	86.00 - 91.00	1.0000	1.0000
L32	50	CCI-060100 (L)	86.00 - 91.00	1.0000	1.0000
L33	2	Safety Line 3/8"	81.00 - 86.00	1.0000	1.0000
L33	3	Step Pegs	81.00 - 86.00	1.0000	1.0000
L33	6	HCS 6X12 4AWG(1-5/8)	81.00 - 86.00	1.0000	1.0000
L33	8	HB158-21U6S24-xxM_TMO(1-5/8)	81.00 - 86.00	1.0000	1.0000
L33	23	CU12PSM6P4XXX(1-3/4)	81.00 - 86.00	1.0000	1.0000
L33	48	CCI-060100 (L)	81.00 - 86.00	1.0000	1.0000
L33	49	CCI-060100 (L)	81.00 - 86.00	1.0000	1.0000
L33	50	CCI-060100 (L)	81.00 - 86.00	1.0000	1.0000
L34	2	Safety Line 3/8"	76.00 - 81.00	1.0000	1.0000
L34	3	Step Pegs	76.00 - 81.00	1.0000	1.0000
L34	6	HCS 6X12 4AWG(1-5/8)	76.00 - 81.00	1.0000	1.0000
L34	8	HB158-21U6S24-xxM_TMO(1-5/8)	76.00 - 81.00	1.0000	1.0000
L34	23	CU12PSM6P4XXX(1-3/4)	76.00 - 81.00	1.0000	1.0000
L34	48	CCI-060100 (L)	76.00 - 81.00	1.0000	1.0000
L34	49	CCI-060100 (L)	76.00 - 81.00	1.0000	1.0000
L34	50	CCI-060100 (L)	76.00 - 81.00	1.0000	1.0000
L35	2	Safety Line 3/8"	71.00 - 76.00	1.0000	1.0000
L35	3	Step Pegs	71.00 - 76.00	1.0000	1.0000
L35	6	HCS 6X12 4AWG(1-5/8)	71.00 - 76.00	1.0000	1.0000
L35	8	HB158-21U6S24-xxM_TMO(1-5/8)	71.00 - 76.00	1.0000	1.0000
L35	23	CU12PSM6P4XXX(1-3/4)	71.00 - 76.00	1.0000	1.0000
L35	48	CCI-060100 (L)	71.00 - 76.00	1.0000	1.0000
L35	49	CCI-060100 (L)	71.00 - 76.00	1.0000	1.0000
L35	50	CCI-060100 (L)	71.00 - 76.00	1.0000	1.0000
L36	2	Safety Line 3/8"	66.00 - 71.00	1.0000	1.0000
L36	3	Step Pegs	66.00 - 71.00	1.0000	1.0000
L36	6	HCS 6X12 4AWG(1-5/8)	66.00 - 71.00	1.0000	1.0000
L36	8	HB158-21U6S24-xxM_TMO(1-5/8)	66.00 - 71.00	1.0000	1.0000
L36	23	CU12PSM6P4XXX(1-3/4)	66.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L36	48	CCI-060100 (L)	71.00 66.00 -	1.0000	1.0000
L36	49	CCI-060100 (L)	71.00 66.00 -	1.0000	1.0000
L36	50	CCI-060100 (L)	71.00 66.00 -	1.0000	1.0000
L37	2	Safety Line 3/8"	71.00 63.75 -	1.0000	1.0000
L37	3	Step Pegs	66.00 63.75 -	1.0000	1.0000
L37	6	HCS 6X12 4AWG(1-5/8)	66.00 63.75 -	1.0000	1.0000
L37	8	HB158-21U6S24-xxM_TMO(1-5/8)	66.00 63.75 -	1.0000	1.0000
L37	23	CU12PSM6P4XXX(1-3/4)	66.00 63.75 -	1.0000	1.0000
L37	44	CCI-060100 (L)	66.00 63.75 -	1.0000	1.0000
L37	45	CCI-060100 (L)	65.50 63.75 -	1.0000	1.0000
L37	46	CCI-060100 (L)	65.50 63.75 -	1.0000	1.0000
L37	48	CCI-060100 (L)	65.50 63.75 -	1.0000	1.0000
L37	49	CCI-060100 (L)	66.00 63.75 -	1.0000	1.0000
L37	50	CCI-060100 (L)	66.00 63.75 -	1.0000	1.0000
L38	2	Safety Line 3/8"	66.00 63.50 -	1.0000	1.0000
L38	3	Step Pegs	63.75 63.50 -	1.0000	1.0000
L38	6	HCS 6X12 4AWG(1-5/8)	63.75 63.50 -	1.0000	1.0000
L38	8	HB158-21U6S24-xxM_TMO(1-5/8)	63.75 63.50 -	1.0000	1.0000
L38	23	CU12PSM6P4XXX(1-3/4)	63.75 63.50 -	1.0000	1.0000
L38	44	CCI-060100 (L)	63.75 63.50 -	1.0000	1.0000
L38	45	CCI-060100 (L)	63.75 63.50 -	1.0000	1.0000
L38	46	CCI-060100 (L)	63.75 63.50 -	1.0000	1.0000
L38	48	CCI-060100 (L)	63.75 63.50 -	1.0000	1.0000
L38	49	CCI-060100 (L)	63.75 63.50 -	1.0000	1.0000
L38	50	CCI-060100 (L)	63.75 63.50 -	1.0000	1.0000
L39	2	Safety Line 3/8"	63.75 58.50 -	1.0000	1.0000
L39	3	Step Pegs	63.50 58.50 -	1.0000	1.0000
L39	6	HCS 6X12 4AWG(1-5/8)	63.50 58.50 -	1.0000	1.0000
L39	8	HB158-21U6S24-xxM_TMO(1-5/8)	63.50 58.50 -	1.0000	1.0000
L39	23	CU12PSM6P4XXX(1-3/4)	63.50 58.50 -	1.0000	1.0000
L39	44	CCI-060100 (L)	63.50 58.50 -	1.0000	1.0000
L39	45	CCI-060100 (L)	63.50 58.50 -	1.0000	1.0000
L39	46	CCI-060100 (L)	63.50 58.50 -	1.0000	1.0000
L39	48	CCI-060100 (L)	63.50 61.67 -	1.0000	1.0000
			63.50		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	49	CCI-060100 (L)	61.67 - 63.50	1.0000	1.0000
L39	50	CCI-060100 (L)	61.67 - 63.50	1.0000	1.0000
L40	2	Safety Line 3/8"	51.00 - 58.50	1.0000	1.0000
L40	3	Step Pegs	51.00 - 58.50	1.0000	1.0000
L40	6	HCS 6X12 4AWG(1-5/8)	51.00 - 58.50	1.0000	1.0000
L40	8	HB158-21U6S24-xxM_TMO(1-5/8)	51.00 - 58.50	1.0000	1.0000
L40	23	CU12PSM6P4XXX(1-3/4)	51.00 - 58.50	1.0000	1.0000
L40	27	CCI-045100 (L)	51.00 - 53.92	1.0000	1.0000
L40	28	CCI-045100 (L)	51.00 - 53.92	1.0000	1.0000
L40	29	CCI-045100 (L)	51.00 - 53.92	1.0000	1.0000
L40	44	CCI-060100 (L)	51.00 - 58.50	1.0000	1.0000
L40	45	CCI-060100 (L)	51.00 - 58.50	1.0000	1.0000
L40	46	CCI-060100 (L)	51.00 - 58.50	1.0000	1.0000
L41	2	Safety Line 3/8"	50.00 - 51.00	1.0000	1.0000
L41	3	Step Pegs	50.00 - 51.00	1.0000	1.0000
L41	6	HCS 6X12 4AWG(1-5/8)	50.00 - 51.00	1.0000	1.0000
L41	8	HB158-21U6S24-xxM_TMO(1-5/8)	50.00 - 51.00	1.0000	1.0000
L41	23	CU12PSM6P4XXX(1-3/4)	50.00 - 51.00	1.0000	1.0000
L41	27	CCI-045100 (L)	50.00 - 51.00	1.0000	1.0000
L41	28	CCI-045100 (L)	50.00 - 51.00	1.0000	1.0000
L41	29	CCI-045100 (L)	50.00 - 51.00	1.0000	1.0000
L41	44	CCI-060100 (L)	50.00 - 51.00	1.0000	1.0000
L41	45	CCI-060100 (L)	50.00 - 51.00	1.0000	1.0000
L41	46	CCI-060100 (L)	50.00 - 51.00	1.0000	1.0000
L42	2	Safety Line 3/8"	45.00 - 50.00	1.0000	1.0000
L42	3	Step Pegs	45.00 - 50.00	1.0000	1.0000
L42	6	HCS 6X12 4AWG(1-5/8)	45.00 - 50.00	1.0000	1.0000
L42	8	HB158-21U6S24-xxM_TMO(1-5/8)	45.00 - 50.00	1.0000	1.0000
L42	23	CU12PSM6P4XXX(1-3/4)	45.00 - 50.00	1.0000	1.0000
L42	27	CCI-045100 (L)	45.00 - 50.00	1.0000	1.0000
L42	28	CCI-045100 (L)	45.00 - 50.00	1.0000	1.0000
L42	29	CCI-045100 (L)	45.00 - 50.00	1.0000	1.0000
L42	44	CCI-060100 (L)	45.00 - 50.00	1.0000	1.0000
L42	45	CCI-060100 (L)	45.00 - 50.00	1.0000	1.0000
L42	46	CCI-060100 (L)	45.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			50.00		
L43	2	Safety Line 3/8"	40.42 - 45.00	1.0000	1.0000
L43	3	Step Pegs	40.42 - 45.00	1.0000	1.0000
L43	6	HCS 6X12 4AWG(1-5/8)	40.42 - 45.00	1.0000	1.0000
L43	8	HB158-21U6S24-xxM_TMO(1-5/8)	40.42 - 45.00	1.0000	1.0000
L43	23	CU12PSM6P4XXX(1-3/4)	40.42 - 45.00	1.0000	1.0000
L43	27	CCI-045100 (L)	40.42 - 45.00	1.0000	1.0000
L43	28	CCI-045100 (L)	40.42 - 45.00	1.0000	1.0000
L43	29	CCI-045100 (L)	40.42 - 45.00	1.0000	1.0000
L43	44	CCI-060100 (L)	40.42 - 45.00	1.0000	1.0000
L43	45	CCI-060100 (L)	40.42 - 45.00	1.0000	1.0000
L43	46	CCI-060100 (L)	40.42 - 45.00	1.0000	1.0000
L44	2	Safety Line 3/8"	40.17 - 40.42	1.0000	1.0000
L44	3	Step Pegs	40.17 - 40.42	1.0000	1.0000
L44	6	HCS 6X12 4AWG(1-5/8)	40.17 - 40.42	1.0000	1.0000
L44	8	HB158-21U6S24-xxM_TMO(1-5/8)	40.17 - 40.42	1.0000	1.0000
L44	23	CU12PSM6P4XXX(1-3/4)	40.17 - 40.42	1.0000	1.0000
L44	27	CCI-045100 (L)	40.17 - 40.42	1.0000	1.0000
L44	28	CCI-045100 (L)	40.17 - 40.42	1.0000	1.0000
L44	29	CCI-045100 (L)	40.17 - 40.42	1.0000	1.0000
L44	44	CCI-060100 (L)	40.17 - 40.42	1.0000	1.0000
L44	45	CCI-060100 (L)	40.17 - 40.42	1.0000	1.0000
L44	46	CCI-060100 (L)	40.17 - 40.42	1.0000	1.0000
L45	2	Safety Line 3/8"	40.00 - 40.17	1.0000	1.0000
L45	3	Step Pegs	40.00 - 40.17	1.0000	1.0000
L45	6	HCS 6X12 4AWG(1-5/8)	40.00 - 40.17	1.0000	1.0000
L45	8	HB158-21U6S24-xxM_TMO(1-5/8)	40.00 - 40.17	1.0000	1.0000
L45	23	CU12PSM6P4XXX(1-3/4)	40.00 - 40.17	1.0000	1.0000
L45	27	CCI-045100 (L)	40.00 - 40.17	1.0000	1.0000
L45	28	CCI-045100 (L)	40.00 - 40.17	1.0000	1.0000
L45	29	CCI-045100 (L)	40.00 - 40.17	1.0000	1.0000
L45	44	CCI-060100 (L)	40.00 - 40.17	1.0000	1.0000
L45	45	CCI-060100 (L)	40.00 - 40.17	1.0000	1.0000
L45	46	CCI-060100 (L)	40.00 - 40.17	1.0000	1.0000
L46	2	Safety Line 3/8"	35.00 - 40.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L46	3	Step Pegs	35.00 - 40.00	1.0000	1.0000
L46	6	HCS 6X12 4AWG(1-5/8)	35.00 - 40.00	1.0000	1.0000
L46	8	HB158-21U6S24-xxM_TMO(1-5/8)	35.00 - 40.00	1.0000	1.0000
L46	23	CU12PSM6P4XXX(1-3/4)	35.00 - 40.00	1.0000	1.0000
L46	27	CCI-045100 (L)	38.92 - 40.00	1.0000	1.0000
L46	28	CCI-045100 (L)	38.92 - 40.00	1.0000	1.0000
L46	29	CCI-045100 (L)	38.92 - 40.00	1.0000	1.0000
L46	39	CCI-085125 (L)	35.00 - 37.42	1.0000	1.0000
L46	40	CCI-085125 (L)	35.00 - 37.42	1.0000	1.0000
L46	41	CCI-085125 (L)	35.00 - 37.42	1.0000	1.0000
L46	42	CCI-085125 (L)	35.00 - 37.42	1.0000	1.0000
L46	44	CCI-060100 (L)	35.00 - 40.00	1.0000	1.0000
L46	45	CCI-060100 (L)	35.00 - 40.00	1.0000	1.0000
L46	46	CCI-060100 (L)	35.00 - 40.00	1.0000	1.0000
L47	2	Safety Line 3/8"	33.00 - 35.00	1.0000	1.0000
L47	3	Step Pegs	33.00 - 35.00	1.0000	1.0000
L47	6	HCS 6X12 4AWG(1-5/8)	33.00 - 35.00	1.0000	1.0000
L47	8	HB158-21U6S24-xxM_TMO(1-5/8)	33.00 - 35.00	1.0000	1.0000
L47	23	CU12PSM6P4XXX(1-3/4)	33.00 - 35.00	1.0000	1.0000
L47	39	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L47	40	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L47	41	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L47	42	CCI-085125 (L)	33.00 - 35.00	1.0000	1.0000
L47	44	CCI-060100 (L)	33.00 - 35.00	1.0000	1.0000
L47	45	CCI-060100 (L)	33.00 - 35.00	1.0000	1.0000
L47	46	CCI-060100 (L)	33.00 - 35.00	1.0000	1.0000
L48	2	Safety Line 3/8"	32.75 - 33.00	1.0000	1.0000
L48	3	Step Pegs	32.75 - 33.00	1.0000	1.0000
L48	6	HCS 6X12 4AWG(1-5/8)	32.75 - 33.00	1.0000	1.0000
L48	8	HB158-21U6S24-xxM_TMO(1-5/8)	32.75 - 33.00	1.0000	1.0000
L48	23	CU12PSM6P4XXX(1-3/4)	32.75 - 33.00	1.0000	1.0000
L48	39	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L48	40	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L48	41	CCI-085125 (L)	32.75 - 33.00	1.0000	1.0000
L48	42	CCI-085125 (L)	32.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L48	44	CCI-060100 (L)	33.00 - 32.75	1.0000	1.0000
L48	45	CCI-060100 (L)	33.00 - 32.75	1.0000	1.0000
L48	46	CCI-060100 (L)	33.00 - 32.75	1.0000	1.0000
L49	2	Safety Line 3/8"	33.00 - 19.00	1.0000	1.0000
L49	3	Step Pegs	32.75 - 19.00	1.0000	1.0000
L49	6	HCS 6X12 4AWG(1-5/8)	32.75 - 19.00	1.0000	1.0000
L49	8	HB158-21U6S24-xxM_TMO(1-5/8)	32.75 - 19.00	1.0000	1.0000
L49	23	CU12PSM6P4XXX(1-3/4)	32.75 - 19.00	1.0000	1.0000
L49	39	CCI-085125 (L)	32.75 - 19.00	1.0000	1.0000
L49	40	CCI-085125 (L)	32.75 - 19.00	1.0000	1.0000
L49	41	CCI-085125 (L)	32.75 - 19.00	1.0000	1.0000
L49	42	CCI-085125 (L)	32.75 - 19.00	1.0000	1.0000
L49	44	CCI-060100 (L)	32.75 - 30.50	1.0000	1.0000
L49	45	CCI-060100 (L)	32.75 - 30.50	1.0000	1.0000
L49	46	CCI-060100 (L)	32.75 - 30.50	1.0000	1.0000
L50	2	Safety Line 3/8"	19.00 - 18.00	1.0000	1.0000
L50	3	Step Pegs	19.00 - 18.00	1.0000	1.0000
L50	6	HCS 6X12 4AWG(1-5/8)	19.00 - 18.00	1.0000	1.0000
L50	8	HB158-21U6S24-xxM_TMO(1-5/8)	19.00 - 18.00	1.0000	1.0000
L50	23	CU12PSM6P4XXX(1-3/4)	19.00 - 18.00	1.0000	1.0000
L50	39	CCI-085125 (L)	19.00 - 18.00	1.0000	1.0000
L50	40	CCI-085125 (L)	19.00 - 18.00	1.0000	1.0000
L50	41	CCI-085125 (L)	19.00 - 18.00	1.0000	1.0000
L50	42	CCI-085125 (L)	19.00 - 18.00	1.0000	1.0000
L51	2	Safety Line 3/8"	18.00 - 13.00	1.0000	1.0000
L51	3	Step Pegs	18.00 - 13.00	1.0000	1.0000
L51	6	HCS 6X12 4AWG(1-5/8)	18.00 - 13.00	1.0000	1.0000
L51	8	HB158-21U6S24-xxM_TMO(1-5/8)	18.00 - 13.00	1.0000	1.0000
L51	23	CU12PSM6P4XXX(1-3/4)	18.00 - 13.00	1.0000	1.0000
L51	39	CCI-085125 (L)	18.00 - 13.00	1.0000	1.0000
L51	40	CCI-085125 (L)	18.00 - 13.00	1.0000	1.0000
L51	41	CCI-085125 (L)	18.00 - 13.00	1.0000	1.0000
L51	42	CCI-085125 (L)	18.00 - 13.00	1.0000	1.0000
L52	2	Safety Line 3/8"	8.00 - 13.00	1.0000	1.0000
L52	3	Step Pegs	8.00 - 13.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L52	6	HCS 6X12 4AWG(1-5/8)	8.00 - 13.00	1.0000	1.0000
L52	8	HB158-21U6S24-xxM_TMO(1-5/8)	8.00 - 13.00	1.0000	1.0000
L52	23	CU12PSM6P4XXX(1-3/4)	8.00 - 13.00	1.0000	1.0000
L52	39	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L52	40	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L52	41	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L52	42	CCI-085125 (L)	8.00 - 13.00	1.0000	1.0000
L53	2	Safety Line 3/8"	6.42 - 8.00	1.0000	1.0000
L53	3	Step Pegs	6.42 - 8.00	1.0000	1.0000
L53	6	HCS 6X12 4AWG(1-5/8)	6.42 - 8.00	1.0000	1.0000
L53	8	HB158-21U6S24-xxM_TMO(1-5/8)	6.42 - 8.00	1.0000	1.0000
L53	23	CU12PSM6P4XXX(1-3/4)	6.42 - 8.00	1.0000	1.0000
L53	39	CCI-085125 (L)	6.42 - 8.00	1.0000	1.0000
L53	40	CCI-085125 (L)	6.42 - 8.00	1.0000	1.0000
L53	41	CCI-085125 (L)	6.42 - 8.00	1.0000	1.0000
L53	42	CCI-085125 (L)	6.42 - 8.00	1.0000	1.0000
L54	2	Safety Line 3/8"	6.17 - 6.42	1.0000	1.0000
L54	3	Step Pegs	6.17 - 6.42	1.0000	1.0000
L54	6	HCS 6X12 4AWG(1-5/8)	6.17 - 6.42	1.0000	1.0000
L54	8	HB158-21U6S24-xxM_TMO(1-5/8)	6.17 - 6.42	1.0000	1.0000
L54	23	CU12PSM6P4XXX(1-3/4)	6.17 - 6.42	1.0000	1.0000
L54	39	CCI-085125 (L)	6.17 - 6.42	1.0000	1.0000
L54	40	CCI-085125 (L)	6.17 - 6.42	1.0000	1.0000
L54	41	CCI-085125 (L)	6.17 - 6.42	1.0000	1.0000
L54	42	CCI-085125 (L)	6.17 - 6.42	1.0000	1.0000
L55	2	Safety Line 3/8"	1.17 - 6.17	1.0000	1.0000
L55	3	Step Pegs	1.17 - 6.17	1.0000	1.0000
L55	6	HCS 6X12 4AWG(1-5/8)	1.17 - 6.17	1.0000	1.0000
L55	8	HB158-21U6S24-xxM_TMO(1-5/8)	1.17 - 6.17	1.0000	1.0000
L55	23	CU12PSM6P4XXX(1-3/4)	1.17 - 6.17	1.0000	1.0000
L55	39	CCI-085125 (L)	1.17 - 6.17	1.0000	1.0000
L55	40	CCI-085125 (L)	1.17 - 6.17	1.0000	1.0000
L55	41	CCI-085125 (L)	1.17 - 6.17	1.0000	1.0000
L55	42	CCI-085125 (L)	1.17 - 6.17	1.0000	1.0000
L56	2	Safety Line 3/8"	0.00 - 1.17	1.0000	1.0000
L56	3	Step Pegs	0.00 - 1.17	1.0000	1.0000
L56	6	HCS 6X12 4AWG(1-5/8)	0.00 - 1.17	1.0000	1.0000
L56	8	HB158-21U6S24-xxM_TMO(1-5/8)	0.00 - 1.17	1.0000	1.0000
L56	23	CU12PSM6P4XXX(1-3/4)	0.00 - 1.17	1.0000	1.0000
L56	39	CCI-085125 (L)	0.00 - 1.17	1.0000	1.0000
L56	40	CCI-085125 (L)	0.00 - 1.17	1.0000	1.0000
L56	41	CCI-085125 (L)	0.00 - 1.17	1.0000	1.0000
L56	42	CCI-085125 (L)	0.00 - 1.17	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
L6	56	CCI-040075 (W)	155.00 - 155.25	Auto	0.0000
L6	57	CCI-040075 (W)	155.00 - 155.25	Auto	0.0000
L6	58	CCI-040075 (W)	155.00 - 155.25	Auto	0.0000
L7	35	CCI-045100 (L)	154.00 - 154.50	Auto	0.0000
L7	36	CCI-045100 (L)	154.00 - 154.50	Auto	0.0000
L7	37	CCI-045100 (L)	154.00 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L7	56	CCI-040075 (W)	154.50 - 154.00	Auto	0.0000
L7	57	CCI-040075 (W)	154.00 - 155.00	Auto	0.0000
L7	58	CCI-040075 (W)	154.00 - 155.00	Auto	0.0000
L8	35	CCI-045100 (L)	153.75 - 155.00	Auto	0.0000
L8	36	CCI-045100 (L)	153.75 - 154.00	Auto	0.0000
L8	37	CCI-045100 (L)	153.75 - 154.00	Auto	0.0000
L8	56	CCI-040075 (W)	153.75 - 154.00	Auto	0.0000
L8	57	CCI-040075 (W)	153.75 - 154.00	Auto	0.0000
L8	58	CCI-040075 (W)	153.75 - 154.00	Auto	0.0000
L9	35	CCI-045100 (L)	152.50 - 153.75	Auto	0.0000
L9	36	CCI-045100 (L)	152.50 - 153.75	Auto	0.0000
L9	37	CCI-045100 (L)	152.50 - 153.75	Auto	0.0000
L9	56	CCI-040075 (W)	152.50 - 153.75	Auto	0.0000
L9	57	CCI-040075 (W)	152.50 - 153.75	Auto	0.0000
L9	58	CCI-040075 (W)	152.50 - 153.75	Auto	0.0000
L10	35	CCI-045100 (L)	152.25 - 152.50	Auto	0.0000
L10	36	CCI-045100 (L)	152.25 - 152.50	Auto	0.0000
L10	37	CCI-045100 (L)	152.25 - 152.50	Auto	0.0000
L10	56	CCI-040075 (W)	152.25 - 152.50	Auto	0.0000
L10	57	CCI-040075 (W)	152.25 - 152.50	Auto	0.0000
L10	58	CCI-040075 (W)	152.25 - 152.50	Auto	0.0000
L11	35	CCI-045100 (L)	151.50 - 152.25	Auto	0.0000
L11	36	CCI-045100 (L)	151.50 - 152.25	Auto	0.0000
L11	37	CCI-045100 (L)	151.50 - 152.25	Auto	0.0000
L11	56	CCI-040075 (W)	151.50 - 152.25	Auto	0.0000
L11	57	CCI-040075 (W)	151.50 - 152.25	Auto	0.0000
L11	58	CCI-040075 (W)	151.50 - 152.25	Auto	0.0000
L12	35	CCI-045100 (L)	151.25 - 151.50	Auto	0.0000
L12	36	CCI-045100 (L)	151.25 - 151.50	Auto	0.0000
L12	37	CCI-045100 (L)	151.25 - 151.50	Auto	0.0000
L12	56	CCI-040075 (W)	151.25 - 151.50	Auto	0.0000
L12	57	CCI-040075 (W)	151.25 - 151.50	Auto	0.0000
L12	58	CCI-040075 (W)	151.25 - 151.50	Auto	0.0000
L13	35	CCI-045100 (L)	146.25 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	36	CCI-045100 (L)	151.25 146.25 -	Auto	0.0000
L13	37	CCI-045100 (L)	151.25 146.25 -	Auto	0.0000
L13	56	CCI-040075 (W)	151.25 150.25 -	Auto	0.0000
L13	57	CCI-040075 (W)	151.25 150.25 -	Auto	0.0000
L13	58	CCI-040075 (W)	151.25 150.25 -	Auto	0.0000
L14	35	CCI-045100 (L)	151.25 141.25 -	Auto	0.0000
L14	36	CCI-045100 (L)	146.25 141.25 -	Auto	0.0000
L14	37	CCI-045100 (L)	146.25 141.25 -	Auto	0.0000
L15	35	CCI-045100 (L)	146.25 136.25 -	Auto	0.0000
L15	36	CCI-045100 (L)	141.25 136.25 -	Auto	0.0000
L15	37	CCI-045100 (L)	141.25 136.25 -	Auto	0.0000
L16	35	CCI-045100 (L)	141.25 130.00 -	Auto	0.0000
L16	36	CCI-045100 (L)	136.25 130.00 -	Auto	0.0000
L16	37	CCI-045100 (L)	136.25 130.00 -	Auto	0.0000
L16	52	CCI-040075 (W)	136.25 130.00 -	Auto	0.0000
L16	53	CCI-040075 (W)	132.50 130.00 -	Auto	0.0000
L16	54	CCI-040075 (W)	132.50 130.00 -	Auto	0.0000
L17	35	CCI-045100 (L)	132.50 129.00 -	Auto	0.0000
L17	36	CCI-045100 (L)	130.00 129.00 -	Auto	0.0000
L17	37	CCI-045100 (L)	130.00 129.00 -	Auto	0.0000
L17	52	CCI-040075 (W)	130.00 129.00 -	Auto	0.0000
L17	53	CCI-040075 (W)	130.00 129.00 -	Auto	0.0000
L17	54	CCI-040075 (W)	130.00 129.00 -	Auto	0.0000
L18	35	CCI-045100 (L)	130.00 124.00 -	Auto	0.0000
L18	36	CCI-045100 (L)	129.00 124.00 -	Auto	0.0000
L18	37	CCI-045100 (L)	129.00 124.00 -	Auto	0.0000
L18	52	CCI-040075 (W)	129.00 124.00 -	Auto	0.0000
L18	53	CCI-040075 (W)	129.00 124.00 -	Auto	0.0000
L18	54	CCI-040075 (W)	129.00 124.00 -	Auto	0.0000
L19	31	CCI-060100 (L)	129.00 121.42 -	Auto	0.0000
L19	32	CCI-060100 (L)	123.92 121.42 -	Auto	0.0000
L19	33	CCI-060100 (L)	123.92 121.42 -	Auto	0.0000
L19	35	CCI-045100 (L)	123.92 121.42 -	Auto	0.0000
L19	36	CCI-045100 (L)	124.00 121.42 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L19	37	CCI-045100 (L)	124.00 121.42 -	Auto	0.0000
L19	52	CCI-040075 (W)	124.00 121.42 -	Auto	0.0000
L19	53	CCI-040075 (W)	124.00 121.42 -	Auto	0.0000
L19	54	CCI-040075 (W)	124.00 121.42 -	Auto	0.0000
L20	31	CCI-060100 (L)	124.00 121.17 -	Auto	0.0000
L20	32	CCI-060100 (L)	121.42 121.17 -	Auto	0.0000
L20	33	CCI-060100 (L)	121.42 121.17 -	Auto	0.0000
L20	35	CCI-045100 (L)	121.42 121.17 -	Auto	0.0000
L20	36	CCI-045100 (L)	121.42 121.17 -	Auto	0.0000
L20	37	CCI-045100 (L)	121.42 121.17 -	Auto	0.0000
L20	52	CCI-040075 (W)	121.42 121.17 -	Auto	0.0000
L20	53	CCI-040075 (W)	121.42 121.17 -	Auto	0.0000
L20	54	CCI-040075 (W)	121.42 121.17 -	Auto	0.0000
L21	31	CCI-060100 (L)	121.42 116.17 -	Auto	0.0000
L21	32	CCI-060100 (L)	121.17 116.17 -	Auto	0.0000
L21	33	CCI-060100 (L)	121.17 116.17 -	Auto	0.0000
L21	35	CCI-045100 (L)	121.17 119.50 -	Auto	0.0000
L21	36	CCI-045100 (L)	121.17 119.50 -	Auto	0.0000
L21	37	CCI-045100 (L)	121.17 119.50 -	Auto	0.0000
L21	52	CCI-040075 (W)	121.17 116.17 -	Auto	0.0000
L21	53	CCI-040075 (W)	121.17 116.17 -	Auto	0.0000
L21	54	CCI-040075 (W)	121.17 116.17 -	Auto	0.0000
L22	31	CCI-060100 (L)	121.17 115.00 -	Auto	0.0000
L22	32	CCI-060100 (L)	116.17 115.00 -	Auto	0.0000
L22	33	CCI-060100 (L)	116.17 115.00 -	Auto	0.0000
L22	52	CCI-040075 (W)	116.17 115.00 -	Auto	0.0000
L22	53	CCI-040075 (W)	116.17 115.00 -	Auto	0.0000
L22	54	CCI-040075 (W)	116.17 115.00 -	Auto	0.0000
L23	31	CCI-060100 (L)	116.17 113.75 -	Auto	0.0000
L23	32	CCI-060100 (L)	115.00 113.75 -	Auto	0.0000
L23	33	CCI-060100 (L)	115.00 113.75 -	Auto	0.0000
L23	52	CCI-040075 (W)	115.00 113.75 -	Auto	0.0000
L23	53	CCI-040075 (W)	115.00 113.75 -	Auto	0.0000
L23	54	CCI-040075 (W)	115.00 113.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L24	31	CCI-060100 (L)	115.00 - 113.50	Auto	0.0000
L24	32	CCI-060100 (L)	113.50 - 113.75	Auto	0.0000
L24	33	CCI-060100 (L)	113.50 - 113.75	Auto	0.0000
L24	52	CCI-040075 (W)	113.50 - 113.75	Auto	0.0000
L24	53	CCI-040075 (W)	113.50 - 113.75	Auto	0.0000
L24	54	CCI-040075 (W)	113.50 - 113.75	Auto	0.0000
L25	31	CCI-060100 (L)	108.50 - 113.50	Auto	0.0000
L25	32	CCI-060100 (L)	108.50 - 113.50	Auto	0.0000
L25	33	CCI-060100 (L)	108.50 - 113.50	Auto	0.0000
L25	52	CCI-040075 (W)	112.50 - 113.50	Auto	0.0000
L25	53	CCI-040075 (W)	112.50 - 113.50	Auto	0.0000
L25	54	CCI-040075 (W)	112.50 - 113.50	Auto	0.0000
L26	31	CCI-060100 (L)	103.50 - 108.50	Auto	0.0000
L26	32	CCI-060100 (L)	103.50 - 108.50	Auto	0.0000
L26	33	CCI-060100 (L)	103.50 - 108.50	Auto	0.0000
L27	31	CCI-060100 (L)	95.00 - 103.50	Auto	0.0000
L27	32	CCI-060100 (L)	95.00 - 103.50	Auto	0.0000
L27	33	CCI-060100 (L)	95.00 - 103.50	Auto	0.0000
L27	48	CCI-060100 (L)	95.00 - 101.67	Auto	0.0000
L27	49	CCI-060100 (L)	95.00 - 101.67	Auto	0.0000
L27	50	CCI-060100 (L)	95.00 - 101.67	Auto	0.0000
L28	31	CCI-060100 (L)	94.00 - 95.00	Auto	0.0000
L28	32	CCI-060100 (L)	94.00 - 95.00	Auto	0.0000
L28	33	CCI-060100 (L)	94.00 - 95.00	Auto	0.0000
L28	48	CCI-060100 (L)	94.00 - 95.00	Auto	0.0000
L28	49	CCI-060100 (L)	94.00 - 95.00	Auto	0.0000
L28	50	CCI-060100 (L)	94.00 - 95.00	Auto	0.0000
L29	31	CCI-060100 (L)	91.40 - 94.00	Auto	0.0000
L29	32	CCI-060100 (L)	91.40 - 94.00	Auto	0.0000
L29	33	CCI-060100 (L)	91.40 - 94.00	Auto	0.0000
L29	48	CCI-060100 (L)	91.40 - 94.00	Auto	0.0000
L29	49	CCI-060100 (L)	91.40 - 94.00	Auto	0.0000
L29	50	CCI-060100 (L)	91.40 - 94.00	Auto	0.0000
L30	31	CCI-060100 (L)	91.15 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L30	32	CCI-060100 (L)	91.40 91.15 - 91.40	Auto	0.0000
L30	33	CCI-060100 (L)	91.15 - 91.40	Auto	0.0000
L30	48	CCI-060100 (L)	91.15 - 91.40	Auto	0.0000
L30	49	CCI-060100 (L)	91.15 - 91.40	Auto	0.0000
L30	50	CCI-060100 (L)	91.15 - 91.40	Auto	0.0000
L31	31	CCI-060100 (L)	91.00 - 91.15	Auto	0.0000
L31	32	CCI-060100 (L)	91.00 - 91.15	Auto	0.0000
L31	33	CCI-060100 (L)	91.00 - 91.15	Auto	0.0000
L31	48	CCI-060100 (L)	91.00 - 91.15	Auto	0.0000
L31	49	CCI-060100 (L)	91.00 - 91.15	Auto	0.0000
L31	50	CCI-060100 (L)	91.00 - 91.15	Auto	0.0000
L32	31	CCI-060100 (L)	88.89 - 91.00	Auto	0.0000
L32	32	CCI-060100 (L)	88.89 - 91.00	Auto	0.0000
L32	33	CCI-060100 (L)	88.89 - 91.00	Auto	0.0000
L32	48	CCI-060100 (L)	86.00 - 91.00	Auto	0.0000
L32	49	CCI-060100 (L)	86.00 - 91.00	Auto	0.0000
L32	50	CCI-060100 (L)	86.00 - 91.00	Auto	0.0000
L33	48	CCI-060100 (L)	81.00 - 86.00	Auto	0.0000
L33	49	CCI-060100 (L)	81.00 - 86.00	Auto	0.0000
L33	50	CCI-060100 (L)	81.00 - 86.00	Auto	0.0000
L34	48	CCI-060100 (L)	76.00 - 81.00	Auto	0.0000
L34	49	CCI-060100 (L)	76.00 - 81.00	Auto	0.0000
L34	50	CCI-060100 (L)	76.00 - 81.00	Auto	0.0000
L35	48	CCI-060100 (L)	71.00 - 76.00	Auto	0.0000
L35	49	CCI-060100 (L)	71.00 - 76.00	Auto	0.0000
L35	50	CCI-060100 (L)	71.00 - 76.00	Auto	0.0000
L36	48	CCI-060100 (L)	66.00 - 71.00	Auto	0.0000
L36	49	CCI-060100 (L)	66.00 - 71.00	Auto	0.0000
L36	50	CCI-060100 (L)	66.00 - 71.00	Auto	0.0000
L37	44	CCI-060100 (L)	63.75 - 65.50	Auto	0.0000
L37	45	CCI-060100 (L)	63.75 - 65.50	Auto	0.0000
L37	46	CCI-060100 (L)	63.75 - 65.50	Auto	0.0000
L37	48	CCI-060100 (L)	63.75 - 66.00	Auto	0.0000
L37	49	CCI-060100 (L)	63.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L37	50	CCI-060100 (L)	66.00 63.75 - 66.00	Auto	0.0000
L38	44	CCI-060100 (L)	63.50 - 63.75	Auto	0.0000
L38	45	CCI-060100 (L)	63.50 - 63.75	Auto	0.0000
L38	46	CCI-060100 (L)	63.50 - 63.75	Auto	0.0000
L38	48	CCI-060100 (L)	63.50 - 63.75	Auto	0.0000
L38	49	CCI-060100 (L)	63.50 - 63.75	Auto	0.0000
L38	50	CCI-060100 (L)	63.50 - 63.75	Auto	0.0000
L39	44	CCI-060100 (L)	58.50 - 63.50	Auto	0.0000
L39	45	CCI-060100 (L)	58.50 - 63.50	Auto	0.0000
L39	46	CCI-060100 (L)	58.50 - 63.50	Auto	0.0000
L39	48	CCI-060100 (L)	61.67 - 63.50	Auto	0.0000
L39	49	CCI-060100 (L)	61.67 - 63.50	Auto	0.0000
L39	50	CCI-060100 (L)	61.67 - 63.50	Auto	0.0000
L40	27	CCI-045100 (L)	51.00 - 53.92	Auto	0.0000
L40	28	CCI-045100 (L)	51.00 - 53.92	Auto	0.0000
L40	29	CCI-045100 (L)	51.00 - 53.92	Auto	0.0000
L40	44	CCI-060100 (L)	51.00 - 58.50	Auto	0.0000
L40	45	CCI-060100 (L)	51.00 - 58.50	Auto	0.0000
L40	46	CCI-060100 (L)	51.00 - 58.50	Auto	0.0000
L41	27	CCI-045100 (L)	50.00 - 51.00	Auto	0.0000
L41	28	CCI-045100 (L)	50.00 - 51.00	Auto	0.0000
L41	29	CCI-045100 (L)	50.00 - 51.00	Auto	0.0000
L41	44	CCI-060100 (L)	50.00 - 51.00	Auto	0.0000
L41	45	CCI-060100 (L)	50.00 - 51.00	Auto	0.0000
L41	46	CCI-060100 (L)	50.00 - 51.00	Auto	0.0000
L42	27	CCI-045100 (L)	45.00 - 50.00	Auto	0.0000
L42	28	CCI-045100 (L)	45.00 - 50.00	Auto	0.0000
L42	29	CCI-045100 (L)	45.00 - 50.00	Auto	0.0000
L42	44	CCI-060100 (L)	45.00 - 50.00	Auto	0.0000
L42	45	CCI-060100 (L)	45.00 - 50.00	Auto	0.0000
L42	46	CCI-060100 (L)	45.00 - 50.00	Auto	0.0000
L43	27	CCI-045100 (L)	40.42 - 45.00	Auto	0.0000
L43	28	CCI-045100 (L)	40.42 - 45.00	Auto	0.0000
L43	29	CCI-045100 (L)	40.42 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L43	44	CCI-060100 (L)	40.42 - 45.00	Auto	0.0000
L43	45	CCI-060100 (L)	40.42 - 45.00	Auto	0.0000
L43	46	CCI-060100 (L)	40.42 - 45.00	Auto	0.0000
L44	27	CCI-045100 (L)	40.17 - 40.42	Auto	0.0000
L44	28	CCI-045100 (L)	40.17 - 40.42	Auto	0.0000
L44	29	CCI-045100 (L)	40.17 - 40.42	Auto	0.0000
L44	44	CCI-060100 (L)	40.17 - 40.42	Auto	0.0000
L44	45	CCI-060100 (L)	40.17 - 40.42	Auto	0.0000
L44	46	CCI-060100 (L)	40.17 - 40.42	Auto	0.0000
L45	27	CCI-045100 (L)	40.00 - 40.17	Auto	0.0000
L45	28	CCI-045100 (L)	40.00 - 40.17	Auto	0.0000
L45	29	CCI-045100 (L)	40.00 - 40.17	Auto	0.0000
L45	44	CCI-060100 (L)	40.00 - 40.17	Auto	0.0000
L45	45	CCI-060100 (L)	40.00 - 40.17	Auto	0.0000
L45	46	CCI-060100 (L)	40.00 - 40.17	Auto	0.0000
L46	27	CCI-045100 (L)	38.92 - 40.00	Auto	0.0000
L46	28	CCI-045100 (L)	38.92 - 40.00	Auto	0.0000
L46	29	CCI-045100 (L)	38.92 - 40.00	Auto	0.0000
L46	39	CCI-085125 (L)	35.00 - 37.42	Auto	0.0000
L46	40	CCI-085125 (L)	35.00 - 37.42	Auto	0.0000
L46	41	CCI-085125 (L)	35.00 - 37.42	Auto	0.0000
L46	42	CCI-085125 (L)	35.00 - 37.42	Auto	0.0000
L46	44	CCI-060100 (L)	35.00 - 40.00	Auto	0.0000
L46	45	CCI-060100 (L)	35.00 - 40.00	Auto	0.0000
L46	46	CCI-060100 (L)	35.00 - 40.00	Auto	0.0000
L47	39	CCI-085125 (L)	33.00 - 35.00	Auto	0.0000
L47	40	CCI-085125 (L)	33.00 - 35.00	Auto	0.0000
L47	41	CCI-085125 (L)	33.00 - 35.00	Auto	0.0000
L47	42	CCI-085125 (L)	33.00 - 35.00	Auto	0.0000
L47	44	CCI-060100 (L)	33.00 - 35.00	Auto	0.0000
L47	45	CCI-060100 (L)	33.00 - 35.00	Auto	0.0000
L47	46	CCI-060100 (L)	33.00 - 35.00	Auto	0.0000
L48	39	CCI-085125 (L)	32.75 - 33.00	Auto	0.0000
L48	40	CCI-085125 (L)	32.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L48	41	CCI-085125 (L)	33.00 32.75 - 33.00	Auto	0.0000
L48	42	CCI-085125 (L)	32.75 - 33.00	Auto	0.0000
L48	44	CCI-060100 (L)	32.75 - 33.00	Auto	0.0000
L48	45	CCI-060100 (L)	32.75 - 33.00	Auto	0.0000
L48	46	CCI-060100 (L)	32.75 - 33.00	Auto	0.0000
L49	39	CCI-085125 (L)	19.00 - 32.75	Auto	0.0000
L49	40	CCI-085125 (L)	19.00 - 32.75	Auto	0.0000
L49	41	CCI-085125 (L)	19.00 - 32.75	Auto	0.0000
L49	42	CCI-085125 (L)	19.00 - 32.75	Auto	0.0000
L49	44	CCI-060100 (L)	30.50 - 32.75	Auto	0.0000
L49	45	CCI-060100 (L)	30.50 - 32.75	Auto	0.0000
L49	46	CCI-060100 (L)	30.50 - 32.75	Auto	0.0000
L50	39	CCI-085125 (L)	18.00 - 19.00	Auto	0.0000
L50	40	CCI-085125 (L)	18.00 - 19.00	Auto	0.0000
L50	41	CCI-085125 (L)	18.00 - 19.00	Auto	0.0000
L50	42	CCI-085125 (L)	18.00 - 19.00	Auto	0.0000
L51	39	CCI-085125 (L)	13.00 - 18.00	Auto	0.0000
L51	40	CCI-085125 (L)	13.00 - 18.00	Auto	0.0000
L51	41	CCI-085125 (L)	13.00 - 18.00	Auto	0.0000
L51	42	CCI-085125 (L)	13.00 - 18.00	Auto	0.0000
L52	39	CCI-085125 (L)	8.00 - 13.00	Auto	0.0000
L52	40	CCI-085125 (L)	8.00 - 13.00	Auto	0.0000
L52	41	CCI-085125 (L)	8.00 - 13.00	Auto	0.0000
L52	42	CCI-085125 (L)	8.00 - 13.00	Auto	0.0000
L53	39	CCI-085125 (L)	6.42 - 8.00	Auto	0.0000
L53	40	CCI-085125 (L)	6.42 - 8.00	Auto	0.0000
L53	41	CCI-085125 (L)	6.42 - 8.00	Auto	0.0000
L53	42	CCI-085125 (L)	6.42 - 8.00	Auto	0.0000
L54	39	CCI-085125 (L)	6.17 - 6.42	Auto	0.0000
L54	40	CCI-085125 (L)	6.17 - 6.42	Auto	0.0000
L54	41	CCI-085125 (L)	6.17 - 6.42	Auto	0.0000
L54	42	CCI-085125 (L)	6.17 - 6.42	Auto	0.0000
L55	39	CCI-085125 (L)	1.17 - 6.17	Auto	0.0000
L55	40	CCI-085125 (L)	1.17 - 6.17	Auto	0.0000
L55	41	CCI-085125 (L)	1.17 - 6.17	Auto	0.0000
L55	42	CCI-085125 (L)	1.17 - 6.17	Auto	0.0000
L56	39	CCI-085125 (L)	0.00 - 1.17	Auto	0.0000
L56	40	CCI-085125 (L)	0.00 - 1.17	Auto	0.0000
L56	41	CCI-085125 (L)	0.00 - 1.17	Auto	0.0000
L56	42	CCI-085125 (L)	0.00 - 1.17	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
3' x 2" Pipe Mount	A	From Leg	3.00	0.0000	185.00	No Ice	0.58	0.58	0.01
			0.00			1/2" Ice	0.77	0.77	0.02
			0.00			1" Ice	0.97	0.97	0.02
3' x 2" Pipe Mount	B	From Leg	3.00	0.0000	185.00	No Ice	0.58	0.58	0.01
			0.00			1/2" Ice	0.77	0.77	0.02
			0.00			1" Ice	0.97	0.97	0.02
3' x 2" Pipe Mount	C	From Leg	3.00	0.0000	185.00	No Ice	0.58	0.58	0.01
			0.00			1/2" Ice	0.77	0.77	0.02
			0.00			1" Ice	0.97	0.97	0.02
Side Arm Mount [SO 701-3]	A	None		0.0000	185.00	No Ice	3.02	3.02	0.20
						1/2" Ice	4.18	4.18	0.24
						1" Ice	5.33	5.33	0.28
***									
APXVAARR24_43-U-NA20	A	From Leg	4.00	0.0000	183.00	No Ice	14.67	5.32	0.15
			0.00			1/2" Ice	15.43	5.99	0.27
			0.00			1" Ice	16.21	6.68	0.39
APXVAARR24_43-U-NA20	B	From Leg	4.00	0.0000	183.00	No Ice	14.67	5.32	0.15
			0.00			1/2" Ice	15.43	5.99	0.27
			0.00			1" Ice	16.21	6.68	0.39
APXVAARR24_43-U-NA20	C	From Leg	4.00	0.0000	183.00	No Ice	14.67	5.32	0.15
			0.00			1/2" Ice	15.43	5.99	0.27
			0.00			1" Ice	16.21	6.68	0.39
RADIO 4449 B12/B71	A	From Leg	4.00	0.0000	183.00	No Ice	1.65	1.16	0.07
			0.00			1/2" Ice	1.81	1.30	0.09
			0.00			1" Ice	1.98	1.45	0.11
RADIO 4449 B12/B71	B	From Leg	4.00	0.0000	183.00	No Ice	1.65	1.16	0.07
			0.00			1/2" Ice	1.81	1.30	0.09
			0.00			1" Ice	1.98	1.45	0.11
RADIO 4449 B12/B71	C	From Leg	4.00	0.0000	183.00	No Ice	1.65	1.16	0.07
			0.00			1/2" Ice	1.81	1.30	0.09
			0.00			1" Ice	1.98	1.45	0.11
Site Pro 1 RMQP-496-HK	A	None		0.0000	183.00	No Ice	38.42	38.42	2.45
						1/2" Ice	50.04	50.04	3.19
						1" Ice	61.66	61.66	3.93
*									
AIR6449 B41_T-MOBILE	A	From Leg	4.00	0.0000	183.00	No Ice	5.27	2.03	0.11
			0.00			1/2" Ice	5.70	2.36	0.15
			0.00			1" Ice	6.14	2.70	0.20
AIR6449 B41_T-MOBILE	B	From Leg	4.00	0.0000	183.00	No Ice	5.27	2.03	0.11
			0.00			1/2" Ice	5.70	2.36	0.15
			0.00			1" Ice	6.14	2.70	0.20
AIR6449 B41_T-MOBILE	C	From Leg	4.00	0.0000	183.00	No Ice	5.27	2.03	0.11
			0.00			1/2" Ice	5.70	2.36	0.15
			0.00			1" Ice	6.14	2.70	0.20
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00	0.0000	183.00	No Ice	2.14	1.69	0.11
			0.00			1/2" Ice	2.32	1.85	0.13
			0.00			1" Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00	0.0000	183.00	No Ice	2.14	1.69	0.11
			0.00			1/2" Ice	2.32	1.85	0.13
			0.00			1" Ice	2.51	2.02	0.16
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00	0.0000	183.00	No Ice	2.14	1.69	0.11
			0.00			1/2" Ice	2.32	1.85	0.13
			0.00			1" Ice	2.51	2.02	0.16
***									
DMP65R-BU6D	A	From Leg	4.00	0.0000	174.00	No Ice	11.93	4.48	0.09
			0.00			1/2" Ice	12.68	5.12	0.16
			0.00			1" Ice	13.45	5.78	0.24
DMP65R-BU6D	B	From Leg	4.00	0.0000	174.00	No Ice	11.93	4.48	0.09
			0.00			1/2" Ice	12.68	5.12	0.16
			0.00			1" Ice	13.45	5.78	0.24
DMP65R-BU6D	C	From Leg	4.00	0.0000	174.00	No Ice	11.93	4.48	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	12.68	5.12	0.16
			0.00			1" Ice	13.45	5.78	0.24
RRUS-32 B30	A	From Leg	2.00	0.0000	174.00	No Ice	3.31	2.42	0.08
			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.14
RRUS-32 B30	B	From Leg	2.00	0.0000	174.00	No Ice	3.31	2.42	0.08
			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.14
RRUS-32 B30	C	From Leg	2.00	0.0000	174.00	No Ice	3.31	2.42	0.08
			0.00			1/2" Ice	3.56	2.64	0.10
			0.00			1" Ice	3.81	2.86	0.14
RRUS 4449 B5/B12	A	From Leg	2.00	0.0000	174.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	B	From Leg	2.00	0.0000	174.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
RRUS 4449 B5/B12	C	From Leg	2.00	0.0000	174.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
RRUS 4478 B14_CCIV2	A	From Leg	2.00	0.0000	174.00	No Ice	2.02	1.25	0.06
			0.00			1/2" Ice	2.20	1.40	0.08
			0.00			1" Ice	2.39	1.55	0.10
RRUS 4478 B14_CCIV2	B	From Leg	2.00	0.0000	174.00	No Ice	2.02	1.25	0.06
			0.00			1/2" Ice	2.20	1.40	0.08
			0.00			1" Ice	2.39	1.55	0.10
RRUS 4478 B14_CCIV2	C	From Leg	2.00	0.0000	174.00	No Ice	2.02	1.25	0.06
			0.00			1/2" Ice	2.20	1.40	0.08
			0.00			1" Ice	2.39	1.55	0.10
DC6-48-60-18-8F	A	From Leg	1.00	0.0000	174.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			0.00			1" Ice	1.64	1.64	0.06
DC6-48-60-18-8F	B	From Leg	1.00	0.0000	174.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			0.00			1" Ice	1.64	1.64	0.06
DC9-48-60-24-8C-EV	C	From Leg	1.00	0.0000	174.00	No Ice	2.74	4.78	0.03
			0.00			1/2" Ice	2.96	5.06	0.06
			0.00			1" Ice	3.20	5.35	0.10
*									
AIR 6419 B77G	A	From Leg	4.00	0.0000	174.00	No Ice	4.64	1.87	0.07
			0.00			1/2" Ice	5.11	2.23	0.09
			2.00			1" Ice	5.59	2.62	0.12
AIR 6419 B77G	B	From Leg	4.00	0.0000	174.00	No Ice	4.64	1.87	0.07
			0.00			1/2" Ice	5.11	2.23	0.09
			2.00			1" Ice	5.59	2.62	0.12
AIR 6419 B77G	C	From Leg	4.00	0.0000	174.00	No Ice	4.64	1.87	0.07
			0.00			1/2" Ice	5.11	2.23	0.09
			2.00			1" Ice	5.59	2.62	0.12
AIR 6449 B77D	A	From Leg	4.00	0.0000	174.00	No Ice	3.64	1.72	0.08
			0.00			1/2" Ice	4.00	2.02	0.11
			-2.00			1" Ice	4.37	2.33	0.14
AIR 6449 B77D	B	From Leg	4.00	0.0000	174.00	No Ice	3.64	1.72	0.08
			0.00			1/2" Ice	4.00	2.02	0.11
			-2.00			1" Ice	4.37	2.33	0.14
AIR 6449 B77D	C	From Leg	4.00	0.0000	174.00	No Ice	3.64	1.72	0.08
			0.00			1/2" Ice	4.00	2.02	0.11
			-2.00			1" Ice	4.37	2.33	0.14
QD6616-7	A	From Leg	4.00	0.0000	174.00	No Ice	13.59	5.92	0.13
			0.00			1/2" Ice	14.40	6.63	0.21
			0.00			1" Ice	15.24	7.36	0.30
QD6616-7	B	From Leg	4.00	0.0000	174.00	No Ice	13.59	5.92	0.13
			0.00			1/2" Ice	14.40	6.63	0.21
			0.00			1" Ice	15.24	7.36	0.30
QD6616-7	C	From Leg	4.00	0.0000	174.00	No Ice	13.59	5.92	0.13
			0.00			1/2" Ice	14.40	6.63	0.21

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
				0.00			1" Ice	15.24	7.36	0.30
RRUS 32 B66A	A	From Leg	2.00	0.00	0.0000	174.00	No Ice	2.86	1.78	0.06
				0.00			1/2" Ice	3.09	1.97	0.08
				0.00			1" Ice	3.32	2.17	0.10
RRUS 32 B66A	B	From Leg	2.00	0.00	0.0000	174.00	No Ice	2.86	1.78	0.06
				0.00			1/2" Ice	3.09	1.97	0.08
				0.00			1" Ice	3.32	2.17	0.10
RRUS 32 B66A	C	From Leg	2.00	0.00	0.0000	174.00	No Ice	2.86	1.78	0.06
				0.00			1/2" Ice	3.09	1.97	0.08
				0.00			1" Ice	3.32	2.17	0.10
RRUS 4415 B25_CCIV2	A	From Leg	2.00	0.00	0.0000	174.00	No Ice	1.84	0.82	0.05
				0.00			1/2" Ice	2.01	0.94	0.06
				0.00			1" Ice	2.19	1.07	0.08
RRUS 4415 B25_CCIV2	B	From Leg	2.00	0.00	0.0000	174.00	No Ice	1.84	0.82	0.05
				0.00			1/2" Ice	2.01	0.94	0.06
				0.00			1" Ice	2.19	1.07	0.08
RRUS 4415 B25_CCIV2	C	From Leg	2.00	0.00	0.0000	174.00	No Ice	1.84	0.82	0.05
				0.00			1/2" Ice	2.01	0.94	0.06
				0.00			1" Ice	2.19	1.07	0.08
RRUS E2 B29	A	From Leg	2.00	0.00	0.0000	174.00	No Ice	3.15	1.29	0.06
				0.00			1/2" Ice	3.36	1.44	0.08
				0.00			1" Ice	3.59	1.60	0.11
RRUS E2 B29	B	From Leg	2.00	0.00	0.0000	174.00	No Ice	3.15	1.29	0.06
				0.00			1/2" Ice	3.36	1.44	0.08
				0.00			1" Ice	3.59	1.60	0.11
RRUS E2 B29	C	From Leg	2.00	0.00	0.0000	174.00	No Ice	3.15	1.29	0.06
				0.00			1/2" Ice	3.36	1.44	0.08
				0.00			1" Ice	3.59	1.60	0.11
(2) 6' x 2" Mount Pipe	A	From Leg	2.00	0.00	0.0000	174.00	No Ice	1.43	1.43	0.02
				0.00			1/2" Ice	1.92	1.92	0.03
				0.00			1" Ice	2.29	2.29	0.05
(2) 6' x 2" Mount Pipe	B	From Leg	2.00	0.00	0.0000	174.00	No Ice	1.43	1.43	0.02
				0.00			1/2" Ice	1.92	1.92	0.03
				0.00			1" Ice	2.29	2.29	0.05
(2) 6' x 2" Mount Pipe	C	From Leg	2.00	0.00	0.0000	174.00	No Ice	1.43	1.43	0.02
				0.00			1/2" Ice	1.92	1.92	0.03
				0.00			1" Ice	2.29	2.29	0.05
Site Pro 1 VFA14-WLL-30120	A	From Leg	2.00	0.00	0.0000	174.00	No Ice	28.80	12.10	1.14
				0.00			1/2" Ice	42.80	18.50	1.29
				0.00			1" Ice	55.40	24.46	1.52
Site Pro 1 VFA14-WLL-30120	B	From Leg	2.00	0.00	0.0000	174.00	No Ice	28.80	12.10	1.14
				0.00			1/2" Ice	42.80	18.50	1.29
				0.00			1" Ice	55.40	24.46	1.52
Site Pro 1 VFA14-WLL-30120	C	From Leg	2.00	0.00	0.0000	174.00	No Ice	28.80	12.10	1.14
				0.00			1/2" Ice	42.80	18.50	1.29
				0.00			1" Ice	55.40	24.46	1.52
Sabre C10899050	A	None			0.0000	174.00	No Ice	6.67	6.67	0.68
							1/2" Ice	7.70	7.70	0.88
							1" Ice	8.74	8.74	1.08
*** *										
MX08FRO665-20 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	165.00	No Ice	8.01	4.23	0.10
				0.00			1/2" Ice	8.52	4.69	0.18
				0.00			1" Ice	9.04	5.16	0.28
MX08FRO665-20 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	165.00	No Ice	8.01	4.23	0.10
				0.00			1/2" Ice	8.52	4.69	0.18
				0.00			1" Ice	9.04	5.16	0.28
MX08FRO665-20 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	165.00	No Ice	8.01	4.23	0.10
				0.00			1/2" Ice	8.52	4.69	0.18
				0.00			1" Ice	9.04	5.16	0.28
TA08025-B604	A	From Leg	4.00	0.00	0.0000	165.00	No Ice	1.96	0.98	0.06
				0.00			1/2" Ice	2.14	1.11	0.08
				0.00			1" Ice	2.32	1.25	0.10
TA08025-B604	B	From Leg	4.00	0.00	0.0000	165.00	No Ice	1.96	0.98	0.06
				0.00			1/2" Ice	2.14	1.11	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00				1" Ice	2.32	1.25	0.10
TA08025-B604	C	From Leg	4.00		0.0000	165.00	No Ice	1.96	0.98	0.06
			0.00				1/2" Ice	2.14	1.11	0.08
			0.00				1" Ice	2.32	1.25	0.10
TA08025-B605	A	From Leg	4.00		0.0000	165.00	No Ice	1.96	1.13	0.08
			0.00				1/2" Ice	2.14	1.27	0.09
			0.00				1" Ice	2.32	1.41	0.11
TA08025-B605	B	From Leg	4.00		0.0000	165.00	No Ice	1.96	1.13	0.08
			0.00				1/2" Ice	2.14	1.27	0.09
			0.00				1" Ice	2.32	1.41	0.11
TA08025-B605	C	From Leg	4.00		0.0000	165.00	No Ice	1.96	1.13	0.08
			0.00				1/2" Ice	2.14	1.27	0.09
			0.00				1" Ice	2.32	1.41	0.11
RDIDC-9181-PF-48	A	From Leg	4.00		0.0000	165.00	No Ice	2.01	1.17	0.02
			0.00				1/2" Ice	2.19	1.31	0.04
			0.00				1" Ice	2.37	1.46	0.06
(2) 8' x 2" Mount Pipe	A	From Leg	4.00		0.0000	165.00	No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00		0.0000	165.00	No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00		0.0000	165.00	No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
Commscope MC-PK8-DSH	A	None			0.0000	165.00	No Ice	34.24	34.24	1.75
							1/2" Ice	62.95	62.95	2.10
							1" Ice	91.66	91.66	2.45
***										
SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00		0.0000	155.00	No Ice	4.09	3.30	0.07
			0.00				1/2" Ice	4.49	3.68	0.13
			0.00				1" Ice	4.89	4.07	0.20
SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00		0.0000	155.00	No Ice	4.09	3.30	0.07
			0.00				1/2" Ice	4.49	3.68	0.13
			0.00				1" Ice	4.89	4.07	0.20
SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00		0.0000	155.00	No Ice	4.09	3.30	0.07
			0.00				1/2" Ice	4.49	3.68	0.13
			0.00				1" Ice	4.89	4.07	0.20
(2) SBNHH-1D65B	A	From Leg	4.00		0.0000	155.00	No Ice	4.16	2.49	0.04
			0.00				1/2" Ice	4.57	2.88	0.09
			0.00				1" Ice	4.99	3.27	0.15
(2) SBNHH-1D65B	B	From Leg	4.00		0.0000	155.00	No Ice	4.16	2.49	0.04
			0.00				1/2" Ice	4.57	2.88	0.09
			0.00				1" Ice	4.99	3.27	0.15
(2) SBNHH-1D65B	C	From Leg	4.00		0.0000	155.00	No Ice	4.16	2.49	0.04
			0.00				1/2" Ice	4.57	2.88	0.09
			0.00				1" Ice	4.99	3.27	0.15
DB-T1-6Z-8AB-0Z	B	From Leg	1.00		0.0000	155.00	No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
			0.00				1" Ice	5.35	2.39	0.12
DB-T1-6Z-8AB-0Z	C	From Leg	1.00		0.0000	155.00	No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
			0.00				1" Ice	5.35	2.39	0.12
Commscope BSAMNT-SBS-1-2	A	From Leg	4.00		0.0000	155.00	No Ice	1.32	1.32	0.07
			0.00				1/2" Ice	1.58	1.58	0.08
			0.00				1" Ice	1.84	1.84	0.09
Commscope BSAMNT-SBS-1-2	B	From Leg	4.00		0.0000	155.00	No Ice	1.32	1.32	0.07
			0.00				1/2" Ice	1.58	1.58	0.08
			0.00				1" Ice	1.84	1.84	0.09
Commscope BSAMNT-SBS-1-2	C	From Leg	4.00		0.0000	155.00	No Ice	1.32	1.32	0.07
			0.00				1/2" Ice	1.58	1.58	0.08
			0.00				1" Ice	1.84	1.84	0.09
4' x 2" Pipe Mount	A	From Leg	1.00		0.0000	165.00	No Ice	0.79	0.79	0.03
			0.00				1/2" Ice	1.03	1.03	0.04
			0.00				1" Ice	1.28	1.28	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
4' x 2" Pipe Mount	B	From Leg	1.00	0.0000	165.00	No Ice	0.79	0.79	0.03
			0.00			1/2" Ice	1.03	1.03	0.04
			0.00			1" Ice	1.28	1.28	0.04
(2) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	165.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(2) 6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	165.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(2) 6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	165.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
Platform Mount [LP 403-1]	A	None		0.0000	155.00	No Ice	18.94	18.94	1.50
						1/2" Ice	23.31	23.31	1.90
						1" Ice	27.74	27.74	2.37
*									
MT6407-77A	A	From Leg	4.00	0.0000	155.00	No Ice	4.69	1.84	0.08
			0.00			1/2" Ice	4.98	2.06	0.11
			0.00			1" Ice	5.28	2.29	0.14
MT6407-77A	B	From Leg	4.00	0.0000	155.00	No Ice	4.69	1.84	0.08
			0.00			1/2" Ice	4.98	2.06	0.11
			0.00			1" Ice	5.28	2.29	0.14
MT6407-77A	C	From Leg	4.00	0.0000	155.00	No Ice	4.69	1.84	0.08
			0.00			1/2" Ice	4.98	2.06	0.11
			0.00			1" Ice	5.28	2.29	0.14
RFV01U-D1A	A	From Leg	4.00	0.0000	155.00	No Ice	1.88	1.25	0.08
			0.00			1/2" Ice	2.05	1.39	0.10
			0.00			1" Ice	2.22	1.54	0.12
RFV01U-D1A	B	From Leg	4.00	0.0000	155.00	No Ice	1.88	1.25	0.08
			0.00			1/2" Ice	2.05	1.39	0.10
			0.00			1" Ice	2.22	1.54	0.12
RFV01U-D1A	C	From Leg	4.00	0.0000	155.00	No Ice	1.88	1.25	0.08
			0.00			1/2" Ice	2.05	1.39	0.10
			0.00			1" Ice	2.22	1.54	0.12
RFV01U-D2A	A	From Leg	4.00	0.0000	155.00	No Ice	1.88	1.01	0.07
			0.00			1/2" Ice	2.05	1.14	0.09
			0.00			1" Ice	2.22	1.28	0.11
RFV01U-D2A	B	From Leg	4.00	0.0000	155.00	No Ice	1.88	1.01	0.07
			0.00			1/2" Ice	2.05	1.14	0.09
			0.00			1" Ice	2.22	1.28	0.11
RFV01U-D2A	C	From Leg	4.00	0.0000	155.00	No Ice	1.88	1.01	0.07
			0.00			1/2" Ice	2.05	1.14	0.09
			0.00			1" Ice	2.22	1.28	0.11
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice

Comb. No.	Description
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	185 - 180	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.08	-0.00	-0.07
			Max. Mx	8	-4.63	-15.96	-0.03
			Max. My	14	-4.63	-0.00	-15.99
			Max. Vy	8	5.21	-15.96	-0.03
			Max. Vx	14	5.21	-0.00	-15.99
			Max. Torque	22			-0.00
L2	180 - 175	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.64	-0.00	-0.19
			Max. Mx	8	-4.96	-43.07	-0.09
			Max. My	14	-4.96	-0.00	-43.15
			Max. Vy	8	5.64	-43.07	-0.09
			Max. Vx	14	5.64	-0.00	-43.15
			Max. Torque	2			-0.00
L3	175 - 170	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.08	0.08	-0.36
			Max. Mx	20	-12.51	106.27	0.01
			Max. My	14	-12.50	-0.16	-106.58
			Max. Vy	8	14.52	-106.23	-0.31
			Max. Vx	14	14.56	-0.16	-106.58
			Max. Torque	12			-0.29
L4	170 - 165	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.77	0.07	-0.50
			Max. Mx	20	-12.99	180.00	0.14

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-12.99	-0.35	-180.59
			Max. Vy	8	14.98	-179.97	-0.57
			Max. Vx	14	15.03	-0.35	-180.59
			Max. Torque	12			-0.29
L5	165 - 160	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.85	-0.05	-0.27
			Max. Mx	8	-16.63	-276.51	-0.69
			Max. My	14	-16.62	-0.62	-277.35
			Max. Vy	8	19.54	-276.51	-0.69
			Max. Vx	14	19.61	-0.62	-277.35
			Max. Torque	12			-0.29
L6	160 - 155	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.64	-0.08	-0.41
			Max. Mx	8	-17.23	-375.36	-0.95
			Max. My	14	-17.23	-0.83	-376.63
			Max. Vy	8	20.02	-375.36	-0.95
			Max. Vx	14	20.10	-0.83	-376.63
			Max. Torque	4			0.24
L7	155 - 154	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.91	-0.09	-0.70
			Max. Mx	8	-20.59	-399.14	-1.09
			Max. My	14	-20.59	-0.87	-400.49
			Max. Vy	8	23.84	-399.14	-1.09
			Max. Vx	14	23.80	-0.87	-400.49
			Max. Torque	15			-0.20
L8	154 - 153.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.97	-0.09	-0.71
			Max. Mx	8	-20.64	-405.10	-1.11
			Max. My	14	-20.64	-0.88	-406.44
			Max. Vy	8	23.85	-405.10	-1.11
			Max. Vx	14	23.82	-0.88	-406.44
			Max. Torque	15			-0.20
L9	153.75 - 152.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.26	-0.10	-0.75
			Max. Mx	8	-20.83	-435.00	-1.17
			Max. My	14	-20.83	-0.94	-436.31
			Max. Vy	8	23.99	-435.00	-1.17
			Max. Vx	14	23.96	-0.94	-436.31
			Max. Torque	15			-0.20
L10	152.5 - 152.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.34	-0.10	-0.76
			Max. Mx	8	-20.89	-441.00	-1.18
			Max. My	14	-20.90	-0.95	-442.30
			Max. Vy	8	24.01	-441.00	-1.18
			Max. Vx	14	23.98	-0.95	-442.30
			Max. Torque	15			-0.20
L11	152.25 - 151.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.56	-0.11	-0.78
			Max. Mx	8	-21.05	-459.05	-1.22
			Max. My	14	-21.05	-0.98	-460.33
			Max. Vy	8	24.10	-459.05	-1.22
			Max. Vx	14	24.07	-0.98	-460.33
			Max. Torque	15			-0.20
L12	151.5 - 151.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.62	-0.11	-0.79
			Max. Mx	8	-21.10	-465.08	-1.24
			Max. My	14	-21.10	-0.99	-466.35
			Max. Vy	8	24.13	-465.08	-1.24
			Max. Vx	14	24.09	-0.99	-466.35
			Max. Torque	15			-0.20
L13	151.25 - 146.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.86	-0.14	-0.92
			Max. Mx	8	-22.02	-587.11	-1.51
			Max. My	14	-22.02	-1.20	-588.25

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	24.69	-587.11	-1.51
			Max. Vx	14	24.66	-1.20	-588.25
			Max. Torque	15			-0.20
L14	146.25 - 141.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.12	-0.18	-1.07
			Max. Mx	8	-22.98	-711.99	-1.78
			Max. My	14	-22.98	-1.42	-713.00
			Max. Vy	8	25.27	-711.99	-1.78
			Max. Vx	14	25.24	-1.42	-713.00
			Max. Torque	15			-0.20
L15	141.25 - 136.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.42	-0.22	-1.22
			Max. Mx	8	-23.97	-839.80	-2.05
			Max. My	14	-23.97	-1.63	-840.70
			Max. Vy	8	25.87	-839.80	-2.05
			Max. Vx	14	25.83	-1.63	-840.70
			Max. Torque	3			0.20
L16	136.25 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.76	-0.23	-1.26
			Max. Mx	8	-24.22	-872.23	-2.12
			Max. My	14	-24.22	-1.69	-873.09
			Max. Vy	8	26.03	-872.23	-2.12
			Max. Vx	14	25.99	-1.69	-873.09
			Max. Torque	3			0.20
L17	130 - 129	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.66	-0.28	-1.45
			Max. Mx	8	-26.44	-1030.97	-2.46
			Max. My	14	-26.44	-1.95	-1031.68
			Max. Vy	8	26.89	-1030.97	-2.46
			Max. Vx	14	26.85	-1.95	-1031.68
			Max. Torque	3			0.20
L18	129 - 124	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.29	-0.32	-1.62
			Max. Mx	8	-27.66	-1167.02	-2.74
			Max. My	14	-27.66	-2.17	-1167.62
			Max. Vy	8	27.55	-1167.02	-2.74
			Max. Vx	14	27.51	-2.17	-1167.62
			Max. Torque	3			0.20
L19	124 - 121.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.20	-0.35	-1.71
			Max. Mx	8	-28.31	-1238.53	-2.89
			Max. My	14	-28.31	-2.28	-1239.07
			Max. Vy	8	27.90	-1238.53	-2.89
			Max. Vx	14	27.86	-2.28	-1239.07
			Max. Torque	3			0.20
L20	121.42 - 121.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.29	-0.35	-1.72
			Max. Mx	8	-28.38	-1245.51	-2.90
			Max. My	14	-28.39	-2.29	-1246.04
			Max. Vy	8	27.93	-1245.51	-2.90
			Max. Vx	14	27.89	-2.29	-1246.04
			Max. Torque	3			0.20
L21	121.17 - 116.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.11	-0.39	-1.90
			Max. Mx	8	-29.73	-1386.89	-3.19
			Max. My	14	-29.74	-2.51	-1387.30
			Max. Vy	8	28.63	-1386.89	-3.19
			Max. Vx	14	28.60	-2.51	-1387.30
			Max. Torque	3			0.20
L22	116.17 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.53	-0.41	-1.94
			Max. Mx	8	-30.06	-1420.48	-3.26
			Max. My	14	-30.06	-2.56	-1420.86
			Max. Vy	8	28.80	-1420.48	-3.26
			Max. Vx	14	28.77	-2.56	-1420.86

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	3			0.20
L23	115 - 113.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.03	-0.42	-1.99
			Max. Mx	8	-30.44	-1456.59	-3.33
			Max. My	14	-30.44	-2.61	-1456.95
			Max. Vy	8	28.99	-1456.59	-3.33
			Max. Vx	14	28.95	-2.61	-1456.95
			Max. Torque	3			0.20
L24	113.75 - 113.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.12	-0.42	-1.99
			Max. Mx	8	-30.52	-1463.84	-3.34
			Max. My	14	-30.52	-2.62	-1464.19
			Max. Vy	8	29.02	-1463.84	-3.34
			Max. Vx	14	28.98	-2.62	-1464.19
			Max. Torque	3			0.20
L25	113.5 - 108.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.88	-0.47	-2.18
			Max. Mx	8	-31.90	-1610.74	-3.64
			Max. My	14	-31.90	-2.84	-1610.97
			Max. Vy	8	29.75	-1610.74	-3.64
			Max. Vx	14	29.71	-2.84	-1610.97
			Max. Torque	3			0.20
L26	108.5 - 103.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.67	-0.52	-2.38
			Max. Mx	8	-33.32	-1761.31	-3.93
			Max. My	14	-33.32	-3.06	-1761.43
			Max. Vy	8	30.49	-1761.31	-3.93
			Max. Vx	14	30.46	-3.06	-1761.43
			Max. Torque	3			0.20
L27	103.5 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.63	-0.54	-2.48
			Max. Mx	8	-34.04	-1838.00	-4.08
			Max. My	14	-34.04	-3.17	-1838.07
			Max. Vy	8	30.87	-1838.00	-4.08
			Max. Vx	14	30.84	-3.17	-1838.07
			Max. Torque	3			0.20
L28	95 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.68	-0.62	-2.77
			Max. Mx	8	-38.07	-2058.42	-4.50
			Max. My	14	-38.07	-3.48	-2058.34
			Max. Vy	8	32.10	-2058.42	-4.50
			Max. Vx	14	32.07	-3.48	-2058.34
			Max. Torque	3			0.20
L29	94 - 91.4	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.90	-0.65	-2.88
			Max. Mx	8	-39.03	-2142.42	-4.66
			Max. My	14	-39.03	-3.60	-2142.29
			Max. Vy	8	32.53	-2142.42	-4.66
			Max. Vx	14	32.49	-3.60	-2142.29
			Max. Torque	3			0.20
L30	91.4 - 91.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.00	-0.65	-2.89
			Max. Mx	8	-39.11	-2150.56	-4.68
			Max. My	14	-39.11	-3.61	-2150.42
			Max. Vy	8	32.56	-2150.56	-4.68
			Max. Vx	14	32.52	-3.61	-2150.42
			Max. Torque	3			0.20
L31	91.15 - 91	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.06	-0.65	-2.89
			Max. Mx	8	-39.16	-2155.44	-4.68
			Max. My	14	-39.16	-3.62	-2155.30
			Max. Vy	8	32.59	-2155.44	-4.68
			Max. Vx	14	32.55	-3.62	-2155.30
			Max. Torque	3			0.20
L32	91 - 86	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.20	-0.71	-3.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-40.87	-2320.34	-4.99
			Max. My	14	-40.87	-3.84	-2320.09
			Max. Vy	8	33.39	-2320.34	-4.99
			Max. Vx	14	33.35	-3.84	-2320.09
			Max. Torque	3			0.20
L33	86 - 81	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.36	-0.76	-3.33
			Max. Mx	8	-42.62	-2489.28	-5.30
			Max. My	14	-42.62	-4.06	-2488.93
			Max. Vy	8	34.20	-2489.28	-5.30
			Max. Vx	14	34.17	-4.06	-2488.93
			Max. Torque	3			0.20
L34	81 - 76	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.55	-0.82	-3.56
			Max. Mx	8	-44.42	-2662.32	-5.61
			Max. My	14	-44.42	-4.28	-2661.88
			Max. Vy	8	35.03	-2662.32	-5.61
			Max. Vx	14	34.99	-4.28	-2661.88
			Max. Torque	3			0.20
L35	76 - 71	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.80	-0.88	-3.79
			Max. Mx	8	-46.26	-2839.53	-5.93
			Max. My	14	-46.26	-4.51	-2838.99
			Max. Vy	8	35.87	-2839.53	-5.93
			Max. Vx	14	35.83	-4.51	-2838.99
			Max. Torque	3			0.20
L36	71 - 66	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.09	-0.94	-4.03
			Max. Mx	8	-48.15	-3020.96	-6.25
			Max. My	14	-48.15	-4.73	-3020.33
			Max. Vy	8	36.72	-3020.96	-6.25
			Max. Vx	14	36.68	-4.73	-3020.33
			Max. Torque	3			0.20
L37	66 - 63.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.17	-0.97	-4.14
			Max. Mx	8	-49.01	-3104.00	-6.39
			Max. My	14	-49.01	-4.83	-3103.33
			Max. Vy	8	37.10	-3104.00	-6.39
			Max. Vx	14	37.07	-4.83	-3103.33
			Max. Torque	3			0.20
L38	63.75 - 63.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.29	-0.98	-4.16
			Max. Mx	8	-49.11	-3113.28	-6.41
			Max. My	14	-49.11	-4.84	-3112.60
			Max. Vy	8	37.14	-3113.28	-6.41
			Max. Vx	14	37.10	-4.84	-3112.60
			Max. Torque	3			0.20
L39	63.5 - 58.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.68	-1.04	-4.41
			Max. Mx	8	-51.05	-3301.12	-6.73
			Max. My	14	-51.05	-5.07	-3300.36
			Max. Vy	8	38.01	-3301.12	-6.73
			Max. Vx	14	37.97	-5.07	-3300.36
			Max. Torque	3			0.20
L40	58.5 - 51	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.93	-1.05	-4.43
			Max. Mx	8	-51.25	-3320.14	-6.76
			Max. My	14	-51.25	-5.09	-3319.37
			Max. Vy	8	38.09	-3320.14	-6.76
			Max. Vx	14	38.05	-5.09	-3319.37
			Max. Torque	3			0.20
L41	51 - 50	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.22	-1.15	-4.84
			Max. Mx	8	-57.29	-3630.99	-7.28
			Max. My	14	-57.29	-5.45	-3630.08
			Max. Vy	8	39.62	-3630.99	-7.28
			Max. Vx	14	39.58	-5.45	-3630.08
			Max. Torque	3			0.20
L42	50 - 45	Pole	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
			Max. Compression	26	-84.02	-1.22	-5.10
			Max. Mx	8	-59.60	-3831.21	-7.61
			Max. My	14	-59.60	-5.68	-3830.22
			Max. Vy	8	40.49	-3831.21	-7.61
			Max. Vx	14	40.45	-5.68	-3830.22
			Max. Torque	3			0.20
L43	45 - 40.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.63	-1.28	-5.35
			Max. Mx	8	-61.75	-4018.42	-7.92
			Max. My	14	-61.75	-5.88	-4017.36
			Max. Vy	8	41.28	-4018.42	-7.92
			Max. Vx	14	41.24	-5.88	-4017.36
			Max. Torque	3			0.20
L44	40.42 - 40.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.76	-1.29	-5.36
			Max. Mx	8	-61.86	-4028.74	-7.93
			Max. My	14	-61.86	-5.90	-4027.68
			Max. Vy	8	41.31	-4028.74	-7.93
			Max. Vx	14	41.28	-5.90	-4027.68
			Max. Torque	3			0.20
L45	40.17 - 40	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.85	-1.29	-5.37
			Max. Mx	8	-61.93	-4035.77	-7.94
			Max. My	14	-61.93	-5.90	-4034.70
			Max. Vy	8	41.34	-4035.77	-7.94
			Max. Vx	14	41.31	-5.90	-4034.70
			Max. Torque	3			0.20
L46	40 - 35	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.73	-1.31	-5.62
			Max. Mx	8	-64.30	-4244.63	-8.28
			Max. My	14	-64.30	-6.13	-4243.49
			Max. Vy	8	42.21	-4244.63	-8.28
			Max. Vx	14	42.17	-6.13	-4243.49
			Max. Torque	3			0.20
L47	35 - 33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.92	-1.30	-5.72
			Max. Mx	8	-65.26	-4329.37	-8.41
			Max. My	14	-65.26	-6.22	-4328.20
			Max. Vy	8	42.55	-4329.37	-8.41
			Max. Vx	14	42.51	-6.22	-4328.20
			Max. Torque	3			0.20
L48	33 - 32.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-91.10	-1.30	-5.73
			Max. Mx	8	-65.41	-4340.01	-8.43
			Max. My	14	-65.41	-6.23	-4338.84
			Max. Vy	8	42.58	-4340.01	-8.43
			Max. Vx	14	42.55	-6.23	-4338.84
			Max. Torque	3			0.20
L49	32.75 - 19	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.36	-1.28	-5.96
			Max. Mx	8	-68.18	-4544.16	-8.76
			Max. My	14	-68.18	-6.45	-4542.93
			Max. Vy	8	43.38	-4544.16	-8.76
			Max. Vx	14	43.34	-6.45	-4542.93
			Max. Torque	3			0.20
L50	19 - 18	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-106.96	-1.23	-6.44
			Max. Mx	8	-79.09	-4987.12	-9.44
			Max. My	14	-79.09	-6.90	-4985.74
			Max. Vy	8	45.20	-4987.12	-9.44
			Max. Vx	14	45.16	-6.90	-4985.74
			Max. Torque	3			0.20
L51	18 - 13	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-110.48	-1.21	-6.69
			Max. Mx	8	-82.14	-5214.97	-9.78
			Max. My	14	-82.14	-7.13	-5213.53
			Max. Vy	8	45.96	-5214.97	-9.78
			Max. Vx	14	45.92	-7.13	-5213.53

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	3			0.20
L52	13 - 8	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-114.02	-1.19	-6.93
			Max. Mx	8	-85.23	-5446.63	-10.13
			Max. My	14	-85.23	-7.36	-5445.13
			Max. Vy	8	46.72	-5446.63	-10.13
			Max. Vx	14	46.68	-7.36	-5445.13
			Max. Torque	3			0.20
L53	8 - 6.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-115.15	-1.18	-7.01
			Max. Mx	8	-86.22	-5520.63	-10.24
			Max. My	14	-86.22	-7.43	-5519.11
			Max. Vy	8	46.97	-5520.63	-10.24
			Max. Vx	14	46.94	-7.43	-5519.11
			Max. Torque	3			0.20
L54	6.42 - 6.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-115.31	-1.18	-7.02
			Max. Mx	8	-86.36	-5532.38	-10.26
			Max. My	14	-86.36	-7.44	-5530.85
			Max. Vy	8	47.00	-5532.38	-10.26
			Max. Vx	14	46.96	-7.44	-5530.85
			Max. Torque	3			0.20
L55	6.17 - 1.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-118.51	-1.17	-7.27
			Max. Mx	8	-89.12	-5769.46	-10.61
			Max. My	14	-89.12	-7.67	-5767.88
			Max. Vy	8	47.83	-5769.46	-10.61
			Max. Vx	14	47.80	-7.67	-5767.88
			Max. Torque	3			0.20
L56	1.17 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-119.25	-1.17	-7.32
			Max. Mx	8	-89.77	-5825.54	-10.70
			Max. My	14	-89.77	-7.72	-5823.94
			Max. Vy	8	48.03	-5825.54	-10.70
			Max. Vx	14	48.00	-7.72	-5823.94
			Max. Torque	3			0.20

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	119.25	-0.00	-0.00
	Max. H_x	20	89.78	48.02	0.04
	Max. H_z	2	89.78	0.04	47.99
	Max. M_x	2	5815.90	0.04	47.99
	Max. M_z	8	5825.54	-48.02	-0.04
	Max. Torsion	3	0.20	0.04	47.99
	Min. Vert	19	67.34	41.57	-23.96
	Min. H_x	8	89.78	-48.02	-0.04
	Min. H_z	14	89.78	-0.04	-47.99
	Min. M_x	14	-5823.94	-0.04	-47.99
	Min. M_z	20	-5823.43	48.02	0.04
	Min. Torsion	15	-0.20	-0.04	-47.99

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	74.82	0.00	0.00	3.25	-0.85	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	89.78	-0.04	-47.99	-5815.90	5.61	-0.19
0.9 Dead+1.0 Wind 0 deg - No Ice	67.34	-0.04	-47.99	-5766.88	5.81	-0.20
1.2 Dead+1.0 Wind 30 deg - No Ice	89.78	24.43	-42.31	-5156.37	-2978.85	-0.15
0.9 Dead+1.0 Wind 30 deg - No Ice	67.34	24.43	-42.31	-5112.98	-2952.96	-0.15
1.2 Dead+1.0 Wind 60 deg - No Ice	89.78	41.57	-23.96	-2900.16	-5041.89	-0.06
0.9 Dead+1.0 Wind 60 deg - No Ice	67.34	41.57	-23.96	-2876.23	-4998.29	-0.06
1.2 Dead+1.0 Wind 90 deg - No Ice	89.78	48.02	0.04	10.70	-5825.54	0.04
0.9 Dead+1.0 Wind 90 deg - No Ice	67.34	48.02	0.04	9.59	-5775.20	0.04
1.2 Dead+1.0 Wind 120 deg - No Ice	89.78	41.61	24.02	2919.75	-5048.53	0.13
0.9 Dead+1.0 Wind 120 deg - No Ice	67.34	41.61	24.02	2893.64	-5004.86	0.14
1.2 Dead+1.0 Wind 150 deg - No Ice	89.78	24.04	41.58	5047.55	-2919.07	0.19
0.9 Dead+1.0 Wind 150 deg - No Ice	67.34	24.04	41.58	5003.14	-2893.70	0.19
1.2 Dead+1.0 Wind 180 deg - No Ice	89.78	0.04	47.99	5823.94	-7.72	0.19
0.9 Dead+1.0 Wind 180 deg - No Ice	67.34	0.04	47.99	5772.87	-7.38	0.20
1.2 Dead+1.0 Wind 210 deg - No Ice	89.78	-24.43	42.31	5164.42	2976.73	0.15
0.9 Dead+1.0 Wind 210 deg - No Ice	67.34	-24.43	42.31	5118.97	2951.38	0.15
1.2 Dead+1.0 Wind 240 deg - No Ice	89.78	-41.57	23.96	2908.22	5039.77	0.06
0.9 Dead+1.0 Wind 240 deg - No Ice	67.34	-41.57	23.96	2882.22	4996.71	0.06
1.2 Dead+1.0 Wind 270 deg - No Ice	89.78	-48.02	-0.04	-2.64	5823.43	-0.04
0.9 Dead+1.0 Wind 270 deg - No Ice	67.34	-48.02	-0.04	-3.60	5773.63	-0.04
1.2 Dead+1.0 Wind 300 deg - No Ice	89.78	-41.61	-24.02	-2911.70	5046.43	-0.13
0.9 Dead+1.0 Wind 300 deg - No Ice	67.34	-41.61	-24.02	-2887.65	5003.30	-0.14
1.2 Dead+1.0 Wind 330 deg - No Ice	89.78	-24.04	-41.58	-5039.50	2916.96	-0.19
0.9 Dead+1.0 Wind 330 deg - No Ice	67.34	-24.04	-41.58	-4997.16	2892.13	-0.19
1.2 Dead+1.0 Ice+1.0 Temp	119.25	0.00	0.00	7.32	-1.17	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	119.25	0.00	-11.64	-1475.29	-0.00	-0.03
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	119.25	5.82	-10.08	-1275.99	-742.04	-0.02
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	119.25	10.08	-5.82	-732.74	-1285.59	-0.02
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	119.25	11.65	0.01	8.90	-1485.00	-0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	119.25	10.09	5.83	750.20	-1286.84	0.01
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	119.25	5.83	10.09	1292.54	-744.20	0.02
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	119.25	0.01	11.64	1490.59	-2.49	0.03
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	119.25	-5.82	10.08	1291.29	739.56	0.02

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	119.25	-10.08	5.82	748.04	1283.11	0.02
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	119.25	-11.65	-0.01	6.41	1482.52	0.00
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	119.25	-10.09	-5.83	-734.89	1284.36	-0.01
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	119.25	-5.83	-10.09	-1277.23	741.72	-0.02
Dead+Wind 0 deg - Service	74.82	-0.01	-11.30	-1360.33	0.69	-0.05
Dead+Wind 30 deg - Service	74.82	5.75	-9.96	-1205.82	-698.62	-0.03
Dead+Wind 60 deg - Service	74.82	9.79	-5.64	-677.14	-1181.99	-0.01
Dead+Wind 90 deg - Service	74.82	11.31	0.01	4.90	-1365.61	0.01
Dead+Wind 120 deg - Service	74.82	9.80	5.66	686.53	-1183.55	0.03
Dead+Wind 150 deg - Service	74.82	5.66	9.79	1185.09	-684.60	0.04
Dead+Wind 180 deg - Service	74.82	0.01	11.30	1367.01	-2.44	0.05
Dead+Wind 210 deg - Service	74.82	-5.75	9.96	1212.50	696.87	0.03
Dead+Wind 240 deg - Service	74.82	-9.79	5.64	683.82	1180.24	0.01
Dead+Wind 270 deg - Service	74.82	-11.31	-0.01	1.78	1363.87	-0.01
Dead+Wind 300 deg - Service	74.82	-9.80	-5.66	-679.84	1181.80	-0.03
Dead+Wind 330 deg - Service	74.82	-5.66	-9.79	-1178.41	682.85	-0.04

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-74.82	0.00	0.00	74.82	0.00	0.000%
2	-0.04	-89.78	-47.99	0.04	89.78	47.99	0.000%
3	-0.04	-67.34	-47.99	0.04	67.34	47.99	0.000%
4	24.43	-89.78	-42.31	-24.43	89.78	42.31	0.000%
5	24.43	-67.34	-42.31	-24.43	67.34	42.31	0.000%
6	41.57	-89.78	-23.96	-41.57	89.78	23.96	0.000%
7	41.57	-67.34	-23.96	-41.57	67.34	23.96	0.000%
8	48.02	-89.78	0.04	-48.02	89.78	-0.04	0.000%
9	48.02	-67.34	0.04	-48.02	67.34	-0.04	0.000%
10	41.61	-89.78	24.02	-41.61	89.78	-24.02	0.000%
11	41.61	-67.34	24.02	-41.61	67.34	-24.02	0.000%
12	24.04	-89.78	41.58	-24.04	89.78	-41.58	0.000%
13	24.04	-67.34	41.58	-24.04	67.34	-41.58	0.000%
14	0.04	-89.78	47.99	-0.04	89.78	-47.99	0.000%
15	0.04	-67.34	47.99	-0.04	67.34	-47.99	0.000%
16	-24.43	-89.78	42.31	24.43	89.78	-42.31	0.000%
17	-24.43	-67.34	42.31	24.43	67.34	-42.31	0.000%
18	-41.57	-89.78	23.96	41.57	89.78	-23.96	0.000%
19	-41.57	-67.34	23.96	41.57	67.34	-23.96	0.000%
20	-48.02	-89.78	-0.04	48.02	89.78	0.04	0.000%
21	-48.02	-67.34	-0.04	48.02	67.34	0.04	0.000%
22	-41.61	-89.78	-24.02	41.61	89.78	24.02	0.000%
23	-41.61	-67.34	-24.02	41.61	67.34	24.02	0.000%
24	-24.04	-89.78	-41.58	24.04	89.78	41.58	0.000%
25	-24.04	-67.34	-41.58	24.04	67.34	41.58	0.000%
26	0.00	-119.25	0.00	-0.00	119.25	-0.00	0.000%
27	-0.01	-119.25	-11.64	-0.00	119.25	11.64	0.009%
28	5.82	-119.25	-10.08	-5.82	119.25	10.08	0.000%
29	10.08	-119.25	-5.82	-10.08	119.25	5.82	0.000%
30	11.65	-119.25	0.01	-11.65	119.25	-0.01	0.000%
31	10.09	-119.25	5.83	-10.09	119.25	-5.83	0.000%
32	5.83	-119.25	10.09	-5.83	119.25	-10.09	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
33	0.01	-119.25	11.64	-0.01	119.25	-11.64	0.000%
34	-5.82	-119.25	10.08	5.82	119.25	-10.08	0.000%
35	-10.08	-119.25	5.82	10.08	119.25	-5.82	0.000%
36	-11.65	-119.25	-0.01	11.65	119.25	0.01	0.000%
37	-10.09	-119.25	-5.83	10.09	119.25	5.83	0.000%
38	-5.83	-119.25	-10.09	5.83	119.25	10.09	0.000%
39	-0.01	-74.82	-11.30	0.01	74.82	11.30	0.000%
40	5.75	-74.82	-9.96	-5.75	74.82	9.96	0.000%
41	9.79	-74.82	-5.64	-9.79	74.82	5.64	0.000%
42	11.31	-74.82	0.01	-11.31	74.82	-0.01	0.000%
43	9.80	-74.82	5.66	-9.80	74.82	-5.66	0.000%
44	5.66	-74.82	9.79	-5.66	74.82	-9.79	0.000%
45	0.01	-74.82	11.30	-0.01	74.82	-11.30	0.000%
46	-5.75	-74.82	9.96	5.75	74.82	-9.96	0.000%
47	-9.79	-74.82	5.64	9.79	74.82	-5.64	0.000%
48	-11.31	-74.82	-0.01	11.31	74.82	0.01	0.000%
49	-9.80	-74.82	-5.66	9.80	74.82	5.66	0.000%
50	-5.66	-74.82	-9.79	5.66	74.82	9.79	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	0.00028577
3	Yes	5	0.00000001	0.00010793
4	Yes	6	0.00000001	0.00050870
5	Yes	6	0.00000001	0.00017139
6	Yes	6	0.00000001	0.00048305
7	Yes	6	0.00000001	0.00016406
8	Yes	5	0.00000001	0.00028093
9	Yes	5	0.00000001	0.00010399
10	Yes	6	0.00000001	0.00048809
11	Yes	6	0.00000001	0.00016552
12	Yes	6	0.00000001	0.00048566
13	Yes	6	0.00000001	0.00016462
14	Yes	5	0.00000001	0.00027527
15	Yes	5	0.00000001	0.00010104
16	Yes	6	0.00000001	0.00051162
17	Yes	6	0.00000001	0.00017239
18	Yes	6	0.00000001	0.00048318
19	Yes	6	0.00000001	0.00016397
20	Yes	5	0.00000001	0.00027454
21	Yes	5	0.00000001	0.00010058
22	Yes	6	0.00000001	0.00048449
23	Yes	6	0.00000001	0.00016439
24	Yes	6	0.00000001	0.00048709
25	Yes	6	0.00000001	0.00016536
26	Yes	4	0.00000001	0.00012427
27	Yes	6	0.00000001	0.00054799
28	Yes	6	0.00000001	0.00035891
29	Yes	6	0.00000001	0.00035937
30	Yes	6	0.00000001	0.00032903
31	Yes	6	0.00000001	0.00036316
32	Yes	6	0.00000001	0.00036334
33	Yes	6	0.00000001	0.00033036
34	Yes	6	0.00000001	0.00036195
35	Yes	6	0.00000001	0.00036155
36	Yes	6	0.00000001	0.00032831
37	Yes	6	0.00000001	0.00035942
38	Yes	6	0.00000001	0.00035918
39	Yes	5	0.00000001	0.00005123
40	Yes	5	0.00000001	0.00016626
41	Yes	5	0.00000001	0.00015700
42	Yes	5	0.00000001	0.00005134
43	Yes	5	0.00000001	0.00016019

44	Yes	5	0.00000001	0.00015836
45	Yes	5	0.00000001	0.00005143
46	Yes	5	0.00000001	0.00016873
47	Yes	5	0.00000001	0.00015764
48	Yes	5	0.00000001	0.00005126
49	Yes	5	0.00000001	0.00015684
50	Yes	5	0.00000001	0.00015869

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	185 - 180	20.753	46	1.2317	0.0005
L2	180 - 175	19.465	46	1.2278	0.0005
L3	175 - 170	18.186	46	1.2130	0.0005
L4	170 - 165	16.929	46	1.1851	0.0004
L5	165 - 160	15.710	46	1.1403	0.0003
L6	160 - 155	14.545	46	1.0826	0.0002
L7	155 - 154	13.446	46	1.0150	0.0002
L8	154 - 153.75	13.235	46	1.0009	0.0002
L9	153.75 - 152.5	13.183	46	0.9984	0.0002
L10	152.5 - 152.25	12.923	46	0.9857	0.0002
L11	152.25 - 151.5	12.872	46	0.9840	0.0002
L12	151.5 - 151.25	12.718	46	0.9787	0.0002
L13	151.25 - 146.25	12.666	46	0.9764	0.0002
L14	146.25 - 141.25	11.669	46	0.9275	0.0001
L15	141.25 - 136.25	10.725	46	0.8751	0.0001
L16	136.25 - 130	9.837	46	0.8209	0.0001
L17	135 - 129	9.624	46	0.8073	0.0001
L18	129 - 124	8.629	46	0.7726	0.0001
L19	124 - 121.42	7.845	46	0.7247	0.0001
L20	121.42 - 121.17	7.460	46	0.7003	0.0001
L21	121.17 - 116.17	7.424	46	0.6981	0.0001
L22	116.17 - 115	6.716	46	0.6540	0.0001
L23	115 - 113.75	6.557	46	0.6440	0.0001
L24	113.75 - 113.5	6.389	46	0.6345	0.0001
L25	113.5 - 108.5	6.356	46	0.6323	0.0001
L26	108.5 - 103.5	5.718	46	0.5877	0.0000
L27	103.5 - 95	5.125	46	0.5437	0.0000
L28	101 - 94	4.846	46	0.5219	0.0000
L29	94 - 91.4	4.101	46	0.4924	0.0000
L30	91.4 - 91.15	3.837	46	0.4747	0.0000
L31	91.15 - 91	3.813	46	0.4726	0.0000
L32	91 - 86	3.798	46	0.4713	0.0000
L33	86 - 81	3.324	46	0.4334	0.0000
L34	81 - 76	2.890	46	0.3967	0.0000
L35	76 - 71	2.493	46	0.3608	0.0000
L36	71 - 66	2.134	46	0.3255	0.0000
L37	66 - 63.75	1.811	46	0.2914	0.0000
L38	63.75 - 63.5	1.677	46	0.2763	0.0000
L39	63.5 - 58.5	1.663	46	0.2747	0.0000
L40	58.5 - 51	1.392	46	0.2416	0.0000
L41	58 - 50	1.367	46	0.2384	0.0000
L42	50 - 45	0.988	46	0.2115	0.0000
L43	45 - 40.42	0.781	46	0.1836	0.0000
L44	40.42 - 40.17	0.617	46	0.1585	0.0000
L45	40.17 - 40	0.609	46	0.1570	0.0000
L46	40 - 35	0.604	46	0.1559	0.0000
L47	35 - 33	0.455	46	0.1287	0.0000
L48	33 - 32.75	0.403	46	0.1179	0.0000
L49	32.75 - 19	0.397	46	0.1167	0.0000
L50	28 - 18	0.292	46	0.0947	0.0000
L51	18 - 13	0.117	46	0.0696	0.0000
L52	13 - 8	0.056	46	0.0468	0.0000
L53	8 - 6.42	0.019	46	0.0247	0.0000
L54	6.42 - 6.17	0.012	46	0.0179	0.0000
L55	6.17 - 1.17	0.011	46	0.0172	0.0000
L56	1.17 - 0	0.000	46	0.0000	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
185.00	3' x 2" Pipe Mount	46	20.753	1.2317	0.0005	29958
183.00	APXVAARR24_43-U-NA20	46	20.237	1.2309	0.0005	29958
174.00	DMP65R-BU6D	46	17.932	1.2086	0.0005	12210
165.00	MX08FRO665-20 w/ Mount Pipe	46	15.710	1.1403	0.0003	5588
155.00	SBNHH-1D65B w/ Mount Pipe	46	13.446	1.0150	0.0002	4631

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	185 - 180	88.594	16	5.2684	0.0022
L2	180 - 175	83.094	16	5.2517	0.0022
L3	175 - 170	77.637	16	5.1886	0.0022
L4	170 - 165	72.271	16	5.0693	0.0018
L5	165 - 160	67.070	16	4.8773	0.0013
L6	160 - 155	62.097	16	4.6300	0.0010
L7	155 - 154	57.406	16	4.3401	0.0008
L8	154 - 153.75	56.505	16	4.2796	0.0008
L9	153.75 - 152.5	56.281	16	4.2689	0.0008
L10	152.5 - 152.25	55.172	16	4.2147	0.0007
L11	152.25 - 151.5	54.952	16	4.2072	0.0007
L12	151.5 - 151.25	54.294	16	4.1845	0.0007
L13	151.25 - 146.25	54.076	16	4.1747	0.0007
L14	146.25 - 141.25	49.819	16	3.9654	0.0006
L15	141.25 - 136.25	45.788	16	3.7408	0.0005
L16	136.25 - 130	41.997	16	3.5088	0.0004
L17	135 - 129	41.087	16	3.4507	0.0004
L18	129 - 124	36.837	16	3.3021	0.0004
L19	124 - 121.42	33.490	16	3.0971	0.0003
L20	121.42 - 121.17	31.846	16	2.9927	0.0003
L21	121.17 - 116.17	31.689	16	2.9834	0.0003
L22	116.17 - 115	28.667	16	2.7946	0.0003
L23	115 - 113.75	27.988	16	2.7517	0.0003
L24	113.75 - 113.5	27.273	16	2.7112	0.0003
L25	113.5 - 108.5	27.131	16	2.7017	0.0003
L26	108.5 - 103.5	24.404	16	2.5107	0.0002
L27	103.5 - 95	21.875	16	2.3226	0.0002
L28	101 - 94	20.684	16	2.2293	0.0002
L29	94 - 91.4	17.501	16	2.1031	0.0002
L30	91.4 - 91.15	16.376	16	2.0276	0.0002
L31	91.15 - 91	16.271	16	2.0183	0.0002
L32	91 - 86	16.207	16	2.0128	0.0002
L33	86 - 81	14.185	16	1.8509	0.0001
L34	81 - 76	12.330	16	1.6941	0.0001
L35	76 - 71	10.637	16	1.5405	0.0001
L36	71 - 66	9.104	16	1.3897	0.0001
L37	66 - 63.75	7.725	16	1.2437	0.0001
L38	63.75 - 63.5	7.155	16	1.1795	0.0001
L39	63.5 - 58.5	7.093	16	1.1724	0.0001
L40	58.5 - 51	5.940	16	1.0312	0.0001
L41	58 - 50	5.832	16	1.0173	0.0001
L42	50 - 45	4.215	16	0.9024	0.0000
L43	45 - 40.42	3.333	16	0.7834	0.0000
L44	40.42 - 40.17	2.633	16	0.6762	0.0000
L45	40.17 - 40	2.598	16	0.6696	0.0000
L46	40 - 35	2.574	16	0.6652	0.0000
L47	35 - 33	1.939	16	0.5490	0.0000
L48	33 - 32.75	1.718	16	0.5029	0.0000
L49	32.75 - 19	1.692	16	0.4979	0.0000
L50	28 - 18	1.244	16	0.4037	0.0000
L51	18 - 13	0.500	16	0.2968	0.0000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L52	13 - 8	0.241	16	0.1997	0.0000
L53	8 - 6.42	0.081	16	0.1052	0.0000
L54	6.42 - 6.17	0.051	16	0.0762	0.0000
L55	6.17 - 1.17	0.047	16	0.0733	0.0000
L56	1.17 - 0	0.002	16	0.0138	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	3' x 2" Pipe Mount	16	88.594	5.2684	0.0022	7138
183.00	APXVAARR24_43-U-NA20	16	86.392	5.2649	0.0022	7138
174.00	DMP65R-BU6D	16	76.555	5.1698	0.0021	2907
165.00	MX08FRO665-20 w/ Mount Pipe	16	67.070	4.8773	0.0013	1325
155.00	SBNHH-1D65B w/ Mount Pipe	16	57.406	4.3401	0.0008	1095

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	185 - 180 (1)	TP18x18x0.1875	5.00	0.00	0.0	10.7543	-4.62	406.51	0.011
L2	180 - 175 (2)	TP19.6313x18x0.25	5.00	0.00	0.0	15.6019	-4.94	589.75	0.008
L3	175 - 170 (3)	TP21.2625x19.6313x0.25	5.00	0.00	0.0	16.9151	-12.46	639.39	0.019
L4	170 - 165 (4)	TP22.8938x21.2625x0.25	5.00	0.00	0.0	18.2282	-12.94	689.03	0.019
L5	165 - 160 (5)	TP24.525x22.8938x0.25	5.00	0.00	0.0	19.5414	-16.56	738.66	0.022
L6	160 - 155 (6)	TP26.1563x24.525x0.25	5.00	0.00	0.0	20.8545	-17.16	788.30	0.022
L7	155 - 154 (7)	TP26.4825x26.1563x0.25	1.00	0.00	0.0	21.1172	-20.52	798.23	0.026
L8	154 - 153.75 (8)	TP26.5641x26.4825x0.3688	0.25	0.00	0.0	31.1037	-20.57	1175.72	0.017
L9	153.75 - 152.5 (9)	TP26.9719x26.5641x0.3625	1.25	0.00	0.0	31.0598	-20.76	1174.06	0.018
L10	152.5 - 152.25 (10)	TP27.0534x26.9719x0.55	0.25	0.00	0.0	46.9376	-20.82	1774.24	0.012
L11	152.25 - 151.5 (11)	TP27.2981x27.0534x0.55	0.75	0.00	0.0	47.3709	-20.98	1790.62	0.012
L12	151.5 - 151.25 (12)	TP27.3797x27.2981x0.425	0.25	0.00	0.0	36.8875	-21.03	1394.35	0.015
L13	151.25 - 146.25 (13)	TP29.0109x27.3797x0.4125	5.00	0.00	0.0	37.9859	-21.94	1435.87	0.015
L14	146.25 - 141.25 (14)	TP30.6422x29.0109x0.4	5.00	0.00	0.0	38.9519	-22.90	1472.38	0.016
L15	141.25 - 136.25 (15)	TP32.2734x30.6422x0.3938	5.00	0.00	0.0	40.4195	-23.89	1527.86	0.016
L16	136.25 - 130 (16)	TP34.3125x32.2734x0.3938	6.25	0.00	0.0	40.9365	-24.14	1547.40	0.016
L17	130 - 129 (17)	TP34.1331x32.1813x0.475	6.00	0.00	0.0	51.4801	-26.35	1945.95	0.014
L18	129 - 124 (18)	TP35.7597x34.1331x0.4625	5.00	0.00	0.0	52.5663	-27.58	1987.01	0.014
L19	124 - 121.42 (19)	TP36.599x35.7597x0.4625	2.58	0.00	0.0	53.8163	-28.23	2034.26	0.014
L20	121.42 - 121.17 (20)	TP36.6803x36.599x0.5	0.25	0.00	0.0	58.2503	-28.30	2201.86	0.013
L21	121.17 - 116.17 (21)	TP38.3069x36.6803x0.4875	5.00	0.00	0.0	59.3670	-29.66	2244.07	0.013
L22	116.17 - 115	TP38.6875x38.3069x0.48	1.17	0.00	0.0	59.9645	-29.98	2266.66	0.013

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	(22)	75							
L23	115 - 113.75 (23)	TP39.0938x38.6875x0.55	1.25	0.00	0.0	68.2610	-30.37	2580.27	0.012
L24	113.75 - 113.5 (24)	TP39.175x39.0938x0.468	0.25	0.00	0.0	58.4222	-30.44	2208.36	0.014
L25	113.5 - 108.5 (25)	TP40.8x39.175x0.4625	5.00	0.00	0.0	60.0726	-31.83	2270.75	0.014
L26	108.5 - 103.5 (26)	TP42.425x40.8x0.4563	5.00	0.00	0.0	61.6573	-33.25	2330.65	0.014
L27	103.5 - 95 (27)	TP45.1875x42.425x0.45	8.50	0.00	0.0	61.9991	-33.98	2343.57	0.014
L28	95 - 94 (28)	TP44.8525x42.6125x0.58 75	7.00	0.00	0.0	83.7383	-38.01	3165.31	0.012
L29	94 - 91.4 (29)	TP45.6845x44.8525x0.57 5	2.60	0.00	0.0	83.5202	-38.97	3157.07	0.012
L30	91.4 - 91.15 (30)	TP45.7645x45.6845x0.44 38	0.25	0.00	0.0	64.7577	-39.05	2447.84	0.016
L31	91.15 - 91 (31)	TP45.8125x45.7645x0.44 38	0.15	0.00	0.0	64.8263	-39.10	2450.43	0.016
L32	91 - 86 (32)	TP47.4453x45.8125x0.5	5.00	0.00	0.0	75.5820	-40.81	2857.00	0.014
L33	86 - 81 (33)	TP49.0781x47.4453x0.5	5.00	0.00	0.0	78.2108	-42.57	2956.37	0.014
L34	81 - 76 (34)	TP50.7109x49.0781x0.49 38	5.00	0.00	0.0	79.8391	-44.37	3017.92	0.015
L35	76 - 71 (35)	TP52.3438x50.7109x0.48 75	5.00	0.00	0.0	81.4014	-46.22	3076.97	0.015
L36	71 - 66 (36)	TP53.9766x52.3438x0.48 75	5.00	0.00	0.0	83.9645	-48.11	3173.86	0.015
L37	66 - 63.75 (37)	TP54.7113x53.9766x0.48 75	2.25	0.00	0.0	85.1179	-48.97	3217.46	0.015
L38	63.75 - 63.5 (38)	TP54.793x54.7113x0.487 5	0.25	0.00	0.0	85.2460	-49.08	3222.30	0.015
L39	63.5 - 58.5 (39)	TP56.4258x54.793x0.481 3	5.00	0.00	0.0	86.6930	-51.02	3277.00	0.016
L40	58.5 - 51 (40)	TP58.875x56.4258x0.481 3	7.50	0.00	0.0	86.9461	-51.22	3286.56	0.016
L41	51 - 50 (41)	TP58.4384x55.8391x0.55	8.00	0.00	0.0	102.5200	-57.26	3875.27	0.015
L42	50 - 45 (42)	TP60.0629x58.4384x0.55	5.00	0.00	0.0	105.3970	-59.57	3984.02	0.015
L43	45 - 40.42 (43)	TP61.551x60.0629x0.543 8	4.58	0.00	0.0	106.8160	-61.72	4037.65	0.015
L44	40.42 - 40.17 (44)	TP61.6323x61.551x0.475	0.25	0.00	0.0	93.5400	-61.84	3535.81	0.017
L45	40.17 - 40 (45)	TP61.6875x61.6323x0.47 5	0.17	0.00	0.0	93.6245	-61.91	3539.01	0.017
L46	40 - 35 (46)	TP63.3095x61.6875x0.53 13	5.00	0.00	0.0	107.3900	-64.28	4059.35	0.016
L47	35 - 33 (47)	TP63.9583x63.3095x0.52 5	2.00	0.00	0.0	107.2340	-65.24	4053.45	0.016
L48	33 - 32.75 (48)	TP64.0394x63.9583x0.6	0.25	0.00	0.0	122.5650	-65.39	4632.96	0.014
L49	32.75 - 19 (49)	TP68.5x64.0394x0.6	13.75	0.00	0.0	125.5420	-68.17	4745.49	0.014
L50	19 - 18 (50)	TP67.9579x64.7054x0.6	10.00	0.00	0.0	130.1350	-79.08	4919.12	0.016
L51	18 - 13 (51)	TP69.5842x67.9579x0.58 75	5.00	0.00	0.0	130.5240	-82.13	4933.83	0.017
L52	13 - 8 (52)	TP71.2105x69.5842x0.58 75	5.00	0.00	0.0	133.6010	-85.23	5050.12	0.017
L53	8 - 6.42 (53)	TP71.7244x71.2105x0.58 75	1.58	0.00	0.0	134.5730	-86.21	5086.87	0.017
L54	6.42 - 6.17 (54)	TP71.8057x71.7244x0.93 75	0.25	0.00	0.0	213.6880	-86.23	8077.40	0.011
L55	6.17 - 1.17 (55)	TP73.432x71.8057x0.912 5	5.00	0.00	0.0	208.3020	-86.37	7873.81	0.011
L56	1.17 - 0 (56)	TP73.8125x73.432x0.9	1.17	0.00	0.0	210.1980	-89.13	7945.47	0.011

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	185 - 180 (1)	TP18x18x0.1875	16.07	185.39	0.087	0.00	185.39	0.000
L2	180 - 175 (2)	TP19.6313x18x0.25	43.61	291.96	0.149	0.00	291.96	0.000
L3	175 - 170 (3)	TP21.2625x19.6313x0.25	107.81	343.52	0.314	0.00	343.52	0.000
L4	170 - 165 (4)	TP22.8938x21.2625x0.25	182.99	399.26	0.458	0.00	399.26	0.000
L5	165 - 160 (5)	TP24.525x22.8938x0.25	281.27	459.20	0.613	0.00	459.20	0.000
L6	160 - 155 (6)	TP26.1563x24.525x0.25	382.41	519.54	0.736	0.00	519.54	0.000
L7	155 - 154 (7)	TP26.4825x26.1563x0.25	406.69	530.76	0.766	0.00	530.76	0.000
L8	154 - 153.75 (8)	TP26.5641x26.4825x0.3688	412.76	785.78	0.525	0.00	785.78	0.000
L9	153.75 - 152.5 (9)	TP26.9719x26.5641x0.3625	443.21	797.43	0.556	0.00	797.43	0.000
L10	152.5 - 152.25 (10)	TP27.0534x26.9719x0.55	449.33	1191.90	0.377	0.00	1191.90	0.000
L11	152.25 - 151.5 (11)	TP27.2981x27.0534x0.55	467.72	1214.23	0.385	0.00	1214.23	0.000
L12	151.5 - 151.25 (12)	TP27.3797x27.2981x0.425	473.87	957.32	0.495	0.00	957.32	0.000
L13	151.25 - 146.25 (13)	TP29.0109x27.3797x0.4125	598.52	1047.33	0.571	0.00	1047.33	0.000
L14	146.25 - 141.25 (14)	TP30.6422x29.0109x0.4	726.46	1137.03	0.639	0.00	1137.03	0.000
L15	141.25 - 136.25 (15)	TP32.2734x30.6422x0.3938	857.70	1244.83	0.689	0.00	1244.83	0.000
L16	136.25 - 130 (16)	TP34.3125x32.2734x0.3938	891.04	1277.08	0.698	0.00	1277.08	0.000
L17	130 - 129 (17)	TP34.1331x32.1813x0.475	1054.41	1671.02	0.631	0.00	1671.02	0.000
L18	129 - 124 (18)	TP35.7597x34.1331x0.4625	1194.62	1791.15	0.667	0.00	1791.15	0.000
L19	124 - 121.42 (19)	TP36.599x35.7597x0.4625	1268.36	1877.91	0.675	0.00	1877.91	0.000
L20	121.42 - 121.17 (20)	TP36.6803x36.599x0.5	1275.55	2033.05	0.627	0.00	2033.05	0.000
L21	121.17 - 116.17 (21)	TP38.3069x36.6803x0.4875	1421.32	2167.88	0.656	0.00	2167.88	0.000
L22	116.17 - 115 (22)	TP38.6875x38.3069x0.4875	1455.94	2212.01	0.658	0.00	2212.01	0.000
L23	115 - 113.75 (23)	TP39.0938x38.6875x0.55	1493.15	2536.94	0.589	0.00	2536.94	0.000
L24	113.75 - 113.5 (24)	TP39.175x39.0938x0.4688	1500.62	2185.08	0.687	0.00	2185.08	0.000
L25	113.5 - 108.5 (25)	TP40.8x39.175x0.4625	1651.90	2343.00	0.705	0.00	2343.00	0.000
L26	108.5 - 103.5 (26)	TP42.425x40.8x0.4563	1806.86	2503.53	0.722	0.00	2503.53	0.000
L27	103.5 - 95 (27)	TP45.1875x42.425x0.45	1885.75	2567.42	0.734	0.00	2567.42	0.000
L28	95 - 94 (28)	TP44.8525x42.6125x0.5875	2112.31	3577.63	0.590	0.00	3577.63	0.000
L29	94 - 91.4 (29)	TP45.6845x44.8525x0.575	2198.60	3638.28	0.604	0.00	3638.28	0.000
L30	91.4 - 91.15 (30)	TP45.7645x45.6845x0.4438	2206.95	2834.07	0.779	0.00	2834.07	0.000
L31	91.15 - 91 (31)	TP45.8125x45.7645x0.4438	2211.97	2839.22	0.779	0.00	2839.22	0.000
L32	91 - 86 (32)	TP47.4453x45.8125x0.5	2381.26	3433.57	0.694	0.00	3433.57	0.000
L33	86 - 81 (33)	TP49.0781x47.4453x0.5	2554.57	3677.88	0.695	0.00	3677.88	0.000
L34	81 - 76 (34)	TP50.7109x49.0781x0.4938	2732.00	3876.18	0.705	0.00	3876.18	0.000
L35	76 - 71 (35)	TP52.3438x50.7109x0.4875	2913.58	4028.01	0.723	0.00	4028.01	0.000
L36	71 - 66 (36)	TP53.9766x52.3438x0.4875	3099.38	4245.06	0.730	0.00	4245.06	0.000
L37	66 - 63.75 (37)	TP54.7113x53.9766x0.4875	3184.38	4343.68	0.733	0.00	4343.68	0.000
L38	63.75 - 63.5	TP54.793x54.7113x0.487	3193.88	4354.67	0.733	0.00	4354.67	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 $\frac{M_{uy}}{\phi M_{ny}}$
	(38)	5						
L39	63.5 - 58.5 (39)	TP56.4258x54.793x0.4813	3386.07	4498.48	0.753	0.00	4498.48	0.000
L40	58.5 - 51 (40)	TP58.875x56.4258x0.4813	3405.53	4520.28	0.753	0.00	4520.28	0.000
L41	51 - 50 (41)	TP58.4384x55.8391x0.55	3723.32	5681.07	0.655	0.00	5681.07	0.000
L42	50 - 45 (42)	TP60.0629x58.4384x0.55	3927.88	5954.45	0.660	0.00	5954.45	0.000
L43	45 - 40.42 (43)	TP61.551x60.0629x0.5438	4119.06	6115.80	0.674	0.00	6115.80	0.000
L44	40.42 - 40.17 (44)	TP61.6323x61.551x0.475	4129.60	5111.28	0.808	0.00	5111.28	0.000
L45	40.17 - 40 (45)	TP61.6875x61.6323x0.475	4136.77	5118.70	0.808	0.00	5118.70	0.000
L46	40 - 35 (46)	TP63.3095x61.6875x0.5313	4349.96	6217.93	0.700	0.00	6217.93	0.000
L47	35 - 33 (47)	TP63.9583x63.3095x0.525	4436.43	6224.60	0.713	0.00	6224.60	0.000
L48	33 - 32.75 (48)	TP64.0394x63.9583x0.6	4447.28	7433.05	0.598	0.00	7433.05	0.000
L49	32.75 - 19 (49)	TP68.5x64.0394x0.6	4655.52	7742.02	0.601	0.00	7742.02	0.000
L50	19 - 18 (50)	TP67.9579x64.7054x0.6	5107.07	8225.02	0.621	0.00	8225.02	0.000
L51	18 - 13 (51)	TP69.5842x67.9579x0.5875	5339.23	8323.87	0.641	0.00	8323.87	0.000
L52	13 - 8 (52)	TP71.2105x69.5842x0.5875	5575.16	8649.92	0.645	0.00	8649.92	0.000
L53	8 - 6.42 (53)	TP71.7244x71.2105x0.5875	5650.51	8753.50	0.646	0.00	8753.50	0.000
L54	6.42 - 6.17 (54)	TP71.8057x71.7244x0.9375	5650.51	14600.08	0.387	0.00	14600.08	0.000
L55	6.17 - 1.17 (55)	TP73.432x71.8057x0.9125	5662.47	14258.75	0.397	0.00	14258.75	0.000
L56	1.17 - 0 (56)	TP73.8125x73.432x0.9	5903.81	14727.83	0.401	0.00	14727.83	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	185 - 180 (1)	TP18x18x0.1875	5.24	121.95	0.043	0.00	191.08	0.000
L2	180 - 175 (2)	TP19.6313x18x0.25	5.77	176.93	0.033	0.00	301.63	0.000
L3	175 - 170 (3)	TP21.2625x19.6313x0.25	14.76	191.82	0.077	0.15	354.54	0.000
L4	170 - 165 (4)	TP22.8938x21.2625x0.25	15.30	206.71	0.074	0.15	411.72	0.000
L5	165 - 160 (5)	TP24.525x22.8938x0.25	19.96	221.60	0.090	0.24	473.18	0.000
L6	160 - 155 (6)	TP26.1563x24.525x0.25	20.50	236.49	0.087	0.24	538.91	0.000
L7	155 - 154 (7)	TP26.4825x26.1563x0.25	24.25	239.47	0.101	0.15	552.57	0.000
L8	154 - 153.75 (8)	TP26.5641x26.4825x0.3688	24.28	352.72	0.069	0.15	812.73	0.000
L9	153.75 - 152.5 (9)	TP26.9719x26.5641x0.3625	24.44	352.22	0.069	0.15	824.42	0.000
L10	152.5 - 152.25 (10)	TP27.0534x26.9719x0.55	24.47	532.27	0.046	0.15	1240.90	0.000
L11	152.25 - 151.5 (11)	TP27.2981x27.0534x0.55	24.57	537.19	0.046	0.15	1263.92	0.000
L12	151.5 - 151.25 (12)	TP27.3797x27.2981x0.425	24.61	418.30	0.059	0.15	991.81	0.000
L13	151.25 - 146.25 (13)	TP29.0109x27.3797x0.4125	25.26	430.76	0.059	0.15	1083.63	0.000
L14	146.25 - 141.25 (14)	TP30.6422x29.0109x0.4	25.92	441.71	0.059	0.15	1175.05	0.000
L15	141.25 - 136.25 (15)	TP32.2734x30.6422x0.3938	26.59	458.36	0.058	0.15	1285.34	0.000
L16	136.25 - 130 (16)	TP34.3125x32.2734x0.3938	26.75	464.22	0.058	0.15	1318.43	0.000
L17	130 - 129 (17)	TP34.1331x32.1813x0.47	27.69	583.78	0.047	0.15	1728.39	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 $\frac{T_u}{\phi T_n}$
		5						
L18	129 - 124 (18)	TP35.7597x34.1331x0.46 25	28.40	596.10	0.048	0.15	1850.81	0.000
L19	124 - 121.42 (19)	TP36.599x35.7597x0.462 5	28.77	610.28	0.047	0.15	1939.87	0.000
L20	121.42 - 121.17 (20)	TP36.6803x36.599x0.5	28.80	660.56	0.044	0.15	2102.25	0.000
L21	121.17 - 116.17 (21)	TP38.3069x36.6803x0.48 75	29.50	673.22	0.044	0.15	2239.61	0.000
L22	116.17 - 115 (22)	TP38.6875x38.3069x0.48 75	29.67	680.00	0.044	0.15	2284.92	0.000
L23	115 - 113.75 (23)	TP39.0938x38.6875x0.55	29.86	774.08	0.039	0.15	2624.46	0.000
L24	113.75 - 113.5 (24)	TP39.175x39.0938x0.468 8	29.89	662.51	0.045	0.15	2255.65	0.000
L25	113.5 - 108.5 (25)	TP40.8x39.175x0.4625	30.62	681.22	0.045	0.15	2417.13	0.000
L26	108.5 - 103.5 (26)	TP42.425x40.8x0.4563	31.36	699.19	0.045	0.15	2581.21	0.000
L27	103.5 - 95 (27)	TP45.1875x42.425x0.45	31.74	703.07	0.045	0.15	2646.15	0.000
L28	95 - 94 (28)	TP44.8525x42.6125x0.58 75	32.97	949.59	0.035	0.15	3697.41	0.000
L29	94 - 91.4 (29)	TP45.6845x44.8525x0.57 5	33.40	947.12	0.035	0.15	3758.13	0.000
L30	91.4 - 91.15 (30)	TP45.7645x45.6845x0.44 38	33.43	734.35	0.046	0.15	2927.53	0.000
L31	91.15 - 91 (31)	TP45.8125x45.7645x0.44 38	33.45	735.13	0.046	0.15	2933.73	0.000
L32	91 - 86 (32)	TP47.4453x45.8125x0.5	34.25	857.10	0.040	0.15	3539.35	0.000
L33	86 - 81 (33)	TP49.0781x47.4453x0.5	35.07	886.91	0.040	0.15	3789.83	0.000
L34	81 - 76 (34)	TP50.7109x49.0781x0.49 38	35.89	905.38	0.040	0.15	3999.27	0.000
L35	76 - 71 (35)	TP52.3438x50.7109x0.48 75	36.73	923.09	0.040	0.15	4210.62	0.000
L36	71 - 66 (36)	TP53.9766x52.3438x0.48 75	37.58	952.16	0.039	0.15	4479.95	0.000
L37	66 - 63.75 (37)	TP54.7113x53.9766x0.48 75	37.96	965.24	0.039	0.15	4603.88	0.000
L38	63.75 - 63.5 (38)	TP54.793x54.7113x0.487 5	38.00	966.69	0.039	0.15	4617.75	0.000
L39	63.5 - 58.5 (39)	TP56.4258x54.793x0.481 3	38.86	983.10	0.040	0.15	4837.88	0.000
L40	58.5 - 51 (40)	TP58.875x56.4258x0.481 3	38.94	985.97	0.039	0.15	4866.16	0.000
L41	51 - 50 (41)	TP58.4384x55.8391x0.55	40.47	1162.58	0.035	0.15	5919.90	0.000
L42	50 - 45 (42)	TP60.0629x58.4384x0.55	41.34	1195.21	0.035	0.15	6256.82	0.000
L43	45 - 40.42 (43)	TP61.551x60.0629x0.543 8	42.13	1211.30	0.035	0.15	6500.27	0.000
L44	40.42 - 40.17 (44)	TP61.6323x61.551x0.475	42.16	1060.74	0.040	0.15	5706.35	0.000
L45	40.17 - 40 (45)	TP61.6875x61.6323x0.47 5	42.19	1061.70	0.040	0.15	5716.67	0.000
L46	40 - 35 (46)	TP63.3095x61.6875x0.53 13	43.06	1217.80	0.035	0.15	6724.91	0.000
L47	35 - 33 (47)	TP63.9583x63.3095x0.52 5	43.40	1216.03	0.036	0.15	6785.21	0.000
L48	33 - 32.75 (48)	TP64.0394x63.9583x0.6	43.43	1389.89	0.031	0.15	7756.02	0.000
L49	32.75 - 19 (49)	TP68.5x64.0394x0.6	44.23	1423.65	0.031	0.15	8137.37	0.000
L50	19 - 18 (50)	TP67.9579x64.7054x0.6	46.04	1475.74	0.031	0.15	8743.75	0.000
L51	18 - 13 (51)	TP69.5842x67.9579x0.58 75	46.80	1480.15	0.032	0.15	8983.25	0.000
L52	13 - 8 (52)	TP71.2105x69.5842x0.58 75	47.56	1515.04	0.031	0.15	9411.75	0.000
L53	8 - 6.42 (53)	TP71.7244x71.2105x0.58 75	47.81	1526.06	0.031	0.15	9549.17	0.000
L54	6.42 - 6.17	TP71.8057x71.7244x0.93	47.83	2426.00	0.020	0.15	15088.50	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 $\frac{T_u}{\phi T_n}$
	(54)	75						
L55	6.17 - 1.17	TP73.432x71.8057x0.912	48.00	2372.98	0.020	0.15	14730.25	0.000
	(55)	5						
L56	1.17 - 0 (56)	TP73.8125x73.432x0.9	48.87	2396.15	0.020	0.15	15207.92	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	185 - 180 (1)	0.011	0.087	0.000	0.043	0.000	0.100	1.050	4.8.2
L2	180 - 175 (2)	0.008	0.149	0.000	0.033	0.000	0.159	1.050	4.8.2
L3	175 - 170 (3)	0.019	0.314	0.000	0.077	0.000	0.339	1.050	4.8.2
L4	170 - 165 (4)	0.019	0.458	0.000	0.074	0.000	0.483	1.050	4.8.2
L5	165 - 160 (5)	0.022	0.613	0.000	0.090	0.000	0.643	1.050	4.8.2
L6	160 - 155 (6)	0.022	0.736	0.000	0.087	0.000	0.765	1.050	4.8.2
L7	155 - 154 (7)	0.026	0.766	0.000	0.101	0.000	0.802	1.050	4.8.2
L8	154 - 153.75 (8)	0.017	0.525	0.000	0.069	0.000	0.548	1.050	4.8.2
L9	153.75 - 152.5 (9)	0.018	0.556	0.000	0.069	0.000	0.578	1.050	4.8.2
L10	152.5 - 152.25 (10)	0.012	0.377	0.000	0.046	0.000	0.391	1.050	4.8.2
L11	152.25 - 151.5 (11)	0.012	0.385	0.000	0.046	0.000	0.399	1.050	4.8.2
L12	151.5 - 151.25 (12)	0.015	0.495	0.000	0.059	0.000	0.514	1.050	4.8.2
L13	151.25 - 146.25 (13)	0.015	0.571	0.000	0.059	0.000	0.590	1.050	4.8.2
L14	146.25 - 141.25 (14)	0.016	0.639	0.000	0.059	0.000	0.658	1.050	4.8.2
L15	141.25 - 136.25 (15)	0.016	0.689	0.000	0.058	0.000	0.708	1.050	4.8.2
L16	136.25 - 130 (16)	0.016	0.698	0.000	0.058	0.000	0.717	1.050	4.8.2
L17	130 - 129 (17)	0.014	0.631	0.000	0.047	0.000	0.647	1.050	4.8.2
L18	129 - 124 (18)	0.014	0.667	0.000	0.048	0.000	0.683	1.050	4.8.2
L19	124 - 121.42 (19)	0.014	0.675	0.000	0.047	0.000	0.692	1.050	4.8.2
L20	121.42 - 121.17 (20)	0.013	0.627	0.000	0.044	0.000	0.642	1.050	4.8.2
L21	121.17 - 116.17 (21)	0.013	0.656	0.000	0.044	0.000	0.671	1.050	4.8.2
L22	116.17 - 115 (22)	0.013	0.658	0.000	0.044	0.000	0.673	1.050	4.8.2
L23	115 - 113.75 (23)	0.012	0.589	0.000	0.039	0.000	0.602	1.050	4.8.2
L24	113.75 - 113.5 (24)	0.014	0.687	0.000	0.045	0.000	0.703	1.050	4.8.2
L25	113.5 - 108.5 (25)	0.014	0.705	0.000	0.045	0.000	0.721	1.050	4.8.2
L26	108.5 - 103.5 (26)	0.014	0.722	0.000	0.045	0.000	0.738	1.050	4.8.2
L27	103.5 - 95 (27)	0.014	0.734	0.000	0.045	0.000	0.751	1.050	4.8.2
L28	95 - 94 (28)	0.012	0.590	0.000	0.035	0.000	0.604	1.050	4.8.2
L29	94 - 91.4 (29)	0.012	0.604	0.000	0.035	0.000	0.618	1.050	4.8.2
L30	91.4 - 91.15 (30)	0.016	0.779	0.000	0.046	0.000	0.797	1.050	4.8.2
L31	91.15 - 91 (31)	0.016	0.779	0.000	0.046	0.000	0.797	1.050	4.8.2
L32	91 - 86 (32)	0.014	0.694	0.000	0.040	0.000	0.709	1.050	4.8.2
L33	86 - 81 (33)	0.014	0.695	0.000	0.040	0.000	0.711	1.050	4.8.2
L34	81 - 76 (34)	0.015	0.705	0.000	0.040	0.000	0.721	1.050	4.8.2
L35	76 - 71 (35)	0.015	0.723	0.000	0.040	0.000	0.740	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
L36	71 - 66 (36)	0.015	0.730	0.000	0.039	0.000	0.747	1.050	4.8.2
L37	66 - 63.75 (37)	0.015	0.733	0.000	0.039	0.000	0.750	1.050	4.8.2
L38	63.75 - 63.5 (38)	0.015	0.733	0.000	0.039	0.000	0.750	1.050	4.8.2
L39	63.5 - 58.5 (39)	0.016	0.753	0.000	0.040	0.000	0.770	1.050	4.8.2
L40	58.5 - 51 (40)	0.016	0.753	0.000	0.039	0.000	0.771	1.050	4.8.2
L41	51 - 50 (41)	0.015	0.655	0.000	0.035	0.000	0.671	1.050	4.8.2
L42	50 - 45 (42)	0.015	0.660	0.000	0.035	0.000	0.676	1.050	4.8.2
L43	45 - 40.42 (43)	0.015	0.674	0.000	0.035	0.000	0.690	1.050	4.8.2
L44	40.42 - 40.17 (44)	0.017	0.808	0.000	0.040	0.000	0.827	1.050	4.8.2
L45	40.17 - 40 (45)	0.017	0.808	0.000	0.040	0.000	0.827	1.050	4.8.2
L46	40 - 35 (46)	0.016	0.700	0.000	0.035	0.000	0.717	1.050	4.8.2
L47	35 - 33 (47)	0.016	0.713	0.000	0.036	0.000	0.730	1.050	4.8.2
L48	33 - 32.75 (48)	0.014	0.598	0.000	0.031	0.000	0.613	1.050	4.8.2
L49	32.75 - 19 (49)	0.014	0.601	0.000	0.031	0.000	0.617	1.050	4.8.2
L50	19 - 18 (50)	0.016	0.621	0.000	0.031	0.000	0.638	1.050	4.8.2
L51	18 - 13 (51)	0.017	0.641	0.000	0.032	0.000	0.659	1.050	4.8.2
L52	13 - 8 (52)	0.017	0.645	0.000	0.031	0.000	0.662	1.050	4.8.2
L53	8 - 6.42 (53)	0.017	0.646	0.000	0.031	0.000	0.663	1.050	4.8.2
L54	6.42 - 6.17 (54)	0.011	0.387	0.000	0.020	0.000	0.398	1.050	4.8.2
L55	6.17 - 1.17 (55)	0.011	0.397	0.000	0.020	0.000	0.409	1.050	4.8.2
L56	1.17 - 0 (56)	0.011	0.401	0.000	0.020	0.000	0.412	1.050	4.8.2

Section Capacity Table

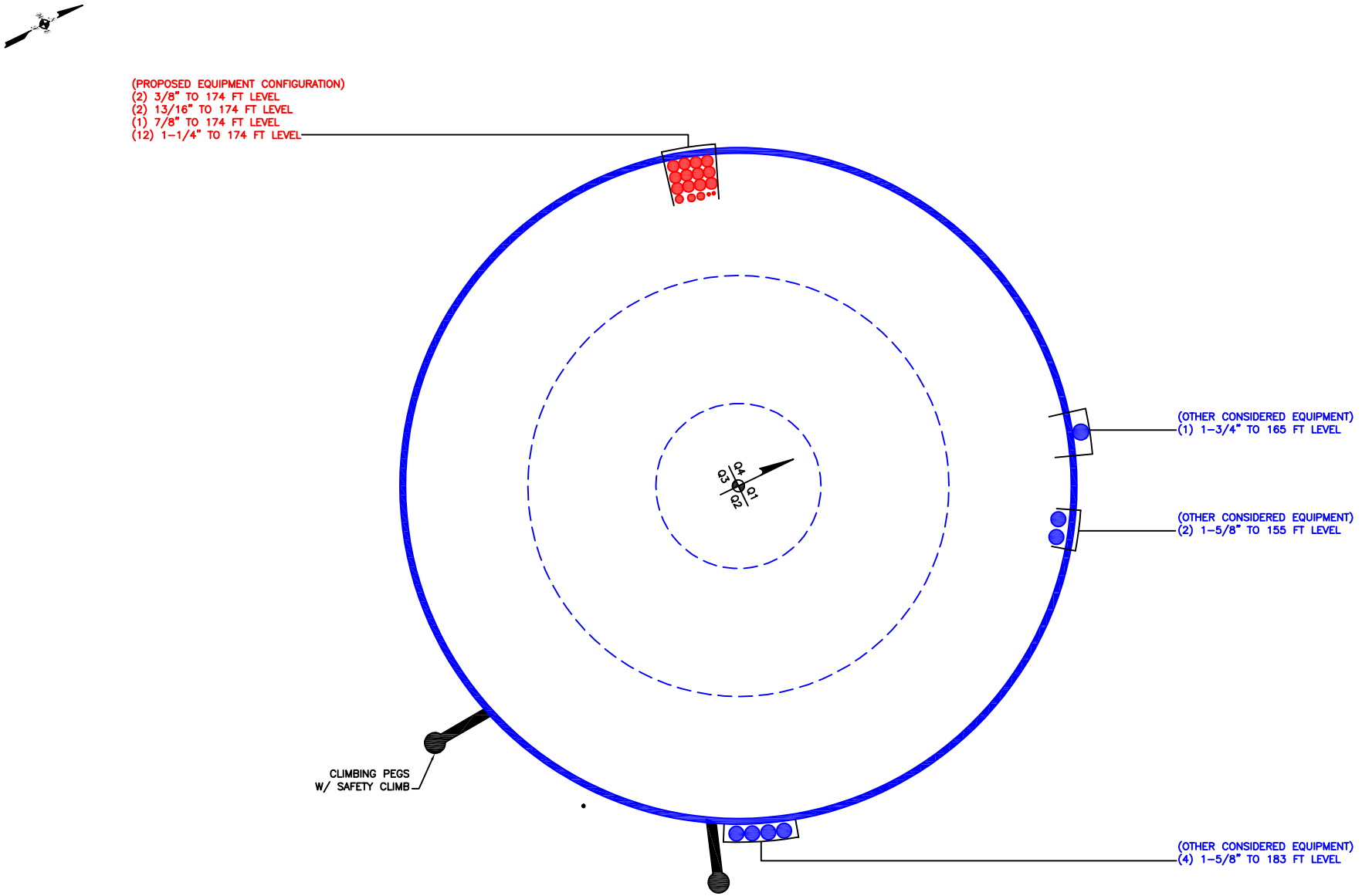
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	185 - 180	Pole	TP18x18x0.1875	1	-4.62	426.84	9.5	Pass
L2	180 - 175	Pole	TP19.6313x18x0.25	2	-4.94	619.24	15.1	Pass
L3	175 - 170	Pole	TP21.2625x19.6313x0.25	3	-12.46	671.36	32.3	Pass
L4	170 - 165	Pole	TP22.8938x21.2625x0.25	4	-12.94	723.48	46.0	Pass
L5	165 - 160	Pole	TP24.525x22.8938x0.25	5	-16.56	775.60	61.3	Pass
L6	160 - 155	Pole	TP26.1563x24.525x0.25	6	-17.16	827.72	72.9	Pass
L7	155 - 154	Pole	TP26.4825x26.1563x0.25	7	-20.52	838.14	76.4	Pass
L8	154 - 153.75	Pole	TP26.5641x26.4825x0.3688	8	-20.57	1234.51	52.1	Pass
L9	153.75 - 152.5	Pole	TP26.9719x26.5641x0.3625	9	-20.76	1232.76	55.1	Pass
L10	152.5 - 152.25	Pole	TP27.0534x26.9719x0.55	10	-20.82	1862.95	37.2	Pass
L11	152.25 - 151.5	Pole	TP27.2981x27.0534x0.55	11	-20.98	1880.15	38.0	Pass
L12	151.5 - 151.25	Pole	TP27.3797x27.2981x0.425	12	-21.03	1464.07	48.9	Pass
L13	151.25 - 146.25	Pole	TP29.0109x27.3797x0.4125	13	-21.94	1507.66	56.2	Pass
L14	146.25 - 141.25	Pole	TP30.6422x29.0109x0.4	14	-22.90	1546.00	62.7	Pass
L15	141.25 - 136.25	Pole	TP32.2734x30.6422x0.3938	15	-23.89	1604.25	67.4	Pass
L16	136.25 - 130	Pole	TP34.3125x32.2734x0.3938	16	-24.14	1624.77	68.3	Pass
L17	130 - 129	Pole	TP34.1331x32.1813x0.475	17	-26.35	2043.25	61.6	Pass
L18	129 - 124	Pole	TP35.7597x34.1331x0.4625	18	-27.58	2086.36	65.1	Pass
L19	124 - 121.42	Pole	TP36.599x35.7597x0.4625	19	-28.23	2135.97	65.9	Pass
L20	121.42 - 121.17	Pole	TP36.6803x36.599x0.5	20	-28.30	2311.95	61.2	Pass
L21	121.17 - 116.17	Pole	TP38.3069x36.6803x0.4875	21	-29.66	2356.27	63.9	Pass
L22	116.17 - 115	Pole	TP38.6875x38.3069x0.4875	22	-29.98	2379.99	64.1	Pass
L23	115 - 113.75	Pole	TP39.0938x38.6875x0.55	23	-30.37	2709.28	57.3	Pass
L24	113.75 - 113.5	Pole	TP39.175x39.0938x0.4688	24	-30.44	2318.78	66.9	Pass
L25	113.5 - 108.5	Pole	TP40.8x39.175x0.4625	25	-31.83	2384.29	68.7	Pass
L26	108.5 - 103.5	Pole	TP42.425x40.8x0.4563	26	-33.25	2447.18	70.3	Pass
L27	103.5 - 95	Pole	TP45.1875x42.425x0.45	27	-33.98	2460.75	71.5	Pass
L28	95 - 94	Pole	TP44.8525x42.6125x0.5875	28	-38.01	3323.58	57.5	Pass
L29	94 - 91.4	Pole	TP45.6845x44.8525x0.575	29	-38.97	3314.92	58.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L30	91.4 - 91.15	Pole	TP45.7645x45.6845x0.4438	30	-39.05	2570.23	75.9	Pass
L31	91.15 - 91	Pole	TP45.8125x45.7645x0.4438	31	-39.10	2572.95	75.9	Pass
L32	91 - 86	Pole	TP47.4453x45.8125x0.5	32	-40.81	2999.85	67.6	Pass
L33	86 - 81	Pole	TP49.0781x47.4453x0.5	33	-42.57	3104.19	67.7	Pass
L34	81 - 76	Pole	TP50.7109x49.0781x0.4938	34	-44.37	3168.82	68.7	Pass
L35	76 - 71	Pole	TP52.3438x50.7109x0.4875	35	-46.22	3230.82	70.5	Pass
L36	71 - 66	Pole	TP53.9766x52.3438x0.4875	36	-48.11	3332.55	71.1	Pass
L37	66 - 63.75	Pole	TP54.7113x53.9766x0.4875	37	-48.97	3378.33	71.4	Pass
L38	63.75 - 63.5	Pole	TP54.793x54.7113x0.4875	38	-49.08	3383.41	71.4	Pass
L39	63.5 - 58.5	Pole	TP56.4258x54.793x0.4813	39	-51.02	3440.85	73.3	Pass
L40	58.5 - 51	Pole	TP58.875x56.4258x0.4813	40	-51.22	3450.89	73.4	Pass
L41	51 - 50	Pole	TP58.4384x55.8391x0.55	41	-57.26	4069.03	63.9	Pass
L42	50 - 45	Pole	TP60.0629x58.4384x0.55	42	-59.57	4183.22	64.4	Pass
L43	45 - 40.42	Pole	TP61.551x60.0629x0.5438	43	-61.72	4239.53	65.7	Pass
L44	40.42 - 40.17	Pole	TP61.6323x61.551x0.475	44	-61.84	3712.60	78.8	Pass
L45	40.17 - 40	Pole	TP61.6875x61.6323x0.475	45	-61.91	3715.96	78.8	Pass
L46	40 - 35	Pole	TP63.3095x61.6875x0.5313	46	-64.28	4262.32	68.3	Pass
L47	35 - 33	Pole	TP63.9583x63.3095x0.525	47	-65.24	4256.12	69.5	Pass
L48	33 - 32.75	Pole	TP64.0394x63.9583x0.6	48	-65.39	4864.61	58.4	Pass
L49	32.75 - 19	Pole	TP68.5x64.0394x0.6	49	-68.17	4982.76	58.7	Pass
L50	19 - 18	Pole	TP67.9579x64.7054x0.6	50	-79.08	5165.08	60.8	Pass
L51	18 - 13	Pole	TP69.5842x67.9579x0.5875	51	-82.13	5180.52	62.8	Pass
L52	13 - 8	Pole	TP71.2105x69.5842x0.5875	52	-85.23	5302.63	63.1	Pass
L53	8 - 6.42	Pole	TP71.7244x71.2105x0.5875	53	-86.21	5341.21	63.2	Pass
L54	6.42 - 6.17	Pole	TP71.8057x71.7244x0.9375	54	-86.23	8481.27	37.9	Pass
L55	6.17 - 1.17	Pole	TP73.432x71.8057x0.9125	55	-86.37	8267.50	38.9	Pass
L56	1.17 - 0	Pole	TP73.8125x73.432x0.9	56	-89.13	8342.74	39.3	Pass
							Summary	
						Pole (L45)	78.8	Pass
						RATING =	**78.8**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(2) 3/8" TO 174 FT LEVEL
(2) 13/16" TO 174 FT LEVEL
(1) 7/8" TO 174 FT LEVEL
(12) 1-1/4" TO 174 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/4" TO 165 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-5/8" TO 155 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1-5/8" TO 183 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 825983

Work Order: 2112605

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	185	5	0	12	18	18	0.1875	Auto	A36M-42
2	180	50	5	12	18.00	34.3125	0.25	Auto	A36M-42
3	135	20	0	12	32.18	38.6875	0.25	Auto	A36M-42
4	115	20	6	12	38.69	45.1875	0.3125	Auto	A36M-42
5	101	10	0	12	42.61	45.8125	0.3125	Auto	A36M-42
6	91	40	7	12	45.81	58.875	0.375	Auto	A36M-42
7	58	18	0	12	55.84	61.6875	0.375	Auto	A36M-42
8	40	21	9	12	61.69	68.5	0.4375	Auto	A36M-42
9	28	28	0	12	64.71	73.8125	0.4375	Auto	A36M-42

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	40.42	52.42	plate	CCI-045100_1	3	x				x				x			
2	91.4	121.42	plate	CCI-060100_1	3	x				x				x			
3	121.42	152.5	plate	CCI-045100_2	3		x				x				x		
4	6.42	33	plate	CCI-085125_1	4			x			x			x		x	
5	33	63.75	plate	CCI-060100_2	3				x				x				x
6	63.75	99.42	plate	CCI-060100_2	3			x				x				x	
7	113.75	131	plate	CCI-040075_1	3			x				x				x	
8	151.5	154	plate	CCI-040075_2	3			x				x				x	
9	0	6.42	plate	Titan 73/45_1	6	x		x		x			x	x			x
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
2	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
3	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
4	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	48	PC 8.8 - M20 (100)	51.000	17.000	9.063	1.1875	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	27	PC 8.8 - M20 (100)	27.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	27	PC 8.8 - M20 (100)	27.000	16.000	4.750	1.1875	A572-65
7	4	0.75	3	0.375	PC 8.8 - M20 (100)	15	PC 8.8 - M20 (100)	18.000	16.000	2.063	1.1875	A572-65
8	4	0.75	3	0.375	PC 8.8 - M20 (100)	15	PC 8.8 - M20 (100)	15.000	16.000	2.063	1.1875	A572-65
9	11.6978	0.34366	4.02007	48.00075	Capacity Input	0	Capacity Input	0.000	0.000	3.500	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)
CCI-045100_1	Top	6	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	6	N	3	3	-	-	-	-	-	-	-	-	-
CCI-060100_1	Top	10	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	10	N	3	3	-	-	-	-	-	-	-	-	-
CCI-045100_2	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
CCI-085125_1	Top	17	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	16	N	3	3	-	-	-	-	-	-	-	-	-
CCI-060100_2	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	9	N	3	3	-	-	-	-	-	-	-	-	-
CCI-040075_1	Top	6	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	5	N	3	3	-	-	-	-	-	-	-	-	-
CCI-040075_2	Top	5	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	5	N	3	3	-	-	-	-	-	-	-	-	-
Titan 73/45_1	Top	0	-	0	0	0	None	-	-	-	-	-	-	285.12
	Bottom	0	-	0	0	0	None	-	-	-	-	-	-	285.12

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	185 - 180	5	0	12	18.000	18.000	0.1875	A36M-42	1.000
2	180 - 175	5		12	18.000	19.631	0.25	A36M-42	1.000
3	175 - 170	5		12	19.631	21.263	0.25	A36M-42	1.000
4	170 - 165	5		12	21.263	22.894	0.25	A36M-42	1.000
5	165 - 160	5		12	22.894	24.525	0.25	A36M-42	1.000
6	160 - 155	5		12	24.525	26.156	0.25	A36M-42	1.000
7	155 - 154	1		12	26.156	26.483	0.25	A36M-42	1.000
8	154 - 153.75	0.25		12	26.483	26.564	0.36875	A36M-42	0.971
9	153.75 - 152.5	1.25		12	26.564	26.972	0.3625	A36M-42	0.983
10	152.5 - 152.25	0.25		12	26.972	27.053	0.55	A36M-42	0.940
11	152.25 - 151.5	0.75		12	27.053	27.298	0.55	A36M-42	0.935
12	151.5 - 151.25	0.25		12	27.298	27.380	0.425	A36M-42	0.959
13	151.25 - 146.25	5		12	27.380	29.011	0.4125	A36M-42	0.965
14	146.25 - 141.25	5		12	29.011	30.642	0.4	A36M-42	0.975
15	141.25 - 136.25	5		12	30.642	32.273	0.39375	A36M-42	0.972
16	136.25 - 135	6.25	5	12	32.273	34.313	0.39375	A36M-42	0.968
17	135 - 129	6		12	32.181	34.133	0.475	A36M-42	0.968
18	129 - 124	5		12	34.133	35.760	0.4625	A36M-42	0.972
19	124 - 121.42	2.58		12	35.760	36.599	0.4625	A36M-42	0.962
20	121.42 - 121.17	0.25		12	36.599	36.680	0.5	A36M-42	0.968
21	121.17 - 116.17	5		12	36.680	38.307	0.4875	A36M-42	0.971
22	116.17 - 115	1.17	0	12	38.307	38.688	0.4875	A36M-42	0.967
23	115 - 113.75	1.25		12	38.688	39.094	0.55	A36M-42	0.968
24	113.75 - 113.5	0.25		12	39.094	39.175	0.46875	A36M-42	0.978
25	113.5 - 108.5	5		12	39.175	40.800	0.4625	A36M-42	0.978
26	108.5 - 103.5	5		12	40.800	42.425	0.45625	A36M-42	0.980
27	103.5 - 101	8.5	6	12	42.425	45.188	0.45	A36M-42	0.987
28	101 - 94	7		12	42.613	44.853	0.5875	A36M-42	0.966
29	94 - 91.4	2.6		12	44.853	45.685	0.575	A36M-42	0.978
30	91.4 - 91.15	0.25		12	45.685	45.765	0.44375	A36M-42	0.985
31	91.15 - 91	0.15	0	12	45.765	45.813	0.44375	A36M-42	0.984
32	91 - 86	5		12	45.813	47.445	0.5	A36M-42	0.990
33	86 - 81	5		12	47.445	49.078	0.5	A36M-42	0.982
34	81 - 76	5		12	49.078	50.711	0.49375	A36M-42	0.987
35	76 - 71	5		12	50.711	52.344	0.4875	A36M-42	0.992
36	71 - 66	5		12	52.344	53.977	0.4875	A36M-42	0.986
37	66 - 63.75	2.25		12	53.977	54.711	0.4875	A36M-42	0.983
38	63.75 - 63.5	0.25		12	54.711	54.793	0.4875	A36M-42	0.982
39	63.5 - 58.5	5		12	54.793	56.426	0.48125	A36M-42	0.989
40	58.5 - 58	7.5	7	12	56.426	58.875	0.48125	A36M-42	0.988
41	58 - 50	8		12	55.839	58.438	0.55	A36M-42	0.992
42	50 - 45	5		12	58.438	60.063	0.55	A36M-42	0.983
43	45 - 40.42	4.58		12	60.063	61.551	0.54375	A36M-42	0.987
44	40.42 - 40.17	0.25		12	61.551	61.632	0.475	A36M-42	0.983
45	40.17 - 40	0.17	0	12	61.632	61.688	0.475	A36M-42	0.983
46	40 - 35	5		12	61.688	63.310	0.53125	A36M-42	0.993
47	35 - 33	2		12	63.310	63.958	0.525	A36M-42	1.003
48	33 - 32.75	0.25		12	63.958	64.039	0.6	A36M-42	1.078
49	32.75 - 28	13.75	9	12	64.039	68.500	0.6	A36M-42	1.070
50	28 - 18	10		12	64.705	67.958	0.6	A36M-42	1.058
51	18 - 13	5		12	67.958	69.584	0.5875	A36M-42	1.072
52	13 - 8	5		12	69.584	71.210	0.5875	A36M-42	1.065
53	8 - 6.42	1.58		12	71.210	71.724	0.5875	A36M-42	1.063
54	6.42 - 6.17	0.25		12	71.724	71.806	0.9375	A36M-42	0.583
55	6.17 - 1.17	5		12	71.806	73.432	0.9125	A36M-42	0.596
56	1.17 - 0	1.17		12	73.432	73.813	0.9	A36M-42	0.604

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	185 - 180	4.62	16.07	5.24
2	180 - 175	4.94	43.61	5.77
3	175 - 170	12.46	107.81	14.76
4	170 - 165	12.94	182.99	15.30
5	165 - 160	16.56	281.27	19.96
6	160 - 155	20.67	382.50	23.87
7	155 - 154	20.51	406.69	24.25
8	154 - 153.75	20.57	412.76	24.28
9	153.75 - 152.5	20.76	443.21	24.44
10	152.5 - 152.25	20.82	449.33	24.47
11	152.25 - 151.5	20.98	467.72	24.57
12	151.5 - 151.25	21.03	473.87	24.61
13	151.25 - 146.25	21.94	598.53	25.26
14	146.25 - 141.25	22.90	726.46	25.92
15	141.25 - 136.25	23.89	857.70	26.58
16	136.25 - 135	24.14	891.04	26.75
17	135 - 129	26.35	1054.41	27.69
18	129 - 124	27.58	1194.61	28.40
19	124 - 121.42	28.23	1268.36	28.77
20	121.42 - 121.17	28.30	1275.55	28.80
21	121.17 - 116.17	29.66	1421.32	29.50
22	116.17 - 115	29.98	1455.94	29.67
23	115 - 113.75	30.37	1493.15	29.86
24	113.75 - 113.5	30.44	1500.62	29.89
25	113.5 - 108.5	31.83	1651.90	30.62
26	108.5 - 103.5	33.25	1806.86	31.36
27	103.5 - 101	33.98	1885.75	31.74
28	101 - 94	38.01	2112.31	32.97
29	94 - 91.4	38.97	2198.60	33.40
30	91.4 - 91.15	39.05	2206.95	33.43
31	91.15 - 91	39.10	2211.97	33.45
32	91 - 86	40.81	2381.26	34.25
33	86 - 81	42.57	2554.58	35.07
34	81 - 76	44.37	2732.00	35.89
35	76 - 71	46.22	2913.58	36.73
36	71 - 66	48.11	3099.38	37.58
37	66 - 63.75	48.97	3184.37	37.96
38	63.75 - 63.5	49.08	3193.87	38.00
39	63.5 - 58.5	51.02	3386.07	38.86
40	58.5 - 58	51.22	3405.52	38.94
41	58 - 50	57.26	3723.32	40.47
42	50 - 45	59.57	3927.88	41.34
43	45 - 40.42	61.72	4119.06	42.13
44	40.42 - 40.17	61.84	4129.60	42.16
45	40.17 - 40	61.91	4136.77	42.19
46	40 - 35	64.28	4349.96	43.06
47	35 - 33	65.24	4436.43	43.40
48	33 - 32.75	65.39	4447.28	43.43
49	32.75 - 28	68.17	4655.53	44.23
50	28 - 18	79.08	5107.08	46.04
51	18 - 13	82.13	5339.22	46.80
52	13 - 8	85.23	5575.16	47.56
53	8 - 6.42	86.21	5650.51	47.81
54	6.42 - 6.17	86.36	5662.47	47.83
55	6.17 - 1.17	89.12	5903.81	48.67
56	1.17 - 0	89.77	5960.89	48.87

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
185 - 180	Pole	TP18x18x0.1875	Pole	9.5%	Pass
180 - 175	Pole	TP19.631x18x0.25	Pole	15.1%	Pass
175 - 170	Pole	TP21.263x19.631x0.25	Pole	32.2%	Pass
170 - 165	Pole	TP22.894x21.263x0.25	Pole	45.8%	Pass
165 - 160	Pole	TP24.525x22.894x0.25	Pole	61.1%	Pass
160 - 155	Pole	TP26.156x24.525x0.25	Pole	73.4%	Pass
155 - 154	Pole	TP26.483x26.156x0.25	Pole	76.2%	Pass
154 - 153.75	Pole + Reinf.	TP26.564x26.483x0.3688	Reinf. 8 Tension Rupture	59.3%	Pass
153.75 - 152.5	Pole + Reinf.	TP26.972x26.564x0.3625	Reinf. 8 Tension Rupture	61.9%	Pass
152.5 - 152.25	Pole + Reinf.	TP27.053x26.972x0.55	Reinf. 8 Tension Rupture	42.4%	Pass
152.25 - 151.5	Pole + Reinf.	TP27.298x27.053x0.55	Reinf. 8 Tension Rupture	43.5%	Pass
151.5 - 151.25	Pole + Reinf.	TP27.38x27.298x0.425	Reinf. 3 Tension Rupture	53.3%	Pass
151.25 - 146.25	Pole + Reinf.	TP29.011x27.38x0.4125	Reinf. 3 Tension Rupture	61.1%	Pass
146.25 - 141.25	Pole + Reinf.	TP30.642x29.011x0.4	Reinf. 3 Tension Rupture	67.6%	Pass
141.25 - 136.25	Pole + Reinf.	TP32.273x30.642x0.3938	Reinf. 3 Tension Rupture	73.2%	Pass
136.25 - 135	Pole + Reinf.	TP34.313x32.273x0.3938	Reinf. 3 Tension Rupture	74.4%	Pass
135 - 129	Pole + Reinf.	TP34.133x32.181x0.475	Reinf. 7 Tension Rupture	69.5%	Pass
129 - 124	Pole + Reinf.	TP35.76x34.133x0.4625	Reinf. 7 Tension Rupture	73.2%	Pass
124 - 121.42	Pole + Reinf.	TP36.599x35.76x0.4625	Pole	75.4%	Pass
121.42 - 121.17	Pole + Reinf.	TP36.68x36.599x0.5	Pole	69.3%	Pass
121.17 - 116.17	Pole + Reinf.	TP38.307x36.68x0.4875	Pole	73.9%	Pass
116.17 - 115	Pole + Reinf.	TP38.688x38.307x0.4875	Pole	75.0%	Pass
115 - 113.75	Pole + Reinf.	TP39.094x38.688x0.55	Reinf. 7 Tension Rupture	64.8%	Pass
113.75 - 113.5	Pole + Reinf.	TP39.175x39.094x0.4688	Pole	71.1%	Pass
113.5 - 108.5	Pole + Reinf.	TP40.8x39.175x0.4625	Pole	74.3%	Pass
108.5 - 103.5	Pole + Reinf.	TP42.425x40.8x0.4563	Pole	77.3%	Pass
103.5 - 101	Pole + Reinf.	TP45.188x42.425x0.45	Pole	78.7%	Pass
101 - 94	Pole + Reinf.	TP44.853x42.613x0.5875	Pole	65.0%	Pass
94 - 91.4	Pole + Reinf.	TP45.685x44.853x0.575	Pole	66.4%	Pass
91.4 - 91.15	Pole + Reinf.	TP45.765x45.685x0.4438	Pole	85.9%	Pass
91.15 - 91	Pole + Reinf.	TP45.813x45.765x0.4438	Pole	86.0%	Pass
91 - 86	Pole + Reinf.	TP47.445x45.813x0.5	Pole	71.8%	Pass
86 - 81	Pole + Reinf.	TP49.078x47.445x0.5	Pole	73.6%	Pass
81 - 76	Pole + Reinf.	TP50.711x49.078x0.4938	Pole	75.3%	Pass
76 - 71	Pole + Reinf.	TP52.344x50.711x0.4875	Pole	77.0%	Pass
71 - 66	Pole + Reinf.	TP53.977x52.344x0.4875	Pole	78.6%	Pass
66 - 63.75	Pole + Reinf.	TP54.711x53.977x0.4875	Pole	79.3%	Pass
63.75 - 63.5	Pole + Reinf.	TP54.793x54.711x0.4875	Pole	79.4%	Pass
63.5 - 58.5	Pole + Reinf.	TP56.426x54.793x0.4813	Pole	81.0%	Pass
58.5 - 58	Pole + Reinf.	TP58.875x56.426x0.4813	Pole	81.2%	Pass
58 - 50	Pole + Reinf.	TP58.438x55.839x0.55	Pole	73.7%	Pass
50 - 45	Pole + Reinf.	TP60.063x58.438x0.55	Pole	75.3%	Pass
45 - 40.42	Pole + Reinf.	TP61.551x60.063x0.5438	Pole	76.8%	Pass
40.42 - 40.17	Pole + Reinf.	TP61.632x61.551x0.475	Pole	88.5%	Pass
40.17 - 40	Pole + Reinf.	TP61.688x61.632x0.475	Pole	88.5%	Pass
40 - 35	Pole + Reinf.	TP63.31x61.688x0.5313	Pole	73.5%	Pass
35 - 33	Pole + Reinf.	TP63.958x63.31x0.525	Pole	74.0%	Pass
33 - 32.75	Pole + Reinf.	TP64.039x63.958x0.6	Pole	66.7%	Pass
32.75 - 28	Pole + Reinf.	TP68.5x64.039x0.6	Pole	67.8%	Pass
28 - 18	Pole + Reinf.	TP67.958x64.705x0.6	Pole	71.2%	Pass
18 - 13	Pole + Reinf.	TP69.584x67.958x0.5875	Pole	72.3%	Pass
13 - 8	Pole + Reinf.	TP71.21x69.584x0.5875	Pole	73.4%	Pass
8 - 6.42	Pole + Reinf.	TP71.724x71.21x0.5875	Pole	73.8%	Pass
6.42 - 6.17	Pole + Reinf.	TP71.806x71.724x0.9375	Reinf. 9 Tension Rupture	79.4%	Pass
6.17 - 1.17	Pole + Reinf.	TP73.432x71.806x0.9125	Reinf. 9 Tension Rupture	80.1%	Pass
1.17 - 0	Pole + Reinf.	TP73.813x73.432x0.9	Reinf. 9 Tension Rupture	80.2%	Pass
				Summary	
			Pole	88.5%	Pass
			Reinforcement	80.2%	Pass
			Overall	88.5%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity* (100% Max. Allowable)									
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9
185 - 180	436	n/a	436	10.74	n/a	10.74	9.5%									
180 - 175	749	n/a	749	15.58	n/a	15.58	15.1%									
175 - 170	955	n/a	955	16.89	n/a	16.89	32.2%									
170 - 165	1195	n/a	1195	18.20	n/a	18.20	45.8%									
165 - 160	1472	n/a	1472	19.51	n/a	19.51	61.1%									
160 - 155	1789	n/a	1789	20.82	n/a	20.82	73.4%									
155 - 154	1857	n/a	1857	21.09	n/a	21.09	76.2%									
154 - 153.75	1875	846	2720	21.15	9.00	30.15	50.8%								59.3%	
153.75 - 152.5	1963	871	2834	21.48	9.00	30.48	53.3%								61.9%	
152.5 - 152.25	1981	2216	4197	21.55	22.50	44.05	36.5%			40.8%					42.4%	
152.25 - 151.5	2036	2255	4291	21.74	22.50	44.24	37.6%			41.9%					43.5%	
151.5 - 151.25	2054	1371	3426	21.81	13.50	35.31	48.0%			53.3%						
151.25 - 146.25	2448	1532	3980	23.12	13.50	36.62	56.1%			61.1%						
146.25 - 141.25	2888	1702	4590	24.43	13.50	37.93	63.4%			67.6%						
141.25 - 136.25	3379	1880	5259	25.74	13.50	39.24	70.0%			73.2%						
136.25 - 135	3510	1926	5436	26.07	13.50	39.57	71.6%			74.4%						
135 - 129	4002	3470	7472	27.24	22.50	49.74	65.4%			66.7%				69.5%		
129 - 124	4607	3798	8405	28.54	22.50	51.04	70.5%			70.3%				73.2%		
124 - 121.42	4941	3973	8914	29.22	22.50	51.72	75.4%			71.9%				75.0%		
121.42 - 121.17	4975	4805	9779	29.28	27.00	56.28	69.3%		60.3%					68.8%		
121.17 - 116.17	5671	5226	10897	30.59	27.00	57.59	73.9%		62.9%					71.8%		
116.17 - 115	5843	5328	11171	30.90	27.00	57.90	75.0%		63.5%					72.5%		
115 - 113.75	7501	5437	12938	38.97	27.00	65.97	59.1%		56.8%					64.8%		
113.75 - 113.5	7549	3659	11208	39.05	18.00	57.05	71.1%		66.0%							
113.5 - 108.5	8536	3959	12495	40.68	18.00	58.68	74.3%		67.8%							
108.5 - 103.5	9605	4271	13876	42.32	18.00	60.32	77.3%		69.4%							
103.5 - 101	10172	4431	14603	43.13	18.00	61.13	78.7%		70.1%							
101 - 94	11364	9517	20880	44.75	36.00	80.75	65.0%		56.9%				56.9%			
94 - 91.4	12013	9863	21876	45.59	36.00	81.59	66.4%		57.6%				57.6%			
91.4 - 91.15	12076	4948	17025	45.67	18.00	63.67	85.9%						74.5%			
91.15 - 91	12115	4958	17073	45.72	18.00	63.72	86.0%						74.5%			
91 - 86	16095	5308	21404	56.76	18.00	74.76	71.8%						66.2%			
86 - 81	17829	5670	23499	58.72	18.00	76.72	73.6%						66.9%			
81 - 76	19683	6044	25727	60.69	18.00	78.69	75.3%						67.5%			
76 - 71	21661	6430	28091	62.66	18.00	80.66	77.0%						68.0%			
71 - 66	23768	6828	30596	64.63	18.00	82.63	78.6%						68.5%			
66 - 63.75	24758	7011	31770	65.52	18.00	83.52	79.3%						68.7%			
63.75 - 63.5	24870	7032	31902	65.62	18.00	83.62	79.4%					68.7%				
63.5 - 58.5	27177	7448	34624	67.58	18.00	85.58	81.0%					69.1%				
58.5 - 58	27415	7490	34905	67.78	18.00	85.78	81.2%					69.1%				
58 - 50	30211	13951	44161	70.01	31.50	101.51	73.7%	67.5%				61.7%				
50 - 45	32818	14721	47539	71.97	31.50	103.47	75.3%	67.9%				62.1%				
45 - 40.42	35334	15446	50780	73.76	31.50	105.26	76.8%	68.3%				62.5%				
40.42 - 40.17	35475	8854	44329	73.86	18.00	91.86	88.5%					71.9%				
40.17 - 40	35571	8870	44441	73.93	18.00	91.93	88.5%					71.9%				
40 - 35	44748	9333	54081	88.44	18.00	106.44	73.5%					63.8%				
35 - 33	46148	9522	55669	89.36	18.00	107.36	74.0%					63.8%				
33 - 32.75	46436	17211	63646	89.47	42.50	131.97	66.7%				49.9%					
32.75 - 28	49889	18029	67918	91.64	42.50	134.14	67.8%				50.1%					
28 - 18	55547	19329	74876	94.98	42.50	137.48	71.2%				51.8%					
18 - 13	59654	20245	79898	97.27	42.50	139.77	72.3%				52.0%					
13 - 8	63958	21182	85140	99.56	42.50	142.06	73.4%				52.2%					
8 - 6.42	65360	21482	86842	100.28	42.50	142.78	73.8%				52.3%					
6.42 - 6.17	65549	70691	136240	100.40	24.12	124.52	47.0%									79.4%
6.17 - 1.17	70127	72068	142195	102.68	24.12	126.80	48.5%									80.1%
1.17 - 0	71228	72392	143620	103.22	24.12	127.34	48.9%									80.2%

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

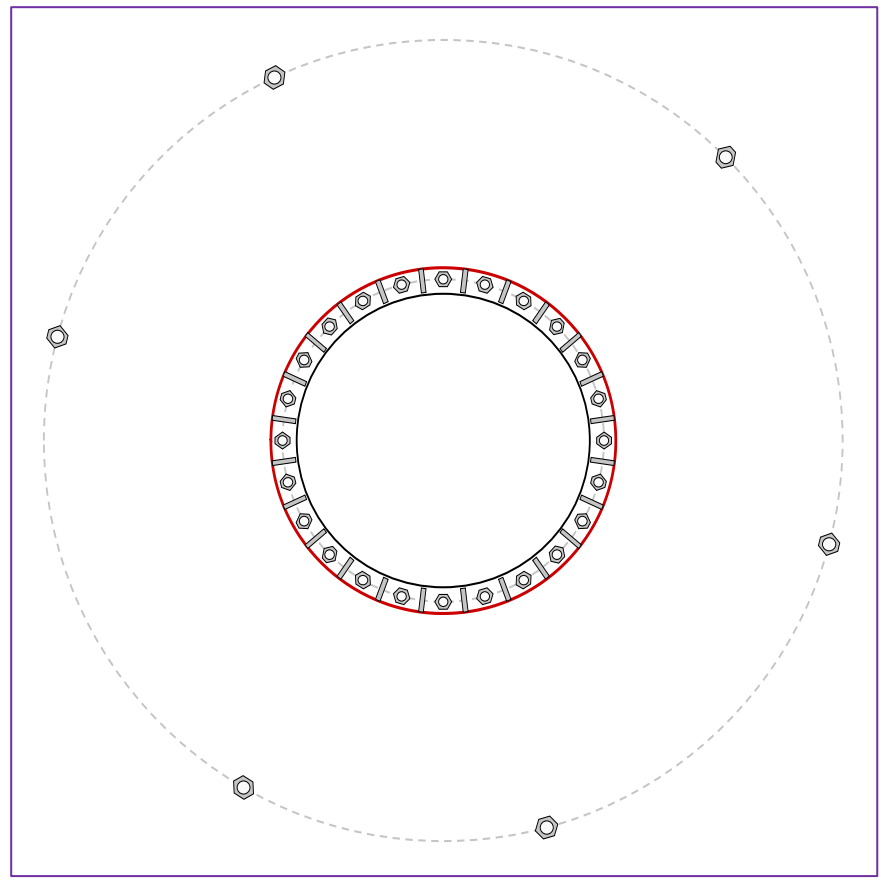
Monopole Base Plate Connection

Site Info	
BU #	825983
Site Name	Middletown_1
Order #	616581 Rev. 0

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

Applied Loads	
Moment (kip-ft)	5960.89
Axial Force (kips)	89.77
Shear Force (kips)	48.87

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (24) 2" ø bolts (A36 N; Fy=36 ksi, Fu=58 ksi) on 68" BC

GROUP 2: (6) 2-3/4" ø bolts (Titan 73/45 N; Fy=90.51429 ksi, Fu=108.6171 ksi) on 169"

pos. (deg): 45, 115, 165, 240, 285, 345

Base Plate Data

62" ID x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

(24) 18"H x 5"W x 1"T, Notch: 1"

plate: Fy= 50 ksi ; weld: Fy= 70 ksi

horiz. weld: 0.75" fillet

vert. weld: 0.375" fillet

Pole Data

73.8125" x 0.4375" 12-sided pole (A36M-42; Fy=42 ksi, Fu=60 ksi)

Analysis Results

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

GROUP 1:		
Pu_c = 62.88	ϕPn_c = 101.79	**Stress Rating**
Vu = 2.04	ϕVn = 45.8	**59.0%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 203.32	ϕPn_t = 285.12	**Stress Rating**
Vu = 0	ϕVn = 142.56	**67.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	12.71	(Roark's Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**37.4%**	**Pass**

Stiffener Summary

Horizontal Weld:	**19.9%**	**Pass**
Vertical Weld:	**10.1%**	**Pass**
Plate Flexure+Shear:	**1.9%**	**Pass**
Plate Tension+Shear:	**14.6%**	**Pass**
Plate Compression:	**13.2%**	**Pass**

Pole Summary

Punching Shear:	**3.3%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

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

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

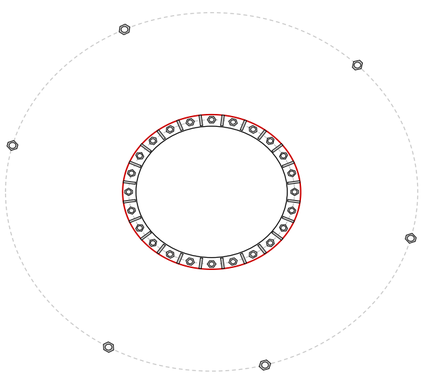
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	2	A36	68	0.5	1.75	N-Included		No
2	1	15	2	A36	68	0.5	1.75	N-Included		No
3	1	30	2	A36	68	0.5	1.75	N-Included		No
4	1	45	2	A36	68	0.5	1.75	N-Included		No
5	1	60	2	A36	68	0.5	1.75	N-Included		No
6	1	75	2	A36	68	0.5	1.75	N-Included		No
7	1	90	2	A36	68	0.5	1.75	N-Included		No
8	1	105	2	A36	68	0.5	1.75	N-Included		No
9	1	120	2	A36	68	0.5	1.75	N-Included		No
10	1	135	2	A36	68	0.5	1.75	N-Included		No
11	1	150	2	A36	68	0.5	1.75	N-Included		No
12	1	165	2	A36	68	0.5	1.75	N-Included		No
13	1	180	2	A36	68	0.5	1.75	N-Included		No
14	1	195	2	A36	68	0.5	1.75	N-Included		No
15	1	210	2	A36	68	0.5	1.75	N-Included		No
16	1	225	2	A36	68	0.5	1.75	N-Included		No
17	1	240	2	A36	68	0.5	1.75	N-Included		No
18	1	255	2	A36	68	0.5	1.75	N-Included		No
19	1	270	2	A36	68	0.5	1.75	N-Included		No
20	1	285	2	A36	68	0.5	1.75	N-Included		No
21	1	300	2	A36	68	0.5	1.75	N-Included		No
22	1	315	2	A36	68	0.5	1.75	N-Included		No
23	1	330	2	A36	68	0.5	1.75	N-Included		No
24	1	345	2	A36	68	0.5	1.75	N-Included		No
25	2	45	2.75	Titan 73/45	169	0.5	0	N-Included	3.5	No
26	2	115	2.75	Titan 73/45	169	0.5	0	N-Included	3.5	No
27	2	165	2.75	Titan 73/45	169	0.5	0	N-Included	3.5	No
28	2	240	2.75	Titan 73/45	169	0.5	0	N-Included	3.5	No
29	2	285	2.75	Titan 73/45	169	0.5	0	N-Included	3.5	No
30	2	345	2.75	Titan 73/45	169	0.5	0	N-Included	3.5	No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	7.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
2	1	22.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
3	1	37.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
4	1	52.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
5	1	67.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
6	1	82.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
7	1	97.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
8	1	112.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
9	1	127.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
10	1	142.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
11	1	157.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
12	1	172.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
13	1	187.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
14	1	202.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
15	1	217.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
16	1	232.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
17	1	247.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
18	1	262.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
19	1	277.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
20	1	292.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
21	1	307.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
22	1	322.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
23	1	337.5	5	18	1	1	1	50	Fillet			0.75	0.375	70
24	1	352.5	5	18	1	1	1	50	Fillet			0.75	0.375	70

Plot Graphic



Pier and Pad Foundation

BU # :	825983
Site Name:	Middletown_1
App. Number:	586243 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	89.78	kips
Base Shear, Vu_comp:	48.86	kips
Moment, M_u:	5960.89	ft-kips
Tower Height, **H**:	185	ft
BP Dist. Above Fdn, bp_{dist}:	4	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	0.25	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	65	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	8	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	10.5	ft
Pad Width, W_1:	25	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	35	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	110	pcf
Ultimate Net Bearing, Qnet:	6.600	ksf
Cohesion, **Cu**:	1.000	ksf
Friction Angle, φ:	0	degrees
SPT Blow Count, N_{blows}:	13	
Base Friction, μ:	0.3	
Neglected Depth, **N**:	3.80	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	16	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	402.28	48.86	**11.6%**	**Pass**
Bearing Pressure (ksf)	5.82	3.70	**63.6%**	**Pass**
*Overturning (kip*ft)*	8112.94	6502.42	**80.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8837.66	6339.56	**68.3%**	**Pass**
Pier Compression (kip)	28118.83	151.41	**0.5%**	**Pass**
*Pad Flexure (kip*ft)*	3818.20	2536.33	**63.3%**	**Pass**
Pad Shear - 1-way (kips)	896.51	397.45	**42.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.059	**29.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	5013.71	3803.73	**72.3%**	**Pass**

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

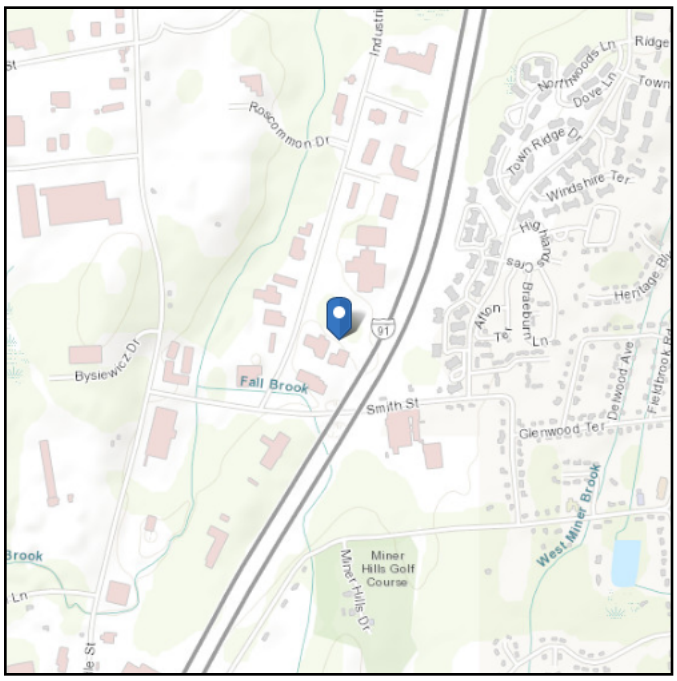
Structural Rating*:	**72.3%**
Soil Rating*:	**80.1%**

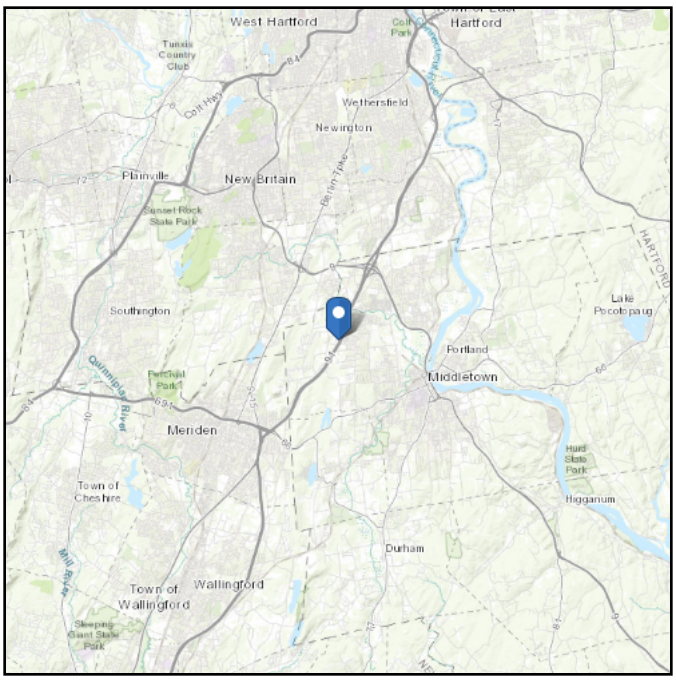
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 89.45 ft (NAVD 88)
Latitude: 41.585639
Longitude: -72.714025





Wind

Results:

Wind Speed	**120 Vmph per local jurisdiction requirements*
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Jul 20 2022

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

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

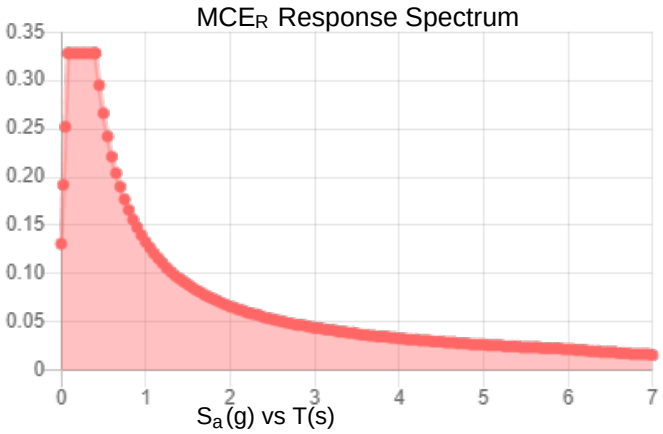
Seismic

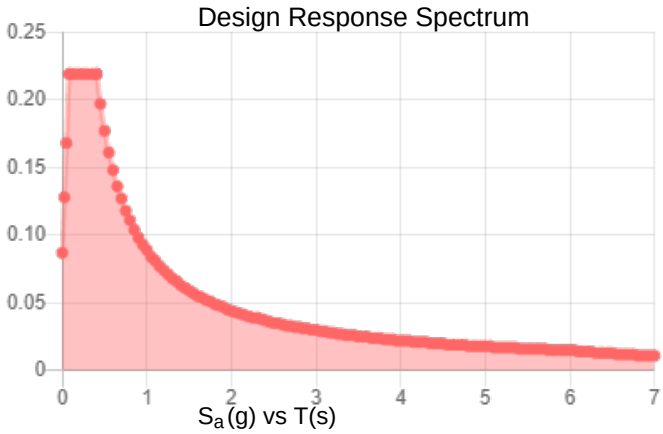
Site Soil Class: D - Default (see Section 11.4.3)

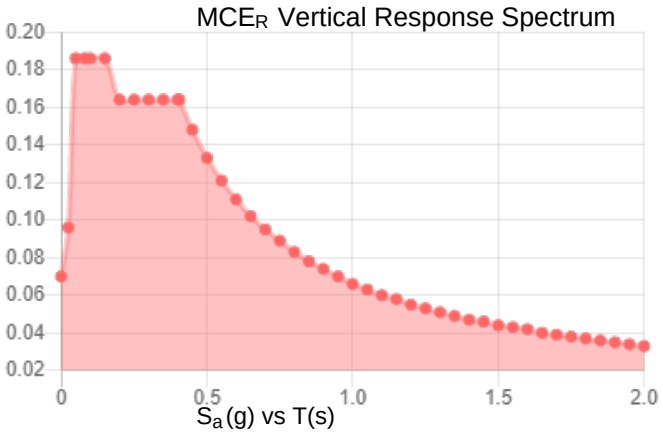
Results:

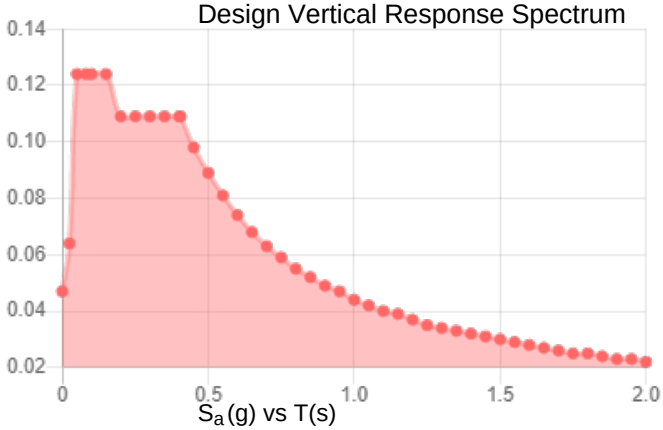
S_S :	0.205	S_{D1} :	0.089
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.328	F_{PGA} :	1.573
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.219	C_v :	0.71

Seismic Design Category B









Data Accessed: **Wed Jul 20 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jul 20 2022

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

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

AT&T

575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

AT&T SITE NUMBER:	**CTL01044**
AT&T SITE NAME:	**CROMWELL EAST**
AT&T FA CODE:	**10035130**
AT&T PACE NUMBER:	**MRCTB056281, MRCTB053774, MRCTB055493, MRCTB055102**
AT&T PROJECT:	**5G NR 1SR CBAND, 5G NR ACTIVATION, 5G NR 1SR**

BUSINESS UNIT #:	**825983**
SITE ADDRESS:	**90 INDUSTRIAL PARK ROAD MIDDLETOWN, CT 06457**
COUNTY:	**MIDDLESEX**
SITE TYPE:	**MONOPOLE**
TOWER HEIGHT:	**185'-0"**

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

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	MIDDLETOWN_1
SITE ADDRESS:	90 INDUSTRIAL PARK ROAD MIDDLETOWN, CT 06457
COUNTY:	MIDDLESEX
MAP/PARCEL #:	06-0018
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 35' 8.30" N
LONGITUDE:	72° 42' 50.49" W
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	98'
CURRENT ZONING:	IT - INTERSTATE TRADE
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	AIRLINE AVENUE REALTY LLC 15 MULLEN RD ENFIELD, CT 06082
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	NORTHEAST UTILITIES 800.286-2000
TELCO PROVIDER:	AT&T 800.288.2020

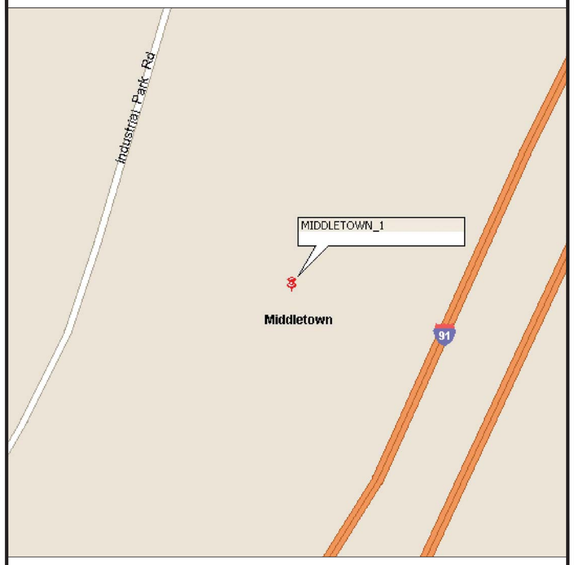
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT MOUNTING DETAILS
C-5	EQUIPMENT SPECS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	MOUNT SPECIFICATIONS

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

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

AT&T SITE NUMBER: **CTL01044**

BU #: **825983**
MIDDLETOWN_1

90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457

EXISTING
185'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/5/22	YX	PRELIMINARY REVIEW	KT
B	2/22/22	YX	PRELIMINARY REVIEW	KT
C	4/12/22	YX	PRELIMINARY REVIEW	KT
0	5/31/22	ANP	CONSTRUCTION	KT
1	8/15/22	BEH	CONSTRUCTION	ANP

PROJECT TEAM

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

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

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:
- RELOCATE (3) ERICSSON - RRUS-32 B30 RADIOS
- RELOCATE (3) ERICSSON - 4478 B14 RADIOS
- RELOCATE (3) ERICSSON - RRUS-B66A B2
- REMOVE (3) POWERWAVE - 7770 ANTENNAS
- REMOVE (3) QUINTEL - QS66512-2 ANTENNAS
- REMOVE (3) CCI - OPA65R-BU6DA-K ANTENNAS
- REMOVE (6) POWERWAVE - LGP21401 TMAS
- REMOVE (6) ERICSSON - RRUS-32 B2 RADIOS
- REMOVE (6) KATHREIN - 782-10250 DIPLEXERS
- REMOVE (6) KAELUS - DBC0061F1V51-2 DIPLEXERS
- INSTALL (3) QUINTEL - QD6616-7 ANTENNAS
- INSTALL (6) ERICSSON - AIR 6449 B77D+AIR 6419 B77G STACKED ANTENNAS
- INSTALL (3) ERICSON - 4415 B25 RADIOS
- INSTALL (3) DUAL RADIO MOUNTS
- INSTALL (3) Y CABLES
- INSTALL (3) 2-1/2" SCH 40 x 6'-0" LONG MOUNT PIPES W/ CROSSOVER HARDWARE
- INSTALL (1) NEW SABRE - C10899050 PIPE MOUNT ASSEMBLY
- INSTALL (3) NEW VALMONT - VFA14-WLL-30120 SECTOR MOUNTS
- INSTALL (6) 2-1/2" SCH 40 x 9'-0" LONG MOUNT PIPES W/ CROSSOVER HARDWARE

GROUND SCOPE OF WORK:
- REPLACE EXISTING BATTERIES WITH (12) 170AH BATTERIES
- INSTALL (4) GE RECTIFIERS TO EXISTING POWER PLANT
- INSTALL (2) BATTERY STRINGS
- INSTALL NEW -48V BATTERY RACK NEXT TO POWER PLANT AND ADDITIONAL (8) 170AH BATTERIES IN BATTERY RACK
- INSTALL (1) 6648 W/ XCEDE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	MORRISON HERSHFIELD
DATED:	2/1/22
MOUNT ANALYSIS:	B+T GRP
DATED:	5/24/2022
RFDS REVISION:	FINAL
DATED:	3/15/22
ORDER ID:	586243
REVISION:	0

U.S. DEPARTMENT OF CONNECTICUT No. 23924 LICENSED PROFESSIONAL ENGINEER
8/15/22

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

SHEET NUMBER: T-1 **REVISION:** 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

GREENFIELD GROUNDING NOTES:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL01044**

BU #: **825983**
MIDDLETOWN_1

90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457

EXISTING
185'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/5/22	YX	PRELIMINARY REVIEW	KT
B	2/22/22	YX	PRELIMINARY REVIEW	KT
C	4/12/22	YX	PRELIMINARY REVIEW	KT
0	5/31/22	ANP	CONSTRUCTION	KT
1	8/15/22	BEH	CONSTRUCTION	ANP

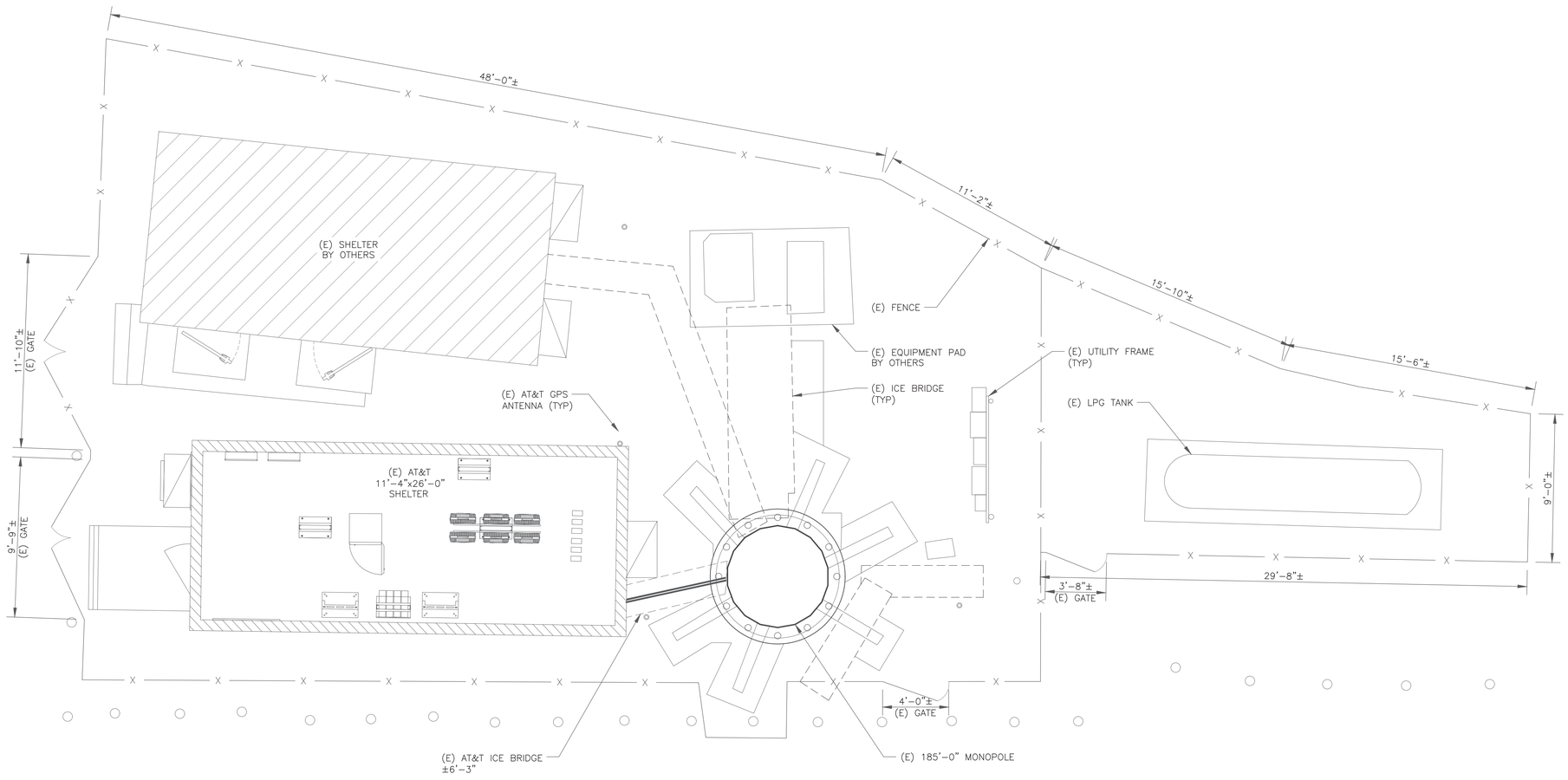
No. 23924
LICENSED
8/15/22

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

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

SHEET NUMBER: T-2
REVISION: 1

136918.007.01_MIDDLETOWN_1 CCI ATT CDS.dwg – Sheet:T-2 – User: ashley.pope – Aug 15, 2022 – 1:08pm



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

N

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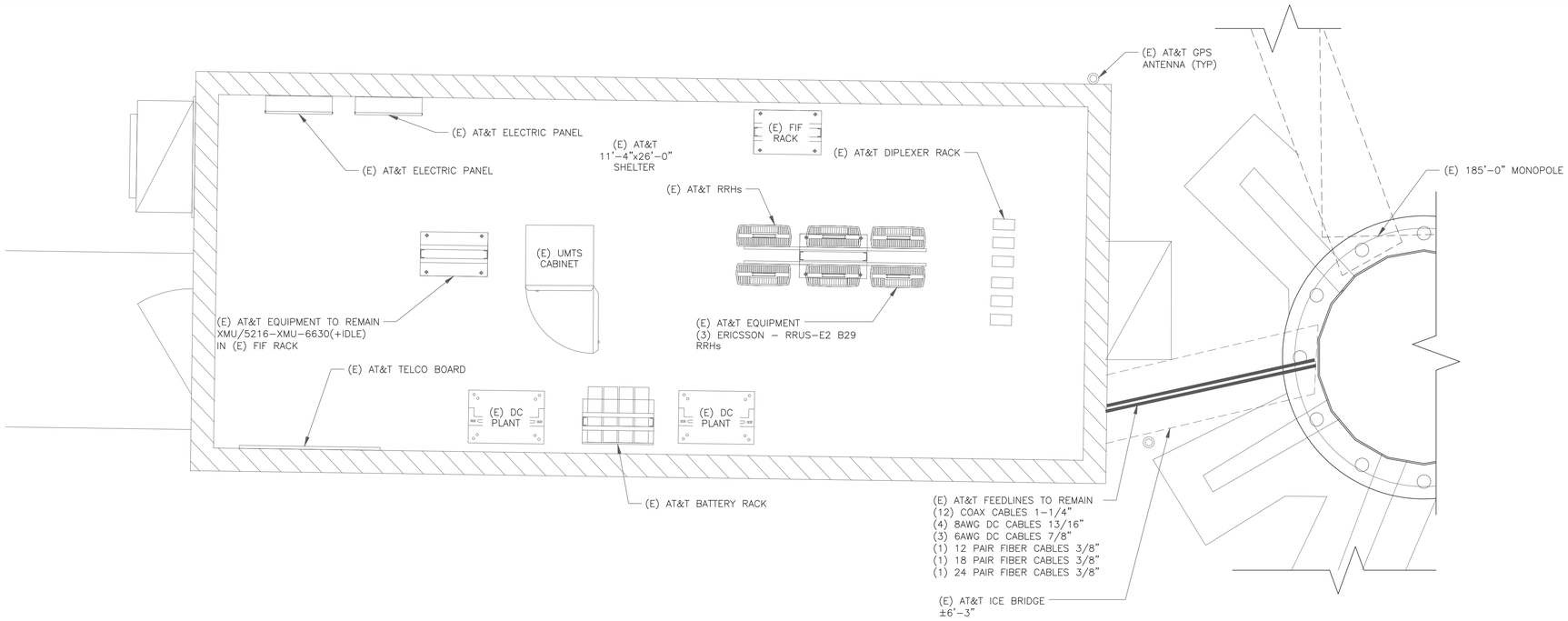
STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/15/22

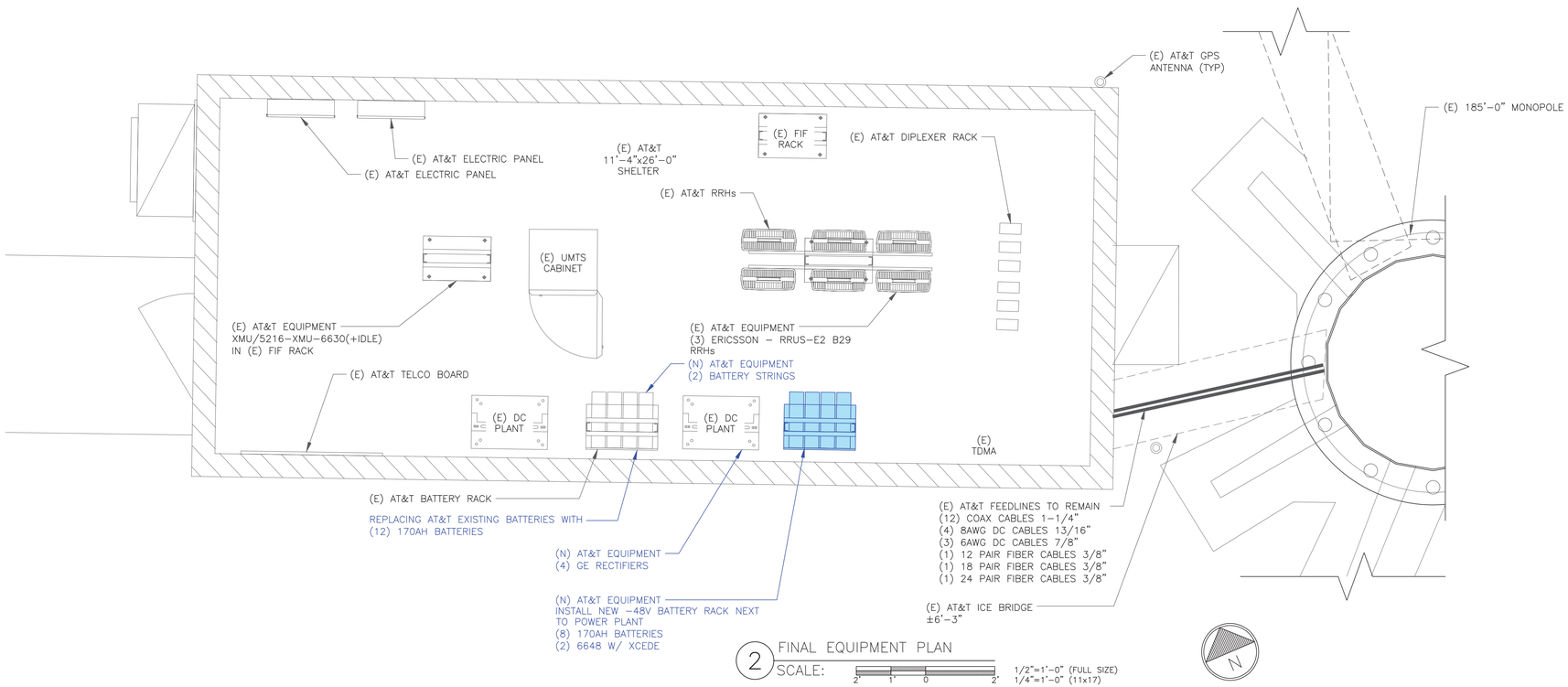
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1.1
REVISION: 1



1 EXISTING EQUIPMENT PLAN

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



2 FINAL EQUIPMENT PLAN

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

GROUND SCOPE OF WORK:

- REPLACE EXISTING BATTERIES WITH (12) 170AH BATTERIES
- INSTALL (3) GE RECTIFIERS TO EXISTING POWER PLANT
- INSTALL NEW -48V BATTERY RACK NEXT TO POWER PLANT AND ADDITIONAL (8) 170AH BATTERIES IN BATTERY RACK
- INSTALL 6648(+XCEDE)

NOTE:

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

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EXISTING
185'-0" MONOPOLE

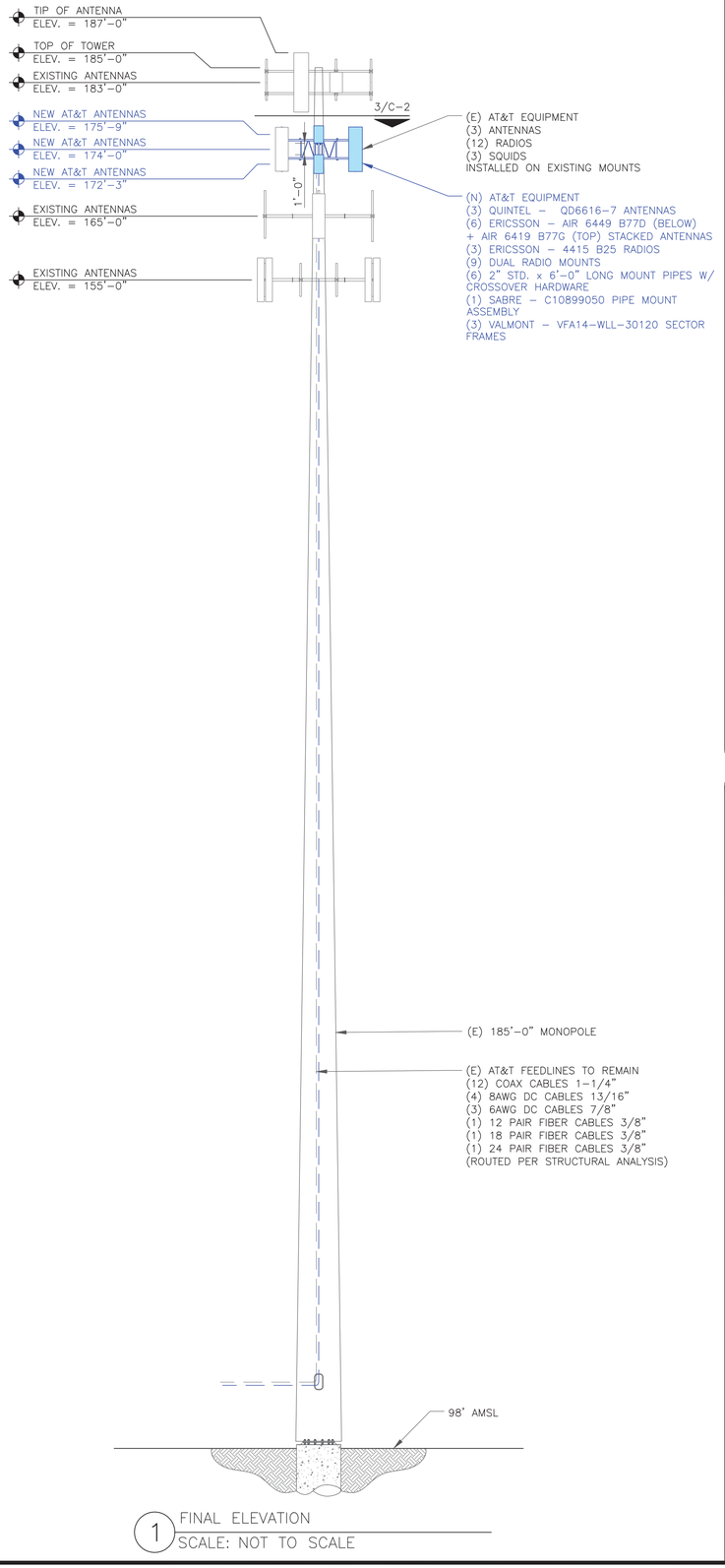
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/5/22	YX	PRELIMINARY REVIEW	KT
B	2/22/22	YX	PRELIMINARY REVIEW	KT
C	4/12/22	YX	PRELIMINARY REVIEW	KT
0	5/31/22	ANP	CONSTRUCTION	KT
1	8/15/22	BEH	CONSTRUCTION	ANP

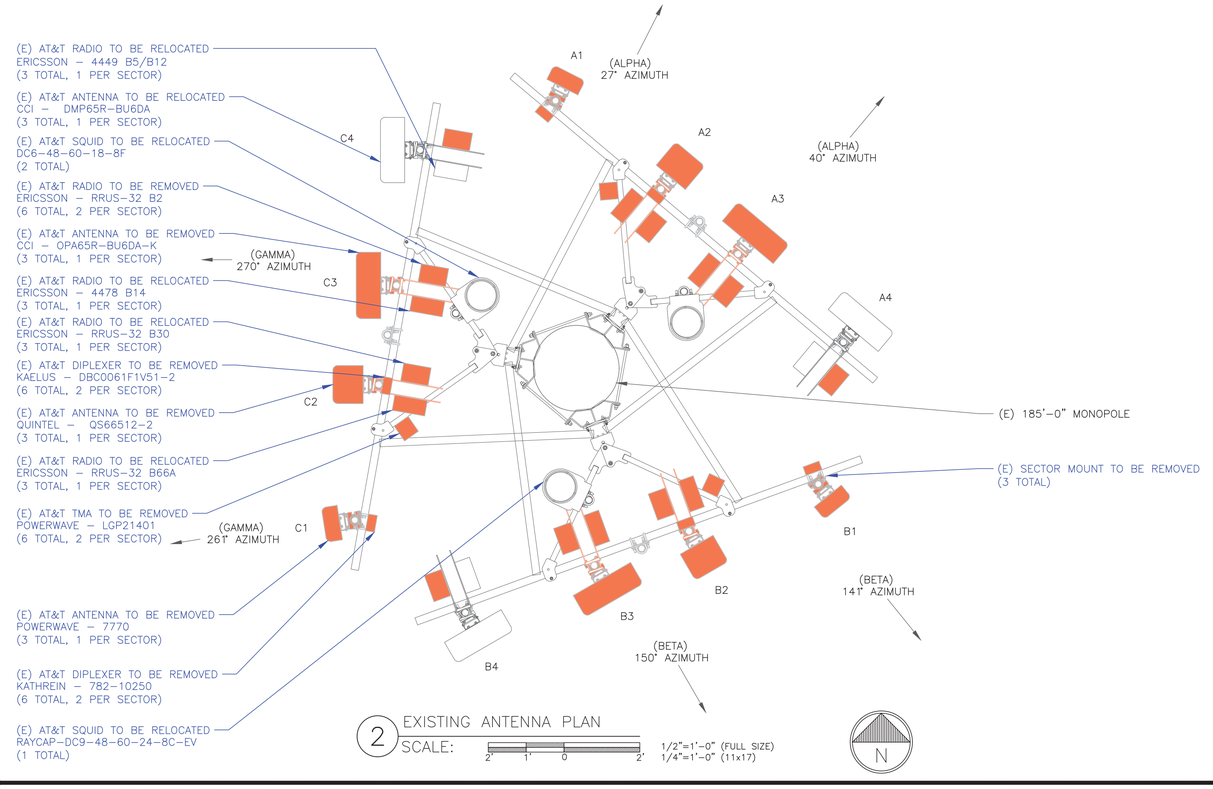
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1.2

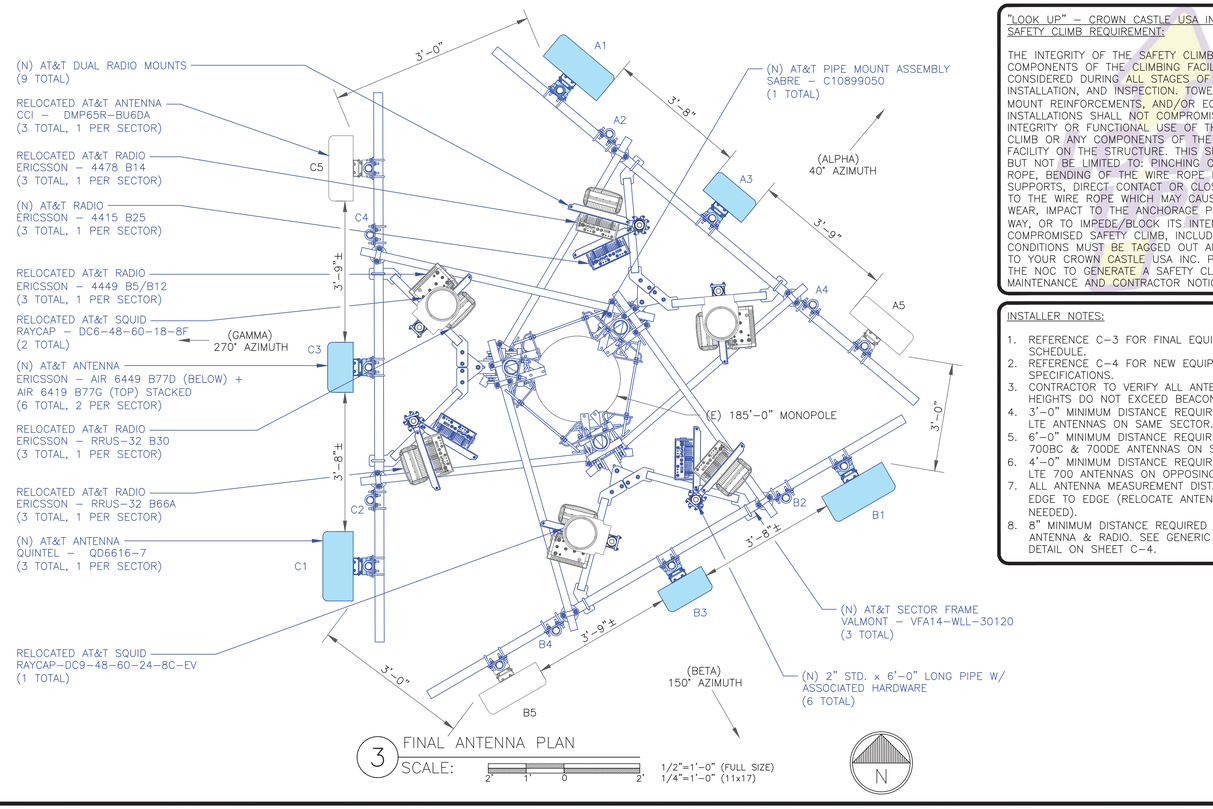
REVISION: 1



1 FINAL ELEVATION
SCALE: NOT TO SCALE



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



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

"LOOK UP" - CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

AT&T
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ATLANTA, GA 30324-3300

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TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL01044**

BU #: **825983**
MIDDLETOWN_1

90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457

EXISTING
185'-0" MONOPOLE

ISSUED FOR:

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STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/15/22

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

SHEET NUMBER: C-2
REVISION: 1

NOTE: RFDS BEING USED
DATED 3/15/22 V FINAL

FINAL ANTENNA AND FEEDLINE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	SURGE PROTECTION	DC/FIBER CABLES	RRHs QTY & MODEL ON TOWER	LOCATION	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE
ALPHA SECTOR																		
A1	LTE 700/LTE 1900/LTE AWS/5G 1900/5G AWS	NEW	40°	QUINTEL – QD6616-7	174'-0"	0°	3°/3°/3°/3°/ 3°/5°/5°/5°	1-1/4"	224'-0"	1	–	DC6-48-60-18-8F	(2) 8AWG DC TRUNK 13/16" (1) 12 PAIR FIBER TRUNK 3/8"	(1) ERICSSON – 4478 B14 (1) ERICSSON – RRUS-32 B66A (1) ERICSSON – 4415 B25 (1) ERICCSON – RRUS-E2 B29	TOWER TOWER TOWER GROUND	N	N	N
														–	SHELTER	N	N	N
A2	–	–	–	–	-	–	–	–	–	–	–			–	–	–	–	–
A3	5G CBAND	NEW	40°	ERICSSON – AIR6449 B77D	172'-3"	0°	0°/0°	–	–	–	–			INTEGRATED RADIO	TOWER	N	N	N
				ERICSSON – AIR6419 B77G	175'-9"	0°	0°/0°											
A4	–	–	–	–	-	–	–	–	–	–	–			–	–	–	–	–
A5	LTE 700/LTE WCS/5G 850	EXISTING	40°	CCI – DMP65R-BU6DA	174'-0"	0°	8°/3°/4°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30 (1) Y CABLE – ON 4449	TOWER	N	N	N
BETA SECTOR																		
B1	LTE 700/LTE 1900/LTE AWS/5G 1900/5G AWS	NEW	150°	QUINTEL – QD6616-7	174'-0"	0°	3°/3°/3°/3°/ 3°/5°/5°/5°	1-1/4"	224'-0"	1	–	DC6-48-60-18-8F	(2) 8AWG DC TRUNK 13/16" (1) 18 PAIR FIBER TRUNK 3/8"	(1) ERICSSON – 4478 B14 (1) ERICSSON – RRUS-32 B66A (1) ERICSSON – 4415 B25 (1) ERICCSON – RRUS-E2 B29	TOWER TOWER TOWER GROUND	N	N	N
														–	SHELTER	N	N	N
B2	–	–	–	–	-	–	–	–	–	–	–			–	–	–	–	–
B3	5G CBAND	NEW	150°	ERICSSON – AIR6449 B77D	172'-3"	0°	0°/0°	–	–	–	–			INTEGRATED RADIO	TOWER	N	N	N
				ERICSSON – AIR6419 B77G	175'-9"	0°	0°/0°											
B4	–	–	–	–	-	–	–	–	–	–	–			–	–	–	–	–
B5	LTE 700/LTE WCS/5G 850	EXISTING	150°	CCI – DMP65R-BU6DA	174'-0"	0°	8°/3°/4°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30 (1) Y CABLE – ON 4449	TOWER	N	N	N
GAMMA SECTOR																		
C1	LTE 700/LTE 1900/LTE AWS/5G 1900/5G AWS	NEW	270°	QUINTEL – QD6616-7	174'-0"	0°	3°/3°/3°/3°/ 3°/5°/5°/5°	1-1/4"	224'-0"	1	–	DC9-48-60-24-8C-EV	(3) 6AWG DC TRUNK 7/8" (1) 24 PAIR FIBER TRUNK 3/8"	(1) ERICSSON – 4478 B14 (1) ERICSSON – RRUS-32 B66A (1) ERICSSON – 4415 B25 (1) ERICCSON – RRUS-E2 B29	TOWER TOWER TOWER GROUND	N	N	N
														–	SHELTER	N	N	N
C2	–	–	–	–	-	–	–	–	–	–	–			–	–	–	–	–
C3	5G CBAND	NEW	270°	ERICSSON – AIR6449 B77D	172'-3"	0°	0°/0°	–	–	–	–			INTEGRATED RADIO	TOWER	N	N	N
				ERICSSON – AIR6419 B77G	175'-9"	0°	0°/0°											
C4	–	–	–	–	-	–	–	–	–	–	–			–	–	–	–	–
C5	LTE 700/LTE WCS/5G 850	EXISTING	270°	CCI – DMP65R-BU6DA	174'-0"	0°	8°/3°/4°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30 (1) Y CABLE – ON 4449	TOWER	N	N	N

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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www.btgrp.com

AT&T SITE NUMBER: **CTL01044**

BU #: **825983**
MIDDLETOWN_1

90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457

EXISTING
185'-0" MONOPOLE

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STATE OF CONNECTICUT
No. 23924
LICENSED
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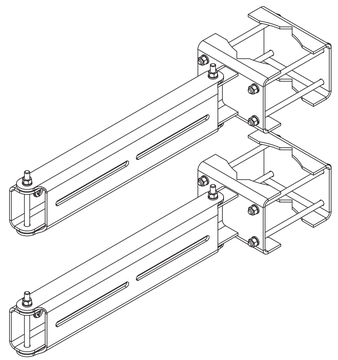
8/15/22

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

SHEET NUMBER: C-3

REVISION: 1

1 NOT USED
SCALE: NOT TO SCALE

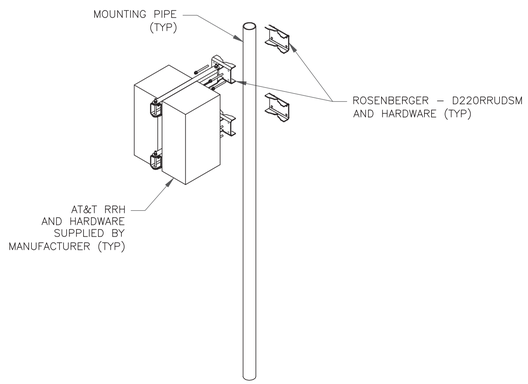


2 DUAL RRH MOUNT
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

INSTALLER NOTES:

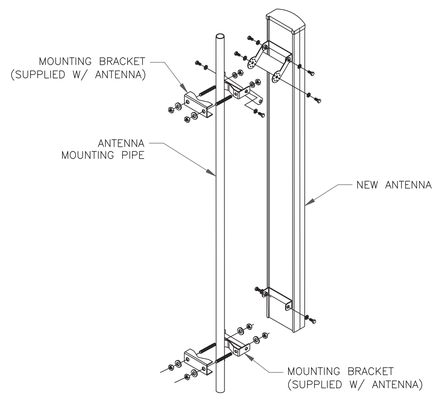
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.
4. RRHs SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



4 DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

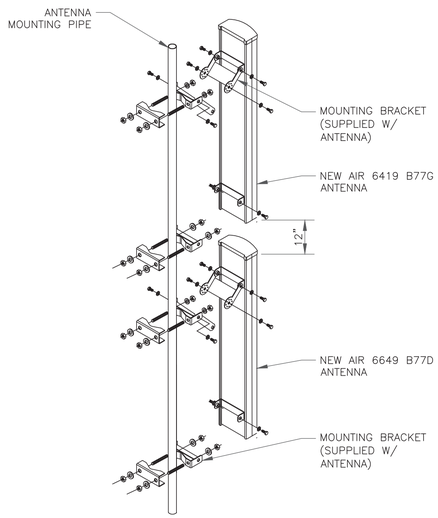
1. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



5 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



6 STACKED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

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BU #: **825983**
MIDDLETOWN_1

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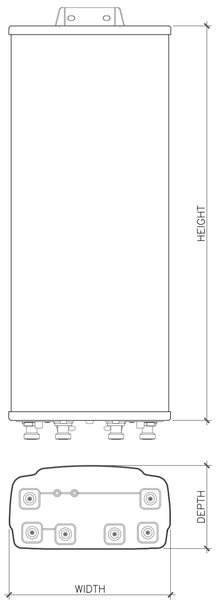
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

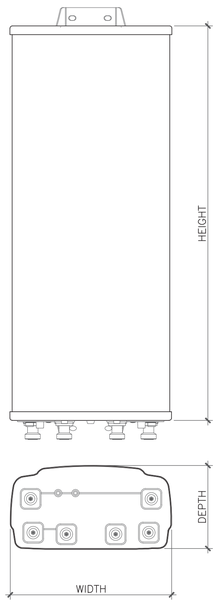
SHEET NUMBER: C-4

REVISION: 1



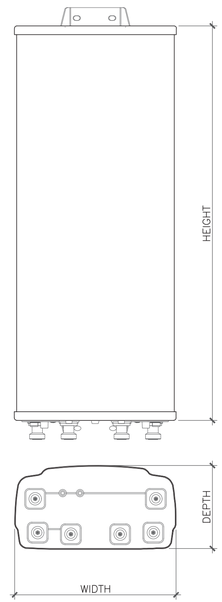
ANTENNA DIMENSIONS (INCHES)					
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QUINTEL	QD6616-7	72.00"	22"	9.6"	130 LBS

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



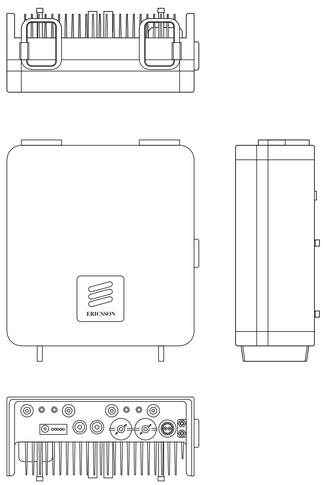
ANTENNA DIMENSIONS (INCHES)					
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON	AIR 6449 B77D	30.63"	15.87"	10.55"	103.62 LBS

2 ANTENNA DETAIL
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)					
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON	AIR6419 B77G	27.95"	15.75"	6.68"	44.1 LBS

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON – RRUS 4415 B25
WEIGHT: 60.0 LBS
SIZE (HxWxD): 15.0x13.0x8.0 IN.

4 ERICSSON – RRUS 4415 B25
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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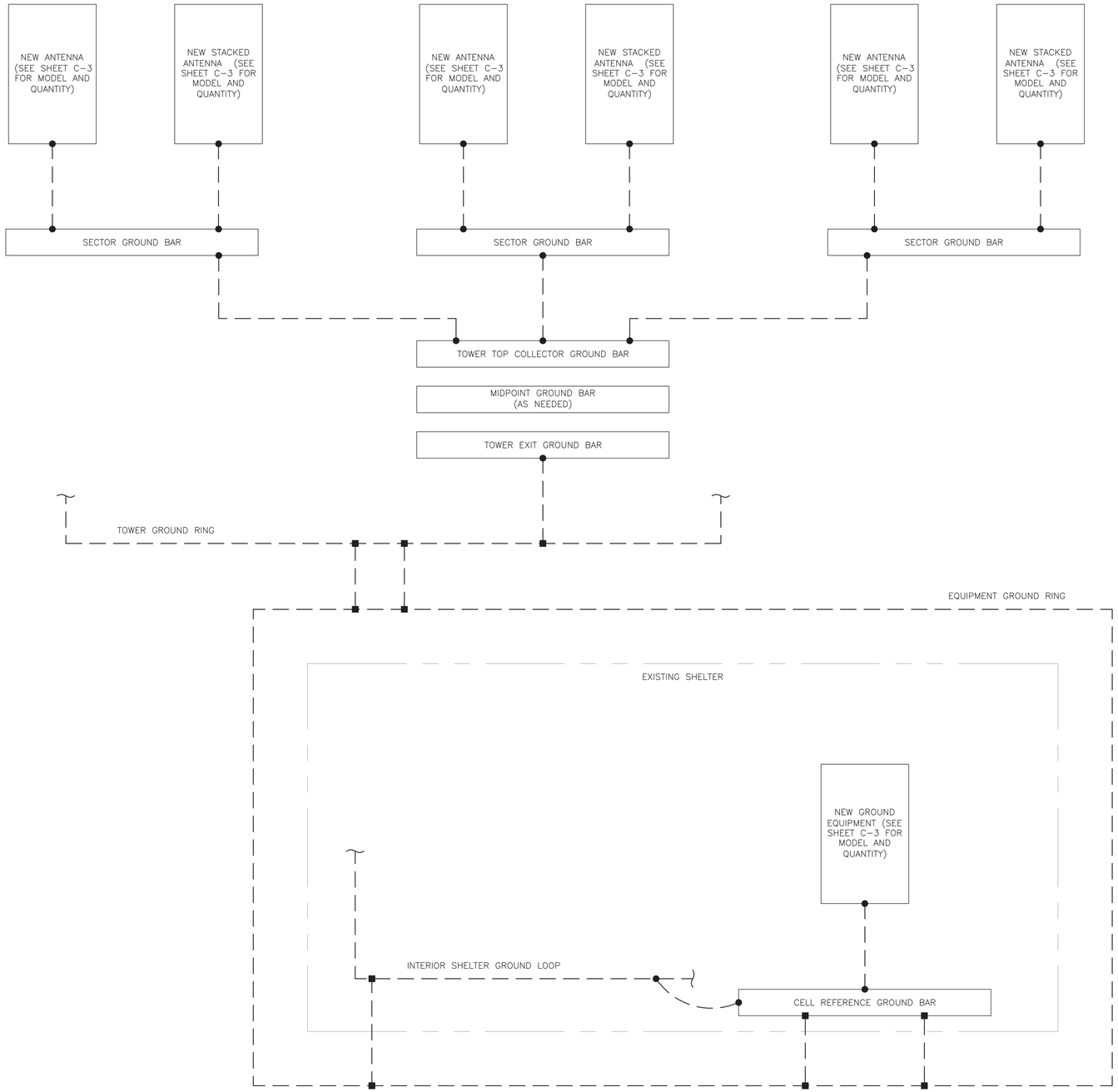
Expires 3/31/23

SHEET NUMBER: C-5
REVISION: 1



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

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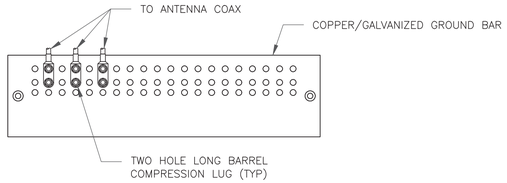
Expires 3/31/23

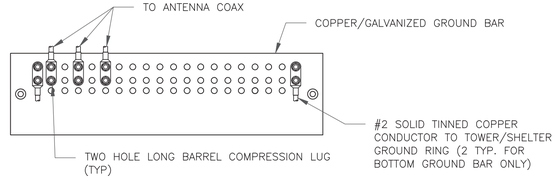
SHEET NUMBER: G-1
REVISION: 1



NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

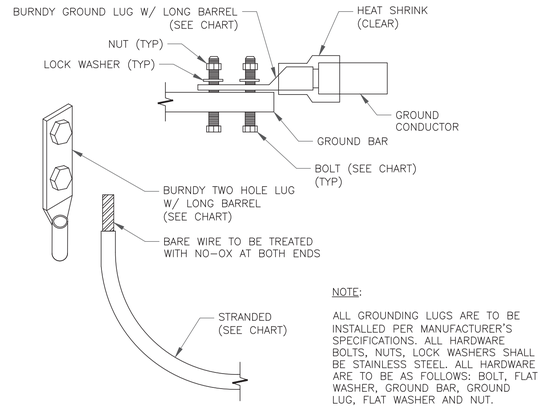


NOTES:

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

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

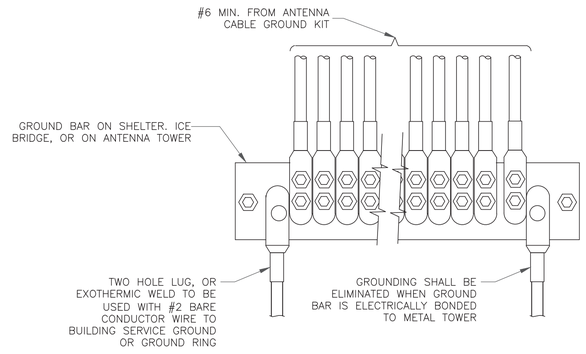
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



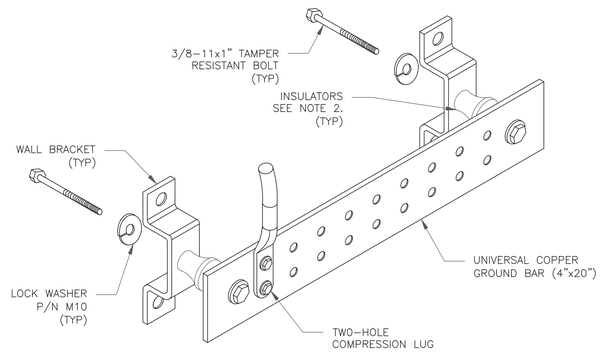
NOTE:

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

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

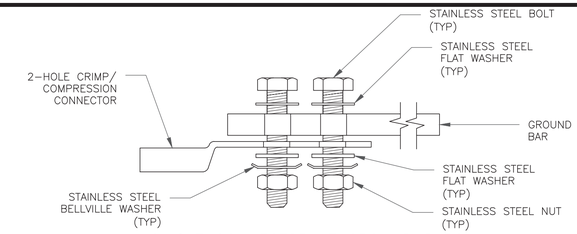


NOTES:

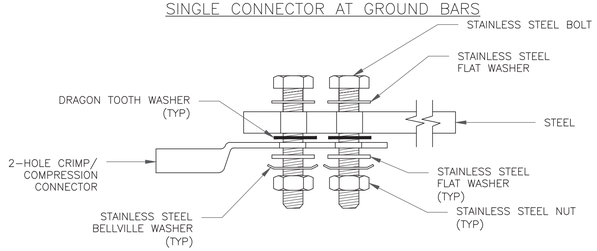
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

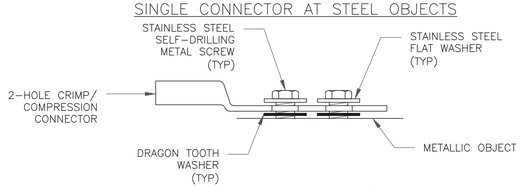
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

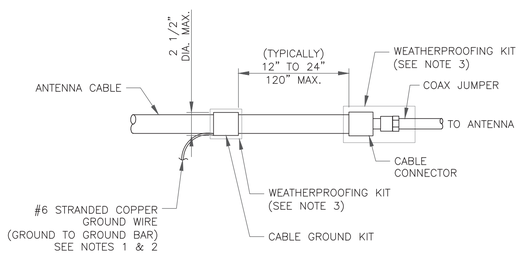


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

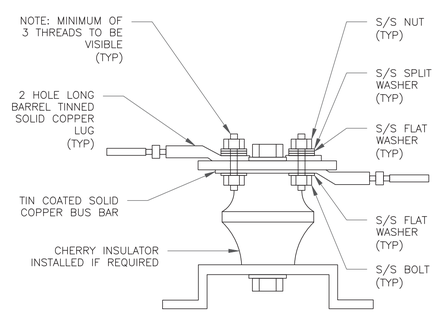
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER: **CTL01044**

BU #: **825983**
MIDDLETOWN_1

90 INDUSTRIAL PARK ROAD
MIDDLETOWN, CT 06457

EXISTING
185'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/5/22	YX	PRELIMINARY REVIEW	KT
B	2/22/22	YX	PRELIMINARY REVIEW	KT
C	4/12/22	YX	PRELIMINARY REVIEW	KT
0	5/31/22	ANP	CONSTRUCTION	KT
1	8/15/22	BEH	CONSTRUCTION	ANP

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

SHEET NUMBER: G-2

REVISION: 1

Diagram - Sector	A	Diagram File Name - CT1044_Cband_3Ant_Q7DEBOT_DoD_CB_DMP__AWS_PCS_2DCFIB_1DC9_1x5216_1x6630_XMU_6648.vsd					
Atoll Site Name -	CTL01044	Location Name -	CROMWELL EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"							

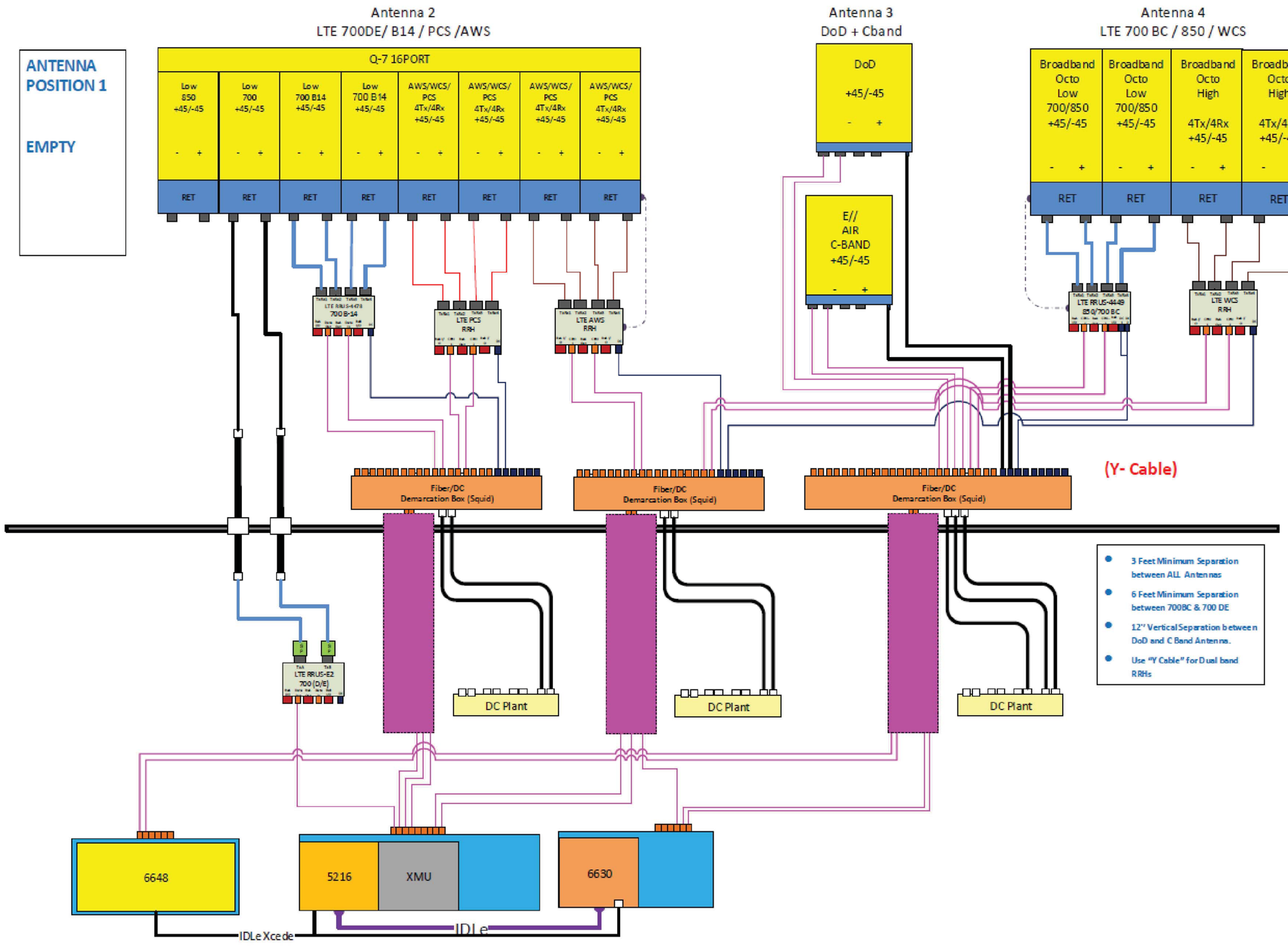


Diagram - Sector	B	Diagram File Name - CT1044_Cband_3Ant_Q7DEBOT_DoD_CB_DMP__AWS_PCS_2DCFIB_1DC9_1x5216_1x6630_XMU_6648.vsd					
Atoll Site Name -	CTL01044	Location Name -	CROMWELL EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"							

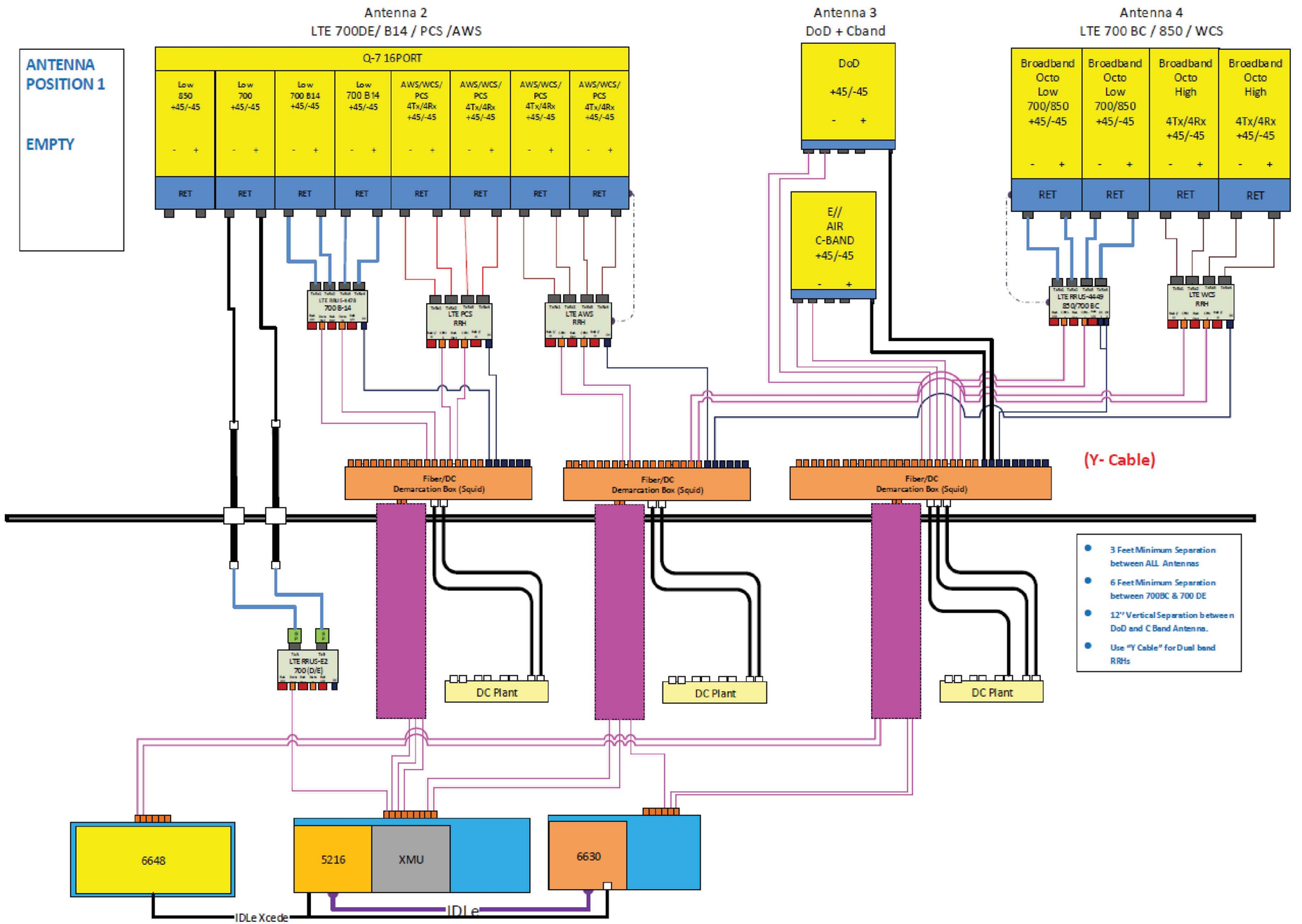
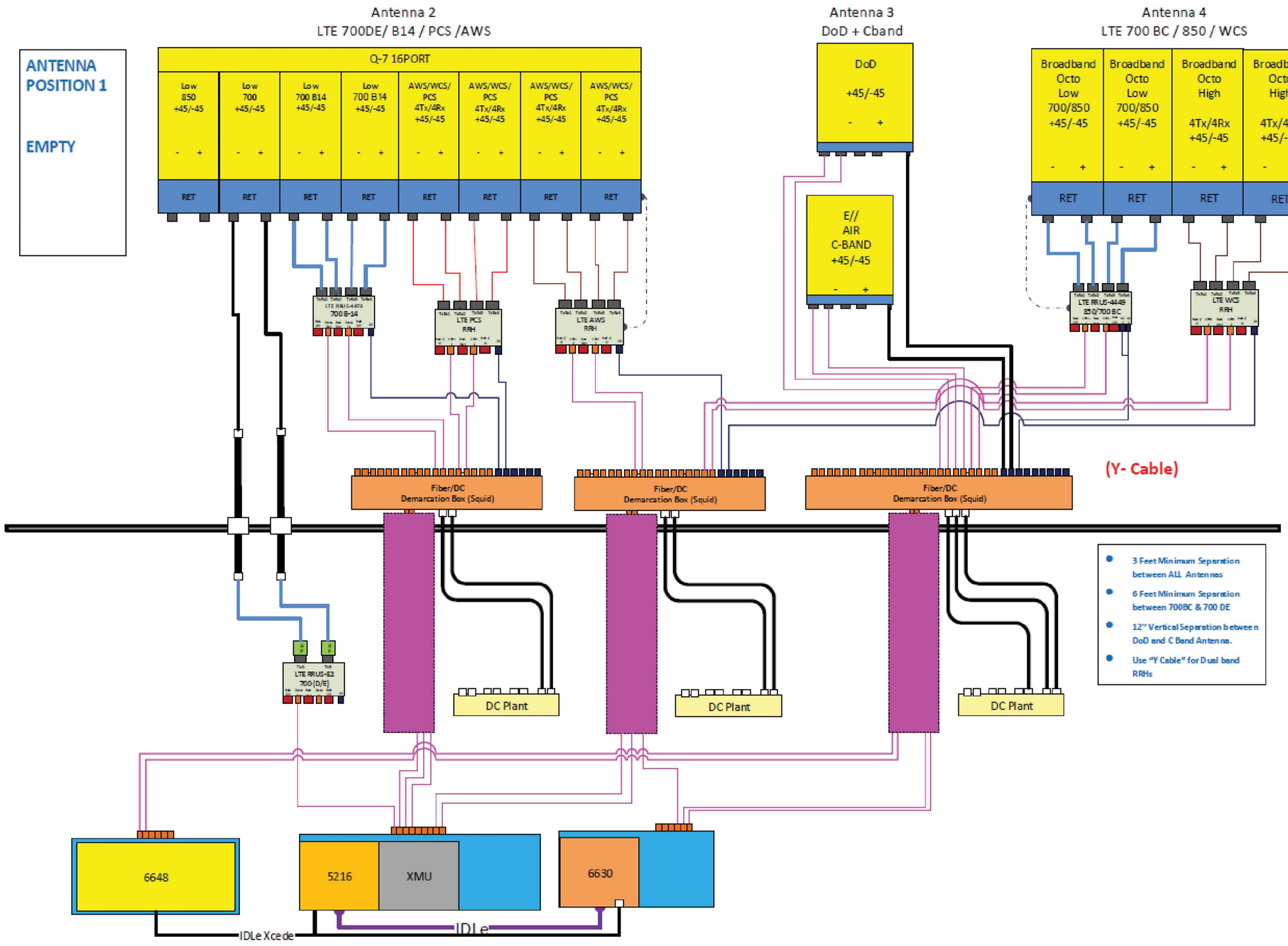
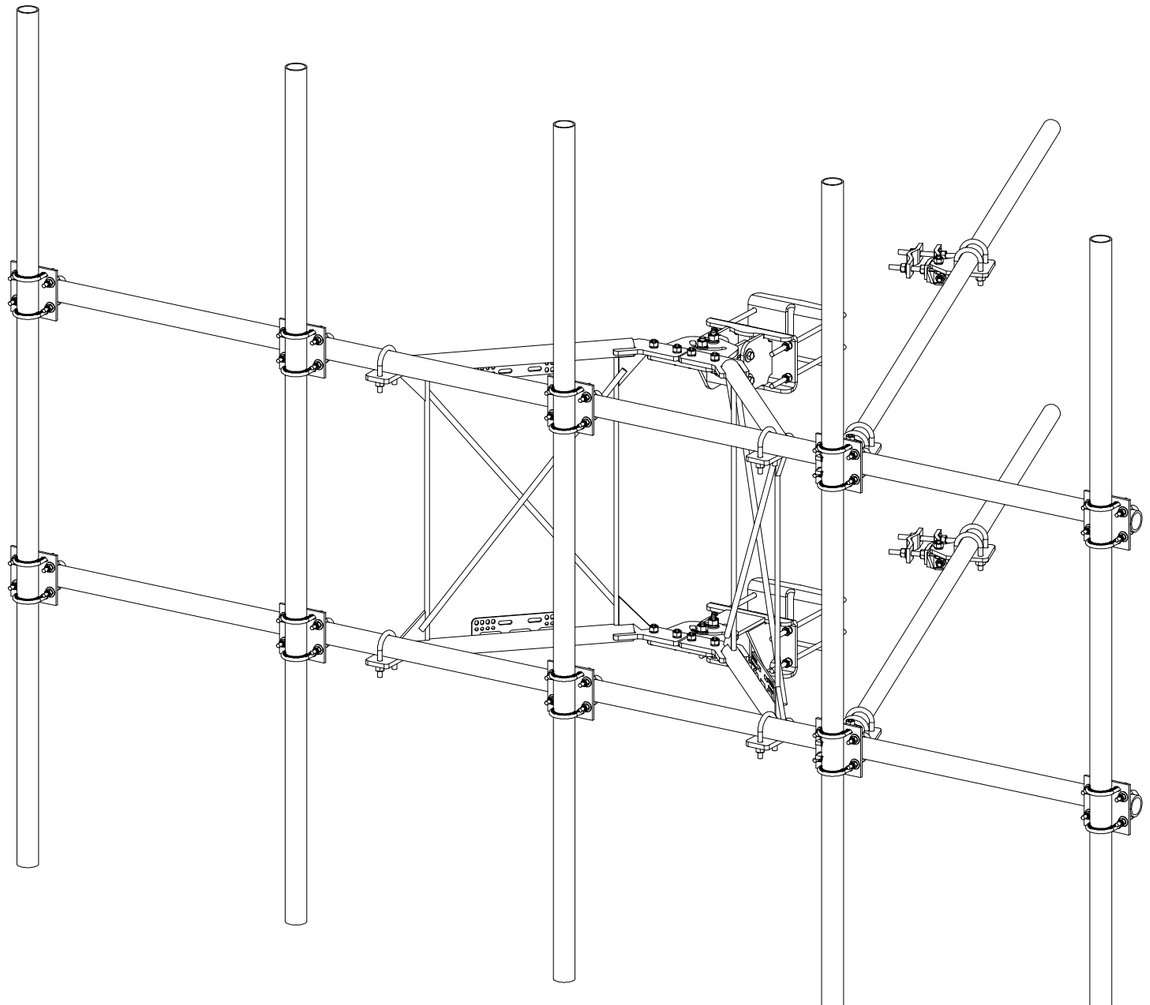


Diagram - Sector	C	Diagram File Name - CT1044_Cband_3Ant_Q7DEBOT_DoD_CB_DMP__AWS_PCS_2DCFIB_1DC9_1x5216_1x6630_XMU_6648.vsd					
Atoll Site Name -	CTL01044	Location Name -	CROMWELL EAST	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: "Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson"							





PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
5	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
6	2	X-LCBP4	BENT BACKING PLATE	13 in	20.04	40.09
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	10	SCX2	CROSSOVER PLATE	7 in	4.80	47.96
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	SCH80-P30174	2-1/2" SCH. 80 PIPE (2.875" O.D. x 0.276" WALL) A500	174 in	118.03	236.05
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)		1.57	12.54
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	48	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	35.45
33	20	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	13.25
34	80	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.73
35	80	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.11
36	80	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	5.73
37	5	P30120	2-7/8" x 120" (2-1/2" SCH. 40) GALVANIZED PIPE	120 in	58.07	290.33
					TOTAL WT. #	1139.79

TOLERANCE NOTES

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

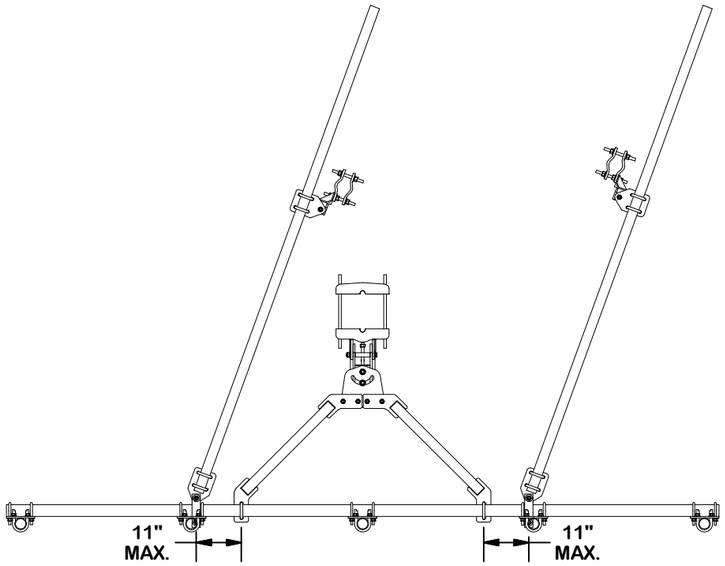
DESCRIPTION: 14' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CMFL 9/21/2020		VFA14-WLL-30120

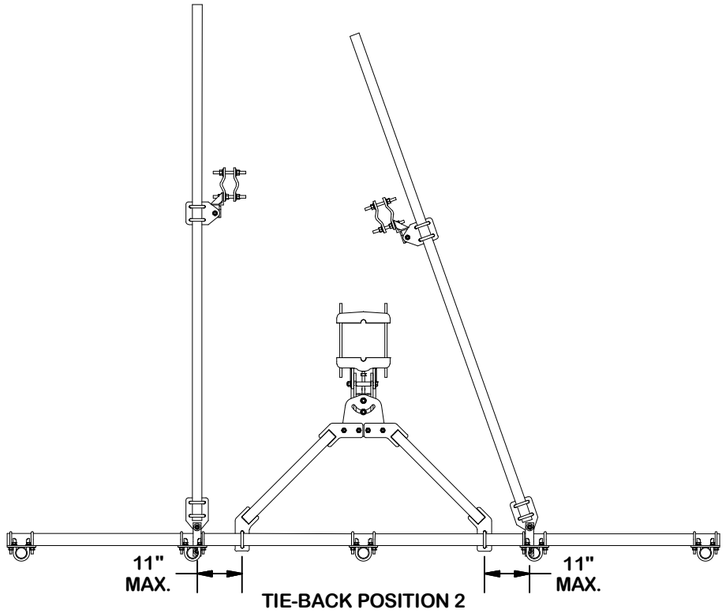
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER		VFA14-WLL-30120

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

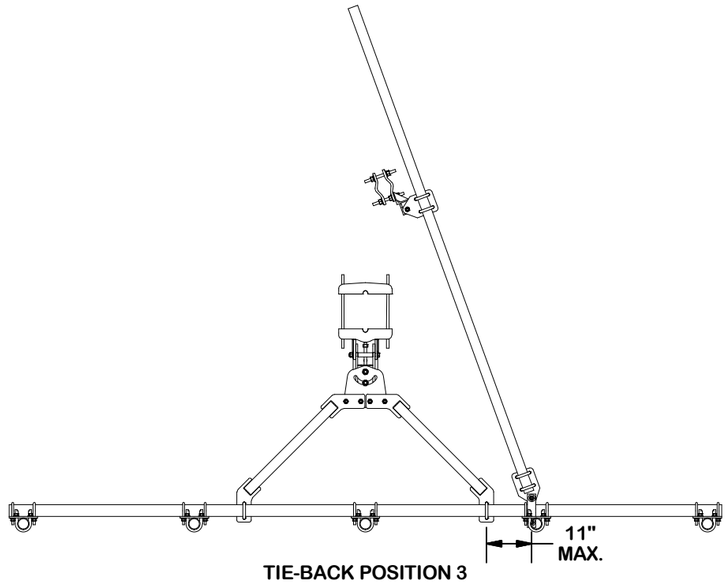
TIE-BACK POSITIONS



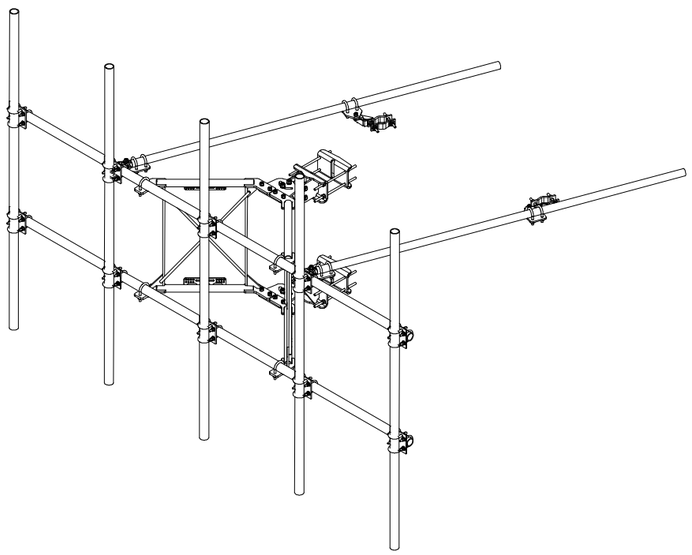
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

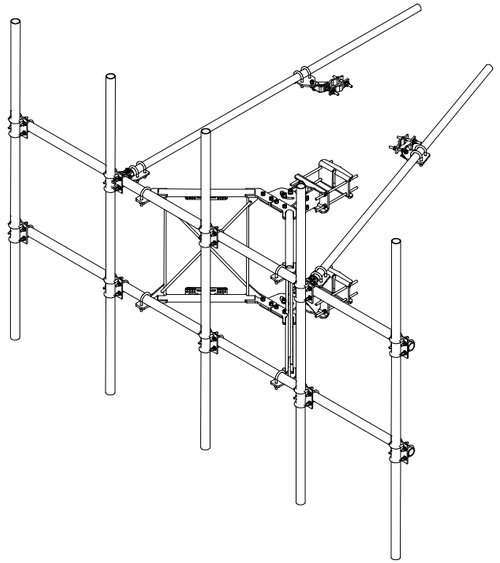


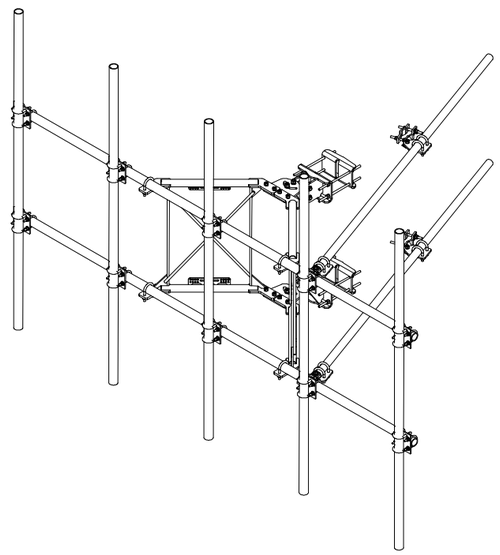
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







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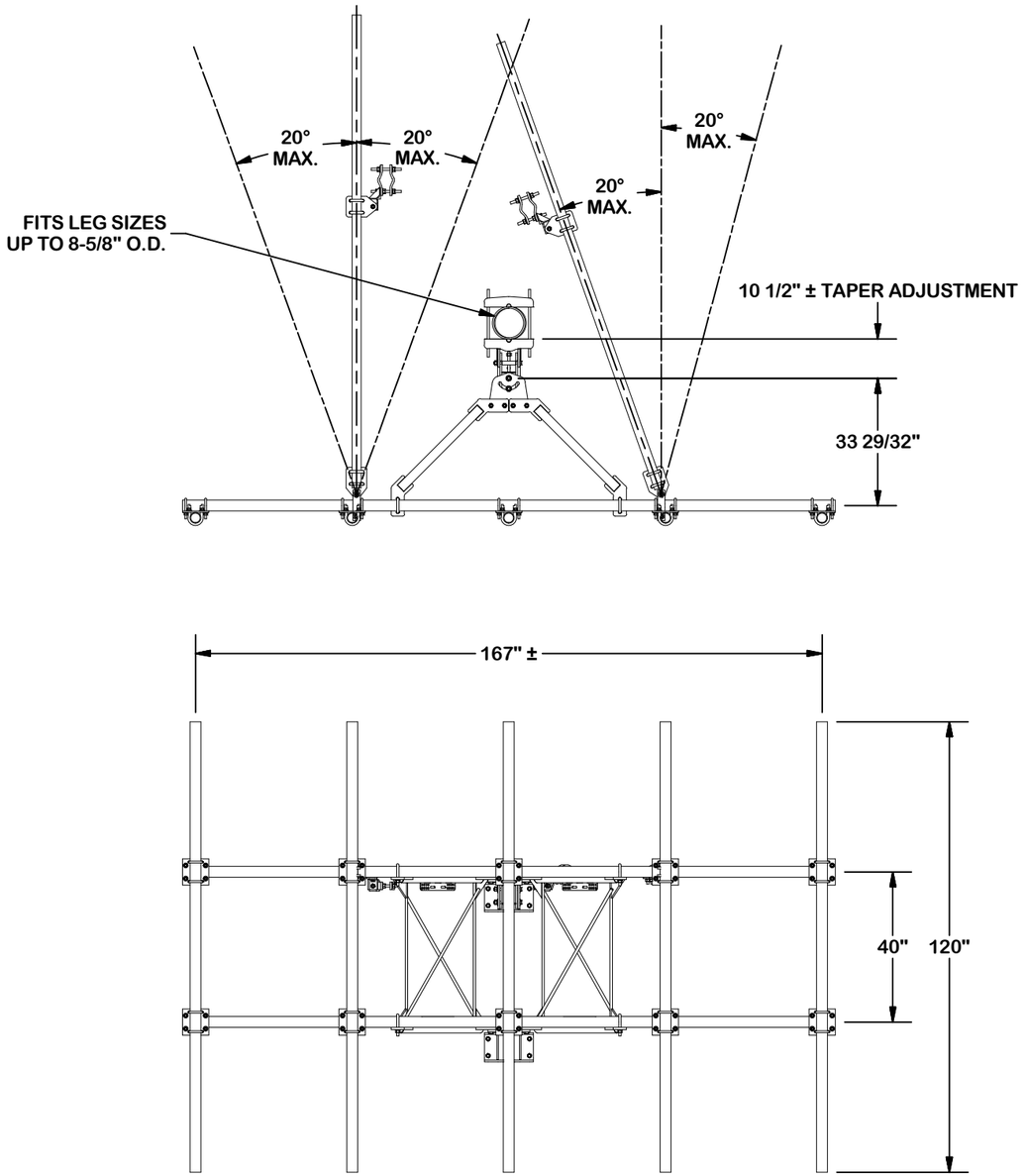
SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

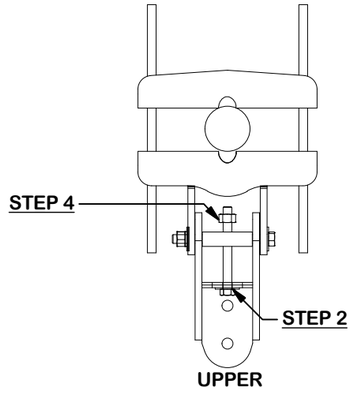
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
SP1	CMFL 9/21/2020		VFA14-WLL-30120	2 OF 5

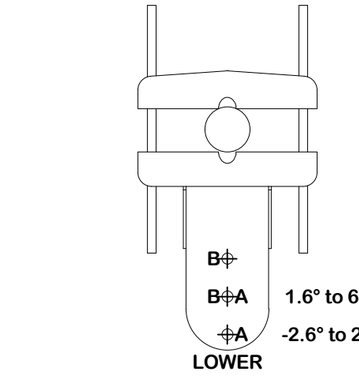
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER		VFA14-WLL-30120

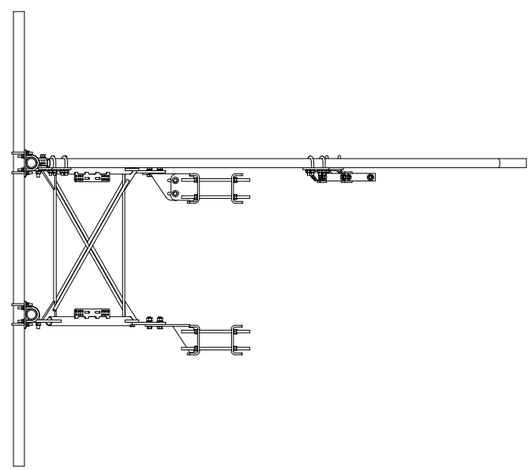


ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
   - HOLE A = -2.6° TO 2.6°
   - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.







TOLERANCE NOTES

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ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION: 14' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

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SP1	CMFL 9/21/2020		VFA14-WLL-30120

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER		VFA14-WLL-30120

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
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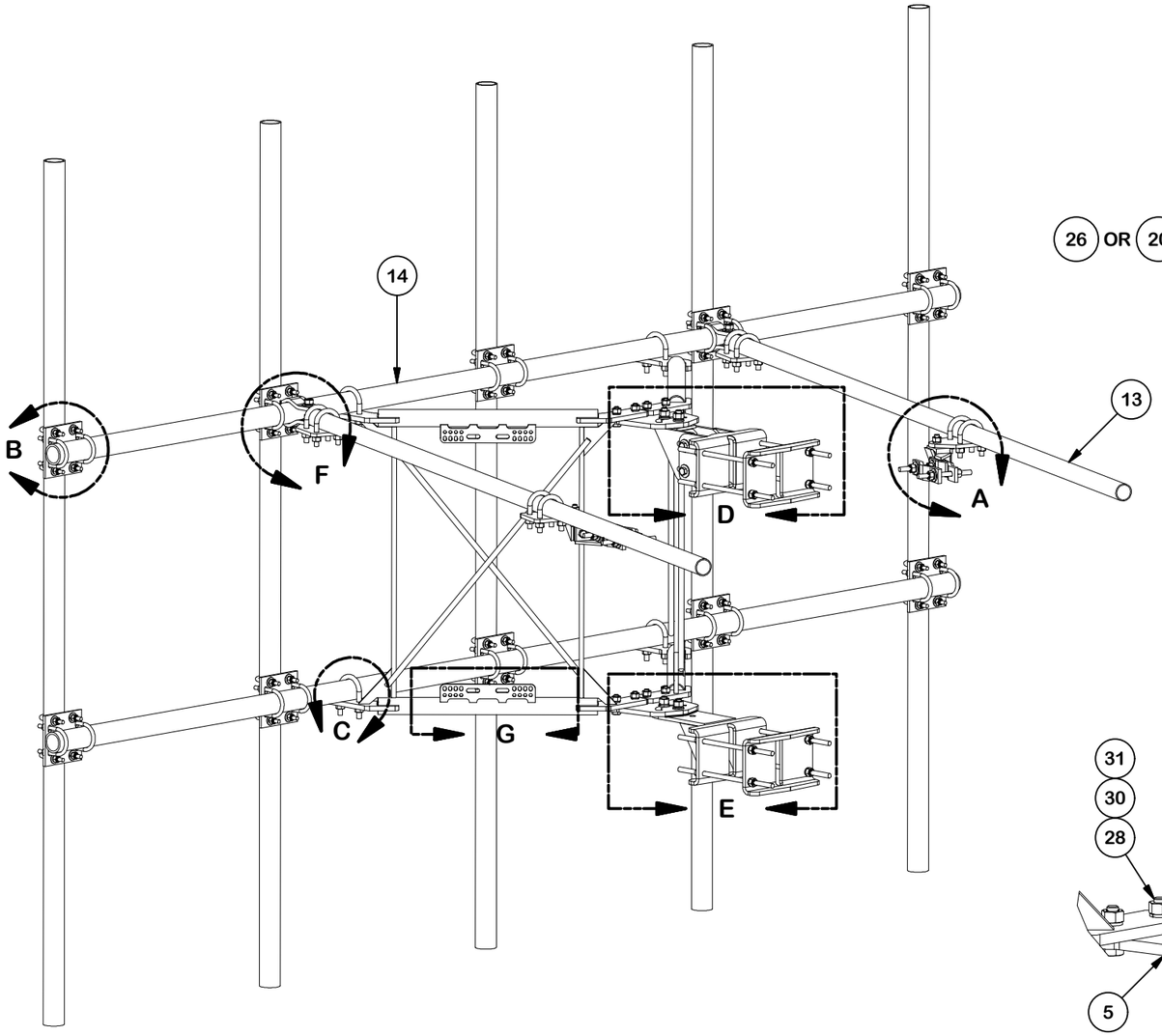
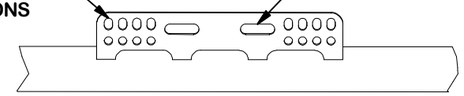


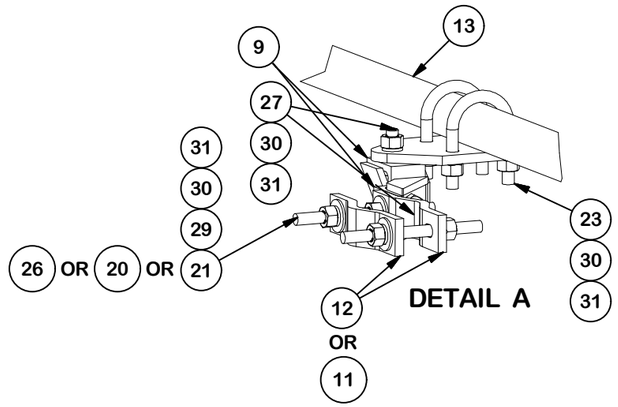
7/16" LUG HOLES

REVIEW CARRIER STANDARDS FOR PROPER SURFACE PREPARTION AND ASSEMBLY OF ELECTRICAL CONNECTIONS

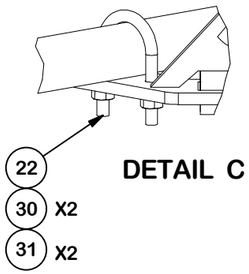
9/16" SLOTTED HOLE FOR EQUIPMENT PIPE U-BOLT



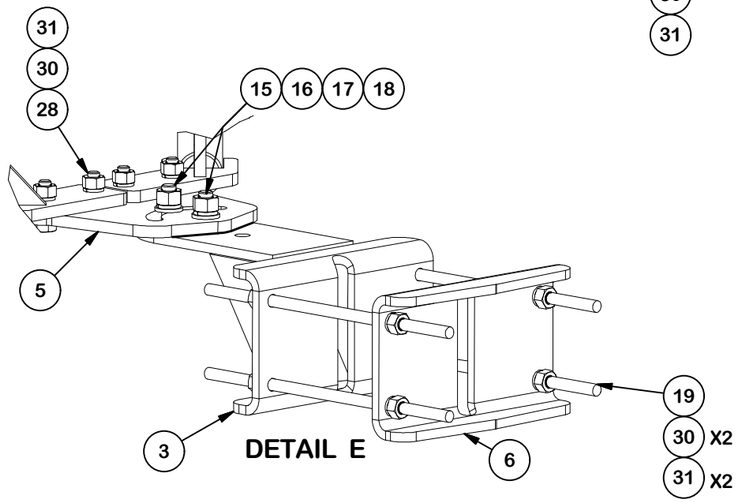
DETAIL G



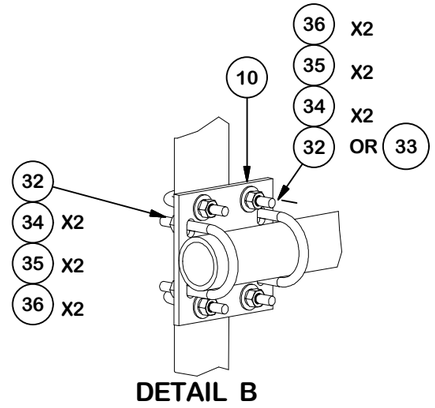
DETAIL A



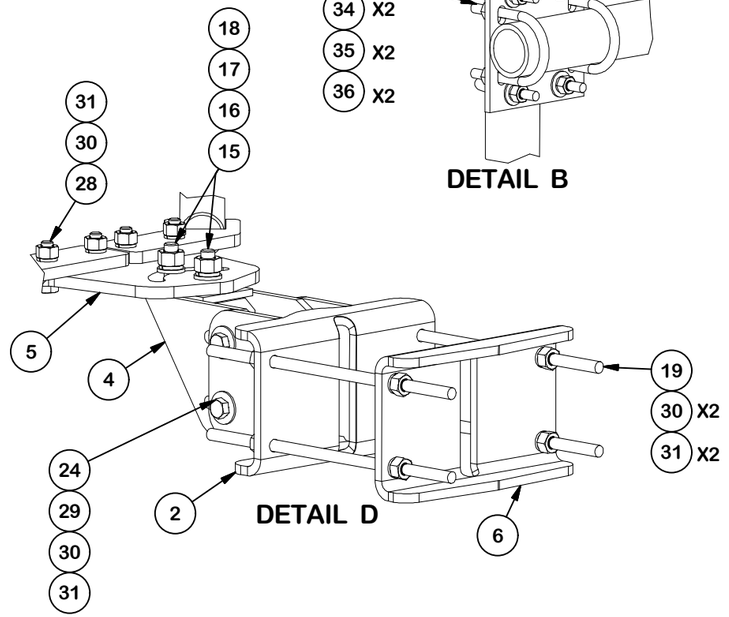
DETAIL C



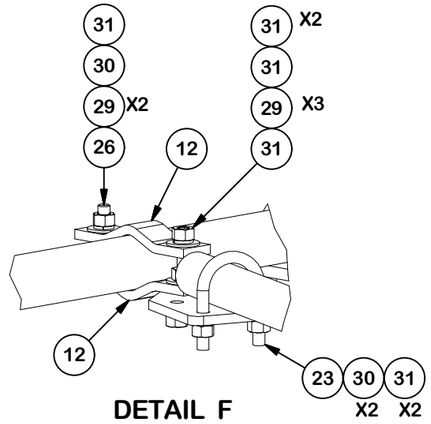
DETAIL E



DETAIL B



DETAIL D



DETAIL F

TOLERANCE NOTES

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LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
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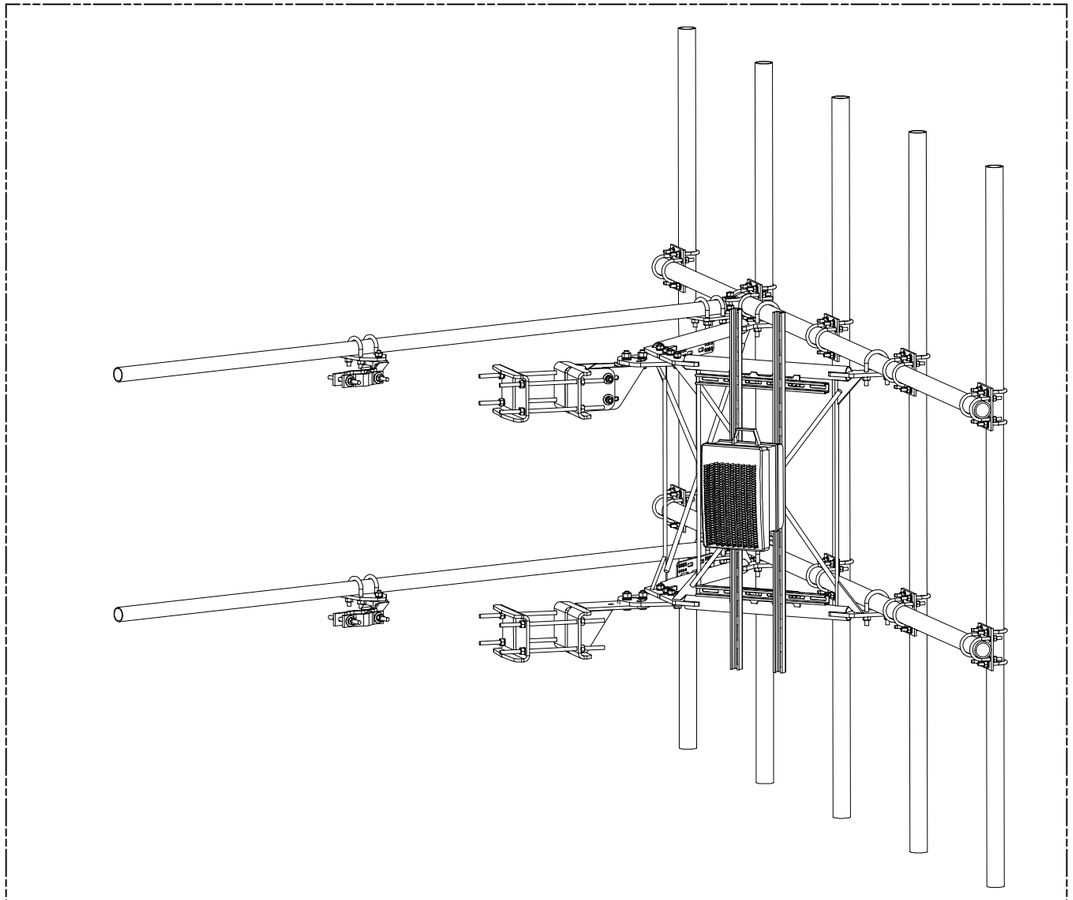
DESCRIPTION: 14' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CMFL 9/21/2020		VFA14-WLL-30120

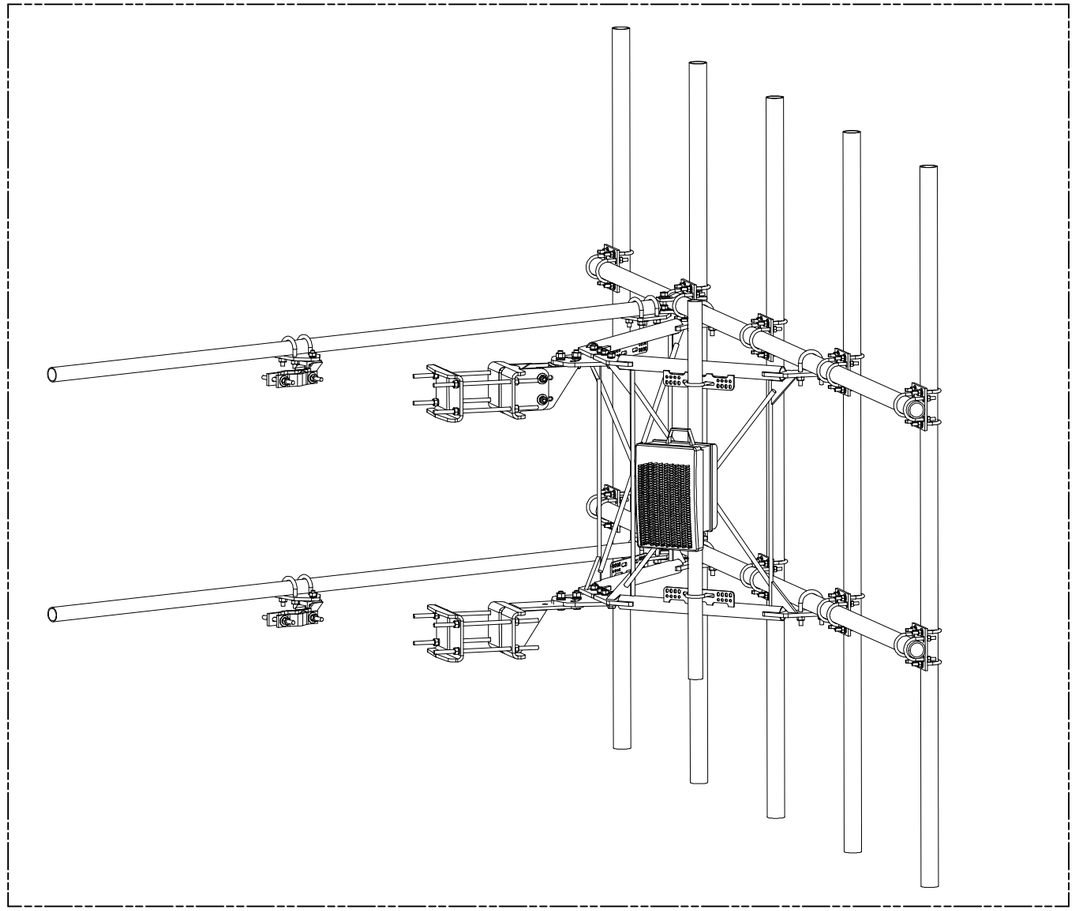
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER		VFA14-WLL-30120

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



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

TOLERANCE NOTES

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

DESCRIPTION: 14' 6" HEAVY DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS & MOUNT PIPES

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CMFL 9/21/2020		VFA14-WLL-30120

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER		VFA14-WLL-30120

SITE PRO 1
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