4 Davis Road West, Old Lyme, CT 06371

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

Re: Notice of Recission Exempt Modification Approval
889R Colonel Ledyard Highway, Ledyard, CT 06339

June 20, 2018

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), received CT Siting Council approval for an exempt modification on December 18, 2017; EM-SPRINT- 072-171109. Sprint subsequently found the need to change some equipment from that specified in the approved EM. Sprint, therefore, will not proceed with the EM approval received on that date and will instead resubmit for a new exempt modification with the revised equipment. Please advise if anything else is required to rescind the original approval, and clear the way for the subsequent resubmittal. Thank you.

If you have any questions, please feel free to contact me.

Thank you,

By: *Paul F. Sagristano*

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

4 Davis Road West, Suite 5 – Old Lyme, CT 06371

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

Re: Notice of Exempt Modification Application
889R Colonel Ledyard Highway, Ledyard, CT 06339

June 20, 2018

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 6 existing panel antenna at the 224'11" level of the Tower. Sprint proposes to remove all 6 panel antennas (2 per sector) and replace with 6 new panel antennas (2 per sector). Sprint also proposes removing the 3 existing ground based remote radio units and installing them at the 224' 11" level on the tower along with 9 additional remote radio units (3 per sector) at 224' 11"' tower level as well as 4 hybrid cables and various Antenna-RRH jumper cables. Any ground based modifications will be added to existing equipment cabinets.

The Sprint installation was initially issued a BP by the Town of Ledyard on 08/25/1999. The documents enclosed reflect the reality of the current installations on the Tower.

If you have any questions, please feel free to contact me.

Thank you,

By: *Paul F. Sagristano*

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

4 Davis Road West, Suite 5 – Old Lyme, CT 06371

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

Re: Notice of Exempt Modification Application
889R Colonel Ledyard Highway, Ledyard, CT 06339

Latitude : N41.3680
Longitude: W72.8093

June 20, 2018

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 6 existing panel antenna at the 224'11" level of the Tower. Sprint proposes to remove all 6 panel antennas (2 per sector) and replace with 6 new panel antennas (2 per sector). Sprint also proposes removing the 3 existing ground based remote radio units and installing them at the 224' 11" level on the tower along with 9 additional remote radio units (3 per sector) at 224' 11"' tower level as well as 4 hybrid cables and various Antenna-RRH jumper cables. Any ground based modifications will be added to existing equipment cabinets. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

The original building permit was issued by the town of Ledyard on August 25, 1999. The original CT Siting Council approval for an exempt modification was issued October 8, 2002.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to and to Fred Allen III, Mayor of Ledyard as well as Charles Karno, Planning director for the Town of Ledyard, and to Mr. John Fuller, Owner of Red Wolf Broadcasting the Tower owner.
.
Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration.

Existing Facility

The Northford facility is located at 899R Colonel Ledyard Highway, and is owned by Red Wolf Broadcasting, the Site coordinates are: N41.368-, W72.8093

The existing facility consists of a 347' guyed tower. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has 3 antennas mounted at a centerline of 224'11".

Statutory Considerations

The planned modifications to the facility fall within the activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2)

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Paul F. Sagristano

Paul F. Sagristano
Charles Cherundolo Consulting
917-841-0247
psagristano@lrivassoc.com

PFS/mtf

Additional Recipients:
Hon. Fred Allen III, Mayor of Ledyard, CT – Via Fed Ex
Charles Karno, Planning Director Town of Ledyard - Via Fed Ex
John Fuller, President of Red Wolf Broadcasting

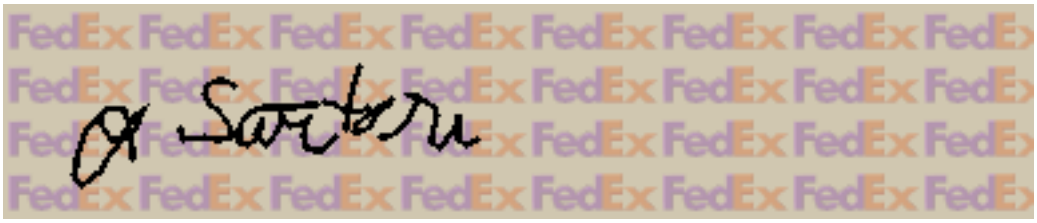
June 25,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **772511211296**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	M.LISA	**Delivery location:**	741 COLONEL LEDYARD HIGHWAY LEDYARD, CT 06339
Service type:	FedEx Express Saver	**Delivery date:**	Jun 25, 2018 13:17
Special Handling:	Deliver Weekday Direct Signature Required		



Shipping Information:

Tracking number:	772511211296	**Ship date:**	Jun 19, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Fred Allen III, Mayor
Town of Ledyard
741 Colonel Ledyard Highway
LEDYARD, CT 06339 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT23XC506 CSC to Mayor

Thank you for choosing FedEx.

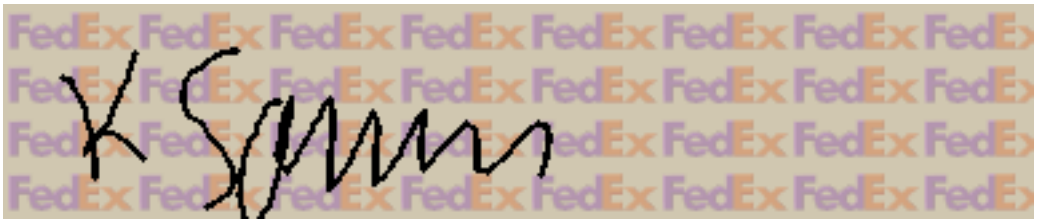
June 25,2018

Dear Customer:

The following is the proof-of-delivery for tracking number 772511295060.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	M.KAY	**Delivery location:**	758 COLONEL LEDYARD HWY LEDYARD, CT 06339
Service type:	FedEx Express Saver	**Delivery date:**	Jun 22, 2018 10:28
Special Handling:	Deliver Weekday Direct Signature Required		



Shipping Information:

Tracking number:	772511295060	**Ship date:**	Jun 19, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
John Fuller
Red Wolf Broadcasting
758 Colonel Ledyard Highway
LEDYARD, CT 06339 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT23XC506 CSC Resubmission

Thank you for choosing FedEx.

June 25,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **772511241461**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	J.LARKIN	**Delivery location:**	741 COLONEL LEDYARD HIGHWAY LEDYARD, CT 06339
Service type:	FedEx Express Saver	**Delivery date:**	Jun 25, 2018 13:19
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

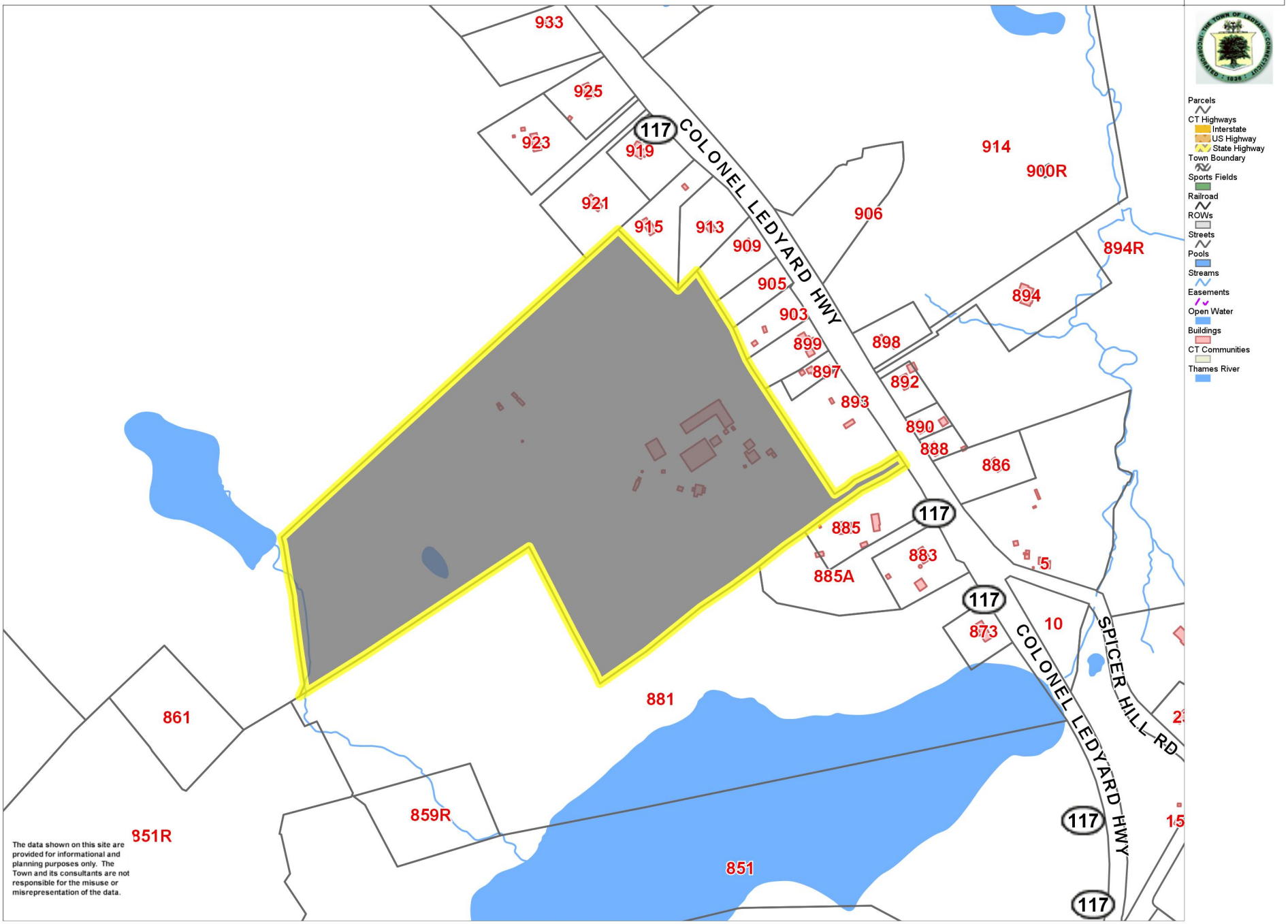
Tracking number:	772511241461	**Ship date:**	Jun 19, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Charles Karno, Planning Director
Town of Ledyard
741 Colonel Ledyard Highway
LEDYARD, CT 06339 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT23XC506 CSC to Mayor

Thank you for choosing FedEx.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851R
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COLONEL LEDYARD HWY
SPICER HILL RD
117
Parcels
CT Highways
Interstate
US Highway
State Highway
Town Boundary
Sports Fields
Railroad
ROWs
Streets
Pools
Streams
Easements
Open Water
Buildings
CT Communities
Thames River
The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.
0
660
1320 ft
Printed on 11/06/2017 at 12:06 PM
Ledyard, CT MapsOnline

Town of Ledyard Property Summary Report

889R COLONEL LEDYARD HWY

PARCEL ID:	40-530-889-R
LOCATION:	889R COLONEL LEDYARD HWY
OWNER NAME:	I TOWN OF LEDYARD / HIGHWAY GARAGE/DUMP SITE

OWNER OF RECORD
I TOWN OF LEDYARD
HIGHWAY GARAGE/DUMP SITE
741 COLONEL LEDYARD HWY
LEDYARD, CT 06339

LIVING AREA:	9440	**ZONING:**	R60	**ACREAGE:**	49.61 AC

SALES HISTORY

OWNER	BOOK / PAGE	SALE DATE	SALE PRICE
I TOWN OF LEDYARD HIGHWAY GARAGE/DUMP SITE	00094/0547	16-Aug-1974	$0.00
			$0.00

CURRENT ASSESSED VALUE

TOTAL:	$619,220.00	**IMPROVEMENTS:**	$295,050.00	**LAND:**	$324,170.00

ASSESSING HISTORY

FISCAL YEAR	TOTAL VALUE	IMPROVEMENT VALUE	LAND VALUE
2016	$619,220.00	$295,050.00	$324,170.00
2015	$619,220.00	$295,050.00	$324,170.00
2014	$683,480.00	$342,160.00	$341,320.00
2013	$683,480.00	$342,160.00	$341,320.00
2012	$683,480.00	$342,160.00	$341,320.00

Town of Ledyard Property Summary Report

889R COLONEL LEDYARD HWY

PARCEL ID:	40-530-889-R
LOCATION:	889R COLONEL LEDYARD HWY
OWNER NAME:	I TOWN OF LEDYARD / HIGHWAY GARAGE/DUMP SITE

BUILDING # 1

YEAR BUILT	1985	**ROOF STRUCTURE**	Gable/Hip
STYLE	Pre-Eng Gar	**ROOF COVER**	Metal/Tin
MODEL	Ind or Comm	**FLOOR COVER 1**	Concr-Finished
GRADE	Average +	**FLOOR COVER 2**	
STORIES	1	**HEAT FUEL**	Oil
OCCUPANCY	Municipal M96	**HEAT TYPE**	Hot Air-no Duc
EXT WALL 1	Pre-finsh Metl	**AC TYPE**	None
EXT WALL 2		**BEDROOMS**	
INT WALLS 1	Minim/Masonry	**FULL BATHS**	0
INT WALLS 2		**HALF BATHS**	
		TOT ROOMS	

OUTBUILDINGS

DESCRIPTION	CODE	UNITS
Shed	SHD1	4960 S.F.
Pole barn	BRN8	7200 S.F.
Shed-Metal	SHD3	120 S.F.
Fence- 8ft Chn	FN4	280 L.F.
Shed	SHD1	77 S.F.
Workshop w/imp	SHP4	4360 S.F.
Kennel Good	KEN2	1824 S.F.
Pole barn	BRN8	3600 S.F.
Garage	FGR1	336 S.F.
Shed	SHD1	120 S.F.
CELL ANTENNA		1

09/28/99 23:19 FAX 02
09/28/99 12:05 FAX 860 464 1126 TOWN OF LEDYARD 001

NEW STRUCTURE
$10/1st $1,000 est. cost
$4/Ea. add. $1,000 or part of
$.16/$1,000 est. cost State Fee

PERMIT #: 99-338

TOWN OF LEDYARD
PERMIT

CT23XC506

EST. COST: 30,000 FEE: 121.80 Y/N

APPL. DATE: 9/13/99 TYPE: Building ISSUE DATE: ________

USE GROUP: ________ TYPE CONST: ________ ZONING DIST: ________

LOCATION OF JOB: 5?? Rear Colonel Ledyard Road

OWNER: Town of Ledyard [illegible] TELE. #: ________

ADDRESS (IF OTHER THAN ABOVE): 741 Colonel Ledyard Rd.

CONTRACTOR: Sprint PCS
ADDRESS:
TELEPHONE:
LICENSE NUMBER:

DESCRIPTION OF WORK TO BE PERFORMED: Installation of telecommunication equipment + Antennas on existing Tower owned in partnership by the Town of Ledyard + Rod Stanford Broadcasting.

SIZE/LENGTH: ________ WIDTH: ________ HEIGHT: ________

BATHS: ________ # BEDROOMS: ________
ATTACHED GARAGE YES________ NO________
GARAGE UNDER YES________ NO________

SIGNATURE OF OWNER/AGENT: [signature] I HAVE BEEN AUTHORIZED BY THE OWNER TO MAKE THIS APPLICATION AS HIS AUTHORIZED AGENT.

BUILDING OFFICIAL [signature]

REVIEWED ________ APPROVED 9-3-99

DENIED ________ REASON OR REASONS FOR DENIAL ________

NEEDS ZONING COMMISSION REVIEW UNDER SECTION 11.0

ZONING OFFICIAL ________ APPROVED ________

DENIED ________ REASON ________

Post-it® Fax Note 7671	Date 9-28-99 # of pages 1
To Rod Stanford	From Ledyard
Co./Dept. Sprint	Co. Building
Phone #	Phone # Dept.
Fax # 203-634-1591	Fax #

E PROVIDED BY THE APPLICANT FOR THE
FAMILY AND ALL COMMERCIAL USES.

APPROVED ________ DENIED ________

APPROVED ________ DENIED ________

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT23XC506

Uncasville
899 Colonel Ledyard Road
Ledyard, CT 06339

May 9, 2018

EBI Project Number: 6218003679

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.31 %

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

EBI Consulting
environmental | engineering | due diligence

May 9, 2018

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT23XC506 – Uncasville**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **899 Colonel Ledyard Road, Ledyard, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **899 Colonel Ledyard Road, Ledyard, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) 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.

7) 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 manufactures supplied specifications minus 10 dB 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.

8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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.

9) The antenna mounting height centerlines of the proposed antennas are **224.92 feet** above ground level (AGL) for **Sector A**, **224.92 feet** above ground level (AGL) for **Sector B** and **224.92 feet** above ground level (AGL) for Sector C.

10) 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.

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**224.92 feet**	Height (AGL):	**224.92 feet**	Height (AGL):	**224.92 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	6,248.42	ERP (W):	6,248.42	ERP (W):	6,248.42
Antenna A1 MPE%	**0.53 %**	Antenna B1 MPE%	**0.53 %**	Antenna C1 MPE%	**0.53 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**224.92 feet**	Height (AGL):	**224.92 feet**	Height (AGL):	**224.92 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**0.47 %**	Antenna B2 MPE%	**0.47 %**	Antenna C2 MPE%	**0.47 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.00 %**
Red Wolf, WERI	0.57 %
Marcus	0.14 %
Arch	0.09 %
Nextel	0.11 %
AT&T	1.44 %
Verizon Wireless	1.70 %
T-Mobile	1.26 %
Site Total MPE %:	**6.31 %**

SPRINT Sector A Total:	1.00 %
SPRINT Sector B Total:	1.00 %
SPRINT Sector C Total:	1.00 %
Site Total:	6.31 %

SPRINT _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	224.92	0.28	850 MHz	567	0.05%
Sprint 850 MHz LTE	2	376.73	224.92	0.57	850 MHz	567	0.10%
Sprint 1900 MHz (PCS) CDMA	5	511.82	224.92	1.92	1900 MHz (PCS)	1000	0.19%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	224.92	1.92	1900 MHz (PCS)	1000	0.19%
Sprint 2500 MHz (BRS) LTE	8	778.09	224.92	4.67	2500 MHz (BRS)	1000	0.47%
						Total:	**1.00%**

Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.00 %
Sector B:	1.00 %
Sector C:	1.00 %
SPRINT Maximum Total (per sector):	1.00 %
Site Total:	6.31 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.31 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

MASER CONSULTING
— CONNECTICUT —

Engineers Planners Surveyors Landscape Architects Environmental Scientists

Guy Tower & Antenna Mount Structural Analysis

FOR

Uncasville

Site ID: CT23XC506
899 Colonel Ledyard Road
Ledyard, CT 06339
New London County

Mount Utilization: 74.3%
Guy Tower Utilization: 88.6%

April 12, 2018

Prepared For

Sprint
201 State Route 17 North
Rutherford, NJ 07070

Prepared By

Maser Consulting Connecticut
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
T: 732.383.1950

STATE OF CONNECTICUT
PETROS TSOUKALAS
32577
LICENSED PROFESSIONAL ENGINEER

Petros E. Tsoukalas P.E.
Connecticut Licensed Professional Engineer
License No. PEN.32577

MC Project No. 17924004A

Objective:

The objective of this report is to determine the capacity of the existing the existing 347' lattice guyed tower structure and antenna support mount at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

Introduction:

Maser Consulting Connecticut has reviewed the following documents in completing this report:

- Previous Antenna mount modifications analysis (17924004A) performed by Maser Consulting P.A., dated February 6, 2018
- RFDS 45796 provided by Sprint, dated October 18, 2017
- Construction Drawings Prepared by Maser Consulting P.A. dated April 6, 2018
- Previous Structural Analysis report prepared by EBI Consulting dated, March 13, 2015.
- Previous Structural Analysis report prepared by Maser Consulting (17924004A), dated October 10, 2017

The proposed **SPRINT** equipment is supported on an existing 347'-0" lattice guyed tower structure. The primary tower structure is constructed of pipe legs with welded diagonals and horizontals. The proposed **SPRINT** equipment is supported on an existing antenna support mounts constructed of structural steel antenna support pipes supported by Steel Pipes and Solid Rods at a centerline of approximately 224'-11" above ground level. This report is based only upon this information, as well as the information obtained in the field.

Codes, Standards and Loading:

Maser Consulting Connecticut utilized the following codes and standards:

- 2016 Connecticut State Building Code, Incorporating the 2012 IBC
- Structural Standards for Antenna Supporting Structures and Antennas ANSI/TIA-222-G
    - Basic Wind Speed – 104 mph (3 Second Gust)
    - Exposure Category – C
    - Structural Class – II
    - Topographic Category – 1
    - Ice Wind – 50 mph
    - Ice Thickness – .75"
- Specification for Structural Steel Buildings ANSI/AISC 360-10, American Institute of Steel Construction (AISC)

Loading used in this analysis is found in Appendix A of this report.

Analysis Approach & Assumptions:

The analysis approach used in this structural analysis is based on the premise that if the existing guyed lattice structure is structurally adequate to support the existing and proposed equipment per the aforementioned codes and standards, or if the increase in the forces in the structure are deemed to be negligible or acceptable, then the proposed equipment can be installed as intended. Tower Numerics, tnx Tower, a tower analysis and design program, designed specifically for the telecommunications industry and for all applicable codes and standards was used for this structural analysis.

The analysis approach used in this structural analysis is based on the premise that if the existing antenna support mount is structurally adequate to support the proposed equipment per the codes and standards,

or if the increase in the forces in the structure is deemed to be negligible or acceptable, then the proposed equipment can be installed as intended.

The existing antenna mount in all sectors has been modeled in RISA-3D, a comprehensive structural analysis program. The program performs design checks of structures under user specified loads. The user specified loads have been calculated separately based on the requirements of the above referenced codes. The program performs an analysis based on the steel code to determine the adequacy of the members, and produces the reactions at the connection points of the mounts to the existing structure. Additional calculations were then prepared to analyze the mount connection points with the proposed loading conditions.

General Site Design Assumption:

- Structural Steel Main Legs Diagonals and Girts are constructed of A572-50 Grade Steel.
- Structural Steel Plate members are constructed of A36 Grade.
- Structural Bolts are assumed to be A325N grade.
- Tower is installed to plumb and is maintained properly without any structural deficiencies or deteriorations to the original design.
- All engineering services are performed on the basis that the information used is current and correct.
- It is assumed that the telecommunication equipment supports, antenna supports, and existing structure have been designed by a registered licensed professional engineer for the existing loads acting on the structure, as required by all applicable codes, prior to the proposed modifications listed within this report, if any.
- It is assumed that information provided by the client regarding the structure itself, the antenna models, feed lines, and other relevant information is current and correct.
- It is the responsibility of the client to ensure that the information provided to Maser Consulting Connecticut and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that the original design, material production, fabrication, and erection of the existing structure was performed in accordance with accepted industry design standards and in accordance with all applicable codes. Further, it is assumed that the existing structure and appurtenances have been properly maintained in accordance with all applicable codes and manufacturer's specifications and no structural defects and/or deterioration to the structural members has occurred.
- It is assumed all other existing appurtenances, antennas, cables, etc. belonging to others have been installed and supported per code and per specifications so as not to damage any existing structural support members, and that any contributing loads from adjacent equipment has been taken into consideration for their design.
- All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting Connecticut is not responsible for the conclusion, opinions, and recommendations made by others based on the information we supply.

Site Specific Design Parameters:

The following design parameters have been utilized in this report:

- *Structural Steel Pipes are constructed of A53 Grade B Steel*
- *The Proposed Modifications listed in Previous Antenna mount modifications analysis (17924004A) performed by Maser Consulting P.A., dated February 6, 2018 have been installed*

Calculations:

The calculations are found in Appendix A & B of this report.

Conclusion:

Maser Consulting Connecticut has determined the existing antenna support mount has **ADEQUATE** structural capacity to support the proposed loading. The existing antenna support mount has been determined to be stressed to a maximum of **74.3%** of its structural capacity with the maximum usage occurring at the .625" Steel Brace Rods. Therefore, the proposed **Sprint** installation **CAN** be installed as intended.

The existing guyed lattice tower was analyzed for the loading in the applicable codes and standards. The tower has been determined to be structurally **ADEQUATE** to support the proposed and existing antennas, based upon the aforementioned assumptions.

The lattice tower has been determined to be stressed to a maximum of **88.6%** of its structural capacity with the maximum usage occurring at the leg members between 160'-180' elevation.

Foundation Reaction Comparison

	Foundation Capacity	Current Forces	Pass/Fail (Utilization %)
Base Axial	515.56 kips	436.3 kips	**Pass (84.6%)**
Anchor Shear	168.88 kips	143.5 kips	**Pass (85%)**
Anchor Uplift	160.52 kips	154.6 kips	**Pass (97.2%)**

*Based on calculations provided in the reference structural analysis and multiplied by a factor of 1.35 per 15.5.1 section of the 222G-Code.

The foundation in comparison with the capacities from the previous structural analysis referenced above is observed to have **ADEQUATE** capacity. Therefore, the proposed **SPRINT** installation **CAN** be placed as intended.

It should be noted that due to a lack of information Maser Consulting Connecticut did not perform an analysis on the foundation, but a comparison of the capacities summarized in previous analysis with the current forces has been determined. If information is provided, then this report can be amended. The conclusions reached by Maser Consulting Connecticut in this evaluation are only applicable for the existing structural members supporting the proposed **SPRINT** telecommunications installation described herein.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.

Sincerely,

Maser Consulting Connecticut

Petros E. Tsoukalas P.E.
Connecticut Licensed Professional Engineer
License No. PEN.32577

Anthony Bassett
Structural Engineer

\\MTCAD01\Projects\2017\17924000A\17924002A\Structural\Mount Modification\Rev 3\Word

APPENDIX A

Client:	Sprint	Computed By:	AB
Site Name:	Uncasville	Date:	4/11/2018
Project No.	17924004A	Verified By:	PET
Title:	Antenna Mount Analysis	Page:	1

Version 3.3

1. LOADING SUMMARY

Quantity	Manufacturer	Antenna/ Appurtenance	Status	Sector
3	RFS	APXVTM14-ALU-I20	Proposed	Alpha, Beta, & Gamma
3	COMMSCOPE	NNVV-65B-R4	Proposed	Alpha, Beta, & Gamma
3	ALCATEL-LUCENT	TD-RRH8x20-25	Proposed	Alpha, Beta, & Gamma
3	ALCATEL-LUCENT	RRH4x45-1900	Relocated	Alpha, Beta, & Gamma
6	ALCATEL-LUCENT	RRH 2x50-800	Proposed	Alpha, Beta, & Gamma

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ANALYSIS AND DESIGN

Client:	Sprint	Computed By:	AB
Site Name:	Uncasville	Date:	4/11/2018
Project No.	17924004A	Verified By:	PET
Title:	Antenna Mount Analysis	Page:	3

I. DESIGN INPUTS

Calculations for gravity and lateral loading on equipment and support mounts are determined as per the ANSI/TIA-222-G Code, Addendum 2

				Reference	Equation
Wind Load Inputs Parameters					
Antenna Centerline	z	224.9	ft		
Normal Wind Speed (3 sec. Gust):	V	104	mph	Ref. 1, Eqn. 16-33	
Normal Wind Speed with Ice (3 sec. gust):	V_i	50.0	mph	(Figure a5-2a, p. 233)	
Service Wind Speed:	V_s	60.0	mph	(Figure a5-2a, p. 233)	
Design Ice Thickness:	t_i	0.75	in	(Figure A1-2a, p. 233)	
Exposure Category:		C		Ref. 3, Section 2.6.5.1	
Structure Class:		II		Ref. 3, Table 2-1	
Gust Effect Factor:	G_h	0.85		Ref. 3, Section 2.6.7	
Wind Directionality Factor:	K_d	0.85		Ref. 3, Table 2-2	
Topographic Category:		1		Ref. 3, Section 2.6.6.2	
Wind Load Coefficients					
Importance Factors:					
Non-Iced:	I	1		Ref. 3, Table 2-3	
Iced:	I_{ice}	1		(Table 2-3, P. 39)	
Exposure Category Coefficients:					
3-s Gust-Speed Power Law Exponent:	α	9.5		Ref. 3, Table 2-4	
Nominal Height of the Atmospheric Boundary Layer:	Z_g	900	ft	Ref. 3, Table 2-4	
Min. Value for k_z:	Kz_{min}	0.85		Ref. 3, Table 2-4	
Terrain Constant:	K_e	1.00		Ref. 3, Table 2-4	
Velocity Pressure Exposure Coefficient:	K_z	1.501		Ref. 3, Section 2.6.5.2	$=2.01\cdot(z/z_g)^{2/\alpha}$
Topographic Category Coefficients:					
Topographic Constant:	K_t	N/A		Ref. 3, Table 2-5	
Height Attenuation Factor:	f	N/A		Ref. 3, Table 2-5	
Height Reduction Factor:	K_h	N/A		Ref. 3, Section 2.6.6.4	$=e^{(f\cdot z/H)}$
Topographic Factor:	K_{zt}	1.00		Ref.3, Section 2.6.6.4	$=[1+(K_e\cdot K_t/K_h)]^2$
Ice Accumulation:					
Ice Velocity Pressure Exposure Coefficient:	K_{iz}	1.21			$=(z/33)^{0.10}$
Factored Ice Thickness:	t_{iz}	1.82	in	(Section 2.6.8, p. 16)	$=2.0\cdot t_i\cdot I\cdot K_{iz}\cdot K_{zt}$
Ice Density:	ρ_i	56.00	pcf		
Design Wind Pressures:					
Velocity Pressure:	q_z	35.33	psf	Ref. 3, Section 2.6.9.6	$=0.00256\cdot K_z\cdot K_{zt}\cdot K_d\cdot V^2\cdot I$
Velocity Pressure (With Ice):	q_{zi}	8.17	psf	(Section 2.6.9.6, P. 25)	$=.00256\cdot K_z\cdot K_{zt}\cdot K_d\cdot V_i^{\,2}\cdot I$
Velocity Pressure (Service):	q_{zs}	11.76	psf	(Section 2.6.9.6, P. 25)	$=.00256\cdot K_z\cdot K_{zt}\cdot K_d\cdot V_i^{\,2}\cdot I$

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CONSULTING P.A.

II. CALCULATIONS

- ***Wind Load on Appurtenances***

Dimensions and Force Coefficients

Antenna/ Appurtenance	Non-Iced Condition								Iced Condition							
	Mounting Pipe			Equipment					Mounting Pipe			Equipment				
	Length (in)	Diameter (in)	Force Coefficient C_a	Height (in)	Width (in)	Depth (in)	Force Coefficient $C_{a\ Front}$	$C_{a\ Side}$	Length (in)	Diameter (in)	Force Coefficient C_a	Height (in)	Width (in)	Depth (in)	Force Coefficient $C_{a\ Front}$	$C_{a\ Side}$
APXVTM14-ALU-I20	72.0	2.375	1.200	56.30	12.60	6.30	1.29	1.46	75.6	6.0	0.924	59.93	16.23	9.93	1.25	1.36
NNVV-65B-R4	72.0	2.375	1.200	72.00	19.60	7.80	1.25	1.47	75.6	6.0	0.924	75.63	23.23	11.43	1.23	1.38
TD-RRH8x20-25	0.0	0.000	0.000	26.10	18.60	6.70	1.20	1.26	0.0	0.0	0.000	29.73	22.23	10.33	1.20	1.22
RRH4x45-1900	0.0	0.000	0.000	25.00	12.00	12.00	1.20	1.20	0.0	0.0	0.000	28.63	15.63	15.63	1.20	1.20
RRH 2x50-800	0.0	0.000	0.000	16.00	13.00	10.00	1.20	1.20	0.0	0.0	0.000	19.63	16.63	13.63	1.20	1.20
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					
	0.0	0.000	0.000						0.0	0.0	0.000					

Antenna/ Appurtenance	# of Brackets	Non-Iced Condition				Iced Condition			
		Wind Force (lbs.) F_N	F_T	Controlling Wind Force (lbs.)	Gravity (lbs.)	Wind Force (lbs.) F_N	F_T	Controlling Wind Force (lbs.)	Gravity (lbs.)
APXVTM14-ALU-I20	2	99.9	75.6	**99.9**	**33.9**	32.1	29.6	**32.1**	**88.2**
NNVV-65B-R4	2	184.2	107.7	**184.2**	**46.2**	52.2	38.9	**52.2**	**160.3**
TD-RRH8x20-25	2	60.7	23.0	**60.7**	**38.1**	19.1	9.0	**19.1**	**59.4**
RRH4x45-1900	2	37.5	37.5	**37.5**	**34.8**	12.9	12.9	**12.9**	**49.8**
RRH 2x50-800	2	26.0	20.0	**26.0**	**34.6**	9.4	7.7	**9.4**	**33.1**

*** ALL CALCULATED LOADS ARE PER MOUNTING BRACKET. TO GET THE TOTAL EQUIPMENT LOAD, MULTIPLY THE INDIVIDUAL LOADS BY THE NUMBER OF BRACKETS***

- ***Wind Load on Framing Members***

Member Category	Member Shape	Length (in)	Member Surface	Non-Iced Condition			Iced Condition					
				Exposed Wind Height (in)	Force Coefficient C_a	Wind Load (plf)	Exposed Wind Height (in)	Depth (in)	Length (in)	Force Coefficient C_a	Wind Load (plf)	Ice Weight (plf)
Pipe	Pipe 2.0	84	Round	2.38	1.20	7.13	6.01	6.01	87.63	0.97	3.37	9.31
Pipe	Pipe 1.25	78	Round	1.66	1.20	4.98	5.29	5.29	81.63	0.99	3.02	7.72
Pipe	Pipe 2.5	36	Round	2.88	0.92	6.64	6.51	6.51	39.63	0.78	2.94	10.42
Solid Round Bar	1.25	30	Round	1.25	1.18	3.68	4.88	4.88	33.63	0.80	2.25	6.81
Solid Round Bar	0.625	30	Round	0.63	1.20	1.88	4.26	4.26	33.63	0.82	2.02	5.42
Solid Round Bar	1	30	Round	1.00	1.20	3.00	4.63	4.63	33.63	0.81	2.16	6.26
Pipe	Pipe 2.0	78	Round	2.38	1.20	7.13	6.01	6.01	81.63	0.95	3.29	9.31

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BASIC EQUATIONS

ANSI/TIA-222-G Reference

Importance Factor: Table 2-3, Pg. 39

$$I := \begin{cases} 1.0 & \text{if Class} = \text{"II"} \\ 1.15 & \text{if Class} = \text{"III"} \end{cases}$$

Force Coefficient: (Square) Table 2-8, P. 42

$$C_{f\_square}(h, w) := \begin{cases} 1.2 & \text{if } \frac{h}{w} \le 2.5 \\ \left[1.2 + \frac{0.2}{4.5} \cdot \left(\frac{h}{w} - 2.5\right)\right] & \text{if } \frac{h}{w} > 2.5 \wedge \frac{h}{w} \le 7 \\ \left[1.4 + \frac{0.6}{18} \cdot \left(\frac{h}{w} - 7\right)\right] & \text{if } \frac{h}{w} > 7 \wedge \frac{h}{w} \le 25 \\ 2.0 & \text{otherwise} \end{cases}$$

Force Coefficient: (Round) Table 2-8, P. 42

$$C_{f\_round}(h, w) := \begin{cases} 0.7 & \text{if } \frac{h}{w} \le 2.5 \\ \left[0.7 + \frac{0.1}{4.5} \cdot \left(\frac{h}{w} - 2.5\right)\right] & \text{if } \frac{h}{w} > 2.5 \wedge \frac{h}{w} \le 7 \\ \left[0.8 + \frac{0.4}{18} \cdot \left(\frac{h}{w} - 7\right)\right] & \text{if } \frac{h}{w} > 7 \wedge \frac{h}{w} \le 25 \\ 1.2 & \text{otherwise} \end{cases}$$

Terrain Exposure Constants: Table 2-4, P. 40

$$\alpha := \begin{cases} 7.0 & \text{if Exp} = \text{"B"} \\ 9.5 & \text{if Exp} = \text{"C"} \\ 11.5 & \text{if Exp} = \text{"D"} \end{cases} \quad Z_g := \begin{cases} 1200\text{ft} & \text{if Exp} = \text{"B"} \\ 900\text{ft} & \text{if Exp} = \text{"C"} \\ 700\text{ft} & \text{if Exp} = \text{"D"} \end{cases} \quad K_{zmin} := \begin{cases} 0.70 & \text{if Exp} = \text{"B"} \\ 0.85 & \text{if Exp} = \text{"C"} \\ 1.03 & \text{if Exp} = \text{"D"} \end{cases}$$

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BASIC EQUATIONS

ANSI/TIA-222-G Reference

Velocity Pressure Coefficient:

$$Kz(z) := \left| \begin{array}{l} K_z \leftarrow \max\left[2.01 \cdot \left(\frac{z}{Z_g} \right)^{\frac{2}{\alpha}}, K_{zmin} \right] \\ K_z \leftarrow \min\left(K_z, 2.01 \right) \end{array} \right.$$

$K_z := Kz(z)$ — Section 2.6.5, P. 13

$$Kzt(z) := K_{zt} \leftarrow \left| \begin{array}{l} 1.0 \text{ if } Topo = "1" \\ \text{otherwise} \\ \quad \left| \begin{array}{l} K_e \leftarrow \left| \begin{array}{l} 0.90 \text{ if } Exp = "B" \\ 1.00 \text{ if } Exp = "C" \\ 1.10 \text{ if } Exp = "D" \end{array} \right. \\ K_t \leftarrow \left| \begin{array}{l} 0.43 \text{ if } Topo = "2" \\ 0.53 \text{ if } Topo = "3" \\ 0.72 \text{ if } Topo = "4" \end{array} \right. \\ f \leftarrow \left| \begin{array}{l} 1.25 \text{ if } Topo = "2" \\ 2.00 \text{ if } Topo = "3" \\ 1.50 \text{ if } Topo = "4" \end{array} \right. \\ K_h \leftarrow e^{\left(\frac{f \cdot z}{CH} \right)} \\ \left(1 + \frac{K_e \cdot K_t}{K_h} \right)^2 \end{array} \right. \end{array} \right.$$

Section 2.6.6.4, p. 14

Table 2-4 p. 40

Table 2-5 p. 40

Table 2-5 p. 40

Section 2.6.6.4, P. 14

Section 2.6.6.4, P. 14

$K_{zt} := Kzt(z)$

Velocity Pressure: — Section 2.6.9.6, P. 25

$$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I \cdot psf$$

LOAD EQUATIONS

WIND LOAD

Area (Normal): $AN_{area} = H_{ant} \cdot Want$

Area (Side): $AT_{area} = H_{ant} \cdot Dant$

Force Coefficient (Normal): $C_{fn} = C_{fsquare}(H_{ant}, Want)$

Force Coefficient (Side): $C_{fs} = C_{fsquare}(H_{ant}, Dant)$

Pipe Area (Normal): $AN_p = \max[(L_p - H_{ant}) * Dp, 0]$

Pipe Area (Side): $AT_p = L_p \cdot Dp$

Force Coefficient (Normal): $C_{fp} = C_{fround}(Lp, Dp)$

Normal Effective Projected Area: $E_{pan} = (C_{fn} \cdot ANarea) + (Cfp \cdot ANp)$

Side Effective Projected Area: $E_{pat} = (C_{fs} \cdot ATarea) + (Cfp \cdot ATp)$

Effective Projected Area: $EPA = max(E_{pan}, Epat)$

Wind Force: $F_{ant} = q_z \cdot Gh \cdot EPA$

ICE DEAD LOAD

Largest Out-to-Out Dimension: $D_{ant} = \sqrt{{D_{ant}}^2 + {W_{ant}}^2}$

Cross Sectional Area of Ice: $A_{ice\_ant} = \pi \cdot tiz \cdot (Dant + tiz)$

Total Ice Dead Load: $DL_{ice\_ant} = \boldsymbol{\rho_i} \cdot (Aice_{\_ant} \cdot Hant)$

ICE WIND LOAD

Dimensions: $H_{i_{ant}} = H_{ant} + 2tiz$

$W_{i_{ant}} = W_{ant} + 2tiz$

$D_{i_{ant}} = D_{ant} + 2tiz$

Area (Normal): $AIN_{area} = H_{i\_ant} \cdot W_{i\_ant}$

Area (Side): $AIT_{area} = H_{i\_ant} \cdot D_{i\_ant}$

Force Coefficient (Normal): $Ci_{fn} = C_{fsquare}(H_{i\_ant}, W_{i\_ant})$

Force Coefficient (Side): $Ci_{fs} = C_{fsquare}(H_{i\_ant}, D_{i\_ant})$

Pipe Area (Normal): $AN_p = \max[(L_{ip} - H_{i\_ant}) * D_{ip}, 0]$

Pipe Area (Side): $AT_p = L_{ip} \cdot Dip$

Force Coefficient (Normal): $C_{fp} = C_{fround}(L_{ip}, D_{ip})$

Normal Effective Projected Area: $E_{pain} = (Ci_{fn} \cdot ANarea) + (Cfp \cdot ANp)$

Side Effective Projected Area: $E_{pait} = (Ci_{fs} \cdot ATarea) + (Cfp \cdot ATp)$

Effective Projected Area: $EPA_i = max(E_{pain}, Epait)$

Wind Force: $F_{i\_ant} = q_z \cdot Gh \cdot EPAi$

III. ATTACHMENTS

Client:	Sprint	Computed By:	AB
Site Name:	Uncasville	Date:	4/11/2018
Project No.	17924004A	Verified By:	PET
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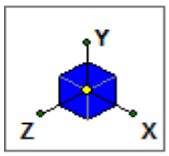
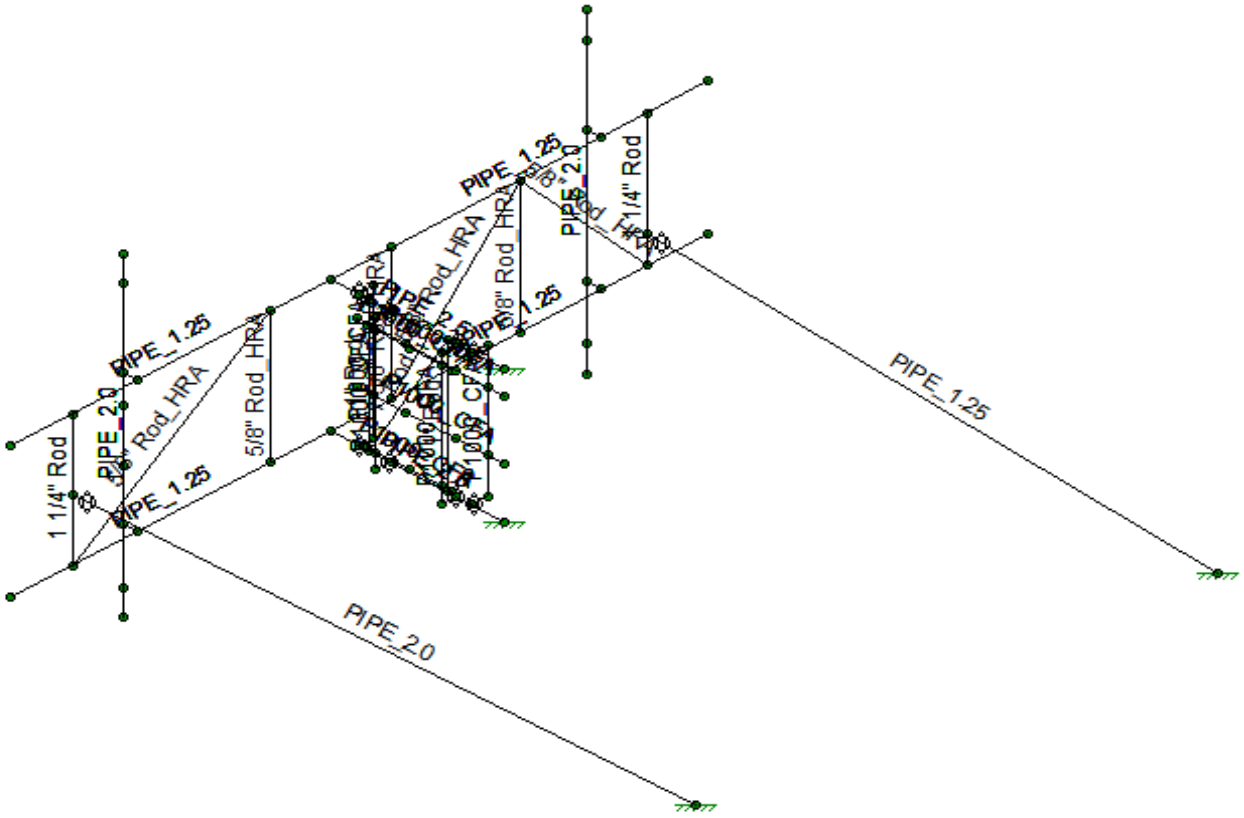
RISA MODEL





Client:	Sprint	Computed By:	AB
Site Name:	Uncasville	Date:	4/11/2018
Project No.	17924004A	Verified By:	PET
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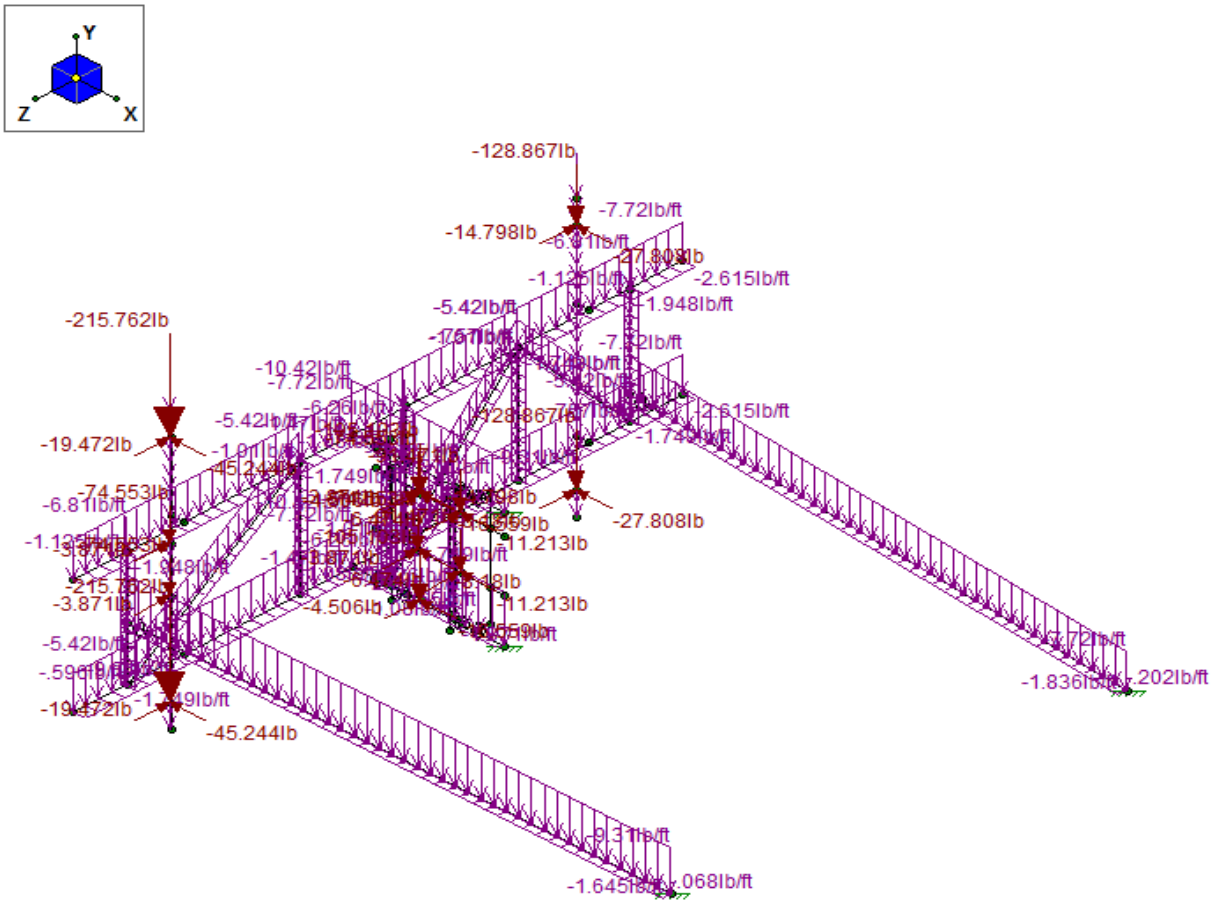
RISA WORST CASE LOADING



Loads: LC 22, 1.2D+1.0ICE+1.0W8ICE
Envelope Only Solution

Client:	Sprint	Computed By:	AB
Site Name:	Uncasville	Date:	4/11/2018
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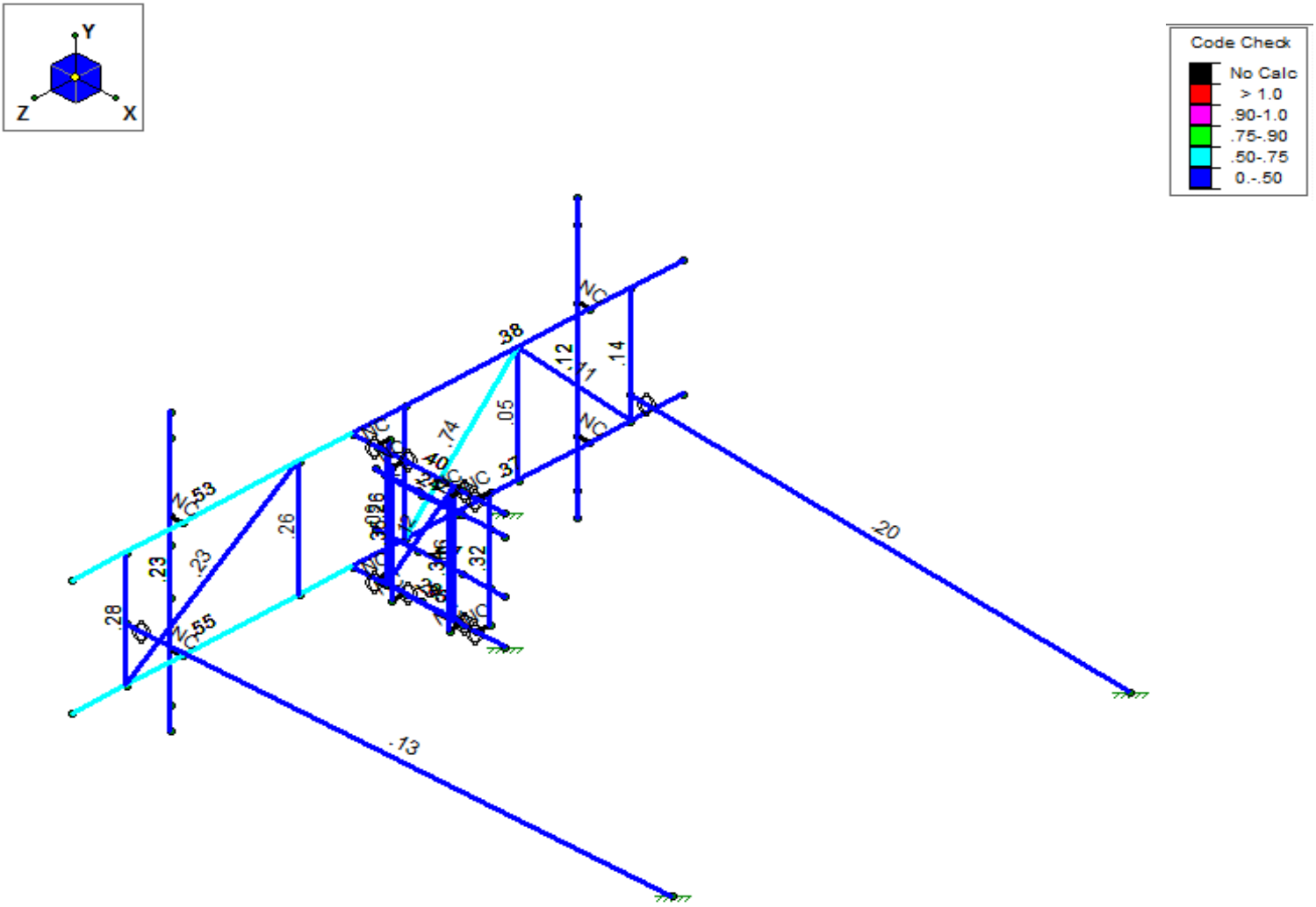
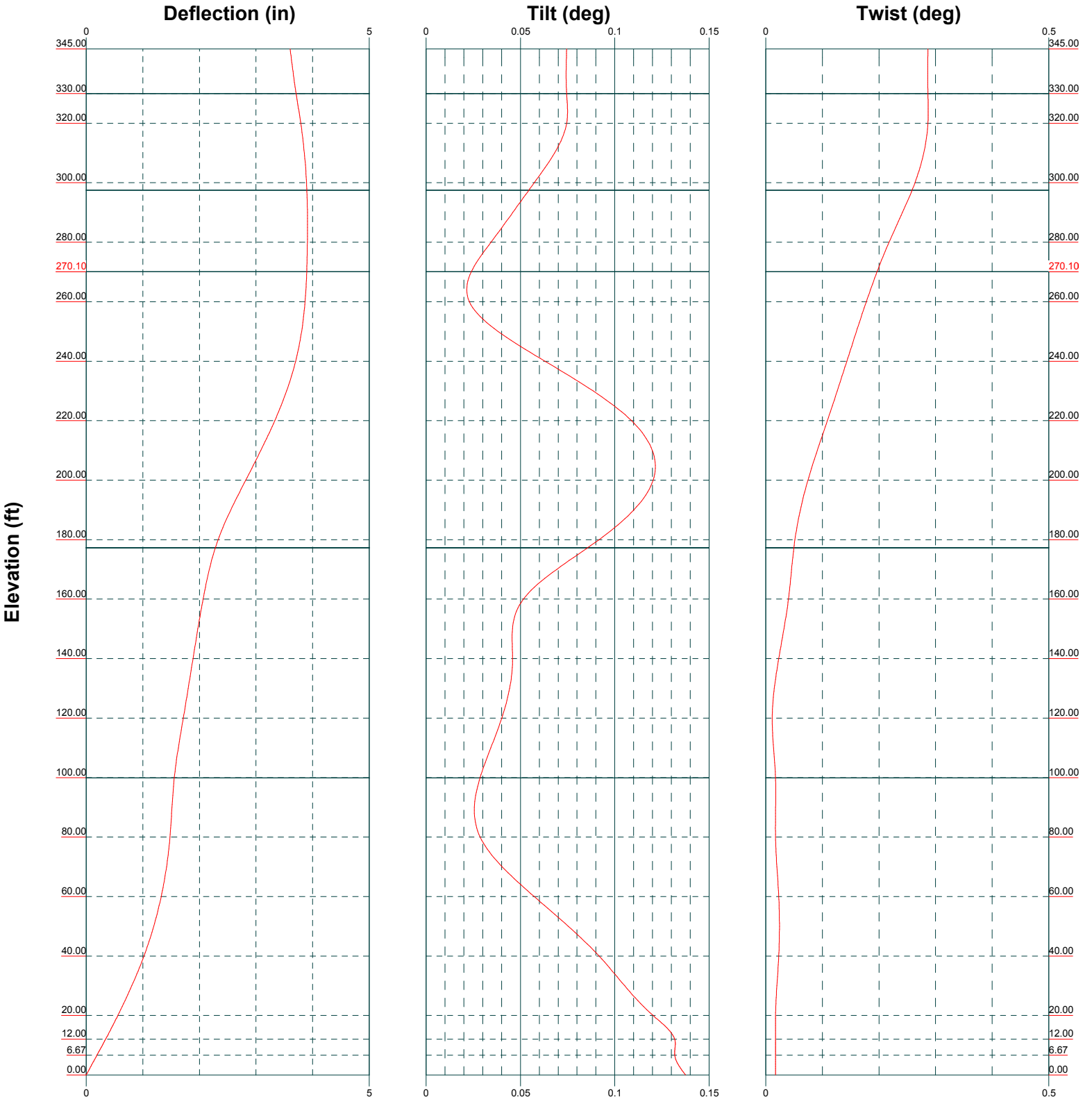
RISA CODE CHECK



APPENDIX B

TIA-222-G - Service - 60 mph

Maximum Values



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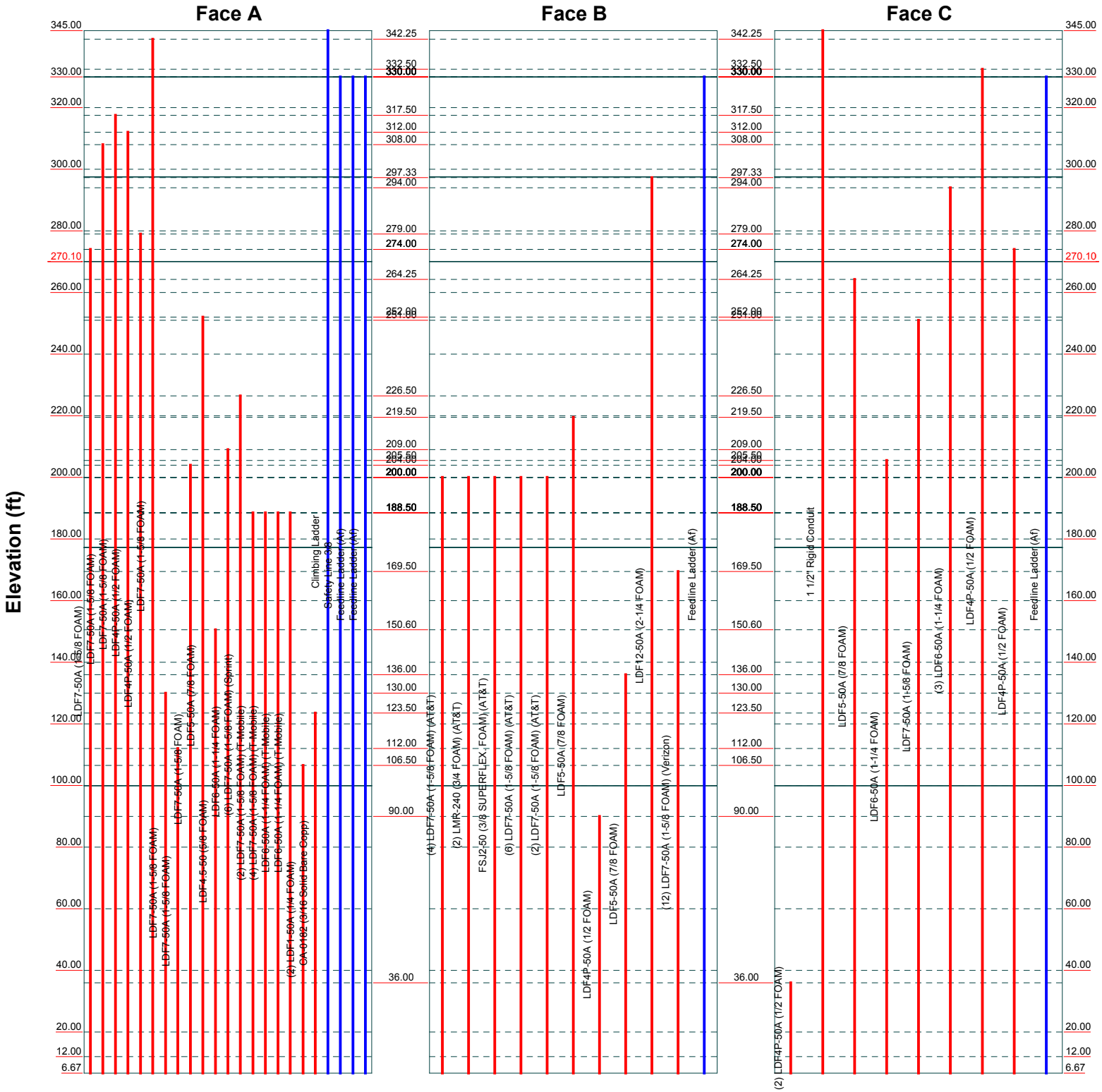
FAX: 973.398.3199

Job: ***Uncasville***		
Project: ***17924004A***		
Client: AT&T Mobility	Drawn by: abassett	App'd:
Code: TIA-222-G	Date: 04/12/18	Scale: NTS
Path: \\MTCAD01\Projects\2017\17924000A\17924004A\Structural\Mount Analysis & Tower Analysis\Rev 2\TNX\Tower.eri		Dwg No. E-5

Feed Line Distribution Chart
6'8-1/32" - 345'

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



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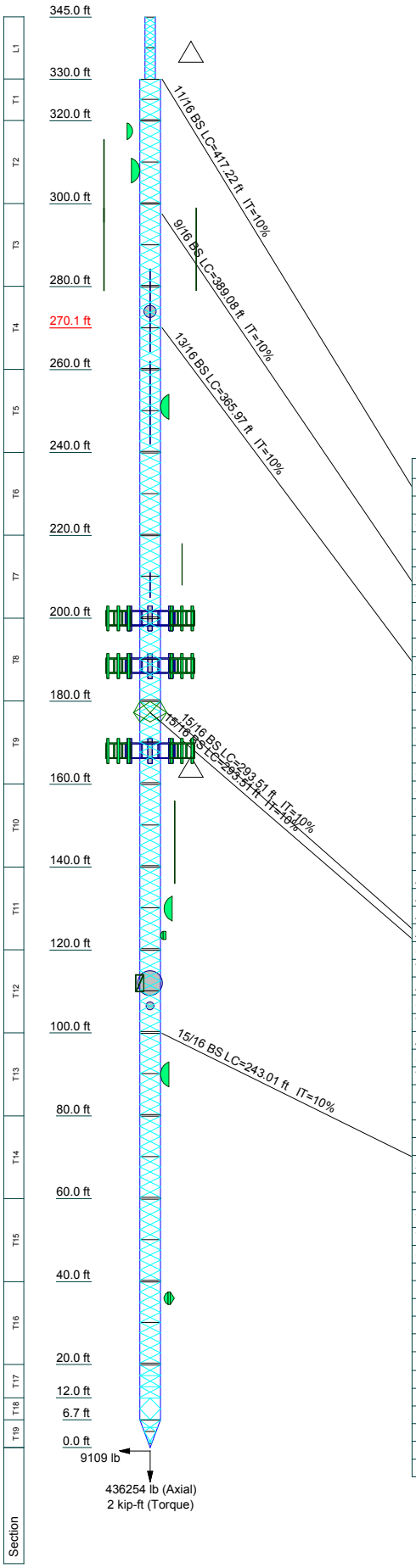
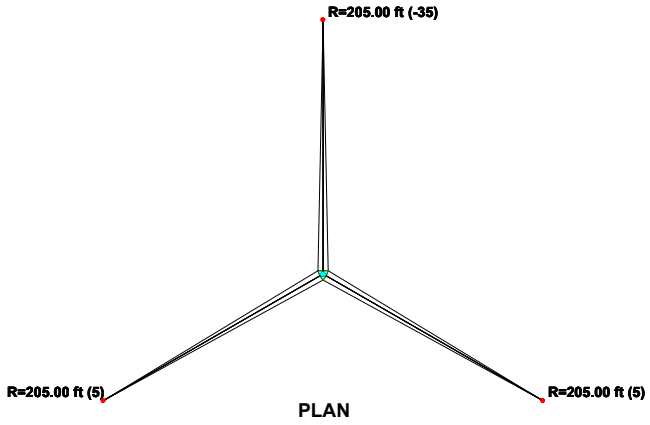
Job: ***Uncasville***			
Project: ***17924004A***			
Client: AT&T Mobility	Drawn by: abassett	App'd:	
Code: TIA-222-G	Date: 04/12/18	Scale: NTS	
Path: \\MTCAD01\Projects\2017\17924000A\17924004A\Structural\Mount Analysis & Tower Analysis\Rev 2\TNX\Towerleri		Dwg No. E-7	





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
P-9A120GN	317.5	Pirod 10' PCS Frame (1) (ATI)	200
P-9A72GN-S	308	7770 (ATI)	200
3" Dia 20' Omni	305.5	(3) 2" pipe 8' long (T-Mobile)	188.5
LeBlanc 10' Standoff (3)	294	(3) 2" pipe 8' long (T-Mobile)	188.5
LeBlanc 10' Standoff (3)	294	ERICSSON Genaric (T-Mobile)	188.5
3" Dia 20' Omni	294 - 284	ERICSSON Genaric (T-Mobile)	188.5
3" Dia 20' Omni	294 - 284	(3) 2" pipe 8' long (T-Mobile)	188.5
1105-1A	288	ERICSSON Genaric (T-Mobile)	188.5
1105-1A	279	(2) AIR 21 B2A B4P (T-Mobile)	188.5
3" Dia 20' Omni	274.25	(2) AIR 21 B2A B4P (T-Mobile)	188.5
5'3"x4" Pipe Mount	274	(2) AIR 21 B2A B4P (T-Mobile)	188.5
SPD6-58	274	LNX-6515DS-A1M (T-Mobile)	188.5
Pirod 4' Side Mount Standoff (1)	264.25	LNX-6515DS-A1M (T-Mobile)	188.5
Pirod 4' Side Mount Standoff (1)	262	LNX-6515DS-A1M (T-Mobile)	188.5
3" Dia 20' Omni	252	ERICSSON KRY 112 (T-Mobile)	188.5
P-9A72GN-S	251	ERICSSON KRY 112 (T-Mobile)	188.5
Site Pro LTF12-4126 (Sprint)	226.5	ERICSSON KRY 112 (T-Mobile)	188.5
Site Pro LTF12-4126 (Sprint)	226.5	Valmont 10' Wireless Frame (3) (T-Mobile)	186.5
Site Pro LTF12-4126 (Sprint)	226.5		
NNVV-65B-R4 (Sprint)	226.5	BXA-70063-6CF-EDIN w/MP (Verizon)	169.5
NNVV-65B-R4 (Sprint)	226.5	BXA-171063-12BF-EDIN-2 w/ MP (Verizon)	169.5
NNVV-65B-R4 (Sprint)	226.5	BXA-171063-12BF-EDIN-2 w/ MP (Verizon)	169.5
APXVTM14-ALU-I20 (Sprint)	226.5	BXA-171063-12BF-EDIN-2 w/ MP (Verizon)	169.5
APXVTM14-ALU-I20 (Sprint)	226.5		
APXVTM14-ALU-I20 (Sprint)	226.5	(2) ANDREW E15V95P08 04 (Verizon)	169.5
ALU RRH-4X45-1900 (Sprint)	226.5	(2) ANDREW E15V95P08 04 (Verizon)	169.5
(2) RRH-2X50-800 (Sprint)	226.5	(2) ANDREW E15V95P08 04 (Verizon)	169.5
TD-RRH8x20-25 (Sprint)	226.5	BXA-70063-6CF-EDIN w/MP (Verizon)	169.5
ALU RRH-4X45-1900 (Sprint)	226.5	(2) LPA-80063/4CFx5 w/Mount Pipe (Verizon)	169.5
(2) RRH-2X50-800 (Sprint)	226.5		
TD-RRH8x20-25 (Sprint)	226.5	(2) LPA-80063/4CFx5 w/Mount Pipe (Verizon)	169.5
ALU RRH-4X45-1900 (Sprint)	226.5		
(2) RRH-2X50-800 (Sprint)	226.5	(2) LPA-80080-4CF-EDIN w/MP (Verizon)	169.5
TD-RRH8x20-25 (Sprint)	226.5	BXA-70063-6CF-EDIN w/MP (Verizon)	169.5
1105-1A	219.5	Pirod 12' T-Frame Sector Mount (1) (Verizon)	168
15' OMNI	213		
MFF-950B	209	Pirod 12' T-Frame Sector Mount (1) (Verizon)	168
1.9"x4' pipe mount	209		
2" Dia 8' Omni	208	Pirod 12' T-Frame Sector Mount (1) (Verizon)	168
Pirod 6-8' Box Arm (1)	205.5		
Pirod 6-8' Box Arm (1)	204	(3) 1.9"x4' pipe mount	150.5
7770 (ATI)	200	13' Diapole	150.5
7770 (ATI)	200	3" Dia 20' Omni	146
(2) AM-X-CD-14-65-OOT-RET (ATI)	200	Pirod 4' Side Mount Standoff (1)	138.5
RRUS 11 (ATI)	200	P-9A72GN-S	130
RRUS 11 (ATI)	200	2'6"x4" Pipe Mount	130
RRUS 11 (ATI)	200	(2) HP2-18	123.5
RRUS 11 (ATI)	200	MTZ-940B	112
RRUS 11 (ATI)	200	3' Side Arm	112
DTMABP7819VG12A (ATI)	200	(2) HP2-18	106.5
DTMABP7819VG12A (ATI)	200	PR-950	90
DTMABP7819VG12A (ATI)	200	1.9"x4' pipe mount	90
DC6-48-60-18-8F (ATI)	200	SPD3-2.4NS	36
Pirod 10' PCS Frame (1) (ATI)	200		
Pirod 10' PCS Frame (1) (ATI)	200		

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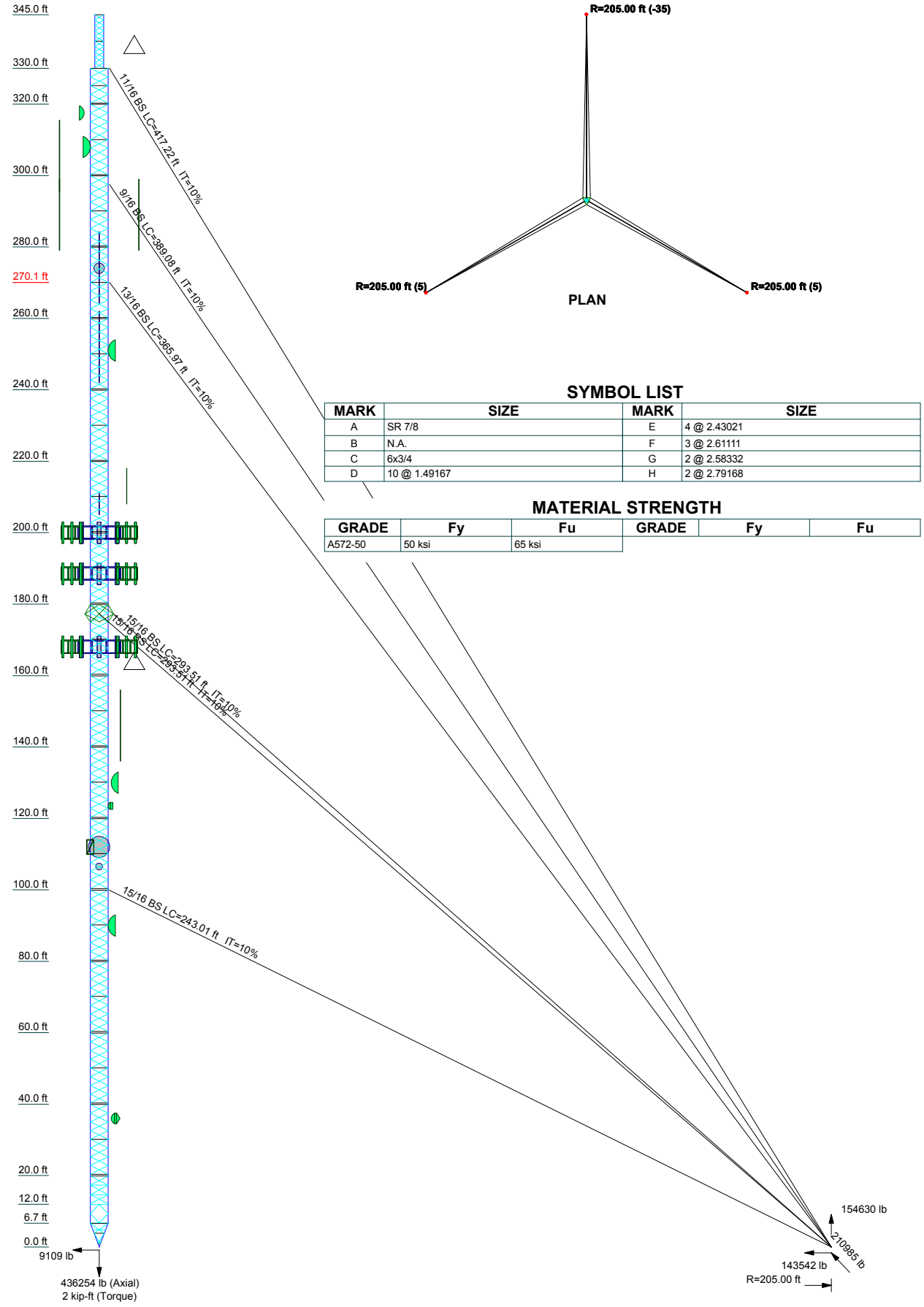
Code: TIA-222-G	Date: 04/12/18	Scale: NTS	
Path: \\MTCAD01\Projects\2017\17924000A\17924004A\Structural\Mount Analysis & Tower Analysis\Rev 2\TNX\Towerlert		Dwg No. E-1	

Section		T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1	L1
Legs								SR 2 3/4						SR 2 1/2			SR 2 1/4				SR 1 1/4
Leg Grade													A572-50								
Diagonals			SR 1 1/4					SR 1					SR 1 1/4				SR 1			SR 7/8	SR 1/2
Diagonal Grade													A572-50								
Top Girts	C	B	A					SR 1 1/4					SR 1 1/2	SR 1 1/4			SR 1			6x3/4	SR 3/4
Mid Girts	C		N.A.					SR 1 1/4					SR 1 1/2	SR 1 1/4			SR 1				SR 3/4
Bottom Girts	C		N.A.					SR 1 1/4					SR 1 1/2	SR 1 1/4			SR 1				N.A.
Horizontals		N.A.	C	A									N.A.								
Sec. Horizontals		A											N.A.								
Face Width (ft)																					2.5
# Panels @ (ft)		H	G	F					80 @ 2.44375								40 @ 2.45469			E	D
Weight (lb)	37015.0	11207.7	1011.0	1051.2	2220.2	2220.2	2220.2	2220.2	2220.2	2220.2	2220.2	3887.9	2728.7	1999.2	1728.9	1728.9	1728.9	1553.1	1553.1	1038.2	343.5



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 7/8	E	4 @ 2.43021
B	N.A.	F	3 @ 2.61111
C	6x3/4	G	2 @ 2.58332
D	10 @ 1.49167	H	2 @ 2.79168

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

ALL REACTIONS ARE FACTORED

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Path: \\MTCAD01\Projects\2017\17924000A\17924004A\Structural\Mount Analysis & Tower Analysis\Rev 2\TNX\Towereri			Dwg No. E-1

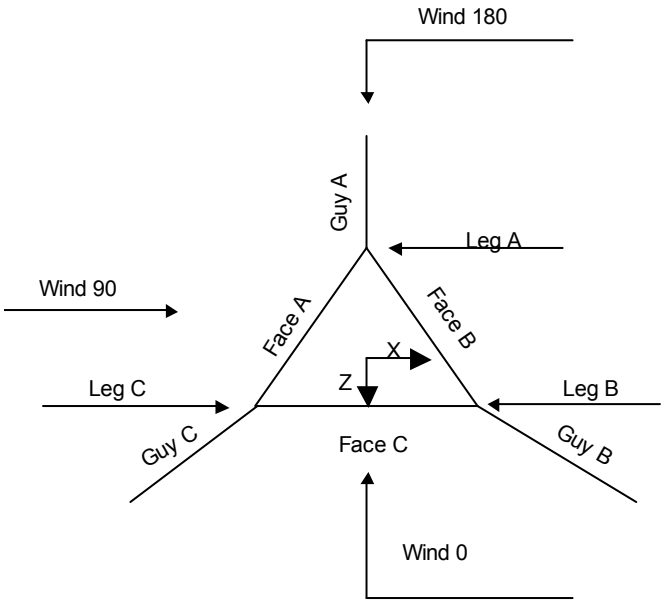
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 345.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and tapered at the base.
An index plate is provided at the 3 sided -tower connection.
There is a 3 sided latticed pole with a face width of 2.50 ft.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

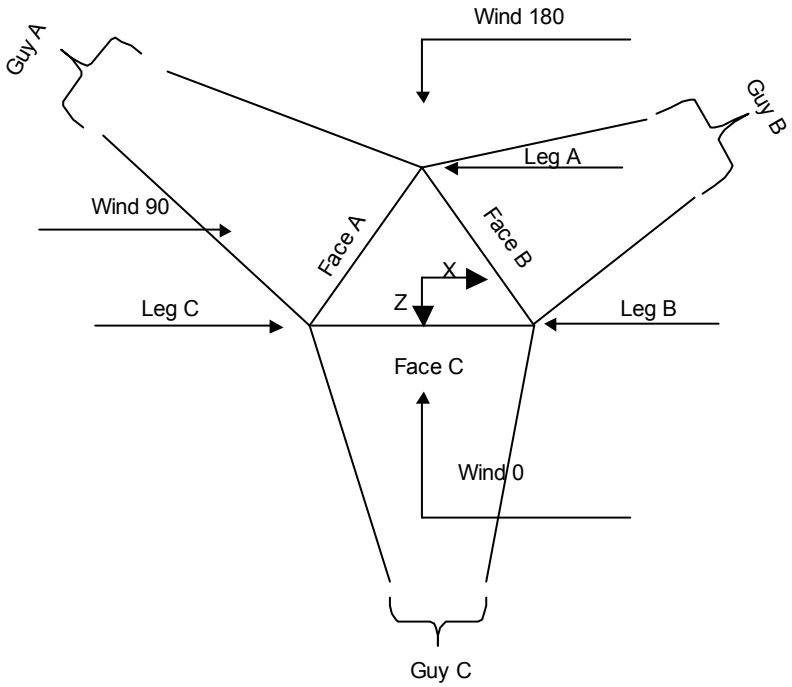
Tower is located in New London County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 104 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered 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.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
Pressures are calculated at each section.
Stress ratio used in latticed pole member design is 1.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
√ Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	√ Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Corner & Starmount Guyed Tower



Face Guyed

3 Sided Latticed Pole Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
L1	345.00-330.00			2.50	1	15.00

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
L1	345.00-330.00	1.49	X Brace	No	No	0.0000	1.0000

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
L1 345.00-330.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1/2	A572-50 (50 ksi)

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
L1 345.00-330.00	Solid Round	3/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
L1 345.00-330.00	1	Solid Round	3/4	A572-50 (50 ksi)	Flat Bar		A36 (36 ksi)

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 345.00-330.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
L1 345.00-330.00	Yes	Yes	1	1 1	1 1	0.75 0.75	1 0.75	1 1	1 1	1 1

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

3 Sided Latticed Pole Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
L1 345.00-330.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	330.00-320.00			5.00	1	10.00
T2	320.00-300.00			5.00	1	20.00
T3	300.00-280.00			5.00	1	20.00
T4	280.00-260.00			5.00	1	20.00
T5	260.00-240.00			5.00	1	20.00
T6	240.00-220.00			5.00	1	20.00
T7	220.00-200.00			5.00	1	20.00
T8	200.00-180.00			5.00	1	20.00
T9	180.00-160.00			5.00	1	20.00
T10	160.00-140.00			5.00	1	20.00
T11	140.00-120.00			5.00	1	20.00
T12	120.00-100.00			5.00	1	20.00
T13	100.00-80.00			5.00	1	20.00
T14	80.00-60.00			5.00	1	20.00
T15	60.00-40.00			5.00	1	20.00
T16	40.00-20.00			5.00	1	20.00
T17	20.00-12.00			5.00	1	8.00
T18	12.00-6.67			5.00	1	5.33
T19	6.67-0.00			5.00	1	6.67

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	330.00-320.00	2.43	X Brace	No	No	0.0000	3.3500
T2	320.00-300.00	2.45	X Brace	No	No	1.0000	3.3500
T3	300.00-280.00	2.45	X Brace	No	No	1.0000	3.3500
T4	280.00-260.00	2.45	X Brace	No	No	1.0000	3.3500
T5	260.00-240.00	2.45	X Brace	No	No	1.0000	3.3500

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T6	240.00-220.00	2.45	X Brace	No	No	1.0000	3.3500
T7	220.00-200.00	2.44	X Brace	No	No	1.0000	4.4000
T8	200.00-180.00	2.44	X Brace	No	No	1.0000	4.4000
T9	180.00-160.00	2.44	X Brace	No	No	1.0000	4.4000
T10	160.00-140.00	2.44	X Brace	No	No	1.0000	4.4000
T11	140.00-120.00	2.44	X Brace	No	No	1.0000	4.4000
T12	120.00-100.00	2.44	X Brace	No	No	1.0000	4.4000
T13	100.00-80.00	2.44	X Brace	No	No	1.0000	4.4000
T14	80.00-60.00	2.44	X Brace	No	No	1.0000	4.4000
T15	60.00-40.00	2.44	X Brace	No	No	1.0000	4.4000
T16	40.00-20.00	2.44	X Brace	No	No	1.0000	4.4000
T17	20.00-12.00	2.61	X Brace	No	Yes	1.0000	1.0000
T18	12.00-6.67	2.58	Diamond	No	Yes	1.0000	1.0000
T19	6.67-0.00	2.79	X Brace	No	Yes	1.0000	12.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 330.00-320.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 320.00-300.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 300.00-280.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T4 280.00-260.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T5 260.00-240.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T6 240.00-220.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T7 220.00-200.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T8 200.00-180.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T9 180.00-160.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T10 160.00-140.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T11 140.00-120.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T12 120.00-100.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T13 100.00-80.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T14 80.00-60.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T15 60.00-40.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T16 40.00-20.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T17 20.00-12.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T18 12.00-6.67	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T19 6.67-0.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 330.00-320.00	Flat Bar	6x3/4	A36 (36 ksi)	Solid Round	1	A572-50 (50 ksi)
T2 320.00-300.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 300.00-280.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 280.00-260.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T5 260.00-240.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T6 240.00-220.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T7 220.00-200.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T8 200.00-180.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	1 1/2	A572-50 (50 ksi)
T9 180.00-160.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	1 1/2	A572-50 (50 ksi)
T10 160.00-140.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T11 140.00-120.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T12 120.00-100.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T13 100.00-80.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T14 80.00-60.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T15 60.00-40.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T16 40.00-20.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T17 20.00-12.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T19 6.67-0.00	Flat Bar	6x3/4	A36 (36 ksi)	Flat Bar	6x3/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 330.00-320.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T2 320.00-300.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T3 300.00-280.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T4 280.00-260.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T5 260.00-240.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T6 240.00-220.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T7 220.00-200.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T8 200.00-180.00	1	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T9 180.00-160.00	1	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T10 160.00-140.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T11 140.00-120.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T12 120.00-100.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T13 100.00-80.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T14 80.00-60.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T15 60.00-40.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T16 40.00-20.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)
T17 20.00-12.00	None	Solid Round		A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T18 12.00-6.67	None	Flat Bar		A36 (36 ksi)	Flat Bar	6x3/4	A36 (36 ksi)
T19 6.67-0.00	1	Flat Bar	6x3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T19 6.67-0.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 330.00-320.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T2 320.00-300.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T3 300.00-280.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T4 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T5 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T6 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T7 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T8 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T9 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T10 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T11 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T12 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T13 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T14 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T15 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T16 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T17 20.00-12.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T18 12.00-6.67	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000
T19 6.67-0.00	0.00	0.0000	A36 (36 ksi)	1.05	1.05	1.05	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 330.00-320.00	Yes	Yes	1	1 1	1 1	1 1	1 0.75	1 1	1 1	1 1
T2 320.00-300.00	Yes	Yes	1	1 1	1 1	1 1	1 0.75	1 1	1 1	1 1
T3 300.00-280.00	Yes	Yes	1	1 1	1 1	1 1	1 0.75	1 1	1 1	1 1
T4 280.00-260.00	Yes	Yes	1	1 1	1 1	1 1	1 0.75	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Brace Diags X	K Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T5	Yes	Yes	1	1		1		1		1		1		1		1	
260.00-240.00				1		1		1		0.75		1		1		1	
T6	Yes	Yes	1	1		1		1		1		1		1		1	
240.00-220.00				1		1		1		0.75		1		1		1	
T7	Yes	Yes	1	1		1		1		1		1		1		1	
220.00-200.00				1		1		1		0.75		1		1		1	
T8	Yes	Yes	1	1		1		1		1		1		1		1	
200.00-180.00				1		1		1		0.75		1		1		1	
T9	Yes	Yes	1	1		1		1		1		1		1		1	
180.00-160.00				1		1		1		0.75		1		1		1	
T10	Yes	Yes	1	1		1		1		1		1		1		1	
160.00-140.00				1		1		1		0.75		1		1		1	
T11	Yes	Yes	1	1		1		1		1		1		1		1	
140.00-120.00				1		1		1		0.75		1		1		1	
T12	Yes	Yes	1	1		1		1		1		1		1		1	
120.00-100.00				1		1		1		0.75		1		1		1	
T13	Yes	Yes	1	1		1		1		1		1		1		1	
100.00-80.00				1		1		1		0.75		1		1		1	
T14	Yes	Yes	1	1		1		1		1		1		1		1	
80.00-60.00				1		1		1		0.75		1		1		1	
T15	Yes	Yes	1	1		1		1		1		1		1		1	
60.00-40.00				1		1		1		0.75		1		1		1	
T16	Yes	Yes	1	1		1		1		1		1		1		1	
40.00-20.00				1		1		1		0.75		1		1		1	
T17	Yes	Yes	1	1		1		1		1		1		1		1	
20.00-12.00				1		1		1		0.75		1		1		1	
T18	Yes	Yes	0.75	1		1		1		1		1		1		1	
12.00-6.67				1		1		1		1		1		1		1	
T19 6.67-0.00	Yes	Yes	1	1		1		1		1		1		1		1	
				1		1		1		1		1		1		1	

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
330.00-320.00														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
320.00-300.00														
T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
300.00-280.00														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
280.00-260.00														
T5	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
260.00-240.00														
T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
240.00-220.00														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T7 220.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 20.00-12.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 12.00-6.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 6.67-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 330.00-320.00	Flange	1.1250 A325N	9	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 320.00-300.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 300.00-280.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 280.00-260.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 260.00-240.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 240.00-220.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 220.00-200.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 200.00-180.00	Flange	0.8750 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 180.00-160.00	Flange	0.8750 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 160.00-140.00	Flange	0.8750 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T11 140.00-120.00	Flange	0.8750 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 120.00-100.00	Flange	0.8750 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 100.00-80.00	Flange	0.8750 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 80.00-60.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 60.00-40.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 40.00-20.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T17 20.00-12.00	Flange	0.7500 A325N	5	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T18 12.00-6.67	Flange	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T19 6.67-0.00	Flange	1.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
330	BS	A	11/16	5800.00	10%	24000	0.990	416.88	205.00	0.0000	-35.00	100%
		B	11/16	5800.00	10%	24000	0.990	382.40	205.00	0.0000	5.00	100%
		C	11/16	5800.00	10%	24000	0.990	382.40	205.00	0.0000	5.00	100%
270.098	BS	A	13/16	8000.00	10%	24000	1.390	365.67	205.00	0.0000	-35.00	100%
		B	13/16	8000.00	10%	24000	1.390	333.09	205.00	0.0000	5.00	100%
		C	13/16	8000.00	10%	24000	1.390	333.09	205.00	0.0000	5.00	100%
177.25	BS	A	15/16	10800.00	10%	24000	1.850	293.27	205.00	0.0000	-35.00	100%
		B	15/16	10800.00	10%	24000	1.850	265.81	205.00	0.0000	5.00	100%
		C	15/16	10800.00	10%	24000	1.850	265.81	205.00	0.0000	5.00	100%
99.9167	BS	A	15/16	10800.00	10%	24000	1.850	242.81	205.00	0.0000	-35.00	100%
		B	15/16	10800.00	10%	24000	1.850	223.11	205.00	0.0000	5.00	100%
		C	15/16	10800.00	10%	24000	1.850	223.11	205.00	0.0000	5.00	100%
297.462	BS	A	9/16	3800.00	10%	24000	0.660	388.76	205.00	0.0000	-35.00	100%
		B	9/16	3800.00	10%	24000	0.660	355.22	205.00	0.0000	5.00	100%
		C	9/16	3800.00	10%	24000	0.660	355.22	205.00	0.0000	5.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
330	Corner						
270.098	Corner						
177.25	Torque Arm	8.00	30.0000	Wing	A36	Double Angle	2L4x4x3/8

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
					(36 ksi)		
99.9167	Corner						
297.462	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
330.00	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
270.10	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
177.25	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
99.92	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
297.46	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
330	412.71	378.58	378.58		14.40 6.6 sec/pulse	12.16 6.0 sec/pulse	12.16 6.0 sec/pulse	
270.098	508.28	462.99	462.99		11.33 5.8 sec/pulse	9.43 5.3 sec/pulse	9.43 5.3 sec/pulse	
177.25	542.55	491.75	491.75		7.24 4.6 sec/pulse	5.97 4.2 sec/pulse	5.97 4.2 sec/pulse	
99.9167	449.20	412.75	412.75		5.00 3.9 sec/pulse	4.23 3.6 sec/pulse	4.23 3.6 sec/pulse	
297.462	256.58	234.44	234.44		12.77 6.2 sec/pulse	10.70 5.6 sec/pulse	10.70 5.6 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
330	No	No			1	1	1	1
270.098	No	No			1	1	1	1
177.25	No	No	0.75	0.75	1	1	1	1

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
99.9167	No	No			1	1	1	1
297.462	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
330	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
270.098	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
177.25	1.0000 A325N	4	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
99.9167	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
297.462	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
330	A	147.50	32	7	1.7423
	B	167.50	33	8	1.7646
	C	167.50	33	8	1.7646
270.098	A	117.55	31	7	1.7032
	B	137.55	32	7	1.7302
	C	137.55	32	7	1.7302
177.25	A	71.13	28	6	1.6197
	B	91.13	29	7	1.6604
	C	91.13	29	7	1.6604
99.9167	A	32.46	24	5	1.4975
	B	52.46	26	6	1.5712
	C	52.46	26	6	1.5712
297.462	A	131.23	32	7	1.7220
	B	151.23	32	8	1.7466
	C	151.23	32	8	1.7466

Guy-Tensioning Information

Guy Elevation ft	H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension lb	0 F Intercept ft	20 F Initial Tension lb	20 F Intercept ft	40 F Initial Tension lb	40 F Intercept ft	60 F Initial Tension lb	60 F Intercept ft	80 F Initial Tension lb	80 F Intercept ft	100 F Initial Tension lb	100 F Intercept ft	120 F Initial Tension lb	120 F Intercept ft

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension lb	0 F Intercept ft	20 F Initial Tension lb	20 F Intercept ft	40 F Initial Tension lb	40 F Intercept ft	60 F Initial Tension lb	60 F Intercept ft	80 F Initial Tension lb	80 F Intercept ft	100 F Initial Tension lb	100 F Intercept ft	120 F Initial Tension lb	120 F Intercept ft
330	A	202.11	365.00	6372	13.14	6180	13.53	5989	13.96	5800	14.40	5613	14.87	5427	15.36	5244	15.88
	B	202.11	325.00	6480	10.91	6251	11.30	6025	11.71	5800	12.16	5578	12.63	5359	13.13	5143	13.67
	C	202.11	325.00	6480	10.91	6251	11.30	6025	11.71	5800	12.16	5578	12.63	5359	13.13	5143	13.67
270.098	A	202.11	305.10	9034	10.06	8686	10.45	8341	10.87	8000	11.33	7663	11.81	7332	12.34	7005	12.89
	B	202.11	265.10	9249	8.18	8828	8.56	8411	8.98	8000	9.43	7595	9.92	7198	10.46	6809	11.04
	C	202.11	265.10	9249	8.18	8828	8.56	8411	8.98	8000	9.43	7595	9.92	7198	10.46	6809	11.04
177.25	A	202.73	212.25	12975	6.04	12240	6.40	11514	6.80	10800	7.24	10099	7.74	9415	8.29	8752	8.90
	B	202.73	172.25	13451	4.80	12554	5.14	11669	5.53	10800	5.97	9952	6.47	9131	7.04	8342	7.70
	C	202.73	172.25	13451	4.80	12554	5.14	11669	5.53	10800	5.97	9952	6.47	9131	7.04	8342	7.70
99.9167	A	202.11	134.92	13970	3.87	12895	4.19	11836	4.56	10800	5.00	9793	5.50	8826	6.10	7910	6.80
	B	202.11	94.92	14568	3.14	13288	3.44	12029	3.80	10800	4.23	9613	4.75	8484	5.38	7436	6.13
	C	202.11	94.92	14568	3.14	13288	3.44	12029	3.80	10800	4.23	9613	4.75	8484	5.38	7436	6.13
297.462	A	202.11	332.46	4238	11.48	4091	11.88	3945	12.31	3800	12.77	3657	13.26	3516	13.77	3377	14.33
	B	202.11	292.46	4326	9.42	4149	9.82	3973	10.24	3800	10.70	3629	11.19	3461	11.72	3296	12.29
	C	202.11	292.46	4326	9.42	4149	9.82	3973	10.24	3800	10.70	3629	11.19	3461	11.72	3296	12.29

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM) (AT&T)	B	No	Ar (CaAa)	200.00 - 6.66	0.0000	-0.35	4	4	0.5000 1.5000	1.9800		0.82
LMR-240 (3/4 FOAM) (AT&T)	B	No	Ar (CaAa)	200.00 - 6.66	0.0000	-0.3	2	2	0.2500	0.2400		0.04
FSJ2-50 (3/8 SUPERFLEX. FOAM) (AT&T)	B	No	Ar (CaAa)	200.00 - 6.66	0.0000	-0.25	1	1	0.4300	0.4300		0.08
LDF7-50A (1-5/8 FOAM) (AT&T)	B	No	Ar (CaAa)	200.00 - 6.66	-3.0000	-0.26	6	3	0.1000 0.2500	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (AT&T)	B	No	Ar (CaAa)	200.00 - 6.66	-1.0000	-0.36	2	2	0.1000 0.2500	1.9800		0.82
LDF5-50A (7/8 FOAM)	B	No	Ar (CaAa)	219.50 - 6.66	0.0000	0.3	1	1	1.0900	1.0900		0.33
LDF4P-50A (1/2 FOAM)	B	No	Ar (CaAa)	90.00 - 6.66	0.0000	0.35	1	1	0.6300	0.6300		0.15
LDF5-50A (7/8 FOAM)	B	No	Ar (CaAa)	136.00 - 6.66	0.0000	0.4	1	1	1.0900	1.0900		0.33
LDF12-50A (2-1/4 FOAM)	B	No	Ar (CaAa)	297.33 - 6.66	0.0000	0.45	1	1	2.3500	2.3500		1.22
LDF7-50A (1-5/8 FOAM) (Verizon)	B	No	Ar (CaAa)	169.50 - 6.66	-5.0000	0.37	12	4	0.1000 0.2500	1.9800		0.82
LDF4P-50A (1/2 FOAM)	C	No	Ar (CaAa)	36.00 - 6.66	0.0000	-0.45	2	2	0.6300	0.6300		0.15
1 1/2" Rigid Conduit	C	No	Ar (CaAa)	345.00 - 6.66	0.0000	0	1	1	1.5000	1.5000		1.00
LDF5-50A (7/8 FOAM)	C	No	Ar (CaAa)	264.25 - 6.66	0.0000	0.4	1	1	1.0900	1.0900		0.33
LDF6-50A (1-1/4 FOAM)	C	No	Ar (CaAa)	205.50 - 6.66	0.0000	0.45	1	1	1.5500	1.5500		0.66
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CaAa)	251.00 - 6.66	-1.0000	0.18	1	1	1.9800	1.9800		0.82

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF6-50A (1-1/4 FOAM)	C	No	Ar (CaAa)	294.00 - 6.66	-1.0000	0.3	3	3	2.0000 0.2500	1.5500		0.66
LDF4P-50A (1/2 FOAM)	C	No	Ar (CaAa)	332.50 - 6.66	-1.0000	0.38	1	1	0.6300	0.6300		0.15
LDF4P-50A (1/2 FOAM)	C	No	Ar (CaAa)	274.00 - 6.66	-1.0000	0.4	1	1	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	274.00 - 6.66	0.0000	-0.4	1	1	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	308.00 - 6.66	0.0000	-0.3	1	1	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	317.50 - 6.66	0.0000	-0.28	1	1	1.9800	1.9800		0.82
LDF4P-50A (1/2 FOAM)	A	No	Ar (CaAa)	312.00 - 6.66	0.0000	-0.24	1	1	0.6300	0.6300		0.15
LDF4P-50A (1/2 FOAM)	A	No	Ar (CaAa)	279.00 - 6.66	0.0000	-0.2	1	1	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	342.25 - 6.66	0.0000	-0.16	1	1	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	130.00 - 6.66	-1.0000	-0.24	1	1	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	112.00 - 6.66	-1.0000	-0.28	1	1	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CaAa)	204.00 - 6.66	-1.0000	-0.32	1	1	1.9800	1.9800		0.82
LDF5-50A (7/8 FOAM)	A	No	Ar (CaAa)	252.00 - 6.66	0.0000	0.18	1	1	1.0900	1.0900		0.33
LDF4.5-50 (5/8 FOAM)	A	No	Ar (CaAa)	150.60 - 6.66	0.0000	0.21	1	1	0.8700	0.8700		0.15
LDF6-50A (1-1/4 FOAM)	A	No	Ar (CaAa)	209.00 - 6.66	0.0000	0.24	1	1	1.5500	1.5500		0.66
LDF7-50A (1-5/8 FOAM) (Sprint)	A	No	Ar (CaAa)	226.50 - 6.66	0.0000	0.4	6	6	0.5000 1.5000	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (T-Mobile)	A	No	Ar (CaAa)	188.50 - 6.66	-1.0000	0.2	2	2	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (T-Mobile)	A	No	Ar (CaAa)	188.50 - 6.66	-1.0000	0.3	4	4	1.9800	1.9800		0.82
LDF6-50A (1-1/4 FOAM) (T-Mobile)	A	No	Ar (CaAa)	188.50 - 6.66	-1.0000	0.4	1	1	1.5500	1.5500		0.66
LDF6-50A (1-1/4 FOAM) (T-Mobile)	A	No	Ar (CaAa)	188.50 - 6.66	-1.0000	0.43	1	1	1.5500	1.5500		0.66
LDF1-50A (1/4 FOAM)	A	No	Ar (CaAa)	106.50 - 6.66	-1.0000	0.45	2	2	0.3500	0.3500		0.06
CA-0182 (3/16 Solid Bare Copp)	A	No	Ar (CaAa)	123.50 - 6.66	-1.0000	0.49	1	1	0.2500	0.2000		0.02

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
Climbing	A	No	CaAa (In Face)	345.00 - 6.66	0.0000	-0.25	1	No Ice	0.29	7.90

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
Ladder								1/2" Ice	0.55	10.60
								1" Ice	0.81	13.30
Safety Line 3/8	A	No	CaAa (In Face)	330.00 - 6.66	0.0000	0	1	No Ice	0.04	0.22
								1/2" Ice	0.14	0.75
								1" Ice	0.24	1.28
Feedline Ladder (Af)	C	No	CaAa (In Face)	330.00 - 6.66	0.0000	-0.25	1	No Ice	0.50	8.40
								1/2" Ice	0.50	13.50
								1" Ice	0.50	18.60
Feedline Ladder (Af)	B	No	CaAa (In Face)	330.00 - 6.66	0.0000	-0.25	1	No Ice	0.50	8.40
								1/2" Ice	0.50	13.50
								1" Ice	0.50	18.60
Feedline Ladder (Af)	A	No	CaAa (In Face)	330.00 - 6.66	0.0000	-0.25	1	No Ice	0.50	8.40
								1/2" Ice	0.50	13.50
								1" Ice	0.50	18.60
Feedline Ladder (Af)	A	No	CaAa (In Face)	330.00 - 6.66	0.0000	0.25	1	No Ice	0.50	8.40
								1/2" Ice	0.50	13.50
								1" Ice	0.50	18.60

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	345.00-330.00	A	0.000	0.000	6.776	0.000	128.54
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	2.408	0.000	15.38
T1	330.00-320.00	A	0.000	0.000	15.255	0.000	257.40
		B	0.000	0.000	5.000	0.000	84.00
		C	0.000	0.000	7.130	0.000	95.50
T2	320.00-300.00	A	0.000	0.000	36.315	0.000	537.51
		B	0.000	0.000	10.000	0.000	168.00
		C	0.000	0.000	14.260	0.000	191.00
T3	300.00-280.00	A	0.000	0.000	39.690	0.000	550.60
		B	0.000	0.000	14.073	0.000	189.14
		C	0.000	0.000	20.770	0.000	218.72
T4	280.00-260.00	A	0.000	0.000	43.659	0.000	564.93
		B	0.000	0.000	14.700	0.000	192.40
		C	0.000	0.000	24.905	0.000	234.10
T5	260.00-240.00	A	0.000	0.000	46.218	0.000	573.96
		B	0.000	0.000	14.700	0.000	192.40
		C	0.000	0.000	29.178	0.000	249.22
T6	240.00-220.00	A	0.000	0.000	54.812	0.000	608.58
		B	0.000	0.000	14.700	0.000	192.40
		C	0.000	0.000	30.960	0.000	256.60
T7	220.00-200.00	A	0.000	0.000	73.037	0.000	684.22
		B	0.000	0.000	16.826	0.000	198.84
		C	0.000	0.000	31.813	0.000	260.23
T8	200.00-180.00	A	0.000	0.000	90.643	0.000	757.64
		B	0.000	0.000	66.220	0.000	399.00
		C	0.000	0.000	34.060	0.000	269.80
T9	180.00-160.00	A	0.000	0.000	107.870	0.000	829.40
		B	0.000	0.000	88.792	0.000	492.48
		C	0.000	0.000	34.060	0.000	269.80
T10	160.00-140.00	A	0.000	0.000	108.792	0.000	830.99
		B	0.000	0.000	113.740	0.000	595.80
		C	0.000	0.000	34.060	0.000	269.80
T11	140.00-120.00	A	0.000	0.000	111.660	0.000	840.67
		B	0.000	0.000	115.484	0.000	601.08

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C	0.000	0.000	34.060	0.000	269.80
T12	120.00-100.00	A	0.000	0.000	116.801	0.000	859.82
		B	0.000	0.000	115.920	0.000	602.40
		C	0.000	0.000	34.060	0.000	269.80
T13	100.00-80.00	A	0.000	0.000	119.330	0.000	868.00
		B	0.000	0.000	116.550	0.000	603.90
		C	0.000	0.000	34.060	0.000	269.80
T14	80.00-60.00	A	0.000	0.000	119.330	0.000	868.00
		B	0.000	0.000	117.180	0.000	605.40
		C	0.000	0.000	34.060	0.000	269.80
T15	60.00-40.00	A	0.000	0.000	119.330	0.000	868.00
		B	0.000	0.000	117.180	0.000	605.40
		C	0.000	0.000	34.060	0.000	269.80
T16	40.00-20.00	A	0.000	0.000	119.330	0.000	868.00
		B	0.000	0.000	117.180	0.000	605.40
		C	0.000	0.000	36.076	0.000	274.60
T17	20.00-12.00	A	0.000	0.000	47.732	0.000	347.20
		B	0.000	0.000	46.872	0.000	242.16
		C	0.000	0.000	14.632	0.000	110.32
T18	12.00-6.67	A	0.000	0.000	31.821	0.000	231.47
		B	0.000	0.000	31.248	0.000	161.44
		C	0.000	0.000	9.755	0.000	73.55
T19	6.67-0.00	A	0.000	0.000	0.040	0.000	0.29
		B	0.000	0.000	0.039	0.000	0.20
		C	0.000	0.000	0.012	0.000	0.09

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	345.00-330.00	A	1.893	0.000	0.000	26.175	0.000	391.54
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	9.032	0.000	147.63
T1	330.00-320.00	A	1.886	0.000	0.000	40.473	0.000	852.89
		B		0.000	0.000	8.936	0.000	276.32
		C		0.000	0.000	18.608	0.000	423.76
T2	320.00-300.00	A	1.877	0.000	0.000	100.504	0.000	2016.91
		B		0.000	0.000	17.792	0.000	550.83
		C		0.000	0.000	37.065	0.000	843.60
T3	300.00-280.00	A	1.864	0.000	0.000	111.723	0.000	2190.92
		B		0.000	0.000	28.215	0.000	735.76
		C		0.000	0.000	60.404	0.000	1158.20
T4	280.00-260.00	A	1.851	0.000	0.000	127.268	0.000	2419.04
		B		0.000	0.000	29.667	0.000	759.96
		C		0.000	0.000	78.286	0.000	1396.69
T5	260.00-240.00	A	1.837	0.000	0.000	136.029	0.000	2545.98
		B		0.000	0.000	29.484	0.000	754.98
		C		0.000	0.000	94.204	0.000	1631.69
T6	240.00-220.00	A	1.821	0.000	0.000	154.262	0.000	2803.90
		B		0.000	0.000	29.287	0.000	749.63
		C		0.000	0.000	98.752	0.000	1700.42
T7	220.00-200.00	A	1.805	0.000	0.000	191.905	0.000	3350.25
		B		0.000	0.000	38.240	0.000	874.77
		C		0.000	0.000	101.005	0.000	1727.81
T8	200.00-180.00	A	1.787	0.000	0.000	245.043	0.000	4116.51
		B		0.000	0.000	150.604	0.000	2306.61
		C		0.000	0.000	107.778	0.000	1824.04

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T9	180.00-160.00	A	1.767	0.000	0.000	297.078	0.000	4828.98
		B		0.000	0.000	167.952	0.000	2646.68
		C		0.000	0.000	106.999	0.000	1801.49
T10	160.00-140.00	A	1.745	0.000	0.000	299.600	0.000	4829.53
		B		0.000	0.000	186.964	0.000	3015.91
		C		0.000	0.000	106.132	0.000	1776.58
T11	140.00-120.00	A	1.720	0.000	0.000	307.926	0.000	4913.46
		B		0.000	0.000	192.836	0.000	3076.11
		C		0.000	0.000	105.155	0.000	1748.67
T12	120.00-100.00	A	1.692	0.000	0.000	327.437	0.000	5115.61
		B		0.000	0.000	192.951	0.000	3052.70
		C		0.000	0.000	104.031	0.000	1716.86
T13	100.00-80.00	A	1.658	0.000	0.000	337.525	0.000	5146.06
		B		0.000	0.000	194.896	0.000	3044.00
		C		0.000	0.000	102.707	0.000	1679.69
T14	80.00-60.00	A	1.617	0.000	0.000	332.648	0.000	5014.46
		B		0.000	0.000	196.228	0.000	3019.35
		C		0.000	0.000	101.085	0.000	1634.71
T15	60.00-40.00	A	1.564	0.000	0.000	326.309	0.000	4845.72
		B		0.000	0.000	192.830	0.000	2926.31
		C		0.000	0.000	98.978	0.000	1577.10
T16	40.00-20.00	A	1.486	0.000	0.000	317.087	0.000	4604.90
		B		0.000	0.000	187.886	0.000	2793.42
		C		0.000	0.000	108.012	0.000	1587.56
T17	20.00-12.00	A	1.395	0.000	0.000	122.549	0.000	1732.81
		B		0.000	0.000	72.857	0.000	1057.06
		C		0.000	0.000	42.737	0.000	603.33
T18	12.00-6.67	A	1.322	0.000	0.000	79.389	0.000	1097.83
		B		0.000	0.000	47.333	0.000	672.97
		C		0.000	0.000	27.587	0.000	380.77
T19	6.67-0.00	A	1.193	0.000	0.000	0.095	0.000	1.26
		B		0.000	0.000	0.057	0.000	0.78
		C		0.000	0.000	0.033	0.000	0.43

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	345.00-330.00	-1.1481	0.4502	-0.4039	0.1588
T1	330.00-320.00	-1.0808	-0.4189	-1.1827	-0.0252
T2	320.00-300.00	-1.4578	-0.2967	-1.6663	0.0731
T3	300.00-280.00	-1.4524	0.2213	-1.5898	0.3986
T4	280.00-260.00	-1.7146	0.4615	-1.8825	0.6088
T5	260.00-240.00	-1.8826	0.5686	-2.0770	0.7104
T6	240.00-220.00	-1.8407	0.0668	-2.0403	0.4786
T7	220.00-200.00	-1.6603	-0.7663	-1.8103	0.0783
T8	200.00-180.00	-1.1459	-2.0655	-1.4333	-0.6275
T9	180.00-160.00	-0.8131	-2.0854	-1.2595	-0.8481
T10	160.00-140.00	-0.4961	-1.8548	-1.1640	-0.8257
T11	140.00-120.00	-0.4872	-1.8097	-1.1129	-0.8151
T12	120.00-100.00	-0.5538	-1.7654	-1.1461	-0.8414
T13	100.00-80.00	-0.5648	-1.7565	-1.1163	-0.8216
T14	80.00-60.00	-0.5480	-1.7467	-1.0729	-0.8158
T15	60.00-40.00	-0.5480	-1.7467	-1.0715	-0.8318
T16	40.00-20.00	-0.4926	-1.6999	-1.0274	-0.8267
T17	20.00-12.00	-0.4732	-1.6682	-0.9791	-0.8202

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T18	12.00-6.67	-0.4812	-1.6965	-1.0225	-0.8855
T19	6.67-0.00	-0.0056	-0.0199	-0.0045	-0.0041

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	12	1 1/2" Rigid Conduit	330.00 - 345.00	0.6000	0.1770
L1	17	LDF4P-50A (1/2 FOAM)	330.00 - 332.50	0.6000	0.1770
L1	24	LDF7-50A (1-5/8 FOAM)	330.00 - 342.25	0.6000	0.1770
L1	38	Climbing Ladder	330.00 - 345.00	0.6000	0.1770
T1	12	1 1/2" Rigid Conduit	320.00 - 330.00	0.6000	0.3845
T1	17	LDF4P-50A (1/2 FOAM)	320.00 - 330.00	0.6000	0.3845
T1	24	LDF7-50A (1-5/8 FOAM)	320.00 - 330.00	0.6000	0.3845
T1	38	Climbing Ladder	320.00 - 330.00	0.6000	0.3845
T1	39	Safety Line 3/8	320.00 - 330.00	0.6000	0.3845
T1	40	Feedline Ladder (Af)	320.00 - 330.00	0.6000	0.3845
T1	41	Feedline Ladder (Af)	320.00 - 330.00	0.6000	0.3845
T1	42	Feedline Ladder (Af)	320.00 - 330.00	0.6000	0.3845
T1	43	Feedline Ladder (Af)	320.00 - 330.00	0.6000	0.3845
T2	12	1 1/2" Rigid Conduit	300.00 - 320.00	0.6000	0.4386
T2	17	LDF4P-50A (1/2 FOAM)	300.00 - 320.00	0.6000	0.4386
T2	20	LDF7-50A (1-5/8 FOAM)	300.00 - 308.00	0.6000	0.4386
T2	21	LDF7-50A (1-5/8 FOAM)	300.00 - 317.50	0.6000	0.4386
T2	22	LDF4P-50A (1/2 FOAM)	300.00 - 312.00	0.6000	0.4386
T2	24	LDF7-50A (1-5/8 FOAM)	300.00 - 320.00	0.6000	0.4386
T2	38	Climbing Ladder	300.00 - 320.00	0.6000	0.4386
T2	39	Safety Line 3/8	300.00 - 320.00	0.6000	0.4386
T2	40	Feedline Ladder (Af)	300.00 - 320.00	0.6000	0.4386
T2	41	Feedline Ladder (Af)	300.00 - 320.00	0.6000	0.4386
T2	42	Feedline Ladder (Af)	300.00 - 320.00	0.6000	0.4386

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	43	Feedline Ladder (Af)	300.00 - 320.00	0.6000	0.4386
T3	9	LDF12-50A (2-1/4 FOAM)	280.00 - 297.33	0.6000	0.4412
T3	12	1 1/2" Rigid Conduit	280.00 - 300.00	0.6000	0.4412
T3	16	LDF6-50A (1-1/4 FOAM)	280.00 - 294.00	0.6000	0.4412
T3	17	LDF4P-50A (1/2 FOAM)	280.00 - 300.00	0.6000	0.4412
T3	20	LDF7-50A (1-5/8 FOAM)	280.00 - 300.00	0.6000	0.4412
T3	21	LDF7-50A (1-5/8 FOAM)	280.00 - 300.00	0.6000	0.4412
T3	22	LDF4P-50A (1/2 FOAM)	280.00 - 300.00	0.6000	0.4412
T3	24	LDF7-50A (1-5/8 FOAM)	280.00 - 300.00	0.6000	0.4412
T3	38	Climbing Ladder	280.00 - 300.00	0.6000	0.4412
T3	39	Safety Line 3/8	280.00 - 300.00	0.6000	0.4412
T3	40	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.4412
T3	41	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.4412
T3	42	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.4412
T3	43	Feedline Ladder (Af)	280.00 - 300.00	0.6000	0.4412
T4	9	LDF12-50A (2-1/4 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	12	1 1/2" Rigid Conduit	260.00 - 280.00	0.6000	0.4354
T4	13	LDF5-50A (7/8 FOAM)	260.00 - 264.25	0.6000	0.4354
T4	16	LDF6-50A (1-1/4 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	17	LDF4P-50A (1/2 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	18	LDF4P-50A (1/2 FOAM)	260.00 - 274.00	0.6000	0.4354
T4	19	LDF7-50A (1-5/8 FOAM)	260.00 - 274.00	0.6000	0.4354
T4	20	LDF7-50A (1-5/8 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	21	LDF7-50A (1-5/8 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	22	LDF4P-50A (1/2 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	23	LDF4P-50A (1/2 FOAM)	260.00 - 279.00	0.6000	0.4354
T4	24	LDF7-50A (1-5/8 FOAM)	260.00 - 280.00	0.6000	0.4354
T4	38	Climbing Ladder	260.00 - 280.00	0.6000	0.4354
T4	39	Safety Line 3/8	260.00 - 280.00	0.6000	0.4354
T4	40	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.4354
T4	41	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.4354

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	42	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.4354
T4	43	Feedline Ladder (Af)	260.00 - 280.00	0.6000	0.4354
T5	9	LDF12-50A (2-1/4 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	12	1 1/2" Rigid Conduit	240.00 - 260.00	0.6000	0.4383
T5	13	LDF5-50A (7/8 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	15	LDF7-50A (1-5/8 FOAM)	240.00 - 251.00	0.6000	0.4383
T5	16	LDF6-50A (1-1/4 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	17	LDF4P-50A (1/2 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	18	LDF4P-50A (1/2 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	19	LDF7-50A (1-5/8 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	20	LDF7-50A (1-5/8 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	21	LDF7-50A (1-5/8 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	22	LDF4P-50A (1/2 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	23	LDF4P-50A (1/2 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	24	LDF7-50A (1-5/8 FOAM)	240.00 - 260.00	0.6000	0.4383
T5	28	LDF5-50A (7/8 FOAM)	240.00 - 252.00	0.6000	0.4383
T5	38	Climbing Ladder	240.00 - 260.00	0.6000	0.4383
T5	39	Safety Line 3/8	240.00 - 260.00	0.6000	0.4383
T5	40	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.4383
T5	41	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.4383
T5	42	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.4383
T5	43	Feedline Ladder (Af)	240.00 - 260.00	0.6000	0.4383
T6	9	LDF12-50A (2-1/4 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	12	1 1/2" Rigid Conduit	220.00 - 240.00	0.6000	0.4415
T6	13	LDF5-50A (7/8 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	15	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	16	LDF6-50A (1-1/4 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	17	LDF4P-50A (1/2 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	18	LDF4P-50A (1/2 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	19	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	20	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.4415

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	21	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	22	LDF4P-50A (1/2 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	23	LDF4P-50A (1/2 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	24	LDF7-50A (1-5/8 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	28	LDF5-50A (7/8 FOAM)	220.00 - 240.00	0.6000	0.4415
T6	31	LDF7-50A (1-5/8 FOAM)	220.00 - 226.50	0.6000	0.4415
T6	38	Climbing Ladder	220.00 - 240.00	0.6000	0.4415
T6	39	Safety Line 3/8	220.00 - 240.00	0.6000	0.4415
T6	40	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.4415
T6	41	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.4415
T6	42	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.4415
T6	43	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.4415
T7	6	LDF5-50A (7/8 FOAM)	200.00 - 219.50	0.6000	0.4380
T7	9	LDF12-50A (2-1/4 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	12	1 1/2" Rigid Conduit	200.00 - 220.00	0.6000	0.4380
T7	13	LDF5-50A (7/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	14	LDF6-50A (1-1/4 FOAM)	200.00 - 205.50	0.6000	0.4380
T7	15	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	16	LDF6-50A (1-1/4 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	17	LDF4P-50A (1/2 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	18	LDF4P-50A (1/2 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	19	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	20	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	21	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	22	LDF4P-50A (1/2 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	23	LDF4P-50A (1/2 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	24	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	27	LDF7-50A (1-5/8 FOAM)	200.00 - 204.00	0.6000	0.4380
T7	28	LDF5-50A (7/8 FOAM)	200.00 - 220.00	0.6000	0.4380
T7	30	LDF6-50A (1-1/4 FOAM)	200.00 - 209.00	0.6000	0.4380
T7	31	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.4380

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	38	Climbing Ladder	200.00 - 220.00	0.6000	0.4380
T7	39	Safety Line 3/8	200.00 - 220.00	0.6000	0.4380
T7	40	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.4380
T7	41	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.4380
T7	42	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.4380
T7	43	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.4380
T8	1	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	2	LMR-240 (3/4 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	180.00 - 200.00	0.6000	0.4179
T8	4	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	5	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	6	LDF5-50A (7/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	9	LDF12-50A (2-1/4 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	12	1 1/2" Rigid Conduit	180.00 - 200.00	0.6000	0.4179
T8	13	LDF5-50A (7/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	14	LDF6-50A (1-1/4 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	15	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	16	LDF6-50A (1-1/4 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	17	LDF4P-50A (1/2 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	18	LDF4P-50A (1/2 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	19	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	20	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	21	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	22	LDF4P-50A (1/2 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	23	LDF4P-50A (1/2 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	24	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	27	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	28	LDF5-50A (7/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	30	LDF6-50A (1-1/4 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	31	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.4179
T8	32	LDF7-50A (1-5/8 FOAM)	180.00 - 188.50	0.6000	0.4179

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	33	LDF7-50A (1-5/8 FOAM)	180.00 - 188.50	0.6000	0.4179
T8	34	LDF6-50A (1-1/4 FOAM)	180.00 - 188.50	0.6000	0.4179
T8	35	LDF6-50A (1-1/4 FOAM)	180.00 - 188.50	0.6000	0.4179
T8	38	Climbing Ladder	180.00 - 200.00	0.6000	0.4179
T8	39	Safety Line 3/8	180.00 - 200.00	0.6000	0.4179
T8	40	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.4179
T8	41	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.4179
T8	42	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.4179
T8	43	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.4179
T9	1	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	2	LMR-240 (3/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	160.00 - 180.00	0.6000	0.4219
T9	4	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	5	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	6	LDF5-50A (7/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	9	LDF12-50A (2-1/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	10	LDF7-50A (1-5/8 FOAM)	160.00 - 169.50	0.6000	0.4219
T9	12	1 1/2" Rigid Conduit	160.00 - 180.00	0.6000	0.4219
T9	13	LDF5-50A (7/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	14	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	15	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	16	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	17	LDF4P-50A (1/2 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	18	LDF4P-50A (1/2 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	19	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	20	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	21	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	22	LDF4P-50A (1/2 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	23	LDF4P-50A (1/2 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	24	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	27	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	28	LDF5-50A (7/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	30	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	31	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	32	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	33	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	34	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	35	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.4219
T9	38	Climbing Ladder	160.00 - 180.00	0.6000	0.4219
T9	39	Safety Line 3/8	160.00 - 180.00	0.6000	0.4219
T9	40	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.4219
T9	41	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.4219
T9	42	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.4219
T9	43	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.4219
T10	1	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	2	LMR-240 (3/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	140.00 - 160.00	0.6000	0.4460
T10	4	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	5	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	6	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	9	LDF12-50A (2-1/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	10	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	12	1 1/2" Rigid Conduit	140.00 - 160.00	0.6000	0.4460
T10	13	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	14	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	15	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	16	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	17	LDF4P-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	18	LDF4P-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	19	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	20	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	21	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	22	LDF4P-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	23	LDF4P-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	24	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	27	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	28	LDF5-50A (7/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	29	LDF4.5-50 (5/8 FOAM)	140.00 - 150.60	0.6000	0.4460
T10	30	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	31	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	32	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	33	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	34	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	35	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.4460
T10	38	Climbing Ladder	140.00 - 160.00	0.6000	0.4460
T10	39	Safety Line 3/8	140.00 - 160.00	0.6000	0.4460
T10	40	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.4460
T10	41	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.4460
T10	42	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.4460
T10	43	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.4460
T11	1	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	2	LMR-240 (3/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	120.00 - 140.00	0.6000	0.4511
T11	4	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	5	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	6	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	8	LDF5-50A (7/8 FOAM)	120.00 - 136.00	0.6000	0.4511
T11	9	LDF12-50A (2-1/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	10	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	12	1 1/2" Rigid Conduit	120.00 - 140.00	0.6000	0.4511
T11	13	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	14	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	15	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T11	16	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	17	LDF4P-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	18	LDF4P-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	19	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	20	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	21	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	22	LDF4P-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	23	LDF4P-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	24	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	25	LDF7-50A (1-5/8 FOAM)	120.00 - 130.00	0.6000	0.4511
T11	27	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	28	LDF5-50A (7/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	29	LDF4.5-50 (5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	30	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	31	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	32	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	33	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	34	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	35	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.4511
T11	37	CA-0182 (3/16 Solid Bare Copp)	120.00 - 123.50	0.6000	0.4511
T11	38	Climbing Ladder	120.00 - 140.00	0.6000	0.4511
T11	39	Safety Line 3/8	120.00 - 140.00	0.6000	0.4511
T11	40	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.4511
T11	41	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.4511
T11	42	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.4511
T11	43	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.4511
T12	1	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	2	LMR-240 (3/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	100.00 - 120.00	0.6000	0.4569
T12	4	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	5	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	6	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	8	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	9	LDF12-50A (2-1/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	10	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	12	1 1/2" Rigid Conduit	100.00 - 120.00	0.6000	0.4569
T12	13	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	14	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	15	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	16	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	17	LDF4P-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	18	LDF4P-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	19	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	20	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	21	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	22	LDF4P-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	23	LDF4P-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	24	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	25	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	26	LDF7-50A (1-5/8 FOAM)	100.00 - 112.00	0.6000	0.4569
T12	27	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	28	LDF5-50A (7/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	29	LDF4.5-50 (5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	30	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	31	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	32	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	33	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	34	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	35	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.4569
T12	36	LDF1-50A (1/4 FOAM)	100.00 - 106.50	0.6000	0.4569
T12	37	CA-0182 (3/16 Solid Bare Copp)	100.00 - 120.00	0.6000	0.4569
T12	38	Climbing Ladder	100.00 - 120.00	0.6000	0.4569

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	39	Safety Line 3/8	100.00 - 120.00	0.6000	0.4569
T12	40	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.4569
T12	41	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.4569
T12	42	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.4569
T12	43	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.4569
T13	1	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	2	LMR-240 (3/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	80.00 - 100.00	0.6000	0.4638
T13	4	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	5	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	6	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	7	LDF4P-50A (1/2 FOAM)	80.00 - 90.00	0.6000	0.4638
T13	8	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	9	LDF12-50A (2-1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	10	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	12	1 1/2" Rigid Conduit	80.00 - 100.00	0.6000	0.4638
T13	13	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	14	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	15	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	16	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	17	LDF4P-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	18	LDF4P-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	19	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	20	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	21	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	22	LDF4P-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	23	LDF4P-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	24	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	25	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	26	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	27	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	28	LDF5-50A (7/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	29	LDF4.5-50 (5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	30	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	31	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	32	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	33	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	34	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	35	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	36	LDF1-50A (1/4 FOAM)	80.00 - 100.00	0.6000	0.4638
T13	37	CA-0182 (3/16 Solid Bare Copp)	80.00 - 100.00	0.6000	0.4638
T13	38	Climbing Ladder	80.00 - 100.00	0.6000	0.4638
T13	39	Safety Line 3/8	80.00 - 100.00	0.6000	0.4638
T13	40	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.4638
T13	41	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.4638
T13	42	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.4638
T13	43	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.4638
T14	1	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	2	LMR-240 (3/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	60.00 - 80.00	0.6000	0.4722
T14	4	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	5	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	6	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	7	LDF4P-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.4722

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T14	8	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	9	LDF12-50A (2-1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	10	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	12	1 1/2" Rigid Conduit	60.00 - 80.00	0.6000	0.4722
T14	13	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	14	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	15	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	16	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	17	LDF4P-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	18	LDF4P-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	19	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	20	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	21	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	22	LDF4P-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	23	LDF4P-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	24	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	25	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	26	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	27	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	28	LDF5-50A (7/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	29	LDF4.5-50 (5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	30	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	31	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	32	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	33	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	34	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	35	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	36	LDF1-50A (1/4 FOAM)	60.00 - 80.00	0.6000	0.4722
T14	37	CA-0182 (3/16 Solid Bare Copp)	60.00 - 80.00	0.6000	0.4722
T14	38	Climbing Ladder	60.00 - 80.00	0.6000	0.4722
T14	39	Safety Line 3/8	60.00 - 80.00	0.6000	0.4722
T14	40	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.4722
T14	41	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.4722
T14	42	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.4722
T14	43	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.4722
T15	1	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	2	LMR-240 (3/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	40.00 - 60.00	0.6000	0.4833
T15	4	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	5	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	6	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	7	LDF4P-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	8	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	9	LDF12-50A (2-1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	10	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	12	1 1/2" Rigid Conduit	40.00 - 60.00	0.6000	0.4833
T15	13	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	14	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	15	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	16	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	17	LDF4P-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	18	LDF4P-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	19	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	20	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	21	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	22	LDF4P-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	23	LDF4P-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	24	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	25	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	26	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T15	27	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	28	LDF5-50A (7/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	29	LDF4.5-50 (5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	30	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	31	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	32	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	33	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	34	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	35	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	36	LDF1-50A (1/4 FOAM)	40.00 - 60.00	0.6000	0.4833
T15	37	CA-0182 (3/16 Solid Bare Copp)	40.00 - 60.00	0.6000	0.4833
T15	38	Climbing Ladder	40.00 - 60.00	0.6000	0.4833
T15	39	Safety Line 3/8	40.00 - 60.00	0.6000	0.4833
T15	40	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.4833
T15	41	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.4833
T15	42	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.4833
T15	43	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.4833
T16	1	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	2	LMR-240 (3/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	20.00 - 40.00	0.6000	0.4994
T16	4	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	5	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	6	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	7	LDF4P-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	8	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	9	LDF12-50A (2-1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	10	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	11	LDF4P-50A (1/2 FOAM)	20.00 - 36.00	0.6000	0.4994
T16	12	1 1/2" Rigid Conduit	20.00 - 40.00	0.6000	0.4994
T16	13	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	14	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	15	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	16	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	17	LDF4P-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	18	LDF4P-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	19	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	20	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	21	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	22	LDF4P-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	23	LDF4P-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	24	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	25	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	26	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	27	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	28	LDF5-50A (7/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	29	LDF4.5-50 (5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	30	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	31	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	32	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	33	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	34	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	35	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	36	LDF1-50A (1/4 FOAM)	20.00 - 40.00	0.6000	0.4994
T16	37	CA-0182 (3/16 Solid Bare Copp)	20.00 - 40.00	0.6000	0.4994
T16	38	Climbing Ladder	20.00 - 40.00	0.6000	0.4994
T16	39	Safety Line 3/8	20.00 - 40.00	0.6000	0.4994
T16	40	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.4994
T16	41	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.4994
T16	42	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.4994

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T16	43	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.4994
T17	1	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	2	LMR-240 (3/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	12.00 - 20.00	0.6000	0.4561
T17	4	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	5	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	6	LDF5-50A (7/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	7	LDF4P-50A (1/2 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	8	LDF5-50A (7/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	9	LDF12-50A (2-1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	10	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	11	LDF4P-50A (1/2 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	12	1 1/2" Rigid Conduit	12.00 - 20.00	0.6000	0.4561
T17	13	LDF5-50A (7/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	14	LDF6-50A (1-1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	15	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	16	LDF6-50A (1-1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	17	LDF4P-50A (1/2 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	18	LDF4P-50A (1/2 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	19	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	20	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	21	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	22	LDF4P-50A (1/2 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	23	LDF4P-50A (1/2 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	24	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	25	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	26	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	27	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	28	LDF5-50A (7/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	29	LDF4.5-50 (5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	30	LDF6-50A (1-1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	31	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	32	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	33	LDF7-50A (1-5/8 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	34	LDF6-50A (1-1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	35	LDF6-50A (1-1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	36	LDF1-50A (1/4 FOAM)	12.00 - 20.00	0.6000	0.4561
T17	37	CA-0182 (3/16 Solid Bare Copp)	12.00 - 20.00	0.6000	0.4561
T17	38	Climbing Ladder	12.00 - 20.00	0.6000	0.4561
T17	39	Safety Line 3/8	12.00 - 20.00	0.6000	0.4561
T17	40	Feedline Ladder (Af)	12.00 - 20.00	0.6000	0.4561
T17	41	Feedline Ladder (Af)	12.00 - 20.00	0.6000	0.4561
T17	42	Feedline Ladder (Af)	12.00 - 20.00	0.6000	0.4561
T17	43	Feedline Ladder (Af)	12.00 - 20.00	0.6000	0.4561
T18	1	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	2	LMR-240 (3/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	6.67 - 12.00	0.6000	0.5684
T18	4	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	5	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	6	LDF5-50A (7/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	7	LDF4P-50A (1/2 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	8	LDF5-50A (7/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	9	LDF12-50A (2-1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	10	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	11	LDF4P-50A (1/2 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	12	1 1/2" Rigid Conduit	6.67 - 12.00	0.6000	0.5684
T18	13	LDF5-50A (7/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	14	LDF6-50A (1-1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	15	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T18	16	LDF6-50A (1-1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	17	LDF4P-50A (1/2 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	18	LDF4P-50A (1/2 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	19	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	20	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	21	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	22	LDF4P-50A (1/2 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	23	LDF4P-50A (1/2 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	24	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	25	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	26	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	27	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	28	LDF5-50A (7/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	29	LDF4.5-50 (5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	30	LDF6-50A (1-1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	31	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	32	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	33	LDF7-50A (1-5/8 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	34	LDF6-50A (1-1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	35	LDF6-50A (1-1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	36	LDF1-50A (1/4 FOAM)	6.67 - 12.00	0.6000	0.5684
T18	37	CA-0182 (3/16 Solid Bare Copp)	6.67 - 12.00	0.6000	0.5684
T18	38	Climbing Ladder	6.67 - 12.00	0.6000	0.5684
T18	39	Safety Line 3/8	6.67 - 12.00	0.6000	0.5684
T18	40	Feedline Ladder (Af)	6.67 - 12.00	0.6000	0.5684
T18	41	Feedline Ladder (Af)	6.67 - 12.00	0.6000	0.5684
T18	42	Feedline Ladder (Af)	6.67 - 12.00	0.6000	0.5684
T18	43	Feedline Ladder (Af)	6.67 - 12.00	0.6000	0.5684
T19	1	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	2	LMR-240 (3/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	3	FSJ2-50 (3/8 SUPERFLEX. FOAM)	6.66 - 6.67	0.6000	0.2545
T19	4	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	5	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	6	LDF5-50A (7/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	7	LDF4P-50A (1/2 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	8	LDF5-50A (7/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	9	LDF12-50A (2-1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	10	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	11	LDF4P-50A (1/2 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	12	1 1/2" Rigid Conduit	6.66 - 6.67	0.6000	0.2545
T19	13	LDF5-50A (7/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	14	LDF6-50A (1-1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	15	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	16	LDF6-50A (1-1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	17	LDF4P-50A (1/2 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	18	LDF4P-50A (1/2 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	19	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	20	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	21	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	22	LDF4P-50A (1/2 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	23	LDF4P-50A (1/2 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	24	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	25	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	26	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	27	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	28	LDF5-50A (7/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	29	LDF4.5-50 (5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	30	LDF6-50A (1-1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	31	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	32	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	33	LDF7-50A (1-5/8 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	34	LDF6-50A (1-1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	35	LDF6-50A (1-1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	36	LDF1-50A (1/4 FOAM)	6.66 - 6.67	0.6000	0.2545
T19	37	CA-0182 (3/16 Solid Bare Copp)	6.66 - 6.67	0.6000	0.2545
T19	38	Climbing Ladder	6.66 - 6.67	0.6000	0.2545
T19	39	Safety Line 3/8	6.66 - 6.67	0.6000	0.2545
T19	40	Feedline Ladder (Af)	6.66 - 6.67	0.6000	0.2545
T19	41	Feedline Ladder (Af)	6.66 - 6.67	0.6000	0.2545
T19	42	Feedline Ladder (Af)	6.66 - 6.67	0.6000	0.2545
T19	43	Feedline Ladder (Af)	6.66 - 6.67	0.6000	0.2545

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
1.9"x4' pipe mount	B	From Leg	0.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00
PR-950	B	From Leg	0.00 0.00 0.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	11.90 12.46 13.03	6.30 6.65 7.02	38.00 181.99 334.07
MTZ-940B	A	From Leg	0.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice 1" Ice	8.40 8.79 9.20	12.60 13.07 13.55	40.00 141.14 248.70
3' Side Arm	C	From Leg	0.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice 1" Ice	5.30 7.20 9.10	5.30 7.20 9.10	70.00 106.00 142.00
2'6"x4" Pipe Mount	B	From Leg	0.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice	0.64 0.91 1.09	0.64 0.91 1.09	27.00 35.41 45.95
Pirod 4' Side Mount Standoff (1)	B	From Leg	0.00 0.00 0.00	0.0000	138.50	No Ice 1/2" Ice 1" Ice	2.72 4.91 7.10	2.72 4.91 7.10	50.00 89.00 128.00
3" Dia 20' Omni	B	From Leg	4.00 0.00 0.00	0.0000	146.00	No Ice 1/2" Ice 1" Ice	4.00 6.00 8.00	4.00 6.00 8.00	55.00 100.00 145.00
13' Diapole	A	From Leg	4.00 0.00 0.00	0.0000	150.50	No Ice 1/2" Ice 1" Ice	4.00 6.00 8.00	4.00 6.00 8.00	40.00 100.00 145.00
(3) 1.9"x4' pipe mount	A	From Leg	0.00 0.00 0.00	0.0000	150.50	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00
Pirod 12' T-Frame Sector Mount (1) (Verizon)	A	From Leg	0.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
Pirod 12' T-Frame Sector Mount (1) (Verizon)	B	From Leg	0.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00

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 lb
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	0.00	0.00	0.0000	168.00	No Ice	13.60	13.60	465.00
			0.00	0.00			1/2" Ice	18.40	18.40	600.00
(Verizon)			0.00	0.00			1" Ice	23.20	23.20	735.00
(2) LPA-80080-4CF-EDIN w/MP	A	From Leg	2.00	0.00	0.0000	169.50	No Ice	3.35	5.98	36.55
			0.00	0.00			1/2" Ice	3.97	7.08	81.55
(Verizon)			0.00	0.00			1" Ice	4.47	7.89	132.66
(2) LPA-80063/4CFx5 w/Mount Pipe	B	From Leg	2.00	0.00	0.0000	169.50	No Ice	6.87	7.09	45.55
			0.00	0.00			1/2" Ice	7.53	8.15	116.68
(Verizon)			0.00	0.00			1" Ice	8.06	8.92	194.79
(2) LPA-80063/4CFx5 w/Mount Pipe	C	From Leg	2.00	0.00	0.0000	169.50	No Ice	6.87	7.09	45.55
			0.00	0.00			1/2" Ice	7.53	8.15	116.68
(Verizon)			0.00	0.00			1" Ice	8.06	8.92	194.79
BXA-70063-6CF-EDIN w/MP	A	From Leg	2.00	0.00	0.0000	169.50	No Ice	8.00	5.42	40.45
			0.00	0.00			1/2" Ice	8.65	6.59	99.60
(Verizon)			0.00	0.00			1" Ice	9.26	7.46	166.44
BXA-70063-6CF-EDIN w/MP	B	From Leg	2.00	0.00	0.0000	169.50	No Ice	8.00	5.42	40.45
			0.00	0.00			1/2" Ice	8.65	6.59	99.60
(Verizon)			0.00	0.00			1" Ice	9.26	7.46	166.44
BXA-70063-6CF-EDIN w/MP	C	From Leg	2.00	0.00	0.0000	169.50	No Ice	8.00	5.42	40.45
			0.00	0.00			1/2" Ice	8.65	6.59	99.60
(Verizon)			0.00	0.00			1" Ice	9.26	7.46	166.44
BXA-171063-12BF-EDIN-2 w/ MP	A	From Leg	2.00	0.00	0.0000	169.50	No Ice	3.72	3.53	35.55
			0.00	0.00			1/2" Ice	4.34	4.57	71.64
(Verizon)			0.00	0.00			1" Ice	4.85	5.32	113.67
BXA-171063-12BF-EDIN-2 w/ MP	B	From Leg	2.00	0.00	0.0000	169.50	No Ice	3.72	3.53	35.55
			0.00	0.00			1/2" Ice	4.34	4.57	71.64
(Verizon)			0.00	0.00			1" Ice	4.85	5.32	113.67
BXA-171063-12BF-EDIN-2 w/ MP	C	From Leg	2.00	0.00	0.0000	169.50	No Ice	3.72	3.53	35.55
			0.00	0.00			1/2" Ice	4.34	4.57	71.64
(Verizon)			0.00	0.00			1" Ice	4.85	5.32	113.67
(2) ANDREW E15V95P08 04	A	From Leg	2.00	0.00	0.0000	169.50	No Ice	0.45	0.12	4.40
			0.00	0.00			1/2" Ice	0.54	0.18	7.14
(Verizon)			0.00	0.00			1" Ice	0.64	0.26	11.06
(2) ANDREW E15V95P08 04	B	From Leg	2.00	0.00	0.0000	169.50	No Ice	0.45	0.12	4.40
			0.00	0.00			1/2" Ice	0.54	0.18	7.14
(Verizon)			0.00	0.00			1" Ice	0.64	0.26	11.06
(2) ANDREW E15V95P08 04	C	From Leg	2.00	0.00	0.0000	169.50	No Ice	0.45	0.12	4.40
			0.00	0.00			1/2" Ice	0.54	0.18	7.14
(Verizon)			0.00	0.00			1" Ice	0.64	0.26	11.06
Valmont 10' Wireless Frame (3)	C	From Leg	0.00	0.00	0.0000	186.50	No Ice	30.70	30.70	714.00
			0.00	0.00			1/2" Ice	42.00	42.00	858.00
(T-Mobile)			0.00	0.00			1" Ice	53.30	53.30	1002.00
(2) AIR 21 B2A B4P (T-Mobile)	A	From Leg	3.50	0.00	0.0000	188.50	No Ice	6.42	4.22	83.00
			0.00	0.00			1/2" Ice	6.86	4.64	124.00
			0.00	0.00			1" Ice	7.30	5.06	170.05
(2) AIR 21 B2A B4P (T-Mobile)	B	From Leg	3.50	0.00	0.0000	188.50	No Ice	6.42	4.22	83.00
			0.00	0.00			1/2" Ice	6.86	4.64	124.00
			0.00	0.00			1" Ice	7.30	5.06	170.05
(2) AIR 21 B2A B4P (T-Mobile)	C	From Leg	3.50	0.00	0.0000	188.50	No Ice	6.42	4.22	83.00
			0.00	0.00			1/2" Ice	6.86	4.64	124.00
			0.00	0.00			1" Ice	7.30	5.06	170.05
LNX-6515DS-A1M (T-Mobile)	A	From Leg	3.50	0.00	0.0000	188.50	No Ice	11.47	7.72	43.70
			0.00	0.00			1/2" Ice	12.09	8.31	109.70
			0.00	0.00			1" Ice	12.72	8.91	183.38
LNX-6515DS-A1M (T-Mobile)	B	From Leg	3.50	0.00	0.0000	188.50	No Ice	11.47	7.72	43.70
			0.00	0.00			1/2" Ice	12.09	8.31	109.70
			0.00	0.00			1" Ice	12.72	8.91	183.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
LNX-6515DS-A1M	C	From Leg	3.50	0.0000	188.50	No Ice	11.47	7.72	43.70
(T-Mobile)			0.00			1/2" Ice	12.09	8.31	109.70
			0.00			1" Ice	12.72	8.91	183.38
ERICSSON KRY 112	A	From Leg	3.50	0.0000	188.50	No Ice	0.58	0.51	12.10
(T-Mobile)			0.00			1/2" Ice	0.69	0.62	17.11
			0.00			1" Ice	0.81	0.74	23.70
ERICSSON KRY 112	B	From Leg	3.50	0.0000	188.50	No Ice	0.58	0.51	12.10
(T-Mobile)			0.00			1/2" Ice	0.69	0.62	17.11
			0.00			1" Ice	0.81	0.74	23.70
ERICSSON KRY 112	C	From Leg	3.50	0.0000	188.50	No Ice	0.58	0.51	12.10
(T-Mobile)			0.00			1/2" Ice	0.69	0.62	17.11
			0.00			1" Ice	0.81	0.74	23.70
ERICSSON Genaric	A	From Leg	3.50	0.0000	188.50	No Ice	0.90	2.34	10.00
(T-Mobile)			0.00			1/2" Ice	1.03	2.53	27.48
			0.00			1" Ice	1.16	2.72	47.74
ERICSSON Genaric	B	From Leg	3.50	0.0000	188.50	No Ice	0.90	2.34	10.00
(T-Mobile)			0.00			1/2" Ice	1.03	2.53	27.48
			0.00			1" Ice	1.16	2.72	47.74
ERICSSON Genaric	C	From Leg	3.50	0.0000	188.50	No Ice	0.90	2.34	10.00
(T-Mobile)			0.00			1/2" Ice	1.03	2.53	27.48
			0.00			1" Ice	1.16	2.72	47.74
(3) 2" pipe 8' long	A	From Leg	3.50	0.0000	188.50	No Ice	0.00	0.00	0.00
(T-Mobile)			0.00			1/2" Ice	0.00	0.00	0.00
			0.00			1" Ice	0.00	0.00	0.00
(3) 2" pipe 8' long	B	From Leg	3.50	0.0000	188.50	No Ice	0.00	0.00	0.00
(T-Mobile)			0.00			1/2" Ice	0.00	0.00	0.00
			0.00			1" Ice	0.00	0.00	0.00
(3) 2" pipe 8' long	C	From Leg	3.50	0.0000	188.50	No Ice	0.00	0.00	0.00
(T-Mobile)			0.00			1/2" Ice	0.00	0.00	0.00
			0.00			1" Ice	0.00	0.00	0.00
7770	A	From Leg	1.50	0.0000	200.00	No Ice	5.88	2.93	25.00
(AT&T)			0.00			1/2" Ice	6.31	3.27	57.63
			0.00			1" Ice	6.75	3.63	95.06
7770	B	From Leg	1.50	0.0000	200.00	No Ice	5.88	2.93	25.00
(AT&T)			0.00			1/2" Ice	6.31	3.27	57.63
			0.00			1" Ice	6.75	3.63	95.06
7770	C	From Leg	1.50	0.0000	200.00	No Ice	5.88	2.93	25.00
(AT&T)			0.00			1/2" Ice	6.31	3.27	57.63
			0.00			1" Ice	6.75	3.63	95.06
(2)	A	From Leg	1.50	0.0000	200.00	No Ice	5.51	2.83	25.70
AM-X-CD-14-65-OOT-RET			0.00			1/2" Ice	5.90	3.14	57.65
(AT&T)			0.00			1" Ice	6.30	3.47	94.06
RRUS 11	A	From Leg	1.50	0.0000	200.00	No Ice	3.26	1.38	65.00
(AT&T)			0.00			1/2" Ice	3.50	1.56	85.87
			0.00			1" Ice	3.75	1.74	109.78
RRUS 11	B	From Leg	1.50	0.0000	200.00	No Ice	3.26	1.38	65.00
(AT&T)			0.00			1/2" Ice	3.50	1.56	85.87
			0.00			1" Ice	3.75	1.74	109.78
RRUS 11	C	From Leg	1.50	0.0000	200.00	No Ice	3.26	1.38	65.00
(AT&T)			0.00			1/2" Ice	3.50	1.56	85.87
			0.00			1" Ice	3.75	1.74	109.78
RRUS 11	A	From Leg	1.50	0.0000	200.00	No Ice	3.26	1.38	65.00
(AT&T)			0.00			1/2" Ice	3.50	1.56	85.87
			0.00			1" Ice	3.75	1.74	109.78
RRUS 11	B	From Leg	1.50	0.0000	200.00	No Ice	3.26	1.38	65.00
(AT&T)			0.00			1/2" Ice	3.50	1.56	85.87
			0.00			1" Ice	3.75	1.74	109.78

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
RRUS 11	C	From Leg	1.50	0.0000	200.00	No Ice	3.26	1.38	65.00
(AT&T)			0.00			1/2" Ice	3.50	1.56	85.87
			0.00			1" Ice	3.75	1.74	109.78
DTMABP7819VG12A	A	From Leg	1.50	0.0000	200.00	No Ice	1.59	0.58	34.20
(AT&T)			0.00			1/2" Ice	1.76	0.70	43.97
			0.00			1" Ice	1.94	0.83	55.87
DTMABP7819VG12A	B	From Leg	1.50	0.0000	200.00	No Ice	1.59	0.58	34.20
(AT&T)			0.00			1/2" Ice	1.76	0.70	43.97
			0.00			1" Ice	1.94	0.83	55.87
DTMABP7819VG12A	C	From Leg	1.50	0.0000	200.00	No Ice	1.59	0.58	34.20
(AT&T)			0.00			1/2" Ice	1.76	0.70	43.97
			0.00			1" Ice	1.94	0.83	55.87
DC6-48-60-18-8F	C	From Leg	1.50	0.0000	200.00	No Ice	1.47	1.47	34.20
(AT&T)			0.00			1/2" Ice	1.67	1.67	51.92
			0.00			1" Ice	1.88	1.88	72.12
Pirod 10' PCS Frame (1)	A	From Leg	0.00	0.0000	200.00	No Ice	9.00	9.00	250.00
(AT&T)			0.00			1/2" Ice	13.20	13.20	350.00
			0.00			1" Ice	17.40	17.40	450.00
Pirod 10' PCS Frame (1)	B	From Leg	0.00	0.0000	200.00	No Ice	9.00	9.00	250.00
(AT&T)			0.00			1/2" Ice	13.20	13.20	350.00
			0.00			1" Ice	17.40	17.40	450.00
Pirod 10' PCS Frame (1)	C	From Leg	0.00	0.0000	200.00	No Ice	9.00	9.00	250.00
(AT&T)			0.00			1/2" Ice	13.20	13.20	350.00
			0.00			1" Ice	17.40	17.40	450.00
15' OMNI	B	From Leg	6.00	0.0000	213.00	No Ice	1.80	1.80	40.00
			0.00			1/2" Ice	2.73	2.73	53.97
			0.00			1" Ice	3.67	3.67	73.80
Pirod 6-8' Box Arm (1)	B	From Leg	0.00	0.0000	205.50	No Ice	4.50	4.50	214.00
			0.00			1/2" Ice	9.87	9.87	275.00
			0.00			1" Ice	15.24	15.24	336.00
2" Dia 8' Omni	A	From Leg	6.00	0.0000	208.00	No Ice	2.00	2.00	5.00
			0.00			1/2" Ice	3.03	3.03	18.00
			0.00			1" Ice	4.06	4.06	31.00
Pirod 6-8' Box Arm (1)	A	From Leg	0.00	0.0000	204.00	No Ice	4.50	4.50	214.00
			0.00			1/2" Ice	9.87	9.87	275.00
			0.00			1" Ice	15.24	15.24	336.00
MFF-950B	C	From Leg	0.00	0.0000	209.00	No Ice	8.40	12.60	40.00
			0.00			1/2" Ice	8.79	13.07	141.14
			0.00			1" Ice	9.20	13.55	248.70
1.9"x4' pipe mount	C	From Leg	0.00	0.0000	209.00	No Ice	0.00	0.00	0.00
			0.00			1/2" Ice	0.00	0.00	0.00
			0.00			1" Ice	0.00	0.00	0.00
1105-1A	A	From Leg	0.00	0.0000	219.50	No Ice	4.00	4.00	40.00
			0.00			1/2" Ice	5.00	5.00	70.00
			0.00			1" Ice	6.00	6.00	100.00
Site Pro LTF12-4126	A	From Leg	0.00	0.0000	226.50	No Ice	30.70	30.70	506.00
(Sprint)			0.00			1/2" Ice	42.00	42.00	858.00
			0.00			1" Ice	53.30	53.30	1002.00
Site Pro LTF12-4126	B	From Leg	0.00	0.0000	226.50	No Ice	30.70	30.70	506.00
(Sprint)			0.00			1/2" Ice	42.00	42.00	858.00
			0.00			1" Ice	53.30	53.30	1002.00
Site Pro LTF12-4126	C	From Leg	0.00	0.0000	226.50	No Ice	30.70	30.70	506.00
(Sprint)			0.00			1/2" Ice	42.00	42.00	858.00
			0.00			1" Ice	53.30	53.30	1002.00
NNVV-65B-R4	A	From Leg	3.00	0.0000	226.50	No Ice	12.75	7.65	121.60
(Sprint)			0.00			1/2" Ice	13.45	8.94	214.84
			0.00			1" Ice	14.12	10.07	316.80

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
NNVV-65B-R4	B	From Leg	3.00	0.0000	226.50	No Ice	12.75	7.65	121.60
(Sprint)			0.00			1/2" Ice	13.45	8.94	214.84
			0.00			1" Ice	14.12	10.07	316.80
NNVV-65B-R4	C	From Leg	3.00	0.0000	226.50	No Ice	12.75	7.65	121.60
(Sprint)			0.00			1/2" Ice	13.45	8.94	214.84
			0.00			1" Ice	14.12	10.07	316.80
APXVTM14-ALU-I20	A	From Leg	3.00	0.0000	226.50	No Ice	7.13	5.51	85.40
(Sprint)			0.00			1/2" Ice	7.84	6.69	146.02
			0.00			1" Ice	8.50	7.73	213.80
APXVTM14-ALU-I20	B	From Leg	3.00	0.0000	226.50	No Ice	7.13	5.51	85.40
(Sprint)			0.00			1/2" Ice	7.84	6.69	146.02
			0.00			1" Ice	8.50	7.73	213.80
APXVTM14-ALU-I20	C	From Leg	3.00	0.0000	226.50	No Ice	7.13	5.51	85.40
(Sprint)			0.00			1/2" Ice	7.84	6.69	146.02
			0.00			1" Ice	8.50	7.73	213.80
ALU RRH-4X45-1900	A	From Leg	1.00	0.0000	226.50	No Ice	2.50	2.50	69.50
(Sprint)			0.00			1/2" Ice	2.71	2.71	95.23
			0.00			1" Ice	2.93	2.93	124.33
(2) RRH-2X50-800	A	From Leg	1.50	0.0000	226.50	No Ice	1.73	1.33	69.10
(Sprint)			0.00			1/2" Ice	1.90	1.48	86.54
			0.00			1" Ice	2.07	1.64	106.69
TD-RRH8x20-25	A	From Leg	3.00	0.0000	226.50	No Ice	4.03	1.53	76.20
(Sprint)			0.00			1/2" Ice	4.28	1.70	103.25
			0.00			1" Ice	4.54	1.89	133.82
ALU RRH-4X45-1900	B	From Leg	1.00	0.0000	226.50	No Ice	2.50	2.50	69.50
(Sprint)			0.00			1/2" Ice	2.71	2.71	95.23
			0.00			1" Ice	2.93	2.93	124.33
(2) RRH-2X50-800	B	From Leg	1.50	0.0000	226.50	No Ice	1.73	1.33	69.10
(Sprint)			0.00			1/2" Ice	1.90	1.48	86.54
			0.00			1" Ice	2.07	1.64	106.69
TD-RRH8x20-25	B	From Leg	3.00	0.0000	226.50	No Ice	4.03	1.53	76.20
(Sprint)			0.00			1/2" Ice	4.28	1.70	103.25
			0.00			1" Ice	4.54	1.89	133.82
ALU RRH-4X45-1900	C	From Leg	1.00	0.0000	226.50	No Ice	2.50	2.50	69.50
(Sprint)			0.00			1/2" Ice	2.71	2.71	95.23
			0.00			1" Ice	2.93	2.93	124.33
(2) RRH-2X50-800	C	From Leg	1.50	0.0000	226.50	No Ice	1.73	1.33	69.10
(Sprint)			0.00			1/2" Ice	1.90	1.48	86.54
			0.00			1" Ice	2.07	1.64	106.69
TD-RRH8x20-25	C	From Leg	3.00	0.0000	226.50	No Ice	4.03	1.53	76.20
(Sprint)			0.00			1/2" Ice	4.28	1.70	103.25
			0.00			1" Ice	4.54	1.89	133.82
3" Dia 20' Omni	A	From Leg	4.00	0.0000	252.00	No Ice	4.00	4.00	55.00
			0.00			1/2" Ice	6.00	6.00	100.00
			0.00			1" Ice	8.00	8.00	145.00
Pirod 4' Side Mount Standoff	A	From Leg	0.00	0.0000	262.00	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
3" Dia 20' Omni	A	From Leg	4.00	0.0000	274.25	No Ice	4.00	4.00	55.00
			0.00			1/2" Ice	6.00	6.00	100.00
			0.00			1" Ice	8.00	8.00	145.00
Pirod 4' Side Mount Standoff	A	From Leg	0.00	0.0000	264.25	No Ice	2.72	2.72	50.00
(1)			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
5'3"x4" Pipe Mount	A	From Leg	0.00	0.0000	274.00	No Ice	1.41	1.41	57.00
			0.00			1/2" Ice	2.21	2.21	73.81
			0.00			1" Ice	2.54	2.54	94.43

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 lb
1105-1A	C	From Leg	0.00		0.0000	279.00	No Ice	4.00	4.00	40.00
			0.00				1/2" Ice	5.00	5.00	70.00
			0.00				1" Ice	6.00	6.00	100.00
1105-1A	C	From Leg	0.00		0.0000	288.00	No Ice	4.00	4.00	40.00
			0.00				1/2" Ice	5.00	5.00	70.00
			0.00				1" Ice	6.00	6.00	100.00
LeBlanc 10' Standoff (3)	C	From Leg	0.00		0.0000	294.00	No Ice	34.00	34.00	1650.00
			0.00				1/2" Ice	44.00	44.00	2250.00
			0.00				1" Ice	54.00	54.00	2850.00
LeBlanc 10' Standoff (3)	B	From Leg	0.00		0.0000	294.00	No Ice	34.00	34.00	1650.00
			0.00				1/2" Ice	44.00	44.00	2250.00
			0.00				1" Ice	54.00	54.00	2850.00
3" Dia 20' Omni	C	From Leg	10.00		0.0000	294.00 - 284.00	No Ice	4.00	4.00	55.00
			0.00				1/2" Ice	6.00	6.00	100.00
			0.00				1" Ice	8.00	8.00	145.00
3" Dia 20' Omni	B	From Leg	10.00		0.0000	294.00 - 284.00	No Ice	4.00	4.00	55.00
			0.00				1/2" Ice	6.00	6.00	100.00
			0.00				1" Ice	8.00	8.00	145.00
3" Dia 20' Omni	C	From Leg	10.00		0.0000	305.50	No Ice	4.00	4.00	55.00
			0.00				1/2" Ice	6.00	6.00	100.00
			0.00				1" Ice	8.00	8.00	145.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
SPD3-2.4NS	B	Paraboloid w/Radome	From Leg	1.00		Worst		36.00	3.00	No Ice	12.60	60.00
				0.00						1/2" Ice	13.09	127.19
				0.00						1" Ice	13.58	194.38
(2) HP2-18	A	Paraboloid w/Shroud (HP)	From Leg	0.00		Worst		106.50	2.00	No Ice	3.14	27.00
				0.00						1/2" Ice	3.41	44.49
				0.00						1" Ice	3.67	61.98
(2) HP2-18	B	Paraboloid w/Shroud (HP)	From Leg	0.00		Worst		123.50	2.00	No Ice	3.14	27.00
				0.00						1/2" Ice	3.41	44.49
				0.00						1" Ice	3.67	61.98
P-9A72GN-S	B	Paraboloid w/o Radome	From Leg	1.00		Worst		130.00	6.00	No Ice	22.60	112.00
				0.00						1/2" Ice	29.05	261.13
				0.00						1" Ice	35.50	410.25
P-9A72GN-S	B	Paraboloid w/o Radome	From Leg	0.00		Worst		251.00	6.00	No Ice	22.60	112.00
				0.00						1/2" Ice	29.05	261.13
				0.00						1" Ice	35.50	410.25
SPD6-58	A	Paraboloid w/o Radome	From Leg	0.00		Worst		274.00	3.00	No Ice	5.70	35.00
				0.00						1/2" Ice	7.46	73.31
				0.00						1" Ice	9.23	111.62
P-9A72GN-S	C	Paraboloid w/o Radome	From Leg	0.00		Worst		308.00	6.00	No Ice	22.60	112.00
				0.00						1/2" Ice	29.05	261.13
				0.00						1" Ice	35.50	410.25
P-9A120GN	C	Paraboloid w/o	From	2.00		Worst		317.50	4.00	No Ice	10.10	112.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
		Radome	Leg	0.00					1/2" Ice	13.09	179.19
				0.00					1" Ice	16.08	246.38

Tower Pressures - No Ice

G_H = 0.850 (base tower), 1.100 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg % %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	337.50	1.635	38	39.063	A	0.000	6.037	3.125	51.77	6.776	0.000
345.00-330.00					B	0.000	6.037		51.77	0.000	0.000
					C	0.000	6.037		51.77	2.408	0.000
T1	325.00	1.622	38	51.875	A	0.316	8.057	3.750	44.79	15.255	0.000
330.00-320.00					B	0.316	8.057		44.79	5.000	0.000
					C	0.316	8.057		44.79	7.130	0.000
T2	310.00	1.606	38	103.750	A	0.000	15.706	7.500	47.75	36.315	0.000
320.00-300.00					B	0.000	15.706		47.75	10.000	0.000
					C	0.000	15.706		47.75	14.260	0.000
T3	290.00	1.584	37	103.750	A	0.000	15.706	7.500	47.75	39.690	0.000
300.00-280.00					B	0.000	15.706		47.75	14.073	0.000
					C	0.000	15.706		47.75	20.770	0.000
T4	270.00	1.56	37	103.750	A	0.000	16.644	7.500	45.06	43.659	0.000
280.00-260.00					B	0.000	16.644		45.06	14.700	0.000
					C	0.000	16.644		45.06	24.905	0.000
T5	250.00	1.535	36	103.750	A	0.000	16.644	7.500	45.06	46.218	0.000
260.00-240.00					B	0.000	16.644		45.06	14.700	0.000
					C	0.000	16.644		45.06	29.178	0.000
T6	230.00	1.508	35	103.750	A	0.000	16.644	7.500	45.06	54.812	0.000
240.00-220.00					B	0.000	16.644		45.06	14.700	0.000
					C	0.000	16.644		45.06	30.960	0.000
T7	210.00	1.48	35	104.167	A	0.000	17.789	8.333	46.85	73.037	0.000
220.00-200.00					B	0.000	17.789		46.85	16.826	0.000
					C	0.000	17.789		46.85	31.813	0.000
T8	190.00	1.449	34	104.583	A	0.000	20.796	9.167	44.08	90.643	0.000
200.00-180.00					B	0.000	20.796		44.08	66.220	0.000
					C	0.000	20.796		44.08	34.060	0.000
T9	170.00	1.415	33	104.583	A	0.000	20.796	9.167	44.08	107.870	0.000
180.00-160.00					B	0.000	20.796		44.08	88.792	0.000
					C	0.000	20.796		44.08	34.060	0.000
T10	150.00	1.378	32	104.583	A	0.000	18.625	9.167	49.22	108.792	0.000
160.00-140.00					B	0.000	18.625		49.22	113.740	0.000
					C	0.000	18.625		49.22	34.060	0.000
T11	130.00	1.337	31	104.583	A	0.000	18.625	9.167	49.22	111.660	0.000
140.00-120.00					B	0.000	18.625		49.22	115.484	0.000
					C	0.000	18.625		49.22	34.060	0.000
T12	110.00	1.291	30	104.583	A	0.000	18.625	9.167	49.22	116.801	0.000
120.00-100.00					B	0.000	18.625		49.22	115.920	0.000
					C	0.000	18.625		49.22	34.060	0.000
T13	90.00	1.238	29	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
100.00-80.00					B	0.000	18.625		49.22	116.550	0.000
					C	0.000	18.625		49.22	34.060	0.000
T14	70.00	1.174	28	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
80.00-60.00					B	0.000	18.625		49.22	117.180	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	18.625		49.22	34.060	0.000
T15	50.00	1.094	26	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
60.00-40.00					B	0.000	18.625		49.22	117.180	0.000
					C	0.000	18.625		49.22	34.060	0.000
T16	30.00	0.982	23	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
40.00-20.00					B	0.000	18.625		49.22	117.180	0.000
					C	0.000	18.625		49.22	36.076	0.000
T17	16.00	0.86	20	41.833	A	0.000	8.478	3.667	43.25	47.732	0.000
20.00-12.00					B	0.000	8.478		43.25	46.872	0.000
					C	0.000	8.478		43.25	14.632	0.000
T18 12.00-6.67	9.33	0.85	20	27.889	A	0.626	4.067	2.444	52.08	31.821	0.000
					B	0.626	4.067		52.08	31.248	0.000
					C	0.626	4.067		52.08	9.755	0.000
T19 6.67-0.00	3.33	0.85	20	18.298	A	0.515	5.472	3.330	55.62	0.040	0.000
					B	0.515	5.472		55.62	0.039	0.000
					C	0.515	5.472		55.62	0.012	0.000

Tower Pressure - With Ice

G_H = 0.850 (base tower), 1.100 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	337.50	1.635	9	1.8926	43.794	A	0.000	36.041	12.588	34.93	26.175	0.000
345.00-330.00						B	0.000	36.041		34.93	0.000	0.000
						C	0.000	36.041		34.93	9.032	0.000
T1	325.00	1.622	9	1.8855	55.018	A	0.316	33.545	10.035	29.64	40.473	0.000
330.00-320.00						B	0.316	33.545		29.64	8.936	0.000
						C	0.316	33.545		29.64	18.608	0.000
T2	310.00	1.606	9	1.8766	110.005	A	0.000	61.754	20.011	32.40	100.504	0.000
320.00-300.00						B	0.000	61.754		32.40	17.792	0.000
						C	0.000	61.754		32.40	37.065	0.000
T3	290.00	1.584	9	1.8641	109.964	A	0.000	61.448	19.928	32.43	111.723	0.000
300.00-280.00						B	0.000	61.448		32.43	28.215	0.000
						C	0.000	61.448		32.43	60.404	0.000
T4	270.00	1.56	8	1.8509	109.920	A	0.000	62.060	19.839	31.97	127.268	0.000
280.00-260.00						B	0.000	62.060		31.97	29.667	0.000
						C	0.000	62.060		31.97	78.286	0.000
T5	250.00	1.535	8	1.8367	109.872	A	0.000	61.712	19.745	31.99	136.029	0.000
260.00-240.00						B	0.000	61.712		31.99	29.484	0.000
						C	0.000	61.712		31.99	94.204	0.000
T6	230.00	1.508	8	1.8214	109.821	A	0.000	61.338	19.643	32.02	154.262	0.000
240.00-220.00						B	0.000	61.338		32.02	29.287	0.000
						C	0.000	61.338		32.02	98.752	0.000
T7	210.00	1.48	8	1.8049	110.183	A	0.000	61.918	20.366	32.89	191.905	0.000
220.00-200.00						B	0.000	61.918		32.89	38.240	0.000
						C	0.000	61.918		32.89	101.005	0.000
T8	190.00	1.449	8	1.7870	110.540	A	0.000	64.350	21.080	32.76	245.043	0.000
200.00-180.00						B	0.000	64.350		32.76	150.604	0.000
						C	0.000	64.350		32.76	107.778	0.000
T9	170.00	1.415	8	1.7672	110.474	A	0.000	63.868	20.948	32.80	297.078	0.000
180.00-160.00						B	0.000	63.868		32.80	167.952	0.000
						C	0.000	63.868		32.80	106.999	0.000
T10	150.00	1.378	7	1.7452	110.401	A	0.000	61.161	20.801	34.01	299.600	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
160.00-140.00						B	0.000	61.161		34.01	186.964	0.000
						C	0.000	61.161		34.01	106.132	0.000
T11	130.00	1.337	7	1.7204	110.318	A	0.000	60.557	20.636	34.08	307.926	0.000
140.00-120.00						B	0.000	60.557		34.08	192.836	0.000
						C	0.000	60.557		34.08	105.155	0.000
T12	110.00	1.291	7	1.6919	110.223	A	0.000	59.862	20.446	34.16	327.437	0.000
120.00-100.00						B	0.000	59.862		34.16	192.951	0.000
						C	0.000	59.862		34.16	104.031	0.000
T13	90.00	1.238	7	1.6583	110.111	A	0.000	59.043	20.222	34.25	337.525	0.000
100.00-80.00						B	0.000	59.043		34.25	194.896	0.000
						C	0.000	59.043		34.25	102.707	0.000
T14 80.00-60.00	70.00	1.174	6	1.6171	109.974	A	0.000	58.040	19.948	34.37	332.648	0.000
						B	0.000	58.040		34.37	196.228	0.000
						C	0.000	58.040		34.37	101.085	0.000
T15 60.00-40.00	50.00	1.094	6	1.5636	109.795	A	0.000	56.736	19.591	34.53	326.309	0.000
						B	0.000	56.736		34.53	192.830	0.000
						C	0.000	56.736		34.53	98.978	0.000
T16 40.00-20.00	30.00	0.982	5	1.4858	109.536	A	0.000	54.838	19.072	34.78	317.087	0.000
						B	0.000	54.838		34.78	187.886	0.000
						C	0.000	54.838		34.78	108.012	0.000
T17 20.00-12.00	16.00	0.86	5	1.3952	43.694	A	0.000	23.764	7.387	31.09	122.549	0.000
						B	0.000	23.764		31.09	72.857	0.000
						C	0.000	23.764		31.09	42.737	0.000
T18 12.00-6.67	9.33	0.85	5	1.3220	29.064	A	0.626	11.917	4.795	38.23	79.389	0.000
						B	0.626	11.917		38.23	47.333	0.000
						C	0.626	11.917		38.23	27.587	0.000
T19 6.67-0.00	3.33	0.85	5	1.1927	19.714	A	0.515	14.183	6.218	42.31	0.095	0.000
						B	0.515	14.183		42.31	0.057	0.000
						C	0.515	14.183		42.31	0.033	0.000

Tower Pressure - Service

G_H = 0.850 (base tower), 1.100 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	337.50	1.635	13	39.063	A	0.000	6.037	3.125	51.77	6.776	0.000
345.00-330.00					B	0.000	6.037		51.77	0.000	0.000
					C	0.000	6.037		51.77	2.408	0.000
T1	325.00	1.622	13	51.875	A	0.316	8.057	3.750	44.79	15.255	0.000
330.00-320.00					B	0.316	8.057		44.79	5.000	0.000
					C	0.316	8.057		44.79	7.130	0.000
T2	310.00	1.606	13	103.750	A	0.000	15.706	7.500	47.75	36.315	0.000
320.00-300.00					B	0.000	15.706		47.75	10.000	0.000
					C	0.000	15.706		47.75	14.260	0.000
T3	290.00	1.584	12	103.750	A	0.000	15.706	7.500	47.75	39.690	0.000
300.00-280.00					B	0.000	15.706		47.75	14.073	0.000
					C	0.000	15.706		47.75	20.770	0.000
T4	270.00	1.56	12	103.750	A	0.000	16.644	7.500	45.06	43.659	0.000
280.00-260.00					B	0.000	16.644		45.06	14.700	0.000
					C	0.000	16.644		45.06	24.905	0.000
T5	250.00	1.535	12	103.750	A	0.000	16.644	7.500	45.06	46.218	0.000
260.00-240.00					B	0.000	16.644		45.06	14.700	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	16.644		45.06	29.178	0.000
T6	230.00	1.508	12	103.750	A	0.000	16.644	7.500	45.06	54.812	0.000
240.00-220.00					B	0.000	16.644		45.06	14.700	0.000
					C	0.000	16.644		45.06	30.960	0.000
T7	210.00	1.48	12	104.167	A	0.000	17.789	8.333	46.85	73.037	0.000
220.00-200.00					B	0.000	17.789		46.85	16.826	0.000
					C	0.000	17.789		46.85	31.813	0.000
T8	190.00	1.449	11	104.583	A	0.000	20.796	9.167	44.08	90.643	0.000
200.00-180.00					B	0.000	20.796		44.08	66.220	0.000
					C	0.000	20.796		44.08	34.060	0.000
T9	170.00	1.415	11	104.583	A	0.000	20.796	9.167	44.08	107.870	0.000
180.00-160.00					B	0.000	20.796		44.08	88.792	0.000
					C	0.000	20.796		44.08	34.060	0.000
T10	150.00	1.378	11	104.583	A	0.000	18.625	9.167	49.22	108.792	0.000
160.00-140.00					B	0.000	18.625		49.22	113.740	0.000
					C	0.000	18.625		49.22	34.060	0.000
T11	130.00	1.337	10	104.583	A	0.000	18.625	9.167	49.22	111.660	0.000
140.00-120.00					B	0.000	18.625		49.22	115.484	0.000
					C	0.000	18.625		49.22	34.060	0.000
T12	110.00	1.291	10	104.583	A	0.000	18.625	9.167	49.22	116.801	0.000
120.00-100.00					B	0.000	18.625		49.22	115.920	0.000
					C	0.000	18.625		49.22	34.060	0.000
T13	90.00	1.238	10	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
100.00-80.00					B	0.000	18.625		49.22	116.550	0.000
					C	0.000	18.625		49.22	34.060	0.000
T14	70.00	1.174	9	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
80.00-60.00					B	0.000	18.625		49.22	117.180	0.000
					C	0.000	18.625		49.22	34.060	0.000
T15	50.00	1.094	9	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
60.00-40.00					B	0.000	18.625		49.22	117.180	0.000
					C	0.000	18.625		49.22	34.060	0.000
T16	30.00	0.982	8	104.583	A	0.000	18.625	9.167	49.22	119.330	0.000
40.00-20.00					B	0.000	18.625		49.22	117.180	0.000
					C	0.000	18.625		49.22	36.076	0.000
T17	16.00	0.86	7	41.833	A	0.000	8.478	3.667	43.25	47.732	0.000
20.00-12.00					B	0.000	8.478		43.25	46.872	0.000
					C	0.000	8.478		43.25	14.632	0.000
T18 12.00-6.67	9.33	0.85	7	27.889	A	0.626	4.067	2.444	52.08	31.821	0.000
					B	0.626	4.067		52.08	31.248	0.000
					C	0.626	4.067		52.08	9.755	0.000
T19 6.67-0.00	3.33	0.85	7	18.298	A	0.515	5.472	3.330	55.62	0.040	0.000
					B	0.515	5.472		55.62	0.039	0.000
					C	0.515	5.472		55.62	0.012	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	143.92	343.53	A	0.155	2.755	38	1	1	3.429	633.09	42.21	C
345.00-330.00			B	0.155	2.755		1	1	3.429			
			C	0.155	2.755		1	1	3.429			
T1	436.90	1038.20	A	0.161	2.73	38	1	1	4.899	967.15	96.71	C
330.00-320.00			B	0.161	2.73		1	1	4.899			
			C	0.161	2.73		1	1	4.899			
T2	896.51	1553.07	A	0.151	2.766	38	1	1	8.916	1960.18	98.01	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
320.00-300.00			B	0.151	2.766		1	1	8.916			
			C	0.151	2.766		1	1	8.916			
T3	958.46	1553.07	A	0.151	2.766	37	1	1	8.916	2198.16	109.91	C
300.00-280.00			B	0.151	2.766		1	1	8.916			
			C	0.151	2.766		1	1	8.916			
T4	991.43	1728.92	A	0.16	2.734	37	1	1	9.465	2366.53	118.33	C
280.00-260.00			B	0.16	2.734		1	1	9.465			
			C	0.16	2.734		1	1	9.465			
T5	1015.58	1728.92	A	0.16	2.734	36	1	1	9.465	2454.36	122.72	C
260.00-240.00			B	0.16	2.734		1	1	9.465			
			C	0.16	2.734		1	1	9.465			
T6	1057.58	1728.92	A	0.16	2.734	35	1	1	9.465	2581.61	129.08	A
240.00-220.00			B	0.16	2.734		1	1	9.465			
			C	0.16	2.734		1	1	9.465			
T7	1143.29	1999.24	A	0.171	2.697	35	1	1	10.139	2952.65	147.63	A
220.00-200.00			B	0.171	2.697		1	1	10.139			
			C	0.171	2.697		1	1	10.139			
T8	1426.44	2728.70	A	0.199	2.6	34	1	1	11.943	3855.10	192.75	A
200.00-180.00			B	0.199	2.6		1	1	11.943			
			C	0.199	2.6		1	1	11.943			
T9	1591.68	2728.70	A	0.199	2.6	33	1	1	11.943	4197.39	209.87	A
180.00-160.00		TA	B	0.199	2.6		1	1	11.943			
		1159.20	C	0.199	2.6		1	1	11.943			
T10	1696.59	2220.23	A	0.178	2.671	32	1	1	10.634	4180.02	209.00	A
160.00-140.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T11	1711.55	2220.23	A	0.178	2.671	31	1	1	10.634	4130.00	206.50	A
140.00-120.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T12	1732.02	2220.23	A	0.178	2.671	30	1	1	10.634	4073.72	203.69	A
120.00-100.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T13	1741.70	2220.23	A	0.178	2.671	29	1	1	10.634	3952.14	197.61	A
100.00-80.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T14	1743.20	2220.23	A	0.178	2.671	28	1	1	10.634	3757.35	187.87	A
80.00-60.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T15	1743.20	2220.23	A	0.178	2.671	26	1	1	10.634	3500.40	175.02	A
60.00-40.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T16	1748.00	2220.23	A	0.178	2.671	23	1	1	10.634	3165.78	158.29	A
40.00-20.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T17	699.68	1051.19	A	0.203	2.587	20	1	1	4.874	1132.81	141.60	A
20.00-12.00			B	0.203	2.587		1	1	4.874			
			C	0.203	2.587		1	1	4.874			
T18	466.45	1011.04	A	0.168	2.705	20	1	1	2.943	738.42	138.46	A
12.00-6.67			B	0.168	2.705		1	1	2.943			
			C	0.168	2.705		1	1	2.943			
T19 6.67-0.00	0.59	1120.68	A	0.327	2.226	20	1	1	3.841	146.15	21.92	A
			B	0.327	2.226		1	1	3.841			
			C	0.327	2.226		1	1	3.841			
Sum Weight:	22944.77	37014.98								52943.00		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
L1	143.92	343.53	A	0.155	2.755	38	0.8	1	3.429	633.09	42.21	C
345.00-330.00			B	0.155	2.755		0.8	1	3.429			
			C	0.155	2.755		0.8	1	3.429			
T1	436.90	1038.20	A	0.161	2.73	38	0.8	1	4.836	961.55	96.16	C
330.00-320.00			B	0.161	2.73		0.8	1	4.836			
			C	0.161	2.73		0.8	1	4.836			
T2	896.51	1553.07	A	0.151	2.766	38	0.8	1	8.916	1960.18	98.01	C
320.00-300.00			B	0.151	2.766		0.8	1	8.916			
			C	0.151	2.766		0.8	1	8.916			
T3	958.46	1553.07	A	0.151	2.766	37	0.8	1	8.916	2198.16	109.91	A
300.00-280.00			B	0.151	2.766		0.8	1	8.916			
			C	0.151	2.766		0.8	1	8.916			
T4	991.43	1728.92	A	0.16	2.734	37	0.8	1	9.465	2366.53	118.33	A
280.00-260.00			B	0.16	2.734		0.8	1	9.465			
			C	0.16	2.734		0.8	1	9.465			
T5	1015.58	1728.92	A	0.16	2.734	36	0.8	1	9.465	2454.36	122.72	A
260.00-240.00			B	0.16	2.734		0.8	1	9.465			
			C	0.16	2.734		0.8	1	9.465			
T6	1057.58	1728.92	A	0.16	2.734	35	0.8	1	9.465	2581.61	129.08	B
240.00-220.00			B	0.16	2.734		0.8	1	9.465			
			C	0.16	2.734		0.8	1	9.465			
T7	1143.29	1999.24	A	0.171	2.697	35	0.8	1	10.139	2952.65	147.63	B
220.00-200.00			B	0.171	2.697		0.8	1	10.139			
			C	0.171	2.697		0.8	1	10.139			
T8	1426.44	2728.70	A	0.199	2.6	34	0.8	1	11.943	3855.10	192.75	B
200.00-180.00			B	0.199	2.6		0.8	1	11.943			
			C	0.199	2.6		0.8	1	11.943			
T9	1591.68	2728.70	A	0.199	2.6	33	0.8	1	11.943	4197.39	209.87	B
180.00-160.00		TA	B	0.199	2.6		0.8	1	11.943			
		1159.20	C	0.199	2.6		0.8	1	11.943			
T10	1696.59	2220.23	A	0.178	2.671	32	0.8	1	10.634	4180.02	209.00	B
160.00-140.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T11	1711.55	2220.23	A	0.178	2.671	31	0.8	1	10.634	4130.00	206.50	B
140.00-120.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T12	1732.02	2220.23	A	0.178	2.671	30	0.8	1	10.634	4073.72	203.69	B
120.00-100.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T13	1741.70	2220.23	A	0.178	2.671	29	0.8	1	10.634	3952.14	197.61	B
100.00-80.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T14	1743.20	2220.23	A	0.178	2.671	28	0.8	1	10.634	3757.35	187.87	B
80.00-60.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T15	1743.20	2220.23	A	0.178	2.671	26	0.8	1	10.634	3500.40	175.02	B
60.00-40.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T16	1748.00	2220.23	A	0.178	2.671	23	0.8	1	10.634	3165.78	158.29	B
40.00-20.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T17	699.68	1051.19	A	0.203	2.587	20	0.8	1	4.874	1132.81	141.60	B
20.00-12.00			B	0.203	2.587		0.8	1	4.874			
			C	0.203	2.587		0.8	1	4.874			
T18	466.45	1011.04	A	0.168	2.705	20	0.8	1	2.818	732.66	137.37	B
12.00-6.67			B	0.168	2.705		0.8	1	2.818			
			C	0.168	2.705		0.8	1	2.818			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T19 6.67-0.00	0.59	1120.68	A	0.327	2.226	20	0.8	1	3.738	142.25	21.34	B
			B	0.327	2.226		0.8	1	3.738			
			C	0.327	2.226		0.8	1	3.738			
Sum Weight:	22944.77	37014.98								52927.75		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	143.92	343.53	A	0.155	2.755	38	0.85	1	3.429	633.09	42.21	C
345.00-330.00			B	0.155	2.755		0.85	1	3.429			
			C	0.155	2.755		0.85	1	3.429			
T1	436.90	1038.20	A	0.161	2.73	38	0.85	1	4.851	962.95	96.29	C
330.00-320.00			B	0.161	2.73		0.85	1	4.851			
			C	0.161	2.73		0.85	1	4.851			
T2	896.51	1553.07	A	0.151	2.766	38	0.85	1	8.916	1960.18	98.01	C
320.00-300.00			B	0.151	2.766		0.85	1	8.916			
			C	0.151	2.766		0.85	1	8.916			
T3	958.46	1553.07	A	0.151	2.766	37	0.85	1	8.916	2198.16	109.91	B
300.00-280.00			B	0.151	2.766		0.85	1	8.916			
			C	0.151	2.766		0.85	1	8.916			
T4	991.43	1728.92	A	0.16	2.734	37	0.85	1	9.465	2366.53	118.33	B
280.00-260.00			B	0.16	2.734		0.85	1	9.465			
			C	0.16	2.734		0.85	1	9.465			
T5	1015.58	1728.92	A	0.16	2.734	36	0.85	1	9.465	2454.36	122.72	B
260.00-240.00			B	0.16	2.734		0.85	1	9.465			
			C	0.16	2.734		0.85	1	9.465			
T6	1057.58	1728.92	A	0.16	2.734	35	0.85	1	9.465	2599.49	129.97	B
240.00-220.00			B	0.16	2.734		0.85	1	9.465			
			C	0.16	2.734		0.85	1	9.465			
T7	1143.29	1999.24	A	0.171	2.697	35	0.85	1	10.139	2970.18	148.51	B
220.00-200.00			B	0.171	2.697		0.85	1	10.139			
			C	0.171	2.697		0.85	1	10.139			
T8	1426.44	2728.70	A	0.199	2.6	34	0.85	1	11.943	3958.37	197.92	C
200.00-180.00			B	0.199	2.6		0.85	1	11.943			
			C	0.199	2.6		0.85	1	11.943			
T9	1591.68	2728.70	A	0.199	2.6	33	0.85	1	11.943	4316.23	215.81	C
180.00-160.00		TA	B	0.199	2.6		0.85	1	11.943			
		1159.20	C	0.199	2.6		0.85	1	11.943			
T10	1696.59	2220.23	A	0.178	2.671	32	0.85	1	10.634	4315.09	215.75	C
160.00-140.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T11	1711.55	2220.23	A	0.178	2.671	31	0.85	1	10.634	4261.06	213.05	C
140.00-120.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T12	1732.02	2220.23	A	0.178	2.671	30	0.85	1	10.634	4200.25	210.01	C
120.00-100.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T13	1741.70	2220.23	A	0.178	2.671	29	0.85	1	10.634	4073.44	203.67	C
100.00-80.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T14	1743.20	2220.23	A	0.178	2.671	28	0.85	1	10.634	3872.40	193.62	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
80.00-60.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T15	1743.20	2220.23	A	0.178	2.671	26	0.85	1	10.634	3607.58	180.38	C
60.00-40.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T16	1748.00	2220.23	A	0.178	2.671	23	0.85	1	10.634	3254.60	162.73	C
40.00-20.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T17	699.68	1051.19	A	0.203	2.587	20	0.85	1	4.874	1163.28	145.41	C
20.00-12.00			B	0.203	2.587		0.85	1	4.874			
			C	0.203	2.587		0.85	1	4.874			
T18	466.45	1011.04	A	0.168	2.705	20	0.85	1	2.849	754.17	141.41	C
12.00-6.67			B	0.168	2.705		0.85	1	2.849			
			C	0.168	2.705		0.85	1	2.849			
T19 6.67-0.00	0.59	1120.68	A	0.327	2.226	20	0.85	1	3.763	143.25	21.49	C
			B	0.327	2.226		0.85	1	3.763			
			C	0.327	2.226		0.85	1	3.763			
Sum Weight:	22944.77	37014.98								54064.66		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	539.17	1728.55	A	0.823	1.835	9	1	1	32.562	645.51	43.03	C
345.00-330.00			B	0.823	1.835		1	1	32.562			
			C	0.823	1.835		1	1	32.562			
T1	1552.97	2645.94	A	0.615	1.795	9	1	1	25.597	540.83	54.08	C
330.00-320.00			B	0.615	1.795		1	1	25.597			
			C	0.615	1.795		1	1	25.597			
T2	3411.34	4104.24	A	0.561	1.833	9	1	1	44.461	1111.28	55.56	C
320.00-300.00			B	0.561	1.833		1	1	44.461			
			C	0.561	1.833		1	1	44.461			
T3	4084.88	4076.71	A	0.559	1.835	9	1	1	44.146	1234.45	61.72	C
300.00-280.00			B	0.559	1.835		1	1	44.146			
			C	0.559	1.835		1	1	44.146			
T4	4575.69	4298.98	A	0.565	1.83	8	1	1	44.802	1321.82	66.09	C
280.00-260.00			B	0.565	1.83		1	1	44.802			
			C	0.565	1.83		1	1	44.802			
T5	4932.65	4267.42	A	0.562	1.833	8	1	1	44.442	1377.81	68.89	C
260.00-240.00			B	0.562	1.833		1	1	44.442			
			C	0.562	1.833		1	1	44.442			
T6	5253.94	4233.70	A	0.559	1.836	8	1	1	44.057	1399.62	69.98	C
240.00-220.00			B	0.559	1.836		1	1	44.057			
			C	0.559	1.836		1	1	44.057			
T7	5952.84	4524.25	A	0.562	1.833	8	1	1	44.601	1497.54	74.88	A
220.00-200.00			B	0.562	1.833		1	1	44.601			
			C	0.562	1.833		1	1	44.601			
T8	8247.16	5417.08	A	0.582	1.816	8	1	1	47.143	1555.05*	77.75	C
200.00-180.00			B	0.582	1.816		1	1	47.143			
			C	0.582	1.816		1	1	47.143			
T9	9277.15	5371.46	A	0.578	1.819	8	1	1	46.632	1518.15*	75.91	C
180.00-160.00		TA	B	0.578	1.819		1	1	46.632			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
		2355.30	C	0.578	1.819		1	1	46.632			
T10	9622.03	4646.29	A	0.554	1.84	7	1	1	43.765	1477.69*	73.88	C
160.00-140.00			B	0.554	1.84		1	1	43.765			
			C	0.554	1.84		1	1	43.765			
T11	9738.24	4592.43	A	0.549	1.845	7	1	1	43.152	1432.76*	71.64	C
140.00-120.00			B	0.549	1.845		1	1	43.152			
			C	0.549	1.845		1	1	43.152			
T12	9885.17	4531.20	A	0.543	1.85	7	1	1	42.453	1382.06*	69.10	C
120.00-100.00			B	0.543	1.85		1	1	42.453			
			C	0.543	1.85		1	1	42.453			
T13	9869.75	4459.95	A	0.536	1.857	7	1	1	41.637	1323.54*	66.18	C
100.00-80.00			B	0.536	1.857		1	1	41.637			
			C	0.536	1.857		1	1	41.637			
T14	9668.52	4374.10	A	0.528	1.867	6	1	1	40.649	1253.77*	62.69	C
80.00-60.00			B	0.528	1.867		1	1	40.649			
			C	0.528	1.867		1	1	40.649			
T15	9349.13	4264.80	A	0.517	1.879	6	1	1	39.385	1166.14*	58.31	C
60.00-40.00			B	0.517	1.879		1	1	39.385			
			C	0.517	1.879		1	1	39.385			
T16	8985.87	4110.38	A	0.501	1.899	5	1	1	37.583	1044.76*	52.24	C
40.00-20.00			B	0.501	1.899		1	1	37.583			
			C	0.501	1.899		1	1	37.583			
T17	3393.20	1852.75	A	0.544	1.849	5	1	1	16.864	365.09*	45.64	C
20.00-12.00			B	0.544	1.849		1	1	16.864			
			C	0.544	1.849		1	1	16.864			
T18	2151.57	1652.54	A	0.432	2.005	5	1	1	8.378	239.89*	44.98	C
12.00-6.67			B	0.432	2.005		1	1	8.378			
			C	0.432	2.005		1	1	8.378			
T19 6.67-0.00	2.47	1734.37	A	0.746	1.786	5	1	1	12.488	87.81	13.17	A
			B	0.746	1.786		1	1	12.488			
			C	0.746	1.786		1	1	12.488			
Sum Weight:	120493.72	79242.45			*2.1A_g limit					21975.58		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	539.17	1728.55	A	0.823	1.835	9	0.8	1	32.562	645.51	43.03	C
345.00-330.00			B	0.823	1.835		0.8	1	32.562			
			C	0.823	1.835		0.8	1	32.562			
T1	1552.97	2645.94	A	0.615	1.795	9	0.8	1	25.533	539.98	54.00	C
330.00-320.00			B	0.615	1.795		0.8	1	25.533			
			C	0.615	1.795		0.8	1	25.533			
T2	3411.34	4104.24	A	0.561	1.833	9	0.8	1	44.461	1111.28	55.56	C
320.00-300.00			B	0.561	1.833		0.8	1	44.461			
			C	0.561	1.833		0.8	1	44.461			
T3	4084.88	4076.71	A	0.559	1.835	9	0.8	1	44.146	1234.45	61.72	A
300.00-280.00			B	0.559	1.835		0.8	1	44.146			
			C	0.559	1.835		0.8	1	44.146			
T4	4575.69	4298.98	A	0.565	1.83	8	0.8	1	44.802	1321.82	66.09	A
280.00-260.00			B	0.565	1.83		0.8	1	44.802			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.565	1.83		0.8	1	44.802			
T5	4932.65	4267.42	A	0.562	1.833	8	0.8	1	44.442	1377.81	68.89	A
260.00-240.00			B	0.562	1.833		0.8	1	44.442			
			C	0.562	1.833		0.8	1	44.442			
T6	5253.94	4233.70	A	0.559	1.836	8	0.8	1	44.057	1399.62	69.98	A
240.00-220.00			B	0.559	1.836		0.8	1	44.057			
			C	0.559	1.836		0.8	1	44.057			
T7	5952.84	4524.25	A	0.562	1.833	8	0.8	1	44.601	1497.54	74.88	B
220.00-200.00			B	0.562	1.833		0.8	1	44.601			
			C	0.562	1.833		0.8	1	44.601			
T8	8247.16	5417.08	A	0.582	1.816	8	0.8	1	47.143	1555.05*	77.75	C
200.00-180.00			B	0.582	1.816		0.8	1	47.143			
			C	0.582	1.816		0.8	1	47.143			
T9	9277.15	5371.46	A	0.578	1.819	8	0.8	1	46.632	1518.15*	75.91	C
180.00-160.00		TA	B	0.578	1.819		0.8	1	46.632			
		2355.30	C	0.578	1.819		0.8	1	46.632			
T10	9622.03	4646.29	A	0.554	1.84	7	0.8	1	43.765	1477.69*	73.88	C
160.00-140.00			B	0.554	1.84		0.8	1	43.765			
			C	0.554	1.84		0.8	1	43.765			
T11	9738.24	4592.43	A	0.549	1.845	7	0.8	1	43.152	1432.76*	71.64	C
140.00-120.00			B	0.549	1.845		0.8	1	43.152			
			C	0.549	1.845		0.8	1	43.152			
T12	9885.17	4531.20	A	0.543	1.85	7	0.8	1	42.453	1382.06*	69.10	C
120.00-100.00			B	0.543	1.85		0.8	1	42.453			
			C	0.543	1.85		0.8	1	42.453			
T13	9869.75	4459.95	A	0.536	1.857	7	0.8	1	41.637	1323.54*	66.18	C
100.00-80.00			B	0.536	1.857		0.8	1	41.637			
			C	0.536	1.857		0.8	1	41.637			
T14	9668.52	4374.10	A	0.528	1.867	6	0.8	1	40.649	1253.77*	62.69	C
80.00-60.00			B	0.528	1.867		0.8	1	40.649			
			C	0.528	1.867		0.8	1	40.649			
T15	9349.13	4264.80	A	0.517	1.879	6	0.8	1	39.385	1166.14*	58.31	C
60.00-40.00			B	0.517	1.879		0.8	1	39.385			
			C	0.517	1.879		0.8	1	39.385			
T16	8985.87	4110.38	A	0.501	1.899	5	0.8	1	37.583	1044.76*	52.24	C
40.00-20.00			B	0.501	1.899		0.8	1	37.583			
			C	0.501	1.899		0.8	1	37.583			
T17	3393.20	1852.75	A	0.544	1.849	5	0.8	1	16.864	365.09*	45.64	C
20.00-12.00			B	0.544	1.849		0.8	1	16.864			
			C	0.544	1.849		0.8	1	16.864			
T18	2151.57	1652.54	A	0.432	2.005	5	0.8	1	8.253	239.89*	44.98	C
12.00-6.67			B	0.432	2.005		0.8	1	8.253			
			C	0.432	2.005		0.8	1	8.253			
T19 6.67-0.00	2.47	1734.37	A	0.746	1.786	5	0.8	1	12.385	87.08	13.06	B
			B	0.746	1.786		0.8	1	12.385			
			C	0.746	1.786		0.8	1	12.385			
Sum Weight:	120493.72	79242.45			*2.1A_g limit					21974.01		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	539.17	1728.55	A	0.823	1.835	9	0.85	1	32.562	645.51	43.03	C
345.00-330.00			B	0.823	1.835		0.85	1	32.562			
			C	0.823	1.835		0.85	1	32.562			
T1	1552.97	2645.94	A	0.615	1.795	9	0.85	1	25.549	540.20	54.02	C
330.00-320.00			B	0.615	1.795		0.85	1	25.549			
			C	0.615	1.795		0.85	1	25.549			
T2	3411.34	4104.24	A	0.561	1.833	9	0.85	1	44.461	1111.28	55.56	C
320.00-300.00			B	0.561	1.833		0.85	1	44.461			
			C	0.561	1.833		0.85	1	44.461			
T3	4084.88	4076.71	A	0.559	1.835	9	0.85	1	44.146	1224.41	61.22	B
300.00-280.00			B	0.559	1.835		0.85	1	44.146			
			C	0.559	1.835		0.85	1	44.146			
T4	4575.69	4298.98	A	0.565	1.83	8	0.85	1	44.802	1307.88	65.39	B
280.00-260.00			B	0.565	1.83		0.85	1	44.802			
			C	0.565	1.83		0.85	1	44.802			
T5	4932.65	4267.42	A	0.562	1.833	8	0.85	1	44.442	1364.01	68.20	B
260.00-240.00			B	0.562	1.833		0.85	1	44.442			
			C	0.562	1.833		0.85	1	44.442			
T6	5253.94	4233.70	A	0.559	1.836	8	0.85	1	44.057	1401.46	70.07	B
240.00-220.00			B	0.559	1.836		0.85	1	44.057			
			C	0.559	1.836		0.85	1	44.057			
T7	5952.84	4524.25	A	0.562	1.833	8	0.85	1	44.601	1500.91	75.05	B
220.00-200.00			B	0.562	1.833		0.85	1	44.601			
			C	0.562	1.833		0.85	1	44.601			
T8	8247.16	5417.08	A	0.582	1.816	8	0.85	1	47.143	1555.05*	77.75	C
200.00-180.00			B	0.582	1.816		0.85	1	47.143			
			C	0.582	1.816		0.85	1	47.143			
T9	9277.15	5371.46	A	0.578	1.819	8	0.85	1	46.632	1518.15*	75.91	C
180.00-160.00		TA	B	0.578	1.819		0.85	1	46.632			
		2355.30	C	0.578	1.819		0.85	1	46.632			
T10	9622.03	4646.29	A	0.554	1.84	7	0.85	1	43.765	1477.69*	73.88	C
160.00-140.00			B	0.554	1.84		0.85	1	43.765			
			C	0.554	1.84		0.85	1	43.765			
T11	9738.24	4592.43	A	0.549	1.845	7	0.85	1	43.152	1432.76*	71.64	C
140.00-120.00			B	0.549	1.845		0.85	1	43.152			
			C	0.549	1.845		0.85	1	43.152			
T12	9885.17	4531.20	A	0.543	1.85	7	0.85	1	42.453	1382.06*	69.10	C
120.00-100.00			B	0.543	1.85		0.85	1	42.453			
			C	0.543	1.85		0.85	1	42.453			
T13	9869.75	4459.95	A	0.536	1.857	7	0.85	1	41.637	1323.54*	66.18	C
100.00-80.00			B	0.536	1.857		0.85	1	41.637			
			C	0.536	1.857		0.85	1	41.637			
T14	9668.52	4374.10	A	0.528	1.867	6	0.85	1	40.649	1253.77*	62.69	C
80.00-60.00			B	0.528	1.867		0.85	1	40.649			
			C	0.528	1.867		0.85	1	40.649			
T15	9349.13	4264.80	A	0.517	1.879	6	0.85	1	39.385	1166.14*	58.31	C
60.00-40.00			B	0.517	1.879		0.85	1	39.385			
			C	0.517	1.879		0.85	1	39.385			
T16	8985.87	4110.38	A	0.501	1.899	5	0.85	1	37.583	1044.76*	52.24	C
40.00-20.00			B	0.501	1.899		0.85	1	37.583			
			C	0.501	1.899		0.85	1	37.583			
T17	3393.20	1852.75	A	0.544	1.849	5	0.85	1	16.864	365.09*	45.64	C
20.00-12.00			B	0.544	1.849		0.85	1	16.864			
			C	0.544	1.849		0.85	1	16.864			
T18	2151.57	1652.54	A	0.432	2.005	5	0.85	1	8.284	239.89*	44.98	C
12.00-6.67			B	0.432	2.005		0.85	1	8.284			
			C	0.432	2.005		0.85	1	8.284			
T19 6.67-0.00	2.47	1734.37	A	0.746	1.786	5	0.85	1	12.410	87.26	13.09	C
			B	0.746	1.786		0.85	1	12.410			
			C	0.746	1.786		0.85	1	12.410			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
Sum Weight:	120493.72	79242.45			*2.1A_g limit					21941.84		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	143.92	343.53	A	0.155	2.755	13	1	1	3.429	210.72	14.05	C
345.00-330.00			B	0.155	2.755		1	1	3.429			
			C	0.155	2.755		1	1	3.429			
T1	436.90	1038.20	A	0.161	2.73	13	1	1	4.899	321.91	32.19	C
330.00-320.00			B	0.161	2.73		1	1	4.899			
			C	0.161	2.73		1	1	4.899			
T2	896.51	1553.07	A	0.151	2.766	13	1	1	8.916	652.43	32.62	C
320.00-300.00			B	0.151	2.766		1	1	8.916			
			C	0.151	2.766		1	1	8.916			
T3	958.46	1553.07	A	0.151	2.766	12	1	1	8.916	731.64	36.58	C
300.00-280.00			B	0.151	2.766		1	1	8.916			
			C	0.151	2.766		1	1	8.916			
T4	991.43	1728.92	A	0.16	2.734	12	1	1	9.465	787.68	39.38	C
280.00-260.00			B	0.16	2.734		1	1	9.465			
			C	0.16	2.734		1	1	9.465			
T5	1015.58	1728.92	A	0.16	2.734	12	1	1	9.465	816.91	40.85	C
260.00-240.00			B	0.16	2.734		1	1	9.465			
			C	0.16	2.734		1	1	9.465			
T6	1057.58	1728.92	A	0.16	2.734	12	1	1	9.465	859.27	42.96	A
240.00-220.00			B	0.16	2.734		1	1	9.465			
			C	0.16	2.734		1	1	9.465			
T7	1143.29	1999.24	A	0.171	2.697	12	1	1	10.139	982.76	49.14	A
220.00-200.00			B	0.171	2.697		1	1	10.139			
			C	0.171	2.697		1	1	10.139			
T8	1426.44	2728.70	A	0.199	2.6	11	1	1	11.943	1283.13	64.16	A
200.00-180.00			B	0.199	2.6		1	1	11.943			
			C	0.199	2.6		1	1	11.943			
T9	1591.68	2728.70	A	0.199	2.6	11	1	1	11.943	1397.06	69.85	A
180.00-160.00		TA	B	0.199	2.6		1	1	11.943			
		1159.20	C	0.199	2.6		1	1	11.943			
T10	1696.59	2220.23	A	0.178	2.671	11	1	1	10.634	1391.28	69.56	A
160.00-140.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T11	1711.55	2220.23	A	0.178	2.671	10	1	1	10.634	1374.63	68.73	A
140.00-120.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T12	1732.02	2220.23	A	0.178	2.671	10	1	1	10.634	1355.90	67.79	A
120.00-100.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T13	1741.70	2220.23	A	0.178	2.671	10	1	1	10.634	1315.43	65.77	A
100.00-80.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T14	1743.20	2220.23	A	0.178	2.671	9	1	1	10.634	1250.60	62.53	A
80.00-60.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T15	1743.20	2220.23	A	0.178	2.671	9	1	1	10.634	1165.07	58.25	A
60.00-40.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T16	1748.00	2220.23	A	0.178	2.671	8	1	1	10.634	1053.70	52.68	A
40.00-20.00			B	0.178	2.671		1	1	10.634			
			C	0.178	2.671		1	1	10.634			
T17	699.68	1051.19	A	0.203	2.587	7	1	1	4.874	377.04	47.13	A
20.00-12.00			B	0.203	2.587		1	1	4.874			
			C	0.203	2.587		1	1	4.874			
T18	466.45	1011.04	A	0.168	2.705	7	1	1	2.943	245.78	46.08	A
12.00-6.67			B	0.168	2.705		1	1	2.943			
			C	0.168	2.705		1	1	2.943			
T19 6.67-0.00	0.59	1120.68	A	0.327	2.226	7	1	1	3.841	48.64	7.30	A
			B	0.327	2.226		1	1	3.841			
			C	0.327	2.226		1	1	3.841			
Sum Weight:	22944.77	37014.98								17621.56		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	143.92	343.53	A	0.155	2.755	13	0.8	1	3.429	210.72	14.05	C
345.00-330.00			B	0.155	2.755		0.8	1	3.429			
			C	0.155	2.755		0.8	1	3.429			
T1	436.90	1038.20	A	0.161	2.73	13	0.8	1	4.836	320.04	32.00	C
330.00-320.00			B	0.161	2.73		0.8	1	4.836			
			C	0.161	2.73		0.8	1	4.836			
T2	896.51	1553.07	A	0.151	2.766	13	0.8	1	8.916	652.43	32.62	C
320.00-300.00			B	0.151	2.766		0.8	1	8.916			
			C	0.151	2.766		0.8	1	8.916			
T3	958.46	1553.07	A	0.151	2.766	12	0.8	1	8.916	731.64	36.58	A
300.00-280.00			B	0.151	2.766		0.8	1	8.916			
			C	0.151	2.766		0.8	1	8.916			
T4	991.43	1728.92	A	0.16	2.734	12	0.8	1	9.465	787.68	39.38	A
280.00-260.00			B	0.16	2.734		0.8	1	9.465			
			C	0.16	2.734		0.8	1	9.465			
T5	1015.58	1728.92	A	0.16	2.734	12	0.8	1	9.465	816.91	40.85	A
260.00-240.00			B	0.16	2.734		0.8	1	9.465			
			C	0.16	2.734		0.8	1	9.465			
T6	1057.58	1728.92	A	0.16	2.734	12	0.8	1	9.465	859.27	42.96	B
240.00-220.00			B	0.16	2.734		0.8	1	9.465			
			C	0.16	2.734		0.8	1	9.465			
T7	1143.29	1999.24	A	0.171	2.697	12	0.8	1	10.139	982.76	49.14	B
220.00-200.00			B	0.171	2.697		0.8	1	10.139			
			C	0.171	2.697		0.8	1	10.139			
T8	1426.44	2728.70	A	0.199	2.6	11	0.8	1	11.943	1283.13	64.16	B
200.00-180.00			B	0.199	2.6		0.8	1	11.943			
			C	0.199	2.6		0.8	1	11.943			
T9	1591.68	2728.70	A	0.199	2.6	11	0.8	1	11.943	1397.06	69.85	B
180.00-160.00		TA	B	0.199	2.6		0.8	1	11.943			
		1159.20	C	0.199	2.6		0.8	1	11.943			
T10	1696.59	2220.23	A	0.178	2.671	11	0.8	1	10.634	1391.28	69.56	B

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
160.00-140.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T11	1711.55	2220.23	A	0.178	2.671	10	0.8	1	10.634	1374.63	68.73	B
140.00-120.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T12	1732.02	2220.23	A	0.178	2.671	10	0.8	1	10.634	1355.90	67.79	B
120.00-100.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T13	1741.70	2220.23	A	0.178	2.671	10	0.8	1	10.634	1315.43	65.77	B
100.00-80.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T14	1743.20	2220.23	A	0.178	2.671	9	0.8	1	10.634	1250.60	62.53	B
80.00-60.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T15	1743.20	2220.23	A	0.178	2.671	9	0.8	1	10.634	1165.07	58.25	B
60.00-40.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T16	1748.00	2220.23	A	0.178	2.671	8	0.8	1	10.634	1053.70	52.68	B
40.00-20.00			B	0.178	2.671		0.8	1	10.634			
			C	0.178	2.671		0.8	1	10.634			
T17	699.68	1051.19	A	0.203	2.587	7	0.8	1	4.874	377.04	47.13	B
20.00-12.00			B	0.203	2.587		0.8	1	4.874			
			C	0.203	2.587		0.8	1	4.874			
T18	466.45	1011.04	A	0.168	2.705	7	0.8	1	2.818	243.86	45.72	B
12.00-6.67			B	0.168	2.705		0.8	1	2.818			
			C	0.168	2.705		0.8	1	2.818			
T19 6.67-0.00	0.59	1120.68	A	0.327	2.226	7	0.8	1	3.738	47.35	7.10	B
			B	0.327	2.226		0.8	1	3.738			
			C	0.327	2.226		0.8	1	3.738			
Sum Weight:	22944.77	37014.98								17616.48		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	143.92	343.53	A	0.155	2.755	13	0.85	1	3.429	210.72	14.05	C
345.00-330.00			B	0.155	2.755		0.85	1	3.429			
			C	0.155	2.755		0.85	1	3.429			
T1	436.90	1038.20	A	0.161	2.73	13	0.85	1	4.851	320.51	32.05	C
330.00-320.00			B	0.161	2.73		0.85	1	4.851			
			C	0.161	2.73		0.85	1	4.851			
T2	896.51	1553.07	A	0.151	2.766	13	0.85	1	8.916	652.43	32.62	C
320.00-300.00			B	0.151	2.766		0.85	1	8.916			
			C	0.151	2.766		0.85	1	8.916			
T3	958.46	1553.07	A	0.151	2.766	12	0.85	1	8.916	731.64	36.58	B
300.00-280.00			B	0.151	2.766		0.85	1	8.916			
			C	0.151	2.766		0.85	1	8.916			
T4	991.43	1728.92	A	0.16	2.734	12	0.85	1	9.465	787.68	39.38	B
280.00-260.00			B	0.16	2.734		0.85	1	9.465			
			C	0.16	2.734		0.85	1	9.465			
T5	1015.58	1728.92	A	0.16	2.734	12	0.85	1	9.465	816.91	40.85	B
260.00-240.00			B	0.16	2.734		0.85	1	9.465			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.16	2.734		0.85	1	9.465			
T6	1057.58	1728.92	A	0.16	2.734	12	0.85	1	9.465	865.22	43.26	B
240.00-220.00			B	0.16	2.734		0.85	1	9.465			
			C	0.16	2.734		0.85	1	9.465			
T7	1143.29	1999.24	A	0.171	2.697	12	0.85	1	10.139	988.60	49.43	B
220.00-200.00			B	0.171	2.697		0.85	1	10.139			
			C	0.171	2.697		0.85	1	10.139			
T8	1426.44	2728.70	A	0.199	2.6	11	0.85	1	11.943	1317.50	65.88	C
200.00-180.00			B	0.199	2.6		0.85	1	11.943			
			C	0.199	2.6		0.85	1	11.943			
T9	1591.68	2728.70	A	0.199	2.6	11	0.85	1	11.943	1436.61	71.83	C
180.00-160.00		TA	B	0.199	2.6		0.85	1	11.943			
		1159.20	C	0.199	2.6		0.85	1	11.943			
T10	1696.59	2220.23	A	0.178	2.671	11	0.85	1	10.634	1436.23	71.81	C
160.00-140.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T11	1711.55	2220.23	A	0.178	2.671	10	0.85	1	10.634	1418.25	70.91	C
140.00-120.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T12	1732.02	2220.23	A	0.178	2.671	10	0.85	1	10.634	1398.01	69.90	C
120.00-100.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T13	1741.70	2220.23	A	0.178	2.671	10	0.85	1	10.634	1355.80	67.79	C
100.00-80.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T14	1743.20	2220.23	A	0.178	2.671	9	0.85	1	10.634	1288.89	64.44	C
80.00-60.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T15	1743.20	2220.23	A	0.178	2.671	9	0.85	1	10.634	1200.75	60.04	C
60.00-40.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T16	1748.00	2220.23	A	0.178	2.671	8	0.85	1	10.634	1083.26	54.16	C
40.00-20.00			B	0.178	2.671		0.85	1	10.634			
			C	0.178	2.671		0.85	1	10.634			
T17	699.68	1051.19	A	0.203	2.587	7	0.85	1	4.874	387.19	48.40	C
20.00-12.00			B	0.203	2.587		0.85	1	4.874			
			C	0.203	2.587		0.85	1	4.874			
T18	466.45	1011.04	A	0.168	2.705	7	0.85	1	2.849	251.02	47.07	C
12.00-6.67			B	0.168	2.705		0.85	1	2.849			
			C	0.168	2.705		0.85	1	2.849			
T19 6.67-0.00	0.59	1120.68	A	0.327	2.226	7	0.85	1	3.763	47.68	7.15	C
			B	0.327	2.226		0.85	1	3.763			
			C	0.327	2.226		0.85	1	3.763			
Sum Weight:	22944.77	37014.98								17994.90		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Leg Weight	18708.78			
Bracing Weight	18306.21			
Total Member Self-Weight	37014.98			

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Guy Weight	7656.39			
Total Weight	80660.14			
Wind 0 deg - No Ice		-113.83	-71283.39	-4.83
Wind 30 deg - No Ice		35139.99	-60891.72	-2.09
Wind 60 deg - No Ice		63325.22	-36445.26	0.72
Wind 90 deg - No Ice		74235.63	113.83	3.48
Wind 120 deg - No Ice		63737.85	36814.92	5.63
Wind 150 deg - No Ice		36374.33	62802.01	6.16
Wind 180 deg - No Ice		113.83	71268.14	4.83
Wind 210 deg - No Ice		-35139.99	60891.72	2.09
Wind 240 deg - No Ice		-63338.43	36452.88	-0.72
Wind 270 deg - No Ice		-74235.63	-113.83	-3.48
Wind 300 deg - No Ice		-63724.64	-36807.29	-5.64
Wind 330 deg - No Ice		-36374.33	-62802.01	-6.16
Member Ice	42227.46			
Guy Ice	28864.65			
Total Weight Ice	275038.69			
Wind 0 deg - Ice		-28.85	-31191.91	-3.05
Wind 30 deg - Ice		15535.31	-26914.64	-0.85
Wind 60 deg - Ice		26851.16	-15473.08	1.58
Wind 90 deg - Ice		31019.32	28.85	3.57
Wind 120 deg - Ice		26961.86	15570.30	4.61
Wind 150 deg - Ice		15631.75	27023.99	4.43
Wind 180 deg - Ice		28.85	31190.34	3.05
Wind 210 deg - Ice		-15535.31	26914.64	0.85
Wind 240 deg - Ice		-26852.52	15473.87	-1.58
Wind 270 deg - Ice		-31019.32	-28.85	-3.57
Wind 300 deg - Ice		-26960.50	-15569.52	-4.61
Wind 330 deg - Ice		-15631.75	-27023.99	-4.43
Total Weight	80660.14			
Wind 0 deg - Service		-37.89	-23725.98	-1.61
Wind 30 deg - Service		11696.00	-20267.21	-0.69
Wind 60 deg - Service		21077.18	-12130.45	0.24
Wind 90 deg - Service		24708.60	37.89	1.16
Wind 120 deg - Service		21214.52	12253.49	1.88
Wind 150 deg - Service		12106.84	20903.03	2.05
Wind 180 deg - Service		37.89	23720.90	1.61
Wind 210 deg - Service		-11696.00	20267.21	0.69
Wind 240 deg - Service		-21081.58	12132.99	-0.24
Wind 270 deg - Service		-24708.60	-37.89	-1.16
Wind 300 deg - Service		-21210.12	-12250.95	-1.88
Wind 330 deg - Service		-12106.84	-20903.03	-2.05

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2D+1.6W (pattern 1) 0 deg - No Ice+1.0 Guy
4	1.2D+1.6W (pattern 2) 0 deg - No Ice+1.0 Guy
5	1.2D+1.6W (pattern 3) 0 deg - No Ice+1.0 Guy
6	1.2D+1.6W (pattern 4) 0 deg - No Ice+1.0 Guy
7	1.2D+1.6W (pattern 5) 0 deg - No Ice+1.0 Guy

Comb. No.	Description
8	1.2D+1.6W (pattern 6) 0 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
10	1.2D+1.6W (pattern 1) 30 deg - No Ice+1.0 Guy
11	1.2D+1.6W (pattern 2) 30 deg - No Ice+1.0 Guy
12	1.2D+1.6W (pattern 3) 30 deg - No Ice+1.0 Guy
13	1.2D+1.6W (pattern 4) 30 deg - No Ice+1.0 Guy
14	1.2D+1.6W (pattern 5) 30 deg - No Ice+1.0 Guy
15	1.2D+1.6W (pattern 6) 30 deg - No Ice+1.0 Guy
16	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
17	1.2D+1.6W (pattern 1) 60 deg - No Ice+1.0 Guy
18	1.2D+1.6W (pattern 2) 60 deg - No Ice+1.0 Guy
19	1.2D+1.6W (pattern 3) 60 deg - No Ice+1.0 Guy
20	1.2D+1.6W (pattern 4) 60 deg - No Ice+1.0 Guy
21	1.2D+1.6W (pattern 5) 60 deg - No Ice+1.0 Guy
22	1.2D+1.6W (pattern 6) 60 deg - No Ice+1.0 Guy
23	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
24	1.2D+1.6W (pattern 1) 90 deg - No Ice+1.0 Guy
25	1.2D+1.6W (pattern 2) 90 deg - No Ice+1.0 Guy
26	1.2D+1.6W (pattern 3) 90 deg - No Ice+1.0 Guy
27	1.2D+1.6W (pattern 4) 90 deg - No Ice+1.0 Guy
28	1.2D+1.6W (pattern 5) 90 deg - No Ice+1.0 Guy
29	1.2D+1.6W (pattern 6) 90 deg - No Ice+1.0 Guy
30	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
31	1.2D+1.6W (pattern 1) 120 deg - No Ice+1.0 Guy
32	1.2D+1.6W (pattern 2) 120 deg - No Ice+1.0 Guy
33	1.2D+1.6W (pattern 3) 120 deg - No Ice+1.0 Guy
34	1.2D+1.6W (pattern 4) 120 deg - No Ice+1.0 Guy
35	1.2D+1.6W (pattern 5) 120 deg - No Ice+1.0 Guy
36	1.2D+1.6W (pattern 6) 120 deg - No Ice+1.0 Guy
37	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
38	1.2D+1.6W (pattern 1) 150 deg - No Ice+1.0 Guy
39	1.2D+1.6W (pattern 2) 150 deg - No Ice+1.0 Guy
40	1.2D+1.6W (pattern 3) 150 deg - No Ice+1.0 Guy
41	1.2D+1.6W (pattern 4) 150 deg - No Ice+1.0 Guy
42	1.2D+1.6W (pattern 5) 150 deg - No Ice+1.0 Guy
43	1.2D+1.6W (pattern 6) 150 deg - No Ice+1.0 Guy
44	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
45	1.2D+1.6W (pattern 1) 180 deg - No Ice+1.0 Guy
46	1.2D+1.6W (pattern 2) 180 deg - No Ice+1.0 Guy
47	1.2D+1.6W (pattern 3) 180 deg - No Ice+1.0 Guy
48	1.2D+1.6W (pattern 4) 180 deg - No Ice+1.0 Guy
49	1.2D+1.6W (pattern 5) 180 deg - No Ice+1.0 Guy
50	1.2D+1.6W (pattern 6) 180 deg - No Ice+1.0 Guy
51	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
52	1.2D+1.6W (pattern 1) 210 deg - No Ice+1.0 Guy
53	1.2D+1.6W (pattern 2) 210 deg - No Ice+1.0 Guy
54	1.2D+1.6W (pattern 3) 210 deg - No Ice+1.0 Guy
55	1.2D+1.6W (pattern 4) 210 deg - No Ice+1.0 Guy
56	1.2D+1.6W (pattern 5) 210 deg - No Ice+1.0 Guy
57	1.2D+1.6W (pattern 6) 210 deg - No Ice+1.0 Guy
58	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
59	1.2D+1.6W (pattern 1) 240 deg - No Ice+1.0 Guy
60	1.2D+1.6W (pattern 2) 240 deg - No Ice+1.0 Guy
61	1.2D+1.6W (pattern 3) 240 deg - No Ice+1.0 Guy
62	1.2D+1.6W (pattern 4) 240 deg - No Ice+1.0 Guy
63	1.2D+1.6W (pattern 5) 240 deg - No Ice+1.0 Guy
64	1.2D+1.6W (pattern 6) 240 deg - No Ice+1.0 Guy
65	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
66	1.2D+1.6W (pattern 1) 270 deg - No Ice+1.0 Guy
67	1.2D+1.6W (pattern 2) 270 deg - No Ice+1.0 Guy
68	1.2D+1.6W (pattern 3) 270 deg - No Ice+1.0 Guy
69	1.2D+1.6W (pattern 4) 270 deg - No Ice+1.0 Guy

Comb. No.	Description
70	1.2D+1.6W (pattern 5) 270 deg - No Ice+1.0 Guy
71	1.2D+1.6W (pattern 6) 270 deg - No Ice+1.0 Guy
72	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
73	1.2D+1.6W (pattern 1) 300 deg - No Ice+1.0 Guy
74	1.2D+1.6W (pattern 2) 300 deg - No Ice+1.0 Guy
75	1.2D+1.6W (pattern 3) 300 deg - No Ice+1.0 Guy
76	1.2D+1.6W (pattern 4) 300 deg - No Ice+1.0 Guy
77	1.2D+1.6W (pattern 5) 300 deg - No Ice+1.0 Guy
78	1.2D+1.6W (pattern 6) 300 deg - No Ice+1.0 Guy
79	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
80	1.2D+1.6W (pattern 1) 330 deg - No Ice+1.0 Guy
81	1.2D+1.6W (pattern 2) 330 deg - No Ice+1.0 Guy
82	1.2D+1.6W (pattern 3) 330 deg - No Ice+1.0 Guy
83	1.2D+1.6W (pattern 4) 330 deg - No Ice+1.0 Guy
84	1.2D+1.6W (pattern 5) 330 deg - No Ice+1.0 Guy
85	1.2D+1.6W (pattern 6) 330 deg - No Ice+1.0 Guy
86	1.2 Dead+1.0 Ice+1.0 Temp+Guy
87	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
88	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
89	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
90	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
91	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
92	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
93	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
94	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
95	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
96	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
97	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
98	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
99	Dead+Wind 0 deg - Service+Guy
100	Dead+Wind 30 deg - Service+Guy
101	Dead+Wind 60 deg - Service+Guy
102	Dead+Wind 90 deg - Service+Guy
103	Dead+Wind 120 deg - Service+Guy
104	Dead+Wind 150 deg - Service+Guy
105	Dead+Wind 180 deg - Service+Guy
106	Dead+Wind 210 deg - Service+Guy
107	Dead+Wind 240 deg - Service+Guy
108	Dead+Wind 270 deg - Service+Guy
109	Dead+Wind 300 deg - Service+Guy
110	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	345 - 330	Latticed Pole Leg	Max Tension	77	3353.41	-0.04	-0.02
			Max. Compression	61	-3792.72	0.00	0.00
			Max. Mx	97	1227.48	-0.04	-0.02
			Max. My	93	1188.50	-0.00	0.04
			Max. Vy	97	-461.18	0.00	0.00
			Max. Vx	93	531.01	0.00	0.00
		Latticed Pole Diagonal	Max Tension	94	422.12	0.00	0.00
			Max. Compression	53	-423.85	0.00	0.00
			Max. Mx	92	79.37	-0.00	0.00
			Max. My	87	-125.97	-0.00	-0.00
			Max. Vy	94	-5.23	-0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	87	0.04	0.00	0.00
		Latticed Pole Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	89	-9.13	0.00	0.00
			Max. Mx	90	-7.85	0.01	0.00
			Max. My	98	-9.02	0.00	-0.00
			Max. Vy	90	10.01	0.00	0.00
			Max. Vx	98	-0.00	0.00	0.00
		Latticed Pole Mid Girt	Max Tension	77	4.51	0.00	0.00
			Max. Compression	95	-39.79	0.00	0.00
			Max. Mx	90	-38.06	0.01	0.00
			Max. My	98	-35.18	0.00	-0.00
			Max. Vy	90	10.01	0.00	0.00
			Max. Vx	98	-0.00	0.00	0.00
T1	330 - 320	Leg	Max Tension	36	9081.83	-0.35	-0.18
			Max. Compression	50	-31166.75	-0.00	0.24
			Max. Mx	36	9081.83	-0.35	-0.18
			Max. My	8	6598.98	-0.02	0.39
			Max. Vy	36	-1932.40	-0.35	-0.18
			Max. Vx	8	2140.24	-0.02	0.39
		Diagonal	Max Tension	71	2234.81	0.00	0.00
			Max. Compression	71	-2271.39	0.00	0.00
			Max. Mx	92	296.42	-0.01	-0.00
			Max. My	36	-2075.42	-0.00	-0.00
			Max. Vy	92	14.25	-0.01	-0.00
			Max. Vx	39	-0.14	0.00	0.00
		Top Girt	Max Tension	87	0.36	0.00	0.00
			Max. Compression	87	-0.36	0.00	0.00
			Max. Mx	97	0.00	0.12	0.00
			Max. My	33	0.18	0.00	-0.00
			Max. Vy	97	93.92	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
		Bottom Girt	Max Tension	64	426.42	0.00	0.00
			Max. Compression	50	-311.70	0.00	0.00
			Max. Mx	90	136.25	0.03	0.00
			Max. My	33	-101.80	0.00	-0.00
			Max. Vy	90	-25.04	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
		Mid Girt	Max Tension	64	194.52	0.00	0.00
			Max. Compression	50	-92.47	0.00	0.00
			Max. Mx	97	159.79	0.03	0.00
			Max. My	33	-6.44	0.00	-0.00
			Max. Vy	97	-25.04	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
		Guy A	Bottom Tension	53	22935.78		
			Top Tension	53	23288.91		
			Top Cable Vert	53	20574.83		
			Top Cable Norm	53	10909.52		
			Top Cable Tan	53	178.63		
			Bot Cable Vert	53	-19742.47		
			Bot Cable Norm	53	11667.50		
			Bot Cable Tan	53	393.18		
		Guy B	Bottom Tension	81	21317.92		
			Top Tension	81	21633.22		
			Top Cable Vert	81	18580.32		
			Top Cable Norm	81	11078.70		
			Top Cable Tan	81	173.93		
			Bot Cable Vert	81	-17791.85		
			Bot Cable Norm	81	11737.91		
			Bot Cable Tan	81	353.86		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Guy C	Bottom Tension	11	21241.28		
			Top Tension	11	21556.47		
			Top Cable Vert	11	18515.55		
			Top Cable Norm	11	11037.54		
			Top Cable Tan	11	169.15		
			Bot Cable Vert	11	-17727.08		
			Bot Cable Norm	11	11696.76		
			Bot Cable Tan	11	358.65		
T2	320 - 300	Leg	Max Tension	36	17660.21	0.02	0.01
			Max. Compression	50	-39268.67	0.07	-0.11
			Max. Mx	80	-15832.74	0.41	0.11
			Max. My	50	-31168.56	-0.01	0.40
			Max. Vy	76	-2194.65	0.35	0.10
			Max. Vx	41	2465.22	0.08	-0.39
		Diagonal	Max Tension	48	2237.17	0.00	0.00
			Max. Compression	48	-2425.72	0.00	0.00
			Max. Mx	92	-822.24	-0.01	0.00
			Max. My	83	-2369.72	-0.00	-0.00
			Max. Vy	91	14.36	-0.01	0.00
			Max. Vx	83	0.96	-0.00	-0.00
		Top Girt	Max Tension	50	291.12	0.00	0.00
			Max. Compression	64	-262.10	0.00	0.00
			Max. Mx	90	-35.29	0.03	0.00
			Max. My	33	145.36	0.00	-0.00
			Max. Vy	90	24.91	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-816.10	0.00	0.00
			Max. Mx	96	-438.00	0.03	0.00
			Max. My	40	-475.43	0.00	-0.00
			Max. Vy	96	24.91	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00
		Mid Girt	Max Tension	35	186.47	0.00	0.00
			Max. Compression	49	-49.37	0.00	0.00
			Max. Mx	90	106.89	0.03	0.00
			Max. My	33	31.07	0.00	-0.00
			Max. Vy	90	24.91	0.00	0.00
			Max. Vx	33	0.00	0.00	0.00
T3	300 - 280	Leg	Max Tension	35	17706.29	-0.42	-0.13
			Max. Compression	50	-53150.14	0.00	0.19
			Max. Mx	25	-48434.08	0.73	0.10
			Max. My	50	-52635.31	0.01	0.61
			Max. Vy	75	-3108.37	0.31	-0.07
			Max. Vx	40	2563.29	-0.14	-0.31
		Diagonal	Max Tension	3	6242.72	0.00	0.00
			Max. Compression	75	-4102.22	0.00	0.00
			Max. Mx	98	876.34	-0.01	-0.00
			Max. My	3	3316.44	0.00	-0.05
			Max. Vy	87	15.55	-0.01	-0.00
			Max. Vx	3	-19.34	0.00	-0.05
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-1185.95	0.00	0.00
			Max. Mx	96	-909.31	0.03	0.00
			Max. My	40	-913.16	0.00	-0.00
			Max. Vy	96	-24.73	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00
		Bottom Girt	Max Tension	19	399.00	0.00	0.00
			Max. Compression	33	-41.06	0.00	0.00
			Max. Mx	90	162.17	0.03	0.00
			Max. My	40	111.60	0.00	-0.00
			Max. Vy	90	-24.73	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	40	0.00	0.00	0.00
		Mid Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	3	-255.39	0.00	0.00
			Max. Mx	96	-90.20	0.03	0.00
			Max. My	40	-156.46	0.00	-0.00
			Max. Vy	96	-24.73	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00
		Guy A	Bottom Tension	52	16824.11		
			Top Tension	52	17037.50		
			Top Cable Vert	52	14707.87		
			Top Cable Norm	52	8598.77		
			Top Cable Tan	52	127.85		
			Bot Cable Vert	52	-14129.33		
			Bot Cable Norm	52	9128.42		
			Bot Cable Tan	52	290.97		
		Guy B	Bottom Tension	80	15812.15		
			Top Tension	80	16000.45		
			Top Cable Vert	80	13317.30		
			Top Cable Norm	80	8868.44		
			Top Cable Tan	80	121.88		
			Bot Cable Vert	80	-12771.61		
			Bot Cable Norm	80	9318.87		
			Bot Cable Tan	80	262.38		
		Guy C	Bottom Tension	10	15773.75		
			Top Tension	10	15961.97		
			Top Cable Vert	10	13285.87		
			Top Cable Norm	10	8846.26		
			Top Cable Tan	10	118.77		
			Bot Cable Vert	10	-12740.18		
			Bot Cable Norm	10	9296.69		
			Bot Cable Tan	10	265.49		
T4	280 - 260	Leg	Max Tension	35	18370.45	-0.34	-0.42
			Max. Compression	42	-86436.28	0.18	0.39
			Max. Mx	75	-32172.20	0.57	-0.11
			Max. My	83	-75417.06	0.22	0.62
			Max. Vy	75	-3094.53	0.57	-0.11
			Max. Vx	83	3625.07	0.22	0.62
		Diagonal	Max Tension	80	5803.13	0.00	0.00
			Max. Compression	83	-5553.33	0.00	0.00
			Max. Mx	90	1369.72	-0.01	0.00
			Max. My	75	-4668.30	-0.01	-0.01
			Max. Vy	90	16.81	-0.01	0.00
			Max. Vx	75	1.86	-0.01	-0.01
		Top Girt	Max Tension	5	692.10	0.00	0.00
			Max. Compression	47	-283.35	0.00	0.00
			Max. Mx	90	217.11	0.03	0.00
			Max. My	40	238.81	0.00	-0.00
			Max. Vy	90	-24.53	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	996.82	0.00	0.00
			Max. Compression	76	-445.39	0.00	0.00
			Max. Mx	91	161.14	0.03	0.00
			Max. My	40	302.12	0.00	-0.00
			Max. Vy	91	-24.53	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00
		Mid Girt	Max Tension	3	8463.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	98	3690.11	0.03	0.00
			Max. My	40	4516.75	0.00	-0.00
			Max. Vy	98	-24.53	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Guy A	Bottom Tension	38	37124.18		
			Top Tension	38	37539.88		
			Top Cable Vert	38	31487.21		
			Top Cable Norm	38	20439.89		
			Top Cable Tan	38	96.78		
			Bot Cable Vert	38	-30543.02		
			Bot Cable Norm	38	21098.02		
			Bot Cable Tan	38	449.94		
		Guy B	Bottom Tension	80	35182.24		
			Top Tension	80	35544.08		
			Top Cable Vert	80	28469.99		
			Top Cable Norm	80	21279.88		
			Top Cable Tan	80	88.90		
			Bot Cable Vert	80	-27590.50		
			Bot Cable Norm	80	21826.28		
			Bot Cable Tan	80	409.93		
		Guy C	Bottom Tension	10	35111.93		
			Top Tension	10	35473.69		
			Top Cable Vert	10	28414.43		
			Top Cable Norm	10	21236.68		
			Top Cable Tan	10	83.67		
			Bot Cable Vert	10	-27534.93		
			Bot Cable Norm	10	21783.07		
			Bot Cable Tan	10	415.16		
T5	260 - 240	Leg	Max Tension	35	32787.35	0.08	-0.15
			Max. Compression	49	-103513.39	0.04	0.17
			Max. Mx	20	-75200.61	0.64	-0.38
			Max. My	48	-80103.72	0.23	0.72
			Max. Vy	20	-3069.93	0.38	-0.22
			Max. Vx	83	3615.41	-0.25	-0.39
		Diagonal	Max Tension	83	4624.28	0.00	0.00
			Max. Compression	83	-4887.03	0.00	0.00
			Max. Mx	88	-222.55	-0.01	0.00
			Max. My	43	-4696.70	-0.00	0.01
			Max. Vy	88	17.01	-0.01	0.00
			Max. Vx	43	-1.95	-0.00	0.01
		Top Girt	Max Tension	76	558.12	0.00	0.00
			Max. Compression	6	-58.20	0.00	0.00
			Max. Mx	90	269.58	0.03	0.00
			Max. My	40	186.11	0.00	-0.00
			Max. Vy	95	24.33	0.00	0.00
			Max. Vx	40	0.00	0.00	0.00
		Bottom Girt	Max Tension	62	458.24	0.00	0.00
			Max. Compression	76	-179.11	0.00	0.00
			Max. Mx	88	138.93	0.03	0.00
			Max. My	39	189.59	0.00	-0.00
			Max. Vy	88	24.33	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	35	867.51	0.00	0.00
			Max. Compression	49	-307.53	0.00	0.00
			Max. Mx	91	229.97	0.03	0.00
			Max. My	39	282.69	0.00	-0.00
			Max. Vy	91	24.33	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T6	240 - 220	Leg	Max Tension	35	32784.72	-0.03	0.09
			Max. Compression	49	-103755.25	0.01	0.17
			Max. Mx	28	-45103.29	0.97	0.09
			Max. My	49	-5947.30	0.02	0.97
			Max. Vy	32	4948.12	-0.69	-0.21
			Max. Vx	4	-4842.41	-0.11	0.69
		Diagonal	Max Tension	32	5315.79	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	25	-5556.71	0.00	0.00
			Max. Mx	87	13.11	-0.01	-0.00
			Max. My	78	-5351.78	-0.01	-0.00
			Max. Vy	87	17.01	-0.01	-0.00
			Max. Vx	78	1.78	-0.01	-0.00
		Top Girt	Max Tension	32	422.15	0.00	0.00
			Max. Compression	49	-99.51	0.00	0.00
			Max. Mx	88	81.82	0.03	0.00
			Max. My	39	129.12	0.00	-0.00
			Max. Vy	88	-24.11	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	46	596.01	0.00	0.00
			Max. Compression	32	-334.34	0.00	0.00
			Max. Mx	89	368.24	0.03	0.00
			Max. My	39	139.47	0.00	-0.00
			Max. Vy	89	-24.11	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	87	440.72	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	87	440.72	0.03	0.00
			Max. My	39	294.71	0.00	-0.00
			Max. Vy	87	24.11	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T7	220 - 200	Leg	Max Tension	35	11342.39	-0.64	-0.23
			Max. Compression	42	-88723.66	-0.09	-0.75
			Max. Mx	32	-66655.79	-1.45	-0.54
			Max. My	4	-65165.79	-0.18	1.50
			Max. Vy	32	7368.34	-1.45	-0.54
			Max. Vx	4	-7656.36	-0.18	1.50
		Diagonal	Max Tension	25	7777.12	0.00	0.00
			Max. Compression	25	-8125.75	0.00	0.00
			Max. Mx	92	1473.62	-0.01	0.00
			Max. My	78	-7434.27	-0.01	-0.01
			Max. Vy	92	16.44	-0.01	0.00
			Max. Vx	78	1.98	-0.01	-0.01
		Top Girt	Max Tension	35	1347.22	0.00	0.00
			Max. Compression	49	-911.09	0.00	0.00
			Max. Mx	89	-102.14	0.04	0.00
			Max. My	39	226.92	0.00	-0.00
			Max. Vy	89	-30.00	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	46	1576.59	0.00	0.00
			Max. Compression	32	-1285.22	0.00	0.00
			Max. Mx	89	736.63	0.04	0.00
			Max. My	39	219.31	0.00	-0.00
			Max. Vy	89	-30.00	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	35	623.99	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	89	417.94	0.04	0.00
			Max. My	39	379.17	0.00	-0.00
			Max. Vy	89	-30.00	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T8	200 - 180	Leg	Max Tension	46	83942.04	-0.23	1.59
			Max. Compression	60	-181018.94	1.56	-0.88
			Max. Mx	28	-44438.75	-2.23	0.20
			Max. My	43	-47967.00	-1.15	-2.49
			Max. Vy	28	10436.22	-2.23	0.20
			Max. Vx	50	12088.34	-0.35	-2.48
		Diagonal	Max Tension	25	12539.17	0.00	0.00
			Max. Compression	25	-12994.86	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	93	3257.99	-0.02	0.00
			Max. My	78	-11759.81	-0.00	-0.01
			Max. Vy	93	22.53	-0.02	0.00
			Max. Vx	78	3.53	-0.00	-0.01
		Top Girt	Max Tension	35	2172.24	0.00	0.00
			Max. Compression	49	-1646.14	0.00	0.00
			Max. Mx	89	-275.07	0.05	0.00
			Max. My	39	254.58	0.00	-0.00
			Max. Vy	89	-36.88	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	50	7871.64	0.00	0.00
			Max. Compression	36	-8066.44	0.00	0.00
			Max. Mx	86	124.19	0.05	0.00
			Max. My	39	-9.24	0.00	-0.00
			Max. Vy	86	-36.88	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	44	1082.02	0.00	0.00
			Max. Compression	33	-231.88	0.00	0.00
			Max. Mx	89	841.62	0.05	0.00
			Max. My	39	478.01	0.00	-0.00
			Max. Vy	89	-36.88	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T9	180 - 160	Leg	Max Tension	46	83926.87	0.26	-1.28
			Max. Compression	60	-207317.08	0.37	-0.10
			Max. Mx	28	-68609.03	-3.10	0.24
			Max. My	50	-124420.83	-0.48	-3.49
			Max. Vy	28	10413.06	-3.10	0.24
			Max. Vx	50	12026.48	-0.48	-3.49
		Diagonal	Max Tension	33	9228.95	0.00	0.00
			Max. Compression	40	-9444.68	0.00	0.00
			Max. Mx	65	-1262.60	-0.03	-0.00
			Max. My	82	-7856.62	-0.02	-0.01
			Max. Vy	96	23.57	-0.02	-0.00
			Max. Vx	82	3.70	-0.02	-0.01
		Top Girt	Max Tension	50	9914.97	0.00	0.00
			Max. Compression	30	-12417.46	0.00	0.00
			Max. Mx	86	-950.48	0.05	0.00
			Max. My	39	-1743.18	0.00	-0.00
			Max. Vy	86	-36.58	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	33	1366.09	0.00	0.00
			Max. Compression	75	-382.44	0.00	0.00
			Max. Mx	86	578.01	0.05	0.00
			Max. My	39	455.24	0.00	-0.00
			Max. Vy	86	-36.58	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	67	2072.84	0.00	0.00
			Max. Compression	4	-55.75	0.00	0.00
			Max. Mx	86	1157.13	0.05	0.00
			Max. My	39	1191.14	0.00	-0.00
			Max. Vy	86	-36.58	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Guy A	Bottom Tension	43	47378.83		
			Top Tension	43	47766.63		
			Top Cable Vert	43	34745.00		
			Top Cable Norm	43	32778.57		
			Top Cable Tan	43	36.12		
			Bot Cable Vert	43	-33845.10		
			Bot Cable Norm	43	33152.78		
			Bot Cable Tan	43	396.08		
		Guy B	Bottom Tension	85	43402.48		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Tension	85	43717.62		
			Top Cable Vert	85	28529.44		
			Top Cable Norm	85	33125.52		
			Top Cable Tan	85	43.46		
			Bot Cable Vert	85	-27720.88		
			Bot Cable Norm	85	33394.75		
			Bot Cable Tan	85	344.39		
		Guy C	Bottom Tension	15	42643.73		
			Top Tension	15	42958.90		
			Top Cable Vert	15	28041.21		
			Top Cable Norm	15	32544.68		
			Top Cable Tan	15	44.86		
			Bot Cable Vert	15	-27232.65		
			Bot Cable Norm	15	32813.91		
			Bot Cable Tan	15	343.00		
		Torque Arm Top	Max Tension	58	36746.22	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	93	18240.80	0.11	0.00
			Max. My	46	17139.26	0.00	0.00
			Max. Vy	93	-92.40	0.00	0.00
			Max. Vx	46	-0.37	0.00	0.00
		Torque Arm Bottom	Max Tension	79	9110.45	0.00	0.00
			Max. Compression	37	-28826.14	0.00	0.00
			Max. Mx	94	-6892.50	0.11	0.00
			Max. My	39	3664.73	0.00	-0.00
			Max. Vy	94	-92.36	0.00	0.00
			Max. Vx	39	0.28	0.00	0.00
T10	160 - 140	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	60	-152596.21	-0.65	0.39
			Max. Mx	68	-40900.00	-1.09	-0.36
			Max. My	47	-27466.86	0.17	1.18
			Max. Vy	61	4988.56	-0.42	0.23
			Max. Vx	5	5652.27	-0.10	-0.48
		Diagonal	Max Tension	82	5794.12	0.00	0.00
			Max. Compression	82	-6401.57	0.00	0.00
			Max. Mx	93	-756.53	-0.01	0.00
			Max. My	40	-6368.80	-0.00	0.00
			Max. Vy	93	16.43	-0.01	0.00
			Max. Vx	40	-1.14	-0.00	0.00
		Top Girt	Max Tension	72	1377.77	0.00	0.00
			Max. Compression	5	-785.09	0.00	0.00
			Max. Mx	86	389.03	0.04	0.00
			Max. My	39	406.37	0.00	-0.00
			Max. Vy	86	-29.12	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	61	841.73	0.00	0.00
			Max. Compression	75	-26.34	0.00	0.00
			Max. Mx	89	412.38	0.04	0.00
			Max. My	39	378.62	0.00	-0.00
			Max. Vy	89	-29.12	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	93	976.33	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	89	962.44	0.04	0.00
			Max. My	39	750.24	0.00	-0.00
			Max. Vy	89	-29.12	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T11	140 - 120	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	60	-116741.16	-0.23	0.12
			Max. Mx	27	-77568.00	0.61	-0.08
			Max. My	55	-78908.21	-0.03	0.63

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	61	2349.54	-0.16	0.06
			Max. Vx	5	2543.25	-0.10	-0.17
		Diagonal	Max Tension	82	2609.20	0.00	0.00
			Max. Compression	82	-3226.97	0.00	0.00
			Max. Mx	92	-79.39	-0.01	0.00
			Max. My	40	-3174.01	-0.00	0.00
			Max. Vy	92	16.26	-0.01	0.00
			Max. Vx	40	-0.64	-0.00	0.00
		Top Girt	Max Tension	67	742.86	0.00	0.00
			Max. Compression	4	-65.00	0.00	0.00
			Max. Mx	97	632.91	0.04	0.00
			Max. My	39	421.39	0.00	-0.00
			Max. Vy	97	28.76	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	52	751.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	97	550.91	0.04	0.00
			Max. My	39	385.81	0.00	-0.00
			Max. Vy	97	28.76	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Mid Girt	Max Tension	33	1064.43	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	97	913.48	0.04	0.00
			Max. My	39	758.27	0.00	-0.00
			Max. Vy	97	28.76	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T12	120 - 100	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	31	-141306.92	-0.73	-0.40
			Max. Mx	27	-45962.09	-1.63	0.68
			Max. My	41	-45637.81	-0.17	-1.78
			Max. Vy	27	8519.50	-1.63	0.68
			Max. Vx	41	9471.33	-0.17	-1.78
		Diagonal	Max Tension	24	4595.15	0.00	0.00
			Max. Compression	24	-5251.18	0.00	0.00
			Max. Mx	92	76.17	-0.01	0.00
			Max. My	39	-3637.74	-0.00	0.00
			Max. Vy	92	16.02	-0.01	0.00
			Max. Vx	39	-0.50	-0.00	0.00
		Top Girt	Max Tension	34	706.91	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	97	505.24	0.04	0.00
			Max. My	39	418.43	0.00	-0.00
			Max. Vy	97	-28.36	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
		Bottom Girt	Max Tension	34	3438.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	2146.52	0.04	0.00
			Max. My	35	2458.51	0.00	0.00
			Max. Vy	86	28.36	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Mid Girt	Max Tension	93	1101.66	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	97	1090.69	0.04	0.00
			Max. My	39	834.19	0.00	-0.00
			Max. Vy	86	28.36	0.00	0.00
			Max. Vx	39	0.00	0.00	0.00
T13	100 - 80	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	31	-141308.90	-0.92	-0.49
			Max. Mx	27	-45967.39	-2.34	1.00
			Max. My	41	-45644.11	-0.21	-2.56
			Max. Vy	27	8504.88	-2.34	1.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	41	9456.53	-0.21	-2.56
		Diagonal	Max Tension	81	7189.30	0.00	0.00
			Max. Compression	81	-7192.89	0.00	0.00
			Max. Mx	96	46.71	-0.01	-0.00
			Max. My	65	-5233.45	-0.01	-0.00
			Max. Vy	96	16.07	-0.01	-0.00
			Max. Vx	65	1.01	0.00	0.00
		Top Girt	Max Tension	34	13196.61	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	6157.94	0.03	0.00
			Max. My	35	6541.85	0.00	0.00
			Max. Vy	86	-27.88	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Bottom Girt	Max Tension	58	1477.97	0.00	0.00
			Max. Compression	75	-568.92	0.00	0.00
			Max. Mx	96	772.81	0.03	0.00
			Max. My	35	9.38	0.00	0.00
			Max. Vy	96	-27.88	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Mid Girt	Max Tension	33	1165.01	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	1076.60	0.03	0.00
			Max. My	35	906.57	0.00	0.00
			Max. Vy	86	-27.88	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Guy A	Bottom Tension	41	44196.31		
			Top Tension	41	44443.74		
			Top Cable Vert	41	24857.78		
			Top Cable Norm	41	36842.05		
			Top Cable Tan	41	1.03		
			Bot Cable Vert	41	-24206.78		
			Bot Cable Norm	41	36976.78		
			Bot Cable Tan	41	251.33		
		Guy B	Bottom Tension	69	40288.64		
			Top Tension	69	40462.67		
			Top Cable Vert	69	17396.14		
			Top Cable Norm	69	36532.21		
			Top Cable Tan	69	3.95		
			Bot Cable Vert	69	-16830.38		
			Bot Cable Norm	69	36604.07		
			Bot Cable Tan	69	233.58		
		Guy C	Bottom Tension	27	40324.20		
			Top Tension	27	40498.22		
			Top Cable Vert	27	17411.16		
			Top Cable Norm	27	36564.43		
			Top Cable Tan	27	5.19		
			Bot Cable Vert	27	-16845.40		
			Bot Cable Norm	27	36636.30		
			Bot Cable Tan	27	234.82		
T14	80 - 60	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	40	-167647.06	0.06	0.58
			Max. Mx	65	-124748.82	-1.28	-0.42
			Max. My	44	-117660.73	0.01	1.40
			Max. Vy	65	4609.75	-0.90	-0.32
			Max. Vx	4	5202.91	-0.01	-0.56
		Diagonal	Max Tension	81	4549.08	0.00	0.00
			Max. Compression	39	-5327.44	0.00	0.00
			Max. Mx	93	-131.26	-0.01	0.00
			Max. My	39	-5323.37	0.00	0.00
			Max. Vy	93	15.93	-0.01	0.00
			Max. Vx	39	0.54	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max Tension	44	1092.75	0.00	0.00
			Max. Compression	4	-269.35	0.00	0.00
			Max. Mx	96	420.85	0.03	0.00
			Max. My	35	809.79	0.00	0.00
			Max. Vy	96	-27.32	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Bottom Girt	Max Tension	58	1117.10	0.00	0.00
			Max. Compression	75	-207.74	0.00	0.00
			Max. Mx	86	615.53	0.03	0.00
			Max. My	28	477.65	0.00	-0.00
			Max. Vy	86	-27.32	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Mid Girt	Max Tension	33	1392.82	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	90	1177.75	0.03	0.00
			Max. My	35	710.37	0.00	0.00
			Max. Vy	90	-27.32	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
T15	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	40	-173450.62	-0.01	0.39
			Max. Mx	65	-159271.00	-0.72	-0.29
			Max. My	44	-153892.81	0.02	0.79
			Max. Vy	67	1901.84	-0.56	-0.24
			Max. Vx	4	2165.44	-0.02	-0.18
		Diagonal	Max Tension	81	1647.30	0.00	0.00
			Max. Compression	81	-2443.73	0.00	0.00
			Max. Mx	93	-689.85	-0.01	0.00
			Max. My	39	-2403.11	0.00	0.00
			Max. Vy	92	15.64	-0.01	0.00
			Max. Vx	39	0.34	0.00	0.00
		Top Girt	Max Tension	97	650.58	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	543.72	0.03	0.00
			Max. My	28	406.57	0.00	-0.00
			Max. Vy	86	-26.59	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Bottom Girt	Max Tension	87	681.79	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	639.37	0.03	0.00
			Max. My	28	467.45	0.00	-0.00
			Max. Vy	86	-26.59	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Mid Girt	Max Tension	33	1517.32	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	1118.21	0.03	0.00
			Max. My	28	846.77	0.00	-0.00
			Max. Vy	86	-26.59	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T16	40 - 20	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	37	-172037.14	-0.05	0.17
			Max. Mx	26	-144572.17	1.17	-0.43
			Max. My	47	-138915.43	-0.01	1.29
			Max. Vy	26	4559.09	-0.50	0.12
			Max. Vx	47	5001.87	0.00	-0.55
		Diagonal	Max Tension	40	3429.49	0.00	0.00
			Max. Compression	40	-4221.53	0.00	0.00
			Max. Mx	93	-833.00	-0.01	0.00
			Max. My	46	-3281.38	-0.01	0.00
			Max. Vy	93	14.96	-0.01	0.00
			Max. Vx	46	-0.31	0.00	0.00
		Top Girt	Max Tension	33	1014.31	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	47	-76.73	0.00	0.00
			Max. Mx	86	562.35	0.03	0.00
			Max. My	28	435.62	0.00	-0.00
			Max. Vy	86	-25.57	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Bottom Girt	Max Tension	93	1495.71	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	1430.76	0.03	0.00
			Max. My	28	1029.09	0.00	-0.00
			Max. Vy	86	-25.57	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Mid Girt	Max Tension	30	1476.40	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	1185.55	0.03	0.00
			Max. My	28	884.68	0.00	-0.00
			Max. Vy	86	-25.57	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T17	20 - 12	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	93	-151845.08	0.00	-0.31
			Max. Mx	26	-138369.34	-0.88	0.24
			Max. My	47	-138931.52	0.01	-0.96
			Max. Vy	33	7165.81	0.17	0.10
			Max. Vx	5	-7927.87	-0.00	-0.19
		Diagonal	Max Tension	40	3171.35	0.00	0.00
			Max. Compression	40	-6404.45	0.00	0.00
			Max. Mx	93	-3478.10	-0.02	0.00
			Max. My	28	-4440.39	-0.02	-0.00
			Max. Vy	93	20.19	-0.02	0.00
			Max. Vx	28	0.46	0.00	0.00
		Horizontal	Max Tension	91	3505.10	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	3294.43	0.02	0.00
			Max. My	28	2390.30	0.00	-0.00
			Max. Vy	86	-16.12	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Top Girt	Max Tension	30	1781.28	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	86	1350.99	0.02	0.00
			Max. My	28	1003.15	0.00	-0.00
			Max. Vy	86	-16.12	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T18	12 - 6.6667	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	93	-150421.88	0.01	0.07
			Max. Mx	90	-146986.26	-2.56	1.47
			Max. My	93	-148839.90	-0.03	-3.00
			Max. Vy	89	30555.82	-2.56	1.49
			Max. Vx	93	35723.80	-0.03	-3.00
		Diagonal	Max Tension	40	6297.56	0.00	0.00
			Max. Compression	40	-6252.18	0.00	0.00
			Max. Mx	92	981.83	0.01	0.00
			Max. My	35	290.91	0.00	0.00
			Max. Vy	92	-11.80	0.00	0.00
			Max. Vx	35	-0.09	0.00	0.00
		Horizontal	Max Tension	93	20641.38	0.03	-0.00
			Max. Compression	93	-2605.38	0.03	-0.00
			Max. Mx	93	-2467.57	-0.07	0.00
			Max. My	56	-2326.36	0.02	-0.00
			Max. Vy	93	68.69	-0.07	0.00
			Max. Vx	56	1.53	0.00	0.00
T19	6.6667 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	93	-162257.56	-0.96	0.23

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	93	-150771.57	3.00	-0.02
			Max. My	70	-111677.54	-0.59	1.16
			Max. Vy	93	26410.24	0.60	-0.02
			Max. Vx	70	-1426.99	-0.59	1.16
		Diagonal	Max Tension	1	0.00	0.00	0.00
			Max. Compression	92	-20830.99	0.00	0.00
			Max. Mx	93	-19625.55	0.04	-0.02
			Max. My	28	-15530.60	0.04	-0.02
			Max. Vy	93	62.43	0.00	0.00
			Max. Vx	28	-35.05	0.00	0.00
		Secondary Horizontal	Max Tension	93	2993.19	0.00	0.00
			Max. Compression	93	-2993.19	0.00	0.00
			Max. Mx	28	2062.44	0.00	0.01
			Max. My	28	2062.44	0.00	0.01
			Max. Vy	28	6.67	0.00	0.00
			Max. Vx	28	10.84	0.00	0.00
		Top Girt	Max Tension	92	21887.77	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	87	21552.63	0.09	0.00
			Max. My	92	21887.55	0.00	0.02
			Max. Vy	87	-72.01	0.00	0.00
			Max. Vx	92	-15.59	0.00	0.00
		Bottom Girt	Max Tension	92	15384.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	87	15158.16	0.00	0.00
			Max. My	92	15384.56	0.00	0.00
			Max. Vy	87	-10.94	0.00	0.00
			Max. Vx	92	2.37	0.00	0.00
		Mid Girt	Max Tension	91	13623.03	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	87	13420.52	0.03	0.00
			Max. My	92	13621.39	0.00	0.01
			Max. Vy	87	-41.47	0.00	0.00
			Max. Vx	92	-8.98	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	93	436253.81	-95.51	-1484.42
	Max. H_x	68	295949.34	8819.53	361.77
	Max. H_z	5	301946.70	1.15	8302.25
	Max. M_x	1	0.00	-9.41	-41.43
	Max. M_z	1	0.00	-9.41	-41.43
	Max. Torsion	28	1.50	-8102.85	627.97
	Min. Vert	1	181181.23	-9.41	-41.43
	Min. H_x	26	296047.58	-8841.50	342.48
	Min. H_z	47	270486.95	-24.33	-8868.62
	Min. M_x	1	0.00	-9.41	-41.43
	Min. M_z	1	0.00	-9.41	-41.43
	Min. Torsion	70	-1.51	8084.02	642.21
Guy C @ 205 ft Elev 5 ft Azimuth 240 deg	Max. Vert	58	-4393.73	-2226.18	1280.81
	Max. H_x	58	-4393.73	-2226.18	1280.81

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Max. H_z	9	-128610.14	-123808.35	73682.65
	Min. Vert	9	-128610.14	-123808.35	73682.65
	Min. H_x	23	-127180.99	-124844.73	69754.28
	Min. H_z	58	-4393.73	-2226.18	1280.81
Guy B @ 205 ft Elev 5 ft Azimuth 120 deg	Max. Vert	30	-4400.04	2227.33	1282.05
	Max. H_x	65	-127287.04	124865.72	69768.29
	Max. H_z	79	-128915.01	124123.77	73825.12
	Min. Vert	79	-128915.01	124123.77	73825.12
	Min. H_x	30	-4400.04	2227.33	1282.05
	Min. H_z	30	-4400.04	2227.33	1282.05
Guy A @ 205 ft Elev -35 ft Azimuth 0 deg	Max. Vert	2	-6960.31	-0.70	-3439.48
	Max. H_x	65	-81840.38	3639.39	-74189.29
	Max. H_z	2	-6960.31	-0.70	-3439.48
	Min. Vert	37	-154630.30	-2109.29	-143541.50
	Min. H_x	23	-82109.37	-3641.27	-74525.12
	Min. H_z	37	-154630.30	-2109.29	-143541.50

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	181181.23	9.41	41.43	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	320248.68	0.10	-7327.30	0.00	0.00	0.17
1.2D+1.6W (pattern 1) 0 deg - No Ice+1.0 Guy	319129.71	3.96	-6325.71	0.00	0.00	-0.14
1.2D+1.6W (pattern 2) 0 deg - No Ice+1.0 Guy	313665.52	-0.69	-7591.60	0.00	0.00	-0.41
1.2D+1.6W (pattern 3) 0 deg - No Ice+1.0 Guy	301946.70	-1.15	-8302.25	0.00	0.00	0.09
1.2D+1.6W (pattern 4) 0 deg - No Ice+1.0 Guy	314112.86	0.18	-7491.43	0.00	0.00	0.19
1.2D+1.6W (pattern 5) 0 deg - No Ice+1.0 Guy	315106.01	1.76	-7420.23	0.00	0.00	0.55
1.2D+1.6W (pattern 6) 0 deg - No Ice+1.0 Guy	319539.91	0.10	-7333.86	0.00	0.00	0.17
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	303485.31	4548.90	-6726.53	0.00	0.00	0.21
1.2D+1.6W (pattern 1) 30 deg - No Ice+1.0 Guy	302575.93	4083.76	-5858.97	0.00	0.00	-0.15
1.2D+1.6W (pattern 2) 30 deg - No Ice+1.0 Guy	298089.21	4643.91	-6930.69	0.00	0.00	-0.33
1.2D+1.6W (pattern 3) 30 deg - No Ice+1.0 Guy	288702.07	4707.34	-7522.29	0.00	0.00	0.10
1.2D+1.6W (pattern 4) 30 deg - No Ice+1.0 Guy	298548.70	4561.45	-6858.97	0.00	0.00	0.14
1.2D+1.6W (pattern 5) 30 deg - No Ice+1.0 Guy	299358.65	4554.76	-6800.23	0.00	0.00	0.44
1.2D+1.6W (pattern 6) 30 deg - No Ice+1.0 Guy	302917.30	4548.88	-6731.46	0.00	0.00	0.21
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	266092.74	7599.62	-4215.46	0.00	0.00	-0.59

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
1.2D+1.6W (pattern 1) 60 deg - No Ice+1.0 Guy	265737.43	6760.76	-3738.76	0.00	0.00	-0.92
1.2D+1.6W (pattern 2) 60 deg - No Ice+1.0 Guy	263772.80	7744.02	-4301.25	0.00	0.00	-1.02
1.2D+1.6W (pattern 3) 60 deg - No Ice+1.0 Guy	259563.73	7954.24	-4439.09	0.00	0.00	-0.65
1.2D+1.6W (pattern 4) 60 deg - No Ice+1.0 Guy	263773.84	7629.45	-4237.15	0.00	0.00	-0.79
1.2D+1.6W (pattern 5) 60 deg - No Ice+1.0 Guy	264147.67	7606.51	-4222.51	0.00	0.00	-0.59
1.2D+1.6W (pattern 6) 60 deg - No Ice+1.0 Guy	265823.30	7598.18	-4215.02	0.00	0.00	-0.59
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	312192.11	8022.52	-677.09	0.00	0.00	-1.24
1.2D+1.6W (pattern 1) 90 deg - No Ice+1.0 Guy	311068.88	7033.12	-717.47	0.00	0.00	-1.42
1.2D+1.6W (pattern 2) 90 deg - No Ice+1.0 Guy	305966.02	8272.17	-640.62	0.00	0.00	-1.32
1.2D+1.6W (pattern 3) 90 deg - No Ice+1.0 Guy	296047.58	8841.50	-342.48	0.00	0.00	-1.20
1.2D+1.6W (pattern 4) 90 deg - No Ice+1.0 Guy	306842.67	8161.10	-599.43	0.00	0.00	-1.45
1.2D+1.6W (pattern 5) 90 deg - No Ice+1.0 Guy	307742.04	8102.85	-627.97	0.00	0.00	-1.50
1.2D+1.6W (pattern 6) 90 deg - No Ice+1.0 Guy	311582.04	8028.50	-672.57	0.00	0.00	-1.24
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	338310.58	6048.61	3239.49	0.00	0.00	-0.79
1.2D+1.6W (pattern 1) 120 deg - No Ice+1.0 Guy	336887.21	5181.56	2729.01	0.00	0.00	-0.78
1.2D+1.6W (pattern 2) 120 deg - No Ice+1.0 Guy	330475.18	6326.38	3413.61	0.00	0.00	-0.53
1.2D+1.6W (pattern 3) 120 deg - No Ice+1.0 Guy	317615.76	6997.88	3896.23	0.00	0.00	-0.74
1.2D+1.6W (pattern 4) 120 deg - No Ice+1.0 Guy	331455.29	6221.48	3363.24	0.00	0.00	-0.98
1.2D+1.6W (pattern 5) 120 deg - No Ice+1.0 Guy	332583.49	6153.15	3313.80	0.00	0.00	-1.21
1.2D+1.6W (pattern 6) 120 deg - No Ice+1.0 Guy	337524.39	6057.09	3245.93	0.00	0.00	-0.79
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	324544.81	3219.56	6740.55	0.00	0.00	-0.10
1.2D+1.6W (pattern 1) 150 deg - No Ice+1.0 Guy	323269.25	2695.18	5890.95	0.00	0.00	0.09
1.2D+1.6W (pattern 2) 150 deg - No Ice+1.0 Guy	317759.86	3390.90	6969.94	0.00	0.00	0.44
1.2D+1.6W (pattern 3) 150 deg - No Ice+1.0 Guy	306914.81	3945.29	7478.68	0.00	0.00	-0.05
1.2D+1.6W (pattern 4) 150 deg - No Ice+1.0 Guy	318794.41	3360.62	6864.34	0.00	0.00	-0.23
1.2D+1.6W (pattern 5) 150 deg - No Ice+1.0 Guy	319765.66	3306.38	6811.54	0.00	0.00	-0.60
1.2D+1.6W (pattern 6) 150 deg - No Ice+1.0 Guy	323891.74	3226.63	6746.16	0.00	0.00	-0.09
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	279131.77	15.40	8284.48	0.00	0.00	0.42
1.2D+1.6W (pattern 1) 180 deg - No Ice+1.0 Guy	278510.20	7.32	7302.88	0.00	0.00	0.76
1.2D+1.6W (pattern 2) 180 deg - No Ice+1.0 Guy	275773.07	15.53	8471.09	0.00	0.00	1.17
1.2D+1.6W (pattern 3) 180 deg	270486.95	24.33	8868.62	0.00	0.00	0.47

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
- No Ice+1.0 Guy						
1.2D+1.6W (pattern 4) 180 deg - No Ice+1.0 Guy	276350.06	16.45	8351.27	0.00	0.00	0.36
1.2D+1.6W (pattern 5) 180 deg - No Ice+1.0 Guy	276832.24	16.36	8310.38	0.00	0.00	-0.26
1.2D+1.6W (pattern 6) 180 deg - No Ice+1.0 Guy	278820.08	15.46	8283.99	0.00	0.00	0.42
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	324123.15	-3195.94	6734.01	0.00	0.00	-0.02
1.2D+1.6W (pattern 1) 210 deg - No Ice+1.0 Guy	322936.03	-2681.00	5889.13	0.00	0.00	0.34
1.2D+1.6W (pattern 2) 210 deg - No Ice+1.0 Guy	317357.43	-3366.45	6961.33	0.00	0.00	0.52
1.2D+1.6W (pattern 3) 210 deg - No Ice+1.0 Guy	306643.14	-3912.51	7465.91	0.00	0.00	0.09
1.2D+1.6W (pattern 4) 210 deg - No Ice+1.0 Guy	318379.05	-3336.00	6857.42	0.00	0.00	0.06
1.2D+1.6W (pattern 5) 210 deg - No Ice+1.0 Guy	319348.21	-3279.93	6806.95	0.00	0.00	-0.29
1.2D+1.6W (pattern 6) 210 deg - No Ice+1.0 Guy	323464.36	-3203.10	6739.68	0.00	0.00	-0.02
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	337952.76	-6028.42	3227.86	0.00	0.00	0.75
1.2D+1.6W (pattern 1) 240 deg - No Ice+1.0 Guy	336601.11	-5167.17	2725.61	0.00	0.00	1.05
1.2D+1.6W (pattern 2) 240 deg - No Ice+1.0 Guy	330121.15	-6305.57	3400.65	0.00	0.00	1.09
1.2D+1.6W (pattern 3) 240 deg - No Ice+1.0 Guy	317385.86	-6970.44	3877.94	0.00	0.00	0.78
1.2D+1.6W (pattern 4) 240 deg - No Ice+1.0 Guy	331093.88	-6200.89	3351.46	0.00	0.00	0.91
1.2D+1.6W (pattern 5) 240 deg - No Ice+1.0 Guy	332219.22	-6131.84	3303.75	0.00	0.00	0.75
1.2D+1.6W (pattern 6) 240 deg - No Ice+1.0 Guy	337165.94	-6036.85	3234.25	0.00	0.00	0.75
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	312022.12	-8003.97	-691.05	0.00	0.00	1.25
1.2D+1.6W (pattern 1) 270 deg - No Ice+1.0 Guy	310943.63	-7015.73	-721.42	0.00	0.00	1.43
1.2D+1.6W (pattern 2) 270 deg - No Ice+1.0 Guy	305799.71	-8253.26	-654.98	0.00	0.00	1.33
1.2D+1.6W (pattern 3) 270 deg - No Ice+1.0 Guy	295949.34	-8819.53	-361.77	0.00	0.00	1.20
1.2D+1.6W (pattern 4) 270 deg - No Ice+1.0 Guy	306670.75	-8142.29	-613.67	0.00	0.00	1.46
1.2D+1.6W (pattern 5) 270 deg - No Ice+1.0 Guy	307570.62	-8084.02	-642.21	0.00	0.00	1.51
1.2D+1.6W (pattern 6) 270 deg - No Ice+1.0 Guy	311411.07	-8009.94	-686.55	0.00	0.00	1.25
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	266301.42	-7586.61	-4226.94	0.00	0.00	0.41
1.2D+1.6W (pattern 1) 300 deg - No Ice+1.0 Guy	265929.72	-6744.43	-3739.18	0.00	0.00	0.41
1.2D+1.6W (pattern 2) 300 deg - No Ice+1.0 Guy	263981.94	-7731.63	-4311.99	0.00	0.00	0.17
1.2D+1.6W (pattern 3) 300 deg - No Ice+1.0 Guy	259728.11	-7940.55	-4458.03	0.00	0.00	0.43
1.2D+1.6W (pattern 4) 300 deg - No Ice+1.0 Guy	263972.87	-7616.22	-4249.31	0.00	0.00	0.66
1.2D+1.6W (pattern 5) 300 deg - No Ice+1.0 Guy	264341.01	-7593.04	-4235.10	0.00	0.00	0.95

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2D+1.6W (pattern 6) 300 deg - No Ice+1.0 Guy	266031.58	-7585.16	-4226.53	0.00	0.00	0.41
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	303732.33	-4545.04	-6730.35	0.00	0.00	0.08
1.2D+1.6W (pattern 1) 330 deg - No Ice+1.0 Guy	302792.08	-4073.09	-5857.12	0.00	0.00	-0.10
1.2D+1.6W (pattern 2) 330 deg - No Ice+1.0 Guy	298334.41	-4641.39	-6934.81	0.00	0.00	-0.41
1.2D+1.6W (pattern 3) 330 deg - No Ice+1.0 Guy	288893.88	-4705.68	-7530.08	0.00	0.00	0.06
1.2D+1.6W (pattern 4) 330 deg - No Ice+1.0 Guy	298794.92	-4557.45	-6863.06	0.00	0.00	0.20
1.2D+1.6W (pattern 5) 330 deg - No Ice+1.0 Guy	299613.01	-4548.31	-6804.33	0.00	0.00	0.53
1.2D+1.6W (pattern 6) 330 deg - No Ice+1.0 Guy	303164.57	-4545.05	-6735.31	0.00	0.00	0.08
1.2 Dead+1.0 Ice+1.0 Temp+Guy	425706.10	96.81	165.12	0.00	0.00	0.01
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	429888.80	95.04	-1207.13	0.00	0.00	-0.25
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	431560.74	824.41	-1033.45	0.00	0.00	0.10
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	433434.15	1352.44	-528.00	0.00	0.00	0.12
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	434075.71	1516.67	144.72	0.00	0.00	0.11
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	434674.02	1278.61	796.16	0.00	0.00	0.42
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	435643.90	775.88	1297.54	0.00	0.00	0.62
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	436253.81	95.51	1484.42	0.00	0.00	0.31
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	435714.23	-584.26	1296.48	0.00	0.00	-0.09
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	434797.24	-1086.16	794.68	0.00	0.00	-0.12
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	434256.69	-1324.16	143.87	0.00	0.00	-0.11
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	433619.28	-1160.73	-527.91	0.00	0.00	-0.38
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	431689.15	-633.78	-1033.01	0.00	0.00	-0.54
Dead+Wind 0 deg - Service+Guy	183375.91	7.31	-1929.98	0.00	0.00	0.03
Dead+Wind 30 deg - Service+Guy	183516.88	1017.55	-1711.65	0.00	0.00	0.02
Dead+Wind 60 deg - Service+Guy	183563.43	1710.01	-929.21	0.00	0.00	-0.12
Dead+Wind 90 deg - Service+Guy	183270.36	2047.77	55.06	0.00	0.00	-0.21
Dead+Wind 120 deg - Service+Guy	182952.13	1735.30	1029.22	0.00	0.00	-0.12
Dead+Wind 150 deg - Service+Guy	182864.48	1040.45	1784.26	0.00	0.00	-0.02
Dead+Wind 180 deg - Service+Guy	182876.34	11.23	1982.50	0.00	0.00	-0.01
Dead+Wind 210 deg - Service+Guy	182842.52	-1018.37	1782.11	0.00	0.00	-0.01
Dead+Wind 240 deg - Service+Guy	182924.52	-1714.52	1025.57	0.00	0.00	0.12
Dead+Wind 270 deg -	183262.11	-2028.94	50.97	0.00	0.00	0.21

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Service+Guy Dead+Wind 300 deg - Service+Guy	183571.57	-1693.23	-932.46	0.00	0.00	0.13
Service+Guy Dead+Wind 330 deg - Service+Guy	183526.91	-1002.37	-1713.58	0.00	0.00	0.03

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-80659.11	0.00	-0.04	80659.14	1.80	0.002%
2	-182.12	-95628.26	-130523.80	182.12	95628.33	130523.21	0.000%
3	-143.69	-95628.26	-128308.93	143.69	95628.34	128308.34	0.000%
4	-182.12	-95628.26	-125637.50	182.12	95628.33	125636.91	0.000%
5	-147.70	-95628.26	-121096.81	147.70	95628.31	121096.32	0.000%
6	-182.12	-95628.26	-128018.98	182.12	95628.33	128018.44	0.000%
7	-182.12	-95628.26	-128537.31	182.12	95628.33	128536.81	0.000%
8	-182.12	-95628.26	-130267.89	182.11	95628.33	130267.32	0.000%
9	65978.50	-95088.11	-114477.88	-65978.47	95088.16	114477.43	0.000%
10	64884.48	-95088.11	-112582.98	-64884.45	95088.16	112582.52	0.000%
11	63465.57	-95088.11	-110246.22	-63465.55	95088.16	110245.76	0.000%
12	61354.86	-95088.11	-106331.08	-61355.22	95088.00	106327.54	0.002%
13	64726.09	-95088.11	-112308.64	-64726.06	95088.15	112308.23	0.000%
14	64986.60	-95088.11	-112759.86	-64987.11	95087.95	112754.37	0.003%
15	65850.54	-95088.11	-114256.26	-65850.52	95088.15	114255.81	0.000%
16	112783.50	-94578.43	-65092.94	-112781.60	94578.43	65096.49	0.002%
17	110851.50	-94578.43	-64021.88	-110849.58	94578.43	64025.47	0.003%
18	108430.98	-94578.43	-62649.79	-108429.14	94578.43	62653.23	0.002%
19	104740.71	-94578.43	-60409.25	-104738.93	94578.43	60412.65	0.002%
20	110614.26	-94578.43	-63840.53	-110612.27	94578.43	63844.30	0.003%
21	111066.25	-94578.43	-64101.49	-111064.22	94578.43	64105.34	0.003%
22	112561.87	-94578.43	-64964.99	-112560.04	94578.43	64968.42	0.002%
23	132082.19	-95259.86	182.12	-132081.84	95259.90	-182.00	0.000%
24	129827.58	-95259.86	143.69	-129827.22	95259.90	-143.57	0.000%
25	127056.34	-95259.86	182.12	-127055.98	95259.90	-182.00	0.000%
26	122775.31	-95259.86	147.70	-122771.77	95259.73	-144.61	0.003%
27	129577.37	-95259.86	182.12	-129573.65	95259.73	-178.90	0.003%
28	130098.39	-95259.86	182.12	-130093.28	95259.67	-177.67	0.004%
29	131826.28	-95259.86	182.12	-131825.94	95259.90	-182.00	0.000%
30	112986.75	-95941.29	65420.59	-112986.30	95941.35	-65420.40	0.000%
31	111010.97	-95941.29	64279.87	-111010.52	95941.35	-64279.68	0.000%
32	108634.24	-95941.29	62977.44	-108633.78	95941.35	-62977.25	0.000%
33	104909.55	-95941.29	60677.29	-104909.19	95941.33	-60677.14	0.000%
34	110817.51	-95941.29	64168.18	-110817.11	95941.35	-64168.01	0.000%
35	111266.41	-95941.29	64427.35	-111266.03	95941.34	-64427.19	0.000%
36	112765.13	-95941.29	65292.63	-112764.69	95941.35	-65292.45	0.000%
37	66293.94	-95431.61	114660.00	-66293.62	95431.65	-114659.84	0.000%
38	65133.35	-95431.61	112726.67	-65133.03	95431.66	-112726.50	0.000%
39	63781.01	-95431.61	110428.34	-63780.69	95431.65	-110428.17	0.000%
40	61610.69	-95431.61	106478.78	-61604.61	95431.41	-106475.29	0.005%
41	65041.53	-95431.61	112490.76	-65035.22	95431.40	-112487.09	0.005%
42	65302.04	-95431.61	112941.98	-65295.71	95431.40	-112938.29	0.005%
43	66165.99	-95431.61	114438.38	-66165.68	95431.65	-114438.22	0.000%
44	182.12	-94891.45	130499.39	-184.76	94891.33	-130495.05	0.003%
45	143.69	-94891.45	128290.71	-146.74	94891.32	-128286.25	0.003%
46	182.12	-94891.45	125613.09	-185.67	94891.38	-125610.54	0.003%
47	147.70	-94891.45	121072.40	-151.26	94891.40	-121070.46	0.003%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
48	182.12	-94891.45	127994.57	-184.04	94891.35	-127990.60	0.003%
49	182.12	-94891.45	128516.49	-183.12	94891.34	-128512.38	0.003%
50	182.12	-94891.45	130243.48	-184.62	94891.33	-130239.16	0.003%
51	-65978.50	-95431.61	114477.88	65974.80	95431.47	-114475.64	0.003%
52	-64884.48	-95431.61	112582.98	64884.16	95431.65	-112582.82	0.000%
53	-63465.57	-95431.61	110246.22	63465.26	95431.65	-110246.06	0.000%
54	-61354.86	-95431.61	106331.08	61348.77	95431.40	-106327.55	0.005%
55	-64726.09	-95431.61	112308.64	64719.77	95431.40	-112304.93	0.005%
56	-64986.60	-95431.61	112759.86	64980.26	95431.40	-112756.14	0.005%
57	-65850.54	-95431.61	114256.26	65845.41	95431.43	-114253.17	0.004%
58	-112804.63	-95941.29	65105.15	112804.18	95941.35	-65104.96	0.000%
59	-110867.28	-95941.29	64030.99	110866.82	95941.35	-64030.80	0.000%
60	-108452.11	-95941.29	62661.99	108451.66	95941.35	-62661.80	0.000%
61	-104761.85	-95941.29	60421.46	104761.48	95941.33	-60421.30	0.000%
62	-110635.39	-95941.29	63852.73	110634.98	95941.35	-63852.56	0.000%
63	-111084.29	-95941.29	64111.90	111083.91	95941.34	-64111.75	0.000%
64	-112583.01	-95941.29	64977.19	112582.56	95941.35	-64977.01	0.000%
65	-132082.19	-95259.86	-182.12	132081.83	95259.90	182.24	0.000%
66	-129827.58	-95259.86	-143.69	129827.22	95259.90	143.82	0.000%
67	-127056.34	-95259.86	-182.12	127055.98	95259.90	182.25	0.000%
68	-122775.31	-95259.86	-147.70	122771.73	95259.73	150.83	0.003%
69	-129577.37	-95259.86	-182.12	129574.73	95259.76	184.43	0.002%
70	-130098.39	-95259.86	-182.12	130094.65	95259.73	185.36	0.003%
71	-131826.28	-95259.86	-182.12	131825.94	95259.90	182.24	0.000%
72	-112965.62	-94578.43	-65408.39	112963.49	94578.43	65412.33	0.003%
73	-110995.19	-94578.43	-64270.76	110993.04	94578.43	64274.74	0.003%
74	-108613.10	-94578.43	-62965.23	108611.01	94578.43	62969.11	0.003%
75	-104888.41	-94578.43	-60665.08	104886.35	94578.43	60668.97	0.003%
76	-110796.38	-94578.43	-64155.97	110794.15	94578.43	64160.17	0.003%
77	-111248.37	-94578.43	-64416.93	111246.15	94578.43	64421.13	0.003%
78	-112743.99	-94578.43	-65280.43	112741.94	94578.43	65284.25	0.003%
79	-66293.94	-95088.11	-114660.00	66293.91	95088.16	114659.53	0.000%
80	-65133.35	-95088.11	-112726.67	65133.33	95088.16	112726.19	0.000%
81	-63781.01	-95088.11	-110428.34	63780.99	95088.16	110427.87	0.000%
82	-61610.69	-95088.11	-106478.78	61610.67	95088.14	106478.41	0.000%
83	-65041.53	-95088.11	-112490.76	65041.50	95088.15	112490.34	0.000%
84	-65302.04	-95088.11	-112941.98	65302.01	95088.15	112941.60	0.000%
85	-66165.99	-95088.11	-114438.38	66165.96	95088.16	114437.92	0.000%
86	0.00	-289634.27	0.00	-0.73	289634.26	3.61	0.001%
87	-28.85	-289933.65	-41446.75	28.85	289933.64	41445.55	0.000%
88	20602.70	-289540.29	-35831.72	-20602.78	289540.28	35830.35	0.000%
89	35660.88	-289161.32	-20692.09	-35659.59	289161.31	20693.00	0.001%
90	41106.75	-289634.27	28.84	-41105.97	289634.26	-27.89	0.000%
91	35691.09	-290107.22	20742.84	-35689.98	290107.21	-20741.91	0.000%
92	20652.66	-289728.24	35860.56	-20651.05	289728.23	-35859.62	0.001%
93	28.85	-289334.89	41445.18	-29.57	289334.86	-41443.50	0.001%
94	-20602.70	-289728.24	35831.72	20601.09	289728.23	-35830.90	0.001%
95	-35662.24	-290107.22	20692.87	35661.19	290107.21	-20692.01	0.000%
96	-41106.75	-289634.27	-28.84	41105.71	289634.26	30.10	0.001%
97	-35689.73	-289161.32	-20742.05	35688.59	289161.31	20743.21	0.001%
98	-20652.66	-289540.29	-35860.56	20652.69	289540.28	35859.40	0.000%
99	-37.89	-80736.12	-27151.55	37.84	80736.12	27150.02	0.002%
100	13725.19	-80623.38	-23814.28	-13724.44	80623.37	23812.10	0.003%
101	23461.80	-80517.35	-13540.97	-23460.39	80517.35	13541.10	0.002%
102	27476.42	-80659.11	37.89	-27474.84	80659.11	-36.43	0.003%
103	23504.09	-80800.86	13609.13	-23503.17	80800.86	-13607.94	0.002%
104	13790.81	-80694.84	23852.16	-13790.31	80694.84	-23850.87	0.002%
105	37.89	-80582.47	27147.16	-37.92	80582.47	-27146.12	0.001%
106	-13725.19	-80694.84	23814.28	13724.61	80694.84	-23813.01	0.002%
107	-23466.20	-80800.86	13543.51	23465.24	80800.86	-13542.36	0.002%
108	-27476.42	-80659.11	-37.89	27475.65	80659.11	38.66	0.001%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
109	-23499.69	-80517.35	-13606.59	23498.20	80517.35	13606.82	0.002%
110	-13790.81	-80623.38	-23852.16	13789.96	80623.37	23850.09	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	15	0.00000001	0.00002299
2	No	500	0.00082000	0.00000000
3	No	500	0.00082601	0.00000000
4	No	500	0.00084050	0.00000000
5	No	500	0.00078894	0.00000000
6	No	500	0.00080436	0.00000000
7	No	500	0.00074727	0.00000000
8	No	500	0.00080835	0.00000000
9	No	500	0.00073208	0.00000000
10	No	500	0.00073853	0.00000000
11	No	500	0.00074995	0.00000000
12	Yes	29	0.00009078	0.00003629
13	No	500	0.00069624	0.00000000
14	Yes	28	0.00009194	0.00004953
15	No	500	0.00071573	0.00000000
16	Yes	25	0.00007999	0.00003222
17	Yes	25	0.00008089	0.00003268
18	Yes	25	0.00007893	0.00003163
19	Yes	24	0.00008480	0.00003411
20	Yes	24	0.00008752	0.00003421
21	Yes	24	0.00008854	0.00003441
22	Yes	25	0.00007772	0.00003112
23	No	500	0.00061812	0.00000000
24	No	500	0.00062559	0.00000000
25	No	500	0.00063680	0.00000000
26	Yes	32	0.00007595	0.00004348
27	Yes	32	0.00009598	0.00004265
28	Yes	31	0.00009883	0.00006014
29	No	500	0.00059913	0.00000000
30	No	500	0.00066192	0.00000000
31	No	500	0.00066806	0.00000000
32	No	500	0.00068047	0.00000000
33	No	500	0.00061473	0.00000000
34	No	500	0.00063877	0.00000000
35	No	500	0.00058384	0.00000000
36	No	500	0.00064962	0.00000000
37	No	500	0.00053611	0.00000000
38	No	500	0.00054292	0.00000000
39	No	500	0.00055196	0.00000000
40	Yes	31	0.00009156	0.00006901
41	Yes	31	0.00009697	0.00006837
42	Yes	31	0.00008868	0.00006523
43	No	500	0.00051971	0.00000000
44	Yes	18	0.00009265	0.00007372
45	Yes	18	0.00009121	0.00007064
46	Yes	19	0.00007708	0.00005146
47	Yes	19	0.00007765	0.00004796
48	Yes	18	0.00008302	0.00006652
49	Yes	18	0.00007099	0.00005688

50	Yes	18	0.00009115	0.00007275
51	Yes	33	0.00009723	0.00003993
52	No	500	0.00052668	0.00000000
53	No	500	0.00053434	0.00000000
54	Yes	31	0.00009075	0.00006366
55	Yes	31	0.00009333	0.00006423
56	Yes	31	0.00008836	0.00006297
57	Yes	32	0.00008769	0.00005012
58	No	500	0.00066785	0.00000000
59	No	500	0.00067365	0.00000000
60	No	500	0.00068644	0.00000000
61	No	500	0.00062346	0.00000000
62	No	500	0.00064555	0.00000000
63	No	500	0.00059090	0.00000000
64	No	500	0.00065578	0.00000000
65	No	500	0.00062557	0.00000000
66	No	500	0.00063274	0.00000000
67	No	500	0.00064424	0.00000000
68	Yes	32	0.00007776	0.00004394
69	Yes	33	0.00009676	0.00003352
70	Yes	32	0.00007639	0.00004297
71	No	500	0.00060702	0.00000000
72	Yes	25	0.00008931	0.00003843
73	Yes	25	0.00008989	0.00003880
74	Yes	25	0.00008896	0.00003821
75	Yes	24	0.00009733	0.00004230
76	Yes	24	0.00009756	0.00004040
77	Yes	24	0.00009664	0.00003889
78	Yes	25	0.00008672	0.00003713
79	No	500	0.00075622	0.00000000
80	No	500	0.00076304	0.00000000
81	No	500	0.00077604	0.00000000
82	No	500	0.00068414	0.00000000
83	No	500	0.00072150	0.00000000
84	No	500	0.00064777	0.00000000
85	No	500	0.00074077	0.00000000
86	Yes	19	0.00010000	0.00002767
87	Yes	24	0.00000001	0.00000897
88	Yes	24	0.00008222	0.00001022
89	Yes	23	0.00008171	0.00001187
90	Yes	27	0.00007084	0.00000920
91	Yes	27	0.00008028	0.00001086
92	Yes	26	0.00008046	0.00001406
93	Yes	24	0.00006566	0.00001433
94	Yes	27	0.00007838	0.00001341
95	Yes	28	0.00007404	0.00001008
96	Yes	27	0.00009003	0.00001219
97	Yes	24	0.00008291	0.00001234
98	Yes	24	0.00000001	0.00000896
99	Yes	13	0.00000001	0.00001775
100	Yes	13	0.00000001	0.00002536
101	Yes	14	0.00000001	0.00001947
102	Yes	14	0.00000001	0.00002573
103	Yes	14	0.00000001	0.00001723
104	Yes	15	0.00000001	0.00001868
105	Yes	16	0.00000001	0.00001533
106	Yes	15	0.00000001	0.00001841
107	Yes	14	0.00000001	0.00001698
108	Yes	15	0.00000001	0.00001434
109	Yes	14	0.00000001	0.00002148
110	Yes	13	0.00000001	0.00002553

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	345 - 330	3.602	105	0.0730	0.2880
T1	330 - 320	3.708	105	0.0769	0.2866
T2	320 - 300	3.790	105	0.0729	0.2873
T3	300 - 280	3.892	105	0.0578	0.2662
T4	280 - 260	3.907	105	0.0368	0.2180
T5	260 - 240	3.866	105	0.0221	0.1770
T6	240 - 220	3.700	105	0.0635	0.1418
T7	220 - 200	3.331	105	0.1067	0.1089
T8	200 - 180	2.818	105	0.1184	0.0748
T9	180 - 160	2.331	105	0.0891	0.0510
T10	160 - 140	2.065	105	0.0529	0.0409
T11	140 - 120	1.886	105	0.0430	0.0229
T12	120 - 100	1.715	104	0.0411	0.0120
T13	100 - 80	1.556	104	0.0286	0.0156
T14	80 - 60	1.480	104	0.0302	0.0194
T15	60 - 40	1.325	104	0.0555	0.0212
T16	40 - 20	1.020	104	0.0911	0.0209
T17	20 - 12	0.558	104	0.1217	0.0199
T18	12 - 6.6667	0.342	104	0.1295	0.0195
T19	6.6667 - 0	0.190	104	0.1327	0.0189

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
330.00	Guy	105	3.708	0.0769	0.2866	73744
317.50	P-9A120GN	105	3.808	0.0713	0.2866	47956
308.00	P-9A72GN-S	105	3.863	0.0645	0.2790	48693
305.50	3" Dia 20' Omni	105	3.874	0.0625	0.2756	49135
297.46	Guy	105	3.898	0.0555	0.2609	55082
294.00	LeBlanc 10' Standoff (3)	105	3.903	0.0523	0.2530	62496
289.00	3" Dia 20' Omni	105	3.908	0.0473	0.2406	67163
288.00	1105-1A	105	3.908	0.0462	0.2381	68181
284.00	3" Dia 20' Omni	105	3.909	0.0417	0.2278	72550
279.00	1105-1A	105	3.907	0.0355	0.2156	71622
274.25	3" Dia 20' Omni	105	3.903	0.0290	0.2049	59401
274.00	SPD6-58	105	3.902	0.0287	0.2044	58802
270.10	Guy	105	3.897	0.0236	0.1963	50801
264.25	Pirod 4' Side Mount Standoff (1)	105	3.882	0.0175	0.1849	42194
262.00	Pirod 4' Side Mount Standoff (1)	105	3.874	0.0191	0.1807	39450
252.00	3" Dia 20' Omni	105	3.821	0.0367	0.1625	27165
251.00	P-9A72GN-S	105	3.813	0.0387	0.1607	26256
226.50	Site Pro LTF12-4126	105	3.472	0.0946	0.1197	23584
219.50	1105-1A	105	3.320	0.1075	0.1080	27501
213.00	15' OMNI	105	3.161	0.1157	0.0967	37966
209.00	MFF-950B	105	3.058	0.1185	0.0898	50425
208.00	2" Dia 8' Omni	105	3.032	0.1190	0.0880	54932
205.50	Pirod 6-8' Box Arm (1)	105	2.966	0.1196	0.0838	70736
204.00	Pirod 6-8' Box Arm (1)	105	2.926	0.1196	0.0813	85582
200.00	7770	105	2.818	0.1184	0.0748	270784
188.50	(2) AIR 21 B2A B4P	105	2.518	0.1049	0.0590	26217
186.50	Valmont 10' Wireless Frame (3)	105	2.470	0.1015	0.0568	22329

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.25	Guy	105	2.282	0.0835	0.0492	17170
169.50	(2) LPA-80080-4CF-EDIN w/MP	105	2.169	0.0680	0.0456	25842
168.00	Pirod 12' T-Frame Sector Mount (1)	105	2.150	0.0653	0.0450	28706
150.50	13' Diapole	105	1.977	0.0452	0.0328	133939
146.00	3" Dia 20' Omni	105	1.937	0.0437	0.0284	235052
138.50	Pirod 4' Side Mount Standoff (1)	105	1.873	0.0430	0.0217	264253
130.00	P-9A72GN-S	105	1.799	0.0430	0.0162	158508
123.50	(2) HP2-18	104	1.745	0.0422	0.0133	121175
112.00	MTZ-940B	104	1.645	0.0364	0.0102	98448
106.50	(2) HP2-18	104	1.599	0.0325	0.0129	46347
99.92	Guy	104	1.555	0.0285	0.0156	32220
90.00	1.9"x4' pipe mount	104	1.515	0.0264	0.0181	143226
36.00	SPD3-2.4NS	104	0.939	0.0980	0.0207	30101

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	345 - 330	38.481	60	0.2671	1.3338
T1	330 - 320	37.965	60	0.2470	1.3270
T2	320 - 300	37.679	60	0.2704	1.3354
T3	300 - 280	36.999	59	0.3503	1.2430
T4	280 - 260	35.871	59	0.4351	1.0257
T5	260 - 240	34.340	31	0.4983	0.8449
T6	240 - 220	32.116	31	0.7112	0.6852
T7	220 - 200	28.845	31	0.9189	0.5484
T8	200 - 180	24.927	30	0.9591	0.4316
T9	180 - 160	21.205	30	0.7931	0.3557
T10	160 - 140	18.682	36	0.5698	0.3211
T11	140 - 120	16.776	35	0.4982	0.2527
T12	120 - 100	14.928	35	0.4735	0.2100
T13	100 - 80	13.090	35	0.4081	0.1863
T14	80 - 60	11.660	34	0.3996	0.1658
T15	60 - 40	9.835	34	0.5310	0.1627
T16	40 - 20	7.250	34	0.7107	0.1548
T17	20 - 12	3.866	34	0.8655	0.1440
T18	12 - 6.6667	2.354	34	0.9047	0.1401
T19	6.6667 - 0	1.310	34	0.9208	0.1357

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
330.00	Guy	60	37.965	0.2470	1.3270	16917
317.50	P-9A120GN	60	37.596	0.2789	1.3334	9595
308.00	P-9A72GN-S	59	37.319	0.3155	1.3006	9133
305.50	3" Dia 20' Omni	59	37.228	0.3261	1.2855	9056
297.46	Guy	59	36.881	0.3619	1.2192	9303
294.00	LeBlanc 10' Standoff (3)	59	36.706	0.3778	1.1833	9879
289.00	3" Dia 20' Omni	59	36.430	0.4002	1.1273	10557

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
288.00	1105-1A	59	36.372	0.4045	1.1158	10668
284.00	3" Dia 20' Omni	59	36.129	0.4208	1.0699	11134
279.00	1105-1A	59	35.804	0.4383	1.0151	10900
274.25	3" Dia 20' Omni	59	35.475	0.4518	0.9679	9264
274.00	SPD6-58	59	35.457	0.4525	0.9656	9182
270.10	Guy	59	35.168	0.4629	0.9299	8070
264.25	Pirod 4' Side Mount Standoff (1)	31	34.705	0.4803	0.8799	6830
262.00	Pirod 4' Side Mount Standoff (1)	31	34.515	0.4884	0.8613	6440
252.00	3" Dia 20' Omni	31	33.562	0.5737	0.7801	4906
251.00	P-9A72GN-S	31	33.455	0.5843	0.7720	4785
226.50	Site Pro LTF12-4126	31	30.014	0.8630	0.5930	4803
219.50	1105-1A	31	28.751	0.9224	0.5449	5742
213.00	15' OMNI	30	27.514	0.9573	0.4984	8281
209.00	MFF-950B	30	26.729	0.9679	0.4745	11597
208.00	2" Dia 8' Omni	30	26.530	0.9692	0.4697	12887
205.50	Pirod 6-8' Box Arm (1)	30	26.031	0.9700	0.4577	17851
204.00	Pirod 6-8' Box Arm (1)	30	25.731	0.9688	0.4505	23246
200.00	7770	30	24.927	0.9591	0.4316	16619
188.50	(2) AIR 21 B2A B4P	30	22.677	0.8828	0.3821	4785
186.50	Valmont 10' Wireless Frame (3)	30	22.310	0.8636	0.3748	4135
177.25	Guy	30	20.786	0.7604	0.3499	3166
169.50	(2) LPA-80080-4CF-EDIN w/MP	36	19.753	0.6663	0.3380	4393
168.00	Pirod 12' T-Frame Sector Mount (1)	36	19.573	0.6487	0.3359	4759
150.50	13' Diapole	35	17.738	0.5203	0.2905	11908
146.00	3" Dia 20' Omni	35	17.322	0.5079	0.2737	14616
138.50	Pirod 4' Side Mount Standoff (1)	35	16.640	0.4965	0.2481	22329
130.00	P-9A72GN-S	35	15.863	0.4888	0.2269	23956
123.50	(2) HP2-18	35	15.259	0.4805	0.2152	18466
112.00	MTZ-940B	35	14.161	0.4491	0.1995	14164
106.50	(2) HP2-18	35	13.648	0.4294	0.1933	8602
99.92	Guy	35	13.084	0.4079	0.1862	6268
90.00	1.9"x4' pipe mount	34	12.361	0.3901	0.1759	22244
36.00	SPD3-2.4NS	34	6.631	0.7459	0.1525	5543

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	330	Leg	A325N	1.1250	9	771.16	67096.30	0.011 ✔	1	Bolt Tension
T2	320	Leg	A325N	0.7500	5	2077.90	29820.60	0.070 ✔	1	Bolt Tension
T3	300	Leg	A325N	0.7500	5	3224.13	29820.60	0.108 ✔	1	Bolt Tension
T4	280	Leg	A325N	0.7500	5	3166.33	29820.60	0.106 ✔	1	Bolt Tension
T5	260	Leg	A325N	0.7500	5	5762.55	29820.60	0.193 ✔	1	Bolt Tension
T6	240	Leg	A325N	0.7500	5	6901.00	29820.60	0.231 ✔	1	Bolt Tension
T7	220	Leg	A325N	0.7500	5	5914.91	29820.60	0.198 ✔	1	Bolt Tension
T8	200	Leg	A325N	0.8750	5	5329.77	40589.10	0.131 ✔	1	Bolt Tension
T9	180	Leg	A325N	0.8750	5	16785.40	40589.10	0.414 ✔	1	Bolt Tension
		Torque Arm Top@177.25	A325N	1.0000	4	9186.55	63617.30	0.144 ✔	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Torque Arm Bottom@177.25	A325N	1.0000	4	7206.53	63617.30	0.113 ✔	1	Bolt Shear
T10	160	Leg	A325N	0.8750	5	10173.10	40589.10	0.251 ✔	1	Bolt Tension
T11	140	Leg	A325N	0.8750	5	7782.74	40589.10	0.192 ✔	1	Bolt Tension
T12	120	Leg	A325N	0.8750	5	7627.64	40589.10	0.188 ✔	1	Bolt Tension
T13	100	Leg	A325N	0.8750	5	9420.59	40589.10	0.232 ✔	1	Bolt Tension
T14	80	Leg	A325N	0.7500	5	9041.51	29820.60	0.303 ✔	1	Bolt Tension
T15	60	Leg	A325N	0.7500	5	11176.70	29820.60	0.375 ✔	1	Bolt Tension
T16	40	Leg	A325N	0.7500	5	11469.10	29820.60	0.385 ✔	1	Bolt Tension
T17	20	Leg	A325N	0.7500	5	10123.00	29820.60	0.339 ✔	1	Bolt Tension
T19	6.6667	Leg	A325N	1.7500	3	16752.70	162357.00	0.103 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T1	330.00 (A) (1089)	11/16 BS	5800.00	57999.90	23288.90	34800.00	1.000	1.494 ✔
	330.00 (B) (1088)	11/16 BS	5800.00	57999.90	21633.20	34800.00	1.000	1.609 ✔
	330.00 (C) (1087)	11/16 BS	5800.00	57999.90	21556.50	34800.00	1.000	1.614 ✔
T3	297.46 (A) (1116)	9/16 BS	3800.00	38000.00	17037.50	22800.00	1.000	1.338 ✔
	297.46 (B) (1115)	9/16 BS	3800.00	38000.00	16000.50	22800.00	1.000	1.425 ✔
	297.46 (C) (1114)	9/16 BS	3800.00	38000.00	15962.00	22800.00	1.000	1.428 ✔
T4	270.10 (A) (1092)	13/16 BS	8000.00	79999.92	37539.90	48000.00	1.000	1.279 ✔
	270.10 (B) (1091)	13/16 BS	8000.00	79999.92	35544.10	48000.00	1.000	1.350 ✔
	270.10 (C) (1090)	13/16 BS	8000.00	79999.92	35473.70	48000.00	1.000	1.353 ✔
T9	177.25 (A) (1105)	15/16 BS	10800.00	108000.22	47012.40	64800.00	1.000	1.378 ✔
	177.25 (A) (1106)	15/16 BS	10800.00	108000.22	47766.60	64800.00	1.000	1.357 ✔
	177.25 (B) (1099)	15/16 BS	10800.00	108000.22	43717.60	64800.00	1.000	1.482 ✔
	177.25 (B) (1100)	15/16 BS	10800.00	108000.22	42467.90	64800.00	1.000	1.526 ✔
	177.25 (C) (1093)	15/16 BS	10800.00	108000.22	42664.70	64800.00	1.000	1.519 ✔
	177.25 (C) (1094)	15/16 BS	10800.00	108000.22	42958.90	64800.00	1.000	1.508 ✔
T13	99.92 (A) (1113)	15/16 BS	10800.00	108000.22	44443.70	64800.00	1.000	1.458 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
	99.92 (B) (1112)	15/16 BS	10800.00	108000.22	40462.70	64800.00	1.000	1.601 ✔
	99.92 (C) (1111)	15/16 BS	10800.00	108000.22	40498.20	64800.00	1.000	1.600 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	1 1/4	15.00	1.49	57.3 K=1.00	1.2272	1.00	-3792.72	43444.60	0.087 [1] ✔
T1	330 - 320	2 1/4	10.00	2.43	51.8 K=1.00	3.9761	1.00	-31166.80	147000.00	0.212 [1] ✔
T2	320 - 300	2 1/4	20.00	2.45	52.4 K=1.00	3.9761	1.00	-39268.70	146416.00	0.268 [1] ✔
T3	300 - 280	2 1/4	20.00	2.45	52.4 K=1.00	3.9761	1.00	-53150.10	146416.00	0.363 [1] ✔
T4	280 - 260	2 1/4	20.00	2.45	52.4 K=1.00	3.9761	1.00	-86436.30	146416.00	0.590 [1] ✔
T5	260 - 240	2 1/4	20.00	2.45	52.4 K=1.00	3.9761	1.00	-103513.00	146416.00	0.707 [1] ✔
T6	240 - 220	2 1/4	20.00	2.45	52.4 K=1.00	3.9761	1.00	-103755.00	146416.00	0.709 [1] ✔
T7	220 - 200	2 1/2	20.00	2.44	46.9 K=1.00	4.9087	1.00	-88723.70	188051.00	0.472 [1] ✔
T8	200 - 180	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	1.00	-181019.00	232885.00	0.777 [1] ✔
T9	180 - 160	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	1.00	-207317.00	233988.00	0.886 [1] ✔
T10	160 - 140	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	1.00	-152596.00	233988.00	0.652 [1] ✔
T11	140 - 120	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	1.00	-116741.00	233988.00	0.499 [1] ✔
T12	120 - 100	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	1.00	-141307.00	233988.00	0.604 [1] ✔
T13	100 - 80	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	0.98	-141309.00	229020.00	0.617 [1] ✔
T14	80 - 60	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	0.98	-167647.00	229088.00	0.732 [1] ✔
T15	60 - 40	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	0.98	-173451.00	229176.00	0.757 [1] ✔
T16	40 - 20	2 3/4	20.00	2.44	42.7 K=1.00	5.9396	0.98	-172037.00	229113.00	0.751 [1] ✔
T17	20 - 12	2 3/4	8.00	2.61	45.6 K=1.00	5.9396	0.97	-151845.00	222896.00	0.681 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T18	12 - 6.6667	2 3/4	5.33	2.58	33.8 K=0.75	5.9396	0.91	-150422.00	223653.00	0.673 [1]
T19	6.6667 - 0	2 3/4	7.26	2.41	42.0 K=1.00	5.9396	0.95	-162258.00	222857.00	0.728 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	1/2	2.91	1.39	120.5 K=0.90	0.1963	-423.85	3053.70	0.139 [1]
T1	330 - 320	7/8	5.56	2.68	132.1 K=0.90	0.6013	-2271.39	7785.95	0.292 [1]
T2	320 - 300	7/8	5.57	2.68	132.3 K=0.90	0.6013	-2425.72	7755.94	0.313 [1]
T3	300 - 280	7/8	5.57	2.68	132.3 K=0.90	0.6013	-4102.22	7755.94	0.529 [1]
T4	280 - 260	1	5.57	2.68	115.8 K=0.90	0.7854	-5553.33	13231.30	0.420 [1]
T5	260 - 240	1	5.57	2.68	115.8 K=0.90	0.7854	-4887.03	13231.30	0.369 [1]
T6	240 - 220	1	5.57	2.68	115.8 K=0.90	0.7854	-5556.71	13231.30	0.420 [1]
T7	220 - 200	1	5.57	2.67	115.2 K=0.90	0.7854	-8125.75	13369.70	0.608 [1]
T8	200 - 180	1 1/4	5.57	2.66	101.0 K=0.99	1.2272	-12994.90	26209.70	0.496 [1]
T9	180 - 160	1 1/4	5.57	2.66	101.0 K=0.99	1.2272	-9444.68	26209.70	0.360 [1]
T10	160 - 140	1	5.57	2.66	114.7 K=0.90	0.7854	-6401.57	13486.70	0.475 [1]
T11	140 - 120	1	5.57	2.66	114.7 K=0.90	0.7854	-3226.97	13486.70	0.239 [1]
T12	120 - 100	1	5.57	2.66	114.7 K=0.90	0.7854	-5251.18	13486.70	0.389 [1]
T13	100 - 80	1	5.57	2.66	114.7 K=0.90	0.7854	-7192.90	13486.70	0.533 [1]
T14	80 - 60	1	5.57	2.66	114.7 K=0.90	0.7854	-5327.44	13486.70	0.395 [1]
T15	60 - 40	1	5.57	2.66	114.7 K=0.90	0.7854	-2443.73	13486.70	0.181 [1]
T16	40 - 20	1	5.57	2.66	114.7 K=0.90	0.7854	-4221.53	13486.70	0.313 [1]
T17	20 - 12	1 1/4	5.64	2.69	101.6 K=0.98	1.2272	-6404.45	25956.70	0.247 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T18	12 - 6.6667	1 1/4	3.59	3.43	92.2 K=0.70	1.2272	-6252.18	29659.70	0.211 [1] ✔
T19	6.6667 - 0	1 1/4	3.37	2.47	97.2 K=1.03	1.2272	-20831.00	27671.20	0.753 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T18	12 - 6.6667	6x3/4	5.00	2.39	132.2 K=1.00	4.5000	-2605.38	58090.00	0.045 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T19	6.6667 - 0	7/8	3.61	3.38	129.8 K=0.70	0.6013	-2993.19	8065.10	0.371 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	3/4	2.50	2.40	107.3 K=0.70	0.4418	-9.13	8562.48	0.001 [1] ✔
T1	330 - 320	6x3/4	5.00	4.81	266.7 K=1.00	4.5000	-0.36	14288.60	0.000 [1] ✔
		KL/R > 200 (C) - 75							
T2	320 - 300	1	5.00	4.81	161.7 K=0.70	0.7854	-262.10	6785.94	0.039 [1] ✔
T3	300 - 280	1	5.00	4.81	161.7 K=0.70	0.7854	-1185.95	6785.94	0.175 [1] ✔
T4	280 - 260	1	5.00	4.81	161.7 K=0.70	0.7854	-283.35	6785.94	0.042 [1] ✔
T5	260 - 240	1	5.00	4.81	161.7	0.7854	-58.20	6785.94	0.009 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=0.70				✔
T6	240 - 220	1	5.00	4.81	161.7	0.7854	-99.51	6785.94	0.015 [1]
					K=0.70				✔
T7	220 - 200	1 1/4	5.00	4.79	128.8	1.2272	-911.09	16711.60	0.055 [1]
					K=0.70				✔
T8	200 - 180	1 1/2	5.00	4.77	106.9	1.7672	-1646.14	34501.20	0.048 [1]
					K=0.70				✔
T9	180 - 160	1 1/2	5.00	4.77	106.9	1.7672	-12417.50	34501.20	0.360 [1]
					K=0.70				✔
T10	160 - 140	1 1/4	5.00	4.77	128.2	1.2272	-785.09	16857.90	0.047 [1]
					K=0.70				✔
T11	140 - 120	1 1/4	5.00	4.77	128.2	1.2272	-65.00	16857.90	0.004 [1]
					K=0.70				✔
T14	80 - 60	1 1/4	5.00	4.77	128.2	1.2272	-269.35	16857.90	0.016 [1]
					K=0.70				✔
T16	40 - 20	1 1/4	5.00	4.77	128.2	1.2272	-76.73	16857.90	0.005 [1]
					K=0.70				✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	330 - 320	1	5.00	4.81	161.7	0.7854	-311.70	6785.94	0.046 [1]
					K=0.70				✔
T2	320 - 300	1	5.00	4.81	161.7	0.7854	-816.10	6785.94	0.120 [1]
					K=0.70				✔
T3	300 - 280	1	5.00	4.81	161.7	0.7854	-41.06	6785.94	0.006 [1]
					K=0.70				✔
T4	280 - 260	1	5.00	4.81	161.7	0.7854	-445.39	6785.94	0.066 [1]
					K=0.70				✔
T5	260 - 240	1	5.00	4.81	161.7	0.7854	-179.11	6785.94	0.026 [1]
					K=0.70				✔
T6	240 - 220	1	5.00	4.81	161.7	0.7854	-334.35	6785.94	0.049 [1]
					K=0.70				✔
T7	220 - 200	1 1/4	5.00	4.79	128.8	1.2272	-1285.22	16711.60	0.077 [1]
					K=0.70				✔
T8	200 - 180	1 1/2	5.00	4.77	106.9	1.7672	-8066.44	34501.20	0.234 [1]
					K=0.70				✔
T9	180 - 160	1 1/2	5.00	4.77	106.9	1.7672	-382.44	34501.20	0.011 [1]
					K=0.70				✔
T10	160 - 140	1 1/4	5.00	4.77	128.2	1.2272	-26.34	16857.90	0.002 [1]
					K=0.70				✔
T13	100 - 80	1 1/4	5.00	4.77	128.2	1.2272	-568.92	16857.90	0.034 [1]
					K=0.70				✔
T14	80 - 60	1 1/4	5.00	4.77	128.2	1.2272	-207.74	16857.90	0.012 [1]
					K=0.70				✔

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

[1] P_u / ϕP_n controls

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	3/4	2.50	2.40	107.3 K=0.70	0.4418	-39.79	8562.48	0.005 [1] ✔
T1	330 - 320	1	5.00	4.81	161.7 K=0.70	0.7854	-92.47	6785.94	0.014 [1] ✔
T2	320 - 300	1	5.00	4.81	161.7 K=0.70	0.7854	-49.37	6785.94	0.007 [1] ✔
T3	300 - 280	1	5.00	4.81	161.7 K=0.70	0.7854	-255.39	6785.94	0.038 [1] ✔
T5	260 - 240	1	5.00	4.81	161.7 K=0.70	0.7854	-307.53	6785.94	0.045 [1] ✔
T8	200 - 180	1 1/2	5.00	4.77	106.9 K=0.70	1.7672	-231.88	34501.20	0.007 [1] ✔
T9	180 - 160	1 1/2	5.00	4.77	106.9 K=0.70	1.7672	-55.75	34501.20	0.002 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	180 - 160 (1097)	2L4x4x3/8	4.61	4.48	32.8 K=0.75	5.7200	-23366.00	175132.00	0.133 [1] ✔
T9	180 - 160 (1098)	2L4x4x3/8	4.61	4.48	32.8 K=0.75	5.7200	-28201.10	175132.00	0.161 [1] ✔
T9	180 - 160 (1103)	2L4x4x3/8	4.61	4.48	32.8 K=0.75	5.7200	-23276.40	175132.00	0.133 [1] ✔
T9	180 - 160 (1104)	2L4x4x3/8	4.61	4.48	32.8 K=0.75	5.7200	-23275.90	175132.00	0.133 [1] ✔
T9	180 - 160 (1109)	2L4x4x3/8	4.61	4.48	32.8 K=0.75	5.7200	-23988.70	175132.00	0.137 [1] ✔
T9	180 - 160 (1110)	2L4x4x3/8	4.61	4.48	32.8 K=0.75	5.7200	-28826.10	175132.00	0.165 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	1 1/4	15.00	1.49	57.3	1.2272	3353.41	55223.30	0.061 [1] ✔
T1	330 - 320	2 1/4	10.00	2.43	51.8	3.9761	9081.83	178924.00	0.051 [1] ✔
T2	320 - 300	2 1/4	20.00	2.45	52.4	3.9761	17660.20	178924.00	0.099 [1] ✔
T3	300 - 280	2 1/4	20.00	2.45	52.4	3.9761	17706.30	178924.00	0.099 [1] ✔
T4	280 - 260	2 1/4	20.00	2.45	52.4	3.9761	18370.50	178924.00	0.103 [1] ✔
T5	260 - 240	2 1/4	20.00	2.45	52.4	3.9761	32787.40	178924.00	0.183 [1] ✔
T6	240 - 220	2 1/4	20.00	2.45	52.4	3.9761	32784.70	178924.00	0.183 [1] ✔
T7	220 - 200	2 1/2	20.00	2.44	46.9	4.9087	11342.40	220893.00	0.051 [1] ✔
T8	200 - 180	2 3/4	20.00	2.44	42.7	5.9396	83942.00	267281.00	0.314 [1] ✔
T9	180 - 160	2 3/4	20.00	2.44	42.7	5.9396	83926.90	267281.00	0.314 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	1/2	2.91	1.39	133.9	0.1963	422.12	8835.73	0.048 [1] ✔
T1	330 - 320	7/8	5.56	2.68	146.8	0.6013	2234.81	27059.40	0.083 [1] ✔
T2	320 - 300	7/8	5.57	2.68	147.0	0.6013	2237.17	27059.40	0.083 [1] ✔
T3	300 - 280	7/8	5.57	2.68	147.0	0.6013	6242.72	27059.40	0.231 [1] ✔
T4	280 - 260	1	5.57	2.68	128.7	0.7854	5803.13	35342.90	0.164 [1] ✔
T5	260 - 240	1	5.57	2.68	128.7	0.7854	4624.28	35342.90	0.131 [1] ✔
T6	240 - 220	1	5.57	2.68	128.7	0.7854	5315.79	35342.90	0.150 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T7	220 - 200	1	5.57	2.67	128.0	0.7854	7777.12	35342.90	0.220 [1] ✔
T8	200 - 180	1 1/4	5.57	2.66	102.0	1.2272	12539.20	55223.30	0.227 [1] ✔
T9	180 - 160	1 1/4	5.57	2.66	102.0	1.2272	9228.95	55223.30	0.167 [1] ✔
T10	160 - 140	1	5.57	2.66	127.4	0.7854	5794.13	35342.90	0.164 [1] ✔
T11	140 - 120	1	5.57	2.66	127.4	0.7854	2609.20	35342.90	0.074 [1] ✔
T12	120 - 100	1	5.57	2.66	127.4	0.7854	4595.15	35342.90	0.130 [1] ✔
T13	100 - 80	1	5.57	2.66	127.4	0.7854	7189.30	35342.90	0.203 [1] ✔
T14	80 - 60	1	5.57	2.66	127.4	0.7854	4549.08	35342.90	0.129 [1] ✔
T15	60 - 40	1	5.57	2.66	127.4	0.7854	1647.30	35342.90	0.047 [1] ✔
T16	40 - 20	1	5.57	2.66	127.4	0.7854	3429.49	35342.90	0.097 [1] ✔
T17	20 - 12	1 1/4	5.64	2.69	103.3	1.2272	3171.35	55223.30	0.057 [1] ✔
T18	12 - 6.6667	1 1/4	3.59	3.43	131.7	1.2272	6297.56	55223.30	0.114 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T17	20 - 12	7/8	5.00	4.77	261.7	0.6013	3505.10	27059.40	0.130 [1] ✔
T18	12 - 6.6667	6x3/4	5.00	2.39	132.2	4.5000	20641.40	145800.00	0.142 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T19	6.6667 - 0	7/8	3.61	3.38	185.4	0.6013	2993.19	27059.40	0.111 [1] ✔

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

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	330 - 320	6x3/4	5.00	4.81	266.7	4.5000	0.36	145800.00	0.000 [1] ✔
T2	320 - 300	1	5.00	4.81	231.0	0.7854	291.12	35342.90	0.008 [1] ✔
T4	280 - 260	1	5.00	4.81	231.0	0.7854	692.10	35342.90	0.020 [1] ✔
T5	260 - 240	1	5.00	4.81	231.0	0.7854	558.12	35342.90	0.016 [1] ✔
T6	240 - 220	1	5.00	4.81	231.0	0.7854	422.15	35342.90	0.012 [1] ✔
T7	220 - 200	1 1/4	5.00	4.79	184.0	1.2272	1347.22	55223.30	0.024 [1] ✔
T8	200 - 180	1 1/2	5.00	4.77	152.7	1.7672	2172.24	79521.60	0.027 [1] ✔
T9	180 - 160	1 1/2	5.00	4.77	152.7	1.7672	9914.97	79521.60	0.125 [1] ✔
T10	160 - 140	1 1/4	5.00	4.77	183.2	1.2272	1377.77	55223.30	0.025 [1] ✔
T11	140 - 120	1 1/4	5.00	4.77	183.2	1.2272	742.86	55223.30	0.013 [1] ✔
T12	120 - 100	1 1/4	5.00	4.77	183.2	1.2272	706.91	55223.30	0.013 [1] ✔
T13	100 - 80	1 1/4	5.00	4.77	183.2	1.2272	13196.60	55223.30	0.239 [1] ✔
T14	80 - 60	1 1/4	5.00	4.77	183.2	1.2272	1092.75	55223.30	0.020 [1] ✔
T15	60 - 40	1 1/4	5.00	4.77	183.2	1.2272	650.58	55223.30	0.012 [1] ✔
T16	40 - 20	1 1/4	5.00	4.77	183.2	1.2272	1014.31	55223.30	0.018 [1] ✔
T17	20 - 12	7/8	5.00	4.77	261.7	0.6013	1781.28	27059.40	0.066 [1] ✔
T19	6.6667 - 0	6x3/4	4.94	4.71	261.0	4.5000	21887.80	145800.00	0.150 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	330 - 320	1	5.00	4.81	231.0	0.7854	426.42	35342.90	0.012 [1] ✔
T3	300 - 280	1	5.00	4.81	231.0	0.7854	399.00	35342.90	0.011 [1] ✔
T4	280 - 260	1	5.00	4.81	231.0	0.7854	996.82	35342.90	0.028 [1] ✔
T5	260 - 240	1	5.00	4.81	231.0	0.7854	458.23	35342.90	0.013 [1] ✔
T6	240 - 220	1	5.00	4.81	231.0	0.7854	596.02	35342.90	0.017 [1] ✔
T7	220 - 200	1 1/4	5.00	4.79	184.0	1.2272	1576.59	55223.30	0.029 [1] ✔
T8	200 - 180	1 1/2	5.00	4.77	152.7	1.7672	7871.64	79521.60	0.099 [1] ✔
T9	180 - 160	1 1/2	5.00	4.77	152.7	1.7672	1366.09	79521.60	0.017 [1] ✔
T10	160 - 140	1 1/4	5.00	4.77	183.2	1.2272	841.73	55223.30	0.015 [1] ✔
T11	140 - 120	1 1/4	5.00	4.77	183.2	1.2272	751.60	55223.30	0.014 [1] ✔
T12	120 - 100	1 1/4	5.00	4.77	183.2	1.2272	3438.60	55223.30	0.062 [1] ✔
T13	100 - 80	1 1/4	5.00	4.77	183.2	1.2272	1477.97	55223.30	0.027 [1] ✔
T14	80 - 60	1 1/4	5.00	4.77	183.2	1.2272	1117.10	55223.30	0.020 [1] ✔
T15	60 - 40	1 1/4	5.00	4.77	183.2	1.2272	681.79	55223.30	0.012 [1] ✔
T16	40 - 20	1 1/4	5.00	4.77	183.2	1.2272	1495.71	55223.30	0.027 [1] ✔
T19	6.6667 - 0	6x3/4	0.75	0.52	28.9	4.5000	15384.60	145800.00	0.106 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	345 - 330	3/4	2.50	2.40	153.3	0.4418	4.51	19880.40	0.000 [1] ✔
T1	330 - 320	1	5.00	4.81	231.0	0.7854	194.52	35342.90	0.006 [1] ✔
T2	320 - 300	1	5.00	4.81	231.0	0.7854	186.47	35342.90	0.005 [1] ✔
T4	280 - 260	1	5.00	4.81	231.0	0.7854	8463.92	35342.90	0.239 [1] ✔
T5	260 - 240	1	5.00	4.81	231.0	0.7854	867.51	35342.90	0.025 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T6	240 - 220	1	5.00	4.81	231.0	0.7854	440.72	35342.90	0.012 [1]
T7	220 - 200	1 1/4	5.00	4.79	184.0	1.2272	623.99	55223.30	0.011 [1]
T8	200 - 180	1 1/2	5.00	4.77	152.7	1.7672	1082.02	79521.60	0.014 [1]
T9	180 - 160	1 1/2	5.00	4.77	152.7	1.7672	2072.84	79521.60	0.026 [1]
T10	160 - 140	1 1/4	5.00	4.77	183.2	1.2272	976.33	55223.30	0.018 [1]
T11	140 - 120	1 1/4	5.00	4.77	183.2	1.2272	1064.43	55223.30	0.019 [1]
T12	120 - 100	1 1/4	5.00	4.77	183.2	1.2272	1101.66	55223.30	0.020 [1]
T13	100 - 80	1 1/4	5.00	4.77	183.2	1.2272	1165.01	55223.30	0.021 [1]
T14	80 - 60	1 1/4	5.00	4.77	183.2	1.2272	1392.82	55223.30	0.025 [1]
T15	60 - 40	1 1/4	5.00	4.77	183.2	1.2272	1517.32	55223.30	0.027 [1]
T16	40 - 20	1 1/4	5.00	4.77	183.2	1.2272	1476.40	55223.30	0.027 [1]
T19	6.6667 - 0	6x3/4	2.84	2.61	144.9	4.5000	13623.00	145800.00	0.093 [1]

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	180 - 160 (1095)	2L4x4x3/8	4.84	4.70	45.9	5.7200	36407.50	185328.00	0.196 [1]
T9	180 - 160 (1096)	2L4x4x3/8	4.84	4.70	45.9	5.7200	35832.90	185328.00	0.193 [1]
T9	180 - 160 (1101)	2L4x4x3/8	4.84	4.70	45.9	5.7200	35612.90	185328.00	0.192 [1]
T9	180 - 160 (1102)	2L4x4x3/8	4.84	4.70	45.9	5.7200	33701.50	185328.00	0.182 [1]
T9	180 - 160 (1107)	2L4x4x3/8	4.84	4.70	45.9	5.7200	34411.60	185328.00	0.186 [1]
T9	180 - 160 (1108)	2L4x4x3/8	4.84	4.70	45.9	5.7200	36746.20	185328.00	0.198 [1]

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T9	180 - 160 (1097)	2L4x4x3/8	4.61	4.48	43.7	5.7200	7464.41	185328.00	0.040 [1] ✔
T9	180 - 160 (1098)	2L4x4x3/8	4.61	4.48	43.7	5.7200	8202.62	185328.00	0.044 [1] ✔
T9	180 - 160 (1103)	2L4x4x3/8	4.61	4.48	43.7	5.7200	8524.41	185328.00	0.046 [1] ✔
T9	180 - 160 (1104)	2L4x4x3/8	4.61	4.48	43.7	5.7200	8538.53	185328.00	0.046 [1] ✔
T9	180 - 160 (1109)	2L4x4x3/8	4.61	4.48	43.7	5.7200	8404.87	185328.00	0.045 [1] ✔
T9	180 - 160 (1110)	2L4x4x3/8	4.61	4.48	43.7	5.7200	9110.45	185328.00	0.049 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	345 - 330	Latticed Pole Leg	1 1/4	1	-3792.72	43444.60	8.7	Pass
		Latticed Pole Diagonal	1/2	15	-423.85	3053.70	13.9	Pass
		Latticed Pole Top Girt	3/4	5	-9.13	8562.48	0.1	Pass
		Latticed Pole Mid Girt	3/4	8	-39.79	8562.48	0.5	Pass
T1	330 - 320	Leg	2 1/4	72	-31166.80	147000.00	21.2	Pass
		Diagonal	7/8	101	-2271.39	7785.95	29.2	Pass
		Top Girt	6x3/4	75	-0.36	14288.60	0.1	Pass
		Bottom Girt	1	76	-311.70	6785.94	4.6	Pass
		Mid Girt	1	79	-92.47	6785.94	1.4	Pass
		Guy A@330	11/16	1089	23288.90	34800.00	66.9	Pass
		Guy B@330	11/16	1088	21633.20	34800.00	62.2	Pass
		Guy C@330	11/16	1087	21556.50	34800.00	61.9	Pass
T2	320 - 300	Leg	2 1/4	108	-39268.70	146416.00	26.8	Pass
		Diagonal	7/8	123	-2425.72	7755.94	31.3	Pass
		Top Girt	1	110	-262.10	6785.94	3.9	Pass
		Bottom Girt	1	112	-816.10	6785.94	12.0	Pass
		Mid Girt	1	115	-49.37	6785.94	0.7	Pass
T3	300 - 280	Leg	2 1/4	168	-53150.10	146416.00	36.3	Pass
		Diagonal	7/8	178	-4102.22	7755.94	52.9	Pass
		Top Girt	1	169	-1185.95	6785.94	17.5	Pass
		Bottom Girt	1	173	399.00	35342.90	1.1	Pass
		Mid Girt	1	176	-255.39	6785.94	3.8	Pass
		Guy A@297.462	9/16	1116	17037.50	22800.00	74.7	Pass
		Guy B@297.462	9/16	1115	16000.50	22800.00	70.2	Pass
		Guy C@297.462	9/16	1114	15962.00	22800.00	70.0	Pass
T4	280 - 260	Leg	2 1/4	228	-86436.30	146416.00	59.0	Pass
		Diagonal	1	252	-5553.33	13231.30	42.0	Pass
		Top Girt	1	229	-283.35	6785.94	4.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Bottom Girt	1	234	-445.39	6785.94	6.6	Pass
		Mid Girt	1	235	8463.92	35342.90	23.9	Pass
		Guy A@270.098	13/16	1092	37539.90	48000.00	78.2	Pass
		Guy B@270.098	13/16	1091	35544.10	48000.00	74.1	Pass
		Guy C@270.098	13/16	1090	35473.70	48000.00	73.9	Pass
T5	260 - 240	Leg	2 1/4	288	-103513.00	146416.00	70.7	Pass
		Diagonal	1	342	-4887.03	13231.30	36.9	Pass
		Top Girt	1	291	558.12	35342.90	1.6	Pass
		Bottom Girt	1	294	-179.11	6785.94	2.6	Pass
		Mid Girt	1	295	-307.53	6785.94	4.5	Pass
T6	240 - 220	Leg	2 1/4	348	-103755.00	146416.00	70.9	Pass
		Diagonal	1	359	-5556.71	13231.30	42.0	Pass
		Top Girt	1	349	-99.51	6785.94	1.5	Pass
		Bottom Girt	1	354	-334.35	6785.94	4.9	Pass
		Mid Girt	1	355	440.72	35342.90	1.2	Pass
T7	220 - 200	Leg	2 1/2	408	-88723.70	188051.00	47.2	Pass
		Diagonal	1	419	-8125.75	13369.70	60.8	Pass
		Top Girt	1 1/4	409	-911.09	16711.60	5.5	Pass
		Bottom Girt	1 1/4	414	-1285.22	16711.60	7.7	Pass
		Mid Girt	1 1/4	417	623.99	55223.30	1.1	Pass
T8	200 - 180	Leg	2 3/4	466	-181019.00	232885.00	77.7	Pass
		Diagonal	1 1/4	479	-12994.90	26209.70	49.6	Pass
		Top Girt	1 1/2	469	-1646.14	34501.20	4.8	Pass
		Bottom Girt	1 1/2	474	-8066.44	34501.20	23.4	Pass
		Mid Girt	1 1/2	475	1082.02	79521.60	1.4	Pass
T9	180 - 160	Leg	2 3/4	526	-207317.00	233988.00	88.6	Pass
		Diagonal	1 1/4	565	-9444.68	26209.70	36.0	Pass
		Top Girt	1 1/2	531	-12417.50	34501.20	36.0	Pass
		Bottom Girt	1 1/2	534	1366.09	79521.60	1.7	Pass
		Mid Girt	1 1/2	537	2072.84	79521.60	2.6	Pass
		Guy A@177.25	15/16	1106	47766.60	64800.00	73.7	Pass
		Guy B@177.25	15/16	1099	43717.60	64800.00	67.5	Pass
		Guy C@177.25	15/16	1094	42958.90	64800.00	66.3	Pass
		Torque Arm Top@177.25	2L4x4x3/8	1108	36746.20	185328.00	19.8	Pass
		Torque Arm Bottom@177.25	2L4x4x3/8	1110	-28826.10	175132.00	16.5	Pass
T10	160 - 140	Leg	2 3/4	586	-152596.00	233988.00	65.2	Pass
		Diagonal	1	642	-6401.57	13486.70	47.5	Pass
		Top Girt	1 1/4	589	-785.09	16857.90	4.7	Pass
		Bottom Girt	1 1/4	593	841.73	55223.30	1.5	Pass
		Mid Girt	1 1/4	595	976.33	55223.30	1.8	Pass
T11	140 - 120	Leg	2 3/4	646	-116741.00	233988.00	49.9	Pass
		Diagonal	1	702	-3226.97	13486.70	23.9	Pass
		Top Girt	1 1/4	651	742.86	55223.30	1.3	Pass
		Bottom Girt	1 1/4	652	751.60	55223.30	1.4	Pass
		Mid Girt	1 1/4	657	1064.43	55223.30	1.9	Pass
T12	120 - 100	Leg	2 3/4	707	-141307.00	233988.00	60.4	Pass
		Diagonal	1	719	-5251.18	13486.70	38.9	Pass
		Top Girt	1 1/4	711	706.91	55223.30	1.3	Pass
		Bottom Girt	1 1/4	714	3438.60	55223.30	6.2	Pass
		Mid Girt	1 1/4	715	1101.66	55223.30	2.0	Pass
T13	100 - 80	Leg	2 3/4	767	-141309.00	229020.00	61.7	Pass
		Diagonal	1	816	-7192.90	13486.70	53.3	Pass
		Top Girt	1 1/4	771	13196.60	55223.30	23.9	Pass
		Bottom Girt	1 1/4	774	-568.92	16857.90	3.4	Pass
		Mid Girt	1 1/4	777	1165.01	55223.30	2.1	Pass
		Guy A@99.9167	15/16	1113	44443.70	64800.00	68.6	Pass
		Guy B@99.9167	15/16	1112	40462.70	64800.00	62.4	Pass
		Guy C@99.9167	15/16	1111	40498.20	64800.00	62.5	Pass
T14	80 - 60	Leg	2 3/4	828	-167647.00	229088.00	73.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Diagonal	1	883	-5327.44	13486.70	39.5	Pass
		Top Girt	1 1/4	829	1092.75	55223.30	2.0	Pass
		Bottom Girt	1 1/4	833	1117.10	55223.30	2.0	Pass
		Mid Girt	1 1/4	837	1392.82	55223.30	2.5	Pass
T15	60 - 40	Leg	2 3/4	888	-173451.00	229176.00	75.7	Pass
		Diagonal	1	942	-2443.73	13486.70	18.1	Pass
		Top Girt	1 1/4	891	650.58	55223.30	1.2	Pass
		Bottom Girt	1 1/4	892	681.79	55223.30	1.2	Pass
		Mid Girt	1 1/4	897	1517.32	55223.30	2.7	Pass
T16	40 - 20	Leg	2 3/4	948	-172037.00	229113.00	75.1	Pass
		Diagonal	1	960	-4221.53	13486.70	31.3	Pass
		Top Girt	1 1/4	951	1014.31	55223.30	1.8	Pass
		Bottom Girt	1 1/4	952	1495.71	55223.30	2.7	Pass
		Mid Girt	1 1/4	957	1476.40	55223.30	2.7	Pass
T17	20 - 12	Leg	2 3/4	1008	-151845.00	222896.00	68.1	Pass
		Diagonal	1 1/4	1014	-6404.45	25956.70	24.7	Pass
		Horizontal	7/8	1020	3505.10	27059.40	13.0	Pass
		Top Girt	7/8	1011	1781.28	27059.40	6.6	Pass
T18	12 - 6.6667	Leg	2 3/4	1038	-150422.00	223653.00	67.3	Pass
		Diagonal	1 1/4	1044	-6252.18	29659.70	21.1	Pass
		Horizontal	6x3/4	1045	20641.40	145800.00	14.2	Pass
T19	6.6667 - 0	Leg	2 3/4	1059	-162258.00	222857.00	72.8	Pass
		Diagonal	1 1/4	1074	-20831.00	27671.20	75.3	Pass
		Secondary Horizontal	7/8	1086	-2993.19	8065.10	37.1	Pass
		Top Girt	6x3/4	1062	21887.80	145800.00	15.0	Pass
		Bottom Girt	6x3/4	1065	15384.60	145800.00	10.6	Pass
		Mid Girt	6x3/4	1068	13623.00	145800.00	9.3	Pass
							Summary	
							Latticed Pole Leg (L1) 8.7	Pass
							Latticed Pole Diagonal (L1) 13.9	Pass
							Latticed Pole Top Girt (L1) 0.1	Pass
							Latticed Pole Mid Girt (L1) 0.5	Pass
							Leg (T9) 88.6	Pass
							Diagonal (T19) 75.3	Pass
							Horizontal (T18) 14.2	Pass
							Secondary Horizontal (T19) 37.1	Pass
							Top Girt (T9) 36.0	Pass
							Bottom Girt (T8) 23.4	Pass
							Mid Girt (T4) 23.9	Pass
							Guy A (T4) 78.2	Pass
							Guy B (T4) 74.1	Pass
							Guy C (T4) 73.9	Pass
							Torque Arm Top (T9) 19.8	Pass
							Torque Arm 16.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Bottom (T9)		
						Bolt Checks	41.4	Pass
						RATING =	**88.6**	**Pass**

SITE ID: CT23XC506
SITE NAME: UNCASVILLE

899 COLONEL LEDYARD ROAD
LEDYARD, CT 06339

DO MACRO PROJECT

SITE INFORMATION

ADDRESS:	899 COLONEL LEDYARD ROAD LEDYARD, CT 06339
JURISDICTION:	TOWN OF LEDYARD
COUNTY :	NEW LONDON
PROPERTY OWNER:	TOWN OF LEDYARD 741 COLONEL LEDYARD HIGHWAY LEDYARD, CT 06339
APPLICANT:	SPRINT 201 STATE ROUTE 17 RUTHERFORD, NEW JERSEY 07070
LATITUDE (NAD 83):	N 41° 27' 43.05"
LONGITUDE (NAD 83):	W 72° 01' 25.00"
CURRENT USE:	UNMANNED TELECOMMUNICATIONS FACILITY
PROPOSED USE:	NO CHANGE
UTILITY COMPANY:	CONNECTICUT LIGHT AND POWER PHONE: 800-922-4455

RF CONFIGURATION

THE CONTRACTOR SHALL OBTAIN THE LATEST RF DATA SHEET AND CONFIRM SAME WITH THE SPRINT CONSTRUCTION MANAGER PRIOR TO START OF CONSTRUCTION.

PROJECT CONTACTS

	NAME:	COMPANY:	PHONE #:
ENGINEER:	JEREMY MCKEON	MASER CONSULTING P.A.	973.398.3110
CONSTRUCTION:	TOM JUPIN	CHERUNDOLO CONSULTING	973.819.9033

STRUCTURAL STATEMENT

THE PROPOSED ANTENNA AND EQUIPMENT INSTALLATION SHALL BE EVALUATED INCLUDING THE NEW LOAD CONDITIONS ON THE SUPPORTING ELEMENTS OF THE EXISTING STRUCTURE. THESE PLANS HAVE BEEN DEVELOPED FOR THE PROPOSED TELECOMMUNICATION FACILITY TO BE OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY CHERUNDOLO CONSULTING. MASER HAS INCORPORATED THE SCOPE OF WORK WITHIN THESE PLANS. ELEMENTS OF THE STRUCTURE AFFECTED BY THE SCOPE OF WORK SHALL BE ANALYZED UNDER SEPARATE COVER. MASER ASSUMES NO RESPONSIBILITY FOR ANY ELEMENTS OF THE SITE NOT AFFECTED BY THE SCOPE OR FOR CHANGES TO THE SCOPE OF WORK NOT SPECIFICALLY SHOWN ON THESE DRAWINGS.

APPROVALS

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

CONSTRUCTION:_____ DATE: _____

LEASING/SITE ACQUISITION: _____ DATE: _____

RF ENGINEERING: _____ DATE: _____

LANDLORD/PROPERTY OWNER: _____ DATE: _____

LOCAL MAP

NO SCALE

DRIVING DIRECTIONS

DIRECTIONS FROM SPRINT OFFICE AT 1 INTERNATIONAL BOULEVARD, MAHWAY, NEW JERSEY:

HEAD NORTHWEST ON INTERNATIONAL BLVD/PARK STREET TOWARD QUEENSLAND ROAD. CONTINUE TO FOLLOW INTERNATIONAL BOULEVARD. INTERNATIONAL BOULEVARD TURNS SLIGHTLY LEFT AND BECOMES PARK STREET. TURN RIGHT ONTO PARK LANE. CONTINUE ONTO LEISURE LANE. MERGE ONTO NJ-17 NORTH. USE THE LEFT 3 LANES TO MERGE ONTO I-287 NORTH/NJ-17 NORTH TOWARD NY THRUWAY. USE THE RIGHT 2 LANES TO MERGE ONTO I-287 EAST/I-87 SOUTH TOWARD TAPPAN ZEE BRIDGE/NEW YORK CITY. KEEP LEFT AT THE FORK TO CONTINUE ON I-287 EAST, FOLLOW SIGNS FOR WHITE PLAINS/RYE. TAKE EXIT 9N-95 FOR HUTCHINSON PARKWAY TOWARD WHITESTONE BRIDGE/MERRITT PARKWAY. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR WESTCHESTER AVENUE AND MERGE ONTO WESTCHESTER AVENUE. USE THE RIGHT LANE TO TAKE THE HUTCHINSON PARKWAY NORTH RAMP TO MERRITT PARKWAY. MERGE ONTO HUTCHINSON RIVER PARKWAY NORTH. KEEP RIGHT AT THE FORK TO STAY ON HUTCHINSON RIVER PARKWAY NORTH. CONTINUE ONTO CT-15 NORTH. TAKE EXIT 54 TOWARD INTERSTATE 95/U.S. 1/MILFORD/NEW LONDON. MERGE ONTO MILFORD PARKWAY. TAKE THE INTERSTATE 95 NORTH EXIT TOWARD NEW LONDON/NEW HAVEN. MERGE ONTO I-95 NORTH. KEEP LEFT AT THE FORK TO CONTINUE ON I-395 NORTH, FOLLOW SIGNS FOR INTERSTATE 395 NORTH/NORWICH/PLAINFIELD. TAKE EXIT 9 FOR CONNECTICUT 2 ALTERNATE EAST TOWARD PRESTON/LEDYARD. CONTINUE ONTO CT-2A EAST. USE THE MIDDLE LANE TO TURN LEFT ONTO CT-12 N/CT-2A EAST. TURN RIGHT ONTO CT-2A EAST. SLIGHT RIGHT ONTO CT-117. THE TOWER SITE WILL BE ON THE RIGHT.

DRAWING INDEX

NYC DOB NUMBER	SHEET TITLE	REV.
T-001.00	TITLE SHEET	4
ANT-001.00	GENERAL NOTES - 1	4
ANT-002.00	GENERAL NOTES - 2	4
ANT-003.00	GENERAL NOTES - 3	4
ANT-004.00	COMPOUND PLAN AND EQUIPMENT LAYOUT	4
ANT-005.00	ELEVATION	4
ANT-006.00	ANTENNA ORIENTATION PLANS	4
ANT-007.00	DETAILS - 1	4
ANT-008.00	DETAILS - 2	4
ANT-009.00	ANTENNA SCHEDULE, WIRING DIAGRAM, BILL OF MATERIALS AND NOTES	4
ANT-010.00	FIBER PLUMBING DIAGRAMS - 1	4
ANT-011.00	FIBER PLUMBING DIAGRAMS - 2	4
ANT-012.00	CABLE COLOR CODING, DC POWER DETAILS & PANEL SCHEDULES	4
ANT-013.00	ELECTRICAL AND GROUNDING NOTES	4
ANT-014.00	GROUNDING SCHEMATIC AND DETAILS	4

APPLICABLE BUILDING CODES & STANDARDS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND 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 THE LATEST EDITIONS OF THE FOLLOWING CODES.

1. 2016 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2012 INTERNATIONAL BUILDING CODE
2. TIA/EIA-222-G OR LATEST EDITION
3. NFPA 780-LIGHTNING PROTECTION CODE 201
4. 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

SCOPE OF WORK

SPRINT PROPOSED TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (6) EXISTING ANTENNAS
- INSTALL (6) NEW ANTENNAS ON EXISTING MAST
- INSTALL (9) NEW RRH'S
- INSTALL (4) HYBRID CABLES
- RELOCATE (3) 1900 RRH'S TO TOWER
- INSTALL (3) 10'-6" LONG STD PIPE STABILIZERS

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RUTHERFORD, NJ 07070
PHONE: (201) 684-4000 FAX: (201) 684-4223

Cherundolo Consulting

Charles Cherundulo Consulting, Inc.
713 Clover Lane
Moscow, PA 18444
Phone: 973-207-4248
Fax: 570-842-5592

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE :	JOB NUMBER :
AS SHOWN	17924004A

REV	DATE	DESCRIPTION	BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
3	03/30/18	REVISED PER RFDS	JCM	JKM
2	02/06/18	MOUNT MODIFICATION DESIGN	YMA	JKM
1	10/27/17	REVISED PER COMMENTS	DTS	PET
0	08/28/17	ISSUED FOR CONSTRUCTION	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	JRF	FEP

STATE OF CONNECTICUT — PETROS E. TSOUKALAS — 21708 — LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.21708

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

899 COLONEL LEDYARD RD.
LEDYARD, CT 06339

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984

SHEET TITLE :
TITLE SHEET

SHEET NUMBER :
T-001.00

GENERAL NOTES

1. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY SPRINT, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
2. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION.
3. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
5. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS FOR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING DEMOLITION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF REMOVAL OF THIS FACILITY.
7. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR AS REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE REMOVED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
9. THE DEMOLITION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL REMOVAL MEANS AND METHODS. THE DEMOLITION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
10. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND RELATED PARTIES. THE SUBCONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT EFFECTS THEIR WORK.
11. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES AND INSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA CONTRACTOR FURNISH 3 SETS OF REDLINE "AS-REMOVED" DRAWINGS TO SPRINT UPON COMPLETION OF THE WORK.
12. REPAIR MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
13. THE CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
14. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS EXISTING WHICH ARE NOT FOUND TO BE IN THE FIELD.
15. DEMOLITION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST-ACCEPTED PRACTICE. ALL SURFACES SHALL BE REPAIRED TO MATCH THEIR SURROUNDINGS AND PROVIDE WEATHER TIGHT SEAL ON SAME DAY AS REMOVAL.
16. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
18. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING REMOVAL SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
19. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
20. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORKS, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.

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SCALE :	JOB NUMBER :
AS SHOWN	17924004A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
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STATE OF CONNECTICUT — PETROS E. TSOUKALAS — LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32507

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

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

899 COLONEL LEDYARD RD.
LEDYARD, CT 06339

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984

SHEET TITLE :
GENERAL NOTES - 1

SHEET NUMBER :
ANT-001.00

SECTION 01 100 - SCOPE OF WORK

THE WORK:
THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS AND ASSOCIATED OUTLINE SPECIFICATIONS AND THE SITE SPECIFIC WORK ORDER, DESCRIBE THE WORK TO BE PERFORMED BY THIS CONSTRUCTION CONTRACTOR (SUPPLIER).

RELATED DOCUMENTS:
A. THE REQUIREMENTS OF EACH SECTION OF THIS SPECIFICATION APPLY TO ALL SECTIONS, INDIVIDUALLY AND COLLECTIVELY.
B. RELATED DOCUMENTS: THE CONTRACTOR SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE FOLLOWING SUPPLEMENTAL REQUIREMENTS FOR INSTALLATION AND TESTING.
1.EN-2012-001: (FIBER OPTIC, DC CABLE, AND DC CIRCUIT BREAKER TAGGING STANDARDS)
2.TS-0200 - (TRANSMISSION ANTENNA LINE ACCEPTANCE STANDARDS)
3.EL-0568: (FIBER TESTING POLICY)
4.NP-312-201: (EXTERIOR GROUNDING SYSTEM TESTING)
5.NP-760-500: ETHERNET, MICROWAVE, TESTING AND ACCEPTANCE

PRECEDENCE:
SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

NATIONALLY RECOGNIZED CODES AND STANDARDS:

THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
C. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
D. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
G. AMERICAN CONCRETE INSTITUTE (ACI)
H. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
I. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
J. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
K. PORTLAND CEMENT ASSOCIATION (PCA)
L. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
M. BRICK INDUSTRY ASSOCIATION (BIA)
N. AMERICAN WELDING SOCIETY (AWS)
O. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
P. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
Q. DOOR AND HARDWARE INSTITUTE (DHI)
R. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
S. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

DEFINITIONS:
A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: "SPRINT"; SPRINT NEXTEL CORPORATION AND IT'S OPERATING ENTITIES.
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR, SUPPLIER, CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
F. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT.

SITE FAMILIARITY:
CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

POINT OF CONTACT:
COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

ON-SITE SUPERVISION:
THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

DRAWINGS REQUIRED AT JOBSITE:
THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
A. THE JOBSITE DRAWINGS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
B. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

USE OF JOB SITE:
THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

UTILITY SERVICES:
WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

PERMITS/FEES:
WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

CONTRACTOR:
CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:
CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

TEMPORARY UTILITIES AND FACILITIES:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSOR'S OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

ACCESS TO WORK:
THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

DIMENSIONS:
VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

EXISTING CONDITIONS:
NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

FURNISHED MATERIALS:
COMPANY FURNISHED MATERIALS AND EQUIPMENT TO BE INSTALLED BY THE CONTRACTOR (OFIC) IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

RECEIPT OF MATERIAL AND EQUIPMENT:
A. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
B. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
C. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
D. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

DELIVERABLES:
A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

SECTION 01 300 - CELL SITE CONSTRUCTION

NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S ISSUANCE OF THE WORK ORDER.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

GENERAL REQUIREMENTS FOR CONSTRUCTION:
A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

FUNCTIONAL REQUIREMENTS:
A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. CONTRACTOR SHALL TAKE ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.
B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.
C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES
D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND BACKHAUL (FIBER, COPPER, OR MICROWAVE).
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS, CONDUIT AND BOXES.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND PADS AND PLATFORMS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. CONDUCT ALL REQUIRED TESTS AND INSPECTIONS
19. PERFORM, DOCUMENT, AND CLOSE OUT ALL JURISDICTIONAL PERMITTING REQUIREMENTS AND ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
20. PERFORM ALL ADDITIONAL WORK AS IDENTIFIED IN SCOPE OF SERVICES ATTACHED TO THE SUPPLIER AGREEMENT FOR THIS PROJECT. THIS WORK MAY INCLUDE COMMISSIONING, INTEGRATION, SPECIAL WAREHOUSING, REVERSE LOGISTICS ACTIVITIES, ETC. PERFORM COMMISSIONING AND INTEGRATION ACTIVITIES PER APPLICABLE MOPS.

DELIVERABLES:
A. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEST REPORTS AND DOCUMENTATION INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
1. PRODUCT SPECIFICATIONS FOR MATERIALS OR SPECIAL CONSTRUCTION IF REQUESTED BY SPRINT
2. ACTUAUZE ALL CONSTRUCTION RELATED MILESTONES IN SITERRA AND COMPLETE ALL ON-LINE FORMS AND COMPLETE DOCUMENT UP-LOADS. UPLOAD ALL REQUIRED CLOSEOUT DOCUMENTS AND FINAL SITE PHOTOS
3. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT LEFT ON SITE INSIDE BASE OF MAIN RF CABINET IN A PROTECTIVE POUCH.
4. ALL REQUIRED TEST REPORTS.
5. REQUIRED CLOSEOUT DOCUMENTATION INCLUDING BUT NOT LIMITED TO:
a. ALL JURISDICTIONAL PERMITTING AND OCCUPANCY INFORMATION
b. PDF SCAN OF REDLINES PRODUCED IN THE FIELD
c. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS
d. LIEN WAIVERS
e. FINAL PAYMENT APPLICATION
f. REQUIRED FINAL CONSTRUCTION PHOTOS
g. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
h. LISTS OF SUBCONTRACTORS
B. PROVIDE ADDITIONAL DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. PRE-CONSTRUCTION MEETING NOTES.

SECTION 01 400 - TESTS, INSPECTIONS, SUBMITTALS, AND PROJECT CLOSEOUT

TESTS AND INSPECTIONS:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. COAX SWEEPS AND FIBER TESTS PER TS-0200 (CURRENT VERSION) ANTENNA LINE ACCEPTANCE STANDARDS
2. POST CONSTRUCTION HEIGHT VERIFICATION, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONCRETE BREAK TESTS
4. SITE RESISTANCE TO EARTH TEST
5. STRUCTURAL BACKFILL COMPACTION TESTS
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
7. ADDITIONAL TESTING AS REQUIRED ELSEWHERE IN THIS SPECIFICATION.

SUBMITTALS:
A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
B. UPLOAD THE FOLLOWING TO SITERRA AS APPLICABLE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. CHEMICAL GROUNDING SYSTEM
4. REINFORCEMENT CERTIFICATIONS
5. STRUCTURAL BACKFILL TEST RESULTS
6. SWEEP AND FIBER TESTS
7. ANTENNA AZIMUTH AND DOWN-TILT VERIFICATION
8. POST CONSTRUCTION HEIGHT VERIFICATION
9. ADDITIONAL SUBMITTALS MAY BE REQUIRED FOR SPECIAL CONSTRUCTION OR MINOR MATERIALS
C. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

TESTING BY THIRD PARTY AGENCY:
A. EMPLOY AN AGENCY OF ENGINEERS AND SCIENTISTS WHO IS REGULARLY ENGAGED IN FIELD AND LABORATORY TESTING AND ANALYSIS. AGENCY SHALL HAVE BEEN IN BUSINESS A MINIMUM OF FIVE YEARS, AND BE LICENSED AS PROFESSIONAL ENGINEERS IN THE STATE WHERE THE PROJECT IS LOCATED. AGENCY IS SUBJECT TO APPROVAL BY COMPANY.
1. AGENCY MUST HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
B. REQUIRED THIRD PARTY TESTS:
1. SITE RESISTANCE TO EARTH TEST PER NP-312-201
2. CONCRETE CYLINDER BREAK TESTS FOR TOWER PIER AND ANCHORS PER NATIONALLY RECOGNIZED STANDARDS
3. STRUCTURAL SOILS COMPACTION TESTS PER NATIONALLY RECOGNIZED STANDARDS
4. REBAR PLACEMENT VERIFICATION WITH REPORT
5. TESTING TENSION STUDY FOR ROCK ANCHORS
6. ALL THIRD PARTY TESTS AS REQUIRED BY LOCAL JURISDICTION
C. REQUIRED TESTS BY CONTRACTOR
1. COAX SWEEP TESTS PER SPRINT STANDARD TS-0200
2. FIBER TESTS PER SPRINT STANDARD EL-0568
3. MICROWAVE LINK TESTS PER NP-760-500
4. ANTENNA AZIMUTHS AND DOWN TILT USING ELECTRONIC ALIGNMENT TOOL PER ANTENNA INSTALLATION SPECIFICATION HEREIN.
5. POST CONSTRUCTION HEIGHT VERIFICATION AS REQUIRED HEREWITH IN THE TOWER INSTALLATION SPECIFICATIONS.
6. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED HEREWITH IN THE ASPHALT PAVING SPECIFICATIONS.
7. FIELD QUALITY CONTROL TESTING AS SPECIFIED HEREWITH IN THE CONCRETE PAVING SPECIFICATIONS.
8. TESTING REQUIRED HEREWITH UNDER SPECIFICATIONS FOR AGGREGATE BASE FOR ROADWAYS
9. ALL OTHER TESTS REQUIRED BY LOCAL JURISDICTION
D. INSPECTIONS BY COMPANY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN INSPECTION ACTIVITIES, FINAL ACCEPTANCE / PUNCH WALK REVIEW, AND/OR AS A RESULT OF TESTING
E. SPRINT RESERVES THE RIGHT TO INSPECT THE CONSTRUCTION SITE AT ANY TIME VIA SITE WALKS AND/OR PHOTO REVIEWS. CONTRACTOR SHALL GIVE SPRINT 24 HOURS NOTICE PRIOR TO THE COMMENCEMENT OF THE FOLLOWING CONSTRUCTION ACTIVITIES AND PHOTOGRAPHS OF THE IN-PROGRESS WORK.
1. GROUNDING SYSTEM AND BURIED UTILITIES INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS, AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS, ASPHALT PAVING, AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE AND POST CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES. PRIOR TO CONSTRUCTION ACTIVITIES AND AFTER CONSTRUCTION IS COMPLETE, PROVIDE PHOTOGRAPHIC DOCUMENTATION OF ROOF, FLASHINGS, AND PARAPETS, BOTH BEFORE AND AFTER CONSTRUCTION IS COMPLETE.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. TOWER TOP AND INACCESSIBLE EQUIPMENT (RRUS, ANTENNAS, AND CABLING): PROVIDE PHOTOS OF THE BACKS OF ALL ANTENNAS, RRUS, COMBINERS, FILTERS, FIBER AND DC CABLING, CABLE COLOR CODING, EQUIPMENT GROUNDING AND CONNECTOR WATER PROOFING INCLUDING NAME PLATE AND SERIAL NUMBER FOR ALL SERIALIZED EQUIPMENT.

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REV	DATE	DESCRIPTION	BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
3	03/30/18	REVISED PER RFDS	JCM	JKM
2	02/06/18	MOUNT MODIFICATION DESIGN	YMA	JKM
1	10/27/17	REVISED PER COMMENTS	DTS	PET
0	08/28/17	ISSUED FOR CONSTRUCTION	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	JRF	FEP

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

899 COLONEL LEDYARD RD.
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SHEET TITLE : GENERAL NOTES - 2

SHEET NUMBER : ANT-002.00

PROJECT CLOSEOUT:
A. FINAL ACCEPTANCE PUNCH WALK AND INSPECTION: AS IDENTIFIED IN THE SCOPE OF SERVICES, SPRINT WILL CONDUCT A FINAL PUNCH WALK OR FINAL DESK TOP PHOTO REVIEW (SITE MODIFICATIONS). PUNCH WALKS MUST BE SCHEDULED IN ADVANCE AS REQUIRED. AT THE PUNCH WALK / REVIEW, SPRINT MAY IDENTIFY CRITICAL DEFICIENCIES WHICH MUST BE CORRECTED PRIOR TO PUTTING SITE ON AIR. MINOR DEFICIENCIES MUST BE CORRECTED WITHIN 30 DAYS EXCEPT AS OTHERWISE REQUIRED. VERIFICATIONS OF CORRECTIONS MAY BE MADE BY COMPANY DURING A REPEAT SITE WALK OR DESK TOP PHOTO REVIEW AT COMPANY'S SOLE DISCRETION.
B. CLOSEOUT DOCUMENTATION: ALL CLOSEOUT DOCUMENTATION AND PHOTOGRAPHS SHALL BE UPLOADED PRIOR TO FINAL ACCEPTANCE. SPRINT WILL REVIEW CLOSEOUT DOCUMENTATION FOR PRESENCE AND CONTENT. CLOSEOUT DOCUMENTATION SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING AS APPLICABLE:
1. COAX SWEEP TESTS:
2. FIBER TESTS:
3. JURISDICTION FINAL INSPECTION DOCUMENTATION
4. REINFORCEMENT CERTIFICATION (MILL CERTIFICATION)
5. CONCRETE MIX DESIGN AND PRODUCT DATA (TOWER FOUNDATION)
6. LIEN WAIVERS AND RELEASES.
7. POST -CONSTRUCTION HEIGHT VERIFICATION
8. JURISDICTION CERTIFICATE OF OCCUPANCY
9. ELECTRONIC ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
10. STRUCTURAL BACKFILL TEST RESULTS (IF APPLICABLE)
11. CELL SITE UTILITY SETUP
12. AS-BUILT REDLINE CONSTRUCTION DRAWINGS (PDF SCAN OF FIELD MARKS)
13. AS-BUILT CONSTRUCTION DRAWINGS IN DWG AND PDF FORMATS
14. LIST OF SUB CONTRACTORS
15. APPROVED PERMITTING DOCUMENTS
16. FINAL SITE PHOTOS UP-LOADED TO SITERRA. INCLUDE THE FOLLOWING AS APPLICABLE:
    a. TOWER, ANTENNAS, RRUS, AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX/CABLE LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING - TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
    b. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
    c. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
    d. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

PROJECT PHOTOGRAPHS:
A. PROVIDE PROJECT CLOSEOUT GENERAL ARRANGEMENT PHOTOS OF ALL NEW WORK. THE FOLLOWING LIST REPRESENTS MINIMUM REQUIREMENTS AND MINIMUM QUANTITY. ADDITIONAL PHOTOS MAY BE REQUIRED TO ADEQUATELY DOCUMENT THE WORK.
1. ASR AND RF MPE SIGNAGE (IF NOT IN PLACE, SUPPLIER NOTIFIES EMS FIELD REPRESENTATIVE)
2. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR)
3. BACK OF ANTENNAS AND RRUS (1 EACH SECTOR) CLOSE UP SHOWING WEATHERPROOFING AND GROUNDING (AS REQUIRED). CLOSE-UP OF BACK SIDE OF EACH PERMANENT RRU SHOWING SERIAL NUMBER/BAR CODE.
4. VIEW (1 EACH SECTOR) ALONG THE AZIMUTH AND TILT OF THE ANTENNAS
5. TOP OF TOWER FROM GROUND, 1 EACH SECTOR
6. MAINLINE HYBRID CABLE ROUTE DOWN TOWER SHOWING FASTENERS AND SUPPORT
7. MAINLINE/HYBRID CABLE ROUTE ALONG ICE BRIDGE OR IN CABLE TRAY SHOWING FASTENERS AND SUPPORT
8. GROUND MOUNTED RRU RACKS (FRONT AND BACK)
9. FRONT, SIDE AND BACK ELEVATIONS OF ALL GROUND CABINETS
10. VIEW OF COMPOUND FROM A DISTANCE
11. VIEW OF EACH GROUND CABINET (POWER, RF, FIBER SPOOL, PPC POWER, PPC TELCO WITH DOOR OPEN)
12. BACKHAUL FIBER MEET-ME-POINT AND CONDUIT ROUTE (MICROWAVE INSTALLATION IF NOT FIBER)
13. AAV NETWORK INTERFACE DEVICE OR MICROWAVE RADIO INSTALLATION

DEFICIENCY CORRECTIONS:
CONTRACTOR IS RESPONSIBLE FOR ALL CORRECTIONS TO DEFICIENCIES IDENTIFIED THROUGH TESTING, REVIEW OF SUBMITTALS, INSPECTIONS AND CLOSEOUT REVIEWS.

SECTION 01 500 - PROJECT REPORTING

WEEKLY REPORTS:
A. CONTRACTOR SHALL REPORT TO SPRINT AT MINIMUM ON A WEEKLY BASIS VIA SITERRA BY UPDATING ALL APPLICABLE POST END KEEPING MILESTONES WITH ACTUAL AND FORECASTED COMPLETION DATES.
B. ADDITIONAL REQUIREMENTS FOR REPORTING MAY BE IDENTIFIED ELSEWHERE OR REQUIRED BY THE SCOPE OF SERVICES OR SPRINTS LOCAL MARKET CONSTRUCTION MANAGER. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.
PROJECT CONFERENCE CALLS:
SPRINT MAY HOLD PERIODIC PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.
FINAL PROJECT ACCEPTANCE: PRIOR TO SPRINTS FINAL PROJECT ACCEPTANCE. ALL REQUIRED MILESTONE ACTUALS MUST BE UPDATED IN SITERRA AND ALL REQUIRED REPORTING TASKS MUST BE COMPLETE.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION

SUMMARY:
THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRU'S:
THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:
HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

JUMPERS AND CONNECTORS:
FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MIN. LENGTH FOR JUMPER SHALL BE 10'-0".

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:
INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:
THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.
A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.
B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLE INSTALLATION:
A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.
C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT GRIPS AS REQUIRED BY THE MANUFACTURER.
2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
    a. FIBER: SUPPORT FIBER BUNDLES USING 1/2 " VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
    b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
4. CABLE INSTALLATION:
    a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
    b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
    c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.
5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 (CURRENT VERSION).
7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:
A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2 " WIDE ELECTRICAL TAPE EXTENDING 2 " BEYOND THE SELF-AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT

SUMMARY:
A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).
B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRED BY THE APPLICABLE INSTALLATION MOPS.
C. COMPLY WITH MANUFACTURER'S INSTALLATION AND START-UP REQUIREMENTS.

DC CIRCUIT BREAKER LABELING
A. NEW DC CIRCUIT IS REQUIRED IN MMBS CABINET SHALL BE CLEARLY IDENTIFIED AS TO RRU BEING SERVICED.

SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS

SUMMARY:
THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS

QUALITY ASSURANCE:
A. ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.
B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.
C. MATERIALS AND EQUIPMENT: ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS.

SUPPORTING DEVICES:
A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
1. ALLIED TUBE AND CONDUIT.
2. B-LINE SYSTEM.
3. UNISTRUT DIVERSIFIED PRODUCTS.
4. THOMAS & BETTS.
B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

SUPPORTING DEVICES:
A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.
B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.
C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS. FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
1. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.
2. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:
A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.
B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.
B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.
C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.
D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.
E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.
F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:
A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.
B. CABLE TERMINATION FITTINGS FOR CONDUIT
1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROXTEC.
2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.
C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.
D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKET COVERS, OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.
E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM:
A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPT AS OTHERWISE NOTED.
B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO-OX.
C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:
A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:
A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES 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 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.
B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

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SCALE: AS SHOWN
JOB NUMBER: 17924004A

REV	DATE	DESCRIPTION	BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
3	03/30/18	REVISED PER RFDS	JCM	JKM
2	02/06/18	MOUNT MODIFICATION DESIGN	YMA	JKM
1	10/27/17	REVISED PER COMMENTS	DTS	PET
0	08/28/17	ISSUED FOR CONSTRUCTION	DTS	FEP
A	08/03/17	ISSUED FOR COMMENT	JRF	FEP

STATE OF CONNECTICUT — PETROS E. TSOUKALAS — LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER / LICENSE NUMBER: PEN.32507

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

899 COLONEL LEDYARD RD.
LEDYARD, CT 06339

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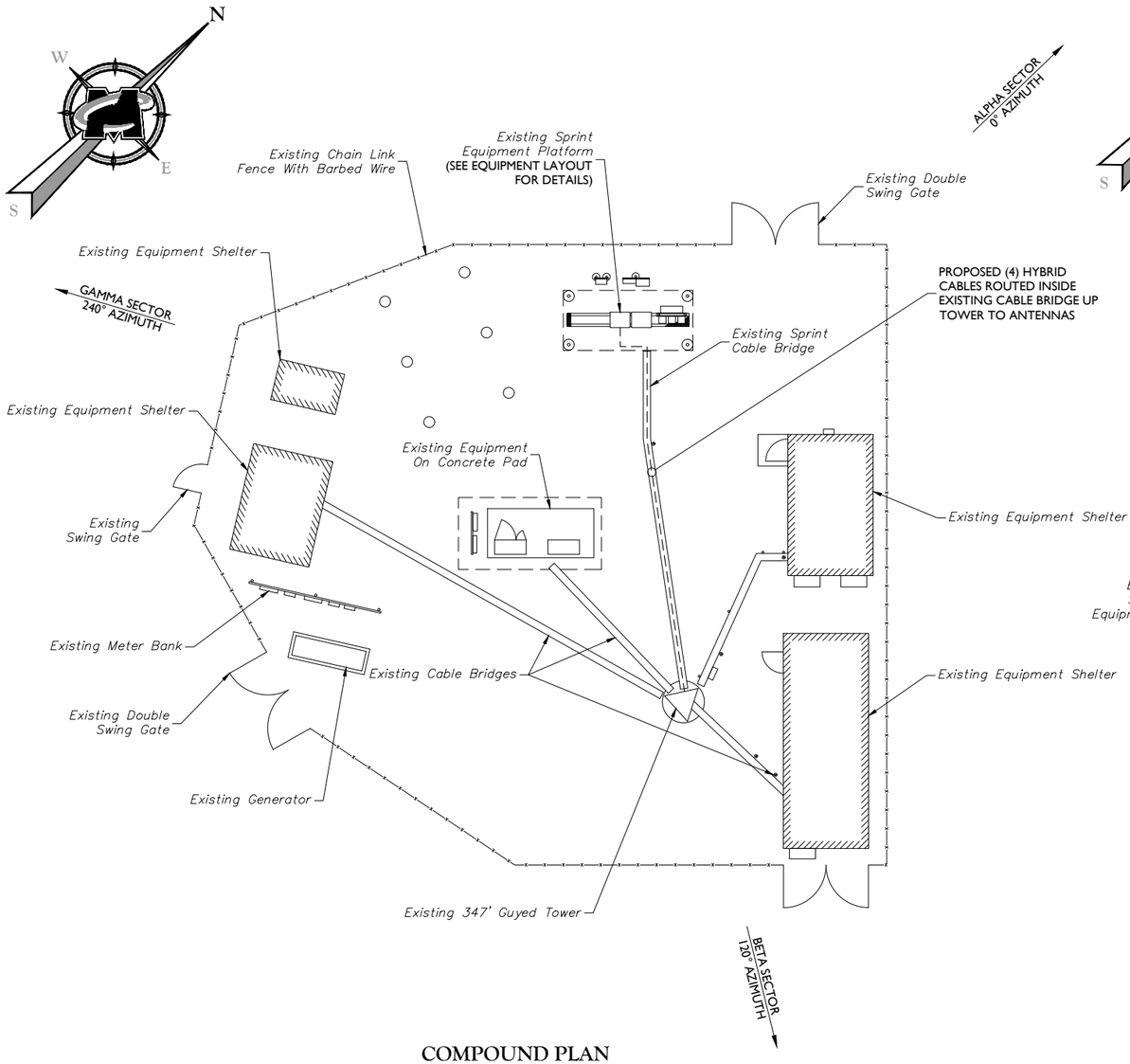
SHEET TITLE: GENERAL NOTES - 3

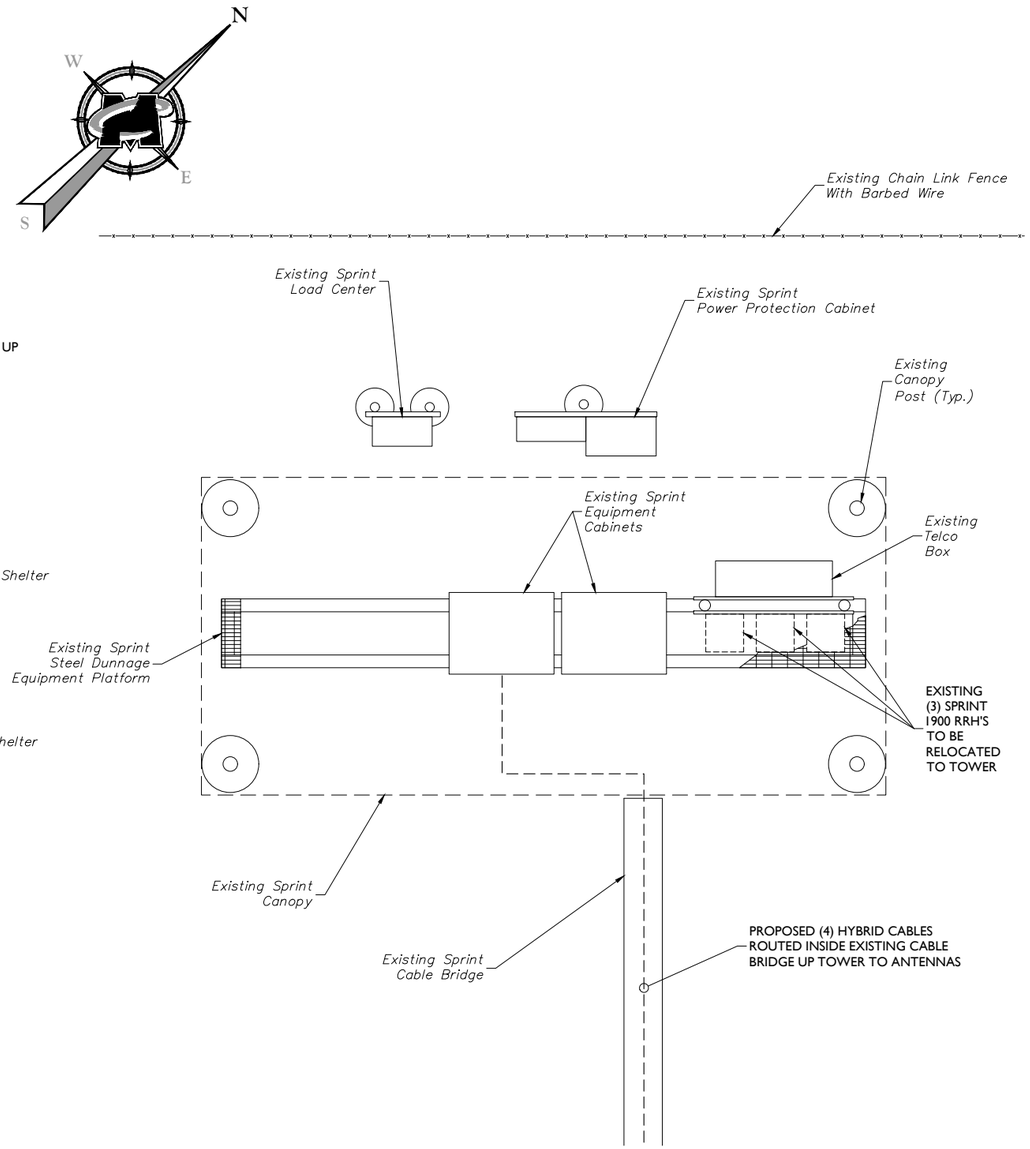
SHEET NUMBER: ANT-003.00



COMPOUND PLAN

10 8 6 4 2 0 5 10 20

SCALE : 1" = 10'
(DO NOT SCALE 11"X17" DRAWINGS)



EQUIPMENT LAYOUT

2 1.6 1.2 0.8 0.4 0 1 2 4

SCALE : 1" = 2'
(DO NOT SCALE 11"X17" DRAWINGS)

LEGEND

LIGHT LINE WORK INDICATES EXISTING OBJECTS
HEAVY LINE WORK INDICATED PROPOSED OBJECTS

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AS SHOWN	17924004A

REV	DATE	DESCRIPTION	BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
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0	08/28/17	ISSUED FOR [illegible]	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	JRF	FEP

STATE OF CONNECTICUT
PETROS E. TSOUKALAS
LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32497

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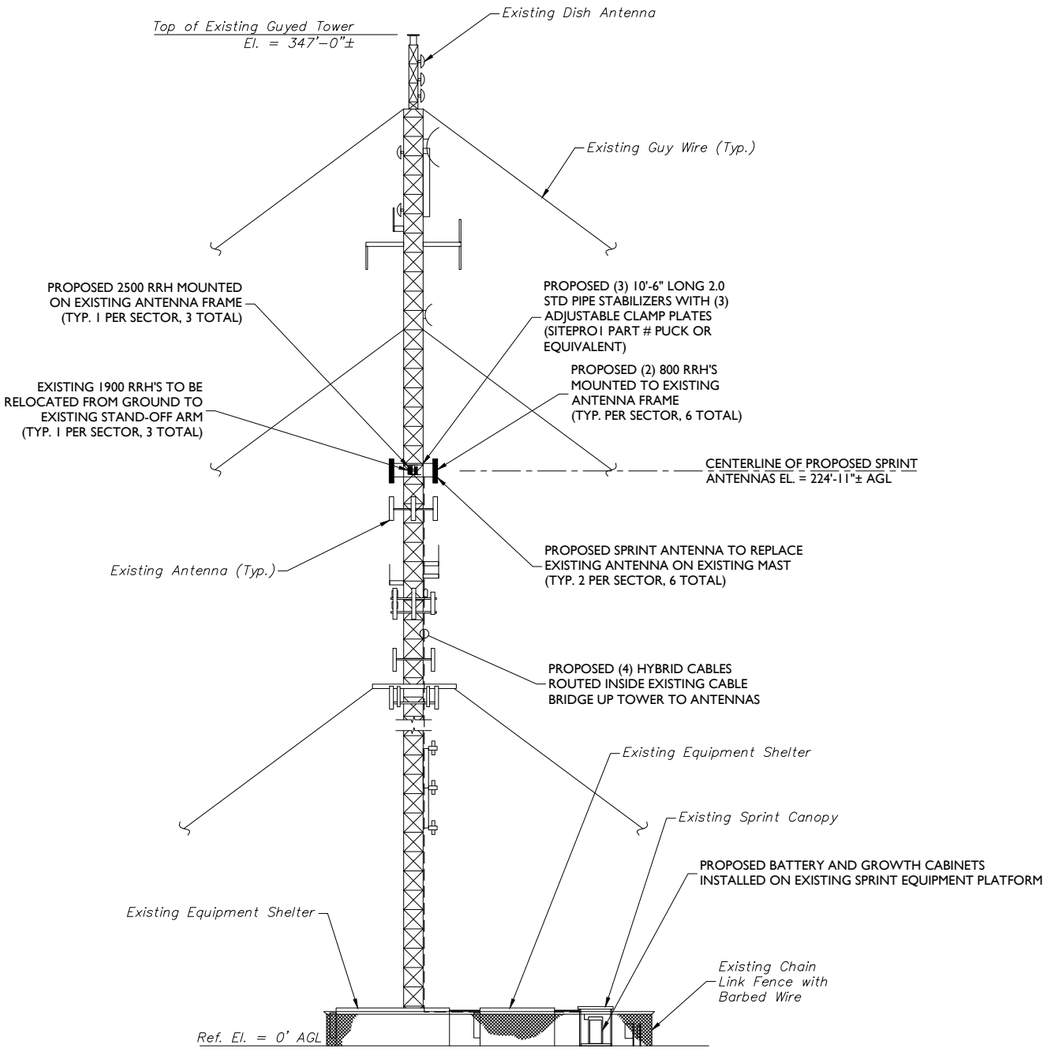
SHEET TITLE :
COMPOUND PLAN AND EQUIPMENT LAYOUT

SHEET NUMBER :
ANT-004.00



TOWER ELEVATION (LOOKING SOUTHWEST)

SCALE: 1" = 10'

LEGEND

LIGHT LINE WORK INDICATES EXISTING OBJECTS

HEAVY LINE WORK INDICATED PROPOSED OBJECTS

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SCALE :	JOB NUMBER :
AS SHOWN	17924004A

REV	DATE	DESCRIPTION	BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
3	03/30/18	REVISED PER RFDS	JCM	JKM
2	02/06/18	MOUNT MODIFICATION DESIGN	YMA	JKM
1	10/27/17	REVISED PER COMMENTS	DTS	PET
0	08/28/17	ISSUED FOR COMMENTS	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	JRF	FEP

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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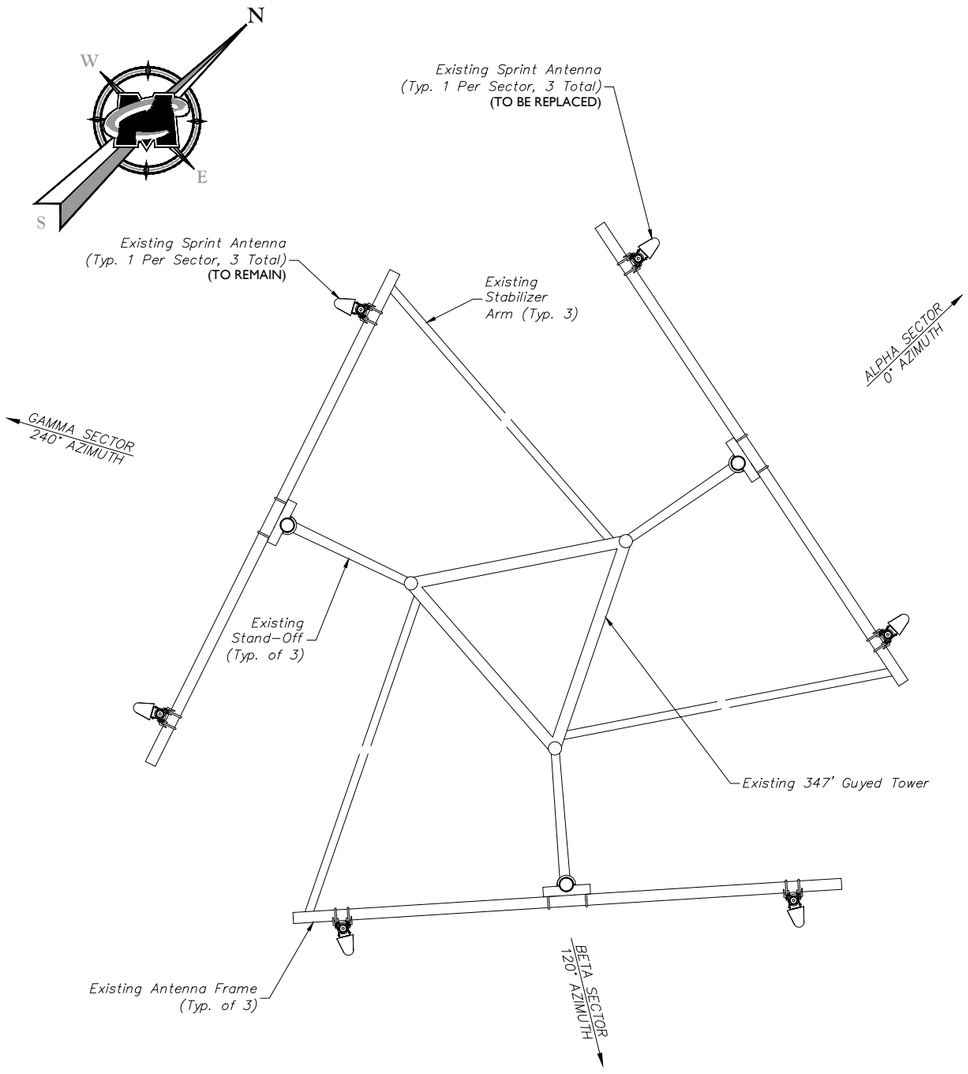
SHEET TITLE :

ELEVATION

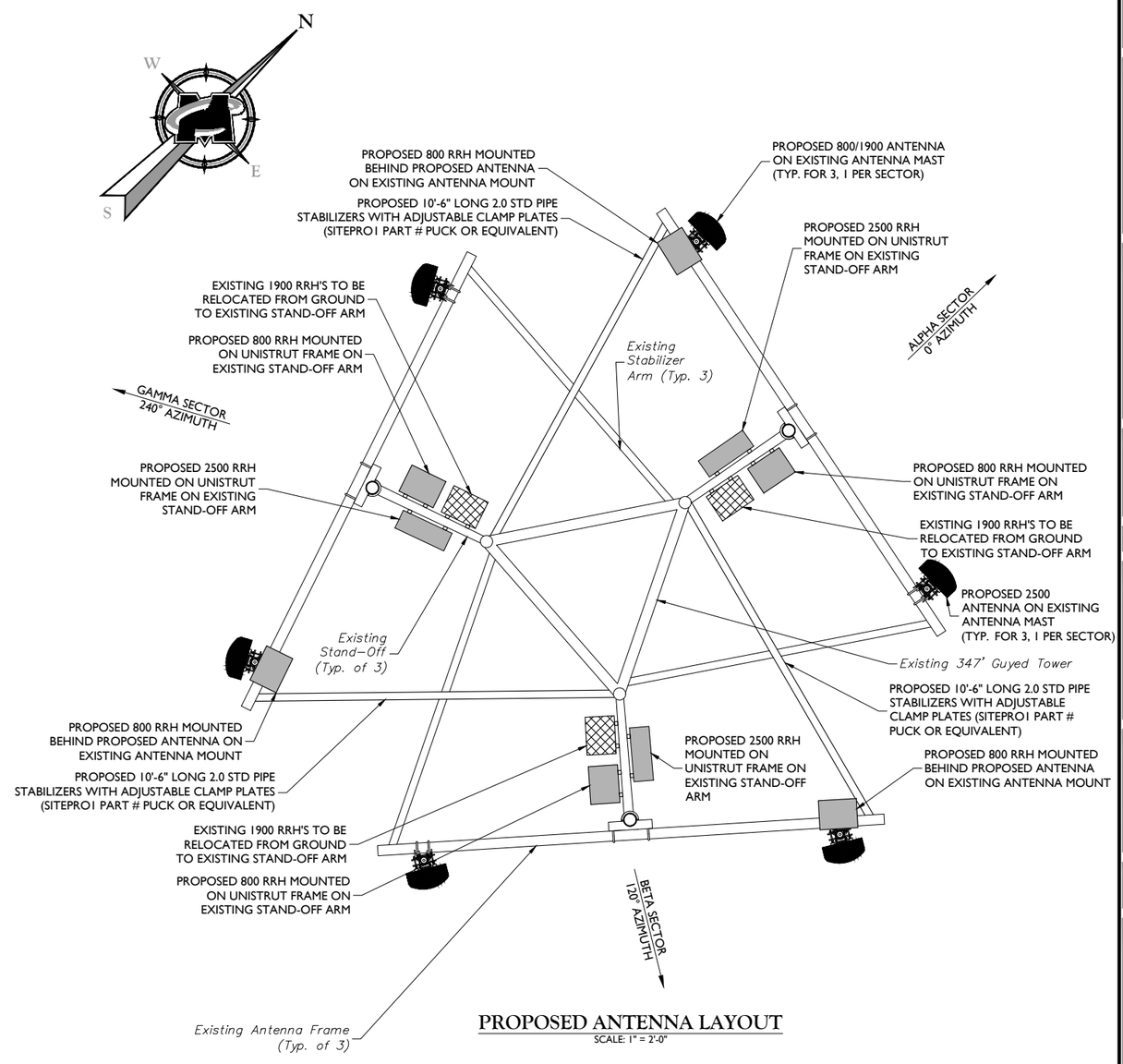
SHEET NUMBER :

ANT-005.00



EXISTING ANTENNA LAYOUT

SCALE: 1" = 2'-0"



PROPOSED ANTENNA LAYOUT

SCALE: 1" = 2'-0"

NOTE:
PROPOSED ANTENNA INSTALLATION MUST MEET SPRINT GUIDELINES FOR SPACING. CONTRACTOR TO VERIFY IN FIELD.

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STATE OF CONNECTICUT
PETROS E. TSOUKALAS
LICENSED PROFESSIONAL ENGINEER
PETROS E. TSOUKALAS
CONNECTICUT STATE LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32477

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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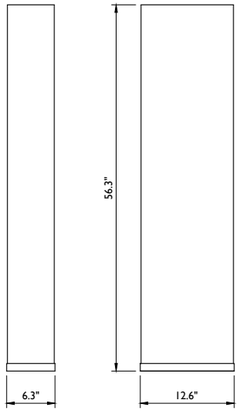
SHEET TITLE:
ANTENNA
ORIENTATION PLANS

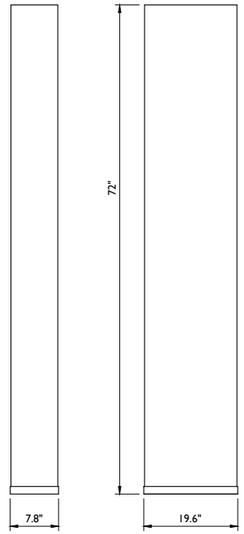
SHEET NUMBER:
ANT-006.00



WEIGHT = 56.2 LBS

RFS APXVTM14-ALU-I20

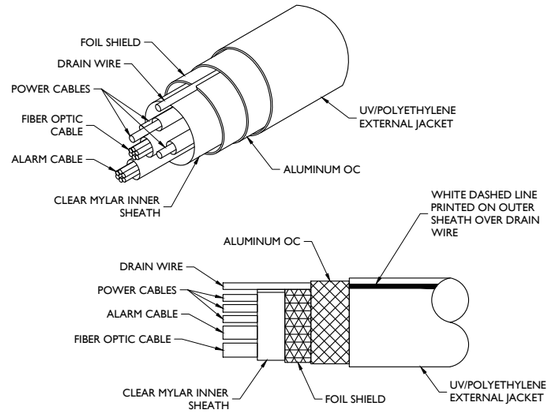
ANTENNA DETAIL
NOT TO SCALE



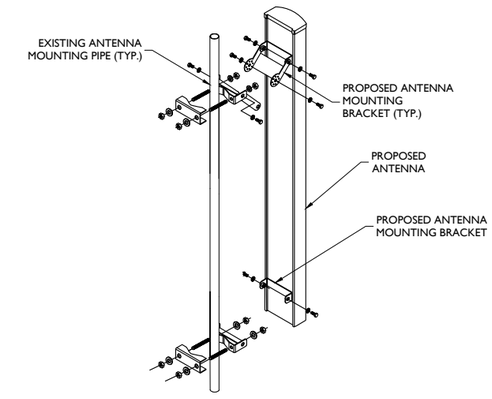
WEIGHT = 56 LBS

COMMSCOPE NNVV-65B-R4

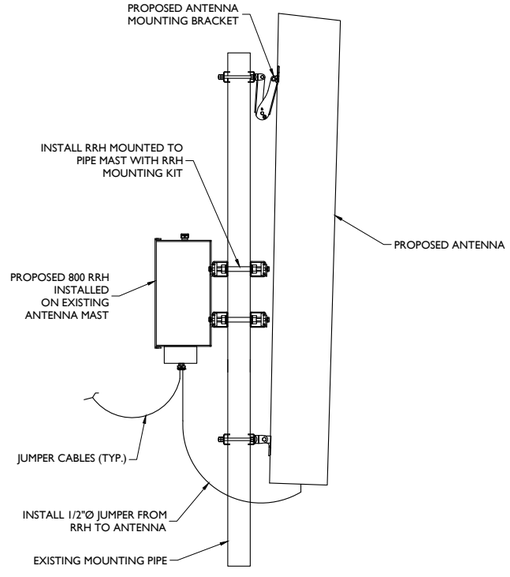
ANTENNA DETAIL
NOT TO SCALE



HYBRID CABLE
NOT TO SCALE



ANTENNA MOUNTING DETAIL
NOT TO SCALE



ANTENNA AND RRH MOUNTING DETAIL
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0	08/28/17	ISSUED FOR COMMENT	DTS	FEP
A	08/03/17	ISSUED FOR RFDS	JRF	FEP

STATE OF CONNECTICUT — PETROS E. TSOUKALAS — LICENSED — ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32507

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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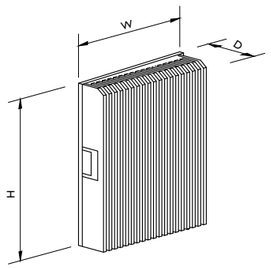
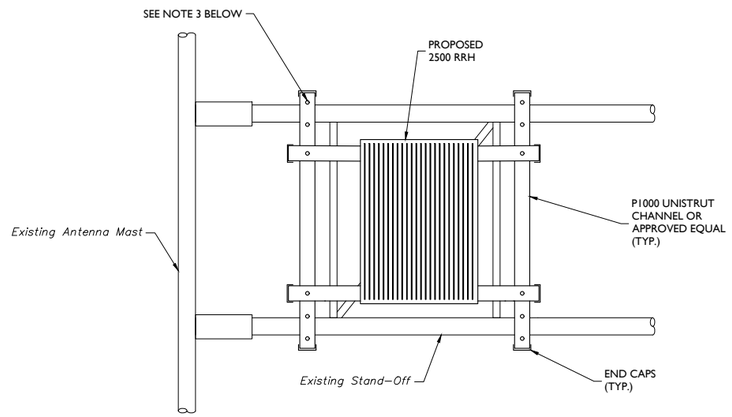
SHEET TITLE :
DETAILS - 1

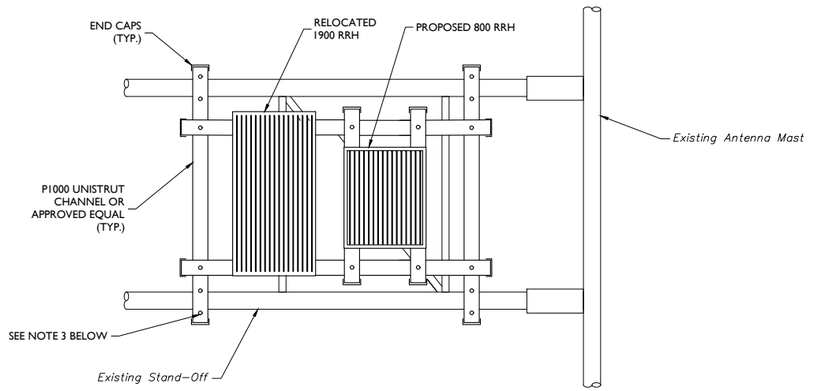
SHEET NUMBER :
ANT-007.00



MODEL:	HEIGHT (H)	WIDTH (W)	DEPTH (D)	WEIGHT	STATUS
ALU TD-RRH8x20-25	26"	18.6"	6.7"	76.2 LBS	PROPOSED
ALU RRH-4x45-1900	25"	12"	12"	69.5 LBS	RELOCATED
ALU RRH-2x50-800	16"	13"	10"	69.1 LBS	PROPOSED

RRH SPECIFICATIONS
NOT TO SCALE





NOTES:

1. SPRINT SUPPLIES THE RRH. SUBCONTRACTOR SHALL SUPPLY ALL OTHER MATERIALS AND INSTALL ALL MOUNTING HARDWARE. ALU INSTALLS RRH AND MAKES CABLE TERMINATIONS.
2. A SUPPORT FRAME FOR ANY EQUIPMENT SHALL BE INSTALLED ON A MINIMUM OF TWO HORIZONTAL UNISTRUTS THAT ENGAGE A MINIMUM OF TWO VERTICAL PIPE MASTS (MAXIMUM 4'-6" CLEAR SPAN). INSTALL VERTICAL UNISTRUT CHANNELS AS REQUIRED TO ALIGN FRAME WITH EQUIPMENT MOUNTING HOLES. FASTEN UNISTRUT CHANNELS TOGETHER WITH 3/8" UNISTRUT BOLTING HARDWARE AND SPRING NUTS.
3. EACH UNISTRUT TO BE MOUNTED TO EXISTING STAND-OFF ARM USING 1/2"Ø U-BOLTS.
4. MOUNT RRH TO UNISTRUT WITH 3/8"Ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET. SUBCONTRACTOR SHALL SUPPLY.

REMOTE RADIO HEAD (RRH) MOUNTING DETAIL
NOT TO SCALE

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1	10/27/17	REVISED PER COMMENTS	DTS	PET
0	08/28/17	ISSUED FOR CONSTRUCTION	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	DTS	FEP

STATE OF CONNECTICUT — PETROS L. TSOUKALAS — LICENSED PROFESSIONAL ENGINEER

PETROS L. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32477

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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SHEET TITLE :
DETAILS - 2

SHEET NUMBER :
ANT-008.00

1. ACTUAL CABLE LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR.
2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.
4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G., OUTDOORS, INDOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
5. HARDLINE AND JUMPER CABLES SHALL BE SUPPORTED WITH HANGERS AND AT INTERVALS AS REQUIRED BY THE MANUFACTURER FOR 125 mph WIND SPEED AND EXPECTED ICE CONDITIONS. FOR SITES WITH TOWER HEIGHT OVER 300' OR ARE LOCATED IN THE EXTREME WEATHER/OPERATION AREAS, THE WORST CASE SCENARIO FOR 150 mph WIND SPEED AND 1" ICE CONDITION SHOULD BE APPLIED. ALL CABLES SHOULD BE SUPPORTED AT HALF THE DISTANCE OF THE MAXIMUM HANGER SPACING FROM THE CABLE CONNECTOR LOCATION TO THE 1ST HANGER. MANUFACTURER RECOMMENDED CABLE SUPPORT ACCESSORIES SHALL BE USED. PLASTIC CABLE TIES ARE NOT ACCEPTABLE. HANGER STACKING LIMIT SHOULD ALSO REFER TO VENDOR'S RECOMMENDATION.
6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM THE BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.
9. CONNECTORS IN INDOOR APPLICATIONS REQUIRE NO WEATHERPROOFING. OUTDOOR APPLICATIONS REQUIRE WEATHERPROOFING AND THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED:

   RE-ENTERABLE AND RE-SEALABLE PLASTIC ENCLOSURE APPROVED BY CABLE MANUFACTURER AND CONTRACTOR IS RECOMMENDED METHOD TO WEATHERPROOF CONNECTORS.

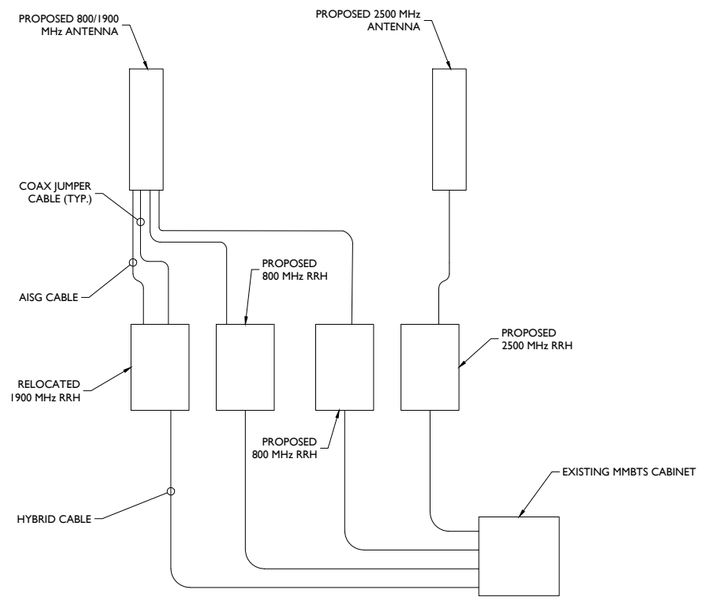
   ALSO ACCEPTABLE IS THE USE OF BUTYL RUBBER WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURE AND CONTRACTOR. START BUTYL RUBBER TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER TWO INCHES. FINISH WITH TWO LAYERS OF VINYL TAPE. COLD SHRINK IS STRICTLY PROHIBITED. SELF-BONDING, AMALGAMATING TAPE MAYBE USED AS AN ALTERNATIVE TO BUTYL RUBBER TAPE.
10. ANTENNAS SHALL BE PAINTED, WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACE PREPARATION AND PAINTING REQUIREMENTS.
11. CABLE SHIELDS, AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER, WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF TOWERS THAT ARE BETWEEN 100 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 100 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.
12. APPROVED GROUNDING KITS, WHICH INCLUDE GROUNDING STRAPS, SHALL BE USED TO GROUND THE COAXIAL CABLE SHIELDS, AND CONDUITS. THE GROUND CONDUCTORS FOR THE KITS AT THE TOP OF THE TOWER, AND IN THE MIDDLE SECTION OF THE TOWER, ARE BONDED DIRECTLY TO TOWER STEEL USING BOLTED, OR APPROVED CLAMP CONNECTIONS. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
13. ALL RADIO SIGNAL CABLE SHALL BE LABELED AND COLOR CODED PER MARKET REQUIREMENTS.
14. ANTENNA FEED LINE SYSTEM SWEEP TESTING SHALL BE PERFORMED AND REPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF PROJECT SPECIFICATIONS. CONTRACTOR WILL NOT ACCEPT A RADIO SIGNAL CABLE INSTALLATION WITH UNSATISFACTORY SWEEP TEST RESULTS.
15. PIM TESTS SHALL BE PERFORMED ON NEW AND MOVED OR MODIFIED COAXIAL CABLE INSTALLATIONS. TEST SHALL BE PERFORMED AND REPORTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
16. DC CONNECTORS AT OUTDOOR BIAS-Ts OR DIPLEXER/TRIPLEXER PORTS SHALL BE WEATHERPROOFED PER MANUFACTURER RECOMMENDATIONS.
17. AISG CONNECTIONS DO NOT REQUIRE ADDITIONAL WEATHERPROOFING UNLESS RECOMMENDED BY MANUFACTURER OR BY MARKET REQUIREMENTS.
18. INSTALL ONLY STANDARD RF JUMPER CABLES (e.g. LDF4 OR LCF12) AT TOWER-TOP APPLICATIONS. FLEXIBLE RF CABLES (e.g. FSJ4 OR SCF12) SHALL NOT BE USED.
19. CABLES AND CONNECTORS MUST BE PREPARED AND INSTALLED USING THE TOOLS RECOMMENDED BY THE COAXIAL CABLE MANUFACTURER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE CORRECT TOOLS ARE USED FOR THE SIZE AND TYPE OF COAX AND CONNECTOR. ALL ASPECTS OF INSTALLATION OF ALL COAXIAL CABLE SHALL FOLLOW THE CABLE MANUFACTURER'S RECOMMENDATIONS, INCLUDING THOSE FOR PULLING, MOUNTING AND GROUNDING.

PROPOSED ANTENNA CONFIGURATION

SECTOR		PROPOSED ANTENNA	TECH.	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV (ft.)	ELECTRICAL DOWNTILT	MECHANICAL DOWNTILT
ALPHA	A1	RFS APXVTM14-ALU-I20	2500	REPLACED	56.3	12.6	6.3	56.2	30°	225'	2°	0°
	A2	COMMSCOPE NNVV-65B-R4	800/1900	REPLACED	72	19.6	7.8	84.7	30°	225'	3°	0°
GAMMA	B1	RFS APXVTM14-ALU-I20	2500	REPLACED	56.3	12.6	6.3	56.2	150°	225'	2°	0°
	B2	COMMSCOPE NNVV-65B-R4	800/1900	REPLACED	72	19.6	7.8	84.7	150°	225'	3°	0°
BETA	C1	RFS APXVTM14-ALU-I20	2500	REPLACED	56.3	12.6	6.3	56.2	270°	225'	2°	0°
	C2	COMMSCOPE NNVV-65B-R4	800/1900	REPLACED	72	19.6	7.8	84.7	270°	225'	3°	0°

BILL OF MATERIALS

NUMBER	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL NUMBER
1	3	PANEL ANTENNA	RFS	APXVTM14-ALU-I20
2	3	PANEL ANTENNA	COMMSCOPE	NNVV-65B-R4
3	3	2500MHZ RRH	ALU	TD-RRH8X20-25
4	6	800MHZ RRH	ALU	RRH-2X50-800
5	1000 LF	1-1/4"Ø HYBRID FIBER RISER	ALU	TBD
6	48	1/2"Ø JUMPER CABLE (8' LONG)	TBD	
7	3	10'-6" LONG 2.0 STD PIPE STABILIZER	TBD	TBD
8	3	ADJUSTABLE CLAMP PLATE ASSEMBLY	SITEPRO1	PUCK



ANTENNA WIRING DIAGRAM

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STATE OF CONNECTICUT — PETROS L. TSOUKALAS — LICENSED ENGINEER

PETROS L. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32502

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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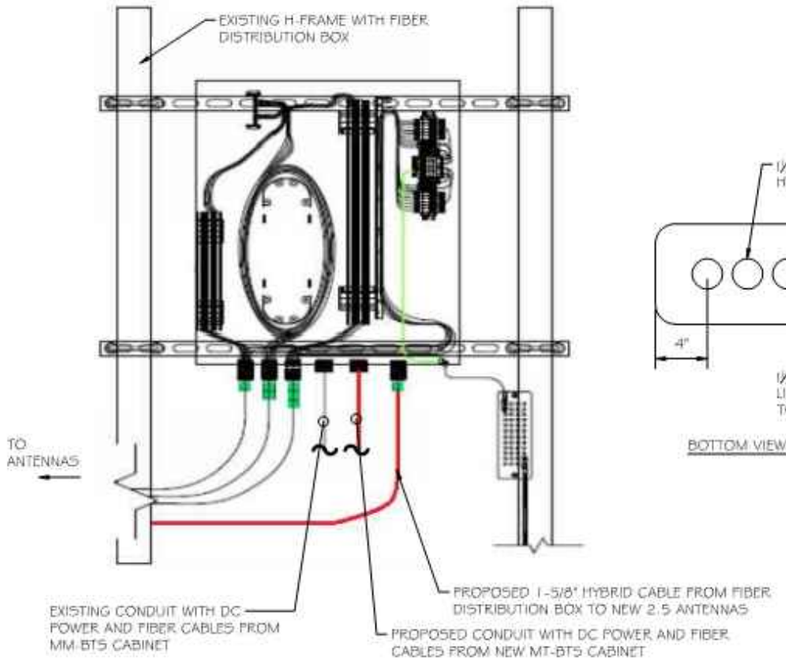
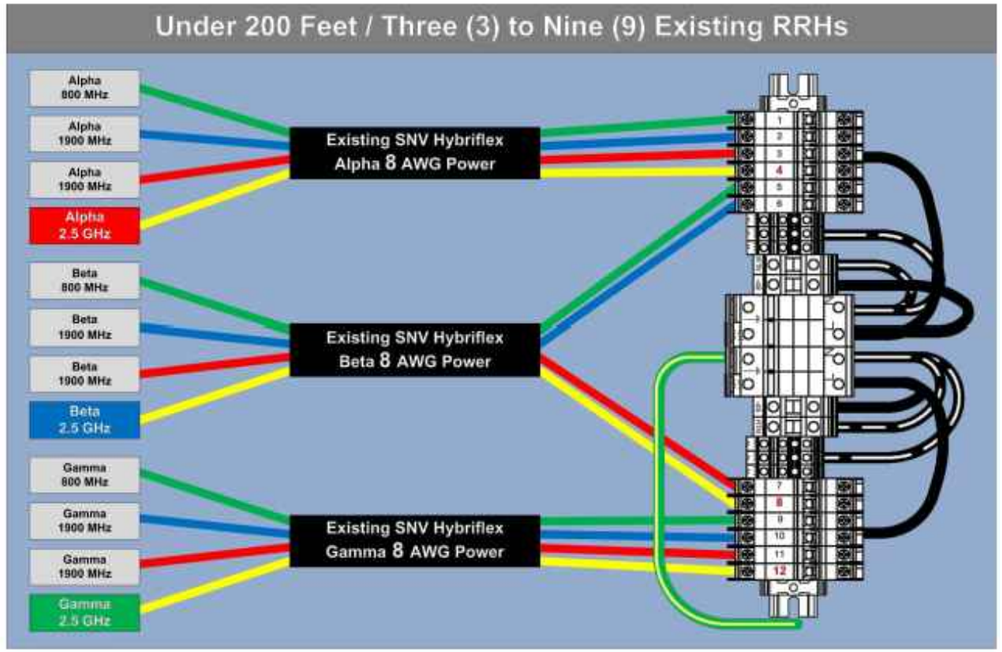
SHEET TITLE :
ANTENNA SCHEDULE, WIRING DIAGRAM, BILL OF MATERIALS AND NOTES

SHEET NUMBER :
ANT-009.00



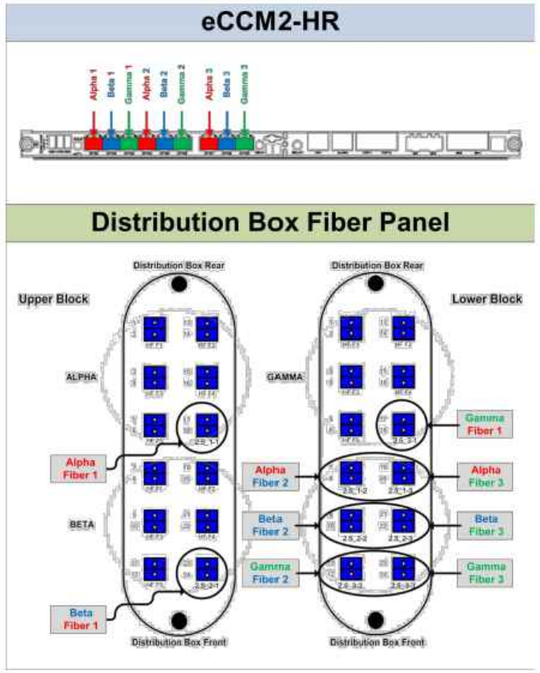
TYPICAL FIBER DISTRIBUTION BOX DETAIL

NOT TO SCALE



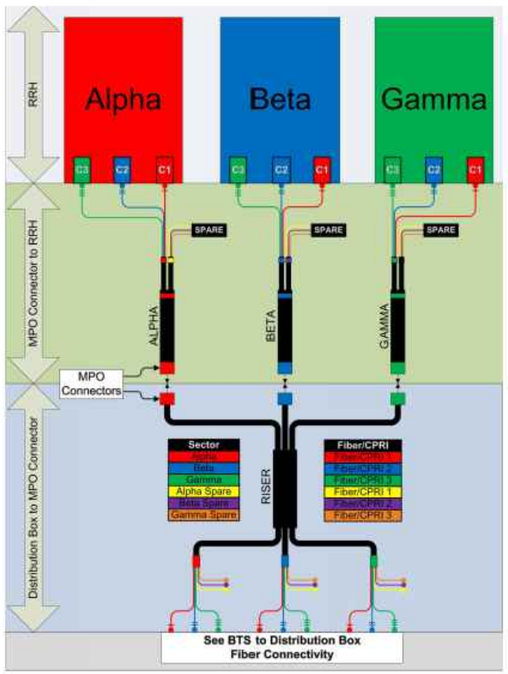
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY DETAIL

NOT TO SCALE



BTS TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL

NOT TO SCALE



RRH TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL

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0	08/28/17	ISSUED FOR COMMENT	DTS	FEP
A	08/03/17	ISSUED FOR RFDS	JRF	FEP

STATE OF CONNECTICUT — PETROS E. TSOUKALAS — LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.32547

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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SHEET TITLE :
FIBER PLUMBING DIAGRAMS - 1

SHEET NUMBER :
ANT-010.00

Prepared By	Revision Date	Revision Number
Mark Elliott	March 13, 2018	R1
Approved By	**Approval Date**	
RAN Hardware & Antenna Teams	Final-Macro Generated	

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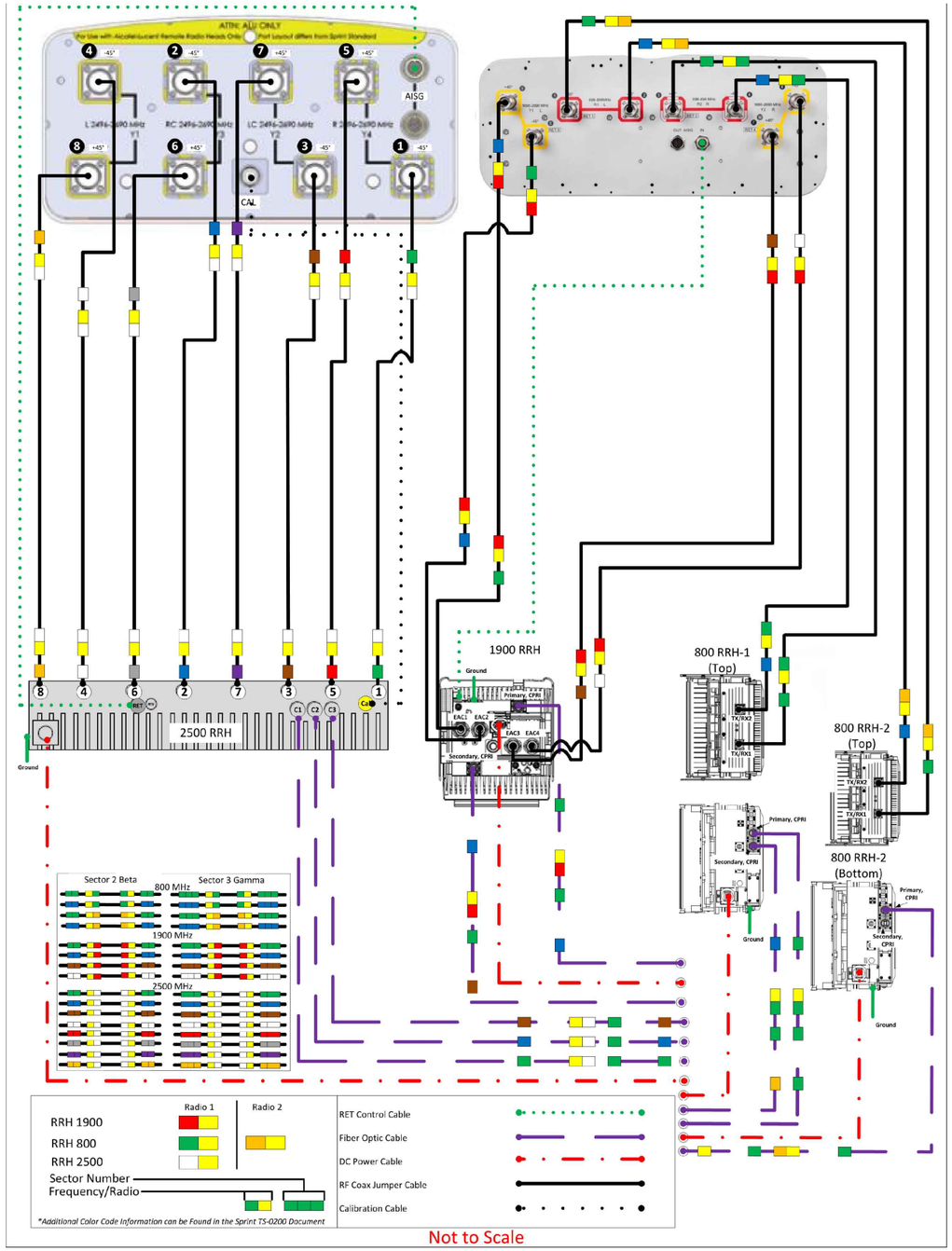
ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



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4	04/06/18	REVISED PER COMMENTS	JRF	JKM
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0	08/28/17	ISSUED FOR COMMENT	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	JRF	FEP

STATE OF CONNECTICUT
PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: PEN.32570
LICENSED PROFESSIONAL ENGINEER

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SHEET TITLE :
FIBER PLUMBING DIAGRAMS - 2

SHEET NUMBER :
ANT-011.00

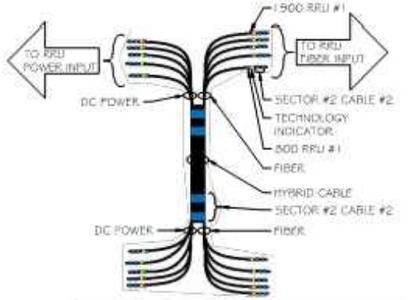
CABLE MARKING NOTES

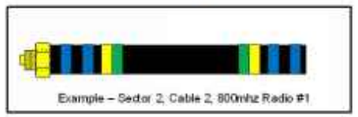
1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
4. THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE SECOND CABLE IDENTIFIED BY BLUE BANDS OF TAPE
6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABEL

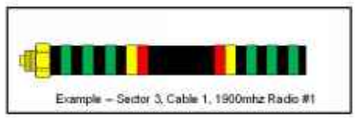
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

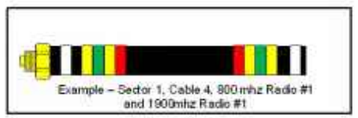
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange









COLOR CODING CHARTS
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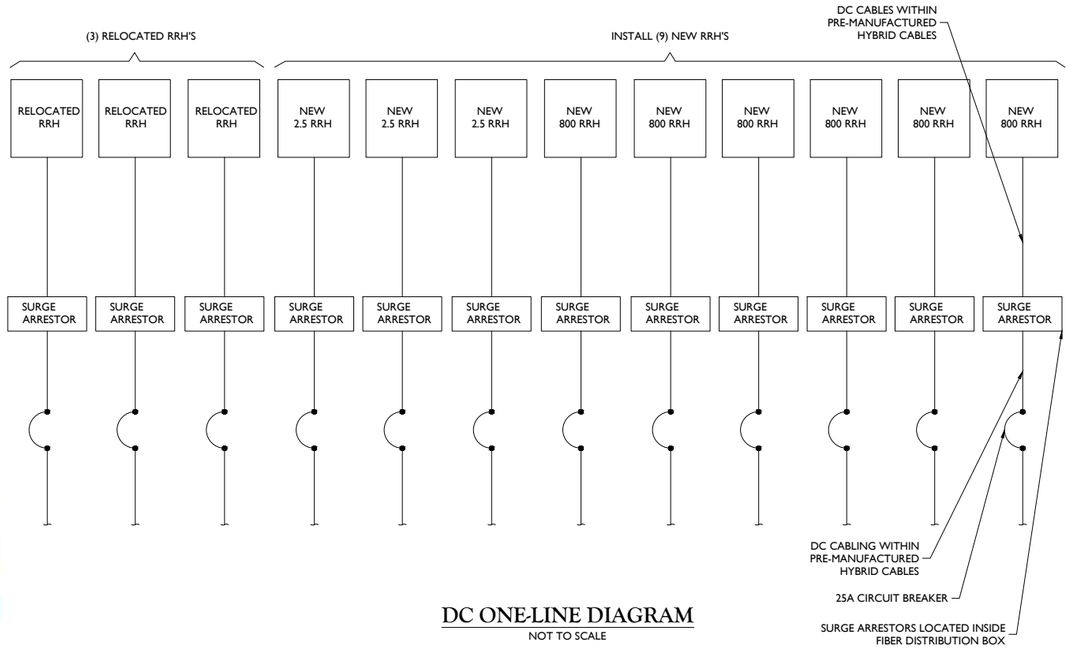
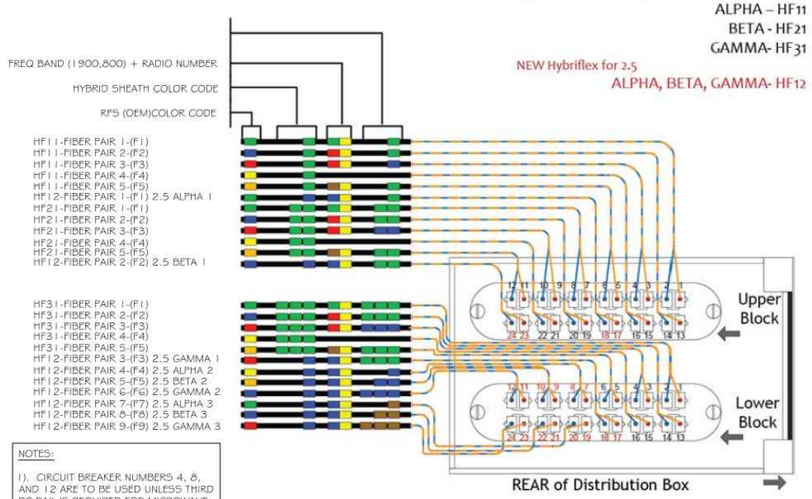


DC ONE-LINE DIAGRAM
NOT TO SCALE

Each sector has separate Hybriflex cable .
Hybriflex cable naming as follows:
ALPHA – HF11
BETA - HF21
GAMMA- HF31
NEW Hybriflex for 2.5
ALPHA, BETA, GAMMA- HF12



NOTES:
1). CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
2). USE DC POWER LOOP.
3). ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
4). REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

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STATE OF CONNECTICUT — PETROS E. TSOUKALAS — LICENSED PROFESSIONAL ENGINEER — 32677 — REGISTERED

PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEM.32677

SITE NAME: UNCASVILLE
SITE ID: CT23XC506

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SHEET TITLE: CABLE COLOR CODING, DC POWER DETAILS & PANEL SCHEDULES

SHEET NUMBER: ANT-012.00

GENERAL REQUIREMENTS:

1. THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BY NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
2. ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE 2011 EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK.
3. THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
4. ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
5. THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
6. CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS BY OTHER TRADES.
7. PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
8. KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
9. ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
10. THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS. REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
11. THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
12. ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
13. BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY ACQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR. EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD NOT HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
14. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
15. UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
16. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
17. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRI9OR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
18. EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
19. IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER. LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.
20. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
21. DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLIMENT AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
22. ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
23. ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
24. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING, AND BACKFILL AS REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 36" BELOW FINISHED GRADE.

PROJECT COORDINATION:

1. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
2. THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
3. THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
4. SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONCE A MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
5. ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
6. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. TEMPORARY SHUT DOWNS OF ANY SYSTEMS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER AND ARCHITECT.

PROTECTION OF WORK:

1. EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

WARRANTIES AND BONDS:

1. ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
2. OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

PERMITS:

1. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

RACEWAYS:

1. ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE GRC (GALVANIZED RIGID METAL CONDUIT). ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE RNC (RIGID NONMETALLIC CONDUIT). CHANGE RIGID METALLIC CONDUIT FOR INTERMEDIATE METALLIC CONDUIT BEFORE EXITING OUT OF CONCRETE OR PENETRATING A WALL, FLOOR OR ROOF. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
2. ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
3. CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
4. ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
5. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
6. ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
7. FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1 1/4" AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
8. THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
9. EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.

WIRING:

1. ALL WIRE SHALL BE COPPER WITH TYPE THNN/THWN 600 VOLT INSULATION, MINIMUM #12 AWG FOR POWER AND LIGHTING CIRCUITS AND #16 AWG FOR CONTROL CIRCUITS.
2. UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
3. ALL COMPUTER CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. ALL OTHER CIRCUITS MAY SHARE GROUND AND NEUTRAL CONDUCTORS.
4. WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITING REQUIREMENTS SHALL BE AS FOLLOWS.
5. CONTRACTOR SHALL INCREASE SIZE OF CIRCUIT WIRING/CONDUCTORS TO COMPENSATE FOR VOLTAGE DROP.
6. WIRE SIZES SHALL BE INCREASED TO COMPENSATE FOR VOLTAGE DROP AS FOLLOWS:

GROUNDING:

1. PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250, OF THE NEC, AND AS SPECIFIED HEREIN.
2. ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.
3. THE EQUIPMENT BONDING JUMPER SHALL BE PERMITTED TO BE INSTALLED INSIDE OR OUTSIDE OF A RACEWAY OR ENCLOSURE. WHERE INSTALLED ON OUTSIDE, THE LENGTH OF THE EQUIPMENT BONDING JUMPER SHALL NOT EXCEED 6 FEET AND SHALL BE ROUTED WITH THE RACEWAY OR ENCLOSURE. REFER TO NEC 2011 - 250.102 (E)
4. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
5. ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
6. GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
7. GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDE SCREW SET). CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
8. GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURERS' GROUNDING KITS.
9. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
10. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
11. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
12. EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
13. CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO CARRIER'S CONSTRUCTION MANAGER.
14. ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2/0 TINNED. ALL EXTERIOR GROUND BARS TINNED COPPER.
15. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.) PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
16. ENGAGE IN INDEPENDENTLY ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY CARRIER REPRESENTATIVE, AND RECORDED ON CARRIER'S "GROUND RESISTANCE TEST" FORM.
17. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
18. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
19. ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING THE BGR SHALL BE BONDED TO THE NEAREST FENCE POST USING (2) RUNS OF #2 BARE TINNED COPPER WIRE.

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SCALE:	JOB NUMBER:
AS SHOWN	17924004A

REV	DATE	DESCRIPTION	BY	CHECKED BY
4	04/06/18	REVISED PER COMMENTS	JRF	JKM
3	03/30/18	REVISED PER RFDS	JCM	JKM
2	02/06/18	MOUNT MODIFICATION DESIGN	YMA	JKM
1	10/27/17	REVISED PER COMMENTS	DTS	PET
0	08/28/17	ISSUED FOR COMMENTS	DTS	FEP
A	08/03/17	ISSUED FOR REVIEW	JRF	FEP

STATE OF CONNECTICUT
PETROS E. TSOUKALAS
CONNECTICUT LICENSED PROFESSIONAL ENGINEER, LICENSE NUMBER: PEN.25047
LICENSED PROFESSIONAL ENGINEER

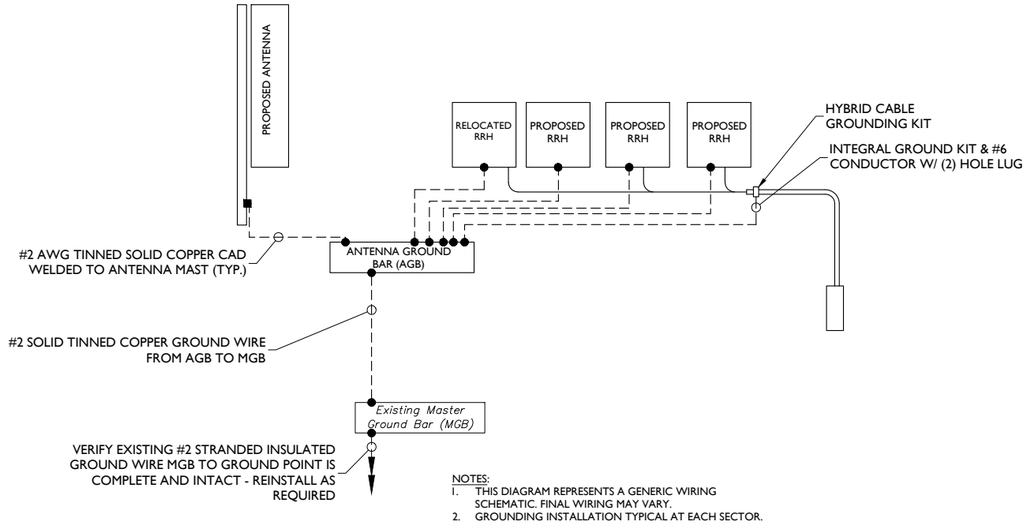
SITE NAME: UNCASVILLE
SITE ID: CT23XC506

899 COLONEL LEDYARD RD.
LEDYARD, CT 06339

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984

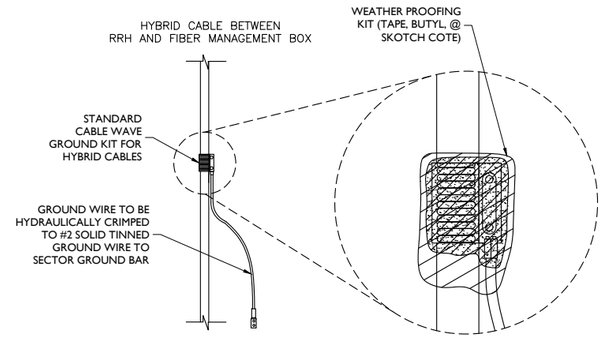
SHEET TITLE:
ELECTRICAL AND GROUNDING NOTES

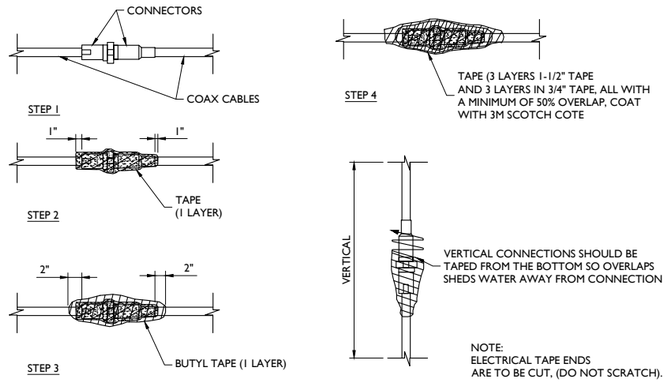
SHEET NUMBER:
ANT-013.00



NOTES:
1. THIS DIAGRAM REPRESENTS A GENERIC WIRING SCHEMATIC. FINAL WIRING MAY VARY.
2. GROUNDING INSTALLATION TYPICAL AT EACH SECTOR.

GROUNDING SCHEMATIC
NOT TO SCALE



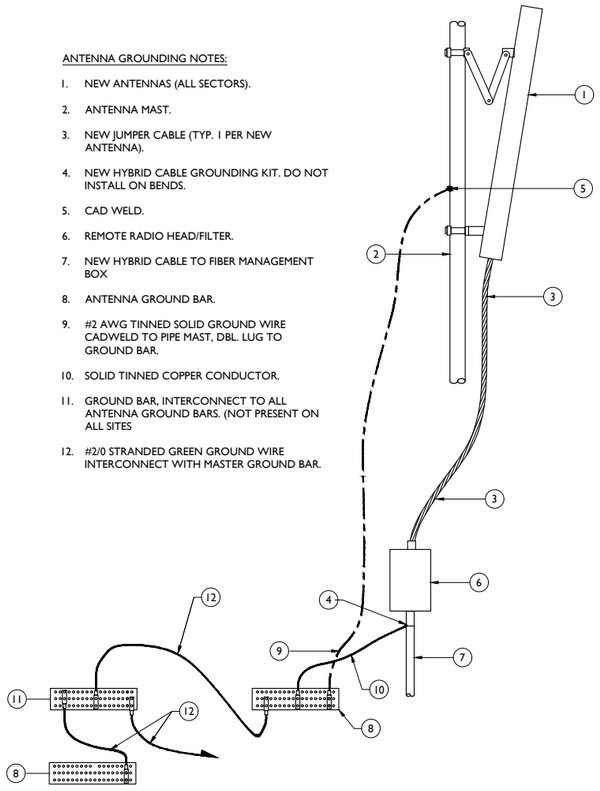


NOTE:
ELECTRICAL TAPE ENDS ARE TO BE CUT, (DO NOT SCRATCH).

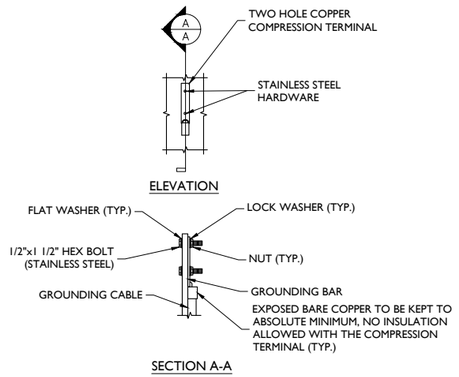
CABLE WRAPPING DETAIL
NOT TO SCALE

ANTENNA GROUNDING NOTES:

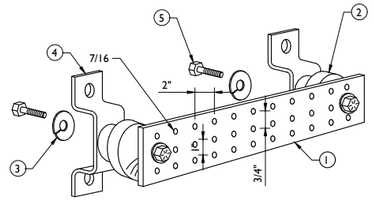
1. NEW ANTENNAS (ALL SECTORS).
2. ANTENNA MAST.
3. NEW JUMPER CABLE (TYP. 1 PER NEW ANTENNA).
4. NEW HYBRID CABLE GROUNDING KIT. DO NOT INSTALL ON BENDS.
5. CAD WELD.
6. REMOTE RADIO HEAD/FILTER.
7. NEW HYBRID CABLE TO FIBER MANAGEMENT BOX
8. ANTENNA GROUND BAR.
9. #2 AWG TINNED SOLID GROUND WIRE CADWELD TO PIPE MAST, DBL. LUG TO GROUND BAR.
10. SOLID TINNED COPPER CONDUCTOR.
11. GROUND BAR, INTERCONNECT TO ALL ANTENNA GROUND BARS. (NOT PRESENT ON ALL SITES
12. #2/0 STRANDED GREEN GROUND WIRE INTERCONNECT WITH MASTER GROUND BAR.



ANTENNA GROUNDING SCHEMATIC
NOT TO SCALE



TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE



1. COPPER GROUND BAR, 1/4" X 4" X 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUAL
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR EQUAL
5. 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1 OR EQUAL

NOTE: INSULATORS SHALL BE ELIMINATED WHEN BONDING DIRECTLY TO MONOPOLE STRUCTURE. CONNECTION TO MONOPOLE STRUCTURE SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

GROUND BAR DETAIL
NOT TO SCALE

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GROUNDING SCHEMATIC AND DETAILS

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